Australian Nursing & Midwifery Federation

ANMF EVIDENCE BRIEF

COVID-19: SCREENING FOR SUSPECTED INFECTION STATUS

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Question: What is the best available evidence regarding screening for infection in the context of COVID-19?

***ALERT* Evidence regarding COVID-19 is continually evolving. This Evidence Brief will be updated regularly to reflect new emerging evidence but may not always include the very latest evidence in real-time.**

Key messages:

- Around 95 percent of infected people who eventually display symptoms will develop symptoms within around 4.8 days post-infection. The remaining 5 percent will develop symptoms after 14 days.

Summary

Background: COVID-19 (from 'severe acute respiratory syndrome coronavirus 2' (or 'SARS-CoV-2') is a newly discovered (novel) coronavirus first identified in Wuhan, Hubei province, China in 2019 as the cause of a cluster of pneumonia cases.[1] Coronaviruses are similar to a number of human and animal pathogens including some of those which cause the common cold as well as more serious illnesses including severe acute respiratory syndrome (SARS/ SARS-CoV-1) and Middle East respiratory syndrome (MERS). Since discovery, COVID-19 has spread to many countries and was declared a pandemic by the World Health Organization (WHO) on 30 January 2020.[2] The most at-risk individuals of infection are those in close contact with people with COVID-19 which includes healthcare workers. Some in-person screening activities may necessitate close contact between people who may be infected and healthcare workers. Because people infected with the COVID-19 virus may not display symptoms while still being infectious, or may not even know that they are infected,[3,4] screening must be carefully planned and conducted to ensure safety for both workers and other people.[5,6] The effectiveness of screening is also important to ensure that people who may be infected are accurately identified and that further testing and care (if necessary) can be organised and delivered.

Screening approaches

There are different approaches to screening to identify the possibility of COVID-19 infection. These have been implemented in different settings around the world. Screening for COVID-19 infection is different from testing; screening is done to identify people at potential risk of COVID-19 infection but cannot confirm infection status; testing occurs following screening and identification of at-risk status and is able to confirm whether someone is infected or not. Different jurisdictions in Australia and internationally have different criteria for testing which also change frequently as tests become more available.

While robust tools have been developed to test respiratory and serology/blood samples taken from symptomatic patients in well-equipped laboratories with real-time reverse transcriptase polymerase chain reaction-based assays and detection of antibodies, there are ongoing gaps regarding screening people including those during the viruses' incubation phase which appears to be around 4.8 days with a 95 percent confidence interval (CI) of 4.2-5.4 days and asymptomatic people who never develop symptoms (of 391 confirmed cases of COVID-19 infection, 6 percent did not develop any symptoms of infection and 26 percent only displayed mild symptoms at the first clinical assessment.)[7,8] One recent study also found that 95 percent of people who develop symptoms will do so within 14 days (95% CI of 12.2–15·9 days) of infection. This means that in about 5 percent of cases where symptoms eventually develop, these symptoms do not show until 14 days post-infection.[8]

Screening may occur in person or via telephone or videolink. Where in-person screening takes place, health care workers should be provided with correct personal protective equipment (PPE) - (gloves, gown, surgical mask, eye protection e.g. goggles, face shield) for contact and droplet precautions and should have been given education and training in its use. This is because these staff may come into contact with symptomatic individuals who are not aware that they are infected.

The purpose of screening is to identify people who may be infected by COVID-19 and either not know they are infected or suspect they may be due to the presence of symptoms, possible contact with a suspected or confirmed case, or for people who have recently travelled to or returned from another country, region, or location where potential contact/proximity with people with COVID-19 may occur. Screening can also be used to identify whether a person may pose an infection risk to others in the context of health and aged care or other workplaces or public settings. In these instances, staff or visitors may be screened to identify those who may have been infected prior to entering a building or facility and potentially putting others at risk of infection without even necessarily knowing they are infectious. This type of screening may be used to restrict entry for some people who may potentially be infected, such as preventing visitors to hospitals or aged care facilities, or preventing health and aged care staff from working. Some in-person screening processes involve taking the person's temperature to detect an elevated temperature which may indicate fever (i.e. 38.3 degrees Celsius or above). Fever is a possible symptom of COVID-19 infection but also many other diseases also (e.g. influenza), fever may also not be present among people who are infected with COVID-19, so is unlikely to be a strong, reliable indication of infection status without the presence of other risk factors.[6]

For people who are identified through screening, to be a potential infection risk, it is important that they are clearly and sensitively notified of their potential infective status, given clear instruction regarding what they need to do to protect themselves and others based on local policy, and efficiently and safely referred to a local testing facility according to local protocols to investigate whether COVID-19 infection is present. If a person is exhibiting symptoms consistent with COVID-19, they should be given a single-use surgical mask and instructed on how to correctly use and dispose of it.

Initial screening over the phone or by video is a useful tool to reduce the risk of transmission between people with the COVID-19 virus and others including healthcare workers who do not.[9] If possible, videolink with the patient rather than a carer or parent is a preferred approach as it enables utilisation of visual cues and therapeutic presence which may avoid the need for an in-person visit.[10] The following symptoms and signs should be queried:[10]

- Date of symptom onset
- Indigenous status (important for testing criteria)
- Key symptoms: fever, shortness of breath, dry cough, muscle aches, tiredness
- Other symptoms: sore throat, headache, runny nose, diarrhoea, and nausea

Epidemiological assessment should include assessment of:[11]

- Close contact in the 14 days prior to onset of symptoms with a confirmed or probable case of COVID-19
- Travel to an area with increased risk of transmission (e.g. overseas, interstate, cruise ship, or area in Australia with an elevated risk of community transmission) in the 14 days prior to onset of symptoms
- Health care worker, aged care, or residential care worker status
- Whether the person resides in a facility with two or more plausibly linked cases of illness clinically consisted with COVID-19

Following screening of signs, symptoms, and epidemiological assessment, nasopharyngeal testing to detect the SARS-CoV-2 virus should be arranged if the patient meets local testing criteria.[10]

During screening, patients should also be screened for additional risk factors for developing more severe illness. Potential risk factors for more severe illness include:[10]

- Age
- Smoking status
- Comorbidities: lung disease, including COPD, asthma, or bronchiectasis, cardiovascular disease, including hypertension, immunocompromised states (e.g. diabetes, chronic kidney or liver disease, taking chemotherapy, steroids, or other immunosuppressants)

The degree of breathlessness should be assessed by asking the person to describe their presenting problem in their own words.[10] The healthcare worker can then assess the ease and comfort of their speech. The impact of their symptoms on their usual daily activities should also be assessed. There should be a focus on any changes in breathing from normal, such as a new audible wheeze.[10] Healthcare workers conducting the screening should also be aware of potential differential diagnoses; influenza is more likely to produce body aches, whilst COVID-19 is more likely to produce shortness of breath.[10] Serious differential diagnoses include; bacterial pneumonia, meningitis, and sepsis.[10]

In-person screening for possible COVID-19 infection should only occur if diagnosis of moderate or severe illness cannot be excluded via tele- or video-health.[9] Healthcare workers engaging in in-person screening should follow up to date national advice for non-inpatient care of people with suspected or confirmed COVID-19, including the use of PPE (gloves, gown, surgical mask, eye protection e.g. goggles, face shield).[9] Further to the details described above for tele- or video-health links, screening in person can also include an assessment of oxygen saturation, and if normal, consider repeating after gentle exercise (e.g. walking around the clinic carpark if safe to do so) as well as assessment of other vital signs.[9]

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