



**Australian Government**  
**Department of Health**

# COMMUNICABLE DISEASES INTELLIGENCE

2020      Volume 44  
<https://doi.org/10.33321/cdi.2020.44.14>

## **COVID-19, Australia: Epidemiology Report 2**

Reporting week ending 19:00 AEDT 8 February 2020

COVID-19 National Incident Room Surveillance Team

# Communicable Diseases Intelligence

ISSN: 2209-6051 Online

This journal is indexed by Index Medicus and Medline.

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Communicable Diseases Intelligence (CDI) is a peer-reviewed scientific journal published by the Office of Health Protection, Department of Health. The journal aims to disseminate information on the epidemiology, surveillance, prevention and control of communicable diseases of relevance to Australia.

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## Weekly epidemiological report

# COVID-19, Australia: Epidemiology Report 2

Reporting week ending 19:00 AEDT 8 February 2020

COVID-19 National Incident Room Surveillance Team

### Summary

This is the second epidemiological report for coronavirus disease 2019 (COVID-19), previously known as novel coronavirus (2019-nCoV), reported in Australia as at 19:00 Australian Eastern Daylight Time [AEDT] 8 February 2020. It includes data on Australian cases notified during the week ending 19:00 AEDT 8 February 2020, the international situation and current information on the severity, transmission and spread of the COVID-19 infection.

Keywords: novel coronavirus; 2019-nCoV; COVID-19; acute respiratory disease; case definition; epidemiology; Australia

*The following epidemiological data are subject to change both domestically and internationally due to the rapidly evolving situation. Australian cases are still under active investigation. While every effort has been made to standardise the investigation of cases nationally, there may be some differences between jurisdictions.*

#### **In Australia:**

- A total of fifteen cases of COVID-19 infection were notified up until 19:00 AEDT 8 February 2020;
- All fifteen cases reported a travel history to China, and 80% (12/15) had a travel history to Wuhan, Hubei Province, China;
- All five Queensland cases were in a small tour group of nine people;
- The three Queensland cases reported this week are consistent with secondary transmission from the index Queensland case prior to isolation;
- Isolation and quarantine actions undertaken for the Queensland cases appear to have successfully prevented further transmission

from the isolated tour group;

- Zero deaths were reported; and
- Three days elapsed since the onset of illness in the latest confirmed case at the date of this report.

#### **Internationally:**

- Case numbers are increasing rapidly with 34,886 infections confirmed globally;
- The majority of confirmed infections (34,546) were reported in mainland China, as well as 721 deaths; and
- Two deaths were reported outside mainland China, one each in Hong Kong and the Philippines.

## Domestic cases

There were fifteen confirmed cases reported in Australia at 19:00 AEDT 8 February 2020 (Table 1). Cases were reported in New South Wales (n = 4), Victoria (n = 4), Queensland (n = 5) and South Australia (n = 2). The first onset of signs and symptoms in a case occurred on 13 January 2020 (Figure 1). The median age of cases was 43 (range 8–66) years. The male-to-female ratio was 1.5:1. 93% of cases (14/15) reported fever and/or chills and 73% (11/15) reported cough. Two cases were reported with pneumonia (Figure 2). Approximately 73% (11/15) of cases were hospitalised for clinical management and infection control. The remaining cases, in accordance with infection control procedures, were assessed to be well enough to self-isolate at home. One case, previously reported as admitted to an Intensive Care Unit (ICU), was actually admitted to a negative pressure isolation room in an ICU for infection control reasons.

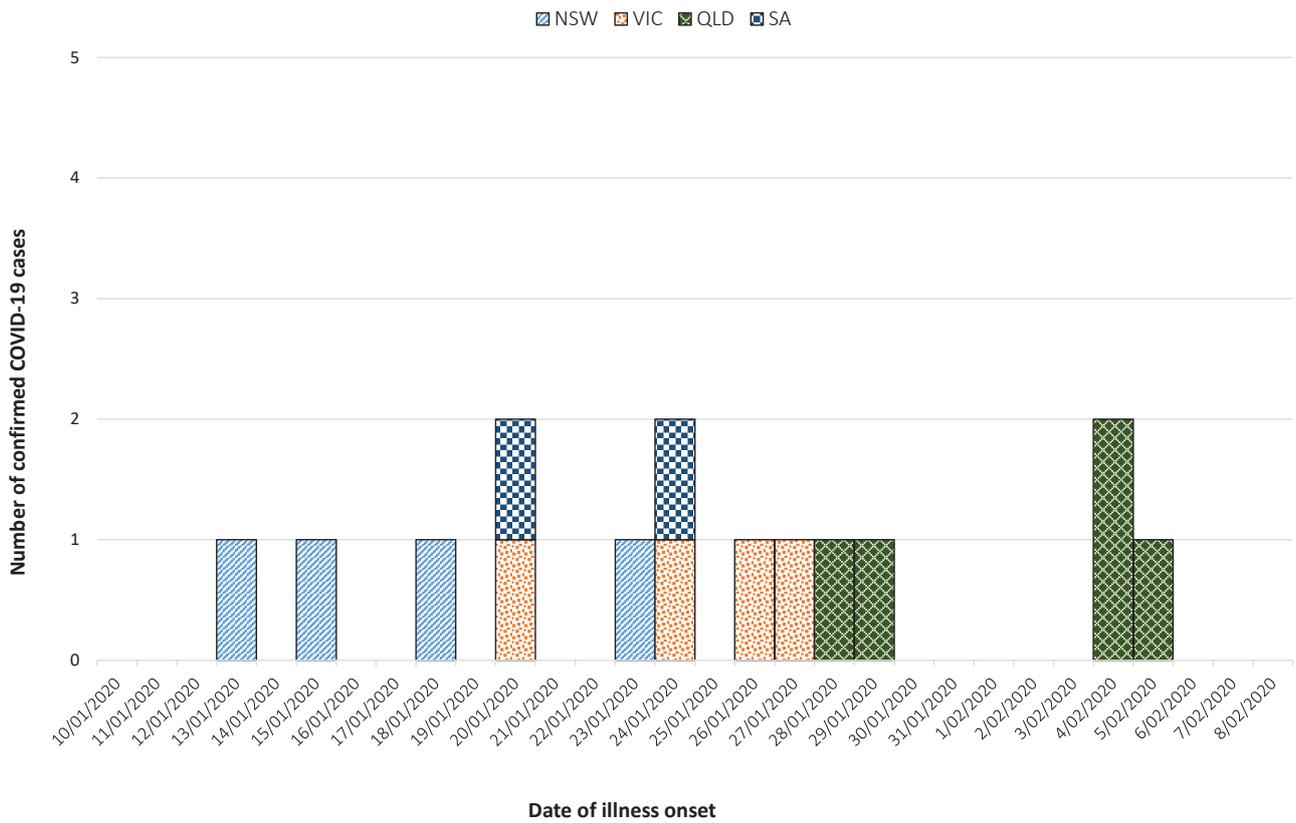
The clinical course of infection was unavailable from these preliminary data. No deaths were reported.

A travel history to Wuhan, Hubei Province, China was reported in 80% of cases (12/15). The remaining three cases from mainland China were epidemiologically linked to laboratory-confirmed cases from Wuhan. The five laboratory-confirmed cases from Queensland were all part of a tour group of nine people from mainland China. The index case was isolated on presentation to hospital and all others within the tour group were quarantined. Four of those in quarantine were subsequently confirmed as cases, one of whom was a co-primary case, who like the index case had been in Wuhan, Hubei Province during the 14 days prior to illness onset. The other three cases were consistent with secondary transmission from the index case prior to isolation.

**Table 1: Cumulative notified cases of confirmed COVID-19 by jurisdiction, Australia, 2020**

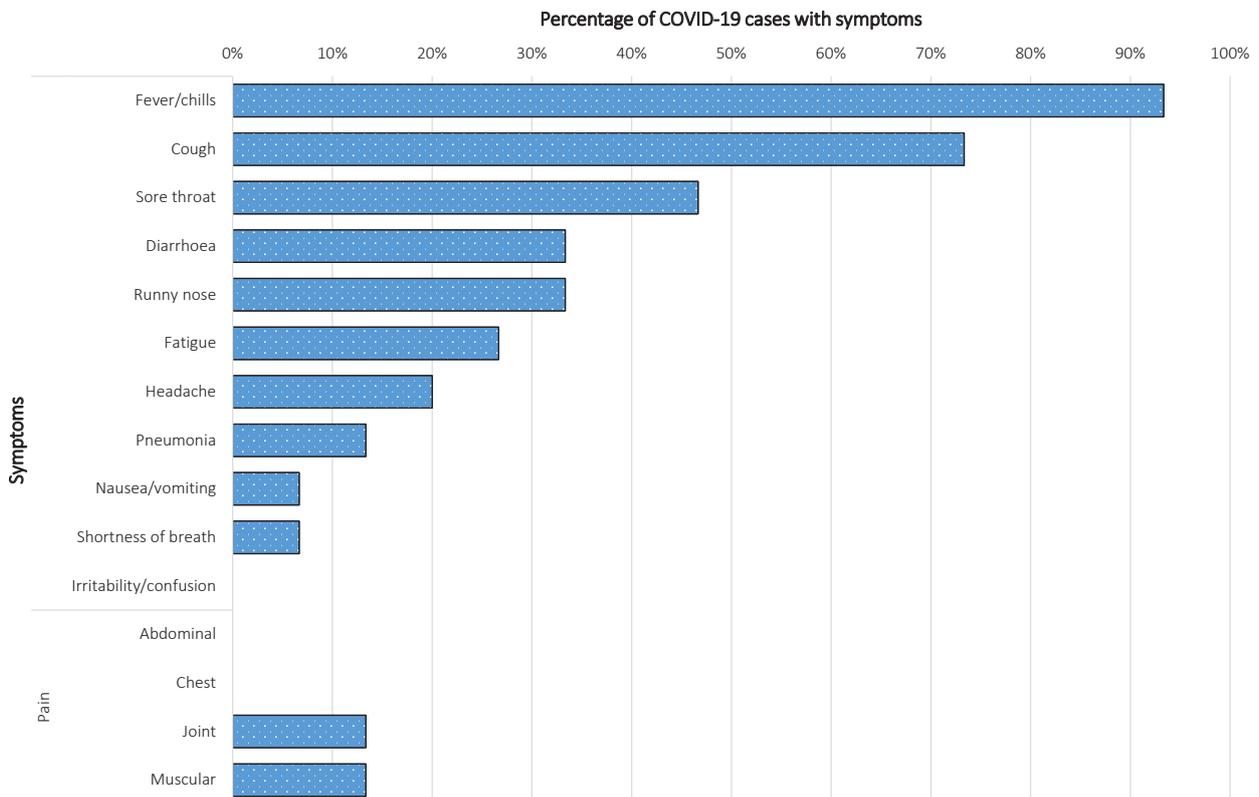
Jurisdiction	This week (to 19:00 AEDT 8 Feb) No. of cases	Last week (to 19:00 AEDT 1 Feb) No. of cases	Total cases (to 19:00 AEDT 8 Feb 2020) No. of cases
NSW	0	0	4
Vic	0	2	4
Qld	3	2	5
WA	0	0	0
SA	0	2	2
Tas	0	0	0
NT	0	0	0
ACT	0	0	0
<b>Total cases</b>	<b>3</b>	<b>6</b>	<b>15</b>

Figure 1: Confirmed cases of COVID-19 infection by date of illness onset, Australia 2020 (n = 15)<sup>a</sup>



a Date of illness onset for South Australian cases has been corrected since Epidemiology Report 1.<sup>1</sup>

Figure 2: Signs and symptoms reported by COVID-19 cases in Australia, 2020 (n = 15)



The isolation and quarantine actions undertaken at identification of the index case appear to have successfully limited further transmission to the isolated tour group. No further cases were identified amongst close contacts who had travelled on the same flight, all of whom have now completed a 14 day quarantine period.

## International cases

As at 19:00 AEDT 8 February 2020, the number of confirmed COVID-19 cases was 34,886 globally (Table 2).<sup>2</sup> Mainland China reported 99% of cases (34,546) and 721 deaths. Twenty-seven countries and Special Administrative Regions outside of mainland China reported 276 confirmed COVID-19 cases. Two deaths were reported outside of mainland China, a 44-year-old male Wuhan resident in the Philippines and a 39-year-old male Hong Kong resident with recent travel to Wuhan. A cruise ship with approximately 3,700 passengers and crew quarantined in Japanese territorial waters reported 64 confirmed COVID-19 cases.

## Background

The World Health Organization (WHO) declared the outbreak of COVID-19 a Public Health Emergency of International Concern (PHEIC) on 30 January 2020.<sup>3</sup>

Cases were initially associated with exposure to a wet market – located in Wuhan, Hubei Province, China – indicating a possible zoonotic source. Sustained human-to-human transmission is now likely to be occurring in the majority of provinces outside of Hubei Province in China. Eleven countries (France, Germany, Japan, Malaysia, Republic of Korea, Singapore, Spain, Thailand, the UK, USA and Vietnam) report possible or confirmed transmission in close contact settings outside of China.<sup>2,4</sup> There is no evidence of widespread sustained community transmission in these countries.

In an effort to contain the spread of the virus, Chinese authorities imposed a lockdown on the city of Wuhan on 23 January 2020, suspending all

public transport including international flights.<sup>5</sup> The measure was extended to neighbouring cities in Hubei Province over subsequent days, quarantining an estimated 50 million people.<sup>6</sup>

Following advice from the Australian Health Protection Principle Committee (AHPPC) to substantially reduce the volume of travellers coming from mainland China, additional border measures were implemented in Australia. From 1 February 2020, Australia has denied entry to anyone who had left or transited through mainland China, with the exception of Australian citizens, permanent residents and their immediate family and air crew who have been using appropriate personal protective equipment.<sup>7</sup> Australia implemented these measures to slow the spread of COVID-19 into the country and to prepare healthcare services and laboratories for a targeted response.

*The current estimates on epidemiological parameters including severity, transmissibility and incubation period are uncertain. Estimates are likely to change as more information becomes available.*

## Severity

Patients with COVID-19 infection present with a wide range of symptoms. Most seem to have mild disease, and about 18% appear to progress to severe disease, including pneumonia, respiratory failure and in some cases death.<sup>2,8</sup> Fever, dry non-productive cough and fatigue are common symptoms.

Reports from China on the clinical presentation are limited to novel coronavirus-infected pneumonia (NCIP) patients. Of patients with NCIP, 30% develop difficulty breathing five days after onset of illness (range 1–10 days).<sup>9,10</sup> The median time from onset of illness to hospitalisation for NCIP patients was seven days (range 4–8 days), with acute respiratory distress syndrome (ARDS) experienced on day eight (range 6–12 days).<sup>10</sup> Of 138 NCIP patients, approximately a quarter required ICU admission (2% receiving high-flow oxygen, 11% non-invasive ventilation,

**Table 2: Cumulative confirmed cases of COVID-19 globally, 2019–2020**

Country / Special Administrative Region	This reporting week (to 19:00 AEDT 8 Feb 2020)	Total cases (from Dec 2019) <sup>a</sup>
Mainland China	22,755	34,546
Cruise ship	64	64
Singapore	17	33
Thailand	13	32
Hong Kong	13	26
Japan	8	25
Republic of South Korea	12	24
Taiwan	6	16
Australia	3	15
Malaysia	7	15
Germany	7	14
Vietnam	7	13
United States of America	5	12
Macau	3	10
Canada	3	7
United Arab Emirates	3	7
France	0	6
India	2	3
Italy	1	3
Philippines	2	3
United Kingdom	1	3
Russian Federation	0	2
Belgium	1	1
Cambodia	0	1
Finland	0	1
Nepal	0	1
Spain	0	1
Sri Lanka	0	1
Sweden	0	1
<b>Total</b>	<b>22,933</b>	<b>34,886</b>

a Data taken from WHO Situation Reports.

9% invasive ventilation and 3% extracorporeal membrane oxygenation (ECMO)).<sup>10</sup> ICU patients were typically older than 65 years and had a greater number of comorbidities.

The true fatality rate for COVID-19 cannot be presently calculated. Diagnosis of COVID-19 will precede death or recovery by days to weeks. The number of deaths should be compared to past confirmed cases, taking into account this lag period and estimating the fraction of mild under-reported disease.<sup>11</sup> Spatio-temporal variations of the crude fatality rate (deaths/confirmed cases) are seen in Hubei Province, 2.8% (699/24,953) compared to other provinces in China, 0.2% (23/9593) and may reflect a focus in Hubei Province on diagnosing and treating severe disease and/or a health system struggling to provide supportive care to a large volume of patients during the epidemic.

## Transmission

The exact nature of transmission is poorly understood. The WHO has reported 'during previous outbreaks due to other coronavirus (Middle-East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS)), human-to-human transmission occurred through droplets, contact and fomites, suggesting that the transmission mode of the 2019-nCoV can be similar'.<sup>12</sup> The basic reproductive number,  $R_0$ , indicates the contagiousness of an infectious disease and is defined as the average expected number of secondary cases produced by a single infection in a completely susceptible population. Chinese authorities reported a preliminary  $R_0$  of 1.4–2.5 on 23 January 2020 to the WHO International Health Regulations (2005) Emergency Committee.<sup>13</sup> On 31 January 2020, Thailand reported its first instance of close community human-to-human transmission (not within a household setting).<sup>14</sup>

China and France have reported hospital-related transmission.<sup>10,15</sup> In one study from Wuhan, of 138 NCIP patients 41% were presumed infected in the hospital, including 40 healthcare workers.<sup>10</sup> Media have reported shortages of masks

and personal protective equipment in Hubei Province due to the quarantine measures which may have exacerbated the high proportion of hospital-related infections in this study.<sup>16</sup> A reverse transcription polymerase chain reaction (RT-PCR)-confirmed asymptomatic child was described with radiological signs of pneumonia reported from a family cluster in Shenzhen, although onward transmission from this case was not documented.<sup>17</sup> A report describing a suspected asymptomatic transmission in Germany was proven inaccurate once health officials interviewed the patient directly.

## Incubation period

Current estimates of the incubation period of COVID-19 from the WHO range from 2 to 10 days, with these estimates to be refined as more data become available.<sup>12</sup> A recently-published article characterising the first 425 cases in Wuhan, Hubei Province China estimated the mean incubation period to be 5.2 days (95% confidence interval, 4.1–7.0 days) with the 95<sup>th</sup> percentile of the distribution at 12.5 days.<sup>18</sup> A modelling paper using known travel history to and from Wuhan and symptom onset date in 88 exported cases calculated the mean incubation period to be 6.4 days (95% confidence interval, 5.6–7.7 days) ranging from 2.1 to 11.1 days (2.5<sup>th</sup> and 97.5<sup>th</sup> percentile).<sup>19</sup> Both reports support the use of 14 days as the upper limit of the incubation period used in the Australian interim advice.<sup>20</sup>

## Recommendations for control

The WHO recommends the general public reduce their exposure and transmission to COVID-19 by:

- Frequently cleaning hands by using alcohol-based hand rub or soap and water;
- When coughing and sneezing cover mouth and nose with flexed elbow or tissue – throw tissue away immediately and wash hands;
- Avoid close contact with anyone who has

fever and cough; and

- If you have a fever, cough and difficulty breathing seek medical care early and share previous travel history with your health care provider.

## Treatment

Currently there is no specific medication recommended for COVID-19. Antibiotics are not effective against viruses. A number of antiviral medications will be trialled to assess whether they can be used to treat COVID-19. Experimental vaccines are also in development.

Clinical care of suspected patients with COVID-19 should focus on early recognition, immediate isolation, implementation of appropriate infection prevention and control measures and provision of optimised supportive care.<sup>8</sup>

## Methods

Data for this report were current as at 19:00 hours AEDT, 8 February 2020.

This report outlines what is known epidemiologically on COVID-19 in Australia and from publicly available data from WHO Situation Reports, other countries' official updates and the scientific literature. Data on domestic cases in this report were collected from National Notifiable Diseases Surveillance System (NNDSS) and state and territory case investigation reports. The Communicable Diseases Network Australia (CDNA) developed the case definition for suspected and confirmed cases, which was modified at different time points in the epidemic (23 and 27 January and 2, 4, 6 and 7 February 2020) (Table 3). CDNA developed national guidance on investigating suspected and confirmed cases of COVID-19. Based on this guidance, state and territory health department investigators conducted interviews of suspected cases to collect core and enhanced data for inclusion in NNDSS. Data were analysed using Stata to describe the epidemiology of infections in Australia and the progress of the epidemic.

Previous case definitions are provided in Appendix A.

Data for the international cases of COVID-19 by country were compiled from the latest WHO Situational Report. Case definitions may vary by country making comparisons difficult. Rapid reviews of the current state of knowledge on COVID-19 were conducted from the literature using PubMed.

## Acknowledgements

This report represents surveillance data reported through CDNA as part of the nationally coordinated response to COVID-19. We thank public health staff from incident emergency operations centres in state & territory health departments, and the Australian Government Department of Health; along with state and territory public health laboratories.

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Table 3: Australian COVID-19 case definition as of 8 February 2020<sup>20</sup>

Version	Date of development	Suspected Cases	Confirmed Cases
1.5	7 February 2020	<p>As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the clinical criteria below. If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.</p> <p><b>Epidemiological criteria</b></p> <ul style="list-style-type: none"> <li>• Travel to (including transit through) mainland China in the 14 days before the onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Close or casual contact in 14 days before illness onset with a confirmed case of COVID-19.</li> </ul> <p><b>Clinical criteria</b></p> <ul style="list-style-type: none"> <li>• Fever</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Acute respiratory infection (e.g. shortness of breath or cough) with or without fever</li> </ul>	<p>A person who tests positive to a specific COVID-19 PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.</p>

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## Appendix A – Previous case definitions and contact definitions

Version	Date of development	Suspected Cases	Confirmed Cases
		As the full clinical spectrum of illness is not known, clinical and public health judgement should also be used to determine the need for testing in patients who do not meet the clinical criteria below. If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.	A person who tests positive to a specific COVID-19 PCR test (when available) or has the virus identified by electron microscopy or viral culture, at a reference laboratory.
1.4	6 February 2020	<p><b>Epidemiological criteria</b></p> <ul style="list-style-type: none"> <li>Travel to (including transit through) mainland China in the 14 days before the onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Close or casual contact<sup>a</sup> in 14 days before illness onset with a confirmed or suspected case of COVID-19.</li> </ul> <p><b>Clinical criteria</b></p> <ul style="list-style-type: none"> <li>Fever.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.</li> </ul>	
1.3	4 February 2020	<p><b>Epidemiological criteria</b></p> <ul style="list-style-type: none"> <li>Travel to (including transit through) mainland China in the 14 days before the onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Close contact<sup>a</sup> in 14 days before illness onset with a confirmed or suspected case of COVID-19.</li> </ul> <p><b>Clinical criteria</b></p> <ul style="list-style-type: none"> <li>Fever.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Acute respiratory infection (e.g. shortness of breath or cough) with or without fever.</li> </ul>	
1.2	2 February 2020	<p><b>Epidemiological criteria</b></p> <ul style="list-style-type: none"> <li>Travel to (including transit through) mainland China in the 14 days before the onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>Close contact<sup>a</sup> in the 14 days before illness onset with a confirmed or suspected case of COVID-19.</li> </ul> <p><b>Clinical criteria</b></p> <ul style="list-style-type: none"> <li>Acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat) with or without fever or history of fever.</li> </ul>	

Version	Date of development	Suspected Cases	Confirmed Cases
1.1	27 January 2020	<p><b>Epidemiological criteria</b></p> <ul style="list-style-type: none"> <li>• Travel to Hubei Province, China in the 14 days before the onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Travel to agreed areas of human-to-human transmission, or a declared outbreak, within 14 days before onset of illness</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Close contact<sup>a</sup> in 14 days before illness onset with a case of COVID-19.</li> </ul> <p><b>Clinical criteria</b></p> <ul style="list-style-type: none"> <li>• Fever or history of fever (<math>\geq 38</math> °C) and acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat)</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Severe acute respiratory infection requiring admission to hospital with clinical or radiological evidence of pneumonia or acute respiratory distress syndrome (i.e. even if no evidence of fever)</li> </ul>	
1.0	23 January 2020	<p><b>Epidemiological criteria</b></p> <ul style="list-style-type: none"> <li>• Travel to Wuhan City (Hubei Province, China) in the 14 days before the onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Travel to an area with evidence of sustained human-to-human transmission, or a declared outbreak, within 14 days before onset of illness.</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Close contact<sup>a</sup> in 14 days before illness onset with a case of COVID-19.</li> </ul> <p><b>Clinical criteria</b></p> <ul style="list-style-type: none"> <li>• Fever or history of fever (<math>\geq 38</math> °C) and acute respiratory infection (sudden onset of respiratory infection with at least one of: shortness of breath, cough or sore throat).</li> </ul> <p>OR</p> <ul style="list-style-type: none"> <li>• Severe acute respiratory infection requiring admission to hospital with clinical or radiological evidence of pneumonia or acute respiratory distress syndrome (i.e. even if no evidence of fever).</li> </ul>	

a Full details on the definition of a close contact are available on the Australian Government Department of Health CDNA National Guidelines for Public Health Units 2019-nCoV.<sup>20</sup>