

Coronavirus disease 2019 (COVID-19) Situation Report – 71

Data as reported by national authorities by 10:00 CET 31 March 2020

HIGHLIGHTS

- No new countries/territories/areas reported cases of COVID-19 in the past 24 hours.
- As mentioned by the Director-General in his regular media briefing yesterday, ensuring free movement of essential health products is vital for saving lives and curbing the social and economic impacts of the pandemic. WHO is working intensively with partners to increase access to life-saving products, including diagnostics, PPE, medical oxygen, ventilators and more. For more information: <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---30-march-2020>
- Operations support and logistics continues to monitor critical markets and in partnership with the Pandemic Supply Chain Network, has increased engagement and coordination with private companies. Since the beginning of the outbreak, OSL has shipped more than 800 000 surgical masks, 54 000 N95 masks, 873 000 globes, 15 000 goggles and 24 000 face shields to 75 countries. OSL has also shipped COVID-19 testing kits to 126 countries. For more details, please see 'subject in focus'.

SITUATION IN NUMBERS total (new) cases in last 24 hours

Globally

750 890 confirmed (57 610)
36 405 deaths (3301)

Western Pacific Region

104 868 confirmed (1093)
3671 deaths (22)

European Region

423 946 confirmed (31 131)
26 694 deaths (2733)

South-East Asia Region

4215 confirmed (131)
166 deaths (8)

Eastern Mediterranean Region

50 349 confirmed (4020)
2954 deaths (142)

Region of the Americas

163 014 confirmed (20 935)
2836 deaths (379)

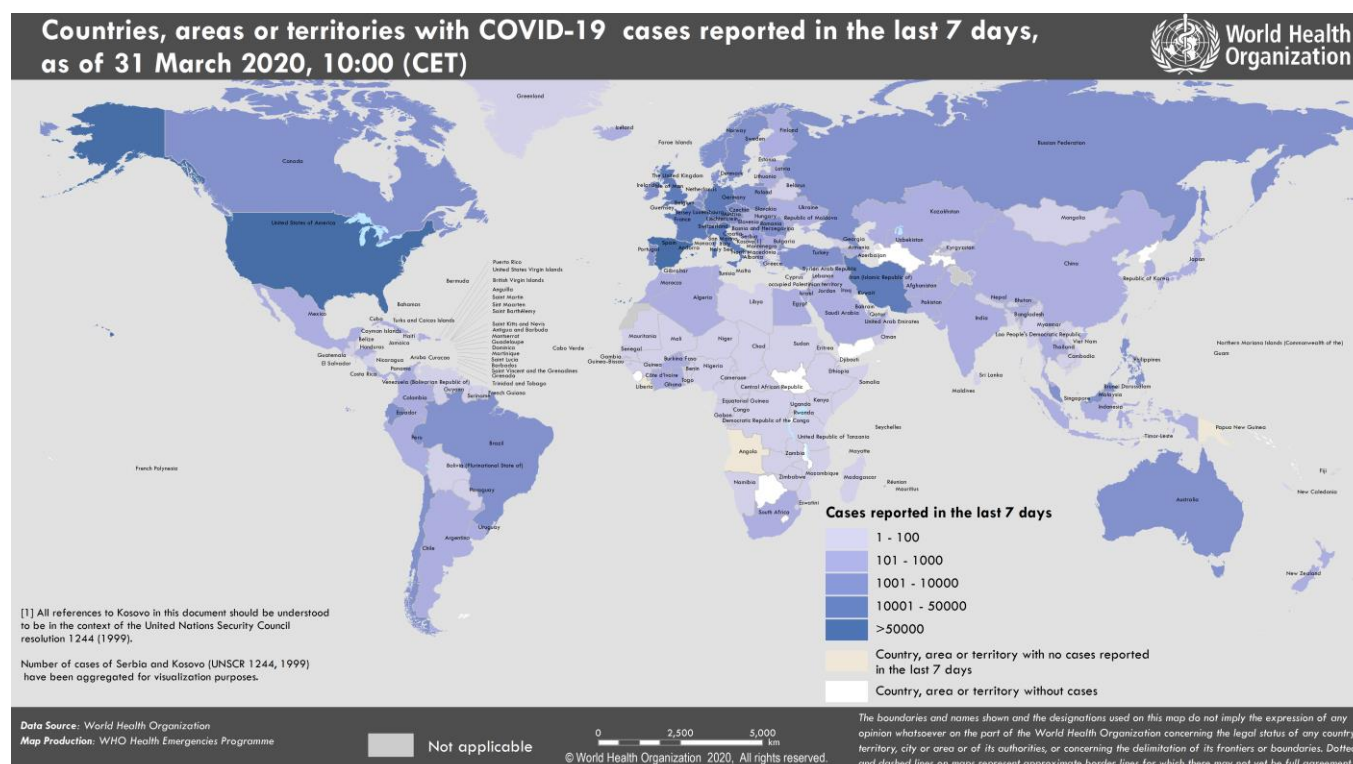
African Region

3786 confirmed (300)
77 deaths (17)

WHO RISK ASSESSMENT

Global Level Very High

Figure 1. Countries, territories or areas with reported confirmed cases of COVID-19, 31 March 2020



SUBJECT IN FOCUS: WHO Strengthens supply chains and releases guidance on setting up treatment centres

WHO Operations Support and Logistics (OSL) continues to support the COVID-19 emergency operations despite continued disruption to critical supply markets where demand outpaces global supply.

Since the beginning of the outbreak, OSL has shipped more than 800 000 surgical masks, 54 000 N95 masks, 873 000 goggles, 15 000 goggles and 24 000 face shields to 75 countries. OSL has also shipped COVID-19 testing kits to 126 countries.

A Supply Chain Inter-Agency Coordination Cell (SCICC) has been established to provide an overview of supply chain requirements and ensure that COVID-19 needs are prioritized within the wider humanitarian response. The SCICC has established a Supply and Market Working Group to streamline procurement of critical supplies and equipment to address global shortages.

A common platform for private-sector donations of critical items in support of the COVID-19 response will be announced shortly. The list of critical items is available [online](#).

OSL continues to monitor critical markets and has increased engagement and coordination with private companies, in partnership with the Pandemic Supply Chain Network.

OSL has released the first edition of a practical manual to set up and manage a Severe Acute Respiratory Infection (SARI) treatment centre and a SARI screening facility in health-care facilities. The manual is available [online](#), and accompanying training modules are available to the public through [Open WHO](#).

- Module 1: Overview of basic operational and IPC principles in COVID-19 context
- Module 2: Designing a SARI screening area and treatment centre
- Module 3: Repurposing an existing building into a SARI treatment centre

An additional module for WASH (water, sanitation and hygiene), waste management, energy requirements and installations for SARI facilities is currently under development.

OSL is also working to build tactical infection prevention and control (IPC) surge support to hospitals with an aim to help improve infectious disease management protocols, limit nosocomial transmission and support rational consumption of personal protective equipment.

SURVEILLANCE

Table 1. Countries, territories or areas with reported laboratory-confirmed COVID-19 cases and deaths. Data as of 31 March 2020*

Reporting Country/ Territory/Area [†]	Total confirmed ‡ cases	Total confirmed new cases	Total deaths	Total new deaths	Transmission classification [§]	Days since last reported case
Western Pacific Region						
China	82545	98	3314	4	Local transmission	0
Republic of Korea	9786	125	162	4	Local transmission	0
Australia	4359	393	18	2	Local transmission	0
Malaysia	2626	156	37	3	Local transmission	0
Japan	1953	87	56	2	Local transmission	0
Philippines	1546	128	78	7	Local transmission	0
Singapore	879	35	3	0	Local transmission	0
New Zealand	600	48	1	0	Local transmission	0
Viet Nam	203	15	0	0	Local transmission	0
Brunei Darussalam	127	1	1	0	Local transmission	0
Cambodia	107	4	0	0	Local transmission	0
Mongolia	12	0	0	0	Imported cases only	3
Lao People's Democratic Republic	8	0	0	0	Local transmission	1
Fiji	5	0	0	0	Local transmission	5
Papua New Guinea	1	0	0	0	Imported cases only	10
Territories**						
Guam	58	2	1	0	Local transmission	0
French Polynesia	36	1	0	0	Local transmission	0
New Caledonia	15	0	0	0	Local transmission	3
Northern Mariana Islands (Commonwealth of the)	2	0	0	0	Under investigation	2
European Region						
Italy	101739	4050	11591	810	Local transmission	0
Spain	85195	6398	7340	812	Local transmission	0
Germany	61913	4615	583	128	Local transmission	0
France	43977	4335	3017	415	Local transmission	0
The United Kingdom	22145	2619	1408	180	Local transmission	0
Switzerland	15412	1138	295	38	Local transmission	0
Belgium	11899	1063	513	82	Local transmission	0
Netherlands	11750	884	864	93	Local transmission	0
Turkey	10827	1556	168	37	Local transmission	0
Austria	9618	805	108	22	Local transmission	0
Portugal	6408	446	140	21	Local transmission	0
Israel	4831	584	17	2	Local transmission	0
Norway	4226	124	26	4	Local transmission	0
Sweden	4028	328	146	36	Local transmission	0
Czechia	3002	173	24	8	Local transmission	0
Ireland	2910	295	54	8	Local transmission	0
Denmark	2577	182	77	5	Local transmission	0
Poland	2055	193	31	9	Local transmission	0
Luxembourg	1988	38	22	1	Local transmission	0

Romania	1952	192	44	4	Local transmission	0
Russian Federation	1837	303	9	0	Local transmission	0
Finland	1313	95	13	2	Local transmission	0
Greece	1212	56	43	5	Local transmission	0
Iceland	1086	66	2	0	Local transmission	0
Croatia	790	77	6	0	Local transmission	0
Serbia	785	44	13	0	Local transmission	0
Slovenia	763	33	11	0	Local transmission	0
Estonia	715	36	3	0	Local transmission	0
Ukraine	549	69	13	2	Local transmission	0
Lithuania	484	0	7	0	Local transmission	1
Armenia	482	0	3	0	Local transmission	1
Hungary	447	0	15	0	Local transmission	1
Latvia	376	0	0	0	Local transmission	1
Andorra	370	29	8	2	Local transmission	0
Bosnia and Herzegovina	359	34	9	3	Local transmission	0
Bulgaria	359	13	8	0	Local transmission	0
Slovakia	336	0	0	0	Local transmission	1
Kazakhstan	312	18	1	0	Local transmission	0
Republic of Moldova	298	35	2	0	Local transmission	0
North Macedonia	285	26	7	1	Local transmission	0
Azerbaijan	273	83	4	0	Local transmission	0
Cyprus	230	16	7	1	Local transmission	0
San Marino	230	1	25	1	Local transmission	0
Albania	223	0	11	1	Local transmission	1
Malta	156	5	0	0	Local transmission	0
Belarus	152	0	0	0	Local transmission	1
Uzbekistan	149	4	2	0	Local transmission	0
Kyrgyzstan	107	23	0	0	Local transmission	0
Georgia	103	5	0	0	Local transmission	0
Montenegro	91	6	1	0	Local transmission	0
Liechtenstein	64	2	0	0	Under investigation	0
Monaco	49	3	0	0	Local transmission	0
Holy See	6	0	0	0	Under investigation	1
Territories**						
Faroe Islands	168	9	0	0	Local transmission	0
Kosovo ^[1]	106	12	1	0	Local transmission	0
Gibraltar	69	4	0	0	Local transmission	0
Jersey	63	0	2	0	Local transmission	1
Guernsey	45	6	0	0	Local transmission	0
Isle of Man	42	0	0	0	Local transmission	1
Greenland	10	0	0	0	Under investigation	2
South-East Asia Region						
Thailand	1524	0	9	0	Local transmission	1
Indonesia	1414	129	122	8	Local transmission	0
India	1071	0	29	0	Local transmission	1
Sri Lanka	120	0	1	0	Local transmission	1
Bangladesh	49	0	5	0	Local transmission	1
Maldives	17	0	0	0	Local transmission	1
Myanmar	10	2	0	0	Local transmission	0
Nepal	5	0	0	0	Imported cases only	2
Bhutan	4	0	0	0	Imported cases only	1
Timor-Leste	1	0	0	0	Under investigation	10

Eastern Mediterranean Region						
Iran (Islamic Republic of)	41495	3186	2757	117	Local transmission	0
Pakistan	1865	240	25	7	Local transmission	0
Saudi Arabia	1453	154	8	0	Local transmission	0
Qatar	693	59	1	0	Local transmission	0
Egypt	656	47	41	1	Local transmission	0
Iraq	630	83	46	4	Local transmission	0
United Arab Emirates	611	41	5	2	Local transmission	0
Morocco	574	58	33	6	Local transmission	0
Bahrain	515	0	4	0	Local transmission	1
Lebanon	446	8	11	1	Local transmission	0
Tunisia	362	50	9	1	Local transmission	0
Jordan	268	9	5	2	Local transmission	0
Kuwait	266	11	0	0	Local transmission	0
Oman	179	12	0	0	Local transmission	0
Afghanistan	166	52	4	0	Local transmission	0
Djibouti	26	7	0	0	Local transmission	0
Syrian Arab Republic	10	1	2	1	Imported cases only	0
Libya	8	0	0	0	Local transmission	1
Sudan	6	0	2	0	Imported cases only	1
Somalia	3	0	0	0	Imported cases only	4
Territories**						
occupied Palestinian territory	117	2	1	0	Local transmission	0
Region of the Americas						
United States of America	140640	17987	2398	286	Local transmission	0
Canada	6317	662	66	5	Local transmission	0
Brazil	4256	352	136	22	Local transmission	0
Chile	2449	540	8	2	Local transmission	0
Ecuador	1962	127	60	12	Local transmission	0
Mexico	993	145	20	4	Local transmission	0
Panama	989	88	24	7	Local transmission	0
Dominican Republic	901	320	42	22	Local transmission	0
Peru	852	181	11	0	Local transmission	0
Argentina	820	75	20	1	Local transmission	0
Colombia	702	94	10	4	Local transmission	0
Costa Rica	314	19	2	0	Local transmission	0
Uruguay	309	6	0	0	Local transmission	0
Cuba	170	51	4	1	Local transmission	0
Honduras	139	29	2	0	Local transmission	0
Venezuela (Bolivarian Republic of)	129	16	3	1	Local transmission	0
Bolivia (Plurinational State of)	97	23	5	5	Local transmission	0
Trinidad and Tobago	82	6	3	0	Local transmission	0
Paraguay	64	5	3	0	Local transmission	0
Guatemala	36	2	1	0	Local transmission	0
Jamaica	36	4	1	0	Local transmission	0
Barbados	33	7	0	0	Local transmission	0
El Salvador	30	6	0	0	Local transmission	0
Haiti	15	0	0	0	Imported cases only	1
Bahamas	14	4	0	0	Local transmission	0

Cayman Islands	12	4	1	0	Imported cases only	0
Grenada	9	2	0	0	Local transmission	0
Saint Lucia	9	5	0	0	Local transmission	0
Guyana	8	3	1	0	Local transmission	0
Suriname	8	0	0	0	Imported cases only	3
Antigua and Barbuda	7	0	0	0	Imported cases only	3
Nicaragua	4	0	1	0	Imported cases only	2
Belize	3	1	0	0	Local transmission	0
Saint Kitts and Nevis	2	0	0	0	Imported cases only	0
Saint Vincent and the Grenadines	1	0	0	0	Imported cases only	18
Territories**						
Puerto Rico	174	110	6	4	Imported cases only	0
Martinique	111	6	2	0	Local transmission	0
Guadeloupe	106	10	4	2	Imported cases only	0
Aruba	50	4	0	0	Local transmission	0
French Guiana	43	12	0	0	Local transmission	0
United States Virgin Islands	30	8	0	0	Imported cases only	0
Bermuda	22	0	0	0	Local transmission	1
Saint Martin	18	12	1	1	Under investigation	0
Curaçao	11	4	1	0	Imported cases only	0
Dominica	11	0	0	0	Local transmission	4
Saint Barthélemy	6	1	0	0	Under investigation	0
Sint Maarten	6	3	0	0	Imported cases only	0
Montserrat	5	0	0	0	Imported cases only	3
Turks and Caicos Islands	5	1	0	0	Local transmission	0
Anguilla	2	0	0	0	Local transmission	4
British Virgin Islands	2	0	0	0	Imported cases only	4
African Region						
South Africa	1326	46	3	2	Local transmission	0
Algeria	511	57	31	2	Local transmission	0
Burkina Faso	246	24	12	9	Local transmission	0
Cote d'Ivoire	169	4	0	0	Local transmission	0
Senegal	162	20	0	0	Local transmission	0
Ghana	152	0	5	0	Local transmission	1
Cameroon	139	26	6	4	Local transmission	0
Nigeria	111	46	1	0	Local transmission	0
Mauritius	107	5	2	0	Local transmission	0
Democratic Republic of the Congo	98	17	8	0	Local transmission	0
Rwanda	70	0	0	0	Local transmission	1
Madagascar	46	9	0	0	Imported cases only	0
Kenya	38	13	1	0	Local transmission	0
Zambia	35	19	0	0	Local transmission	0
Togo	34	6	1	0	Local transmission	0
Uganda	33	0	0	0	Local transmission	1
Ethiopia	23	2	0	0	Local transmission	0
Niger	20	0	3	0	Local transmission	1
Congo	19	0	0	0	Imported cases only	3
United Republic of Tanzania	19	5	0	0	Under investigation	0
Mali	18	0	0	0	Local transmission	2

Guinea	16	0	0	0	Local transmission	1
Equatorial Guinea	14	1	0	0	Local transmission	0
Namibia	11	0	0	0	Imported cases only	1
Eswatini	9	0	0	0	Imported cases only	3
Mozambique	8	0	0	0	Local transmission	2
Seychelles	8	0	0	0	Imported cases only	1
Gabon	7	0	1	0	Imported cases only	3
Benin	6	0	0	0	Imported cases only	4
Central African Republic	6	0	0	0	Imported cases only	3
Eritrea	6	0	0	0	Imported cases only	4
Cabo Verde	5	0	1	0	Imported cases only	3
Chad	5	0	0	0	Imported cases only	4
Mauritania	5	0	0	0	Imported cases only	2
Zimbabwe	5	0	1	0	Local transmission	3
Gambia	3	0	1	0	Imported cases only	2
Liberia	3	0	0	0	Local transmission	9
Angola	2	0	0	0	Imported cases only	9
Guinea-Bissau	2	0	0	0	Imported cases only	5
Territories**						
Réunion	207	0	0	0	Local transmission	1
Mayotte	82	0	0	0	Local transmission	1
Subtotal for all regions	750178	57610	36398	3301		
International conveyance (Diamond Princess)	712	0	7	0	Local transmission	15
Grand total	750890	57610	36405	3301		

*Numbers include both domestic and repatriated cases

†The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted and dashed lines on maps represent approximate border lines for which there may not yet be full agreement.

*Case classifications are based on [WHO case definitions](#) for COVID-19.

§Transmission classification is based on WHO analysis of available official data and may be subject to reclassification as additional data become available. Countries/territories/areas experiencing multiple types of transmission are classified in the highest category for which there is evidence; they may be removed from a given category if interruption of transmission can be demonstrated. It should be noted that even within categories, different countries/territories/areas may have differing degrees of transmission as indicated by the differing numbers of cases and other factors. Not all locations within a given country/territory/area are equally affected.

Terms:

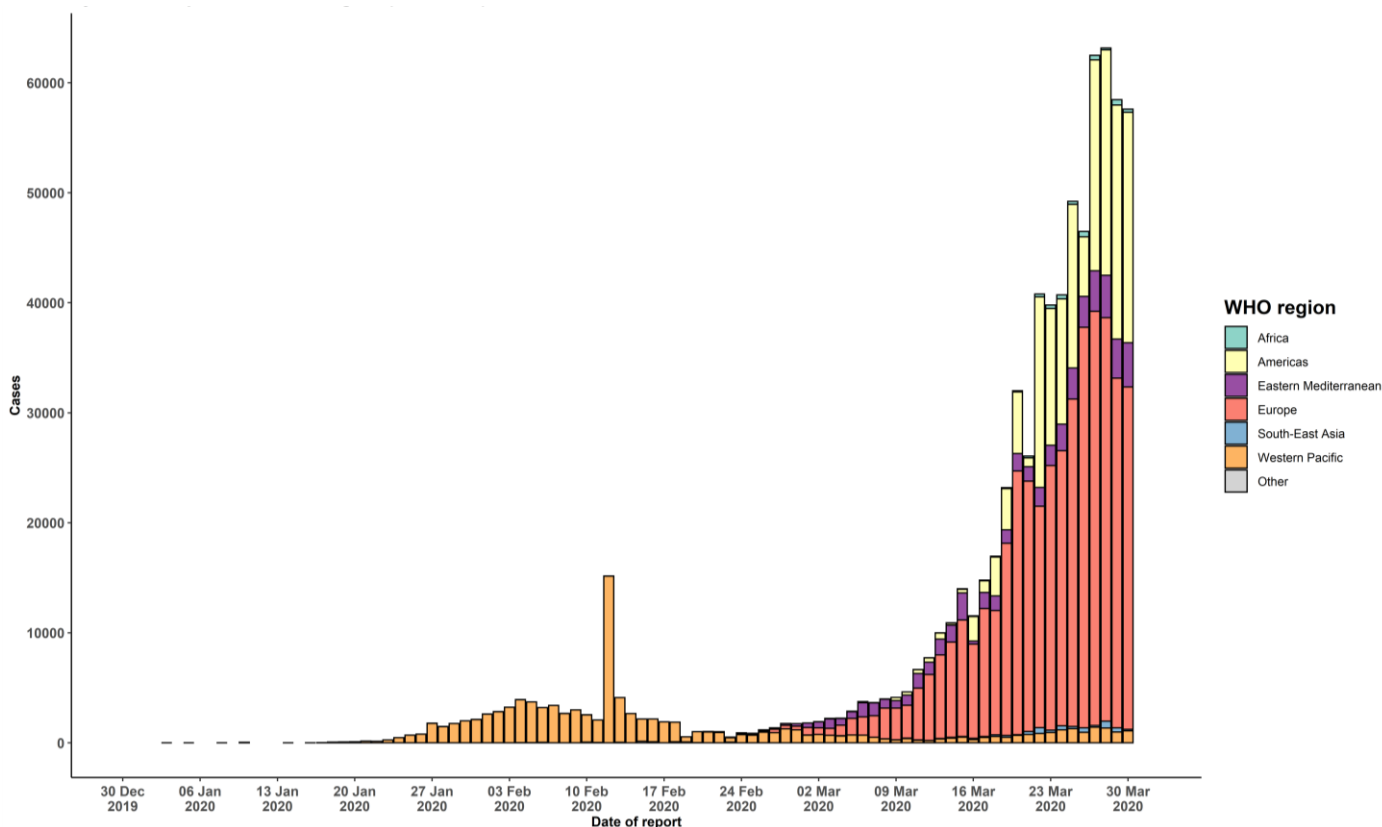
- **Community transmission** is evidenced by the inability to relate confirmed cases through chains of transmission for a large number of cases, or by increasing positive tests through sentinel samples (routine systematic testing of respiratory samples from established laboratories).
- **Local transmission** indicates locations where the source of infection is within the reporting location.
- **Imported cases only** indicates locations where all cases have been acquired outside the location of reporting.
- **Under investigation** indicates locations where type of transmission has not been determined for any cases.
- **Interrupted transmission** indicates locations where interruption of transmission has been demonstrated (details to be determined)

** "Territories" include territories, areas, overseas dependencies and other jurisdictions of similar status

^[1] All references to Kosovo should be understood to be in the context of the United Nations Security Council resolution 1244 (1999).

Due to differences in reporting methods, retrospective data consolidation, and reporting delays, the number of new cases may not always reflect the exact difference between yesterday's and today's totals. WHO COVID-19 Situation Reports present official counts of confirmed COVID-19 cases, thus differences between WHO reports and other sources of COVID-19 data using different inclusion criteria and different data cutoff times are to be expected.

Figure 1. Epidemic curve of confirmed COVID-19, by date of report and WHO region through 31 March 2020



STRATEGIC OBJECTIVES

WHO's strategic objectives for this response are to:

- Interrupt human-to-human transmission including reducing secondary infections among close contacts and health care workers, preventing transmission amplification events, and preventing further international spread*;
- Identify, isolate and care for patients early, including providing optimized care for infected patients;
- Identify and reduce transmission from the animal source;
- Address crucial unknowns regarding clinical severity, extent of transmission and infection, treatment options, and accelerate the development of diagnostics, therapeutics and vaccines;
- Communicate critical risk and event information to all communities and counter misinformation;
- Minimize social and economic impact through multisectoral partnerships.

*This can be achieved through a combination of public health measures, such as rapid identification, diagnosis and management of the cases, identification and follow up of the contacts, infection prevention and control in health care settings, implementation of health measures for travelers, awareness-raising in the population and risk communication.

PREPAREDNESS AND RESPONSE

- To view all technical guidance documents regarding COVID-19, please go to [this webpage](#).
- 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 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 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 is working with its networks of researchers and other experts to coordinate global work on surveillance, epidemiology, mathematical modelling, diagnostics and virology, clinical care and treatment, infection prevention and control, and risk communication. WHO has issued interim guidance for countries, which are updated regularly.
- WHO has prepared a [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 the R&D blueprint to accelerate diagnostics, vaccines, and therapeutics.
- OpenWHO is an interactive, web-based, knowledge-transfer platform offering online courses to improve the response to health emergencies. [COVID-19 courses can be found here](#) and courses in [additional national languages here](#). Specifically, WHO has developed online courses on the following topics:
 - A general introduction to emerging respiratory viruses, including novel coronaviruses (available in Arabic, Chinese, English, French, Russian, Spanish, Hindi, Indian Sign Language, Persian, Portuguese, Serbian and Turkish);
 - Clinical care for Severe Acute Respiratory Infections (available in English, French, Russian, Indonesian and Vietnamese);
 - Health and safety briefing for respiratory diseases - ePROTECT (available in Chinese, English, French, Russian, Spanish, Indonesian and Portuguese);
 - Infection Prevention and Control for Novel Coronavirus (COVID-19) (available in Chinese, English, French, Russian, Spanish, Indonesian, Italian, Japanese, Portuguese and Serbian); and
 - COVID-19 Operational Planning Guidelines and COVID-19 Partners Platform to support country preparedness and response (available in English and coming soon in additional languages).
- WHO is providing guidance on early investigations, which are critical 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](#). One such protocol is for the investigation of early COVID-19 cases and contacts (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 the potential spread and impact of infection.

RECOMMENDATIONS AND ADVICE FOR THE PUBLIC

If you are not in an area where COVID-19 is spreading or have not travelled from an area where COVID-19 is spreading or have not been in contact with an infected patient, your risk of infection is low. It is understandable that you may feel anxious about the outbreak. Get the facts from reliable sources to help you accurately determine your risks so that you can take reasonable precautions (see [Frequently Asked Questions](#)). Seek guidance from WHO, your healthcare provider, your national public health authority or your employer for accurate information on COVID-19 and whether COVID-19 is circulating where you live. It is important to be informed of the situation and take appropriate measures to protect yourself and your family (see [Protection measures for everyone](#)).

If you are in an area where there are cases of COVID-19 you need to take the risk of infection seriously. Follow the advice of WHO and guidance issued by national and local health authorities. For most people, COVID-19 infection will cause mild illness however, it can make some people very ill and, in some people, it can be fatal. Older people, and those with pre-existing medical conditions (such as cardiovascular disease, chronic respiratory disease or diabetes) are at risk for severe disease (See [Protection measures for persons who are in or have recently visited \(past 14 days\) areas where COVID-19 is spreading](#)).

CASE DEFINITIONS

WHO periodically updates the [Global Surveillance for human infection with coronavirus disease \(COVID-19\)](#) document which includes case definitions.

For easy reference, case definitions are included below.

Suspect case

A. A patient with acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath), AND a history of travel to or residence in a location reporting community transmission of COVID-19 disease during the 14 days prior to symptom onset.

OR

B. A patient with any acute respiratory illness AND having been in contact with a confirmed or probable COVID-19 case (see definition of contact) in the last 14 days prior to symptom onset;

OR

C. A patient with severe acute respiratory illness (fever and at least one sign/symptom of respiratory disease, e.g., cough, shortness of breath; AND requiring hospitalization) AND in the absence of an alternative diagnosis that fully explains the clinical presentation.

Probable case

A. A suspect case for whom testing for the COVID-19 virus is inconclusive.

a. Inconclusive being the result of the test reported by the laboratory.

OR

B. A suspect case for whom testing could not be performed for any reason.

Confirmed case

A person with laboratory confirmation of COVID-19 infection, irrespective of clinical signs and symptoms.

- Technical guidance for laboratory testing can be found [here](#).

Definition of contact

A contact is a person who experienced any one of the following exposures during the 2 days before and the 14 days

after the onset of symptoms of a probable or confirmed case:

1. Face-to-face contact with a probable or confirmed case within 1 meter and for more than 15 minutes;
2. Direct physical contact with a probable or confirmed case;
3. Direct care for a patient with probable or confirmed COVID-19 disease without using proper personal protective equipment¹; OR
4. Other situations as indicated by local risk assessments.

Note: for confirmed asymptomatic cases, the period of contact is measured as the 2 days before through the 14 days *after the date on which the sample was taken* which led to confirmation.

¹ World Health Organization. Infection prevention and control during health care when COVID-19 is suspected
[https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125)