LAST UPDATE: 15 JANUARY 2021

CORONAVIRUS
UPDATE
46

An update on

Testing strategies for COVID-19

THE LATEST ON THE COVID-19 GLOBAL SITUATION
& HOW TO USE TESTING TO ACHIEVE PUBLIC HEALTH MEASURES

World Health Organization | EPI·WiN | infodemic MANAGEMENT

Overview

Current global situation

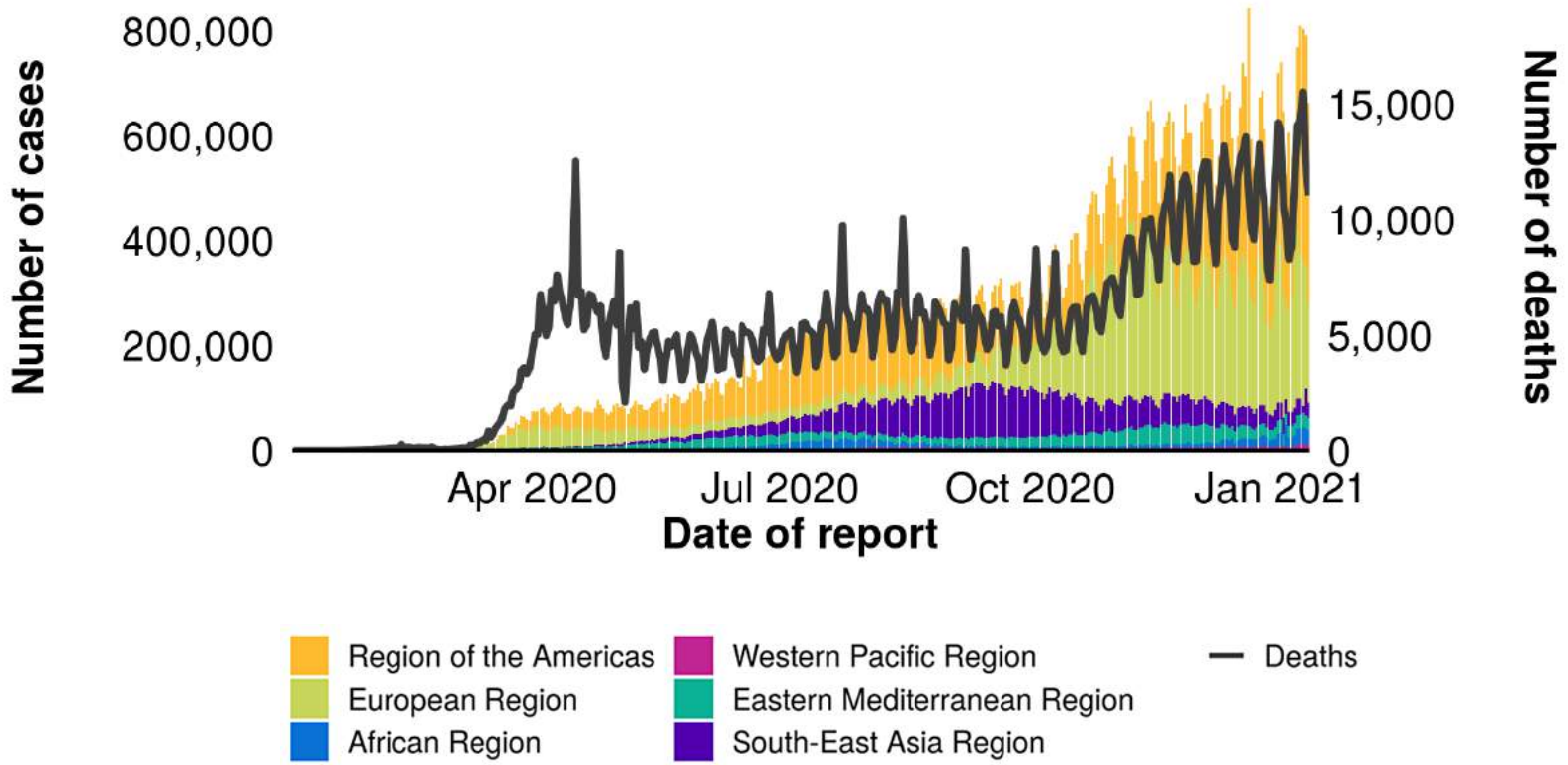
As of 11 January 2021, 10:00AM CEST

- **> 88 million cases**
  - 5 countries with highest cumulative number of cases
    -  United States of America
    -  India
    -  Brazil
    -  Russian Federation
    -  France

- **> 1,9 million deaths**
  - 5 countries with highest cumulative number of deaths
    -  United States of America
    -  Brazil
    -  India
    -  Mexico
    -  The United Kingdom

Current global situation

Cases reported to WHO as of 00 January 2021, 10:00AM CEST

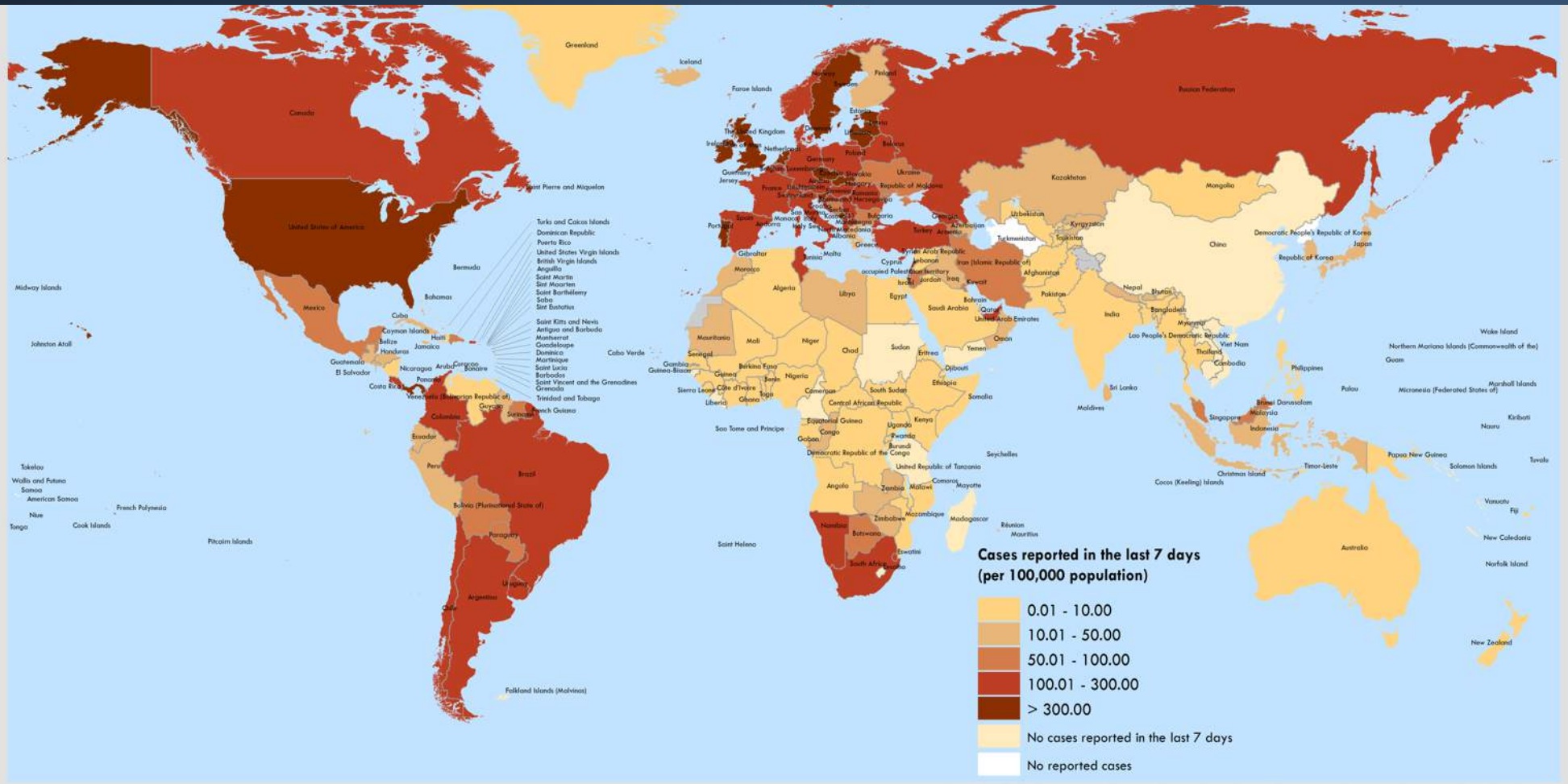


* Data are incomplete for the current week. Cases depicted by bars; deaths depicted by line

COVID-19 cases reported in the last 7 days

Per million population

FROM 04 to 10 JANUARY 2021, 10:00 AM CEST



Data Source: World Health Organization,
United Nations Population Division (population prospect 2020)
Map Production: WHO Health Emergencies Programme

Not applicable

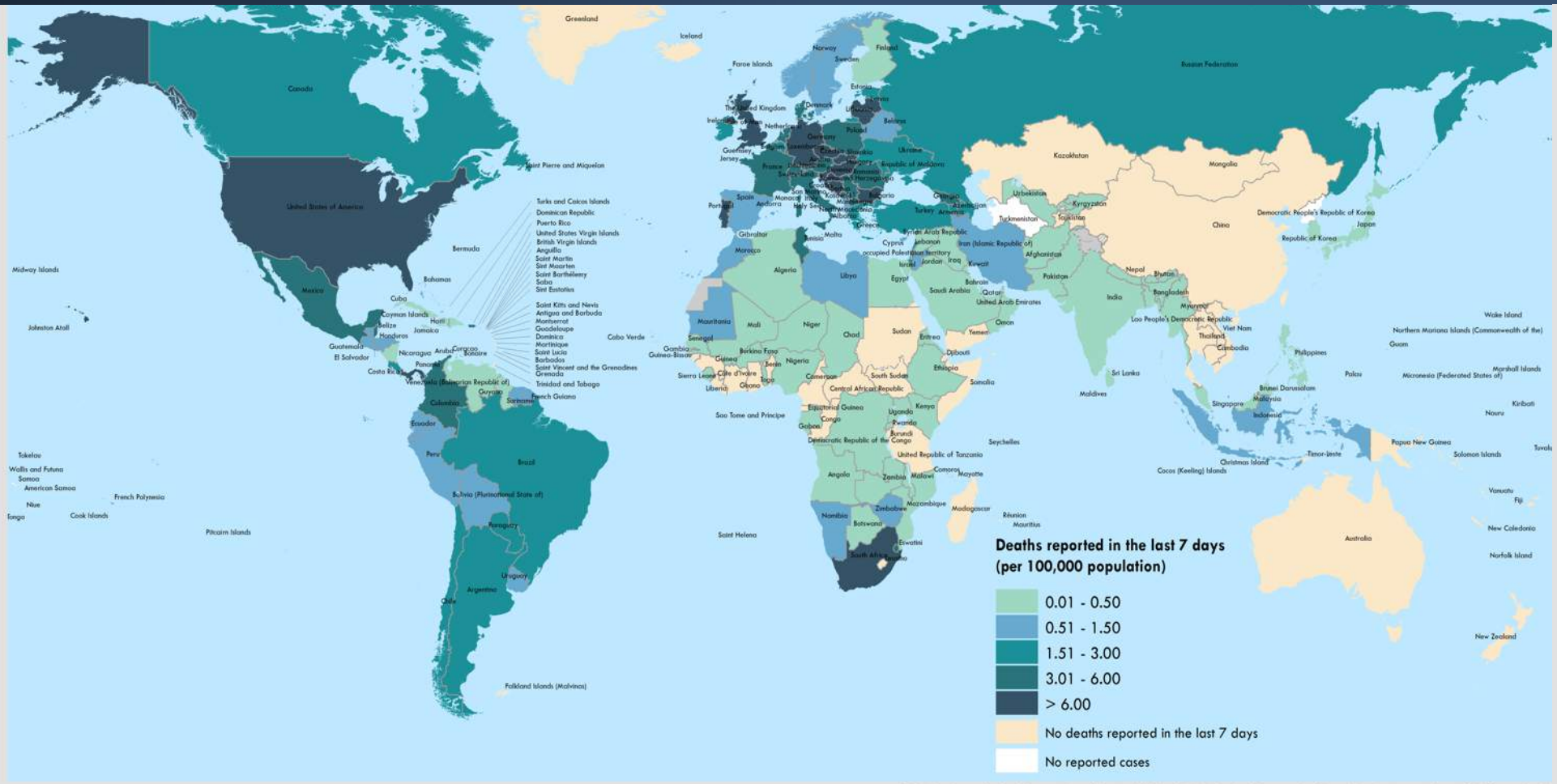
0 2,500 5,000 km

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. [1] All references to Kosovo in this document should be understood to be in the context of the United Nations Security Council resolution 1244 (1999). Number of cases of Serbia and Kosovo (UNSCR 1244, 1999) have been aggregated for visualization purposes. Data for Bonaire, Sint Eustatius and Saba have been disaggregated and displayed at the subnational level.

COVID-19 deaths reported in the last 7 days

Per million population

FROM 04 to 10 JANUARY 2021, 10:00 AM CEST



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How to use testing to achieve public health goals

- **Testing is part of a comprehensive strategy** to suppress SARS-CoV-2 transmission and save lives
- **Testing should be strategic**, make the best use of available resources and link to clear public health goals

Diagnostic tests for COVID-19

RT-PCR*/NAAT** Molecular test

Detects genetic material of the virus

- To diagnose a current SARS-CoV-2 infection
- Uses respiratory tract sample
- Identifies asymptomatic cases
- Approximately 1 day for results depending on context

Antigen rapid diagnostic test (RDT)

Detects viral proteins (antigens)

- To diagnose a current SARS-CoV-2 infection
- Uses respiratory tract sample
- Results within 30 minutes
- Performance best in first 5-7 days of symptoms

Serologic test

Detect human antibodies against the virus

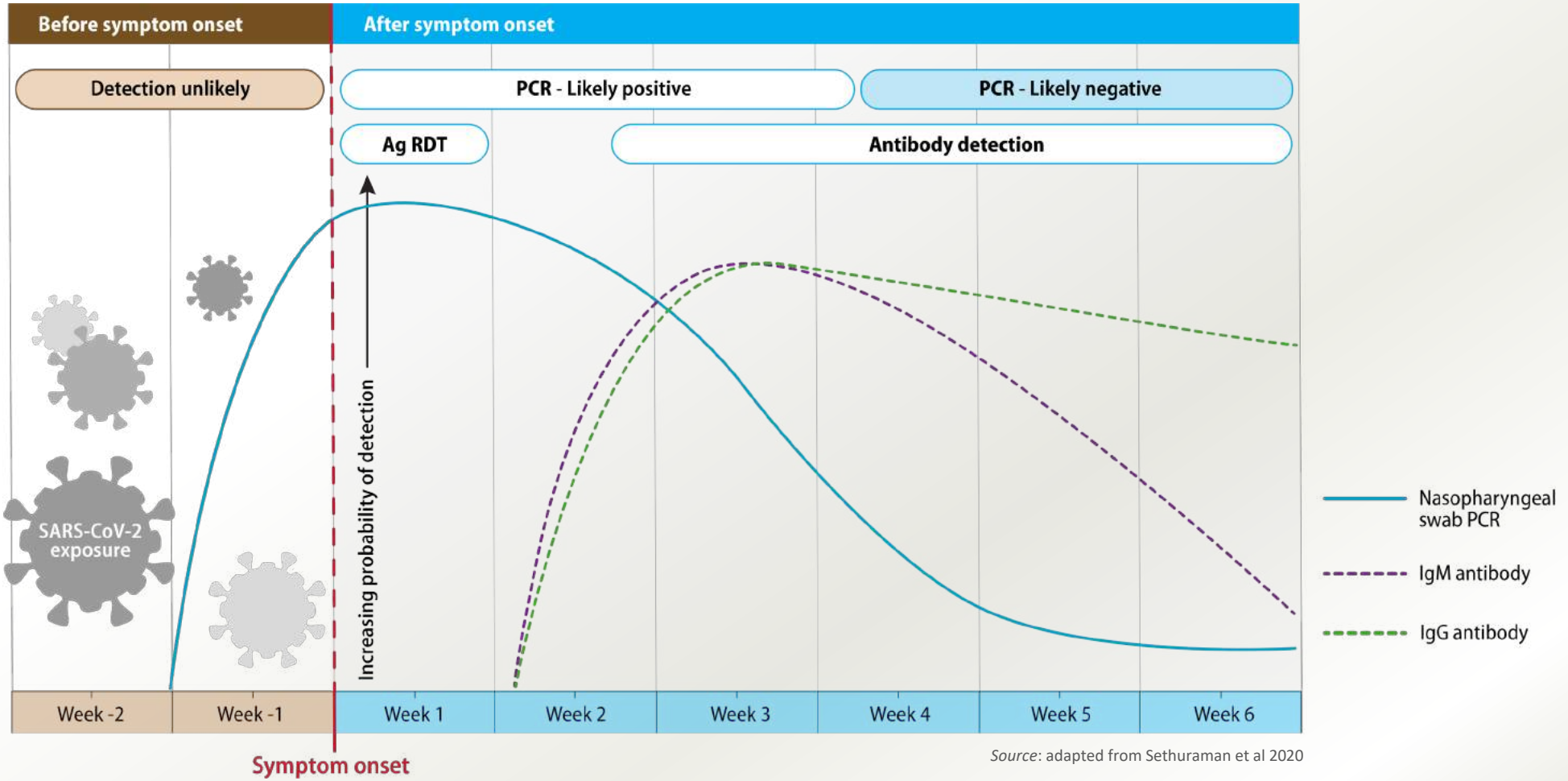
- Measures the immune response to an infection
- Uses blood
- Informs who has been infected previously
- COVID-19 patients develop antibodies about 10-30 days after symptoms start

* RT-PCR: real-time reverse-transcription polymerase chain reaction
** NAAT: Nucleic acid amplification tests

https://www.who.int/publications/i/item/diagnostic-testing-for-sars-cov-2
https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update-23-epi-win-diagnostics-testing.pdf?sfvrsn=572ed182_2

Detection of SARS-CoV-2 relative to symptom onset

Figure. Estimated variation over time in diagnostic tests for detection of SARS-CoV-2 infection relative to symptom onset



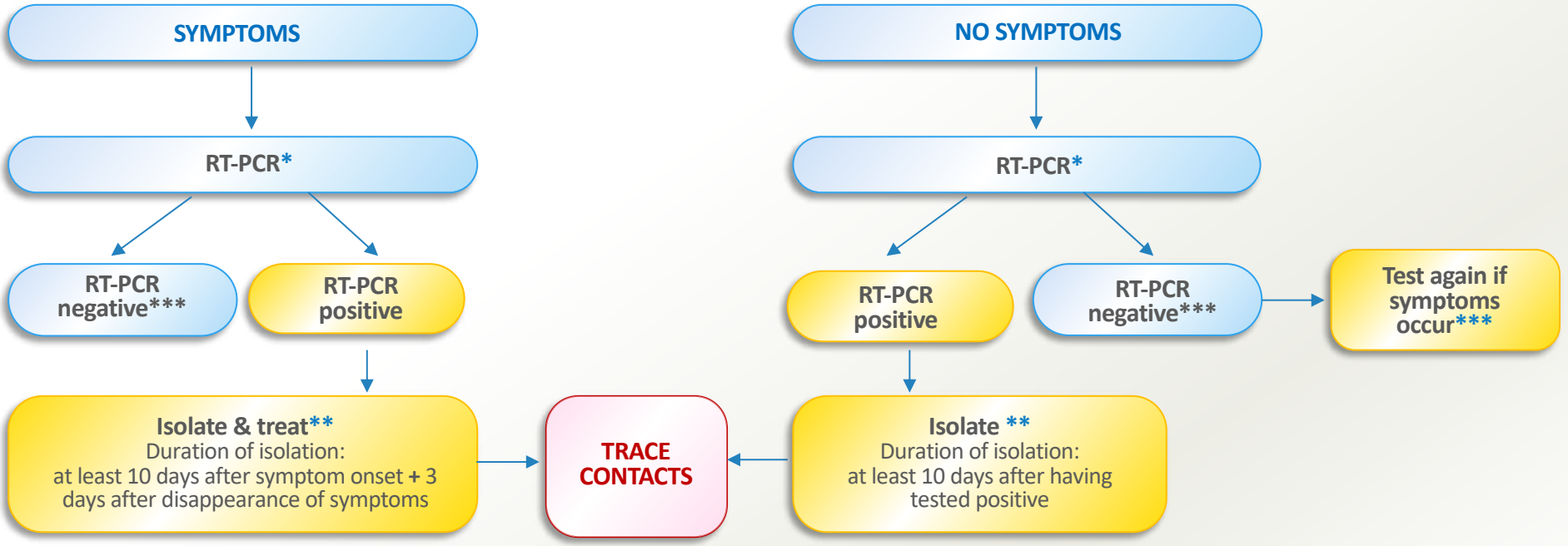
Source: adapted from Sethuraman et al 2020

https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update-23-epi-win-diagnostics-testing.pdf?sfvrsn=572ed182_2

Monto, Cowling and Pereis. Coronaviruses. R.A. kaslow et al. (eds.), Viral infections in humans. https://link.springer.com/content/pdf/10.1007%2F978-1-4899-7448-8_10.pdf

Testing can identify symptomatic & asymptomatic COVID-19 cases

Testing informs clinical management and supports contact tracing



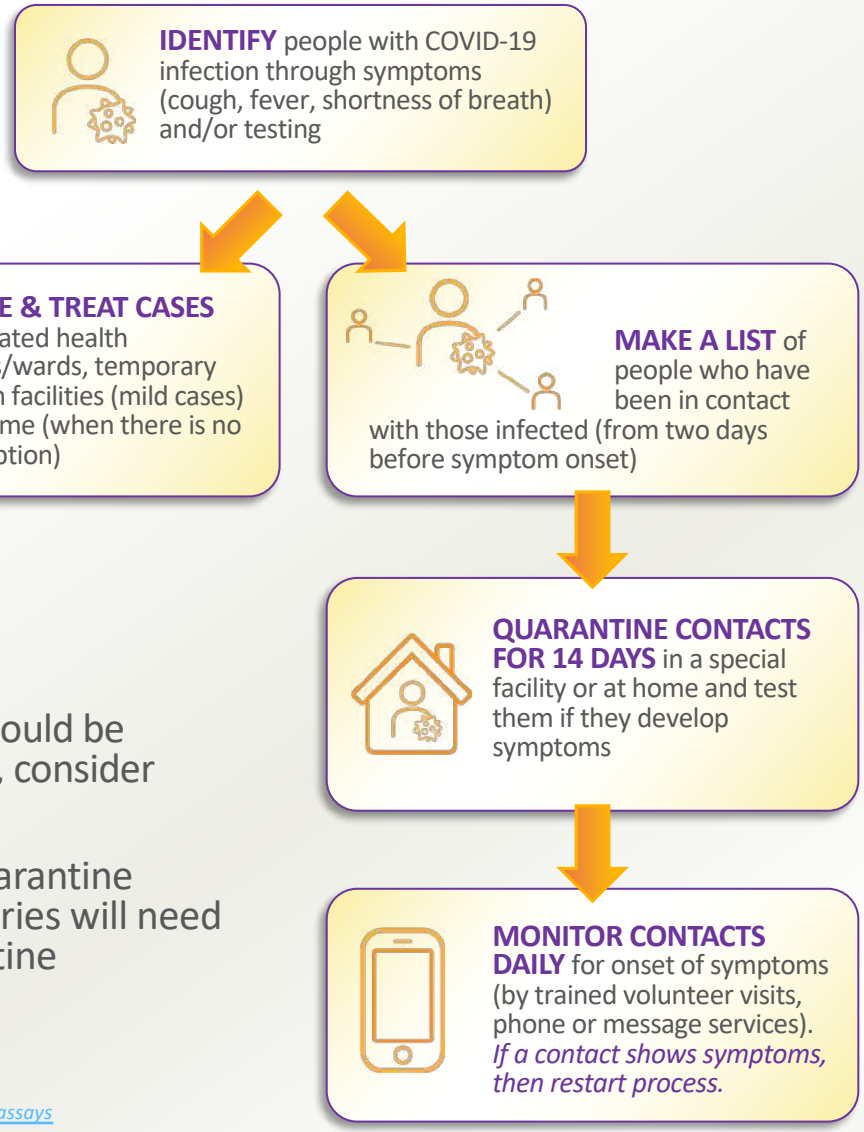
* In settings of wide spread community transmission & where there is no or limited NAAT capacity, a RDT meeting minimum performance criteria could be used
** Inform patient about when and where to seek health care and assure access to health for all
*** Repeat test per national guidance

https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update41-covid-19-and-influenza.pdf?sfvrsn=38196373_2
https://www.who.int/publications/i/item/antigen-detection-in-the-diagnosis-of-sars-cov-2infection-using-rapid-immunoassays
https://www.who.int/publications/i/item/diagnostic-testing-for-sars-cov-2
https://www.who.int/publications/i/item/clinical-management-of-covid-19

How to identify those who are infected & break the chains of transmission

Testing is important to identify those who are infected so that cases can be isolated, onward transmission prevented and their contacts traced

- Contacts of positive cases should quarantine for 14 days*
- Contacts in quarantine should be monitored and supported
- If a contact shows symptoms during quarantine, the contact should be tested for SARS-CoV-2 infection. If feasible and capacities allow, consider testing a subset of asymptomatic contacts as well
- Some countries have shortened the recommended 14 day quarantine period for contacts and/or test contacts before release. Countries will need to balance the risks and benefits of early release from quarantine

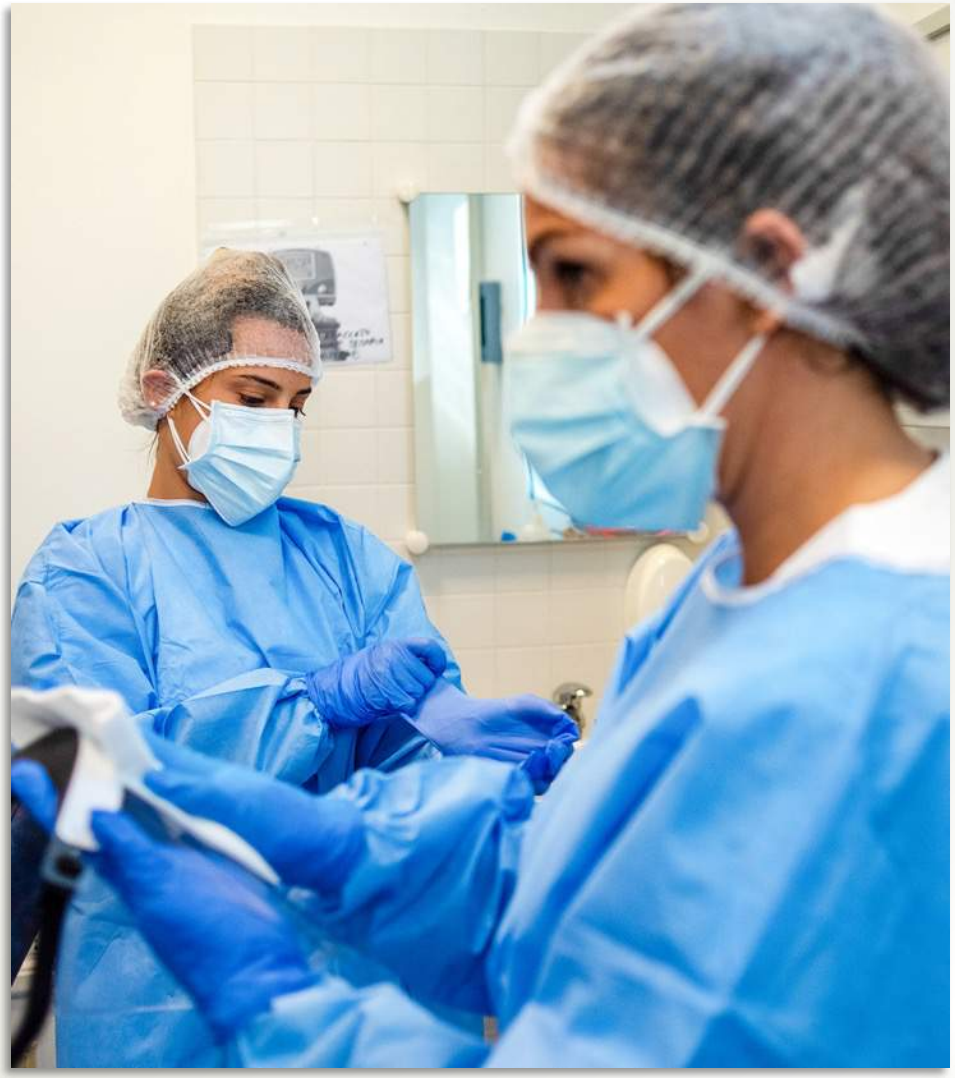


* Incubation period of SARS-CoV-2 infection is 1-14 days

https://www.who.int/publications/i/item/antigen-detection-in-the-diagnosis-of-sars-cov-2infection-using-rapid-immunoassays
https://www.who.int/publications/i/item/contact-tracing-in-the-context-of-covid-19

Protecting the health system

- **Health workers** account for around **7.7% of COVID-19 cases** reported to WHO[1]
- Health workers can be infected with SARS-CoV-2 while at their work or at the community level
- **Testing is a key strategy**
  - To treat and isolate cases when positive
  - To reduce the risk of transmission to patients, co-workers, visitors and their contacts outside the health facility
- A **national and/or local surveillance and testing strategy** for health workers should be developed and implemented



Source: WHO

[1] https://www.who.int/news/item/17-09-2020-keep-health-workers-safe-to-keep-patients-safe-who
https://www.who.int/publications/i/item/10665-336265

Scenarios and testing strategies for health workers

WHO recommends health workers be prioritized for testing

Health-care Setting	Transmission scenario	Possible testing strategy target (where resources allow)
Acute care	**No cases or Sporadic cases**	• Symptomatic health workers • Health worker identified as a contact of a SARS-CoV-2 case • Health workers associated with transmission to or from a patient or resident or with an outbreak investigation
	Clusters or community transmission	• Symptomatic health workers • Health worker identified as a contact of a SARS-CoV-2 case • Health workers associated with transmission to or from a patient, a cluster, or with an outbreak investigation • Health workers working in any clinical area; identifying priority areas based on risk assessment (e.g. triage, emergency services or COVID-19 wards) where resources are limited • All health workers who work in COVID-19 services or facilities
Long-term care	**All transmission scenarios**	• Symptomatic health workers • Health workers identified as a contact of a SARS-CoV-2 case • Testing of all health workers when a positive case of SARS-CoV-2 is identified in a resident or staff member • Routine testing of health workers, if feasible

https://www.who.int/publications/i/item/10665-336265

Testing for COVID-19 in the context of international travel

- Many countries test international travelers for SARS-CoV-2 prior to travel, at points of entry or after travel
- **WHO does not recommend testing for healthy travelers**, particularly where resources may be limited and/or diverted from high-risk groups and settings. Countries with sufficient resources that decide to implement testing of travelers, should do so based on risk assessment
- The risk assessment should consider the local epidemiological situation, health system capacities, volume of travel and arrangements for follow-up of incoming travelers who test positive
- **Testing does not replace public health & social measures for epidemic control**
- **Negative results from pre-travel testing cannot guarantee that travelers are free from infection** at the time of travel
- Negative results may generate a false sense of security and disregard the precaution measures during travel and at arrival
- **WHO does not recommend the issuance of so-called 'immunity passports'**

https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci_Brief-international_travel_testing-2020.1
https://apps.who.int/iris/bitstream/handle/10665/331866/WHO-2019-nCoV-Sci_Brief-Immunity_passport-2020.1-eng.pdf
https://apps.who.int/iris/bitstream/handle/10665/331512/WHO-2019-nCoV-POEmgmt-2020.2-eng.pdf

Why SARS-CoV-2 outbreak investigations are necessary

Outbreaks of SARS-CoV-2 have been reported in different settings

Clusters and localised outbreaks should be investigated to:

- Break the chains of transmission
- Understand transmission patterns
- Decide on best public health measures to be implemented
- Support effective communication & community engagement

The role of Ag-RDT in outbreak investigations

Source: David L. Ryan / The Boston Globe/Getty Images

RDTs can be used to:

- **Respond to suspected outbreaks**
  - This will trigger the early implementation of public health measures to stop transmission
  - A cluster of positive tests is highly suggestive of a SARS-CoV-2 outbreak
- **Support outbreak investigations**
  - To screen and isolate positive cases, when outbreaks are confirmed by PCR

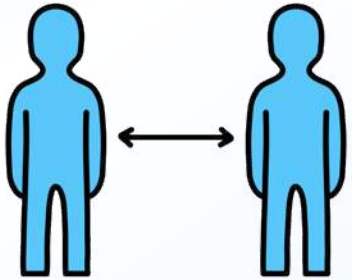
Source: Manan Vatsyayana/ AFP/ Getty Images

https://www.who.int/publications/i/item/antigen-detection-in-the-diagnosis-of-sars-cov-2infection-using-rapid-immunoassays

COVID-19 protection measures

Protect yourself & others

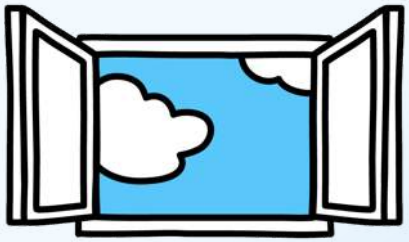
Wear a mask



Keep your distance

Wash your hands frequently

Cough & sneeze into your elbow



Ventilate or open windows

WHO resources

- **Overview of Public Health and Social Measures in the context of COVID-19 Interim guidance**, 18 May 2020
  https://www.who.int/publications/i/item/overview-of-public-health-and-social-measures-in-the-context-of-covid-19
- **Considerations for implementing and adjusting public health and social measures in the context of COVID-19 Interim guidance**, 4 November 2020
  https://www.who.int/publications/i/item/considerations-in-adjusting-public-health-and-social-measures-in-the-context-of-covid-19-interim-guidance
- **Diagnostic testing for SARS-CoV-2** Interim guidance, 11 September 2020
  https://www.who.int/publications/i/item/diagnostic-testing-for-sars-cov-2
- **EPI WiN update n°23 : Diagnostics and testing CORONAVIRUS (COVID-19)**
  https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update-23-epi-win-diagnostics-testing.pdf?sfvrsn=572ed182_2
- **Monto, Cowling and Pereis. Coronaviruses. R.A. kaslow et al. (eds.), Viral infections in humans**
  https://link.springer.com/content/pdf/10.1007%2F978-1-4899-7448-8_10.pdf
- **Interpreting Diagnostic Tests for SARS-CoV-2**
  https://jamanetwork.com/journals/jama/fullarticle/2765837
- **EPI WiN update n°41 : What we know about COVID-19 and influenza**
  https://www.who.int/docs/default-source/coronaviruse/risk-comms-updates/update41-covid-19-and-influenza.pdf?sfvrsn=38196373_2

WHO resources, cont.

- **Antigen-detection in the diagnosis of SARS-CoV-2 infection using rapid immunoassays Interim guidance 11 September 2020**
  https://www.who.int/publications/i/item/antigen-detection-in-the-diagnosis-of-sars-cov-2infection-using-rapid-immunoassays
- **Clinical management of COVID-19 interim guidance 27 May 2020**
  https://www.who.int/publications/i/item/clinical-management-of-covid-19
- **Contact tracing in the context of COVID-19 interim guidance 10 May 2020**
  https://www.who.int/publications/i/item/contact-tracing-in-the-context-of-covid-19
- **Keep health workers safe to keep patients safe: WHO News release 17 September 2020**
  https://www.who.int/news/item/17-09-2020-keep-health-workers-safe-to-keep-patients-safe-who
- **Prevention, identification and management of health worker infection in the context of COVID-19 Interim guidance 30 October 2020**
  https://www.who.int/publications/i/item/10665-336265
- **COVID-19 diagnostic testing in the context of international travel Scientific brief 16 December 2020**
  https://www.who.int/publications/i/item/WHO-2019-nCoV-Sci_Brief-international_travel_testing-2020.1
- **'Immunity passports' in the context of COVID-19 Scientific brief 24 April 2020**
  https://apps.who.int/iris/bitstream/handle/10665/331866/WHO-2019-nCoV-Sci_Brief-Immunity_passport-2020.1-eng.pdf

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