Case definition and infection prevention and control practices for 2019-novel Coronavirus (2019-nCoV) infections.

23 January 2020

Sources
WHO https://who.int/emergencies/diseases/novel-coronavirus-2019

Case definitions of clinical 2019-nCoV

The ECDC state that healthcare providers should be aware of the ongoing event and keep abreast of the new information on the novel coronavirus 2019-nCoV. According to current knowledge, the clinical signs and symptoms of disease include fever, cough and difficulty breathing with the radiological findings of viral pneumonia in chest radiographs. Travellers returning from China with a stay in Wuhan and symptoms of acute respiratory infection should be identified for testing and reported promptly to the respective healthcare authorities.

Criteria to guide evaluation of patients that should be investigated for 2019-nCoV infection (suspected case) issued by CDC and WHO are reported below:

<table>
<thead>
<tr>
<th>Clinical features</th>
<th>Epidemiological Risks</th>
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<tbody>
<tr>
<td>CDC</td>
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<tr>
<td>Fever AND symptoms of lower respiratory illness (e.g. cough, difficulty in breathing) AND</td>
<td>In the last 14 days before symptoms onset, a history of travel from Wuhan City, or rest of China) or in the last 14 days before symptoms onset, close contact with a person who is under investigation for 2019-nCoV while that person was ill</td>
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<tr>
<td>Fever OR symptoms of lower respiratory illness (e.g. cough, difficulty breathing) AND</td>
<td>In the last 14 days, close contact with an ill laboratory-confirmed 2019-nCoV patient</td>
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<td><strong>WHO</strong></td>
<td>1. Severe acute respiratory infection (SARI) in a person, with history of fever and cough requiring admission to hospital, with no other etiology that fully explains the clinical presentation (clinicians should also be alert to the possibility of atypical presentations in patients who are immunocompromised); AND any of the following</td>
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<td>2. A person with acute respiratory illness of any degree of severity</td>
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According with WHO, a **probable case** is a suspect case for whom testing for 2019-nCoV is inconclusive or for whom testing was positive for a pan-coronavirus assay. A confirmed case is a person with laboratory confirmation of 2019-nCoV infection, irrespective of clinical signs and signs.

**A Close contact** is defined as:

**WHO:**
- Health care associated exposure, including providing direct care for nCoV patients, working with health care workers infected with nCoV, visiting patients or staying in the same close environment of a nCoV patient.
- Working together in close proximity or sharing the same classroom environment with a with nCoV patient
- Traveling together with nCoV patient in any kind of conveyance
- Living in the same household as a nCoV patient
The epidemiological link may have occurred within a 14-day period before or after the onset of illness in the case under consideration.

**CDC:**
- being within approximately 6 feet (2 meters), or within the room or care area, of a novel coronavirus case for a prolonged period of time while not wearing recommended personal protective equipment or PPE (e.g., gowns, gloves, NIOSH-certified disposable N95 respirator, eye protection); close contact can include caring for, living with, visiting, or sharing a
healthcare waiting area or room with a novel coronavirus case.
– or –

b. having direct contact with infectious secretions of a novel coronavirus case (e.g., being coughed on) while not wearing recommended personal protective equipment.

Infection prevention and control

The CDC recommend that patients under investigation for 2019-nCoV should be asked to wear a surgical mask as soon as they are identified and be evaluated in a private room with the door closed, ideally an airborne infection isolation room if available. Healthcare personnel entering the room should use standard precautions, contact precautions, airborne precautions, and use eye protection (e.g., goggles or a face shield). Immediately notify your healthcare facility’s infection control personnel and local health department. For additional infection control practices the WHO interim guidance on infection prevention and control during health care when nCoV is suspected, is summarized below:

<table>
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<th>Strategies</th>
<th>Actions</th>
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<td>1. Early recognition and source control</td>
<td>Clinical triage including early recognition and immediate placement of patients in separate area from other patients. Healthcare facilities should: - Encourage HCWs to have a high level of clinical suspicion - Institute screening questionnaire and - Post signage in public areas reminding symptomatic patients to alert HCWs. Promotion of respiratory hygiene is an important preventative measure. For suspected nCoV patients additional IPC (droplet and contact) precautions should be promptly implemented.</td>
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<td>2. Application of Standard Precautions for all patients</td>
<td>Standard Precautions include - hand and respiratory hygiene; - use of Personal protective equipment (PPE) depending on risk; - prevention of needle-stick or sharps injury; - safe waste management; - environmental cleaning and sterilization of patient-care equipment and linen.</td>
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<td>3. Implementation of empiric additional precautions (droplet and contact and whenever applicable airborne precautions) for suspected cases</td>
<td>In addition to Standard Precautions, all individuals, including family members, visitors and HCWs should apply Contact and Droplet precautions</td>
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- Place patients in adequately ventilated single rooms. For naturally ventilated general ward rooms this is considered to be 160 L/second/patient;
- When single rooms are not available, cohort patients suspected of nCoV infection together;
- Place patient beds at least 1m apart;
- Where possible, cohort HCWs to exclusively care for cases to reduce the risk of spreading transmission due to inadvertent infection control breaches;
- Use a medical mask;
- Use eye/facial protection (i.e. goggles or a face shield);
- Use a clean, non-sterile, long-sleeved fluid resistant gown;
- Use gloves;
- Use either single use disposable equipment or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect between each patient use (e.g. ethyl alcohol 70%);
- Refrain from touching eyes, nose or mouth with potentially contaminated hands;
- Avoid the movement and transport of patients out of the room or area unless medically necessary. Use designated portable X-ray equipment and/or other important diagnostic equipment. If transport is required, use pre-determined transport routes to minimize exposures to staff, other patients and visitors and apply medical mask to patient;
- Ensure that HCWs who are transporting patients wear appropriate PPE as described in this section and perform hand hygiene;
- Notify the receiving area of necessary precautions as soon as possible before the patient’s arrival;
- Routinely clean and disinfect patient-contact surfaces;
- Limit the number of HCWs, family members and visitors in contact with a patient with suspected nCoV infection;
- Maintain a record of all persons entering the patient’s room including all staff and visitors.

**Airborne precautions for aerosol-generating procedures for suspected nCoV infection**
Ensure that HCWs performing aerosol-generating procedures:
- Use a particulate respirator at least as protective as a NIOSH-certified N95, EU FFP2 or equivalent;
- when putting on a disposable particulate respirator, always perform the seal-check. Note that if the wearer has facial hair (beard) this can prevent a proper respirator fit.
- Eye protection (i.e. goggles or a face shield);
- Clean, non-sterile, long-sleeved gown and gloves;
- If gowns are not fluid resistant, use a waterproof apron for procedures with expected high fluid volumes that might penetrate the gown;
- Perform procedures in an adequately ventilated room; i.e. at least natural ventilation with at least 160 l/s/patient air flow or negative pressure rooms with at least 12 air changes per hour (ACH) and controlled direction of air flow when using mechanical ventilation
- Limit the number of persons present in the room to the absolute minimum required for the patient’s care and support.

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<th>4. Administrative controls</th>
<th>- establishment of sustainable IPC infrastructures and activities;</th>
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<td>- HCWs training;</td>
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<td>- patients’ care givers education;</td>
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<td>- policies on early recognition of acute respiratory infection potentially due to nCoV, access to prompt laboratory</td>
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| **5. Environmental and engineering controls** | testing for identification of the etiologic agent;  
- prevention of overcrowding especially in the Emergency department;  
- provision of dedicated waiting areas for symptomatic patients and appropriate placement of hospitalized patients promoting an adequate patient-to-staff ratio; provision and use of regular supplies;  
- IPC policies and procedures for all facets of healthcare provisions - with emphasis on surveillance of acute respiratory infection potentially due to nCoV among HCWs and the importance of seeking medical care; and  
- monitoring of HCW compliance, along with mechanisms for improvement as needed. |

**EITaF Comment:**

Note that the infection is rapidly spreading in China outside Wuhan City, so all China should be considered a risk area for infection. 

Also note, that so far no secondary cases have been reported from other countries who have seen imported cases. The imported cases have all been infected in China.

Nicola Petrosillo & Eskild Petersen

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