وزارة الصحة
Ministry of Health

الإدارة العامة لمكافحة عدوى المنشآت الصحية

General Directorate of Infection Prevention and Control of Healthcare Facilities

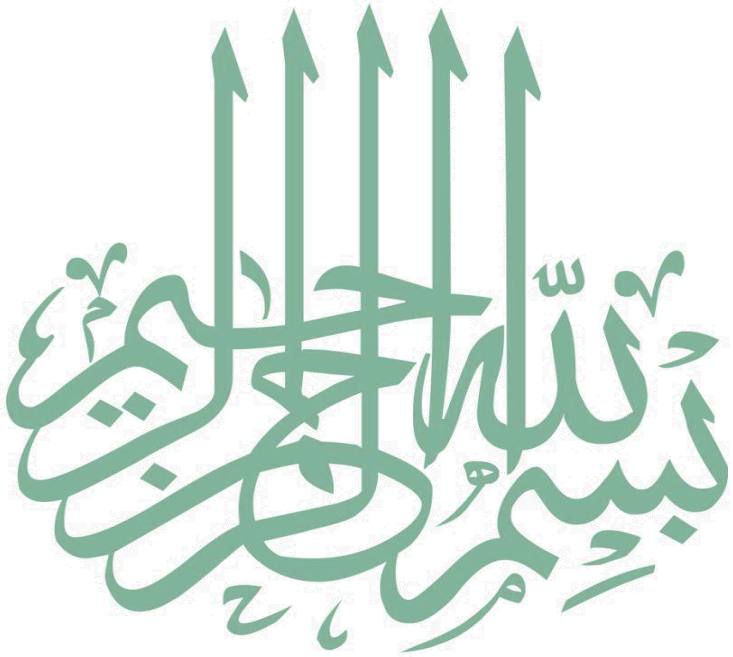
(GDIPC)

National Guide for Auditors in Infection Control Auditing Strategies for Healthcare Facilities

Version 5

2024

وزارة الصحة
Ministry of Health



In the Name of ALLAH, Most Gracious, Most Merciful

General Director's Message

Compliance of healthcare facilities in implementing effective infection prevention & control measures is vital for patient, visitor, and staff safety. One tool to assess the proper implementation of infection prevention & control measures in clinical areas is the Infection Control Audit in a standardized methodology.

This manual serves as a guide for auditors to assess the facility in infection control. The manual consists of several standards and sub-standards that reflect current guidelines and good practice in infection prevention and control within a healthcare environment.

To ensure that IPC measures are met, as well as ensuring that the quality of the infection control practice within institutions are at the best level, Ministry of Health conducts continuous auditing visits by qualified auditors.

The audit report and its recommendations help to ensure that practices improve their compliance to infection prevention and control according to current national guidelines and should serve as a useful reference point. Therefore, it is essential that this report and its recommendations is given consideration and that the action plan which outlines how the practice plan to address the issues highlighted is completed and returned appropriately as advised.

Dr. Khalid Hamdan AL Enazi
Director General,
General Directorate of Infection Prevention & Control of Healthcare Facilities
Ministry of Health
Kingdom of Saudi Arabia

وزارة الصحة
Ministry of Health

ICA GUIDELINES TASKFORCE

Prepared By	Contributors
Dr. Ashraf A. Elkelany **Dr. Faiza Rasheed** **Dr. Foued Romdhane** **Dr. Khaled M. Sayed** **Dr. Muhammad R. Malik** **Dr. Yousif B Saad** **Mr. Adel alanzi** **Ms. Eman Barnawi** **Mr. Nawaf M. Almatrafi** **Mr. Rayed A. Asiri** **Ms. Reyouf S. Alazmi** **Ms. Taghreed A. Alsaqer**	Dr. Hala M. Roushdy Dr. Hanan M. Hathout Dr. Mohammed A. Alqahtani Dr. Nasser Alshanbari Dr. Sameh E. Tawfik Dr. Tabish Humayun Ms. Abrar Mutlaq Ms. Aisha Alshehri Ms. Arwa Shesha Ms. Ghazail M. Albeshi Mr. Moteb Alsadei Ms. Raniah Alnahdi Mr. Riyadh S. Alshehri Mr. Salem A. Aldhubaib Ms. Samirah M. Alkhaldi Ms. Wafa Alshammari Ms. Ahlam Alamri
Reviewed by: **Ms. Ahlam Alamri** Supervisor, IPC Programs, GDIPC	
Approved by: **Dr. Khalid H. Alanazi** Director General, GDIPC **Dr. Faiza A. Al Fozan** Assistant Director General, GDIPC	

وزارة الصحة
Ministry

Table of contents

وزارة الصحة
Ministry of Health

DOMAIN – B # INFECTION PREVENTION & CONTROL KEY MEASURES

Element # B - 1 : Hand Hygiene		Page # 74
B-1.1	There is a written infection prevention & control policy and procedure for hand hygiene, including types, indications, supplies, techniques, and monitoring tools.	74
B-1.2	Hand washing facilities and supplies (sinks with hot and cold water, plain and antimicrobial soap, and towels) are available and easily accessible (at least one sink for every 2-4 beds in the critical care areas and at least one sink per patient's room).	75
B-1.3	Alcohol - based hand rub dispensers are available in adequate numbers (one dispenser per patient's bed, one at every nursing station, and at any service area).	75
B-1.4	Hand hygiene compliance rate is regularly monitored and results are discussed in IPC committee meetings for corrective actions.	76
B-1.5	Visual alerts for hand hygiene are available (WHO 5 moments - hand wash techniques - hand rub techniques) and HCWs are oriented about it.	76
B-1.6	HCWs (8 - 10) are performing hand hygiene properly (appropriate technique and recommended duration).	76
B-1.7	WHO hand hygiene Improvement strategy tools are applied to improve the quality of hand hygiene.	78
B-1.8	Reporting of hand hygiene self-assessment (HHSA) is active and ongoing (WHO HHSA framework - action plan to improve the quality of hand hygiene).	80

Element # B - 2 : Personal Protective Equipment (PPE)		Page # 83
B-2.1	There is a written infection prevention & control policy and procedure for PPE including types, indications, donning, doffing, & safe disposal techniques.	83
B-2.2	PPE is available in all patients care areas in adequate amounts and proper qualities.	85
B-2.3	HCWs are properly trained and demonstrate the appropriate use of PPE (i.e., careful selection in relation to indications, proper donning and doffing, correct sequence, and proper disposal)	86
B-2.4	Respirator fit testing is conducted for all HCWs based on the national regulations needed' frequency or when required.	88

Element # B - 3 : Isolation Precautions		Page # 90
B-3.1	There are written policies and procedures for standard and transmission based precautions, including types, duration of isolation, patient transport, and visitors control.	90
B-3.2	There is a clinical hand washing facility with hands free operation inside the patient's room or in the anteroom (if available).	90
B-3.3	Patient's room is provided with private toilet and shower (for isolation room in ICU,NICU , CCU toilet and shower are optional).	90
B-3.4	PPE and alcoholic hand rub are available outside the patient's room at the corridor or in the anteroom (if available).	91
B-3.5	All PPEs are doffed inside the patient's room except N95 respirator which is removed outside airborne infection isolation room (AIIR) after closure of the door of patient's room or anteroom (if available).	91
B-3.6	Visitors receive proper instructions from assigned HCW before entering into an isolation room, and they should comply with recommended isolation required precautions.	92
B-3.7	A log book is available and used for all individuals entering the rooms/cubicles of isolated patient with airborne infections (e.g. Pulmonary TB).	92
B-3.8	Non-Critical patient-care equipment are single use or dedicated to one patient or if not available and shared equipment have been used', proper cleaning & disinfection of shared equipments must be strictly followed.	94
B-3.9	The signs used to indicate categories of isolation precautions are clear and visible for HCWs and visitors, in bilingual (Arabic & English), color coded and compatible with diagnosis (e.g; contact: green, airborne: blue, and droplet: pink or red) (it is preferable to use the MOH approved isolation signs).	95
B-3.10	The receiving unit or facility is informed about the required isolation precautions and to ensure the availability of appropriate PPE.	95

B-3.11	The transfer of patient under isolation precautions is restricted to medically necessary purposes, Isolation transportation cards must be used and should be consistent with the patient diagnosis , colour coded , posted in Arabic and English, and indicating the type of precautions required for staff (it is preferable to use the MOH approved isolation transportation cards) and through less crowded traffic route.	96
B-3.12	For transport of patient under contact isolation precaution: •Contain and cover all skin lesions and infected or colonized wound if available with clean bandage/dressing. •Instruct patient to wear a clean gown, and clean linen should be used.	97
B-3.13	For transport of patient under droplet/airborne isolation precaution: • Instruct the patient to wear a surgical mask and follow respiratory hygiene and cough etiquette. • Cover exposed skin lesions (if any) with clean bandages and/or clean linens.	97
B-3.14	Patients with burns larger than 25% of the total body surface area (TBSA) are kept in a single room or physically separated from other patients .	100
B-3.15	Portable chest x-ray is available for usage in isolation room when needed.	101
B-3.16	The required number of airborne infection isolation room (AIIR) should be predicted in each hospital based on the facility' risk assessment or based on the national approved standard.	101
B-3.17	Airborne infection isolation rooms specifications' fulfill with MOH required specifications as the following: *Standard isolation rooms. *Windows are sealed and fixed (i.e., could not be opened). *Openings in walls and ceiling are sealed and airtight. *Doors are properly designed and well sealed.	102
B-3.18	Airborne Infection Isolation Rooms (AIIRs) are under negative pressure (minimum -2.5 Pascal) with air totally exhausted to outside (100%) through High-Efficiency Particulate Air (HEPA) filters. The exhaust air ducts including that from bathroom are independent of the building exhaust air system.	103
B-3.19	There is 100% fresh air supply (i.e. return of air is not permitted) from central AC or concealed separate unit. All components of AIIR ventilation unit (supply & exhaust) are connected to emergency power supply to maintain air pressurization in the event of power failure.	104
B-3.20	There is a fixed monitor outside the patient room in the corridor to continuously monitor the pressure difference between the patient room and corridor, with activation of audiovisual alarm when the ventilation system failed.	105
B-3.21	There is evidence of regular monitoring of negative pressure difference of AIIRs: • Daily when in use (i.e., a patient isolated inside). • Weekly when not in use (i.e., no patient isolated). • Monthly check by maintenance personals.	105
B-3.22	Air exchange of AIIR is ≥ 12 air changes per hour (≥ 12 ACH) with monthly monitoring.	106
B-3.23	AIIRs are used only for isolation of suspected or confirmed cases with airborne infectious diseases.	106
Element # B - 4 : Aseptic Technique		**Page # 108**
B-4.1	There is a written policy and procedure for clean, and aseptic techniques.	108
B-4.2	Separate clean area is available and maintained for preparation of medications (i.e., away from patients' treatment areas).	109
B-4.3	For invasive procedures, sterile devices and supplies are used after patient's skin antisepsis (e.g., sterile syringes, needles and medications are used after skin antisepsis with approved antiseptics).	110
B-4.4	A peripheral venous catheter is properly fixed, with a clearly written date of insertion, and to reduce risk of infection and phlebitis, it is replaced - if still needed - as follows: In adults: it is not replaced more frequently than every 72 to 96 hours. In children: it is replaced only when clinically indicated.	111
B-4.5	Preparation & dilution of medications are only done by ready-made single-dose sterile solutions.	113
B-4.6	Single-dose or single-use vial is used for a single procedure/injection in a single patient and it is not stored for future use even for the same patient.	114
B-4.7	Needles and syringes including prefilled syringes, and vacutainer holders are used for a single procedure/injection.	115
B-4.8	Cartridge devices such as insulin pens are used for only one patient.	116

B-4.9	Supplies are brought to patient's care area only when needed and after patient discharge, all remaining single-use items are discarded while reusable ones are sent to CSSD for reprocessing (even unused items with intact original wrap).	117
B-4.10	Whenever possible, multi-dose vial is used for a single patient, with recorded patient's name and date of the first use (when it has been accessed for the first time), and discarded after 28 days, unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life).	118
B-4.11	If multi-dose vial is used for more than one patient, they should only be kept and accessed in a dedicated clean medication preparation area away from immediate patient treatment areas.	119
B-4.12	The self-sealed rubber cap of a medication vial or an IV solution bottle is disinfected with approved antiseptic wipes (e.g., alcohol wipes) prior to any access.	121
B-4.13	IV sets (including secondary sets and add-on devices) that are continually used to infuse crystalloid solutions (hypotonic, isotonic, or hypertonic), are replaced at least every 7 days, but not more frequently than 96-hour intervals.	122
B-4.14	IV sets that are used to administer blood, blood products, lipid emulsions, or dextrose/amino acid TPN solutions are replaced within 24 hours of initiating the infusion.	122
B-4.15	For a ventilated patient, ventilation circuit is only changed when visibly soiled or mechanically malfunctioning.	123
B-4.16	Sterile solutions are used in nebulizers, humidifiers, or any aerosol generating system and changed between patients and every 24 hours for the same patient, unless the manufacturer of ready-made sterile solutions specifies different dates.	124
B-4.17	Hand hygiene practiced before breastmilk expression and sterile container is used for breastmilk collection and preservation.	125
B-4.18	HCW wears mask during insertion of a catheter or injection into spinal or epidural space.	125

Element # B - 5: Single Use Items (SUI)		Page # 127
B-5.1	The facility has an implemented policy for No Reuse of single use items based on the national regulations.	127

Element # B - 6: Respiratory Protection Program		Page # 129
B-6.1	There is a written policy and procedure for RPP with well-defined programs' components & activities and based on current scientific knowledge, approved MOH guideline, reference practice, and regulations.	129
B-6.2	There is a written policy and procedure for dealing with suspected or confirmed respiratory illnesses patients based on updated national guidelines. It contains early detection, management, and transfer of respiratory illness patients.	130
B-6.3	The IPC committee regularly discuss RPP program's activities, progress, and any issues with potential to impede the effective implementation of the program	132
B-6.4	There is a designated respiratory triage facing the entrance of the Emergency and Hemodialysis units of the hospital. i.e., First area to be reached by any patients.	133
B-6.5	Written reminders in the emergency department for updated definitions of respiratory illnesses of national alert are available and based on updated national guidelines and staff are quite familiar with these definitions	135
B-6.6	Flowchart is available in Emergency and Hemodialysis Units for early detection& management of respiratory illness patients	136
B-6.7	Patients who have acute infectious respiratory symptoms are instructed to wear surgical masks and placed in a dedicated and separated waiting area with at least 1.2 meter distance between them.	137
B-6.8	The facility conducts a tracing for all HCWs who have exposed to a confirmed respiratory illnesses (e.g: TB or MERS-CoV) cases as per the latest national guidelines.	138
B-6.9	There is an implemented system for reporting, follow up, and management of exposure to open pulmonary TB, MERS-CoV, chicken pox, measles, mumps, and rubella.	139
B-6.10	Aerosol generating procedures (AGPs) (e.g; nasopharyngeal swabs, tracheal aspirate, etc)of suspected infectious respiratory patients are performed by trained HCWs , and there must be schedule for assigned trained HCWs to cover all shifts.	140
B-6.11	HCWs must perform aerosol generating procedures (AGPs) on any suspected or confirmed respiratory illnesses cases in a negative pressure room or single room with a portable high-efficiency particulate air (HEPA) filter machine (if the negative pressure room is not available) and by using proper PPE (e.g., N95 fitted mask, eye protection, gloves, and gown).	140

B-6.12	There is a proper maintenance of all portable HEPA filter machines and all HEPA filters are changed on a regular basis and according to the manufacturer's recommendations.	141

Element # B - 7 : Employee Health Program		Page # 143
B-7.1	There is a written policy and procedure for employees' health (i.e., pre-employment counseling and screening, immunization, post exposure management, and work restriction).	143
B-7.2	There is a special clinic for employees' health that provides pre-employment counseling and screening, immunization, post exposure management and work restriction.	144
B-7.3	All employees have a baseline screening for hepatitis B, hepatitis C, HIV, and tuberculosis (TB).	145
B-7.4	The immune status of newly hired HCWs against hepatitis B, measles, mumps, rubella, COVID-19, and varicella are determined by documented vaccination, serological evidence of immunity, documented clinical / laboratory evidence of disease with life long immunity). Appropriate vaccine(s) are administered to those who are susceptible.	145
B-7.5	The influenza vaccine is administered annually to targeted HCWs as per MOH recommendations.	146
B-7.6	Newly hired HCWs are screened for tuberculosis upon contracting with Purified Protein Derivative based Tuberculin Skin Test (PPD-based TST). The test is repeated annually for those who are non-reactive and PPD-based TST conversion rates are monitored and calculated.	147
B-7.7	There is an implemented system for reporting, follow up, and management of sharp or needlestick injuries and of blood/body fluid exposures.	149
B-7.8	Reporting is active and ongoing (i.e., reliable reports of sharp or needlestick injuries and blood/body fluid exposures are sent through approved national platform or other approved reporting system in a timely manner).	149
B-7.9	The Employee health clinic team regularly monitors different types of HCWs exposure and recommend corrective actions to prevent recurrence, e.g., devices with safety mechanisms (self-sheathing needles-retractable needles and scalpels ... etc.).	150
B-7.10	Updated medical records (or copies) are available for all HCWs of supportive services (i.e., kitchen, laundry, housekeeping, waste management …etc.)	151
B-7.11	The screening, immunization, and post exposure management data are kept in HCWs medical records.	151
B-7.12	There are regular training activities for employee health program.(an active annual education and training plan for the employee health program targeting healthcare worker)	152
B-7.13	Exposed health care workers are isolated when needed (either home isolation in staff accommodation or in their home or in identified rooms at the hospital).	153
B-7.14	Approved national/MOH protocol for work restriction is strictly applied.	154

DOMAIN – C # HAIs SURVEILLANCE & OUTBREAK MANAGEMENT

Element # C - 1 : Outbreak Management Measures		Page # 165
C -1.1	The facility has a written policy and procedure for dealing with Healthcare-associated outbreaks based on the approved scientific reference and up-to-date national MOH guidelines. (**Updated**)	165
C -1.2	There is a screening policy for all MDROs implemented for the admission or transferred patients to the health care facility according to the up-to-date national MOH guidelines(**New**)	168
C -1.3	There is a defined outbreak management team (OMT) chaired by hospital director or medical director with clear roles & responsibilities and include all key members involved in outbreak management.	169
C -1.4	Investigation and control measures of confirmed healthcare-associated outbreaks are led by the director of the IPC department in the hospital. (**Updated**)	170
C -1.5	The outbreak management team members are trained and having experience and skills in management of outbreaks based on the latest national MOH guidelines & regulations.	172
C -1.6	If an outbreak is confirmed, the IPC department alerts the hospital director through approved channel of communication and the OMT will be activated consequently and will be discussed in the nearest committee. (**Updated**)	173

C -1.7	If an outbreak is confirmed, the infection prevention & and control department activates the notification through an approved national platform based on the national MOH guidelines and regulations within 48 Hours. (**Updated**)	173
C -1.8	If an outbreak is confirmed, the OMT members meet as required, and the meeting-recommended actions will be implemented and followed. (**Updated**)	174
C -1.9	If an outbreak is confirmed, the facility implements outbreak management approaches (investigation forms, line lists, contact tracing, and outbreak management action plan (OMAP) based on the national MOH guidelines and regulations within 72 hours. (**Updated**)	175
C -1.10	There is a well-designed notification system between the IPC department, laboratory, and all departments in the hospital for any critical values (i.e MDROs, positive cultures..), and all these values' must be monitored regularly.	176
Element # C - 2 : Emergency Preparedness & Response to National Infectious Diseases' Threats		**Page # 178**
C -2.1	There is a policy and procedure for emerging and re-emerging infectious diseases based on the national guidelines and references. (**Updated**)	178
C -2.2	Active surveillance (log book) is implemented for monitoring HCWs with signs and symptoms of exposure to any emerging and re-emerging infectious disease. (**Updated**)	180
C -2.3	All HCWs must follow the national recommendations of preventive measures for emerging and re-emerging infectious diseases with public threats. (**Updated**)	182
C -2.4	All HCWs must receive continuous job-specific training on emerging and re-emerging infectious diseases. (**Updated**)	183
Element # C - 3: Antimicrobial Stewardship / Antibiogram		**Page # 179**
C -3.1	There is a written policy and procedure for antimicrobial stewardship program (ASP) and authorized ASP committee formulated & approved by ASP committee members that is chaired by clinical pharmacist or infectious disease (ID) consultant with a clear roles and responsibilities and meets on regular basis (at least bi-annually).	179
C -3.2	There is a written restricted antibiotics policy implemented in the facility, and it should be developed & followed up by the pharmacy and infectious disease department.	183
C -3.3	There is an Interventional policy implemented to Improve antibiotic usage which is developed & approved by the pharmacy department.	184
C -3.4	The ASP committee members include: infectious disease physician, pharmacist, microbiologist, IPC practitioner, head of critical care units, head of operating room, head of surgical department, head of nursing services and other departments as needed.	185
C -3.5	Antibiogram is regularly discussed by antimicrobial stewardship committee with action plan and interventions to improve the use of antimicrobials and prevent resistance.	187
C -3.6	Hospital leaders dedicate necessary human, financial, and information technology resources to the ASP committee(support training ASP/MDROs program- participating in the world awareness antimicrobial week celebrations(WAAW) , assign ID consultant, etc)	187
C -3.7	Antibiogram is regularly discussed by antimicrobial stewardship committee with action plan and interventions to improve the use of antimicrobials and prevent resistance. (**Updated**)	196
C -3.8	Education about AMR & optimal antimicrobial prescription are provided regularly to the HCWs at least biannually by the ASP team members (each per their role).	197
Element # C - 4 : HAIs Surveillance		**Page # 198**
C - 4.1	There are written policies and procedures for surveillance of health care associated infections, using CDC-NHSN definitions approved by national MOH guidelines (e.g., VAP/VAE, CLABSI, CAUTI, SSI and MDROs according to the hospital's scope of services).	198
C - 4.2	There is a written policy and procedure for surveillance of dialysis event, using CDC-NHSN definitions which are approved by national MOH guideline.	198
C - 4.3	Adequate number of computers and a reliable internet service are available for effective implementation of surveillance program without any interruption.	199
C - 4.4	IPC practitioners are well trained regarding the national approved electronic surveillance platform and familiar with CDC-NHSN definitions approved by national MOH guideline.	199
C - 4.5	Surveillance system is carried out in all critical care units (active, prospective, targeted and patient based surveillance).	203
C - 4.6	SSI surveillance is applied according to national MOH guideline (i.e. selecting only 1 - 3 types of high risk procedures or most common surgeries during at least 6 months).	204
C - 4.7	Hospital has a system for post operative follow up and communication with post surgical patients regularly after discharge for any signs and symptoms of surgical site infections including patients with implants.	205

C - 4.8	Surveillance data (targeted patients, numerators, denominators, and device utilization ratio) are validated by IPC practitioners at least once monthly.	208
C - 4.9	Surveillance data are regularly collected & reported to MOH through national approved electronic surveillance platform .	211
C - 4.10	Results of surveillance are regularly analyzed, interpreted, and communicated to HCWs and concerned departments.	212
C - 4.11	Results of surveillance are regularly reviewed by the IPC committee, and the action plan is developed and followed up accordingly (at least once quarterly).	213
C - 4.12	Results of surveillance are used to reduce HAIs through well designed quality improvement projects.	214

Element # C - 5 : Patient's Care Bundles For Prevention Of HAIs & MDROs		**Page # 216**
C - 5.1	**There is a written policy and procedure concerning patient's care bundle for prevention of CAUTI.**	**Page # 217**
C-5.1a	Hospital has a competency-based training program for insertion and maintenance of urinary catheters.	218
C-5.1b	IPC practitioners regularly conduct auditing rounds to monitor and document HCWs' adherence to recommended practices for insertion and maintenance of urinary catheters in critical care units (weekly).	219
C-5.1c	IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in the insertion and maintenance of urinary catheters regularly and corrective actions are applied accordingly.	220
C-5.1d	Urinary catheter insertion is performed under complete aseptic technique including antimicrobial handwashing with sterile items (urinary catheter, urinary bags, gloves, solution and single-use gel). Cleansing the perineal area with skin antiseptic solution and with sterile draping of the patient.	222
C-5.1e	Hospital applies urinary catheter maintenance activities including securement of the catheter to the patient's thigh, ensuring low level fixation of urine bag below the level of the bladder at all times, maintain a continuous closed drainage system, antiseptic cleaning in the drain port for urine drainage and, routine meatal hygiene.	224
C-5.1f	Nursing staff review daily the ongoing need of indwelling urinary catheter and the possibility of discontinuation with the treating physician.	226
C - 5.2	**There is a written policy and procedure concerning patient's care bundles for prevention of CLABSI.**	**Page # 228**
C-5.2a	Hospital has a competency-based training program for insertion and maintenance of central line catheter.	229
C-5.2b	IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for insertion and maintenance of central catheter lines in critical care units (weekly).	231
C-5.2c	IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in insertion and maintenance of central catheter lines regularly and corrective actions are applied accordingly.	235
C-5.2d	Central line catheter insertion is performed under ultrasound guidance with complete aseptic technique including antimicrobial handwashing, & use of maximum barrier precautions (sterile gloves, mask, sterile gown, and sterile full body drape).	236
C-5.2e	preparation of the skin site with an alcoholic chlorhexidine solution, and use of transparent chlorhexidine impregnated dressing.	237
C-5.2f	Nursing staff scrub the access port or hub with friction immediately prior to each use with an appropriate approved antiseptic for at least 15 seconds.	239
C-5.2g	Nursing staff review daily the ongoing need of central venous catheter and the possibility of discontinuation with the treating physician	240
C - 5.3	**There is a written policy and procedure concerning patient's care bundles for prevention of VAEs.**	**Page # 242**
C-5.3a	Hospital has a competency-based training program for prevention of VAEs.	243
C-5.3b	IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for management of ventilated patients in critical care units (weekly).	245
C-5.3c	IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance for management of ventilated patients regularly and corrective actions are applied accordingly.	246
C-5.3d	Hospital applies bundle of care for management of ventilated patients includes elevation of the head of the bed to between 30 and 45 degrees, daily sedative interruption with assessment of	248

	readiness to extubate, peptic ulcer prophylaxis, deep venous thrombosis prophylaxis, and daily oral care with appropriate antiseptic solution.	
C - 5.4	**There is a written policy and procedure concerning patient's care bundles for the prevention of surgical site infections (SSIs)**	**Page # 252**
C-5.4a	Hospital has a competency-based training program for surgical care improvement including surgical site infections prevention care bundle (preoperative, Intraoperative & post-operative phases).	253
C-5.4b	IPC practitioners regularly conduct auditing round to monitor and document adherence to recommended practices for surgical site infection prevention care bundles (weekly).	255
C-5.4c	IPC department provides compliance audit feedback to the surgical HCWs regarding their performance in surgical site infections prevention care bundle regularly and corrective actions are applied accordingly.	256
C-5.4d	Hospital applies bundle of care for prevention of surgical site infections including proper antimicrobial prophylaxis, no preoperative hair removal or use of electric hair clippers if hair removal is necessary, controlled 6 AM postoperative serum glucose, maintaining perioperative normothermia, patient full body shower at least the night before surgery with antimicrobial soap, and intraoperative skin preparation with approved antiseptic.	257
C - 5.5	**There is a written policy and procedure concerning patient's care bundles for the prevention of MDROs.**	**Page # 261**
C-5.5a	Hospital has a competency-based training program for prevention of MDROs.	262
C-5.5b	IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for management of Patients with MDROs (weekly).	264
C-5.5c	IPC department provides compliance audit feedback to the HCWs regarding their performance in implementation of MDRO bundle on regular basis and corrective actions are applied accordingly.	265
C-5.5d	Hospital applies bundle of care for prevention of Multidrug Resistant Organisms (MDROs) including judicious Use of Antimicrobial Agents, Patient placement in hospitals, standard Infection Control Precautions to Prevent Transmission of MDROs, environmental measures etc.	266
C - 5.6	**There is a written policy and procedure concerning patient's care bundles for prevention of dialysis event (DE).**	**Page # 270**
C-5.6a	Hospital has a competency-based training program for hemodialysis patients' care bundle.	271
C-5.6b	IPC practitioners regularly conducting auditing round to monitor and document adherence to the recommended practices for management of hemodialysis patient to prevent DE (weekly).	273
C-5.6c	IPC department provides compliance audit feedback to the hemodialysis HCWs regarding their performance in recommended practices for management of hemodialysis patient to prevent DE regularly and corrective actions are applied accordingly.	274
C-5.6d	Hemodialysis HCWs apply bundle of care for prevention of DE including catheter connection, disconnection, and the required access (fistula/graft) care, as per the type of catheter inserted.	275

DOMAIN – D # DEPARTMENTAL INFECTION PREVENTION & CONTROL MEASURES

Element # D - 1 : Hemodialysis (HD) Unit		Page # 281
D - 1.1	There is a written policy and procedure for infection control in hemodialysis unit.	281
D - 1.2	The distance separating adjacent dialysis chairs or beds is not less than 1.2 m.	282
D - 1.3	Special room is available for central venous line insertion, and it is equipped with appropriate hand washing facility and required PPE.	282
D - 1.4	Hand washing supplies (sinks, soap, water, paper towels, antimicrobial soap),are available in adequate number (one for every 4 chair/beds) and easily accessible.	283
D - 1.5	Alcohol hand rub dispensers are available (one for every patient's chair/bed)	283
D - 1.6	Appropriate PPE are available and used according to standard and/or transmission based precautions (gloves: clean/sterile - gowns: clean/sterile - face shield or goggles - mask or N95 respirators).	284
D - 1.7	Patient and staff members wear masks for all central venous catheter (CVC) access connections.	285

D - 1.8	Mobile common medication carts or trays are strictly prohibited.	286
D - 1.9	Separate clean area is available and maintained for preparation of medications and not handling or storing contaminated or used supplies, equipment, blood samples, or biohazard containers.	286
D - 1.10	Unused supplies or medications within the patient's station are not used on other patients and never returned to the common clean area.	287
D - 1.11	Patient care equipment such as blood pressure cuffs, stethoscopes, and thermometers are allocated to a single patient during the whole session and are disposed (if single use) or cleaned and disinfected (if reusable) at the end of each patient's treatment session.	288
D - 1.12	Written rules are strictly followed for the process of internal cleaning and disinfection of dialysis machines in-between patients (as per manufacturer's recommendations).	289
D - 1.13	Cleaning and disinfection of hemodialysis patients' environment is performed after each treatment session with MOH approved disinfectants using a detailed checklist to ensure disinfection of all environmental surfaces at patient's zone especially high touched areas.	290
D - 1.14	Cleaning and disinfection of the water treatment and distribution system is performed at least once weekly. Complete dialysis system is considered during the disinfection procedure (water treatment system, distribution system, and dialysis machines).	291
D - 1.15	Quantitative microbiological testing for water and dialysate is conducted at least monthly, and if standard is exceeded, testing is done weekly until meeting standard.	293
D - 1.16	Quantitative endotoxin testing for water and dialysate is performed at least once per month, and if not up to the standard, testing is repeated weekly until the problem is resolved.	293
D - 1.17	The results of microbiological and endotoxin testing of water documents are available.	295
D - 1.18	Patient is tested for HBV markers (HBsAg, anti-HBc, anti-HBs) upon admission & with vaccination provided to susceptible one. Patient with negative results are periodically re-tested with prompt review of results.	295
D - 1.19	Patient is tested for HCV markers upon admission (ALT and anti-HCV – ELISA) & patients with negative results are periodically re-tested with prompt review of results.	295
D - 1.20	Previously HCV +ve patient who was treated with direct antiviral agents (DAAs) and achieved sustained virologic response (SVR), is tested for HCV-RNA (PCR) semi-annually to detect relapse.	295
D - 1.21	Only patients with risk factors for HIV infection (High-risk behaviors, e.g., repeated blood transfusions, drug abuse …etc) are tested for markers of HIV infection.	295
D - 1.22	HVB +ve patients are strictly segregated in a separate room(s), treated by dedicated staff during dialysis sessions using designated machines, equipment, instruments, supplies, and medications which are used only for them.	297
D - 1.23	Training and education of patients (or family members for patients unable to be responsible for their own care) regarding infection prevention & control practices should be given upon admission to dialysis and at least annually thereafter.	298

Element # D - 2: Compound Sterile Preparation (CSP) In The Pharmacy		Page # 301
D - 2.1	There is a written IPC policy and procedure for compound sterile preparation (CSP) area.	301
D - 2.2	Compound sterile preparation (CSP) is restricted to competent pharmaceutical HCW except during emergency situations, it could be covered with HCW familiar with aseptic techniques and proper use of appropriate PPE.	304
D - 2.3	Compound sterile preparation (CSP) room/area is a functionally separate facility which is under positive pressure.	305
D - 2.4	The doors of the compound sterile preparation (CSP) room/area are equipped with an auto-closure mechanism.	305
D - 2.5	Mixing IV medications is performed only in laminar air flow hood or safety cabinet, with air supplied through High-Efficiency Particulate Air (HEPA) filter.	305
D - 2.6	Compound sterile preparation (CSP) room/area is cleaned and disinfected with an approved detergent/disinfectant and by assigned well trained housekeeper in cleaning/disinfection methods.	306
D - 2.7	Working surface (under the laminar air flow hood) is regularly disinfected by an approved disinfectant using non-lining wipes.	307
D - 2.8	Maintenance records for hoods and safety cabinets are available.	307
D - 2.9	All supplies and containers used in CSPs preparations are sterile.	308

Element # D - 3 : Operating Room (OR)		Page # 309
D - 3.1	There is a written policy and procedure for IPC in OR including a clear policy to handle patients under air-borne infection isolation precaution inside OR (e.g., TB) & patients with infectious transmissible diseases are scheduled towards the end of the operating list.	309
D - 3.2	There is a clear demarcation between unrestricted, semi restricted, and restricted zones of OR with restrictions and special precautions for movement between these zones.	310
D - 3.3	Floors, walls, & ceiling are formed of one piece without connections, cracks, or decorative parts, with minimal openings that are completely sealed, and withstand repeated cleaning and disinfection.	312
D - 3.4	At least one large scrubbing sink is available at entry to each operating theater.	312
D - 3.5	Storage areas in the OR are organized and well maintained and distribution of sterile items following the first in -the first out (FIFO) principle.	313
D - 3.6	Only necessary items are kept in the restricted area of the OR.	314
D - 3.7	Doors are kept closed and only necessary HCWs are allowed in the theater.	314
D - 3.8	OR environment is maintained clean and there are clear procedures for cleaning and disinfection by allocated housekeeping staff after each surgical procedure and at least daily.	314
D - 3.9	Ventilation system operates all the time and never shuts down even in long holidays, and air is introduced from the ceiling and exhausted near the floor.	315
D - 3.10	All re-circulated or fresh air is filtered through High-Efficiency Particulate Air (HEPA) filters that are maintained and replaced as per the manufacturer recommendations.	315
D - 3.11	Operating room is maintained at positive pressure (at least +2.5 Pascal) with respect to corridors.	315
D - 3.12	Operating Room is maintained at ≥ 20 air changes per hour (ACH) with 20% fresh air.	315
D - 3.13	Operating room temperature ranges from 21 °C to 24 °C and relative humidity from 20% to	315

Element # D - 4 : Laboratory Department		Page # 317
D - 4.1	There is a written policy and procedure for IPC in the laboratory.	317
D - 4.2	Access is restricted with a sign incorporating the universal biohazard symbol posted at the entrance.	318
D - 4.3	Eating, drinking, wearing contact lenses, and storing food are not permitted.	318
D - 4.4	All manipulations of infectious materials that may generate aerosols are properly contained or conducted in a biological safety cabinet (BSC - class II-B).	319
D - 4.5	Biological safety cabinets (BSC - class II-B) dedicated for aerosols generating procedures are well maintained, tested, and certified at least annually.	322
D - 4.6	Whenever possible, plastic tubes are used instead of glass ones to avoid sharp injuries.	323
D - 4.7	Each work area contains a dedicated well-equipped sink for washing hands together with easily accessible eyewash facility to be used in emergency in case of exposure to blood and body fluids.	323
D - 4.8	Specimen collection and receiving area are equipped with hand washing facilities and proper PPEs.	324
D - 4.9	Mycobacteriology laboratory that manipulates cultures of suspected or confirmed Mycobacterium Tuberculosis cases should be in at least Biosafety Level III Laboratory (BSL-3 laboratory).	324
D - 4.10	Microbiological cultures should be autoclaved within the laboratory in an autoclave that is placed in appropriate location and fullfils quality control parameters (except cultures for organisms not mentioned in the approved list of highly infectious microorganisms, that could be double packed and send to the contractor for final disposal as infectious medical waste.	325
D - 4.11	Working surfaces and equipment are regularly cleaned and disinfected.	328
D - 4.12	Laboratory HCWs perform hand hygiene and wear appropriate PPE when indicated.	329

Element # D - 5: Dental Services		Page # 330
D - 5.1	There is a written IPC policy and procedure for the dental setting.	330
D - 5.2	No reprocessing of instruments is carried inside the dental clinic (all the contaminated items are sent to the central sterilization services department (CSSD)).	331
D - 5.3	All reusable dental instruments (critical and semi critical dental items) are sent to CSSD after each patient.	331
D - 5.4	Contaminated dental instruments including dental handpieces are transferred to the central sterilization services department in a closed, sealed, and puncture resistant containers.	331
D - 5.5	If transportation to CSSD is not expected within two hours, instruments inside transferring containers are sprayed with transportation gel/spray before sending them.	331
D - 5.6	Single-use devices (e.g., disposable examination set, anesthesia carpule/cartridge, etc. …) are discarded immediately after each patient.	332
D - 5.7	If needles with self-sheathing mechanism and recapping devices are not available, dental care HCW use one-handed recapping (scoop technique) for recapping needles.	333
D - 5.8	Clinical contact surfaces (contaminated and frequently touched surfaces in the patient-care area): light handles, bracket trays, switches on dental units, computer equipment are either barrier protected or cleaned and disinfected after each patient.	334
D - 5.9	Housekeeping surfaces (e.g., floors, walls, and sinks) cleaned with water and detergent or approved MOH disinfectant/detergent on a routine basis or when they are visibly dusty or soiled.	335
D - 5.10	The products and protocols recommended by dental unit manufacturer to maintain water quality are followed. (if the manufacture instructions are not available, water lines are disinfected daily /weekly with an approved MOH solution and as per the manufacturer's instructions	337
D - 5.11	In order to ensure that the water used in routine patient treatment meet standards for drinking water (that is, less than 500 CFU/mL of bacteria), water sampling is taken from all water outlets at all the clinics with a minimum frequency of semiannually and sent to the microbiology lab.	339
D - 5.12	During surgical procedures, only sterile solutions are used as a coolant / irrigant using an appropriate delivery device.	340
D - 5.13	Dental care HCWs apply standard precautions while performing dental x-rays.	341
D - 5.14	Dental lab HCWs adhere to standard precautions while performing dental lab procedures.	342
D - 5.15	Before handling dental prostheses and prosthodontics materials in the dental lab (e.g., impressions, bite registrations, and occlusal rims), they are cleaned and disinfected according to manufacturer's instructions.	343

DOMAIN – E # SUPPORTIVE SERVICES DEPARTMENTS & RELATED MEASURES

Element # E - 1: Medical Departmental Stores		Page # 346
E - 1.1	There is a written policy and procedure for the medical departmental stores.	346
E - 1.2	Medical storage areas are of adequate capacity, regularly cleaned, secured and away from contamination, air vents and direct sunlight.	347
E - 1.3	Medical storage areas have controlled ventilation with adjusted temperature and humidity (temperature ranges from 22 °C to 24 °C & relative humidity up to 70%)	347
E - 1.4	Storage shelves dimensions are at least, 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall.	348
E - 1.5	Storage shelves are made of easily cleanable material, e.g., fenestrated stainless steel, aluminum or hard plastic.	348
E - 1.6	Sterile and clean items are completely separated from personal items, foods and drinks. No expired items, broken packs or packs with stains are present.	348
E - 1.7	No Items are kept in their original shipping boxes, especially in the clinical areas.	348

Element # E - 2: Dietary Services Department		Page # 350
E - 2.1	There is a written policy and procedure addressing dietary services and kitchen staff hygiene.	350
E - 2.2	Adequate numbers of hand washing facilities and/or hand rub antiseptic devices are available.	352
E - 2.3	Kitchen staff practice hand hygiene properly and use suitable PPE while handling food, gloves should be changed while moving between Critical Control Points.	353
E - 2.4	Kitchen staff with respiratory infections, gastroenteritis, diarrhea or hand infections or wounds are restricted from handling food.	354
E - 2.5	Medical evaluation is performed routinely upon hiring, every 6 months and after returning from long vacation. Results are reviewed by the employee's health clinic and the IPC team.	355
E - 2.6	All kitchen staff receive vaccines against hepatitis-A, typhoid and meningococcal meningitis and influenza vaccine.	355
E - 2.7	Kitchen is designed as physically separated areas with specified equipment & supplies (e.g., mixers, juicers, boards, plates, knives … etc.) for different types of food. Boards, plates and knives used to cut meat, poultry, fish or vegetables are identifiably separated (color- coded) and immediately washed after use.	356
E - 2.8	Temperature requirements and protection from contamination are considered during receiving, storage, preparation, display and transportation of food. Freezers & fridges temperatures are continuously monitored and documented on log sheets and relevant actions are taken.	357
E - 2.9	Water used for cooking is supplied by commercially approved companies or hospital water that is tested at least monthly to ensure that its quality meets regulatory national standards for potable water.	358
E - 2.10	Food containers are properly labelled with expiry dates that should be checked every time before use, and all food products should be arranged in respect to first in first out (FIFO) principle.	359
E - 2.11	Fruits and vegetables are washed and disinfected.	360
E - 2.12	Food containers and cooking utensils are washed immediately after being emptied, and thoroughly dried before storing or used.	360
E - 2.13	There is an Insect and rodent control plan that is strictly implemented.	361
E - 2.14	The kitchen environment is clean (i.e., frequently cleaned, dry and dust free).	362
E - 2.15	Storage shelves dimensions are at least, 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall.	364
E - 2.16	Food carts in use are dedicated for hot & cold meals.	364

Element # E -3 : Laundry Department		Page # 365
E - 3.1	There is a written policy and procedure for linen management, (e.g., collection, transportation, sorting, washing, storing, and dispensing).	365
E - 3.2	Work flow is unidirectional from a soiled area to clean area with complete physical separation between them.	367
E - 3.3	Hand hygiene facilities and supplies are available & easily accessible.	367
E - 3.4	Dirty linen are separated from clean linen during collection & transport and linen carts used for clean and dirty linen are clearly identified.	368
E - 3.5	All workers who handle the soiled textiles follow standard precautions (i.e., handled as little as possible, practicing hand hygiene using appropriate PPE, leak-proof laundry bags and containers for collection).	368
E - 3.6	During high temperature washing cycle, water temperature is at a minimum of 71°C (159.8°F) for 25 minutes (heat disinfection), and must be recorded. (**Updated**)	378
E - 3.7	The amount of residual chlorine (bleach) should be between 50 and 150 ppm and must be monitored and controlled. (**New**)	378
E - 3.8	During low temperature washing cycle water temperature is at 22°C - 25°C (71°F-77°F) (**Updated**)	378
E - 3.9	Routine inspection for blood or/and body fluid stains conducted after washing.	379

Element # E - 4 : Mortuary Department		Page # 372
E - 4.1	There is a written policy and procedure that address safe handling of dead bodies, including postmortem handling of patients under isolation precautions and bodies with open wounds.	372
E - 4.2	Hand hygiene facilities and supplies are available & easily accessible.	373
E - 4.3	There is a schedule of housekeeping activities (cleaning and disinfection) for all environmental surfaces including the inside of refrigerator and deep freezing equipment.	373
E - 4.4	Transport cadaver bags that fulfill MOH approved specifications are available in 2 sizes & to be used for dead bodies.	375
E - 4.5	All mortuary HCWs are well trained on hand hygiene, and proper use of PPE.	375
E - 4.6	Transportation card that denotes the type (s) of isolation precautions is attached to the dead body of patient under any type of isolation.	377
E - 4.7	Mortuary HCWs are fully oriented about handling deceased patients with infectious diseases or died while under isolation precautions according to the relevant approved hospital policy.	378

Element # E - 5: Construction & Renovation Measures in Healthcare Facilities		Page # 379
E - 5.1	There is a written policy and procedure for IPC considerations during demolition, renovation, and construction projects.	379
E - 5.2	IPC team is involved prior to, during, and post any construction, demolition, and renovation project (planning, ICRA, IPC permit, continuous follow - up, and authority to stop the project).	380
E - 5.3	Microbiological cultures are conducted after construction for positive pressure isolation rooms and operating theater or when required (e.g, outbreak) based on the IPC recommendations.	381
E - 5.4	IPC measures are followed during the construction, demolition, and renovation projects by using infection control risk assessment (ICRA).	382

Element # E – 6 : Housekeeping & Hospital Environment		Page # 388
E - 6.1	There is a written policy and procedure for environmental cleaning & disinfection including safe management of blood/body fluids spills.	388
E - 6.2	There is a written policy and procedures for pest control (regular schedule & pesticides list).	389
E - 6.3	Each unit has an environmental cleaning/ disinfection schedule that records responsible worker, used agents, methods of cleaning, and the environmental surfaces intended to be cleaned.	390
E - 6.4	Cleaning agents and disinfectants are consistent with hospital's policy and used in the correct method according to manufacturer's recommendations including dilution and contact time.	391
E - 6.5	There are separate clean and dirty utility rooms in each patient care area.	391
E - 6.6	Housekeepers are trained on hand hygiene, use of PPE, methods of cleaning, and proper and safe mixing of chemicals. Only experienced housekeeping staff are allowed in critical care units.	392
E - 6.7	Hospital environment, lockers, and cabinets are regularly cleaned, dry and dust free.	393
E - 6.8	Bedside curtains are clean, free of stains and changed regularly & when visibly contaminated.	393
E - 6.9	Terminal cleaning process is done by using ultraviolet machine or fog machine when indicated.	394
E - 6.10	Terminal cleaning process after discontinuation of isolation is supervised by the in-charge nurse, and in case of an outbreak by IPC practitioner.	395
E - 6.11	Biological spill kits are available in all areas that have risk of blood and body fluid splashes and HCWs are capable of using them properly.	395
E - 6.12	Routine environmental microbiological cultures (for air, water, or environmental surfaces) are not recommended routinely. Only environmental sampling is conducted when indicated and approved by the IPC team.	396
E - 6.13	Endocavitary ultrasound probes are cleaned, and high level disinfected then covered with clean cover till use.	396
E - 6.14	There is a specific area for routine scheduled cleaning and disinfection of incubators or when required and by using approved MOH disinfectant and based on manufacturer's recommendation.	398
E - 6.15	Hydrotherapy equipment (for example, hubbard tanks, tubs, whirlpools, whirlpool spas, or birthing tanks) used in Burn and Physiotherapy Units are drained, cleaned and disinfect after each patient's use.	399
E - 6.16	Flowers and plants are permitted in the rooms of immunocompetent patients only.	399
E - 6.17	Medical equipment are cleaned/disinfected properly as per hospital's policies and manufacturer recommendations (frequency, recommended products, dilutions, contact time, methods,… etc.).	400

Element # E - 7: Disinfectants & Antiseptics Supplies		Page # 403
E - 7.1	Infection control team is involved in the evaluation and purchase of antiseptics and disinfectant supplies.	403
E - 7.2	Antiseptics, disinfectants, and detergent/disinfectant are used in accordance with current scientific national guidelines and recommended practices.	404

Element # E - 8 : Infectious Medical Waste		Page # 405
E - 8.1	There is a written policy and procedure for infectious waste management that covers (sorting, collection, transport, storage, PPE) according to the updated national guidelines.	405
E - 8.2	All non-sharp generated medical waste is disposed in black bags as general waste except that heavily soiled with liquid blood or other body fluid (dripping) should be considered infectious medical waste and discarded in yellow bag or based on the national medical waste updated guideline & regulations.	409
E - 8.3	Disposal of waste from isolation rooms is done properly based on patients' diagnosis as general waste or medical waste according to updated national medical waste regulations	410
E - 8.4	In general wards, all clinical procedures are performed using procedural trolley equipped with biohazard waste bag and sharp container.	411
E - 8.5	Sharp containers are wall mounted or placed on a stand and available inside the patient zone.	412
E - 8.6	No bent, broken, or recapped needles are observed inside the sharp containers.	413
E - 8.7	No infectious medical waste or sharps are observed outside specified containers.	414
E - 8.8	Medical waste bags are collected after being securely closed when filled to 3/4 of its maximum capacity and labelled with the date and place of production.	414
E - 8.9	Sharp boxes are collected after being securely closed when filled to 3/4 of its maximum capacity and labelled with the date and place of production.	415
E - 8.10	Collection & transportation of medical waste are done by medical waste workers wearing proper PPE at fixed time and on demand.	416
E - 8.11	Infectious medical waste is transported in closed and impervious specified carts with biohazard sign. Carts are cleaned after each use or at least daily.	418
E - 8.12	The medical waste store is consistent with the approved national specifications (adequate in space, away from traffic, secured, well ventilated with controlled temperature).	418
E - 8.13	Infectious medical waste is transported outside the hospital every 24 hours for final disposal.	419
E - 8.14	Medical waste workers are vaccinated against blood borne pathogens and trained on hand hygiene, use of PPE, appropriate steps required post exposure to sharps or blood or bodily fluid, and safe handling of waste.	420

DOMAIN – F Reprocessing of Reusable Medical Devices (New)

Element # F - 1 : Central Sterilization Services Department (CSSD)		Page # 433
F - 1.1	There is a written policy and procedure for Central Sterilization Services Department, including transportation, cleansing, decontamination, sterilization, storage, & recall of the sterile items.	433
F - 1.2	CSSD HCW is qualified through certification, training and have registration with the Saudi Commission for Health Specialties as a central sterilization service technician.	434
F - 1.3	Hospitals with bed capacity > 100 beds : 1 CSSD staff for every 50 beds, an additional 1 CSSD staff per average of 100 Surgical Procedures done per month. The minimum required numbers is 5 CSSD staff at least.	435
F - 1.4	Hospitals with bed capacity ≤ 100 beds : 1 CSSD HCW for every 20 beds, an additional 1 CSSD HCW per average of 100 Surgical Procedures done per month.The minimum required numbers is 3 CSSD staff at least.	435

F - 1.5	CSSD should be divided into 3 areas with complete physical separation between these areas (Receiving and Decontamination area), (Inspection, Assembly, Packaging (IAP), and Sterilization area), (Sterile Storage, and Dispatching areas).	436
F - 1.6	All surgical instruments processed in unidirectional workflow from dirty to clean area.	436
F - 1.7	The decontamination area is maintained under negative pressure, with 10 air changes per hour, temperature ranges from 16°C to 18°C and relative humidity from 30% to 60%.	436
F - 1.8	The IAP area is maintained under positive pressure, with 10 air changes per hour at least, temperature ranges from 20°C to 23°C and relative humidity from 30% to 60%.	436
F - 1.9	The sterile storage area is maintained under positive pressure, with 4 air changes per hour at least, temperature ranges from 20°C to 23°C and relative humidity from 30% to 60%.	436
F - 1.10	Point of use treatment procedure is applied in all hospital departments with the MOH approved spray solution, Received dried soiled instruments are reported by CSSD HCW to the intended department.	437
F - 1.11	Contaminated instrument securely contained in its rigid containers and transported inside (a closed cart) or (locked transportation box delivered on trolley) with biohazard tag sign.	437
F - 1.12	Transportation carts/transportation boxes used for contaminated instruments must be dedicated for its use unless disinfected manually or mechanically in the CSSD to transport sterile items.	437
F - 1.13	The manufacturer's instructions for use (IFU) of complex instruments are available in hard/soft copies for proper disassembling, cleaning, assembling, and sterility option in Decontamination Area.	438
F - 1.14	Manual cleaning is mandatory, it is performed before loading in the washer disinfectors, Ultrasonic cleaners or manual disinfection. Brushes in a different sizes\shapes for cleaning soiled instrument, are available.	439
F - 1.15	Manual cleaning sinks (minimum 2 deep sinks) are available, dilutions measurement tool is available, cleaning detergent and cleaning efficiency test must be MOH approved product. Decontamination sink are cleaned frequently as needed, Not allowed to observe any blood, dirty objects, scale	439
F - 1.16	Automated washer disinfector function properly, the strainers and chambers are free of soil. Loading and unloading procedures of the washer disinfector are performed properly in Decontamination Area.	440
F - 1.17	High level disinfected items must be passed through the hatch window to the IAP area. Backflow only allowed in case of soil after cleaning or moist after sterilizing through the secured hatch window in tray or basket for reprocessing.	440
F - 1.18	in IAP area, drying procedures are performed by using the appropriate drying tools such as dry cabinet or lint free wipes, prohibited to use lint towels.	440
F - 1.19	Chemical indicators class 6 or 5 must present inside each package.	441
F - 1.20	All pouches, wrapped packages, sets are labeled before sterilization including: sterilization date, sterilizer number, cycle load number, department / unit name, Item description, technician initials.	441
F - 1.21	IAP area, Loading and unloading of the surgical instruments into/out of the sterilizers rack is performed accurately.	442
F - 1.22	Sterile storage shelves are free from dust & away from the sprinklers and air vents. The lighter items on the top shelves & heavier items on bottom shelves (Not allowed to use the tape indicator on the rigid container)	442
F - 1.23	Storage shelves are clearly labelled with approved label material, placed 40 cm from the ceiling, 20 cm from the floor and at least 5 cm away from wall.	442
F - 1.24	Hand washing station is mandatory in the decontamination area. hand rub dispensers are available in all CSSD areas.	442
F - 1.25	All CSSD HCWs are well trained on hand hygiene, and proper use of PPE.	443
F - 1.26	Clean areas dress code are(Surgical scrub, hair covering, dedicated shoes) and for dirty area full PPE.	443
F - 1.27	Visitors dress code in the clean area are (yellow-gown, head-cover, dedicated shoes) and for dirty area full PPE	443
F - 1.28	Staff changing rooms are available, clean, arranged for CSSD staff to change before going inside the working areas	443
F - 1.29	Emergency eyewash safety station or emergency eyewash bottle is available, functioned, and tested at least weekly in decontamination area.	444
F - 1.30	Housekeeping staff use appropriate PPE during their routine cleaning activities. Cleaning equipment are separate and dedicated for each area.(mops and bucket etc). Housekeeping equipment is kept clean and dry after use.	444
F - 1.31	High touch surfaces are disinfected more frequently (e.g. worktables, countertops, light switches, door knobs, rack handles, display screen buttons, etc).	445
F - 1.32	Sharp object like single used instrument, or disposable needles delivered by mistake to CSSD should be reported and disposed in to sharp container.	445
F - 1.33	Hazardous waste like Biological Indicator (BI) vials should be disposed in to yellow biohazard bag	445
F - 1.34	Cleaning efficiency test files include: ultrasonic tests, protein efficiency tests for washer disinfectors, manual cleaning detergent efficiency tests are kept for one year.	446

F - 1.35	Sterilization loading logbook for each sterilizer including information of sterilization date, sterilizer number, Cycle load number, Department name, Item Description, items quantity, Technician initials are documented and kept for one year.	446
F - 1.36	Bowie Dick test for steam sterilizers must be performed on daily basis, after maintenance. records are kept for 1 Year.	446
F - 1.37	Biological indicator test file is available. Biological tests for steam sterilizers must be performed minimally weekly preferable daily, with the implants load, and after maintenance. Biological test for plasma sterilizers is performed daily, and after maintenance. All records are kept for 1 year	447
F - 1.38	Sterilizers physical parameters printout records hard/soft copy must be kept for one year. These parameters are: leak test cycle, temperature, pressure, sterilization duration, etc.	447
F - 1.39	Receiving and dispatching logbook are available and must include: Sender/Receiver ID, department's name, sets and packages names, Date, Time and quantities.	447
F - 1.40	CSSD environmental monitoring file are available. Temperature, humidity, pressure value must be recorded daily and air. Documentation is kept for 1 year.	448
F - 1.41	Planned Preventive Maintenance (PPM) file must be available.	448
F - 1.42	Machine Operation file are available, all machines checked daily, out of service machines have posted sign.	449
F - 1.43	Materials safety data sheets of all chemicals used in the department must be available and updated.	449

Element # F - 2 : Endoscopy Reprocessing Unit		Page # 450
F - 2.1	There is a written policy and procedure for reprocessing of flexible endoscopes (cleaning, and disinfection in-between patients).	450
F - 2.2	HCW responsible for reprocessing of endoscopes is qualified by certification, education or training and able to explain all procedures of endoscopes reprocessing.	451
F - 2.3	The reprocessing area is physically separated from the procedure room and access is allowed for authorized personnel only.	451
F - 2.4	Reprocessing area are equipped with a separate, dedicated hand washing sink with hand free controls.	452
F - 2.5	Reprocessing area is well ventilated and under negative pressure.	452
F - 2.6	Appropriate personal protective equipment (respirator, gloves: nitrile or butyl rubber, goggles and gowns) are used.	452
F - 2.7	Emergency eyewash safety station or emergency eyewash bottle is available in decontamination area and accessible within 30 meters or 10 seconds of potential chemical exposure.	453
F - 2.8	All channels of endoscope are flushed & external surfaces are wiped with a detergent solution immediately at the point of use.	453
F - 2.9	Soiled endoscopes are transported safely to the reprocessing area in a suitable closed container with a clearly visible biohazard label.	453
F - 2.10	Leak testing is performed according the manufacturer's requirements before manual cleaning and the result is documented.	454
F - 2.11	Endoscopes are manually cleaned (brushed and flushed) with detergent solution. Disposable single use brushes should be used. If not available, reusable brushes that are sterilized after every use are considered as acceptable alternative.	454
F - 2.12	Reusable heat-stable accessories that break the mucosa (e.g., biopsy forceps) are cleaned mechanically and sterilized after each use.	455
F - 2.13	High level disinfectants used should be approved by MOH and routinely tested to ensure Minimum Effective Concentration MEC of the active ingredient (test strips are used and results recorded). Material Safety Data Sheet (MSDS) should be available & followed.	455
F - 2.14	Endoscopes that are stored in cabinets & not used are reprocessed as per manufacturer's Instructions for use (IFU)	456
F - 2.15	Validated Automated Endoscope Reprocesser (AER) should be used and a successful cycle is confirmed before the use of the endoscope.	456
F - 2.16	Endoscopes are stored uncoiled, hanging vertically in a clean, dry, and well ventilated storage cabinet.	456
F - 2.17	There is a tracking and tracing system that records different stages of decontamination, the HCWs involved, storage & subsequent patient use. (Records should include patient name, medical record number, the endoscopies, date and time of the clinical procedure, identification number and type of endoscope and AER, results of inspection and leak test and name of the HCW reprocessing the endoscope).	456
F - 2.18	Bronchoscopy should be performed only in a room with negative air pressure, a minimum of 12 air exchanges per hour, and discharged through HEPA filtration system (refer to AIIR specifications).	457

ICA VISIT PROTOCOLS

Auditing visits are an activity that provides evaluating processes and supporting services to improve the level of infection prevention & control practices within healthcare facilities, and accordingly will prevent or reduce transmission of infection and outbreaks.

Healthcare facilities will be visited according to the plan set for the program. When carrying out any auditing visits, certain protocols are followed to appropriately represent the General Directorate of Infection Prevention & Control (GDIPC) of Healthcare Facilities. Therefore, the specific codes of ethics and professional conduct must be adhered to:

A. Code of Ethics and Professional Conduct

Professional Ethics:

- Commitment to the Ministry of Health's code of ethics and conduct.
- Avoiding any behavior that may be perceived as an abuse of the position.
- During the visit, adhere to professional ethics, and treat others with decency and respect.
- Commitment to all professional ethics including avoiding ineffective communication that may cause discomfort to the other party.
- Care must be taken when communicating with all healthcare workers in the facility being visited by exercising self-control and refraining from any disturbing or insulting remarks or actions.
- When the other party exceeds the recognized professional ethics contain the situation with the required respect and report the incident to your supervisor based on the organizational chart.
- Carrying out your work with integrity and diligence.
- Maintaining a professional environment characterized by good working relations and mutual respect.
- Refraining from all verbal and non-verbal violations, including written ones.
- During the visit, your appearance must be professional.

Professional Conduct:

- The auditors should professionally represent the GDIPC in an appropriate manner.
- The auditors must be updated about any new scientific updates including guidelines, forms, and protocol related to their field before conducting any visit.
- The auditor must report any concerns that may affect the quality of the visit before performing it.
- Providing support and guidance to the evaluated healthcare facility colleagues' whether during the visit or afterwards.
- The auditor is responsible for evaluating the performance of the healthcare workers during the visit fairly and realistically, in line with the objectives.
- Guidance given to the hospitals must be based on scientific & best practices basis.

B. ICA Visit Phases:

Pre Visiting Phase:

- The date of the visits should be scheduled during the first five months of each half year.
- 20% of healthcare facilities are scheduled to be visited monthly, provided that the
- different sectors are covered.
- Send the visits schedule to health cluster within the region, in which the date of the visit and the names of the auditors are specified (it is preferable not to visit the same facility by the same auditor within the same year).
- Inform the health cluster to coordinate the visit via e-mail, phone calls or text messages prior to the visit.
- The required number of auditing days are determined according to the healthcare facility bed capacity (two days for hospitals with more than 200 beds and one day to two days for those with less than 200 beds capacity).
- The visit is conducted by two auditors approved by the GDIPC of Healthcare Facilities.
- Cluster auditors are restricted from the audit visits to their cluster hospitals.
- The two auditors should visit all the departments together; they should not divide it between them.
- The auditor must realize his/her responsibilities according to the role assigned during the visit (team leader, auditor, or observer).
- The evaluation form should be sent to the proposed evaluated health cluster and consequently to the healthcare facility in the same cluster before the visit to be review the required documents.

Visiting Phase:

- Strict commitment to professional ethics during the visit and represents GDIPC in a professional way.
- Conducting all field visits by evaluating the performance of health care facilities professionally and fairly using the updated auditing form.
- The team must conduct the visit according to the approved schedule and identify all the departments planned to be visited (according to the auditing form), giving the visit the sufficient time needed and not doing it urgently.
- Commitment to the time specified for the visit, whether the working hours or number of days.
- Commitment to the number of team members required and to visit all the departments together.
- Each domain should be evaluated according to the activity required (review document, staff interview, observation, personal file)
- Recommendations should be made based on scientific & evidence basis.
- Auditing scores should be entered at the data collection site using the auding form according to the approved mechanism and comments must be documented in a clear & precise manner.
- The auditing report must be reviewed before by the team leader prior sending it for the final approval.

Post Visiting Phase

- Score and write the audit report then submit it within 72 hours from the physical visit.
- Ensure that the report is delivered to the healthcare facility through the system (download the report from the system and send it via e-mail if submission to facility have been failed).
- Request from the audited health cluster to send their corrective action plan of the evaluated healthcare facility within 7 days from receiving the visit auditing report.
- Ask the health cluster to request from the audited hospital to fill out the auditor's evaluation form, that delivered to them through the system.
- Review the health care facilities action plan that have been sent by the health cluster.
- Follow up the implementation of the action plan by the health cluster and by the auditing coordinator at regional directorate for the visit that took place and if the healthcare facility encounters any challenges or delays, they should support them.
- The Regional Directorate Infection Control Director' should communicate with the Infection Control Director at the health cluster to address the visit and evaluate auditor's performance when needed.

DOMAIN – A

INFECTION PREVENTION & CONTROL ADMINISTRATIVE MEASURES

LEADERSHIP SUPPORT

A - 1.1	Adequate resources are allocated to infection prevention & control department (e.g., offices, internet access, IT support ...etc.) (O, SI)

Observation (O)

Observe:

1. Availability of separate Infection prevention & control (IPC) office with provision of all required resources. *(Computers, printers, reliable internet service etc.)*
2. The number of computers provided for the IPC department and match with the number of Infection preventionists working in the unit. *(Ideally, each IPC Practitioner has a separate computer with internet connection. But if separate computer not provided for each IPC practitioner, would be considered fully compliant if it's not interfering with continuity of work)*

Staff Interview (SI)

Interview:

1. IPC team if their requests and needs are always considered and provided by leadership personnel and the high officials.
2. The staff about the speed and reliability of internet service and ***backup plan*** to ensure the continuity of work if there is no availability of internet service / system is down.
3. Randomly ask staff to access national platform (such as HESN Plus) website to check the speed & reliability of provided internet service.
4. Ask staff about IT support & troubleshooting time i.e., IT department has good response to them when needed.
5. Ask about access to **patients & lab data** *(If hospital has electronic filing system)*.

A - 1.2	**Adequate infection prevention & control supplies are provided to HCWs for successful implementation of IPC program (e.g., PPE, disinfectants ...etc.) (D, O, SI)**

Document (D)

Review the following documents:

1. Plan for continuous supply of PPE.
2. Inventory checklist for monitoring consumption of all required supplies/consumables.
3. Electronic database / Excel spreadsheets as a mechanism of monitoring consumption of IPC supply & to ensure adequacy.
4. The documented supply chain / flowchart describing mechanism of supply request from units.
5. Review if contingency / emergency plan is incorporated to address the shortage in outbreak situations to ensure continuous supply of PPE, disinfectants & other IPC supply. ***(e.g., Direct purchase, contract with neighboring hospitals, emergency stock not used in routine etc).***

(Rationale: In outbreak situations there is increased consumption of IPC supply including PPE, hand sanitizers, disinfectants etc. so there should be a clear plan to address increased demand in such unforeseen situations).

6. Check the supply chain follow up in the hospital departments especially when the supplies reach the PAR stock level.

(PAR: Periodic Automatic Replenishment)

- *PAR level is the minimum quantity of an item stocked, which will be automatically reordered, should the level fall below a preset level.*
- *Establishing par levels is one of inventory management techniques that ensures amount of inventory that must be available at any given time.*
- *PAR levels are safety stock numbers that represent the lowest stock level that inventory can reach before a particular item needs to be reordered.*
- *Ultimately, par levels help to ensure that inventory remains above the standard demand rate.*

NOTE:

Any of above-mentioned system or alternate inventory management mechanism/s are acceptable that:

- ***Ensures continuous uninterrupted availability of IPC supply in all patient care areas.***
- ***Provides platform for regular monitoring of IPC supply consumption in order to ensure adequacy for effective implementation of all IPC programs.***

Observation (O)

Observe:

- Availability of infection prevention & control resources and supplies including PPEs ***(Gowns (clean, sterile) gloves (clean, sterile) face shields / eye goggles, surgical masks, different sizes of N-95 respirator, disinfectants, hand rub dispensers, waste receptacles, sharp containers etc) in all units.***

(Randomly open the PPE trolleys to verify availability of required PPE & hand rub dispenser to check for availability of hand sanitizers & if date is valid or expired.

Staff Interview (SI)

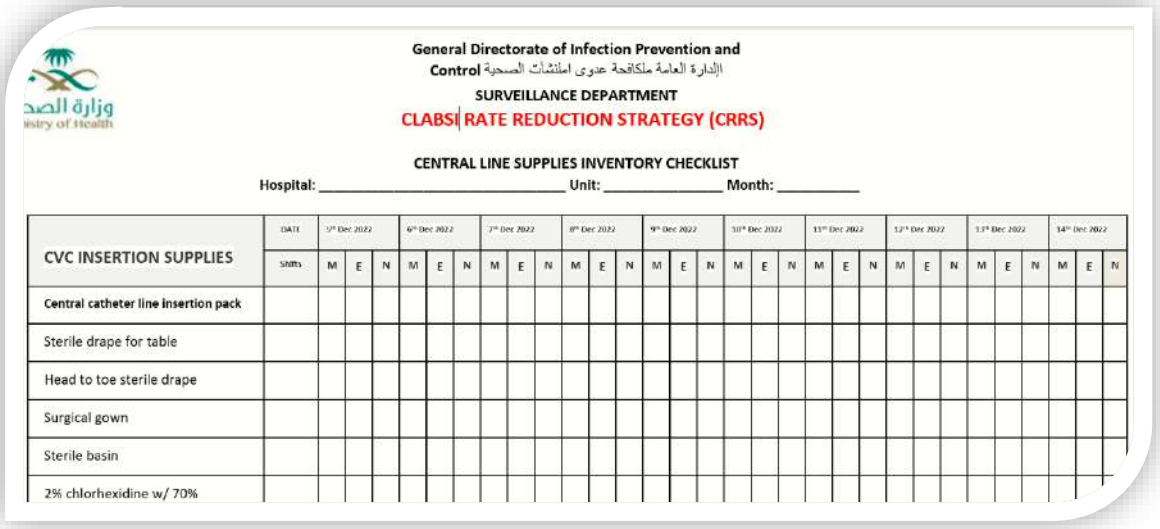
Interview:

1. Interview the IPC team / supply in charge about the process of replenishment, maintenance, and first-time request of supplies, when and where needed.
2. Investigate the shortage with the person in charge, when it is clearly observed.
3. Ask the staff about the mechanism how the stock will be requested what will be the alternate back up if item is not available in main hospital store.

Example:

In order to ensure availability of all needed infection prevention & control supply for Central line insertion & maintenance, visit the stock rooms in critical care areas (ICU, NICU, ER etc) & randomly ask staff about the availability of IPC supply needed for ***central line insertions*** *&* ***maintenance practices****. e.g Central line insertion kits, chlorohexidine swab sticks, CHG. impregnated transparent dressing, sterile probe covers etc. Assess if enough stock is available or there is any shortage.*

Example of Inventory checklist for monitoring:



General Directorate of Infection Prevention and Control الإدارة العامة لمكافحة عدوى المنشآت الصحية

SURVEILLANCE DEPARTMENT

CLABSI RATE REDUCTION STRATEGY (CRRS)

CENTRAL LINE SUPPLIES INVENTORY CHECKLIST

Hospital: _____ Unit: _____ Month: _____

CVC INSERTION SUPPLIES	DATE	5th Dec 2022			6th Dec 2022			7th Dec 2022			8th Dec 2022			9th Dec 2022			10th Dec 2022			11th Dec 2022			12th Dec 2022			13th Dec 2022			14th Dec 2022		
	Shifts	M	E	N	M	E	N	M	E	N	M	E	N	M	E	N	M	E	N	M	E	N	M	E	N	M	E	N	M	E	N
Central catheter line insertion pack																															
Sterile drape for table																															
Head to toe sterile drape																															
Surgical gown																															
Sterile basin																															
2% chlorhexidine w/ 70%																															

A - 1.3	Infection prevention & control (IPC) team is given full authority to implement the IPC policies and procedures. (D, SI)

Document (D)

Review the following documents:

- Statement of authority approved by the hospital director or hospital infection control committee.
- This statement of authority should be reviewed and authenticated by the administration of the institution at least every three years or sooner, as per policy.
- All policies & procedures are established by IPC team.
- Check for availability of authority statement or **MEMO** circulated by highest administrative authority to all **units** stating authorization of IPC team regarding infection prevention & control practices.

The Director of the Infection Prevention and Control Program has the responsibility and authority to establish policies and procedures for the instruction of its personnel and for the overall supervision of infection prevention and control activities in its facilities.

Staff Interview (SI)

Interview:

1. IPC Team members if they have been given the appropriate attention & respect by the heads of other departments during daily rounds, training & education activities etc.
2. IPC team regarding the authority to make decisions and to influence field implementation.
3. If the IPC department has been well understood and directly acted upon its comments, remarks, recommendations, and commands.
4. Moreover, heads of the departments are continuously working on IPC improvements & corrective actions if any breach of IPC practice has been communicated to them based on internal & external audit findings.
5. Ask if HCWs simply obey, any order or command coming from the infection prevention & control personnel through any means, even if it is verbal command in matters related to infection prevention & control.

A - 1.4 Hospital leaders' support IPC team and their supervision role when some functions are outsourced (e.g., laundry or dietary services). (D, SI)

Document (D)

Review the following documents:

1: Contract of outsourced service:

- Check for validity and accuracy of contract with clear description of policies of the related outsourced service. ***(Most common outsourced functions are laundry, dietary service and CSSD in some hospitals etc.)***
- For instance, if laundry service is outsourced, check the contract incorporating details of the collection & transportation of the soiled and clean linen including transportation carts, frequency of linen collection, processing of linen with temperature specifications & disinfectants to be used & frequency of inspection visits by hospital IPC team etc.

2: Inspection visit checklists / tools:

- Review the checklist incorporating all details of IPC measures in the relevant outsourced service (Laundry, kitchen etc.) based on the referenced guidelines (MOH, CDC etc.)
- Laundry checklist should contain important items like policies & procedures, direction of workflow, availability of hand hygiene facilities, washing cycles: high temperature wash cycle (***Water temperature is at a minimum of 71°C for 25 minutes: heat disinfection)***, **temperature wash cycle**, (***22°C C-50 25°C), sodium hypochlorite is added as a disinfectant during bleach wash cycle.*** etc.

3: Inspection visit report & action plan:

- Review the last 03 visits reports for all outsourced functions.
- Check if the report was sent to the outsourced service team & they responded with corrective action plan based on the findings of visit report.

Inspection / Audit visit should be conducted to outsourced service/s at least once in each quarter by IPC Team in collaboration with quality & environmental health team.

Staff Interview (SI)

Interview:

- IPC team with regard to outsourced service hospital policy with its implementation (*monitoring of outsourced service by the hospital i.e. process, frequency of visits, etc.)*
- Inquire IPC team about needed leadership support if any major breaches has been observed in the outsourced service in repeated visits with no corrective action.

(An example of leadership support would be: Hospital director/ CEO would consider change of laundry company or catering company if the quality of processed linen or food quality is not up to the mark even if they have to pay high price).

Element # A-2 INFECTION PREVENTION & CONTROL DEPARTMENT

A-2.1 For hospitals (≥ 150 beds): the director of IPC department is full-time employee qualified in infection control through certification, training, AND experience for a minimum of two years. (PF, SI)

PERSONAL FILE (PF)

Review the following documents in PF:

Assignment Letter / Job Description:

1. Verify if the IPC Director is working full time by reviewing assignment letter from executive leadership & job description to review roles and responsibilities of IPC director as full time.
2. ***Infection Prevention & Control Director*** *will be considered working as* ***FULL TIME*** ***in the IPC department*** *only if the below mentioned criteria is fulfilled:*
   - *Available and accessible at all time and dedicate 100% of working hours to infection prevention & control departmental activities.*
   - *IPC Director* ***DO NOT*** *hold any additional administrative tasks (e.g., working as Medical Director & IPC Director etc.)*
   - ***ID consultants and Physicians*** *would be considered* ***FULL TIME*** *only if they spend* ***3 out of 5 working days*** *OR dedicate* ***70% of working hours*** *to the Infection prevention & control departmental activities with no additional tasks.*

CV, certificates & training evidence:

1. The personal file of the IPC director to check for educational background. ***(Physician, nurse, microbiologist, public health Specialist etc.)***
2. Check degrees / certifications in IPC ***(Masters in Infection Control, CIC, and Diploma in infection Control, etc.)***
3. Attendance in training activities (***local, national, international conferences, workshops, seminars & symposiums etc.)***
4. Calculate total duration of experience in infection control from date of joining as IPC Director. ***(For IPC director 02 years' experience is required)***
5. Experience and training of the IPC director should be relevant to the services provided by the department and the duties and responsibilities of the position.

Comments:

- ***It is not mandatory for IPC Director to be a physician. If he / she is qualified based on above mentioned credentials and working full time this substandard would be fully met.***

Staff Interview (SI)

Interview:

1. IPC Director to assess his / her knowledge and skills about infection control.
2. Ask about his/her involvement in development / review of policies and procedures.
3. Ask about role in surveillance activities and implementation of IPC measures to assess his/her orientation about all areas of hospital.
4. Ask how the time is split among data management, policy & procedure development, education, employee health, quality improvement, program development, consulting & managing potential outbreaks etc.
5. During the entire audit visit, knowledge & orientation of IPC director about IPC activities will be indirectly assessed.

A-2.2

For hospitals (< 150 beds): the director of IPC department is a full-time employee qualified in infection control through certification, training, OR experience for a minimum of two years. (PF, SI)

PERSONAL FILE (PF)

- Sub-element – 2:01 & Sub-element – 2:02 have similar assessment methods.
- For IPC director of hospitals with bed capacity 150 & below, certification **OR** Training **OR** experience of 02 years is acceptable for the position of IPC director if working full time.

A-2.3

The director of IPC program reports directly to the highest administrative authority (chief executive officer (CEO) or medical director of the hospital). (D) (Updated)

Document (D)

Review:

1. Hospital **organogram** for the reporting authority of the IPC program director.

(Organization chart should clearly delineate that IPC director is directly reporting to highest top management and not to assistants / assigned designees, quality director or any other administrative personnel.)

2. Ask for any **Request Letter** from Infection Control Director & check its addressed to whom. ***(As per substandard any letter from IPC Director should be directly addressed to highest administrative authority.***

A-2.4 The healthcare facility has infection prevention & control staffing ratio of not less than 1 full-time practitioner for every 100 beds assigned merely for the IPC program in order to accomplish the tasks in an effective manner. (D, SI) (Update)

Document (D)

Review the following documents:

1. IPC department organizational chart.
2. Document stating bed capacity of hospital including emergency beds, dialysis beds / chairs, dental chairs, day cases, and others).
3. Compare number of IPCs with bed capacity and calculate the required number of IPC practitioners as follows:
   - **001 – 100 beds: 1 IPC practitioner is needed**
   - **101 – 200 beds: 2 IPC practitioners are needed**
   - **201 – 300 beds: 3 IPC practitioners are needed**
   - **301 – 400 beds: 4 IPC practitioners are needed**
   - **401 – 500 beds: 5 IPC practitioners are needed & so on**
4. Work schedule of IPC practitioners for the last 3 months to check allocation of IPC practitioners as per requirement in all areas of hospital according to the scope of services.

Staff Interview (SI)

Interview:

1. Staff about work distribution & responsibilities in the IPC department.
2. Ask about duration of rotation in each assigned unit and daily activities. ***(e.g., Hand hygiene observations, surveillance activities, monitoring & evaluation, education & training etc.)***

A-2.5 An additional one full-time IPC practitioner is staffed for every 30 beds in critical care units (e.g., ICU, PICU, ER, Burn Unit …etc) assigned merely for the IPC program in order to accomplish the tasks in an effective manner. (D, SI)

Document (D)

Review the following documents:

1. Organizational chart / Organogram of IPC Department.
2. Document showing bed capacity of each critical care unit. (ER, PICU, NICU etc.) Where ventilation and hemodynamic monitoring are routinely performed.
3. Match the requirement of additional IPC practitioners with bed capacity of each critical care unit as follows:
   a. **< 30 beds: No additional IPC practitioner is needed.**
   b. **30 – 59 beds: 1 additional IPC practitioner is needed.**
   c. **60 – 89 beds: 2 additional IPC practitioners are needed.**
   d. **90 – 119 beds: 3 additional IPC practitioners are needed & so on.**
4. Work schedule of IPC practitioners for the last 3 months to check allocation of IPC staffing as per requirement.

Staff Interview (SI)

Interview:

1. IPC staffs about work distribution & responsibilities related to critical care units. ***(Rule out additional assigned tasks other than assigned critical care unit (if any)***
2. Ask about duration of rotation in critical care units and daily activities in the assigned unit & how they are managing activities ***(HAIs Surveillance, Training & education, monitoring and observations etc.***

A-2.6 **An additional one full-time IPC practitioner is staffed for every 120 dialysis patients per day assigned merely for the IPC program in order to accomplish the tasks in an effective manner.** (D, SI)

Document (D)

Review the following documents:

1. Organizational chart / Organogram of IPC Department.
2. Document showing number of dialysis beds / chairs in Hemodialysis Unit.
3. Number of dialysis sessions done per day.
4. Match the requirement of additional IPC practitioner with number of dialysis patients dialyzed each day.

- **< 120 dialysis patients per day (1- 119 sessions): No additional IPC practitioner is needed**
- **120 dialysis patients per day (120 & above): An additional IPC practitioner is needed**

Staff Interview (SI)

Interview:

1. IPC practitioners about distribution of work and responsibilities in the hemodialysis unit. ***(Rule out additional assigned tasks other than dialysis unit (if any)***
2. Ask about duration of rotation in the dialysis unit and number of dialysis sessions per day and how they are managing activities inside unit ***(DE Surveillance, training & education, monitoring & evaluation etc.)***

NOTE: ***Full time IPC Practitioner is one who has no additional responsibilities and is exclusively assigned for activities related to infection prevention & control program ONLY.***

Example 1:
Bed capacity of Hospital "A" = 560 beds

Adult ICU = 45 beds
PICU = 15 Beds
NICU = 30 beds
ER = 20 beds
Hemodialysis unit = 80 beds (Working in 02 shifts) 160 dialysis sessions per day

What is the required number of IPC practitioner?
Refer to sub-elements 2.02, 2.03, & 2.04

Number of IPC practitioner required = Total 09
- **6 for every 100 beds**
- **1 additional for adult ICU / 30 Beds**
- **1 additional for NICU / 30 beds**
- **1 additional for Hemodialysis Unit / 120 dialysis sessions per day**

Example 2:
Bed capacity of "hospital B"= 950 beds

Adult ICU = 60 beds
Trauma ICU = 25 beds PICU = 35 Beds
NICU = 42 beds
ER = 40 beds
Hemodialysis unit = 40 beds (Working in 02 shifts) 80 dialysis sessions per day

What is the required number of ICPs?
Refer to sub-elements 2.02, 2.03, & 2.04

Number of IPC practitioner required = Total 15
- **10 for every 100 beds**
- **02 additional for adult ICU / 30 beds**
- **01 additional for NICU / 30 beds**
- **01 additional for PICU / 30 beds**
- **01 additional for ER / 30 beds**

A-2.7	Infection prevention & control practitioners are qualified in infection control through certification, training, or experience for a minimum of one year. (PF, SI)

PERSONAL FILE (PF)

Review the following documents in PF:

❖ **Assignment Letter / Job Description:**

- Verify if the IPC Practitioners are working full time by reviewing assignment letter from executive leadership & job description to review roles and responsibilities of IPC practitioners as full time.

❖ **CV, certificates & training evidence:**

- The personal file of the IPC to check for educational background ***(Physician, nurse, microbiologist, medical technologist, public health Specialist etc.)***
- Check degrees / certifications in infection prevention & control ***(Masters in infection control, CIC, Diploma in infection Control etc.)***
- Attendance in training activities (***local, national international conferences, workshops, seminars & symposiums etc.)***
- Calculate total duration of experience in infection control from date of joining as IPC Practitioner. ***(For IPC practitioner at least 1 year experience is required)***

Staff Interview (SI)

Interview:

1. IPC Practitioners to assess his / her knowledge and skills about infection control.
2. Ask about their activities in daily IPC rounds.
3. Ask about their role in surveillance activities and methodology of surveillance data collection, CDC-NHSN criteria etc.
4. During the entire audit visit knowledge & orientation of IPC practitioners about IPC activities can be easily assessed.

The IPC Director & IPC Practitioners must have the knowledge and expertise in microbiology, epidemiology, sterilization and disinfection, infectious diseases, antiseptic usage, clinical practices and statistics. The Infection preventionist functions in pivotal roles as educator, investigator, researcher, patient advocate, agent of change, consultant, statistician, sanitarian, role model, coordinator, and diplomat. **

A-2.8 IPC practitioners have updated infection control skills and knowledge through continuous medical education program and attendance in IPC scientific activities. (PF, SI)

PERSONAL FILE (PF)

Review the following documents in PF:

1. Personal file to check for evidence of attendance in IPC scientific activities. ***Local, national, international Infection control conferences, workshops, seminars & symposiums etc.)*** (Check for valid certificates).
2. Departmental continuous educational activities conducted inside the hospital. Check for schedule of CME activities, content delivered and attendance sheets to ensure 100% of IPC staff has attended with competency assessment.

- ***Professional development is essential to keeping infection preventionists up to date with the latest knowledge, skills & strategies for preventing infections.***
- ***Competence has been defined as essential knowledge, behaviors & skills that an individual possess and demonstrate in a specific discipline.***
- ***It implies an expert level of knowledge and skill that is transferrable to the practice of Infection prevention & control. (Simply stated, It' the ability to put knowledge into action)***

Staff Interview (SI)

Interview:

1. IPC Practitioners to assess his / her knowledge and skills about infection control.
2. Ask about their activities in daily IPC rounds.
3. Ask about their role in surveillance activities and methodology of surveillance data collection, CDC - NHSN criteria etc.
4. During the entire audit visit, knowledge & orientation of IPC team about IPC activities can be easily assessed.

Infection Preventionists must acquire skills & knowledge to critically review and understand the scientific evidence regarding infection prevention interventions & engage and educate a diverse group of stakeholders (e.g. Physicians, nurses, lab & radiology technicians, respiratory therapists, environmental services staff & administrators etc.

REFERENCES / WEB BASED RESOURCES:

1) *APIC text of Infection Control & Epidemiology: Competency & certification of Infection Perfectionists*
2) *http:// text.apic.org/toc/overview-of-infection-prevention-programs/competency- certification-of-infection - preventionists*
3) *APIC text of Infection Control & Epidemiology: Staffing*
4) *http:// text.apic.org/toc/overview-of-infection-prevention-programs-staffing*
5) *APIC text of Infection Control & Epidemiology: Infection Prevention & Control Programs*
6) *http:// text.apic.org/toc/overview-of-infection-prevention-programs/infection- prevention-control-programs-*
7) *Joint Commission International Accreditation Standards for Hospitals, 5th edition, April 2014. PCI.1*
8) *Core components for infection control prevention and control programmers Geneva: World Health Organization; 2009 (http:// www.who.int/csr/resources/publications/WHO_ HSE_EPR_2009_1/en/index.html, accessed 18 October 2016).*
9) *APIC text of Infection Control & Epidemiology: Education & Training*
10) *http:// text.apic.org/toc/overview-of-infection-prevention-programs / education- and-training*

Element # A-3 INFECTION PREVENTION & CONTROL COMMITTEE

A-3.1	There is written approved terms of references document for infection prevention & control committee containing structure, rules, duties, and members' responsibilities. (D)

Document (D)

Review the terms of reference (TOR) of Infection Prevention & Control Committee meeting and verify the following:

1. TOR are **valid and updated** (Check for dates)
2. **Approved** (Check for approvals by top administration)
3. **Structure** (Composition of IPC committee with inclusion of membership from all relevant units)

The committee consists of multidisciplinary team members.

- Chairman: **chief executive officer (CEO)**or Medical Director.
- Deputy Chairman: Nominated by chairman.
- Committee coordinator.
- Committee secretary.

Permanent Members: included but not limited to:

- Head of Infection Prevention & Control Department
- Head of Nursing Department
- Head of Quality Management & Patient safety
- Head of Critical Care Departments (ICU, NICU, PICU, CCU etc.)
- Head of Obstetrics / Gynecology Department
- Head of Surgery Department
- Head of Operating Room (OR)
- Head of Laboratory (Microbiology)
- Head of Renal Dialysis unit / Nephrology
- Head of Pharmacy Department
- Head of Emergency Medicine (ER)
- Representative from Employee Health Clinic
- Head of Central Sterile Supply Department (CSSD)
- Head of Dietary Services Department
- Head of Environmental Health Department
- Head of Administrative & Financial department
- Infection Prevention & Control Department Members
- **Head of Housekeeping / Supportive Services Department"**
- **Head of Medical Supply / Inventory Management"**

Guest Members:

Chairman & deputy can invite any hospital employee from different departments on an official basis when matters pertaining to their services e.g., Family & community Medicine, dental, supply & logistics etc.

1) **Purpose of multidisciplinary committee is:**

- To provide oversight of the infection prevention and control program.
- To coordinate, evaluate, and support the activities of the Infection prevention and control program and to communicate with all departments of the healthcare facility to ensure the engagement and full support to the program by all stakeholders.
- The IPC committee advocates for the program shall ensure all resources needed are available.

2) **Rules of operations including :**[3]

- **Frequency of meetings**: (Quarterly or as scheduled in hospital, special meetings will be called by chair when circumstances dictate etc.))
- **Agenda**: (All matters to be addressed by the committee should be brought to the attention of the chairperson, Infection Perfectionists (IP), and/or the appropriate committee members.
- Committee coordinator will prepare the agenda & chairman will sign agenda before distribution to all members.
- **Attendance & Quorum**: Appointed members are expected to attend and participate in committee activities. 50 - 60% of committee members plus committee chairman/deputy chairman shall constitute quorum of regular & additional meetings.
- **Minutes taking**: Proceedings of the meetings shall be recorded & prepared by the secretary / IPC coordinator of committee and circulated to all members in a timely manner before next proceeding.

3) **Duties / Functions of IPC Committee :**[2]

General functions of committee include but not necessarily restricted to the following:

- To ensure that hospital IPC practices meet the requirement of accrediting bodies ICA, CBAHI etc.
- Pursue opportunities to improve patient care and clinical performance.
- Recommend practices to resolve identified infection control problems in care and performance.
- Recommend corrective actions to governing bodies when necessary.
- Establishes, reviews, and approves the hospital infection prevention and control (IP&C) policies and procedures at least every three years.
- Approve the type and scope of surveillance activities including stratified infection risk, focused infection studies, and prevalence and incidence studies.
- Determine the amount of time required to conduct infection surveillance, prevention, and control activities.
- Discuss Respiratory Protection Program related activities & measures.
- Evaluates and revises on a continuous basis the procedures and

mechanisms developed by the (IP&C) team to serve established standards and goals.

- Brings to the attention of the (IP&C) any infection control related issues arising in different departments of the hospital and suggests solutions. ***(For more details refer to 1.3)***

4) Responsibilities of members & attendees:

- Attend at least 75% of meetings having read all agenda & papers beforehand.
- Act as champions disseminating information and good practice as appropriate.
- Identify agenda items to be considered by chair of committee ahead of time.
- If unable to attend send apology to chair and secretary and send designee to attend on their behalf.
- Contribute to discussion and maintain confidences. ***(For more details refer to 3)***

A-3.2 Meeting minutes are written in a manner of task force tables with time limit for the actions needed and actions must be followed in the next meeting. (D)

Document (D)

Review the format of meeting minutes:

Check if the standard format is being followed for documenting committee meeting minutes:

a) Meeting minutes of IPC committee should incorporate meeting number, date, time, venue, title, list of attendees, absentees & apologies etc.

b) It should include **Agenda / Items**, **Discussion & Findings**, **Actions / Recommendations**, **Responsible Person/s**, **Time frame & status**. (Open / Closed)

c) Agenda would include **call to order**, **review of previous meeting minutes**, **Infection control reports** *(Healthcare-Associated Infection Rates, Multi-Drug Resistant Organisms, MRSA rates, any outbreaks, Hand hygiene compliance rate, Respiratory Protection Program Activities and Components etc.)*, **Departmental Infection control Issues & Solutions** e.g. *delayed release of culture results from microbiology lab* etc., **Discussion of antibiogram**, **Employee health issues *(e.g. Not all hospital employees attending the employee health clinic for annual medical checkup /Influenza vaccination refusals etc.)*,** inadequate IPC supply, Issues related to isolation rooms, construction & renovation, outbreaks etc., **Adjournment and Closing remarks,**

d) Status of last committee meetings recommendations to be reviewed. ***(Closed issues to be considered as accomplishments. These accomplishments shall / can be submitted to the management as part of the committee's performance.***

e) Issues that are not yet addressed / accomplished to be considered as pending / Open issues. These pending issues shall be added as agenda in the ***old business*** to find solutions to close the issues. If not, it should be closed as 'abandoned', a new alternate solution need to be in place.

f) If still unresolved need to be escalated to executive committee.
g) Issues discussed in IPC committee meetings are assigned to concerned representatives and should be traceable, timely followed, monitored and evaluated.
h) Discussions, conclusions, recommendations, assignments, actions, and approvals are documented in the minutes of the committee meetings.
i) Minutes are distributed to each committee member and are forwarded to other appropriate staff.

Example:

- **Agenda / Items to be discussed:** Infection Control Surveillance statistics
- **Discussion:**
- CLABSI rates in 3rd Quarter had retained high with average rate of 10.06 .. CAUTI rate for 3rd Quarter was 6.24
- **Recommendations /Actions:** Strict implementation of infection control measures during insertion / maintenance and daily necessity review to be intensely implemented and applied by the clinicians to able to reduce occurrence of HAI associated with CLABSI and CAUTI as the committee concluded.
- **Responsibilities:** Clinicians, nurses, IPC practitioners
- **Time frame**: October - December 2021
- **Status**: Closed

Procedure:

- Committee members will identify agenda items for consideration by the chairman, coordinator / secretary at least 12 days before the meeting.
- All matters to be addressed by the committee should be brought to the attention of the chairperson, Infection Preventionists (IP), and / or the appropriate committee members.
- The committee chairman shall instruct to include these issues / recommendations in the next agenda for discussion.

- Committee coordinator will prepare the agenda.
- Chairman will sign the agenda before distributing to all member's prior the time of the meeting.
- Chairman requests from members to discuss the new agenda, to update committee on previous agenda / matters and present report to the committee.
- Committee meets quarterly or as scheduled in the hospital.
- Discussions, conclusions, recommendations, assignments, actions, and approvals are documented in the minutes of the Committee meetings by IPC coordinator/ secretary.
- The minutes should be approved & signed by chairperson of the Committee. i.e. Hospital Director, Medical Director.
- The minutes shall be distributed after to all committee members and forwarded to all relevant staff.

- Minutes of each committee meeting shall be maintained in a permanent separate file.
- Committee annual report on yearly performance to be developed and distributed.

A-3.3	**IPC committee is chaired by the chief executive officer (CEO) or medical director. (D) (Updated)**
A-3.4	**Membership of IPC committee includes head of IPC, IPC department members, medical director, head of nursing services, head of laboratory department (microbiology), head of surgical operating room, head of CSSD, head of critical care units (ICUs), head of pharmacy department, head of dietary services, head of environmental health department, head of housekeeping department, head of administrative or financial department, head of medical supply department, and other guest members as needed. (D)**

Review the following documents:

TOR, Meeting minutes & attendance sheets:

- Check the meeting minutes with attendance sheets of last 03 committee meetings for purpose of verification.
- Review team composition with multidisciplinary involvement to verify if matching with composition / structure of IPC committee members as described in Terms of Reference. *(Refer to composition under sub element 1)*
- Verify that the committee is chaired by hospital director or medical director (i.e., committee's chairman name should be reflected in term of reference and meeting minutes.
- Issues discussed in IPC committee meetings are assigned to concerned representatives and should be traceable and timely closed.

A-3.5 IPC committee meets on a regular basis (at least quarterly) or when required on urgent demand. (D)

Review the following documents:

- IPC committee meetings minutes to verify if the committee is meeting on regular basis **(at least each quarter)** and when needed. ***(Review at least last 03 previous meeting minutes).***

- The Chair can call special meetings when circumstances dictate.
  - ***a)*** Check the dates and attendance sheet to see the presence of 50% Quorum as mentioned in the TOR.

    * ***50% of Committee members + Committee chairman / deputy chairman shall constitute a quorum of regular & additional meetings.***
    * **If the Quorum is not met (i.e., attendance falls below 50% level of any meeting), the meeting must be rescheduled upon discretion of chairman.**

- Review meeting minutes of any urgent IPC committee meeting held in the previous months.
- **Urgent** IPC committee meetings must be conducted to address emergency /contingency situations ***like any National Infectious Diseases' Threats, HAI outbreaks or any other urgent issues affecting the patient safety.***

A-3.6	**Functions of IPC committee include, but not limited to: *(revision and evaluation of the IPC yearly plan, review and approval of IPC policies & procedures, review of surveillance data, & discuss respiratory protection program related activities & measures, etc).* *(D, SI)***

Review the following document:

- Review Infection Prevention and Control Committee term of reference (TOR) and meeting minutes to ensure incorporating functions as highlighted below. **
- Review the meeting minutes to check the content / issues discussed in past 03 meetings and check the status.

Functions include: **

A. Review of the hospital infection prevention and control policies and procedures.

(Check if hospital infection prevention and control policies and procedures manual was approved and signed by the committee members after thorough discussion and any required revision.)

B. Review the meeting minutes & check if healthcare associated infections surveillance data was presented and discussed by the infection prevention and control team with corrective interventions.

(Rate of HAI should be tracked and followed meticulously in the committee, AND the members should always suggest and agree – upon the appropriate actions.)

C. Check if annual Infection control plan was presented by infection prevention and control team with suggestion of additions/changes if necessary *and eventual approval of Annual IC plan.*

D. Evaluates and revises on a continuous basis the policies & procedures & the developed by the infection prevention & control team to serve established standards and goals.

E. Each member of the committee acts as an advocate of infection prevention & control in his department, trying to promote its principles, and ensures application of its rules. ***(Refer for more functions to Reference 1,2)***

F. ***Review the last committee meeting minutes and check if respiratory protection program was introduced and discussed in details.***

Staff Interview (SI)

Interview:

1) At random members of Infection Control Committee representatives during rounds *(ICU, OR, ER etc.)* to assess if they are aware and well informed about the functions of infection control committee, frequency of meetings etc.
2) Ask how they are acting as an advocate of infection prevention & control in his / her department, trying to promote its principles, and ensures application of its rules. ***(e.g encourage HCWs to comply with infection control policies and procedures in their respective units.)***

Example:

- ***High CLABSI rate in NICU was presented as urgent issue in last infection control committee meetings by IPC department.***
- ***Causes of high CLABSI rate and major issues were discussed with proposed corrective actions & approval of CLABSI improvement project for NICU.***
- ***Head / Representative from NICU & other team members in NICU should be aware of PIP as implementations would be executed through them as per suggested solution in IC committee meeting.***

3) Ask if committee representatives were aware about HAIs **(CLABSI, CAUTI, VAP/VAE, SSI, and MDROs)** & **Hand hygiene trends** projected in last committee meetings concerning their units and actions taken to reduce them. ***(VAP/VAE rate in ICUs & implementation of care bundles, SSI rates and SSI bundle compliance, Hand hygiene compliance rates, Respiratory Protection Program activities etc.)***
4) Ask if they face any new issue related to infection control in their unit /area, how they are addressing it?

Any new infection control issue must be brought to the attention of the infection prevention & control team & communicated to committee chairperson or designee for discussion in the IPC Committee with suggested solutions.

REFERENCES / WEB BASED RESOURCES:

1) *Ministry of Health: Guidelines for Infection Control Committee Terms of Reference. pdf (03-2023). Available online at www.gdipc.org.*
2) *https://www.infectioncontroltoday.com/general-hais/infection-control-committee*
3) *Core components for infection control prevention and control programmes. Geneva: World Health Organization; 2009 (http:// www.who.int/csr/resources/publications/WHO_ HSE_EPR_2009_1/en/index.html, accessed 18 October 2016).*

Element # A- 4 INFECTION PREVENTION & CONTROL PROGRAM

A-4.1 There is a program to reduce the risk of healthcare associated infections (HAIs) that involves patients, staff, trainees, volunteers, families, and visitors. (D, SI)

- **Infection Prevention & Control —** is the discipline / process by which health care facilities develop and implement specific policies and procedures to prevent the spread of infections among health care staff and patients.
- **Healthcare-associated Infections (HAIs)** — Healthcare-associated infections (HAIs) are infections that patients can get in a healthcare facility while receiving medical care. These infections are often preventable. (9)
- ***An Infection Prevention and Control (IPC) program*** is the most important component of safe, high-quality health service delivery. IPC program implemented in the hospital is critical not only to prevent HAIs but also to prepare for and respond to communicable diseases crises. (4)
- IPC program with a dedicated, trained team should be in place in each acute health care facility for the purpose of preventing HAI and combating AMR through IPC good practices. (3)
- Purpose of IPC program is to eliminate the risk of HAIs and work related infections within the healthcare facility through the implementation of established guidelines and policies.
- Hospital Acquired Infections are one of the most common complications or adverse events affecting patients and health care workers. They result in increased morbidity and mortality and impact on the capacity of health systems to function effectively. ***HAI also increase health care costs and can result in the increased usage of antimicrobial agents, thereby fueling the problem of AMR. In 2011, WHO reported that 7% of patients in developed and 10% in developing countries will acquire at least one HAI at any given time.*** (4)
- According to the Centers for Disease Control and Prevention (CDC), 1 in 25 hospitalized patients will get an infection because of the care they receive. An estimated 75,000 patients will die each year.
- Because HAIs are a threat to patient safety, hospitals and healthcare facilities need to implement an efficient, comprehensive infection control program to ensure patients, staff & visitors safety. These interventions have led to an increased focus in prevention efforts, as well as improvements in clinical practice and medical procedures. (9)
- IPC Teams need to incorporate a set of essential core components to help plan, organize and implement an IPC programme. (4)
- These core components, together with their constituent elements, should be implemented in line with the priorities of the IPC programme and the resources available and adapted to both national and healthcare facility level. (4)

Review:

Hospital's infection prevention & control program incorporating following core elements included but not limited to:

- **Program Introduction**
- **Goals, Mission & Vision of IPC Program**: *Goals of the infection prevention & control program need to be incorporated into the mission statement of the facility. A mission statement should tell who you are, what you do, and should communicate a clear view of purpose and set a strategy for accomplishing the goals e.g. "**Our mission is to promote a healthy and safe environment by preventing transmission of infectious agents among patients, staff and visitors"***
- **Organizational structure** of the IPC program (IPC staffing & responsibilities)
- **Infection Control Committee**
- **Scope of service**: *Activities performed by the Prevention and Control of Infection Department members fall with updated Infection control standards and these include the following:*

a. **Surveillance** of Healthcare associated infections & Antimicrobial Resistance (AMR).[2]
b. IPC activities related to patients, visitors and health care workers' safety and the prevention of AMR transmission. *(Hand hygiene program, respiratory protection program, Employee health Program etc*.
c. Development or adaptation of **guidelines** and standardization of effective preventive practices ***(standard operating procedures)*** and their implementation.
d. Ensuring implementation of at least: **- standard precautions** - **transmission- based precautions** - appropriate selection and use of IPC supplies ***(for example, personal protective equipment, hand hygiene products, antiseptics, etc.) –***
e. Assurance that patient care activities are undertaken in a **clean and hygienic environment** and supported by adequate infrastructures.
f. Maintaining effective **aseptic techniques** for health care practices.
g. **Reduce risks** associated with procedures, medication preparation and invasive devices.
h. **Outbreak prevention and response**, including triage, screening, and risk assessment especially during community outbreaks of infectious diseases with immediate communicable disease reporting.
i. **Health care worker education** and practical training.
j. **Education of patients, visitors and families** about prevention and control of infection procedures.
k. **Assessment and feedback** of compliance with IPC practices.
l. Assurance of continuous procurement of adequate **supplies** & equipment's relevant for IPC practices. **Environmental monitoring** (waste management, food service, water and air monitoring)
m. **Monitoring and evaluation** of IPC program ***(Process & Outcome indicators)***

Additional Program Components / services:

- Housekeeping services, CSSD services, laundry services, pharmacy services & FMS etc.
- Infection control risk assessment & development of annual IC Plan
- Performance improvement projects.

Aim of Infection prevention & control program is to ensure safety of patients, staff, trainees, volunteers, families, and visitors by their involvement.

Patients:

Patients are integrated within the infection prevention & control program through education. They are aware of their rights, concerns of their safety and standard precautions to be followed. Some examples of how patients can contribute in reducing HAIs.

- ***Patient must observe doctor or nurse whether they cleaned their hands? If not, patients must remind / ask them to wash their hands with soap and water or an alcohol-based hand rub (hand sanitizer) before they start working with them.***
- ***Ask visitors to clean their hands every time they enter room. And ask them to follow any special instructions given by doctors and nurses.***
- ***Patients must clean their own hands often with soap and water or hand sanitizer, especially after using the bathroom.***
- ***Patients must cover mouth and nose if they cough or sneeze, with a tissue and discard the tissue right away followed by hand hygiene.***
- ***If patient's treatment involves a medical device like a urinary catheter or central line, they must ask the doctors and nurses why it's needed and when it will be removed.***
- ***Patients must report any unusual sings & symptoms to the healthcare providers. [7]. Some signs and symptoms of an infection include redness, pain, and drainage at the incision site or at the site of the catheter or drainage tube etc***
- ***Patients must protect themselves with vaccinations. Remember to get vaccines as recommended by healthcare provider.***

Staff & Trainees:

Staff must ensure strict adherence to hand hygiene, compliance with IPC work practices, appropriate use of personal protective equipment, compliance with all infection control policies and procedure, reporting exposure to communicable illness & needle stick injury etc.

Visitors & Families:

All visitors' areas must be under infection control supervision.

- Visitors should be educated on precautions to be taken while being in the surrounding of a patient, the importance of hand hygiene and the isolation precautions required in case of isolated patients.
- Visitors should also be educated on the importance of not visiting patients while having a contagious disease.
- Infection control department must communicate with all patient care areas /department in order to ensure compliance with the correct visiting time in accordance with the hospital security plan.

Comments:

- ***Above-mentioned activities / program components are mentioned as brief only.***
- ***Facilities need to have a detailed infection prevention& control program according to scope of hospital services.***

Staff Interview (SI)

Interview:

- Infection prevention & control Team about the IPC program – how it is formulated & implemented in various hospital areas.
- Ask about the mechanism of hospital wide implementation of various program components.
- Ask about the monitoring, evaluation & feedback process to all stakeholders.
- Ask how the patients, staff, trainees, volunteers, families, and visitors are involved in th care process to reduce risk of HAIs.

Each of us—patients, families, and healthcare personnel—has an important role to play in keeping patients safe from infection. Learning about the most common HAIs will help patients and their families stay healthy while receiving healthcare.

A-4.2 The program is applied to all areas of the hospital according to the scope of services. (D, O, SI)

- ***Scope of hospital services*** *is a structural measure that reflects whether a hospital has the resources—facilities, staff, and equipment—to treat and provide care for the medical conditions affecting potential patients.*
- ***Services directly related to patients includes*** *emergency services, outpatient services, inpatient services, services in Intensive care units & operative rooms (OR) etc.*
- ***Supportive / auxiliary services:*** *CSSD, dietary services, pharmacy services, laundry, laboratory services, radiology services & housekeeping etc.*
- ***Each patient care & support service department*** *must have relevant infection prevention & control program with detailed referenced policies & procedures, fully applicable according to the services provided by the unit.*

Review the following document:

- IPC Policy and procedure for each individual program / department in an electronic system, manual or any written and printed documents.
- Check if hospital has specific / relevant IPC program implemented according to the scope of services type of unit /department.

For example, at least following policies & procedures related to specific program must be available in Intensive Care Unit:

- *Standard & expanded infection control program* ***(Isolation precautions etc.)***
- *Aseptic Technique*
- *Hand Hygiene program*
- *Respiratory Protection Program*
- *HAI surveillance Program including the prevention bundles. (Central line, Urinary Cather, Ventilator & MDROs bundles)*
- *Active screening & Outbreak Management Program*
- *AMR Program*
- *Employee Health Program (Post exposure Management & follow up etc.)*
- *Waste Management & housekeeping Program*
- *Training & Education Program (In service) etc.*

Observation (O)

Observe:

If the HCWs are practicing and providing services in alignment with the IPC standards and measures related to their scope and mandate of their departments. e.g.

- *Practicing 5' moments of Hand Hygiene*
- *Selecting & using appropriate PPE according to type of isolation precautions*
- *How to don a fit tested - seal checked N95 with appropriate technique.*
- *Not recapping needles & safe sharp disposal*
- *Aseptic technique during medication preparation*
- *Appropriate signage / reminders posted in appropriate languages (Hand hygiene & PPE donning / doffing posters, etc.)*
- *Appropriate IPC education materials are posted (e.g. case definition & education about MERS – CoV, Cough etiquettes / Respiratory hygiene etc.)*
  Hospital hygiene (Floors, surfaces, cabinets etc.

Staff Interview (SI)

Interview:

- *Check knowledge by asking staff in different hospital area to assess if they are oriented and aware about various infection control programs & their role in HAI reduction.*
- *Randomly ask any clinical staff to enumerate various infection control programs / subprograms.*
- *Ask staff about role of hand hygiene in reducing burden of hospital acquired infections.*
- *Ask staff if they could identify the differences between transmissions-based isolation precautions and required PE for each type. (Airborne, Droplet and Contact precautions)*
- *Ask about Importance of practicing care bundles for prevention of device associated HAIs, SSIs & MDROs. etc.*
- Assess If HCWs can apply IPC services, practices, and measures while they are working or handling the patients.

Staff Interview (SI)

Give them specific tasks to demonstrate according to the unit /area:

- How to prepare & transport medication to the patients?? *(Assess hand hygiene, aseptic technique etc.)*
- Ask about protocols of patient transportation under airborne isolation precautions??
- Ask about elements of any care bundle (SSI, VAP, Central line etc. & their implementation; ***How will you perform oral care for ventilated patients??***
- Preoperative measures for prevention of surgical site infections?? etc.
- Ask about steps of post exposure follow up & management of needle stick injuries etc***. (Assess implementation of employee health program)***

An ongoing program of theory and practice for continuing education is a major requirement and mandate. Therefore, education, reminders, and instructions on infection prevention and control practices and the principles of Standard Precautions are available for all categories of staff, patients, families, and sitters through the IPC Department.

A-4.3 The IPC program is based on current scientific knowledge, referenced practices guidelines and applicable national laws and regulations. (D, SI)

Review the following documents:

IPC Program & check for references:

- IPC program should be based on scientific references.
- Each hospital / organization supports a comprehensive infection prevention and control program within the recommendations of the **World Health Organization (WHO)** and Centers for Disease Control and Prevention **(CDC)**, standards of the **JCIA**, and the guidelines of the **Ministry of Health (MOH)** & IPC standards of local accrediting body.
- All relevant references must be kept in Infection control office and used as evidence for updating, answering and facing any scientific debates.
- References would include **APIC, CDC, WHO, IHI, FDA, OSHA, GCC, MOH etc.**

1. Association for Professionals in infection Control and Epidemiology *(APIC):*

- The Association for Professionals in Infection Control and Epidemiology (APIC) is the leading professional association for infection preventionists (IPs) with more than 15,000 members.
- It was established in 1972 to provide education & science-based information to strengthen & improve practice of infection Control by developing professional and practice standards, education & training programs, scientific journal etc.
- It established Certification Board of Infection control & epidemiology **(CBIC)** in 1982 to administer an infection Prevention & control certification Program **(CIC)**
- APIC is a major proponent of zero tolerant perspective for HAIs. This idea requires culture change for healthcare workers where no infection is perceived as acceptable by any member of healthcare team.

2. Centers for Disease Control & Prevention (CDC): [2]

- The Centers for Disease Control and Prevention (CDC) is the leading national public health institute of the United States formed on July 1, 1946.
- It especially focuses its attention on infectious disease, food borne pathogens, environmental health, occupational safety and health, health
- promotion, injury prevention and educational activities designed to improve the health of citizens.
- In the 1960s, the Centers for Disease Control and Prevention (CDC) began recommending that hospitals conduct surveillance for the occurrence of nosocomial infections.

3. Food & Drug Administration (FDA): [2]

- FDA is responsible for implementing, monitoring & enforcing standards for the safety, efficacy & labeling of all drugs and biologicals for human use.
- Activities related to IC teams food, blood, & medical devices (especially single use devices) and antimicrobial products and chemical germicides used with medical devices.

4. Institute for healthcare improvement (IHI): [2]

- Independent not - for - profit organization helping to lead the improvement of healthcare throughout the world.
- IHI works to accelerate improvement by building the will for change, cultivating concepts for improving patient care, and helping healthcare systems put those ideas in) action (e.g. Healthcare bundles etc.)

5. Joint Commission (JCIA): [2]

- Joint commission started publishing minimum infection prevention & control standards in 1953.
- JCIA standards are used by many institutions including hospitals, long term care facilities in order of establish a framework for an infection prevention program.

6. National Institute for occupational safety & health (NIOSH): [2]

- Established in 1970 & became part of CDC in 1973.
- Responsible to conduct laboratory and epidemiological research on occupational hazards.
- Decisions regarding type of devices used for employee's protection (Respirators, sharp containers) are part of NIOSH mandate.

7. Occupational Safety & Health Administration (OSHA): [2]

- Began infection prevention & control activities in 1973 with publication of blood borne pathogens rules.
- OSHA standards focus on determining employee's health risks as a result of exposure to communicable diseases.

8. World Health Organization ("WHO"):

- World Health Organization (WHO) is a specialized agency of the United Nations that is concerned with international public health. It was established on 7 April 1948, and is headquartered in Geneva, Switzerland.
- Aim is to ensure health promotion via elimination & eradication of communicable diseases, Antimicrobial resistance, training of health workforce, & improve monitoring data & information. Etc.

9. Gulf Cooperation Council Center for Infection Control (GCC - CIC):

- GCC manual was designed to give up-to-date guidelines for the GCC States that provides evidence-based infection control practices for all healthcare settings.
- The consistent application of proper infection control principles and practices in all healthcare activities is necessary to achieve the goals of optimum patient safety and ensure best outcomes. [(1)]

10. **National References: (Ministry of health (MOH)**

- Reference of national guidelines / MEMO pertaining to specific programs ***(National outbreak guidelines, national MERS –CoV guidelines, National guidelines for Hemodialysis & dental units etc.)***

Staff Interview (SI)

Interview:

- ❖ IPC team on how they developed their policies in comparison to the references, scientific facts and current regulations.
- ❖ They should give an example of how they used these scientific references.

e.g., how they have developed policies & procedures for Antimicrobial resistance (AMR) program and how & which references they have incorporated.

REFERENCES / WEB BASED RESOURCES:

1) *APIC text of Infection Control & Epidemiology: Infection Prevention & control programs http:// text.apic.org/toc/overview-of-infection-prevention-programs/infection-prevention- and-control-programs 2022*
2) *Core components for infection control prevention and control programmes. Geneva: World Health Organization; 2009 (http:// www.who.int/csr/resources/publications/WHO_ HSE_EPR_2009_1/en/index.html, accessed 18 October 2016).*
3) *https://www.who.int/csr/resources/publications/AM_CoreCom_IPC.pdf*
4) *https://apic.org/about-apic/about-apic-overview/*
5) *https://www.cdc.gov/hai/pdfs/guidelines/basic-infection-control-prevention-plan-2011.pdf*
6) *https://www.cdc.gov/*
7) *https://www.shea-online.org/index.php/practice-resources/patients*
8) *https://apic.org*

Element # A-5 INFECTION PREVENTION & CONTROL ANNUAL PLAN

A-5.1 **The annual plan is based on Infection Control Risk Assessment - ICRA (i.e., addresses processes, procedures resources, and devices that are identified by the IPC practitioners to be associated with risk of HAIs). (D, SI)**

Annual IPC Plan: is a written, risk-based document with goals and measurable objectives, strategies and evaluation methods.

Risk Assessment: is a term used to describe the overall process or method to identify & evaluate risk factors that have the potential to cause harm to the patients, staff & visitors.

Why to perform an Annual Risk Assessment?

Helps focus activities on essential tasks to reducing critical infection control risks:

- *Improves patient safety.*
- *Improves staff safety.*
- *Improves efficacy (desired results)*
- *Identifies training issues.*
- *Understanding of disease transmission and prevention*
- *For implementing new interventions etc.*

Review the following:

- **Infection Control Risk assessment (ICRA)**
- **Infection Prevention & Control Annual Plan**

(Match ICRA & Annual IPC Plan with below described steps & protocols with examples)

Steps Involved in risk Assessment:

Step 1: Annual Infection Prevention & Control Program Review:

(Analyze & review data which is the basis of the annual risk assessment)

- *Data aggregation and analysis*
- *Healthcare-acquired infection trends (Identified infections with the highest probability and potential for harm (known risk, potential risk, contamination, exposures)*
- *Compliance with infection prevention & control aspects*
- *The required number of the negative pressure rooms (using ICRA or formula to determine the number of AIIR)*
- *Communicable diseases (prevalence rates, incidence rates)*
- *Identified environmental issues / concerns.*
- *Identified organizational areas of weakness*

Step 2: Risk Assessment Grid / Tool:

PURPOSE:

- *Rank risks by score to determine organizational priorities*
- *Assist in determining where to focus with available resources*
- *Provides basis for developing the Infection Control Plan*
- *Identify gaps in infection prevention measures / processes*
- *Provide leadership and patient care providers with known and potential risks, which can directly affect patients, & Health care providers.*

Risk Assessment Scoring:

A Numeric scoring system based upon probability of event occurring.

- *Multiply the ratings for each risk in the area of **probability, impact and organization preparedness** = **Risk Score***
- *Rank risks by total score to help identify priorities*
- *Sort in order of risk*
- *Priorities are used in the development of the **Infection Prevention & Control Plan***

Infection Control Risk Assessment

INFECTION CONTROL ANNUAL RISK ASSESSMENT																
HOSPITAL NAME:						REGION:		YEAR		BED CAPACITY :						
Potential Risks	Probability of Occurrence					Risk/Impact (Health, Financial, Legal, Regulatory)					Current Systems/Preparedness					Score
	Expected	Likely	Maybe	Rare	Never	Life Threatening	Serious Loss	Prolonged Length of Stay	Moderate Clinical	Minimal Clinical	None	Poor	Fair	Good	Solid	
	4	3	2	1	0	4	3	2	1	0	5	4	3	2	1	
Failure of Prevention Activities																
▪ Lack of Hand Hygiene Compliance		3				4							3			36
▪ Lack of Resp Hygiene/Cough Etiquette																
▪ Lack of Supplies for Hand Hygiene																
Isolation Activities																
▪ Lack of Standard Precautions																
▪ Lack of Airborne Precautions	4					4						4				64
▪ Lack of Droplet Precautions																
▪ Lack of Contact Precautions																
▪ Lack of Supplies Necessary for Isolation																
HAI Surveillance																
▪ SSI	4					4							3			48
▪ VAP in ICUs																
▪ CLABSI in ICUs																
▪ Dialysis-Related Infections																
▪ CAUTI																
▪ Outbreak																
▪ Sentinel Event																
▪ Other-HAI																

STEP 3: THE ANNUAL INFECTION CONTROL PLAN

Potential Risks / Problems	Goals /Objectives	Strategies / Interventions	Responsible persons	Timeframe	Method of Evaluation
Procedure related risk: **2: Surgical Site Infection,** **Rationale:** Surgical site infections are the most common healthcare associated infection, accounting for 31% of all HAIs among hospitalized patients. SSIs are a substantial cause of morbidity, prolonged hospitalization, and death. Procedures involving contact with a medical device or surgical instrument with a patient's sterile tissue or mucous membranes poses a major risk of introducing pathogens which can lead to infection. Failure to properly clean, disinfect or sterilize equipment may lead to SSIs.	**To ensure Patient Safety** **Overall SSI rate ≤ 0.50%** **C-Sec** = Reduce by 50% Number of SSI / Expected SSI **100% compliance** with elements of Surgical Bundle **100% percent compliance** with defined process for cleaning, disinfection and sterilization of critical and semi- critical devices and instruments	Strict implementation of surgical bundle Provision of resources to implement bundle variables (prophylactic antibiotics, clippers etc.) Continuous Training & Education of OR staff Improve patient's education on pre-operative showering post discharge wound care etc., Distribution of updated antibiotic policy Meticulous sterilization practices.	Surgical staff, surgeons, Anesthesiologist Central Sterile Processing Staff Infection Control Team Patient Educators TQM Team	Annually January 1, 2022 till December 31, 2022 Daily/ Monthly/ Quarterly follow up	**SSI preventive Checklist** monitoring **(Daily/weekly rounds** **SSI Rate (Monthly / Quarterly)** **SSI Bundle Compliance rate (Monthly/ Quarterly)** SSI rates per 100 operative procedures are calculated by dividing the number of SSIs with the number of specific operative procedures and multiplying the results by 100 SSI rate calculations are performed separately for different types of operative procedures and stratified by the basic risk index

Comment:
Review the IC committee meeting minutes to confirm annual evaluation and approval of the IPC plan by the IPC committee

Staff Interview (SI)

Interview:

- Infection Control Team about steps involved in risk assessment & components of ICRA.
- Ask how they will identify & grade according to probability of occurrence, Impact on patients, staff & visitors & facility preparedness for that risk.
- Let them pretend any risk and conduct IC risk assessment for that specific risk.

A-5.2	**The plan includes goals for patient safety (e.g., standard precautions, transmission-based isolation precautions, Healthcare bundles, and patient/family education). (D, SI)**

Document (D)

Review the annual Plan & verify:

- If these components ***(standard precautions, transmission based isolation precautions, healthcare bundles, and patient / family education and alike)*** are mentioned clearly in the plan in a detailed fashion, in which the objectives and activities are written along with the KPIs relevant to them.
- If there is any risk assessment for the patient safety data available, e.g., health care bundles are well – related to the HCAIs rates.

Example: ***Isolation Activities:***

Potential Risk: *Lack of Airborne Precautions / AIIRs in the facility*
Goals / Measurable Objectives: *Provide adequate isolation facilities / AIIRs according to the risk assessment outcomes.*
Strategies / Methods: **1**: *Send request / Follow up previous requests for provision of Negative pressure isolation rooms, HEPA filters & fixed monitors for continuous monitoring of negative pressure differentials & Air changes per hour etc.* **2**: *Make clear guidelines on management of patients with airborne infections till availability of Airborne Infection Isolation Rooms (AIIRs)*
Responsible Person (s): *Higher Administration, Infection control Team for follow up, Directorate / Ministry (MOH hospitals only)*
Timeframe: *Annually January 1, 2023 - December 31, 2023 with specified timeframe for each activity*
Monitoring / Evaluation: *Assessment of the need for more airborne isolation rooms depending on the volume of patients in need for airborne isolation admitted to the hospital and the average length of stay.*

Staff Interview (SI)

Interview:

- IPC team to explain the rationale behind the existing annual plan.
- IPC practitioners to enumerate goals for patient safety.
- Ask staff to describe and explain the followings:
  - *How did they prepare / write the plan? (Mention the steps of the appropriate plan format, logical framework including the elements like risk priority, objectives, situation analysis, activities linked with time, place, persons and others...)*
  - *How could they monitor and evaluate the progress of plan via* ***Key Performance Indicators***

A-5.3 The plan includes goals for healthcare workers (HCWs) safety (e.g., staff immunization, post exposure management, and HCWs education). (D,SI)

Review the annual Plan & verify:

- If these components **(e.g.: HCWs immunization, post exposure management, and HCWs education)** are mentioned clearly in the plan in a detailed fashion, in which the objectives and activities are written along with the **KPIs** relevant to them.
- If there is any risk assessment for the HCWs safety data is present e.g. post exposure management are well – related to the incidents or reports of contracting infections. ***Number of Needle stick injuries reported in 2022 etc***

Example: ***Staff Safety***

Potential Risk: *Declining influenza vaccination coverage among Health Care Workers*

Goals / Measurable Objectives: *100% influenza vaccination coverage among targeted heal care workers.*

Strategies / Methods: **1**: *HCWs Education & awareness regarding importance of influenza vaccination.* ***2****: Availability of adequate vaccines & relevant IPC supply.* ***3:*** *Explore & add reasons for declining rate.* ***4:*** *Disciplinary procedures for HCWs who are noncompliant with the vaccination policy.*

Responsible Person (s): *Employee Health Team, Infection prevention & control Team*

Timeframe: *Annually January 1, 2022 - December 31, 2022 with specified timeframe for each activity*

Monitoring / Evaluation: *Vaccination census & coverage rates in each quarter*

Staff Interview (SI)

Interview:

- IPC team to explain the rationale behind the existing annual plan.
- Staff to enumerate goals for staff safety.
- If they could easily describe and explain the followings:
  * *How did they prepare / write the plan? (Mention the steps of the appropriate plan format, logical framework including the elements like risk priority, objectives, situation analysis, activities linked with time, place, persons and others...)*
  * *How could monitor and evaluate the progress regarding KPIs of staff safety?*

A-5.4 The plan includes metrics of required changes in targets and goals to measure achieved proposed activities. (D, SI)

Document (D)

Measurement is essential to monitoring success and helps guide team towards specific intervention goal. Measurement also tells what's working and what's not and provides evidence to inspire other healthcare providers to improve the quality of patient safety. Metrics is a system or standard of measurement.

Review the following documents:

1) Annual Plan to check for presence of the **KPIs** column in the logical framework of the plan.
2) Any document written and approved to convince that mechanism of follow up and monitoring is established and functioning.
3) Metrics of required changes in targets and goals to reduce hospital acquired Infections.
4) Monitoring and evaluation processes, dashboards, indicators are clearly present in any form e.g. electronic or manual.

Purpose of Monitoring: [1]

IPC program should be periodically evaluated to assess:

- *The extent to which the objectives are met, the goals accomplished.*
- *Whether the activities are being performed according to requirements.*
- *To identify aspects that may need improvement identified via standardized audits.*
- *Regular monitoring / evaluation of goals and timely feedback of health care practices according to IPC elements should be performed to prevent and control HAI and AMR at the health care facility level. Feedback should be provided to all audited persons and relevant staff.*

Staff Interview (SI)

Interview:

1. If the IPC personnel are well acquainted with the technique of how to develop a system of monitoring and evaluation in terms of setting **KPIs** according to the required goals.

2. If are they responding effectively and efficiently to any declining /decreasing rates and failure to achieve the previously – set goals.

ANNUAL PLAN GOALS PROGRESS TRACKER - 2022

Priority Area	KPIs / Metrics	Target / Benchmark	Progress Measurement											
			Quarter 1 (Jan - Mar)			Quarter 2 (April - June)			Quarter 3 (July - Sep)			Quarter 4 (Oct-Dec)		
			Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
HAI SURVEILLANCE	HAI RATE													
	CLABSI RATE													
	CAUTI RATE													
	VAE RATE													
	SSI RATE													
	PATIENT CARE BUNDLES													
	SURGICAL BUNDLE COMPLIANCE													
	CENTRAL LINE BUNLDE COMPLAINCE													
	VENTILATOR BUNDLE COMPLIANCE													
	URINARY CATHETER BUNLDE COMPLAINCE													

Priority Area	KPIs / Metrics	Target	Progress Measurement											
			Quarter 1 (Jan - Mar)			Quarter 2 (April - June)			Quarter 3 (July - Sep)			Quarter 4 (Oct- Dec)		
			Jan	Feb	March	April	May	June	July	Aug	Sep	Oct	Nov	Dec
TRAINING & EDUCATION	Percentage % training coverage of ICU Doctors	100%												
	Percentage % training coverage of ICU nurses	100%												
	Percentage % training coverage of HDU nurses	100%												

REFERENCES / WEB BASED RESOURCES:

1) *http://apicnyc.org/uploads/3/4/0/6/34063157/04_infection_prevention_plan_risk_assessment_ and_isolation_recs_-_m_pavia_10-26-2018.pdf*
2) *http://www.cdc.gov/ncidod/dhqp/pdf/guidelines/Enviro_guide_03.pdf*
3) *Core components for infection control prevention and control programmes. Geneva: World Health Organization; 2009 (http://www.who.int/csr/resources/publications/WHO_HSE_EPR_2009_1/en/index.html, accessed 18 October 2016).*
4) *https://www.cdc.gov/hai/pdfs/guidelines/basic-infection-control-prevention-plan-2011.pdf*
5) *https://www.who.int/infection-prevention/tools/core-components/IPCAF-facility.PDF*
6) *https://www.who.int/infection-prevention/tools/core-components/facility-manual.pdf*

Element # A-6	INFECTION PREVENTION & CONTROL MANUAL (IPC POLICIES & PROCEDURES)
A-6.1	Infection prevention & control policies and procedures are developed by IPC department to be approved by IPC committee (policies and procedures are based on approved by MOH guidelines & scientific references (e.g., GCC, CDC, WHO or APIC). (D)

- ***Evidence-based Policies & Procedures / guidelines should be developed and implemented for the purpose of reducing HAI and AMR. The education and training of relevant health care workers on the guidelines and the monitoring of adherence with guideline recommendations should be undertaken to achieve successful implementation.[2]***
- ***Appropriate IPC expertise is necessary to write or adapt and adopt a guideline both at the national and health care facility level. Guidelines should be evidence-based and reference international or national standards. Adaptation to local conditions should be considered for the most effective uptake and implementation.[2]***

Review:

- All Infection prevention & control policies & procedures related to Infection Control.
- Review IPC policies and procedures to make sure that they are developed by IPC staff and approved by the IPC committee.
- Verify in each policy that all IPC policies and procedures are developed by infection prevention & control department in collaboration with relevant medical staff, nursing staff and other internal and external stakeholders.

For example: Policies & Procedures related to Hemodialysis unit (HDU) should be developed in collaboration with head of HDU, nursing services department, environmental health etc.

Check for following in each Policy & Procedure:

1) **Validity:** All P/P should be valid (updated within 2 - 3 years and when indicated)

2) **Title of Policy:** ". Title should be clear, concise, and matching with the content.
Instead of "**Blood Spill**" would be "**Management of Blood & body fluid spills**"

Other examples as follows:

Old Title	Suggested improved Title
Outbreaks	***Management of Infectious Diseases Outbreaks***
Dental Unit	***Infection Control Measures in Dental Settings***
Waste Management	***Management of Infectious Medical Waste***

3) Content of policy:

- **Comprehensive:** Covers all aspects of infection control relevant to particular unit, program etc.
- **Fully applicable**: All elements of the policy can be applied and comply with the hospital's scope of services.

4) References: All P/P to be based on scientific & approved references such as MOH, GCC, CDC, WHO & APIC (Refer to sub element 4:03 for more details for each referencing body)

5) Signatories:
Signed from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department head)

6) Approvals: Each policy & procedure should be discussed and approved by IPC Committee (Check for specific policy approval in the documented Infection prevention & control committee meeting minutes)

Approval by IPC committee is required for the infection control manual as a whole before distribution and for individual policy after major changes.

A-6.2 IPC policies and procedures are organized in one manual that is well-distributed and available in all hospital areas. (D, O, SI)

- ***Every facility should have an infection prevention manual compiling evidence- based practices for patient care.***
- ***This manual should be developed and updated in a timely manner by the infection prevention & control team.***
- ***It is to be reviewed and approved by infection prevention & control committee.***

Review:

Infection Prevention & Control Manual & check for following:

1) IPC Manual is updated as per hospital policy.
2) Nicely designed & appropriately indexed with table of contents ***(Policy number, Title of Policy & Page numbers.)***
3) Divided into appropriate sections for ease of accessibility ***(Administrative policies, Departmental policies & procedures, Isolation Procedures, Environmental health, Support services etc.)***
4) IPC Manual must be available in the infection prevention & control department ***(Electronic + Printed version)***
5) The manual must be available in each department. ***(Electronic or hard version)***

Importance of written documents is considered least not to encounter shut down of the electricity / system failure.

Observation (O)

Observe:

- Availability & accessibility of policy and procedure documents in each department.
- Healthcare workers are familiar with the policy and procedure and know how to access the system whenever needed.

Staff Interview (SI)

Interview:

1. ***Staff about availability of Infection Prevention & Control Manual (Electronic and/ or Manual)***
2. ***Staff to enumerate infection prevention & control policy and procedures (P/P) applicable for their department.***

For example, in ICU: Staff must mention

- P/P for standard precautions
- P/P for Transmission based precautions
- P/P for Aseptic technique
- P/P for Patient's Care Bundles for Prevention of HAIs & MDROs
- P/P for Cleaning & disinfection of Medical Equipments
- P/P for Housekeeping Services
- P/P for Management of infectious Waste etc.

3. ***Randomly ask any staff to access policies & procedures for Prevention of central line associated Blood stream infections incorporating Central line care bundles.***
4. ***Ask staff what alternate they have if the system is down (For hospitals relying electronic versions of IPC Manual only)***
5. ***Ask staff what alternate they have if the system is down (For hospitals relying electronic versions of IPC Manual only)***

A-6.3 Infection control policies and procedures are revised periodically by the infection control department every 2-3 years, or when required. (D)

Document (D)

Review:

- Main policy stating the periodic revision of each policies and procedures. ***(2 OR 3 years)***
- Any relevant document stating P/P will undergo revisions every ***2 OR 3 years*** & when required. *For example, if new guidelines from ministry or new updates are available.*
- Match the revision dates mentioned on the policies with the periodic revision policy for purpose of verification.

NOTE:

1: Policies and procedures exceeding the revision dates will be considered (Not met)

2: Each hospital should start revision process ahead of time in order to avoid delay.

3: Any new guidelines / updates released from Ministry of Health need to be incorporated in the policies within 2 months maximum.

REFERENCES / WEB BASED RESOURCES:

1. *Core components for infection control prevention and control programmes. Geneva: World Health Organization; 2009 (http:// www.who.int/csr/resources/publications/WHO_ HSE_EPR_2009_1/en/index.html, accessed 18 October 2016).*
2. *APIC text of Infection Control & Epidemiology: Infection Prevention & control programs http:// text.apic.org/toc/overview-of-infection-prevention-programs/infection-prevention- and-control-programs – 2022*
3. *https://www.who.int/csr/resources/publications/AM_CoreCom_IPC.pdf*
4. *https://apic.org/about-apic/about-apic-overview/*
5. *https://www.cdc.gov/*
6. *https://www.who.int/infection-prevention/tools/core-components/facility-manual.pdf*

Element # A-7

INFECTION PREVENTION & CONTROL EDUCATION & TRAINING

A-7.1 Annual infection control training program is based on need assessment and include basic and specialized infection prevention & control training sessions. (D, SI)

- ***Basic goal of healthcare education and training is to improve job skills and competence of HCWs.***
- ***Workplace training in healthcare is a response to importance and emerging issues in the field and tends to be problem focused.***
- ***Workplace education is tied to administrative and financial goals, productivity, and the need to benchmark against the best professional practices. Learning retention increases when immediate application follows instruction.***
- ***Needs assessments or performance improvement studies identity deficiencies in knowledge, skills, or attitude and serve as the basis for educational program development.***
- ***Need assessment is a process for determining the needs, or "gaps," between a current and desired outcome.***

Document (D)

Review:

- Annual IPC training plan should not be routine and include the same programs and topics, but it should be updated annually based on IC need assessment, and HCWs interests that include lectures and practical training sessions.
- In addition, annual training plan need to be updated periodically if there is any increased infection rate reported from any unit.
- ***e.g. increased VAE rate in ICUs necessitates urgent training program including all personnel involved in ventilator insertion and care Although if there is an emerging case to prevent an outbreak inside HCFs or in the region.***
- Educational programs should also include basic programs for all HCWs. However, the specialized program for different HCWs categories who work in the **OR, Surgery department, ICUs, AKU, etc.**
- Educational program courses and training workshops shall cover all kinds of IPC personnel of different specialties and categories ***(trainee, volunteers, new employees, lab, OR, etc…).***

Staff Interview (SI)

Ask:

- Interview the IPC staff about Justification for programs included in the annual training plan and methods used for need assessment either survey, group discussion, personal interview, analysis of internal reports, etc.

A-7.2 IPC department provides continuous education and training (formal & on- job training) for HCWs on infection prevention & control with competency assessment. (D, PF, SI)

Document (D)

Training & education *is the most important domain of infection prevention & control program to ensure and sustain the competencies of healthcare workers (HCWs) in infection control practices by limiting the chances of infectious disease transmission among HCWs, patients, sitters, and visitors. This can be achieved by ensuring all HCWs are properly informed, trained and provided with the required knowledge and skills on infection control best practices. Further, by engaging leadership support to provide the necessary resources for implementing trainings on infection prevention & control best practices & establishing auditing tools on performance measurements to ensure the accountability of leadership and HCWs.*

Competence *implies an expert level of knowledge and skill that is transferable to the practice of infection prevention and control.*

Learning *is a way to transform knowledge, insights, and skills into behavior.*

Accountability *is being responsible for one's own actions and disclosing the results in a transparent manner.*

Review:

- Training file that includes documentation of previously conducted training activities.
- It must include schedule, list of attendees, competency testing.

Personal File (PF)

Review:

- Random selection of a number of personal files to review the certificates of pre-employment training and competency together with any documented specific training certificates.

Staff Interview (SI)

Ask:

- Ask the staff about Last IPC course or on job training they attended.
- Ask the staff about **KAP** acquired from attending this course.
  (KAP: Knowledge, Attitude, Practice)

NOTE:

- ***Competency assessment should be conducted for all Health Care Workers based on assigned area and nature of work in order to have skilled & competent workforce.***
- ***For instance, staff working in Intensive care units ICU, NICU PICU etc must undergo competency assessment for care bundles for prevention of CLABSI, CAUTI, VAE etc***
- ***Similarly, HCWs working in ER must have valid competency Assessment for Respiratory Triage etc & likewise the job specific competency assessment for OR, CSSD & lab staff.***
- ***Competency done for Hand Hygiene and PPE use ONLY is not enough.***

A-7.3 IPC department provides orientation and training on basics of infection prevention & control for newly hired HCWs before or maximum within 1 month of joining their work. (D, SI)

Document (D)

Review

- Randomly request a sample from personal files of a newly hired HCW to look for their IPC training attendance and competencies.

Staff Interview (SI)

Ask

- Ask the staff if they have received any formal or on job training upon hiring HCWs must be able to recall and explain the title and components of any training program that they previously attended upon hiring.
- Assess staff knowledge by asking to describe and explain any types of IPC services and practices ***e.g. ask about the difference between standard and transmission – based precautions, aseptic technique during medication preparation etc***

A-7.4 IPC department provides education on infection prevention & control for patients, families, and visitors. (D, SI)

Document (D)

Review:

- If there is any document that is designed and formulated to help in the education of the patients and visitors, e.g. plans and posters, brochures….
- The educational programs designed for visitors and patients if they are valid and incorporate all relevant information.
- You can check one of the patient programs directed to:
  - ***Isolation services and practices.***
  - ***Post discharge wound care for prevention of surgical site infection etc***

Staff Interview (SI)

Ask:

- Randomly ask any visitor in the isolation ward/s, if they have received any precautions before being allowed to visit the isolated relative.
- If so, ask the visitor about these precautions and if he can practice it correctly. e.g. how to perform hand hygiene, wear appropriate PPE etc…

Infection Prevention & Control department MUST provide health education on infection control for <u>patients, families and visitors.</u>

IPC team must ensure the availability of the following:

- Bilingual infection prevention & control health education & awareness material *must be designed/ formulated to help in the education of the patients and visitors, e.g.*
Posters, Brochures, pamphlets, booklets, leaflets etc. containing information easy to understand with help of pictorial display.

- The educational material must be posted and available in all patient care areas, waiting areas, entrances at the place easily seen and readable by patients' families & visitors. e,g hand hygiene, cough etiquette, COVID 19 & MERS educational material etc.

- In the patient care areas/units, education provided to patients and visitors must be structured and documented in patient's files.

- For example, hemodialysis patients must receive education about personal hygiene, importance of frequent hand hygiene, care of central venous catheter at home, how to take shower with intact CVC etc

- Visitors are educated on precautions to be taken while being in the surrounding of a patient, the importance of hand hygiene and the isolation precautions required in case of isolated patients etc education must be provided on how to don / doff PPE and perform hand hygiene before entering isolation room. Education must also include importance of not visiting patients under isolation precautions for their safety. etc

A-7.5	**Basic Infection Control Skills License (BICSL) training program is implemented based on the national regulations and guidelines for all HCWs in the healthcare facilities. (D, SI).**
Document (D)	***<u>Review:</u>*** – There should be a new updated and recommended tools and education materials available in IPC department in a healthcare facility. – There is, any certification or CARD valid of BICSL trainers must be approved from the national platform. – There is any documentation method used for registration of BICSL data based on – national platform. – There is, a tracking system for checking the validity of BICSL licenses for HCWs based on the national platform. – There is a plan and schedule for training and renewal of BICSL license for HCWs

Staff Interview (SI)

Ask

- **Select one of the BICSL trainer in the facility:**

–Discuss with BICSL Trainer about all components of the **BICSL license** and evaluate his/her knowledge level.

–Ask the selected BICSL Trainer for demonstration of one or more of the BICSL components as HH technique, PPE donning and doffing, correct management of spills,…etc. and evaluate the practice level.

–The auditor may attend one of the BICSL training sessions in the facility and evaluate the quality of training offered by the trainer.

- **Randomly select 3 health care workers during clinical round:**

–During the round, select any **3 HCWs** (who have direct or in direct contact with the patient) and ask them about the components of BICSL program.

A-7.6	**All IPC practitioners in the healthcare facility have a valid BICSL trainer certification based on the national regulations and guidelines. (D, SI, PF).**

Document (D)

Review:

- There is evidence of valid BICSL trainer certification for all ICPs in the IPC department and must be approved from the national platform).

Personal File (PF)

Review:

- Check the personal file in the IPC for the BICSL trainer certification for all ICPs that are valid.
- The personal file includes any updates for BICSL trainer certification and card (expired, under training, in progress, or valid).

Staff Interview (SI)

Ask

- Ask all ICPs about the process to obtain the BICSL trainer certification, and all are valid.
- Discuss the validation process of BICSL trainer certification based on approved national regulations and guidelines.

A-7.7	All HCWs are having valid, printed, and hang BICSL cards. (D, O, SI).

Document (D)

Review:

- There is a BICSL card hung, visible, approved and validated by the national platform for both BICSL trainers and trainees inside the health care facility and during their duty.
- There are full information of the trainer and trainee also expiration date on the BICSL card according to the last update.
- Also, there is size of N95 mask according to the last update in BICSL card.

Observation (O)

Observe:

- During audit rounds in the hospital observe HCWs having valid, printed, and hang BICSL cards

Staff Interview (SI)

Ask

- **Select randomly BICSL trainers in health care facility:**

  –Ask about the BICSL card, the expiration date and the size of N95 mask.
  - Discuss about the process of validate of BICSL card and approved from the national platform and how is uploaded for BICSL trainees.

- **Select randomly at least five BICSL trainees with difference category in health care facility**

  –Ask about the component on the BICSL card, the expiration date and the size of N95 mask.
  –Discuss the process of getting the BICSL card and some components of BICSL scientific material to evaluate the knowledge level.
  –Ask to perform some components of BICSL material to evaluate the practical level.

References:

1) General Directorate of Infection Prevention and Control in Healthcare Facilities (gdipc.sa) Basic Infection Control Skills License (BICSL) - Trainer's Guideline - 2023 – Version 2.0
2) Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2022).
3) Center for Disease Control and Prevention (CDC). https://www.cdc.gov/
4) IP Competency Task Force. APIC Competency model for the Infection Preventionists: A conceptual approach to guide current and future practice

وزارة الصحة
Ministry of Health

DOMAIN – B

INFECTION PREVENTION & CONTROL KEY MEASURES

INFECTION PREVENTION & CONTROL KEY MEASURES

- HAND HYGIENE
- PERSONAL PROTECTIVE EQUIPMENT (PPE)
- ISOLATION PRECAUTIONS
- ASEPTIC TECHNIQUE
- SINGLE USE ITEMS (SUIs)
- RESPIRATORY PROTECTION PROGRAM (RPP)
- EMPLOYEE HEALTH PROGRAM

Element # B-1 HAND HYGIENE

B-1.1	There are written infection prevention policy and procedure for hand hygiene, including types, indications, supplies, techniques, and monitoring. (D)

Document

Hand hygiene is a critical component of patient & staff safety. Effective patient safety and infection prevention & control programs require that healthcare personnel must be familiar with hand hygiene recommendations and consistently adhere to them. [1]

Review:

Policy & Procedure for Hand Hygiene which should be ***comprehensive*** *incorporating all aspects of hand hygiene program as follows:*

1) Types of hand hygiene:

Hand hygiene is a general term referring to hand washing, antiseptic hand rub, or surgical hand antisepsis

- **Hand washing** – washing hands with plain or antimicrobial soap and water.
- **Hand rubbing** – Applying an antiseptic hand rub to reduce or inhibit the growth of microorganisms without the need for an exogenous source of water and requiring no rinsing or drying with towels or other devices.
- **Surgical hand antisepsis – An** antiseptic hand wash or antiseptic hand rub performed preoperatively by surgical personnel to eliminate transient and reduce resident flora.

2) Indications:

- **Five moments of hand hygiene:** before touching a patient, before clean/aseptic procedures, after body fluid exposure risk, after touching a patient, after touching patient's surroundings.
- **Hand wash with water and soap:** When hands are visibly soiled, potential exposure to spore forming organism (*Clostridium difficile*, *Bacillus anthracis*), before eating and after using a restroom etc.

- ***NOTE:***
- ***Waterless, alcohol-based hand rubs are now the preferred products for routine hand hygiene in healthcare settings, unless hands are visibly soiled.***
- *Use only soap and water when dealing with spore forming bacteria (e.g., Clostridium difficile) and /or when hands are visibly soiled.*
- ***Artificial fingernails or nail extenders are prohibited for those having direct contact with patients at high-risk areas (e.g. Intensive care units, OR etc.)***

3) Supplies: [1]

- **Plain (non-antimicrobial) soap:**
  - *These soaps are detergent-based and will remove lipids, adhering dirt, and organic matter*
  - *They have no antimicrobial activity. Such soaps can remove transient flora from the skin.*

❖ **Antimicrobial soap:**

- *These soaps are detergent-based and will remove lipids, adhering dirt, and organic matter. They have* ***antimicrobial*** *activity.*

They can remove transient and resident flora from the skin*. (Examples: Alcohol, chlorhexidine, chlorine, Quaternary ammonium compounds etc.)*

❖ **Alcohols**

Alcohol-based hand rub is a solution that contains 60% to 95% alcohol and is designed to be applied to hands to reduce the number of viable microorganism on the hands.

Although ethyl alcohol and isopropyl alcohol are both effective against bacteria, fungi, and viruses, isopropyl alcohol has slightly greater activity against bacteria & ethyl alcohol has greater activity against viruses.[1]

4)Techniques:

(Technique should be well described in the policy apart from visual illustrations)

a. Hand washing with soap and water:
b. Hand rubbing with alcohol
c. Surgical Hand Antisepsis

5) Monitoring for adherence:

Hospitals should incorporate details of Hand hygiene monitoring protocols in the policy:

CDC & WHO guidelines require monitoring of health care provider's adherence to recommended hand hygiene practices with feedback about performance.[1]

- *Direct observation of sample of hand hygiene opportunities and calculate the* ***rate of adherence (Number of hand hygiene episodes performed / Number of hand hygiene opportunities) by ward or service.***
- *Assess the quality of hand hygiene adherence* ***(time spent per hand hygiene episode, whether soap was used during hand washing, etc.)***
- ***Monitor the volume*** *of specific hand hygiene products.*
- *Could be* ***automated systems*** *that have potential to monitor all patient care episodes & provide* ***"just in time"*** *reminders to staff who has forgotten to perform hand hygiene.*

The WHO and CDC guidelines recommend that healthcare workers be provided with a readily available alcohol-based hand rub product. Data suggest that this recommendation will increase the frequency of healthcare worker hand hygiene and result in decreased incidence of dermatitis caused by the drying effects of soap and water and abrasive towels.

Other aspects of policy & procedure:

P/P for Hand Hygiene should be:

6)Fully applicable: all elements of the policy can be applied and comply with the hospital's scope of services

7)Based on scientific references approved such as **MOH**, **GCC, CDC, WHO & APIC.**

8)Signed from authorized personnel (i.e., owner of the policy / hospital director or Medical director / concerned department)

9)Approved by IPC committee

10) Valid (updated within 2 - 3 years and when indicated.

B-1.2	Hand washing facilities and supplies (sinks with hot and cold water, plain and antimicrobial soap, and towels) are available and easily accessible (at least one sink for every 2-4 beds in the critical care areas and at least one sink per patient's room). (O)

Observation (O)

Observe the following:

- ❖ Hospital wide hand washing facilities that meet the needs of the hospital and are clean and in good repair.
- ❖ Check the availability of hand washing facilities in patients' rooms.
- ❖ Check the availability of hand washing facilities inside critical care units. ***(ICU, CCU, NICU, PICU, ER, HDU etc.)***
  (Observe the number of hand washing sinks if meeting the requirement as mentioned in the subelemnt(1 per every 2 - 4 beds)
- ❖ Observe availability of water supply (hot and cold) for hand washing ***(Place hands under the water tap if hands free operation or open the tap to check for hot & cold water supply)***
- ❖ Observe whether hand washing facilities are conveniently placed and their ease of accessibility to staff.
- ❖ Observe the availability of following supplies:
  1. **Plain (non-antimicrobial) soap**
  2. **Antimicrobial soap**
  3. **Paper Towels for drying**

Drying practice is a critical factor to determine the level of bacterial residue. Paper towels should be used & pat the skin dry rather than rub it to avoid cracking (skin excoriation may lead to bacteria colonizing the skin) & do not reuse or share hand drying towels(.[3])

B-1.03	Alcohol - based hand rub dispensers are available in adequate numbers (one dispenser per patient's bed, one at every nursing station and at any service area). (O)

Observation (O)

Observe:

- ☐ Hospital wide hand rub dispensers as per requirements mentioned in the sub element above. ***(One dispenser per patient's bed, one at every nursing station and at any service areas)***
- ☐ Dispensers are conveniently mounted and accessible at the point of care:
  - ***a. At the entrance to each patient room.***
  - ***b. Examination room***
  - ***c. Treatment rooms, and similar areas etc.[1]***

- *The dispensers should not be installed over or directly adjacent to electrical outlets and switches.*
- *Randomly open any dispenser to check if hand sanitizer is available & not expired.*

B-1.4 Hand hygiene compliance rates are regularly monitored, and results are discussed in IPC committee meetings for corrective actions. (D)

Document (D)

Review the following documents:

1. **Hand Hygiene Compliance reports:**
   - ❖ Review trended data overtime that compares the hand hygiene compliance rate over the months and compare different HCWs categories & units.
2. **Infection Prevention & Control Committee Meeting Minutes:**
   - ❖ Review the last 3 committee meeting minutes & verify if hand hygiene trends are presented & discussed.
   - ❖ Check for suggestive correction actions if hand hygiene compliance is low.

Document (D)

Corrective Actions would include:

- ***Continuous education & training of HCWs***
- ***Continuous monitoring & observation***
- ***Performance feedback on compliance***
- ***Ensuring availability of supplies for hand hygiene in adequate amount and appropriate places. Convenient and acceptable hand hygiene products & dispensers.***[1]
- ***Disciplinary action for any breach in practices***
- ***Administrative support***
- ***Performance Improvement Project for hand hygiene***
- ***Motivational & incentive programs etc.***

Hand Hygiene remains a foundation of patient safety and infection prevention. Yet achieving and maintaining adherence remains a challenge.
Education alone seldom leads to adequate adherence to hand hygiene in healthcare. Multimodal multi-disciplinary strategies are more like to lead to change and improve hand hygiene practices. Complex dynamic of behavioral change requires a combination of education, motivation & system change.[1]

B-1.5	**Visual alerts for hand hygiene are available (WHO 5 moments - hand wash techniques- hand rub techniques) and HCWs are oriented about it. (O, SI)**
Observation (O)	***Observe:*** ❖ Visual education tools / Visual alerts for staff reminders at workplaces are posted at appropriate places. - ***WHO 5 moments for hand hygiene at (nursing stations, procedure rooms, OPD clinics etc.*** - ***How to hand wash poster at each hand washing sink*** - ***How to hand rub poster beside each hand hygiene dispenser***
Staff Interview (SI)	***Interview:*** ❖ *Randomly choose and ask the HCWs belonging to different categories (Doctors, nurses, technicians, respiratory therapists etc.) If they are aware and have good knowledge about 5' moments and steps of hand hygiene.* a. Ask to enumerate steps for hand washing and hand rubbing. b. Ask about the WHO five moments of hand hygiene by giving different situation/scenario ***Example of Opportunities of hand hygiene in the dialysis unit. (5 Moments):*** 1. ***Before touching a patient***: ➢ *Before entering the station to provide care to a patient.* ➢ *Before contact with vascular access site.* ➢ *Before adjusting or removing cannulas.* 2. ***Before aseptic procedures***: ➢ *Before cannulation or accessing catheter.* ➢ *Before performing catheter site care.* ➢ *Before parenteral medication preparation.* ➢ *Before administering infusions or IV medications* 3. **Following body fluid exposure risk**: ➢ *Following exposure to any blood or body fluids.* ➢ *Following contact with other contaminated fluids (e.g., dialysate).* ➢ *After handling used dialyzers, blood tubing, or priming buckets.* ➢ *After performing wound care or dressing changes.* 4. **After touching a patient**: ➢ *When leaving the station after performing patient care.* ➢ *After removing gloves.* 5. **After touching patient surroundings**: ➢ *When leaving the station after touching dialysis machine or other items within the dialysis station.* ➢ *After removing gloves.* ➢ *After using chair side computers for charting.*

❖ ***Hand rub technique:***

Hand cleansing with an alcohol-based hand rub can be accomplished by applying alcohol- based hand rub into palm and briskly rubbing over all surfaces and under nails until dry.

- *Apply a 3-5ml of the product in a cupped hand and cover all surfaces*
- *Rub hands palm to palm*
- *Right palm over left dorsum with interlaced fingers and vice versa*
- *Palm to palm with fingers interlaced*
- *Back of fingers to opposing palms with fingers interlocked*
- *Rotational rubbing of left thumb clasped in right palm and vice versa*
- *Rotational rubbing, backwards and forwards with clasped fingers of right hand i left palm and vice versa*
- *Duration of the entire procedure: 20-30 seconds once dry, your hands are safe.*

❖ ***Hand washing technique:***

Hand washing with plain or antimicrobial soap includes following steps:

- *Wet hands with water*
- *Apply enough soap to cover all surfaces*
- *Rub hands together vigorously for at least 15 seconds, generating friction on all surfaces of the hands and fingers*
- *Rub hands palm to palm*
- *Right palm over left dorsum with interlaced finger and vice versa*
- *Palm to palm with finger interlaced*
- *Backs of fingers to opposing palms with fingers interlocked*
- *Rotational rubbing of left thumb clasped in right palm and vice versa*
- *Rotational rubbing, backwards and forwards with clasped fingers of right hand i left palm and vice versa, (to remove debris from under the fingernails*
- *Rinse hands with water*
- *Dry thoroughly with a single-use towel*
- *Use towel to turn off faucet/tap*

❖ **Duration of the entire procedure: 40-60 seconds and then hands are safe.**

B-1.6 HCWs (8 - 10) are performing hand hygiene properly (appropriate technique and recommended duration). (O, SI)

Observe:

- During visit in all patient care areas observe the HCWs practices whether they are compliant with hand hygiene practices or not.
- Observe HCW if they are following the recommended duration, steps, and technique of hand rubbing & hand washing.

You may find HCWs providing care for patients in many units like ER, ICU, HDU, wards etc. or coming out of Isolation room in ICU, ER etc.
Keep watching their practice to get an idea of real compliance.

Interview:

- Randomly select different categories of healthcare workers **(HCWs)** and ask them to simulate hand hygiene. (Focus on technique, steps & duration). (*For duration, she must have timer to calculate exact duration of 20 – 30 seconds & hand washing for 40-60 seconds.)*
- Interview at least 8 - 10 different categories to get an average about their performance.
  - ***Doctors***
  - ***Nurses***
  - ***Lab technicians***
  - ***Respiratory therapists***
  - ***Housekeeping / Waste collection Staff***
  - ***Cover these categories in all units. (ER, ICU, OR, HDU, Endoscopy, Pharmacy, laboratory, Dental, kitchen. Laundry, Mortuary etc.***

Interview staff by giving a scenario:

Example: 1

You have to give medication to patient ABC admitted in the medical ward with ***MRSA.*** *After removing your gown and gloves how will you clean your hands.*

Answer: She must opt for hand rubbing with alcohol-based hand sanitizer unless her hands are visibly soiled.

Example: 2

Patient XYZ is admitted in ICU under contact isolation precautions. Diagnosis is Clostridium Difficile. You are assigned as primary nurse. After dealing with the patient how will you clean your hands?

Answer: She must opt for hand washing with soap & water because C- diff spores cannot be killed by alcohol-based hand sanitizers.

B-1.07 WHO Hand Hygiene Improvement Strategy tools are applied to improve the quality of hand hygiene. (D, O, SI)

Document (D)

- ***Successful and sustained hand hygiene improvement is achieved by implementing multiple actions to tackle different obstacles and behavioral barriers. Based on the evidence and recommendations from the WHO Guidelines on Hand Hygiene in Health Care, several components make up an effective multimodal strategy for hand hygiene.***
- ***The WHO multimodal hand hygiene improvement strategy has been proposed to translate into practice the WHO recommendations on hand hygiene and is accompanied by a wide range of practical tools (implementation toolkit) ready to use for implementation.***

The key components of the "WHO" Multimodal Hand Hygiene Improvement strategy are:

1) ***System change:***
   - *Ensuring that the necessary infrastructure is in place to allow health-careworkers to practice hand hygiene. This includes two essential elements:*
   - *Access to a safe, continuous water supply as well as to soap and towels*
   - *Readily accessible alcohol-based hand rub at the point of care*
2) ***Training / Education:***
   - *Providing regular training on the importance of hand hygiene, based on the "My 5 Moments for Hand Hygiene" approach, and the correct procedures for hand rubbing and hand washing, to all health-care workers.*
3) ***Evaluation and feedback:***
   - *Monitoring hand hygiene practices and infrastructure, along with related perceptions and knowledge among health-care workers, while providing performance and results feedback to staff.*
4) ***Reminders in the workplace:***
   - *Prompting and reminding health-care workers about the importance of hand hygiene and about the appropriate indications and procedures for performing it.*
5) ***Institutional safety climate:***
   - *Creating an environment and the perceptions that facilitate awareness-raising about patient safety issues while guaranteeing consideration of hand hygiene improvement as a high priority at all level.*

(Refer to WHO guidelines for more details https://www.who.int/gpsc/5may/Guide_to_Implementation.pdf)

Review:

Various Hand hygiene improvement strategy tools in the infection control department:

- ***Tools for System Change*** *(Ward Infrastructure Survey, Alcohol-based Hand rubPlanning and Costing Tool, etc.)*
- ***Tools for Training / Education*** *(Slides for the Hand Hygiene Co-coordinator, Slides forEducation Sessions for Trainers, Observers and Health-Care Workers, Hand Hygiene Training Videos, Observation Form etc.)*
- ***Tools for Evaluation and Feedback*** *(Hand Hygiene Technical Reference Manual,Observation Tools: Observation Form and Compliance Calculation Form etc.*
- ***Tools for Reminders in the Workplace*** *Your 5 Moments for Hand Hygiene Poster, How to Hand wash Poster, How to Hand rub Poster*
- ***Tools for Institutional Safety Climate****. Template Letter to Advocate Hand Hygiene to Managers, Template Letter to Communicate Hand Hygiene Initiatives to Managers*

Observation (O)

Observe:

In different patient care areas:
"WHO" Education tools for reminders at workplace:

- *Your 5 Moments for Hand Hygiene Poster*
- *Hand Hygiene: When and How Leaflet*
- *SAVE LIVES: Clean Your Hands Screensaver*
- *How to Hand rub Poster*
- *How to Hand wash Poster*
- *Glove Use Information Leaflet*
- *Hand hygiene information leaflets etc.*

Staff Interview (SI)

Interview:

- Infection Prevention & control team member about the "**WHO**" ***multimodal hand hygiene improvement*** *strategy tools.*
- Ask how they are using and implementing the various tools used for improving handhygiene.
- Randomly ask how they are implementing WHO tools for hand hygiene observations. (ER, HDU, Wards, ICU, NICU etc.) Using **"WHO" observation forms.**

B-1.8 Reporting of hand hygiene self-assessment is active and ongoing (WHO HHSA Framework - Action plan to improve the quality of hand hygiene).(D,SI)

Document (D)

- ***Hand hygiene self-assessment framework is a systematic tool with which is used to obtain a situation analysis of hand hygiene promotion.***
- ***Health-care facilities can track their progress in hand hygiene resources, promotion, and activities, plan their actions and aim for improvement and sustainability using the WHO Hand Hygiene Self-Assessment Framework.***
- ***The Hand Hygiene Self-Assessment Framework is divided into five components and 27 indicators.***
- ***The five components reflect the five elements of the WHO Multimodal Hand Hygiene Improvement Strategy and the indicators have been selected to represent the key elements of each component.***

Components & Indicators of HHSA framework:

I) System Change:

- ***Indicators:***

- *How easily available is alcohol-based hand rub in your health-care facility?*
- *What is the sink: bed ratio? etc.*

2) Training and Education:

- ***Indicators:***

- *How frequently do health-care workers receive training regarding hand hygiene in your facility?*
- *Is a process in place to confirm that all health-care workers complete this training?*
- *Is a system in place for training and validation of hand hygiene compliance observers? etc.*

3) Evaluation and Feedback:

- ***Indicators:***

- *Are regular ward-based audits undertaken to assess the availability of hand rub, soap, single use towels and other hand hygiene resources?*
- *Direct & Indirect Monitoring of Hand Hygiene Compliance*
- *Is immediate feedback given to health-care workers at the end of each hand hygiene compliance observation session?*
- *Systematic feedback is regular (at least 6 monthly).*
- *Feedback of data related to hand hygiene indicators with demonstration of trends over time.*

4) Reminders in the Workplace:

- ***Indicators:***

- *Are the following posters (or locally produced equivalent with similar content) displayed?*
- *How frequently does a systematic audit of all posters for evidence of damage occur, with replacement as required?*

5) Institutional Safety Climate for Hand Hygiene:

- ***Indicators:***

Hand hygiene team is dedicated to the promotion and implementation of optimal hand hygiene practice in your facility:
Facility leadership made a clear commitment to support hand hygiene improvement. (e.g. a written or verbal commitment to hand hygiene promotion received by the majority of health-care workers) etc.

- *These indicators are based on evidence and expert consensus and have been framed as questions with defined answers (either "Yes/No" or multiple options) to facilitate self-assessment.*
- *Based on the score achieved for the five components, the facility is assigned to one of four levels of hand hygiene promotion and practice: Inadequate, Basic, Intermediate and Advanced.*

Inadequate:

- Hand hygiene practices and hand hygiene promotion are deficient.
- Significant improvement is required.

Basic:

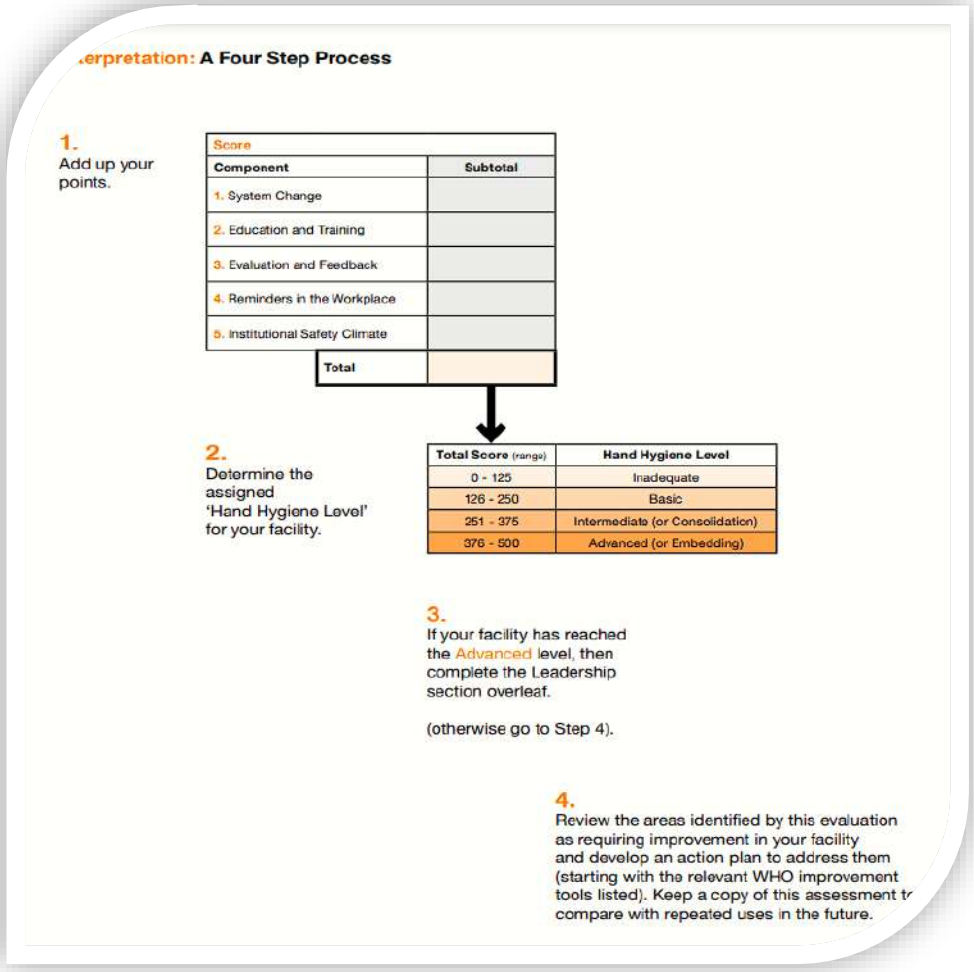
- Some measures are in place, but not to a satisfactory standard.
- Further improvement is required.

Intermediate:

- An appropriate hand hygiene promotion strategy is in place and hand hygiene practices have improved.
- It is now crucial to develop long-term plans to ensure that improvement is sustained and progresses.

Advanced:

- Hand hygiene promotion and optimal hand hygiene practices have been sustained and/or improved, helping to embed a culture of safety in the health-care setting.



.erpretation: A Four Step Process

1. Add up your points.

Score

Component	Subtotal
1. System Change	
2. Education and Training	
3. Evaluation and Feedback	
4. Reminders in the Workplace	
5. Institutional Safety Climate	
Total	

2. Determine the assigned 'Hand Hygiene Level' for your facility.

Total Score (range)	Hand Hygiene Level
0 - 125	Inadequate
126 - 250	Basic
251 - 375	Intermediate (or Consolidation)
376 - 500	Advanced (or Embedding)

3. If your facility has reached the Advanced level, then complete the Leadership section overleaf.

(otherwise go to Step 4).

4. Review the areas identified by this evaluation as requiring improvement in your facility and develop an action plan to address them (starting with the relevant WHO improvement tools listed). Keep a copy of this assessment to compare with repeated uses in the future.

Review the following documents:

- The last hand hygiene self-assessment report submitted to **"GDIPC".**
- Check for completeness of self-assessment document incorporating all five components.
- The action plan formulated based on the HHSA result which is aiming to improve the program in the hospital.
- The HHSA results in the past 3 years to check the prognoses of the program, and whether there is improvement or not.
- Any documents related to improvement projects based on the results.
- Any documents needed to validate the HHSA results.
- "if the hospital score **ADVANCED** they should provide the document listed in the HHSA to prove it"

For **GDIPC,** reporting is via electronic online system once per year.
For **World Health Organization "WHO"** reporting is once per year.

Interview:

- IPC team members how frequently they are submitting Hand Hygiene Self-
  - Assessment Framework to GDIPC & "WHO"
- Ask about components and major indicators of each component.
- Ask how the tool works and how is the interpretation done.

Available@ https://www.who.int/gpsc/country_work/hhsa_framework_October_2010.pdf?ua=1

REFERENCES / WEB BASED RESOURCES:

1. *APIC text of Infection Control & Epidemiology: Hand Hygiene http:// text.apic.org/toc/basic-principles-of-infection-prevention-practice-/hand-hygiene*
2. *Centre for disease Prevention & Control (CDC) Hand Hygiene. CDC website 2013 (Available at https://www.cdc.gov/handhygiene/index.html*
3. *WHO Guidelines on Hand Hygiene in Healthcare 2009 (World Alliance for Patient Safety).*
4. WHO Guidelines on Hand Hygiene in Health Care : Clean care is safe care *https://www.who.int/gpsc/5may/tools/9789241597906/en/*
5. *Patrick M and Wickline S. Implementing AORN recommended practices for hand hygiene. AORN Journal, 2012; 95:4.*
6. Centers for Disease Control (CDC). Guideline for Hand Hygiene in Health-Care Settings. *https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5116a1.htm*
7. *Interventions to improve hand hygiene compliance in patient care: Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6483670/*
8. *A Guide to the Implementation of the WHO Multimodal Hand Hygiene Improvement Strategy https://www.who.int/gpsc/5may/Guide_to_Implementation.pdf*
9. *10. WHO Hand Hygiene Self-Assessment Framework https://www.who.int/gpsc/5may/hhsa_framework/en/*

Element # B-2 PERSONAL PROTECTIVE EQUIPMENT (PPE)

B-2.1	There is a written infection prevention & control policy and procedure for PPE including types, indications, donning, doffing, disposal & safe disposal techniques. (D)

Document (D)

Personal Protective Equipment (PPE) is used to create a barrier between HCWs and patients, body substances, or surfaces. Appropriate PPE (gloves/gowns/plastic aprons/eye protection /Face Protection) should be used to prevent skin, eyes, mucous membrane, airways and clothing exposure. Components of PPE can be used alone or in combination based on the degree and risk of exposure in order to achieve desired level of protection.

Review:

Policy & Procedure for Personal Protective Equipment use which should be ***comprehensive*** *incorporating major domains as follows:*

- **Types of PPE:**

a) Gloves:

Gloves should be worn when there is contact with blood or body fluids, non-intact skin or mucous membrane, by touching surfaces / equipment contaminated with body fluids.

Types of gloves:

a. Sterile gloves
b. Non-sterile gloves
c. Heavy duty gloves

(Glove material – vinyl, latex, nitrile etc.)

b) Gowns / Plastic Aprons:

Gowns / Aprons should be worn if more extensive blood or body fluids splashing of clothing are likely and during procedures that may generate splashes or aerosolization of body substances and cause the soiling of clothes.

Types of gowns:

a. Sterile gowns
b. Non-sterile gowns

c) Mask & Respirators (N - 95)

Types of Masks:

a. ***Standard surgical masks*** *(Protects mouth & nose)*
b. ***PPE for respiratory Protection:*** *(Respirators (N- 95 masks) protects respiratory tract form airborne infectious agents e.g., mycobacterium Tuberculosis etc.)*
c. *High-efficiency particulate respirators (N- 95, N 99 etc.)*
d. *Powered Air Purifying Respirators (PAPRs)*

- *Surgical mask should be worn (with protective eye/face shields) if splashing or aerosolization of blood or body fluids is expected.*

- *Masks should fully cover the nose and mouth and prevent fluid penetration. Masks should fit snuggly over the nose and mouth.*
- *Change mask between patients and sooner if mask becomes wet, moist or torn.*
- *Wear an **N95 mask** when indicated to enter an airborne isolation room and remove it only when outside of the room.*[3]

d) Protective Eye / F*ace shields***:**

- *Eye/face wear should be worn if required for combined protection from eye/face contamination by aerosolized body substances.*
- *Wash and disinfect visibly soiled reusable face shields or protective eyewear prior to reuse, according to hospital policy.*
- *Protective eyewear / face wear are not to be worn after leaving the patient room or procedure area.*

● Indication of PPE use: [3]

PPE is indicated to be used based on risk assessment as part of standard precautions & Transmission based precautions.

(All isolation precautions must be used together with Standard Precautions)

* **Contact: Appropriate PPE – Gown & Gloves**
* **Droplet: Appropriate PPE - Surgical mask, Gloves, and Gown**
* **Airborne: N95 mask / respirator before entering the room.**

Sequence of donning and doffing of PPEs: [3]

(With eyewear, e.g., goggles or face shield) before entering and leaving a patient's room:

Donning: PPEs should be donned in this order.
Hand hygiene, gown, surgical mask, goggles/face shield then gloves.
Doffing: PPEs should be doffed in this order:
Gloves, hand hygiene, goggles/face shield, gown, hand hygiene, surgical mask then hand hygiene.

● Disposal of PPEs: [3]

a) Single-use PPE disposal:

- All PPEs are doffed inside the patient's room except N95 respirator which is removed outside AIIR after closure of the door of patient's room in a specified waste receptacle as per hospital waste disposal policy.

b) Reusable PPE:

- Manufacturer's instructions must be followed for safe reuse of PPE. e.g. Reuse of eye goggles etc.
- Reusable heavy-duty gloves and boots (individual use) should be cleaned & disinfected after use and allowed to dry.

- **Safety:** [3]

PPE should be used with extreme safety to avoid risk of acquiring infection & contamination. e.g.:

- *Keep gloved hands away from face*
- *Avoid touching or adjusting other PPE*
- *Remove gloves if they become torn; perform hand hygiene before donning new gloves*
- *Limit surfaces and items to be touched etc.*
- *Before leaving the patient's room or cubicle, PPE must be removed and discarded*

Other aspects of policy & procedure:

P/P for PPE use should be:

Fully applicable: all elements of the policy can be applied and comply with the hospital scope of services

Based on scientific approved references such as **MOH**, ***GCC, CDC, WHO & APIC***

Signed from authorized personnel (i.e., owner of the policy / hospital director or Medical director / concerned department)

Approved by IPC committee

Valid (updated within 2 - 3 years and when indicated.

B-2.2 PPE is available in all patients care areas in adequate amounts and proper qualities. (D, O, SI)

Document (D)

Review:

- ❖ PPE checklist for each unit / isolation room / wards and others patient care areas
- ❖ PPE checklist should include available quantity of each type of PPE with daily monitoring of consumption.

PPE Consumption Rate Calculator can be used as an example. This excel spreadsheet will help healthcare facilities to plan and optimize the use of personal protective equipment (PPE)

https://gdipc.sa/Supportive-Services-Program.html

PPE Burn Rate Calculator

Observe:

- **Availability of various types of PPE in all patient care areas:**
  - *Different sizes & types of gloves*
  - *Different sizes and type of N - 95 masks*
  - *Surgical masks*
  - *Gowns / Aprons in different size (Small, medium , large, XL etc)*
  - *Protective eye/face wear (Goggles, face shields)*
  - *Powered air purifying respirators (PAPRs) for bearded staff etc.*
- **Assess the quality:**
  - *Yellow gowns: Check if fluid resistant and of thick material*
  - *Gloves: Check if good quality or loose at wrists*

(Quality can be assessed while HCWs are donning PPE. Moreover, if PPE is NOT donned according to the required size of healthcare worker, would pose risk of acquiring infection.)

Staff Interview (SI)

Interview:

- Head nurse in all units about the availability of all types & sizes of PPE.
- Ask about the process /mechanism of always ensuring PPE availability in all circumstances.

B-2.3 **HCWs are properly trained and demonstrate the appropriate use of PPE (i.e., careful selection in relation to indications, proper donning & doffing, correct sequence, and proper disposal). (O, SI)**

Observation (O)

Observe:

- In different patient care if the health care workers are adhering with PPE policy. HCWs should use PPE judiciously based on specific indication & risk assessment. There should be no overuse or misuse of PPE.

Example:

During visit in various hospital units observe staff practice:

- *If patient is under **contact isolation** which PPE they are using, where they are doffing PPE & assess the sequence & technique while doffing PPE.*
- ***You may observe staff moving with PPE (Mask & gowns) & using computers with gloved hands.***
- *Open waste receptacles at random in isolation rooms to check if they are doffing PPE at appropriate places. **(You may observe N - 95 mask inside isolation room waste receptacle)***

Comment:

All PPE are doffed inside the patient's room except N95 respirator which is removed outside after closure of the door of patient's room.

Staff Interview (SI)

Interview:

- ❖ Staff in different categories (Doctors, nurses, housekeeping, respiratory therapist etc.) about the required PPE in different situations.
- ❖ Ask about PPE used for contact, droplet, & airborne precautions.
- ❖ Ask about the training received form IPC department on PPE use.

Ask them to simulate donning & doffing by giving different scenario and assess PPE selection, technique & steps of donning & doffing etc.

Example 1: Targeted HCW (Nurses, doctors)

How will you prepare yourself before entering patient's room who was tested positive for Monkeypox & need to be intubated as now as his condition stated deteriorating (Contact & Airborne)

Answer must be: ***(Contact & Airborne) since intubation is an Aerosol Generating Procedure***

Example 2: Targeted HCW ((Nurses, doctors)

Patient is highly suspected for MERS-CoV and is in critical condition requiring CPR. As part of team how will you protect yourself before entering the isolation room?

Answer must be: Gloves, Gown, & N- 95 respirator, face /eye protection ***(Contact + Airborne)***

Rationale: ***Critically ill suspected MERS – CoV patients requires Airborne precautions. Moreover, CPR is an aerosol generating procedure so staff must consider full protection.***

Example 3: Targeted HCW (Nurses, doctors)

Patient xyz is under contact isolation precautions due to Hospital Onset - MRSA (Methicillin Resistant Staphylococcus Aurous). What is the required PPE to be doffed before entering patient's room (Standard + Contact)

Answer must be: Gloves & Gown with standard precautions

B-2.4	**Respirator fit testing is conducted for all HCWs based on the national regulations needed' frequency or when required. (D, SI)**

Document (D)

- **Respirator fit Test:** The use of a protocol to evaluate the fit of a respirator qualitatively or quantitatively on an individual
- **Quantitative Fit Test**: A test method uses an instrument to assess the amount of leakage into the respirator to assess the adequacy of respirator fit.
- **Qualitative Fit Test:** A pass/fail test method relies on the subject's sensory response to detect a challenge agent and assess respirator fit adequacy

Frequency of Fit Testing as per National Regulations:

- *Fit testing must be performed before using a respirator and must be repeated **every two years or based on the national MOH guideline.***
- *Fit testing must be conducted when there are changes of respirator or a facial change; [examples of conditions that would require additional fit testing of an employee include but are not limited to; weight loss, cosmetic surgery, facial scarring, the installation of dentures, or absence of dentures that the individual wears typically].*

NOTE: Please refer to GDIPC Guidelines for Respiratory Protection Program (RPP) Version 1.2 for details.

Review:

- Policies & procedures for respirator fit test
  (Could be a separate policy or part of policy. Policy must incorporate type of fit testing (Qualitative/Quantitative, Frequency of fit test, indication for use, alternate for bearded staff etc
- Check database containing the fit test data for all Health Care Workers specifying name, designation, department / Area of work, Type of Fit Test, Date of Fit test, Type, Model , size of N -95 Respirator for whom he or she was fit tested etc
- For those HCWs with beards or unfit for N – 95 respirators due any medical reason must be mentioned clearly in data base. ***eg FIT test failed – eligible for PAPR ONLY.***
- Check for total number of heath care workers in the hospitals and calculate ***Percentage % of fit test coverage***.
- Check sample of fit test ID provided to the staff to ensure it contains all required information.

Staff Interview (SI)

Interview:

- Infection prevention and control team members about the frequency of N-95 fit test.
- Ask about other criteria for repeating fit test as per National Regulations.
- Ask about the type of fit test conducted and if they are aware regarding correct method of conducting fit test. ***(Qualitative & Quantitative (preferred) fit testing)***
- **During visit of different clinical areas** , ask for fit test ID of 3-4 staff at random and check for dates.
- Ask him / her if they are aware about their size and last fit test conducted.

Types of Fit Test: *There are two types of Respirator Fit tests:*

A. ***Qualitative fit testing*** *is a pass/fail test that uses a sense of taste, smell, or reaction to an irritant to detect leakage into the respirator face piece.*

B. ***Quantitative fit testing*** *uses a machine to measure the actual amount of leakage into the face piece. It does not rely on a sense of taste, smell, or irritation to detect leakage, and it produces a numerical result called (Fit Factor) and the fit factor of at least 100 is required for half-mask respirators.*

NOTE: - Quantitative fit testing is better, more accurate in results, and is preferable to use if both types are available in the facility.

REFERENCES / WEB BASED RESOURCES:

1. *APIC text of Infection Control & Epidemiology: Standard precautions* ***http:// text.apic.org/toc/basic-principles-of-infection-prevention-practice-/standard – precautions***
2. *Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2022). Chapter 29: Isolation Precautions. In APIC Text of infection control and epidemiology (4th ed.)*
3. *Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings Available at* ***https://www.cdc.gov/HAI/pdfs/ppe/PPEslides6-29-04.pdf***
4. *https://www.cdc.gov/niosh/npptl/respirators/*
5. *https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4791533/*
6. *https://www.cdc.gov/infectioncontrol/guidelines/isolation/index.html*
7. https://wwwn.cdc.gov/PPEInfo/
8. *https://www.cdc.gov/hai/prevent/ppe_train.html*
9. *Middle East Respiratory Syndrome Coronavirus; Guidelines for Healthcare Professionals Version 5.1 MAY 21, 2018*

وزارة الصحة
Ministry of Health

Element # B-3 ISOLATION PRECAUTIONS

B-3.1 There are written policies and procedures for standard and transmission-based precautions, including types, duration of isolation, patient transport, and visitor's control. (D)

Document (D)

Review the policy, which should be:

1) **Comprehensive:** it covers all standard and transmission-based precautions, including types, duration of isolation, patient transport, and visitor's control.
2) **Fully applicable**: all elements of the policy can be applied and comply with the hospital's scope of services
3) **Based on scientific approved references** MOH , CDC, WHO & APIC
4) **Signed from authorized personnel** (i.e., owner of the policy / hospital director / concerned department)
5) **Approved by IPC committee.**
6) **Valid** (updated within 2 - 3 years and when indicated)

B-3.2 There is a clinical hand washing facility with hands free operation inside the patient's room or in the anteroom (if available). (O)

Observation (O)

Observe:

- During visit of ICU. ER, NICU. PICU, isolation wards and other clinical areas, observe the availability of ***clinical hand washing facility i.e hand-washing sink with hand free operation.***
- ***Hand washing sink MUST be available inside patients' room or in the anteroom if available to be used by the health care workers as per indication/ urgent situation.***

NOTE: Hand washing sink inside toilet / restroom does not fulfil requirement of this sub element.

B-3.3 Patient's room is provided with the private toilet and shower (for isolation room in ICU, NICU, CCU toilet and shower are optional). (O)

Observation (O)

Observe:

- During visit of ER, isolation wards and other clinical areas, observe the availability of private toilet and shower attached with patient's room.
- Private toilet and shower is **NOT** mandatory for **ICU, NICU, CCU**

B-3.4	PPE and alcoholic hand rub solution are available outside the patient's room at the corridor or in the anteroom (if provided). (O)

Observation (O)

Observe:

- Availability of PPE and hand hygiene supplies outside the Patient's room at the corridor or in the anteroom (if available).
- During visit to the clinical area, observe if any PPE item is kept inside the patient's room. ***Open the drawers and check if any item is kept inside.***
- The PPE MUST be kept outside the room because HCWs must wear it before entering the patient's room.
- Observe if PPE is well organized and not kept in open so as to avoid risk of contamination from dust or any accidental spillage.

B-3.5	All PPE are doffed inside the patient's room except N-95 respirator which is removed outside airborne infection isolation room (AIIR) after closure of the door of patient's room or anteroom (if available). (O,SI)

Observation (O)

Observe HCWs when leaving an isolation room:

- All PPE must be doffed inside the patient's room except for N95 respirator which should be removed outside AIIR after closure of the door of patient's room.
- ***You may observe HCWs coming out of patient's room with gloved hands and gown.***
- ***Moreover, indirect verification can be done by checking waste receptacles inside and outside isolation Room.***

Staff Interview (SI)

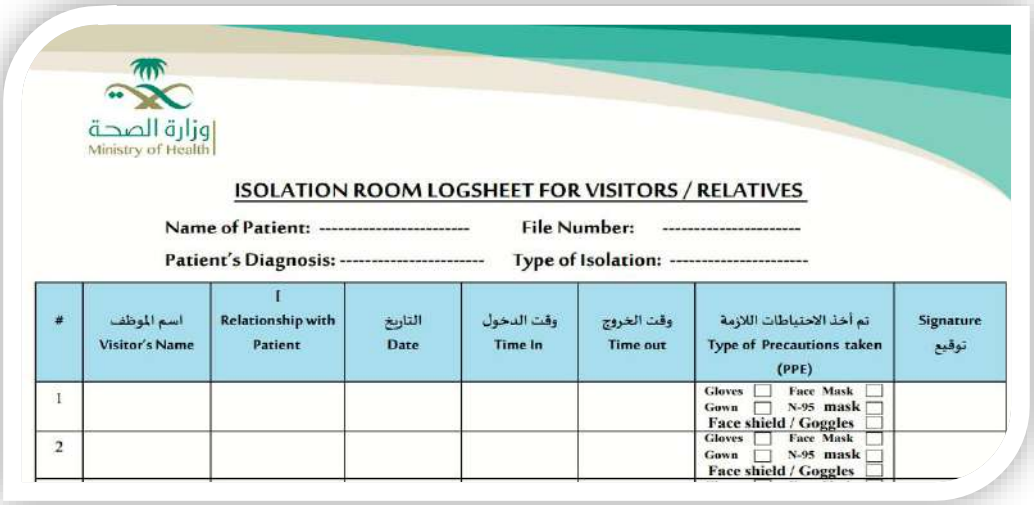
Interview:

- Ask staff about the type of PPE to used while dealing with patients under airborne isolation.
- Ask staff to simulate donning and doffing of PPE for patients under airborne isolation ***e,g TB patients, critically ill COVID patients etc***
- Observe where the **HCWs** will be doffing the PPE after dealing with patients under **airborne isolation precautions.**

B-3.6	Visitors receive proper instructions from assigned personnel HCW before entering an isolation room, and they comply with recommended Isolation required precautions. (O,SI)
Observation (O)	***Observe:*** ***During audit rounds in clinical areas observe the following in the isolation rooms:*** – Presence of clear signs with **Arabic & English** language that is used to educate and guide the visitors about the type of isolation precautions that should be taken before visiting the isolated patient. – Availability of Isolation / educational signs outside isolation room doors. – Observe any visitor during audit round if they are compliant with isolation precautions as per staff instructions ***(If any)***
Staff Interview (SI)	***Ask:*** – HCWs about the proper way to educate the visitors of isolated patient to prevent them from getting infection. – Visitors if they have received instructions and education before visiting isolated patients. ***(If available)***

B-3.7	A log book is available and used for all individuals entering the rooms of isolated patient with airborne infections (e.g., Pulmonary TB. etc). (D,SI)
Document (D)	***Review:*** – During visit of isolation wards & other patient care areas like ICU, NICU, PICU etc review the logbook used for all individuals entering the rooms of isolated patient with airborne infections ***(Healthcare workers & visitors)*** – Make sure that there is a logbook is complete and filled appropriately specifying name, designation, duration of exposure and PPE used with signature etc. – Logbook must include all HCWs including respiratory therapist, X Ray technician & support services staff. – Visitors must also be included in the log sheet (Can be used same logsheet or separate with complete data)
Staff Interview (SI)	***Ask HCWS about:*** ***1)*** Logbook that used for HCWs and visitors who had entered the isolation room. ***Ask when the Isolation was last occupied with patient under airborne isolation if vacant at the time of visit. Check the date on logbook and assess if its filled appropriately.*** 2) Ask staff about the purpose and importance of log book to ensure their awareness about It.

ISOLATION LOGBOOK FOR HCWs & VISITORS:



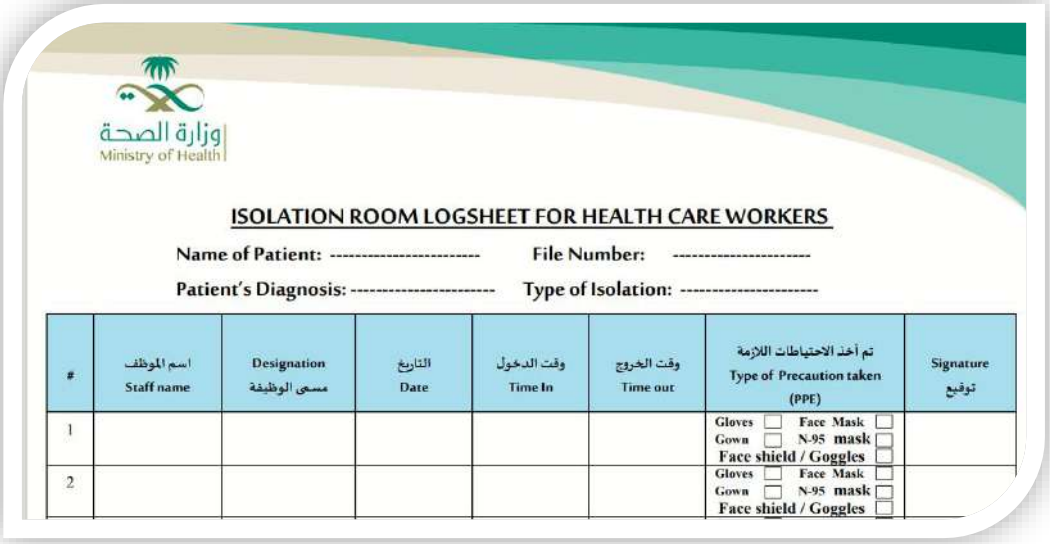
وزارة الصحة
Ministry of Health

ISOLATION ROOM LOGSHEET FOR VISITORS / RELATIVES

Name of Patient: ---------- File Number: ----------

Patient's Diagnosis: ---------- Type of Isolation: ----------

#	اسم الموظف Visitor's Name	Relationship with Patient	التاريخ Date	وقت الدخول Time In	وقت الخروج Time out	تم أخذ الاحتياطات اللازمة Type of Precautions taken (PPE)	Signature توقيع
1						Gloves ☐ Face Mask ☐ Gown ☐ N-95 mask ☐ Face shield / Goggles ☐	
2						Gloves ☐ Face Mask ☐ Gown ☐ N-95 mask ☐ Face shield / Goggles ☐	



وزارة الصحة
Ministry of Health

ISOLATION ROOM LOGSHEET FOR HEALTH CARE WORKERS

Name of Patient: ---------- File Number: ----------

Patient's Diagnosis: ---------- Type of Isolation: ----------

#	اسم الموظف Staff name	Designation مسمى الوظيفة	التاريخ Date	وقت الدخول Time In	وقت الخروج Time out	تم أخذ الاحتياطات اللازمة Type of Precaution taken (PPE)	Signature توقيع
1						Gloves ☐ Face Mask ☐ Gown ☐ N-95 mask ☐ Face shield / Goggles ☐	
2						Gloves ☐ Face Mask ☐ Gown ☐ N-95 mask ☐ Face shield / Goggles ☐	

B-3.8	**Non-Critical patient-care equipment are single use or dedicated to one patient or if not available and shared equipment have been used', proper cleaning & disinfection of shared equipment must be strictly followed. (O,SI)**

- *Non-critical devices are those which come into contact with intact skin. Examples of these are **stethoscopes, blood pressure monitor cuffs, and crutches** etc*
- *Most non-critical items can be cleaned and then disinfected by low-level disinfectants and do not require transportation to a central processing area.*
- *Intact skin acts as an effective barrier to most microorganisms; therefore, the sterility of items coming in contact with intact skin is "not critical."*

Observation (O)

OBSERVE:

During audit rounds in clinical areas observe the following:

- Availability of single use non-critical devices single used items for isolated patient such as stethoscopes, blood pressure monitor cuffs etc
- Observe the staff practice after dealing with isolated patients when non-critical care items are used – Conform if its single use, or dedicated to same patient for duration of admission or shared among multiple patients.
- If shared non-critical items are used, observe if staff strictly abide by appropriate cleaning & disinfection of shared equipment.

Staff Interview (SI)

Ask HCWs about:

- Items / equipment that are used for isolated patient, if it single use or not?
- Verify by asking staff to show single use non-Critical patient-care equipment in the unit.
- Ask staff if non-Critical patient-care equipment are shared in between patients, if yes ask about handling shared items after use on patient.
- Staff must explain the cleaning and disinfection process.
- ***Give task to staff to simulate cleaning and disinfection of blood pressure monitor cuff. Asses if staff are trained and used appropriate disinfectant with recommended contact time.***

B-3.9	**The signs used to indicate categories of isolation precautions are Clear and visible for HCWs and visitors, Bilingual (in Arabic & English), Color coded and compatible with diagnosis (Examples: contact: green, airborne: blue, and droplet: pink or red) (it is preferable to use the GDIPC approved isolation signs). (O,SI)**
Observation (O)	***During audit rounds in clinical areas observe the following in the isolation rooms:*** – Availability of isolation precautions signs indicating categories of each type of isolation precautions and following criteria must be fulfilled: ➢ *Clear and visible for HCWs and visitors* ➢ *Bilingual (in Arabic & English)* ➢ *Color coded and compatible with diagnosis (Examples: contact: green, airborne: blue, and droplet: pink or red).* ➢ *The used signs are those approved from GDIPC. especially in MOH hospitals* ➢ *The sign is compatible with the patient condition and isolation type.*
	NOTE: ***Isolation Signs must be posted ONLY if room / cubicle is occupied with patinets requiring isolation.***
Staff Interview (SI)	***Interview:*** – Ask nursing staff to show isolation signs used to indicate categories of isolation precautions. – Check to confirm if correct isolation precautions are mentioned both in English and Arabic. – Assess staff knowledge by asking type of isolation sign required for specific disease e.g Airborne for Pulmonary TB, Measles, chickenpox etc
B-3.10	**The receiving unit or facility is informed about the required isolation precautions and to ensure the availability of appropriate PPE.(MR, SI)**
Medical Record (MR)	***Review the isolated patient medical record to ensure that:*** – Check the policy and procedures / protocols for transportation for patients under isolation precautions to other unit or facility. – Presence of infection control form or note to emphasize the required isolation precautions and information about **appropriate PPE**. – During audit round ask staff to show any recently used form for transportation of patient under isolation precautions with clear mention of required PPE in addition to verbal communication.

Staff Interview (SI)

Interview:

- During audit round to clinical areas, ask staff at random about the protocols to be followed before transporting any patient under isolation precautions to the other department or any other healthcare facility.
- Ask how will they ensure that appropriate PPE is available based on required isolation precautions.

- ***Patient under isoaltion precautions may require different investigations & procedure etc in other departments like radiology etc***
- ***This is the responsibility of transferring unit to inform the receiving department or facility about type precautions and availability of required PPE in order to ensure staff safety.***

B-3.11	**The transfer of patient under isolation precautions is restricted to medically necessary purposes, Isolation transportation cards must be used and should be consistent with the patient diagnosis, color coded, posted in Arabic and English, and indicating the type of precautions required for staff (it is preferable to use the MOH approved isolation transportation cards) and through less crowded traffic route. (O, SI)**

Observation (O)

Observe:

- Pathway for transferring of isolated patients for example dedicated elevator.
- Use of isolation transportation cards and if it is compatible with the patient diagnosis.
- If the isolation transportation cards are available in 02 languages ***(Arabic & English)*** & color-coding of isolation transportation cards is compatible with the hospital policy.
- Observe during audit round any real patient transportation and assess if all required protocols are followed.

Staff Interview (SI)

Interview:

Ask HCWs about patient transportation during audit visit to assess their knowledge:

- Ask about protocols of transferring isolated patients.
- Transferring time and pathway / route of isolated patient to ensure avoidance of crowding and interaction with others.
- Availability and awareness of the approved transportation cards.
- Unnecessary patient mobility must be avoided to prevent risk of infection transmission except when required for medically necessary purposes.

B-3.12	**For transport of patient under contact isolation precautions: Contain and cover all skin lesions and infected or colonized areas of the patient's body with clean bandages and clean linens. Instruct patient to wear a clean gown, and clean linen should be used. (O, SI)**
Observation (O)	**Observe:** – During audit round in patient care areas observe if any patient under contact isolation is ready for transfer. – Observe if patient under contact isolation with skin lesions and check if all and infected or colonized areas of the patient's body are covered with clean bandages and clean linens before transfer.
Staff Interview (SI)	**Interview:** ***Ask HCWs about:*** – Protocols to be followed before transporting any patient under contact isolation with skin lesion. – He / she must describe all steps to be followed in order to ensure risk of infection transmission. – Ask about patient's PPE required during transportation.

B-3.13	**For transport of patient under droplet/airborne isolation precautions: -Instruct the patient to wear a surgical mask and follow respiratory hygiene and cough etiquette. -Cover exposed skin lesions (if any) with clean bandages and/or clean linens. (D, SI)**
Observation (O)	**Observe:** – During audit round in patient care areas observe if any patient under droplet / airborne isolation is ready for transfer. – Observe if patient under droplet / airborne isolation is given appropriate instruction before transfer: ▪ *Surgical mask to be used* ▪ *Practice respiratory hygiene and cough etiquette.* – Observe if any exposed skin lesions are covered with clean bandages and clean linens before transfer.

Staff Interview (SI)

Interview:

Ask HCWs about:

- Protocols to be followed before transporting any patient under droplet / airborne isolation.
- He / she must describe all steps to be followed in order to ensure risk of infection transmission.
- Ask about patient's PPE required during transportation.
- Ask steps to be followed if patient under droplet / airborne isolation. is having exposed skin lesions.

Give different sceneries to staff and assess their knowledge about all protocols of patient transfer under isolation precautions.

B-3.14	**Patients with burns larger than 25% total body surface area (TBSA) are kept in a single room or physically separated from other patients. (D, SI)**

Document (D)

- *Infection and sepsis are among the most prominent causative factors in burn related mortality and morbidity [1].*
- *The prevention and control of infectious diseases among burned patients present a specialized problem, as the environment in burn units can become contaminated with resistant organisms.*
- *Lack of proper wound care, edema formation may actually increase the size and/or depth of the wound.*
- *Early burn wound excision is now performed within the first few days after burn injury and has resulted in improved **survival** and **infection control** in severely burned patients*

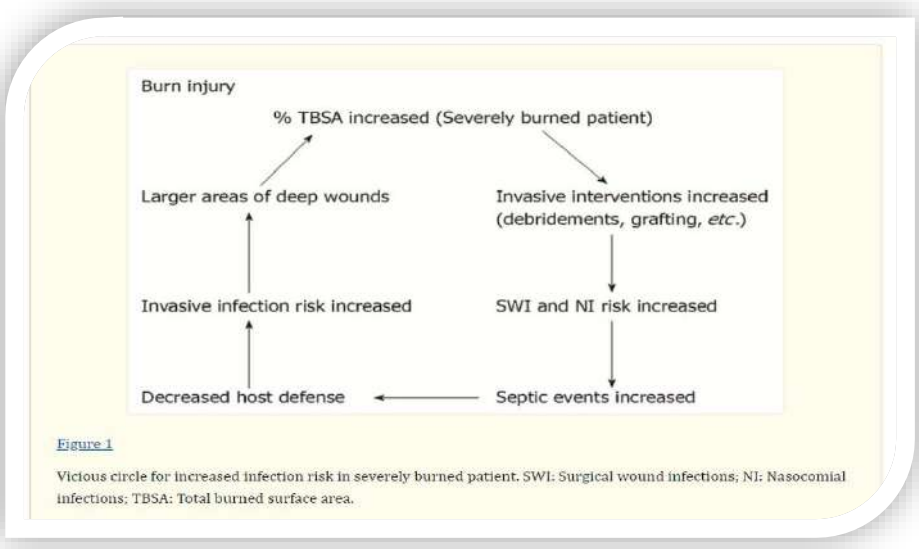


Figure 1

Vicious circle for increased infection risk in severely burned patient. SWI: Surgical wound infections; NI: Nasocomial infections; TBSA: Total burned surface area.

Review:

- Policy & procedures for management of patients with burns larger than 25% of total body surface area.
- See physicians' notes and documents ***(patient medical record)*** to confirm about degree of burns.

Staff Interview (SI)

Interview:

- Ask staff about the placement of patients with burns larger than 25% total body surface area (TBSA).
- Ask why should Burn patients be separated from others (physically separated) from infection control perspective.

B-3.15 Portable chest x-ray is available for usage in isolation room when needed. (O, SI)

Observation (O)

Observe:

- Availability of Portable chest x-ray is available for usage in isolation room when needed e.g ER, ICU, Isolation wards etc
- Observe staff practice regarding any patient under isoaltion precautions who requires x ray chest to be done.
- Observe where it will be done? --Done inside isolation room using portable chest x-ray machine or patient is prepared to be transferred to radiology department.

Staff Interview (SI)

Interview:

- Ask HCWs if patient under isolation precautions need x-ray chest, where it should be performed?
- Ask HCWS in patient services area including the radiology department about availability of Portable chest x-ray to be used with isolated patients when needed.

B-3.16 The required number of airborne infection isolation room (AIIR) should be predicted in each hospital based on the facility' risk assessment or based on the national approved standard. (D,SI,O)

Document (D)

Review:

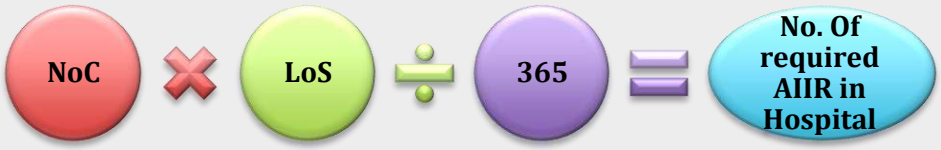
- Document showing the total bed capacity bed capacity & further division according to of each ward / unit in the hospital including critical care units-ICU, NICU, PIU, CCU.
- Review the facility's risk assessment tool to verify if the required number of Airborne Infection Isolation rooms is matching with the predicted number as per risk assessment.

The **risk assessment** should be constructed by a multidisciplinary team and discussed & approved by the following:

- ***IPC committee (all hospitals)***
- ***Hospital administrative (all hospitals),***
- ***IPC director in the health cluster (for MOH governmental hospitals)***

The **risk assessment** should be based on the following variables (should be clearly described in the risk assessment):

- ***Demographic trends of the population in the catchment area***
- ***Trends (incidence rate) of the infectious airborne diseases in the same facility in the last 3 years period***
- ***Healthcare facility scope of service, and any further projected changes to the current service.***
- ***OR the predicted number based on national approved criteria for the required number of airborne infection isolation room (AIIR).***
- or by using the formula from Prediction Guide for the Required Number of Airborne Infection Isolation Room (AIIR)[6] which is



(NoC) = Average number of suspected or confirmed airborne infectious cases of 3 years
(LoS) = Average length of stay of 3 years

Observation (O)

Observe:

- During audit visit of hospital wide patient care areas & critical care units & observe if number of Airborne infection isolation room (AIIR) is consistent with the risk assessment outcomes.

Staff Interview (SI)

Interview:

- Ask infection prevention & Control team members about calculation of required hospital wide **Airborne infection isolation room (AIIR)—which criteria was followed.**
- Ask if requirement of Airborne infection isolation room (AIIR)—was calculated based on facility's risk assessment predictability or National approved standard were followed or by using the formula from Prediction Guide for the Required Number of Airborne Infection Isolation Room (AIIR)?
- Ask staff about the number of Airborne infection isolation room (AIIR) in the specific unit of visit and verify if matching with required number.

B-3.17	**Airborne infection isolation rooms specifications fulfill with MOH required specifications as the following:** ***Standard isolation rooms.** ***Windows are sealed and fixed (i.e., could not be opened).** ***Openings in walls and ceiling are sealed and airtight.** ***Doors are properly designed and well-sealed. (O)**

Observation (O)

- AIIR is a single-occupancy patient-care room used to isolate patients with a suspected or confirmed airborne infectious disease.
- Environmental factors are controlled in AIIRs to minimize the transmission of infectious agents that are usually transmitted from person to person by droplet nuclei associated with coughing or aerosolization of contaminated secretions.
- Airborne isolation rooms should fully meet MOH requirements

Observe:

During audit visit of hospital wide patient care areas & critical care units observe if Airborne infection isolation room (AIIR) are fulfilling MOH Specifications as mentioned in sub element:

Following must be met:

1. All AIIRs fufill all MOH specifications for standard isolation rooms.
2. No windows can be opened.
3. Walls and ceiling are sealed and smooth one piece without cracks or decorative parts
4. All doors should be designed with auto closure device properly and well-sealed.
5. Doors open to the inside.
6. Pressure monitors fixed beside the outer door
7. All angles between walls and ceiling are rounded (no acute angles).
8. Negative pressure isolation room walls, floors, and ceiling surfaces should be easily cleanable and highly durable to withstand frequent cleaning and disinfection with an approved disinfectant
9. Floor covered by smooth anti-microbial vinyl without connection cracks
10. Wooden surfaces if present must be covered or painted to be non-permeable, easy to be cleaned and disinfected repeatedly.
11. Air diffusing vent over the tail of the bed
12. Air exhaust vent over the head of the bed or in the wall beside the head about (60- 100) cm from the floor.
13. All exhausted air from patient room and bathroom must be100 % exhausted (no recirculation) after being filtered through HEPA filter.

B-3.18	**Airborne Infection Isolation Rooms (AIIRs) are under negative pressure (minimum -2.5 Pascal) with air totally exhausted to outside (100%) through High-Efficiency Particulate Air (HEPA) filters. The exhaust air ducts including that from bathroom are independent of the building exhaust air system. (D)**

Document (D)

Review:

- ***Documentations that prove that all AIIRs in each unit are under monitoring for last 3 months to ensure that:***

- Continuous monitoring of negative pressure to ensure that AIIRs are (-2.5 Pascals) all the time.
- Totally air exhausted to outside (100%) through High-Efficiency Particulate Air (HEPA) filters.

The exhaust air ducts are independent of the building exhaust air system, exhaust air tubes must be away at least 3 meters from the intake lines of other departments. Bathroom ventilation exhaust should pass through HEPA filter.

***NOTE:** You can call maintenance / Biomedical engineers to provide you with all the documents & explain the mechanism of monitoring & air exhaust system through HEPA filters*

B-3.19	**There is 100% fresh air supply (i.e., return of air is not permitted) from central AC or concealed separate unit. All components of AIIR ventilation unit (supply & exhaust) are connected to emergency power supply to maintain air pressurization in the event of power failure. (D,O)**

Document (D)

Review the documentation regarding to AIIRs to ensure that:

- The policy of AIIRs should contain with fresh air supply method as recommended.
- Call maintenance / Biomedical engineers to provide you with document that prove that fresh air supply to AIIRs as recommended and under their responsibility.
- Check if there is emergency plan showing that all components of AIIR ventilation unit (supply & exhaust) are connected to emergency power supply to maintain air pressurization in the event of power failure.

Observation (O)

Observe each AIIRs in hospital to ensure that:

1) There is 100% fresh air supply from central AC or concealed separate unit.
2) All components of AIIR ventilation unit (supply & exhaust) are connected to emergency power supply to maintain air pressurization in the event of power failure.

Comment:

You can call maintenance engineers to help you to check central AC above the ceiling and explain it to you.

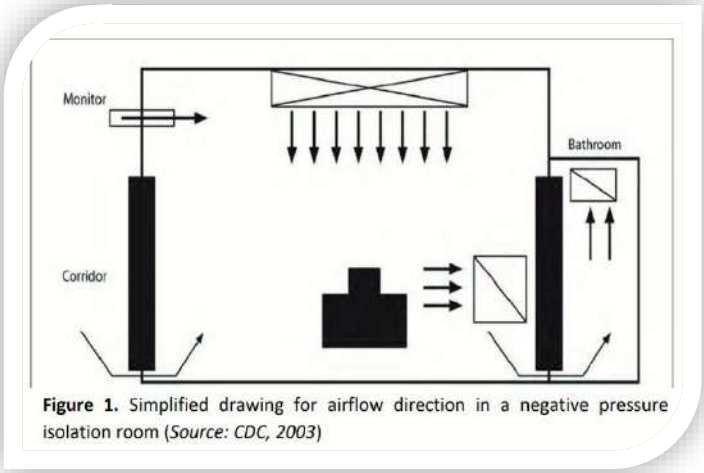


Figure 1. Simplified drawing for airflow direction in a negative pressure isolation room (*Source: CDC, 2003*)

Figure 1. Simplified drawing for airflow direction in a negative pressure isolation room (Source: CDC, 2003)

B-3.20	**There is a fixed monitor outside the patient room in the corridor to continuously monitor the pressure difference between the patient room and corridor, with activation of audiovisual alarm when the ventilation system failed. (O)**

Observation (O)

Observe:

During audit rounds in patient care areas observe availability of fixed negative pressure monitors outside AIIRs:

1. Fixed monitor should be installed outside each AIIRs in the corridor to monitor the pressure difference between the room and corridor.
2. It should be with audiovisual alarm when ventilation system failed.
3. Test the monitor to ensure that alarm is working or not, by keeping the door of AIIRs open for few seconds.

NOTE: There must be clearly audible alarm sounds from fixed monitor alogwith red flashing lights in case of deranged pressure differentials.

B-3.21	**There is evidence of regular monitoring of negative pressure difference of AIIRs:** **-Daily when in use (i.e., a patient is isolated inside).** **-Weekly when not in use (i.e., no patient is isolated).** **-Monthly check by biomedical personals. (D,O)**
Document (D)	***Review each document regarding to AIIRs to ensure:*** 1. Clear policy for regular monitoring of negative pressure difference of AIIRs. 2. All documents that prove of regular monitoring of negative pressure difference of AIIRs for at least last 3 months: – **Daily when in use (i.e., a patient is isolated inside).** – **Weekly when not in use (i.e., no patient is isolated).** – **Monthly check by biomedical personals** 3. Review all document that prove the biomedical personals are monitoring an AIIRs monthly.
Observation (O)	***Observe AIIRs in various patient care areas in the hospital to ensure that:*** *Policy for regular monitoring of negative pressure difference is followed for occupied and non-occupied AIIRs are occupied:* • If it is occupied, observe daily monitoring. • If it is unoccupied, observe weekly monitoring …

NOTE: The pressure from the monitoring device installed at the entrance to the AIIR should be recorded daily in the log designated for that purpose by the responsible nursing staff in the department.

B-3.22	**Air exchange of AIIR is ≥ 12 air changes per hour (≥ 12 ACH) with monthly monitoring. (D)**
Document (D)	– *Maintenance and monitoring of environmental conditions (pressure, ACH temperature, and humidity) should be done.* – *Environmental conditions (ACH) Air Changes per Hour temperature, relative humidity [RH%], and should be monitored, as well as room pressure in relation to the outer corridor* – *In the event of deviation from the specified engineering specifications (set points), a maintenance request should be submitted to the maintenance department* ***Review:*** – Review all document that prove the air exchange of AIIRs is ≥ 12 air changes per hour **(≥ 12 ACH)** monitored at least monthly. – Required documents must be available in the concerned unit.

B-3.23	AIIRs are used only for isolation of suspected or confirmed cases with airborne infectious diseases. (D, O,SI)
Document (D)	***Review the policy of AIIRs to ensure that:*** – AIIRs are used for isolation of suspected or confirmed cases with air borne infectious diseases **ONLY**. – Review the patient file / Medical record and confirm the diagnosis if this patient is in need of Airborne Isolation.
Observation (O)	***Observe AIIRs during audit round in the hospital to ensure that:*** – AIIRs are occupied **ONLY** with patient that require Airborne Infection Isolation Room (AIIR). – Verify if consistent with patient diagnosis in the medical record. **NOTE: It is prohibited to use an AIIRs for any patient other than suspected or confirmed cases with airborne infectious diseases.**
Staff Interview (SI)	***Ask HCWs in the patient services areas about:*** – Total number of AIIRs in the specific unit e.g ICU, ER, etc? – Ask about type of patients that will be isolated in AIIRs to assess staff knowledge and implementation of policy What is it used for? – Ask about the patient file of 02 – 03 last patients admitted in any AIIR and confirm the diagnosis.

References:

1. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3953869/- Infection control in severely burned patients
2. Guideline for Maintenance of Negative Pressure Isolation Rooms (GDIPC,2021)
3. Respiratory-Protection-Program-Guidelines-Version-1.2
4. Guidelines-for-Use-of-HEPA-filters-in-Health-Care-Facilities
5. *Accessible @* ***GDIPC Site Ministry of Health (gdipc.sa)***
6. Prediction Guide for the Required Number of Airborne Infection Isolation Room (AIIR) https://gdipc.sa/Auditing-Unit.html

Element # B-4	ASEPTIC TECHNIQUE
B-4.1	There is a written policy and procedures for clean, aseptic and sterile techniques. (D)
Document	***Review* the policy, which should be:** **Comprehensive and well descriptive**: it covers all aspects of clean, aseptic and sterile techniques, including (but not limited to): – Proper preparation, dilution and/or preservation of medications in – designated areas which are physically separated from patients' treatment areas. – Essential safe practices for invasive procedures (required devices and supplies, antisepsis and recommended PPE & procedures) – Safe practices required for inserting peripheral venous catheter (i.e., fixing, dressing, labeling and replacement of peripheral venous catheters). – Recommended aseptic techniques and safe practices for preparation and use of: ***a) Single-dose medication vials or single-use ampules*** ***b) Multi-dose medication vials*** ***c) Single-use devices (e.g., syringes, needles …etc.)*** ***d) Single-patient devices (e.g., cartridge devices as insulin pen)*** ***e) Reusable (multi-use) devices*** ***f) IV solution bottles*** ***g) IV sets (including secondary sets and add-on devices)*** ***h) Ventilation circuits*** ***i) Humidifiers, nebulizers and other aerosol generating system*** – Necessary safe practices for urinary catheterization and handling collecting urine bags (required supplies, antisepsis and recommended PPE & procedures) – Safe practices required for spinal/epidural space catheterization or injection (required supplies, antisepsis and recommended PPE & procedures) 2) **Fully applicable:** all elements of the policy can be applied and comply with the hospital's scope of services 3) **Based on scientific references** approved such as MOH GCC, CDC, WHO & APIC 4) **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department) **5) Approved by IC committee*** 6) **Valid** (updated within 2 - 3 years and when indicated)

Comment:

Approval by IC committee is required for the infection control manual as a whole before its distribution and also for individual policy after major changes.

B-4.2 Separate clean area is available and maintained for preparation of medications (i.e., away from patients' treatment areas). (O, SI)

Observation (O)

<u>Observe</u> patient's care areas that should be separated and away from clean area specified for preparation of medications:

- Check the availability of the dedicated medication preparation areas which are physically separated from patients' treatment areas.
- Observe medication preparation area(s) which should be provided with:
  - ***Controlled ventilation with monitor for recording the temperature and humidity (temperature ranges from 22 °C to 24 °C / relative humidity up to 70%)***
  - ***At least, one hand washing sink that is equipped with hot & cold water / plain and antimicrobial soap / towels***
  - ***At least, one alcohol-based hand rub dispenser.***
- Observe if any patient requires medication during the visit, and where and how the responsible nurse is preparing this treatment.

Medication preparation area is the place for preparing and preservation of the multi-dose medications, while single dose medications can be taken to patients' care areas for single use purposes and any remaining doses should be discarded immediately (i.e., single-dose vials cannot be stored for future use even on the same patient)

Staff Interview (SI)

Ask HCWs:

- Where is the area specified for medication preparation?
  <u>or</u>
- Where and how are you preparing medications (e.g. getting a dose from multi-dose vials and preparing supplies for dressing change)?
- Where you prepare medications? Especially if there is no available separated clean area
- Where is the area specified for transient storing of lab specimen?
- Where is the area specified for keeping used patient equipment before sending to CSSD?
- Where is the area specified for transient storage of other used patient supplies?

Comment:

Instead of direct questions, indirect ones or scenarios are advisable

B-4.3

For invasive procedures, sterile devices and supplies are used after a patient's skin antisepsis (e.g., sterile syringes, needles and medications are used after skin antisepsis with approved antiseptic wipes). (O,SI)

Observation (O)

Visit medical stores and medication preparation areas:

1) Observe if sterile devices and supplies required for invasive procedures (e.g., sterile syringes, needles, sterile medications, skin antiseptics, antiseptic wipes …etc..) are available in adequate amounts in the medical stores or not?
2) Check if sterile devices and supplies required for invasive procedures (e.g., sterile syringes, needles, sterile medications, skin antiseptics, antiseptic wipes …etc..) are available in adequate amounts in the medication preparation areas or not?
   If amounts of these devices and supplies are inadequate, it is more likely to utilize unsterile items, ignore skin antisepsis, reuse single-use supplies …etc.
3) Observe medical stores and medication preparation areas for the presence of opened sterile devices and supplies (e.g., opened syringes, needles, wound dressings, specific procedure kits, single-use medications …etc..) which are kept to be used later on for invasive procedures.

These practices are prohibited even if these devices and items are used for the same patient (whether labeled with patient's name or not / whether labeled with date & time of the first use or not)

Staff Interview (SI)

Ask HCWs:

Instead of direct questions, indirect ones or scenarios are advisable,
Examples:

1) What are the types of devices and supplies required for a specific invasive procedure (e.g., IM injection, peripheral venous catheter insertion, wound dressing, foley's catheter insertion …etc.)?
   To assess their awareness about sterile devices and supplies that should be used for invasive procedure and importance of patient's procedure site antisepsis
2) How to properly apply a patient's procedure site antisepsis for different invasive procedures?
3) What are the recommended safe practices for reusing syringes, needles, wound dressings or specific procedure's kits (regarding correct storage for future reuse / proper technique and labeling with date & time)
4) What are the precautions that should be strictly followed while storing a remaining dose in a prefilled syringe or single-use medication bottle for future use on the same patient? (Regarding correct storage for future reuse / proper technique and labeling with date & time / discarding when

indicated or after expiration of reuse life)

5) How do you deal with opened unused sterile devices or items (e.g., syringes, needles or wound dressing kits) after treatment session or patient discharge?
6) How you deal with unused sterile devices or items (i.e. unused items with intact original wrap), that are brought to the patient's care area?

Answer:

- *Only sterile devices and supplies are used for invasive procedures after patient's skin antisepsis (e.g., sterile syringes, sterile needles, sterile medications, sterile wound dressings, specific procedure kits, skin antiseptics, antiseptic wipes …etc.)*
- *Sterile single-use devices or items (sterile syringes, needles, wound dressing kits, single-use medications …etc..) are exclusively used for a single invasive procedure in a single patient. It should not be stored for future reuse even on the same patient (whether labeled with patient's name or not / whether labeled with date & time of the first use or not)*
- *Supplies are brought to patient's care area only when needed and after treatment session or patient discharge, all remaining single-use items are discarded while reusable ones are sent to CSSD for reprocessing (even unused items with intact original wrap).*

B- 4.4	**A peripheral venous catheter is properly fixed, with a clearly written date of insertion, and to reduce risk of infection and phlebitis, it is replaced - if still needed - as follows:** **In adults: it is not replaced more frequently than every 72 to 96 hours.** **In children: it is replaced only when clinically indicated. (O,SI)**
Observation (O)	***Visit number of patients to observe fixed peripheral venous catheters & assess if:*** 1) Peripheral venous catheters are fixed properly (preferably with transparent sterile dressings) 2) Data of insertion are clearly written (date, time and responsible HCW) 3) Ask patient about the insertion time of peripheral venous catheter to insure that HCWs strictly follow the peripheral venous catheter related policy 4) Any peripheral venous catheter that is conflicting with the recommended duration for the replacement in adults (i.e., observe how frequent they are changing peripheral venous catheters in adult & children) 5) Peripheral venous catheter's insertion site is inspected each shift to be removed if signs of inflammation, infiltration, extravasation, signs of infection, occlusion or blockage are present, or if the PVC is no longer needed for therapy. 6) There is any sign that indicates replacement of peripheral venous catheter (e.g., signs of inflammation, infiltration, extravasation, signs of infection, occlusion, blockage … etc..)

Staff Interview (SI)	***Ask HCWs:*** **Instead of direct questions, indirect ones or scenarios are advisable,** **Examples:** 1) What are the recommended safe practices for inserting peripheral venous catheters (focused on fixing, dressing, labeling and replacement of peripheral venous catheters)? 2) How frequent should you inspect peripheral venous catheters for signs that indicate replacement (e.g., signs of inflammation, infiltration, extravasation, signs of infection, occlusion, blockage … etc.) 3) What are the different indications for replacement of peripheral venous catheters (i.e., in adults and children)? **To assess their awareness about indications for replacement of peripheral venous catheters either time related or clinically based** 4) How do you manage a peripheral venous catheter if signs of infiltration or extravasation are observed? 5) How do you manage a peripheral venous catheter if signs of occlusion or blockage are observed? 6) How do you manage a peripheral venous catheter if signs of inflammation or infection are observed? **Answer:** – *Peripheral venous catheter should be fixed properly (preferably with transparent sterile dressings)* – *Data of insertion should be clearly written (date, time and responsible HCW)* – *Peripheral venous catheter's insertion site is inspected each shift to be removed if signs of inflammation, infiltration, extravasation, signs of infection, occlusion or blockage are present, or if the PVC is no longer needed for therapy.* – *In adults, peripheral venous catheter is not replaced more frequently than every 72 to 96 hours* – *In children, peripheral venous catheter is replaced only when clinically indicated.*

B- 4.5 Preparation & dilution of medications are only done by ready-made single-dose sterile solutions. (O,SI)

Observation (O)

Visit medical stores and medication preparation areas:

1) Check if ready-made single-dose sterile solutions' bottles of appropriate sizes are available in adequate amounts in the medical stores or not?
2) Observe if ready-made single-dose sterile solutions' bottles of appropriate sizes are available in adequate amounts in the medication preparation areas or not?
   If amounts of these items are inadequate or there is shortage of supplies, it is more likely to use large IV solution bottles for preparation & dilution of medications
3) Check if there is an opened large IV solution bottle in any medication preparation area specified for preparation & dilution of medications?
   Large IV solution bottle should not be used for preparation & dilution of medications even for the same patient (whether labeled with patient's name or not / whether labeled with date & time of the first use or not)

Staff Interview (SI)

Ask HCWs:

Instead of direct questions, indirect ones or scenarios are advisable,

Examples:

1) What are the types of sterile solutions that are used for preparation and dilution of different medications?
2) What are the recommended safe practices for using IV solution bottle in preparation and dilution of different medications (regarding correct storage for future reuse / proper technique and labeling with date & time / discarding when indicated or after expiration of reuse life)?
3) What are the precautions that should be strictly followed while using IV solution bottle in dilution and preparation of different medications for the same patient?
4) How can you safely keep any remaining amounts after using ready-made single-dose sterile solutions' bottles for preparation and dilution of different medications?

Answer:

- *Only ready-made single-dose sterile solutions' bottles are used for preparation &*
- *dilution of different medications*
- *Ready-made single-dose sterile solution's bottle is exclusively used in preparation & dilution of medication for a single procedure/injection in a single patient. It should not be stored for reuse even on the same patient (whether labeled with patient's name or not / whether labeled with date & time of the first use or not)*
- *IV solution bottle should not be used for preparation & dilution of medications*
- *even for the same patient (whether labeled with patient's name or not / whether*
- *labeled with date & time of the first use or not)*

B- 4.6 Single-dose or single-use vial is used for a single procedure/injection in a single patient and it is not stored for future use even for the same patient. (O – SI)

Observation (O)

Visit medical stores, medication preparation areas and patient's care areas:

Check if single-dose or single-use vial is used for a single procedure/injection in a single patient or not?

- Observe if single-dose vials are available in adequate amounts (It is more likely to reuse these items if amounts are inadequate or there is shortage of supplies)
- Observe if these items are kept with remaining doses (single-dose vial should not be kept opened with any remaining dose whether labeled with any patient's name or not to avoid its reuse or storing for future use even on the same patient)

Examples:

- ❖ While checking the medication refrigerator, you find an opened single-use vial labeled with the patient's name & medical record number. This means it is stored for future use on the same patient.
- ❖ While checking the medication refrigerator, you find an opened single-use vial without the patient's name or medical record number. This means it is more likely to be reused by multiple patients.

Staff Interview (SI)

Ask HCWs:

Instead of direct questions, indirect ones or scenarios are advisable,

Examples:

1) What are the best practices recommended for use of single-dose vials regarding the number of patients, keeping remaining doses for future reuse and safe reuse life?
2) What are the precautions that should be strictly followed while storing a remaining dose in a single-use vial for future use on the same patient?
3) How can you safely inject multiple patients from one single-use medication vial?
4) How do you deal with single-use vials after taking a small dose and patient discharge?

Answer:

- *Single-dose or single-use vial is used exclusively for only a single procedure/injection in a single patient. It should not be kept opened with any remaining dose whether labeled with any patient's name or not to avoid its reuse or storing for future use even on the same patient*

B- 4.7 Needles and syringes including prefilled syringes, and vacutainer holders are used for a single procedure/injection. (O – SI)

Observation (O)

Visit medical stores, medication preparation areas and patient's care areas:

1) Check if needles, syringes including prefilled syringes, and vacutainer holders are used only for a single procedure/injection or not?
2) Observe if these items are available in adequate amounts (It is more likely to reuse these items if amounts are inadequate or there is shortage of supplies)
3) Observe if these items are kept sterile and with their original intact wrap (they should not be kept opened or labeled with any patient's name to avoid their reuse or storing for future use even on the same patient)

Examples:

- ❖ While checking the medication refrigerator, you find an opened prefilled syringe labeled with the patient's name & medical record number. This means it is stored for future use on the same patient.
- ❖ While checking the medication refrigerator, you find an opened prefilled syringe without the patient's name or medical record number. This means it is more likely to be reused by multiple patients.

Staff Interview (SI)

Ask HCWs:

Instead of direct questions, indirect ones or scenarios are advisable,

Examples:

1) What are the best practices recommended for use of needles, syringes including prefilled syringes, and vacutainer holders regarding number of patients, keeping them for reuse and safe reuse life?
2) What are the precautions that should be strictly followed while storing a remaining dose in a prefilled syringe for future use on the same patient?
3) How can you safely inject multiple patients from one syringe filled with a large dose of medication?
4) How do you deal with a vacuum holder after taking samples and patient discharge?

Answer:

Needles, syringes including prefilled syringes, and vacutainer holders are used exclusively for only one procedure/injection. They should not be kept opened or labeled with any patient's name to avoid their reuse or storing for future use even on the same patient.

B- 4.8 Cartridge devices such as insulin pens are used for only one patient. (O – SI)

Visit medication preparation areas:

1) Check if cartridge devices such as insulin pens are used or not (e.g., presence of insulin pens in the medication refrigerator)?
2) Open the refrigerator, if cartridge devices such as insulin pens are present, and HCWs claim that each device is exclusively allocated only for one patient:
   Check that any used cartridge device is labeled with following data:
   - Patient's name & medical record number to be used exclusively for only one patient
   - Date of the first use to be discarded after expiration of the reuse life recommended by the manufacturer.
3) Check the refrigerator, if you find a used cartridge device such as an insulin pen without a patient's name or medical record number, this means it is used for multiple patients.

Staff Interview (SI)

Ask staff members:

1) Are cartridge devices such as insulin pens used?
   If yes:
2) Is a cartridge device as an insulin pen exclusively used for only one patient?
   If yes:
3) What essential data is required to be recorded on a cartridge device?

Answer:

- *Patient's name & medical record number to be used exclusively for only one patient.*
- *Date of the first use to be discarded after expiration of the reuse life recommended by the manufacturer.*

Instead of direct questions, indirect ones or scenarios are advisable,
Examples:

1) What are the best practices recommended for use of cartridge devices regarding the number of patients, keeping them while in use and reuse life?
2) What are the precautions that should be strictly followed while using a cartridge device such as an insulin pen for multiple patients?
3) How can you safely inject a dose from a cartridge device such as an insulin pen that is used for multiple patients?
4) How do you deal with an insulin pen after patient discharge?

Answer:

- *Cartridge devices such as insulin pens are used exclusively for only one patient. It should be labeled with the patient's name, medical record number and date of the first use to avoid its use for multiple patients and after expiration of the reuse life recommended by the manufacturer.*

B- 4.9 Supplies are brought to the patient's care area only when needed and after patient discharge, all remaining single-use items are discarded while reusable ones are sent to CSSD for reprocessing (even unused items with intact original wrap).

(O – SI)

Observe the attitude of the staff members in different patient's care areas (especially critical care areas, e.g., ER) towards:

1) Supplies and single-use medications that are taken to patient's care areas (i.e., for any procedure, are only required or necessary number of supplies and medications brought to patient's care areas or not?)
2) Remaining unused supplies and medications taken to patient's care areas after termination of treatment session, completion of the procedure or patient discharge (i.e., are all remaining single-use items discarded while reusable ones sent to CSSD or not? even items with intact original wrap)

Supplies and single-use medications that are brought to patient's care area only when needed

After termination of treatment session, completion of the procedure or patient discharge:

- All remaining single-use items are discarded, even unused ones with intact original wrap (i.e., they cannot be used on other patients or returned to clean areas, such as medical stores or medication preparation areas)
- All reusable items are sent for reprocessing, even unused ones with intact original wrap.

Example: Observe an ER nurse who wants to insert peripheral venous catheter:

- Is he/she brought supplies that are only needed for the procedure or extra supplies are taken there?
- If there are extra supplies, does he/she discard all unused single –use items and send reusable ones to CSSD after patient discharge or not?

NOTE:

For successful observation, it is advisable to assess this standard during initiation & termination of different procedures or treatment sessions (e.g., HCWs bring and prepare medications and supplies before initiation of the procedures)

Ask staff members:

Instead of direct questions, indirect ones or scenarios are advisable,

Examples:

- What to do with extra supplies or single-use medications that are taken to a patient's care area without being used during the procedure or the treatment session (items are still unused with intact original wrap)?
- How do you safely handle or disinfect unused extra supplies and medications that are taken to a patient's care area during the procedure or the treatment session before being used for other patients?
- In emergency situations, what are the rules that should be considered before returning unused extra supplies or medications that are taken to the patient's care area to the central preparation area?

Answer:

- *Remaining disposable supplies or single-use medications are discarded, even unused ones with intact original wrap (i.e., they cannot be used on other patients or returned to clean areas, such as medical stores or central preparation areas)*
-
- *All reusable items are sent for reprocessing, even unused ones with intact original wrap.*

B- 4.10	**Whenever possible, multi-dose vial is used for a single patient, with recorded patient's name and date of the first use (when it has been accessed for the first time), and discarded after 28 days unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life). (O – SI)**
B- 4.11	**If multi-dose vial is used for more than one patient, they should only be kept and accessed in a dedicated clean medication preparation area away from immediate patient treatment areas.. (O – SI)**

Visit medication preparation areas:

1) Check if multi-dose vials are used or not (presence of multi-dose vials to be used instead of single-dose vials)?
2) If multi-dose vials are present, and HCWs claim that each multi-dose vial is exclusively allocated only for one patient (or whenever possible, used for one patient):

Observe to ensure that the following data are recorded on used vials:

c) Date of the first use (when it has been accessed for the first time) to be discarded after 28 days unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life).
d) Patient's name & medical record number to be used exclusively for only one patient (or whenever possible, used for one patient)

3) If multi-dose vials are present, and used for multiple patients:

Observe to ensure that:

4) Date of the first use is recorded on a used vial, to be discarded after 28 days unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life).
5) Multi-dose vials are exclusively kept and accessed in the medications preparation areas (i.e., multi-dose vials used for more than one patient are never taken to patients' treatment areas)

Visit patients' care areas:

- Check if multi-dose vials are used instead of single-dose vials and present in patients' care areas?
- If multi-dose vials are present in patients' care areas:

Observe to ensure that the following information are recorded on used vials:

1. Date of the first use is recorded on a used vial, to be discarded after 28 days unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life).
2. Patient's name & medical record number is recorded on used vial to be used exclusively for only this patient (i.e., multi-dose vial is never kept in patients' treatment areas without patient's name & medical record number to avoid its use for multiple patients)

Staff Interview (SI)

Ask HCWs:

1) Are multi-dose vials available and used instead of single-dose vials? If yes:
2) Is multi-dose vial exclusively used for only one patient (or whenever possible, used for one patient)?
   If yes:
3) What are essential data required to be recorded on multi-dose vials?

Answer:

- *Date of the first use (when it has been accessed for the first time) to be discarded after 28 days unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life).*
- *Patient's name & medical record number to be used exclusively for only one patient (or whenever possible, used for one patient)*
- *If no, and multi-dose vials are used for multiple patients:*

4) What are the precautions that are required to be strictly followed while using multi-dose vials?

Answer:

- *Date of the first use is recorded on a used vial, to be discarded after 28 days unless the manufacturer specifies a different shorter or a longer date (i.e., reuse life).*
- *Multi-dose vials are exclusively kept and accessed in the medication's preparation areas (i.e., multi-dose vials used for more than one patient are never taken to patients' treatment areas)*
- *If multi-dose vial is present or kept in patients' treatment areas, patient's name & medical*
- *record number is recorded on used vial to avoid its use for multiple patients*
- *To demonstrate how they can safely obtain a dose from a multi-dose vial that is used for multiple patients (i.e., required supplies, correct storage while in use, proper technique with labeling with date & time and discarding when indicated).*

Ask HCWs about:

The best practices for use of multi-dose vials regarding number of patients, keeping vails while in use and reuse life

B- 4.12	**The self-sealed rubber cap of a medication vial or an IV solution bottle is disinfected with approved antiseptic wipes (e.g., alcohol wipes) prior to any access. (O – SI)**
Observation (O)	***Visit medication preparation areas and/or patients' care areas:*** Observe for availability of supplies required for disinfecting self-sealed rubber caps of medication vials or IV solution bottles prior to access (e.g., approved antiseptic alcohol wipes). Observe to ensure that prior to any access to medication vial or IV solution bottle, its self-sealed rubber cap is disinfected with approved alcohol antiseptic wipes. Check that IV solution bottles are only accessed through their self-sealed rubber caps after being disinfected.
Staff Interview (SI)	***Ask HCWs:*** How can you safely get access to the contents of a medication vial or an IV solution bottle? **or** What are precautions required while handling medication vials or IV solution bottles to prevent contamination? **Answer:** – *Sterile devices are only used to access medication vials and IV solution bottles with strict adherence to aseptic techniques* – *Prior to any access to a medication vial or an IV solution bottle, its self-sealed rubber cap is disinfected with approved alcohol antiseptic wipe (i.e., vigorously scrub the self-sealed rubber cap with antiseptic wipe for 10 – 15 seconds / never touch the access site after the application of antiseptic / wait the access site to dry before being penetrated with sterile device)* – *Exclusively, IV solution bottles should be accessed through their self-sealed rubber caps after being disinfected.* – *3) To demonstrate how they can safely obtain a dose from a medication vial or get an access to an IV solution bottle (i.e., required supplies, right access through self-sealed rubber cap, proper technique with labeling with date & time when required, and changing IV solution bottle or discarding medication vial when indicated)*

B- 4.13	**IV sets (including secondary sets and add-on devices) that are continually used to infuse crystalloid solutions (hypotonic, isotonic, or hypertonic), are replaced at least every 7 days, but not more frequently than 96-hour intervals. (O – SI)**

B- 4.14	**IV sets that are used to administer blood, blood products, lipid emulsions, or dextrose/amino acid TPN solutions are replaced within 24 hours of initiating the infusion. (O – SI)**

Observation (O)

Visit patients' care areas:

1) In patients who are not receiving blood, blood products, lipid emulsions, or dextrose/amino acid TPN solutions (i.e., infusion of crystalloid solutions: hypotonic, isotonic, or hypertonic solutions), check that IV administration sets (including secondary sets and add-on devices) are continuously connected and replaced no more frequently than at 96 hour intervals, but at least every 7 days.

Rationale: Extending the duration of use permits considerable cost savings to hospitals without significant increase in the risk of healthcare-associated BSI with peripheral IVs

2) In patients who are receiving blood, blood products, lipid emulsions, or dextrose/amino acid TPN solutions, check that IV delivery systems are continuously connected and changed within 24 hours of initiating the infusion.
3) Observe that IV administration sets are labelled with dates & times of initiating treatment (e.g., dates & times of initiating infusion of crystalloid solutions (hypotonic, isotonic, or hypertonic solutions) or administration of blood, blood products, lipid emulsions or TPN solutions).

Notes:

- If possible, coordinate IV tubing changes with IV solution changes.
- If an epidemic of infusion-associated BSI is suspected, it may be prudent and practical to change IV administration sets within 24 hours of initiating the infusion.

Staff Interview (SI)

Ask HCWs:

1) How frequent you should routinely replace IV administration sets that are continuously connected (including secondary sets and add-on devices)

or

2) What are the maximum periods allowed for the use of IV delivery systems that are continuously connected?

Questions:

- *In patients who are not receiving blood, blood products, lipid emulsions, or TPN solutions (i.e., infusion of crystalloid solutions: hypotonic, isotonic, or hypertonic solutions), continuously connected IV delivery systems (including secondary sets and add-on devices) are replaced no more frequently than at 96 hour intervals, but at least every 7 days.*
- *In patients who are receiving blood, blood products, lipid emulsions, or TPN solutions, continuously connected IV administration sets are changed within 24 hours of initiating the infusion.*
- *If an epidemic of infusion-associated BSI is suspected, change IV administration sets within 24 hours of initiating the infusion.*
- *3) What is the maximum period allowed for the IV delivery system if an epidemic of infusion-associated BSI is suspected?*

Answer:

- *In these circumstances, it may be prudent and practical to change IV administration set within 24 hours of initiating the infusion.*
- *4) To demonstrate how they should prepare for infusion of crystalloid solutions (hypotonic, isotonic, or hypertonic solutions) or administration of blood, blood products, lipid emulsions or TPN solutions (i.e., required supplies, proper technique with labeling with date & time of initiating infusion or treatment and frequency of change of IV tubing and IV solution).*

B- 4.15 For a ventilated patient, the ventilation circuit is only changed when visibly soiled or mechanically malfunctioning. (D – SI)

Document (D)

Review the following documents:

❖ Documented evidence that demonstrates proper application of this sub-element:

- Specific policy for change of ventilation circuits in the ventilated patients (Multidisciplinary policy approved from medical services department, respiratory therapy department and nursing services department)
- Documents that record events of changing ventilation circuits in the ventilated patients with indications for replacement (either hard copies or soft copies / either individual patient's file, unit's records or respiratory therapist logs)

Staff Interview (SI)

Ask HCWs (nurses – RT):

❖ How frequently should you routinely change the ventilation circuit in a ventilated patient, (what is the maximum period allowed to prevent VAP)?

Answer:

For a ventilated patient, the ventilation circuit is not routinely changed. Only changed when:

- ***It is visibly soiled.***
- ***It is damaged, disrupted or mechanically malfunctioning***

B- 4.16

Sterile solutions are used in nebulizers, humidifiers, or any aerosol generating system and changed between patients and every 24 hours for the same patient unless the manufacturer of ready-made sterile solutions specifies different dates. (O – SI)

Visit patients' care areas to:

1) Observe the availability of supplies required for filling nebulizers, humidifiers, and any aerosol generating system (e.g., ready-made single-use bottles of sterile saline or sterile water / prefilled humidifiers with sterile solutions).
2) Check that only ready-made single-use bottles of sterile solutions are used to fill nebulizers, humidifiers, and any aerosol generating system (the use of prefilled humidifiers with sterile solutions is preferable).
3) Notice if sterile solutions used in nebulizers, humidifiers, and any aerosol generating system are changed between patients and every 24 hours for the same patient.
   Observe to ensure that when humidifier or nebulizer is in use, it is labelled with date & time of initiating treatment (e.g., date & time of filling the humidifier or nebulizer with sterile solution).
4) Always follow instructions of the ready-made sterile solutions manufacturer when different dates for change are specified (e.g., the use of some prefilled humidifiers may extend for 1 month).

Ask HCWs:

1) What are the supplies required for using or filling nebulizers, humidifiers, and any aerosol generating system?
   Answer: only ready-made single-use bottles of sterile saline or sterile water / prefilled humidifiers with sterile solutions.
2) How frequently should you routinely change sterile solutions used in nebulizers, humidifiers, and any aerosol generating system (what are the maximum periods allowed)?
   Answer: Sterile solutions used to fill nebulizers, humidifiers, and any aerosol generating system should be changed:

- In-between patients (after each patient).
- Every 24 hours for the same patient.
- As specified by the ready-made sterile solutions manufacturer (e.g., the use of some prefilled humidifiers may extend for 1 mon

3) To demonstrate how they should prepare for and perform inhalation therapy using nebulizers, humidifiers, and any aerosol generating system (i.e., required supplies, proper technique with labeling with date & time of initiating treatment and frequency of change of sterile solutions)

B-4.17 Hand hygiene practiced before breast milk expression and sterile container is used for breastmilk collection and preservation. (O, SI)

Observation (O)

Observe:

- Availability of dedicated room / are for breast milk expression
- Observe availability of hand washing sink and ABHR dispenser in the specified room/ area.
- Availability of education material and instructions for mother to follow and practice hand hygiene before expression of breast milk:
  - *Availability of WHO" Education tools for reminders*
  - *Hand Hygiene: When and How Leaflet*
  - *SAVE LIVES: Clean Your Hands Screensaver*
  - *How to Hand rub Poster*
  - *How to Hand wash Poster*
- Observe availability of sterile containers to be used for breastmilk collection and preservation in order to avoid any contamination.

Staff Interview (SI)

Interview:

- Ask about the procedure / process and infection control measures to be taken to ensure expressed breast milk is safe and free from any contamination.
- Ask about mothers' education on appropriate hand hygiene to be followed & how it is monitored to ensure compliance of mother.
- how they are using and implementing hand hygiene.
- Randomly ask the mother to perform hand rub. ***(If applicable)***
- Ask staff to show **sterile containers** which are used for breastmilk collection and preservation.

B-4.18 HCW wears a mask during insertion of a catheter or injection into spinal or epidural space. (O – SI)

Observation (O)

Visit patients' care areas to:

1) Check if invasive procedures into spinal or epidural spaces are applicable in this unit(s) or not?
2) Observe for availability of all supplies required for strict adherence to aseptic technique while performing invasive procedures into spinal or epidural spaces (e.g., antiseptic wipes, sterile gloves, sterile drapes, and **surgical mask**)
3) Check if aseptic technique including wearing of a surgical mask is strictly applied while performing invasive procedures into spinal or epidural spaces (i.e., inserting catheter or injection into spinal or epidural space)?

Staff Interview (SI)

Ask HCWs:

- What are the best practices that should be applied while performing invasive procedures into spinal or epidural spaces (i.e., inserting catheter or injection into spinal or epidural space)?
  - **Answers should include wearing a surgical mask.**
- To demonstrate how they should prepare for invasive procedures into spinal or epidural spaces (i.e., required supplies, PPE, and steps for inserting catheter or injection into spinal or epidural space)?
  - **Answers should include wearing of a surgical mask**.

Element # B-5 SINGLE USE DEVICES (SUDs)

B-5.1 The facility has an implemented policy for no reuse of single use items based on the national regulations. (D, O, SI)

Document (D)

Review the following documents:

1 - Policy & procedure for Single Use Device (SUD).

- Policy should clearly define and state single use device:
  - Single Use Device: a medical device that is intended for single use only, on an individual patient for a single procedure, and then should be discarded. It should not be reprocessed or reused again even on the same patient.
  - These devices are packaged and marked as "single use" or have the international sign for single use items:

- Policy should include (but not limited to):
  - Classification items based on associated risk **(Critical, Semi critical, and Non-critical items)**
  - A device labeled as 'Single Use Device – SUD' **MUST NOT** be reused.
  - SUD should only be used on an individual patient during a single procedure and then discarded.
  - Single-use devices should not be reprocessed or used again, even on the same patient.
  - Disposable single-use devices that have been opened and not used; should not be reprocessed (i.e., re-sterilized).
  - SUDs must be discarded by the end user at the point of use as per hospital protocols.
- **Fully applicable:** the policy can be applied and comply with the hospital's scope of services.
- **Policy is based on scientific references** approved by MOH, CDC, APIC, GCC **Check MEMO from GDIPC - MOH regarding regulations for SUD station (no reuse of Single Use Device - SUD).**
- Signed from authorized personnel and approved by IPC committee*
- **Valid** (updated within 2 - 3 years and when indicated)

2 - Review OVR (Occurrence Variance Reports) to check if single use items were sent to CSSD for reprocessing.

Observation (O)

Observe the use of single use devices by the HCWs in different patient care areas to notice any breach in practice, Examples:

1) You may find used gowns hanging at the backside of doors in units (Lab, dental unit etc.)
2) You may also find single-use tourniquets used for multiple patients in a phlebotomy room.
3) Reuse of face shields is also a common practice.

Staff Interview (SI)

Staff interview to ensure effective implementation of single use policy:

Randomly ask clinical staff about the protocols of handling Single Use Devices.

Comments:
Instead of direct questions, indirect ones or scenarios are advisable:

- ***How will you disinfect this single-use item to be reused safely?***
- ***Can you demonstrate the procedure(s) that should be applied on this device before re-use?***

Examples: airway circuits, suction catheters, Intravenous sets, needles & syringes, PPE (gowns, face shields) … etc.,

The answer should be we NEVER reuse single use device, because it can be used only once

RATIONALE:

* *Using disposable items improves patient safety by eliminating the risk of patient-to-patient contamination because the item is discarded and not used on another patient. (CDC)*
* *The institutional facilities should not reprocess used SUDs for reuse because it is not safe.*
* *Reprocessing a SUD may affect the function of the device and/or material from which the device is made.*
* *Single-use devices may not be designed for thorough decontamination and re-sterilization processes after the first use.*
* *Unforeseen problems such as inadequate decontamination, material alteration, mechanical failure, and residual chemical agents can render the reprocessed item unsafe. In addition,validation of the SUDs functionality after reprocessing cannot be guaranteed.*

Element # B-6	Respiratory Protection Program (RPP)
B-6.1	There is a written policy and procedure for Respiratory Protection Program (RPP) with well-designed programs' components & activities and based on current scientific knowledge, approved MOH guideline, reference practice, and regulations. (D)

Document (D)

The Respiratory Protection Program (RPP) aims to provide effective protection from respiratory risks and to ensure that all employees, patients, and visitors are protected from respiratory hazards.
Respiratory Protection Program (RPP) is based on the systematic approach that incorporates the four major elements with relevant sub-elements:

(1) Prevention of respiratory hazards through the use of administrative controls
(2) Early identification of respiratory hazards
(3) Prevention of respiratory hazards through the use of engineering controls
(4) Prevention of respiratory hazards through the use of respiratory protection equipment

Reference: ***Respiratory-Protection-Program-Guidelines-Version-1.2..pdf (gdipc.sa) / June 2022***

Review:

Policy & Procedure for **Respiratory Protection Program (RPP)** *which should be:*

- ***Comprehensive:***
  - *Each healthcare facility should establish a comprehensive internal policy and procedure to manage the RPP effectively.*
  - *Following must be incorporated in the policy & procedure:*
    - *Key elements of* Respiratory Protection Program (RPP) with relevant sub elements.
    - *Steps required in the Implementation of an effective respiratory protection program.*
    - *P/P must include detailed program activities for each program component in order to ensure effective implementation:*

1. Prevention of Respiratory Hazards through Administrative Controls :

Sub elements of this component include:

1. *Development of the RPP and Assigning Responsibilities of Hospital Respiratory Protection Program Team*
2. *Discussion of RPP Activities in the Infection Prevention & Control Regular Committee*
3. *Development of policy and Procedure* that *govern all aspects of the RPP, developed according to the MOH guidelines and regulations & easily accessible to all healthcare workers. (HCWs) with emphasis on staff vaccination and efficient respiratory protection program record keeping.*
4. *Regular program monitoring and evaluation are required by the RPP team*
5. *Respiratory Protection Program Education & Training which is a critical component of an effective RPP.*

2. Early Identification of Respiratory Hazards:

Sub elements of this component include:

1. *Respiratory Hazard Evaluation*
2. *Early Identification of Patients with Acute Infectious Respiratory Illnesses*
3. *Early Recognition and Source Control of Patients with Acute Infectious Respiratory Illnesses*
4. *Transportation of Suspected/Confirmed Infectious Respiratory Illnesses Cases*
5. *Collecting & Handling of Respiratory Specimens*

3. Prevention of Respiratory Hazards Through Engineering Controls:

Sub elements of this component include:

1. *Availability and functioning of Airborne Infection Isolation Room (AIIR)*
2. *Availability and Functioning of Portable High-Efficiency Particulate Air Filter (HEPA filter)*
3. *Availability and Functioning of Laboratory's Biological Safety*

4. Prevention of Respiratory Hazards Through Respiratory Protection Equipment (RPE)

Sub elements of this component include:

1. *Availability of RPE Including Face Mask, Respirator, and* Powered *Air Purifying Respirator (PAPR)*
2. *Respirator Fit Testing*

Other domains of Policy & procedure:

- ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services
- ***Based on scientific approved references*** MOH, GCC, CDC, APIC
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IPC committee
- ***Valid*** updated based on latest guidelines released from MOH.

B-6.2	**There is a written policy and procedure for dealing with suspected or confirmed respiratory illnesses patients based on updated national guidelines. It contains early detection, management, and transfer of respiratory illness patients. (D)**

Document (D)

Patients with respiratory illness pose a significant risk of cross infection within the healthcare facilities if appropriate infection control measures are not followed. Therefore, each hospital needs to have clear policies and procedures for suspected or confirmed respiratory illnesses patients e.g COVID – 19, MERS – CoV, tuberculous, Influenza etc adopted from MOH guidelines & tailored according to hospital situation)

Review:

Policies & Procedures for dealing with suspected or confirmed respiratory illnesses patients should be:

1: <u>Comprehensive:</u>

Incorporating following important domains:

- *<u>Protocols for early detection of patients with respiratory illness</u> i.e. Respiratory Triage, Respiratory Pathway, early recognition and Source Control of Patients with Acute Infectious Respiratory Illnesses*
- *<u>Management protocols of patients with respiratory illness:</u>*
  - Case definition of suspected and confirmed case of respiratory illness
  - Description of respiratory pathway / Designated respiratory triage area with clear flowchart
  - Transmission based Precautions
  - Patient Placement
  - Personal Protective Equipment (PPE) For Healthcare workers
  - Environmental Cleaning /Disinfection & Handling waste and linen
  - IPC Precautions for Aerosol-Generating Procedures (AGPs)
  - Management of exposure to Respiratory illness *(HCWs & Patient exposure)*
  - Management of respiratory illness outbreaks
  - Duration of isolation Precautions for specific respiratory illness
  - Home Isolation instructions for eligible patients
  - Laboratory Diagnosis *(Specimen shipment protocols: Sample collection, packaging and shipping)*
  - General outlines of Management
  - Managing bodies of deceased patients with respiratory illness ***(MERS – CoV & COVID-19 etc)***
- *<u>Patient Transportation protocols</u>:*
  - Patient Transportation & Prehospital Emergency Medical Services

<u>Other aspects of policy & Procedure:</u>

<u>Policy & Procedures for dealing with suspected or confirmed respiratory illness patients should be:</u>

- ***<u>Fully applicable</u>***: all elements of the policy can be applied and comply with the hospital's scope of services
- ***<u>Based on scientific approved references</u>*** MOH
- ***<u>Signed</u>*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***<u>Approved</u>*** by IPC committee
- ***<u>Valid</u>*** updated based on latest guidelines released from MOH.

B-6.3	The IPC committee regularly discusses RPP program's activities, progress, and any issues with potential to impede the effective implementation of the program. (D,SI)
Document (D)	– Respiratory Protection program's activities, progress need to be discussed in a multidisciplinary regular infection prevention & control committee. – Any issues & concerns with potential to impede the effective implementation of the program must be discussed as urgent issues in the infection prevention & control committee meetings with proposed solutions in order to ensure smooth functioning of the respiratory protection program. ***Review:*** – Meeting minutes of last IPC committee meetings to check the content / issues discussed in the last meeting and check the status. – Check if the respiratory protection program activities & progress are being discussed as part of routine agenda. ***e.g N-95 fit test coverage. Staff immunization status, Training & education of staff on RPP, discussion & approval of any new updates related to Policies and procedures of respiratory illnesses & issues related to engineering controls etc*** – Discussion and reinforcement of program follow up during IPC committee meetings to ensure the continuity of the program. ***e.g each department head / representative should be an advocate of a respiratory protection program in their respective areas in order to ensure HCWs, patients, and visitors are in a safe environment and are protected against exposure to respiratory pathogens.*** – Verify if any major issue was discussed in the previous meeting: what were the suggested solutions & what is current status. ***e.g non-availability of vaccines or specific sizes of N-95 masks and / or PAPR in ER.***
Staff Interview (SI)	***Interview:*** – Ask Infection prevention & control staff about discussion of respiratory protection program in the committee meetings. – Ask how the agenda is prepared and who is responsible to follow up for unresolved open issues related to RPP. – Ask about the tracking mechanism to follow up the respiratory protection program activities & progress. – During the audit round in the clinical areas, randomly ask the IPC Committee representatives about respiratory protection program & assess their awareness *e.g ER or ICU heads can be interviewed to assess their awareness and orientation about respiratory protection program activities. Ask about % of N 95 fit test coverage of their staff, education & training of staff on RPP etc*

B-6.4 There is a designated respiratory triage facing the entrance of the Emergency and Hemodialysis units of the hospital. i.e., First area to be reached by any patients. (O)

Respiratory triage and pathway should effectively prevent the transmission of respiratory diseases to patients, healthcare workers (HCWs), and visitors through using simple clinical symptoms and clinical histo needed for rapid identification and isolation of suspected cases with infectious respiratory diseases. Therefore in order to prevent the transmission of respiratory infections in the healthcare settings, including MERS-CoV& COVID-19 and influenza, all healthcare facilities should have designated triage area for suspected MERS-CoV& COVID-19 cases that are physically separated from other areas.

Observation (O)

Observe:

- *Availability of designated triage area in the following units:* ***(Should be the first area to be reached by ER & dialysis patients before they get in contact with staff or other patients.)***

1: Emergency Rooms & Hemodialysis Units:

- **Reparatory Triage:**
  - It is a simple screening method for the early detection of patients with respiratory symptoms. It must be available at the entry point of the healthcare facility (i.e. emergency room entrance, dialysis unit entrance) for effective capturing & early identification of all individuals passing through the entrance with ARI symptoms.
  - It is a triaging scoring system applied to alert healthcare workers in an emergency (ED) and hemodialysis units for the possibility of occurrence of respiratory infections with a particular pathway for those patients.
  - It should be the first area to be reached by any patients coming to the ER or Hemodialysis unit.

During audit round visit the respiratory waiting area and assess if following specifications are being met;

- *A certified trained HCW should operate the respiratory triage point, and they must be able to communicate with patients in both Arabic and English.*
- *The area should be manned by HCWs continuously (24/7).*
- *An informative / attention poster should be erected in the respiratory triage area on the mandatory steps that are required before passing through it.*
- *Updated version of the respiratory triage screening tool.*
- *Availability of medical masks and alcoholic hand rub solution at the respiratory triage desk.*
- *Patients identified with infectious respiratory illness should be asked to perform hand hygiene and wear a face mask.*
- *Those with respiratory symptoms meeting scoring criteria must be immediately directed to the respiratory pathway (i.e., the respiratory clinic or waiting area) without first opening a patient file (staff members or caregivers can perform the registration in the reception instead.)*
- *One-way flow of patients should be ensured at all times.*

- **Respiratory Clinic:**

During audit round visit the respiratory clinic and assess if protocols are followed:

- Patients with respiratory symptoms should be screened in the respiratory clinic (i.e., as part of the respiratory pathway) according to the respiratory triage process.
- After the clinical assessment, the physician must decide whether the patient meets the case definition for any particular disease.
- Accordingly, the patient will be directed to an Airborne Infection Isolation Room (AIIR) so that a respiratory specimen can be performed.
- if an AIIR is not available, a single room with a portable HEPA filter should be used.
- Portable chest X-rays must be available for chest imaging and to minimize the transfer of patients around the hospital.

- **Respiratory Waiting Area:**

During audit round visit the respiratory waiting area and assess if following specifications are being met;

- The waiting area for the respiratory pathway should be a well-ventilated separate area that is only used for suspected infectious respiratory cases.
- The respiratory waiting area should be kept free of excessive equipment or furniture.
- Should be equipped with chairs that are easy to clean and fix, with a safe social distance of 1.2 m between chairs.
- Educational materials (posters and screens) about respiratory hygiene and cough etiquette must be available, together with hand hygiene supplies, tissues, and ordinary waste receptacles.

B-6.5 Written reminders in the emergency department for updated definitions of respiratory illnesses of national alert are available and based on updated national guidelines and staff are quite familiar with these definitions (O, SI)

Observation (O)

Observe:

- Updated written case definition reminders in the Emergency Department and hemodialysis unit. ***(Case definition posters, personal cards etc.)***
- Observe if posted at convenient locations. ***(Nursing stations, respiratory assessment rooms etc. for education & as a reminder for ER & HDU physicians to apply criteria for suspected case definitions respiratory illness for all patients directed from respiratory triage station)***

Staff Interview (SI)

Interview:

- ER & HDU physicians & other relevant staff regarding updated case definition of respiratory illnesses e.g MERS- CoV & COVID-19.
  Ask about the last orientation / training about latest case definitions of respiratory illness e.g MERS- CoV & COVID-19.

Answers must include age categorization, Clinical presentation of suspected case categories (I – IV) including Severity Scores for Community-Acquired Pneumonia (CURB 65) & epidemiological link.

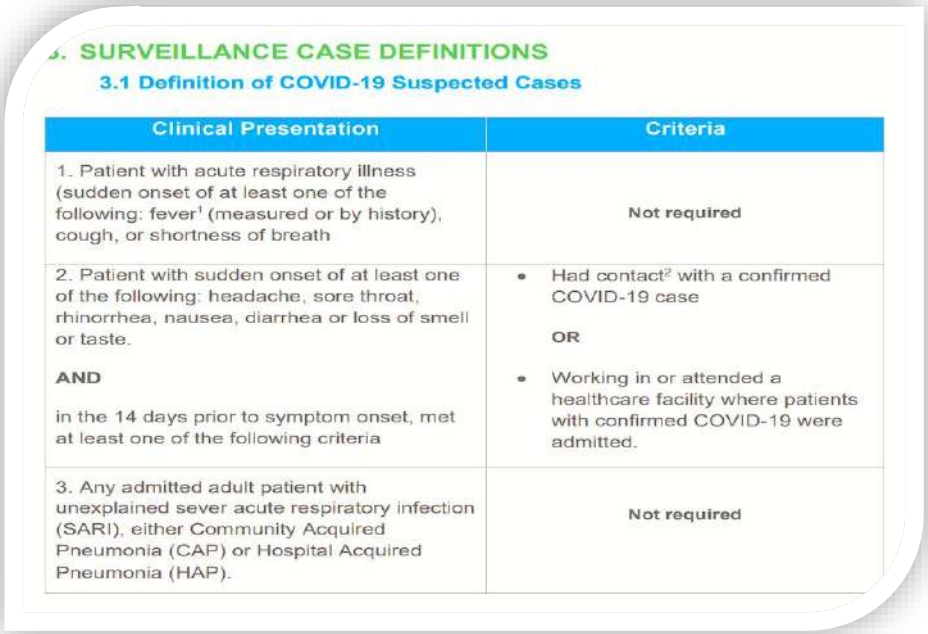
MERS -CoV Case Definition:

CASE DEFINITION

4.1 SUSPECTED CASE[1]

Age	Clinical Presentation	Epidemiologic Link
Adults	I. Severe pneumonia (severity score ≥3 points) (Appendix A) or ARDS (based on clinical or radiological evidence)	Not required
Adults[2]	II. Unexplained deterioration[3] of a chronic condition of patients with congestive heart failure or chronic kidney disease on hemodialysis	Not required
Children and adults	III. Acute febrile illness (T ≥38° C) with/without respiratory symptoms OR IV. Gastrointestinal symptoms (diarrhea or vomiting), AND leukopenia (WBC≤3.5x10⁹ /L) or thrombocytopenia (platelets < 150x109/L)	Within 14 days before symptom onset: 1. Exposure[4] to a confirmed case of MERS-CoV infection OR 2. Visit to a healthcare facility where MERS-CoV patients(s) has recently (within 2 weeks) been identified/treated OR 3. Contact with dromedary camels[5] or consumption of camel products (e.g. raw meat, unpasteurized milk, urine)

COVID – 19 Case Definition:



SURVEILLANCE CASE DEFINITIONS

3.1 Definition of COVID-19 Suspected Cases

Clinical Presentation	Criteria
1. Patient with acute respiratory illness (sudden onset of at least one of the following: fever[1] (measured or by history), cough, or shortness of breath	Not required
2. Patient with sudden onset of at least one of the following: headache, sore throat, rhinorrhea, nausea, diarrhea or loss of smell or taste. **AND** in the 14 days prior to symptom onset, met at least one of the following criteria	• Had contact[2] with a confirmed COVID-19 case **OR** • Working in or attended a healthcare facility where patients with confirmed COVID-19 were admitted.
3. Any admitted adult patient with unexplained sever acute respiratory infection (SARI), either Community Acquired Pneumonia (CAP) or Hospital Acquired Pneumonia (HAP).	Not required

B-6.6 Flowchart is available in Emergency and Hemodialysis Units for early detection & management of respiratory illness patients (D,SI)

Document (D)

Review:

- Flowchart for respiratory illness patients based on updated MOH guidelines.
- Flowchart should clearly describe respiratory pathways from the initial checkpoint at ER / HDU entrance to the final destination.

Staff Interview (SI)

Interview:

- IPC team about how they developed the flowchart. ***(Ask about the latest versions of MOH guidelines for respiratory illnesses to verify if updated versions are available)***
- Ask Staff in ER about the flowchart and match if it is consistent with the real hospital situation.
- Flowchart must be available & posted in ER & HDU for respiratory illnesses & all staff must be very well oriented about the protocols / steps to be followed based on hospital flowchart.

Comment:

HDU must have their own flowchart describing the respiratory pathway for suspected hemodialysis patients.

B-6.7	**Patients who have acute infectious respiratory symptoms are instructed to wear surgical masks and placed in a dedicated and separated waiting area with at least 1.2-meter distance between them.** (O,SI)
Observation	***Observe:*** – How the respiratory triage nurse is dealing with patients with acute respiratory symptoms. ***(Instruction should include perform hand hygiene & wear surgical mask)*** – Observe if alcohol-based hand sanitizer, surgical masks are available at the respiratory triage desk or not. – Observe how she is directing the patients to the dedicated respiratory waiting area. • Observe dedicated respiratory waiting area for respiratory illness patients during audit round & check if fulfills MOH requirement *Estimate the distance between chairs in the waiting area.* ***(Spatial separation of at least 1.2 meter between patients.*** – *Observe if* ***alcohol-based hand sanitizer****,* ***paper towels****,* ***education material*** *on cough etiquette /respiratory hygiene & hand hygiene. is posted.*
Staff Interview (SI)	***Interview:*** – Staff at the visual triage station about the instructions to be given to the patients with symptoms of respiratory illness and their companions. ***(Identified ARI patients should be asked to perform hand hygiene and wear a surgical mask.)*** – Ask staff what will be the next patient destination if the score is 4 & above and how she will manage the situation if she/he faces 2 or more patients at the same time. ***(Answer: Patient A will be directed to respiratory clinic & remaining patients will wait in dedicated waiting area for respiratory illness 'patients)***

B-6.8 The facility conducts a tracing for all HCWs who have exposed to a confirmed respiratory illness (e.g: TB or MERS-CoV) cases as per the latest national guidelines. (D,SI)

- *All healthcare facilities should identify and trace all health care workers who had protected (proper use of PPE) or unprotected (without wearing PPE or PPE used improperly) exposure to patients with respiratory like MERS-CoV & Tuberculosis infection.*
- *Healthcare workers shall be assessed daily for 14 days post exposure for the development of symptoms through the activation of log.*

Document (D)

Review:

- Log with line listing of all contacts exposed to confirmed respiratory illness (e.g: TB or MERS-CoV) cases with record of signs & symptoms for the duration of 14 days. Sample of log sheet is attached below.

Staff Interview (SI)

Interview:

- Staff about the post exposure management & follow up to a confirmed-to-confirmed respiratory illness (e.g: TB or MERS-CoV) cases
- Ask her if she has low risk unprotected exposure, for how long she / he should be under observation & how the monitoring will be done.

Coronavirus Disease COVID-19 Guidelines V 3.0

APPENDIX 3

Contact Tracing Form
Novel Coronavirus

Name of the contact: ____________________ **ID/ Iqama number:** ____________________

Age: ________ **Nationality:** ________________ **Phone #:** ____________________

Daily Contact Follow-Up Form

1 Day after last exposure / /	5 Day after last exposure / /	9 Day after last exposure / /	13 Day after last exposure / /
☐ No symptoms ☐ Fever °C ☐ Shortness of breath ☐ Sore throat ☐ Cough ☐ Headache ☐ Muscle/joint pain ☐ Diarrhea times/day ☐ Vomiting/nausea ☐ Runny nose Others	☐ No symptoms ☐ Fever °C ☐ Shortness of breath ☐ Sore throat ☐ Cough ☐ Headache ☐ Muscle/joint pain ☐ Diarrhea times/day ☐ Vomiting/nausea ☐ Runny nose Others	☐ No symptoms ☐ Fever °C ☐ Shortness of breath ☐ Sore throat ☐ Cough ☐ Headache ☐ Muscle/joint pain ☐ Diarrhea times/day ☐ Vomiting/nausea ☐ Runny nose Others	☐ No symptoms ☐ Fever °C ☐ Shortness of breath ☐ Sore throat ☐ Cough ☐ Headache ☐ Muscle/joint pain ☐ Diarrhea times/day ☐ Vomiting/nausea ☐ Runny nose Others

B-6.9	There is an implemented system for reporting, follow up, and management of exposure to open pulmonary TB, MERS-CoV, chicken pox, measles, mumps, and rubella. (D - SI)

Document (D)

Review the following documents:

1) Last 2 - 3 fulfilled forms for exposure (lists of HCWs who had exposed to MERS-CoV, open pulmonary TB, chicken pox, measles, mumps or rubella, with classification into low or high risk / protected or non-protected exposure).
2) Isolation room's logs that record HCWs who had exposed to the above-mentioned diseases
3) Evidence of reliable reporting of exposures to GDIPC when indicated (e.g., exposure to MERS-CoV confirmed cases, exposures during chicken pox or measles outbreaks, etc..).
4) Annual report of the employee health clinic that includes exposure incidents to MERS-CoV, open pulmonary TB, chicken pox, measles, mumps and rubella

Staff Interview (SI)

Ask IPC team members / assigned staff of the employee health:

1) How can you properly apply post-exposure reporting, follow up & management plan for MERS-CoV, COVID-19, open pulmonary TB, chicken pox, measles, mumps and rubella?

Ask questions by giving different scenarios:

- *How do you report, manage and follow up a **physician** who has been exposed to a patient confirmed for MERS-CoV, COVID-19?*
- *How will you report, manage and follow up with a respiratory **therapist** who has been exposed to a case of open pulmonary TB?*
- *How do you report, manage and follow up exposures during **chicken pox outbreak?***
- *How can you report, manage and follow up with a nurse who has been exposed to a patient +ve for **measles?***

Comments:

Instead of direct questions, indirect ones or scenarios are advisable.

B-6.10	**Aerosol generating procedures (AGPs) (e.g; nasopharyngeal swabs, tracheal aspirate, etc) of suspected infectious respiratory patients are performed by trained HCWs , and there must be schedule for assigned trained HCWs to cover all shifts. (D,MR,SI)**
Document (D) Staff Interview (SI)	***An aerosol-generating procedure (AGP) is defined as any medical procedure that can induce the production of aerosols of various sizes, including small (< 5 microns) Particles. AGPs includes bronchoscopy, sputum induction, intubation and extubation, cardiopulmonary resuscitation, open suctioning of airways, Ambu bagging, nebulization therapy, high frequency oscillation ventilation and Bilevel Positive Airway Pressure ventilation – BiPAP*** ***Review:*** – List of healthcare workers (Doctors, nurses etc.) who have received training on appropriate technique of nasopharyngeal swab & tracheal aspirate which are Aerosol generating procedures (AGPs). – Check of schedule for duty covering 24 hours for the trained assigned HCWs for Aerosol generating procedures (AGPs) (e.g; nasopharyngeal swabs, tracheal aspirate, etc) ***Interview:*** – Concerned staff (doctors, nurses etc.) in ER, ICU about last training received on various AGPs like nasopharyngeal swab & tracheal aspirate technique. – Randomly ask staff to explain technique of nasopharyngeal sample collection for MERS – CoV, COVID 19 testing etc
B-6.11	**HCWs must perform aerosol generating procedures (AGPs) on any suspected or confirmed respiratory illnesses cases in a negative pressure room or single room with a portable high-efficiency particulate air (HEPA) filter machine (if the negative pressure room is not available) and by using proper PPE (e.g., N95 fitted mask, eye protection, gloves, and gown). (D,O,SI)**
Document (D) Observation (O)	***Review:*** – File of any patient of suspected or confirmed respiratory illnesses cases and check date, time & responsible HCW who performed aerosol generating procedures (AGPs). – Review the log sheet for the specific isolated case and match with the date and time of AGP. – Ask for evidence of appropriate PPE use during AGPs. ***Observe:*** – HCWs perform any aerosol generating Procedure (AGPs) like CPR, intubation, extubation, suctioning etc. for any suspected or confirmed respiratory illness case. ***(If possible, to observe the real situation / scenario)*** – Observe the type of PPE used by HCWs while preparing for AGPs. – Observe If AGPs are performed in a negative pressure room / single room with HEPA filter.

Staff Interview (SI)

Interview:

- Ask HCWs *(Doctors / nurses)* at random about what is meant by the term Aerosol Generating Procedures ***AGP***s and if they can enumerate different ***(AGPs.)***
- Ask HCWs about the type of precautions to be taken & / PPE to be worn while performing ***AGPs***.
- Ask HCWs where ***AGPs*** to be performed for any suspected or confirmed respiratory illness patient.

Alternatively, they can be interviewed by giving a scenario.

Scenario

Ask any ER Physician:

Patient XYZ was directed to Respiratory clinic from respiratory triage with score 8. After clinical examination & applying criteria for suspected COVID – 19 based on updated guidelines patient fulfilled criteria for a suspected case. You decide to take Nasopharyngeal swab for the patient. Where are you going to perform the procedure and what type of precautions will be taken before entering the patient's room?

B-6.12 There is proper maintenance of all portable HEPA filter machines and all HEPA filters are changed on a regular basis and according to the manufacturer's recommendations. (D)

Document (D)

Review:

- Document showing total number of portable HEPA filter machines available in the hospital. E.g ER, ICU, HDU, OR etc
- Review all documents that prove the maintenance and changing of HEPA filters of portable machines.
- Check the records of the last HEPA filter change for each portable machine and verify if manufacturer's instructions for frequency are being followed.
- Document can be reviewed in the infection control department and in relevant departments as well by random selection. e.g ER, HDU, isolation wards etc

REFERENCES / WEB BASED RESOURCES:

1) Respiratory-Protection-Program-Guidelines-Version-1.2..pdf (gdipc.sa) / June 2022
2) COVID-19 Guideline –(gdipc.sa) Coronavirus Disease COVID-19 Guidelines V 3.0
3) Guidelines-for-Use-of-HEPA-filters-in-Health-Care-Facilities.pdf (gdipc.sa)
4) Middle East Respiratory Syndrome Coronavirus ; Guidelines for Healthcare Professionals :Version 5.1 May 21, 2018 : Ministry of health Guidelines
5) "WHO" Middle East Respiratory Syndrome Coronavirus (MERS-CoV) : *Monthly summary https://www.who.int/emergencies/mers-cov/en/*
6) "CDC " Middle East Respiratory Syndrome Coronavirus (MERS-CoV) *https://www.cdc.gov/coronavirus/mers/index.html*
7) Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV) *https://www.cdc.gov/coronavirus/mers/infection-prevention-control.html*
8) Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Centers for Disease Control and Prevention (CDC). *Available at: http://www.cdc.gov/coronavirus/mers/guidelines-lab-biosafety.html*
9) Assiri A, McGeer A, Perl TM, Price CS, Al Rabeeah AA, Cummings DA, Alabdullatif ZN, Assad M, Almulhim A, Makhdoom H, et al. Hospital outbreak of Middle East respiratory syndrome coronavirus. N Engl J Med. 2013;369(5):407-16.
10) Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Patients Under Investigation (PUIs) for the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) – Version 2. *Centers for Disease Control and prevention (CDC). 9 January 2014. Available at: http://www.cdc.gov/coronavirus/mers/guidelines-clinical-specimens.htm*
11) IP Competency Task Force. APIC Competency model for the Infection Preventionists: A
12) NEJM Procedure: Collection of Nasopharyngeal Specimens with the Swab Technique: *http://www.youtube.com/watch?v=DVJNWefmHjE https://youtu.be/CcyLv67U8-Y*
13) Guidelines-for-Use-of-HEPA-filters-in-Health-Care-Facilities.pdf (gdipc.sa)

Element # B-7 OCCUPATIONAL HEALTH PROGRAM

B-7.1	**There is a written policies and procedures for employees' health related issues (i.e., pre-employment counseling and screening, immunization, post exposure management and work restriction). (D)**
Document (D)	***Review the policy, which should be:*** **Comprehensive:** it covers all aspects of infection control regarding employee's health program, including (but not limited to): - Pre-employment counseling & baseline screening - Determining of immune status & administering appropriate vaccines - Reporting, follow up and management of needlestick or sharp injuries and blood or body fluid exposures. - Reporting, follow up and management of exposure to open pulmonary TB, MERS-CoV, chicken pox, measles, mumps, and rubella - Work restrictions. - Employee health related education & training programs - BICSL license & N95 fit testing – **Fully applicable:** all elements of the policy can be applied and comply with the hospital's scope of services – **Based on scientific approved references** MOH ,CDC, WHO & APIC – **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department) – **Approved by IPC committee*** – **Valid** (updated within 2 - 3 years and when indicated)

Comments:
Approval by the IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes.

B-7.2

There is a special clinic for employees' health that provides pre-employment counseling and screening, immunization, post exposure management and work restriction. (O - SI)

Observation (O)

Observe the employee health clinic to ensure that:

1) It is a dedicated clinic that covers all activities of employee health program:
   - Pre-employment counseling & baseline screening
   - Determining of immune status & administering appropriate vaccines
   - Reporting, follow up and management of needlestick or sharp injuries and blood or body fluid exposures.
   - Reporting, follow up and management of exposure to open pulmonary TB, MERS-CoV, chicken pox, measles, mumps, and rubella
   - Work restrictions.
   - Employee health related education & training programs
   - BICSL license & N95 fit testing
2) The clinic has a definite time and assigned staff (either full-time or part-time)

Staff Interview (SI)

Ask assigned staff of the employee health clinic about activities of the clinic:

1) How do you determine the immune status of newly hired staff against hepatitis B, measles, mumps, rubella and varicella to administer appropriate vaccine(s)?
2) How do you report, follow up and manage a physician with unprotected exposure to a case of confirmed MERS-CoV infection?
3) How do you manage a HCW who has been exposed to a case of chicken pox?
4) What are you going to do after being informed that a laundry employee has been exposed to needlestick injury today?
5) How do you report, manage and follow up a nurse who has been exposed to patient's blood during surgery?
6) What are the components of a BICSL license and how do you calculate coverage rate?
7) How do you send reports and data through EPINet, HESN or other approved reporting system (if applicable)?
8) How can you apply work restrictions on a nurse who has been exposed to a case of measles (if applicable)?

Comment:
Instead of direct questions, indirect ones or scenarios are advisable.

B-7.3	**All employees have a baseline screening for hepatitis B, hepatitis C, HIV and tuberculosis (TB). (D - MR)**
B-7.4	**The immune status of newly hired HCWs against hepatitis B, measles, mumps, rubella and varicella are determined by documented vaccination, serological evidence of immunity, or documented clinical / laboratory evidence of disease with lifelong immunity). Appropriate vaccine(s) is administered to those who are susceptible. (D - MR - SI)**

Document (D)

Review the following documents:

1) Plan & written protocol for screening any newly hired employee for hepatitis B, hepatitis C, HIV and tuberculosis (TB).
2) Screening data
3) Plan & written protocol for identifying susceptible staff based on documented vaccination, serological evidence of immunity, or documented clinical / laboratory evidence of the disease.
4) Vaccination programs for susceptible HCWs
5) Vaccination activities / Lists of target groups for different vaccines & coverage rates.

Medical Record (MR)

Randomly review 3 - 4 HCWs' medical records:

Examples: medical director, head of ICU department, ER nurse, surgeon, lab. Technician, respiratory therapist … etc.

1) Check for evidence of baseline screening for hepatitis B, hepatitis C, HIV and tuberculosis (TB)
2) Check for evidence of immunity regarding hepatitis B, measles, mumps, rubella and varicella:
   - Documented vaccination
   - Serological evidence of immunity
   - Documented clinical / laboratory evidence of the disease
3) Check for evidence of administration of appropriate vaccine(s) to those who are susceptible.

Staff Interview (SI)

Ask assigned staff of the employee health clinic:

- How do you identify susceptible staff regarding hepatitis B, measles, mumps, rubella and varicella to administer appropriate vaccine(s)?
- How can you establish required vaccination programs for susceptible HCWs?
- How do you correctly prepare lists of target groups & calculate coverage rates for different vaccines?
- How can you properly document different vaccination activities?

Comment:
Instead of direct questions, indirect ones or scenarios are advisable.

****Level of immunity is defined as:***

*1) **Hepatitis B virus**: evidence of immunity by level of HBsAb > 10 m IU/ ml*
*2) **Measles**: Presumptive evidence of immunity is written documentation of vaccination with two doses of MMR vaccine administered at least 28 days apart, laboratory evidence of immunity, laboratory confirmation of disease.*
*3) **Mumps**: presumptive evidence of immunity if they have written documentation of vaccination with two doses of MMR vaccine administered at least 28 days apart, laboratory evidence of immunity, laboratory confirmation of disease.*
*4) **Rubella**: Personnel should have documentation of one dose of live rubella vaccine on or after their first birthdays or laboratory evidence of immunity to rubella.*
5) ***Varicella** HCP are considered to have immunity if they have laboratory evidence of immunity, evidence of clinical diagnosed or verified varicella or zoster, or documentation of age-appropriate vaccination.*

B-7.5	**The influenza vaccine is administered annually to targeted HCWs as per MOH recommendations. (D - MR - SI)**
Document (D)	***Review the following documents:*** 1) Lists of target groups for annual influenza vaccination 2) Annual report of the employee health clinic that includes overall coverage rate of annual influenza vaccination
Medical Record (MR)	***Randomly review 3 - 4 employee medical records:*** **Examples: medical director, head of ICU department, ER nurse, surgeon, lab. Technician, respiratory therapist, one of housekeeping staff, … etc.** 1) Check for evidence of annual influenza vaccination 2) Check for evidence valid BICSL license (if applicable)
Staff Interview (SI)	***Ask 3 - 4 HCWs about being vaccinated with the annual influenza vaccine:*** 1) What is the last vaccine you get and when? 2) Show me your card of BICSL license (if applicable, it should be valid license)

B-7.6	**Newly hired HCWs are screened for tuberculosis upon contracting with Purified Protein Derivative based Tuberculin Skin Test (PPD-based TST). The test is repeated annually for those who are non-reactive and PPD-based TST conversion rates are monitored and calculated. (D - MR - SI)**
Document (D)	***Review the following documents:*** 1) Overall coverage rate for baseline PPD-based Tuberculin Skin Testing of hospital's staff 2) Lists of target groups (non-reactive HCWs) for annual PPD-based TST 3) Annual report of the employee health clinic that includes coverage rate of annual PPD- based TST & conversion rate
Medical Record (MR)	***Randomly review 3 - 4 employee medical records:*** Examples: **head of medical department, ER nurse, physician, lab. Technician, respiratory therapist, one of housekeeping staff, one of kitchen staff (butcher, or pastry cooker), one of waste personnel … etc.** 1) Check for evidence of the baseline PPD-based TST (if applicable) 2) If HCW is non-reactive, check for evidence of annual PPD-based TST
Staff Interview (SI)	***Ask assigned staff of the employee health clinic:*** 1) How do you correctly prepare lists for target groups for baseline and annual PPD- based TST? 2) Do you have to include HCWs who have a history of receiving BCG vaccine in baseline PPD testing? 3) Do you have to include HCWs with documented previous PPD-based TST positive reaction? 4) How do you administer and read PPD-based TST? 5) How do you properly interpret results of PPD-based TST? 6) How can you calculate PPD-based TST conversion rates? **Instead of direct questions, indirect ones or scenarios are advisable.**

NOTE:

- ***A Purified Protein Derivative based Tuberculin Skin Test (PPD-based TST) should be administered, read, and interpreted by trained personnel.***
- ***Intradermal method (Mantoux) is used to administer the PPD-based TST. Tine tests should not be used.***
- ***Baseline screening should be conducted at the time of hire. Those individuals who have a history of having received the BCG vaccination should be included unless they have documentation of a previous positive reaction.***
- ***A two-step TST should be performed when the initial TST is negative and there is no documented negative TST during the preceding 12 months.***
- ***Interpretation of the TST depends on measured TST induration in millimeters, the person's risk for being infected with M. tuberculosis, and risk for progression to active TB if infected.***

Purpose of Testing	Tuberculin Skin Test
Baseline	• ≥ 10 mm is considered a positive result (either first or second step)
Serial testing without known exposure	• Increase of ≥ 10 mm is considered a positive result (TST conversion)
Known exposure (close contact)	☐ ≥ 5 mm is considered a positive result in persons who have a baseline TST result of 0 mm ☐ An increase of ≥ 10 mm is considered a positive result in persons with a negative baseline TST result or previous follow-up screening TST result of ≥ O mm

- If personnel have a positive TST, a chest radiograph should be done promptly to check for active disease. A history of exposure should be obtained to determine if infection is occupational or community-associated.
- The person should be instructed to report symptoms that are suggestive of TB as chest radiographs do not need to be repeated unless the person is symptomatic.
- A recent converter should be referred to a healthcare provider for consideration of preventive therapy.
- **PPD-based TST conversion:** a 10-mm or greater increase in the size of the TST induration during a 2-year period in a person with a documented negative (<1O mm) baseline two-step TST result
- **The conversion rate**: is the percentage of persons whose test result has converted within a specified period.
- (i.e., to calculate a conversion rate, divide the number of conversions among HCWs in the setting in a specified period (numerator) by the number of personnel who received tests in the setting over the same period and multiply by 100).
- If there has been unprotected exposure of workers to TB, TSTs should be administered at the time of the exposure and repeated at 12 weeks post-exposure to look for possible converters. Chest radiographs are performed only on those with prior positive TST and who are currently symptomatic (consider retesting immunocompromised personnel at least every 6 months)
- Personnel who have laryngeal or pulmonary TB are excluded from work until they are receiving adequate therapy, the cough has resolved, and there have been three consecutive sputum smears negative for acid-fast bacilli. The employee health clinic should obtain periodic documentation from the healthcare provider. If treatment is discontinued, the person needs to be promptly evaluated for infectiousness.

B-7.7	**There is an implemented system for reporting, follow up, and management of sharp or needlestick injuries and blood/body fluid exposures. (D - MR - SI)**

B-7.8	**Reporting through electronic systems is active and ongoing (i.e., reliable reports of sharp or needlestick injuries and blood/body fluid exposures are sent to GDIPC through, HESN or HESN PLUS other approved reporting systems in a timely manner). (D - SI)**

Document (D)

Review the following documents:

1) Filled EPINeT forms (or other equivalent forms) during the last 3 - 6 months for HCWs who had exposed to sharp/needlestick injuries or blood/body fluid
2) Evidence of regular reliable reporting (i.e., ongoing & active reporting in a timely manner).
3) Annual report of the employee health clinic that includes sharp/needlestick injuries & blood/body fluid exposures rates

Medical Record (MR)

Review medical records of the last 2-3 HCWs who had exposed to sharp/needlestick injuries or blood/body fluid for:

- Documented evidence of follow up and management:
  - Post Exposure Prophylaxis (PEP)
  - Vaccination against Hepatitis B virus
  - Hepatitis B immune globulin (HBIG) to susceptible HCWs
  - Follow up serological testing
  - Counseling & treating diseased HCWs, … etc..

Staff Interview (SI)

Ask 3 - 4 of hospital's staff of different categories:

Examples: ER nurse, surgeon, lab. Technician, respiratory therapist, one of the waste handling team, one of housekeeping staff, laundry personnel … etc.

1) What are you going to do if you have exposed a sharp or needlestick injury?
2) Do you have to squeeze the site of injury and apply powerful antiseptics locally?
3) What are you going to do for reporting this incident?

Ask assigned staff of the employee health clinic:

1) How do you evaluate both the exposed employee and the source patient?
2) How can you properly apply a post-exposure follow up & management plan for HBV, HCV or HIV?
3) How can you report, manage, and follow up a nurse who has been exposed to sharp injury from an unknown source?

4) How can you report, manage and follow up a lab technician who has been exposed to needlestick injury from a patient +ve for HBV & HIV?
5) When do you get your last training program regarding the national approved reporting system?
6) Show me how you can report a case of sharp/needlestick injury or blood/body fluid exposure to the national approved reporting system
7) How do you properly interpret changes in sharp/needlestick injuries & blood/body fluid exposure rates?

Instead of direct questions, indirect ones or scenarios are advisable.

B-7.9	**The Employee health clinic team regularly monitors different types of HCWs exposure and recommend corrective actions to prevent recurrence, e.g., devices with safety mechanisms (self-sheathing needles-retractable needles and scalpels ... etc..). (D - SI)**

Document (D)

Review the following documents:

1) Annual report of the employee health clinic that includes rates of different exposures (or changes in exposure rates with or without corrective interventions)
2) Documented evidence of corrective intervention:
   - Change in specific policy to replace a risky procedure with a less risky procedure
   - Replacing a risky device or equipment with a device or equipment that has more advanced safety features
   - Comparing exposure rates before & after corrective actions or prevention strategies.
3) IC committee meeting minutes that discuss and interpret rates of different exposures (or changes in exposure rates) classified by department, occupational category, device-based, etc.
4) Documented evidence of feedback that is provided to HCWs involved in corrective interventions or prevention strategies.

Staff Interview (SI)

Ask HCWs involved in corrective interventions or prevention strategies about:

1) Rates of different exposures (or changes in exposure rates) classified by department, occupational category, device-based … etc.
2) Continuous communication & feedback (e.g., exposure rates before & after application of the corrective action or the prevention strategy).
3) Change in the policy that replaces the risky procedure with the less risky procedure (if any)
4) Replacing the risky device or equipment with the device or equipment that has more advanced safety features (if any)

B-7.10	Updated medical records (or copies) are available for all HCWs of supportiv services (i.e., kitchen, laundry, housekeeping, waste management …etc.) (- MR)
Document (D)	***Review the following documents:*** ❖ Documented evidence of listing all of the hospital's staff with job categories including personnel in supportive services (i.e., kitchen, laundry, housekeeping, waste management …etc.)
Medical Record (MR)	***Randomly review 3 - 4 original medical records (or copies) of personn of supportive services:*** Examples: **one of housekeeping staff, one of kitchen staff (butcher, or pastry cooker),** **one of the waste personnel, laundry supervisor … etc.** 1) Check for evidence of baseline screening (if applicable) 2) Check for evidence of immunity or administration of appropriate vaccine(s) to those who are susceptible 3) Check for evidence of post exposure follow up and management (if applicab 4) Work restrictions

B-7.11	The screening, immunization, and post exposure management data are kept in HCWs medical records. (MR)
Medical Record (MR)	***Randomly review 3 - 4 employee medical records:*** Examples: **head of medical department, ER nurse, physician, lab. Technician, respiratory therapist, one of housekeeping staff, one of waste personnel … etc.** 1) Check for evidence of baseline screening (if applicable) 2) Check for evidence of immunity or administration of appropriate vaccine(s) to those who are susceptible 3) Check for evidence of post exposure follow up and management (if applicable) 4) Work restrictions

B-7.12	There are regular training activities for employee health program.(an active annual education and training plan for the employee health program targeting healthcare workers). (D - PF - SI)
Document (D)	***Review documented evidence of training activities for employee health program:*** 1) Annual report of the employee health clinic that includes yearly educational and training plan 2) Lists of target groups 3) Components or elements of the educational activities and training program, such as: - PPE - Respiratory protection & N95 fit testing - Sharp & needlestick injuries (risks & prevention) - Post exposure management & follow up - Recommended vaccines - Work restriction 4) Trainees' Attendance sheets 5) Records of educational and training activities with calculation of coverage rates
Personal Files (PF)	***Randomly review 3 - 4 personal files (original files or copies) for availability of:*** a. BICSL license b. Attended educational and training activities, such as: - PPE - Respiratory protection & N95 fit testing - Sharp & needlestick injuries (risks & prevention) - Post exposure management & follow up - Recommended vaccines - Work restriction
Staff Interview (SI)	***Ask 3 - 4 of hospital's staff of different categories:*** **Examples: ER nurse, surgeon, lab. technician, respiratory therapist, one of the waste handling team, one of housekeeping staff, laundry personnel … etc.** 1) What are the PPEs required for caring for a patient under airborne precautions? show me how you can don & remove them safely and in proper sequence. 2) What are you going to do if you have exposed a sharp or needlestick injury? 3) Do you have to squeeze the site of injury and apply powerful antiseptics locally? 4) What are you going to do to report this incident? ***What are the medical conditions or diseases that should be reported to the employee health clinic to decide exclusion from work? & how do you report them?***

B-7.13	**Exposed health care workers are isolated when needed (either home isolation in staff accommodation or in their home or in identified rooms at the hospital). (O - SI)**
Observation (O)	***Observation:*** 1) Observe the availability of allocated room(s) in staff accommodation for home isolation. Room(s) should be: - Adequately ventilated with separate air conditioning system - With separate Facilities (e.g., private bathroom(s)) 2) If home isolation in staff accommodation is not attainable, check the rooms that are identified in the hospital for home isolation of HCWs when required
Staff Interview (SI)	***Ask 3 - 4 of hospital's staff about home isolation in staff accommodation:*** 1) What is meant by home isolation in staff accommodation? 2) How many rooms are assigned in your accommodation for home isolation? Do you know them? 3) How do you deal with HCWs under home isolation in your accommodation? 4) What are facilities that can be shared safely with HCWs under home isolation in your accommodation? **Answers:** – **Home isolation:** isolation that is applied on clinically stable HCWs without comorbidity that requires hospital admission as patients. – When dealing with HCWs under home isolation, staff should apply recommended infection control precautions that match the required type(s) of isolation (e.g., contact isolation precautions)

B-7.14	Approved national/MOH protocol for work restriction is strictly applied. (D – MR–SI)

Document (D)

Review documented evidence of application of work restriction as per an approved MOH policies:

a. Annual report of the employee health clinic that includes yearly educational and training plan
b. Lists of target groups
c. Components or elements of the educational activities and training program, such as:
   - PPE
   - Respiratory protection & N95 fit testing
   - Sharp & needlestick injuries (risks & prevention)
   - Post exposure management & follow up
   - Recommended vaccines
   - Work restriction
d. Trainees' Attendance sheets
e. Records of educational and training activities with calculation of coverage rates

Review the following documents:

1) Check for approved work restriction policy and related procedures for hospital's staff to outline infections or conditions that require exclusion from work
2) Fulfilled work restriction forms (or other relevant forms) during the last 3 - 6 months for HCWs who were restricted from work

Medical record (MR)

Review the following documents:

❖ Documented evidence of application of work restriction policy:
   - Medical sickness reports, which were fulfilled during the last 3 - 6 months for HCWs who were suffering from infections or conditions that require work restriction
   - Evaluation of their infections or conditions in employee's clinic, ER or medical department
   - Investigation & treatment reports
   - Check how HCW is allowed to join back after recovery

Comment:

Review files of HCWs who were restricted from work in the last 3 - 6 months to see whether protocols were properly applied or not (the evidence should specify restriction condition, interventions, management and duration of restriction)

Staff Interview (SI)

Ask assigned staff of the employee health clinic about application of work restriction plan:

Examples:

1) How do you report, manage and follow up a physician who was exposed to a patient confirmed for MERS-Co without PPE for more than 10 minutes?
2) How can you manage and follow up a susceptible nurse who has been exposed to a patient +ve for measles?
3) How can you manage and follow up with a respiratory therapist who has open pulmonary TB?
4) How do you manage and follow up a surgeon who had staphylococcus aureus infection (active draining skin lesions)?

Comments:

Instead of direct questions, indirect ones or scenarios are advisable.
See appendix for work restriction plan

Suggested Work Restrictions for HCW Exposed to or Infected with Infectious Diseases of Importance in Healthcare Settings, in the Absence of National or Local Regulations

Disease/Problem	Work Restriction	Duration	Category
Conjunctivitis	Restrict from patient contact and contact with the patient's environment	Until discharge ceases	II
Cytomegalovirus infections	No restriction		II
Diarrheal diseases - Acute stage (diarrhea with other symptoms) - Convalescent stage, *Salmonella*spp.	Restrict from patient contact, contact with the patient's environment, or food handling Restrict from care of high-risk patients	Until symptoms resolve Until symptoms resolve; consult with local and state health authorities regarding need for negative stool cultures	IB IB
Diphtheria	Exclude from duty	Until antimicrobial therapy completed and two cultures obtained 24 hours apart are negative	IB

Enteroviral infections	Restrict from care of infants, neonates, and immunocompromised patients and their environments	Until symptoms resolve	II
Hepatitis A	Restrict from patient contact, contact with patient's environment, and food handling	Until 7 days after onset of jaundice	IB
Hepatitis B - Personnel with acute or chronic Hepatitis B surface antigenemia who do not perform exposure-prone procedures - Personnel with acute or chronic Hepatitis B e antigenemia who perform exposure-prone procedures	No restriction*; refer to state regulations; Standard Precautions should always be observed Do not perform exposure- prone invasive procedures until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedure as well as skill and technique of worker; refer to state regulations	Until Hepatitis B e antigen is negative	II II
Hepatitis C	No recommendation	Until lesions heal	Unresolved issue
Herpes simplex Genital Hands (herpetic whitlow) Orofacial	No restriction Restrict from patient contact and contact with the patient's environment Evaluate for need to restrict from care of high-risk patients		II IA II

Human Immunodeficiency Virus (HIV)	Do not perform exposure- prone invasive procedures until counsel from an expert review panel has been sought; panel should review and recommend procedures the worker can perform, taking into account specific procedure as well as skill and technique of the worker; Standard Precautions should always be observed; refer to state regulations		II
Measles - Active - Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until 7 days after the rash appears From 5th day after first exposure through 21st day after last exposure and/or 4 days after rash appears	IA IB
Meningococcal infections	Exclude from duty	Until 24 hours after start of effective therapy	IA
Mumps - Active - Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until 9 days after onset of parotitis From 9th day after first exposure through 26th day after last exposure or until 9 days after onset of parotitis	IB II
Pediculosis	Restrict from patient contact	Until treated and observed to be free of adult and immature lice	IB
Pertussis - Active - Postexposur e	Exclude from duty No restriction, prophylaxis	From beginning of catarrhal stage through third week after onset of paroxysms or until 5 days after start of	IB II

(asymptom atic personnel)	recommended Exclude from duty	effective antimicrobial therapy	IB
- Postexposure (symptomatic personnel)		Until 5 days after start of effective antimicrobial therapy	
Rubella - Active - Postexposure (susceptible personnel)	Exclude from duty Exclude from duty	Until 5 days after rash appears From 7th day after first exposure through 21st day after last exposure	IA IB
Scabies	Restrict from patient contact	Until cleared by medical evaluation	IB
Staphylococcus aureus infection - Active, draining skin lesions - Carrier state	Restrict from contact with patients and patients' environment or food handling No restriction, unless personnel are epidemiologically linked to transmission of the organism	Until lesions have resolved	IB IB
Streptococcal infection, group A	Restrict from patient care, contact with patient's environment, or food handling	Until 24 hours after adequate treatment started	IB
Tuberculosis - Active disease - PPD converter	Exclude from duty No restriction	Until proved noninfectious	IA IA
Varicella - Active	Exclude from duty	Until all lesions dry and crust	IA

- Postexposure (susceptible personnel)	Exclude from duty	From 10th day after first exposure through 21st day (28th day if VZIG given) after last exposure	IA
Zoster - Localized, in healthy person - Generalized or localized in immunosuppressed person - Postexposure (susceptible personnel)	Cover lesions; restrict from care of high-risk patient† Restrict from patient contact Restrict from patient contact	Until all lesions dry and crust Until all lesions dry and crust From 10th day after first exposure through 21st day (28th day if VZIG given) after last exposure or, if varicella occurs, until all lesions dry and crust	II IB IA
Viral respiratory infections, acute febrile	Consider excluding from the care of high-risk patients or contact with their environment during community outbreak of RSV and influenza	Until acute symptoms resolve	IB

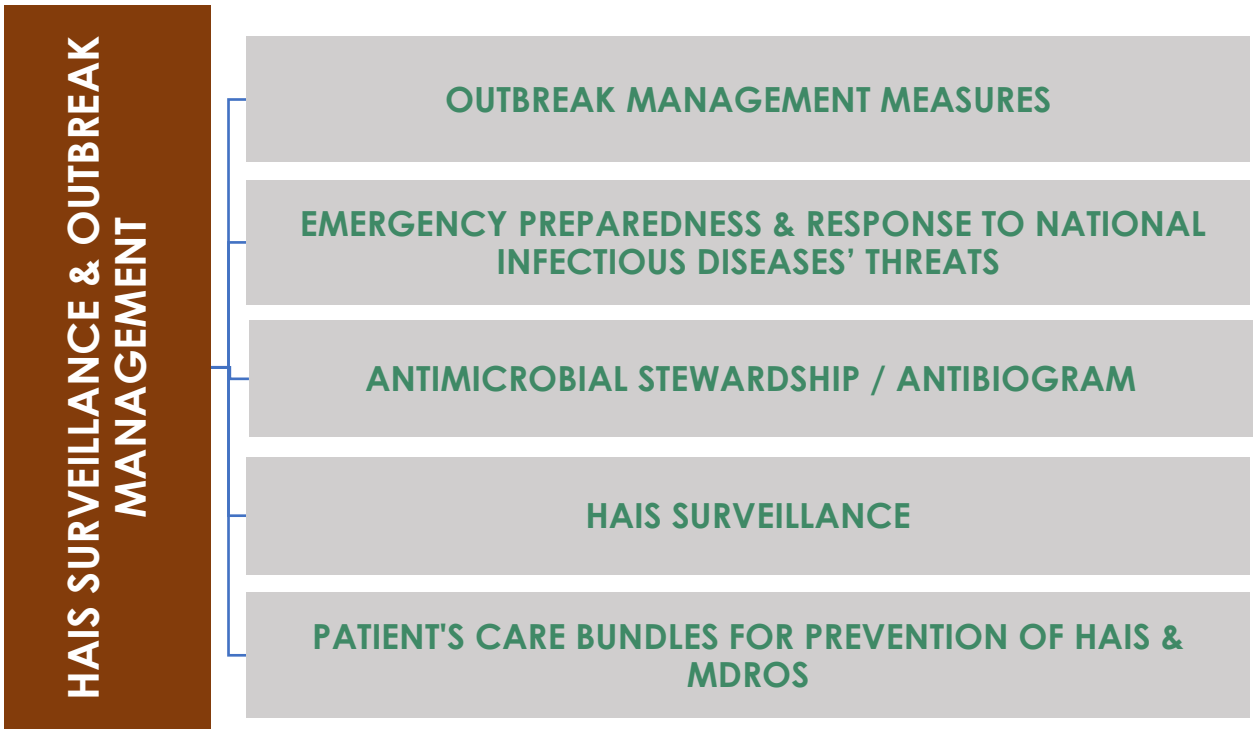
*Unless epidemiologically linked to transmission of infection.

†Those susceptible to varicella and who are at increased risk of complications of varicella, such as neonates and immunocompromised persons of any age.
‡High-risk patients as defined by the ACIP for complications of influenza.
From Centers for Disease Control and Prevention. Guidelines for infection control in the healthcare worker, 1998.*Am J Infect Control*1998; 26:289–354.

وزارة الصحة
Ministry of Health

DOMAIN – C

HAI SURVEILLANCE & OUTBREAK MANAGEMENT



وزارة الصحة
Ministry of Health

Element # C-1 Outbreak Management Measures

C -1.1 The facility has a written policy and procedure for dealing with healthcare-associated outbreaks based on the approved scientific reference and up-to-date national MOH guidelines.

- *Healthcare-associated outbreak is met when there are two or more cases of infection/colonization caused by the same organism, epidemiological linked to the location, exposure, and duration.*
- *When outbreak definition is met, record all involved patients, irrespective they have infection or colonization, caused by sensitive or resistant organisms, or meet the definition of HAI or community-related infection*
- *(in some situations, 1 case is considered as an outbreak e.g. Candida Auris)*

- *Outbreaks in healthcare facilities are often multifactorial including breaches in infection control or clinical practices, contaminated devices infected or colonized patients and /or healthcare workers.*

Key Terms:

- *Case definition: a set of uniformly applied criteria such as clinical, laboratory, and other diagnostic modalities for identifying a particular infectious disease, but in the context of outbreak investigation, there may be added limitation on time and place to reflect the unique scope of the suspected event.*

- *Cluster: an aggregation of cases grouped by time and place that may be greater than the expected number, whether the expected number is known or not; also referred to as a small outbreak.*

- *Colonization: the presence, growth, and multiplication of a microorganism(s) in a host, but without clinical response or damage to the host; often found to be a precursor to infection. Common source: an outbreak transmission mode that involves intermittent or continuous exposure to a common harmful source. May be referred to as a point source outbreak when the exposure is limited to a single group in a brief period. Common source: an outbreak transmission mode that involves intermittent or continuous exposure to a common harmful source. May be referred to as a point source outbreak when the exposure is limited to a single group in a brief period.*

Document (D)

- *Control measures: various actions deployed to interrupt and reduce or eliminate the occurrence of a communicable disease or infection. Measures are tailored to the event and may include patient isolation and cohorting, enhanced cleaning and disinfection, enhanced hand hygiene (e.g., soap and water vs. alcohol-based sanitizer), targeted staff education, and targeted or expanded surveillance and other modalities.*
- *Environmental sampling: involves collection and testing of samples taken from the environment (i.e., surface, air, water) or healthcare personnel (e.g., nasal swabs), and interpreting the data to assist in determining the potential source of an outbreak.*
- *Epidemic curve: a histogram that shows the distribution pattern of an outbreak event over time, which may assist in revealing the mode of transmission.*
- *Line list: a list established to assist and guide an outbreak investigation by documenting and organizing demographic data, clinical risk factors, and host or other contributing factors.*
- *Outbreak: an increase in the occurrence of cases of infection or disease over what is expected in a defined setting or group in a specified time period; synonym of epidemic but used more often when limiting the geographic area.*
- *Propagated source: an outbreak transmission mode that involves the spread from person to person; may last longer in the event of secondary or tertiary waves of exposure.*
- *Pseudo-outbreak: an increase in positive culture results without evidence of disease, frequently attributed to contaminated specimen collection, lab reporting inaccuracies, and bias.*
- *Each hospital should have clear policies and procedures for managing HAIs outbreaks in the hospital, including early identification, initiation of appropriate control/containment measures to prevent the spread, and assignment of roles and responsibilities etc... Policies and Procedures shall guide the staff for investigation and control of HAIs outbreaks*

(Reference: Outbreak Management Manual - September 2023 V. 7)

NOTE: No approved endemic rate/ background rate in KSA for HAI's outbreak - because the calculation of endemic rate needs a 5 years' data study.

Review:

Policy & Procedure for the Outbreak Management which should be:

- *Comprehensive incorporating all aspects of dealing with hospital outbreaks based on the latest National updates & approved scientific references as follows;*
  - *Policy & Procedure for dealing with hospitals outbreak must include all steps involved in outbreak investigation.*

Steps / Components of Initial Outbreak Investigations:

* *Recognize potential outbreak*
* *Confirm presence of outbreak*
* *Alert key individuals*
* *Perform literature review*
* *Establish a preliminary case definition*
* *Develop method for case findings*
* *Perform descriptive epidemiology*
* *Implement initial control measures*
* *Identify potentially implicated health practices*
* *Consider environmental sampling*
* *Communicating Information about Outbreaks*

Steps of follow up investigation of an outbreak:

* *Refine the case definition*
* *Continue case finding*
* *Review controls measures regularly*
* *Consider if analytic study should be performed*

- ***Policy and procedure should also incorporate:***

- *Common Healthcare Associated infections (HAI) Outbreak definitions. Common MDROs definitions e.g. Methicillin resistant Staphylococcus Aureus, (MRSA) Vancomycin resistant Enterococcus (VRE), Carbapenem Resistant Enterobacteriaceae ESBLS, (CRE) MDR Acinetobacter , Candida auris, etc.*
- *Others, Multi-drug Resistant Organism (MDRO) Clostridium difficile infection (CDI), Candida species etc.)*

Other aspects of Policy & procedure P/P for Outbreak Management should be:

- *Fully applicable: all elements of the policy should be complying with the hospital's Scope of services.*
- *Based on scientific references, on Outbreak Management of Healthcare Associated Infections MOH Guideline, updated and others as GCC, CDC, and WHO & APIC.*
- *Signed from authorized personnel (i.e., Owner of the policy / Hospital Director or Medical Director / Quality department /concerned department).*
- *Approved by IPC committee.*
- *Valid (updated within 2 - 3 years and when indicated.*

For details, please refer to updated GDIPC Healthcare-Associated Outbreak Management Manual September 2023 V. 7.1

C - 1.2	***There is a screening policy for all MDROs implemented for the admission or transferred patients to the health care facility according to the up-to-date national MOH guidelines.***
Document (D)	***Review the screening policy of newly admitted or transferred patients to all critical care units, it should be:*** 1) **Comprehensive:** it covers all MDROs e.g. Methicillin resistant Staphylococcus Aureus, (MRSA) Vancomycin resistant Enterococcus (VRE), Carbapenem Resistant Enterobacteriaceae (CRE) Extended-Spectrum Beta-Lactamases (ESBLS), Acinetobacter , Candida auris, etc....etc. in the critical care unit. 2) **Fully applicable:** all elements of the policy can be applied and comply with the hospital's scope of services. 3) **Based on scientific references** approved such as MOH CDC, WHO & APIC 4) **Signed from authorized personnel** (i.e., owner of the policy/hospital director or hospital director /head critical care unit) 5) **Approved** by IC committee. 6) **Valid (updated within 2 - 3 years** and when indicated) ***Review patient's Data (Manual or Electronic files) to confirm the implementation of the screening policy.*** - *Check patient file (order for screening) who was transferred to the hospital or newly admitted to the critical department to ensure the policy was followed.* - *Randomly selected patients and checked the lab results to confirm if admission screening was done.* - *Match date of admission to the critical care unit with the date of sending active surveillance specimens.* - *Confirm if appropriate isolation is started if needed based on the screening result.*

C -1.3	There is a defined outbreak management team (OMT) chaired by hospital director or medical director with clear roles & responsibilities and include all key members involved in outbreak management. (D)

Document (D)

- ***Each healthcare facility is required to establish an outbreak management team with clear roles and responsibilities of each member.***
- ***The formulation of the team should be approved from hospital director with full authorization with documentation***

Review:

- ***Terms of Reference (TOR) / Document enlisting the members of outbreak management team (OMT)* with role and responsibilities for each member**.
- Check for approval of OMT by the Hospital director / CEO.
- Members of outbreak management team includes but not limited to the following:
    - *Hospital Director*
    - *Medical Director*
    - *Head of Infection Prevention & Control Department.*
    - *Infection Control Personnel.*
    - *Infectious Disease Consultant.*
    - *Head of Nursing Services.*
    - *Clinical Microbiologist.*
    - *Head of Medical Supply.*
    - *Heads of the concerned departments.*
    - *Epidemiologist.*
    - *Pharmacy department.*
    - *Public Health/Environmental health officer.*
    - *Occupational Health Officer.*
    - *Supportive services officer.*

****Additional members to be added according to the nature of the outbreak.**

- Review the meeting minutes of the OMT to confirm if any meeting was conducted with documentation in case of any outbreak situation & when required.
- Check the attendance & verify their representation from all relevant departments / units to discuss the issues with suggested solutions.

C -1.4 Investigation and control measures of suspected HAIs outbreak are led by the director of IPC department in the hospital. (D.SI)

Document (D)

Review the following documents:

- Last HAIs outbreak report containing the details of outbreak investigation and control measures taken to stop future occurrence. ***(If hospital has previously experienced any HAI outbreak).***
- Verify if the report was prepared and signed by infection prevention & control director.
- Check if all outbreak investigation/ notification forms were filled and submitted by infection prevention & control director to GDIPC as per regulations. ***(e.g outbreak notification forms, line lists, outbreak management Action plan (OMAP).***

Staff Interview (SI)

Interview:

- Ask Infection Prevention & Control director about his / her role in outbreak investigation.
- Ask Infection Prevention & Control director regarding the steps of outbreak investigation including control measures.

NOTE:

- ***Ask IPC director to explain steps of any previously detected HAI outbreak.***
- ***Alternatively ask by giving a scenario e.g How will you investigate an outbreak of Acinetobacter Baumanii in the adult ICU & what will be the control measures?***
- ***Assess if IPC director is fully aware and knowledgeable and playing a lead role in outbreak investigation.***

- Ask about the difference between a true and pseudo-outbreak.
- Ask about the OMAP with implementation and assess if IPC director is aware and has a leading role in applying all outbreak control measures.
- Ask about different mandatory outbreak reporting methods to be submitted to Regional Health Directorate (RHD) & GDIPC.
- Ask about the channels of communication to report/notify outbreak.

C -1.5	The outbreak management team members are trained and having experience and skills in management of outbreaks based on the latest national MOH guidelines & regulations. (D, PF.SI)

DOCUMENT (D)

Review the following documents in the Infection Prevention & Control Department that provide evidence regarding education & training of outbreak management team members:

- Review the outbreak training plan & training material (i.e., PPTs, outbreak scenarios etc) that will be used for training purposes.
- Training records of all OMT members and confirm if they have received continuous job specific training on management of outbreaks based on the latest national MOH guidelines & regulations. (Manual or electronic dashboards)
- Check the training data and estimate the percentage of training coverage.

PERSONAL FILE (PF)

Review

- Personal file to check for basic qualification of outbreak management team.
- Randomly review OMT files of outbreak management team members and verify if they have received / attended any outbreak specific training activities. ***(Workshops, symposiums, conferences, webinars etc. – local / National / International /annually***
- Check relevant certificates / evidence of attendance in a personal file.

Staff Interview (SI)

Interview:

Interview infection prevention & control team and relevant members of the outbreak management team during the hospital tour about:

- Ask if Infection Prevention & Control Team members & OMT have received a copy of ***updated MOH HAIs Outbreak Guideline***.
- The OMT's roles and responsibilities in the management of an outbreak (e.g. How they respond to the outbreak, what control measures need to be taken, etc...)
- Ask about the last outbreak they have been involved in & what was stepwise management ***(If any)***.
- Ask how they will confirm the existence of an outbreak.
- Ask If they are receiving and analyzing critical results from the lab on a daily basis.
- Ask about Interpretation of surveillance data for timely detection.
- Ask about the steps of outbreak management.
- Ask about the activation of OMT roles as per updated GDIPC outbreak Manual and assess if the IPC team is well aware about the updates.

Assess skills and expertise about outbreak management by giving a scenario:

***Example:* Unit head ICU**

-There were increased numbers of MDR - Acinetobacter Baumannii cases with a total number of (5 cases) isolated from blood and sputum (outbreak more than 2 cases) reported from Adult ICU of your hospital during 2 weeks in the previous month.

An outbreak was declared in the unit and the IPC team has already started the outbreak investigation. As part of the outbreak management team (OMT), what role will you take to contain/control further transmission in your unit?

Answer

(Strict adherence to hand hygiene, use of dedicated equipment, rigorous environmental cleaning, contact isolation/cohorting. early detection & reporting of new cases in liaison with lab, dedicated staff assignments, judicious antimicrobial use etc.

For more details, refer to the Outbreak Management of healthcare-associated outbreaks MOH Guideline, updated and review the following:

- Definitions, role and responsibilities, detection, investigation and management implementation of screening policy, differentiation between colonized and infected patients, contact screening of the patients, environmental sampling and review the implementation of antimicrobial stewardship, mode of transmission, nature of the organism, monitoring & observation of adherence to infection control practices in order to prevent further transmission.

-Application of the Outbreak Management Action Plan (OMAP) and HAIs Outbreak risk assessment according to the outbreak level.

- Acinetobacter Baumannii is a Gram-negative bacillus that can cause infections in the blood, urinary tract, and lungs (pneumonia), or in wounds in other parts of the body. It can also "colonize" or live in a patient without causing infections or symptoms, especially in respiratory secretions (sputum) or open wounds.

- Acinetobacter can live for long periods of time on environmental surfaces and shared equipment if they are not properly cleaned. The germs can spread from one person to another through contact with these contaminated surfaces or equipment or through person to person spread, often via contaminated hands.

C -1.6	**If an outbreak is confirmed, the IPC department alerts the hospital director through an approved channel of communication and the OMT will be activated consequently and will be discussed in the nearest committee. (D)**
Document (D)	***Review the following documents in the infection prevention & control department to confirm if all concerned stakeholders were informed about the outbreak:*** – **Check** the official approved **communication channels** used to alert the hospital director about the outbreak. *Official email, written letter addressed to hospital director from Infection Prevention & Control Director, fax* etc ***(NOTE: Verbal notification & WhatsApp is not the approved channel of communication)*** – **Review** the official email/memorandum addressed to OMT members about the presence of outbreak & activation. Match with the OMT members documents and match if all members are addressed/copied in email / MEMO. – **Review** the meeting minutes of the initial OMT meeting to confirm If OMT was activated. – **Review** the Infection Prevention & control Committee meeting minutes to confirm if outbreak was discussed in the IPC Committee meeting. – **Check** the date when an outbreak was declared in a facility and confirm if it was discussed in the IPC Committee meeting conducted afterwards. *(Applicable If facility has previously experienced any HAI outbreak)*

C -1.7	**If an outbreak is confirmed, the infection prevention & and control department activates the notification through an approved national platform based on the national MOH guidelines and regulations within 48 Hours. (D.SI)**
Document (D)	***Review:*** – Check the notification directly from the MOH national platform dashboard to explore the previously reported outbreaks of the same healthcare facility to assess the implementation of this sub-element (search for the last outbreak notified in the platform for the same healthcare facility).
Staff Interview (SI)	***Interview:*** – Ask infection prevention & control department members about the notification mechanism through an approved national platform. – Ask who should be notified once an outbreak is declared and in how much time.

C -1.8	**If an outbreak is confirmed, the OMT members meet as required, and the meeting-recommended actions will be implemented and followed.** **. (D)**
Document (D)	***Review the following:*** – Check if the OMT members are conducting meetings as required and as the risk of the situation to discuss the outbreak situation. Issues and suggested solution. – Review the meeting minutes all meeting conducted from date when outbreak was declared. – Check if agenda includes all major issues with recommended actions. – Check the status of recommended actions in the subsequent meetings & check if there is any issue unresolved / open issue. – Simultaneously review the OMAP (Outbreak Management action Plan) and check if its implemented and follow up progress is monitored / Tracked. – Check if the meeting minutes were circulated to all stakeholders with clear mention of specific unit / OMT members who will be responsible to follow up for particular issue discussed in the OMT Meeting. –

C -1.9	**If an outbreak is confirmed, the facility implements outbreak management approaches (investigation forms, line lists, contact tracing, and outbreak management action plan (OMAP) & final report) based on the national MOH guidelines and regulations. (D.SI)**
Document (D)	***Review the following documents in case an outbreak is declared, and all key stakeholders are notified:*** - Outbreak investigation forms - Line list of all positive cases involved in the outbreak - Line list of all HCWs involved *(Infected & colonized)* - Contact tracing form - Outbreak management action plan (OMAP) with regular update of status. - Final summary report - The OMAP has been activated to control the outbreak. - Review the control measures if complete and applicable to the type of outbreak.
Staff Interview (SI)	***Interview:*** - Ask Infection Prevention & Control team members about the steps of investigations. - Ask about different types of forms used in managing the outbreak and the significance of each type. Assess their knowledge and awareness about these forms & how they will be used & reported.

C -1.10	**There is a well-designed notification system between the IPC department, laboratory, and all departments in the hospital for any critical values (i.e MDROs, positive cultures), and all these values' must be monitored regularly. (D.SI, O)**
Document (D)	***Review the following:*** – Notification system of critical results received from the laboratory ***(Manual / electronic)*** – Check the logbook / electronic file in the infection Prevention & Control Department showing the critical lab results received form hospital laboratory ***(all types of MDROs: Pseudomonas, Acinetobacter, E coli, Klebsiella, Clostridium difficile, C. Auris, blood borne pathogens; Hepatitis B, C & HIV etc...*** – Randomly check **2-3 notifications received from lab** via specified notification system and match the date and time of notification with date of positive culture result/s etc – Check any evidence of regular monitoring and analysis of critical results for early detection of outbreak/s to prevent further transmission. e.g departmental meeting minutes for review of results, analysis with notes on electronic database or manual logbook etc – Report of data analysis of MDROs (if any).
Staff Interview (SI)	***Interview:*** – Ask the infection Prevention & control department about the notification process / mechanism of communication between laboratory and infection control department for reporting of critical panic results. – Ask IPC team members about frequency of discussion / review of these critical lab results and their further interventions. – During the audit round of patient care areas ask the staff randomly about the notification process. Check any recent critical result and match with notification received from laboratory (Match date and time) e.g ***Candida auris result in ICU, Medical ward etc*** – Simultaneously, during the audit round in the laboratory ask the lab personnel about the notification system between the lab, IPC department and all departments in the hospital for any critical values reporting.

Reporting of disease outbreaks of National Threats such as emerging or reemerging diseases such as COVID-19, Monkeypox etc is MANDATORY for all Healthcare Facilities

REFERENCES / WEB BASED RESOURCES:

1) *Ministry of health* ***Healthcare-Associated Outbreak Management Manual September 2023 V. 7.1***
2) *Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2022). Chapter Outbreak Investigations.*
3) *GCC Infection Prevention & Control Manual 3rd Edition 2018 – ICM - VII – 01* ***Management of infectious diseases outbreaks.: (Page 190 – 192)***
4) *Outbreak Investigations in Healthcare Settings* ***https://www.cdc.gov/hai/outbreaks/index.html***
5) *Diseases and Organisms in Healthcare Settings* ***https://www.cdc.gov/hai/organisms/organisms.html***
6) ***Principles of Epidemiology*** *in Public Health Practice, 3'd edition,* ***Centers for Disease Control and Prevention (CDC), 2016.***
7) ***Outbreak Investigation in Healthcare Settings*** ***http://ndhealth.gov/disease/hai/Docs/WebEx/OutbreakWebinar.pdf***

Element # C-2 Emergency Preparedness & Response to National Infectious Diseases' Threats

C-2.1 There is a policy and procedure for emerging or re-emerging infectious disease based on the national guidelines and references. (D)

Document (D)

Background of infectious disease threats:

- *Infectious diseases remain the leading cause of **death and disability**- adjusted life years (DALYs) worldwide* [1]
- *The world has developed an **elaborate global health system** as a strong support and protection against known and unknown infectious disease threats. The system consists of various formal and informal networks of organizations that serve different stakeholders; have varying goals, modalities, resources, and accountability; operate at different regional levels **(i.e., local, regional, national & global)***
- *Evolving global health system has done much to protect and promote human health. However, the world continues to be confronted by longstanding, **emerging, and reemerging infectious disease threats.***
- *These threats differ widely in terms of severity and probability. They also have varying consequences for **morbidity and mortality, as well as for a complex set of social and economic outcomes.***
- *To various degrees, they are also amenable to alternative responses, ranging from **clean water provision to regulation to biomedical countermeasures.***
- *Whether the global health system as currently constituted can provide effective protection against a dynamic array of infectious disease threats has been called into question by recent outbreaks of **COVID – 19, Monkeypox, Ebola, Zika, dengue, Middle East respiratory syndrome, severe acute respiratory syndrome, and influenza and by the looming threat of rising antimicrobial resistance**.* [2]
- *The concern is magnified by rapid population growth in areas with weak health systems, **urbanization, globalization, climate change, civil conflict, and the changing nature of pathogen transmission between human and animal populations.***
- *There is also potential for human-originated outbreaks emanating from **laboratory accidents or intentional biological attacks.***
- ***Each healthcare facility must have Policies & Procedures for currently defined/declared infectious diseases based on the national guidelines and references. For instance, Monkeypox, COVID 19. Ebola etc***

Review:

- ***Policy & Procedure for dealing with the currently defined infectious diseases based on the national guidelines and references.***
- ***Policy & Procedure should fulfil the following criteria:***

1: Comprehensive:

Incorporating following important domains:

- *Protocols for early detection of patients with infectious disease of National alert i.e. Triage, clearly defined / delineated Pathway, early recognition and Source Control of patients with Infectious diseases of national alert.*
- *Management protocols of patients with Infectious diseases of national alert.*
  - *Case definition of suspected and confirmed case of Infectious diseases of national alert.*
  - *Description of the defines pathway / Designated triage area using a clear flowchart*
  - *Description of Patient Placement*
  - *Transmission based Precautions*
  - *Personal Protective Equipment (PPE) For Healthcare workers*
  - *Environmental Cleaning /Disinfection & Handling waste and linen*
  - *IC Precautions for Aerosol-Generating Procedures* ***(AGPs)***
  - *Management of exposure to* ***Infectious diseases of national alert****. (HCWs & Patient exposure)*
  - *Management of outbreaks Infectious diseases of national alert*
  - *Duration of isolation Precautions for specific Infectious diseases of national alert*
  - *Home Isolation instructions for eligible patients*
  - *Discontinuation of Isolation and Transmission based Precautions*
  - *Laboratory Diagnosis (Specimen shipment protocols: Sample collection, packaging and shipping)*
  - *General outlines of Management*
  - *Managing bodies of deceased patients with* ***Infectious diseases of national alert (Monkeypox, MERS – CoV & COVID-19 etc)***
  - Patient Transportation Protocols & Prehospital Emergency Medical Services

Other domains of Policies & procedures:

Policy & Procedure for dealing with suspected or confirmed Infectious diseases of national alert should be:

- ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services
- ***Based on scientific references*** approved by MOH
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IPC committee
- ***Valid*** updated based on latest guidelines released from MOH.

C-2.2	Active surveillance is implemented for monitoring HCWs with signs and symptoms of exposure to any emerging or re-emerging infectious disease. (D, SI)

Document (D)

- ***Disease Surveillance*** *is an information-based activity involving the collection, analysis and interpretation of large volumes of data originating from a variety of sources.*

  Information collated is then used in a number of ways to:

  - *Identify high risk populations or areas to target interventions*
  - *Evaluate the effectiveness of control and preventative health measures*
  - *Monitor changes in infectious agents e.g., trends in development of antimicrobial resistance*
  - *Support health planning and the allocation of appropriate resources within the healthcare system.*
  - *Provide a valuable archive of disease activity for future reference.*

- ***Healthcare workers (HCWs):*** *are the first line in providing care to the patients. Ensuring their safety from health care facilities threats which include risk of* ***Monkeypox*** *infection is the most significant measure that must be warranted*
- ***Monitoring:*** *Includes ascertainment of selected signs and symptoms of monkeypox: fever (≥38°C), chills, new lymphadenopathy (periauricular, axillary, cervical, inguinal), and new skin rash through 21 days after the last date of exposure.*
- ***Active Surveillance / Active Monitoring:*** *Involve in-person visits, and regular communications (e.g., phone call or another system) between public health representatives and the person under monitoring, which includes measurement of temperature at least twice daily for 21 days following the exposure. Prior to reporting for work each day, the healthcare worker should be interviewed regarding evidence of fever or rash.*
- ***Self-Monitoring:*** *HCW is responsible for monitoring his/her signs & symptoms and reporting of symptoms to health departments only if symptoms appear.*

Reference: Management of Exposed Healthcare Workers (HCWs) to a Monkeypox Case in Healthcare Facilities Version 1.1

* ***NOTE:***

* ***These definitions are explained in relation to Monkey pox latest guidelines***
* ***Monitoring of HCWs for other infectious diseases of national alert will be based on signs & symptoms & duration of monitoring as per incubation period of specific infectious disease.***

Review the following documents in the Infection Prevention & Control Department OR Employee Health Clinic:

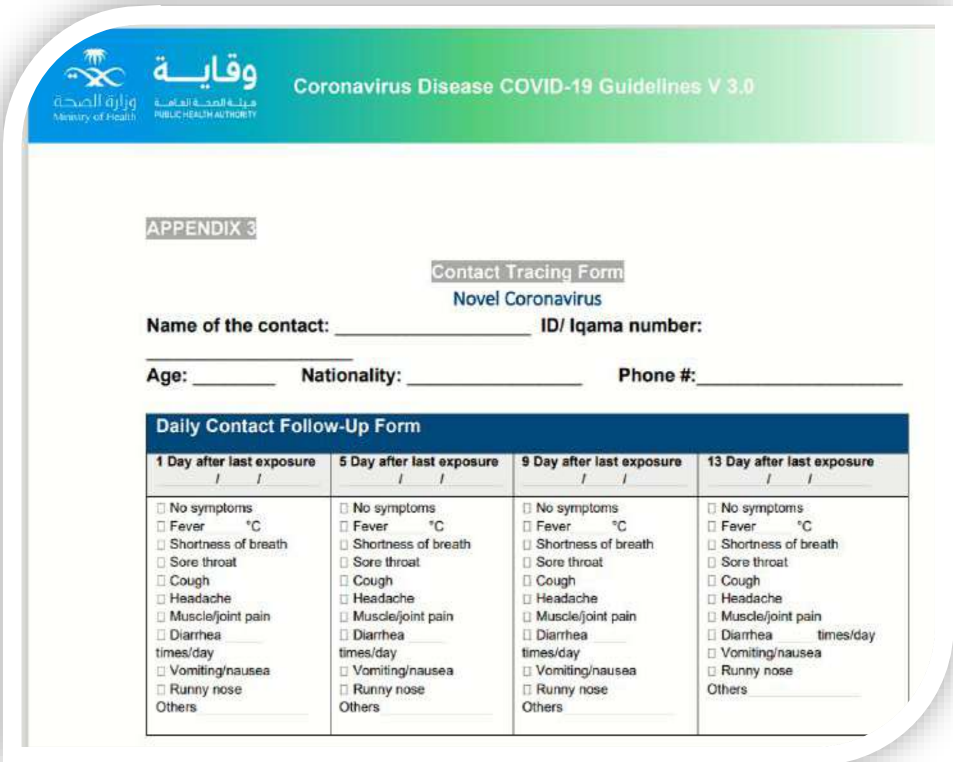
- Active surveillance forms / HCWs monitoring forms used for monitoring of healthcare workers (HCWs) according to the current declared infectious disease/s of National alert.
- Check to confirm if the forms used are consistent with the updated National Infectious disease Guidelines for currently suspected infectious disease illness.
- Check if any HCW is experiencing sings & symptoms of suspected infectious disease illness after patient exposure or Community exposure e.g **COVID – 19.**
- Review the further management protocols for this **suspected HCWs** based on active

surveillance data.

STAFF INTERVIEW (SI)

Interview:

- Ask Infection Prevention & Control Team members about the protocols followed for postexposure monitoring of HCWs to any suspected current infectious disease of National alert.
- Ask the type of surveillance forms used and match if based on updated guidelines for current Infectious disease of National Threat.
- During audit visit of patient care areas like ER, ICU etc and randomly ask staff about the post exposure management protocols followed for current Infectious disease of National Threat.
- *Ask any staff if they previously had any real exposure to current infectious disease of National alert OR by giving scenario if they will be expsoed ----- what are the monitoring steps and whom they should report to?*



Coronavirus Disease COVID-19 Guidelines V 3.0

APPENDIX 3

Contact Tracing Form
Novel Coronavirus

Name of the contact: ________________ ID/ Iqama number: ________________

Age: ________ Nationality: ________________ Phone #: ________________

Daily Contact Follow-Up Form

1 Day after last exposure / /	5 Day after last exposure / /	9 Day after last exposure / /	13 Day after last exposure / /
□ No symptoms □ Fever °C □ Shortness of breath □ Sore throat □ Cough □ Headache □ Muscle/joint pain □ Diarrhea times/day □ Vomiting/nausea □ Runny nose Others	□ No symptoms □ Fever °C □ Shortness of breath □ Sore throat □ Cough □ Headache □ Muscle/joint pain □ Diarrhea times/day □ Vomiting/nausea □ Runny nose Others	□ No symptoms □ Fever °C □ Shortness of breath □ Sore throat □ Cough □ Headache □ Muscle/joint pain □ Diarrhea times/day □ Vomiting/nausea □ Runny nose Others	□ No symptoms □ Fever °C □ Shortness of breath □ Sore throat □ Cough □ Headache □ Muscle/joint pain □ Diarrhea times/day □ Vomiting/nausea □ Runny nose Others

Reference:* *Coronavirus Disease COVID-19 Guidelines, V 3

C-2.3	**All HCWs must follow the national recommendations of preventive measures for emerging or re-emerging infectious disease with public threats. (D, SI. O)**
Document (D)	**Review:** – Ask infection prevention & control Team members about the latest guidelines with prevention protocols of current infectious disease with public threat. – Ask if these guidelines / preventive measures of the current infectious disease with public threat have been disseminated to all healthcare workers (HCWs). Check for the evidence e.g email, upload via intranet /hospital web portal etc – Check for any **MEMORANDUM** circulated to all health care workers via email or other channels of communication stating about following national recommended preventive measures of the current infectious disease with public threat at all times while in their respective clinical settings. e.g Hand hygiene, cough etiquettes, use of surgical mask etc as per guidelines.
STAFF INTERVIEW (SI	**Interview:** – During audit visit of patient care areas like ER, ICU etc randomly ask staff about the preventive measures of the current infectious disease with public threat like *COVID – 19, Monkey pox, Ebola etc & assess their awareness.* – Ask staff to demonstrate **hand hygiene** and **donning and doffing of PPE** required for current infectious disease with public threat. – Randomly ask staff if they have received latest protocols from infection prevention & control department – check for availability of electronic / hard version and check staff awareness. – Ask IPC team & nursing staff how they are communicating / informing / updating patients & visitors about preventive measures of current infectious disease with public threat *e.g leaflets, brochures. electronic screens, patient education by nursing staff or patient educators with documentation in patient files, group education for visitors etc*

Observation (O)

Observe:

During audit visit of different patient care areas like ER, ICU, Medical wards including waiting areas observe the following:

- *Display of education material regarding preventive measures of current infectious disease with public threat e,g posters, roll ups etc (Bilingual (Arabic & English)& pectoral about Hand hygiene, cough etiquettes, use of mask etc, mode of transmission of specific disease etc*
- *Availability of leaflets, brochures. electronic screens in waiting areas & other patient care areas.*
- *Observe if the HCWs, patients, and visitors are implementing the national recommended preventive measures of the current infectious disease with public threat at all times while in their respective clinical settings.*

C-2.4 All HCWs must receive continuous job-specific training on emerging or re-emerging infectious disease.. (D, SI)

Document (D)

Review the following documents in the Infection Prevention & Control Department

- Training records of all Healthcare workers and confirm if they have received continuous job specific training on the current national infectious disease.
- Check the training data and estimate the percentage of training coverage. Training tracker/ excel dashboard or any other mechanism of tracking
- Check the training schedule & content delivered to HCWs about current national infectious disease.
- Review the power point presentation / training materials and check if content is based on updated guidelines.
- Check if all categories of staff are covered as part of continuous job specific training on the current national infectious disease. ***Doctors, nurses, RTs, lab technician, X ray technicians. housekeeping etc. Check if content is matching with the nature of their of their work.***
- Review the personal files for training evidence. Certificates of attendance etc

Interview:

- Ask Infection prevention & control team members about planning of training activities
- During audit visits to patient care areas like ER, ICU etc randomly ask staff about the last training received about the current infectious disease with public threat like *COVID – 19, Monkeypox, Ebola etc & assess their knowledge & orientation.*
- Ask specific question related to current infectious disease with public threat by interviewing different staff categories:
    - *Ask doctors about cased definition & management protocols etc*
    - *Ask nursing staff about patient placement, patient transfer protocols and preventive measures etc – ask for simulation to check adherence*
    - *Ask housekeeping staff about terminal cleaning protocls etc*

References / Web based resources:

1) Published online 2019 Mar 28. Infectious Disease Threats in the Twenty-First Century: Strengthening the Global Response https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6447676/
2) *Ministry of health* MIDDLE EAST RESPIRATORY SYNDROME CORONAVIRUS; GUIDELINES FOR HEALTHCARE PROFESSIONALS https://jed-s3.bluvalt.com/psj1-ifn-s3-ifn01/files/04/Guidelines/MERS-CoV-Guidelines-for-Healthcare-Professionals-May-2018-v5_1.pdf

Element # C-3 Antimicrobial Stewardship / Antibiogram

C-3.1	**There is a written policy and procedure for antimicrobial stewardship program (ASP) and authorized ASP committee formulated & approved by ASP committee members that is chaired by clinical pharmacist or infectious disease (ID) consultant with a clear roles and responsibilities and meets on regular basis (at least bi-annually). (D)**
Document (D)	– **Antimicrobial Stewardship Program (ASP)** refers to a systematic approach to optimizing antimicrobial therapy through a variety of structures and interventions to prevent emergency of antimicrobial resistance. – **Antibiotic stewardship** is the effort to measure and improve how antibiotics are prescribed by clinicians and used by patients. Improving antibiotic prescribing and use is critical to effectively treat infections, protect patients from harms caused by unnecessary antibiotic use, and combat antibiotic resistance. – **ASP** promotes not only limiting inappropriate use but also optimizing antimicrobial selection, dosing, route, and duration of therapy to maximize clinical cure or prevention of infection. ***Review:*** Policies & Procedures for **Antimicrobial Stewardship Program (ASP**) which should be: **1: Comprehensive**: incorporating all core elements of ASP as follows: • **Key Terminologies:** – Antimicrobial Stewardship Program (ASP), Antibiogram, Antimicrobial Stewardship Committee (ASC), Antimicrobial Stewardship Team (AST), Clinical Pathway / Guidelines etc. • **Purpose:** – To standardize the processes of antimicrobial use in the hospital in an effective and efficient way. – To deliver high-quality care consistently using evidence-based practices and functions in accordance with the national guidelines. etc. • **Applicability:** – For all clinicians, health administrators, and personnel involved with the proper utilization of antimicrobials in hospitals and affiliated facilities.

Clear policy and procedure need to be adopted from core component of ASP MOH-CDC WHO according to hospitals scope of services:

1) **Hospital Leadership Commitment:**

- Hospital leadership commitment is the most important to emphasize the necessity of antimicrobial stewardship programs for dedication of necessary human, financial and information technology resources.

2) **Accountability & Responsibility:**

- A leader or co-leaders, such as a physician and pharmacist, to be appointed who will be responsible for program management and outcomes.
- Multidisciplinary ASP leadership committee in place with clear terms of reference composed of Multidisciplinary Antimicrobial Stewardship Team (AST)

According to the hospital facilities the hospital can implement the ASP strategies:

(According to General directorate of pharmaceutical care classification)

Group A:

- *Full ASP team available: ID consultant and ID clinical pharmacist, infection control and microbiologist*
- *Processing: Prospective audit and feedback*
- *Pre-authorization/ restriction Guideline adherence*

Group B:

- *Partial ASP team available: ID consultant or ID clinical pharmacist, infection control and microbiologist*
- *Processing: Pre-authorization/ restriction Guideline adherence*

Group C:

- *Pharmacist, infection control and microbiologist*
- *Guideline adherence*

3) **Pharmacy Expertise:**

- A clinical pharmacist to be appointed ideally as the co-leader of the stewardship program, to lead implementation efforts to improve antibiotic use & to reflect the importance of pharmacy engagement for leading implementation efforts to improve antibiotic use.

4) AMS Actions:

Priority Interventions to Improve Antibiotic Use:

Prospective audit and feedback (sometimes called post-prescription review):

- *This is an external review of antibiotic therapy by an expert in antibiotic use, accompanied by suggestions to optimize use, at some point after the agent has been prescribed.*

Pre-authorization System for Restricted Antimicrobials:

- *Each hospital has to have a restricted antimicrobial policy where specific physicians in each hospital would restrict specific antimicrobials.*
- *Preauthorization requires prescribers to gain approval prior to the use of certain antibiotics. This can help optimize initial empiric therapy because it allows for expert input on antibiotic selection and dosing, which can be lifesaving in serious infections, like sepsis. It can also prevent unnecessary initiation of antibiotics.*

Facility-specific treatment guidelines / Antibiotic guidelines and the associated clinical pathways/protocols:

- Greatly enhance the effectiveness of both prospective audit and feedback and preauthorization by establishing clear recommendations for optimal antibiotic use at the hospital.
- Guidelines are means to standardize clinical practice and avoid misuse and overuse of antimicrobial therapy. They serve as tool guiding prescribers who lack competencies for antimicrobial prescription.
- Use of **antimicrobial order forms** with optimal timing and duration can assist pharmacist to automatic discontinuation when the predefined duration is completed.

- **Prescribing Physicians:**

  During continuation of treatment, the prescribing physician/ASP pharmacist will monitor antimicrobial drug levels as required by the hospital policy and ensure daily consideration of following pharmacy interventions:

  * **De-escalation**,
  * **Intravenous - oral switch**
  * **stopping antimicrobials** (based on clinical picture and laboratory results).

- **ASP Point-of-care (POC) interventions:**

  AST will provide direct feedback to the prescriber and an opportunity to educate clinicians on appropriate prescribing. This includes but not limited to:

* *Reviewing appropriateness of choice of antimicrobial and eliminating dual therapy.*
* *Directed therapy based on microbiological studies.*
* *Dose optimization*
* *Parenteral-to-oral conversion*
* *Therapeutic drug monitoring*
* *Automatic stop orders*
* *Appropriateness of time of initiation of antibiotic therapy with respect to time of surgery for prophylactic use and with respect to time of cultures for therapeutic use. etc.*

5) Tracking / Monitoring & Surveillance:

- Monitoring appropriateness of antibiotic use at the unit and/or facility-wide level through audits or PPS (Point Prevalence Studies)
- Tracking the types and acceptance of recommendations from prospective audit and feedback interventions, which can identify areas where more education or additional focused interventions might be useful.
- Monitoring of preauthorization interventions by tracking agents that are being requested conditions and ensuring that preauthorization is not creating delays in therapy.
- Monitoring adherence to facility-specific treatment guidelines. If feasible, consider tracking adherence by each prescriber. Etc.
- Measurement is critical to identify opportunities for improvement and assess the impact of improvement efforts
    - **Evaluation of process** (Are policies and guidelines being followed as expected?)
    - **Evaluation of outcome** (Have interventions improved antibiotic use and patient outcomes?)

6) Reporting & Feedback:

- Antibiotic stewardship programs should provide regular updates to prescribers, pharmacists, nurses, and leadership on process and outcome measures that address both national and local issues, including antibiotic resistance.
- Regular evaluation and sharing of health-care facility data on antibiotic use with prescribers.
- Regular evaluation and sharing of health-care facility resistance rates with prescribers etc.

7) Education [1]

- Basic training in optimal antibiotic use for health-care professionals
- Continued training in optimal antibiotic use for health-care professionals etc.

Education is a key component of comprehensive efforts to improve hospital antibiotic use; however, education alone is not an effective stewardship intervention. Education is most effective when paired with interventions and measurement of outcomes. Case-based education can be especially powerful, so prospective audit with feedback and preauthorization are both good methods to provide education on antibiotic use.

8) Supplemental Antimicrobial Stewardship Strategies:

- Combination empirical therapy and de-escalation strategy
- Antimicrobial dose optimization
- Antimicrobial Order Form (AOF)
- Conversion from IV to PO therapy
- Surveillance of antimicrobial resistance
- Health-care facility access to IT services to support AMS activities
- Computer Surveillance and Decision Support

Other domains of Policies & procedures:
P/P for Antimicrobial Stewardship Program (ASP) should be:

- **Fully applicable**: all elements of the policy can be applied and comply with the Hospital's scope of services.
- **Based on scientific approved references** such as **MOH, CDC, WHO & APIC.**
- **Signed** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department).
- **Approved** by IPC committee.
- **Valid** (updated within 2 - 3 years and when indicated.

C-3.2	There is a written restricted antibiotics policy implemented in the facility, and it should be developed & followed up by the pharmacy and infectious disease department. (D)

Document (D)

Review:

Policies and procedures for restricted antibiotics:

- **Restriction policy for specific antibiotics (Pre-authorization System for Restricted Antimicrobials)**
- **List of restricted antibiotics.**
- Policy & procedures must clearly state stepwise approach about the mechanism for **Pre-authorization System for Restricted Antimicrobials.**
- Each hospital must have a restricted antimicrobial policy where specific antimicrobials would be restricted by specific physicians in each hospital.
- If a physician is not privileged to prescribe an antibiotic, he has to go over required steps to obtain authorization.
- At initiation of treatment, the prescribing physician will provide a clinical rationale for antimicrobial initiation.
- The prescribing physician will send the appropriate specimens to diagnostic microbiology before the administration of antimicrobials.
- The prescribing physician will select the antimicrobial according to the hospital Antimicrobial Guidelines.
- When prescribing restricted antimicrobial, the prescribing physician has to communicate with the AST in a timely manner to obtain the authorization.

The health-care facility must have a formulary with a list of antibiotics approved for use in the facility and specifies a list of restricted antibiotics that require approval by the designated AMS team member (or infectious disease physician if available, physician or AMS champion) when used and/or are only permitted for specific conditions, e.g. the WATCH and RESERVE groups of antibiotics.

Other domains of Policies & procedures:

P/P should be:

Fully applicable: all elements of the policy can be applied and comply with the hospital's scope of services

Based on scientific approved references **MOH ,CDC, WHO & APIC**

Signed from authorized personnel (i.e., owner of the policy / hospital director or Medical director / concerned department)

Approved by IPC committee

Valid (updated within 2 - 3 years and when indicated.

C-3.3	There is a written restricted antibiotics policy implemented in the facility, and it should be developed & followed up by the pharmacy and infectious disease department. (D)

Document (D)

Review:

Policies and procedures for pharmacy driven interventions for implementation of antimicrobial stewardship program.
Policy & procedures must be comprehensive with clear interventions to Improve antibiotic usage.

Pharmacy Driven Interventions:

- Automatic changes from intravenous to oral antibiotic therapy
- Dose adjustments in cases of organ dysfunction (e.g. renal adjustment).
- Dose optimization e.g., achieving central nervous system penetration.
- Automatic alerts in situations where therapy might be unnecessarily duplicative.
- Time-sensitive automatic stop orders for specified antibiotic prescriptions (e.g. surgical prophylaxis)
- Detection and prevention of drug-drug interactions (e.g. interactions between some oral fluoro-quinolones and certain vitamins)

Other domains of Policies & procedures:
P/P should be:
Fully applicable: all elements of the policy can be applied and comply with the hospital's scope of services
Based on scientific approved references **MOH ,CDC, WHO & APIC**
Signed from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
Approved by IPC committee
Valid (updated within 2 - 3 years and when indicated.

C-3.4	The ASP committee members include: infectious disease physician, pharmacist, microbiologist, IPC practitioner, head of critical care units, head of operating room, head of surgical department, head of nursing services and other departments as needed. (D, SI)

Document (D)

An Antimicrobial Stewardship Committee (ASC) is a standing committee responsible for reviewing all Drug Formulary management requests related to antimicrobial agents; wherein the composition includes physicians and pharmacists specialized in the field of infectious diseases.

Antimicrobial Stewardship Committee (ASC) can be either stand-alone or embedded in another existing committee structure (e.g. drug and therapeutics committee, pharmacy committee etc.

The Antimicrobial Stewardship Team (AST) is a hospital-based team of experts in the field of infectious diseases responsible in monitoring the appropriateness of antimicrobial usage.

Review:

Terms of reference (TOR) of Antimicrobial Stewardship Committee (ASC) and verify the following:

- TOR is valid and updated (Check for dates)
- Approved (Check for approvals by ASP committee members & Hospital director)

Structure of Antimicrobial Stewardship Committee (ASC) would include but not limited to:
A dedicated ASP leader / co leaders identified for the health-care facility.

ASP Chairman:

- Clinical Pharmacists **--- OR**
- Consultant, Infectious Diseases

Multidisciplinary Antimicrobial Stewardship Team (AST) with roles and responsibilities of each member

- Pharmacist
- Infectious diseases Physician
- Microbiologist
- Head of nursing Services
- Head of critical care units
- Head of operating room (OR)
- Head of surgical department
- Infection Prevention & Control Practitioner
- Other members as needed.

Rules of operations of ASC meetings:
Frequency of ASC meetings:
TOR should specify frequency of Antimicrobial Stewardship Committee (ASC) meetings. An Antimicrobial stewardship Committee (ASC) shall meet on a regular basis (at least biannually or as scheduled in the hospital).

Agenda of ASC meetings
Attendance & Quorum, Minutes taking etc.

Duties / Functions of Antimicrobial Stewardship Committee (ASC):

Clinical Pharmacist will perform the following:

- Build the program structure (policy, guidelines, team, improving plan… etc)
- Review antimicrobial orders in accordance with the Antimicrobial Guidelines and
- provide timely feedback (where applicable) to the prescriber.
- Work with and educate ward pharmacists to identify potential patients for
- stewardship interventions (e.g. de-escalation, IV to oral switch etc..).
- Ensure dose optimization is carried out especially for complex antimicrobials and complex clinical scenarios.
- Attends rounds with the AST etc.
- Document the ASP Team interventions and recommendation.
- Analyze and report the program outcome.

Consultant, Infectious Diseases will serve as Team Leader/ co leader and perform the following: e.g.

- Provide expert advice, educate prescribers, and play a major role in the
- Development and implementation of antimicrobial policy and prescription guidelines.
- Use antimicrobial stewardship as clinical outcome measures and quality improvement.

Infection Control Preventionists / Coordinator will perform the following:

- Prepares surveillance and audit reports (surgical prophylaxis monthly)
- Provide help in organizing the administrative and educational activities etc.

Clinical Microbiologist will perform the following:

- Provision of timely and accurate reporting of culture and antimicrobial susceptibility data
- Provide the service for antibiotics drug monitoring (vancomycin & aminoglycoside) and C. diff
- Work closely with the attending clinician, infectious diseases specialist and antimicrobial pharmacist in the management of patients with infections. etc.
- Perform and discuss the antibiogram report.
- perform and discuss C.Diff report.
- Ensures to adopt new technology or advances in microbiological identification and susceptibility testing.

II: ASP Committee Meeting Minutes:
Review:

- ASP committee meeting minutes & verify if conducted regularly.
- Conducting ASP committee meetings twice per year is the mandatory requirement.
- Check for the attendance by the ASP committee members & apologies.
- Review the agenda & check if all issues and relevant domains are discussed in the ASP committee meeting minutes e.g antibiogram data, pharmacy driven data DDD etc
- Check if there are any unresolved / open issues & their follow up in the next meeting.

STAFF INTERVIEW (SI)

Interview:

- During audit visit of Pharmacy ask the clinical pharmacist about the functioning of **Antimicrobial Stewardship program** in the hospital.
- Ask about their roles & responsibilities in the effective implementation of ASP program.
- Ask different members of Antimicrobial Stewardship Team (AST)during audit visit of **patient care areas e.g ICU, NICU, Surgical Wards, Operation room** & ask them about their roles & responsibilities, frequency of ASP meetings & current issues, frequency of Multidisciplinary ASP rounds etc.

C-3.5 Hospital leaders dedicate necessary human, financial, and information technology resources to the ASP committee (support training ASP/MDROs program- participating in the world awareness antimicrobial week celebrations (WAAW) , assign ID consultant, etc.) (D SI)

Document (D)

Support from the senior leadership of the hospital is critical to the success of antibiotic stewardship programs in order to get the resources needed to accomplish its goals.

Review the following documents:

Review documents which confirm hospital leaders support to improve Antimicrobial Stewardship Program (ASP):

- **Human Resource Support:**
  - Employing / Hiring experienced staff for ASP program ***(e.g., clinical pharmacist, microbiologist, infectious diseases consultant, clinicians, nursing staff and others as needed for ASP...)***
  - Check time allocation for stewardship program leader (s) to manage the program and conduct daily stewardship interventions & ensuring that staff from key support departments have sufficient time to contribute to stewardship activities.
  - Outlining stewardship-related duties in job descriptions and annual performance reviews for program leads and key support staff.
- **Financial Support:**
  - Allocating funds to support training and education for program leaders and hospital staff. ***(e.g. attendance in stewardship training courses and conferences)***
  - Allocating funds for participating in the ***world awareness antimicrobial week celebrations (WAAW)***
  - Direct purchase of supply needed for Antimicrobial Stewardship Program (ASP)***(Necessary Antibiotics etc.)***.

- Dedicated, sustainable and budgeted financial support for AMS activities in the action plan ***(e.g. support for salary, training and information technology (IT)* support).**
- Making formal statements of support for efforts to improve and monitor antibiotic use. **e.g via email, MEMO**

– **<u>IT Support:</u>**

- Building up & implementing special IT system for improving antibiotics dispensing according to specific responsibilities and strict rules, approved by Antimicrobial Stewardship Committee.
  As required by the Antimicrobial Stewardship Team (AST), IT to provide access to the Hospital Information System (HIS) electronic medical record (EMR), software and hardware support, as well as, support in maintaining electronic files, records,

Staff Interview (SI)

Interview:

- During the audit visit ask the ASP committee chairman (e.g., pharmacist, ID consultant etc regarding leadership support and commitment for Antimicrobial Stewardship Program (ASP) activities.
- Ask how the ASP activities are planned and executed in collaboration with key stakeholders e.g Infection Prevention & control department, Microbiology, etc
- Ask about the financial support for participating in **world awareness antimicrobial week celebrations (WAAW).**
- ASK How does the hospital director react towards requirements or problems faced by the Antimicrobial Stewardship Team **(AST).**

(They should give specific examples of human, financial and IT support).
(Considered and timely provided /met whenever needed)

C -3.6	**The antibiogram report is prepared & interpreted annually by hospital microbiologists and reported to the hospital IPC department and to the ASP team chairman. (D)**

Document (D)

- Antibiogram summarizes the cumulative proportions of pathogenic organisms that are susceptible to particular antimicrobials prepared by microbiology doctor. This provides a profile of the susceptibilities of specific pathogenic bacteria to antimicrobial agents as tested in routine clinical microbiology practice.
- An Antibiogram is a useful tool for the infection prevention & control staff to determine the status of strategies in place to reduce multidrug resistant organisms & monitor trends emerging in the drug resistance.
- Data should be analyzed when at least 30 isolates are tested for a given pathogen, and only the first isolate should be included from patients with multiple positive cultures.
- Antibiogram should be prepared annually by microbiologist & reported to IPC department & ASP team chairman and provide copy to regional ASP coordinator.
- Data should be used for preparing local antibiotic guidelines.

Review the following documents:

- Last 2 - 3 antibiogram reports *(check Year/month & updated detailed results of facility specific antibiotics, resistance trends / patterns)*.
- Copies of last 2 - 3 official antibiogram reports that were submitted to IPC department & ASP Committee chairman from microbiologist via email etc or other channels of communication.
- Review if there is **interpretation of antimicrobial susceptibility data** done by hospital microbiologists after data analysis.
- Check if the interpretation is clear & easily understandable for **targeted HCWs** with susceptibilities of specific pathogenic bacteria to antimicrobial agents as tested in routine clinical microbiology practice.

C -3.7	**Antibiogram is regularly discussed by antimicrobial stewardship committee with action plan and interventions to improve the use of antimicrobials and prevent resistance. (D, SI)**

Document (D)

Review the following documents:

- Check the **meeting minutes** of last 2 antimicrobial stewardship committee meetings & check if the antibiogram report was presented and discussed in the ASP committee meeting in any format. e.g PowerPoint presentation etc
- Check the document with **action plan & corrective interventions** to improve the antibiotic use:
  - *Modification of antibiotics prescription based on updated antibiotics resistance pattern of the antibiogram.*
  - *Restriction policy and restricted antibiotics*
  - *Direct purchase of necessary antibiotics … etc.*

Staff Interview (SI)

Ask IPC Team & Microbiologist:

- Antibiogram Report and interpretation
- Action plan and interventions

C -3.8	**Education about AMR & optimal antimicrobial prescription are provided regularly to the HCWs at least biannually by the ASP team members (each per their role). (D, SI)**

Document (D)

- *Education is a key component of comprehensive efforts to improve hospital antibiotic use & is most effective when paired with interventions and measurement of outcomes.*
- *Education need to be provided to prescribers, pharmacists, nurses, and patients about adverse reactions from antibiotics, antibiotic resistance, and optimal prescribing.*

Education could be provided by adopting multiple strategies:

Passive • *Printed educational materials • Clinical practice guidelines • Formal lectures • Seminars, conferences • Educational courses • Reminders • e-learning etc.*

Active • *Discussion* groups, journal clubs • prospective Audit and feedback • case

scenarios, interactive educational workshops etc.

- ***World Antimicrobial Awareness Week (WAAW)*** *is a global campaign that is celebrated annually to improve awareness and understanding of AMR and encourage best practices among the public, One Health stakeholders and policymakers, who all play a critical role in reducing the further emergence and spread of AMR.*
- *This year, the theme of WAAW is* ***"Preventing Antimicrobial Resistance Together."***
- *We should encourage the prudent use of antimicrobials and to strengthen preventive measures addressing AMR, working together collaboratively through a One Health approach.*

Review the following documents:

- Annual education plan that includes training activities rated ***to antimicrobial resistance and optimal prescription of antimicrobials.***
- Check if relevant scientific education material related to antimicrobial stewardship is available and distributed (***Booklets, leaflets, brochures, ASP toolkits etc.)***
- Check the AMR training content / PowerPoint presentation to verify if AMR education sessions were provided e.g Interactive Educational workshop, videos, simulation, lectures.
- Special training program of Prevention of transmission of MDROs in hospitals (HCWs).
- Evidence of Participation in **WAAW (world awareness antimicrobial week** (Every November) as part of awareness campaigns.
- Check electronic data base / dashboards with tracking of educational activities related to **AMR & optimal antimicrobial prescription** for targeted Healthcare Workers according to nature of work. Estimate the percentage of coverage.
- Training program for proper collection of specimens, time of collection, proper transportation, MOST common HAIs microorganism.
- Prevention of MDROs in hospitals (HH, PPE, Isolation …….)

Staff Interview (SI)

Interview:

- Ask Staff in all relevant areas (ICU, NICU, ER, Surgical & medical wards etc.) if they have received any training on:
  - *Optimal prescribing principles,*
  - *adverse reactions from antibiotics,*
  - *and antibiotic resistance?*
- Date and topics of the last educational program that has been attended by them Ask clinicians if they have received training during the prospective audit and feedback process by Antimicrobial Stewardship Team (AST) (sometimes called "handshake stewardship")? -
-

WEB BASED RESOURCES:

1. *Centers for Disease Control and Prevention. Core Elements of Hospital Antibiotic Stewardship Program. http://www.cdc.gov/getsmart/healthcare/implementation/core-elements.html*
2. *A **WHO** Practical Toolkit for Antimicrobial Stewardship Programmes in Health-Care Facilities in low – and Middle – Income countries https://apps.who.int/iris/bitstream/handle/10665/329404/9789241515481-eng.pdf*
3. *GCC Infection Prevention & Control Manual 3rd Edition 2018 – ICM - VII – 08 Antimicrobial Stewardship Program: (Page 19 – 27)*
4. *Antimicrobial Resistance Committee, National Antimicrobial Guidelines for Community and Hospital Acquired Infections in Adults; Ministry of Health- General Administration of Pharmaceutical Care, Revised2018.https://www.moh.gov.sa/en/CCC/healthp/regulations/Documents/National%20 Antimicrobial%20%20Guidelines.pdf*
5. *APIC text of Infection Control & Epidemiology: Infection Prevention & control programs*
6. *http:// text.apic.org/toc/microbiology-and-risk-factors-for-transmission/antimicrobial-and- resistance*
7. *World Health Organization. Antimicrobial Resistance Factsheet. Sept 2016. http://www.who.int/mediacentre/factsheets/fs194/en/#* World Health Organization. Global Action Plan on Antimicrobial Resistance. WHO. Geneva (CH): 2015. Available from:

Element # C- 4 HAIs SURVEILLANCE

C - 4.1	**There are written policies and procedures for surveillance of health care associated infections, using CDC-NHSN definitions approved by national MOH guidelines (e.g., VAP/VAE, CLABSI, CAUTI, SSI and MDROs according to the hospital's scope of services). (D)**
Document (D)	– ***Surveillance** is an essential component of an effective infection prevention and control (IPC) program. It is a systematic method of ongoing collecting, consolidating, and analyzing data concerning the distribution and determinates of a given disease or event, followed by the dissemination of that information to those who can improve the outcome.* – ***Health Care Associated Infections (HAIs) are defined as a localized or systemic condition resulting from an adverse reaction to the presence of an infectious agent(s) or its toxin(s).*** * *There must be no evidence that the infection was present or incubating at the time of admission to the care setting.* * *Clinical evidence may be derived from direct observation of the infection site or review of information in the patient chart or other clinical records.* * *An infection is considered HAI if the date of event of the NHSN site-specific infection criterion occurs on or after the 3rd calendar day of admission to an inpatient location where day of admission is calendar day 1.* ***Surveillance can be used for the following purposes:*** * *To measure the incidence of healthcare associated infections (HAI) and organisms* * *To establish an endemic rates of HAI* * *To detect, investigate and control hospital clusters or outbreaks of HAI* * *To monitor, evaluate, and implement the necessary preventive measures* * *To work on reducing HAI using standard bundles* * *To monitor antimicrobial susceptibilities etc.*
	– ***NOTE:*** – *Policies & procedures for HAI surveillance could be a separate policy for each type of device associated HAIs or it could be a combined policy for all 03 device associated HAIs (CLABSI, CAUTI, & VAE)* – *Preferably a separate policy for procedure associated HAI (SSI)* – *Preferably a Separate policy for Surveillance of MDROs.* **Review the policies & procedures for HAI Surveillance which should be:** **1: Comprehensive:** – It covers all aspects of HAI Surveillance which define the types of surveillance to be carried out with regard to healthcare-associated infections. **Policy should include but not limited to:** **Written standardized definitions / Criteria**: for identification of each type of HAIs (device associated HAIs ***(VAE/VAP, CLABSI, CAUTI),*** procedure associated ***HAI's (SSIs) & MDROs based on CDC-NHSN & MOH guideline.***

Identifying Healthcare-associated Infections (HAI) :

- *Infection Window Period for HAI*
- *Date of HAI event*
- *Present on admission (POA)*
- *Repeat Infection Time Frame (RIT)*
- *Secondary BSI Attribution Period*
- *Device removal and reinsertion*
- *Transfer Rule*
- *Multiple Transfer*

- ***Infection Window Period for HAI:***
  It is the 7-days during which all site-specific infection criteria must be met. o It includes the day the first positive diagnostic test that is an element of the site-specific infection criterion, was obtained, the 3 calendar days before and the 3 calendar days after.

- ***Date of HAI event:***
  It is the date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period.

- ***Present on admission (POA):***

An infection is considered POA if the date of event of the NHSN site-specific infection criterion occur on or 02 calendar days before day of admission i.e.

- ***First day of admission (day 1)***
- ***Day after admission (day 2)***

- ***Repeat Infection Timeframe (RIT):***
  It is a 14-day timeframe during which no new infections of the same type are reported.

- ***Secondary BSI Attribution Period:***

It is the period in which a positive blood culture must be collected to be considered as a secondary bloodstream infection to a primary site infection.
This period includes the Infection Window Period combined with RIT.

A. Policies and procedures for device associated HAI surveillance:

- Policies and procedures should define the detailed methodology of how the numerator & denominator data will be collected.
  - **Numerator**: (***Number of events of VAE, CAUTI, CLABSI etc.)***
  - **Denominator**: ***(Patient days, device days etc.)***

- How data will be analyzed, interpreted & presented. ***(VAE rate, CLABSI rate, Device utilization ratios etc..).*** Usually displayed as graphs / trends in comparison with **National & CDC /NHSN benchmark***.
- How data will be disseminated to all stakeholders. *(Feedback to all units about HAI trends) for further action. (email or written document etc.)*

NOTE: ***Hospitals reporting through HESN PLUS system should clearly describe all steps related to HESN system.***

B. Policies and procedures for Procedure associated HAI surveillance:

- Policies and procedures for SSI Surveillance should define methodology of SSI surveillance using CDC definitions.
    - **Superficial incisional SSI**
    - **Deep incisional SSI**
    - **Organ /space SSIs**

- Policy should describe the steps of data collection for specific surgical procedure (***Patient information, procedure information, wound class, ASA score etc..)***
- Criteria for selection of surgical procedures.
- Post discharge surveillance protocols and frequency of follow up **(30/90 days)**
- How data will be analyzed, interpreted & presented. ***(SSI rate, Standardized infection Ratios etc..).*** Usually displayed as graphs / trends in comparison with CDC /NHSN benchmark*.
- How data will be disseminated to all stakeholders. (Feedback to all units about HAI trends) for further action. (Email or written document etc.)

NOTE: (Hospitals reporting through HESN PLUS should describe all steps for SSI surveillance based on HESN Plus - SSI flowchart including encounters, SSI bundle review, Steps for SSI event & post discharge follow up methodology)

C. Policies and procedures for MDROs Surveillance:

- ***Surveillance of MDROs is a critically important component of any MDRO control program, allowing detection of newly emerging pathogens, monitoring epidemiologic trends, and measuring the effectiveness of interventions.***

- ***Multiple MDRO surveillance strategies have been employed, ranging from surveillance of clinical microbiology laboratory results obtained as part of routine clinical care, to use of active surveillance cultures (ASC) to detect asymptomatic colonization etc.***

- ***MDROs are defined as microorganisms, predominantly bacteria, that are resistant to one or more classes of antimicrobial agents. Although the names of certain MDROs describe resistance to only one agent (e.g. MRSA, VRE), these pathogens are frequently resistant to most available antimicrobial agents.***

Methicillin-resistant Staphylococcus aureus (MRSA):
Includes S. aureus cultured from any specimen that tests oxacillin-resistant, cefoxitin-resistant, or methicillin-resistant by standard susceptibility testing methods.

Vancomycin-resistant Enterococci (VRE):
Enterococcus faecalis, Enterococcus faecium, or Enterococcus species unspecified that is resistant to Vancomycin, by standard susceptibility testing methods.

Cephalosporin-resistant Klebsiella:
Klebsiella oxytoca or Klebsiella pneumoniae testing non-susceptible (i.e., resistant or intermediate) to ceftazidime, cefotaxime, ceftriaxone, or cefepime.

Carbapenem-resistant Enterobacteriaceae (CRE):
Any Escherichia coli, Klebsiella oxytoca, Klebsiella pneumoniae, or Enterobacter spp. testing resistant to imipenem, meropenem, doripenem, or ertapenem by standard susceptibility testing methods OR by production of a carbapenemase demonstrated using a recognized test (e.g., PCR or Modified-Hodge test.

MDR-Acinetobacter:
Any Acinetobacter spp. testing non-susceptible (i.e., resistant or intermediate) to at least one agent in at least 3 antimicrobial classes of the following 6 antimicrobial class (Aminoglycosides, Cephalosporins, β-lactam or β-lactamase inhibitor combination, carbapenems, Fluoroquinolones and sulbactam).

MDR Pseudomonas or MDR Klebsiella:
Non-susceptible (resistant or intermediate) to at least one agent in at least 3 out of 5 antimicrobial classes(Aminoglycosides, Cephalosporins, β-lactam or β-lactamase inhibitor combination, carbapenems, Fluoroquinolones).

MDRO Isolate:
Any specimen, obtained for clinical decision making, testing positive for an MDRO (excludes tests related to active surveillance testing).

Duplicate MDRO Isolate:
If monitoring all specimens, any MDRO isolate from the same patient and location after an initial isolation of the specific MDRO during a calendar month, regardless of specimen source, except unique blood source.

Unique Blood Source: *For this organism and location, MDRO isolate from blood in a patient with no prior positive blood culture for the same MDRO and location in ≤2 weeks, even across calendar months and different facility admissions* **&** *there should be 14 days with no positive blood culture result from the laboratory for the patient, MDRO, and location before another Blood LabID Event is considered with the date of specimen collection is considered Day 1.*

Presentation of MDROs by onset time:

- ***Community-Onset (CO):*** *Any positive test for MDRO collected in an outpatient location or an inpatient location ≤3 days after admission to the facility*
- ***Healthcare Facility-Onset (HO):*** *Any positive test for MDRO collected >3 days after admission to the facility*

Presentation of MDRO by symptoms:

- ***Colonization:*** *The multiplication of a microorganism at a body site or sites without any clinical signs and symptoms or detected immune reaction in the host at the time that the microorganism is isolated. Colonization may or may not be a precursor of infection. Colonization may be a form of carriage and is a potential source of transmission Does not require treatment*
- ***Infection:*** *The successful transmission of a microorganism to the host with subsequent multiplication, colonization, and invasion. Infection may be clinical or subclinical and may not produce identifiable disease. However, it is usually accompanied by measurable host immune response(s), such as specific antibodies or cell-mediated reactions Requires treatment*

- **MDRO surveillance policy & Procedures must** clearly state the methodology of MDRO surveillance.
- **MDRO surveillance policy & Procedures should** have clear & specific definitions of **Gram positive MDROs** (include ***MRSA* and *VRE etc.***) & **Gram negative MDROs. (*CephR-Klebsiella, Carbapenem resistant Enterobacteriaceae) (CRE): MDR Acinetobacter, MDR Klebsiella or Pseudomonas, ESBLs etc.***

b) Methodology of MDRO Surveillance:

- Policy should describe which *MDROs are being monitored for purpose of surveillance.*
- Facilities may choose to monitor one or more of the following MDROs*: **MRSA, VRE, Ceph R- Klebsiella, CRE, and/or multidrug-resistant Acinetobacter spp.***
- Specify Type of locations for MDRO surveillance: ***Facility wide or Selected locations within the facility (1 or more)***
- Data collection protocols for MDRO surveillance ***(patient information, MDRO types, Specimen sites (Blood, rectal, stool, urine, axilla etc., MDRO presentation (colonization Vs. Clinical infection etc. & source: Hospital acquired Vs. Community acquired)***
- (Standardized forms to be used for data collection (MOH/CDC)
- MDROs surveillance policy should specify that MDROs will be monitored for all Specimen types or for Blood Specimens Only. **(e.g. MRSA Bacteremia)**

MDRO/CDI Reporting Methods:

Laboratory-Identified (LabID) Event:

- Include all non-duplicate MDRO isolates from any specimen source and unique blood source MDRO isolates
- ONLY for positive laboratory results (e.g., cultures) that are collected for

"clinical" purposes (i.e., for diagnosis and treatment).

Infection Surveillance Reporting:

Enables users to utilize HAI definitions for identifying and reporting infections associated with MDROs and/or C. difficile. Surveillance must occur from at least one patient care area and requires active, patient-based, prospective surveillance of the chosen MDRO(s) and/or C. difficile infections (CDIs) by a trained Infection Prevention & Control Practitioner (IPC).

NOTE: (Hospitals reporting through HESN PLUS should describe all steps of MDRO surveillance data reporting for reporting Lab ID & Infection Surveillance reporting)

Other domains of Policies & procedures:

P/P for should be:

- ***Fully applicable:*** all elements of the policy can be applied and comply with the hospital's scope of services
- ***Based on scientific approved references*** **MOH -*CDC- NHSN***
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or Medical Director / concerned department)
- ***Approved*** by IPC committee
- ***Valid*** (updated within 2 - 3 years and when indicated.

NOTE:

- ***Policy and procedure for HAI surveillance must be tailored according to hospital situation and scope of service.***
- ***Peripheral hospitals with bed capacity less than 100 with no capacity to provide intensive care services to the patient or the patient will not stay more than 1 day & will be referred to the nearby tertiary care hospital must have clear policy and procedures device associated HAI Surveillance matching with scope of service.***
- ***Procedure associated HAI Surveillance i.e. SSI Surveillance is applicable to all healthcare facilities where surgical procedures are performed. For instance, Cesareans Section (CSEC) Procedures can be chosen for SSI Surveillance.***

C - 4.2	**There is a written policy and procedure for surveillance of dialysis event, using CDC-NHSN definitions which are approved by national MOH guideline. (D)**
Document (D)	***Review the policies & procedures for dialysis event Surveillance that should be:*** **<u>Comprehensive</u>:** It covers all aspects of dialysis event Surveillance, which define the setting, targeted populations, and case definitions using CDC-NHSN case definitions, data collections methods, data analysis and reporting instructions. **Setting:** Surveillance occurs in outpatient's hemodialysis centers, if inpatients or peritoneal dialysis patient's presents exclude from the DE surveillance. **Populations:** Hemodialysis outpatients which include: ● transient patients. ● peritoneal dialysis patients or transplant patients undergoing temporary hemodialysis. ● outpatients with acute kidney injury. **Data collections:** ❖ Policies and procedures should define the detailed methodology of how the numerator & denominator data will be collected. **<u>Numerator</u>**: (***Number of dialysis events)*** **<u>Denominator</u>**: ***(patients months)*** Hemodialysis outpatients with each vascular access type for the first 2 working days each month are used on the denominators for dialysis event surveillance. ● If the patients have multiple vascular access, only the vascular access with highest risk of infections is reported. **Event definitions:** Three types of dialysis events are reported: IV antimicrobial start, positive blood culture and pus, redness, or increased swelling at the vascular access site. ● 21-day rule: 21 or more days must exist between two dialysis events of the same type for the second occurrence to be reported as a separate dialysis event. **Data analysis and reporting instructions:** ❖ How data will be analyzed, interpreted & presented. (DE rate) in comparison with CDC /NHSN benchmark*. ❖ How data will be disseminated to all stakeholders Hospital Director or Medical Director / concerned department)

Document (D)	***P/P for DE should be:*** ➢ ***Approved*** by IPC committee. ➢ ***Valid*** (updated within 2 - 3 years and when indicated. ***Other domains of Policies & procedures:*** ➢ ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services. ➢ ***Based on scientific approved references*** **MOH**, ***GCC, CDC*** ➢ ***Signed*** from authorized personnel (i.e., owner of the policy / hospital

NOTE: *Hospitals reporting through HESN, or any other national system should clearly describe all steps related to HESN system (Data entry & creating encounters, frequency of bundle review, encounter UDFs to be filled in case of dialysis events).*

C - 4.3	**Adequate number of computers and a reliable internet service are available for surveillance to be carried out continuously without any interruption. (O,SI)**
Observation (O)	***Observe:*** - The number of computers provided for the IC department and match with the number of Infection control preventionists working in the unit. - Ideally each ICP has a separate computer with internet connection. But if separate computer not provided for each ICP, would be considered fully compliant if it's not interfering with continuity of work.
Staff Interview (SI)	***Interview:*** - The staff about the access and reliability of internet service and backup plan to ensure the continuity of work if there is no availability of internet service. - Randomly ask staff to access HESN Plus Website & dashboards to assess the quality of provided internet service. - Ask staff about IT support & troubleshooting time.

C-4.4	**IPC practitioners are well trained regarding the national approved electronic surveillance platform and familiar with CDC-NHSN definitions approved by national MOH guideline. (D,SI)**
Document (D)	***Review the following:*** - Evidence of training received on HAI Surveillance data reporting via national approved electronic surveillance platform. - ***Check for the certificate of training OR check the official schedule / MEMO sent form GDIPC/RHD /Cluster if certificate of training have not yet been received.*** - Check for evidence of training on CDC – NHSN definitions & surveillance protocols as approved by MOH.

- Check for availability of updated MOH Surveillance manual, latest **CDC – NHSN Protocols** which are updated and released each year.
- Review all surveillance data collection sheets, HESN plus manual data collection forms if available in infection prevention & control department to assess their awareness and competency of working with national approved electronic surveillance platform.

Note:

- ***Currently the reporting part of this sub element is applicable only for hospitals who are reporting HAI surveillance data using* national approved electronic surveillance platform**.
- ***Other Hospitals will be included in future as part of new regulations that will be communicated via MEMORANDUM from GDIPC after formal training on use of* national approved electronic surveillance platform for HAI Surveillance data reporting.**
- **However, It is mandatory for all hospitals to train IPC Team members on CDC – NHSN definitions & protocols for HAI Surveillance.**

Staff Interview (SI)

Interview:

- Ask Infection Prevention & Control Practitioners to confirm in-depth understanding of identification of HAI events based on CDC Criteria.
- Ask for methodology of client registration in new **national approved electronic surveillance platform**. ***(IPs should register all patients admitted in critical care units as clients)***
- Ask IPC team to assess knowledge on how data is collected & entered, using new electronic system.
- Randomly ask any IPC team member about criteria ***for identification of CLABSI or Superficial SSI etc***

Laboratory-confirmed bloodstream infection (LCBI-1)

Patient of **any age** has a **recognized pathogen** identified from **one or more** blood specimens by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment.

AND

Organism(s) identified in blood is not related to an infection at another site.

Laboratory-confirmed bloodstream infection (LCBI-2)

Patient of **any age** has at least one of the following **signs or symptoms**: fever (>38.0°C), chills, or hypotension.

AND

The same common **commensal** is identified from **two or more** blood specimens drawn on separate occasions, by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment. Criterion elements must occur within the Infection Window Period

AND

Organism(s) identified from blood is not related to an infection at another site.

Laboratory-confirmed bloodstream infection (LCBI-3)

Patient ≤ 1 year of age has at least one of the following **signs or symptoms**: fever (>38.0°C), hypothermia (<36.0°C), apnea, or bradycardia.

AND

The same common **commensal** is identified from **two or more** blood specimens drawn on separate occasions, by culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment. Criterion elements must occur within the Infection Window Period

AND

Organism(s) identified from blood is not related to an infection at another site.

1. Surgical Site Infection Criteria (SSI)-Superficial incisional SSI

Must meet the following criteria:

Date of event occurs within 30 days after any NHSN operative procedure (where day 1 = the procedure date)

AND involves only skin and subcutaneous tissue of the incision

AND the patient has at least **one** of the following:

1. Purulent drainage from the superficial incision.
2. Organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture or non-culture based microbiologic testing method, which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST)).
3. Superficial incision that is deliberately opened by a surgeon, physician* or physician designee AND Culture or non-culture based testing of the superficial incision or subcutaneous tissue is not performed AND Patient has at least one of the following signs or symptoms:
   - Localized pain or tenderness
   - Localized swelling
   - Erythema
   - Heat
4. Diagnosis of a superficial incisional SSI by a physician or physician designee.

The term physician for the purpose of application of the NHSN SSI criteria may be interpreted to mean a surgeon, infectious disease physician, emergency physician, other physician on the case, or physician's designee (nurse practitioner or physician's assistant)

Comments:

(All auditors must receive brief orientation regarding national approved electronic surveillance platform from regional surveillance coordinators before going for audit)

C - 4.5 Surveillance system is carried out in all critical care units (active, prospective, targeted and patient-based surveillance). (D, SI)

Review the surveillance methodology for each type (Device, non-device & procedure associated HAI) and surveillance data collection sheets to make sure its implemented in all critical care units (ICU, CCU, NICU, PICU, Burn Units etc. based on availability of critical care units in each hospital.

Assess the surveillance protocols which should be:

1. **Active Vs Passive:**

   a. **Active surveillance:**

   - *Infection Preventionists (ICPs) vigorously look for HAIs by applying the CDC criteria during a patient's stay.*
   - *Information accumulated by using a variety of data sources within and beyond the nursing ward such as laboratory admission/discharge/transfer, radiology/imaging, as well as patient charts, nurses /physicians' notes, temperature charts, etc.*

   b. ***Passive surveillance:***

   - *Persons who do not have a primary surveillance role, such as ward nurses or respiratory therapists, identify and report HAI*

2. **Patient Based Vs Laboratory Based:**

   a. ***Patient-based:***

   - *Count HAI, assess risk factors, and monitor patient care procedures and practices for adherence to infection control principles.*
   - *Requires ward rounds and discussion with caregivers.*

   b. ***Laboratory-based:***

   - *Detection is based solely on the findings of laboratory studies of clinical specimens.*

3. **Targeted Vs. Comprehensive:**

   Targeted / Priority-directed:

   * *Focus is on specific events, processes, organisms, and/or patient populations.*
   * *Targeted Units (Critical Care Units only) (ICU, CCU, NICU, PICU, Burn Units etc.)*
   * *Targeted devices associated HAIs (Ventilator, Central Line, Urinary catheter associated)*
   * *Targeted procedures for SSI (High risk – high volume) Select Procedures which are done more frequently and associated with increased infection risk.*

   Comprehensive:

   * *Continuous monitoring of all patients for all events and/or processes*
   * *Highly personnel resource intensive if done manually*

4: Prospective Vs Retrospective:

Prospective surveillance:

- *Monitor patients during their hospitalization: Prospective surveillance of events **(CLABSI, CAUTI, VAP/VAE, SSI** etc. and their corresponding denominator data (Patient days, Device days, number of selected surgical procedures etc.) by a trained Infection Preventionist (IP).*
- *For SSIs, also monitor during the post-discharge period. (30 / 90 Days depending on surveillance period and the type of surgery accordingly) ** (Refer to attached reference)*
- *Process of Post discharge surveillance follow up for SSI:*
  - *Post discharge follow up form to be available in Surgical OPDs & Wards, ER etc. for patients coming for follow up after surgery.*
  - *Follow up via Phone call etc.*

Retrospective Surveillance:

Identify infections via chart reviews after patient discharge or death. Also required during outbreaks.

Staff Interview (SI)

Interview IPC team:

- To confirm in-depth understanding of surveillance methodology to be carried out with regard to HAIs based on above mentioned description.
- Ask staff at random what is meant by active, patient based, prospective & targeted surveillance.
- Ask indirect questions to confirm like how frequently ICPs are collecting surveillance data? How frequently are they going for rounds in ICU, NICU, PICU etc.

C - 4.6	**SSI surveillance is applied according to GDIPC guidelines (i.e. selecting only 1 - 3 types of high-risk procedures or most common surgeries for at least 6 months). (D,SI)**

Document (D)

SSI: Infection occurs within 30 or 90 days (according to the operative procedures) after an operative procedure that involves the skin or subcutaneous tissue (superficial incisional SSI), deep soft tissue (deep incisional SSI), or any other part of the body that is opened or manipulated during the operative procedure (organ/space SSI).

Review the following:

- SSI Surveillance policies & Procedures including post discharge surveillance protocols
- SSI Surveillance data collection sheets

- Charts & graphs to assess SSI Surveillance statistics for targeted high risk, high volume surgical procedures.
- SSI surveillance report for past 6 months to confirm if the same surgeries were followed.
- Review the document for total number of surgical procedures done in last few months to confirm if it's a high-volume procedure. ***(Selected Surgical Procedures) (***
- Review the list of surgeries with number performed in last year to assess the logical selection for SSI Surveillance. ***(High risk & high volume)*** etc.

Staff Interview (SI)

Interview IPC team to confirm the following:

- Type & number of surgical procedures followed with duration of each.
- Ask about most common surgeries done in the hospital to match their selection.
- In-depth understanding of SSI Surveillance protocols.

Interview the staff in Surgical wards, Obs /Gynae unit etc:

- To countercheck for implementation of *SSI process Surveillance*. ***(SSI Bundle etc.)***
- Interview nursing staff in ER & Surgical OPDs , surgical wards to check for implementation of post discharge surveillance follow up & reporting to ICPs.

C - 4.7

Hospital has a system for post operative follow up and communication with post-surgical patients regularly after discharge for any signs and symptoms of surgical site infections including patients with implants. (D,SI)

Document (D)

Review the following documents:

SSI can be detected by the following methods:

- *Review of medical records or surgery clinic patient records*
- *Admission, readmission, ED, and OR logs*
- *Patient charts for signs and symptoms of SSI*
- *Lab, imaging, other diagnostic test reports*
- *Clinician notes*
- *Visit the ICU and wards – talk to primary care staff*
- *Post-discharge Surveillance forms in ER, Surgical Clinics etc*
- *Surgeon surveys by mail or telephone*
- *Patient surveys by mail or telephone (though patients may have a difficult time assessing their infections).*
- *Review of medical records or surgery clinic patient records*

NOTE:

*Any combination of these methods (or other methods identified by the facility) which has the capacity to **identify all SSIs** is acceptable for use; however, **NHSN criteria for SSI** must be used*

Interview:

- Ask IPC team members about the post discharge surveillance protocols.
- Ask about the type of methodology used for Post discharge surveillance data collection. e.g Implementation of *Post-discharge Surveillance forms in ER, Surgical* Clinics etc for any patient presenting with Signs & symptoms after surgical procedure.
- Ask about the post operative follow up period for various surgical procedures **(30/90 Days)-** *Examples of some surgical procedures followed for 30 days or 90 days based* on CDC – NHSN Protocols.

30-day Surveillance:

Category	Operative Procedure	Category	Operative Procedure
AAA	Abdominal aortic aneurysm repair	LAM	Laminectomy
AMP	Limb amputation	LTP	Liver transplant
APPY	Appendix surgery	NECK	Neck surgery
AVSD	Shunt for dialysis	NEPH	Kidney surgery
BILI	Bile duct, liver or pancreatic surgery	OVRY	Ovarian surgery
CEA	Carotid endarterectomy	PRST	Prostate surgery
CHOL	Gallbladder surgery	REC	Rectal surgery
COLO	Colon surgery	SB	Small bowel surgery
CSEC	Cesarean section	SPLE	Spleen surgery
GAST	Gastric surgery	THOR	Thoracic surgery

90-day Surveillance:

Category	Operative Procedure
BRST	Breast surgery
CARD	Cardiac surgery
CBGB	Coronary artery bypass graft with both chest and donor site incisions
CBGC	Coronary artery bypass graft with chest incision only
CRAN	Craniotomy
FUSN	Spinal fusion
HER	Herniorrhaphy
HPRO	Hip prosthesis
KPRO	Knee prosthesis
PACE	Pacemaker surgery
PVBY	Peripheral vascular bypass surgery
VSHN	Ventricular shunt

Example of Post discharge SSI Surveillance form

Department of Infection Prevention & Control

Post discharge SSI Surveillance Form

Name of the Patient: ---------- **File Number:** ---------- **Age/Sex:** ----------
Name of the Surgical Procedure: ---------- **Date of Operation:** ---------- **Name of the Surgeon:** ----------
Wound Condition: Infected ☐ **Not Infected:** ☐ **Reporting location: OPD / ER / Other** ------- **Reporting Date:** /……. /

Readmission: Yes/ No: ---------- **Readmission Date:** ----------

A. DIGANOSTIC CRITERIA. (*Please use √ mark*)

TYPE OF SSI		
☐ **SUPERFICIAL INCISIONAL SSI**	☐ **DEEP INCISIONAL SSI**	☐ **ORGAN/ SPACE SSI**
Involves only skin and subcutaneous tissue of the incision (*within 30 days after any NHSN operative procedure*)	**Involves deep soft tissues of the incision (e.g., fascial and muscle layers)** (*within 30- 90 days after any NHSN operative procedure*)	**Infection involves any part of the body deeper than the fascial/muscle layers, that is opened or manipulated during the operative procedure** (*within 30- 90 days after any NHSN operative procedure*)
At least one of the following:	**At least one of the following:**	**At least one of the following:**
I: Purulent drainage from superficial Incision	I: Purulent drainage from the deep Incision	I: Purulent drainage from a drain that is placed into the organ/space (e.g., closed suction drainage system, open drain, T-tube drain, CT guided drainage)
II: organisms identified from an aseptically-obtained specimen from the superficial incision or subcutaneous tissue by a culture	II: A deep incision that spontaneously dehisces, or is deliberately opened or aspirated by a surgeon, attending physician or other designee and organism is identified by a culture	II: Organisms are identified from an aseptically-obtained fluid or tissue in the organ/space by a culture.
III: Superficial incision that is deliberately opened by a surgeon, attending physician** or other designee and culture or non-culture based testing is not performed. **AND** Any one of the following; • Pain /tenderness • localized swelling • Erythema • heat	**AND** Any one of the following; • Fever > 38 ° C • Localized pain / tenderness	III: An abscess or other evidence of infection involving the organ/space that is detected on gross anatomical or histopathologic exam, or imaging test
IV: Diagnosis of a superficial incisional SSI by the surgeon or attending Physician or other designee.	III. An abscess or other evidence of infection involving the deep incision that is detected on gross anatomical or histopathology exam, or imaging test	

B. Culture details: If done:

#	Type of Sample	Date of sampling	Reporting date	Result	Remarks

C - 4.8 Surveillance data (targeted patients, numerators, denominators, and device utilization ratio) are validated by IC practitioners at least once monthly. (D,SI)

- *Data validation refers to the process of ensuring the accuracy and quality of data.*
- *Data collected by ICPs should match the actual number of patient admissions, patient days, device days & total number of correctly identified events using the CDC – NHSN – HESN plus data collection forms.*
- *ICPs should ensure monthly validation of data by comparing with census of critical care units & bed management department (if needed)*

Review:

- Surveillance data collection sheets containing data of targeted patients in critical care units (ICU, NICU, PICU & Burn Units etc.
- Check the document for total admissions in critical care units in previous month.
- Check denominator data collection forms received from nursing staff of critical care units. Validate total patient days in a month.

- *Patient days is the number of days admitted patients are utilizing the services of hospital.*
- *For e.g. if 5 patients stayed in adult ICU for 6 days it will be counted as 30 patient days.*

- Review **numerator data collection sheets** for Identification of VAP,VAE CLABSI, CAUTI & SSI events). Review the line lists and lab results to check accuracy of numerator data.

Numerator is the upper portion of a fraction used to calculate a rate or ratio. In surveillance, it is usually the number of cases of a disease or event being studied, number of CLABSI, number of VAPs etc.)

- Review **Denominator** data: **Patient days**, **Device days** like ***Ventilator days, Central line days, Urinary Catheter days & Total number of selected surgical*** procedures as denominator for SSI rates.

Denominator is the lower portion of a fraction used to calculate a rate or ratio.
Denominator data may be collected by someone other than the ICP as long as that person is trained)

$$\text{CLABSI Rate} = \frac{\text{Number of CLABSI (Numerator)}}{\text{Central Line days (Denominator)}} \times 1000$$

$$\text{SSI Rate} = \frac{\text{Number of SSI (Numerator)}}{\text{Total number of specific operative procedures (Denominator)}} \times 100$$

Device Utilization Ratio data validation from staff of critical care units. Device utilization ratio is calculated by dividing the device days by patient days.

$$\text{Device Utilization Ratio (DUR)} = \frac{\text{Device Days (Numerator)}}{\text{Patient Days (Denominator)}}$$

- **Patient Under Surveillance** in a day should be compared with the number of beds in a critical care unit. It should not exceed the number of beds. *(+5% is acceptable in case of improvised beds are there)*

MDRO-Infection Surveillance:

MDRO infection incidence rate is calculated by dividing the number of infections of a **certain MDRO type by the number of patient days and multiplying the results by 1000.**

Example:

$$\text{MRSA Rate: } = \frac{\text{Number of infections with MRSA (Numerator)}}{\text{Patient Days (Denominator)}} \times 1000$$

The total "patient days" represents the sum of the number of days during which services were provided to all inpatients during the given time period.

Staff Interview (SI)

Interview IPC team to verify the following:

1) Infection Control Practitioners about process of data validation:
2) Ask how the data regarding targeted patients in critical care units is validated. For electronic surveillance platform., each patient admitted in critical care unit has to be entered.
3) Ask about process of validation of numerator data. ***Correct identification of VAE, CLABSI, CAUTI & SSI events (Numerators) by apply CDC-NHSN case definitions.***
4) Ask how denominator data is validated. ***Wrongly collected denominator data would affect the HAI Rates and device utilization Ratios.***
5) Ask about the validation process for HESN Plus Surveillance. ICP should reflect about importance of data validation for accurate implementation of surveillance system.
6) Ask about number of critical care unit's admissions and confirm whether entered in national approved electronic surveillance platform system.
7) Ask IPC team members about the process of data validation in order to ensure accuracy.
8) Data should be validated monthly
9) Ask indirect question as: ***If the patient is not on any device in the ICU, will you register this patient in electronic surveillance platform?***
Answer should be yes because ICPs have to register all patients admitted in critical care units with or without devices in the electronic surveillance platform.

Example: CLABSI Data Validation

- ***Review line list of all positive blood culture results & information about device insertion & removal date etc***
- ***Review the patient files for clinical condition of patient for all patients with central lines etc***
- ***Match with CDC – NHSN definitions to confirm a CLABSI event.***
- ***Validate denominator data for patient days, CL days etc by checking denominator data collection sheets etc***

C - 4.9 Surveillance data are regularly collected & reported to MOH through national approved electronic surveillance platform. (D,SI)

Document (D)

Review the following:

1) Manual data collection forms for both numerator & denominator data. Patients under surveillance, Device associated events, SSI events etc.)
2) Ask about record of total patient admissions in each critical care units for a specific month.
3) Access the electronic surveillance platform and confirm if all patients were registered alongwith all required information about devices etc

Staff Interview (SI)

Interview IPC team to verify the following:

1) Number of critical care unit's admissions and confirm whether entered in national electronic system.
2) Randomly ask ICP to access the national electronic surveillance system. and get count of **Patients under Surveillance** for that particular audit visit date and compare with manual data.
3) Ask indirect question as: ***If the patient is not on any device in the ICU, will you register this patient in HESN?***

Answer should be <u>yes</u> because ICPs have to register all patients admitted in critical care units with or without devices) as clients in national electronic surveillance system.

C - 4.10 Results of surveillance are regularly analyzed, interpreted and communicated to staff and concerned departments. (D,SI)

Document (D)

Review the following:

- Review the monthly / Quarterly Surveillance statistics.
- Review trended data over time for the rate of HAI over the months and compared to the **benchmark***** and check whether trend is increasing or decreasing. ***(Projected trends of VAE. VAP CLABSI, CAUTI, SSI and MDROs)***
- Check for last HAI report shared with concerned units (ICU, Surgical unit & high rank administration etc.) ***(Copy of manual or sent email)***
- Check the reports in concerned areas i.e. **ICU, Burn Unit, NICU, etc.**

- ******<u>Benchmarking</u> is the process of "comparing oneself to others performing similar activities, so as to continuously improve.***
- ***National Healthcare Safety Network (NHSN) in US acute care hospitals is the oldest and most widely used of benchmarking.***
- ***A written report should be developed to provide a mechanism to interpret and disseminate surveillance data to stimulate performance improvement activities.***
- ***Tables, graphs, and charts are effective tools for organizing, summarizing, and visually displaying data and should be used as applicable.***
- ***Title should be clear and specific for each category of HAIs e.g***
- ***<u>(Surgical Site Infections in patients undergoing coronary artery bypass graft in hospital A from January through December 2022)</u>***

Staff Interview (SI)	***Interview the following:*** – Ask head and staff nurses if surveillance data was being communicated to them. Ask them to show trends posted on bulletin boards. – Ask medical staff in critical care units at random as example for VAP rate of their unit in any Quarter 2022 etc. – Ask Surgeons and OR staff for SSI trends for last quarter etc. – Ask ICPs about the mechanism of data communication / reporting to concerned units (electronic, manual etc.) and frequency of reporting. ***NOTE**: High infection rates should be notified immediately to the relevant unit without waiting for discussions in IC Committee meeting or quarter to over in order to take necessary actions to decrease the infection rates immediately.*
C - 4.11	**Results of surveillance are regularly reviewed by the IC committee, and an action plan is developed and followed up accordingly (at least once quarterly). (D, SI)**
Document (D)	***Review the following:*** – IC committee meeting minutes for the past months to confirm discussion of HAI surveillance trends. – Results of HAI trends to be disseminated monthly as well. – Review the action plan for corrective actions based on the results of surveillance. All interventions should be evidence based. ***(If applicable)*** – Review updated status of action plan after needed interventions and follow up. ***(If applicable)***
Staff Interview (SI)	***Interview IPC team & members of IC committee to confirm the following:*** – Ask about the review & discussion of HAI surveillance statistics. – Ask about recent interventions done for significantly high rates. Ask to give example for past 1 year and mention what interventions were done & how the follow up was done. ***Example 1: Increased CAUTI rate in Quarter II – 2022 Causes of high CAUTI rate:*** - *Poor aseptic technique upon insertion,* - *Lack of implementation of Urinary Catheter Bundle* - *Prolonged use of catheter without indication* - *Collection bag not kept below the level of the bladder at all times* - *Lack of sterile technique & continuously closed drainage system etc.* **Interventions:** - *Strict implementation of Urinary Catheter Bundle,* - *Daily review of necessity & prompt removal.,* - *Strict adherence to aseptic technique upon insertion.* - *Appropriate hand hygiene practice.* - *Maximal Barrier Precautions (Gloves, Drape, Sponges)* - *Sterile or antiseptic solution for cleaning the urethral meatus* - *Single-use packet of sterile lubricant jelly for insertion etc..*

Example 2: Increased SSI rate in Quarter I & II – 2022

If SSI rate is on higher side for the last few quarters, IC team members should develop a corrective action plan to find out the causes of increased SSI rate over past few months.

Causes could be: decreased compliance to SSI bundle, non-availability of prophylactic antibiotic, use of razors instead of hair clippers etc.., poor aseptic technique during the procedure etc.

Interventions would include increased adherence to SSI bundle elements, strict implementation of aseptic technique in OR, continuous education & training activities etc..

C - 4.12	**Results of surveillance are used to reduce HAIs through well designed quality improvement projects. (D, SI)**

Document (D)

Review the following:

- Review performance Improvement project related to Surveillance based on results of HAI statistics.
- Check if the department has selected these specific indicators after reviewing results of surveillance and consideration of their attributable morbidity, cost, preventability and transmission risks. They reflect the current priority areas according to infection control program and policy development.

Example: If surveillance trends show the projected rate for specific HAI e.g. Increased CLABSI rate in NICU. IC department should design a CLABSI improvement project for NICU.

A Performance Improvement Project (PIP) is a quality tool with concentrated effort on a particular problem in one or more areas of the facility. It involves gathering information systematically to clarify issues or problems and intervening for improvements.

The Steps Defined by FOCUS PDCA. The FOCUS PDCA acronym describes the basic components of the improvement process.

F - FIND A PROCESS / OPPORTUNITY FOR IMPROVEMENT
O - ORGANIZE A TEAM
C - CLARIFY THE CURRENT UNDERSTANDING OF THE PROCESS
U - UNDERSTAND VARIATION IN THE PROCESS
S - SELECT A STRATEGY FOR IMPROVEMENT
P - PLAN
D - DO
C - CHECK
A – ACT

Staff Interview (SI)

Interview IPC team to confirm the following:

- Ask the IPC team how they have selected a specific project to assess knowledge that hospital uses risk, rate, and trend information to design or modify processes to reduce healthcare-associated infections to the lowest possible level.
- Interview head and charge nurses, medical staff in critical care units regarding any ongoing Performance Improvement Project (PIP).
- Interview head of the department and charge nurses, medical staff in critical care units, IPC team to confirm that the hospital makes the necessary improvements for the identified epidemiologically important infections, processes, and devices that are associated with risk of healthcare-associated infections specific to the selected Performance Improvement Project (PIP).

- **For example, if there is ongoing SSI improvement project, we can interview relevant staff involved in the project during visit like surgical ward, OR staff, etc.**
- **What specific interventions have been communicated to you as part of SSI performance improvement project?**
- ***(To verify if they are oriented about the project or not.)***

REFERENCES / WEB BASED RESOURCES:

1. ***GDIPC Surveillance Manual – January 2022=1***
2. ***National Healthcare Safety Network (NHSN) Patient Safety Component Manual to be accessed at URL https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf***
3. Healthcare-associated Infections ***https://www.cdc.gov/hai/index.html***
4. *Multidrug-Resistant Organism & Clostridium difficile Infection (MDRO/CDI) Module; National Healthcare Safety Network (NHSN) Patient Safety Component Manual - 2019 Chapter 12*
5. ***https://www.cdc.gov/infectioncontrol/guidelines/MDRO/index.html***
   HESN – HAI Surveillance Manual (GDIPC)
   https://hesn.moh.gov.sa/webportal/infection- control

وزارة الصحة
Ministry of Health

Element # C-5

PATIENT'S CARE BUNDLES FOR PREVENTION OF HAIS & MDROs

C - 5.1	**There is a written policy and procedure concerning patient's care bundle for prevention of CAUTI.**
C-5.1a	***Hospital has a competency-based training program for insertion and maintenance of urinary catheters.***
C-5.1b	***IPC practitioners regularly conduct auditing rounds to monitor and document HCWs' adherence to recommended practices for insertion and maintenance of urinary catheters in critical care units (weekly).***
C-5.1c	***IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in the insertion and maintenance of urinary catheters regularly and corrective actions are applied accordingly.***
C-5.1d	***Urinary catheter insertion is performed under complete aseptic technique including antimicrobial handwashing with sterile items (urinary catheter, urinary bags, gloves, solution and single-use gel). Cleansing the perineal area with skin antiseptic solution and with sterile draping of the patient.***
C-5.1e	***Hospital applies urinary catheter maintenance activities including securement of the catheter to the patient's thigh, ensuring low level fixation of urine bag below the level of the bladder at all times, maintain a continuous closed drainage system, antiseptic cleaning in the drain port for urine drainage and, routine meatal hygiene.***
C-5.1f	***Nursing staff review daily the ongoing need of indwelling urinary catheter and the possibility of discontinuation with the treating physician.***

C - 5.1 There is a written policy and procedure concerning patient's care bundle for prevention of CAUTI. (D)

Document (D)

- *Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.*
- *Bundle is an implementation tool aiming to improve the care process and patient outcomes in a structured manner. It comprises a small, straightforward set of evidence-based practices (generally 3 to 5) that have been proven to improve patientoutcomes when performed collectively and reliably.*
- ***Urinary catheter bundle: Urinary catheter bundle** is a group of evidence-based interventions for patients with urinary catheter that, when implemented together, result in better outcomes (reduce CAUTI) than when implemented individually.*

Review:

Policies & Procedures for prevention of Catheter Associated Urinary Tract Infection (CAUTI) incorporating care bundles which should be:

1: Comprehensive: *It should include details about the procedures to ensure strict adherence to infection control measures during insertion & maintenance phases in order to prevent Catheter Associated Urinary Tract Infection (**CAUTI**).*

Policy should include but not limited to:

- Policies should clearly describe procedures with rationale of each bundle element.
- Setting: P/P should clearly describe applicability of UC bundle according to location(critical care units ***(ICU, PICU), surgical wards, Medical Wards etc.***
- The policies and procedures should define how data on care bundles will be collected,analyzed, interpreted, and disseminated with necessary correction actions when needed. ***(Find details under specific sub element etc.)***
- P/P should define Roles and responsibilities of concerned unit in implementation of health care bundles e.g
  - *Daily review is the responsibility of assigned staff of critical care units for all devices.*
  - *Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.*
  - *For **MOH** hospitals reporting via **National Electronic Surveillance Platform**, policies & Procedure should be tailored accordingly.*

Other domains of Policies & procedures, P/P for Care Bundles should be:

- ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services
- ***Based on scientific references approved by MOH.*** **(IHI & CDC Surveillance guidelines).**
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IC committee
- ***Valid*** (updated within 2 - 3 years and when indicated.

NOTE:

Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change.

C-5.1a Hospital has a competency-based training program for insertion and maintenance of urinary catheters. (D, SI)

– *Competence implies an expert level of knowledge and skill that is transferrable to the practice of infection prevention and control.*
– *Core competencies are necessary to ensure that the healthcare workers has a set of basic skills to integrate into any practice setting.*
– *Professional development is essential to keeping the infection prevention & Control Practitioners up to date with the latest knowledge, skills, and strategies for preventing infections who are eventually responsible to provide training & education to targeted Health Care workers (HCWs) according to nature of their work.*

Document (D)

Review the following documents:

– **Training program / Annual training plan** that includes the training of targeted healthcare worker on insertion & maintenance of urinary catheters by implementation of care bundles.
– Training program should encompass all categories of HCWs working in different units according to nature of work. *(Doctors, nurses etc)*
– **Competency assessment** checklist to ensure that all HCWs who have received training are skilled and competent to implement care bundles for the patients with Urinary Catheters during insertion & maintenance phases.
– Review the **training content / PPTs** used for education purposes to confirm if it's based on updated latest guidelines.
– Review the electronic dashboard/ tracker to estimate the percentage of staff who have received competency-based training. **Ask for percentage % of coverage.**

Staff Interview (SI)

Interview:

– Ask infection Prevention & control team members about implementation of competency-based education program for insertion & maintenance of urinary catheters in the hospital.
– Ask about the targeted HCWs & Units included in the competency-based training program.
– Ask about the frequency of training activities to ensure all targeted HCWs have received training at least once per year.
– Ask about the role of nursing & training department in competency-based training program.

NOTE:
• Implementation of four components of urinary catheter bundle requires a **multidisciplinary approach involving physicians, nurses, leaders, and experts in infection prevention and urological care.**
•UC insertion & Maintenance Bundle can be implemented in any Inpatient areas where patients with urinary catheter are hospitalized

Components of urinary catheter bundle:

– *Avoid unnecessary urinary catheters*
– *Insert using aseptic technique*
– *Maintain catheters based on recommended guidelines (daily care)*
– *Review catheter necessity daily and remove promptly*

C-5.1b	IPC practitioners regularly conduct auditing rounds to monitor and document HCWs' adherence to recommended practices for insertion and maintenance of urinary catheters in critical care units (weekly). (D,O,SI)

Document (D)

- ***Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goalssheets . bundle forms. and/or elsewhere in the medical record.***
- ***NOTE: This is an "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. (Ref: IHI)***
- ***Daily implementation of patient care bundles is the responsibility of nursing staff of critical care units.***
- ***IPC department hold responsibility to monitor and document HCWs' adherence to recommended practices for insertion and maintenance of urinary catheters in critical care units.***

Review:

During audit round of critical care units i.e ICU , PICU etc

- Review the patient files to check for daily review of Urinary Catheter bundle impelmented for targeted patients in critical care units ***(ICU, & Burn Units, surgical units etc.)***
- Review the ICPs data collection sheets for insertion & maintenance bundles and ensure validation of data collected from Critical Care units at least **weekly**.
- Check if data is complete for all critical care units where Urinary Catheter Bundle of care is implemented.

NOTE: CAUTI Surveillance & UC bundles are not applicable for Neonatal ICUs (NICUs)

Observation (O)

Observe:

- In critical care & other inpatient locations for the implementation of patient's care bundles for prevention of Urinary Tract Infections.
- Randomly observe patients with urinary catheters & match information available in patient'sfiles and that provided by nursing staff of concerned unit.
- **Example:**
  - *Look for urine collection bag if kept below the level of the bladder at all times as part of maintenance bundle.*
  - *Observe if catheter properly secured to prevent movement and urethral traction.*
  - *Observe if a sterile, continuously closed drainage system is used as part of routine maintenance care.*
  - *Observe, if possible, how urine collection bag is emptied regularly using a separate collecting container for each patient, and avoid allowing the draining spigot to touch the collecting container.*
  - *Observe if staff are following aseptic technique and PPE during insertion & maintenance phase (If possible to observe real situation)*

Staff Interview (SI)

Interview Infection Prevention & Control Practitioners:

- Ask how the data regarding Urinary Catheter insertion & maintenance bundles for targeted patients is collected in critical care units, documented and validated.
- Bundle review has to be started for every patient on Urinary Catheter devices in the critical care units and other areas where applicable.
- Ask ICPs how frequently they are doing rounds to check for compliance with **UC maintenance** bundle elements. ***Must be done at least weekly but all patients with Urinary catheters must be reviewed for HCWs adherence to recommended practices for UC maintenance bundle.***
- Ask about the monitoring of **UC insertion practices** and what is the mechanism followed. ***(Nursing staff in critical care units MUST call IPC practitioners to observe at least 1 UC insertion practice in week using an observer checklist.***

NOTE: A checklist may be a helpful tool for staff at the time of insertion and may also serve as a data collection tool to assess compliance.

- Randomly ask about elements of UC care bundles and how they will be implemented.
- Assess if the ICPs are familiarized with **all or none principle** for bundle compliance.

C-5.1c

IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in the insertion and maintenance of urinary catheters regularly and corrective actions are applied accordingly. (D, SI)

Document (D)

Review: (in Infection Control Department)

- Bundle forms for the prevention of catheter-associated urinary tract infections (*CAUTI*).
- Bundle forms should be standardized adopted based on *GDIPC updated guidelines.*
- *Review* ***Urinary Catheter Bundle Compliance Rates*** ***(Monthly compliance report & Trended Analysis over months)***
- Ask for document for corrective actions & Improvement projects (If any)
- Check for any evidence that the data on Urinary catheter bundle compliance ***(performance of Healthcare workers in critical care unit's on insertion and maintenance of urinary catheters*** was shared e.g ***via– emails, formal individual feedback or other channels of communication.***

Data Analysis: (Urinary catheter Bundle Compliance):

- ***Numerator:***

Total number of patients with indwelling urinary catheter in the sample reviewed with all applicable components of the urinary catheter bundle documented

- ***Denominator:***

Total number of patients reviewed with indwelling urinary catheter

FORMULA:

Urinary Catheter Bundle Compliance = ***(Number of patients on urinary catheter who have received all four elements of the UC Bundle/ Total number of patients with Urinary Catheter reviewed for bundle compliance) x 100***

(Calculate Bundle compliance for individual element would guide towards targeted corrective interventions in case of low compliance)

Analysis of data:

$$\text{Urinary catheter bundle compliance} = \frac{\text{Patients with urinary catheter compliant to all applicable bundle components}}{\text{Total number of patients with urinary catheter reviewed for the bundle compliance}} \times 100$$

General Directorate of Infection Prevention and Control
Ministry of Health- Riyadh KSA

URINARY CATHETER INSERTION AND MAINTENANCE BUNDLE FORM (Adult and Pediatrics)

A. PATIENT'S INFORMATION

Patient name:	MRN:	Unit:	Bed No.	Age:	M/F:
Admission date:	Admission diagnosis:				
IFC insertion date:	Place of insertion:				
IFC removal date:					

B. URINARY CATHETER INSERTION BUNDLE

	Yes	No	Not Applicable
1. Avoid unnecessary urinary catheters			
2. Insert using aseptic technique:			
a. Hand hygiene before insertion of UC			
b. Use sterile equipment (Gloves, a drape, and sponges, Sterile or antiseptic solution for cleaning the urethral meatus and single-use packet of sterile lubricant for insertion)			
c. Use of small catheter as possible			

General Directorate of Infection Prevention and Control
Ministry of Health- Riyadh KSA

URINARY CATHETER INSERTION AND MAINTENANCE BUNDLE FORM (Adult and Pediatrics)

C. URINARY CATHETER MAINTENANCE BUNDLE

Date	Hand Hygiene			Maintain catheters based on recommended guidelines*			Review urinary catheter necessity daily and remove promptly		
	Y	N	N/A	Y	N	N/A	Y	N	N/A

* ***Recommended Guidelines:*** ***Y- yes N- no N/A- not applicable***

- *Maintain a sterile, continuously closed drainage system.*
- *Keep catheter properly secured to prevent movement and urethral traction.*
- *Keep collection bag below the level of the bladder at all times.*
- *Maintain unobstructed urine flow.*
- *Empty collection bag regularly*
- *Routine hygiene (e.g., cleansing of the meatal surface during daily bathing) is appropriate.*
- *Collection of urine samples should follow aseptic technique.*

Staff Interview (SI)	***Interview:*** – *Ask IPC team about the data analysis about how to analyze data UC insertion & maintenance bundle.* – *Ask about the feedback mechanism to HCWs in critical care units.* – *Ask about the corrective interventions if UC bundle compliance is low.* *e.g retraining & education of HCWs with competency assessment, availability of supply needed in case of shortage e.g single-use packet of sterile lubricant for insertion.* – *During audit visit ask nursing head about the feedback on UC bundle compliance received from IPC department. (Email, display on bulletin board, formal report in hard version etc)*
C-5.1d	**Urinary catheter insertion is performed under complete aseptic technique including antimicrobial handwashing with sterile items (urinary catheter, urinary bags, gloves, solution and single-use gel). Cleansing the perineal area with skin antiseptic solution and with sterile draping of the patient. (D, O, SI)**
Document	***Review:*** – During audit visit of critical care units check the Urinary catheter insertion checklist for all patients on urinary catheter. – Check if insertion checklist is complete with all relevant information.
OBSERVATION (O)	***Observe:*** – Implementation of the care bundle for prevention of CAUTI in Critical Care Areas. – Randomly check patients for position of urinary catheter. (Collection bag to be below the level of bladder at all times & properly secured) – Observe if staff are following aseptic technique and PPE during insertion & maintenance phase (If possible, to observe real situation)
Staff Interview (SI)	***Interview:*** ***<u>Staff in Critical Care areas & inpatient locations:</u>*** – To confirm in-depth understanding and implementation of care bundle for prevention of urinary tract infections associated with devices. – Ask staff at random about elements of UC insertion Bundle. – Ask about the last training and education on UC insertion received from IPC department. – Ask about the availability of all needed supply for implementation of UC insertion bundle. ***(e.g different sizes of urinary catheters, urinary bags, gloves, solution and single-use gel etc).*** – Ask staff to perform antimicrobial handwashing & don surgical gloves. – Ask about aseptic technique and maintenance of sterile field during insertion.

1. **Insert catheter using aseptic technique:**

a) *Hand hygiene immediately before and after insertion*
b) *Aseptic technique of catheter insertion by using Gloves, a drape, and sponges*
c) *Sterile or antiseptic solution for cleaning the urethral meatus; and*
d) *Single-use packet of sterile lubricant jelly for insertion.*
e) *Using as small a catheter as possible that is consistent with proper drainage, to minimize urethral trauma.*

C-5.1e	**Hospital apply urinary catheter maintenance activities including securement of the catheter to the patient's thigh, ensuring low level fixation of urine bag below the level of the bladder at all times, maintain a continuous closed drainage system, antiseptic cleaning in the drain port for urine drainage and, routine meatal hygiene.** **(D, O, SI)**
DOCUMENT (D)	***Review:*** – *During audit visit of critical care units check the Urinary catheter maintenance checklist for all patients on urinary catheter.* – *Check if maintenance checklist is complete with all relevant information.*
OBSERVATION (O)	***Observe:*** – *Implementation of the care bundle for prevention of CAUTI in Critical Care Areas.* – *Randomly check patients for position of urinary catheter & assess the following:* – *If Urinary catheter is secured catheter to the patient's thigh to prevent movement and urethral traction* – *Check if low level fixation of urine bag is ensured i.e. below the level of the bladder at all times* – *Check if there is continuous closed drainage system* – *Check if collection bag is emptied regularly, using a separate collecting container for each patient, and avoid allowing the draining spigot to touch the collecting container.* – *Check if routine hygiene (e.g., cleansing of the meatal surface during daily bathing) is appropriate.* – *Observe if staff are following aseptic technique and PPE during maintenance phase (If possible, to observe real situation)*

Staff Interview (SI)

Interview:

Staff in Critical Care areas & inpatient locations:

- To confirm in-depth understanding and implementation of care bundle for prevention of urinary tract infections associated with devices.
- Ask staff at random about elements of UC maintenance Bundle and give her/him task **on how to empty the collection bag.**
- Ask about the last training and education on UC maintenance bundle elements received from IPC department.
- Ask about the availability of all needed supply for implementation of UC maintenance bundle. ***(e.g different sizes of urinary catheters,*** *Use as small a catheter as possible that is consistent with proper drainage, to minimize urethral trauma.* ***Sterile or antiseptic solution for cleaning the urethral meatus etc).***
- Ask staff to perform antimicrobial handwashing & don required PPE..
- Ask about aseptic technique during collection of urine samples.

Appropriate catheter maintenance:

a. Maintain a sterile, continuously closed drainage system.
b. Keep catheter properly secured to prevent movement and urethral traction.
c. Keep collection bag below the level of the bladder at all times.
d. Maintain unobstructed urine flow.
e. Empty collection bag regularly, using a separate collecting container) for each patient, and avoid allowing the draining spigot to touch the collecting container.
f. Maintain meatal care with routine hygiene (bathing).
g. Use aseptic technique when the collection system must be replaced (in case of obstruction or infection).

C-5.1f	Nursing staff review daily the ongoing need of indwelling urinary catheter and the possibility of discontinuation with the treating physician. (D,O, SI)

Document

-
- *"The duration of catheterization is the most important risk factor for development of infection."*
- *If use of an indwelling catheter is necessary, the most important strategy is removing the catheter as soon as possible.*
- *Daily review of catheter necessity should be conducted for all patients with urinary catheters*

Review:

- *During audit visit of critical care units check the Urinary catheter maintenance checklist for all patients on urinary catheter.*
- *Check the patient files to confirm if daily review/ assessment of urinary catheter need was done with documentation in patient files and checklist.*
- *Verify if nursing staff discussed the ongoing need of indwelling urinary catheter with treating physician. Review the physician's daily progress notes and check for comments* ***(Removal or Continuation of Urinary catheter)***

Staff Interview (SI)

Interview:

Staff in Critical Care areas & inpatient locations:

- Ask about the importance of daily review for the UC need and benefits of early removal.
- *Randomly ask staff to open file of any patient on Urinary catheter and check the physician notes for removal or discontinuation of UC catheter and confirm if instructions are being followed.*
- Ask staff / physician about absolute indications for placement of urinary catheters initially and daily review for removal when not needed based on patient condition. ***e.g Perioperative use for selected surgical procedures ↔ Urine output monitoring in critically ill patients ↔ Management of acute urinary retention and urinary obstruction***
- Ask about alternatives to indwelling catheters ***e.g Intermittent catheterization several times per day***, ***external condom catheters for males etc***

وزارة الصحة
Ministry of Health

Element # C-5

PATIENT'S CARE BUNDLES FOR PREVENTION OF HAIS & MDROS

C - 5.2	There is a written policy and procedure concerning patient's care bundles for prevention of **CLABSI.**
C-5.2 a	Hospital has a competency-based training program for insertion and maintenance of central line catheter.
C-5.2 b	IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for insertion and maintenance of central catheter lines in critical care units (weekly).
C-5.2 c	IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in insertion and maintenance of central catheter lines regularly and corrective actions are applied accordingly.
C-5.2 d	Central line catheter insertion is performed under ultrasound guidance with complete aseptic technique including antimicrobial handwashing, & use of maximum barrier precautions (sterile gloves, mask, sterile gown, and sterile full body drape).
C-5.2 e	preparation of the skin site with an alcoholic chlorhexidine solution, and use of transparent chlorhexidine impregnated dressing.
C-5.2 f	Nursing staff scrub the access port or hub with friction immediately prior to each use with an appropriate approved antiseptic for at least 15 seconds.
C-5.2 g	Nursing staff review daily the ongoing need of central venous catheter and the possibility of discontinuation with the treating physician.

C - 5.2 There is a written policy and procedure concerning patient's care bundle for prevention of CLABSI. (D)

Document (D)

- *Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.*
- *Bundle is an implementation tool aiming to improve the care process and patient outcomes in a structured manner. It comprises a small, straightforward set of evidence-based practices (generally 3 to 5) that have been proven to improve patient outcomes when performed collectively and reliably.*
- ***Central Line bundle:** Central line bundle: It is a group of evidence-based interventions for patients with intravascular central catheters that, when implemented together, result in better outcomes (reduce BSI) than when implemented individually.*

Review:

Policies & Procedures for prevention of Central Line Associated Blood Stream Infection (CLABSI) incorporating care bundles which should be:

1: Comprehensive: *It should include details about the procedures to ensure strict adherence to infection control measures during insertion & maintenance phases in order to prevent Central Line Associated Blood Stream Infection* ***(CLABSI)***

Policy should include but not limited to:

- Policies should clearly describe procedures with rationale of each bundle element.
- Setting: P/P should clearly describe applicability of CL bundle according to location (critical care units ***(ICU, NICU, PICU), surgical wards, Medical Wards etc.***
- The policies and procedures should define how data on care bundles will be collected, analyzed, interpreted, and disseminated with necessary correction actions when needed. ***(Find details under specific sub element etc.)***
- P/P should define Roles and responsibilities of concerned unit in implementation of health care bundles e.g
  - *Daily review is the responsibility of assigned staff of critical care units for all devices.*
  - *Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.*
  - *For **MOH** hospitals reporting via **National Electronic Surveillance Platform**, policies & Procedure should be tailored accordingly.*

Other domains of Policies & procedures, P/P for Care Bundles should be:

- ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services
- ***Based on scientific references approved by MOH.*** **(IHI & CDC Surveillance guidelines).**
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IC committee
- ***Valid*** (updated within 2 - 3 years and when indicated.

NOTE:

Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change.

C-5.2a	**Hospital has a competency-based training program for insertion and maintenance of central line catheter. (D, SI)**

- *Competence implies an expert level of knowledge and skill that is transferrable to the practice of infection prevention and control.*
- *Core competencies are necessary to ensure that the healthcare workers has a set of basic skills to integrate into any practice setting.*
- *Professional development is essential to keeping the infection prevention & Control Practitioners up to date with the latest knowledge, skills, and strategies for preventing infections who are eventually responsible to provide training & education to targeted Health Care workers (HCWs) according to nature of their work.*
-

Document (D)

Review the following documents:

- **Training program / Annual training plan** that includes the training of targeted healthcare worker on insertion & maintenance of **central line catheter** by implementation of care bundles.
- Training program should encompass all categories of HCWs working in different units according to nature of work. *(Doctors, nurses etc)*
- **Competency assessment** checklist to ensure that all HCWs who have received training are skilled and competent to implement care bundles for the patients with **central line catheter** during insertion & maintenance phases.
- Review the **training content / PPTs** used for education purposes to confirm if it's based on updated latest guidelines.
- Review the electronic dashboard/ tracker to estimate the percentage of staff who have received competency-based training. **Ask for percentage % of coverage.**

Staff Interview (SI)

Interview:

- Ask infection Prevention & control team members about implementation of competency-based education program for insertion & maintenance of **central line catheter** in the hospital.
- Ask about the targeted HCWs & Units included in the competency-based training program.
- Ask about the frequency of training activities to ensure all targeted HCWs have received training at least once per year.
- Ask about the role of nursing & training department in competency-based training program.

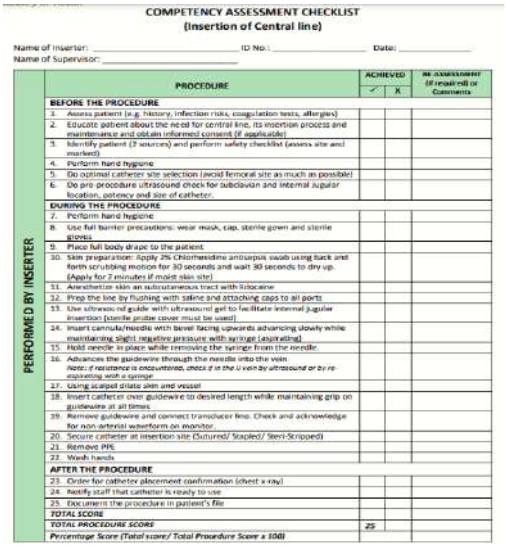
NOTE:

Implementation of four components of **central line catheter Bundle requires** a **multidisciplinary approach involving physicians, nurses, leaders, and experts in infection prevention and intensive care.**

UC insertion & Maintenance Bundle can be implemented in any Inpatient areas where patients with urinary catheter are hospitalized

Components of central line (insertion) bundle:

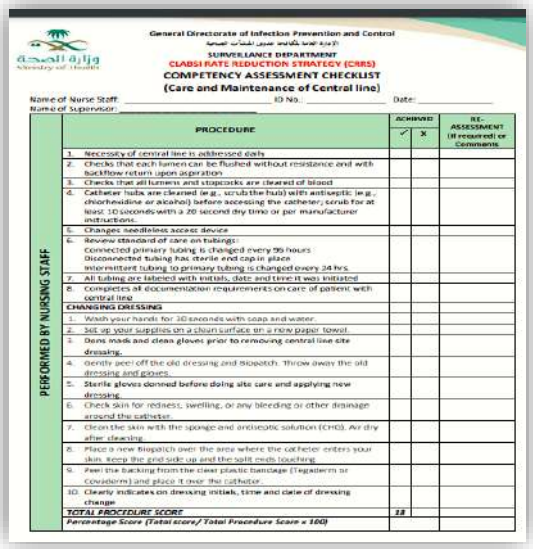
- ***Hand hygiene***
- ***Maximal barrier precautions***
- ***Chlorhexidine skin antisepsis***
- ***Optimal catheter site selection, with subclavian vein as the preferred site for non-tunneled catheters***
- ***Ultrasound guidance to place central venous catheters***



COMPETENCY ASSESSMENT CHECKLIST
(Insertion of Central line)

Name of Inserter: _____ ID No.: _____ Date: _____
Name of Supervisor: _____

	PROCEDURE	ACHIEVED ✓	ACHIEVED X	RE-ASSESSMENT (If required) or Comments
PERFORMED BY INSERTER	**BEFORE THE PROCEDURE**			
	1. Assess patient (e.g. history, infection risks, coagulation tests, allergies)			
	2. Educate patient about the need for central line, its insertion process and maintenance and obtain informed consent (if applicable)			
	3. Identify patient (2 sources) and perform safety checklist (assess site and marked)			
	4. Perform hand hygiene			
	5. Do optimal catheter site selection (avoid femoral site as much as possible)			
	6. Do pre-procedure ultrasound check for subclavian and internal jugular location, patency and size of catheter.			
	DURING THE PROCEDURE			
	7. Perform hand hygiene			
	8. Use full barrier precautions: wear mask, cap, sterile gown and sterile gloves			
	9. Place full body drape to the patient			
	10. Skin preparation: Apply 2% Chlorhexidine antiseptic swab using back and forth scrubbing motion for 30 seconds and wait 30 seconds to dry up. (Apply for 2 minutes if moist skin site)			
	11. Anesthetize skin an subcutaneous tract with lidocaine			
	12. Prep the line by flushing with saline and attaching caps to all ports			
	13. Use ultrasound guide with ultrasound gel to facilitate internal jugular insertion (sterile probe cover must be used)			
	14. Insert cannula/needle with bevel facing upwards advancing slowly while maintaining slight negative pressure with syringe (aspirating)			
	15. Hold needle in place while removing the syringe from the needle.			
	16. Advances the guidewire through the needle into the vein *Note: if resistance is encountered, check if in the U vein by ultrasound or by re-aspirating with a syringe*			
	17. Using scalpel dilate skin and vessel			
	18. Insert catheter over guidewire to desired length while maintaining grip on guidewire at all times			
	19. Remove guidewire and connect transducer line. Check and acknowledge for non-arterial waveform on monitor.			
	20. Secure catheter at insertion site (Sutured/ Stapled/ Steri-Stripped)			
	21. Remove PPE			
	22. Wash hands			
	AFTER THE PROCEDURE			
	23. Order for catheter placement confirmation (chest x-ray)			
	24. Notify staff that catheter is ready to use			
	25. Document the procedure in patient's file			
	TOTAL SCORE			
	TOTAL PROCEDURE SCORE	25		
	Percentage Score (Total score/ Total Procedure Score x 100)			



General Directorate of Infection Prevention and Control
SURVEILLANCE DEPARTMENT
CLABSI RATE REDUCTION STRATEGY (CRRS)
COMPETENCY ASSESSMENT CHECKLIST
(Care and Maintenance of Central line)

Name of Nurse Staff: _____ ID No.: _____ Date: _____
Name of Supervisor: _____

	PROCEDURE	ACHIEVED ✓	ACHIEVED X	RE-ASSESSMENT (If required) or Comments
PERFORMED BY NURSING STAFF	1. Necessity of central line is addressed daily			
	2. Checks that each lumen can be flushed without resistance and with backflow return upon aspiration			
	3. Checks that all lumens and stopcocks are cleared of blood			
	4. Catheter hubs are cleaned (e.g., scrub the hub) with antiseptic (e.g., chlorhexidine or alcohol) before accessing the catheter; scrub for at least 10 seconds with a 20 second dry time or per manufacturer instructions.			
	5. Changes needleless access device			
	6. Review standard of care on tubings: Connected primary tubing is changed every 96 hours Disconnected tubing has sterile end cap in place Intermittent tubing to primary tubing is changed every 24 hrs.			
	7. All tubing are labeled with initials, date and time it was initiated			
	8. Completes all documentation requirements on care of patient with central line			
	CHANGING DRESSING			
	1. Wash your hands for 30 seconds with soap and water.			
	2. Set up your supplies on a clean surface or a new paper towel.			
	3. Dons mask and clean gloves prior to removing central line site dressing.			
	4. Gently peel off the old dressing and Biopatch. Throw away the old dressing and gloves.			
	5. Sterile gloves donned before doing site care and applying new dressing.			
	6. Check skin for redness, swelling, or any bleeding or other drainage around the catheter.			
	7. Clean the skin with the sponge and antiseptic solution (CHG). Air dry after cleaning.			
	8. Place a new Biopatch over the area where the catheter enters your skin. Keep the grid side up and the split ends touching.			
	9. Peel the backing from the clear plastic bandage (Tegaderm or Covaderm) and place it over the catheter.			
	10. Clearly indicates on dressing initials, time and date of dressing change			
	TOTAL PROCEDURE SCORE	10		
	Percentage Score (Total score/ Total Procedure Score x 100)			

C-5.2b	**IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for insertion and maintenance of central catheter lines in critical care units (weekly). (D,O,SI)**
Document (D)	– ***Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goals sheets . bundle forms. and/or elsewhere in the medical record.*** – ***NOTE: This is an "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. (Ref: IHI)*** – ***Daily implementation of patient care bundles is the responsibility of nursing staff of critical care units.*** – ***IPC department hold responsibility to monitor and document HCWs' adherence to recommended practices for insertion and maintenance of Central Lines in critical care units.***

Observation (O)	***Observe:***
	- In critical care & other inpatient locations for the implementation of patient's care bundles for prevention of Central Line Associated Blood stream Infections. **(CLABSI)**
	- Randomly observe patients with central Lines & match information available in patient's files and that provided by nursing staff of concerned unit.
	- **Example:**
	  - *Observe for hand hygiene before and after palpating catheter insertion sites*
	  - *Observe for hand hygiene Before and after inserting, replacing, accessing, repairing, or dressing an intravascular catheter*
	  - *Observe for optimal site selection of central line insertion --- Assess which site is frequently used -* ***Subclavian is the preferred & femoral the least choice with more risk of CLABSI.***
	  - *Observe if Maximal barrier precautions are applied during CL insertion*. ***(if there is chance to observe real situation)***

Review:

During audit round of critical care units i.e ICU ,NICU PICU etc

- Review the patient files to check for daily review of ***Central Lines bundle***s impelmented for targeted patients in critical care units ***(ICU, NICU & Burn Units, surgical units etc.)***
- Review the ICPs data collection sheets for insertion & maintenance bundles and ensure validation of data collected from Critical Care units at least **weekly**.
- Check if data is complete for all critical care units where Central Line Bundle of care is implemented.

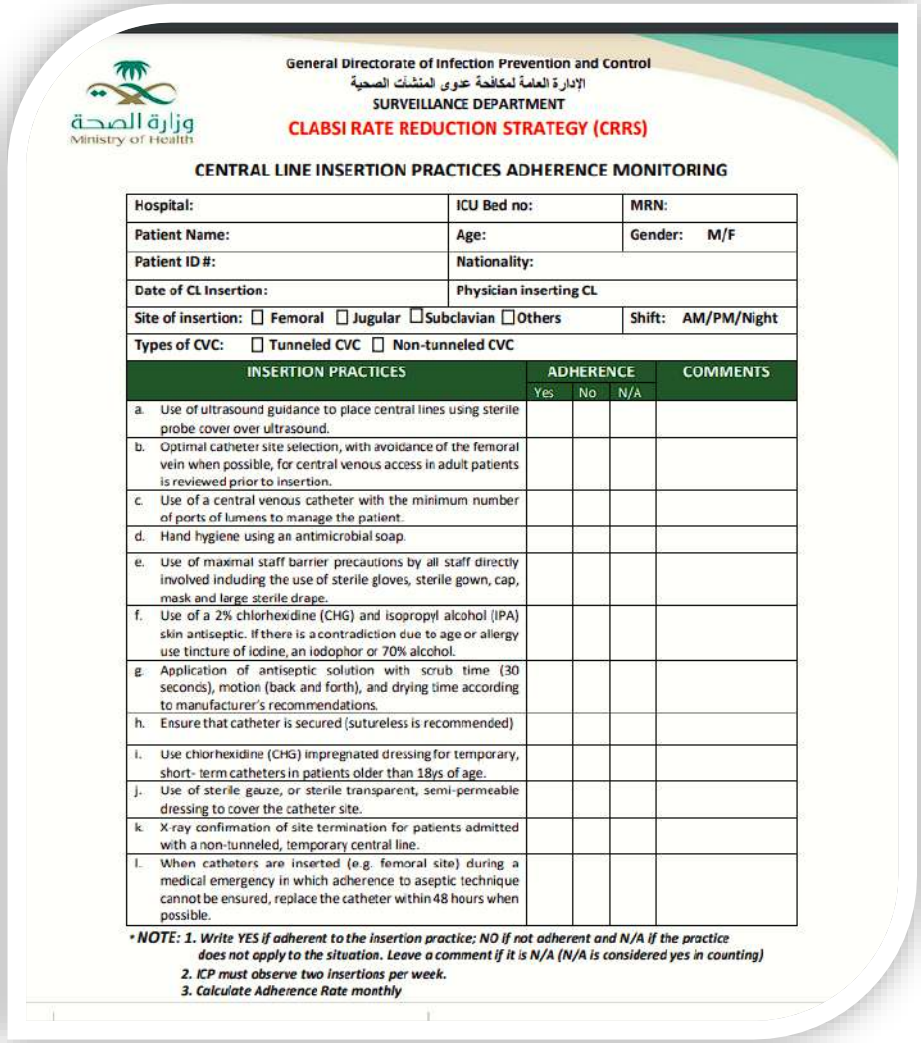
Staff Interview (SI)

Interview Infection Prevention & Control Practitioners:

- Ask how the data regarding Central Line Catheter insertion & maintenance bundles for targeted patients is collected in critical care units, documented and validated.
- Bundle review has to be started for every patient on Central Line Catheter in the critical care units and other areas where applicable.
- Ask ICPs how frequently they are doing rounds to check for compliance with **CL maintenance** bundle elements. ***Must be done at least weekly but all patients with Central Line must be reviewed for HCWs adherence to recommended practices for CL maintenance bundle.***
- Ask about the monitoring of **CL insertion practices** and what is the mechanism followed. ***(Nursing staff in critical care units MUST call IPC practitioners to observe at least 2 Central Line insertion practice in week using an observer checklist.***

NOTE: A checklist may be a helpful tool for staff at the time of insertion and may also serve as a data collection tool to assess compliance.

- Randomly ask about elements of CL care bundles and how they will be implemented.
- Assess if the ICPs are familiarized with **all or none principle** for bundle compliance.



General Directorate of Infection Prevention and Control
الإدارة العامة لمكافحة عدوى المنشآت الصحية
SURVEILLANCE DEPARTMENT

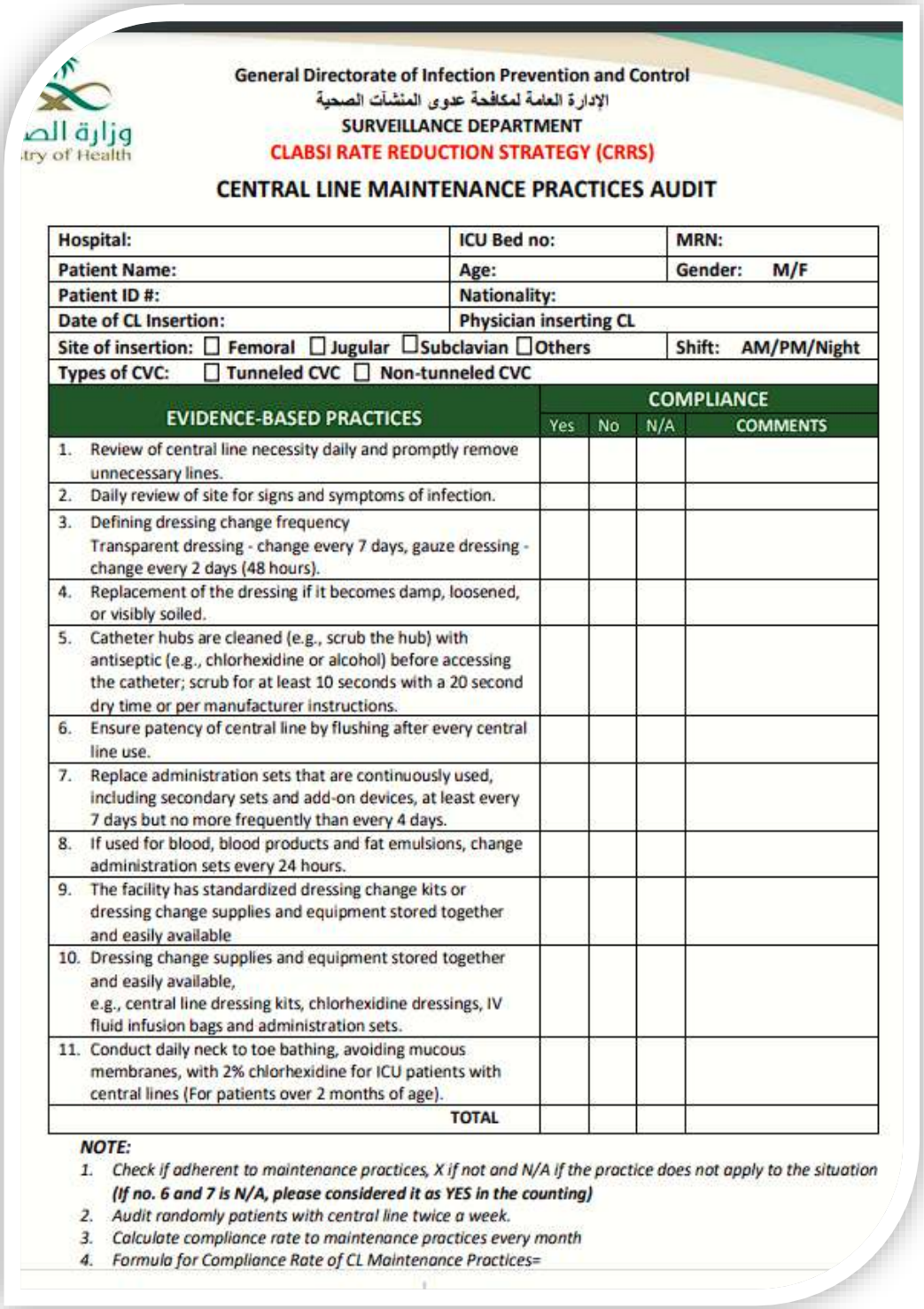
CLABSI RATE REDUCTION STRATEGY (CRRS)

CENTRAL LINE INSERTION PRACTICES ADHERENCE MONITORING

Hospital:	**ICU Bed no:**	**MRN:**
Patient Name:	**Age:**	**Gender: M/F**
Patient ID #:	**Nationality:**	
Date of CL Insertion:	**Physician inserting CL**	
Site of insertion: ☐ Femoral ☐ Jugular ☐ Subclavian ☐ Others		**Shift: AM/PM/Night**
Types of CVC: ☐ Tunneled CVC ☐ Non-tunneled CVC		

INSERTION PRACTICES	ADHERENCE			COMMENTS
	Yes	No	N/A	
a. Use of ultrasound guidance to place central lines using sterile probe cover over ultrasound.				
b. Optimal catheter site selection, with avoidance of the femoral vein when possible, for central venous access in adult patients is reviewed prior to insertion.				
c. Use of a central venous catheter with the minimum number of ports of lumens to manage the patient.				
d. Hand hygiene using an antimicrobial soap.				
e. Use of maximal staff barrier precautions by all staff directly involved induding the use of sterile gloves, sterile gown, cap, mask and large sterile drape.				
f. Use of a 2% chlorhexidine (CHG) and isopropyl alcohol (IPA) skin antiseptic. If there is a contradiction due to age or allergy use tincture of iodine, an iodophor or 70% alcohol.				
g. Application of antiseptic solution with scrub time (30 seconds), motion (back and forth), and drying time according to manufacturer's recommendations.				
h. Ensure that catheter is secured (sutureless is recommended)				
i. Use chlorhexidine (CHG) impregnated dressing for temporary, short- term catheters in patients older than 18ys of age.				
j. Use of sterile gauze, or sterile transparent, semi-permeable dressing to cover the catheter site.				
k. X-ray confirmation of site termination for patients admitted with a non-tunneled, temporary central line.				
l. When catheters are inserted (e.g. femoral site) during a medical emergency in which acherence to aseptic technique cannot be ensured, replace the catheter within 48 hours when possible.				

NOTE: 1. Write YES if adherent to the insertion practice; NO if not adherent and N/A if the practice does not apply to the situation. Leave a comment if it is N/A (N/A is considered yes in counting)
2. ICP must observe two insertions per week.
3. Calculate Adherence Rate monthly



General Directorate of Infection Prevention and Control
الإدارة العامة لمكافحة عدوى المنشآت الصحية
SURVEILLANCE DEPARTMENT
CLABSI RATE REDUCTION STRATEGY (CRRS)

CENTRAL LINE MAINTENANCE PRACTICES AUDIT

Hospital:	**ICU Bed no:**	**MRN:**
Patient Name:	**Age:**	**Gender: M/F**
Patient ID #:	**Nationality:**	
Date of CL Insertion:	**Physician inserting CL**	
Site of insertion: ☐ Femoral ☐ Jugular ☐ Subclavian ☐ Others		**Shift: AM/PM/Night**
Types of CVC: ☐ Tunneled CVC ☐ Non-tunneled CVC		

EVIDENCE-BASED PRACTICES	COMPLIANCE			
	Yes	No	N/A	COMMENTS
1. Review of central line necessity daily and promptly remove unnecessary lines.				
2. Daily review of site for signs and symptoms of infection.				
3. Defining dressing change frequency Transparent dressing - change every 7 days, gauze dressing - change every 2 days (48 hours).				
4. Replacement of the dressing if it becomes damp, loosened, or visibly soiled.				
5. Catheter hubs are cleaned (e.g., scrub the hub) with antiseptic (e.g., chlorhexidine or alcohol) before accessing the catheter; scrub for at least 10 seconds with a 20 second dry time or per manufacturer instructions.				
6. Ensure patency of central line by flushing after every central line use.				
7. Replace administration sets that are continuously used, including secondary sets and add-on devices, at least every 7 days but no more frequently than every 4 days.				
8. If used for blood, blood products and fat emulsions, change administration sets every 24 hours.				
9. The facility has standardized dressing change kits or dressing change supplies and equipment stored together and easily available				
10. Dressing change supplies and equipment stored together and easily available, e.g., central line dressing kits, chlorhexidine dressings, IV fluid infusion bags and administration sets.				
11. Conduct daily neck to toe bathing, avoiding mucous membranes, with 2% chlorhexidine for ICU patients with central lines (For patients over 2 months of age).				
TOTAL				

NOTE:

1. *Check if adherent to maintenance practices, X if not and N/A if the practice does not apply to the situation* ***(If no. 6 and 7 is N/A, please considered it as YES in the counting)***
2. *Audit randomly patients with central line twice a week.*
3. *Calculate compliance rate to maintenance practices every month*
4. *Formula for Compliance Rate of CL Maintenance Practices=*

C-5.2c	**IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance in insertion and maintenance of central catheter lines regularly and corrective actions are applied accordingly. (D, SI)**
Document (D)	***Review: (in Infection Control Department)*** – Bundle forms for the prevention of **Central Line Associated Blood Stream Infections (CLABSI)** – Bundle forms should be standardized adopted based on *GDIPC updated guidelines.* – *Review* ***Central line Bundle Compliance Rates*** ***(Monthly compliance report & Trended Analysis over months)*** – Ask for document for corrective actions & Improvement projects (If any) – Check for any evidence that the data on Urinary catheter bundle compliance ***(performance of healthcare workers in critical care units on insertion and maintenance of urinary catheters*** was shared e.g ***via– emails, formal individual feedback or other channels of communication.***

Data Analysis: (Central Line Bundle Compliance):

FORMULA:

Central Line Bundle Compliance = (Number of patients on central line who have received all elements of the CL Bundle/ Total number of patients with central line reviewed for bundle compliance) x 100

(Calculate Bundle compliance for individual element would guide towards targeted corrective interventions in case of low compliance).

Analysis of data:

$$\text{Central line maintenance bundle compliance} = \frac{\text{Patients with central line compliant to all applicable bundle components}}{\text{Total number of patients with central line reviewed for the bundle compliance}} \times 100$$

Staff Interview (SI)	***Interview:*** – *Ask IPC team about the data analysis about how to analyze data CL insertion & maintenance bundle.* – *Ask about the feedback mechanism to HCWs in critical care units.* – *Ask about the corrective interventions if CL bundle compliance is low.* *e.g retraining & education of HCWs with competency assessment, availability of supply needed in case of shortage e.g CL insertion kits, Chlorhexidine swabs, CL dressing kits, CL transparent dressings etc* – *During audit visit ask nursing head about the feedback on CL bundle compliance received from IPC department.* ***(Email, display on bulletin board, formal report in hard version etc)***
C-5.2d	**Central line catheter insertion is performed under ultrasound guidance with complete aseptic technique including antimicrobial handwashing, & use of maximum barrier precautions (sterile gloves, mask, sterile gown, and sterile full body drape).. (D, O, SI)**
Document (D)	***Review:*** – *During audit visit of critical care units check the Central line catheter insertion checklist for all patients on Central line* – *Check if insertion checklist is complete with all relevant information.*
OBSERVATION (O)	***Observe:*** – *Implementation of the care bundle for prevention of* ***CLABSI*** *in Critical Care Areas.* – *Observe if there is dedicated* ***ultrasound machine*** *available for insertion of central line under ultrasound guidance.* – *Observe if staff are following complete aseptic technique including antimicrobial handwashing, & use of maximum barrier precautions (sterile gloves, mask, sterile gown, and sterile full body drape) during CL insertions.* ***(If possible, to observe real situation***
Staff Interview (SI)	***Interview:*** ***Staff in Critical Care areas & inpatient locations:*** – To confirm in-depth understanding and implementation of care bundle for prevention of Central Line Associated infections (CLABSI) – Ask staff at random about elements of CL insertion Bundle. – Ask about the last training and education on **CL insertion** received from IPC department.

- Ask about the availability of all needed supply for implementation of UC insertion bundle. ***(e.g CL Insertion kits, sterile drapes, Sterile probe cover, CHG swab sticks, transparent dressing etc).***
- Ask staff to perform antimicrobial handwashing & don surgical gloves.
- Ask about aseptic technique and maintenance of sterile field during insertion.

Give specific task to any nursing staff on how to prepare for CL insertion as assistant to physician during central line insertion.

Maximal barrier Precautions:

For the Provider:

- *Non-sterile cap and mask*
- *All hair should be under cap*
- *Mask should cover nose and mouth tightly*
- *Sterile gown and gloves*

For the Patient:

- *Cover patient's head and body with a larg*
- *sterile drape (use more than one if needed for patients with large body size*

C-5.2e Preparation of the skin site with an alcoholic chlorhexidine solution, and use of transparent chlorhexidine impregnated dressing. (D, O, SI)

Document (D)

Review:

- *During audit visit of critical care units review the CL insertion & CL maintenance checklists for randomly selected patients on central lines & verify the evidence for the following:*
  - *Preparation of skin with an alcoholic chlorhexidine solution before Central Line insertion.*
  - *Type of dressing being used (Transparent chlorhexidine Impregnated or gauze dressing.)*
- *Check if documentation is complete with all relevant information.*

OBSERVATION (O)	***Observe:*** – *Implementation of the care bundle for prevention of central line in Critical Care Areas.* – *Randomly visit patients with Central line catheter & observe the type of dressing being used.* – *Check if the dressing is appropriately labelled.* – *Observe if dressing is soiled, dampened, loosened* – *Observe if staff are following aseptic technique and required PPE during maintenance phase – Dressing removal and placement of new dressing. etc* – *Observe if skin preparation is done before CL insertion in order to avoid bacterial contamination via skin. (If chance to observe a real scenario)*
Staff Interview (SI)	***Interview:*** ***Staff in Critical Care areas & inpatient locations:*** – To confirm in-depth understanding and implementation of care bundle for prevention of **Central Line Associated Blood Stream infections (CLABSI).** – Ask staff at random about elements of CL insertion Bundle. – Ask about the last training and education on CL insertion & maintenance received from IPC department. – Ask about the availability of all needed supply for implementation of CL insertion & maintenance bundle. ***(e.g chlorhexidine impregnated transparent dressing e.g tegaderm. alcoholic chlorhexidine solution, Chlorhexidine swab sticks).*** – Ask staff about frequency of changing the transparent dressing.? – Ask staff to simulate how to change transparent dressing on a patient with central line following all protocls of aseptic technique. **Proper dressing choice:** Use transparent semipermeable dressing Use gauze only if the site is bleeding or oozing **Proper frequency of dressing change:** Replace transparent dressing every 7 days Replace gauze dressing every 48 hours Replace immediately any dressing that is soiled, dampened, or loosened

Chlorhexidine skin antisepsis:

– *Chlorhexidine skin antisepsis has been proven to provide better skin antisepsis than other antiseptic agents such as povidone-iodine solutions.*

The technique, for most kits, is as follows:

· *Prepare skin with antiseptic/detergent chlorhexidine 2% in 70% isopropyl alcohol (according to IHI recommendations).*
· *Pinch wings on the chlorhexidine applicator to break open the ampule (when ampule is included). Hold the applicator down to allow the solution to saturate the pad.*
· *Press sponge against skin, and apply chlorhexidine solution using a back-and forth friction scrub for at least 30 seconds. Do not wipe or blot.*
· *Allow antiseptic solution time to dry completely before puncturing the site (~ 2 minutes)*

C-5.2 f	**Nursing staff scrub the access port or hub with friction immediately prior to each use with an appropriate approved antiseptic for at least 15 seconds.** **(D, O, SI)**
Document	***Review:*** - During audit visit of critical care units i.e ICU. NICU, PICU etc review the CL maintenance checklists for randomly selected patients on central lines & verify the evidence for the following: - *Catheter hubs are cleaned **(e.g., scrub the hub)** with antiseptic (e.g., chlorhexidine or alcohol) before accessing the catheter; scrub for at least 15 seconds with a 15 seconds dry time or per manufacturer instructions.* - *Check if appropriately documented in patient's file. (i.e., in maintenance bundle checklist)*
OBSERVATION (O)	***Observe:*** - During audit round of critical care areas observe the patients with Central Lines & assess the staff practice. - Observe if the nursing staff are compliant with scrubbing the access port or hub with friction immediately prior to each use with an appropriate approved antiseptic for at least 15 seconds.
Staff Interview (SI)	***Interview:*** ***<u>Staff in Critical Care areas & inpatient locations:</u>*** - To confirm in-depth understanding and implementation of care bundle for prevention of **Central Line Associated Blood Stream infections (CLABSI).** - Ask staff at random about elements of CL maintenance Bundle. - Ask about importance of scrubbing the access port or hub with friction immediately prior to each use with an appropriate approved antiseptic. - Ask about the last training and education on CL insertion & maintenance received from IPC department. - Ask about the availability of all needed supply for implementation of CL maintenance bundle. ***(e.g alcohol swabs to be used for scrubbing).*** - Ask about the drying time after scrubbing hub for 15 seconds.

C-5.2g	Nursing staff review daily the ongoing need of central venous catheter and the possibility of discontinuation with the treating physician (D, SI)
Document (D)	***Daily review of line necessity:*** **Goal: Reduce central line days** - ***Include daily review of line necessity in multidisciplinary rounds*** - ***Remove promptly when no longer needed*** - ***Many times, central lines remain in place simply because they provide reliable access and because personnel have not considered removing them.*** ***Review:*** - *During audit visit of critical care units check the CL maintenance checklist for all patients on urinary catheter.* - *Check the patient files to confirm if daily review/ assessment of Central line need was done with documentation in patient files and checklist. Verify if nursing staff discussed the ongoing need of central venous catheter with treating physician. Review the physician's daily progress notes and check for comments* ***(Removal or Continuation of central venous catheter***
Staff Interview (SI)	***Interview:*** ***Staff in Critical Care areas & inpatient locations:*** - Ask about the importance of daily review for the Central line need and benefits of early removal. - *Randomly ask staff to open file of any patient on* Central line *and check the physician notes for removal or discontinuation of CL catheter and confirm if instructions are being followed.*

Element # C-5

PATIENT'S CARE BUNDLES FOR PREVENTION OF HAIS & MDROs

C - 5.3	**There is a written policy and procedure concerning patient's care bundles for prevention of VAEs.**
C-5.3 a	**Hospital has a competency-based training program for prevention of VAEs.**
C-5.3 b	**IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for management of ventilated patients in critical care units (weekly).**
C-5.3 c	**IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance for management of ventilated patients regularly and corrective actions are applied accordingly.**
C-5.3 d	**Hospital applies bundle of care for management of ventilated patients includes elevation of the head of the bed to between 30 and 45 degrees, daily sedative interruption with assessment of readiness to extubate, peptic ulcer prophylaxis, deep venous thrombosis prophylaxis, and daily oral care with appropriate antiseptic solution.**

C - 5.3	**There is a written policy and procedure concerning patient's care bundle for prevention of VAE. (D)**
Document (D)	- *Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.* - *Bundle is an implementation tool aiming to improve the care process and patient outcomes in a structured manner. It comprises a small, straightforward set of evidence-based practices (generally 3 to 5) that have been proven to improve patient outcomes when performed collectively and reliably.* - *Ventilator bundle is a group of evidence-based interventions for patients with ventilator that, when implemented together, result in better outcomes than when implemented individually.* ***Review:*** ***Policies & Procedures for prevention of Ventilator Associated Events (VAE) incorporating care bundles which should be:*** ***1: Comprehensive:*** *It should include details about the procedures to ensure strict adherence to infection control measures order to prevent* ***Ventilator Associated Events (VAE)*** ***Policy should include but not limited to:*** – Policies should clearly describe procedures with rationale of each bundle element. – Setting: P/P should clearly describe applicability of Ventilator bundle according to location (critical care units – The policies and procedures should define how data on care bundles will be collected, analyzed, interpreted, and disseminated with necessary correction actions when needed. ***(Find details under specific sub element etc.)*** – P/P should define Roles and responsibilities of concerned unit in implementation of health care bundles e.g - *Daily review is the responsibility of assigned staff of critical care units for all devices.* - *Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.* - *For* ***MOH*** *hospitals reporting via* ***National Electronic Surveillance Platform****, policies & Procedure should be tailored accordingly.* ***Other domains of Policies & procedures, P/P for Care Bundles should be:*** – ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services – ***Based on scientific references*** ***approved by MOH.*** **(IHI & CDC Surveillance guidelines).** – ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department) – ***Approved*** by IC committee – ***Valid*** (updated within 2 - 3 years and when indicated. ***NOTE:*** ***Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change.***

C-5.3a	**Hospital has a competency-based training program for prevention of VAE. (D, SI)**
Document (D)	– *Competence implies an expert level of knowledge and skill that is transferrable to the practice of infection prevention and control.* – *Core competencies are necessary to ensure that the healthcare workers has a set of basic skills to integrate into any practice setting.* – *Professional development is essential to keeping the infection prevention & Control Practitioners up to date with the latest knowledge, skills, and strategies for preventing infections who are eventually responsible to provide training & education to targeted Health Care workers (HCWs) according to nature of their work.* – **Review the following documents:** – **Training program / Annual training plan** that includes the training of targeted healthcare worker on ventilator Bundle. – Training program should encompass all categories of HCWs working in different units according to nature of work. *(Doctors, nurses etc)* **Competency assessment** checklist to ensure that all HCWs who have received training are skilled and competent to implement care bundles for the patients on ventilator in order to prevent VAE/VAP. – Review the **training content / PPTs** used for education purposes to confirm if it's based on updated latest guidelines. – Review the electronic dashboard/ tracker to estimate the percentage of staff who have received competency-based training. **Ask for percentage % of coverage.**

Staff Interview (SI)

Interview:

- Ask infection Prevention & control team members about implementation of competency-based education program for healthcare workers on ventilator bundle.
- Ask about the targeted HCWs & Units included in the competency-based training program.
- Ask about the frequency of training activities to ensure all targeted HCWs have received training at least once per year.
- Ask about the role of nursing & training department in competency-based training program.

NOTE:

Implementation of four components of **Ventilator Bundle requires** a **multidisciplinary approach involving physicians, nurses, leaders, and experts in infection prevention and intensive care.**

Components of ventilator bundle:

* ***Elevation of the head of the bed to between 30 and 45 degrees***
* ***Daily "sedative interruption" & daily assessment of readiness to extubate***
* ***Peptic ulcer disease (PUD) prophylaxis***
* ***Deep venous thrombosis (DVT) prophylaxis (unless contraindicated)***
* ***Daily oral care with appropriate antiseptic solution***

C-5.3b	**IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for management of ventilated patients in critical care units (weekly). (D, O,SI)**
Document (D)	– ***Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goals sheets . bundle forms. and/or elsewhere in the medical record.*** – ***NOTE: This is an "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. (Ref: IHI)*** – ***Daily implementation of patient care bundles is the responsibility of nursing staff of critical care units.*** – ***IPC department hold responsibility to monitor and document HCWs' adherence to recommended practices for the insertion of ventilators in critical care units.*** ***Review:*** ***During audit round of critical care units i.e ICU, NICU PICU etc*** - Review the patient files to check for daily review of ***ventilator bundle*** implemented for all patients on ventilator in critical care units. - Review the ICPs data collection sheets for maintenance bundles and ensure validation of data collected from Critical Care units at least **weekly**. – Real contraindication should be clearly documented *e.g. No Head elevation in case cervical injury and contraindication of DVT prophylaxis in certain conditions*. - Ensure daily review is done for patient since day 1 of patient on Ventilator. - Check if data is complete for all critical care units where Ventilator Bundle of care is implemented.

Observation (O)

Observe:

- In critical care units for the implementation of patient's care bundles for prevention of Ventilator Associated Events (VAE) & VAP.
- Randomly observe patients on ventilator & match information available in patient's files and that provided by nursing staff of concerned unit.

Example:

- *Observe for Elevation of the head of the bed.* ***The recommended elevation is 30-45 degrees.***
- *Observe for hand hygiene before manipulation of patients on ventilator.*
- *Observe availability of appropriate antiseptic solution used for daily Oral Care etc.*

Staff Interview (SI)

Interview Infection Prevention & Control Practitioners:

- Ask how the data regarding Ventilator bundle for targeted patients is collected in critical care units, documented and validated.
- Bundle review has to be started for every patient on ventilator in the critical care units.
- Ask ICPs how frequently they are doing rounds to check for compliance with **ventilator** bundle elements. ***Must be done at least weekly but all patients on ventilator*** must ***be reviewed on date of visit by IPC.***
- Randomly ask about elements of Ventilator care bundles and how they will be implemented.
- Assess if the ICPs are familiarized with **all or none principle** for bundle compliance.

C-5.3c

IPC department provides compliance audit feedback to the critical care unit's HCWs regarding their performance for management of ventilated patients regularly and corrective actions are applied accordingly. (D, SI)

Document (D)

Review: (in Infection Control Department)

- Bundle forms for the prevention of **Ventilator Associated Events (VAE) & VAP.**
- Bundle forms should be standardized adopted based on *GDIPC updated guidelines.*

- *Review* ***Ventilator Bundle Compliance Rates*** ***(Monthly compliance report & Trended Analysis over months)***
- Ask for document for corrective actions & Improvement projects (If any)
- Check for any evidence that the data on **Ventilator** bundle compliance & performance of healthcare workers in critical care units on insertion and maintenance of ventilator was shared ***e.g. via– emails, formal individual feedback or other channels of communication.***

Data Analysis: (Ventilator Bundle Compliance):

FORMULA:

Ventilator Bundle Compliance = (Number of patients on Ventilator who have received all elements of the ventilator Bundle/ Total number of patients on ventilator reviewed for bundle compliance) x 100

(Calculate Bundle compliance for individual element would guide towards targeted corrective interventions in case of low compliance).

Staff Interview (SI)

Interview:

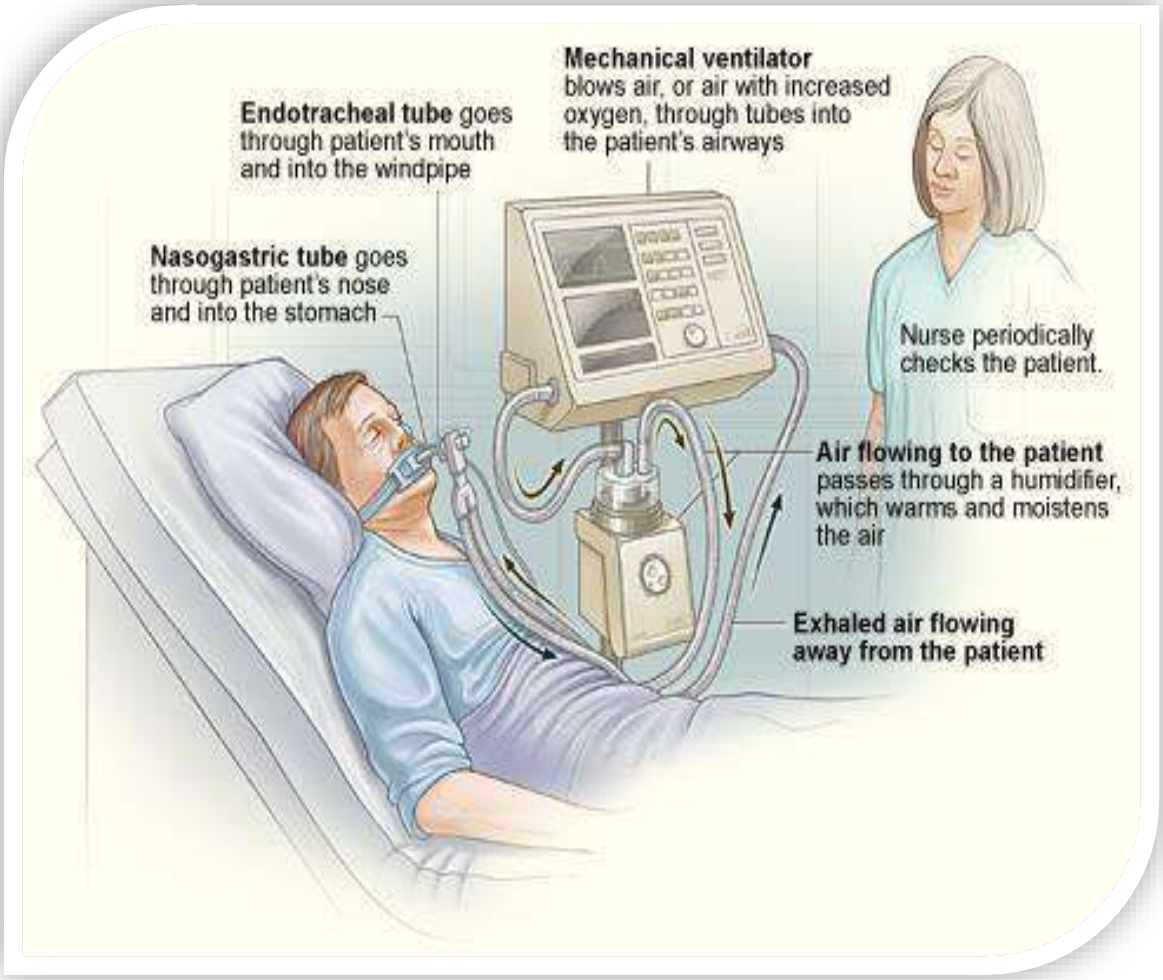
- *Ask IPC team about the data analysis regarding ventilator Bundle.*
- *Ask about the feedback mechanism to HCWs in critical care units.*
- *Ask about the corrective interventions if ventilator bundle compliance is low.*
  e.g retraining & education of HCWs with competency assessment, availability of supply needed in case of shortage e.g chlorhexidine mouth was for oral care of ventilated patients.
- *During audit visit ask nursing head about the feedback on ventilator bundle compliance received from IPC department.*
  (Email, display on bulletin board, formal report in hard version etc)

C-5.3d	**Hospital applies bundle of care for management of ventilated patients includes elevation of the head of the bed to between 30 and 45 degrees, daily sedative interruption with assessment of readiness to extubate, peptic ulcer prophylaxis, deep venous thrombosis prophylaxis, and daily oral care with appropriate solution.** **(D, O, SI)**
Document (D)	***Review:*** – *During audit visit of critical care units check the ventilator Bundle checklist for all patients on ventilator.* – *Check if checklist is complete with all relevant information.*
Observation (O)	***Observe:*** * *Implementation of the care bundle for prevention of **VAE** in Critical Care Areas.* o *Observe for Elevation of the head of the bed. **The recommended elevation is 30-45 degrees.*** o *Observe for hand hygiene before manipulation of patients on ventilator.* o *Observe availability of appropriate antiseptic solution used for daily Oral Care etc.*
Staff Interview (SI)	***Interview:*** ***Staff in Critical Care areas & inpatient locations:*** – To confirm in-depth understanding and implementation of care bundle for prevention of **Ventilator Associated Events (VAE)**. – Ask staff at random about elements of ventilator Bundle. – Ask about the last training and education on **ventilator Bundle** received from IPC department. – Ask about the availability of all needed supply for implementation of **ventilator Bundle. e.g. appropriate antiseptic solution for oral care etc.** **Give specific task to any nursing staff on how to provide oral care for ventilated patients.**

Elements of Ventilator Bundle:

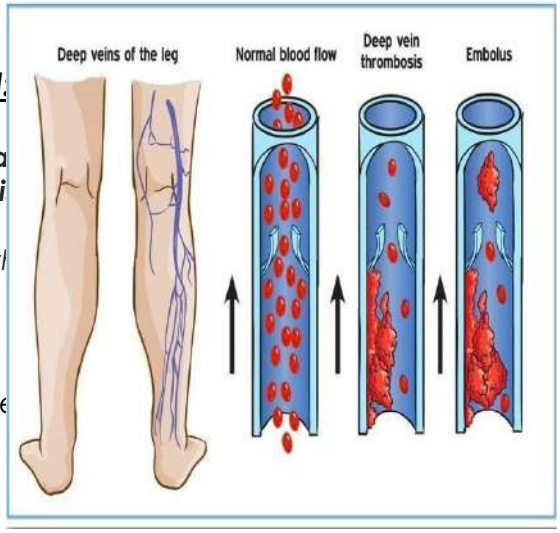
a. ***Elevate the head of the bed to 30-45 degrees.***
b. ***Provide a daily sedation vacation and assess the readiness to extubate.***
c. ***Provide peptic ulcer disease prophylaxis.***
d. ***Provide deep vein thrombosis prophylaxis (unless contraindicated)***
e. ***Provide oral care using with appropriate antiseptic solution.***

1. ***<u>Elevate the head of the bed to 30-45 degrees:</u>***
    a. ***Reduces potential for aspiration***
    b. ***Potential to improve ventilation***



2. ***Provide a daily sedation vacation and assess the readiness to extubate:***
   - ***Has been demonstrated to reduce overall patient sedation***
   - *Promotes early weaning*
3. ***Provide peptic ulcer disease prophylaxis:***
   - *Patients with respiratory failure have an increased risk of "stress ulcers" and associated GI bleeding.*
   - ***Acid-suppressive therapy (H2 blockers, sucralfate, PPI) decrease the risk of GI bleeding***
4. ***Provide deep vein thrombosis prophylaxis (unless contraindicated)***
   - ***Patients with respiratory failure have a increased risk of deep vein thrombosi***
   - ***Treatment with anticoagulants (e.g., heparin)*** *has been shown to reduce t risk and the potential* ***for pulmonary emboli***
5. ***Daily oral care.***
   Daily oral care with appropriate antise solution.

Sedation vacation



- **Dental plaque develops in patients that are mechanically ventilated because of the lack of mechanical chewing and the absence of saliva, which minimizes the development of biofilm on the teeth.**
- ***Dental plaque can be a significant reservoir for potential respiratory pathogens that cause ventilator- associated pneumonia (VAP).***

Oral care with appropriate antiseptic solution.

وزارة الصحة
Ministry of Health

Element # C-5

PATIENT'S CARE BUNDLES FOR PREVENTION OF SSIs

C - 5.4	There is a written policy and procedure concerning patient's care bundles for the prevention of surgical site infections (SSIs)
C-5.4a	Hospital has a competency-based training program for surgical care improvement including surgical site infections prevention care bundle (preoperative, Intraoperative & post operative phases).
C-5.4b	IPC practitioners regularly conduct auditing round to monitor and document adherence to recommended practices for surgical site infection prevention care bundles (weekly).
C-5.4c	IPC department provides compliance audit feedback to the surgical HCWs regarding their performance in surgical site infections prevention care bundle regularly and corrective actions are applied accordingly.
C-5.4d	Hospital applies bundle of care for prevention of surgical site infections including proper antimicrobial prophylaxis (selection, timely administration and timely discontinuation), no preoperative hair removal or use of electric hair clippers if hair removal is necessary, immediate post operative control of blood glucose levels in all patients, maintaining perioperative normothermia, use appropriate antiseptic solution.

C - 5.4 There is a written policy and procedure concerning patient's care bundles for the prevention of surgical site infections (SSIs)(D)

Document (D)

- *Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.*
- *Bundle is an implementation tool aiming to improve the care process and patient outcomes in a structured manner. It comprises a small, straightforward set of evidence-based practices (generally 3 to 5) that have been proven to improve patient outcomes when performed collectively and reliably.*
- ***Surgical bundle**: The surgical bundle is a group of evidence-based interventions for patients undergoing surgery that, when implemented together, result in better outcomes (reduce SSI) than when implemented individually.*

Review:

Policies & Procedures for prevention of surgical site infections (SSIs) incorporating care bundles which should be:

1: Comprehensive: *It should include details about the procedures to ensure strict adherence to infection control measures during* surgical Procedure.

Policy should include but not limited to:

- Policies should clearly describe procedures with rationale of each bundle element.
- Setting: P/P should clearly describe applicability of ***Surgical bundle*** according to location ***(Pre & Post Op surgical wards, OR) etc.***
- The policies and procedures should define how data on care bundles will be collected, analyzed, interpreted, and disseminated with necessary correction actions when needed. ***(Find details under specific sub element etc.)***
- P/P should define Roles and responsibilities of concerned unit in implementation of health care bundles e.g.
  - *Implementation of surgical bundle is the shared responsibility of concerned departments during **preoperative. Intraoperative & post operative phases.***
  - *Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.*
  - *For **MOH** hospitals reporting via **National Electronic Surveillance Platform**, policies & Procedure should be tailored accordingly*

Other domains of Policies & procedures, P/P for Care Bundles should be:

- ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services
- ***Based on scientific references approved by MOH.* (IHI & CDC Surveillance guidelines).**
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IC committee
- ***Valid*** (updated within 2 - 3 years and when indicated.

NOTE:

Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change.

C-5.4a	**Hospital has a competency-based training program for surgical care improvement including surgical site infections prevention care bundle (preoperative, Intraoperative & post operative phases). (D, SI)**
Document (D)	– *Competence implies an expert level of knowledge and skill that is transferrable to the practice of infection prevention and control.* – *Core competencies are necessary to ensure that the healthcare workers has a set of basic skills to integrate into any practice setting.* – *Professional development is essential to keeping the infection prevention & Control Practitioners up to date with the latest knowledge, skills, and strategies for preventing infections who are eventually responsible to provide training & education to targeted Health Care workers (HCWs) according to nature of their work.* **Review the following documents:** – **Training program / Annual training plan** that includes the training of targeted healthcare worker on **surgical bundle** for improving surgical care for the patients who will be undergoing various surgical procedures. – Competency-based training program for **surgical bundle** must incorporate **preoperative, Intraoperative & post operative phases of surgical care.** – Training program should encompass all categories of HCWs working in different units according to nature of work. OR, Surgical wards. *(Surgeons, anesthesiologists, nurses etc.)* **Competency assessment** checklist should be used to ensure that all HCWs who have received training are skilled and competent to implement care bundles for the prevention of **surgical site infections (SSIs)** – Review the **training content / PPTs** used for education purposes to confirm if it's based on updated latest guidelines. – Review the electronic dashboard/ tracker to estimate the percentage of staff who have received competency-based training. **Ask for percentage % of coverage.**

Staff Interview (SI)

Interview:

- Ask infection Prevention & control team members about implementation of competency-based education program for prevention of **surgical site infections (SSIs)** in the hospital.
- Ask about the targeted HCWs & Units included in the competency-based training program.
- Ask about the frequency of training activities to ensure all targeted HCWs have received training at least once per year.
- Ask about the role of nursing & training department in competency-based training program.

NOTE:

Implementation of all elements of surgical bundle requires a **multidisciplinary approach involving surgeons, nurses, leaders, and experts in infection prevention and surgical care.**

Surgical Bundle need to be implemented for each patient undergoing surgical procedure in the hospital.

Components of surgical bundle:

1- Appropriate use of prophylactic antibiotics:

Selection

Timely administration

Timely discontinuation

2- Appropriate hair removal

3- Immediate post operative control of blood glucose level in all patients.

4- Maintain the normothermia during the peri operative period.

5-Use appropriate antiseptic solution

C-5.4b	**IPC practitioners regularly conduct auditing round to monitor and document adherence to recommended practices for surgical site infection prevention care bundles (weekly). (D,SI)**
Document (D)	– ***Strict adherence to recommended practices is of utmost importance for prevention of surgical site infections in patients undergoing surgical procedures.*** – ***Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goals sheets . bundle forms. and/or elsewhere in the medical record.*** – ***NOTE: This is an "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. (Ref: IHI)*** – ***Daily implementation of patient care bundles is the responsibility of nursing staff Surgical unit staff.*** – ***IPC department hold responsibility to monitor and track implementation of surgical bundle in all relevant units.*** ***Review:*** ***During audit round of surgical wards, OR etc.*** - Review the patient files to check for implementation of **Surgical bundle** for all patients undergoing any surgical procedure in the hospital. - Review the ICPs data collection sheets for surgical bundle implementation. - ICPs should ensure validation of data collected from surgical wards etc. at least **weekly**. - Ensure data is complete for all domains of surgical bundle *(preoperative, Intraoperative & post operative phases).*
Staff Interview (SI)	***Interview Infection Prevention & Control Practitioners:*** - Ask how the data regarding surgical bundle for targeted patients is collected in Surgical care units, documented and validated. Bundle review has to be started for every patient any surgical procedure in the hospital. - Ask ICPs how frequently they are doing rounds to check for compliance with **surgical** bundle elements. - Randomly ask about elements of surgical bundles and how they will be implemented. - Assess if the ICPs are familiarized with **all or none principle** for bundle compliance.

C-5.4c	**IPC department provides compliance audit feedback to the surgical HCWs regarding their performance in surgical site infections prevention care bundle regularly and corrective actions are applied accordingly. (D, SI)**
Document (D)	***Review: (in Infection Control Department)*** – Bundle forms for the prevention of **surgical site infections (SSIs)** – Bundle forms should be standardized adopted based on *GDIPC updated guidelines.* – *Review* ***Surgical Bundle Compliance Rates*** ***(Monthly compliance report & Trended Analysis over months)*** – Ask for document for **corrective actions & SSI Improvement projects** (If any) – Check for any evidence that the data on **Surgical bundle compliance** & performance of healthcare workers in surgical bundle implementation was shared ***e.g. via– emails, formal individual feedback or other channels of communication.*** ***Data Analysis: (Surgical Bundle Compliance):*** ***FORMULA:*** ***Surgical Bundle Compliance = Surgical patients compliant to all applicable components of the surgical bundle/ Total number of surgical patients reviewed for the bundle compliance) x 100*** ***(Calculate Bundle compliance for individual element would guide towards targeted corrective interventions in case of low compliance).*** Surgical bundle compliance = (Surgical patients compliant to all applicable components of the surgical bundle / Total number of surgical patients reviewed for the bundle compliance) X100
Staff Interview (SI)	***Interview:*** – *Ask IPC team about the data analysis regarding surgical Bundle.* – *Ask about the feedback mechanism to HCWs in critical care units.* – *Ask about the corrective interventions if surgical bundle compliance is low.* *e.g. retraining & education of HCWs with competency assessment, availability of supply needed in case of shortage e.g. non-availability of prophylactic antibiotics, Clippers etc.* *During audit visit ask nursing head about the feedback on surgical bundle compliance received from IPC department.* ***(Email, display on bulletin board, formal report in hard version etc.)***

C-5.4d	**Hospital applies bundle of care for prevention of surgical site infections including proper antimicrobial prophylaxis, no preoperative hair removal or use of electric hair clippers if hair removal is necessary, controlled 6 AM postoperative serum glucose, maintaining perioperative normothermia, patient full body shower at least the night before surgery with antimicrobial soap, and intraoperative skin preparation with approved antiseptic.** **(D, O, SI)**
Document (D)	***Review:*** – *During audit visit of critical care units review the patient files & check the surgical bundle checklist for all patients undergoing surgical procedures.* – *Check the patient files to confirm if the bundle form is filled completely with all required information.* – *Check the time of prophylactic antibiotic administration and time of first surgical incision.* – *Check for post op discontinuation of prophylactic antibiotic etc.*
Observation (O)	***Observe:*** – *In concerned areas (Surgical Units / OR etc.) the implementation of care bundles for prevention of surgical site infections consistent with recognized professional practices.*
Staff Interview (SI)	***Interview:*** ***Staff in Critical Care areas & inpatient locations:*** – To confirm in-depth understanding and implementation of care bundle for prevention of Surgical Site infections (SSIs) – Ask staff at random about elements of surgical Bundle. – Ask about the last training and education on **Surgical Bundle** received from IPC department. – Ask about the availability of all needed supply for implementation of **surgical Bundle. e.g. Prophylactic antibiotic, Hair clippers, etc.** – Ask about the role of different stakeholders for implementation of surgical bundle. (Surgical staff, OR staff etc. during **preoperative, intraoperative & postop phases of surgical care,)** *Ask staff in surgical ward about the pre operative care:* **Example:** How will you prepare a patient for a surgical procedure following all protocols of surgical bundle. **Answer:** – Appropriate Hair Removal ***(The use of razors prior to surgery increases the incidence of wound infection when compared to clipping, depilatory use, or no hair removal at all.*** – Patient full body shower at least the night before surgery with antimicrobial soap – Prophylactic antibiotic received within 1 hour prior to surgical incision.

- **Appropriate use of prophylactic antibiotics**

* *Prophylactic antibiotic selection for surgical patients consistent with national guidelines.*
* *Prophylactic antibiotic received within 1 hour prior to surgical incision.*
* *Prophylactic antibiotics discontinued within 24 hours after surgery end time (48 hours for cardiac patients).*

- **Appropriate Hair Removal**

* The use of razors prior to surgery increases the incidence of wound infection when compared to clipping, depilatory use, or no hair removal at all.
* Razors can cause small cuts and nicks to skin, many of which may be microscopic and not visible to the human eye.
* The use of clippers has been found to be the best method in many hospitals, as depilatory creams can cause skin reactions and allergies.

* **Immediate postoperative control of blood-glucose levels in all patients**

* The degree of hyperglycemia in the postoperative period is correlated with the rate of SSI in patients undergoing major cardiac surgery.
* Maintain postoperative blood-glucose level between 110 and 150 mg/dl in each of the first two postoperative days.
* Glucose control postoperatively should target all patients especially those with diabetes.

❖ **Maintain normothermia during the perioperative period**

- For procedures not requiring hypothermia, maintain normothermia (temperature >35.5°C) during the perioperative period
- Studies showed the benefits of both preoperative and intraoperative warming in reducing SSI rates and intraoperative blood loss
- Preoperative normothermia may be most beneficial; patients who received 30 minutes of preoperative warming had lower intraoperative hypothermia rates.
- Patients who are hypothermic at the end of surgery may remain hypothermic for up to 5 hours. Although there is no standardized duration of postoperative warming, one study used 2 hours of postoperative warming and showed reduced rates of SSI.

- **Use appropriate antiseptic solution**

Patient preparation:

- The most effective antiseptic combination is chlorhexidine-alcohol and to a lesser extent povidone-iodine-alcohol.
- Preoperative skin preparation using alcohol-containing antiseptic skin agents
- Preoperative vaginal preparation using alcohol-containing antiseptic vaginal preparation agents for patients undergoing cesarean delivery or hysterectomy.
- There is evidence to show that preventing hypothermia is beneficial in reducing other complications, and it is more comfortable for patients.

وزارة الصحة
Ministry of Health

Element # C-5	PATIENT'S CARE BUNDLES FOR PREVENTION OF HAIS & MDROS

C - 5.5	There is a written policy and procedure concerning patient's care bundles for the prevention of MDROs.
C-5.5 a	Hospital has a competency-based training program for prevention of MDROs.
C-5.5 b	IPC practitioners regularly conducting auditing rounds to monitor and document adherence to recommended practices for management of Patients with MDROs (weekly).
C-5.5 c	IPC department provides compliance audit feedback to the HCWs regarding their performance in implementation of MDRO bundle on regular basis and corrective actions are applied accordingly.
C-5.5 d	Hospital applies bundle of care for prevention of Multidrug Resistant Organisms (MDROs) including judicious Use of Antimicrobial Agents, Patient placement in hospitals, standard Infection Control Precautions to Prevent Transmission of MDROs, environmental measures etc.

C-5.5	**There is a written policy and procedure concerning patient's care bundles for the prevention of MDROs.D)**
Document (D)	- *Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.* - *Bundle is an implementation tool aiming to improve the care process and patient outcomes in a structured manner. It comprises a small, straightforward set of evidence-based practices (generally 3 to 5) that have been proven to improve patient outcomes when performed collectively and reliably.* - *MDRO bundle aims to prevent antimicrobial resistance.* - *Setting: Inpatient and outpatient locations where MDRO data are collected* ***Review:*** ***Policies & Procedures for patient's care bundles for the prevention of MDROs which should be:*** ***1: Comprehensive:*** ***Policy should include but not limited to:*** – Policies should clearly describe procedures with rationale of each bundle element. – Setting: P/P should clearly describe applicability of MDRO ***bundle*** according to location ***(Pre & Post Op surgical wards, OR) etc.*** – The policies and procedures should define how data on care bundles will be collected, analyzed, interpreted, and disseminated with necessary correction actions when needed. ***(Find details under specific sub element etc.)*** – P/P should define Roles and responsibilities of concerned unit in implementation of health care bundles e.g. - *Implementation of surgical bundle is the shared responsibility of concerned departments Infection control, concerned units etc.* - *Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.* - *For **MOH** hospitals reporting via **National Electronic Surveillance Platform**, policies & Procedure should be tailored accordingly* ***Other domains of Policies & procedures, P/P for Care Bundles should be:*** – ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services – ***Based on scientific references approved by MOH.*** **(IHI & CDC Surveillance guidelines).** – ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department) – ***Approved*** by IC committee – ***Valid*** (updated within 2 - 3 years and when indicated). ***NOTE:*** ***Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change***

C-5.5a	**Hospital has a competency-based training program for prevention of MDROs.** **(D, SI)**
Document (D)	– *Competence implies an expert level of knowledge and skill that is transferrable to the practice of infection prevention and control.* – *Core competencies are necessary to ensure that the healthcare workers has a set of basic skills to integrate into any practice setting.* – *Professional development is essential to keeping the infection prevention & Control Practitioners up to date with the latest knowledge, skills, and strategies for preventing infections who are eventually responsible to provide training & education to targeted Health Care workers (HCWs) according to nature of their work.* **Review the following documents:** – **Training program / Annual training plan** that includes the training of targeted healthcare worker on **MDRO bundle** for prevention of antimicrobial resistance, – Competency-based training program for **MDRO bundle** must incorporate important domains including isolation precautions, patient placement, antimicrobial stewardship, etc. – Training program should encompass all categories of HCWs working in different units according to nature of work. critical care areas, isolation wards. Medical wards etc. **Competency assessment** checklist should be used to ensure that all HCWs who have received training are skilled and competent to implement care bundles for the prevention of **MDROs.** – Review the **training content / PPTs** used for education purposes to confirm if it's based on updated latest guidelines. – Review the electronic dashboard/ tracker to estimate the percentage of staff who have received competency-based training. **Ask for percentage % of coverage.**

Staff Interview (SI)

Interview:

- Ask infection Prevention & control team members about implementation of competency-based education program for prevention of **Multi Drug Resistance Organism (MDROs)** in the hospital.
- Ask about the targeted HCWs & Units included in the competency-based training program.
- Ask about the frequency of training activities to ensure all targeted HCWs have received training at least once per year.
- Ask about the role of nursing & training department in competency-based training program.

NOTE:

Implementation of all elements of **MDRO bundle** requires a **multidisciplinary approach involving Physicians, nurses, leaders, and experts in infection prevention and infectious diseases etc.**

Elements / Components of MDRO Bundle:

1) **Administrative Measures / Structure & system administrative support**
2) **Prevention MDRO transmission / Infection Control Measures**
3) **Judicious use of antimicrobials**
4) **MDRO surveillance**
5) **Education and Training of Healthcare Personnel**

Reference: https://www.cdc.gov/infectioncontrol/guidelines/mdro/prevention-control.html

C-5.5b	IPC practitioners regularly conducting auditing round to monitor and document adherence to recommended practices for management of Patients with MDROs (weekly). (D,SI)
Document (D)	– ***Strict adherence to recommended practices is of utmost importance for prevention of surgical site infections in patients undergoing surgical procedures.*** – ***Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goals sheets . bundle forms. and/or elsewhere in the medical record.*** – ***NOTE: This is an "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. (Ref: IHI)*** – ***Daily implementation of patient care bundles is the responsibility of nursing staff of critical care units.*** – ***IPC department hold responsibility to monitor and track implementation of surgical bundle in all relevant units.***

Review:

During audit round of critical care areas, isolation wards, etc.

- Review the patient files to check for implementation of **MDRO bundle** for all patients requiring isolation precaution with MDROs.
- Review the ICPs data collection sheets for **MDRO bundle** implementation.
- ICPs should ensure validation of data collected from different units etc. at least **weekly**.
- Ensure data is complete for all domains of **MDRO bundle.**

Data Collection:

- MDRO bundle review need to be documented daily by the assigned nurse in the critical care units / other inpatient locations while patient is under isolation.
- Manual or Electronic forms need to be utilized.
- ICPS would collect data once or twice per week as per hospital's bundle data collection Plan.

Staff Interview (SI)	***Interview Infection Prevention & Control Practitioners:*** - Ask how the data regarding MDRO bundle for targeted patients is collected in critical care units, documented and validated. Bundle review has to be started for every patient with **MDROs** based on lab results & flagging of patient file. Ask ICPs how frequently they are doing rounds to check for compliance with **MDRO bundle** elements. - Randomly ask about elements of **MDRO bundle** and how they will be implemented. - Assess if the ICPs are familiarized with **all or none principle** for bundle compliance.

C-5.5c	**IPC department provides compliance audit feedback to the HCWs regarding their performance in implementation of MDRO bundle on regular basis and corrective actions are applied accordingly. (D, SI)**
Document (D)	***Review: (in Infection Control Department)*** – Bundle forms for the prevention of **Multi Drug Resistance Organism (MDROs)/ antimicrobial resistance** – *Review* ***MDRO I Bundle Compliance Rates*** ***(Monthly compliance report & Trended Analysis over months)*** – Ask for document for **corrective actions & MDRO Improvement projects** (If any) ***Data Analysis: (MDRO Bundle Compliance):*** ***FORMULA:*** ***MDRO Bundle Compliance = Number of patients with MDROs who have received all elements of the MDRO Bundle / Total number of patients with MDROs on day of week of sample) x 100*** ***(Calculate Bundle compliance for individual element would guide towards targeted corrective interventions in case of low compliance).***

Staff Interview (SI)	***Interview:*** – *Ask IPC team about the data analysis regarding MDRO Bundle.* – *Ask about the feedback mechanism to HCWs in critical care units.* – *Ask about the corrective interventions if MDRO bundle compliance is low.* *e.g. retraining & education of HCWs with competency assessment, availability of supply needed in case of shortage e.g. non-availability of Isolation rooms, lack of lab reagents for Active surveillance cultures etc.* *During audit visit ask nursing head about the feedback on MDRO bundle compliance received from IPC department.* ***(Email, display on bulletin board, formal report in hard version etc.)***
C-5.5d	**Hospital applies bundle of care for prevention of Multidrug Resistant Organisms (MDROs) including judicious Use of Antimicrobial Agents, Patient placement in hospitals, standard Infection Control Precautions to Prevent Transmission of MDROs, environmental measures etc (D, O, SI)**
Document (D)	***Review:*** – *During audit visit of critical care units & other inpatient locations review the patient files & check the* ***MDRO bundle checklist*** *for all patients with MDROs* – *Check the patient files to confirm if the bundle form is filled completely with all required information.* – *Check if the file of MDRO patient is appropriately flagged/ red alert.*
Observation (O)	***Observe:*** – *In concerned areas (ICUs, isolation wards etc.) the implementation of care bundles for prevention of MDROs consistent with recognized professional practices.* – *Observe the appropriate implementation of isolation precautions for patients with MDROs.* – *(You may observe patients with MDROs without isolation signage etc. in open cubicles)* – ***Observe if file of patient with MDROs is appropriately flagged.***
Staff Interview (SI)	***Interview:*** ***Staff in Critical Care areas & inpatient locations:*** – To confirm in-depth understanding and implementation of care bundle for prevention of **Multidrug Resistant Organisms (MDROs)** – Ask staff at random about elements of MDRO Bundle. – Ask about the last training and education on MDRO **Bundle** received from IPC department. – Ask about the availability of all needed supply for implementation of **MDRO bundle.**

- Ask about the role of different stakeholders for implementation of **MDRO bundle**.

- Staff in Critical Care areas to assess understanding and compliance with the care bundle for prevention of Multi-Drug Resistant Organisms (MDROs). ***(Klebsiella: Carbapenem resistant Enterobacteriaceae (CRE): MDR Acinetobacter MDR Klebsiella, Pseudomonas & Gram positive MDROs include MRSA and VRE.)***

Elements / Components of MDRO Bundle:

1) **Administrative Measures / Structure & system administrative support**
2) **Prevention MDRO transmission / Infection Control Measures**
3) **Judicious use of antimicrobials**
4) **MDRO surveillance**
5) **Education and Training of Healthcare Personnel**

1: Structure & system administrative support:

- Human resources: trained infection control practitioners and adequate staffing level
- Implement system changes to ensure prompt and effective communication e.g., computer alerts to identify patients previously known to be colonized/infected with MDROs
- Providing hand hygiene facilities and environmental cleaning
- Enforcing adherence to recommended infection control practices and compliance monitoring
- Feedback to health care workers
- Written plan for implementation

2: Prevention of MDRO transmission / Infection Control Measures:

- Improvement in Hand Hygiene: >90% compliance rate
- PPE: Wear gloves and gown when entering the room, removing before exiting
- Active Surveillance Cultures: to detect asymptomatic patients
- Use of isolation precautions: standard & contact for patients colonized or infected with MDRO
- Follow recommended cleaning, disinfection and sterilization for maintaining patient care areas and equipment
- Disinfect reusable medical equipment between patients
- Increased cleaning and disinfection of frequently- touched surfaces
- Monitor (i.e., supervise and inspect) cleaning performance to ensure consistent cleaning and disinfection of surfaces

3: Judicious use of antimicrobials:

- Limit antimicrobial prescription
- Use local antibiogram to effectively treat infections
- Treat infection, not contamination
- Treat infection, not colonization
- Stop treatment when infection is cured or unlikely
- Avoid excessive duration of treatment
- Use narrow spectrum agent and put restriction on broad spectrum and potent antibiotics.

4: MDRO surveillance:

- A critical component of any MDRO control program
- Important patient safety component
- Allows detection of newly emerging resistance pattern
- Monitors epidemiologic trends in incidence of MDROs over time
- Measures the effectiveness of interventions

5: Education:

- Facility-wide, unit-targeted, and informal, educational interventions for prevention of MDRO transmission.
- Provide basic education on preventive measures to patients and visitors.

وزارة الصحة
Ministry of Health

Element # C-5

PATIENT'S CARE BUNDLES FOR PREVENTION OF HAIS & MDROS

C - 5.6	**There is a written policy and procedure concerning patient's care bundles for prevention of dialysis event (DE).**
C-5.6 a	**Hospital has a competency-based training program for hemodialysis patients' care bundle.**
C-5.6 b	**IPC practitioners regularly conducting auditing round to monitor and document adherence to the recommended practices for management of hemodialysis patient to prevent DE (weekly).**
C-5.6 c	**IPC department provides compliance audit feedback to the hemodialysis's HCWs regarding their performance in recommended practices for management of hemodialysis patient to prevent DE regularly and corrective actions are applied accordingly.**
C-5.6 d	**Hemodialysis HCWs apply bundle of care for prevention of DE including catheter connection, disconnection, and the required access (fistula/graft) care, as per the type of catheter inserted.**

C-5.6	**There is a written policy and procedure concerning patient's care bundles for prevention of dialysis event (DE).D)**
Document (D)	- *Patients' care bundles are the series of evidence-based practices / interventions related to devices or process of care that, when implemented together, will achieve significantly better outcomes than when implemented individually.* - *Bundle is an implementation tool aiming to improve the care process and patient outcomes in a structured manner. It comprises a small, straightforward set of evidence-based practices (generally 3 to 5) that have been proven to improve patient outcomes when performed collectively and reliably.* - ***Hemodialysis bundle:** The hemodialysis bundle is a group of evidence-based interventions for patients undergoing hemodialysis that, when implemented together, result in better outcomes (reduce bacteremia) than when implemented individually. Hemodialysis bundle aims to prevent bacteremia* ***Review:*** ***Policies & Procedures for patient's care bundles for the prevention of Dialysis Events which should be:*** **1: Comprehensive:** *It should include details about the procedures to ensure strict adherence to infection control measures during insertion & maintenance phases in order to prevent* ***Dialysis Events which should be:*** ***Policy should include but not limited to:*** – Policies should clearly describe procedures with rationale of each bundle element. – Setting: P/P should clearly describe applicability of ***hemodialysis bundle*** according to location ***(Hemodialysis Centers. Units) etc.*** – The policies and procedures should define how data on care bundles will be collected, analyzed, interpreted, and disseminated with necessary correction actions when needed. ***(Find details under specific sub element etc.)*** – P/P should define Roles and responsibilities of different staff in implementation of health care bundles e.g - *Implementation of **hemodialysis bundle** is the shared responsibility of concerned departments Hemodialysis unit, Infection control as monitoring etc(* - *Role of Infection Control Practitioners is to ensure implementation of all elements of care bundles in daily rounds.* - *For **MOH** hospitals reporting via **National Electronic Surveillance Platform**, policies & Procedure should be tailored accordingly* ***Other domains of Policies & procedures, P/P for Care Bundles should be:*** – ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services – ***Based on scientific references approved by MOH.* (IHI & CDC Surveillance guidelines).** – ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department) – ***Approved*** by IC committee – ***Valid*** (updated within 2 - 3 years and when indicated. ***NOTE:*** ***Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change***

C-5.6a	**Hospital has a competency-based training program for prevention of Dialysis Events (D, SI)**

Competence implies an expert level of knowledge and skill that is transferrable to the practice of infection prevention and control.

Core competencies are necessary to ensure that the healthcare workers has a set of basic skills to integrate into any practice setting.

Professional development is essential to keeping the infection prevention & Control Practitioners up to date with the latest knowledge, skills, and strategies for preventing infections who are eventually responsible to provide training & education to targeted Health Care workers (HCWs) according to nature of their work.

Document (D)

Review the following documents:

- **Training program / Annual training plan** that includes the training of targeted healthcare worker on **hemodialysis bundle** for prevention of antimicrobial resistance,
- Competency-based training program for **hemodialysis bundle** must incorporate important domains /Components of hemodialysis bundle for catheter:
- Training program should encompass all categories of HCWs working in Hemodialysis units according to nature of work.
- **Competency assessment** checklist should be used to ensure that all HCWs who have received training are skilled and competent to implement care bundles for the prevention of **dialysis events.**
- Review the **training content / PPTs** used for education purposes to confirm if it's based on updated latest guidelines.
- Review the electronic dashboard/ tracker to estimate the percentage of staff who have received competency-based training. **Ask for percentage % of coverage.**

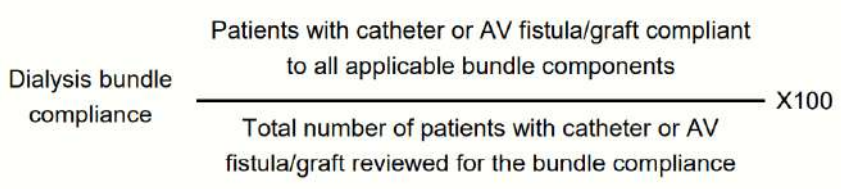
Staff Interview (SI)	**Interview:** – Ask infection Prevention & control team members about implementation of competency-based education program for prevention of **Dialysis Events** in the hospital. – Ask about the targeted HCWs & Units included in the competency-based training program. – Ask about the frequency of training activities to ensure all targeted HCWs have received training at least once per year. – Ask about the role of nursing & training department in competency-based training program.

Components of hemodialysis bundle for catheter:

1- **Appropriate hemodialysis catheter connection**
2- **Appropriate hemodialysis catheter disconnection**
3- **Appropriate hemodialysis catheter exit site care**
4- **Appropriate dialysis station routine disinfection**
5- **Appropriate hemodialysis injectable medication preparation**
6- **Appropriate hemodialysis injectable medication administration**

C-5.6b	**IPC practitioners regularly conducting auditing round to monitor and document adherence to the recommended practices for management of hemodialysis patient to prevent DE (weekly). (D,SI)**
Document (D)	– ***Strict adherence to recommended practices is of utmost importance for prevention of Dialysis Events in patients undergoing Dialysis*** – ***Compliance with the any bundle is defined as the percentage of patients who have received all elements of the bundle with documentation in daily goals sheets . bundle forms. and/or elsewhere in the medical record.*** – ***NOTE: This is an "ALL-OR-NONE" INDICATOR. If any of the elements are not documented, the patient is not counted in the numerator. If a bundle e element is contraindicated for a particular patient and this is documented appropriately in the medical record, then the patient is considered compliant with regard to that measure. (Ref: IHI)*** – ***Daily implementation of patient care bundles is the responsibility of nursing staff of Dialysis Unit staff*** – ***IPC department hold responsibility to monitor and track implementation of surgical bundle in all relevant units.*** ***Review:*** ***During audit round of critical care areas, isolation wards, etc*** - Review the patient files to check for implementation of **Hemodialysis bundle** for all patients requiring hemodialysis. - Review all patients in a specific hemodialysis unit with dialysis access one or two days a week - Review the ICPs data collection sheets for **Hemodialysis bundle** implementation. - ICPs should ensure validation of data collected from different units etc at least **weekly**. - Ensure data is complete for all domains of **Hemodialysis bundle**

Staff Interview (SI)	***Interview Infection Prevention & Control Practitioners:*** - Ask how the data regarding **Hemodialysis bundle** for HD patients is collected, documented and validated. Bundle review has to be started for every patient requiring hemodialysis based on lab results & flagging of patient file. Ask ICPs how frequently they are doing rounds to check for compliance with **Hemodialysis bundle** elements. - Randomly ask about elements of **Hemodialysis bundle** and how they will be implemented. Assess if the ICPs are familiarized with **all or none principle** for bundle compliance.
C-5.6c	**IPC department provides compliance audit feedback to the hemodialysis HCWs regarding their performance in recommended practices for management of hemodialysis patient to prevent DE regularly and corrective actions are applied accordingly. (D, SI)**
Document (D)	***Review: (in Infection Control Department)*** – *Bundle forms for the prevention of* ***Dialysis Events*** – *Review* **Hemodialysis bundle** ***Compliance Rates*** ***(Monthly compliance report & Trended Analysis over months)*** – Ask for document for **corrective actions & Improvement projects** (If any) – Check for any evidence that the data on **Hemodialysis bundle compliance** & performance of healthcare workers in **HD bundle** implementation was shared ***e.g via– emails, formal individual feedback or other channels of communication.*** ***Data Analysis:*** ***(Dialysis bundle compliance*** ***FORMULA:*** ***Dialysis bundle compliance = Patients with catheter or AV fistula/graft compliant to all applicable bundle components / Total number of patients with catheter or AV fistula/graft reviewed for the bundle compliance x 100***

	(Calculating Bundle compliance for <u>individual element</u> would guide towards targeted corrective interventions in case of low compliance) 
Staff Interview (SI)	***Interview:*** – *Ask IPC team about the data analysis regarding hemodialysis Bundle.* – *Ask about the feedback mechanism to HCWs in hemodialysis unit* – *Ask about the corrective interventions if hemodialysis bundle compliance is low. e.g. retraining & education of HCWs with competency assessment etc.* – *During audit visit ask nursing head about the feedback on hemodialysis Bundle compliance received from IPC department.* ***(Email, display on bulletin board, formal report in hard version etc.)***
C-5.6d	**Hemodialysis HCWs apply bundle of care for prevention of DE including catheter connection, disconnection, and the required access (fistula/graft) care, as per the type of catheter inserted. (D, O, SI)**
Document (D)	***Review:*** – *During audit visit of hemodialysis unit review the patient files & check the* ***hemodialysis bundle checklist*** *for all patients on hemodialysis.* – *Check the patient files to confirm if the bundle form is filled completely with all required information.*
Observation (O)	***Observe:*** – *Implementation of care bundles for prevention of* ***Dialysis Events*** *consistent with recognized professional practices.* – *Observe if the HDU staff are following recommended practices during connection. Disconnection, exit site care, medication preparation, administration etc the.*

Staff Interview (SI)

Interview:

Staff in hemodialysis unit:

- To confirm in-depth understanding and implementation of care bundle for prevention of **Dialysis Events.**
- Ask staff at random about elements of hemodialysis Bundle.
- Ask about the last training and education on hemodialysis Bundle received from IPC department.
- Ask about the availability of all needed supply for implementation of hemodialysis Bundle.
- Ask about the role of different staff in implementation of hemodialysis Bundle.

Interview staff in hemodialysis unit about the dialysis bundle:

Example: How will you connect a hemodialysis patient to blood lines following all elements of dialysis bundle **(Appropriate hemodialysis catheter connection)**

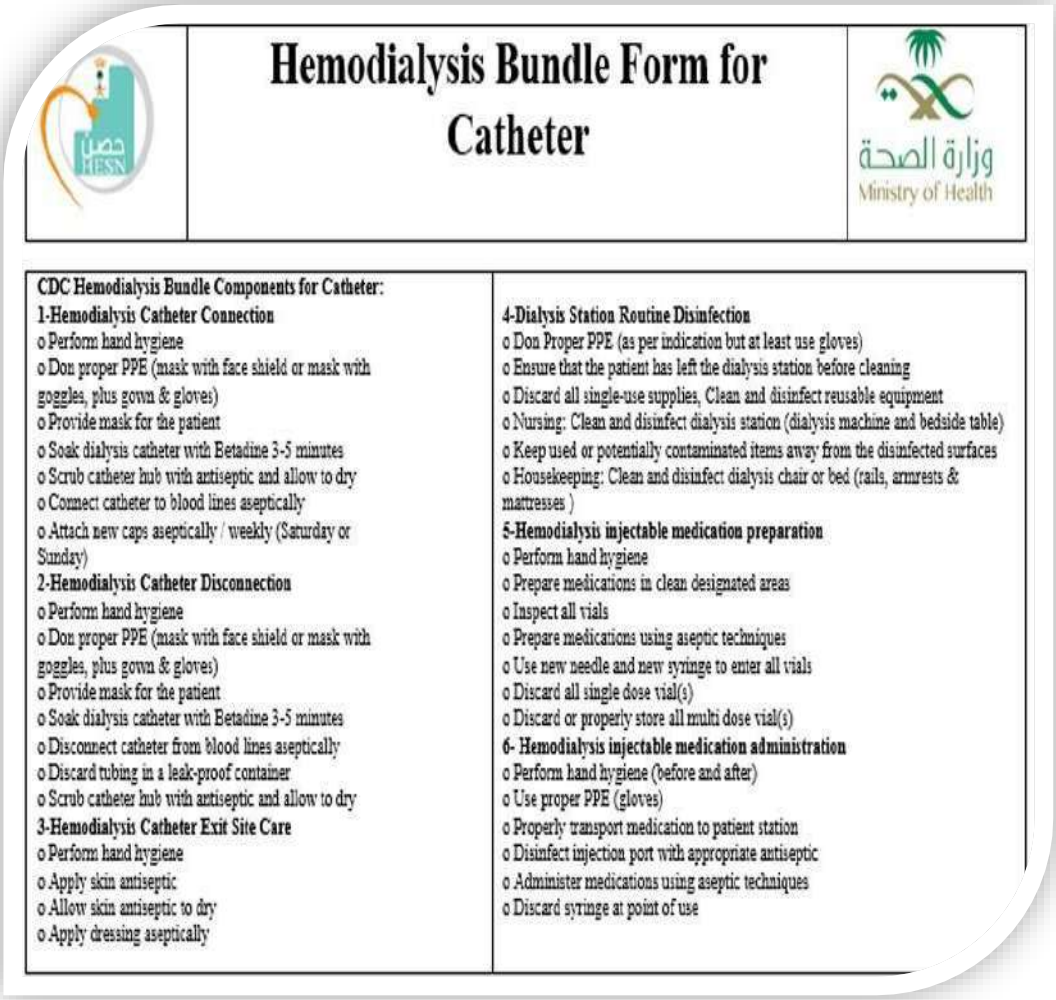
Answer:

* *Appropriate hemodialysis catheter connection*
* *Perform hand hygiene*
* *Don proper PPE (mask with face shield or mask with goggles, plus gown & gloves)*
* *Provide mask for the patient*
* *Scrub catheter hub with antiseptic and allow to dry*
* *Connect catheter to blood lines aseptically*
* *Attach new caps aseptically / weekly (Saturday or Sunday)*

Elements / Components of Catheter, fistula and graft Bundle:

For the catheter:

* ***Hemodialysis catheter connections***
* ***Hemodialysis catheter disconnections***
* ***Hemodialysis catheter exit site care***
* ***Dialysis station routine disinfections***
* ***Hemodialysis injectable medications preparations***
* ***Hemodialysis injectable medications administrations.***



Hemodialysis Bundle Form for Catheter

وزارة الصحة
Ministry of Health

CDC Hemodialysis Bundle Components for Catheter:

1-Hemodialysis Catheter Connection
- Perform hand hygiene
- Don proper PPE (mask with face shield or mask with goggles, plus gown & gloves)
- Provide mask for the patient
- Soak dialysis catheter with Betadine 3-5 minutes
- Scrub catheter hub with antiseptic and allow to dry
- Connect catheter to blood lines aseptically
- Attach new caps aseptically / weekly (Saturday or Sunday)

2-Hemodialysis Catheter Disconnection
- Perform hand hygiene
- Don proper PPE (mask with face shield or mask with goggles, plus gown & gloves)
- Provide mask for the patient
- Soak dialysis catheter with Betadine 3-5 minutes
- Disconnect catheter from blood lines aseptically
- Discard tubing in a leak-proof container
- Scrub catheter hub with antiseptic and allow to dry

3-Hemodialysis Catheter Exit Site Care
- Perform hand hygiene
- Apply skin antiseptic
- Allow skin antiseptic to dry
- Apply dressing aseptically

4-Dialysis Station Routine Disinfection
- Don Proper PPE (as per indication but at least use gloves)
- Ensure that the patient has left the dialysis station before cleaning
- Discard all single-use supplies, Clean and disinfect reusable equipment
- Nursing: Clean and disinfect dialysis station (dialysis machine and bedside table)
- Keep used or potentially contaminated items away from the disinfected surfaces
- Housekeeping: Clean and disinfect dialysis chair or bed (rails, armrests & mattresses)

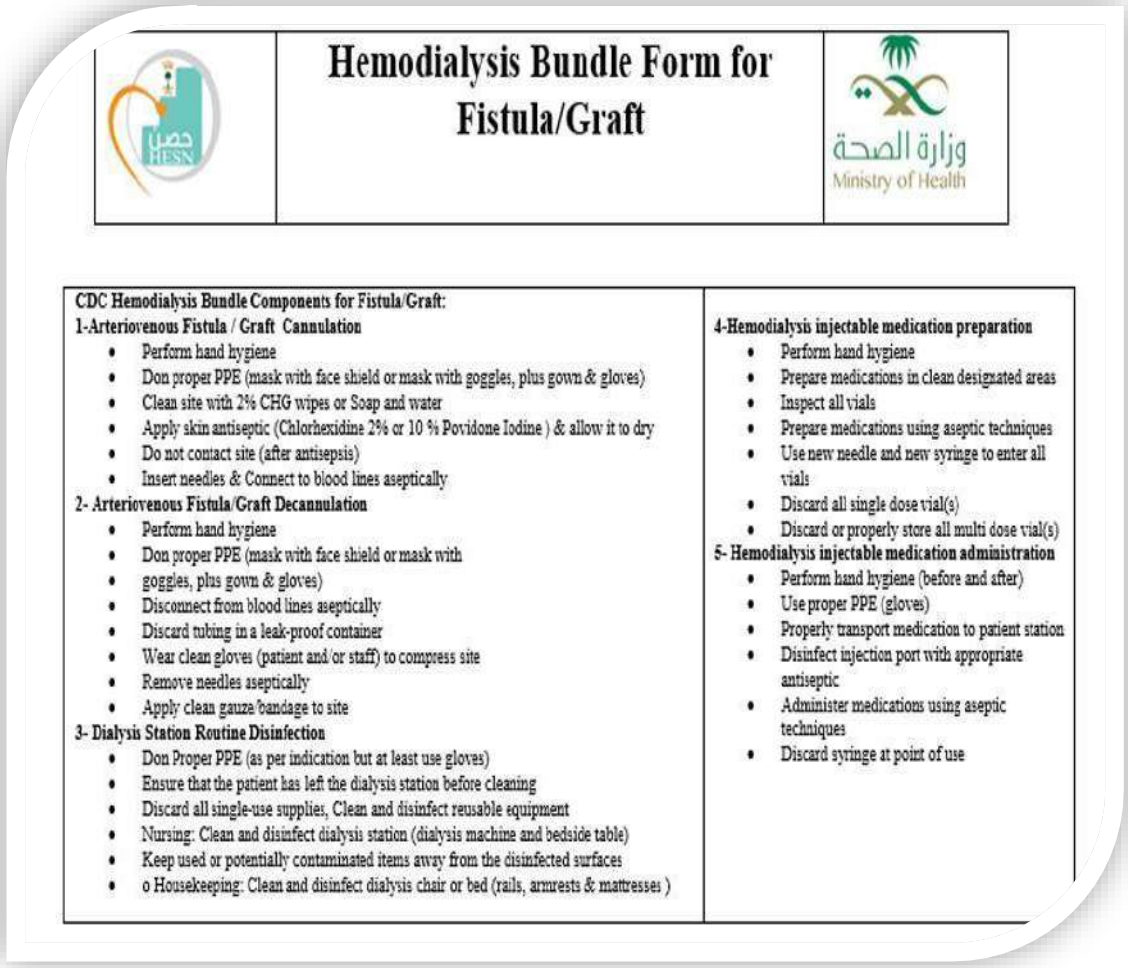
5-Hemodialysis injectable medication preparation
- Perform hand hygiene
- Prepare medications in clean designated areas
- Inspect all vials
- Prepare medications using aseptic techniques
- Use new needle and new syringe to enter all vials
- Discard all single dose vial(s)
- Discard or properly store all multi dose vial(s)

6- Hemodialysis injectable medication administration
- Perform hand hygiene (before and after)
- Use proper PPE (gloves)
- Properly transport medication to patient station
- Disinfect injection port with appropriate antiseptic
- Administer medications using aseptic techniques
- Discard syringe at point of use

Elements / Components of Catheter, fistula and graft Bundle:

For the fistula and graft:

* ***Arteriovenous fistula and graft cannulations***
* ***Arteriovenous fistula and graft decannulations***
* ***Dialysis stations routine dis infections***
* ***Hemodialysis injectable medications preparations***
* ***Hemodialysis injectable medications administrations*.**



Hemodialysis Bundle Form for Fistula/Graft

CDC Hemodialysis Bundle Components for Fistula/Graft:

1-Arteriovenous Fistula / Graft Cannulation

- Perform hand hygiene
- Don proper PPE (mask with face shield or mask with goggles, plus gown & gloves)
- Clean site with 2% CHG wipes or Soap and water
- Apply skin antiseptic (Chlorhexidine 2% or 10 % Povidone Iodine) & allow it to dry
- Do not contact site (after antisepsis)
- Insert needles & Connect to blood lines aseptically

2- Arteriovenous Fistula/Graft Decannulation

- Perform hand hygiene
- Don proper PPE (mask with face shield or mask with
- goggles, plus gown & gloves)
- Disconnect from blood lines aseptically
- Discard tubing in a leak-proof container
- Wear clean gloves (patient and/or staff) to compress site
- Remove needles aseptically
- Apply clean gauze/bandage to site

3- Dialysis Station Routine Disinfection

- Don Proper PPE (as per indication but at least use gloves)
- Ensure that the patient has left the dialysis station before cleaning
- Discard all single-use supplies, Clean and disinfect reusable equipment
- Nursing: Clean and disinfect dialysis station (dialysis machine and bedside table)
- Keep used or potentially contaminated items away from the disinfected surfaces
- o Housekeeping: Clean and disinfect dialysis chair or bed (rails, armrests & mattresses)

4-Hemodialysis injectable medication preparation

- Perform hand hygiene
- Prepare medications in clean designated areas
- Inspect all vials
- Prepare medications using aseptic techniques
- Use new needle and new syringe to enter all vials
- Discard all single dose vial(s)
- Discard or properly store all multi dose vial(s)

5- Hemodialysis injectable medication administration

- Perform hand hygiene (before and after)
- Use proper PPE (gloves)
- Properly transport medication to patient station
- Disinfect injection port with appropriate antiseptic
- Administer medications using aseptic techniques
- Discard syringe at point of use

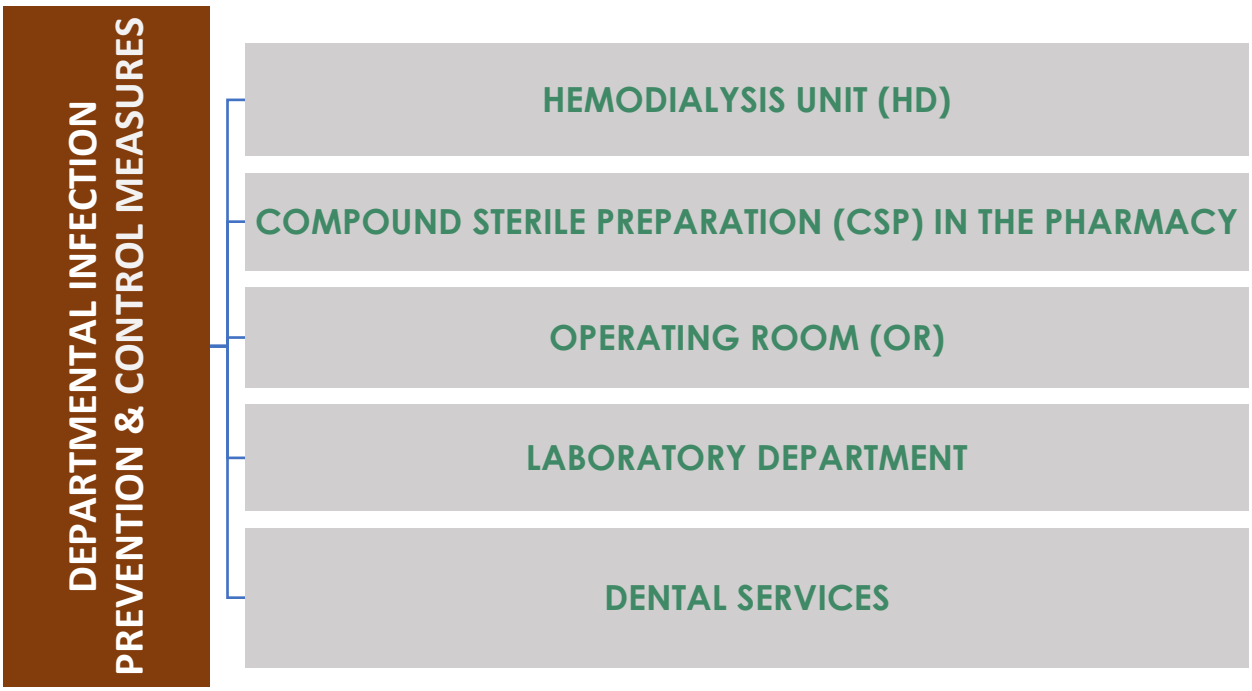
REFERENCES / WEB BASED RESOURCES:

1) **GDIPC Surveillance Manual - 2023**
2) Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011 ***https://www.cdc.gov/infectioncontrol/guidelines/bsi/index.html***
3) Health Care Associated Infections Surveillance Manual ***GCC - 2018 (3rd Edition)***
4) HESN – HAI Surveillance Manual (GDIPC) ***https://hesn.moh.gov.sa/webportal/infection-control***
5) GCC - NHGA ***HAI course content – 2019***
6) Guidelines for the Prevention of Intravascular Catheter-Related Infections, 2011 ***https://www.cdc.gov/hai/pdfs/bsi-guidelines-2011.pdf***
7) ***https://www.cdc.gov/infectioncontrol/guidelines/bsi/recommendations.html#rec18***
8) MDRO Prevention and Control
9) https://www.cdc.gov/infectioncontrol/guidelines/mdro/prevention-control.html.
10) https://www.cdc.gov/hai/prevent/prevention_tools.html Prevention Toolkits

وزارة الصحة
Ministry of Health

DOMAIN – D

DEPARTMENTAL INFECTION PREVENTION & CONTROL MEASURES



Element # D-1 HEMODIALYSIS (HD) UNIT

D -1.1 There is a written policy and procedure for infection control in Hemodialysis unit. (D)

Document (D)

Review the policy and procedure for infection control in Hemodialysis unit, which should be:

- **Comprehensive:** it covers all aspects of infection control in HD unit.
- **Fully applicable**: all elements of the policy can be applied and comply with the hospitals or unit's scope of services, including (but not limited to):
  1. **Infection control precautions in dialysis units.**
     - *Hand hygiene*
     - *Recommended PPE (gloves: clean/sterile - gowns: clean/sterile - face shield or goggles - surgical mask or N95 respirators)*
     - *Aseptic techniques (e.g., insertion and handling of CVC and other vascular accesses, preparation of parenteral medications, use of multi dose vials … etc.)*
     - *Environmental cleaning and disinfection: internal cleaning and disinfection of dialysis machines in-between patients (as per manufacturer's recommendations) / cleaning and disinfection of Hemodialysis patients' environment after each treatment session / regular cleaning and disinfection of the water treatment system, distribution system and dialysis machines (as per manufacturers ' recommendations)*
     - *Employee health: staff immunization as per employee health clinic policy, exposure and post exposure management*
     - *Waste management*
  2. Handling dialysis patients with Respiratory illness COVID 19. MERS-Co etc
  3. Prevention of Blood Borne Pathogens (BBP) transmission, serology protocols and immunization for dialysis patients
  4. Water treatment & required quality testing: microbiological testing, chemical testing and water quality daily parameters.

Other aspects of policy & Procedure:

- **Based on scientific approved references** such as *(MOH Guideline for Infection Prevention and Control in Hemodialysis Units - CDC, APIC & WHO)*
- **Signed** from authorized personnel (i.e., owner of the policy / hospital or unit director or medical director / concerned department)
- **Approved by IPC committee***
- **Valid** (updated within 2 - 3 years and when indicated)

Comment:

Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes.

D - 1.2	**The distance separating adjacent dialysis chairs or beds is not less than 1.2 m. (O)**
Observation (O)	***Observe the dialysis stations & estimate the distance between the dialysis chairs/ beds:*** ***1)*** Sufficient space between dialysis stations to allow free movement of HD (not less than 1.2 m. *2)* Observe staff and accessibility for adequate cleaning *(i.e., dialysis machines are not closed to each other)* 3) Required items are arranged in an orderly fashion, while unneeded items are eliminated in order to ensure clear demarcation between 02 dialysis stations. 4) Observe if excess lengths of tubes, hoses, and wires are removed from the floor in order to ensure complete adequate spacing.

D - 1.3	**Special room is available for central venous line insertion, and it is equipped with appropriate hand washing facility and required PPE. (O, SI)**
Observation (O)	***Observe the room allocated for central venous line insertion:*** 1) Physically separated room from other areas in a way that ensures proper traffic control while insertion procedure is ongoing. 2) Available hand washing sink and Alcohol Based Hand rub dispenser in order to practice hand hygiene. 3) Required PPE (sterile gloves - sterile gowns - face shield / goggles - surgical mask / N95 respirators)
Staff Interview (SI)	***Ask HD staff about the actual place used for insertion of central venous catheter within the dialysis unit.*** ***1)*** If this service is provided within the dialysis unit, the answer should be ***"in a special room allocated for central venous catheter insertion only"*** 2) If this service is not provided within the dialysis unit, the answer should be **"the patient is transferred to ICU or operating room, and this is included in the departmental policy (D)"**

D -1.4	**Hand washing supplies (sinks, soap, water, paper towels, antimicrobial soap), are available in adequate number (one for every 4 chairs/beds) and easily accessible. (O)**
Observation (O)	***Observe hand washing preparations in the HD unit*** 1) At least one hand washing sink in each HD room or any physically separated area (i.e., to reach 1 to 1 ratio = one for every chair/bed in single room) **2) <u>Minimum accepted ratio:</u> one hand washing sink for every 4 chairs/beds** in the units that are designed as open areas without physical barriers **(1:4)** 3) Hand sinks are conveniently located (i.e., accessible, or easy to be reached by the HD staff) 4) Hand washing sinks are equipped with hot & cold water / plain and antimicrobial soap / towels.

D -1.5	**Alcohol hand rub dispensers are available (one for every patient's chair/bed) (O)**
Observation (O)	***Observe waterless hand hygiene preparations in the HD unit:*** 1) <u>Minimum accepted ratio:</u> one alcohol-based hand rub dispenser for every chair/bed 2) Each dialysis station must be equipped with either wall mounted Alcohol hand rub dispenser or Alcohol hand rub bottle in order to ensure strict adherence to 5' moments of hand hygiene. 3) Alcohol based hand rub dispensers are conveniently located (i.e., accessible & easy to be reached by the HD staff).

D -1.6	**Appropriate PPE are available and used according to standard and/or transmission-based precautions (gloves: clean/sterile - gowns: clean/sterile - face shield or goggles -mask or N95 respirators) (O - SI)**

Observation (O)

Observe:

1) Observe the availability of the PPE at all dialysis areas or rooms (PPE should be available in adequate amounts in each area)
2) Observe the specifications of available PPE *(PPE should be of proper qualities and fulfill MOH approved specifications)*
3) Observe staff members while using available PPE: *they should use PPE in isolation room and other dialysis areas properly (i.e., as per transmission-based precautions and/or infection control precautions required during hemodialysis sessions):*
   - Gloves are needed whenever caring for a patient or touching the patient's equipment, as exposure to blood and potentially contaminated items are routinely anticipated.
   - HD staff should wear fluid resistant gowns, face shields, eyewear, and masks to protect themselves and prevent soiling of clothing during:
     - Initiation and termination of dialysis session
     - Insertion of dialysis catheter
     - Manipulation of patient's access at any time
     - Cleaning of the dialysis station.

During audit visits keep observing practices of HDU staff if they are doffing the PPE before leaving the dialysis station. You may notice some staff moving between stations with a set of PPE or sitting at the nursing station. ---This practice must be strictly prohibited.

Staff Interview (SI)

Interview:

Ask HD staff members (2 – 3) HCWs of different job categories:

1) How to properly wear PPE and what is the correct sequence?
2) How to safely remove PPE and what is the proper sequence?
3) About: their BICSL licenses/ Fit test dates / knowledge about their fitted N95 sizes.

D -1.7 Patient and staff members wear masks for all Central Venous Catheter (CVC) access connections (O, SI)

Observation (O)

1) Observe the availability of the supplies required for applying precautions during Central Venous Catheter (CVC) access connections *(e.g., PPE: gloves: clean/sterile – gowns: clean/sterile – mask – face shield or goggles / sterile supplies: sterile drapes – sterile dressings / antiseptics: chlorhexidine gluconate with alcohol (2%) – povidone-iodine)*
2) Observe staff members while connecting the patient to blood lines & assess if all elements of CVC connection bundle are applied.
3) Observe if a surgical mask is provided to the patients during all connection procedures.

Comment:
For successful observation, it is advisable to plan your visit to be during initiation or termination of dialysis sessions (i.e., at connection or termination time)

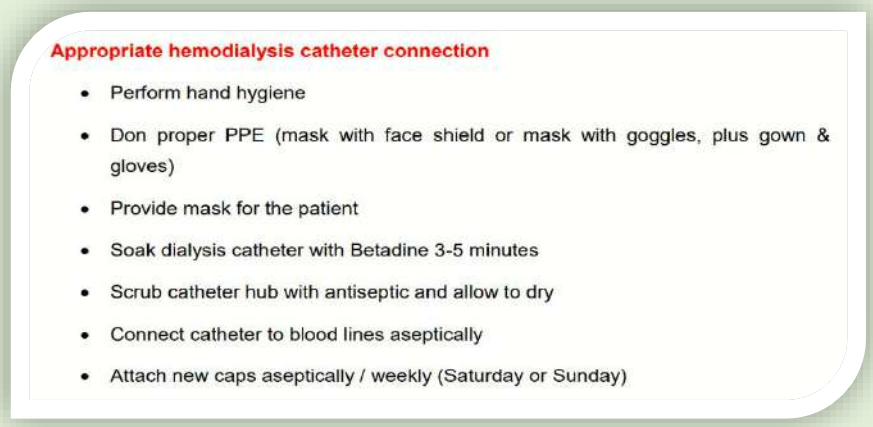
Staff Interview (SI)

Ask HD staff members:

1) How to properly handle a Central Venous Catheter (CVC) during connection of patient to dialysis machine and what are required precautions (i.e., HH, PPE, supplies, technique …etc...)
2) Ask HCWs who are involved in the handling Central Venous Catheter (CVC) connection about:
   - *Date of last training or education received about proper infection control measures for CVC connection and disconnection*
   - *Date of competency assessment on CDC guideline as regard infection prevention & control measures for (CVC) selection, insertion, maintenance, dressing change, connection, and disconnection.*

Regular training or education activities are required with periodic assessment of HCWs knowledge and their adherence to the guideline.

Ask any staff to simulate steps for connecting a new patient who just arrived at the dialysis station.
Answer:



D - 1.8	Mobile common medication carts or trays are strictly prohibited. (O - SI)
Observation (O)	***Observe:*** - Check if there are any mobile carts or common trays used within hemodialysis unit (i.e., the treatment areas) to prepare and/or distribute medications and supplies between patients. - **Mobile carts and common trays should not be used to prepare and/or distribute medications and supplies.**
	Comment: ***For successful observation, it is advisable to plan your visit to be during initiation or termination of dialysis sessions (i.e., time for preparation and/or distribution of medications and supplies)***
Staff Interview (SI)	**Ask HD staff members:** - How are they preparing and/or distributing supplies or medications between patients? - Give specific tasks to any HDU staff about transportation of medication to dialysis station & assess if they are using separate medication trays for each patient or common for multiple patients.

D - 1.9	Separate clean area is available and maintained for preparation of medications and not handling or storing contaminated or used supplies equipment, blood samples, or biohazard containers. . (O - SI)
Observation (O)	1) Check the availability of the dedicated medication preparation area(s), which is (are) physically separated from patients' treatment areas. 2) Observe if any patient requires medication during the dialysis session, and where and how the responsible nurse is preparing this treatment. ***Medication preparation area is the place for preparing and preservation of the multi-dose medications, while single dose medications can be taken to patient's dialysis station for single use purposes and any remaining doses should be discarded immediately (i.e., single-dose vials cannot be stored for future use even on the same patient)***
	Comment: ***For successful observation, it is advisable to plan your visit to be during initiation or termination of dialysis sessions (i.e., time for preparation and/or distribution of medications)***
Staff Interview (SI)	**Ask HD staff members:** - Where and how are they preparing medications (e.g. multi-dose vials and ointment for dressing change)?

D - 1.10	**Unused supplies or medications within the patient's station are not used on other patients and never returned to the common clean area. (O - SI)**

Observation (O)

Observe the attitude of the staff members towards unused supplies and single-use medications that are taken to the patient's dialysis station.

Supplies and single-use medications are brought to patient's station only when needed , After termination of dialysis session:

1) ***All remaining single-use items are discarded (are not used on other patients and never returned to a clean area), even unused ones with intact original wrap.***
2) ***All reusable items are sent for reprocessing, even unused ones with intact original wrap.***

Comment:

For successful observation, it is advisable to plan your visit to be during initiation or termination of dialysis sessions (i.e., time for preparation and/or distribution of medications and supplies)

Staff Interview (SI)

Ask HD staff members:

Instead of direct questions, indirect ones or scenarios are advisable.

. Examples:

1) What to do with extra supplies or single-use medications that are taken to a patient's dialysis station without being used during the dialysis session (items are still unused with intact original wrap)?
2) How do you safely handle or disinfect unused supplies and medications that are taken to patient's station which are not used during dialysis sessions before being used for other patients?
3) In emergency situations, what are the rules that should be considered before returning unused supplies or medications that are taken to a patient's dialysis station to the central preparation area?

Answer:

Reuse of these items is prohibited; they should be discarded even if unused and their original wrappers are intact.

D -1.11	**Patient care equipment such as blood pressure cuffs, stethoscopes, and thermometers are allocated to a single patient during the whole session and are disposed (if single use) or cleaned and disinfected (if reusable) at the end of each patient's treatment session. (O - SI)**
Observation (O)	**Observe the practices of healthcare workers towards patient care equipment such as blood pressure cuffs, stethoscopes, scissors and thermometers:** - These items are allocated to a single patient during the whole session (or not)? - Single use items are disposed of at the end of each patient's dialysis session (or not)? - Reusable items are reprocessed (i.e., cleaned and disinfected) at the end of each patient's dialysis session (or not)?
Staff Interview (SI)	***Ask HD staff members:*** **Instead of direct questions, indirect ones or scenarios are advisable, Examples:** 1) How do you safely handle or disinfect **single-use patient care equipment** such as disposable stethoscopes after being used during a dialysis session & before being used for another patient? 2) In emergency situations, what are the precautions to be followed before using shared reusable items such as **blood pressure cuffs and scissors** for more than one patient during the same shift? **Answer:** **1)** Reuse of single-use patient care equipment is strictly prohibited **(i.e., single-use items should be discarded)** 2) Reusable patient care equipment is allocated to a single patient during the whole session (i.e., these items should not be shared between patients during the same shift. They can be reused only after being cleaned and disinfected after termination of the dialysis session).

D - 1.12	**Written rules are strictly followed for the process of internal cleaning and disinfection of dialysis machines in-between patients (as per manufacturer's recommendations). (D ,O, SI)**

Document (D)

Review the following documents:

1) Documents that describe the process of internal cleaning and disinfection of dialysis machines *(appropriate evidence of application whether hard copy or electronic record of the machine)* and check whether the applied process is compatible with manufacturer's recommendation and the approved departmental policy.
   - ***Evidence should specify the method of disinfection (whether thermal or chemical), temperatures, used chemicals and required concentrations & times as per HD approved policy.***

Observation (O)

Observe the processes of internal cleaning & disinfection of dialysis machines.

1) Internal cleaning and disinfection of dialysis machines is performed as per manufacturer's recommendation and the approved departmental policy.
   - ***Method of disinfection (whether thermal or chemical)***
   - ***Temperatures, used chemicals and required concentrations & times***.

Comment:
For successful observation, it is advisable to plan your visit to be during termination of dialysis sessions (i.e., time for cleaning and disinfection of patients' environment)

Staff Interview (SI)

Ask Nursing staff members about:

1) The processes of internal cleaning & disinfection of dialysis machines:
   - Method of disinfection (whether thermal or chemical)
   - Temperatures, used chemicals and required concentrations & times.
   - proper contact times / comprehensive to cover all environmental surfaces whiter frequently touched by HCWs or in contact with the patient.

Comment:
Instead of direct questions, indirect ones or scenarios are advisable

D -1.13	**Cleaning and disinfection of hemodialysis patients' environment is performed after each treatment session with MOH approved disinfectants using a detailed checklist to ensure disinfection of all environmental surfaces at patient's zone, especially high touched areas. (D, O, SI)**

Document (D)

Review the following documents:

2) Documents that demonstrate the process of cleaning and disinfection of hemodialysis patients' environment after each treatment session *(appropriate evidence of application: checklist for HD patients' environment for each station)* and check whether the applied process is compatible with manufacturer's recommendation and the approved unit's policy.

- *The checklist should be practical and cover all environmental surfaces in the hemodialysis station. Also, it should include responsible staff (whether nursing staff or housekeeping staff with names – if applicable – and signatures) / dates & times / chemicals and disinfectants used (types – concentrations – contact times)*

Observation (O)

Observe the processes of cleaning and disinfection of hemodialysis patients' environment:

1) Cleaning and disinfection of hemodialysis patients' environment as per the unit's policy
   - **Frequency:** after each shift and at the end of the day
   - **Responsible staff & used PPE:** nursing staff & housekeeping staff / PPE: clean gloves, clean gowns, surgical masks and face shield or goggles
   - **Supplies:** check the availability of supplies e.g., approved chemicals and disinfectants, non-linting wipes, spray bottles and/or buckets, …etc.
   - **Procedure:** The disinfection method should be:
     a) With no patient present
     b) With approved disinfectants and proper contact times (i.e., surfaces are visibly wet with disinfectant and allowed to air-dry)
     c) From up downwards, and from less soiled to the more soiled
     d) Comprehensive to cover all environmental surfaces: surfaces frequently touched by HCWs (e.g., control panel; top, front and sides of dialysis machine; touchscreens; countertops) & surfaces in contact with the patient (e.g., dialysis chair/bed, tray tables, BP cuff with its tubing, TV remote control, ... etc..)
     e) Check the quality of housekeeping activities: observe the presence of **dust, soil, stickers …etc.** that demonstrate defective cleaning and disinfection of patients' environment after termination of hemodialysis sessions

Comment:
For successful observation, it is advisable to plan your visit to be during termination of dialysis sessions (i.e., time for cleaning and disinfection of patients' environment)

Staff Interview (SI)

Ask Nursing staff and housekeeping staff members about:

2) The processes of cleaning and disinfection of hemodialysis patients' environment:
   - **Frequency:** after each shift and at the end of the day
   - **Responsibilities & used PPE:** nursing staff responsibilities & housekeeping staff responsibilities / clean gloves, clean gowns, surgical masks and face shield or goggles
   - **Supplies:** e.g., chemicals and disinfectants, non-linting wipes, spray bottles and/or buckets, …etc.
   - **Procedure:** with no patient present / with approved disinfectants and proper contact times / comprehensive to cover all environmental surfaces whiter frequently touched by HCWs or in contact with the patient

Their knowledge should be compatible with unit's policy and the actual practices

Comment:
Instead of direct questions, indirect ones or scenarios are advisable

D -1.14	**Cleaning and disinfection of the water treatment and distribution system is performed at least once weekly. Complete dialysis system is considered during the disinfection procedure (water treatment system, distribution system, and dialysis machines). (D,SI)**

Document (D)

Review the following documents:

1) Documented evidence for the process of cleaning and disinfection of the water treatment components, distribution system and of dialysis machines ***(appropriate evidence of application: e.g., checklist)*** and check if the applied process is compatible with manufacturer's recommendation and the approved departmental policy or not.

2) The evidence should specify:
   - Frequency of disinfection
   - Method of disinfection ***(whether thermal or chemical)*** as per unit's policy
   - Temperatures, used chemicals and required concentrations & time as per approved unit's policy.

Ask Nursing staff members about:

1) The processes of internal cleaning & disinfection of dialysis machines:
   - *Frequency of disinfection*
   - *Method of disinfection (whether thermal or chemical) as per unit's policy*
   - *Temperatures used chemicals and required concentrations & times.*

Their knowledge should be compatible with unit's policy and the actual practices.

Ask staff responsible for water treatment and distribution system about:

1) The Protocol for cleaning & disinfection of water treatment and distribution system:
   - *Frequency of disinfection*
   - *Method of disinfection (whether thermal or chemical)*
   - *Temperatures, used chemicals and required concentrations & times.*

Their knowledge should be compatible with unit's policy and the actual practices

NOTE:

-Cleaning and disinfection of the water treatment and distribution system should be performed at least weekly or as per manufacturer recommendations

-All components of the dialysis system should be considered as one unit during the cleaning and disinfection process (i.e., water treatment system, distribution system, and dialysis machines)

D - 1.15	**Quantitative Microbiological testing for water and dialysate is conducted at least monthly, and if standards are exceeded, testing is done weekly until meeting standards. (D, SI)**
D - 1.16	**Quantitative Endotoxin testing for water and dialysate is performed at least once per month, and if not up to the standards, testing is repeated weekly until the problem is resolved. (D, SI)**

Document (D)

Review the following documents:

Documented evidence for microbiological & endotoxin testing for water and dialysate:

- *Review microbiological testing reports & dates of these reports.*
- *Review endotoxin testing reports & dates of these reports.*
- *Review the schedule for water and dialysate sampling including sequence of HD machines testing (i.e., rotation of samples so that each machine is tested at least once yearly)*

- *Reports should demonstrate **Quantitative Results** (i.e., microbiological testing results in CFU/ml & endotoxin testing results in EU/ml)*
- *Reports should be reviewed & signed by personnel responsible for water treatment system and/or maintenance department and public health personnel (in coordination with staff of Hemodialysis unit)*

- *Review the approved policy for microbiological & endotoxin testing including the required corrective interventions if results are out of limits.*
- *Review the dedicated form for corrective interventions if results are above the maximal acceptable levels. These forms should be reviewed & signed by personnel responsible for the water treatment system and/or maintenance department and public health personnel (in coordination with staff of the Hemodialysis unit) before resuming dialysis.*

Testing requirements and interpretation of renal dialysis fluid and water used for the preparation of dialysis fluid ---

Hazard/hygiene indicator	Timing/ frequency of testing	Result	Interpretation	Action
Bacterial Colony Counts (CFU)	Monthly (or more frequently if necessary)	0 - < 50 / ml	Satisfactory	No action; system under control
		≥ 50 - < 100/ ml	Borderline	Investigate cause and put corrective action in place
		≥ 100 / ml	Unsatisfactory	Take out of use until corrective action implemented
Endotoxin Levels (EU/ml)		0 < 0.125 EU/ml	Satisfactory	No action; system under control
		≥ 0.125 - < 0.25 EU/ml	Borderline	Investigate cause and put corrective action in place
		≥ 0.25 EU/ml	Unsatisfactory	Take out of use until corrective action implemented

Staff Interview (SI)

Ask hemodialysis staff in charge about:

Microbiological & endotoxin testing for water and dialysate:

- *Ask about the approved frequency of testing.*
- *Ask about the results of microbiological and Endotoxin testing of water & assess if they are complete & well organized.*
- *Ask about the acceptable limits for Bacterial Colony Counts & Endotoxin Levels with corrective interventions.*
- *Ask HDU head about any deranged results ever experienced in the past & check for corrective actions in order to ensure effective implementation.*

- *Routine testing of water should be done with corrective actions done by public health (Environment health).*
- *Infection control should monitor the result of water monthly only and all the results shall be properly documented and made available for inspection.*

References: *Guideline for Infection Prevention and Control in Hemodialysis Units, MOH, 2018- UK renal association, 2009*

D - 1.17	**Patient is tested for HBV markers (HBsAg, anti-HBc, anti-HBs) upon admission & with vaccination provided to susceptible one. Patient with negative results are periodically re-tested with prompt review of results. (MR- D)**
D - 1.18	**Patient is tested for HCV markers upon admission (ALT and anti-HCV – ELISA) Patient with negative results are periodically re-tested with prompt review of results. (MR-D)**
D - 1.19	**Previously HCV +ve patient who was treated with DAAs (Direct Antiviral Agents) and achieved SVR (Sustained Virologic Response) is tested for HCV-RNA (PCR) semi-annually to detect relapse. (MR-D)**
D - 1.20	**Only patients with risk factors for HIV infection (High-risk behaviors, e.g., repeated blood transfusions, drug abuse …etc) are tested for markers of HIV infection. (MR-D)**
Document (D)	***Review the following documents:*** **Documents for serological testing of dialysis patients on admission & periodically (when indicated) with vaccination of susceptible ones:** - Review records for serological testing of dialysis patients for HBV, HCV and HIV (**either hard copies or soft copies / either individual patient's records or whole unit's records**) - Review special records for vaccination against **HBV:** • *Susceptible unvaccinated patients* • *Susceptible patients on vaccination* • *Vaccine responder* • *Vaccine non-responders* - List of previously HCV +ve patients who was treated with DAAs (Direct Antiviral Agents) and achieved SVR (Sustained Virologic Response) (**hard copy or soft copy**) - List of patients with risk factors for HIV infection (high-risk behaviors, e.g., injecting drug abuse, sexual activity or tattoos) (**hard copy or soft copy**) - Seroconversion rates for HBV & HCV (**a whole unit's record**)

Medical records (MR)

Randomly review medical records of patients (from different groups):

- *Medical records of **HBV susceptible patients** (unvaccinated patients and vaccine non-responders): to check routine monthly testing of HBsAg.*
- *Medical records of **HBV immune patients** (vaccine responders: anti-HBc –ve & anti- HBs +ve > 10 mIU/mL): to check routine testing of anti-HBs annually.*
- *Medical records of **HCV –ve patients** (anti-HCV –ve): to check routine testing of ALT & anti-HCV by ELISA (and HCV-RNA (PCR) when indicated)*
- *Medical records of **previously HCV +ve patients who are treated and achieved SVR (Sustained Virologic Response)** (anti-HCV +ve): to check routine testing of HCV- RNA (PCR) every 6 months.*
- *Medical records of **patients with risk factors for HIV infection**: to check testing markers of HIV infection*

D - 1.21	**HVB +ve patients are strictly segregated in a separate room(s), treated by dedicated staff during dialysis sessions using designated machines, equipment, instruments, supplies, and medications which are used only for them. (D, O, SI)**

Document (D)

Review the nursing staff duty roster to ensure that:

1) Number of nursing staff is compatible with number of hemodialysis patients and their distribution on unit's rooms (especially room(s) for HVB +ve patients)

   A dedicated nursing staff is only assigned for HBV +ve hemodialysis patients and strictly not handling any HBV –ve patient outside HBV +ve room(s) during dialysis sessions.

Observation (O)

Observe room(s) for HBV +ve patients to ensure that they are strictly segregated:

1) Physically separated room(s) with accessible hand washing facilities within the room(s).
2) Dedicated HD machines
3) Designated patients care equipment
4) Separate storage for medications, instruments, supplies and consumables *(e.g. definite store(s) or cabinet(s) away from patients' zones)*
5) Assigned nursing staff available within the room(s) during the current shift & whether it is matching the nursing staff roster or not.
6) Nursing staff properly use **PPE** according to infection prevention & control precautions which is recommended for all dialysis patients.

Staff Interview (SI)

Ask nursing staff about:

1) Current nursing staff roster of the unit.
2) Placement of HBV +ve HD patients.
3) Equipment used for HBV +ve HD patients.
4) HD machine used for HBV +ve HD patients.
5) Stores for medications, instruments, supplies, and consumables used for HBV +ve HD patients.

Their knowledge should be compatible with MOH guideline, approved unit's policy.
and the actual practices

Interview any HDU staff in order to ensure effective implementation:

Example: ***From where can you get any missed or forgotten equipment, medications, supplies or other consumables required for HBV +ve patients during their dialysis sessions?***

Answer: ***Nothing should be missed (i.e., required equipment, medications, supplies and other consumables must be available within the area/room(s) that is(are) dedicated for HBV +ve patients during their dialysis sessions)***

D - 1.22	**Training and education of patients (or family members for patients unable to be responsible for their own care) regarding infection prevention & control practices should be given upon admission to dialysis and at least annually thereafter. (D, MR)**

Document (D)

Patients with end-stage renal failure on haemodialysis (HD) maintenance are vulnerable to infections for many reasons including the immunosuppressed state intrinsic to end- stage renal disease (ESRD); the high prevalence of diabetes; exposure to other patients in the HD facility three times per week; frequent hospitalization; and the invasiveness of the HD procedure.

Patients who undergo dialysis treatment have an increased risk for getting an infection because the process of haemodialysis requires frequent use of catheters or insertion of needles to access the bloodstream. Haemodialysis patients have weakened immune systems, which increase their risk for infection, and they require frequent hospitalizations and surgery where they might acquire an infection. Therefore, patient and family education is of utmost importance to ensure adherence to appropriate infection control precautions & alert the staff if there are any signs of infections or any other unusual presentation.

- *IC team must develop the health education material in the form of brochures , booklets etc in Arabic & English highlighting important preventive measures to be taken at home. including catheter site care, showering etc*
- *Patient Health Education content may include basic infection control measure like importance of hand hygiene, care of catheter site etc*
- *Education imparted to the patients and visitors must be structured and documented in patient's files.*
- *Review the training agenda for education and training of hemodialysis patients and families as per frequency specified in the sub element (Upon admission & annually)*
- *Review the records for total number of registered hemodialysis patients and % of coverage..*

Review the Patient files & verify the following:

- *During audit visit of hemodialysis unit review the patient files at random & check if there is documentation for education & training being provided to patinets & care givers in case patients are dependent on family members for care.*
- *Check if the education provided to the patient includes all important aspects of infection control in order to avoid risk of acquiring infection.*

Areas for Patient Education:

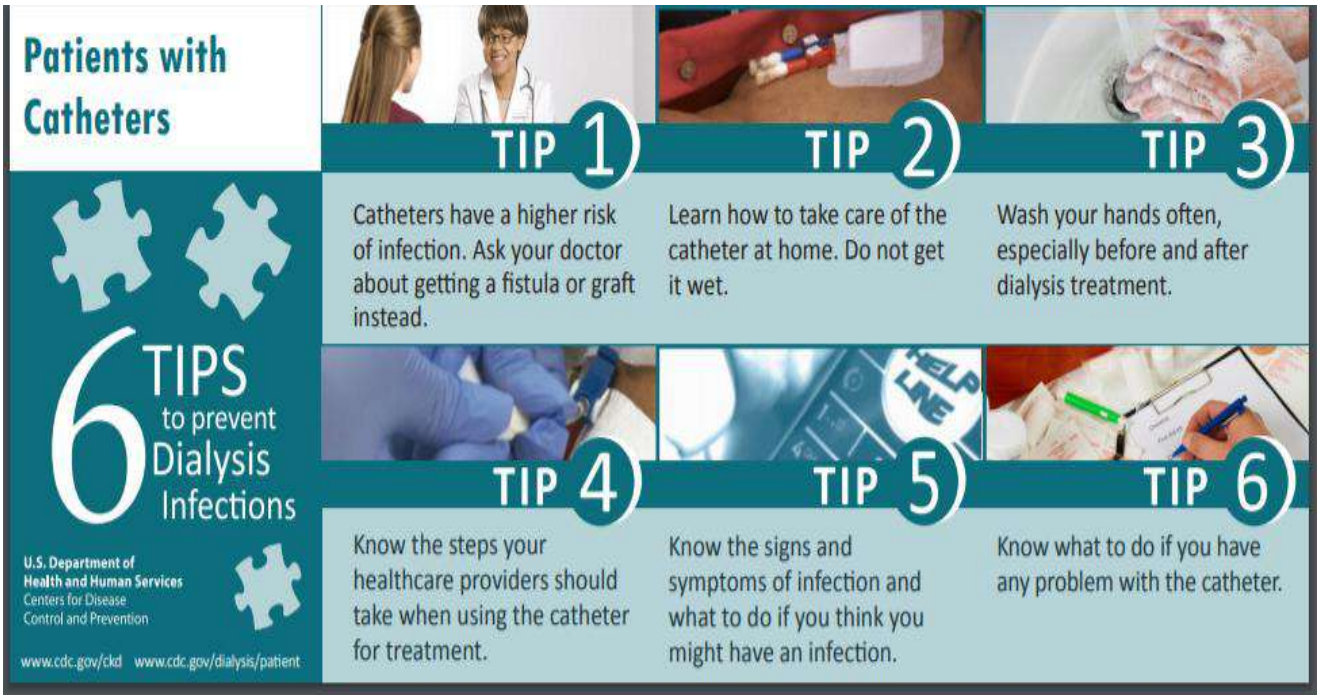
Patients with catheters:

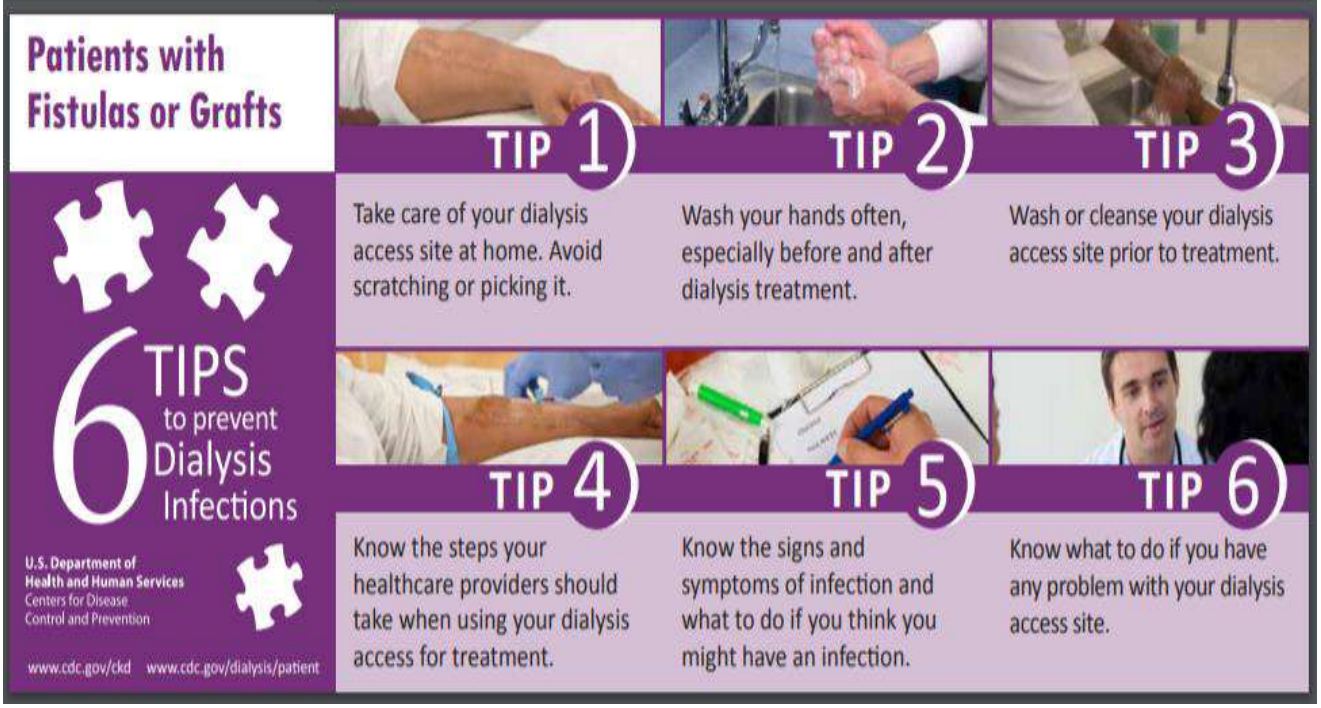
- Hand hygiene
- General access care at home (e.g., bathing with a catheter)
- Signs and symptoms of infection (Redness Pus or unusual drainage Swelling
- How to respond if problems with catheter develop outside of the dialysis center
- Risks associated with catheters/importance of permanent access.
- Basic infection control practices during catheter accessing process (as a means to engage patients)

Patients with other access types:

- Hand hygiene
- Washing the access site prior to treatment
- General access care at home (e.g., don't scratch or pick at the site
- Signs and symptoms of infection
- How to respond if problems with access develop outside of the dialysis center
- Basic infection control practices during cannulation process (as a means to engage patients

HEMODIALYSIS PATIENT & FAMILY EDUCATION


Patients with Catheters
6 TIPS to prevent Dialysis Infections
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
www.cdc.gov/ckd www.cdc.gov/dialysis/patient
TIP 1
Catheters have a higher risk of infection. Ask your doctor about getting a fistula or graft instead.
TIP 2
Learn how to take care of the catheter at home. Do not get it wet.
TIP 3
Wash your hands often, especially before and after dialysis treatment.
TIP 4
Know the steps your healthcare providers should take when using the catheter for treatment.
TIP 5
Know the signs and symptoms of infection and what to do if you think you might have an infection.
TIP 6
Know what to do if you have any problem with the catheter.


Patients with Fistulas or Grafts
6 TIPS to prevent Dialysis Infections
U.S. Department of Health and Human Services
Centers for Disease Control and Prevention
www.cdc.gov/ckd www.cdc.gov/dialysis/patient
TIP 1
Take care of your dialysis access site at home. Avoid scratching or picking it.
TIP 2
Wash your hands often, especially before and after dialysis treatment.
TIP 3
Wash or cleanse your dialysis access site prior to treatment.
TIP 4
Know the steps your healthcare providers should take when using your dialysis access for treatment.
TIP 5
Know the signs and symptoms of infection and what to do if you think you might have an infection.
TIP 6
Know what to do if you have any problem with your dialysis access site.

Element # D-2

COMPOUND STERILE PREPARATION (CSP) IN THE PHARMACY

D - 2.1	There is a written IPC policy and procedure for compound sterile preparation (CSP) area. (D)

Document (D)

- *A **compound sterile preparation (CSP)** is a sterile drug that was prepared by compounding or underwent other handling or manipulation prior to administration.*
- *Pharmacy is responsible for preparing & storing most sterile medications.*
- *Compounding is the process of combining drug ingredients to prepare medications that are not commercially available or to alter commercially available medications to meet specific patient needs such as dye-free or liquid formulations. (1)*
- *Understanding the risks inherent in sterile compounding and incorporating established standards are essential for patient safety.*
- *Patient morbidity and mortality can result from contaminated pharmaceutical items. Sterile pharmaceutical products can become contaminated via two general methods:*
- ***Intrinsic contamination: occurs during the manufacturing process.***
- ***Extrinsic contamination: occurs subsequent to manufacturing (during the Admixture process or while the infuscate is used.***

Infection control breaches that may lead to contamination includes: (CDC)

- ***Failure to follow aseptic practices (Lack of proper hand hygiene)***
- ***Lack of trained / qualified personnel performing sterile compounding***
- ***Sterile compounding occurring in absence of proper controls.***
- ***Sterile compounding hood adjacent to open window***
- ***Compounding hood disinfected with alcohol of insufficient strength.***
- ***Improper storage of sterile medication vials etc.***

- ***Commonly prepared sterile products are susceptible to microbial contamination.***
- ***Specific organism has the ability to proliferate in different fluids:***

* *Klebsiella, Serratia, and Enterobacter species can multiply in 5% dextrose.*
* *Candida albinos can grow slowly whereas Staphylococcus, Proteus, Escherichia coli, and Pseudomonas aeruginosa die slowly in dextrose.*
* *Pseudomonas aeruginosa Acinetobacter, and Serratia will grow in distilled water.*
* *Pseudomonas aeruginosa, Enterobacter, and Serratia can grow in lactated Ringer's solutions. Microbial growth, with the exception of Candida species, is possible in 0.9% sodium chloride.*

(Further reading : APIC Text Book Pharmacy services

Review:

- *Policy & Procedure for compound sterile preparation (CSP) which should be:*

Comprehensive *incorporating all aspects of sterile compounding as follows:*

Methods for Preventing Contamination of Compounded Sterile Preparations:

1) Aseptic technique during CSPs: (1)

- *Practice aseptic technique to prevent contamination of pharmaceuticals which are associated with epidemics.*
- *Remove any hand / wrist jewelry and perform hand scrubbing before each procedure.*
- *Scrub nails, hands, and forearms with antimicrobial soap before handling sterile products.*
- *Wear a gown closed at the collar with knit cuffs, a facemask, shoe covers, hair covers, and a cover for facial hair upon entering the preparation area.*
- *Wear sterile gloves before preparing intravenous (IV) admixtures.*
- *Gloves should be removed when exiting the preparation area.*
- *Gloved personnel should not touch any surface outside of the hood. Etc.*

2) Engineering Controls CSP: (1)

It is recommended that in preparing compound sterile procedures use a primary engineering control device ***(e.g., laminar air flow hood (LAFH) or biological safety cabinet (BSC)*** *capable of maintaining International Organization for Standardization (ISO) class 5.*

Laminar air flow hood (LAFH) or biological safety cabinet (BSC): *(1)*

- *Operate the LAFH continuously. Before processing sterile products, the hood should be running for a period of time long enough to purge room air from the work area (at least 30 minutes or as per the manufacturer's recommendations).*
- *Do not disrupt the air flow between the HEPA filter and any sterile objects to avoid contamination.*
- *Complete all work at least 6 inches from the edge in the interior of the LAFH.*

Cleaning & disinfection of LAFH: *(1)*

- *Disinfect the work surfaces and all accessible interior surfaces of the hood with a hospital approved disinfectant before beginning work.*
- *Clean the exterior surfaces of the hood daily with a hospital-approved disinfectant.*
- *Inspect the containers of the ingredients used to prepare the sterile product for defects, product integrity, and the expiration date.*
- *Do not use defective or expired products.*
- *Disinfect the entire surface of all ampoules, vials and containers with 70% isopropyl alcohol before entry into the LAFH, and allow them to air dry.*
- *Handle all ampoules, vials, needles and syringes in such a way as to maintain asepsis and avoid unnecessary turbulence within the LAFH.*

Maintenance of LAFH: (1)

- *Ensure certification of the LAFH annually, or more frequently as needed, and maintain certification records.*

a) Sterile Product Preparation Area: (1)

- *Separate the functional areas from other areas.*
- *Should have a controlled airflow under positive pressure that should not be disrupted by air ducts, vents or excess traffic that could produce air currents, introducing contaminants.*
- *Should be free of particle-shedding materials such as cardboard boxes or powdered gloves. Such materials should not be stored in any area surrounding the hood.*
- *Should not have carpets, drapes or other particulate-shedding materials in the preparation area.*
- *Should have minimal personnel traffic confined to those persons directly engaged in IV admixture procedures or their supervision. etc.*

Authorized Personnel for CSPs:

- *Pharmacist and pharmacy technicians are the professionals responsible for the preparation and storage of compound sterile and non-sterile products.*
- *Failure to follow sterile compounding standards and proper aseptic technique could lead to intrinsic and extrinsic contamination.*

Quality Control Monitoring:(1)

- *Use single-dose vials whenever possible for admixing parenteral preparations.*
- *Monitor the temperature of refrigerators used in pharmacy to store medications continuously and set alarms to indicate excessively high or low temperatures.*
- *Examine the final sterile product for any leaks, cracks, turbidity or particulate matter.*
- *Label all mixed parenteral fluids appropriately. (1)*

Other aspects of Policy & procedure:

P/P for Compound Sterile Preparations should be:

1. ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services.
2. ***Based on scientific references*** approved such as **MOH, GCC, CDC, WHO & APIC.**
3. ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
4. ***Approved*** by IPC committee.
5. ***Valid*** updated within 2 - 3 years and when indicated.

D - 2.2	**Compound sterile preparation (CSP) is restricted to competent pharmaceutical HCW except during emergency situations, it could be covered with HCW familiar with aseptic techniques and proper use of appropriate PPE. (O,SI)**

Observation (O)

Observe

- Staff working in Compound sterile preparation (CSP) about how they are entering in the CSP i.e. presence of **biometric /coded entrance** for the personnel working in CSP.
- Staff compliance with appropriate PPE use. Notice if PPE is donned appropriately. Observe any breach in practice (***e.g. staff moving in out with same set of PPE & frequently touching the surfaces with gloved hands etc.)***
- Observe if authorized personnel working in CSP are familiarized with rules of aseptic technique and adhere strictly to it.

(e.g. Hand hygiene, use a sterile device (e.g., a needle) each time a vial is accessed and avoid touch contamination of sterile supplies, Disinfect the rubber stoppers of containers and the diaphragms of vials with 70% alcohol wipe prior to use. etc.)

Staff Interview (SI)

Interview:

- Compounding personnel working in CSP about their privileges and authorization to work in CSP.
- Ask which staff will be assigned to work in CSP during ***emergency /contingency situations*** & if they are trained on compound sterile preparation (CSPs) protocols including PPE use and rules of aseptic technique.
- Inquire CSP personnel regarding last comprehensive training on aseptic technique and PPE use.
- Ask randomly selected staff to demonstrate hand hygiene technique & PPE donning & doffing.

D - 2.3	**Compound sterile preparation (CSP) room/area is a functionally separate facility which is under positive pressure. (D, O)**
Document (D)	***Review the following documents:*** – Log sheet with records of positive pressure differentials (at least one month) of at least +**5 Pascal**, – Observe if there are any deranged values in the past and evidence / document for necessary action taken by CSP personnel to address the issue ***(If any)***
Observation (O)	***Observe:*** – The location of compound sterile preparation (CSP) room/area if physically separated from other areas of pharmacy. – Availability of pressure gauge / fixed monitor for continuous monitoring of positive pressure differentials. ***(Monitor must have an inbuilt audiovisual alarm system to alert staff in case of deranged pressure gradients.)***

D - 2.4	**The doors of the compound sterile preparation (CSP) room/area are equipped with an auto-closure mechanism. (O)**
Observation (O)	***Observe:*** – The doors of the compound sterile preparation (CSP) room are equipped with an auto-closure mechanism. – Self-closing doors / doors with auto closure mechanism will ensure pressure control inside the CSP room.

D - 2.5	**Mixing IV medications is performed in the laminar airflow hood or safety cabinet, with air supplied through High-Efficiency Particulate Air (HEPA) filter. (D, O)**
Document (D)	***Review*** – Manufacturer's manual of ***laminar air flow hood or safety cabinet*** that must be available in the unit. *(**Laminar air flow hood or safety cabinet** is designed to generate laminar air flow and supplied air is through **HEPA Filter** installed in the opening channel of hood / biosafety cabinet)* – Document stating last time when HEPA ***Filter*** was being changed. *(PPM for the safety cabinet/hood, quality monitoring, and checking of safety cabinet/hood)*
Observation (O)	***Observe:*** – Compounding personnel practices when they are working inside the CSP area. – If all mixing of IV medication inside the laminar flow safety cabinet/hood or not.

*Laminar Flow Cabinets create particle-free working environments by projecting air through a filtration system and exhausting it across a work surface in a laminar or uni-***directional air stream. They provide an excellent clean air environment.**

Laminar airflow is defined as air moving at the same speed and in the same direction, with no or minimal cross-over of air streams (or "lamina").

D - 2.6	**Compound sterile preparation (CSP) room/area is cleaned and disinfected with an approved detergent/disinfectant and by assigned well trained housekeeper in cleaning/disinfection methods. (D, O, SI)**
Document (D)	***Review:*** – *Cleaning and disinfection schedule of the compound sterile preparation (CSP) room/area* – *Check for MSDS of disinfectants used in CSP.*

(Roles and responsibilities of CSP personnel & housekeeping during the cleaning process must be specified. (Authorized and trained housekeeping must be dedicated for housekeeping surfaces ONLY i.e. floors, walls, ceilings, hand washing sinks, emptying trash receptacles etc.)

Observation (O)

Observe:

- *Type of Detergent/disinfectant types are being used* ***(Check for active ingredients and expiry dates) & verify if approved by MOH.***
- *How the process of cleaning and disinfection is being carried out inside the CSP room (Technique i.e. from inside to outside, from top to down etc.).*
- *If the floor and other areas are kept clean and tidy. (Randomly wipe any surface to confirm.)*
- *Place where cleaning equipment and detergent / disinfectants are being kept.*

Staff Interview (SI)

Interview:

- *Housekeeping about his responsibility in the cleaning process and frequency of cleaning.*
- *Type of disinfectants / detergents they are using with dilutions & contact time etc.*
- *Ask if they have dedicated mops for CSP and how mop heads are processed* after use.

D - 2.7 Working surface (under the laminar air flow hood) is regularly disinfected by an approved disinfectant using non-linting wipes. (O, SI)

Observation (O)

Observe:

- How the compounding personnel are disinfecting the working surface (under the laminar airflow hood) (***Observe technique & type of disinfectant being used if possible, to observe real situation)***
- Availability of disinfectant inside CSP to ensure the disinfection process.
- If non-lining wipes are available & used.

A lint free cloth is a special type of cleaning cloth that does not give up any fluff / fibers when used and less likely to generate electrostatic charges.

Staff Interview (SI)

Observe:

- Ask compounding personnel about frequency of cleaning of LAFH working surface.
- Ask her / him to explain technique, type of disinfectant being used & contact time etc.

(Disinfection process to be documented in daily log sheets after each work process / work shift on LAFH in order to promote accountability and evidence)

D - 2.8	Maintenance records for hoods and safety cabinets are available. (D)
Document (D)	***Review:*** – Quality control records & Periodic Preventive Maintenance (PPM) records of hoods and safety cabinets – ***(Ensure certification of the LAFH annually, or more frequently as needed, and maintain certification records.*** [1] – Check for validity of LAFH certificate / PPM. – ***Maintenance records should include functionality, HEPA filter change etc.)*** – ***All maintenance records must be kept in the CSP, documentation only with the maintenance department isn't enough.***

Comments:

PPM is Planned Preventive Maintenance / Periodic Preventative Maintenance.

D - 2.9	All supplies and containers used in CSPs preparations are sterile. (O,SI)
Observation (O)	***Observe:*** – Availability of all required supplies and containers in the CSP & confirm if they are sterile. – Observe if supply is stored at appropriate storage areas. *(Sometimes huge amount of sterile supply is kept in the anteroom with increased risk of contamination)* – ***Example of sterile supply: Sterile gloves , gowns, syringes, single use containers like ampules, single dose vials, IV bags, irrigation bottles etc. and multidose vials MDVs***
Staff Interview	***Interview:*** – Compounding personnel regarding type of supplies and containers are being used during compound sterile preparations. – Ask how to ensure sterility of containers??

* ***Pharmaceutical container is a device in which drug is enclosed & is in direct contact with drug e.g., single dose containers, multidose containers. light resistant containers, aerosol containers etc.***

* ***Ensuring sterility of all supplies during compounding is of utmost important in order to avoid contamination & subsequent infection risk to patients.***

REFERENCES / WEB BASED RESOURCES:

1. *APIC text of Infection Control & Epidemiology: Pharmacy Services* *http:// text.apic.org/toc/infection-prevention-for-support-services-and-the-care-environment/pharmacy-services*

2. *Association for Professionals in Infection Control (APIC) and Epidemiology, Inc. (2021).* ***Chapter 30: Aseptic technique. In APIC Text of infection control and epidemiology (4th ed.).***

3. *United States Pharmacopeial (USP)2018, Convention published the first national standards and enforceable standards for* ***compounded sterile preparations (CSP) to protect patients against preventable harm*** *(i.e., General Chapter 797-Pharmaceutical Compounding-Sterile Preparations)*

Element # D-3 OPERATING ROOM (OR)

D - 3.1	**There is a written policy and procedure for IPC in OR including a clear policy to handle patients under air-borne infection isolation precautions inside OR (e.g., TB) & patients with infectious transmissible diseases are scheduled towards the end of the operating list. (D)**

Review the policy, which should be:

Comprehensive: it covers all aspects of infection control in OR including:

- Special protocols to handle patients under Air-borne Infection Isolation Precautions (e.g., TB) inside OR *etc*
- Handling patients with transmissible diseases (patient +ve for one of blood borne pathogens / patients under air-borne transmission-based precaution / patients under contact and/or droplet transmission-based precaution) / scheduling cases with infected wounds (e.g., dirty wounds).

Review the Operating lists: to review the last event for dealing with patients' with transmissible diseases or cases with infected wounds.

- **Fully applicable:** all elements of the policy can be applied and comply with the hospital's scope of services
- **Based on approved scientific references** such as MOH, GCC, CDC, WHO & APIC
- **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
- **Approved by IPC committee***
- **Valid** (updated within 2 - 3 years and when indicated)

Comment:
Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes.

D -3.2	There is a clear demarcation between unrestricted, semi-restricted and restricted zones of OR with restrictions and special precautions for movement between these zones. (O, SI)

Observation (O)

Observe the OR suite that should be divided into three clearly demarcated zones*:

Unrestricted area: area with limited public access that may include:

* *Central control point: it may be established to monitor the entrance of patients, personnel, and materials from the unrestricted area into the semi-restricted area.*
* *Locker rooms: lead into semi-restricted area*
* *Pre-operative admission area*
* *Offices , waiting areas.*

Semi-restricted area: (Peripheral support areas of the surgical suite)

* *Corridors leading from the unrestricted area to the restricted area of the surgical suite.*
* *Surgical scrub sinks need to located in the semi restricted near to the entry of theater*
* *At least one large scrubbing sink is available at entry to each operating theater.*
* *Storage areas for clean and sterile supplies*

Restricted area: A designated space with restricted access that can be reached only through a semi restricted area (this is primarily intended to support high level of asepsis control not necessarily for security purposes):

* *Operating rooms*
* **Observe: traffic control (movement of the patients, personnel, instruments and materials) between different zones of the OR suite** in order to ensure that restrictions and special precautions for movement between different zones are strictly applied.

- ***Unrestricted area:***
  - *Limited public access / Street clothes are permitted in this area / Patients are switched between units' beds and OR trolleys or beds in this area.*
- ***Semi-restricted area:***
  - *Limited access to authorized personnel and patients accompanied by authorized personnel / Personnel in this area were wearing surgical attire and covering head and facial hair / No units' beds in this area (only OR trolleys or beds)*
  -
- ***Restricted area:***
  - *Restricted access to authorized personnel/ Personnel in these areas are required to wear surgical attire and cover head and facial hair - masks are required where open sterile supplies or scrubbed persons may be located + appropriate use of sterile gowns and sterile gloves when indicated (operating rooms scrub clothing).*

Staff Interview (SI)

Ask the OR staff about:

- OR zones demarcations, restrictions, traffic control and special precautions to be applied in different zones of the OR suite (e.g., required PPE in different zones)

- The limitation of personnel traffic in the room decreases the amount of bacterial shedding, keeps air turbulence at a minimum, and reduces the accidental contamination of sterile items.
- A recent investigation has suggested a trend toward increased SSI rate with increased number of personnel in the operating room.
- Operating room doors should remain closed all the time, except as needed for the passage of equipment, personnel, and patients.

D - 3.3	**Floors, walls, and ceiling are formed of one piece without connections, cracks, or decorative parts, with minimal openings that are completely sealed, and withstand repeated cleaning and disinfection. (O)**
Observation (O)	***Observe the internal finishing of the operating theater (floors, walls and ceilings), which should be:*** – Formed of one piece without connections ***(if formed of separate units or tiles, connections between units should be completely sealed)*** – No breaks, gaps, cracks or decorative parts are observed – Only necessary openings (i.e., O_2 supply ports, suction ports, electricity plugs …) that are completely sealed to keep pressure differences – Made of suitable materials ***(easily cleanable / withstand repeated cleaning and disinfection).***

D - 3.4	**At least one large scrubbing sink is available at entry to each operating theater. (O)**
Observation (O)	***Observe the scrubbing sink(s) of the operating theater(s), which should be:*** 1) Large, deep and with hands free control 2) Close to or at the entry of each operating theater. 3) Dedicated only for hand hygiene & surgical scrubbing. 4) Provided with dispenser of antiseptic hand soap for surgical hand hygiene (ideal to be single use dispenser not refillable) and disposable surgical scrubbing brushes/sponges and this sink should be in the semi restricted area pre operating theater entrance

Comment:

- ***One large scrubbing sink, which is shared between two adjacent operating theaters, is an acceptable option.***

D -3.5	Storage areas in the OR are organized and well maintained and distribution of sterile items respects the 1st in 1st out principle. (D, O)

Document (D)

Review the following documents:

1) Housekeeping records: housekeeping schedule with clear procedures for cleaning/disinfection activities at least daily + practical detailed checklist
2) Local records for regular monitoring (daily) of temperatures and relative humidity

Observation (O)

Observe the storage area(s) of the OR, which should be:

1) Of adequate capacity, well maintained, secured and away from contamination, air vents and directs sunlight.
2) Well organized and regularly cleaned according to definite housekeeping schedule / no personal items, foods or drinks / no Items are kept in the original shipping boxes.
3) Storage shelves are made of easily cleanable material (e.g., fenestrated stainless steel, Aluminum, or hard plastic).
4) Storage shelves: 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall.
5) Centrally air conditioned with adjusted temperature and relative humidity (temperature: 21 - 24°C / relative humidity: 20-60%) + fixed device for monitoring.

For distribution process (1st in 1st out) there are 3 methods suggested to follow:

* *Use a left-to-right system: the newest item is placed on the left, and the older items move forward to the right The pack on the far right is the first to be picked-up for use.*
* *use a back-to-front system: the new packs in from the back of the shelf and pick up the oldest from the front of the shelf.*
* *A colored sliding shelf divider system: divider containing the words "use this first" printed on the right side is moved up against the next pack. As new packs are stored, they are placed to the left of the divider.*

D - 3.6	**Only necessary items are kept in the restricted area of the OR. (O)**
D - 3.7	**Doors are kept closed and only necessary personnel are allowed in the theater. (O, SI)**

Observation (O)

Observe the restricted area of the OR (operating theater), which should fulfill the following:

1) Unnecessary items are kept outside: Only items prepared to be used with just one patient, and extra supplies, as little as possible, may be also prepared to get ready for some emergency situations.
2) The use of storage cabinets in operating rooms should be minimized
3) Unnecessary personnel are excluded: ***Only anesthesia team + surgical team + un-scrubbed assistant(s) + equipment technician***(s) if needed (as little as possible)
4) Cleaning/maintenance activities should be avoided during the procedures
5) Doors are continuously kept closed during the procedures

Staff Interview (SI)

Ask the OR staff about:

1) Pre-operative preparation of operating room & how to apply concept of "***Only necessary items are kept in the restricted area***"
2) Protocols to exclude unnecessary personnel (e.g., unauthorized HCWs, trainees, visitors …) / conducting cleaning/maintenance activities inside operating room

D - 3.8	**OR environment is maintained clean and there are clear procedures for cleaning and disinfection by allocated housekeeping staff after each surgical procedure and at least daily. (D, O, SI)**

Document (D)

Review the following documents:

OR should have housekeeping schedule with cleaning/ disinfection activities log those records:

a. Responsible housekeeping staff (Only experienced staff are allowed. They should be well trained on hand hygiene, use of PPE, methods of cleaning, and proper and safe mixing of chemicals).
b. Methods of cleaning and using agents, materials, and supplies (wet cleaning, MOH approved disinfectant/detergent, non-linting wipes …)
c. Environmental surfaces intended to be cleaned & frequency.
d. Clear procedures for cleaning/disinfection activities after each surgical procedure and at least daily with a practical updated detailed checklist.
e. Clear procedures for cleaning and disinfecting anesthesia machines by anesthesia technicians after each case and toward the end of working hours with a practical detailed checklist.

Observation (O)	***Observe OR to ensure that:*** - OR environment is clean (at all times) and free of contamination (no dirt or dust) - check if tools, agents & materials used for cleaning/disinfection activities are available and matching MOH specifications. **You can wipe out the main operative light lamp, operative table, or other environmental surfaces**
Staff Interview (SI)	***Ask the OR nurse (nurse in charge or nurse responsible for theater) and allocated housekeeping staff about:*** - OR housekeeping schedule / role & responsibility of nursing staff in cleaning/disinfection activities. - Methods of cleaning / tools, agents & materials to be used. - Terminal cleaning checklists / cleaning/disinfection activities after patients with infectious transmissible diseases / handling body fluids spills.

Environmental cleaning should be conducted as follows:

a) Every day, before surgery begins.

b) Between patients.

c) After the last operation of the day (known as terminal cleaning).

d) Deeper cleans are carried out once a week and/or once a month.

Reference: Infection Control Guidelines in the Operating Room (OR) – Version 1.1 March 2022

D - 3.9	**Ventilation system operates all the time and never shuts down even in long holidays / air is introduced from the ceiling and exhausted near the floor. (D, O, SI)**
D - 3.10	**All re-circulated or fresh air is filtered through High-Efficiency Particulate Air (HEPA) filters that are maintained and replaced as per the manufacturer recommendations. (D)**
D - 3.11	**Operating Room is maintained at positive pressure (at least +2.5 Pascal) with respect to adjacent corridors. (D , O)**
D - 3.12	**Operating Room is maintained at ≥ 20 air changes per hour (ACH) with 20% fresh air. (D, O)**
D - 3.13	**Operating Room temperature ranges from 21 to 24 °C and relative humidity from 20% to 60%. (D, O)**

Document (D)

Observation (O)

Review the following documents:

1) Copies of the original charts or project scheme for ventilation system: air supply from central AC through with at least 20 % fresh air / all re-circulated and fresh air is filtered through High-Efficiency Particulate Air (HEPA) filters / air is introduced from the ceiling (or high air vents in the wall) and exhausted near the floor.

2) Local records for regular monitoring (**daily**) of: positive pressure differences + temperatures and relative humidity ± air changes per hour (ACH) with corrective interventions if readings are not matching the acceptable values

3) Copies of maintenance records for regular monitoring (**every 3 months**) of: positive pressure differences + temperatures and relative humidity + air changes per hour (ACH) with corrective interventions if readings are not matching the acceptable values.

4) Copies of records from the executing company (or maintenance records) for regular check-up and replacement High-Efficiency Particulate Air (HEPA) filters as per the manufacturer recommendations.

5) Copies of records from the executing company (or maintenance records) for regular calibration (**annually**) of OR monitors.

Observe OR theater to ensure that:

1) Air is introduced from the ceiling (or high air vents in the wall) and exhausted near the floor.

2) OR monitors are valid and recorded values in local OR logs are identical to the actual readings.

Comment

Ask the OR staff (nurse in charge or nurse responsible for theater) about:

- Handling ventilation system of the OR during long holidays.
- Local controls for the OR ventilation system (e.g., presence of a local On/Off switch / adjustment of the ventilation parameters on personnel's request

Ask the maintenance staff responsible for the OR ventilation system about:

- Handling ventilation system of the OR during long holidays.
- Central adjustment of temperatures and relative humidity
- Local controls for the OR ventilation system (e.g., presence of a local On/Off switch / adjustment of the ventilation parameters on personnel's request

وزارة الصحة
Ministry of Health

Element # D-4 LABORATORY DEPARTMENT

D - 4.1 There is a written policy and procedure for IPC in the laboratory. (D)

Document (D)

Review the policy, which should be:

1) **Comprehensive:** it covers all aspects of infection control in the laboratory, including (but not limited to):
   - *Laboratory biosafety*
   - *Laboratory aerosol generating procedures / Biological Safety Cabinets (BSC) & other containment devices.*
   - *Infection control practices: Hand hygiene / PPE / Transporting and handling of biohazardous materials / Infectious waste management (especially high-risk laboratory waste as cultures plates) / Environmental cleaning & disinfection / Dealing with different types of spills …etc.*
   - *Reporting, follow up and management of occupational exposures: sharp injuries, blood or body fluid exposures and chemical exposures.*
   - *Biosafety in mycobacteriology laboratory that manipulates suspected or confirmed cultures of Mycobacterium tuberculosis (if applicable)*
2) **Fully applicable:** all elements of the policy can be applied and comply with the hospital's and/or laboratory's scope of services.
3) **Based on approved scientific references** such as MOH, GCC, CDC, WHO & APIC
4) **Signed from authorized personnel** (i.e., owner of the policy / medical director or hospital director / concerned department)
5) **Approved by IC committee***
6) **Valid** (updated within 2-3 years and when required.

Comment: Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes

Reference GDIPC-Infection Control Guidelines in Clinical Laboratory – 2021

D - 4.2 Access is restricted with a sign incorporating the universal biohazard symbol posted at the entrance.

Observation (O)

- *Laboratories are special unique work environments that present identifiable infectious disease threats to the laboratory personnel working in it.*
- *The Laboratories deal with infectious materials like clinical samples, bacteria, viruses, and fungi so lab personnel must follow specific Infection Control Guidelines to reduce the risk of transmission during manipulation of patient specimens, cultures, contaminated sharps, and diagnostic equipment.*
- *Laboratory personnel are also at risk of exposure to blood-borne pathogens related to injuries from contaminated sharps, splashes to the eyes or mouth, and unprotected exposure of blood/body fluids onto non-intact skin.*
- *Therefore, access inside the laboratory must be restricted & controlled in order to prevent risk of accidental exposures and to ensure safety.*

Observe the laboratory entrance:

- There is a sign that indicates "restricted area – for authorized personnel only".
- There is a universal biohazard sign posted at the entrance.

D - 4.3 Eating, drinking, wearing contact lenses, and storing food are not permitted. (O, SI)

Observation (O)

Observe different laboratory area(s) and supplies' refrigerator(s):

- To exclude the presence of any foods or drinks.
- Open the different refrigerators at random and assess if any eatables or drinks are stocked.
- Observe if there is any area / pantry inside the laboratory working area which is used for eating & drinking etc ***(If yes it means all such leisure activities are done inside the lab. This is strictly prohibited)***

Staff Interview (SI)

Ask the laboratory staff:

- Where they are spending their break time & where they are keeping their food items and personal belongings,
- Ask about the health risks associated with eating. drinking, storage of food & use of contact lenses is done inside the lab.

- *No food or drinks are allowed in the clinical laboratory.*
- *No food or drink will be stored in refrigerators in the laboratory work area.*
- *Smoking is not allowed in laboratory buildings.*
- *Application of cosmetics and contact lenses is prohibited in the laboratory working area*
- *Hair should be worn or secured so that it cannot become either a safety hazard or a source of contamination.*

Reference GDIPC-Infection Control Guidelines in Clinical Laboratory – 2021

Staff Interview (SI)

Ask the laboratory staff:

- What are the aerosol generating procedures inside the laboratory?
- How can they handle aerosol generating procedures in presence or absence of biological safety cabinet (BSC) **(proper containment)**
- What are the safety measures that are required during the operation of a biological safety cabinet (BSC)?

D - 4.4	**All manipulations of infectious materials that may generate aerosols are properly contained or conducted in a biological safety cabinet (BSC - class II-B). (O, SI)**

Observation (O)

Observe the laboratory area(s):

- If biological safety cabinet (BSC) is available, determine its class: it should be **class II-B (i.e: *exhaust air from BSC discharged to outside through HEPA filters)***
- If a biological safety cabinet (BSC) is not available or not used, aerosol generating procedures are properly contained.

Aerosol generating procedures include blowing out pipettes, shaking or overtaxing tubes, stirring, opening snap top tubes, breakage of culture containers, flaming loops or slides, pulling needles out of septa, filling a syringe, pouring liquids, centrifugation steps such as filling centrifuge tubes, removing plugs or caps from tubes after centrifugation, removing supernatant, breakage of tubes during centrifugation, and centrifugation itself

Biosafety Cabinet:

Biosafety cabinet is a primary containment device designed to draw air inward by mechanical means in order to contain infectious splashes or aerosols generated during certain laboratory procedures. There are three types of biosafety cabinets, class I, II and class III. Most laboratories use class I and class II cabinets.

Class 1: Ventilated negative pressure cabinet, which is usually operated with an open front and inward airflow at a minimum velocity of 75 linear feet/minute (75 lfpm) to protect personnel (not product protection).

Class 2: Ventilated negative pressure cabinet, which is designed with inward airflow at a velocity to protect personnel (75 – 100 linear feet/minute (75 - 100 lfpm); HEPA-filtered downward vertical laminar airflow for product protection and HEPA-filtered exhaust air for environmental protection. These are further subdivided into two types (A and B) based on construction, airflow velocities and patterns, and exhaust systems.

Class 2, Type A: Type A cabinets are suitable for microbiological research in the absence of volatile or toxic chemicals and radio-nucleotides, since air is recirculated within the cabinets. The HEPA filtered air is conducted into the room.

Class 2, Type B: Type B cabinets are hard-ducted to the building exhaust system and contain negative pressure plena. Type B permits work to be done with toxic chemicals or radio-nucleotides. The HEPA filtered air is conducted outside the room.

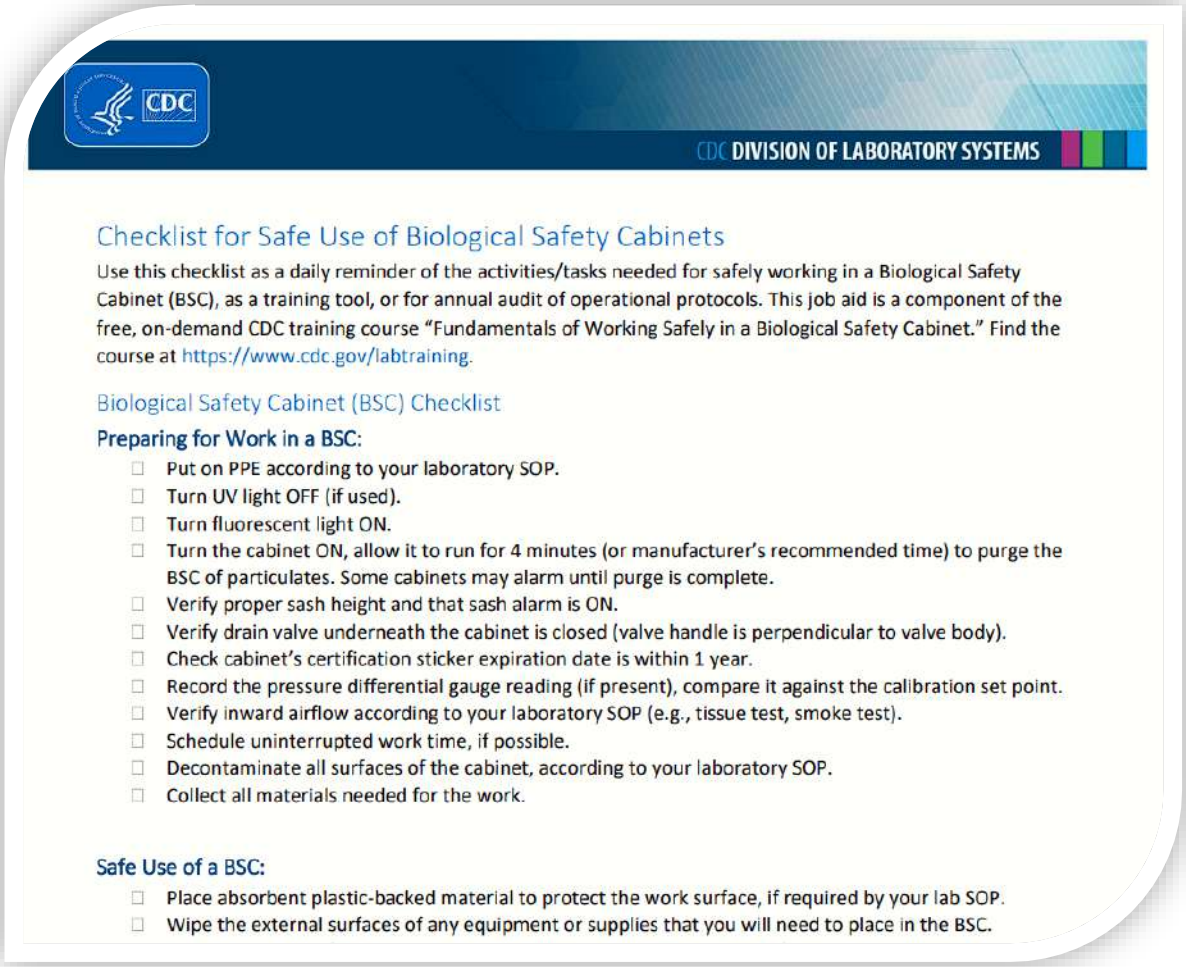
Class 3 or Glove box: Class 3 are totally enclosed, ventilated cabinet of gas-tight construction and offers the highest degree of personnel and environmental protection from infectious aerosols, as well as protection of research materials from microbiological contaminants. Operations are conducted through attached rubber gloves. Both supply and exhaust air are HEPA filter.

Notes:

- HEPA filters (High efficiency particle air filter). It removes the bacteria, viruses, fungi and spores by 99.97% efficiency.
- Biosafety cabinets should be tested and certified at the time of installation within the laboratory, at any time the BSC is moved, and at least annually

Cabinet	Operations and uses
CLASS 1	Class I cabinets are negative pressure, ventilated cabinets usually operated with an open front and a minimum face velocity of air of at least 75 linear feet/minute (lfpm) to protect personnel (not product protection).
CLASS 2	Cabinet is designed with inward air flow at a velocity to protect personnel (75-100 lfpm); HEPA-filtered downward vertical laminar airflow for product protection and HEPA-filtered exhaust air for environmental protection. These are further subdivided into two types (A and B) based on construction, airflow velocities and patterns, and exhaust systems.

Cabinet	Operations and uses
Class 2 Type A	Type A cabinets are suitable for microbiological research in the absence of volatile or toxic chemicals and radio-nucleotides since air is recirculated within the cabinets. The HEPA filtered air is directed into the room.
CLASS 2 TYPE B	Type B cabinets are hard-ducted to the building exhaust system and contain a negative pressure system. Type B permit work to be done with toxic chemicals or radio-nucleotides. The HEPA filtered air is conducted outside the room.
CLASS 3 OR GLOVE BOX	Class 3 are a totally enclosed, ventilated cabinet of gas-tight construction and offers the highest degree of personnel and environmental protection from infectious aerosols, as well as protection of research materials from microbiological contaminants. Operations are conducted through attached rubber gloves. Both supply and exhaust air are HEPA filtered.



CDC DIVISION OF LABORATORY SYSTEMS

Checklist for Safe Use of Biological Safety Cabinets

Use this checklist as a daily reminder of the activities/tasks needed for safely working in a Biological Safety Cabinet (BSC), as a training tool, or for annual audit of operational protocols. This job aid is a component of the free, on-demand CDC training course "Fundamentals of Working Safely in a Biological Safety Cabinet." Find the course at https://www.cdc.gov/labtraining.

Biological Safety Cabinet (BSC) Checklist

Preparing for Work in a BSC:

- ☐ Put on PPE according to your laboratory SOP.
- ☐ Turn UV light OFF (if used).
- ☐ Turn fluorescent light ON.
- ☐ Turn the cabinet ON, allow it to run for 4 minutes (or manufacturer's recommended time) to purge the BSC of particulates. Some cabinets may alarm until purge is complete.
- ☐ Verify proper sash height and that sash alarm is ON.
- ☐ Verify drain valve underneath the cabinet is closed (valve handle is perpendicular to valve body).
- ☐ Check cabinet's certification sticker expiration date is within 1 year.
- ☐ Record the pressure differential gauge reading (if present), compare it against the calibration set point.
- ☐ Verify inward airflow according to your laboratory SOP (e.g., tissue test, smoke test).
- ☐ Schedule uninterrupted work time, if possible.
- ☐ Decontaminate all surfaces of the cabinet, according to your laboratory SOP.
- ☐ Collect all materials needed for the work.

Safe Use of a BSC:

- ☐ Place absorbent plastic-backed material to protect the work surface, if required by your lab SOP.
- ☐ Wipe the external surfaces of any equipment or supplies that you will need to place in the BSC.

Reference: https://www.cdc.gov/safelabs/docs/BSC-Checklist.pdf

D - 4.5	**Biological Safety Cabinets (BSC - class II-B) dedicated for aerosols generating procedures are well maintained, tested , and certified at least annually. (D)**
Document (D)	***Review the following documents for the biological safety cabinet (BSC):*** – Copy of maintenance records: PPM and quality control records for the last 2 years. – Valid annual certificate from authorized company. ***(Check the cabinet's certification sticker expiration date is within 1 year.)*** – Check the dates to confirm when last maintenance was done & all-important parameters are checked for functionality like HEPA filters, UV light etc.

D - 4.6	Whenever possible, plastic tubes are used instead of glass ones to avoid sharp injuries. (O,SI)
Observation (O)	***Observe the laboratory area(s):*** - Observe different workstations inside the clinical laboratory & exclude the presence of any glass tubes.
Staff Interview (SI)	***Ask the laboratory staff:*** - About the risk associated with use of glass tubes. - Is there a need to use glass tubes during some procedures inside the laboratory? - What are the indications for using glass tubes inside the laboratory (if any)?

Microbore glass capillary tubes, used for hematocrit determination, pose a serious and avoidable risk of blood-borne pathogen transmission to health care workers. The fragile blood-filled tubes sometimes break, especially when the health care worker pushes one end of the tube into sealing clay. The glass typically fractures near the worker's fingers where force is applied and can cause lacerations and introduce blood directly into the wound.

Reference: https://www.cdc.gov/niosh/nioshtic-2/20033908.html

D - 4.7	Each work area contains a dedicated well-equipped sink for washing hands together with easily accessible eyewash facility to be used in emergency in case of exposure to blood and body fluids. (D,O,SI)
Document (D)	***During the audit visit the lab requested documents for periodic maintenance and regular testing of eyewash station.*** - Review the functionality checklist & verify if there is regular check with appropriate documentation to ensure functionality of the eyewash facility to be used in case of accidental exposures.
Observation (O)	- Observe the laboratory area(s) for the presence of easily accessible dedicated sink for handwashing at each working area which is well equipped with paper-towel and soap dispensers. - Observe the laboratory area(s) for easily accessible eyewash station to be used in emergency in case of accidental exposure to blood and body fluids.

Staff Interview (SI)

Ask the laboratory staff:

- What are the first aid measures in case of exposure to blood or body fluid splashes inside the laboratory (if any)?
- Ask any lab personnel to demonstrate how to use eye wash facility to check if its functioning.

D - 4.8 **Specimen collection and receiving area are equipped with hand washing facilities and proper PPEs. (O)**

Observation (O)

Observe the specimen collection area and receiving area for:

- The availability of easily accessible hand washing facilities and supplies (sinks with water / plain soap / towels) and other waterless hand hygiene facilities (alcohol - based hand rub dispensers).
- The availability of PPEs e.g Gloves, gowns, masks, googles/ face shields etc with proper quality in order to avoid risk of acquiring infection.
- Observe the staff compliance to hand hygiene and appropriate use of PPE.

D - 4.9 **Mycobacteriology laboratory that manipulates cultures of suspected or confirmed Mycobacterium Tuberculosis cases should be in at least (BSL-3 laboratory). (D,O,SI)**

Document (D)

Request the following documents:

- Separate policy with definite procedure for manipulating suspected or confirmed cultures of Mycobacterium Tuberculosis in the mycobacteriology laboratory.
- Copies of the original charts or project scheme for ventilation system inside mycobacteriology laboratory: one-pass (non-recirculating) separated ventilation system / directional airflow pattern is from clean to least clean area / exhaust air is filtered through High-Efficiency Particulate Air (HEPA) filters.
- Local laboratory records for regular monitoring (**daily recording by laboratory staff**) of negative pressure differences ± air changes per hour **ACH** (optional) with corrective interventions if readings are not matching the acceptable values.
- Copies of maintenance records for regular monitoring (**recording by maintenance team every 3 months**) * of negative pressure differences + air changes per hour (mandatory **6 – 12 ACH**) with corrective interventions if values are out of acceptable range.
- **Preventative Maintenance (PPM)** schedule for Biological Safety Cabinet - BSC with copies from PPM records for regular maintenance in the last 2 years (regular check- up with replacement of filters as per the manufacturer recommendations - corrective interventions when indicated).
- Valid annual certificate for BSC - class II-B from authorized company

Observation (O)

Observe the suite specified for growth and manipulation of TB cultures:

- Separate suite specifically designed for mycobacterial culture (i.e., isolated from other parts of building with a controlled entrance through an anteroom)
- The availability of biological safety cabinet and its class (Biological Safety Cabinet Class II, or III with exhaust air discharged to outside through HEPA filters).
- Ventilation monitoring device in culture area (to record negative pressure differences
- ± air exchanges per hour **ACH**: it is valid and recorded values in local laboratory logs are identical to the actual readings.

Staff Interview (SI)

Ask the laboratory staff:

- What is meant by Biosafety Level III?
- What is meant by BICSL & N95 fit testing?
- Show me your card of BICSL license (it should be a valid license)
- How do you safely operate a Biological Safety Cabinet – BSC or other containment devices?
- How do you correctly manipulate cultures suspected or confirmed to contain Mycobacterium tuberculosis complex?
- How can you report a lab? Technician who had been exposed to a case of open pulmonary TB?

D - 4.10

Microbiological cultures should be autoclaved within the laboratory in an autoclave that is placed in appropriate location and fulfills quality control parameters (except cultures for organisms not mentioned in the approved list of highly infectious microorganisms, that could be double packed and send to the contractor for final disposal as infectious medical waste. (D, O, SI)

Document (D)

Review the following documents:

- Logbook for the autoclave that must have the load number and date.
- Quality performance tests for the autoclave operation ***(results of physical indicators (bowie dick), chemical indicators and biological indicators).***
- Infection control list of highly infectious microorganisms that their cultures must be autoclaved in the laboratory department before being disposed of as infectious medical waste. (the list mentioned below)

Observation (O)

Observe the following:

- Presence of working autoclave in a dedicated well-ventilated place that is physically separated from other areas in the department.
- Presence of the autoclavable bags that are used to sterilize the culture plates to avoid adherence of the load in the autoclave chamber.
- Availability of physical indicator (bowie dick), chemical indicator strips and biological indicator.

Staff Interview (SI)

Review the staff knowledge about:

- Cultures that must be destroyed before being disposed of in yellow biohazard bags.
- Awareness about the list of those cultures and samples.
- The method of disposal of the cultures that not included in the list

AGENTS TO BE DESTROYED ONSITE BEFORE DISPOSAL		
#	**Pathogen type**	**Select agents**
1	**Viruses**	Crimean-Congo hemorrhagic fever virus; Ebola viruses; Cercopithecine herpesvirus 1 (herpes B virus); Lassa fever virus; Marburg virus; monkeypox virus; South American hemorrhagic fever viruses (Junin, Machupo, Sabia, Flexal, Guanarito); tick-borne encephalitis complex (flavi) viruses (Central European tick-borne encephalitis, Far Eastern tick-borne encephalitis [Russian spring and summer encephalitis, Kyasnaur Forest disease, Omsk hemorrhagic fever]); variola major virus (smallpox virus); and variola minor virus (alastrim)
		Exclusions: Vaccine strain of Junin virus (Candid. *1#*)
2	**Bacteria**	Rickettsia prowazekii, R. rickettsii, Yersinia pestis, TB, Brucella
3	**Fungi**	Coccidioides posadasii
4	**Toxins**	Abrin; conotoxins; diacetoxyscirpenol; ricin; saxitoxin; Shiga-like ribosome inactivating proteins; tetrodotoxin
		Exclusions: The following toxins (in purified form or in combinations of pure and impure forms) if the aggregate amount under the control of a principal investigator does not, at any time, exceed the amount specified: 100 mg of abrin; 100 mg of conotoxins; 1,000 mg of diacetoxyscirpenol; 100 mg of ricin; 100 mg of saxitoxin; 100 mg of Shiga-like ribosome inactivating proteins; or 100 mg of tetrodotoxin
5	**Genetic elements, recombinant nucleic acids, and recombinant organisms**	• Select agent viral nucleic acids (synthetic or naturally-derived, contiguous or fragmented, in host chromosomes or in expression vectors) that can encode infectious and/or replication competent forms of any of the select agent viruses; • Nucleic acids (synthetic or naturally-derived) that encode for the functional form(s) of any of the toxins listed in this table if the nucleic acids: a. are in a vector or host chromosome; b. can be expressed *in vivo* or *in vitro*; or c. are in a vector or host chromosome and can be expressed *in vivo* or *in vitro*; • Viruses, bacteria, fungi, and toxins listed in this table that have been genetically modified.

D - 4.11	**Working surfaces and equipment are regularly cleaned and disinfected. (D, O, SI)**

Document (D)

Review the following documents:

- Equipment cleaning checklist for the laboratory equipment.
- Housekeeping schedules for the laboratory environmental surfaces and equipment & checklists.
  - *Who is responsible for housekeeping (authorized and trained staff)*
  - *What are procedures or methods of cleaning/disinfection activities and list of environmental surfaces intended to be cleaned?*
  - *Which housekeeping ingredients and equipment are used (detergent/disinfectant MSDS, preparation, usage, contact time, precautions and required PPE).*
  - *How frequent housekeeping activities are indicated with practical detailed checklist*

Observation (O)

Observe the laboratory environment for the following:

- To exclude the presence of any dust or dirt.
- To exclude the presence of any blood or body fluid spills.
- The availability of housekeeping ingredients, supplies and equipment (as regard their quantities and qualities)
- The availability of biological and chemical spill kits.

Staff Interview (SI)

Ask the laboratory staff (lab. technicians) and allocated housekeeping staff about:

- Ask the laboratory technician's role & responsibility in cleaning/disinfection activities (*e.g., recommended procedure for cleaning and disinfection of certain equipment) / methods of cleaning / tools, agents & materials to be used / handling blood or body fluids spills / handling spills of chemicals.*
- Ask the allocated housekeeping staff for their role & responsibility in cleaning/disinfection activities (*e.g., recommended procedure for cleaning and disinfection of different working services / environmental surfaces) / methods of cleaning / tools, agents & materials to be used / handling blood or body fluids spills / handling spills of chemicals.*

D - 4.12	**Laboratory HCWs perform hand hygiene and wear appropriate PPE when indicated. (O,SI)**
Document	***Observe (2 - 3) of the laboratory staff:*** - To evaluate how they are properly performing hand hygiene (Indications / Technique / Duration) - To evaluate how they are correctly using PPE according to the standard and transmission-based precautions (Indications for use / Technique of donning & doffing / Safety measures during use) - You may observe Laboratory staff working with gloved hands & gown on computer & moving within the lab with PPE etc ***– (Take note of such wrong practices)***
Staff Interview	***Ask (2 - 3) of the laboratory staff:*** - To perform hand hygiene in front of you to evaluate how they are properly performing hand hygiene (Technique / Duration) - How to select appropriate PPE / When to wear / When to remove (Indications for use / Safety measures during use)? - To use some PPE in front of you to evaluate how they are correctly using PPE (Technique of donning & doffing / Safety measures during use)

Element # D - 5 Dental Services

D - 5.1 There is written IPC policy and procedure for the dental setting. (D)

Document (D)

Review the policy, which should be:

- **Comprehensive and well descriptive**: it covers all aspects of infection control practices in dental unit including (but not limited to):
  - Hand hygiene
  - Recommended PPE (gloves: nitrile or butyl rubber or sterile [sterile when performing surgical procedures], mask/respirator, goggles/face shield and gowns [sterile gowns-when performing surgical procedures])
  - Aseptic technique for parenteral medication (use of multi dose vials)
  - Cleaning and disinfection of equipment: classification as per Spaulding criteria to be sent to CSSD for reprocessing (None of the critical and semi critical equipment reprocessing to be carried out in dental clinic), transportation of items to CSSD, MSDS of chemicals that being used in cleaning and disinfection, storage rules for sterile and clean dental supplies.
  - Dental prostheses and prosthodontic cleaning and disinfection, handling of extracted teeth, handling of biopsy specimen
  - Dental unit waterline disinfection technique and water quality testing
  - Precautions in dental radiology unit
  - Employee safety: staff immunization as per employee clinic policy, exposure and post exposure management
  - Environmental cleaning and disinfection: including clinical contact surfaces and housekeeping surfaces with use of surface barriers.
  - Single used devices and waste management
- **Fully applicable**: all elements of the policy can be applied and comply with the hospital's scope of services
- **Based on approved scientific references** such as (Manual of Infection Prevention and Control in Dental Setting, Second Edition - 2018, GCC, CDC, WHO & APIC)
- **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
- **Approved** by IC committee*
- **Valid** (updated within 2 - 3 years and when indicated)

Comment:
Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes

D - 5.2	**No reprocessing of instruments is carried inside the dental clinic (all the contaminated items are sent to the central sterilization services department (CSSD). (O,SI)**
D - 5.3	**All reusable dental instruments (critical and semi critical dental items) are sent to CSSD after each patient. (O,SI)**
D - 5.4	***Contaminated dental instruments including dental handpieces are transferred to the central sterilization department in closed, sealed, and puncture resistant containers. (O,SI)***
D - 5.5	**If transportation to CSSD is not expected within two hours, instruments inside transferring containers are sprayed with transportation gel/spray before sending them. (O,SI)**

Observation (O)

Observe reprocessing of the critical items and the semi critical items, which should be:

1) The critical and semi critical items must not be reprocessed in dental unit ***(must be sent to CSSD for reprocessing)***

2) All contaminated dental instruments including dental handpieces are transferred to the central sterilization department. ***(All Reusable critical and semi critical dental items)***

3) Preparation of dirty equipment before being sent to CSSD:
   - *Collection of used equipment in closed, sealed, and puncture resistant containers.*
   - *Spraying with **transportation gel/spray** e.g Pre Klenz spray etc-based gel with corrosion inhibitors [if transportation is not expected within two hours according to the hospital policy, e.g., items are collected and sent once daily]*

4) If there is a separate room for temporary storage of used equipment before sending to CSSD:
   - *It must be an area with limited access and closed when not in use.*
   - *The door must be labeled with **BIOHAZARD** sign.*
   - *No equipment should be left exposed or outside the transportation container (see container specification above)*

Staff Interview

Ask the dental staff about:

1) Spaulding classification of items and which items are needed to be sent for reprocessing in CSSD ***(Critical & semi critical items)***

2) Preparation of dirty equipment and sending them to CSSD (i.e. collection in closed, sealed, and puncture resistant containers / spraying of Pre Klenz spray or any other surfactant-based gel with corrosion inhibitors if transportation is **not expected within two hours ,**

3) Ask when and how used equipment is transported to CSSD).

D - 5.6	Single-use devices (e.g., disposable examination set, anesthesia carpule/cartridge, etc. …) are discarded immediately after each patient. (O, SI)

Observation (O)

Observe all the single used items, which should be immediately discarded after each patient.

Single-use device is used only once (used on one patient, discarded appropriately after being used)

General guidance:

- Single-use devices in dentistry (e.g., needles, prophylaxis cups and brushes, and plastic orthodontic brackets.) are not heat-tolerant and cannot be reliably cleaned.
- Certain items (e.g., prophylaxis angles, saliva ejectors, high-volume evacuator tips, and air/water syringe tips) are commonly available in a disposable form and should be disposed of appropriately after each use.
- Handle disposable items aseptically. If an item is stored in a bulk container or package, use an aseptic technique when retrieving it (e.g., use sterile cotton pliers to retrieve an item for use).
- Dispense disposable items in small amounts (i.e., unit dose) sufficient for care of one patient before treatment begins and discard whatever is not used.
- Any single-use device or item (e.g., cotton rolls, gauze, and irrigating syringes) used during oral surgical procedures should be sterile at the time of use.

REFERENCE: Manual of Infection Prevention and Control in Dental Setting, Third Edition, 2023

Observe the practices of dental health care workers (DHCWs) regarding handling of single use items if discarded after each use or not.

Staff Interview (SI)

Ask the dental staff about:

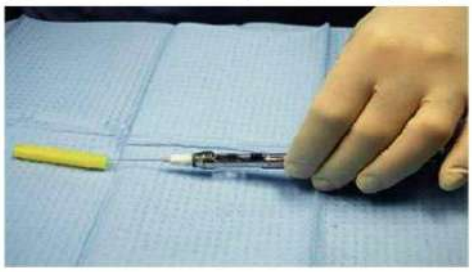
1) Universal label for SUDs 'single use only' on packed items
2) Can single-use devices be reused?

Comment:
Instead of direct questions, indirect ones or scenarios are advisable, Examples:
"In emergency situations, how are these items disinfected properly before being used for other patients?" / "what are the situations that justify the reuse of SUDs and precautions that should be strictly followed
The answer should be reuse of SUDs is prohibited

D - 5.7	**If needles with self-sheathing mechanism and recapping devices are not available, dental care HCW use one-handed recapping (scoop technique) for recapping needles. (O, SI)**
Observation (O)	1) Observe for the presence of needles with self-sheathing mechanism or other safety design. 2) Observe for the presence of recapping devices. 3) If such items are not available, observe the staff for the use of one-handed recapping /scoop technique to recap needles.
Staff Interview (SI)	***Ask the dental staff about:*** 1) The proper use of needles with self-sheathing mechanism or other safety design 2) The proper use of recapping devices 3) If such items are not available, ask the staff to demonstrate or explain what one-handed recapping /scoop technique is.

Figure (21): This shows recapping a needle by hand.
Do not do this.

e (22): This shows the one-handed scoop technique, a safe way to recap a needle



D - 5.8	**Clinical contact surfaces (contaminated and frequently touched surfaces in the patient-care area): light handles, bracket trays, switches on dental units, computer equipment are either barrier protected or cleaned and disinfected after each patient. (D, O, SI)**
Document (D)	***Review the following:*** 1) Policies and procedures regarding cleaning and disinfection of clinical contact surfaces with roles and responsibilities. 2) Review the checklist stating the evidence of changing barriers after each patient or cleaning and disinfection if no barriers were used for clinical surfaces.

Observation (O)

Observe the practices of dental healthcare workers (DHCWs):

1) Observe the clinical and other highly touched contact surfaces (light handles, bracket trays, switches on dental units, computer equipment, telephone, drawer handles, etc..), whether they are protected by surface barriers or not.
2) If surface barriers are used: observe for the availability of surface barrier rolls / observe how frequently surface barriers are changed (they should be changed after every patient)

3) <u>If surface barriers are not available:</u>
   - *Observe the disinfectants that are being used.*
   - *Observe how surface disinfectants are being used (e.g., back and forth procedure for cleaning and disinfection isn't advisable)*
   - *Observe whether contact time is correct or not.*
   - *Observe where disinfectants are being stored (e.g., away from clinical surfaces and supplies, preferably in separate cabinet or stock room).]]*

Staff Interview (SI)

Ask the dental healthcare workers (DHCWs):

1) How the clinical and other highly touched contact surfaces (light handles, bracket trays, switches on dental units, computer equipment, telephone, drawer handles, … etc..), are being protected by surface barriers.
2) How frequently surface barriers are being changed (they should be changed after every patient)
3) <u>If surface barriers are not available:</u>
   - What are the disinfectants that are being used?
   - How surface disinfectants are being used (e.g., back and forth procedure for cleaning and disinfection isn't advisable)
   - What is the proper contact time that should be followed?
   - How disinfectants are being stored (e.g., away from clinical surfaces and supplies, preferably in separate cabinet or stock room)

D - 5.9 Housekeeping surfaces (e.g., floors, walls, and sinks) cleaned with water and detergent or approved MOH disinfectant/ detergent on a routine basis or when they are visibly dusty or soiled. (D, O, SI)

Document (D)

Review housekeeping records:

1) Housekeeping schedule with clear procedures for cleaning/disinfection activities
2) Cleaning checklist stating the frequency, type of disinfectant used with contact time, signature of responsible worker etc.

Observation (O)

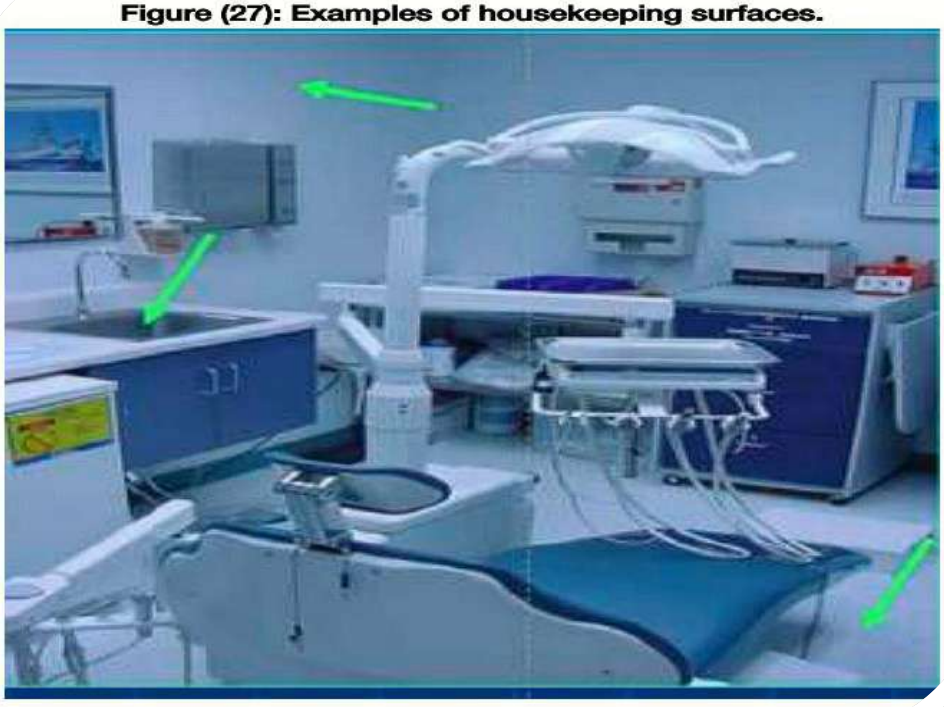
Observe the following:

1) Observe the housekeeping surfaces, whether they are clean or not (by using wet tissue or gauze to wipe different housekeeping surfaces especially difficult to reach surfaces, e.g. corners, top surfaces, and underneath equipment).
2) Observe the housekeeping supplies that are being used (detergents, disinfectants and other supplies e.g. lint free wipes … etc.)
3) Observe how housekeeping staff are preparing the disinfectant(s), if applicable (i.e. dilution procedure: water to disinfectant(s) ratio)
4) Observe how disinfecting solution(s) are being used (e.g., back and forth procedure for cleaning and disinfection isn't advisable) / whether contact time(s) is(are) correct or not.
5) Observe where housekeeping staff are keeping their supplies (observe the
janitor's room, if available).

Ask the housekeeping staff:

1) How frequent housekeeping surfaces are cleaned & disinfected guided by cleaning schedule (if available)
2) What are the housekeeping supplies that are being used ***(e.g., detergent, disinfectants and other supplies e.g. lint free wipes … etc.)?***
3) How to prepare housekeeping disinfectant(s), if applicable ***(i.e. dilution procedure: water to disinfectant(s) ratio)***
4) What is(are) the correct contact time(s) that should be followed
5) How disinfectant solution(s) are being used ***(e.g., back and forth procedure for cleaning and disinfection isn't advisable)***
6) How housekeeping supplies are being stored (e.g., ask to see the janitor's room, if available)

Figure (27): Examples of housekeeping surfaces.



D - 5.10	**The products and protocols recommended by dental unit manufacturer to maintain water quality are followed. (if the manufacture instructions are not available, water lines are disinfected daily /weekly with an approved MOH solution and as per the manufacturer's instructions. (D,SI)**

Document (D)

- *Municipal water contains microorganisms that may be considered safe for drinking water, but could potentially cause patient infections when used during dental procedures.*
- *Dental unit waterlines, including those connected to municipal water sources or closed-bottle systems, typically cannot be sterilized; however, they should be routinely cleaned and disinfected.*
- *Without proper cleaning and disinfection, waterborne microorganisms can collect in the dental unit waterline and form a biofilm, a layer of microorganisms or bacteria adhered to the surface of the dental unit waterline, that can become dislodged and enter the water stream.*
- *Contaminated dental unit waterlines pose a risk of infection to the patient, particularly during surgical procedures by direct exposure of waterborne pathogens and to dental professionals due to inhalation of aerosols.*

Review the following documents:

- Review & Check and if manufacture's instruction copy & documentation evidence of regular waterline treatment are available and dental staff is following the manufacturer's recommendations for treating dental unit waterlines.
- Check the documented evidence regarding the methods used for removal of biofilms:
    1. *Intermittent or continuous method of waterline treatment.* ***(See below)***
    2. *Microfiltration which involves placement of microfilters placed near the exit of waterlines reduce the number of bacteria in dental treatment water.*
- Review the documented evidence for regular disinfection of dental Unit Waterlines. **(Daily/ weekly etc)**
- Documented evidence for additional recommendations:
    - *Flushing lines for several minutes each morning*
    - *Flushing hand pieces with air/water for 20 to 30 seconds between patients (CDC, OSAP, ADA).*

Reference & further reading: Manual of Infection Prevention and Control in Dental Setting, Third Edition, 2023

Staff Interview (SI)

Ask the dental HCW:

Ask them to demonstrate the process of dental unit flushing:

1) Flushing lines for several minutes each morning
2) Flushing hand pieces with air/water for 20 to 30 seconds between patients (All answers must match approved recommendations, i.e., CDC, OSAP, ADA).

- ***Biofilm:** is an aggregate of microorganisms in which cells adhere to each other on a surface.*
- ***Colony forming unit (CFU):** the minimum number of separable cells on the surface of or in semi-solid agar medium which gives rise to a visible colony of progeny is on the order of tens of millions.*
- ***Independent water reservoir**: a container used to hold water or other solutions and supply it to handpieces and air/water syringes attached to a dental unit. 5.5.*
- ***Retraction:** the entry of oral fluids and microorganisms into waterlines through negative water pressure*.

KEY POINTS:

* ***When using non-detachable tubings, management of waterline contamination should aim at elimination of the biofilm.***
* ***Biofilm re-growth in DUWLs usually occurs within a week following disinfection/cleaning and so DUWLs need be treated regularly***
* ***Elimination of the biofilm can be achieved through the use of a variety of chemical product***

A) Introduction of the chemical agent into the waterlines may be either intermittent or continuous.

1) The intermittent method of waterline treatment:

- *This method involves placement of the chemical agent in a self-contained water reservoir (the source bottle) and flushing the water lines to allow the chemical to fill all the tubings.*
- *The chemical is, then, left in contact with the tubingS for the appropriate contact time advised by the chemical's manufacturer.*
- *Afterwards, the chemical should be flushed out thoroughly with water, and, depending on the type of chemical disinfectant, the unit is not put into use for a specified number of hours.*
- *If the unit is connected to the municipal water mains supply, it is essential that the connection is turned off prior to treatment of the waterlines to prevent contamination of mains water with treatment agent.*

2) The continuous method of waterline treatment:

- *This method involves mixing low concentrations of the chemical agent with the dental treatment water.*
- *This may be achieved either through mixing the chemical agent with the source water in a self-contained system or through placement of the agent in a reservoir inside the dental unit which provides for measured, continuous release into the water passing through the tubings.*

The continuous method may be used alone or may be used after a single regimen of the intermittent type.

B: Microfiltration:

* Microfilters placed near the exit of waterlines reduce the number of bacteria in dental treatment water.
* Sediment filters commonly found in dental unit water regulators have pore sizes of 20-90 µm and do not function as microbiological filters. Microfiltration occurs at a filter pore size of 0.03-10 µm.
* The nearer the filters are placed to the exit of the tubings, the lower the bacterial counts achieved.
* Filters are not sufficient to manage the water-line problem alone, but they may be used in conjunction with other water-line treatment methods to improve the quality of outgoing water.

.C) Combined Approach: **An ideal water-line treatment regimen would be filters combined with treatment of the water-lines to remove the biofilm.**

D) Additional recommendations:

* *flushing for 2 minutes in the morning and for 20–30 seconds after each patient should be considered the norm for dental surgery procedures, and longer flushing is suggested after weekends.*
* *Flushing at the beginning of the day should be performed without handpieces connected to the waterlines.*
* *At the end of each working day, the water supply should be disconnected, and the water lines purged with ai*

D -5.11	**In order to ensure that the water used in routine patient treatment meet standards for drinking water (that is, less than 500 CFU/mL of bacteria), water sampling is taken from all water outlets at all the clinics with a minimum frequency of semiannually and sent to the microbiology lab. (D,SI)**
Document (D)	***Review the following documents:*** – Review & check and the **QUANTITATIVE** results of microbiological sampling of water being used in dental clinics. – Check if pooled water sample has been taken from all dental unit waterlines (e.g., air water syringe, hand piece, ultrasonic scaler) – Check if results are available for all dental clinics & within acceptable range. – ***QUALITATIVE*** *results (i.e., Positive and negative results) that are observed in some facilities are* ***NOT*** *acceptable.* **Reference & further reading: Manual of Infection Prevention and Control in Dental Setting, Third Edition, 2023**

Staff Interview (SI)

Ask the dental staff:

- Who is(are) responsible for taking water samples / what is(are) the applied technique(s) of collecting water samples / which containers are being used for taking samples / what are the different sites to be included in the water sampling process (must be all sites, i.e. turbine hand pieces, ultrasonic scalers, three-way air/water syringes …etc.)
- Ask about the acceptable cut off limits & corrective interventions.
- Ask about any deranged values in the past & what were the corrective measures? (if any)

Reference & further reading: Manual of Infection Prevention and Control in Dental Setting, Third Edition, 2023

D - 5.12	**During surgical procedures, only sterile solutions are used as a coolant / irrigant using an appropriate delivery device. (O, SI)**

Observation (O)

- Observe supplies of sterile solutions that are used in dental surgical procedures and check for opened sterile solution bottle(s) that is (are) not discarded after being used for one patient (e.g. sterile saline, sterile water).

Comment:
For irrigation, curved Needles are used, observe the availability of such devices.

Staff Interview (SI)

Ask the dental staff:

What is (are) the type(s) of sterile solution(s) being used for different dental surgical procedures / How sterile solution(s) is (are) being used for different dental surgical procedures (i.e., either for single patient, or for multiple patients)

Comment:
Instead of direct questions, indirect ones or scenarios are advisable, Examples:
"How are they preserving opened sterile bottles for the next patient?" / "For how long, sterile solution(s) can be used after opening safely?"

- ***The answer should be we never preserve any opened sterile solution, because it can be used for one patient only***

D- 5.13	Dental care HCWs apply standard precautions while performing dental x-rays. (O, SI)

Observation – Staff Interview (O) – (SI)

Observe & ask if dental care personnel apply standard precautions while performing dental x - rays:

Following must be practiced base on MOH guidelines for dental settings:

Infection Control Practices BEFORE film exposure:

Before the patient is seated:

The DHCW should unit dose the following items:

- *Preprocedural mouth rinse; paper towels; surface disinfectant; surface barriers; gloves; radiographic film(s); sterile or disposable film holders; paper cups or plastic bags; over- gloves; lead apron with thyroid collar; and cotton rolls.*
- *The patient should rinse with a preprocedural mouth rinse to reduce the number of oral microorganisms and minimize the potential for cross-contamination via direct contact.*

After the patient is seated:

- *Adjust the headrest and chair position. Place the lead apron with thyroid collar. Have the patient remove any items that may interfere with film exposure (eye- glasses, dentures, and so forth).*
- *After completing these procedures, the DHCW should wash his or her hands thoroughly and don gloves. If using reusable film-holding devices, they should be removed from the sterilized package and assembled. All of these steps should be performed in the patient's presence.*

Infection Control Practices DURING film exposure:

- *The DHCW should touch as few surfaces as possible; those surfaces should be barrier-protected.*
- *Dry each film with a paper towel after taking it from the patient's mouth to*
- *remove excess saliva.*
- *Place the film in a disposable container such as a paper cup or plastic bag before transporting it to the processing area.*
- *Do not touch the disposable container while wearing contaminated gloves.*
- *During exposures, film-holding devices should be transferred to a covered work sur- face protected by a surface barrier.*

If the Dental HCW must leave the work area during film exposure, gloves must be removed and hands washed. Before resuming with film exposures, the hands should be washed again and new gloves donned.

* *Infection Control Practices AFTER film exposure*
* *Infection Control Practices FOR film exposure*
* *Procedures for Handling films WITH film barrier:*
* *Procedures for Handling films WITHOUT film barrier:*
* *Procedures for Handling Films WITHOUT Film Barrier in an Automated film processor having a day light loader:*
* *Infection Control Practices during EXTRA ORAL Radiographic Procedures:*

Reference & further reading: Manual of Infection Prevention and Control in Dental Setting, Third Edition, 2023

D - 5.14	**Dental lab HCWs adhere to standard precautions while performing dental lab procedures. (O,SI)**
Observation (O)	– Observe the dental laboratory & observe practices of dental lab personnel if they are compliant with standard precautions while performing dental lab procedures. ***Adherence to standard precautions includes hand hygiene and the use of personal protective equipment.*** ***Personal protective equipment (PPE) must be used when handling contaminated items in the laboratory.*** * *Depending on the task being performed PPE is indicated.* * *After decontamination of a laboratory item, the item can then be handled as noninfectious if separate clean working areas are available.* * *However, the use of a gown or laboratory coat is still recommended and other barriers are often required as a safety precaution.* * *A dust/mist face mask and eye protection or a face shield must be worn whenever operating lathes, model trimmers, or other rotary equipment.*
Staff Interview (SI)	**Ask the dental Lab personnel:** – Ask about the standard precautions to be applied while performing dental lab procedures. – Ask to perform hand hygiene and donning & doffing of PPE. – Ask about the last training received from infection control department on basics of infection control.

D - 5.15	**Before handling dental prostheses and prosthodontics materials in the dental lab (e.g., impressions, bite registrations, and occlusal rims), they are cleaned and disinfected according to manufacturer's instructions. (O,SI)**
Observation (O)	***If dental prostheses, impressions and other prosthodontic materials are cleaned & disinfected manually:*** **Observe the applied technique(s) of cleaning & disinfection:** - Check how these materials are collected and cleaned? (e.g., safe handling of soiled items and appropriate PPE being used to prevent exposure / rinsing under running water to remove visibly saliva and blood / gently scrubbing with a hair head brush [i.e., artists brush] and a liquid detergent / rinsing under running water after cleaning) - Check what is (are) disinfectant(s) being used / what is (are) the used method(s) (i.e., spraying, short term submersion or immersion methods / what is (are) the contact time(s) used for disinfectant(s) (e.g., immersion time) / what are PPE being used to prevent aerosol exposure (e.g., gloves and mask) ***In case of automated cleaning of dental prostheses, impressions, and other prosthodontic materials:*** - Observe the applied technique(s) of cleaning & disinfection: - Check what is (are) disinfectant(s) being used / how frequent is (are) disinfectant(s) being changed (or mechanical reprocess or automatically activates alarm when it should be changed) / if routine regular PPM of automated reprocess or(s) is available / availability. - of MSDS of used chemicals.

Staff Interview (SI)

Ask the dental staff

If dental prostheses, impressions, and other prosthodontic materials are cleaned & disinfected manually:

Ask the dental staff to demonstrate applied technique(s) of cleaning & disinfection:

- How these materials are collected and cleaned? (e.g., safe handling of soiled items and appropriate PPE being used to prevent exposure / rinsing under running water to remove visibly saliva and blood / gently scrubbing with a hair head brush [i.e., artists brush] and a liquid detergent / rinsing under running water after cleaning)
- What is (are) disinfectant(s) being used / what is (are) the used method(s) (i.e., spraying, short term submersion or immersion methods / what is (are) the contact time(s) used for disinfectant(s) (e.g., immersion time) / what are PPE being used to prevent aerosol exposure (e.g., gloves and mask)

In case of automated cleaning of dental prostheses, impressions and other prosthodontic materials:

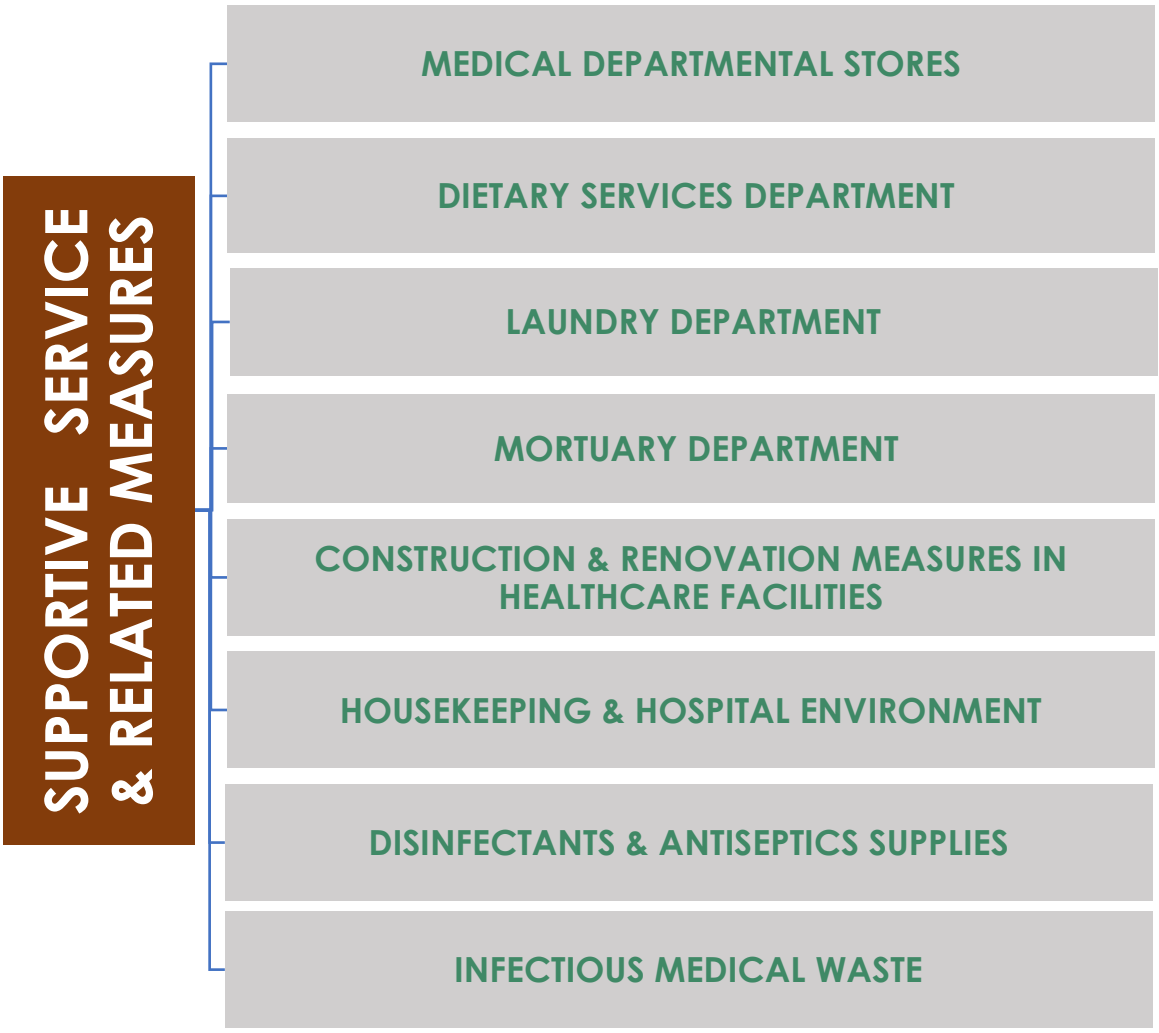
Ask the dental staff about demonstrate the applied technique(s) of cleaning & disinfection:

- How they install the dental impressions/prosthesis in automated reprocessor and what cycle(s) is (are) being selected
- What is (are) disinfectant(s) being used / how disinfectant(s) is (are) being stored?
- How frequent is (are) disinfectant(s) being changed (or mechanical reprocessor automatically activates alarm when it should be changed)
- Is routine PPM of automated reprocessor(s) is regular performed?
- Availability of MSDS of used chemicals.

وزارة الصحة
Ministry of Health

DOMAIN – E

SUPPORTIVE SERVICES DEPARTMENTS & RELATED MEASURES



Element # E -1 MEDICAL DEPARTMENTAL STORES

E - 1.1	There is a written policy and procedure for the medical departmental stores. (D)

Document (D)

Review the policy, which should be:

1) **Comprehensive:** it covers all aspects of IPC requirements in medical stores, including (but not limited to):
   - *Basic criteria of medical stores (i.e., space adequacy, being secured with access restriction, good maintenance, proper organization, regular cleaning and being away from contamination, direct sunlight and air vents)*
   - *Ventilation requirements for medical stores (i.e., temperature: 22 °C - 24 °C / relative humidity: up to 70%).*
   - *Recommended standards for storage shelves and containers that are used inside medical stores: accepted materials / design / essential installation requirements (i.e., 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall).*
   - *Essential practices required for safe storage of sterile and clean items inside medical stores (i.e., completely separated from personal items, foods and drinks / no expired items / no broken or soiled packs / no original shipping boxes)*
2) **Fully applicable**: all elements of the policy can be applied and comply with the hospital's scope of services.
3) **Based on approved scientific references** such as MOH GCC, CDC, WHO & APIC
4) **Signed from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)**
5) **Approved by IPC committee***
6) **Valid** (updated within 2 - 3 years and when indicated)

NOTE:

- ***Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes***
- ***Another point of view: Staff Interview (SI) is required as it is mandatory for relevant staff to be fully aware about components of policy and procedure (i.e., without proper awareness, written policies and procedures are worthless).***

E -1. 2	**Medical storage areas are of adequate capacity, regularly cleaned, secured and away from contamination, air vents and direct sunlight. (O)**
Observation (O)	***Observe the storage area(s) in medical departments, which should be:*** - *Adequate in space* - *Secured with restricted access for only authorized personnel.* - *Properly maintained and well organized* - *Away from contamination, direct sunlight and air vents.* - *Regularly cleaned according to definite housekeeping schedule and updated detailed housekeeping checklist.* - *Environment is clean (at all times) and free of contamination (no dirt or dust):* ***you can wipe out some environmental surfaces*** */ check if tools, agents & materials used for cleaning/disinfection activities are available and matching MOH standards*
E - 1.3	**Medical storage areas have controlled ventilation with adjusted temperature and humidity (temperature ranges from 22 °C to 24 °C / relative humidity up to 70%). (D ,O)**
Document (D)	***Review the following documents:*** - *Local records for regular monitoring (daily) of temperatures and relative humidity during the last month.* - *Local records for corrective interventions which are taken if readings are not matching the acceptable values.* - *Copies of maintenance records for regular monitoring (every 3 months) * of temperatures and relative humidity with corrective interventions if readings are not matching the acceptable values.* - *Copies of records from the executing company (or copies of maintenance records) for regular calibration (yearly) of fixed temperatures and relative humidity monitors.*
Observation (O)	***Observe the storage area(s) in medical departments for the following:*** – *Storage area(s) is (are) centrally air conditioned with adjusted temperature and relative humidity.* – *Each storage area is equipped with a fixed device for regular monitoring of temperature and relative humidity: Observed temperature: 22 - 24°C - Observed relative humidity: up to 70%).* – *Fixed temperatures and relative humidity monitors are valid and recorded values in local department logs are identical to the actual readings.*

E - 1.4	**Storage shelves dimensions are at least 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall. (O)**
E - 1.5	**Storage shelves are made of easily cleanable material, e.g., fenestrated stainless steel, Aluminum or hard plastic. (O)**

Observation (O)

Observe the storage area(s) in medical departments for the following:

- Storage shelves are made of easily cleanable material (e.g., fenestrated stainless steel, Aluminum or hard plastic).
- Storage shelves are:
  - *40 cm from the ceiling*
  - *20 cm from the floor*
  - *5 cm from the wall*
- If containers are used inside medical stores, they are made of easily cleanable material (e.g., hard plastic).

Comment (if any): Storage shelves made of wood or stainless-steel wires are not acceptable

E - 1.6	**Sterile and clean items are completely separated from personal items, foods and drinks. No expired items, broken packs or packs with stains are present. (O , SI)**
E -1.7	**No Items are kept in the original shipping boxes, especially in the clinical areas. (O , SI)**

Observation (O)

Observe the storage area(s) in medical departments for the following:

- To ensure that only sterile and clean items are allowed in the medical stores
- To exclude the presence of any personal items, foods and drinks.
- To exclude the presence of any expired, broken or soiled items/packs.
- To exclude the presence of any original shipping boxes (i.e., boxes made of thick cardboard for shipping)

Comment (if any):

N.B. It is allowed to keep non-shipping boxes made of thin smooth glazed cardboard inside medical stores (e.g., small boxes of medical supplies: clean gloves, surgical masks, syringes …etc..)

Staff Interview (SI)

Ask the responsible staff (nurse in charge or storage area responsible nurse) about:

Instead of direct questions, indirect ones or scenarios are advisable,

Examples:

- *What are the recommended safe practices for keeping of personal items,*
- *foods and drinks inside medical stores?*
- *How can you safely keep the original shipping boxes of supplies inside medical stores of the clinical areas?*
- *What are the applied interventions to solve problems of keeping non-shipping boxes of supplies inside medical stores of your department?*
- *Are you aware of FIFO policy?*
- *How do you manage expired items/packs?*
- *How do you manage broken items/packs?*
- *How do you manage any items/packs with stains?*

Answer:

- *Only sterile and clean items are allowed inside medical stores (i.e., keeping personal items, foods and drinks inside medical stores is strictly prohibited)*
- *It is strictly prohibited to keep items inside their original shipping boxes, especially for medical stores of the clinical areas.*
- ***Actually, it is allowed to keep non-shipping boxes made of thin smooth glazed cardboard inside medical stores (e.g., small boxes of medical supplies: clean gloves, surgical masks, syringes …etc.)***
- ***FIFO (First in First Out)**: is an inventory management and evaluation method in which items produced or acquired first are sold, used or disposed of first (i.e., we are assuming that the first product purchased or the oldest inventory items is the first product used or disposed. Hence the first product in the door is the first product out of the door).*
- *Expired, broken or soiled items/packs are not allowed inside medical stores (i.e., it should be discarded)*

وزارة الصحة
Ministry of Health

Element # E - 2 DIETARY SERVICES DEPARTMENT

E - 2.1 There is a written policy and procedure addressing dietary services and kitchen staff hygiene. (D)

Document (D)

Review the policy, which should be:

<u>Comprehensive</u> and well descriptive: it covers all aspects of infection prevention & control practices in dietary unit including (but not limited to):

- **<u>Infection prevention & control practices:</u>** i.e., frequent hand hygiene (hand hygiene: moments, techniques and times of hand hygiene) and personal hygiene practices, recommended PPE (gloves, hair covers, masks) to be used, maintaining clean attire during food preparation and handling.
- **<u>Pre-Employment Screening & Periodic Evaluation:</u>** are required for food handler and other supporting staff in dietary unit, which include (and not limited to) clinical examination, investigations [chest x-rays blood, and stool analysis] and vaccination with periodic evaluation i.e. every 6 months and after returning from long vocations.
- **<u>Work restriction policy:</u>** which includes that diseases or conditions in which the staff refrain from coming to work and present to employee's clinic, no staff is allowed to join back until he/she has lab evidence of free of disease (especially diarrheal disease)
- **<u>Compartments of dietary unit:</u>** receiving, storage, preparation, display, transporting and serving, equipment (separate for different foodstuffs, e.g., vegetables and meat)

<u>Design and construction considerations:</u> sequential handling of the product from the receiving dock, into the storage area, to the preparation area, process area, packaging area, and serving area, location of hand hygiene facilities, sloping of floor for proper drainage … etc.

Temperature Requirements:

- *A temperature range for dry storage from 10 °C to 21 °C*
- ***Low-temperature storage maintenance:*** *Fruit and vegetables (except those in dry storage): from 4 °C to 7 °C / Dairy products, eggs, meats, poultry, fish, and shellfish: from 0 °C to 4 °C / Frozen foods: from -18 °C to -23 °C*
- *High-risk food must be heated to at least 74 °C (all parts of the food item), and once the food has been heated to this temperature it should not be allowed to drop under 60 °C until it is served. Food may be rapidly reheated up to a temperature of 74 °C etc.*
- *Leftover cooked foods should be chilled to 5°C or less within 2 to 4 hours of preparation.*
- *Backup system for any shortfall or malfunctioning and steps to be taken in such conditions.*

- *Isolation precautions: precautions to be followed for serving foods to patients under isolation (Contact, Droplet or Airborne Isolation), BICSL & Fit Testing*
- *Water quality testing (microbiologically & chemically)*
- *Waste management (collection schedule and storage of waste in an area, which is physically separated from other working areas),*

Environmental cleaning and pest control

Other aspects of Policy & Procedure:

* **Fully applicable:** all elements can be applied and comply with the hospital's scope of services.
* **Based on scientific references** approved such as MOH CDC, WHO & APIC
* **Signed from authorized personnel** and approved by IPC committee*
* **Valid** (updated within 2 - 3 years and when indicated)

NOTE:
Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major change

Reference: GDIPC Infection Control Guidelines for Food and Nutrition Services in Healthcare Settings July 2021 - V.1.0
https:// gdipc.sa /ic-at- catering/

E - 2.2 Adequate numbers of hand washing facilities and hand rub antiseptic devices are available. (O, SI)

Observation (O)

Observe the following in the Dietary Services Department:

- Number of Hand washing sinks that are equipped with all required supplies i.e. plain & antimicrobial soap, paper tissues & waste receptacle etc.
- Ensure hand washing sinks are in good working condition with provision of hot & cold water & paper towels. Open the tap & confirm if the water supply is intact.
- Observe number of Alcohol Based Hand Rub (ABHR) dispensers that are installed in adequate numbers in each location / working area for kitchen staff in order to practice hand hygiene.

NOTE:

* ***01 hand washing sink within each working area is the minimum requirement. e.g Food cutting, food preparation. food distribution areas etc***
* ***There should be a dedicated hand hygiene facility within the working area (i.e., kitchen personnel do not need to leave his working area to reach a hand hygiene facility of another area.***
* ***Sinks used for any other working purposes (i.e., sinks used for washing vegetables. fruits, meat & poultry etc are NOT counted as hand washing facility for dietary services staff.***

E - 2.3	Kitchen staff practice hand hygiene properly and use suitable PPE while handling food, gloves should be changed while moving between Critical Control Points. (O - SI)

Observation (O)

Observe the kitchen staff for:

1) **Hand washing/hand rubbing:**
   a) Time (20-30 sec Hand rubbing, 40-60 sec Hand washing)
   b) Technique *(following all steps & with friction)*
   c) Indications of hand hygiene for dietary staff:
      - *Before starting work*
      - *After using the toilet*
      - *After touching their ears, nose, mouth, or hair*
      - *After handling raw food*
      - *Before moving from a raw food preparation area to cooked food preparation area*
      - *After handling food or food waste*
      - *Before and after any cleaning procedures*
      - *Before & after eating, drinking, or smoking*
      - *After handling soiled articles or trash and*
      - *After removing PPE, e.g., gloves*

2) **Appropriate use of PPE:**
   a) Disposable protective gloves should be worn when serving food and/or handling cooked and uncooked food.
   b) Proper protective clothing should be worn when required, which include clean uniforms, aprons, hair nets, gloves, masks and closed shoes (open sandals and bare feet are prohibited in the food handling areas).

Staff Interview (SI)

Ask the kitchen staff about:

1) Hand Hygiene (hand washing/hand rubbing): time / techniques / moments of hand hygiene
2) Protective clothing & PPE: types / indications / technique & sequence of donning and doffing

Randomly ask 3 to 5 of the kitchen staff:

1) To demonstrate techniques of hand washing/hand rubbing
2) To demonstrate donning and doffing of PPE

Comment:
Instead of direct questions, indirect ones or scenarios are advisable

E - 2.4 Kitchen staff with respiratory infections, gastroenteritis, diarrhea or hand infections or wounds are restricted from handling food. (D - MR - SI)

Document (D)

Review the following documents:

1) Check for work restriction policy and related procedures for the dietary staff and kitchen personnel that outline the above-mentioned infections or conditions: respiratory infections, gastroenteritis, diarrhea, hand infections or wounds …etc.
2) Consent form with signature of dietary staff and kitchen personnel (preferably Multilingual: Arabic, English, language of kitchen personnel for better understanding of work restrictions & symptoms that require prompt reporting and follow up.

Medical record (MR)

Review the following documents:

Review documents that demonstrate application of the work restriction policy:

- Medical sickness reports, which were fulfilled during the last 3 - 6 months for kitchen personnel who were suffering from any of the above-mentioned infections or conditions.
- Evaluation of their infections or conditions in employee's clinic, ER or medical department
- Investigation & treatment reports
- Check how the supervisor allows kitchen personnel to join back after recovery (for some infections in which the organism is isolated e.g. C. difficile in stool, the patient must be free of it before joining back his/her duty in the kitchen)

Comment:

Review files of kitchen personnel who were restricted from work in the last 3 - 6 months to see whether protocols were properly applied or not (the evidence should specify restriction condition, interventions, management and duration of restriction)

Staff Interview (SI)

Ask the kitchen staff:

1) Work restriction policy and related infections or conditions (i.e., symptoms or conditions require restriction from handling food: respiratory infections, gastroenteritis, diarrhea or hand infections or wounds)
2) How they will inform kitchen's supervisor and follow approved protocols for work restriction i.e. presenting to employee clinic or emergency department
3) How they will be allowed to join back their duties in the kitchen after recovery i.e., some conditions require specific investigations to ensure that personnel is free of infections before joining back his/her duty

E - 2.5

Medical evaluation is performed routinely upon hiring, every 6 months and after returning from long vacation. Results are reviewed by the employee's health clinic and the IPC team. (MR - SI)

Medical record (MR)

Review the following documents:

Review medical records that demonstrate proper application of this sub-element:

- Check for the presence of upon hiring results of stool tests and cultures, and updated results every 6 month and after returning from long vocations
- The above-mentioned results are reviewed by (**SIGNED**) employee's health clinic doctor and IPC practitioner for the evidence of viewing the medical records and promoting accountability.

- ***Review the file(s) of employee(s) who came from long vocation(s) lastly to see whether protocols were properly applied or not***
- ***Randomly ask medical records of 3 - 5 personnel during the visit***

Staff Interview (SI)

Ask kitchen staff who have recently arrived from vacations about:

- Stool tests and cultures for them after returning from long vacations.
- Ask about the date of investigations, date of result and date of joining back work to confirm if policy is strictly implemented.

Note: *Kitchen employees are not allowed to join duty unless test results are available and reviewed by the employee health clinic.*

E - 2.6

All kitchen staff receive vaccines against hepatitis-A, typhoid and meningococcal meningitis and influenza vaccine. (MR)

Medical Record (MR)

Review the following documents:

Review medical records that demonstrate proper application of this sub-element : check for the presence of updated certificates of vaccinations:

- Hepatitis-A vaccination: every year
- Typhoid vaccination: every 5 years
- Meningitis vaccination: every 5 years

Comment:
Review medical records of 3 - 5 personnel during the visit and verify if vaccination is complete & valid.

E - 2.7	**Kitchen is designed as physically separated areas with specified equipment & supplies (e.g., mixers, juicers, boards, plates, knives … etc.) for different types of food. Boards, plates and knives used to cut meat, poultry, fish or vegetables are identifiably separated (color- coded) and immediately washed after use. (O, SI)**
Observation (O)	**Observe the kitchen to ensure that:** 1) All specific areas are (**physically**) separated from each other: - Store of grocery - Storage for meat (i.e., freezers) - Storage for vegetables and fruits (i.e., refrigerators) - Washing area for vegetables and fruits (with or without) vegetable and salad cutting area. - Meat cutting area: it should be separated from other cutting areas (Vege and salad etc..) with specified equipment & supplies e.g. cutting boards and knives should be color coded and separate for poultry, meat and fish. Sawing machines can be the same but proper cleaning is required before processing different types of meat. - Food cooking/preparation areas, process area & packaging area (all these activities can be grouped together without physical separation). 2) There are specified equipment & supplies (e.g., Mixers, juicers, , boards, plates, knives … etc..) for different types of food. 3) There is orderly sequential handling of the product from the receiving area to the storage area, the preparation area, processing area, packaging area, and serving area. 4) Boards, plates and knives used to cut meat, poultry, fish or vegetables are identifiably separated (color- coded) and immediately washed after use. 5) There is a signboard for color-codes of boards, plates and knives that displays colors to be used for different purposes (e.g., cutting meat, poultry, fish or vegetables) 6) There is no signs of over usage of cutting boards (e.g., cutting boards are not cracked or having deep cuts)

Comments:

- ***Cutting boards with cracks or deep cuts cannot be cleaned and disinfected properly.***
- ***Wooden cutting boards aren't acceptable.***

Staff Interview (SI)

Ask the kitchen supervisor and/or kitchen personnel:

1) About which boards, plates and knives are used to cut meat, poultry, fish or vegetables and if they are clearly identified by different colors.
2) What is the schedule of washing boards and knives?
3) How are boards, plates and knives being washed?
   Answer: immediately after use in working area or dumped to be washed later on in dishwasher (i.e., it is not acceptable to leave them for a day or to the end of shift i.e. morning, afternoon or evening)

E - 2.8	**Temperature requirements and protection from contamination are considered during receiving, storage, preparation, display and transportation of food. Freezers & fridges temperatures are continuously monitored and documented on log sheets and relevant actions are taken. (D, O, SI)**

Document (D)

Review the following documents:

1) Temperature logs and records of the last month that should be maintained at all given areas (temperature checks are done at least twice a day)

   <u>Temperature Requirements:</u>

   - A temperature range for dry storage from 10 °C to 21 °C

   Low-temperature storage maintenance:

   - Fruit and vegetables (except those in dry storage): from 4 °C to 7 °C
   - Dairy products, eggs, meats, poultry, fish, and shellfish: from 0 °C to 4 °C
   - Frozen foods: from -18 °C to -23 °C
   - High-risk food must be heated to at least 74 °C (all parts of the food item), and once the food has been heated to this temperature it should not be allowed to drop under 60 °C until it is served. Food may be rapidly reheated up to a temperature of 74 °C etc.
   - Leftover perishable cooked foods should be chilled to 5°C or less within 2 to 4 hours of preparation.

2) Planned Preventive Maintenance (PPM) and Quality check for freezers, refrigerators, transport trolleys (if applicable) and temperature display monitors.
3) Interventions records for atypical temperatures and failure situations

Observation (O)

Observation:

1) Check temperature display monitors or thermometers at all given areas.
2) See how the temperature requirements is being monitored during food cooking and reheating (i.e., observe the availability of food thermometer to make sure cooked food reaches a temperature hot enough to kill germs)
3) See how the food is being packed and saved during serving to overcome contamination by external factors. (i.e., observe the availability of close containers and/or surface barriers)
4) See valid PPM stickers on refrigerators, freezers, and transport trolleys (if applicable)

Staff Interview (SI)

Ask the kitchen supervisor and/or kitchen personnel:

1) What are optimal temperatures requirements during receiving, storage, preparation, display, and transportation of food?
2) Who is (are) responsible for recording temperatures at different areas?
3) In malfunctioning or failure situations, what is the approved protocol and steps to be taken in such case:
   - What are the components of the backup system (if applicable)?
   - Who will be contacted
   - Who will be responsible for taking actions (i.e. calling for maintenance, discarding of food if necessary, … etc.) & follow up

E - 2.9

Water used for cooking is supplied by commercially approved companies or hospital water that is tested at least monthly to ensure that its quality meets regulatory standards for potable water (D, SI)

Document (D)

Review the following documents:

1) Water testing results of the last 6 months (microbiological and chemical testing of water that should meet the regulatory standards of potable water).
2) Records for maintenance & interventions (as per hospital policy) if the water testing results don't match the acceptable standards for potable water.
3) Contract with commercially approved company for supplying water, if the kitchen is using ready-made water for cooking (i.e., no need for testing water microbiologically & chemically BUT the supply chain of the water must be checked)

Staff Interview (SI)

Ask the kitchen supervisor and/or kitchen personnel:

1) Who will be responsible for collecting water samples?
2) How are water samples collected? / What are the sites used for collection? / What are containers' types used to send water samples?
3) If the kitchen is using ready-made water for cooking, you should ask about the supply chain and stock of such water.

E - 2.10	**Food containers are properly labeled with expiry dates that should be checked every time before use, and all food products should be arranged in respect to first in first out (FIFO) principle. (O, SI)**

Observation (O)

Observation of the store:

1) Check that all food containers are properly labeled while maintaining expiry dates.
2) See that all supplies of the same kind are stuck together (for example stock of salt, tea, jam etc.., that have the same lot numbers and expiry dates).
3) Check that expiry dates of all products are clearly noted with labeling of near to expiry foods in different color (i.e., stock of near to expiry food are clearly labeled)
4) Observe dispatch rules or shelve rules: "First Expiry First Out - FEFO"

Storage logs/inventory (either electronic or manual system) can be checked to demonstrate expiry dates of all products with recognition of near to expiry foods

Staff Interview (SI)

Ask the kitchen supervisor and/or kitchen personnel about:

1) Rules of storing new stoke, organizing shelves and dispatching that are being followed.
2) Labeling food containers while maintaining expiry dates.
3) Labeling of near to expiry food in different color
4) Checking expiry dates depending on hospital policy (i.e., at fixed intervals: weekly, or every 2 weeks / when the new stock arrives)

E - 2.11	**Fruits and vegetables are washed and disinfected. (O, SI)**
Observation (O)	***Observation of the vegetables and fruits washing (cleaning and disinfection) area:*** 1) It is preferably to be a separate area (it is optional to be associated with vegetable and salad cutting area) 2) It is preferably to be equipped with two dedicated deep stainless-steel sinks (one for washing and the second for disinfection) 3) See what is type of disinfectant being used and ensure that an appropriate concentration(s) and proper contact time(s) [immersion time(s)] is being followed. 4) Check the presence of measuring device(s) or determined cup(s) for dilution of liquid disinfectant(s), MSDS for chemical disinfectant. 5) Ask for MSDS for relevant chemicals & disinfectants
	One deep container is also acceptable in absence of double sinks (i.e., used for vegetables and fruits immersion for disinfection)
Staff Interview (SI)	***Ask the kitchen supervisor and/or kitchen personnel about:*** Process of washing vegetables and fruits (cleaning and disinfection): How to clean vegetables and fruits / how to immerse vegetables and fruits in diluted disinfectant(s) / how to get proper dilution(s) from disinfectant(s) / for how much time(s) the vegetables and fruits are immersed (i.e., contact time(s)) / how to rinse after disinfection has been achieved.
E -2.12	**Food containers and cooking utensils are washed immediately after being emptied, and thoroughly dried before storing or used. (O, SI)**
Observation (O)	***Observation:*** - See when and how food containers and cooking utensils are washed after use, *(Food containers and cooking utensils should be washed immediately after use in same working area or dumped to be washed later in dishwasher (i.e., it is not acceptable to leave them for a day or to the end of shift i.e. morning, afternoon or evening)*
Staff Interview (SI)	***Ask the kitchen supervisor and/or kitchen personnel:*** 1) What is the schedule of washing food containers and cooking utensils? 2) How are food containers and cooking utensils being washed? Answer: immediately after use in the working area or dumped to be washed later in the dishwasher (i.e., it is not acceptable to leave them for a day or to the end of shift.

E - 2.13	There is an Insect and rodent control plan that is strictly implemented. (D, O, SI)

Document (D)

Review the following documents:

1) Insect and rodent control plan and the applied schedule (e.g., spraying chemicals and pesticides is done as per hospital's policy: a frequent routine task + when a threshold is reached)
2) Check the contract with a commercially approved company (i.e., these services are outsourced in most of hospitals)
3) See which chemicals and pesticides are used (check safety of the chemicals and pesticides used in kitchen / Ask for MSDS for these chemicals and pesticides)
4) Written protocol for spraying chemicals and pesticides with precautions to be taken before, during and after it
5) Checklists for routine inspection and monitoring of incoming deliveries and stores for infestation
6) Checklists for routine inspection of kitchen for roaches / rodents or their traces

Comment:

Public health department is responsible for applying insect and rodent control plan

Observation (O)

Observe areas of the kitchen to ensure that insect and rodent control plan is properly applied:

1) Approved and safe chemicals and pesticides are available for use as per hospital's policy.
2) Devices for insect and rodent control are available, e.g., sticky fly traps, ultrasonic pest repeller …etc.
3) All windows that open to the outside have screens that are kept in good repair.
4) All areas are kept clean, sanitized and in good repair.
5) All openings and defects with risk of infestations are sealed (e.g., cracks, tears in windows' screens … etc.)
6) Incoming deliveries are routinely inspected for infestation (i.e., the visit time may coincide with receiving shipping boxes and containers of food products)

Staff Interview (SI)

Ask the kitchen supervisor and/or kitchen personnel about:

1) Insect and rodent control plan
2) Protocol for spraying chemicals and pesticides (i.e., who, what, how, when, where and how much)
3) Precautions to be taken before, during and after spraying chemicals and pesticides.
4) Routine inspection of incoming deliveries for infestation
5) Regular monitoring of dry products in storage area
6) Routinely checking of kitchen for roaches / rodents or their traces

- ***Their knowledge should be compatible with hospital's policy and the actual practices***

E - 2.14	**The kitchen environment is clean (i.e., frequently cleaned, dry and dust free). (D, O, SI)**

Document (D)

Review documents that demonstrate housekeeping activities of the kitchen environment

(Appropriate evidence of application):

1) Kitchen housekeeping schedule with clear roles & responsibility of housekeeping and kitchen staff
2) Kitchen housekeeping checklists and check whether the applied processes are compatible with the approved policy or not.
   1. *The checklists should be practical and cover all environmental surfaces in different areas.*
   2. *Also it should include responsible staff (whether kitchen staff or housekeeping staff with names – if applicable – and signatures) / dates & times / cleaning ingredients and disinfectants to be used (types – concentrations – contact times)*
3) Ask for MSDS for used chemicals and disinfectants

Observation (O)

Observation:

1) Observe ongoing housekeeping activities and evaluate whether the applied processes are compatible with the approved policy or not:
   - Responsible staff (kitchen staff & housekeeping staff) & used PPE.
   - Applied housekeeping schedule.
   - Applied procedure.
   - Consumed supplies: cleaning ingredients & disinfectants, mops, wipes, spray bottles,
     buckets …etc.
2) Visit the janitor's room to check the availability & specifications of housekeeping supplies: e.g., cleaning ingredients, chemicals and disinfectants, mops, wipes, spray bottles, buckets …etc.
3) Check the quality of housekeeping activities: observe the presence of dust, dirt, soil.
   …etc. that demonstrate defective housekeeping:
   - Spaces under the cooking ranges, corners and hidden areas
   - Sinks and areas under them.
   - Storage areas and shelves
   - Fridges & refrigerators

Staff Interview (SI)

Ask kitchen staff & housekeeping staff about:

1) <u>The process of cleaning and disinfection of kitchen's environment:</u>
   - Roles, responsibilities and recommended PPE (what are areas to be cleaned by kitchen staff, and areas to be cleaned by housekeeping staff? / What are PPE to be used during cleaning & disinfection activities?)
   - Applied housekeeping schedule.
   - Applied procedure (how cleaning & disinfection are being performed: preparation of cleaning ingredients and disinfectants / from up downwards – from clean to dirty / frequent change of wipes and/or mops – better to use different wipes and/or mops for different areas, e.g., food receiving area, storage area and food preparation area)
   - Available supplies: e.g., cleaning ingredients, chemicals and disinfectants, mops, wipes, spray bottles, buckets …etc.
2) <u>Their knowledge should be compatible with hospital's policy and the actual practices.</u>

E - 2.15	**Storage shelves dimensions are at least, 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall. (O)**
Observation (O)	***Observe the storage area(s) in the dietary services department for the following:*** – Dimensions of storage shelves which should be: * ***40 cm from the ceiling*** * ***20 cm from the floor*** * ***5 cm from the wall*** – If containers are used inside medical stores, they are made of easily cleanable material (e.g., hard plastic).
E - 2.16	**Food carts in use are dedicated for hot & cold meals. (D, O, SI)**
Document (D)	***Review documents that describe the following:*** – Temperature records for both hot & cold meals in the food display area before transportation. – Temperature records for both hot & cold meals that are distributed to the different inpatient care areas. i.e. during the food transportation phase. – Check the daily record for each meal prepared & verify if appropriate temperature requirements were met during all phases. (Hot & cold meals)
Observation (O)	***Observe the Food carts in the dietary services department i.e., food display & distribution area & check for the following:*** – Randomly open the food carts / temperature-controlled carts & assess if it consists of 2 compartments for serving the hot and cold food simultaneously. – Observe if the food carts have inbuilt temperature monitor for display of required temperature & to take necessary actions in case of any derangement. – Hot compartment is used for serving hot food like cooked rice, meet, pulses etc whereas cold compartment is used for serving cold items like desserts, salads, water, juices etc
Staff Interview (SI)	***Interview:*** – Randomly ask any kitchen staff in the food display & distribution area or kitchen supervisor about the functioning of hot & cold food compartments in the food cart. – Ask how the appropriate required temperature is controlled for both hot & cold compartments from food display to the final distribution in patient care areas.

Element # E - 3	Laundry Department
E - 3.1	**There is a written policy and procedure for linen management, (e.g., collection, transportation, sorting, washing, storing, and dispensing). (D)**
Document (D)	– *Laundry services play a critical role in a healthcare facility's infection prevention and control program.* – *Contaminated textiles often contain large numbers of microorganisms from body substances; thus, it is important to ensure that pathogens are not transferred to patients or healthcare workers.* – *Infection control practices need to be fully implemented for the hospital laundry to protect workers from exposure to potentially infectious materials during the collection, handling, and sorting of soiled linen, which may be contaminated with blood and body fluids or other infectious material.* – *There should be strict implementation of infection control standards for the laundering process to restore soiled linen to a **usable condition.*** ***Review the policy, which should be:*** – ***Comprehensive:*** *it covers all aspects of infection control regarding linen management, including (but not limited to):* 1. *Personal Protective Equipment (PPE) and Hand Hygiene* 2. *Collecting Contaminated Textile/Linens* 3. ***Transportation of** Contaminated Textile/Linens* 4. *Sorting Soiled Linen* 5. *Laundering Process (washing i.e **different washing cycles in terms of temperatures, times and used chemicals.*** 6. *rinsing, drying)* 7. *Packaging and Storing* 8. *Delivery of Clean Linens* 9. *Needle/Sharps Injuries etc* – ***Fully applicable****: all elements of the policy can be applied and comply with the* – *hospital's scope of services* – ***Based on scientific references*** *approved such as MOH , GCC, CDC, WHO & APIC.* – ***Signed from authorized personnel*** *(i.e., owner of the policy / hospital director or medical director / concerned department)* – ***Approved by IPC committee**** – ***Valid (****updated within 2 - 3 years and when indicated)* –

Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes.

- ***Cleaning:*** *A process that uses a cleaning agent and physical action, such as scrubbing or wiping, to remove visible soil, organic matter, and bioburden from a surface or object. This renders the surface of object safe to handle. The cleaning agent may be a wet or dry chemical. The specifics of a cleaning process are affected by factors associated with the item to be cleaned, e.g., chemical compatibility, wetness tolerance, surface topography and complexity ... etc.*

- ***Decontamination:*** *The use of physical or chemical means to remove, inactivate, or destroy blood borne pathogens on a surface or disinfecting the item to the point where it is no longer capable of transmitting infectious particles and the surface or item is rendered safe for handling, use, or disposal.*

- ***Receiving area****: An area where soiled textiles are sorted, usually by textile category and sometimes by degree of soiling or color. Warning signs about the presence of contaminated textiles and the need to follow Universal Precautions must be posted in this area.*

- ***Washing (Processing) area:*** *An area where soiled textiles are washed and in which such equipment as washers, extractors, washer-extractors, continuous-batch washers and/or continuous processing systems is located.*

- ***Extraction area:*** *An area where excess water is removed from textiles after laundering, but before conditioning or drying.*

- ***Condition/Drying area****: An area where, after extraction, textiles are either conditioned (partly dried) or fully dried in a dryer or tumbler.*

- ***Folding area:*** *An area where textiles are folded.*

- ***Storage & Staging area:*** *An area for temporary storing and preparing textiles for delivery and having them wrapped and ready for transport to patient treatment units.*

E - 3.2	Workflow is unidirectional from a soiled area to a clean area with complete physical separation between them. (O, SI)
Observation (O)	***Observe different zones of the laundry and the flow of work:*** 1) Workflow should be unidirectional from soiled areas to clean areas (**Receiving & Sorting > Washing & Extraction > Condition/Drying & Folding > Storage & Dispensing**) 2) Soiled areas should be physically separated from clean areas (complete physical separation is required, i.e., using double doors washing machines or installing walls or partitions)

Functional separation/barrier: An activity or structure that separates one movement, action, or space from another

E - 3.3	Hand hygiene facilities and supplies are available & easily accessible. (O)
Observation (O)	***Observe hand hygiene facilities in different zones of the laundry:*** 1. There are adequate hand washing facilities equipped with all required supplies (soap, water, paper towels etc) 2. Availability of Alcohol Based Hand Rub (ABHR) dispensers in all working areas and in personnel support areas. 3. *Adequate refers to the availability of hand hygiene facility within or around the working area (i.e., personnel do not need to leave his working area to reach a hand hygiene facility of another area or zone)*

NOTE:

- ***At least ONE dedicated hand washing sink is required in a dirty or soiled area.***
- ***For practicing hand hygiene in clean areas, it is preferable to use Alcohol Based Hand Rub (ABHR) dispensers (at least ONE)***

E - 3.4

Dirty linen are separated from clean linen during collection & transport and linen carts used for clean and dirty linen are clearly identified. (O)

Observation (O)

Observe the handling of clean and dirty linen and carts used for their collection & transport:

1) Dirty linen should be separated from clean linen during collection & transportation to laundry (i.e., the laundry staff maintain functional separation of soiled from clean textiles in carts and/or vehicles at all times during the collection and transportation)

2) Carts used for collection & transport of dirty linen are clearly identified from those used of clean linen i.e. appropriately labeled with clear signage.

E - 3.5

All workers who handle the soiled textiles follow Standard Precautions (i.e., handled as little as possible, practicing hand hygiene, using appropriate PPE, leak-proof laundry bags and containers for collection). (O, SI)

Observation (O)

Observe handling soiled textiles in both patient-care areas and laundry areas:

1) **Personnel who handle soiled healthcare textiles always apply Standard Precautions:**
   - Soiled textiles are handled as little as possible in both patient-care areas and laundry areas (i.e., only as necessary to complete the defined task, and in such a way as to minimize microbial contamination of the environment and the personnel handling the textiles).
   - Soiled textiles are not sorted or rinsed in patient-care areas.
   - Appropriate PPE are used properly during handling soiled textiles in both patient- care areas and laundry areas
2) **Check the availability of all required PPE in patient-care areas and the laundry areas.**
3) **Check the quality of the laundry bags or containers:**
   - The laundry bags or containers are leak-proof, not torn when loaded to capacity and can be closed securely to prevent textiles from falling out (i.e., laundry bags or containers functionally contain wet or soiled textiles and prevent contamination of the environment during collection, transportation and temporary storage prior to processing).
   - Laundry bags or containers do not need to be color-coded or labeled, as hospital's laundry only receive soiled healthcare textiles, and all personnel should follow Standard Precautions when handling these textiles.

Staff Interview (SI)

Ask personnel in both patient-care areas and laundry areas about handling healthcare textiles:

1) What are the required precautions that should be followed during handling healthcare textiles (textiles from common patient-care areas / soiled textiles / contaminated laundry / linen from patients under isolation precautions …etc.)?
2) What is the color-code of the laundry bags or containers used for collection and transport textiles from isolation rooms?

- *How can healthcare textiles be classified?*
- *What are the approved specifications of the laundry bags or containers?*
- *What is the appropriate PPE that should be used during handling soiled textiles in patient-care areas and laundry areas*

Answer:

- *Personnel should always follow Standard Precautions when handling healthcare textiles.*
- *Laundry bags used for isolation rooms do not need to be color-coded or labeled.*

- ***Standard Precautions:*** *The term incorporates Universal Precautions and Body Substance Precautions and includes a group of infection prevention practices that apply to* ***ALL*** *patients regardless of suspected or confirmed infection status in any setting where healthcare is delivered.*

- ***Universal Precautions:*** *An approach to infection prevention that considers all textile products being sent to the laundry as being contaminated. Special note: Under these circumstances, it is not necessary to identify the bags in which the textiles are transported in any special manner, because they will all be handled/laundered the same way.*

- ***Contaminated:*** *The presence of blood or Other Potentially Infectious Material (OPIM) on an item or surface.*

- ***Contaminated laundry:*** *According to the Occupational Safety and Health Administration (OSHA), laundry that has been soiled with blood or Other Potentially Infectious Material (OPIM), or may contain sharps.*

- ***Soiled textile:*** *a textile product that has been used or worn and soiled by perspiration, body oils, or one of the many other items to which it may have been exposed.*

E - 3.6	**During high temperature washing cycle, water temperature is at a minimum of 71°C (159.8°F) for 25 minutes (heat disinfection) and must be recorded. (D, O, SI) (Updated)**
E - 3.7	**The amount of residual chlorine (bleach) should be between 50 and 150 ppm and must be monitored and controlled. (D, O, SI) (New)**
E - 3.8	**During low temperature washing cycle water temperature is at 22°C - 25°C (71°F-77°F) (D, O, SI) (Updated)**

Document (D)

Review the following documents:

Documents that demonstrate proper application of these three sub-standards:

1) Records of high temperature washing cycles including monitoring and control of washing cycles (i.e., recording processed loads / selected washing cycles / temperatures and times/ effective concentrations and contact times)
2) Records of low temperature washing cycles including monitoring and control of used chemicals (i.e., chemical types / preparations method / effective concentrations and contact times)
3) **Planned Preventive Maintenance (PPM)** for washing machines with Quality check for different parameters of washing cycles.
4) Intervention records for abnormal temperatures and failure situations.

Observation (O)

Observe ongoing washing cycles:

1) For high temperature washing cycles: check the content of processed load / selected washing cycle / chosen temperature and time/ calculated concentrations and contact time.
2) For low temperature washing cycles: check the type of chemical disinfectant used (i.e., sodium hypochlorite or activated oxygen-based chemicals) / preparations or dilution method / calculated concentrations and contact times.
3) Check the availability of chemical disinfectant(s) for low temperature washing cycles (i.e., sodium hypochlorite or activated oxygen-based chemicals) / MSDS for chemical disinfectant(s) and the presence of measuring device(s) for dilution or preparation of liquid disinfectant(s)
4) See valid PPM stickers on washing machines (if applicable)

Staff Interview (SI)

Ask laundry supervisor and/or responsible personnel:

1) How can you classify different healthcare textiles to choose an appropriate washing cycle?
2) For textiles that withstand high temperature washing cycles: How can you adjust the washing cycle parameters (i.e., cycle phases, required temperature and time, required concentration and contact time)?
3) For textiles that cannot withstand high temperature washing cycles: How can you adjust the washing cycle parameters (i.e., cycle phases, chemical disinfectant, preparation or dilution method)?
4) What are the different phases and expected parameters of selected washing cycles?

NOTE:

If sodium hypochlorite is not appropriate for the fabrics or not recommended by manufacturer's, Chlorine alternatives (e.g., activated oxygen-based detergents) may be used to ensure adequate disinfection of laundry during low temperature washing cycle.

Laundry process:

- *If hot water laundry cycles are used, wash with detergent in water ≥ 71°C (159.8°F) for ≥ 25 minutes.*
- *A total available chlorine residual of 50–150 ppm is usually achieved during the bleach cycle. Chlorine bleach becomes activated at water temperatures of (57.2°C–62.7°C)*

Infection Control Guidelines for Reprocessing of Linens in Healthcare Settings (Central Laundry)
December 2020 - V.1.0

E - 3.9 Routine inspection for blood and body fluid stains is conducted after washing. (O,SI)

Observation (O)

Observe:

1) **The end product:** the washed textiles are properly processed without any stains or damage.
2) Ongoing inspection process of washed textiles during the visit time.
3) Availability of appropriate table with light source for routine inspection of processed textiles
4) The presence of textiles with blood or/and body fluid stains or damaged textiles that are segregated after processing to be re-washed, repaired or disposed of.

Staff Interview (SI)

Ask laundry supervisor and/or responsible personnel:

1) How do you ensure that the processed textiles meet the approved requirements and expectations of the user?
2) How do you manage processed textiles that fail to meet the approved requirements and expectations of the user (i.e., textiles with blood or/and body fluid stains or damaged textiles)?

NOTE:

- ***Instead of direct questions, indirect ones or scenarios are advisable.***
- ***Example: What are you going to do if the surgical ward returns 4 bed sheets after being delivered this morning because of blood and body fluid stains?***

Element # E - 4

Mortuary Department

E - 4.1

There is a written policy and procedure that address safe handling of dead bodies, including postmortem handling of patients under isolation precautions and bodies with open wounds. (D)

Document (D)

- *Preparing the deceased for the morgue always involves the handling of blood, body fluids, and biological agents and may also involve exposure to life-threatening biologicals, chemicals, radiation, or electrical current.*
- *Clear infection control standards and guidelines on the appropriate care of the body following death to protect healthcare workers (HCWs), morgue staff and families from potential infectious exposures must be strictly implemented.*

Review the policy, which should be:

- **Comprehensive:** it covers all aspects of infection control in the morgue including (but not limited to):
- *Safe removal of all external invasive lines and devices used during hospital interventions (if an autopsy is not anticipated) with packing all wounds and natural openings with absorbent material and bandaged to contain any potential secretion of body fluids.*
- *Protocol to transport the deceased to the facility morgue.*
- *Postmortem safe handling of dead bodies (i.e., cleansing, bathing and preparing the deceased for burial), especially patients with infectious transmissible diseases or under isolation precautions and bodies with open wounds.*
- *Specific protocols to preserve evidence if an autopsy is required or requested.*
- *Protocol to transport the body from morgue to a funeral home.*
- *Occupational risks and work practices that delineate which tasks or conditions of employment require the use of personal protective equipment and engineering devices to minimize exposure.*
- *Record keeping with protocol for reporting accidental exposures.*
- *Management of waste and environmental cleaning procedures*
  - **Fully applicable:** all elements of the policy can be applied and comply with national and local regulations and the facility's scope of services.
  - **Based on scientific references** approved references such as MOH, CDC, WHO & APIC
  - **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
  - **Approved by IPC committee***
  - ***Valid*** (updated within 2 - 3 years and when indicated)

NOTE:
Approval by the IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes.

E - 4.2 Hand hygiene facilities and supplies are available & easily accessible. (O)

Observation (O)

Observe the morgue to ensure that:

1) There are adequate hand washing facilities equipped with all required supplies and/or Alcohol Based Hand Rub (ABHR) dispensers.
2) Definition of adequate hand hygiene facilities:
   - Adequate refers to presence of hand hygiene facility within the working area (i.e., Morgue staff do not need to leave his working area to reach a hand hygiene station of another area)
   - Adequate also refers to presence of **DEDICATED** hand washing facility with proper supplies apart from sinks used for any other working purposes.

Comments:

Hand washing facility should be easily accessible (i.e., easy to reach within the working area or very close to it)

E - 4.3 There is a schedule of housekeeping activities (cleaning and disinfection) for all environmental surfaces including the inside of the refrigerator and deep-freezing equipment. (D, O, SI)

Document (D)

Review documents that demonstrate housekeeping activities of the morgue environment (appropriate evidence of application):

1) Morgue housekeeping schedule with clear roles & responsibility of housekeeping and morgue staff.
2) Morgue housekeeping checklists and check whether the applied processes are compatible with the approved policy or not.
   - *The checklists should be practical and cover all environmental surfaces in different areas.*
   - *Also, it should include responsible staff (whether morgue staff or housekeeping staff with names – if applicable – and signatures) / dates & times / cleaning ingredients and disinfectants to be used (types – concentrations – contact times)*
3) Ask for MSDS for used chemicals and disinfectants.

Observation (O)

Observation:

1) Observe ongoing housekeeping activities and evaluate whether the applied processes are compatible with the approved policy or not:
    - *Responsible staff (morgue staff & housekeeping staff) & used PPE*
    - *Applied housekeeping schedule.*
    - *Applied procedure.*
    - *Consumed supplies: cleaning ingredients & disinfectants, mops, wipes, spray bottles, buckets …etc.*
2) Visit janitors' room to check the availability & specifications of housekeeping supplies: e.g., cleaning ingredients, chemicals and disinfectants, mops, wipes, spray bottles, buckets …etc.
3) Check the quality of housekeeping activities: observe the presence of dust, dirt, soil …etc. that demonstrate defective housekeeping:
    - *Spaces under bathing board or autopsy table, corners and hidden areas*
    - *Sinks and areas under them*
    - *The inside of morgue refrigerator and deep-freezing equipment*
    - *Storage areas*
4) Observe working and storage areas which should be of adequate capacity, well maintained, well organized and regularly cleaned according to the approved housekeeping schedule / no personal items/ no foods or drinks / no Items are kept in the original shipping boxes.

If autopsy room is available:
Observe autopsy room's monitor (if available) to ensure that it is valid and recorded values in local logs are identical to the actual readings.

Staff Interview (SI)

Ask morgue staff & housekeeping staff about:

1) **The process of cleaning and disinfection of morgue environment:**
    - Roles, responsibilities, and recommended PPE (what are areas to be cleaned by morgue staff, and areas to be cleaned by housekeeping staff? / What is PPE to be used during cleaning & disinfection activities?)
    - Applied housekeeping schedule.
    - Applied procedure (how cleaning & disinfection are being performed: preparation of cleaning ingredients and disinfectants / from up downwards – from clean to dirty / frequent change of wipes and/or mops – better to use different wipes and/or mops for different areas
    - Available supplies: e.g., cleaning ingredients, chemicals and disinfectants, mops, wipes, spray bottles, buckets …etc.
2) **Their knowledge should be compatible with hospital's policy and the actual practices**

E - 4.4	Transport cadaver bags that fulfill MOH approved specifications are available in 2 sizes & to be used for dead bodies. (O)
Observation (O)	***Observe transport body bags and body tags & their specifications:*** 1) Heavy duty cadaver plastic pouch (made of tear-resistant, fluid-resistant and impervious material, e.g., waterproof Vinyl) 2) Bags are of different suitable sizes. 3) Bag can be securely sealed for hygiene using a full-length longitudinal zipper for closure. 4) Bag has a convenient access for examination and enclosure through a full-length longitudinal zipper. 5) Bag has a suitable pouch to hold the body tag.

E - 4.5	All Mortuary HCWs are well trained on hand hygiene, proper use of PPE. (D, O, SI)
Document (D)	***Review the following documents in the Infection Prevention & Control Department that provide evidence regarding education & training of morgue staff:*** - Training records of all morgue staff and confirm if they have received continuous job specific training on Hand hygiene & proper use of PPE. - Check the training data and estimate percentage of training coverage. - Check the training schedule, content discussed & mode of delivery to morgue HCWs to ensure message was communicated in the highly effective manner. e.g pectoral, video demonstrations etc

Observation (O)

Observe the morgue staff during round if they are compliant with Hand Hygiene & appropriate use of PPE:

Observe if hand hygiene is practiced.

1). Hand washing/hand rubbing.

a) Time (20-30 sec ABHR, 40-60 Sec Hand washing)

b) Technique (completely and thoroughly)

c) Moments of hand hygiene for the morgue staff: before starting work / after handling dead bodies / after handling soiled items or equipment and waste / after any cleaning procedures / after removing PPE, e.g., gloves / before & after eating, drinking, or smoking / after using the toilet / before leaving the workplace.

Observe if morgue staff is using appropriate PPE while handling dead bodies who died under isolation precautions:

A. Appropriate PPE includes (mask, goggles, latex/vinyl gloves, boots, waterproof full-length apron) to prevent splashing and contamination with body fluids.

For Autopsy:

- *Recommended PPE (double layers of disposable gloves, protective eyewear or face shield, respiratory protection, fluid-resistant gowns or waterproof aprons, closed shoes or protective shoe covers and caps) should be worn when performing or assisting in postmortem procedures.*
- *Use of metal mesh gloves or gloves made with "cut resistant fabric" underneath the outer gloves is suggested for prosecutors to prevent injury from scalpels and other sharp objects other than needles (e.g., bone shards and fragmented projectiles).*
- *Approved respiratory protection is required for prosecutors when performing an autopsy on a known or suspected case of TB (high-risk procedure)*

Staff Interview (SI)

Ask the morgue staff about:

1) Hand Hygiene (hand washing/hand rubbing): times / techniques / moments of hand hygiene
   - *Techniques.*
   - *Times.*
   - *Moments of hand hygiene*
2) Protective clothing & PPE:
   - *Types.*
   - *Indications.*
   - *Technique, sequence of donning and doffing and proper use while handling deceased patients due to different type of infectious diseases.*
   - *BICSL license & N95 fit testing.*
3) If they received periodic training about standard precautions

Randomly ask 1 to 3 of the morgue staff:

1) To demonstrate techniques of hand washing/hand rubbing
2) To demonstrate donning and doffing of PPE

E - 4.6

Transportation card that denotes the type (s) of isolation precautions is attached to the dead body of the patient under any type of isolation. (D,SI)

Document (D)

Review the following documents:

1) Logbook used for recording of deceased while under isolation precautions and protective measures taken.
2) Morgue's transportation cards that should be attached to the dead bodies of patients under isolation precautions.

Staff Interview (SI)

Ask the morgue staff:

1) If the nurse in charge communicates with the morgue staff to inform them about infectious status of the deceased and appropriate precautions required.
2) If they received periodic training about handling dead bodies of patients under isolation precautions.
3) If they are familiar with isolation precautions, transportation cards are used within the hospital.
4) If information regarding infectious status of the deceased is written on an identification tag attached to the body bag.

Orient and train all morgue staff and especially body washers through in-service training annually regarding the proper infection control practices (i.e., hand hygiene, modes of disease transmission, and the importance of PPE) and how to apply these practices.

E - 4.7	**Mortuary HCWs are fully oriented about handling deceased patients with infectious diseases or died while under isolation precautions according to the relevant approved hospital policy. (O, SI)**

Observation (O)

Observe the morgue staff for:

2). Handling the dead bodies who died under isolation precautions.

3). *Observe if they are compliant with hand hygiene and appropriate PPE selection & according to type of isolation precautions.*

4). Observe if morgue staff is using appropriate PPE while handling dead bodies who died under isolation precautions:

a. Appropriate PPE includes (mask, goggles, latex/vinyl gloves, boots, waterproof full-length apron) to prevent splashing and contamination with body fluids.

B. Recommended PPE (double layers of disposable gloves, protective eyewear or face shield, respiratory protection, fluid-resistant gowns or waterproof aprons, closed shoes or protective shoes covers and caps) should be worn when performing or assisting in postmortem procedures.

C. Use of metal mesh gloves or gloves made with "cut resistant fabric" underneath the outer gloves is suggested for prosecutors to prevent injury from scalpels and other sharp objects other than needles (e.g., bone shards and fragmented projectiles).

D. Approved respiratory protection is required for prosecutors when performing an autopsy on a known or suspected case of TB (high-risk procedure)

Staff Interview (SI)

Ask the morgue staff about:

- If they received periodic training about standard precautions and handling of deceased while under isolation precautions.
- If they are aware about hospital policy that covers dealing with deceased patients due to infectious diseases.
- If they are properly trained about dealing with blood and body fluids spills.

Randomly ask 1 to 3 of the morgue staff:

- To demonstrate applied procedures for handling the deceased patients with infectious diseases or died while under isolation precautions based on hospital policy. *e.g COVID 19, MERS CoV, Monkeypox etc*
- Demonstrate the technique of handling blood and body fluids spills.

Element # E - 5 Construction & Renovation Measures in Healthcare Facilities

E - 5.1 There is a written policy and procedure for IPC considerations during demolition, renovation, and construction projects. (D)

Document (D)

Documentation review of policy and procedure, which should be:

- **Comprehensive and well descriptive: it entails (but not limited to):**
  - Establishment of a multidisciplinary team which is composed of Infection Prevention & Control, General Services, Risk Management and Housekeeping personnel. The team is responsible for planning and implementing proactive preventive measures for the whole duration of the construction project and in establishing clear lines of communication among all concerned to ensure patient safety.
  - Authority (directed to all departments and construction team) of infection control department to be pre-informed before starting any construction & renovation activities or projects (i.e., maintenance personnel should obtain an Infection Control Construction Permit)
  - Infection Control Risk Assessment Matrix of Precautions for Construction & Renovation (ICRA): infection control precautions during construction & renovation and upon completion of project (i.e., type I, II, III, and IV), after identifying:
    a) Type of Construction Project Activity (i.e., type A, B, C and D).
    b) Patient Risk Group that will be affected during construction & renovation activities (i.e. LOW RISK, MEDIUM RISK, HIGH RISK and HIGHEST RISK)
  - Role of infection control personnel in providing education to workers and staff involved in the project to ensure through periodic follow up those preventive measures are outlined, implemented and maintained during all phases of any construction and renovation projects.
  - Authority of infection control department to stop construction projects if breaches in preventive measures arise that may expose patients and HCWs to infections or environmental hazards.
- **Fully applicable**: all elements of the policy can be applied and comply with the hospital's scope of services.
- **Based on scientific references** approved references such as MOH, CDC, WHO & APIC.
- **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
- **Approved by IPC committee***
- **Valid** (updated within 2 - 3 years and when indicated)

Comment:

Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes

E - 5.2	IPC team is involved prior to, during, and post any construction, demolition, and renovation project (planning, ICRA, IPC permit, continuous follow - up, and authority to stop the project). (D , SI)

Document (D)

Review the following documents:

1) Multidisciplinary team meetings that indicate involvement of infection prevention & control team in planning and executing any construction & renovation projects
2) **Infection Control Construction Permit:** infection control department's permission was taken before starting any construction & renovation activities.
3) **Infection Control Risk Assessment Matrix (ICRA):** posted at the construction & renovation site with all precautions (proactive preventive measures) are outlined and very well explained to the construction staff (or at least the supervisor of each shift) to be strictly implemented and maintained during all phases of the project.
4) Periodic follow up of IPC practices and other preventive measures during all phases of the construction & renovation project. This is depending on the PATIENT RISK GROUP (e.g., construction projects involving HIGH RISK patient care areas as surgical units require frequent visits as compared to construction activities in LOW-RISK areas as general administrative area)
5) Authority of infection prevention & control department to stop the construction project if there is breaches in IPC practices that may expose patients and HCWs to infections or environmental hazards

Note:
Ask about the Infection Control Construction Permit / Infection Control Risk Assessment Matrix (ICRA) / documents for regular follow up / documents for stopping the construction projects (if any) of an ongoing demolition, renovation, or construction project or the last project(s) that has (have) been executed.

Staff Interview (SI)

Staff interview should be focused on:

- Infection prevention & control director: he/she should be aware of his/her department's involvement in planning and executing any construction & renovation projects (e.g., prior to execution of construction & renovation activities that involve critical units, there should be some arrangements to shift patients to other areas, isolation of construction & renovation site, creation of dust barriers, isolation of HVAC system… etc.) and their understanding of importance of ICRA, permission, follow up and stopping the construction project when required

- Stakeholders of construction & renovation projects (e.g site manager or project's supervisor of the ongoing shift): he/she must be familiar with involving the IPC department in every step of the project starting from planning to execution to completion. Also, he/she should understand that all personnel involved in construction & renovation activities must be very well aware of IC precautions (proactive preventive measures), to strictly implement and maintain IC practices during all phases of such activities

E - 5.3 Microbiological cultures are conducted after construction for positive pressure isolation rooms and operating theater or when required (e.g, outbreak) based on the IPC recommendations. (D, SI)

Document (D)

Review the following documents:

Infection Prevention & Control Policy for Microbiological cultures after construction which should:

- *Microbiological culture should be conducted after construction in operating theaters and positive pressure protective environment isolation rooms.*
- *Microbiological cultures should also be conducted based on requirement and based on approved recommendations from the IPC team or outbreak management team e.g during outbreak to identify the source (environmental surfaces, water samples etc)*

Check the microbiological cultures result for previous construction and renovation projects to ensure that they only performed as recommended by the IPC team for Surgical Operation Room OR and Protective Environment (PE) Room.

Staff Interview (SI)

Ask the staff about:

IPC precautions and other preventive measures required during construction & renovation and upon completion of project which should:

- Microbiological cultures should be done before opening of OR and PE rooms after construction and renovation projects at these areas.
- Ask for corrective interventions if the culture results were positive.
- Ask about the microbiological cultures during outbreak situations ***e.g Candida Auris outbreak in Adult ICU, Acinetobacter Baumanii outbreak in Neonatal ICU. etc***

Microbiologic Air & Environmental Surfaces Sampling:

- ***Particulate and microbiologic air sampling has been used when commissioning new HVAC system installations, such sampling is particularly important for newly constructed or renovated protective environments or operating rooms.***
- ***Sampling should be limited to determining the density of fungal spores per unit volume of air space; High numbers of spores may indicate contamination of airhandling system components prior to installation or a system deficiency when culture results are compared with known filter efficiencies.***
- ***Never do environmental surface sampling and cultures for newly constructed healthcare areas or buildings.***

Reference: Infection Control Requirement in Design, Construction and Renovation in Healthcare Facilities –
Version 1 2021 - GDIPC
Best Practices of Environmental of Environmental Health for Prevention & Control of Infections in Healthcare Facilities Guideline - Version 1 2022-GDIPC

E - 5.4	IPC measures are followed during the construction, demolition, and renovation projects by using infection control risk assessment (ICRA). (D, O, SI)
Document (D)	***Review the following documents:*** **Infection Control Risk Assessment Matrix (ICRA),** which should: - Be formulated and posted at the construction & renovation site. - Identify accurately type of construction project activity (i.e., type A, B, C and D) & patient risk group that will be affected during construction & renovation activities (i.e. LOW RISK, MEDIUM RISK, HIGH RISK and HIGHEST RISK) - Entail all required IPC precautions (i.e., proactive preventive measures: type I, II, III, and IV), that must to be strictly implemented, maintained and periodically observed through follow up visits during different phases of the project - Be signed by all involved stakeholders
Observation (O)	***Observe the ongoing construction & renovation project to:*** 1) Check the presence of formulated ICRA, that is posted appropriately in visual catchment of personnel involved in construction & renovation activities. 2) Watch if all IPC practices and other preventive measures highlighted in ICRA are strictly implemented and continuously practiced or not.

Staff Interview (SI)

Ask the staff about:

IPC precautions and other general preventive measures required during construction & renovation and upon completion of project (i.e., type I, II, III, and IV), Examples:

- *Isolation of areas*
- *Traffic control plan with signage placement*
- *Moving/placement of patient in other areas*
- *Sealing of window/door/air ducts/plumbing penetrations*
- *Creation of dust barriers*
- *Exhaustion of air in construction side directly outside*
- *Use of negative pressure/HEPA filters to contain dust or other dust suppression mechanisms.*
- *Use of appropriate PPE by workers involved in construction activities.*
- *Removal of debris at periods of low activity in containers that are tightly covered.*
- *Reporting an unusual observation like discoloration of water, dust in units above, below, beside, behind or in front of the construction site*
- *Post construction preventive measures (It mainly depends on the area involved, (e.g., critical units: oncology ward, OR …etc.): housekeeping activities (cleaning and disinfection that may include HVAC system according to construction type), flushing of water lines and/or environmental sampling.*

Pre-construction and Renovation Infection Control Risk Assessment Permit Matrix of Precautions for Construction & Renovation

Step One: Construction activity type Construction activity type is defined by the expected amount of dust generated and duration of the involvement of the heating, ventilation and air conditioning (HVAC) systems. Identifying the Type of Construction Project Activity (Type A-D).

Type	Activities
Type A	**Activities that do not generate dust or require cutting of walls or access to ceilings other than for visual inspection: (inspection and non-invasive activities)** *Includes but is not limited to:* • Removal of ceiling tiles for visual inspection only, e.g., limited to 1 tile per 50 square feet • Painting (but not sanding) • Wallcovering, electrical trim work, minor plumbing
Type B	**Activities that generate minimal dust** Small scale, short-duration activities that create minimal dust *Includes, but is not limited to:* • Installation of telephone and computer cabling. • Access to chase spaces. • Cutting of walls or ceiling where dust migration can be controlled.
Type C	**Activities that generate a moderate to the high level of dust or requires demolition or removal of any fixed building components or assemblies:** *Includes but is not limited to:* • Sanding of walls for painting or wall covering • Removal of floor coverings, ceiling tiles and casework • New wall construction • Minor ductwork or electrical work above ceilings • Major cabling activities • Any activity which cannot be completed within a single work shift.
Type D	**Major demolition and construction projects** *Includes, but is not limited to:* • Activities that require consecutive work shifts
	• Requires heavy demolition or removal of a complete cabling system • New construction.

Step Two: Using the following table to identify the Patient Risk Groups that will be affected.

Group	Area
Group 1: Low Risk	▪ Office areas ▪ Non-patient areas
Group 2: Medium Risk	▪ Materials management ▪ Physical therapy / occupational therapy/speech therapy ▪ Admission / discharge ▪ Public corridors (through which patients and supplies pass) ▪ Echocardiography ▪ Nuclear medicine ▪ MRI ▪ Respiratory therapy ▪ Cafeteria ▪ Dietary ▪ Patient areas not listed in Groups 3 or 4
Group 3: High Risk	▪ Critical care units (CCU) ▪ Emergency room ▪ Radiology ▪ Labor and delivery ▪ Microbiology / radiology laboratories ▪ Intensive care units (ICU) ▪ Intermediate care nursery ▪ Newborn nursery ▪ Long term / sub-acute units ▪ Dialysis ▪ Endoscopy ▪ Outpatient surgery ▪ Paediatrics ▪ Pharmacy ▪ Post-anesthesia care unit ▪ Surgical units
Group 4: Highest Risk	▪ Any area caring for immunocompromised patients ▪ Burn Unit ▪ Cardiac Catheterization Lab ▪ Central Sterile Supply ▪ Intensive Care Units ▪ Negative pressure ▪ Isolation rooms ▪ Oncology ▪ Operating rooms including C-section room

* ***Note:*** *If more than one risk group will be affected, select the higher risk group*

Step Three: Match the Patient Risk Group (Low, Medium, High, Highest) with the Planned Construction Project Type (A, B, C, D) on the following matrix:

Patient Risk Group	Construction Project Type			
	Type A	Type B	Type C	Type D
LOW-Risk Group	I	II	II	III/IV
MEDIUM Risk Group	I	II	III	IV
High-Risk Group	I	II	III/IV	IV
HIGHEST Risk Group	II	III/IV	III/IV	IV

Step Four: Description of Required Infection Control Precautions and activities Class

Class	Before Construction	During Construction	After Construction
I	1. Execute work by methods that minimizing dust dispersion. 2. Provide MSDS for paints & disinfectants.	1. Immediately replace any ceiling tile which may have been displaced for visual inspection.	1. Clean work areas upon completion of the task 2. Clean up and dispose of in accordance with defined procedures. 3. Disinfect surfaces in high-risk areas.
II	1. Provide active means to prevent air-borne dust from dispersing into the atmosphere. 2. Block off and seal air vents.	1. Waste/debris must be disposed of on a regular basis to avoid accumulation. 2. Contain construction waste debris before	1. Restore HVAC system, complete air balancing in the work areas. 2. Vacuum work areas with HEPA filtered vacuums. 3. Wipe surfaces with disinfectant.
	3. Seal unused doors with duct tape. 4. Place dust/sticky mats at the entrance and exit of work areas. 5. Isolate the HVAC system within the working zone if needed. 6. Provide MSDS for paints & disinfectants prior to use.	transport in tightly covered containers. 3. Replace sticky mats when visually dusty. 4. Water mist work surfaces to control dust while cutting.	

Class	Before Construction	During Construction	After Construction
III	1. Block off and seal air vents with a grill mask or other approved means. 2. Seal unused doors with duct tape. 3. Place dust/sticky mats at the entrance and exit of work areas. 4. Isolate HVAC system within working zone if needed. 5. Complete all critical barriers as indicated (i.e. a hard plastic sheet of at least 4mm thick kit or implement control cube method of hard plywood frame before construction begins). 6. Provide MSDS for paints & disinfectants prior to use.	1. Waste/ debris must be disposed of on a regular basis to avoid accumulation. 2. Contain construction waste/debris before transport in tightly covered containers. 3. Cover transport. receptacles or carts. Tape covering unless solid lid. 4. Maintain negative air pressure within the worksite. 5. Vacuum work area with HEPA filtered vacuum machine on daily basis.	1. Restore HVAC system, complete air balancing in the work areas. 2. Vacuum work areas with HEPA filtered vacuums. 3. Wet mop areas with disinfectant. 4. Remove barrier materials carefully to minimize the spreading of dirt and debris associated with construction. **NOTE:** **Do not remove barriers from working areas until the entire project is officially released.**
IV	In Addition to items in class III, the following preventive measures must be applied: 1. Seal holes, pipes, conduits and punctures appropriately 2. Construct an anteroom that will be used for changing the necessary PPEs before entering/ leaving the construction site. 3. Place a sticky mat at the entrance of the anteroom. 4. Waste/debris chutes must be available for waste disposal 5. Maintain negative pressure within work site.	In Addition to items in class the following preventive measures must be applied: 1. The anteroom must be cleaned with a HEPA filtered vacuum daily. 2. All personnel entering the worksite are required to wear shoe covers. 3. Vacuum work area with HEPA filtered vacuum machine on daily basis. 4. Change sticky mats once they are visibly dusty.	In Addition to items in class III, the following preventive measures must be applied: 1. Spaces above false ceilings must be cleaned and be dust-free including all A/C ducts and water pipes. **NOTE:** **Do not remove barriers from work areas until the entire project is officially released.**

Element # E - 6

HOUSEKEEPING & HOSPITAL ENVIRONMENT

E - 6.1 There is a written policy and procedure for environmental cleaning & disinfection including safe handling of blood/body fluids spills. *(D)*

Document (D)

Review policy & procedure for environmental cleaning & disinfection including safe handling of blood/body fluids spills:

Comprehensive: policy must include the following:

- *Cleaning protocols*
- *Methods of cleaning*
- *Types of cleaning (Regular and Terminal)*
- *Frequency of cleaning of each area in the hospital according to risk assessment*
- *List of approved disinfectant used in the hospital.*
- *Method of use of disinfectants and its preparation with clear description according to the manufacturer instructions (dilution, contact time, MSDS safety data sheet)*
- *Cleaning schedule with assigned responsibilities*
- *Curtain changing policy.*
- *Environmental sampling*
- *The role and responsibility of housekeeper and nurses in management of blood/body fluid spills*
- *Described procedure / steps how to deal with spills (large, small) according to amount and type.*

3. **Fully applicable**: all elements of the policy can be applied and comply with the hospital's scope of services.
4. **Based on scientific references** approved references such as MOH, CDC, WHO & APIC
5. **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
6. **Approved by IPC committee***
7. **Valid** (updated within 2 - 3 years and when indicated)

NOTE:

Approval by IPC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes

E - 6.2 There is a written policy and procedures for pest control (regular schedule/ pesticides list). *(D, SI)*

Document (D)

Review the policy and procedures for pest control that should be:

- **Comprehensive** and include the following:

  -.1. Describe a clear procedure for pest control in the hospital.
  -.2. Timing and schedule for pesticides.
  -.3. List of approved chemicals used.

- **Fully applicable**: all elements of the policy can be applied and comply with the hospital's scope of services.
- **Based on scientific references** approved references such as MOH, CDC, WHO & APIC
- **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
- **Approved by IPC committee***
- **Valid** (updated within 2 - 3 years and when indicated)

Review other documents to ensure implementation of pest control policy:

- Review the contract for pest control regarding the date of expiration of the current contract with the contracting company.
- Review the logbook for the pesticide company visits to the hospital and if it meets with the required schedule.
- Monitoring must be conducted from Infection Prevention and Control Department

Staff Interview (SI)

Ask the pest control / housekeeping staff:

1) How they conduct pest control activities in an area / procedure (routine or as needed)
2) List of pesticides they use and how they use it?

Ask the IPC team:

1) How frequently pest control visits are conducted. Verify by asking pest control to visit any unit/ area and match with the specified frequency in the available document. ***For example, Ask randomly about last visit to ER, Medical ward, kitchen etc.***
2) Ask about the monitoring & tracking procedure in relation to pest control activities throughout the hospital in order to ensure effective implementation of policy.

E - 6.3	**Each unit has an environmental cleaning/ disinfection schedule that records responsible worker, used agents, methods of cleaning and the environmental surfaces intended to be cleaned. *(D, O, SI)***

Document (D)

Review the following:

1) Schedule of unit cleaning and disinfection
2) Schedule must include the frequency, the used disinfectant and the responsible staff:
   a) Nursing staff for medical equipment
   b) Housekeeper for other environmental surfaces
   c) Radiology technicians for portable X-ray
   d) Respiratory therapist for respiratory therapy equipment, etc.

Observation (O)

Observe the following:

1) Availability & utilization of unit cleaning and disinfection schedule / checklists.
2) Observe if housekeeping staff are adherent with cleaning & disinfection protocols as specified in the schedules.

Staff Interview (SI)

Ask

1) Nursing staff about the method and how frequent they disinfect medical equipment ***(ask a nurse to simulate the procedure of cleaning and disinfection of patient monitor)***
2) Ask the housekeeper how frequently they do routine cleaning of the patient room.
3) Nursing staff about used disinfectant in disinfection and cleaning of regular room and isolation room

E - 6.4	**Cleaning agents and disinfectants are consistent with hospital's policy and used in the correct method according to manufacturer's recommendations including dilution and contact time.** *(O, SI)*
Observation (O)	***Observe*** 1) Housekeeper cleaning cart (All equipment and disinfectants needed are available **e.g. mops, disinfectants, small measuring containers and microfiber cloths ...)** 2) Presence of assigned equipment and cart for isolation rooms. 3) phenolic disinfectant in the patient care areas is prohibited.
Staff Interview (SI)	***Ask the housekeeper:*** 1) Which disinfectants are used for environmental surface cleaning in regular rooms, isolation rooms and bathrooms? 2) Who is responsible for disinfectant preparation and dilutions and how will you prepare different solutions? *3)* Describe how you will clean the patient room? ***The housekeeper may perform the cleaning process in front of you.*** 4) What is the contact time for different disinfectants?
E - 6.5	**There are separate clean and dirty utility rooms in each patient care area.** *(O,SI)*
Observation (O)	***Observe:*** 1) Designated/labeled room for clean and dirty utility equipment/materials 2) Rooms dedicated only for its usage ***(observe that no dirty/used items are stored in clean utility room)***

Staff Interview (SI)

Interview:

1) During audit visit of different patient care areas ask staff about the availability of separate rooms for clean and dirty utility equipment/materials.
2) Ask about the type of equipment / materials to be kept inside clean and dirty utility rooms.
3) Ask questions to countercheck if these rooms are being utilized for additional activities not required to be done. e.g. *availability of housekeeping trolleys, mops etc in dirty utility rooms. Moreover, handling used contaminated instruments like washing before transportation to CSSD.*

E - 6.6	**Housekeepers are trained on hand hygiene, use of PPE, methods of cleaning, and proper and safe mixing of chemicals. Only experienced housekeeping staff are allowed in critical care units.** ***(D, O, SI)***

Document (D)

Review:

1) Training records such as electronic database / manual records as documented evidence for training & education of housekeeper staff about infection control standards ***(HH, PPEs, environmental cleaning and disinfection, preparation of cleaning solutions ...)***
2) Approved documented special training for housekeepers working in critical areas e.g., OR, ICUs ER…etc.

Observation (O)

Observe:

1) Process of cleaning (from high to low surfaces, from clean to dirty areas and if they allow the contact time)
2) A daily and terminal cleaning process
3) Observe if housekeeping staff are compliant with Hand hygiene & PPE use.
4) Observe the cleaning carts & how they are using the equipment in a regular room / isolation room.
5) and mixing of the solutions
6) Type of PPEs used during cleaning process.

Staff Interview (SI)

Ask the housekeeping staff:

1) Last training received on infection control measures like hand hygiene, use of PPE, methods of cleaning, and proper and safe mixing of chemicals.
2) Ask about frequency of infection control training & content taught?
3) During an audit visit to the ICU. ER and other critical care areas ask about the time duration since they are working in this area to verify if experienced or not?
4) Give specific tasks to staff about the cleaning process to assess if they are well trained.

Question: *After discharge of* ***COVID*** *patient from AIIRs in ICU, the head nurse called you to perform terminal cleaning of the patient room. How will you proceed?*

Assess if they are compliant with HH & appropriate PPE based on type of isolation.
Assess if they are using the right disinfectant in right dilution.

E - 6.7 Hospital environment, lockers and cabinets are regularly cleaned, dry and dust free. *(O)*

Observation (O)

Observe during audit visit of different patient care areas:

1) Observe presence of dust on the environmental surfaces & assess if they are dirty/dusty. ***You may use wet wipe to wipe a surface that you suspect it's not clean.***
2) Open lockers or cabinets and check for its cleanliness from inside.

E - 6.8 Bedside curtains are clean, free of stains and changed regularly & when visibly contaminated. *(D, O, SI)*

Document (D)

Review

- Log sheet for curtain changing according to risk classification of the areas like ICU, ER, medical wards etc
- Check the date of last installation if there is any sticker on the fabric curtains.
- Check date of expiry for the antimicrobial curtains. ***(Should be changed after 06 months/based on manufacturer's instruction/ visibly soiled/ follow the IPC recommendations in regard this type of curtain from the " Best Practices of Environmental Health for Prevention & Control of Infections in Healthcare Facilities Guideline- Version 1 2022-GDIPC")***

Observation (O)

Observe

- Curtains in different patient care areas / patient rooms / ER observation rooms / phlebotomy rooms etc for any dirt or stain.

Staff Interview (SI)

Ask

- The staff how frequently they change the curtains as per hospital IC policy
- Ask staff about frequency of changing curtanas with huge patents influx e.g ER
- Frequency of changing in isolation rooms *(after patient discharge or referral)*
- Availability of replacement stocks of the clean curtains in the clean utility room.

E - 6.9	**Terminal cleaning process is done by using an ultraviolet machine or hydrogen peroxide fog machine when indicated.** ***(D,O,SI)***

Document (D)

Review within the infection control department:

1) Policy and procedure for environmental cleaning that includes hydrogen peroxide / ultraviolet to be used in terminal cleaning processes.
2) Review terminal cleaning checklist and verify the use of hydrogen peroxide or ultraviolet equipment in terminal cleaning

Observation (O)

Ask the infection control practitioners:

- Observe the availability & use of hydrogen peroxide and ultraviolet used in the process during terminal cleaning

Staff Interview (SI)

Ask the infection control practitioners:

- Method of terminal cleaning used.
- The use of new technology for the terminal cleaning process.
- The cycle of use for the ultraviolet device after terminal cleaning.
- Ask if the UV Machine and / or hydrogen peroxide fog machine is in working condition.
- Ask any IPC/HCWs to demonstrate to assess if they are familiarized with the functioning of these machines.

E - 6.10	**Terminal cleaning process after discontinuation of isolation is supervised by the in-charge nurse, and in case of an outbreak by IPC practitioner.** ***(D, O, SI)***
Document (D)	***Review:*** 1) Terminal cleaning checklist (must include all the items present in the assigned area) 2) Last terminal cleaning checklist which should be signed by the nurse in-charge and infection **control practitioner in case of outbreak.** 3) Ask about any previous outbreak in units e.g ICU, NICU etc and validate any terminal cleaning checklist to confirm signatures of IPC team.
Observation (O)	***Observe:*** 1) Process of terminal cleaning if possible ***2)*** Observe in any unoccupied Isolation rooms in different locations like ICU, ER, NICU etc and assess if appropriate terminal cleaning is done ***(You may notice huge medical supplies inside AIIR drawers which will be used for the next patient. All items must be removed as part of the terminal cleaning process.***
Staff Interview (SI)	***Ask:*** 1) When they conduct terminal cleaning? 2) Steps for proper terminal cleaning 3) If they use a dedicated checklist 4) The nurse in-charge how she will supervise the process of terminal cleaning 5) Visit any unoccupied room in the isolation ward etc & give specific tasks to staff to gauge if appropriate cleaning is done. Ask him / her to wipe the highest or hardest point on machines / bedside monitors that are hard to reach and check if clean or not.)

E - 6.11	**Biological spill kits are available in all areas that have risk of blood and body fluid splashes and HCWs are capable of using them properly.** ***(O, SI)***
Observation (O)	***Observe*** 1) Availability of the biological spill kits in all areas with its content. 2) Clear instructions about use and steps used are available. *3) Biological spill kits must be present in all patients care areas and supportive services including laundry, infectious waste room, mortuary etc.*

Staff Interview (SI)

Ask

1) Indication when to use the biological spill kit
2) The staff how to deal with biological spill kits.
3) You may ask a nurse to simulate the management of blood spill by giving a scenario.

E - 6.12	**Routine environmental microbiological cultures (for air, water, or environmental surfaces) are not recommended routinely. Only environmental sampling is conducted when indicated and approved by the IPC team.** ***(D,SI)***

Document (D)

Review within the infection control department:

- The last environmental sampling done, it's indications and results (if available)

Staff Interview (SI)

Ask the IPC practitioners:

- When it's indicated to take environmental samples? (The answer should be during an outbreak or after construction and renovation)

Microbiological cultures are conducted ONLY after construction & renovation of positive pressure isolation rooms and operating theater or when required (e.g, outbreak) based on the IPC recommendations.

Reference: ***Infection Control Requirement in Design, Construction and Renovation in Healthcare Facilities***
Version 1 2021 - GDIPC

E - 6.13	**Endo cavitary ultrasound probes are cleaned, and high level disinfected then covered with clean cover till use.** ***(D, O, SI)***

Document (D)

Review:

Policies & procedures for cleaning & disinfection, which should include;

- Ultrasound probes cleaning and disinfection methods specially Endo-cavitary ultrasound probes.
- Logsheet / checklist as documented evidence of cleaning and **high-level disinfection.**

Endo cavitary: Within a body cavity or organ (e.g., an atrium, the rectum, or the vagina)

Observation (O)

Observe:

- During audit round observe staff practices regarding handling of endo cavitary ultrasound probes after use.
- Observe how and where these US probes are cleaned and disinfected after use.
- Observe the place and manner how these US probes are being kept / stored if not in use. (Dried after cleaning and disinfection process and covered with clean cover till next use)

Staff Interview (SI)

Ask the staff:

- Methods of cleaning and disinfection of ultrasound probes specially endo-cavitary US probes.
- Ask how the endo cavitary ultrasound probes are kept /stored after cleaning and disinfection process in order to avoid risk contamination from dust etc?

Provide, at a minimum, high-level disinfection for semi critical patient-care equipment (e.g., gastrointestinal endoscopes, ***endocavitary probes (e.g., rectal and vaginal probes),*** *endotracheal tubes, anesthesia breathing circuits, and respiratory therapy equipment) that touches either mucous membranes or nonintact skin.*

SEMI CRITICAL ITEMS

Semi critical items are those that come in contact with mucous membranes or non-intact skin.

- This category includes respiratory therapy and anesthesia equipment, gastrointestinal endoscopes, bronchoscopes, laryngoscopes, esophageal manometry probes, anorectal manometry catheters, **endocavitary probes (e.g., rectal and vaginal probes)**, prostate biopsy probes, infrared coagulation devices, and diaphragm fitting rings.
- These medical devices should be free of all microorganisms (i.e., mycobacteria, fungi, viruses, bacteria), although small numbers of bacterial spores may be present.
- Intact mucous membranes, such as those of the lungs or the gastrointestinal tract, generally are resistant to infection by common bacterial spores but are susceptible to other organisms such as bacteria, mycobacteria, and viruses.

HIGH-LEVEL DISINFECTION

Semi critical items minimally require high-level disinfection using chemical disinfectants:

- **Glutaraldehyde**
- **hydrogen peroxide**
- **ortho-thioaldehyde**

E - 6.14	There is a specific area for routine scheduled cleaning and disinfection of incubators or when required and by using approved MOH disinfectant and based on manufacturer's recommendation. *(D,O,SI)*
Document (D)	**Review the following documents:** **1. Policies & procedures for cleaning & disinfection of Incubators, which should include:** - *Frequency, methods, type of disinfectants, roles & responsibilities for routine scheduled and additional required cleaning and disinfection of incubators.* - *Terminal cleaning must be done when the baby leaves or after 7 days of admission.* - *It must be done in a special room (if without the baby) using appropriate equipment and wearing appropriate clothes.* - *Clean the unit with detergent and warm water. Do not use excessive liquid or harsh cleansers.* - *Never use alcohol, ether, or grease, and scouring or reactive detergents; this could modify the properties used in the incubator.* - *After cleaning, perform a complete functional check out before returning the unit to service.* - *Use a cleanser or disinfectant to thoroughly clean all surface. Clean all holes, indentations, baffles, etc. and then dry with a clean cloth or paper towel.* **2. Review checklist for routine scheduled cleaning and disinfection of incubators. Checklist should include date, type of disinfectant used etc**
Observation (O)	***Observe the cleaning room / area dedicated for cleaning & disinfection of incubators:*** - The availability of supplies and equipment required for cleaning and disinfection of incubators. - Randomly check if disinfectants are approved from MOH & not expired.

E - 6.15	**Hydrotherapy equipment (for example, Hubbard tanks, tubs, whirlpools, whirlpool spas, or birthing tanks) used in Burn unit and physiotherapy department are drained, cleaned and disinfected after each patient's use. (SI)**
Staff Interview (SI)	***Interview Burn unit and physiotherapy staff:*** - Nurses' role & responsibility in cleaning & disinfection activities after completion of patient session. - Methods of cleaning of hydrotherapy equipment – agents & materials to be used in cleaning/disinfection activities (e.g., recommended procedure for cleaning and disinfection of certain equipment) / methods of cleaning / tools, agents & materials to be used. - Ask about the last training & education received from infection control department on appropriate cleaning and disinfection methods.
E - 6.16	**Flowers and plants are permitted in the rooms of immunocompetent patients only. *(D, O)***
Document (D)	**Review:** - Patient files to confirm the patient diagnosis. Confirm to rule if patients are immunocompromised.
Observation (O)	**During audit visit of different patient care areas observe the following:** - Observe the presence of any natural or artificial plant in the patient's room. Immunocompromised or immunosuppressed means having a weakened immune system. Immunocompromised patients have a reduced ability to fight infections and other diseases. This may be caused by certain diseases or conditions, such as AIDS, cancer, diabetes, malnutrition, and certain genetic disorders. It may also be caused by certain medicines or treatments, such as anticancer drugs, radiation therapy, and stem cell or organ transplant.

E - 6.17	Medical equipment are cleaned/disinfected properly as per hospital's policies and manufacturer recommendations (frequency, recommended products, dilutions, contact time, methods, etc.) (D, O, SI)

Document (D)

Review the following documents:

Policies & procedures for cleaning & disinfection of medical equipment, which should be:

- **Comprehensive:** it covers all aspects of cleaning & disinfection of medical equipment which should include (but not limited to):
  - Classification items based on associated risk **(Critical, Semi critical, and Non- critical items)**
  - Definitions of cleaning & disinfection
  - Frequency of cleaning & disinfection
  - Detailed procedure / methods of cleaning activities,
  - Disinfection is done locally (i.e., inside the department) or centrally (i.e., sent to CSSD)
  - Types of used disinfectants with dilutions & contact times based on manufacturer's instructions.
  - Roles & responsibilities of staff in the process of cleaning & disinfection …etc.

- **Fully applicable:** all elements of the policy can be applied and comply with the hospital's scope of services **(Applies to all inpatient units including areas where all invasive and noninvasive procedures are carried out).**
- **Based on scientific references** approved references such as MOH, GCC, CDC, WHO & APIC.
- **Signed** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- **Approved** by IPC committee*
- **Valid** (updated within 2 - 3 years and when indicated)

Document (D)

2- Cleaning & disinfection activity logs / checklists:

- Check the activity logs which should be detailed including all items/equipment intended to be cleaned according to relevant area/unit e.g., bedside monitors, ventilators, ECG machines etc.

3- Orientation attendance and competency assessment for each machine:

- The unit should have the above mentioned document to indicate that staff have received orientation regarding cleaning & disinfection of a particular machine to become competent (e.g., orientation about cleaning & disinfection of dialysis machines: suitable disinfectants, frequency of use, dilutions & contact times … etc.)

NOTE: Policy for cleaning & disinfection of medical equipment can be a separate policy or as a part of major policy like patient care equipment.

According to **Spaulding Classification** system, medical devices are divided into categories based on the risk of infection related to their use.

- **Critical Items:**
  - *This category includes objects and items entering the vascular system and sterile tissue.*
  - *Examples of critical items are surgical and dental instruments, cardiac and blood catheters, implants and needles …etc.*

These items present a high risk of infections and require sterilization after each patient use in CSSD.

- **Semi-critical Items:**
  - *This category includes objects and items that come in contact with intact mucous membranes and non-intact skin but do not penetrate body tissues or the vascular system.*
  - *Examples of semi-critical items are non-invasive medical equipment, gastrointestinal endoscopes, invasive ultrasound probes, respiratory therapy or anesthesia equipment: laryngoscope blades …etc.*
  - *These items require high level disinfection after each patient use in CSSD or clinical area responsible for high level disinfection e.g. endoscopy unit*
- **Non-critical Items:**
  - *This category includes items and objects that come in contact with intact skin only.*
  - *Examples of non-critical items are stethoscopes, bedpans, blood pressure cuffs, tourniquet cuffs, and crutches. that touch intact skin*
  - *These items could potentially contribute to secondary transmission of microorganisms to healthcare workers' hands; therefore, they require low level disinfection with hospital-approved disinfectant at the point of use.*

Observation (O)

Observe the process in all patient care areas (ER, ICUs, HDs, OR …etc.)

- Wipe surfaces of various medical equipment (e.g., bed side machines, monitors, ventilators … etc..) to exclude the presence of dust, dirt or stains.
- Check the availability of supplies e.g., agents & materials used for cleaning/disinfection activities: approved chemicals and disinfectants, wipes, spray bottles and/or buckets … etc.
- Check that available agents & materials used for cleaning/disinfection are matching MOH specifications
- Observe any ongoing cleaning & disinfection activity and notice responsible person **(should be a nurse),** procedure of cleaning process, type(s) of used disinfectant(s), dilutions & contact time… etc..

Staff Interview (SI)

Ask the nurse (nurse in charge or nurse responsible for each unit) about:

1) Cleaning schedule for various medical equipment
2) Nurses' role & responsibility in cleaning & disinfection activities ***(Cleaning & disinfection of medical equipment is the responsibility of nursing staff like bed side monitors, bed mattress & other medical equipment etc.)***
3) Methods of cleaning – agents & materials to be used ***(Ask staff to demonstrate cleaning by giving her specific task e.g., How to clean a bedside monitor?***
4) Cleaning logs & checklists for cleaning & disinfection of medical equipment: should be practical, detailed, duly signed and fully applicable
5) (Check for appropriateness, because sometimes items are checked in spite of being not available in the relevant unit/room).
6) Cleaning & disinfection activities after patients with infectious transmissible diseases – handling of body fluids spills.

Further Reading / References:

Best Practices of Environmental of Environmental Health for Prevention & Control of Infections in Healthcare Facilities Guideline - Version 1 2022-GDIPC

- https://www.cdc.gov/infectioncontrol/guidelines/disinfection/index.html
- http://ictraining.net/index.php/component/k2/gcc-manual

Element # E - 7

Disinfectants & Antiseptics Supplies

E - 7.1

Infection prevention & control team is involved in the evaluation and purchase of antiseptics and disinfectant supplies. (D, S)

Document (D)

Review the following documents (just review samples):

1) **Requests** from hospital leaders (e.g., hospital director, medical director, head of medical stores, head nurse, head of housekeeping staff … etc..) which are directed to IPC team for assessment and approval of antiseptics, disinfectants and other supplies used in different levels of disinfection. These documents confirm that the IPC team is involved in the purchasing process.
2) **Requests** from hospital leaders (e.g., hospital director, medical director, head of medical stores, head of CSSD … etc..) which are directed to IPC team for assessment and approval of equipment and supplies used in sterilization (e.g. washer-disinfectors, ultrasonic cleaners, sterilizers and other CSSD equipment with relevant supplies). These documents confirm that IPC team is involved in the purchasing process.
3) **Approval forms:** special forms which are signed by IC practitioners to indicate that equipment, antiseptics, disinfectants, and other supplies used for disinfection and/or sterilization pass through a definite assessment and approval process before purchasing.
4) **Purchasing orders** for antiseptics, disinfectants and other supplies used in different levels of disinfection to check if IC team is involved in the process or not
5) **Purchasing orders** for equipment and supplies used in sterilization (e.g. washer- disinfectors, ultrasonic cleaners, sterilizers and other CSSD equipment with relevant supplies) to check if IC team is involved in the process or not

Staff Interview (SI)

Ask:

1) **Head of the IPC department:** about definite assessment and approval process before purchasing new equipment, antiseptics, disinfectants and other supplies used for disinfection and/or sterilization
2) **Head of the medical stores:** about the process of purchasing new equipment, antiseptics, disinfectants and other supplies used for disinfection and/or sterilization
3) **Other responsible staff:** (e.g., head nurse, head of CSSD, head of housekeeping staff…etc..) about the process of requesting new equipment, antiseptics, disinfectants and other supplies used for disinfection and/or sterilization

E - 7.2 Antiseptics, disinfectants, and detergent/disinfectants are used in accordance with current scientific guidelines and recommended practices. (D, O, S)

Document (D)

Review the following documents in IPC department:

1) List of antiseptics, disinfectants and detergent/disinfectants with related documents which are essential for safe and effective use (Material Safety Data Sheet **(MSDS)** – preparation or dilution – usage and contact time – precautions and required PPE) verify if compatible with current scientific guidelines and recommended practices.
2) Examples of antiseptic, disinfectant or detergent/disinfectant approval by recognized professional organizations such as **Food and Drug Administration (FDA) – Environmental Protection Agency (EPA)**

Observation (O)

Observe different department's especially clinical areas to ensure that:

1) The available antiseptics, disinfectants and detergent/disinfectants in different clinical areas are consistent with the reviewed list.
2) The use of antiseptic, disinfectant and detergent/disinfectant in different clinical areas is according to instructions listed in Material Safety Data Sheet **(MSDS)** regarding preparation, dilution, usage, contact time and precautions with required PPE

Staff Interview (SI)

Staff Interview:

1) Interview IPC practitioners to confirm that they are familiar with the guidelines for different antiseptics, disinfectants and detergent/disinfectants' use and aware about their **MSDS** instructions.
2) Interview staff involved in the use of antiseptics, disinfectants and detergent/disinfectants (e.g., housekeeping staff in different clinical areas, endoscopy unit, laundry, kitchen … etc..) to check if they are familiar with their guidelines for use and aware about **MSDS** instructions.

Element # E - 8	Infectious Medical Waste
E - 8.1	**There is a written policy and procedure for infectious waste management that covers (sorting, collection, transport, storage, PPE, etc.) according to the updated national guidelines. (D)**
	– *Infectious waste (also called medical, biomedical, regulated or biohazard waste) is defined as materials generated as a result of the diagnosis or treatment of a patient and that is capable of producing an infectious disease.* – *Infectious waste should always be segregated, collected, transported and stored in a safe manner with consideration of the risk, occupational safety rules and should be in accordance with local regulations.* – *Staff should be knowledgeable about the risks and safety operating procedures of the waste they are handling.* – *The risk of acquiring an infection from medical waste is extremely remote.* – *No waste disposal worker or member of the general public has ever acquired an infection from medical waste.* – *Medical wastes require careful disposal and containment before collection and consolidation for treatment. Strict adherence to safety measures should be ensured in order to protect the workers who generate medical wastes and who manage the wastes from point of generation to disposal.* – *Infectious waste has been specifically defined as any infectious waste to be capable of causing infection, a susceptible host must be exposed to a pathogen in the waste and must have a portal of entry, and the pathogen must be of sufficient virulence and quantity.* – *If Medical waste is not properly managed and disposed of, it can result in injury by contaminated sharps and infection with Blood borne pathogens. Careful handling, sorting, and appropriate disposal of waste from these settings is important to prevent transmission of infection.*

Document (D)

Review:

*Policies & Procedures for **management of infectious waste** which should be*

1. ***Comprehensive** incorporating all aspects of waste management program as follows:*

A) Types of infectious waste:

Infectious waste is categorized as:

- ***Blood and blood products:***
  Bulk blood, blood-tinged suctioned fluids, excretions, secretions are considered infectious waste.
- ***Pathology waste:***
  includes human or animal tissues such as placenta, uteruses, organs, and body parts that are collected at autopsy or during surgery.
- ***Microbiological cultures,***
  stocks and microbiological waste: items containing blood or other potentially infectious materials, as well as, discarded live and attenuated vaccines.
- ***Sharps:***
  used or unused sharps (e.g., hypodermic, intravenous or other needles; auto disposable syringes; syringes with attached needles; infusion sets; scalpels; pipettes; knives; blades; broken glass). etc.

B) Sorting of Infectious Waste:

Four (4) methods of waste segregation must be followed at the point of generation (i.e., by the end user):

- ***Black bags:** Used to dispose of general hospital waste.*
- ***Yellow bags:** Used to dispose of infectious waste. Refer to categories of infectious waste.*
- ***Red Bags** Use to transport body parts, organs, or fetuses for burial.*
- ***Sharp Containers Used** to dispose all used and unused sharps (e.g., Hypodermic, intravenous or other needles, auto-disable syringes, syringes with attached needles, scalpels, glass pipettes, knives, blades, broken glass).*

C) Specifications of waste containers:

1. Sharps containers:

- *Must be rigid, puncture-proof, leak-proof and closable.*
- *Equipped with a hermetic seal with an opening aperture which allows insertion of sharp items (e.g., needles and lancets).*
- *Has a biohazard logo and labeled as "Sharp Items" which must be printed in both Arabic and English. etc.*

2. ***Plastic bags***

- *Should be tear-resistant and leak proof.*
- *Must not contain Polyvinyl Chloride (PVC).*
- *Thickness must not be less than 70 microns thick.*
- *All designated infectious waste containers should have a biohazard symbol or labeled with the word "Infectious" both in Arabic and English or be color-coded (i.e., yellow bags), rendering them identifiable by hospital staff.*

D) Collection of infectious waste:

- *Collect waste at least once per day and as needed.*
- *Wear personal protective equipment (PPE).*
- *Handle bags at the top so that the bags do not come in contact with your body.*
- *Do not use hands to compress (squeeze) waste in containers/bags.*
- *Tie all bags securely when ¾ full and remove to storage containers.*
- *Avoid overfilling carts with waste bags for transport to general storage room.*
- *Wash hands after handling waste. etc.*
- *Label the infectious waste bags or sharp containers with the following information:*

1. ***Generating department***
2. ***Date collected.***
3. ***Time etc.***

E) Transportation of infectious waste:

- *Internal & external systems used for the transportation of infectious waste must maintain integrity of packaging & protect handlers.*
- *Use leak-proof carts that are readily cleanable to transport infectious waste from the point of generation or storage to the point of disposal and treatment.*
- *Decontaminate carts used for transporting waste within the hospital daily using a hospital approved disinfectant solution.*
- *Place yellow bags in a holding area for incineration*

- ***Transporting and storing regulated medical wastes within the health-care facility prior to terminal treatment is often necessary.***
- ***Health-care facilities are instructed to dispose of medical wastes regularly to avoid accumulation. Medical wastes requiring storage should be kept in labeled, leak- proof, puncture-resistant containers under conditions that minimize or prevent foul odors.***
- **The storage area should be well ventilated and be inaccessible to pests etc.**

F) Storage of infectious waste:

There could be 2 types of storages in the hospital:

1. ***Temporary storage area:***
   - *Storage in the wards located in the dirty utility which are used to hold infectious waste temporarily to be collected and transported to the central storage area every after end of the shift or as needed.*
   -
2. ***Central storage area:***
   - *Used to hold infectious waste for not more than 24 hours to be eventually collected and transported off-site for treatment.*
   - *The room must have a concrete floor and be well-sealed to protect it from water leakage, rain, spread of odor, from rodents, insects, birds and stray animals.*
   - *Dispose infectious waste as soon as possible after generation.*
     - *Minimize the storage time to reduce the risk of potential exposure and reduce odor.*
     - *Limit access to storage areas and have a biohazard symbol labeled with the word **"storage area**" in both **Arabic and English**; and posted where it is **readily visible to anyone.***

Other domains of Policies & procedures:
P/P for Infectious Waste Management should be:

- ***Fully applicable***: all elements of the policy can be applied and comply with the
  hospital's scope of services
- ***Based on scientific references*** approved references national regulations of medical waste (must be followed) and in addition to the other supplementary references MOH **,** *CDC, GCC, WHO & APIC.*
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IPC committee.
- ***Valid*** (updated within 2 - 3 years and when indicated

E - 8.2

All non-sharp generated medical waste is disposed in black bags as general waste except that heavily soiled with liquid blood or other body fluid (dripping) should be considered infectious medical waste and discarded in yellow bag or based on the national medical waste updated guideline & regulations. (O, SI)

Observation (O)

Observe:

In all patient care areas (ER, ICU, HDU etc.):

1. Availability of different sizes of color-coded waste bags.
   - ***Black Bags for disposing all medical waste not heavily soiled.***
   - ***Yellow Bags for disposing medical waste heavily soiled with liquid blood.***
2. If the number of waste receptacles are adequate according to the amount of waste generated in a specific unit.
3. Color-coded bags & sharp containers must meet the regulations of Ministry of Health as mentioned below:

Specifications of Waste bags & Waste containers:

- *Should be tear-resistant and leak proof.*
- *Must not contain Polyvinyl Chloride (PVC).*
- *Thickness must not be less than 70 microns thick.*
- *All designated infectious waste containers should have a **biohazard symbol** or labeled with the word "Infectious" both in Arabic and English or be color- coded (i.e., yellow bags), rendering them identifiable by hospital staff.*

Staff Interview (SI)

Interview:

1. Ask staff during audit visits in different patient care areas ***(ER, ICU, HDU etc.)*** about the protocols of waste management i.e. waste segregation & disposal.
2. Ask about the last training & education received from the infection prevention & control team about infectious waste management.
3. Interview any staff in any unit e, g ICU, ER etc and ask specific scenario-based questions such as:

You are the assigned nurse for a COVID-19 patient in the morning shift in the ICU. Patient is on mechanical ventilation. You have to enter the patient's room to provide oral care & suctioning for the patient. After completion of the task, in which waste receptacle will you dispose of your PPE which is not soiled & when heavily soiled with body fluid.

Answer: **Black waste receptacle: (If PPE is not soiled)**
Yellow waste receptacle: (If PPE is heavily soiled)

NOTE: Scenario can be combined to assess multiple sub-elements simultaneously:

- *Selection of PPE according to type of isolation*
- *Technique of donning & doffing*
- *Safe disposal etc*

E - 8.3 Disposal of waste from isolation rooms is done properly based on patients' diagnosis as general waste or medical waste according to updated national medical waste regulations (O)

Observation (O)

Observe:

Collected medical waste from occupied isolation rooms, waste should be segregated in yellow bags or in black bags as in the latest update of waste segregation in national healthcare guidelines (as in the following table)

Wastes from patients on isolation	
Patient isolated for *MDROs*	**All wastes should be disposed in black bag (general wastes); except dressings from infected or surgical wounds, and the items heavily soiled with blood or other body fluids**
Patient isolated for ***highly infectious diseases*** (confirmed and suspected) e.g. Ebola, Smallpox, Anthrax, and other diseases decided by the infection control team to be a highly infectious disease	**Manage used disposable PPE and all other patient care items as Hazardous Medical Waste and dispose in the yellow bag.**
Patient isolated for **suspected pulmonary TB**	**Manage used disposable PPE and all other patient care items as Hazardous Medical Waste and dispose in the yellow bag.**
Patient isolated for c**onfirmed infective *TB: e .g. Open pulmonary TB, Laryngeal TB, extra pulmonary draining infection***	**Manage used disposable PPE and all other patient care items as Hazardous Medical Waste and dispose in the yellow bag.**
Patient isolated for **confirmed non-infective TB**: e.g. Non- Open pulmonary TB, Peritoneal TB with no drain, TB from non- draining infection	**All wastes should be disposed in black bag (general wastes); except dressings from infected or surgical wounds, and the items heavily soiled with blood or other body fluids**
Patient isolated for **not highly infectious *communicable disease*** e.g. H1N1, MERS CoV , n corona 2019, and other respiratory viruses	**All wastes should be disposed in black bag (general wastes); except dressings from infected or surgical wounds, and the items heavily soiled with blood or other body fluids**
Measles (Confirmed and suspected)	**Manage used disposable PPE and other patient care items for measles patients as Hazardous Medical Waste and dispose in the yellow bag.**
All PPEs from patients isolated for infection other than what was mentioned in the above table should be disposed in black bag (general wastes); except those heavily (dripping) soiled with blood or other body fluids.	

E - 8.4	**In general wards, all clinical procedures are performed using procedural trolley equipped with biohazard waste bag and sharp container. (O, SI)**
Observation (O)	***Observe:*** **<u>During visit of general wards (Medical wards, Surgical wards, Maternity wards etc.:</u>** - If they are using a procedural trolley for performing all bedside clinical procedures like wound dressing, changing IV cannulas, etc. - Observe the availability of a sharp container and biohazard waste bag of appropriate size hanging with the procedural trolley. - *Location of the sharp container & waste bag should be at a level that should not contaminate the clean / sterile supply.* - *Position of the waste bag and sharp container must be at different levels*.
Staff Interview (SI)	***Interview:*** - Staff in general wards regarding their practice in terms of waste disposal. - Ask If they are using a procedural trolley equipped with a sharp container and biohazard waste bag for discarding waste and sharps. **<u>Scenario:</u>** **During audit visits to the surgical ward, ask any staff to simulate dressing change for a post op patient and observe the procedural trolley being used and staff awareness.**

E - 8.5

Sharp containers are wall mounted or placed on a stand and available inside the patient zone. (O)

Observation (O)

Observe:

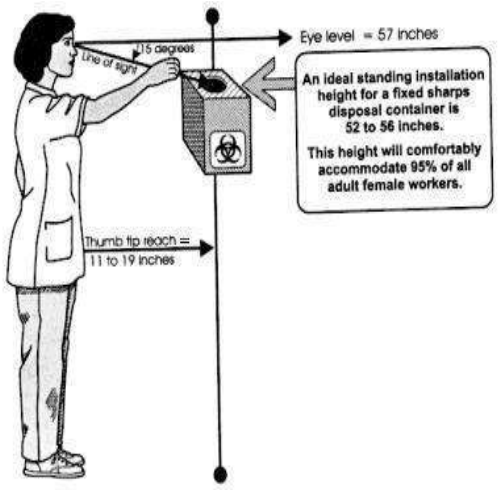
In all Critical care areas (ER, ICU, HDU etc.) & Isolation Rooms:

Location: sharp containers should be wall mounted or placed on stand.

- Observe if the height of the sharp container is meeting the international standards. *(You may observe sharp containers placed directly on the floor, mounted very high above the eye level & at locations inaccessible for the healthcare workers.)*
- *Healthcare workers should be able to view the entire opening of the sharps disposal container while comfortably standing within arm's reach.*

***NIOSH** provides an ergonomically ideal formula by establishing the eye-level height, maximum thumb tip reach of the worker population, and including a drop angle drop 15 degrees (see illustration below).*

- *Sharps disposal container height should be:*
- *Standing workstation: 52 to 56 inches above the standing surface of the user*
- *Seated workstation: 38 to 42 inches above the floor on which the chair rests, these height installation suggestions will "comfortably accommodate 95% of all adult female workers," according to NIOSH.*



Sharp boxes should be puncture proof, leak-proof, and present no risk to staff or patients

E - 8.6	No bent, broken, or recapped needles are observed inside the sharp containers. (O, SI)

Observation (O)

Observe:

During visit of all patient care areas general wards, critical care units etc.

- Open the lid of sharp containers at random and check if any broken, bent, recapped or separated needles are present.

Sharp containers are used:

- *To dispose of all used and unused sharps (e.g., Hypodermic, intravenous or other needles, auto-disable syringes, syringes with attached needles, scalpels, glass pipettes, knives, blades, broken glass).*
- *Blades or needles should not be disassembled from the equipment.*
- *Recapping, bending needles etc. pose healthcare workers to significant risk of acquiring needle stick Injuries from accidental exposure to sharps.*

Staff Interview (SI)

Interview:

- The staff about safe handling of sharps.
- Ask her / him to simulate how to discard the used syringe after use.
- The staff about the safe zone movement of handling sharps

- Ask if she finds any sharp item on the floor ***(e.g., broken glass, guide wire etc.) how she will safely discard. *****

*****Must be picked up and discard broken glass or any sharp using a mechanical device such as forceps or a brush and dustpan.***

- ***Broken glass should never be handled with gloves or non-gloved hands.***

E - 8.7	**No infectious medical waste or sharps are observed outside specified containers. (O)**
Observation (O)	***Observe:*** **<u>During hospital visits of all patient care areas like general wards, critical care units, dental, lab, etc.</u>** – Observe if the healthcare workers are discarding the waste in specified containers or not. – Randomly open the containers to observe if discarded waste is appropriate for that receptacle. ***You may observe card boxes. Papers & plastic wrappers & sharp objects discarded in infectious waste receptacles and N – 95 masks & blood-soaked gauzes discarded in general waste. Sometimes you may observe a paper tissue & surgical mask discarded in a sharp container.*** – Observe if HCWs are compliant with waste segregation Protocols. * ***<u>Black</u>: To dispose general waste*** * ***<u>Yellow</u>: To dispose infectious waste, heavily soaked items with blood or body fluid*** * ***<u>Red</u>: To dispose body parts and organs*** * ***<u>Sharp Containers</u>: To dispose of all kinds of sharps (needles, broken/ glass, syringes with attached needles, blades; etc.)***

E - 8.8	**Medical waste bags are collected after being securely closed when filled to 3/4 of its maximum capacity and labeled with the date and place of production. (O,SI)**
Observation (O)	***Observe:*** – Medical waste bags in the temporary holding areas in & Infectious waste room which shouldn't be overfilled. – If waste bags are well secured & tied with a **<u>self-lock plastic tie</u>** before placing them in a temporary holding area such as a dirty utility room. – Observe the label of infectious waste bags with the following information: ***a. Generating department*** ***b. Date collected*** ***c. Time etc.***

Staff Interview (SI)

Interview:

- Housekeeping / waste collection staff about the procedure / mechanism of waste collection.
- Ask at which level / capacity/level are they going to remove the waste bag from the specified receptacles/containers. ***(Should be collected when filled to 3/4 of its maximum capacity.***
- Ask if they have tags / stickers for labeling the waste bags & what is the necessary information that needs to be recorded ***(Date / Department /unit etc.)***
- Ask what they are using to tie the waste bags at the time of collection.

Extreme care must be taken while handling waste bags.

- ***Waste bags should be handled at the top so that the bags do not come in contact with the body.***
- ***Never use hands to compress (squeeze) waste in containers/bags***. [1]

E - 8.9	**Sharp boxes are collected after being securely closed when filled to 3/4 of its maximum capacity and labeled with the date and place of production. (O, SI)**

Observation (O)

Observe:

- Sharp containers in the temporary holding areas / Infectious waste room & assess the levels.
- If sharp containers are being replaced promptly when container is **¾ filled (and reaches the fill line)**
- Observe the label on the sharp container with the following information:

  a. **Generating department**
  b. **Date collected**
  c. **Time etc.**

Staff Interview (SI)

Interview:

1. **Nursing staff:**

- **About** their responsibility regarding sharp containers & at which level / capacity / level are they going to close the sharp container.
  (Nurses are responsible to close the sharp containers when ¾ full or reaches the fill line and to inform the medical waste staff to replace)
- Ask if they have tags / stickers for labeling the sharp containers & what is the necessary information that needs to be recorded ***(Date / Department /unit etc.)***

2. **Waste Collection staff:**

- Ask about the procedure / mechanism of collection of sharp containers.
- Assess if they are aware about their responsibility to collect the sharp containers and to replace it immediately with a new one.

E - 8.10	**Collection & transportation of medical waste are done by medical waste workers wearing proper PPE at fixed time and on demand. (D,O,SI)**

Document (D)

Review:

- Schedule of waste collection within the units and verify the frequency of waste collection.
- ***(Frequency of waste collection should be clearly specified in the schedule / log sheet that must be at fixed intervals. (Every 2 hours, once per shift etc.)***
- Any evidence of collection protocols e.g. ***contact numbers to call the medical waste staff when needed (In case of increased demand etc.)***

Observation (O)

Observe:

- In the temporary holding areas i.e. dirty utility rooms etc. if collection frequency is matching with what is specified in schedule. ***(You may observe large number of waste bags and sharp containers not collected as per schedule)***
- The practice of waste collection staff waste regarding using appropriate PPEs. ***(PPE must be changed frequently when moving from one station to another station. Staff must perform hand hygiene after removing PPE. This has been observed that waste collection staff use on set of PPE throughout the hospital and***
- ***use elevators with same gloved hands contributing / posing to infection risk)***

Staff Interview (SI)

Interview:

- Waste collection staff about frequency of waste collection from different units. (ER, ICU, etc.).
- Where they keep the waste/ for how long it stays.
- Ask about the appropriate PPE and frequency of changeling PPE?
- Ask them at random to simulate PPE donning and doffing and assess their performance.
- Ask if they have received any infection control training?

Waste collection staff may use below mentioned PPE based on type of work (Collection, transportation, cleaning / disinfection of carts etc.):

- **Clean Gloves / Heavy duty gloves**
- **Safety Shoes**
- **Mask & Eye protection**
- **Protective Gown/Apron etc.**

E - 8.11	**Infectious medical waste is transported in closed and impervious specified carts with biohazard sign. Carts are cleaned after each use or at least daily. (O, SI)**
Observation (O)	***Observe:*** – Availability of carts used for transportation of Infectious medical waste and assess if meeting the specifications. - ***Closed*** - ***Impervious*** - ***Leak proof & readily cleanable*** - ***Clearly visible Biohazard Signage*** – Observe if transportation carts are regularly cleaned and well maintained ***(Free from dust / Blood stains etc.)***
Staff Interview (SI)	***Interview:*** – Ask the waste collection staff about the frequency of cleaning the transportation carts. – Where & how carts are being cleaned? – Which disinfectant they are using? - ***Transportation carts used for transporting waste within the hospital must be decontaminated after each use or daily using a hospital approved disinfectant solution.***

E - 8.12	**The medical waste store is consistent with the approved national specifications (adequate in space, away from traffic, secured, well ventilated with controlled temperature). (D, O, SI)**
Document (D)	***Review:*** – Log for temperature control ***(Check for any fluctuations in the log sheet)*** – Cleaning schedule / checklist

Observation (O)

Observe:

Medical Waste store is fulfilling the following specifications:

- *Secured and locked (away from traffic)*
- *Biohazard signage posted*
- *Adequate space*
- *Clean and well maintained. Walls and floors are smooth and of easily cleanable material. No cracks, openings etc.*
- *Well ventilated with temperature monitor* ***(displaying temperature <18°C)***
- *The room must have a smooth floor (easy cleanable) and door well-sealed to protect it from water leakage, rain, and spread of odor, rodents, insects, birds and stray animals.*
- *Equipped with a hygiene washing sink with required supplies like soap paper tissues etc. sewage holes must be well sealed. etc.*

Staff Interview (SI)

Interview:

- *Responsible staff for engineering controls of the waste room. What would be the actions taken in case of fluctuations / failure etc.??*
- *Frequency of cleaning and disinfection of the room & type of disinfectants used.*

E - 8.13

Infectious medical waste is transported outside the hospital every 24 hours for final disposal. (D, O, SI)

Document (D)

Review:

- Daily collection log sheet / or any document provided by the company for transportation & waste disposal outside the hospital with date and time.
- ***Infectious medical waste is transported outside the hospital every 24 hours***

Observation (O)

Observe:

- Check the label on medical waste bags & sharp containers to confirm if exceeded 24 Hours collection time or as per standard.
- Observe the number of available waste bags and assess if its matching with the policy of daily collection. ***(Huge number would reflect lack of compliance)***

Staff Interview (SI)

Interview:

- Responsible staff regarding frequency of waste collection by the designated waste management company.
- Ask which day & time company is collecting waste for the purpose of verification.

E-8.14	**Medical waste workers are vaccinated against blood borne pathogens and trained on hand hygiene, use of PPE, appropriate steps required post exposure to sharps or blood or bodily fluid, and safe handling of waste. (D, MR, SI)**

Document (D)

Review:

- Evidence of training conducted for infectious waste workers. *(Check for frequency)*
- Review the content of the training provided.

Training activities include but not limited to:

* *Hand hygiene*
* *PPEs use including N - 95 mask*
* *Safe handling & other waste management protocols during collection, transportation etc.*
* *Labeling / coding that designates an item as infectious waste*
* *Sharp injuries & post exposure protocols etc.*
* *Cleaning & disinfection procedures etc.*

Medical Record (MR)

Review:

- Medical records of infectious waste workers & check if they have received vaccination against **Hepatitis B**. *(Review files in unit or copies in Employee health clinic etc.)*
- Verify if they have completed the required dosing schedule.

Staff Interview (SI)

Interview:

- Infectious waste workers regarding vaccination against hepatitis B.
- Ask if they have received any prior training from the infection control team.
- Ask them to simulate hand hygiene & PPE donning / doffing.

Scenario:

- Ask waste collection staff about post exposure protocols in case of exposed to sharps by giving a scenario:

If you experienced a needle stick or sharps injury during the course of your work, what immediate steps should be followed?

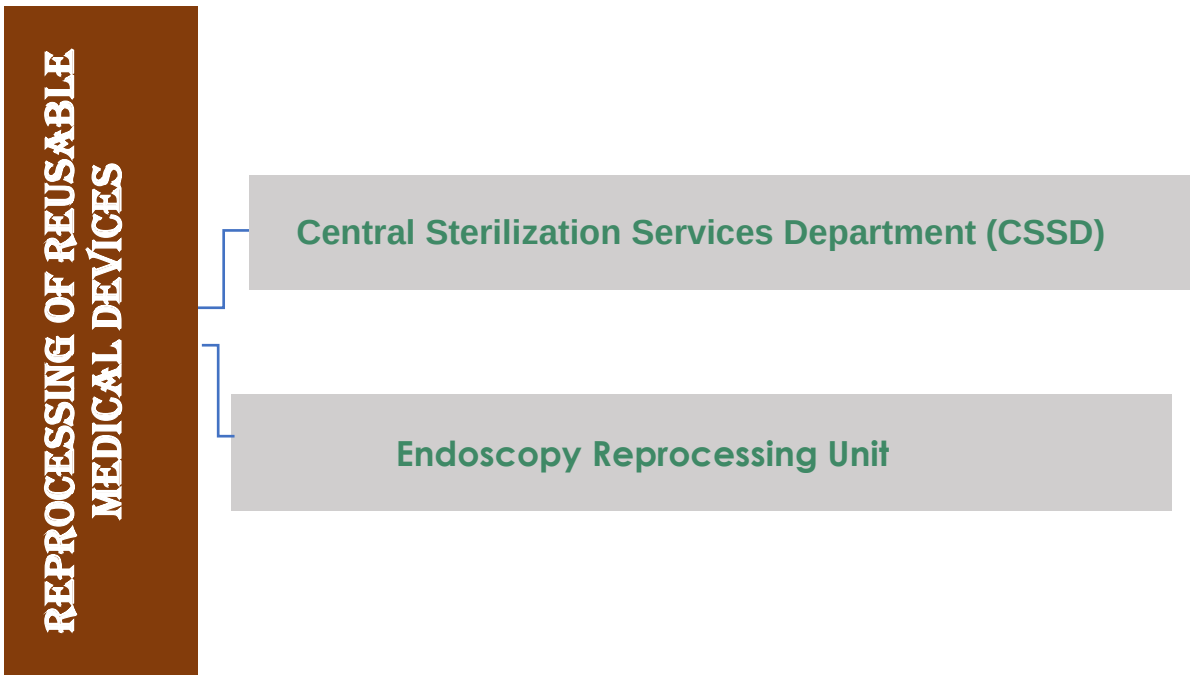
First Aid:

* *Wash needle sticks and cuts with soap and water*
* *Then apply isopropyl alcohol 70%*
* *Bandage appropriately*
* *Reporting the injury to immediate his supervisor*
* *Fill & submit and complete a reporting form* ***(OVR: Occurrence Variance report)***
* *The report should include:*
    - *Staff Information*
    - *The date and time of the incident*
    - *The location where the incident occurred*
    - *Details of exposure type*

وزارة الصحة
Ministry of Health

DOMAIN – F (New)

REPROCESSING OF REUSABLE MEDICAL DEVICES



Element # F -1	Central Sterilization Services Department (CSSD) (New)

F - 1.1	There is a written policy and procedure for Central Sterilization Services Department, including transportation, cleansing, decontamination, sterilization, storage, & recall of the sterile items. (D, O)

Document (D)

Review:

Policy & Procedure for Central Sterilization Services Department (CSSD) which should be:

- Comprehensive it covers all aspects of infection control regarding Central Sterilization Services Department (CSSD) including (but not limited to):

1. Transportation of Contaminated items.
2. Cleansing
3. Decontamination
4. Sterilization
5. Storage
6. Recall of the sterile items

Other domains of Policies & procedures:

P/P should be:

- ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services.
- ***Based on scientific references*** approved references from national regulations of sterilization services (must be followed), and in addition to the other supplementary references ***CDC***, ***GCC***, ***WHO*** & ***APIC***.
- ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department)
- ***Approved*** by IPC committee.
- ***Valid*** (updated within 2 - 3 years and when indicated

Observation (O)

Observe:

- Policies & procedures are easily accessible to the staff whenever needed.

F-1.2	**CSSD HCW is qualified through certification, training and have registration with the Saudi Commission for Health Specialties as a central sterilization service technician. (PF, SI)**
PERSONAL FILE (PF)	***Review the following documents in PF:*** ❖ **CV, certificates & training evidence:** – The personal file of the CSSD HCW to check for educational background ***(central sterilization service technician)*** – CSSD HCW have certificates and trained on all infection prevention & control protocols and reprocessing and sterilization measures including biohazard transportation, decontamination, inspection, packaging, sterilization & storage. – Attendance in training activities (***local, national international conferences, workshops, seminars & symposiums etc.)***
Staff Interview (SI)	***Interview:*** - CSSD HCW to assess his / her knowledge and skills about central sterilization services. - CSSD HCW must be knowledgeable about updated infection prevention & control standards to be followed during all stages of sterile processing.
F-1.3	**Hospitals with bed capacity > 100 beds: 1 CSSD staff for every 50 beds, an additional 1 CSSD staff per average of 100 Surgical Procedures done per month. The minimum required numbers are 5 CSSD staff at least. (D)**
Document (D)	***Review the following documents:*** – Document stating bed capacity of hospital including emergency beds. – Number of surgeries per month. – Number of CSSD staffs.
F-1.4	**Hospitals with bed capacity ≤ 100 beds: 1 CSSD HCW for every 20 beds, an additional 1 CSSD HCW per average of 100 Surgical Procedures done per month. The minimum required numbers are 3 CSSD staff at least. (D)**
Document (D)	***Review the following documents:*** – Document stating bed capacity of hospital including emergency beds. – Number of surgeries per month. – Number of CSSD staffs.

F-1.5	**CSSD should be divided into 3 areas with complete physical separation between these areas (Receiving and Decontamination area), (Inspection, Assembly, Packaging (IAP), and Sterilization area), (Sterile Storage, and Dispatching areas). (O)**

F-1.6	**All surgical instruments processed in unidirectional workflow from dirty to clean area. (O)**
Observation (O)	***Observe different zones of the CSSD and the flow of work:*** - Workflow MUST be in one direction from dirty to clean areas to avoid risk of cross contamination. - Dirty areas should be physically separated from clean areas (complete physical separation is required) Functional separation/barrier: An activity or structure that separates one movement, action, or space from another.

F-1.7	**The decontamination area is maintained under negative pressure, with 10 air changes per hour, temperature ranges from 16°C to 18°C and relative humidity from 30% to 60%. (D, O, SI)**
F-1.8	**The IAP area is maintained under positive pressure, with 10 air changes per hour at least, temperature ranges from 20°C to 23°C and relative humidity from 30% to 60%. (D, O, SI)**
F-1.9	**The sterile storage area is maintained under positive pressure, with 4 air changes per hour at least, temperature ranges from 20°C to 23°C and relative humidity from 30% to 60%. (D, O, SI)**
Document (D)	***Review the following documents:*** - Local records for regular monitoring (daily) of pressure differences + temperatures and relative humidity ± air changes per hour (ACH) with corrective interventions if readings are not matching the acceptable values. - Local records for regular monitoring (daily) of temperatures, pressure, and relative humidity - Review all document that prove the air exchange of CSSD. - Air changes per hour monitored at least monthly. - Required documents must be available in the concerned unit.

Observation (O)

Observe:

- Each area is equipped with a fixed device for regular monitoring of pressure, temperature, and relative humidity.
- Fixed temperatures, pressure and relative humidity monitors are valid and recorded values in local department logs are identical to the actual readings.

Staff Interview

Interview:

- CSSD HCW have been asked about central sterilization services environmental parameters.
- CSSD HCW must be knowledgeable about updated infection prevention & control standards regarding Pressure type, air change, temperature, and humidity in each area in the CSSD.

F-1.10	**Point of use treatment procedure is applied in all hospital departments with the MOH approved spray solution, received dried soiled instruments are reported by CSSD HCW to the intended department. (O, SI)**
F-1.11	**Contaminated instrument securely contained in its rigid containers and transported inside (a closed cart) or (locked transportation box delivered on trolley) with biohazard tag sign. (O, SI)**
F-1.12	**Transportation carts/transportation boxes used for contaminated instruments must be dedicated for its use unless disinfected manually or mechanically in the CSSD to transport sterile items. (O, SI)**

Observation (O)

Observe:

- The end user is responsible immediate pre-treatment by removing gross soil and debris by spraying with transform gel in operation set to reduce the risk of dried gross soil including tissue, body fat, blood, and other substances.
- Transportation carts should be equipped with a secured lid to prevent spread of infection & instruments from falling over.
- Carts should be Leak-proof to prevent accidental spillage of contaminated fluids.
- Carts used for transport of contaminated instruments are clearly identified from those used of sterile items i.e. appropriately labeled with clear signage.

Staff Interview (SI)

Interview:

- Preparation of dirty equipment and sending them to CSSD (i.e. collection in closed, sealed, and puncture resistant containers / spraying of Pre cleaning spray or any other surfactant-based gel with corrosion inhibitors if transportation is not expected within two hours.)
- Ask when and how used equipment is transported to CSSD.

F-1.13 The manufacturer's instructions for use (IFU) of complex instruments are available in hard/soft copies for proper disassembling, cleaning, assembling, and sterility option in Decontamination Area. (D, O)

Document (D)

Review the following documents:

- Availability The manufacturer's instructions for use (IFU) of all complex instruments

Observation (O)

Observe:

- If decontamination process used for each device is in accordance with its IFU
- Complex instruments (e.g., air-powered, endoscopes, having lumens or channels) are prepared according to written IFU from device manufacturers.

F-1.14 Manual cleaning is mandatory, it is performed before loading in the washer disinfectors, ultrasonic cleaners, or manual disinfection. Brushes in a different sizes\shapes for cleaning soiled instrument, are available. (O, SI)

Observation (O)

Observe:

- Manual cleaning must be done before any mechanical cleaning to remove all visible soil for effective disinfection and sterilization.
- Complex instruments needing manual cleaning based on the instrument manufacturer's written IFU.
- Availability of brushes in a different sizes\shapes for cleaning soiled instrument.

Staff Interview (SI)

Interview:

- **When to perform manual cleaning?**
- **Answer**: Immediately once the instruments are received to reduce the formation of biofilm that adheres to surfaces of the instruments and presoaking if applicable.

F-1.15 Manual cleaning sinks (minimum 2 deep sinks) are available, dilutions measurement tool is available, cleaning detergent and cleaning efficiency test must be MOH approved product. Decontamination sinks are cleaned frequently as needed, Not allowed to observe any blood, dirty objects, scale (O, SI)

Observation (O)

Observe:

- At least two deep sinks are available with measured indicator which will guide for maximum water level to be achieved.
- All cleaning detergents are approved and diluted as per the detergents" manufactures.
- Solutions of detergents should be changed whenever visibly soiled.

Staff Interview (SI)

Interview:

- About different types of cleaning detergents
- **When Decontamination sink should be cleaned?**
  Answer: Should be cleaned after each use and after each shift and more frequently as needed.

F-1.16 Automated washer disinfector function properly, the strainers and chambers are free of soil. Loading and unloading procedures of the washer disinfector are performed properly in Decontamination Area. (O, SI)

Observation (O)

Observe:

- If the strainers and chambers are free of soil.

Staff Interview (SI)

Interview:

- When the strainer automated washer disinfector should be removed and cleaned?
  Answer: Should be removed and cleaned daily.

F-1.17 High level disinfected items must be passed through the hatch window to the IAP area. Backflow only allowed in case of soil after cleaning or moist after sterilizing through the secured hatch window in tray or basket for reprocessing. (O, SI)

Observation (O)

Observe:

- High level disinfected items are passed through the hatch window to the IAP area.
- if there is Lighted magnifying glasses available at workstations to assist with detailed inspections.
- Magnifying glass is used to verify the level of cleanliness of all items processed in the decontamination area.

Staff Interview (SI)

Ask:

- **What do you do when items are soil after cleaning or moist after sterilizing?**
- **Answer**: The soiled instruments should be backflow to the decontamination area.

F-1.18 in IAP area, drying procedures are performed by using the appropriate drying tools such as dry cabinet or lint free wipes, prohibited to use lint towels. (O, SI)

Observation (O)

Staff Interview (SI)

Observe:

- The drying tools such s dry cabinet or lint free wipes and prohibited to use lint towels.

Interview:

- Ask CSSD HCW about appropriate drying tools.

F-1.19 Chemical indicators class 6 or 5 must present inside each package. (O, SI)

Observation (O)

Staff Interview (SI)

Observe:

- If every package has a compatible internal chemical indicator.
- Visible to the person opening the package

Interview:

- What class are used in chemical indicators?
- What class are preferable in chemical indicators?
  Answer: Type 6 indicator is preferable because the chemical indicator changed only at specific parameters of the cycle.

F-1.20 All pouches, wrapped packages, sets are labeled before sterilization including sterilization date, sterilizer number, cycle load number, department / unit name, Item description, technician initials. (O, SI)

Observation (O)

Staff Interview (SI)

Observe:

Observe different pouches If are labeled with all the information.

Interview:

What is the information that is needed in labeled?

F-1.21 **IAP area, Loading and unloading of the surgical instruments into/out of the sterilizers rack is performed accurately. (O, SI)**

F-1.22 **Sterile storage shelves are free from dust & away from the sprinklers and air vents. The lighter items on the top shelves & heavier items on bottom shelves (Not allowed to use the tape indicator on the rigid container). (O, SI)**

Observation (O)

Observe the Sterile storage:

- Shelves are free from dust.
- Away from the sprinklers and air vents.
- Lighter items on the top shelves & heavier items on bottom shelves.

F-1.23 **Storage shelves are clearly labelled with approved label material, placed 40 cm from the ceiling, 20 cm from the floor and at least 5 cm away from wall. (O, SI)**

F-1.24 **Hand washing station is mandatory in the decontamination area. hand rub dispensers are available in all CSSD areas. (O)**

Observation (O)

Observe the following in the CSSD:

- Ensure hand washing sinks are in good working condition with provision of hot & cold water & paper towels. Open the tap & confirm if the water supply is intact.
- Observe number of Alcohol Based Hand Rub (ABHR) dispensers that are installed in adequate numbers in each location / working area for CSSD staff to practice hand hygiene.

Note:

- There should be a dedicated hand hygiene facility within the working area (i.e., CSSD HCW do not need to leave working area to reach a hand hygiene facility of another area.
- Sinks used for any other working purposes (i.e., Decontamination sink are **NOT** counted as hand washing facility.

F-1.25	**All CSSD HCWs are well trained on hand hygiene, and proper use of PPE. (O, SI)**
F-1.26	**Clean areas dress code is (Surgical (scrub), hair covering, dedicated shoes) and for dirty area full PPE. (O, SI)**
F-1.27	**Visitors dress code in the clean area are (yellow-gown, head-cover, dedicated shoes) and for dirty area full PPE. (O, SI)**

Observation (O)

Observe the CSSD HCWs:

- Hand washing/hand rubbing.
- Time (20-30 sec Hand rubbing, 40-60 sec Hand washing)
- Technique (following all steps & with friction)
- Appropriate use of PPE:
- In clean areas Surgical scrub, hair covering, dedicated shoes.
- Full PPE should be worn in the Decontamination area.
- In the Inspection, Assembly, Packaging Area and Sterile storage, Head cover and clean scrub suite are required.
- Visitors dress yellow-gown, head-cover, dedicated shoes.

Staff Interview (SI)

Interview the CSSD HCWs about:

- Hand Hygiene (hand washing/hand rubbing): time / techniques / moments of hand hygiene.
- Protective clothing & PPE: types / indications / technique & sequence of donning and doffing

F-1.28	**Staff changing rooms are available, clean, arranged for CSSD staff to change before going inside the working areas. (O, SI)**

Observation (O)

Observe:

- Check the availability of changing rooms.
- To exclude the presence of any dust or dirt.

Staff Interview (SI)

Interview the CSSD HCWs about:

- Where they change to enter inside working areas.
- Frequency of cleaning the changing rooms at least daily.

F-1.29 Emergency eyewash safety station or emergency eyewash bottle is available, functioned, and tested at least weekly in decontamination area. (D, O, SI)

Document (D)

Observation (O)

Staff Interview (SI)

Review the following documents:

- Review the functionality checklist & verify if there is regular check with appropriate documentation to ensure functionality of the eyewash facility to be used in case of accidental exposures.

Observe:

- Observe the decontamination area for easily accessible eyewash station to be used in emergency in case of accidental exposure to chemical exposure and blood or blood products.

Interview of the CSSD HCWs about:

- What are the first aid measures in case of exposure to chemical exposure inside the decontamination area (if any)?
- Ask any CSSD personnel to demonstrate how to use eye wash facility to check if its functioning.

F-1.30 Housekeeping staff use appropriate PPE during their routine cleaning activities. Cleaning equipment are separate and dedicated for each area. (mops and bucket etc.). Housekeeping equipment is kept clean and dry after use. (O, SI)

Observation (O)

Staff Interview (SI)

Observe:

- Observe if housekeeping staff are compliant with PPE use.
- Observe the cleaning carts & how they are using the equipment in each area.
- To ensure if appropriate cleaning was done. wipe a surface that you suspect it's not clean or surfaces hard to reach.
- Type of PPEs used during cleaning process.
- Housekeeping equipment's including mops, bucket is kept clean and dry after use.

Ask the Housekeeping staff about:

- To demonstrate donning and doffing of PPE
- If they use a dedicate cleaning equipment for each area.

F-1.31 High touch surfaces are disinfected more frequently (e.g. worktables, countertops, light switches, doorknobs, rack handles, display screen buttons, etc.). (O, SI)

Observation (O)

Observe the processes of disinfection:

- The schedule for cleaning and disinfection activities.
- Schedule must include the frequency, the used disinfectant, and the responsible staff. Roles must be specified with clear instructions.

Staff Interview (SI)

Ask CSSD staff about:

- Staff must explain the cleaning and disinfection process.

F-1.32 Sharp object like single used instrument, or disposable needles delivered by mistake to CSSD should be reported and disposed in to sharp container. (O, SI)

Observation (O)

Observe:

- The availability of sharp container.
- Any report of deliver sharp object to CSSD.

Staff Interview (SI)

Ask the CSSD staff about:

- What is procedure when there is deliver sharp object to CSSD.
- The staff about safe handling of sharps.

F-1.33 Hazardous waste like Biological Indicator (BI) vials should be disposed in to yellow biohazard bag (O, SI)

Observation (O)

Observe:

- Hazard yellow containers are available.
- All materials that have been used in the decontamination area are disposed appropriately based on the national regulations.
- All used BI vail, empty Plasma Cassettes should be disposed inside hazard waste container.

Staff Interview (SI)

Ask the CSSD staff about:

- Ask at which level / capacity/level are they going to remove the waste bag from the specified receptacles/containers. (Should be collected when filled to 3/4 of its maximum capacity.

F - 1.34	**Cleaning efficiency test files include ultrasonic tests, protein efficiency tests for washer disinfectors, manual cleaning detergent efficiency tests are kept for one year. (D, SI)**
Document (D)	***Documents Review:*** - All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.
Staff Interview (SI)	***Ask the CSSD staff about:*** - Ask all the above-mentioned documents and its knowledge about it.
F - 1.35	**Sterilization loading logbook for each sterilizer including information of sterilization date, sterilizer number, Cycle load number, Department name, Item description, items quantity, Technician initials are documented and kept for one year. (D, SI)**
Document (D)	***Documents Review:*** - All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.
Staff Interview (SI)	***Ask the CSSD staff about:*** - Ask all the above-mentioned documents and its knowledge about it.
F - 1.36	**Bowie dick test for steam sterilizers must be performed on daily basis, after maintenance. records are kept for 1 Year. (D, SI)**
Document (D)	***Documents Review:*** - All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.
Staff Interview (SI)	***Ask the CSSD staff about:*** - Ask all the above-mentioned documents and its knowledge about it.

F - 1.37	**Biological indicator test file is available. Biological tests result for steam sterilizers must be performed minimally weekly preferable daily, with the implants load, and after maintenance. Biological test result for plasma sterilizers is performed daily, and after maintenance. All records are kept for 1 year. (D, SI)**
Document (D)	***Documents Review:*** - All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.
Staff Interview (SI)	***Ask the CSSD staff about:*** - Ask all the above-mentioned documents and its knowledge about it.

F - 1.38	**Sterilizers physical parameters printout records hard/soft copy must be kept for one year. These parameters are leak test cycle, temperature, pressure, sterilization duration, etc. (D, SI)**
Document (D)	***Documents Review:*** - All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.
Staff Interview (SI)	***Ask the CSSD staff about:*** - Ask all the above-mentioned documents and its knowledge about it.

F - 1.39	**Receiving and dispatching logbook are available and must include Sender/receiver ID, department's name, sets and packages names, date, time and quantities. (D, SI)**
Document (D)	***Documents Review:*** - All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.
Staff Interview (SI)	***Ask the CSSD staff about:*** - Ask all the above-mentioned documents and its knowledge about it.

F - 1.40 **CSSD environmental monitoring file are available. Temperature, humidity, pressure value must be recorded daily. Documentation is kept for 1 year. (D,SI)**

Document (D)

Documents Review:

- All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.

Staff Interview (SI)

Ask the CSSD staff about:

- Ask all the above-mentioned documents and its knowledge about it.

F - 1.41 **Planned Preventive Maintenance (PPM) file must be available. (D, SI)**

Document (D)

Documents Review:

- Planned preventive maintenance should be available and reviewed.

Staff Interview (SI)

Ask the CSSD staff about:

- Ask the above-mentioned document.

F - 1.42 **Machine operation file is available, all machines checked daily, out of service machines have posted sign. (D, SI)**

Document (D)

Documents Review:

All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements.

Staff Interview (SI)

Ask the CSSD staff about:

- Ask all the above-mentioned documents and its knowledge about it.

F - 1.43 **Materials safety data sheets (MSDS) of all chemicals used in the department must be available and updated. (D,SI)**

Document (D)

Documents Review:

- All the above-mentioned documents must be available, reviewed and for the period mentioned in the same sub-elements

Staff Interview (SI)

Ask the CSSD staff about:

Ask all the above-mentioned documents and its knowledge about it.

Element # F -2 — Endoscopy Reprocessing Unit (New)

F - 2.1	**Written policy and procedure is available & implemented for reprocessing of flexible endoscopes (cleaning, and disinfection in-between patients). (D, O)**
Document (D)	***Review:*** - Policy & Procedure for Endoscopy Reprocessing Unit which should be: - Comprehensive it covers all aspects of infection control reprocessing of flexible endoscopes including (e.g., cleaning, and disinfection in-between patients): - **Other domains of Policies & procedures:** ***P/P should be:*** - ***Fully applicable***: all elements of the policy can be applied and comply with the hospital's scope of services. - ***Based on scientific references*** approved references national regulations (must be followed) and in addition to the other supplementary references *CDC, GCC, WHO & APIC*. - ***Signed*** from authorized personnel (i.e., owner of the policy / hospital director or medical director / concerned department) - ***Approved*** by IPC committee. - ***Valid*** (updated within 2 - 3 years and when indicated
Observation (O)	***Observe:*** – Policies & procedures are easily accessible to the staff whenever needed.

F - 2.2	**HCW responsible for reprocessing of endoscopes is qualified by certification, education, or training and able to explain all procedures of endoscopes reprocessing. (O, SI, PF)**
Observation (O)	***Observe the HCWs about:*** – Observe HCW reprocessing measures of the endoscopes.

Staff Interview (SI)

Ask the HCWs about

- To assess his / her knowledge and skills about reprocessing of endoscopes.

PERSONAL FILE (PF)

Review the following documents in PF:

- Certifications in reprocessing of endoscopes.
- Attendance in training activities (local, national international conferences, workshops, seminars & symposiums etc.)

F - 2.3	**The reprocessing area is physically separated from the procedure room and access is allowed for authorized personnel only. (O, SI)**

Observation (O)

Observe:

- Reprocessing area should be physically separated from procedure room (complete physical separation is required).
- There is a sign that indicates "restricted area – for authorized personnel only.

Staff Interview

Ask the HCW about:

- Ask HCW about the appropriate layout of the Endoscopy reprocessing unit

F - 2.4	**Reprocessing areas are equipped with a separate, dedicated hand washing sink with hand free controls. (O, SI)**

Observation (O)

Observe:

- There are adequate hand washing facilities equipped with all required supplies (soap, water, paper towels etc).
- Adequate refers to the availability of hand hygiene facility within or around the working area (i.e., personnel do not need to leave his working area to reach a hand hygiene facility of another area or zone).
- Sinks used for any other working purposes (i.e., sinks used for reprocessing of endoscopes are **NOT** counted as hand washing facility for dietary services staff.

Staff Interview

Ask HCWs:

About the hand washing sink and if is it allowed to use reprocessing washing sink.

F-2.5 Reprocessing area is well ventilated and under negative pressure. (O, SI)

F-2.6 Appropriate personal protective equipment sare used. (O, SI)

Observation (O)

Observe the HCWs:

- *Observe the ventilation and that if it's under negative pressure.*
- *Appropriate use of PPE: respirator, gloves: nitrile or butyl rubber, goggles, and gowns.*

Staff Interview (SI)

Ask the HCWs about:

- *About the type of ventilation required in the endoscopy reprocessing area.*
- *Protective clothing & PPEs that required in the endoscopy reprocessing unit.*
- *To demonstrate donning and doffing of PPE*

F-2.7 Emergency eyewash safety station or emergency eyewash bottle is available in decontamination area and accessible within 30 meters or 10 seconds of potential chemical exposure. (O)

Observation (O)

Observe:

- *Observe the area for easily accessible eyewash station to be used in emergency or in case of accidental exposure to chemical exposure and blood or blood products.*

F-2.8 All channels of endoscope are flushed & external surfaces are wiped with a detergent solution immediately at the point of use (O, SI)

Observation (O)

Observe:

- *Apply pre-cleaning for endoscope in correct way.*
- *Observe that there are available products for pre cleaning in sufficient amount.*

Staff Interview (SI)

Ask the HCWs about:

- *The importance of endoscope pre-cleaning*
- *The negative impact of inadequate pre-cleaning*

F-2.9	**Soiled endoscopes are transported safely to the reprocessing area in a suitable closed container with a clearly visible biohazard label. (O, SI)**	
Observation (O)	***Observe:***	
	- *Collection of used equipment in closed, sealed, and puncture resistant containers.*	
Staff Interview (SI)	***Ask the HCWs about:***	
	- *Sending of dirty equipment to the reprocessing area.*	
F-2.10	**Leak testing is performed according to the manufacturer's requirements before manual cleaning and the result is documented. (D, O, SI)**	
Document (D)	***Review:***	
	- *The leak test document.*	
Observation (O)	***Observe:***	
	– *The availability of leak tests that is suitable for all endoscopes types.*	
Staff Interview (SI)	***Ask the HCWs about:***	
	– *The correct way for leak test implemented.* – *The result if the endoscopes is passed the test and it can be used.*	
F-2.11	**Endoscopes are manually cleaned (brushed and flushed) with detergent solution. Disposable single use brushes should be used. If not available, reusable brushes that are sterilized after every use are considered as acceptable alternative. (SI)**	
Staff Interview (SI)	***Ask the HCWs about:***	
	– *The correct way to apply manual cleaning for endoscopes and how to use the cleaning product effectively.*	

F-2.12 Reusable heat-stable accessories that break the mucosa (e.g., biopsy forceps) are cleaned mechanically and sterilized after each use. (O, SI)

Observation (O)
Staff Interview (SI)

Observe:

- *Correct implementation for manual cleaning endoscopes accessories.*
- *Apply the accessories in washer disinfector unless is not recommended by IFU.*

Ask the HCWs about:

- *Describe the reprocessing cycle of endoscope accessories.*

F-2.13 High level disinfectants used should be approved by MOH and routinely tested to ensure Minimum Effective Concentration MEC of the active ingredient (test strips are used and results recorded). Material Safety Data Sheet (MSDS) should be available & followed. (D, O, SI)

Document (D)
Observation (O)
Staff Interview (SI)

Review:

- *Recorded result for minimum effective concentration in specified filed.*
- *Material safety data sheet should be available inside the department.*

Observe:

- *The implementation of minimum effective concentration test.*

Ask the HCWs about:

- *Following the Safety Data Sheet instructions.*
- *The information that should be recorded in MEC test file.*

F-2.14	**Endoscopes that are stored in cabinets & not used are reprocessed as per manufacturer's Instructions for use (IFU) (D, O, SI)**

F-2.15	**Validated Automated Endoscope Reprocesser (AER) should be used, and a successful cycle is confirmed before the use of the endoscope. (D, O, SI)**

Document (D)

- *The policy of reprocessing the long period not used endoscopes.*
- *Checklist for reprocessing of endoscope and accessories by washer-disinfector.*
- *Checklist of endoscope washer/disinfector for self-disinfection.*
- *Endoscope washer-disinfector for functional checking.*
- *Checklist for reprocessing of endoscope by manual.*

Observation (O)

Observe:

- *The long not used endoscopes and the last date of reprocessing.*
- *Correct operational for automated endoscopy reprocessor.*

Staff Interview (SI)

Ask the HCWs about:

- *The correct approved policy of the long not used endoscopes.*
- *Correct inserting of endoscopes and endoscopes accessories in AER.*

F-2.16	**Endoscopes are stored uncoiled, hanging vertically in a clean, dry, and well-ventilated storage cabinet. (D, O, SI)**

F-2.17	**There is a tracking and tracing system that records different stages of decontamination, the HCWs involved, storage & subsequent patient use. (Records should include patient name, medical record number, the endoscopies, date and time of the clinical procedure, identification number and type of endoscope and AER, results of inspection and leak test and name of the HCW reprocessing the endoscope). (D, O, SI)**

F-2.18 **Bronchoscopy should be performed only in a room with negative air pressure, a minimum of 12 air exchanges per hour, and discharged through HEPA filtration system (refer to AIIR specifications). (D, O, SI)**

Document (D)

Review the following documents:

- *The policy of the correct measures of storing endoscopes.*
- *The tracking system applied in the unit.*
- *Continuous monitoring of negative pressure to ensure that AIIRs are always under negative pressure.*
- *Log sheet displaying monitoring of air exchanges per hour (minimum 12 air exchanges per hour are required)*
- *Air is exhausted outside (100%) through High-Efficiency Particulate Air (HEPA) filters.*
- *The exhaust air ducts are independent of the building exhaust air system.*

Observation (O)

Observe AIIRs for bronchoscopy procedure in the Endoscopy department to ensure that:

- *The appropriate method of storing endoscopes.*
- *The negative pressure room where bronchoscopy is performed fulfils requirement of an AIIR in order to prevent risk associated with any Aerosol Generating Procedure. (AGP)*
- *There is 100% fresh air supply from central AC or concealed separate unit.*
- *Observe all engineering control measures to ensure all specifications are met.*

Staff Interview (SI)

Ask HCWs in the patient services areas about:

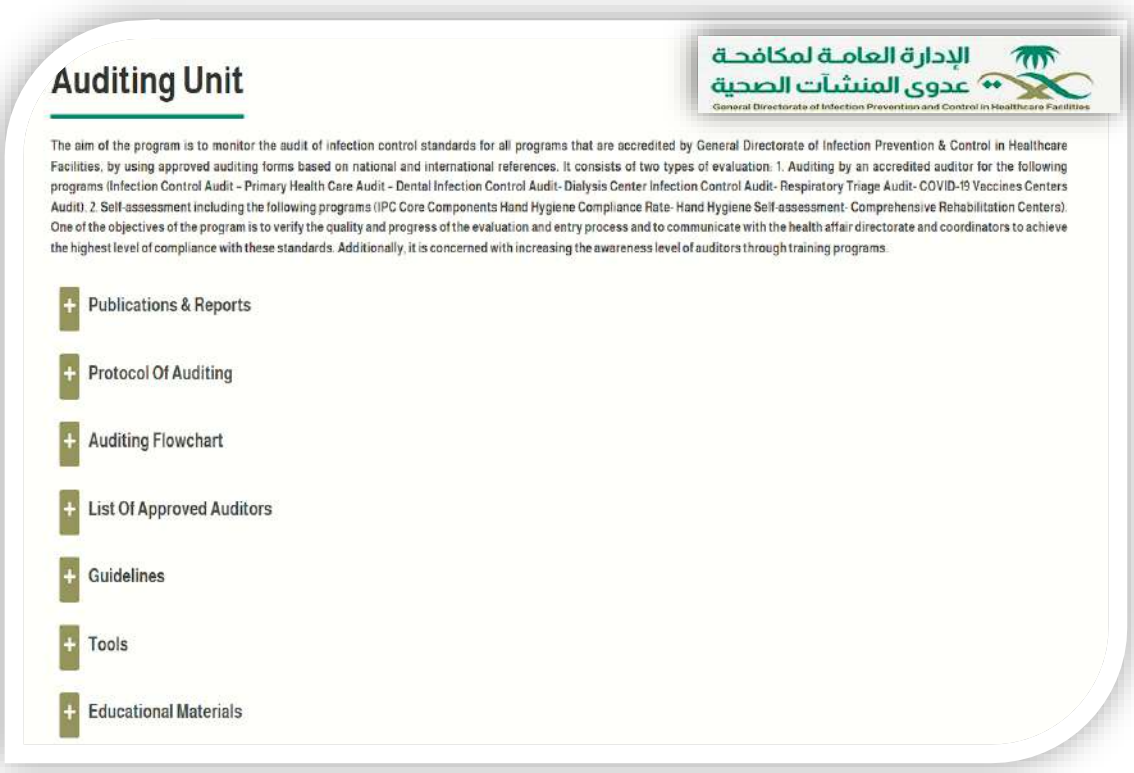
- *Ask about the appropriate method of storing endoscopes.*
- *The system of tracking.*
- *Total number of AIIRs in the bronchoscopy / endoscopy unit?*
- *Ask if there is a dedicated AIIR for all bronchoscopy procedures?*
- *Ask about the specifications to be followed for AIIR and assess staff knowledge.*
- *Ask about the frequency of monitoring of environmental control paraments.*

وزارة الصحة
Ministry of Health

NOTE

For further education material related to Infection Control Audit Program please visit :

https://gdipc.sa/Auditing-Unit.html



==========


وزارة الصحة
Ministry of Health


وزارة الصحة
Ministry of Health