MERS CoV Outbreak Management System

National Situation Room
Command & Control Center
Ministry Of Health
May 2017

مـــركز القيادة و الـتحـــكم
Command & Control Center

MESR CoV Outbreak Management Protocols

وزارة الصحة
Ministry of Health

Objective

Outline and provides step by step guidance on the processes of MERS CoV outbreak management based on Infection Prevention & control Guidelines for the Middle East Respiratory Syndrome Coronavirus (MERS-CoV) Infection , 4th Edition , 2017 January.

Content

- Algorithm For Managing Patients With Suspected MERS CoV
- MERS CoV Outbreak Management Team Structure.
- MERS CoV Outbreak Management Flow Charts.
- Situation room Operations : MERS CoV Outbreak Alerting system & Escalation Matrix.

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MERS-CoV Outbreaks Protocols

Purpose of this document

- Document **protocols** that **must be followed** for **MERS–CoV** during an outbreak

Disclaimer for use of this document

This Document:

- Is subject to **change** as guidelines are updated.
- Should be supplemented with other important guidelines such as infection prevention and control and isolation guidelines which is found **on the MOH website** , CCC incident management system and alert escalation matrix.
  - Is valid for **two years** from approval date .

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1. • Algorithm For Managing Patients With Suspected MERS CoV
2. • MERS CoV Outbreak Management Team Structure
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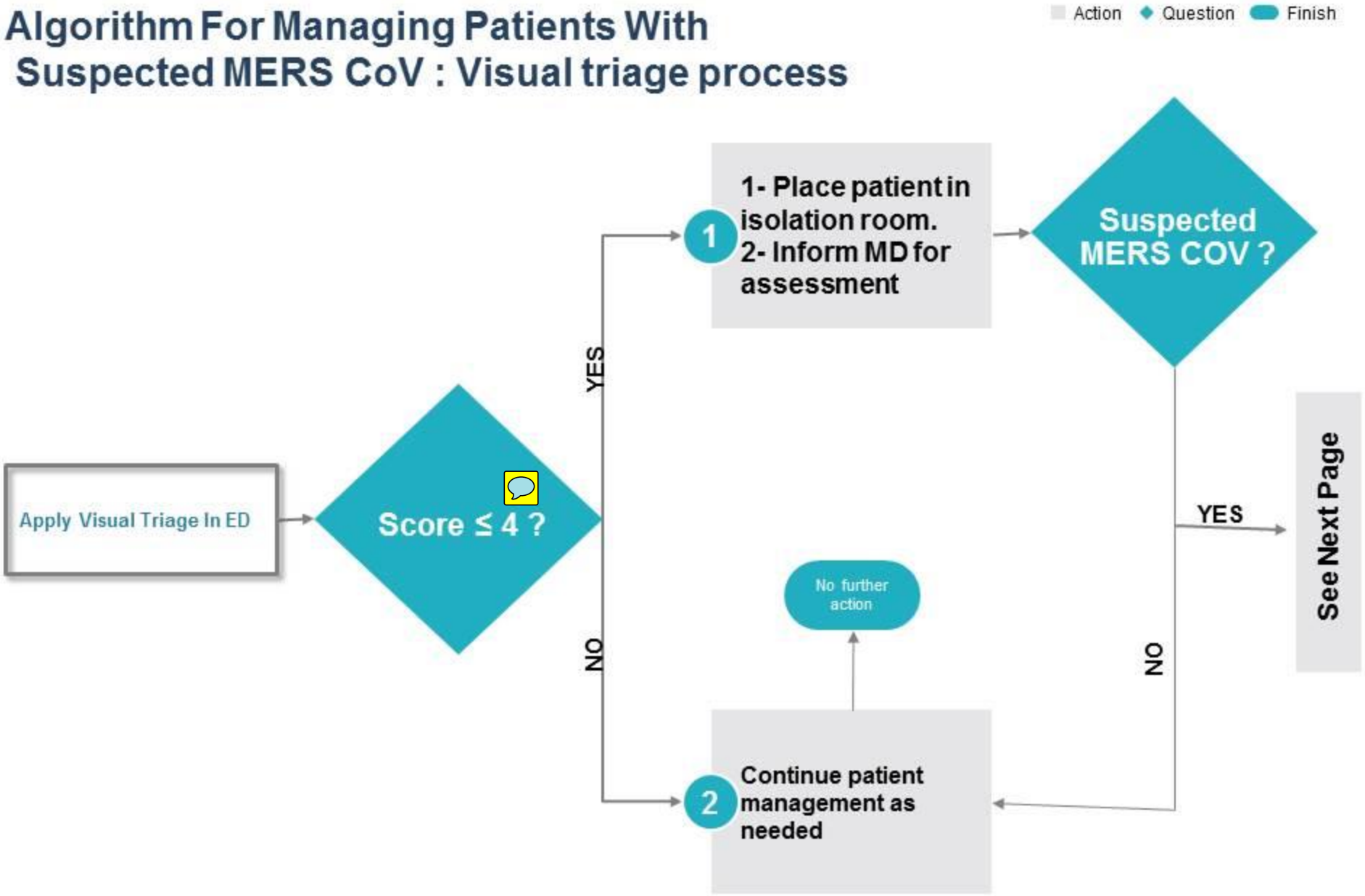
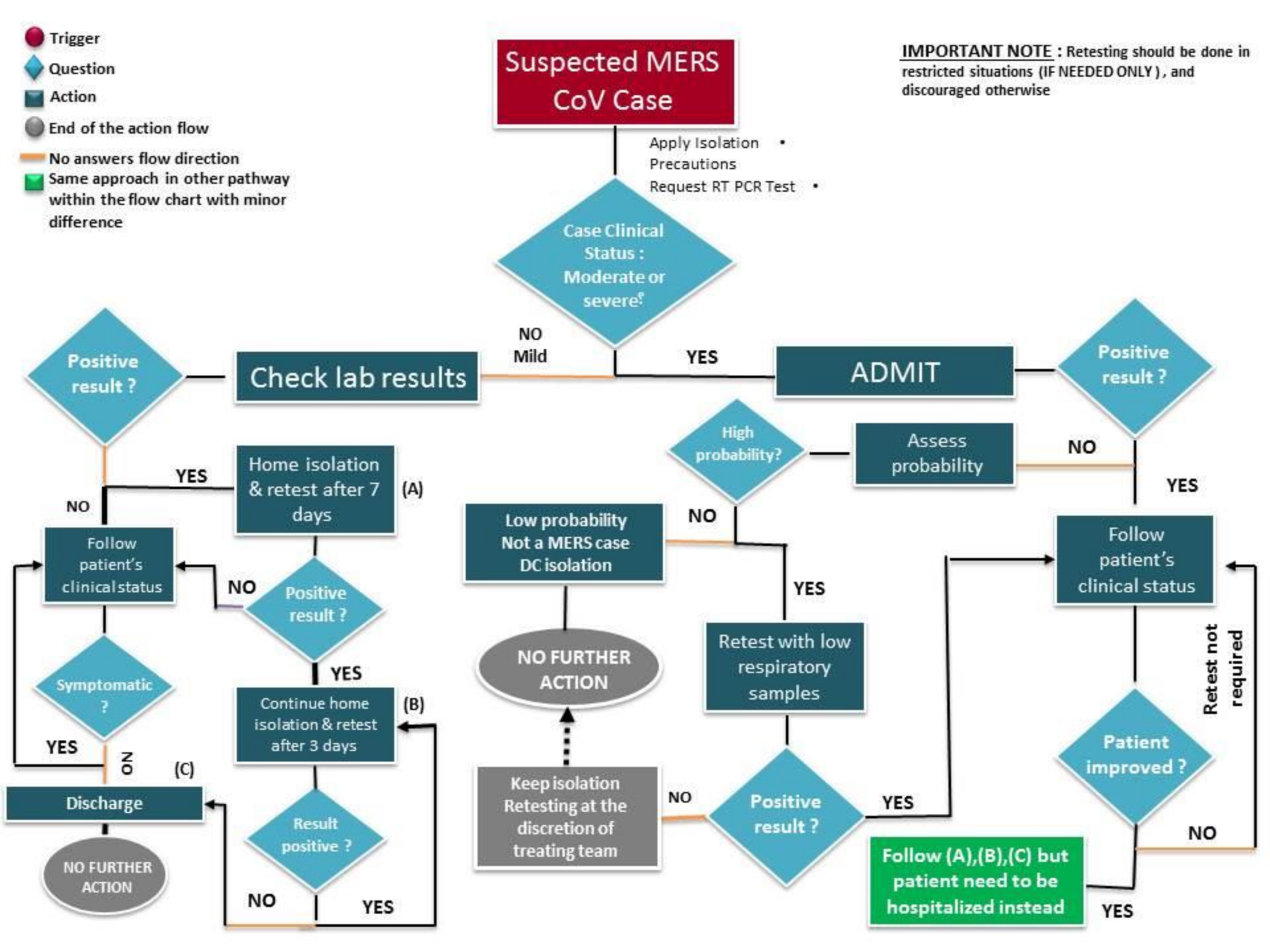
Visual Triage Template in Emergency Department

A. Clinical symptom/Sign		Points	Score
1	Fever (≥38 C)	2	
2	Cough (New or worsening)	2	
3	Shortness of breath (New or worsening)	2	
4	Nausea , Vomiting , Diarrhea	1	
5	Sore throat and\Or runny nose	1	
6	DM , Chronic renal failure , CAD-Heart failure	1	
B. Risk Of Exposure To MERS			
7	Exposure to a confirmed MERS case in last two weeks	3	
8	Exposure to camel or products (Direct or indirect*) in the last two weeks	2	
6	Visit to health care facility that has MERS case in last two weeks	1	
Total Score			

***A score ≥ 4**, place patient in an isolation room and inform MD for assessment*

Algorithm For Managing Patients With Suspected MERS CoV : Visual triage process




Trigger
Question
Action
End of the action flow
No answers flow direction
Same approach in other pathway within the flow chart with minor difference
IMPORTANT NOTE : Retesting should be done in restricted situations (IF NEEDED ONLY), and discouraged otherwise
Suspected MERS CoV Case
Apply Isolation Precautions
Request RT PCR Test
Case Clinical Status : Moderate or severe?
NO Mild
YES
ADMIT
Positive result ?
NO
YES
Follow patient's clinical status
Retest not required
Patient improved ?
NO
YES
Follow (A),(B),(C) but patient need to be hospitalized instead
High probability?
NO
YES
Assess probability
Low probability Not a MERS case DC isolation
NO FURTHER ACTION
Retest with low respiratory samples
Keep isolation Retesting at the discretion of treating team
NO
Positive result ?
YES
Positive result ?
YES
NO
Check lab results
Home isolation & retest after 7 days
(A)
Follow patient's clinical status
Positive result ?
YES
NO
Continue home isolation & retest after 3 days
(B)
Symptomatic ?
YES
NO
(C)
Discharge
NO FURTHER ACTION
Result positive ?
NO
YES

Discontinue Isolation If :

Patient is asymptomatic

Single MERS CoV PCR Test Is Negative

Note

Patient is still positive, but clinically well to go home :

- Discharge with instructions.
- Come to clinical for follow up wearing surgical mask

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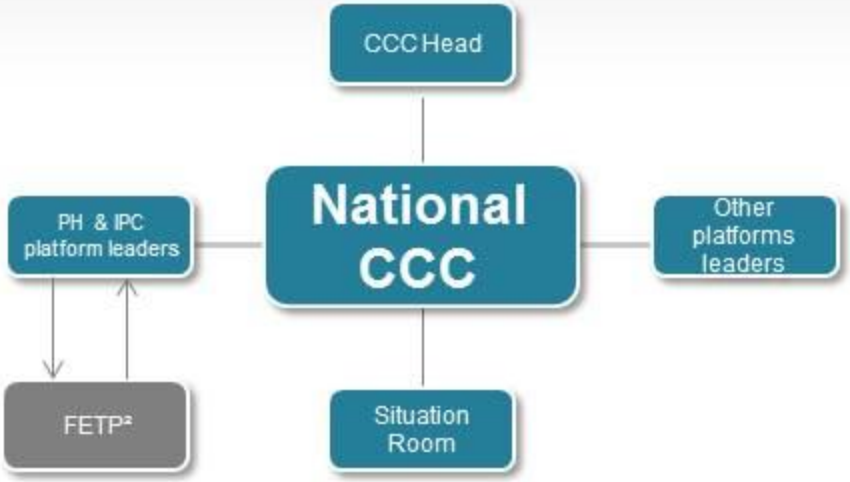
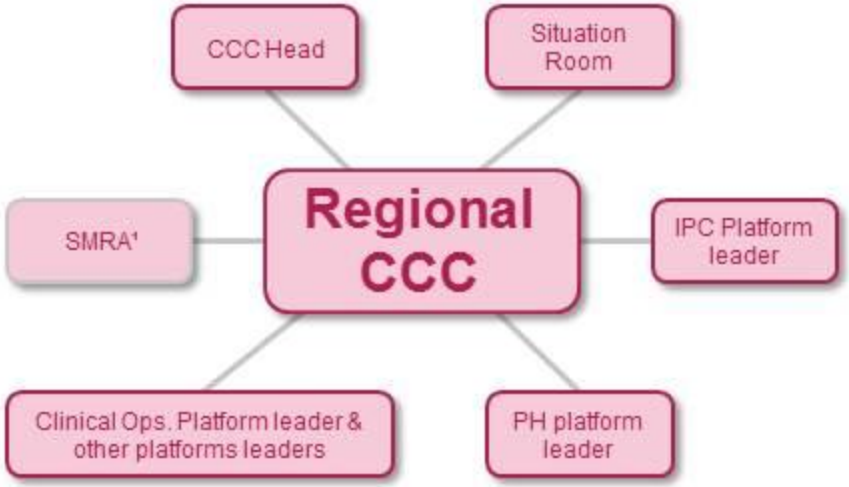
Stakeholders involved MERS CoV outbreak management …



National CCC will assist regional CCCs on Large outbreaks

Regional CCC will play the response line in all outbreak categories



1. SMRA : Secretirate of municipals & rural affairs
2. FETP : Field Epidemiology Training Program

The organizational structure for the outbreak management Team (OMT) …

Core Responsibilities of OMT

A. Investigation

B. Control measures

C. Communications

Regional CCC

Regional director

Health Facility members :

1. Head of Infection Control Unit.
2. Hospital Epidemiologist.
3. Infection control practitioner at health facility

Regional CCC Platform Leaders

Esp. PH,IPC,Clinical Ops

National CCC

1. **National CCC platform leaders**
2. **FETP**

Breakdown of core OMT responsibilities

① Investigation

- **Responsibility** : FETP
- **Actions description** : Clarify the nature of the outbreak
- **Timeline** : Immediately after declaring the outbreak
- **Notes** : Results will be discussed in OMT daily meetings

② Communications

- **Responsibility** :

A) Public Information : NCCC Communication platform.

B) International Health Org. : IHR.

C) Health Sectors : NCCC & RCCC Communication platform

- **Actions description** : Communicate information including declaring the outbreak, managing progress & declaring end of the outbreak

③ Control measures

- **Responsibility** :

A) Public health platform.

B) Infection prevention & Control Platform / Health Facility IPC Department.

- **Actions description** :

A) Outbreak containment measures :

1. Identifying & closing all gaps in IP&C measures.
2. Environmental cleaning & disinfection.
3. Contacts tracing, testing and management.
4. Patient flow and restriction.
5. Units restrictions or closure.

1. Implementation of the surge plan in case of increase in size of the outbreak.
2. Health education for household contacts of the disease symptoms , transmission & isolation.
3. The decision of household contacts not to report to work.

- B) Surge plan :

1. At 80% occupancy of isolation rooms all the times through the year : Activate surge plan by evacuation/transfer of non MERS cases & downsizing routine operations e.g. Elective admissions.

2. Transfer MERS cases from (private sector/MoH non MERS designated centers/Non MoH governmental hospitals with large outbreak overwhelming capacity) to primary MERS centers[1].

3. Exposure in ED : Downsize operations to critical cases only.

4. Tertiary transmission[2] : i) Closure of the unit to new cases to be instituted. Ii) Limit unit staff to the minimum required.

5. Multiple units involved : i) Stop routine admissions & procedures. ii) Divert patients for care to other hospitals.

6. Influx of large MERS cases : Establish wards with single rooms and HEPA filters for MERS cases.

7. Above measures are inadequate to accommodate MERS cases : Arrange patient transfer to MERS back up center.

N.B :

- Primary MERS centers may function as a back up for other centers within the catchment area.
- MERS back up hospitals refer to appendix C page 44 in IP&C. guidelines for MERS CoV infection 4th edition 2017.

1. For MERS CoV cases transfer protocol refer to CCC incident management system.
2. Tertiary transmission : Sustained transmission in a hospital unit
3. Complete shutdown to hospital will be decided by NCCC with discussion with the institution administration & reverting to normal operations will be decided by RCCC & NCCC.

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Four Outbreak categorizes has been identified by NCCC requiring a response by OMT

Secondary transmission in a health care facility:

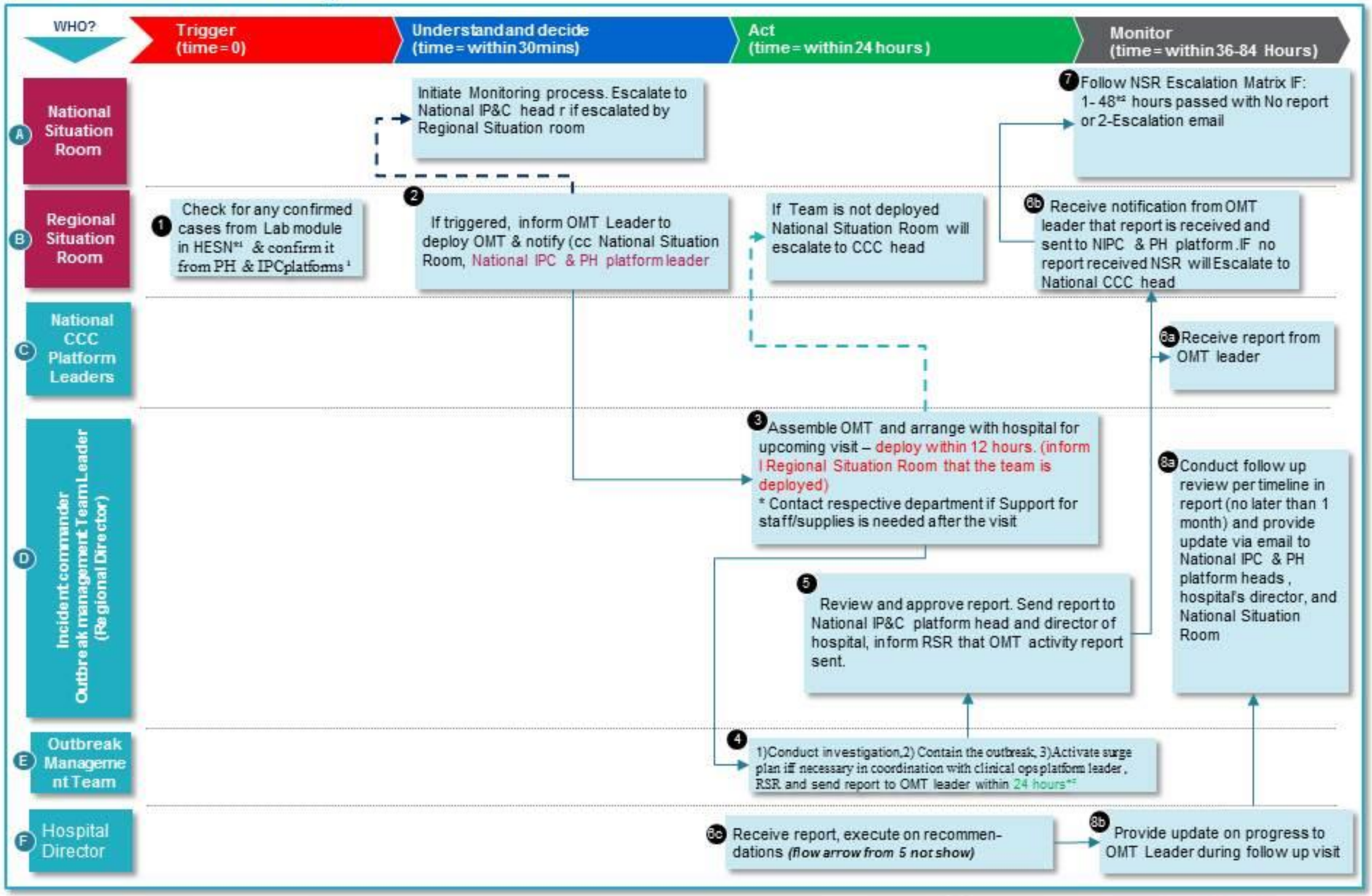
Category A MERS CoV Outbreak *(Trigger 1)*	▪ Limited to a single unit in a single healthcare facility
Category B MERS CoV Outbreak *(Trigger 2)*	▪ Multiple units in a single healthcare facility*
Category C MERS CoV Outbreak *(Trigger 3)*	▪ Multiple hospitals in a single city
Category D MERS CoV Outbreak *(Trigger 4)*	▪ Multiple hospitals in multiple cities

Dispatch Outbreak Management Team (OMT) within 12 hours

* Data supporting the identification of MERS outbreak category is out of situation room s current data base

SOURCE: Infection Prevention & Control Guidelines for MERS CoV , Jan 2017

The following process will ensure a systematic and timely response to type A,B,C & D MERS CoV Outbreaks across the Kingdom



1 Source of infection will be confirmed by PH platform and localization of the outbreak will be by IPC platform
2 Timeline for sending the report will be based on outbreak category

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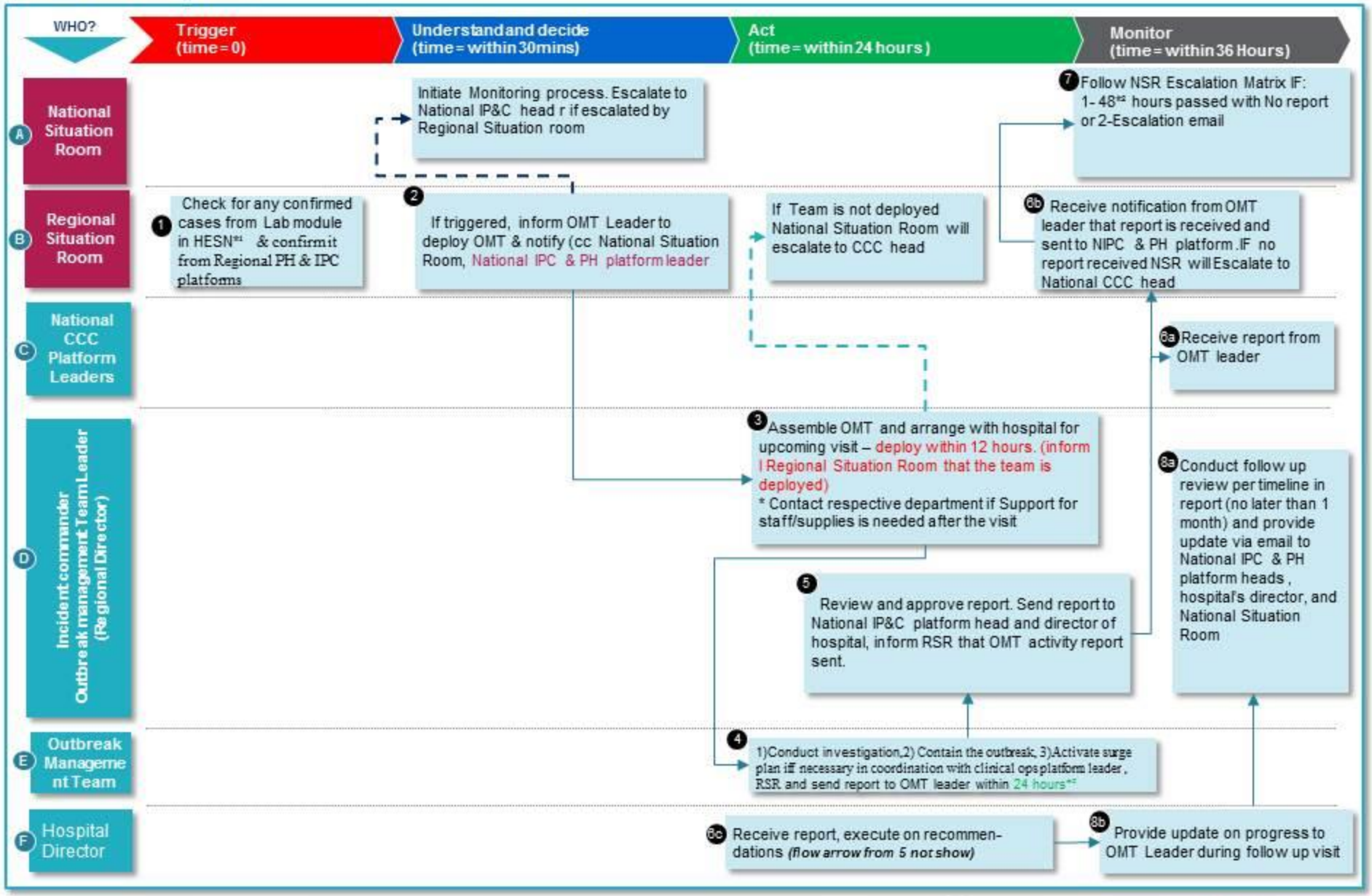
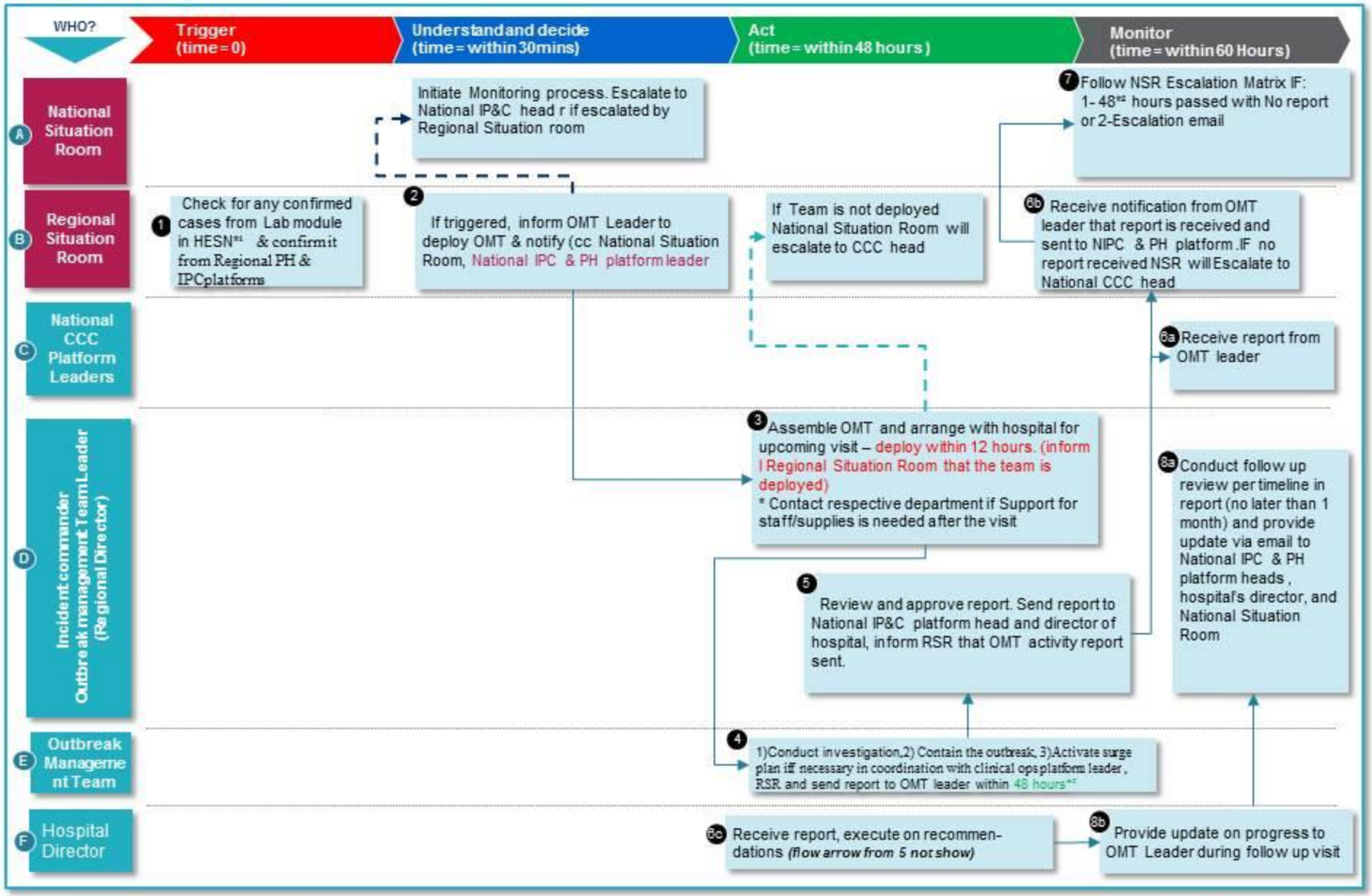
The following process will ensure a systematic and timely response to type (A) MERS CoV Outbreaks across the Kingdom



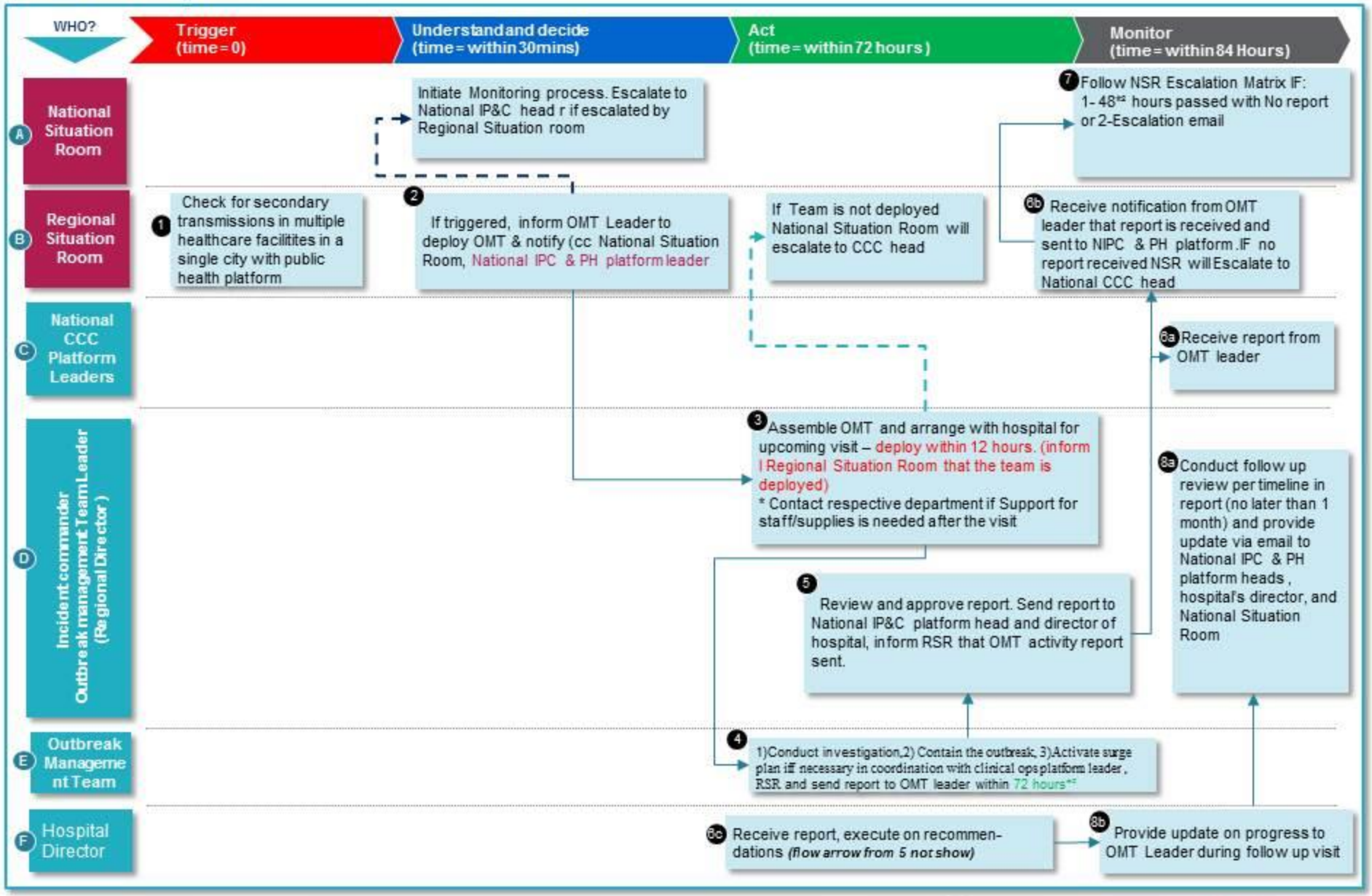
1 Source of infection will be confirmed by PH platform and localization of the outbreak will be by IPC platform

The following process will ensure a systematic and timely response to type (B) MERS CoV Outbreaks across the Kingdom



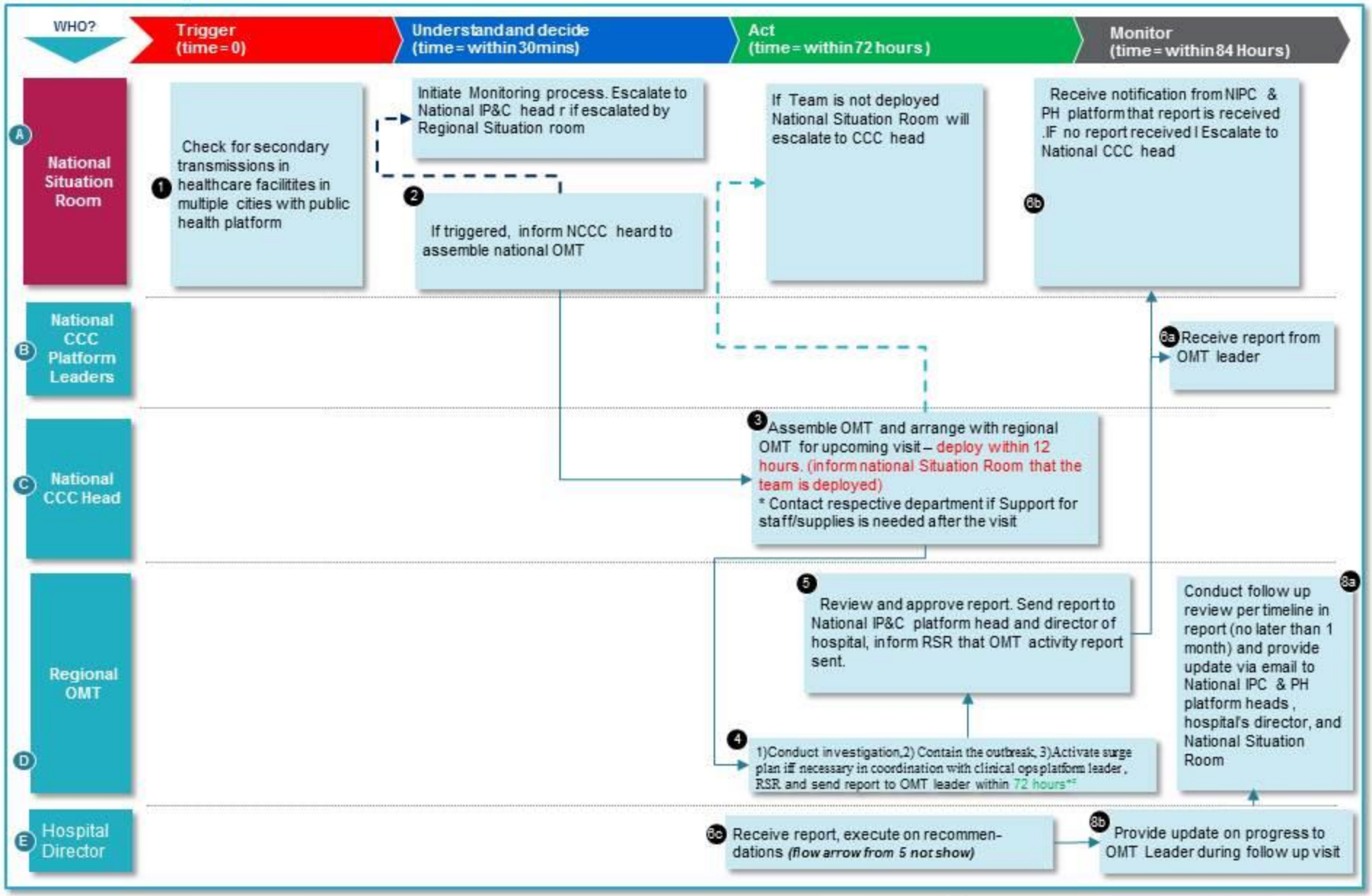
1 Source of infection will be confirmed by PH platform and localization of the outbreak will be by IPC platform

The following process will ensure a systematic and timely response to type (C) MERS CoV Outbreaks across the Kingdom



1 Source of infection will be confirmed by PH platform and localization of the outbreak will be by IPC platform

The following process will ensure a systematic and timely response to type (D) MERS CoV Outbreaks across the Kingdom



1 Source of infection will be confirmed by PH platform and localization of the outbreak will be by IPC platform

Responsibilities of Core stakeholders involved in MERS CoV Outbreak Management (4/1)

	OMT Member	Responsibilities In MERS CoV Outbreak management
1	Regional CCC Head	1. Assemble OMT & arrange with hospital for upcoming visit. 2. Deploy OMT within 12 hours. 3. Contact respective department if support of staff/supplies is needed. 4. Review and approve OMT activity report. 5. Send approved report to NIPC/NPH platform leaders. 6. Lead regular OMT follow up meet 7. Declare Outbreak start and End.
2	Regional situation room[1]	1. Check for confirmed MERS cases from HESN lab module . 2. Receive the confirmation from PH platform with the source of infection and outbreak category, and alert OMT leader (Incident commander) to deploy OMT. 3. Provide necessary beds capacity and availability information to clinical operations platform if surge plan is activated
3	RIPC platform/Hospital IPC department	1. Conduct investigation in health facility. 2. Apply outbreak containment measures. 3. Advice for activation of surge plan and it's actions. 4. Share hospitalized confirmed cases status update with regional public platform [2] .
4	Regional public health platform	1. Follow up with cases fit for home isolation 2. Identify household case contacts and apply case contact tracing activities (Education, follow up ,sampling symptomatic patients..). 3. Daily follow up of household contact list clinical status for 14 days and notify OMT leader with list clearance if follow up is finalized.

1 National situation room will be play regional situation room part in regions that RSR is not activated or shutdown .
2 MERS Daily case update should be submitted prior to 11 AM to be consolidated by NCCC for MoH leadership , Public & Media daily updates.

Responsibilities of Core stakeholders involved in MERS CoV Outbreak Management (4/2)

	OMT Member	Responsibilities In MERS CoV Outbreak management
5	Regional clinical operations platform	1. Activate surge plan. 2. Coordinate MERS cases transfer to primary MERS centres or back up MERS centres
6	Regional department of health emergencies & EMS	1. Coordinate & follow ambulances operations for patients transfer .
7	Hospital Director	1. Execute recommendations from OMT. 2. Provide regular updates on implementation progress to OMT leader (Regional director).
8	Secretary of municipalities & rural affairs	1. Managing MERS CoV bodies . 2. Attend bodies washing activities if done by

Responsibilities of Core stakeholders involved in MERS CoV Outbreak Management (4/3)

	OMT Member	Responsibilities In MERS CoV Outbreak management
9	National CCC Head	1. Receive escalations from national situation room during outbreak management process and provide necessary support. 2. Declare Outbreak start and End. 3. Announce the shutdown of a health facility as adviced by OMT
10	National situation room	1. Check for confirmed MERS cases from HESN lab module[1] . 2. Receive the confirmation from PH platform with the source of infection and outbreak category, and alert OMT leader (Incident commander) to deploy OMT. 3. Provide necessary beds capacity and availability information to clinical operations platform if surge plan is activated 4. Escalate to NCCC head if OMT not deployed OR OMT activity report not sent.
11	National IPC platform	1. Provide necessary support & guidance to IPC members during OMT activities . 2. Contribute , assist & supervise OMT activities . 3. Receive OMT activates report 4. Deploy supportive team to OMT on the ground if needed.
12	National public health platform	1. Provide necessary support & guidance to PH members during OMT activities . 2. Contribute , assist & supervise OMT activities . 3. Receive OMT activates report

1 National situation room will be play regional situation room part in regions that RSR is not activated or shutdown .

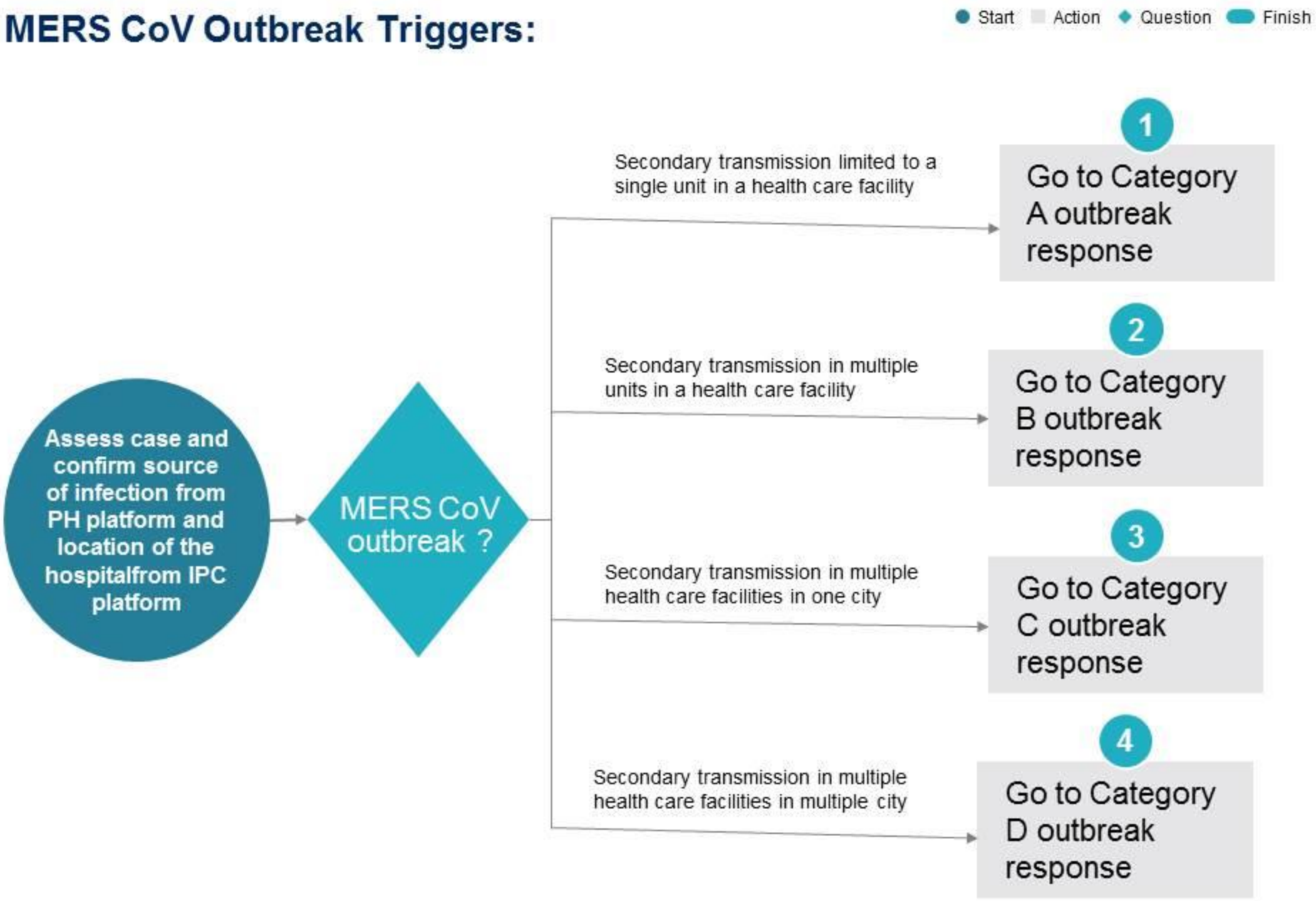
Responsibilities of Core stakeholders involved in MERS CoV Outbreak Management (4/4)

	OMT Member	Responsibilities In MERS CoV Outbreak management
13	National clinical operations platform	1. Provide necessary support & guidance to regional clinical operations platform when surge plan is activated . 2. Activate national surge plan[1]. 3. Coordinate MERS cases transfer to primary MERS centres , back up MERS centres or Non MoH health facilities with the appropriate beds, inventories and IPC capacities.
14	General directorate of health emergencies & EMS	1. Provide necessary support & guidance to regional directorate of health emergencies & EMS regarding to ambulances operations .
15	National communication platform	1. Public communication 2. Arrange source of information including declaration of an outbreak to the public & medi and the progress as needed.[1]
16	FETP	1. Clarify the nature of the outbreak in healthcare facilities & community. 2. Conduct investigations in secondary household transmission. 3. Assist managing emerging MERS CoV community cluster *N.B : FETP activities will be conducted in coordination with National PH & IP&cC platforms*

1 Communication with international health organization will be through the international health representation (IHR). Communication between the health sectors will be arranged by NCCC & RCCC.

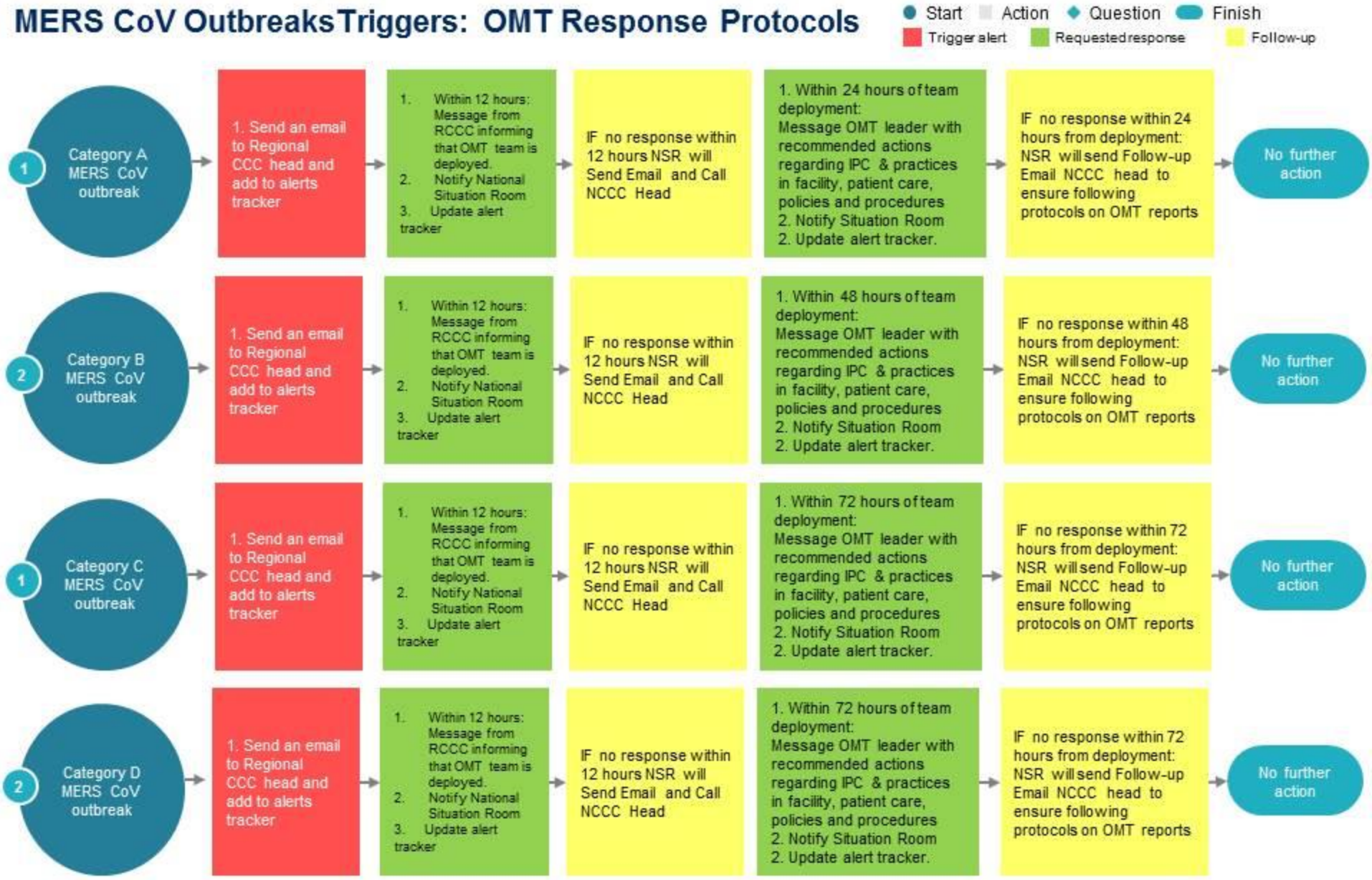
MERS CoV Outbreaks Alerting & escalation Process

MERS CoV Outbreak Triggers:



For more details please refer to ' Alert escalation matrix playbook for regional and national situation room by Nasser abutaleb

MERS CoV Outbreaks Triggers: OMT Response Protocols



For more details please refer to ' Alert escalation matrix playbook for regional and national situation room by Nasser abutaleb

MERS–CoV outbreaks Escalation Process

	Timing of escalation	
Alert	24 Hours	36 Hours
Category A MERS CoV outbreak	Reminder with next steps	Escalation to National CCC head

	Timing of escalation	
Alert	48 Hours	60 Hours
Category B MERS CoV outbreak	Reminder with next steps	Escalation to National CCC head

	Timing of escalation	
Alert	72 Hours	84 Hours
Category C MERS CoV outbreak	Reminder with next steps	Escalation to National CCC head

	Timing of escalation	
Alert	72 Hours	84 Hours
Category D MERS CoV outbreak	Reminder with next steps	Escalation to National CCC head

For more details please refer to ' Alert escalation matrix playbook for regional and national situation room by Nasser abutaleb

Surge Plan ...

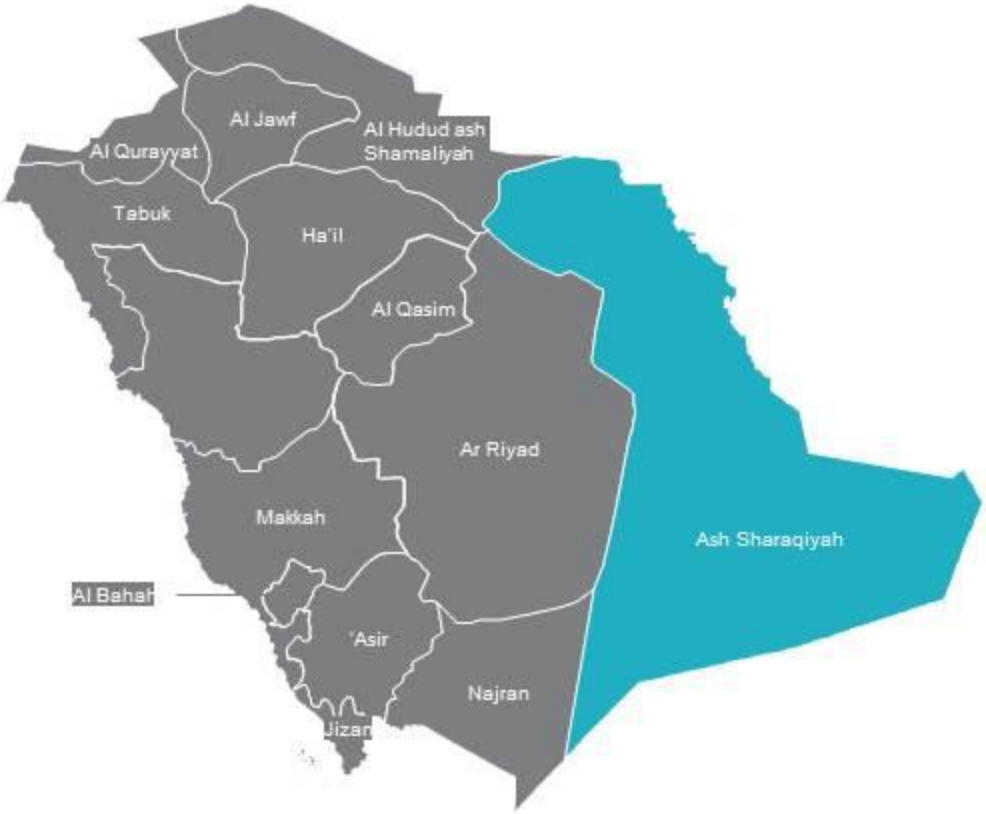
Two types of MERS designated hospitals , primary centers & Backup centers (5/1)

	Primary MERS Centers	Backup MERS Centers
1 Makkah	Alnoor Specialized Hospital	East Jeddah Hospital
2 Jeddah	King Abdullah Medical Complex	
3 Taief	King Faisal Hospital	
4 Madinah	Ohud Hospital	

Two types of MERS designated hospitals , primary centers & Backup centers (5/2)

	Primary MERS Centers	Backup MERS Centers
5 Riyadh	Prince Mohammed Bin Abdolaziz Hospital	Alemam Abdulrahman Alfaisal Hospital

Two types of MERS designated hospitals , primary centers & Backup centers (5/3)



	Primary MERS Centers	Backup MERS Centers
6 Eastern	Dammam Medical Complex	Qatif Central Hospital
7 Hassa	King Fahad Hospital	
8 Hafr Albatin	King Khalid General Hospital	

Two types of MERS designated hospitals , primary centers & Backup centers (5/4)

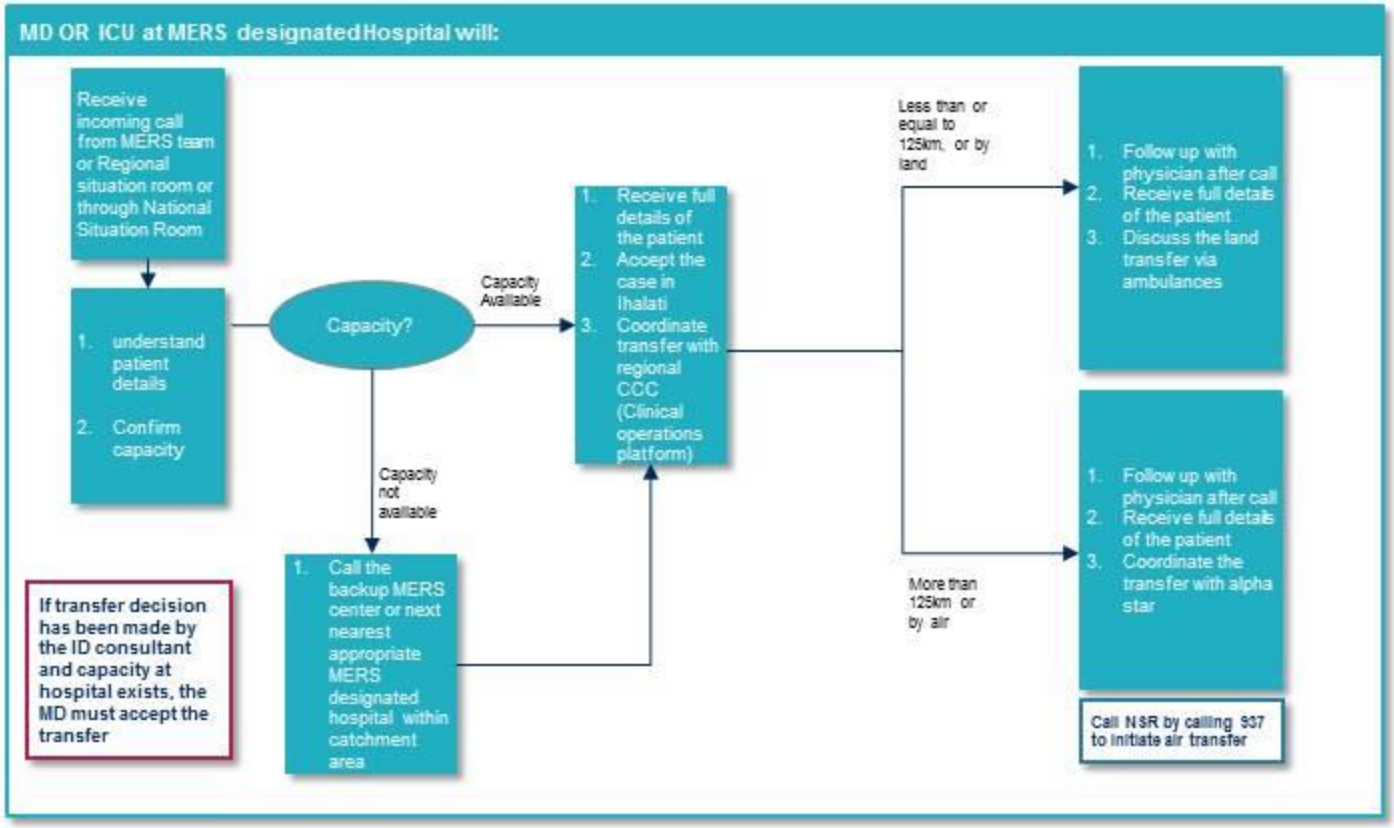
	Primary MERS Centers	Backup MERS Centers
9 Qassim	Buraidah Central Hospital	King Saud Hospital-Qassim
10 Tabuk	King Fahad Hospital	
11 Hail	King Khalid Hospitals	
12 Jouf	King Abdolaziz Specialist Hospital	
13 Northern Borders	Arar Central Hospital	
14 Quryat	Quryat General Hospital	

Two types of MERS designated hospitals , primary centers & Backup centers (5/5)

	Primary MERS Centers	Backup MERS Centers
15 Asir	Asir Central Hospital	Khamis Mushait Genral Hospital
16 Bisha	King Abdullah Central Hospital	
17 Baha	King Fahad Hospitals	
18 Jazan	Abu-Areesh General Hospital	
19 Najran	King Khalid Hospital	
20 Qonfotha	Alqonfotha General Hospital	

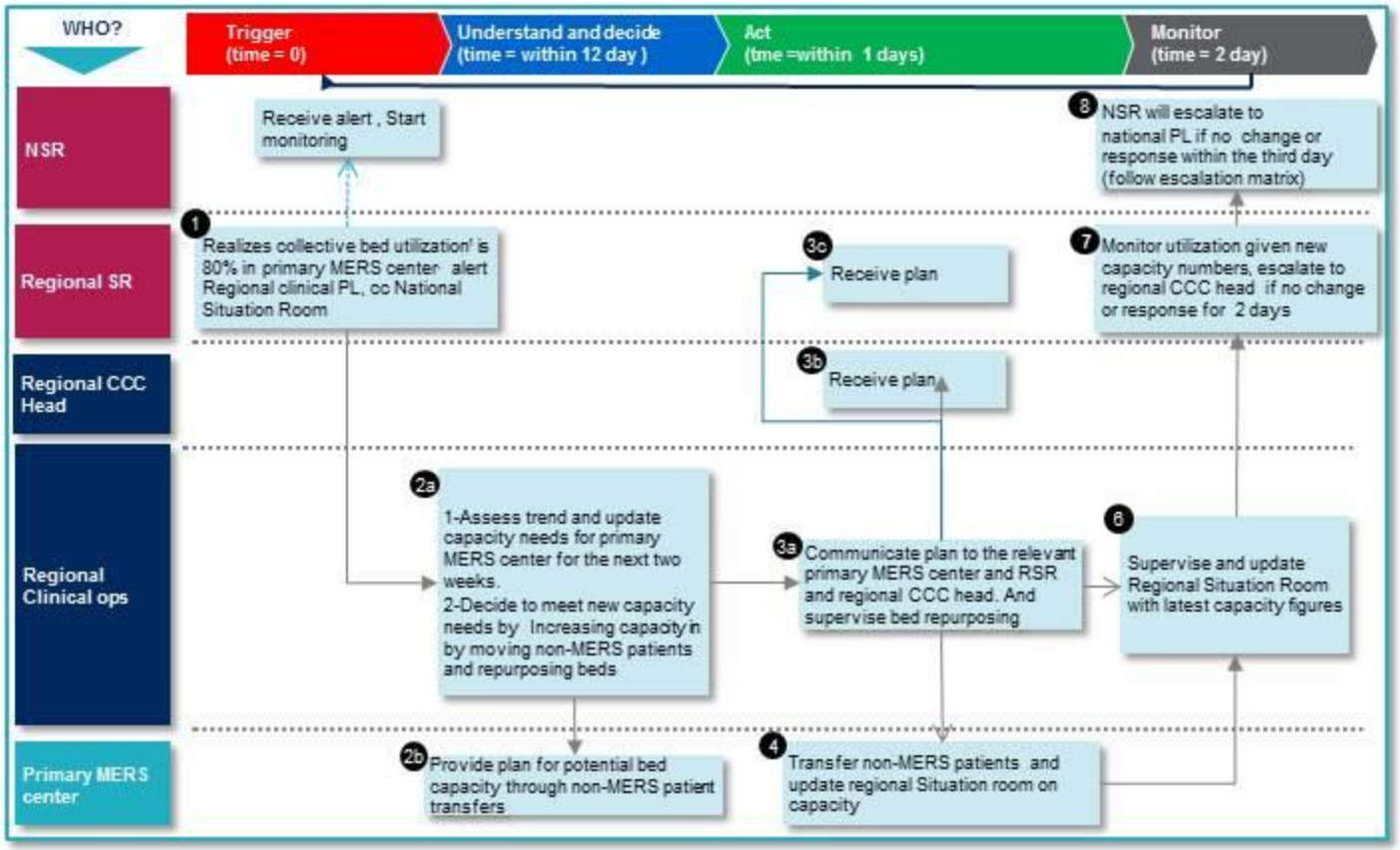
MERS-COV PATIENT IN A NON-MERS DESIGNATED HOSPITAL

Decision pathway for Medical Director (MD) at MERS designated hospital



80%+ utilization in Primary MERS center

The following process will ensure a systematic and timely response to changes in capacity needs based on new cases



Surge levels

Surge Levels (% of total bed capacity)	Surge Strategies	Response Level	Command Function
Pre-Surge	Basic	○ normal function	Hospital command center
Minor Surge (5% - 10%)	Enhanced	○ closure of the unit where tertiary transmission occurred to new cases ○ limit unit staff to the minimum required	Regional CCC
Moderate Surge (11% - 15%)	Augmented	○ Establish early discharges ○ stop routine admissions and procedures. ○ Divert patients for care to other hospitals.	Regional CCC
Major Surge (16%-20%)	Optimum	○ Defer all treatment for non-life threatening conditions ○ Triage all cases out	Regional CCC
Large Scale Emergency >20%	Overcapacity	○ Hospital shutdown	Central CCC
After event	Basic	○ Normal function	Central and regional CCC