Healthcare Preparedness to Outbreak, Are we ready?

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M.S.Basharahil Hospital
Makkah; Saudi Arabia
• Clinical and Epidemiological evidences on MERS-CoV
• Clinical Picture
• The Magic What if?
• International and national Recommendation
• Local Preparedness
• Conclusion & Take home message
Clinical and Epidemiological evidences
## Line list

15 cases from Apr/12 to Feb/13

<table>
<thead>
<tr>
<th>No.</th>
<th>Date of onset</th>
<th>Age</th>
<th>Sex</th>
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<th>Outcome</th>
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</tbody>
</table>
2013 Jan-Feb – SA → UK – Family cluster

Index case: 60y male, travel to Pakistan (2012.12.16~2013.01.20) and Saudi Arabia (01.20~01.28), onset on 01.26, hospitalized on 01.31, co-infected with influenza A(H1N1).

Adult female member of extended family, limited exposure to the index case on three occasions in hospital (possibility of an intermediary case), onset on 02.05, mild influenza-like illness.

Adult male household member, in sustained close contact with the index case at home, pre-existing medical conditions, onset on 02.06, died on 02.17.
The Virus (Corona)

- Large Family of Viruses that cause a range of Illnesses in Humans (common cold) to the severe acute respiratory Syndrome (SARS)

- Recently responsible for the MERS
Signs & Symptoms

- Most People who become infected developed severe respiratory illness with symptoms like:
  - Fever > 38 C
  - Cough
  - Shortness of Breath
  - Respiratory illness rapidly progressive pneumonitis, respiratory failure, septic shock and multi-organ failure resulting in
Case Definition
Suspected case

Current case definition for suspected case:

Any person with severe acute respiratory infection, with:

1. Fever, cough, and evidence of pulmonary parenchymal disease
2. And not already explained by any other infection or etiology
3. And admitted to hospital
4. And one of the following:
   • With history travel within 14 days before onset in a country who reported local cases
   • Or contact history with a person with ARI who traveled in a country who reported local cases
   • Or HCW caring for patients with severe ARI
   • Or the case occurs as part of a cluster.
Probable case (UI)

- Any possible case with close contact during the last 10 days before onset of illness with a symptomatic confirmed case of novel coronavirus infection.

- Close contact is defined as:
  - Anyone who provided care for a nCoV patient
  - Or anyone who stayed at the same place while a nCoV patient was ill.
Confirmed case

- Any person with positive laboratory confirmation of infection with novel coronavirus
60 year-old man from Saudi Arabia

7 days of fever, cough, shortness of breath

Hospital Day 1

Hospital Day 3

Range of presentations*
- 62% severe respiratory illness
- 5% mild symptoms
- 21% asymptomatic

Data from early cases: High mortality
- Lower respiratory tract illness,
- Fever

Data from more recent cases
- Lower mortality
- Higher proportion with upper respiratory tract illness
- No vaccine, no specific treatment

Cases with available data through 5/9/14; WHO
The Issue of MERS-CoV Raised Concern – Board of Director

Ministry of Health

Staff
What if?

Is the Facility Ready to?

Communication

Guidelines, Processes, References
Situational Analysis

Internal Analysis
- Strength
- Weaknesses

External Analysis
- Opportunities
- Threats
Analysis (SPO)

Step 1: Structure

Step 2: Resources

Step 3: Facility

Step 4: Department

Step 5: Committee

Start
Questions?

- Preparedness **Before** a patient arrives to the hospital
- Components of **Patient Management Plan**
- Guideness for **exposure-Follow-up** in acute care setting
- **Screening Algorithm**
- Staff **Awareness** and **Compliances**
- **References**
Questions Reply (SPO)

- Establish a Task Force (sub team from Infection Control Committee)
- Establish the Plan with all plan components (Mission-Vision-Value-Objectives-Resources-P&P)
Task Force Obligation

- Unlimited, Open Meetings
- Plan
- Resources (Leadership included)
- Policy and Procedures
- Training
- References
BASHARAHIL HOSPITAL INFECTION CONTROL MANAGEMENT PLAN FOR COUNTERACT MRES-COs
Policy and procedures

- 8.1 Suspected patient
- 8.2 Person in contact
- 8.3 Environmental and engineering controls
- 8.4 Personal Protective Equipment (PPE):
- 8.5 Infection prevention and control when caring for patients with ARI
- 8.6 Infection Prevention and control precautions when caring for patient with suspected, probable or confirmed MERS-CoV Infections
- Reporting of suspected patient within the hospital and to the Ministry of health
- 8.7 Patient placement
- 8.8 Patient transfer within the facilities and to other healthcare facility
- 8.9 Duration of isolation precautions for MERS-CoV infection
- 8.10 Health care worker protection
- 8.11 Aerosol Generating Procedure
- 8.11 Staff awareness and education
- 8.14 Patient and family education
- 8.15 environment of care after patient discharge
Preparedness Before the First MERS-CoV Patient arrives

**Surveillance**

Establish Institutional Responsibility for tracking information about MERS-CoV- (and other emerging pathogens)

**Education**

ED Staff
Audit & Screening Triage Area
Patient Information
Preparedness Before the First MERS-CoV Patient arrives

**Laboratory Readiness**

- A notification system for laboratory regarding suspect patients
- A mechanism for notification and prompt delivery of specimens from suspected patients to your public health laboratory

A system for communicating results to relevant staff and departments; **MERS-CoV result should be treated as a critical result**
Preparedness Before the First MERS-CoV Patient arrives

Planning

Develop a patient management plan.
Component of Patient Management Plan

Accommodation

- Identify appropriate room in ED for patients being investigated for disease.
- Establish timeline for movement of patient out of ED if admission is required.
Additional Precautions

- Patients should be accommodated in an airborne infection isolation room (AIIR) when possible.
- Health care workers should use both Droplet/Contact and Airborne Precautions (i.e., use of gown, gloves, eye protection, N95 respirator*).
- Patients should wear a surgical mask during transportation, if tolerated.
- Ensure that precautions are initiated whenever a case is suspected; precautions to be discontinued by infection prevention and control staff or their designate when case is cleared.
Diagnosis

- Document the process for confirming that patient meets the case definition and requires testing.
- Consider availability of materials to remind staff how to obtain specimens using appropriate precautions.
- Document the process and communications required for rapid transport and testing of relevant specimens.
Communication

- Notify local health Authorities unit and public health laboratory.
- Notify pre-designated internal stakeholders as per plan *(e.g., senior management team)*
- Healthcare Worker -
Education/Training

- Establish mechanism for updating institution’s knowledge regarding status of MERS-CoV
- Define what materials will be needed (e.g., Q&A for ED/ICU staff; email to senior management)
- Define which hospital departments may be providing care and/or provide diagnostic services for the patient and require information
- Draft messages/ information needed for family and visitors, in collaboration with local public health unit.

- Report any occupational illness to the Ministry of Health
GENERAL MANAGEMENT PROCEDURE FOR SYMPTOMATIC PATIENTS WITH EXPOSURE HISTORY TO MIDDLE EAST RESPIRATORY SYNDROME CORONA VIRUS

SUSPECT CASE
Patients fulfilling the clinical and epidemiological criteria of MERS-CoV

- Isolate patient in individual rooms
- Repeat CXR after 2-3 days or earlier if respiratory symptoms progress and work up as indicated
- Give supportive care
- Inform National Epidemiology Center (NEC) for Metro Manila or Regional Epidemiology Surveillance Unity (RESU) for provinces

Fulfills case definition of PROBABLE MERS CoV CASE

- Isolate patient in individual rooms
- Work up as indicated
- Start empiric antibiotics for community acquired pneumonia.
- Give supportive care
- Inform NEC or RESU

Fulfills case definition of CONFIRMED MERS CoV CASE

- Isolate patient in individual rooms
- Work up as indicated
- Start empiric antibiotics for community acquired pneumonia.
- Give supportive care
- Inform NEC or RESU

Does not fulfill case definition of PROBABLE/CONFIRMED MERS CoV CASE

- Isolate patient in individual rooms until laboratory results are out
- Monitor progression of symptoms within 72 hours and work up as indicated.
- Give supportive care
<table>
<thead>
<tr>
<th>Documents</th>
<th>Availability</th>
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<td>1. List of Infection Control Staff</td>
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<td>2. CVs of Infection Control Staff</td>
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<td>3. Training Certificates of Infection Control Staff</td>
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<td>4. Accreditation Certificate (if applicable)</td>
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<td>5. MOH License</td>
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<td>6. Written Infection Control Manual</td>
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<td>7. Latest Infection Control Audit Report</td>
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<td>8. MERS-CoV Guideline Policy</td>
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<td>9. MERS-CoV Reporting forms</td>
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<td>10. Respiratory Protection Program Policy/Guidelines</td>
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<td>11. List of Staff attended the Respiratory Protection Program</td>
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<td>12. Respiratory Fit Testing Guidelines</td>
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<td>13. List of Staff Attended the Respiratory Fit Testing Training</td>
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<td>14. Medical Records of MERS-CoV +ive Patients</td>
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<td>15. Visitor Policy/Guidelines</td>
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<tr>
<td>16. Town hall Meeting Minutes for MERS-CoV Awareness</td>
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<tr>
<td>17. Infection Control Training Records</td>
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<td>18. Copy of latest Surveillance Report</td>
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<td>19. PPE Supply Chain Plan</td>
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<td>20. Patients Movement Policy/Guidelines</td>
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<tr>
<td>22. Policy/Guidelines of Handling suspected MERS Co-V Patients in the Triage</td>
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<tr>
<td>23. Policy/Guidelines for Environmental Services</td>
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<tr>
<td>24. Flow Chart with Policies &amp; Procedures for Suspected or Confirmed MERS-CoV Patients</td>
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WHAT ARE THE SIGNS AND SYMPTOMS OF CORONA VIRUS INFECTION?

Cough
Fever
Congestion in the nose and throat
Shortness of breath
Diabetes

WHAT ARE THE possiblE PROTECTION measures FOR CORONA VIRUS?

1. Wash your hands very well and continually with water and soap, or other hand sanitizers, especially after coughing, sneezing, using toilets, before handling/preparing food, and after contact with patients or their personal tools.

2. Avoid contact with patients and their personal tools, and use face masks only if you’re sick or visiting sick patients.

3. Use a tissue when coughing or sneezing, then get rid of it in a waste basket. After that, wash your hands carefully. If there is no tissue, it is preferred to cough or sneeze into your upper sleeve or elbow, not your hands.

4. Avoid touching your eyes, nose or mouth as much as possible.

5. Wash vegetables and fruits thoroughly before eating them.

6. Maintain other healthy habits such as balanced diet, physical activity, as well as getting enough sleep, this will strengthen immunity.

7. Maintain good hygiene habits in general.

According to the recommendations of the specialized scientists who attended the International Medical Meeting in Riyadh

HOW CORONA VIRUS DOES TRANSMIT BETWEEN PEOPLE?

MERS-CoV transmits like other Corona viruses and flu, which transmits through:

 Direct contact with infected patients.
 
 Droplets during the patient’s coughing or sneezing.
 
 Contact with patient’s tools then touching the nose, mouth or eyes directly.
 
 Possibly transmitted by infected Camels.

Do you have any inquiry...?
GENERAL MANAGEMENT OF PATIENTS UNDER INVESTIGATION FOR SEVERE RESPIRATORY DISEASE ASSOCIATED WITH MERS CORONAVIRUS

Algorithm
Training Materials

Nasopharyngeal Swab
# MERS-CoV (August 2014)

## Description

<table>
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<tr>
<th>Description</th>
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<td>Total Cases (2012-2014)</td>
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<td>Cured Cases</td>
<td>398 (60%)</td>
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<td>Died Cases</td>
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<td>Under Treatment</td>
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## Month

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Ways of Protection against the Virus

**WHAT ARE THE SIGNS AND SYMPTOMS OF CORONA VIRUS INFECTION?**

- **Cough**
- **Fever**
- **Congestion in the nose and throat**
- **Shortness of breath**
- **Diarrhea**

**CORONA VIRUS**

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

According to the recommendations of the specialized scientists who attended the International Medical Meeting in Riyadh.

**HOW CORONA VIRUS DOES TRANSMIT BETWEEN PEOPLE?**

MERS-CoV transmits like other Coronavirus and Flu, which transmits through:

1. Direct contact with infected patients.
Lesson Learned

MERS CoV

Ebola
Road to Successes

• Leadership support
• Structure Program
• Focus on Education
• Communication
Dina.baroudi@gmail.com
Eddaal14@hotmail.com

References
http://www.cdc.gov/coronavirus/