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COVID-19, Australia: Epidemiology Report 5:

Reporting week ending 19:00 AEDT 29 February 2020

COVID-19 National Incident Room Surveillance Team

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Editor

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Design and Production

Kasra Yousefi

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Website

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Contacts

Communicable Diseases Intelligence is produced by:
Health Protection Policy Branch
Office of Health Protection
Australian Government
Department of Health
GPO Box 9848, (MDP 6)
CANBERRA ACT 2601

Email:

cdi.editor@health.gov.au

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Weekly epidemiological report

COVID-19, Australia: Epidemiology Report 5:

Reporting week ending 19:00 AEDT 29 February 2020

COVID-19 National Incident Room Surveillance Team

Summary

This is the fifth epidemiological report for coronavirus disease 2019 (COVID-19), reported in Australia as at 19:00 Australian Eastern Daylight Time [AEDT] 29 February 2020. It includes data on COVID-19 cases diagnosed in Australia, the international situation and a review of current evidence.

Keywords: SARS-CoV-2; novel coronavirus; 2019-nCoV; coronavirus disease 2019; 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:

- 25 COVID-19 cases were notified up until 19:00 AEDT 29 February 2020;
- The first 15 cases are all considered to have had a direct or indirect link to Wuhan, Hubei Province, China;
- Nine cases were among the 'Diamond Princess' cruise ship passengers repatriated from Japan to the Northern Territory on 20 February 2020;
- The most recent case in Queensland had travelled from Iran;
- There were zero deaths at time of reporting;
- On 27 February 2020, the Australian Health Protection Principal Committee (AHPPC) recommended that the current travel restrictions for mainland China remain in place for a further seven days; and
- On 29 February 2020, travel restrictions were announced for travellers from Iran.

Internationally:

- 85,403 infections have been confirmed globally, with 2,924 deaths;
- The majority of confirmed infections (93%; n = 79,251) and deaths (97%; n = 2,835) have been reported in mainland China;
- On 26 February 2020, the number of cases reported in a 24 hour period from outside mainland China exceeded the number of cases from mainland China for the first time;
- All passengers from the ‘Diamond Princess’ cruise ship have now disembarked and remaining staff will complete 14 days quarantine in Japan;
- Eighty-nine deaths were reported outside mainland China – 34 in Iran (Islamic Republic of), 21 in Italy, 17 in Republic of Korea, six associated with the ‘Diamond Princess’, five in Japan, two each in Hong Kong and France and one each in the Philippines and Taiwan; and
- Republic of Korea, Italy and Iran are now reporting high levels of transmission.

Domestic cases

There were 25 confirmed cases reported in Australia as at 19:00 AEDT 29 February 2020 (Table 1). Nine (36.0%) of the 25 confirmed cases were among the ‘Diamond Princess’ cruise ship passengers repatriated from Japan (n=164) to the Northern Territory on 20 February 2020. The remaining cases were reported in New South Wales (n = 4), Victoria (n = 4), Queensland (n = 6) and South Australia (n = 2). The first 15 cases all had direct or indirect links to Wuhan. The most recent case in Queensland had returned from Iran and was the first Australian case not linked to the outbreaks in Wuhan or on the ‘Diamond Princess’.¹

The first case in Australia reported onset of symptoms on 13 January 2020 (Figure 1). The median age of all 25 reported Australian cases was 53 years (range 8–79 years) with a male-to-female ratio of 1:1.3. The following analysis involves 23 out of 25 cases who had detailed data available at the time of reporting. Sixteen cases (69.6%) reported fever, 12 cases (52.2%) reported cough, and nine (39.1%) had a sore throat. Two cases (8.7%) were reported to have pneumonia and five (21.7%) reported diarrhoea. Four cases

had no symptoms recorded. Seven cases were reported as having no comorbidities and one case was reported as having diabetes. The first 15 cases have been reported to have recovered, and no deaths were recorded at time of reporting.

Twenty cases had recorded onset of symptoms prior to laboratory testing. The median time between onset of symptoms and testing in these cases was 2 days (range 0–10 days). From these cases, those associated with the ‘Diamond Princess’ (n = 6) had a median time between onset of symptoms and testing of 2 days (range 0–5 days), whilst the remaining cases (n=14) had a median time of 2.5 days (range 0–10 days) between onset of symptoms and testing. The slightly shorter time from symptom onset to testing in the ‘Diamond Princess’ cohort may be because they were under active surveillance for COVID-19. Two cases were tested prior to recorded onset of symptoms and one case did not have a date of symptom onset or any symptoms recorded.

No cases have been detected among Australians who have returned from mainland China since 1 February 2020 or among students from mainland China.² Evidence of limited second-

Table 1: Cumulative notified cases of confirmed COVID-19 by jurisdiction, Australia, 2020 (n = 25)

Jurisdiction	This week (to 19:00 AEDT 29 Feb) No. of cases	Last week (to 19:00 AEDT 22 Feb) No. of cases	Total cases (to 19:00 AEDT 29 Feb 2020) No. of cases
NSW	0	0	4
Vic	0	0	4
Qld	1	0	6
WA	0	0	0
SA	0	0	2
Tas	0	0	0
NT	0	0	0
ACT	0	0	0
Repatriation (Diamond Princess)	2	7	9
Total cases	3	7	25

ary transmission of COVID-19 in Australia is thought to have occurred for three cases who were part of a five-person cluster identified in Queensland. There is currently no evidence of community transmission within Australia.

International cases

As at 19:00 AEDT 29 February 2020, the number of confirmed COVID-19 cases reported to the World Health Organization (WHO) was 85,403 globally (Table 2). Whilst mainland China reported 92.8% of cases (n = 79,251), this is a decrease from 98.1% on 22 February 2020 as the proportion of new cases reported from outside of mainland China increased over the last week. On 26 February 2020, the number of new cases outside of mainland China exceeded the number reported from mainland China for the first time and this trend has continued to date (Figure 2). Fifty-six countries and Special Administrative Regions outside of mainland China have reported a total of 5,447 confirmed COVID-19 cases. There were an additional 705 confirmed cases on the cruise ship ‘Diamond Princess’. Republic of Korea reported 51.2% of all cases outside of mainland China (n = 3,150), Italy reported 14.4% (n = 888), Iran (Islamic Republic of) 6.3% (n = 388) and Japan 3.7% (n = 230).³

Twenty-five new countries or Member States (Afghanistan, Algeria, Austria, Bahrain, Belarus, Brazil, Croatia, Denmark, Estonia, Georgia, Greece, Iraq, Kuwait, Lithuania, Mexico, Netherlands, New Zealand, Nigeria, Norway, North Macedonia, Oman, Pakistan, Romania, San Marino, Switzerland) reported cases of COVID-19 in the past seven days. Eastern Mediterranean and European regions had the greatest growth in number of new countries reporting cases. The first African and South American countries reported cases over the last seven days. Two new countries (Croatia and San Marino) have reported possible or confirmed limited local transmission since the last report on 22 February 2020. Reports suggest sustained local transmission is evident in Republic of Korea, Italy and Iran. Vietnam, Philippines, Cambodia, Russia, Belgium, India, Nepal, Sri Lanka, and Egypt have not reported any new cases for at least 14 days.³

Globally, 2,924 deaths have been reported, with 93.3% (n = 2,727) reported from Hubei Province, China. Eighty-nine deaths were reported outside mainland China: 34 in Iran, 21 in Italy, 17 in Republic of Korea, six from the ‘Diamond Princess’, five in Japan, two each in Hong Kong and France and one each in the Philippines and Taiwan.³

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

Country / Special Administrative Region	This reporting week (to 19:00 AEDT 29 Feb 2020)	Last reporting week (to 19:00 AEDT 22 Feb 2020)	Total cases (from Dec 2019) ^a	Total deaths (from Dec 2019) ^a
Mainland China (total)	2,963	9,796	79,251	2,835
<i>(Hubei Province)</i>	2,883	9,048	66,337	2,727
Republic of Korea	2,804	318	3,150	17
Italy	879	6	888	21
Diamond Princess cruise ship	71	416	705	6
Iran (Islamic Republic of)	370	18	388	34
Japan	125	64	230	5
Singapore	12	19	98	0
Hong Kong	26	12	94	2
United States of America	27	20	62	0
France	45	1	57	2
Germany	41	0	57	0
Kuwait	45	0	45	0
Thailand	7	1	42	0
Taiwan	13	8	39	1
Bahrain	38	0	38	0
Spain	30	0	32	0
Australia	3	6	24 ^b	0
Malaysia	2	1	24	0
United Kingdom	11	0	20	0
United Arab Emirates	8	3	19	0
Vietnam	0	0	16	0
Canada	6	1	14	0

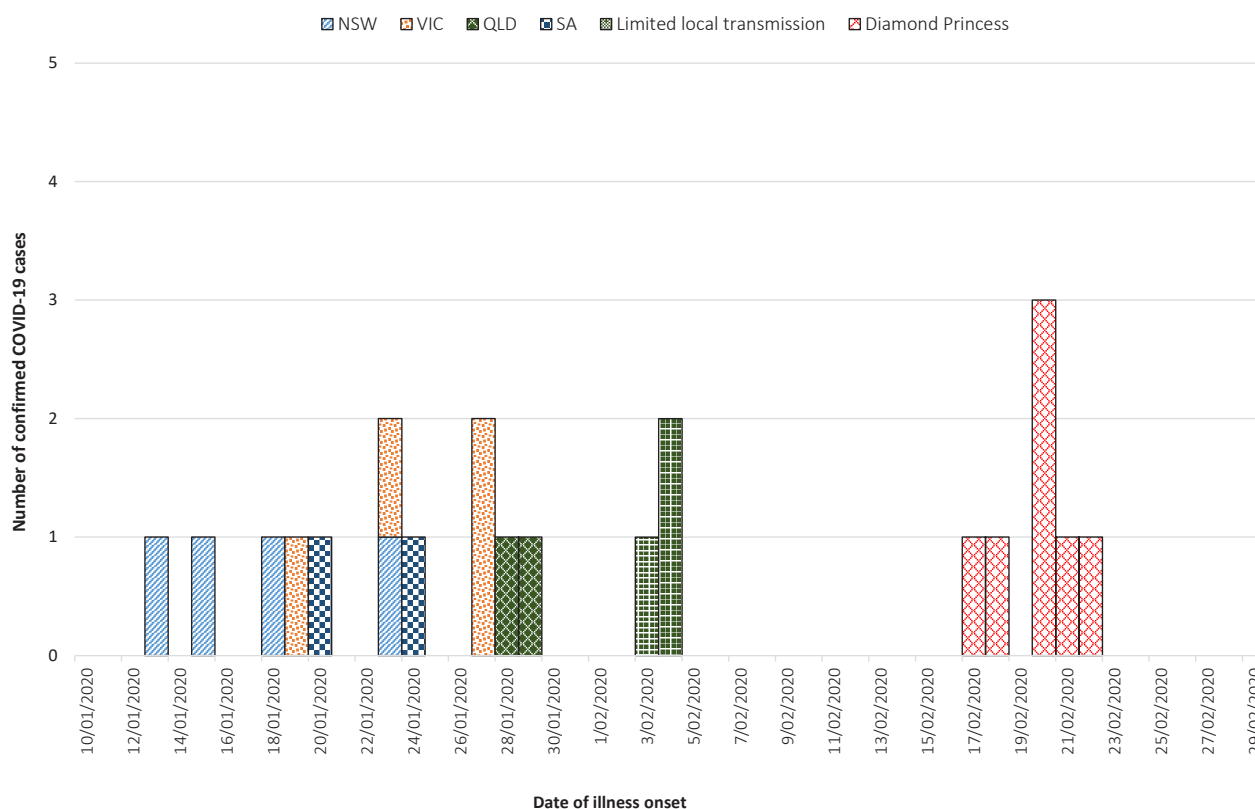
Country / Special Administrative Region	This reporting week (to 19:00 AEDT 29 Feb 2020)	Last reporting week (to 19:00 AEDT 22 Feb 2020)	Total cases (from Dec 2019) ^a	Total deaths (from Dec 2019) ^a
Sweden	11	0	12	0
Macau	0	0	10	0
Switzerland	10	0	10	0
Iraq	8	0	8	0
Norway	6	0	6	0
Oman	6	0	6	0
Austria	5	0	5	0
Croatia	5	0	5	0
Israel	4	1	5	0
Greece	3	0	3	0
India	0	0	3	0
Philippines	0	0	3	1
Romania	3	0	3	0
Denmark	2	0	2	0
Finland	1	0	2	0
Georgia	2	0	2	0
Lebanon	1	1	2	0
Mexico	2	0	2	0
Netherlands	2	0	2	0
Pakistan	2	0	2	0
Russian Federation	0	0	2	0
Afghanistan	1	0	1	0
Algeria	1	0	1	0
Belarus	1	0	1	0

Country / Special Administrative Region	This reporting week (to 19:00 AEDT 29 Feb 2020)	Last reporting week (to 19:00 AEDT 22 Feb 2020)	Total cases (from Dec 2019) ^a	Total deaths (from Dec 2019) ^a
Belgium	0	0	1	0
Brazil	1	0	1	0
Cambodia	0	0	1	0
Egypt	0	0	1	0
Estonia	1	0	1	0
Lithuania	1	0	1	0
Nepal	0	0	1	0
New Zealand	1	0	1	0
Nigeria	1	0	1	0
North Macedonia	1	0	1	0
San Marino	1	0	1	0
Sri Lanka	0	0	1	0
Total	7,609	10,692	85,403	2,924

a Data taken from WHO Situation Reports.

b This is different to the case numbers reported in previous sections of this report (i.e. Table 1), which may be due to the internal cut-off times used by WHO for reporting.

Figure 1: Confirmed cases of COVID-19 infection by date of illness onset, Australia 2020 (n = 22)^a



a Date of symptom onset not available for three cases.

Background

On 31 December 2019, the World Health Organization (WHO) were notified about a large number of cases of pneumonia of unknown origin in Wuhan City, Hubei Province, China. Chinese authorities isolated and identified a novel coronavirus on 7 January 2020.⁴ WHO declared the outbreak of COVID-19 a Public Health Emergency of International Concern (PHEIC) on 30 January 2020.⁵ From 1 February 2020, Australia 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.⁶ The Australian Health Protection Principal Committee (AHPPC) have reviewed these restrictions weekly, and on 27 February 2020, they released a statement recommending current travel restrictions remain in place for a further seven days.² AHPPC acknowledged that while there has been

a decrease in number of cases being reported in mainland China (outside of Hubei Province), there is an increasing risk of sustained transmission being established in several other countries.² On the same day, the Australian Prime Minister announced the activation of the Australian Health Sector Emergency Response Plan for Novel Coronavirus (COVID-19).⁷ On the 29 February 2020, the Minister for Health announced travel restrictions for travellers coming from Iran. From 1 March 2020 those who are neither Australian citizens nor permanent residents will be prevented from coming to Australia until 14 days after leaving Iran. Australian citizens, permanent residents and their immediate family will be required to self-isolate on return from Iran.⁸

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

Country in focus: Republic of Korea

Republic of Korea notified their first confirmed case of COVID-19 on 20 January 2020. Of the first 30 cases, 10 had direct links to Wuhan and 13 were close or family contacts of confirmed cases. On 19 February 2020, 20 new cases were notified. Fifteen of these had an epidemiological link through the Shincheonji Church of Jesus to a case identified the day prior. From then, reported cases in Republic of Korea rose rapidly with an increase of nearly twentyfive-fold over the next week to 26 February 2020 ($n = 1,261$).⁹

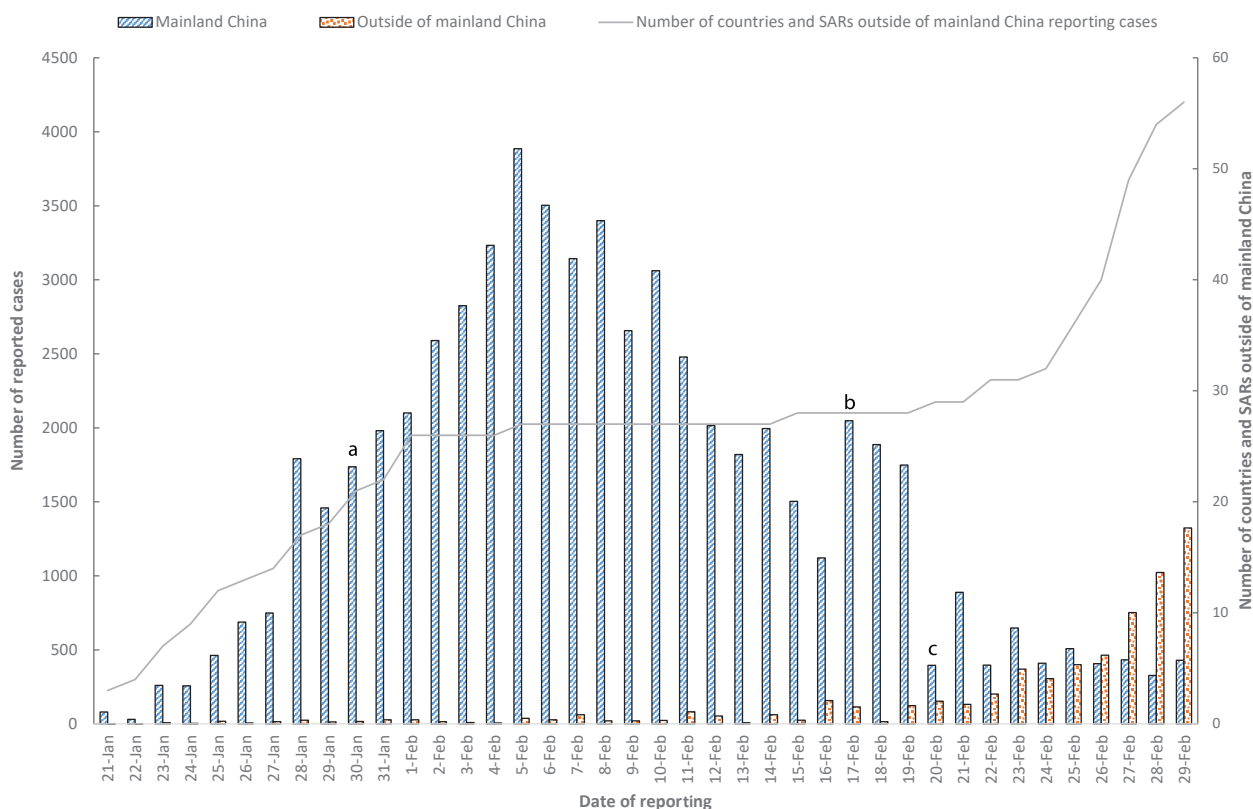
Cases have been concentrated in Daegu city, primarily linked to the Shincheonji Church of Jesus. As of 29 February 2020, 66.0% of cases in Daegu city were directly associated with the Shincheonji Church of Jesus and 53.1% of all confirmed cases in Republic of Korea were associated with this church.¹⁰ The Shincheonji Church of Jesus is reported to have over 1,000 churches across the Republic of Korea. Church services are reported to involve close physical proximity to others and frequent loud calling out, which may contribute to the rapid spread of COVID-19 amongst members. There are media reports that the church is secretive and members may be unlikely to disclose their membership to contacts, making contact tracing difficult.¹¹

There have been clusters associated with the Cheongdo Daenam Hospital, an Israel pilgrimage, the Busan Onchun church, and community centres and shelters in Gyeong-buk Province. Only 1.1% of cases reported up until 29 February 2020 in Republic of Korea have been attributed to imported disease.¹⁰

The first death in Republic of Korea was reported on 20 February 2020.¹² As of 29 February 2020, 17 deaths had been reported.¹³ Epidemiological analysis of the first 16 reported fatal cases conducted by Korean Centers for Disease Control and Prevention (KCDC) found 14 (87.5%) were aged over 50 years (range 35–93 years). The ratio of males to females was 1:0.6. All cases were reported as having comorbid conditions, such as hypertension, chronic liver or kidney disease and cancer. The seven cases associated with Cheongdo Daenam hospital cluster were all long term admissions in the mental health ward which the KCDC felt might have contributed to poor health and susceptibility to severe COVID-19.¹⁰

Republic of Korea has tested over 85,000 people for SARS-CoV-2. This extensive testing effort has likely contributed to the identification of large numbers of COVID-19 cases. On 24 February 2020, the Republic of Korea government raised the alert level to the highest level in preparation for possible nationwide transmission.¹⁴ The KCDC has made recommendations to avoid large gatherings, particularly for those aged over 65 years. Potential contacts are encouraged to self-isolate with testing once they become symptomatic. Now with large numbers of cases and sustained community transmission, the KCDC has advised that medical resources need to focus on those with comorbid conditions and the elderly to minimise fatalities. Local governments have now taken over epidemiological investigations and quarantine measures from the KCDC.¹⁰

Figure 2. Cases of COVID-19 reported to WHO and number of countries and SARs reporting outside mainland China from 21 January to 29 February 2020¹⁵



- a WHO declares the outbreak of COVID-19 a Public Health Emergency of International Concern
- b WHO start reporting both laboratory confirmed and clinically diagnosed cases from Hubei Province
- c Hubei Province cease reporting clinically diagnosed cases

Severity

Ongoing evidence from China supports previous research that COVID-19 presents as mild illness in the majority of cases with fever and cough the most commonly reported symptoms. Severe or fatal outcomes tend to occur in the elderly or those with comorbid conditions.¹⁶ Reports from cases in Republic of Korea suggest that their experience is similar.⁹ Examination of cases in China found the median time from onset to resolution of symptoms was two weeks for those with mild disease and three to six weeks for severe or critical disease. Severe disease tended to develop one week after onset of symptoms and in fatal cases, time from onset of symptoms to death was two to eight weeks.¹⁶

Calculated case fatality rates (CFR) have varied depending on location across China and in

countries outside China. Ji et al found a significant correlation between mortality rate and population case load in China. They discussed that the high and rapid escalation of disease may have quickly overwhelmed health services and been a contributing factor to Hubei's high case fatality rate (CFR).¹⁷ In the wealthy and developed province of Zhejiang, the zero fatality rate despite the large number of cases might be due to well-resourced and accessible healthcare facilities.¹⁷ These findings suggest that delaying the onset of the outbreak and slowing the escalation of cases may allow health authorities in countries not yet reporting sustained community transmission to better prepare for and adapt to manage increasing numbers of cases. However, resource-limited regions might be overwhelmed earlier and at a lower number of cases.

A small case series from China has described four cases who tested positive for SARS-CoV-2 five to 13 days after meeting the criteria for hospital discharge. The criteria for hospital discharge included: normal temperature for at least 3 days; resolved respiratory symptoms; substantially improved acute exudative lesions on chest computed tomography (CT scan); and reverse transcription polymerase chain reaction (RT-PCR) negative on at least two consecutive specimens separated by at least one day. Three repeat RT-PCR tests were performed in the next four to five days for each patient, all of whom remained asymptomatic, and all returned positive.¹⁸ The Australian Series of National Guidelines for COVID-19 acknowledges that a small proportion of people may have an illness that has completely resolved but their respiratory specimens remain persistently PCR positive. The guideline recommends that a decision to release these patients from isolation should be made on a case-by-case basis and that a follow up should take place seven days after release from isolation for clinical review to ensure full symptom resolution.¹⁹

Transmission

Human-to-human transmission of SARS-CoV-2 is via droplets and fomites from an infected person to a close contact.¹⁶ Reports from China, Republic of Korea and Australia of clusters within family and close social groups support this.^{16,20} Current evidence does not support airborne or faecal-oral spread as major factors in transmission.¹⁶

Incubation period

No new research has been published on the incubation period for COVID-19. Please refer to COVID-19, Australia: Epidemiology Report 4.²¹

Recommendations for control

The Report of the WHO-China Joint Mission on Coronavirus Disease 2019 (COVID-19) made

the following major recommendations for countries with imported cases and/or outbreaks of COVID-19:¹⁶

1. Immediately activate the highest level of national Response Management protocols to ensure the all-of-government and all-of-society approach needed to contain COVID-19 with non-pharmaceutical public health measures;
2. Prioritise active, exhaustive case finding and immediate testing and isolation, painstaking contact tracing and rigorous quarantine of close contacts;
3. Fully educate the general public on the seriousness of COVID-19 and their role in preventing its spread;
4. Immediately expand surveillance to detect COVID-19 transmission chains, by testing all patients with atypical pneumonias, conducting screening in some patients with upper respiratory illnesses and/or recent COVID-19 exposure, and adding testing for the COVID-19 virus to existing surveillance systems (e.g. systems for influenza-like-illness); and
5. Conduct multi-sector scenario planning and simulations for the deployment of even more stringent measures to interrupt transmission chains as needed (e.g. the suspension of large-scale gatherings and the closure of schools and workplaces).

Treatment

Current clinical management of COVID-19 cases focuses on early recognition, isolation, appropriate infection control measures and provision of supportive care.²² Whilst there is no specific antiviral treatment currently recommended for patients with suspected or confirmed SARS-CoV-2 infection, there are multiple clinical trials underway in China and the US have

Table 3: Australian COVID-19 case definition as of 29 February 2020¹⁹

Version	Date of development	Suspect Case	Confirmed Case
1.13	28 February 2020	<p>If the patient satisfies epidemiological and clinical criteria, they are classified as a suspect case.</p> <p>Epidemiological criteria</p> <ul style="list-style-type: none"> • Travel to (including transit through) mainland China in the 14 days before the onset of illness. <p>OR</p> <ul style="list-style-type: none"> • Close or casual contact in 14 days before illness onset with a confirmed case of COVID-19. <p>Clinical criteria</p> <ul style="list-style-type: none"> • Fever <p>OR</p> <ul style="list-style-type: none"> • Acute respiratory infection (e.g. shortness of breath or cough) with or without fever. 	<p>A person who tests positive to a validated specific SARS-CoV-2 nucleic acid test or has the virus identified by electron microscopy or viral culture.</p>

begun a clinical trial evaluating Remdesivir, an antiviral developed for the treatment of Ebola virus disease.²³

Testing

The North West London National Health Service (NHS) Trust has implemented a pilot program of home testing of potential cases. Those identified as potential cases by general practitioners, emergency departments or via the NHS hotline are referred to the program. Cases are triaged over the phone before a trained healthcare professional in personal protective equipment goes to the person's house to collect the specimen and provide education on self-isolation, advice on what to do if they deteriorate and an emergency contact number. The potential case is then contacted with the results and if the result is positive they are admitted to hospital.²⁴ The aim of the program is to reduce the risk of ambulance services and emergency waiting rooms being overwhelmed with potential cases and reduce the risk of disease transmission to potentially vulnerable populations within healthcare settings whilst still allowing for early identification and isolation of cases.

Virology

Several countries have isolated and sequenced the genome for SARS-CoV-2 from cases with COVID-19. Analysis of the genetic diversity of these samples found few mutations, suggesting that following initial animal-to-human transmission from a single source, spread has resulted from human-to-human transmission over a limited period of time. Based on modelling, researchers estimate that initial human infection was in November to early December 2019. Groups of sequences with the same mutations are being identified, confirming human-to-human transmission and linking cases across countries.²⁵ Ongoing surveillance of sequences and shared mutations will assist with understanding of the global spread of the virus.

Methods

Data for this report were current as at 19:00 hours AEDT, 29 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 the National Notifiable Diseases Surveillance

System (NNDSS) and state and territory health department media releases. 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 (Table 3). Based on this guidance, state and territory health department investigators conducted interviews of suspected cases to collect core and enhanced data for inclusion in the NNDSS. Data was analysed using Stata to describe the epidemiology of COVID-19 in Australia and the progress of the epidemic.

Data for the international cases of COVID-19 by country were compiled from the latest WHO Situation 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.

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Author details

Corresponding author

Olivia Williams

NIR Surveillance Team, Communicable Disease Epidemiology and Surveillance Section, Health Protection Policy Branch, Australian Government Department of Health, GPO Box 9484, MDP 14, Canberra, ACT 2601.

Email: epi.coronavirus@health.gov.au

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