

Novel Coronavirus: Important information for Clinicians and Laboratories

First Issued: 10 December 2012

Updated: 18 February 2013

Summary: As of 18 February 2013, a novel coronavirus (NCoV, also known as HCoV-EMC) has been identified in 12 patients from Saudi Arabia, Qatar, Jordan and the United Kingdom. All but one of the cases has been associated with a severe acute pneumonia.

In patients with severe acute pneumonia or pneumonitis with a history of travel in countries of the Arabian Peninsula within 10 days of illness onset, or contact with known confirmed or probable cases, the following is recommended:

- 1. Place the patient in a single room with negative pressure air-handling, and implement standard and transmission-based precautions (contact and airborne), including the use of personal protective equipment (PPE).**
- 2. Investigate and manage the patient as for community acquired pneumonia. Appropriate specimens should also be collected for NCoV PCR testing.**
- 3. Contact your local Public Health Unit promptly of any suspected cases on 1300 066 055 for a joint risk assessment and to arrange urgent testing where indicated.**

What is the novel coronavirus?

Coronaviruses are a large and diverse family of viruses which includes viruses that are known to cause illness in humans (including the common cold) and animals. This novel strain has never previously been detected in humans or animals but appears most closely related to coronaviruses previously found in bats. It appears to be genetically distinct from the SARS CoV, and behave differently.

What is the current situation?

- See the World Health Organization (WHO) website on the current situation at http://www.who.int/csr/disease/coronavirus_infections/en/index.html
- 12 cases of illness with the novel coronavirus have been confirmed and reported to WHO over recent months. Of the 12 cases, 5 had fatal outcomes.
- Three cases of respiratory infection with a novel coronavirus (NCoV) have recently been reported in residents of the United Kingdom. The first case developed a severe respiratory illness after travel to Saudi Arabia and Pakistan. This case also tested positive for influenza A(H1N1)pdm. The other two cases are family members of the first case but with no history of travel. One of these cases also has a severe respiratory infection while the other case had only a mild respiratory illness.
- Five of the earlier cases have occurred in citizens of the Kingdom of Saudi Arabia and two have occurred in residents of Qatar. Specimens from two fatal cases from an earlier cluster of undiagnosed respiratory

illness in a hospital in Jordan have now been tested for and confirmed with the novel strain. Several of the patients also developed acute renal failure.

- Three of the confirmed cases from Saudi Arabia were epidemiologically linked and occurred in one family living in the same household; two of these have died. One additional family member in this household also became ill with similar symptoms. This patient has recovered and has tested negative for NCoV.
- WHO has NOT recommended that any travel restrictions are applied with respect to this event.

Summary table of cases to date

Case No.	Date of Onset	Age (years)	Sex	Probable place of infection	Date reported	Outcome	Part of a cluster?
1	April 2012	45	F	Jordan	30/11/12	Died	yes - hospital A
2	April 2012	25	M	Jordan	30/11/12	Died	yes - hospital A
3	13/06/12	60	M	Kingdom of Saudi Arabia	20/09/12	Died	no
4	03/09/12	49	M	Qatar/ Kingdom of Saudi Arabia	23/09/12	Alive/ Hospitalised	no - patient transferred to the UK
5	10/10/2012	45	M	Kingdom of Saudi Arabia	04/11/12	Alive	no
6	12/10/12	45	M	Qatar	23/11/12	Alive	no
7	3-5/11/2012	31	M	Kingdom of Saudi Arabia	20/11/12	Alive	yes - family A
8	28/10/12	39	M	Kingdom of Saudi Arabia	23/11/12	Died	yes - family A
9	October 2012	Not known	M	Kingdom of Saudi Arabia	28/11/12	Died	yes - family A
10	24 /1/2013	60	M	Pakistan/ Kingdom of Saudi Arabia	8/1/13	Alive/ Hospitalised	yes - family B
11	6/2/2013	Not known	M	United Kingdom	12/02/13	Alive/ Hospitalised	yes - family B
12	Not known	Not known	NK	United Kingdom	15/02/13	Mild illness	yes – family B

Source: European Centre for Disease Control and Prevention; Health Protection Agency (UK).

What are the symptoms?

Confirmed cases have presented with acute, serious respiratory illness. Typical symptoms have included fever, cough, shortness of breath, and breathing difficulties.

Are health workers at risk from the novel coronavirus?

So far there is limited evidence of the virus being passed from person to person including to close family contacts and health care workers. Infection control recommendations in this document aim to provide the highest level of protection for health care workers, given the current state of knowledge. Health care workers should follow the NHMRC's [Australian Guidelines for the Prevention and Control of Infection in Healthcare \(2010\)](#), particularly section B2.4.

Who do I test for NCoV (also known as HCoV-EMC)?

Testing should be considered for:

1. Individuals with pneumonia or pneumonitis and history of travel to, or residence in, countries of the Arabian Peninsula within 10 days of illness onset.
2. Individuals with pneumonia or pneumonitis and history of close contact¹ with a confirmed or probable case of NCoV within 10 days of illness onset.
3. Health care workers with pneumonia not already explained by any other infection or aetiology, including all clinically indicated tests for community-acquired pneumonia, who have been caring for patients with severe acute respiratory infections (SARI), particularly patients requiring intensive care, without regard to place of residence or history of travel.²

How do I test for NCoV (also known as HCoV-EMC)?

- Routine tests for acute pneumonia should be performed where indicated, including bacterial culture, serology, urinary antigen testing and tests for influenza viruses.
- Respiratory samples including upper respiratory tract viral swabs, nasopharyngeal aspirates, sputum, bronchoalveolar lavage fluid, lung biopsies and post-mortem tissues are suitable for testing for NCoV.
- Both standard infection control precautions and transmission-based contact and airborne precautions must be used when taking respiratory specimens. These are described in *NHMRC: Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010)*, (particularly section B2.4), and include the requirement for negative pressure air-handling and PPE including the use of gloves, gowns, P2 (N95) masks, eye protection and hand hygiene.

¹ A close contact is defined by WHO as:

- Anyone who provided care for the patient, including a health care worker or family member, or who had other similarly close physical contact OR
- Anyone who stayed at the same place (e.g. lived with, visited) as a probable or confirmed case while the case was ill

http://www.who.int/csr/disease/coronavirus_infections/InterimRevisedSurveillanceRecommendations_nCoV_infection_03Dec12.pdf Accessed 10 Dec. 12

² The lower threshold for investigation of HCWs with SARI without the requirement of a travel history is based on the experience with SARS where HCWs were disproportionately affected. Although HCoV-EMC is distantly related to the SARS CoV, they are different. Based on current information, HCoV-EMC does not appear to transmit easily between people, unlike SARS CoV. Investigation of HCW will also help determine whether the virus is distributed more widely in the human population beyond the three countries that have identified cases so far. Refer to

http://www.who.int/csr/disease/coronavirus_infections/update_20121130/en/index.html Accessed 10 Dec. 12

- Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment.
- Please contact the Public Health in your Local Health District to notify any suspect cases. If authorised by the local Public Health Unit, suitable samples from suspect cases should be referred to ICPMR, Westmead Hospital.
- Call the Clinical Microbiologist on call on 02 9845 6255 during business hours, or after-hours through the Westmead Hospital switch 02 9845 5555 about the referral, and mark the specimens URGENT.
- Samples should be transported in accordance with current regulatory requirements.

What are the recommended isolation and PPE recommendations for patients in hospital?

Until further information about the mode of transmission of NCoV is known, these recommendations on isolation and PPE take a deliberately cautious approach by recommending measures that aim to control the transmission of pathogens that can be spread by the airborne route. These measures are detailed in *NHMRC: [Australian Guidelines for the Prevention and Control of Infection in Healthcare \(2010\)](#)*, (particularly section B2.4). In summary, transmission-based precautions should include:

- Placement of the patient in a negative pressure room if available, or in a single room from which the air does not circulate to other areas
- Airborne transmission precautions, including routine use of a P2 (N95) mask, disposable gown, gloves, and eye protection when entering a patient care area
- Standard and contact precautions, including close attention to hand hygiene
- If transfer of the patient outside the negative pressure room is necessary, the patient must wear a correctly fitted submicron face mask (surgical mask) while they are being transferred and to follow respiratory hygiene and cough etiquette.

Case Definitions

1. Suspect Case (under investigation)

- A person with an acute respiratory infection, which may include history of fever or measured fever ($\geq 38^{\circ}\text{C}$) and cough, AND
- Suspicion of pulmonary parenchymal disease (e.g. pneumonia or Acute Respiratory Distress Syndrome (ARDS)), based on clinical or radiological evidence of consolidation, AND
- Residence in or history of travel to the Arabian Peninsula[§] or neighbouring countries within 10 days before onset of illness, OR
- Close contact with a PROBABLE or CONFIRMED case within 10 days before onset of illness, AND
- Not already explained by any other infection or aetiology, including all clinically indicated tests for community-acquired pneumonia according to local management guidelines. It is not necessary to wait for all test results for other pathogens before testing for NCoV.

2. Probable Case

- A person fitting the definition above of a “Suspect Case Under Investigation” with clinical, radiological, or histopathological evidence of pulmonary parenchyma 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, AND
- Close contact with a laboratory confirmed case, AND
- Not already explained by any other infection or aetiology, including all clinically indicated tests for community-acquired pneumonia according to local management guidelines.

3. Confirmed Case

- A person with laboratory confirmation of infection with the NCoV.

§ Countries of the Arabian Peninsula should be considered as: Jordan, Kuwait, Bahrain, Qatar, the United Arab Emirates (UAE), Oman, Yemen and the Kingdom of Saudi Arabia. Neighbouring countries include Israel, Egypt, Iraq, Iran and Syria.

Advice for contacts of cases

Contacts of cases should be directed to their local Public Health Unit for advice on 1300 066 055.

Who do I contact if I have a suspected case?

In NSW, suspected cases should be reported to the local Public Health Unit on 1300 066 055.

Useful links

For regular updates and technical information on NCoV see the World Health Organization Coronavirus Infections website http://www.who.int/csr/disease/coronavirus_infections/en/index.html