Novel Coronavirus: KSA Response

WHA 66
Geneva, May, 2013

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Deputy Minister of Health, Saudi Arabia
Public Health Directorate
Global Status of MERS-CoV as of Today

- Globally, from September 2012 to date, a total of 44 laboratory-confirmed cases of infection with nCoV, including 22 deaths.

- 22 (50%) of the total patients reported to date including 10 deaths have been reported from the HA outbreak in Alhassa, KSA.

- Several countries in the Middle East have been affected. They are Jordan, Qatar, Saudi Arabia, and the United Arab Emirates (UAE).

- Cases have also been reported by four additional countries: France, Germany, Tunisia and the United Kingdom (direct or indirect contact with MEA).
Saudi Arabia First Case

Case 1 (fatal): Bisha
- 60 yr old Saudi businessman.
  Previously healthy. Non-smoker.
- June 10 Admitted local hospital, CAP.
- Transfer to Dr. Soliman Fakeeh Hospital Jeddah, June 13.
  Day 2 => ARDS intubated, ICU admission
  Day 3 = ARF, hemodialysis.
- Died June 24

Exposures investigation

Household investigation
- Family members
- Co-workers

Hospital investigations
- Bisha Hospital/PHC
- Dr. Soliman Fakeeh Hospital
13-24 June
Saudi case presents with symptoms and dies

Mid July
Erasmus Medical Centre tests samples and obtains virus culture

3 Sep
Qatari case onset of symptoms in Qatar

20 and 23 September
Pro Med/WHO report infections

Hajj 2012 takes place from 10-30 October

30 November
Jordan reports 2 retrospective cases from a hospital cluster
Actions Taken by KSA

• Convened the National Committee for Infectious Diseases.

• Invited WHO EMRO and HQ experts.

• Extended an invitation to CDC.

• Requested veterinary support by inviting Ecohealth Alliance and Columbia University.
The Hajj: updated health hazards and current recommendations for 2012

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Severe Respiratory Disease Associated with Novel Coronavirus: WHO Case Definition as of Sept 29 2012

**Table 1**

<table>
<thead>
<tr>
<th>Clinical definition</th>
<th>Epidemiological criteria</th>
<th>Laboratory data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient under investigation</strong></td>
<td>AND</td>
<td>AND</td>
</tr>
<tr>
<td>Fitting the clinical AND Epidemiological criteria</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A person with acute respiratory syndrome, which may include fever (&gt; 38 °C) and cough</td>
<td></td>
<td>Travel to or residence in an area where infection with novel coronavirus has recently been reported or where transmission could have occurred</td>
</tr>
<tr>
<td>AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Suspicion of pulmonary parenchymal disease (e.g. pneumonia or ARDS) based on clinical or radiological evidence of consolidation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>AND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not already explained by any other infection or aetiology, including all clinically indicated tests for community-acquired pneumonia, according to local management guidelines</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Probable novel coronavirus case</th>
<th>AND</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>As for patient under investigation, with clinical, radiological, or histopathological evidence of pulmonary parenchymal disease (e.g. pneumonia or ARDS) but no possibility of laboratory confirmation, either because the patient or samples are not available or there is no testing available for other respiratory infections</td>
<td></td>
<td>Close contact with a laboratory-confirmed case.</td>
</tr>
</tbody>
</table>

| Confirmed novel coronavirus case | As for probable case | As for probable case | A person with laboratory confirmation of infection with the novel coronavirus |

ARDS: acute respiratory distress syndrome; WHO: World Health Organization.

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*Currently, these areas would include only Qatar and Saudi Arabia (as of 29 September 2012).*

*Close contact is defined as: anyone who provided care for the patient, including a healthcare worker or family member, or had other similar close physical contact; anyone who stayed at the same place (e.g. lived with, visited) as a probable or confirmed case while the case was symptomatic.*
### Severe Respiratory Disease Associated with Novel Coronavirus: Case Definition by the Saudi MoH

<table>
<thead>
<tr>
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<th>Clinical definition</th>
<th>Epidemiological criteria</th>
<th>Laboratory data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Suspected case</td>
<td>A person requiring hospitalisation with community-acquired acute respiratory syndrome Symptoms include: fever ($\geq 38^\circ$C) and cough, with confirmed lower airway involvement (clinical and radiological evidence of pneumonia) not explained by any other infection or other aetiology.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Confirmed case</td>
<td>As for suspected case</td>
<td>None</td>
<td>A person with laboratory-confirmed infection with the novel coronavirus</td>
</tr>
</tbody>
</table>
Novel Coronavirus Surveillance During Hajj 2012

- Case based surveillance for novel coronavirus in Makkah and Madina during Hajj time.

- To monitor the novel coronavirus closely during the biggest mass gathering event in the world.

- To early detect cases of novel coronavirus between pilgrims and local residents.

- To collect as much information about the virus in the area where the first case was identified.
Methodology of Hajj surveillance

- A case-based surveillance.
- Data collected from all hospitals located in the Hajj area during Hajj time (Makkah & Madinah).
- The same case definition of nCoV was used.
- Samples were taken from all cases.
- 190 suspected cases were reported from Madina & 86 cases were reported from Makkah.
- All samples tested negative for nCoV.
Sample From the Suspected Cases by Symptoms & Presence of Chronic Disease

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Yes</th>
<th>No</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fever</td>
<td>28</td>
<td>10</td>
<td>73.7</td>
</tr>
<tr>
<td>Cough</td>
<td>33</td>
<td>5</td>
<td>86.8</td>
</tr>
<tr>
<td>Haemoptesis</td>
<td>3</td>
<td>35</td>
<td>7.9</td>
</tr>
<tr>
<td>Sore throat</td>
<td>4</td>
<td>34</td>
<td>10.5</td>
</tr>
<tr>
<td>Chest pain</td>
<td>5</td>
<td>33</td>
<td>13.2</td>
</tr>
<tr>
<td>Dyspnea</td>
<td>21</td>
<td>17</td>
<td>55.3</td>
</tr>
<tr>
<td>Wheezing</td>
<td>4</td>
<td>34</td>
<td>10.5</td>
</tr>
<tr>
<td>Rapid breathing</td>
<td>18</td>
<td>20</td>
<td>47.4</td>
</tr>
<tr>
<td>Chronic disease</td>
<td>6</td>
<td>32</td>
<td>15.8</td>
</tr>
</tbody>
</table>

- Fever, cough and dyspnea were the most common symptoms (73.7, 86.8, 55.3 %).
- The vast majority of the suspected cases had no chronic diseases (84.2%)
SCREENING OF A SAMPLE OF DEPARTING PILGRIMS FOR NOVEL CORONAVIRUS WAS CONDUCTED
Lack of nasal carriage of novel coronavirus (HCoV-EMC) in French Hajj pilgrims returning from the Hajj 2012, despite high rate of respiratory symptoms.

Philippe Gautret, Rémi Charrel, Khadidja Belhouchat, Tassadit Drali, Samir Benkouiten, Antoine Nougarede, Christine Zandotti, Ziad A Memish, Malak al Masri, Catherine Gaillard, Philippe Brouqui, Philippe Parola.
Testing of Returning Egyptian Pilgrims for Novel Coronavirus Hajj 2012

- 857 returning pilgrims were screened for viral respiratory pathogens
- 187 (21.8%) samples were tested for novel coronavirus
- All samples were negative

Personal communication Dr. Amr Kandeel Egypt MoHP
13-24 June
Saudi case presents with symptoms and dies

3 Sep
Qatari case onset of symptoms in Qatar

30 November
Jordan reports 2 retrospective cases from a hospital cluster

Mid July
Erasmus Medical Centre tests samples and obtains virus culture

20 and 23 September
Pro Med/WHO report infections

23 November
Saudi Arabia reports family cluster of nCoV cases. Qatar reports additional case.

Hajj 2012 takes place from 10-30 October

11 February 2013 onwards
Further cases of nCoV detected
Technical Consultative Meeting on nCOV Infection, Cairo, Egypt, 14–16 January 2013

• An urgent meeting of scientific and PH expert was convened by WHO EMRO.
• Meeting was organized in 5 thematic sessions:
  – Epidemiological information
  – Virological and animal investigation;
  – Development of tests for nCoV;
  – Experience from SARS; and
  – Risk communication and preparedness
EMHJ
Eastern Mediterranean Health Journal
Supplement on Novel Coronavirus
Guest Editors
Zaid A. Memish, MD
Jaouad Mahjour, MD, MPH

La Revue de Santé de la Méditerranée orientale

Coronavirus particles
With the emergence of a novel coronavirus in 2012, WHO convened a meeting of experts in January 2013 to address this new public health threat. This supplement presents papers arising out of the meeting.

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Supplement 1 / Supplément 1
2013
Investigation for the Source of the Virus

- In March 2013 repeat consultation with EcoHealth Alliance and Columbia University.
- A team of 6 people visited the 3 affected regions in KSA and spent 3 weeks in-Kingdom.
- More than 500 samples were collected from areas around confirmed cases and distant locations.
MERS-CoV Outbreak at Alhasa Region April-May-2013
الإحساء
• \( \frac{1}{4} \) of total area of KSA (430,000 Km\(^2\))
• Population 1.3 million
• Hospitals:
  – Governmental 5
  – Private: 6
  – National Guard 1
  – Clinics ARAMCO and Security force health service
Acute respiratory illness reporting

- Using standardized forms designed specifically to report influenza and MERS-CoV related SARI
- Reports faxed to PH at health directorate then to PH at MoH
- Reports on mortalities related to ?viral pneumonia started mid April/2013
- Most reports came from one private hospital
HCF Involved

- A private facility with 150 beds
- JCI accredited May 2012
- Has a 32 chair hemodialysis unit
- A 12 bed critical care unit
- Negative pressure rooms in both HD and CCU
- Provide paid service to patients from all over Eastern province
Regional HD Action

• Health directorate PH visited the hospital and analyzed reported cases:
  – Monthly mortalities did not differ significantly from previous months
  – Causes of death shifted from chronic co-morbidities to pneumonia and respiratory failure
  – No significant influenza activity reported
  – Therefore people started thinking ? MERS-CoV
Saudi MoH Response

- MoH emergency team was dispatched to the region.
- WHO EMRO RD notified by phone and IHR immediately notified once 1\textsuperscript{st} case was confirmed by laboratory 24 April 2013
- Urgent call to national Infectious Diseases Committee
- Consultation teams invited:
  - WHO EMRO and HQ
  - Toronto University
  - John Hopkins Hospital
  - University of Denver
  - University College London
Current Situation

- IC interventions were applied in full force at HCF.
- Since 1\textsuperscript{st} May, no new cases acquired at the facility.
- Intensive surveillance among family and HCW contacts was conducted.
- More than 500 contacts were tested related to this cluster.
- A few cases among family contacts and 2 HCWs were positive.
- All cases reported to IHR as per protocol.
- Active surveillance kingdom wide is ongoing with more than 1000 samples tested to date.
Challenges

• Source of virus remains to be determined.
• Human acquisition mechanism is unclear (sporadic community vs HAI) with possible genetic predisposition.
• Incubation period and infectivity being studied.
• Infection Control Precautions need to be revised.
• Diagnostic challenges (Sample type, false –ve, lack of serology……etc).
• Current therapeutic approaches are supportive.
• Preventative measures are limited to IC standards.
Future strategies in KSA (1)

• Continuing active surveillance for the disease kingdom wide.
• Building lab capacity and public health emergency response teams
• Joint international consultation with WHO including global experts from the following disciplines is planned shortly:
  – Virologists
  – Epidemiologist
  – Infection control experts
  – Environmental specialist
  – Veterinarians
  – Clinical therapeutic trial experts
Future strategies (2)

- Continuing efforts to educate HCWs & community about the disease.
- Better communication strategies thru the social media and IT technology
- Establishment of a research network to review current cases and design future studies.
- Continue to disseminate updated clinical/epidemiological information including thru peer reviewed journals for the global medical community (EMHJ special issue)