Coronavirus disease 2019 (COVID-19)
Situation Report – 29

Data as reported by 19 February 2020*

HIGHLIGHTS

- No new countries reported cases of COVID-19 in the past 24 hours.

- WHO is working with an international network of statisticians and mathematical modelers to estimate key epidemiologic parameters of COVID-19, such as the incubation period (the time between infection and symptom onset), case fatality ratio (CFR, the proportion of cases that die), and the serial interval (the time between symptom onset of a primary and secondary case). Reports of current analyses that have estimated these parameters are provided in this Situation Report as a summary of currently available evidence. These values should be considered preliminary and parameters will likely be updated as more information becomes available. Modelling can support decision-making but needs to be combined with rigorous data collection and a comprehensive analysis of the situation. Please see the Subject in Focus section for more information.

- Several online courses related to COVID-19 have been added to the OpenWHO platform:
  - A general introduction to emerging respiratory viruses, including novel coronaviruses (available in French, Simplified Chinese, and Spanish as well).
  - Critical Care of Severe Acute Respiratory Infections
  - Health and safety briefing for respiratory diseases - ePROTECT

SITUATION IN NUMBERS
total and new cases in last 24 hours

Globally
75 204 confirmed (1872 new)

China[†]
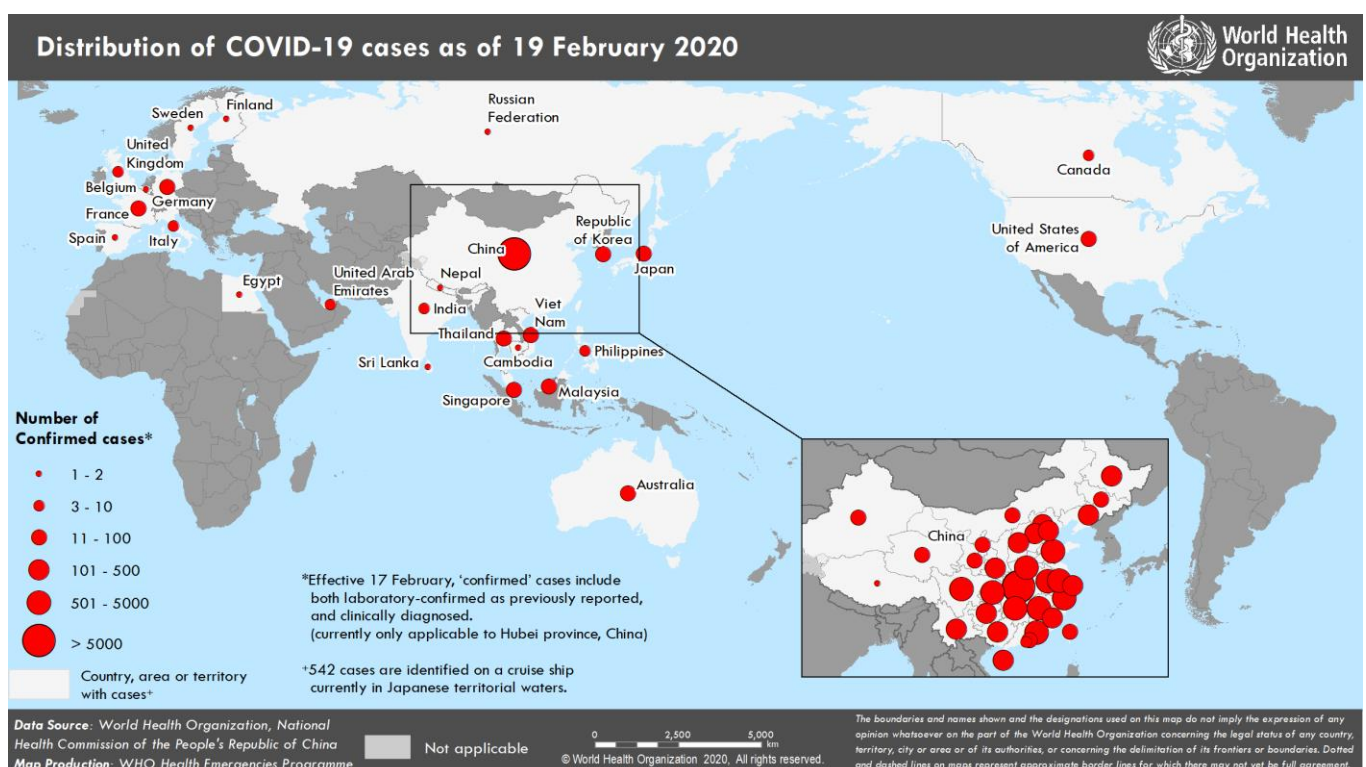74 280 confirmed (1752 new)
2006 deaths (136 new)

Outside of China
924 confirmed (120 new)
25 countries
3 deaths

WHO RISK ASSESSMENT

China	Very High
Regional Level	High
Global Level	High

Figure 1. Countries, territories or areas with reported confirmed cases of COVID-19, 19 February 2020

*The situation report includes information provided by national authorities as of 10 AM Central European Time
†As reported by China, which includes both laboratory confirmed and clinically diagnosed cases (currently only applicable to Hubei province, China)

SUBJECT IN FOCUS: Advanced Analytics and Mathematical Modelling

In order to mount an appropriate public health response for any epidemic pathogen, information and analyses of transmission dynamics, severity of disease and the impact of control and mitigation measures are needed. In addition to descriptive analyses of available epidemiologic and clinical data, mathematical modelling and advanced analytics are helpful tools that can be used to estimate key transmission and severity parameters.

WHO has been working with an international network of statisticians and mathematical modelers to estimate key epidemiologic parameters of COVID-19, such as the incubation period (the time between infection and symptom onset), case fatality ratio (CFR, the proportion of cases who die), infection fatality ratio (IFR, the portion of all of those infected who die), and the serial interval (the time between symptom onset of a primary and secondary case).

To calculate these parameters, statisticians and modelers use case-based data from COVID-19 surveillance activities, and data captured from early investigations, such as those studies which evaluate transmission within clusters of cases in households or other closed settings. Preliminary estimates[1,2,3,4,5,6,7] of median incubation period are 5-6 days (ranging from 0-14 days) and estimates for the serial interval[4,8] range from 4.4 to 7.5 days. Several estimates have been shared in pre-print and information will be updated as more information becomes available.

The confirmed case fatality ratio, or CFR, is the total number of deaths divided by the total number of confirmed cases at one point in time. Within China, the confirmed CFR, as reported by the Chinese Center for Disease Control and Prevention,[9] is 2.3%. This is based on 1023 deaths amongst 44 415 laboratory-confirmed cases as of 11 February. This CFR does not include the number of more mild infections that may be missed from current surveillance, which has largely focused on patients with pneumonia requiring hospitalization; nor does it account for the fact that recently confirmed cases may yet develop severe disease, and some may die. As the outbreak continues, the confirmed CFR may change. Outside of China, CFR estimates among confirmed cases reported is lower than reported from within China. However, it is too early to draw conclusions as to whether there are real differences in the CFR inside and outside of China, as final outcome data (that is, who will recover and who will die) for the majority of cases reported from outside China are not yet known.

Modeling is a helpful tool to try to account for missed cases, such as those that are mild cases potentially missed in current surveillance activities, and the time lag between onset and death. Using an estimated number of total infections, the Infection Fatality Ratio can be calculated. This represents the fraction of all infections (both diagnosed and undiagnosed) that result in death. Based on these available analyses, current IFR estimates[10,11,12] range from 0.3% to 1%. Without population-based serologic studies, it is not yet possible to know what proportion of the population has been infected with COVID-19.

Modeling has also been used to estimate the impact of the 23 January, 2020 Wuhan travel ban on reducing transmission both inside and outside of China.[13,14] According to these models, travel restrictions alone are projected to have only a modest effect on the progression of the outbreak; they would need to be combined with other public health interventions, such as early case isolation, other forms of mobility restrictions, social distancing and population-level behavioral changes to be effective.
This is in line with several studies on travel restrictions during past influenza pandemics, including H1N1, reported in the recently published paper on "Nonpharmaceutical Measures for Pandemic Influenza in Nonhealthcare Settings—International Travel-Related Measures"[15] .

During the February 2019 COVID-19 WHO Global research and innovation forum, the international gathering of scientists stressed that additional information is needed to refine the forecasting models, and to inform targeted guidance and measures for the public health response. This information should come from early investigations, such as:

- in the community and in households
- through health care workers risk factor assessments
- through clinical characterization of hospitalized cases
- in returning traveller cohort studies

WHO has provided protocols for these investigations, which are available on the WHO website [here](). This information will help to update the estimates of parameters.

SURVEILLANCE

Table 1. Confirmed and suspected cases of COVID-19 acute respiratory disease reported by provinces, regions and cities in China, 19 February 2020

Province/ Region/ City	Population (10,000s)	Daily			Cumulative	
		Confirmed cases*	Suspected cases	Deaths	Confirmed cases	Deaths
Hubei	5917	1693	596	132	61682	1921
Guangdong	11346	3	1	1	1331	5
Henan	9605	5	121	0	1262	19
Zhejiang	5737	1	9	0	1173	0
Hunan	6899	1	12	0	1008	4
Anhui	6324	4	0	0	986	6
Jiangxi	4648	1	0	0	934	1
Jiangsu	8051	2	0	0	631	0
Chongqing	3102	2	41	0	555	5
Shandong	10047	1	8	1	544	3
Sichuan	8341	6	30	0	514	3
Heilongjiang	3773	6	21	1	470	12
Beijing	2154	6	58	0	393	4
Shanghai	2424	0	78	0	333	1
Hebei	7556	4	0	0	306	4
Fujian	3941	1	4	0	293	0
Guangxi	4926	2	12	0	244	2
Shaanxi	3864	2	19	0	242	0
Yunnan	4830	1	16	0	173	0
Hainan	934	0	14	0	163	4
Guizhou	3600	0	2	1	146	2
Shanxi	3718	1	3	0	131	0
Tianjin	1560	3	62	0	128	3
Liaoning	4359	0	64	0	121	1
Gansu	2637	0	0	0	91	2
Jilin	2704	1	11	0	90	1
Xinjiang	2487	0	0	0	76	1
Inner Mongolia	2534	2	3	0	75	0
Ningxia	688	1	0	0	71	0
Hong Kong SAR	745	2	0	0	62	1
Taipei and environs	2359	1	0	0	23	1
Qinghai	603	0	0	0	18	0
Macao SAR	66	0	0	0	10	0
Xizang	344	0	0	0	1	0
Total	**142823**	**1752**	**1185**	**136**	**74280**	**2006**

*'Confirmed' cases include both laboratory confirmed and clinically diagnosed cases (currently only applicable to Hubei province, China)

Table 2. Countries, territories or areas outside China with reported laboratory-confirmed COVID-19 cases and deaths. Data as of 19 February 2020

Country/Territory/Area	Confirmed* cases (new)	Likely place of exposure†			Total cases with site of transmission under investigation (new)	Total deaths (new)
		China (new)	Outside reporting country and outside China (new)	In reporting country		
Western Pacific Region						
Singapore	81 (4)	23 (0)	0 (0)	51 (3)	7 (1)	0 (0)
Japan	73 (8)	26 (0)	3 (2)	39 (3)	5 (3)	1 (0)
Republic of Korea	51 (20)	13 (0)	4 (0)	29 (18)	5 (2)	0 (0)
Malaysia	22 (0)	17 (0)	1 (0)	2 (0)	2 (0)	0 (0)
Viet Nam	16 (0)	8 (0)	0 (0)	8 (0)	0 (0)	0 (0)
Australia	15 (0)	12 (0)	0 (0)	3 (0)	0 (0)	0 (0)
Philippines	3 (0)	3 (0)	0 (0)	0 (0)	0 (0)	1 (0)
Cambodia	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
South-East Asia Region						
Thailand	35 (0)	23 (0)	0 (0)	5 (0)	7 (0)	0 (0)
India	3 (0)	3 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Nepal	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Sri Lanka	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Region of the Americas						
United States of America	15 (0)	13 (0)	0 (0)	2 (0)	0 (0)	0 (0)
Canada	8 (0)	7 (0)	0 (0)	0 (0)	1 (0)	0 (0)
European Region						
Germany	16 (0)	2 (0)	0 (0)	14 (0)	0 (0)	0 (0)
France	12 (0)	5 (0)	0 (0)	7 (0)	0 (0)	1 (0)
The United Kingdom	9 (0)	2 (0)	6 (0)	1 (0)	0 (0)	0 (0)
Italy	3 (0)	3 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Russian Federation	2 (0)	2 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Spain	2 (0)	0 (0)	2 (0)	0 (0)	0 (0)	0 (0)
Belgium	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Finland	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Sweden	1 (0)	1 (0)	0 (0)	0 (0)	0 (0)	0 (0)
Eastern Mediterranean Region						
United Arab Emirates	9 (0)	6 (0)	0 (0)	2 (0)	1 (0)	0 (0)
Egypt	1 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)
Other						
International conveyance‡ (Diamond Princess)	542 (88)	0 (0)	0 (0)	0 (0)	542 (88)	0 (0)

*Case classifications are based on WHO case definitions for COVID-19.
†Location of transmission is classified based on WHO analysis of available official data and may be subject to reclassification as additional data become available.
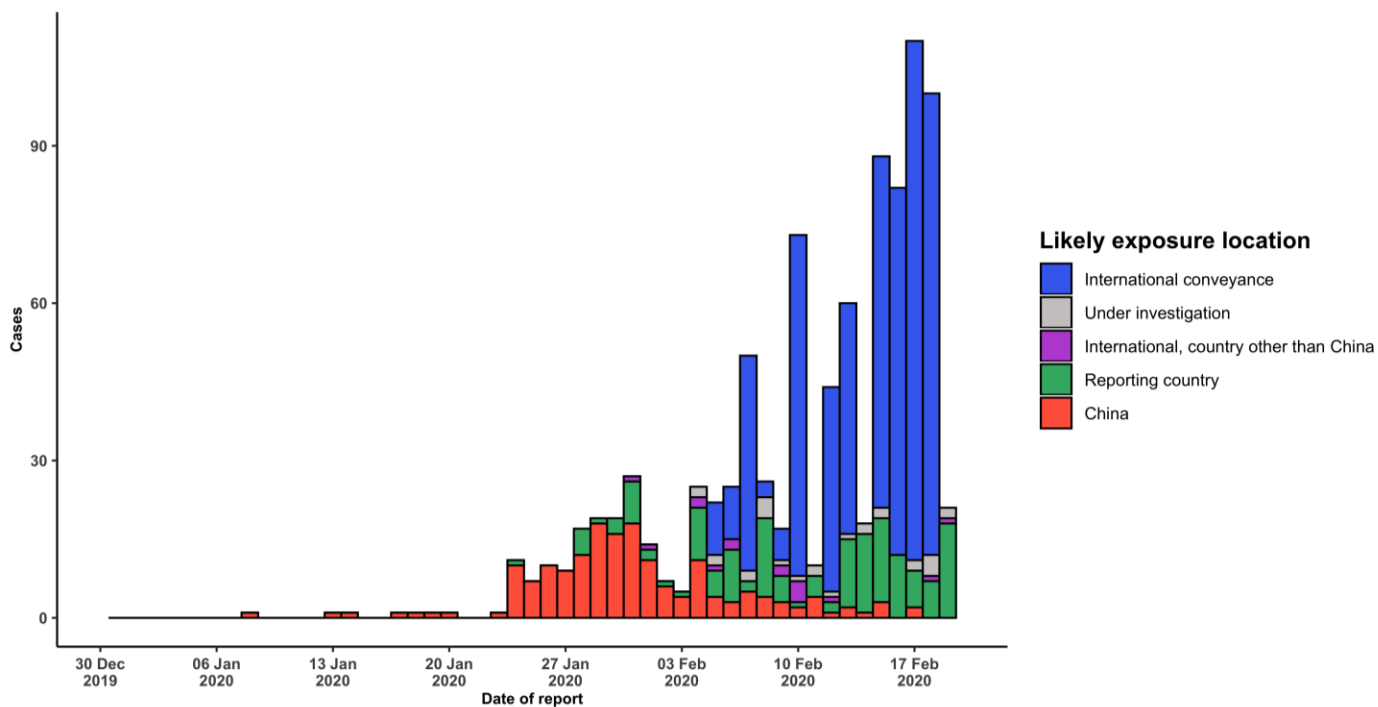‡Cases identified on a cruise ship currently in Japanese territorial waters.

Figure 2. Epidemic curve of COVID-19 cases (n=231) identified outside of China, by date of onset of symptoms and travel history, 19 February 2020
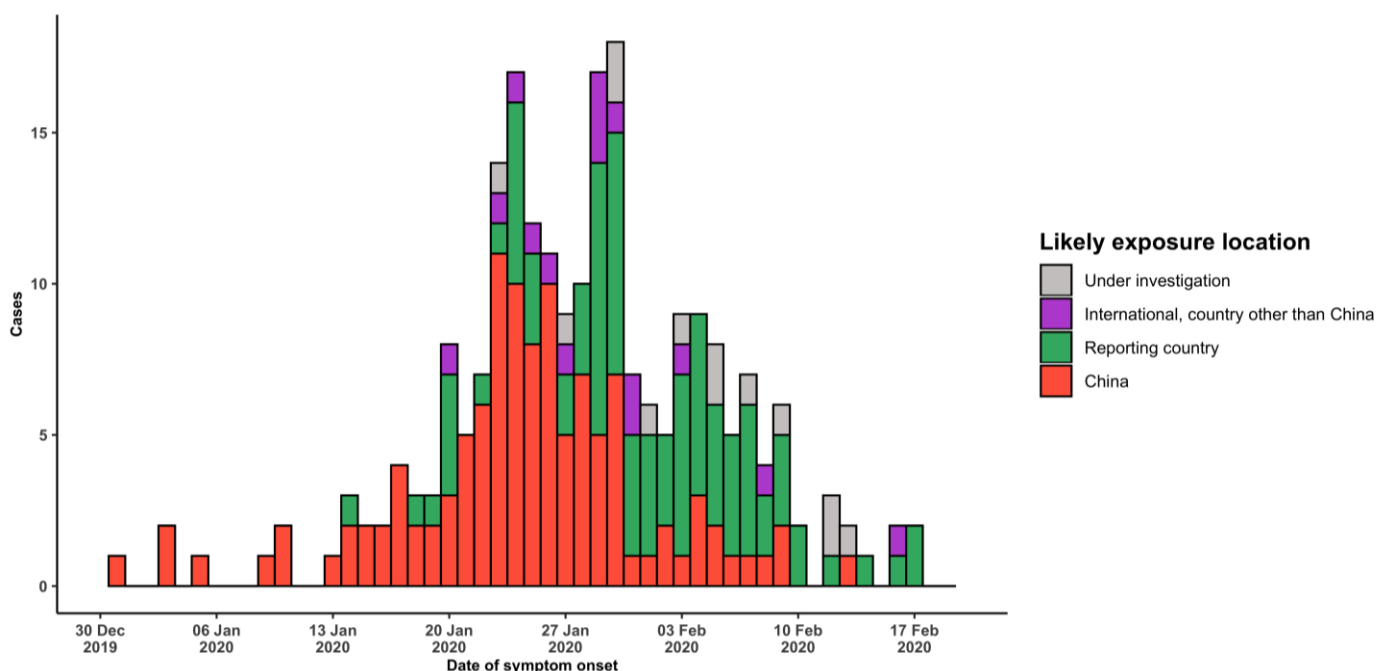
Note for figure 2: Of the 924 cases reported outside China, 29 were detected while apparently asymptomatic. For the remaining 895 cases, information on date of onset is available only for the 231 cases presented in the epidemiologic curve.

Figure 3. Epidemic curve of COVID-19 cases (n=924) identified outside of China, by date of report and likely exposure location, 19 February 2020

PREPAREDNESS AND RESPONSE

- To view all technical guidance documents regarding COVID-19, please go to this webpage.
- WHO is working closely with International Air Transport Association (IATA) and have jointly developed a guidance document to provide advice to cabin crew and airport workers, based on country queries. The guidance can be found on the IATA webpage.
- WHO has developed a protocol for the investigation of early cases (the "First Few X (FFX) Cases and contact investigation protocol for 2019-novel coronavirus (2019-nCoV) infection"). The protocol is designed to gain an early understanding of the key clinical, epidemiological and virological characteristics of the first cases of COVID-19 infection detected in any individual country, to inform the development and updating of public health guidance to manage cases and reduce potential spread and impact of infection.
- WHO has been in regular and direct contact with Member States where cases have been reported. WHO is also informing other countries about the situation and providing support as requested.
- WHO has developed interim guidance for laboratory diagnosis, advice on the use of masks during home care and in health care settings in the context of the novel coronavirus (2019-nCoV) outbreak, clinical management, infection prevention and control in health care settings, home care for patients with suspected novel coronavirus, risk communication and community engagement and Global Surveillance for human infection with novel coronavirus (2019-nCoV).
- WHO has prepared disease commodity package that includes an essential list of biomedical equipment, medicines and supplies necessary to care for patients with 2019-nCoV.
- WHO has provided recommendations to reduce risk of transmission from animals to humans.
- WHO has published an updated advice for international traffic in relation to the outbreak of the novel coronavirus 2019-nCoV.
- WHO has activated of R&D blueprint to accelerate diagnostics, vaccines, and therapeutics.
- WHO has developed online courses on the following topics: A general introduction to emerging respiratory viruses, including novel coronaviruses (available in French, Simplified Chinese, and Spanish as well); Critical Care of Severe Acute Respiratory Infections; and Health and safety briefing for respiratory diseases - ePROTECT
- WHO is providing guidance on early investigations, which are critical to carry out early in an outbreak of a new virus. The data collected from the protocols can be used to refine recommendations for surveillance and case definitions, to characterize the key epidemiological transmission features of COVID-19, help understand spread,

severity, spectrum of disease, impact on the community and to inform operational models for implementation of countermeasures such as case isolation, contact tracing and isolation. Several protocols are available here: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/early-investigations

- WHO is working with its networks of researchers and other experts to coordinate global work on surveillance, epidemiology, modelling, diagnostics, clinical care and treatment, and other ways to identify, manage the disease and limit onward transmission. WHO has issued interim guidance for countries, which are updated regularly.
- WHO is working with global expert networks and partnerships for laboratory, infection prevention and control, clinical management and mathematical modelling.

RECOMMENDATIONS AND ADVICE FOR THE PUBLIC

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 COVID-19 can be similar. The basic principles to reduce the general risk of transmission of acute respiratory infections include the following:

- Avoiding close contact with people suffering from acute respiratory infections.
- Frequent hand-washing, especially after direct contact with ill people or their environment.
- Avoiding unprotected contact with farm or wild animals.
- People with symptoms of acute respiratory infection should practice cough etiquette (maintain distance, cover coughs and sneezes with disposable tissues or clothing, and wash hands).
- Within health care facilities, enhance standard infection prevention and control practices in hospitals, especially in emergency departments.

WHO does not recommend any specific health measures for travellers. In case of symptoms suggestive of respiratory illness either during or after travel, travellers are encouraged to seek medical attention and share their travel history with their health care provider.

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