# WHO policy brief: COVID-19 testing

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World Health Organization

## Key points

- It remains critical for national programmes to continue to offer testing for COVID-19 in line with three main objectives: reduce morbidity and mortality through linkage to prompt care and treatment, reduce onward transmission and track the evolution of the epidemic and the virus itself.

- Testing of suspected cases early in the disease course – especially among people at increased risk for hospitalization or severe COVID-19 – enables access to supportive care and COVID-19 therapeutics.

- Confirming COVID-19 through testing for SARS-CoV-2 followed by isolation (and follow up of relevant contacts) can reduce transmission. At the population level, fluctuations in testing data can contribute to decisions on intensifying or relaxing public health and social measures.

- WHO continues to recommend maintaining and strengthening COVID-19 surveillance, including use of sequencing, to monitor changes in epidemiological patterns, trends in morbidity and mortality, the burden of disease on health care capacity (health and care workers, hospitalizations and intensive care unit admissions) and the evolution and circulation of variants.

## Introduction

More than 2.5 years since the first COVID-19 cases were reported, the pandemic remains an acute global emergency. At the present time, there continue to be millions of people infected each week with SARS-CoV-2, and in the first eight months of 2022, more than one million people were reported to have died from COVID-19 (WHO COVID-19 Dashboard). With access to and appropriate use of existing life-saving tools, COVID-19 can become a manageable disease with significantly reduced morbidity and mortality. Lives  and livelihoods can be saved, but there is still work to be done.

The World Health Organization (WHO) recognizes the challenges countries face for maintaining their COVID-19 response while addressing competing public health challenges, conflicts, climate change and economic crises. WHO continues to support countries in adjusting COVID-19 strategies to reflect successes to date and leverage what has been learned through national responses.

To assist national and global efforts to end the COVID-19 emergency worldwide, WHO updated the COVID-19 (Global Preparedness, Readiness and Response plan)  in 2022 and outlined two strategic objectives. First, reduce the circulation of SARS-CoV-2 by protecting individuals, especially vulnerable individuals at risk of severe disease or occupational exposure to the virus. This action will reduce pressure on the virus to evolve and the probability that future variants will emerge and will reduce the burden on health systems. Second, prevent, diagnose and treat COVID-19 to reduce mortality, morbidity and long-term sequelae. WHO's plan further looks ahead to research, development and equitable access to effective countermeasures and essential supplies.

Recognizing that countries are in different situations with regards to COVID-19 due to a number of factors including differences in population level immunity; public trust; access to and use of COVID-19 diagnostics, therapeutics, vaccines, personal protective equipment; and challenges from other health/non-health emergencies, WHO has produced a package of six short policy briefs. These briefs aim to help countries update policies to focus on critical aspects of managing the acute and long-term threats of COVID-19 while consolidating the foundation for a stronger public health infrastructure (Strengthening the Global Architecture for Health Emergency Preparedness, Response and Resilience).

The policy briefs outline essential actions that national and sub-national policy makers can implement for the following: COVID-19 testing, clinical management of COVID-19, reaching COVID-19 vaccination targets, maintaining infection prevention and control measures for COVID-19 in health care facilities, building trust through risk communication and community engagement and managing the COVID-19 infodemic. This policy brief focuses on COVID-19 testing (link to the six policy briefs).

## Purpose of this document

This (and the other five COVID-19 policy briefs) provides a brief overview of the key actions advised to Member States based on recommendations published in WHO COVID-19 technical guidance. It also articulates the need for sustained financing and a trained, protected and respected workforce to maintain these life-saving actions in the context of competing health and non-health emergencies. It additionally recognizes the need to strengthen the acute and longer-term response for COVID-19 in relation to other pressing public health issues.

## Essential actions for Member States to consider in updating COVID-19 testing policies

At this stage of the pandemic, it remains critical to sustain fit-for-purpose testing systems and strategies that strive to meet three main objectives: (1) enable timely and appropriate clinical management of COVID-19 *(1)*; (2) reduce the spread of SARS-CoV-2 through isolation of confirmed cases and adjustment of public health and social measures (PHSM) based on epidemiological trends, including testing data *(2)*; and (3) track the circulation and evolution of the virus to detect increases in incidence, and emergence and impact of SARS-CoV-2 variants *(3, 4)*.

Nucleic acid amplification tests (NAAT), such as real-time reverse-transcription polymerase chain reaction (rRT-PCR) tests, are the most sensitive and specific tests for diagnosing COVID-19 *(5)*. Antigen-detection rapid diagnostic tests (Ag-RDTs) are recommended as a viable alternative to confirm SARS-CoV-2 infection, especially in settings where NAAT is not available or results are not timely *(6)*. Although Ag-RDTs are somewhat less sensitive than NAAT, they offer rapid, inexpensive and user-friendly detection of the most infectious SARS-CoV-2 cases. Ag-RDTs are available for use by trained operators and by individuals through self-testing *(7)*.

A strong national testing system in which SARS-CoV-2 diagnosis is integrated within laboratory settings, primary health care and in the community, including the use of COVID-19 self-testing, will be most effective *(8)*. Ideally, COVID-19 testing services should be integrated with testing for other respiratory illnesses such as influenza and respiratory syncytial virus (RSV), which may be aided by the use of multiplex assays *(9, 10)*. *Accessibility and affordability* are key features of successful COVID-19 testing programmes and strategies in the context of the circulation of SARS-CoV-2.

### 1. Test early in the course of COVID-19 to enable timely care and treatment

Testing of suspected cases *(11)* early in the disease course – especially among people at increased risk for hospitalization or severe COVID-19 *(1)* – enables access to supportive care and COVID-19 therapeutics, including antivirals *(12, 13)*. Ensuring access to SARS-CoV-2 testing can also support individuals who

experience long-term symptoms and may have post-COVID-19 condition *(14)*. As the effectiveness of COVID-19-specific antivirals is highest when they are administered within the first few days of infection, COVID-19 testing should be integrated within relevant points of care across all levels of the health care system to enable prompt diagnosis. This may include, but is not limited to, primary health care, non-communicable diseases (NCD) specialized services, respiratory care, services for immunocompromised individuals and in health care settings for older individuals.

SARS-CoV-2 Ag-RDTs are simpler and faster to perform than NAAT and can be conducted outside of clinical and laboratory settings by trained operators e.g. using the SARS-CoV-2 Antigen RDT Training Package *(15)* or by individuals as part of self-testing. They offer rapid, inexpensive and early detection of the most infectious SARS-CoV-2 cases in places where NAAT is not available, or results are not timely. Use of Ag-RDTs may enable prompt linkage to care and use of COVID-19 antivirals for individuals who test positive.

To support case finding and prompt care, tailoring testing services to reach priority populations and within priority settings [for definitions, see *(3)*], such as long-term care facilities and nursing homes, may also be considered. Where decentralized testing is offered to enable early diagnosis and linkage to care and treatment, it is important to have appropriate data capture systems to track access to services and the effectiveness of COVID-19 care programmes.

## 2. Test to reduce spread

Testing can support transmission reduction at both individual and population levels. At the individual level, isolation following a positive test reduces the likelihood of transmission to others. To facilitate prompt diagnosis to reduce spread, contacts of confirmed or probable cases should have access to free or affordable testing – which may include self-tests *(16)*. Testing may also allow contacts without symptoms who test negative to reduce the quarantine period *(16)*. Routine testing may also be considered in priority settings (such as care facilities) to enable earlier diagnosis followed by PHSM to protect populations that are at particularly high risk. Further, individuals who have regular interaction with high-risk individuals (e.g. in households or priority settings) should be prioritized for testing, especially when symptomatic.

Individuals without symptoms may also consider use of a negative test as means to access activities (e.g. a family visit) or settings to increase their confidence that they are uninfected, even if they have no known history of exposure to SARS-CoV-2. However false negative results can occur, especially among individuals who test early.

At the population level, compilation of testing data can contribute to a situational assessment of the intensity of transmission. These data can establish the basis for intensifying or relaxing PHSM aimed at minimizing the spread of COVID-19 *(2)*. Testing data may also have predictive value for the demand for clinical care. Finally, routine testing or one-off testing to exclude potentially infected individuals from participation in an activity (for example, attendance at a performance or indoor event) could reduce onward transmission, but in the context of large gatherings and events, this may require considerable costs because of large volumes of tests needed and, if offered through trained operators, considerable human resources. Policies that include testing in the context of travel *(17-20)*, educational settings *(21,22)* or work places *(23,24)* should be formulated on a case-by-case basis. At this time, WHO continues to recommend that decision-making related to gatherings follow a risk-based approach *(25)*.

## 3. Test to track the evolution of the epidemic and the SARS-CoV-2 virus

Testing is important for public health surveillance to maintain visibility on the circulation and evolution of SARS-CoV-2. WHO continues to recommend maintaining and strengthening surveillance to monitor for changes in epidemiological patterns, trends in morbidity and mortality, the impact of the burden of disease on health care capacity and the evolution and circulation of SARS-CoV-2 variants *(3, 4)*. To achieve these objectives, it is critical that testing data be integrated within multiple surveillance systems across human and animal health.

COVID-19 surveillance should be viewed within the larger context of other diseases, especially those caused by respiratory pathogens (such as influenza and respiratory syncytial virus). This can be done through surveillance for influenza-like-illness (ILI), acute respiratory infection (ARI) and severe acute respiratory infections (SARI) *(26)*, including sampling and laboratory testing of all or a subset of cases from sentinel surveillance sites *(27, 28)*. Leveraging existing national and global sentinel surveillance networks, such as the Global Influenza Surveillance and Response System (GISRS) *(29)*, will continue to contribute to monitoring the spread and intensity of transmission of respiratory viruses, including SARS-CoV-2, to guide control measures.

To assess changes and virological characteristics of SARS-CoV-2 variants, COVID-19 testing and reporting strategies should be linked to genomic surveillance *(30, 31)* and phenotypic assessment *(32)*. To ensure representativeness, sampling approaches should consider mechanisms to enable sequencing of specimens from individuals who test positive using NAAT and Ag-RDT services, where feasible and *(33, 34)*. Genomic and phenotypic characterization data are needed to assess and analyse the risk posed by SARS-CoV-2 variants, including to the effectiveness of medical counter-measures, such as vaccines. These data are vital to support the work of the (TAG-VE) *(35)* and the (TAG-CO-VAC) *(36)*, both of which advise WHO as part of the COVID-19 response. It is acknowledged that establishing and maintaining testing and sequencing systems that are fit for purpose will require considerable political will, sustained financing and expertise *(37)*.

Finally, while SARS-CoV-2 circulation is driven by human-to-human transmission, SARS-CoV-2 is a zoonotic virus. Although there is no evidence that SARS-CoV-2 infections in animals have a significant impact on human health, animal health or biodiversity, there is concern about the establishment of new animal reservoir(s), and potential virus evolution in novel hosts *(38)*. The global scarcity of SARS-CoV-2 data in animals illustrates the need for increased animal susceptibility research, epidemiologic follow-up on animal contacts of confirmed human COVID-19 cases and an increase in targeted surveillance in susceptible animals (including pets, livestock and wild animals) *(39)*. All these activities require close collaboration across relevant sectors (e.g. public health, animal health, wildlife and environmental) following a One Health approach. All confirmed animal cases of SARS-CoV-2 should be reported through the World Animal Health Information System *(40)*, and genetic sequence data from animals should be shared through publicly available databases.

## Conclusions

At this stage of the COVID-19 pandemic, a sustained and strategic approach to testing will save lives, reduce the risk of new surges and help the world contain the most serious public health emergency of the 21$^{st}$ century to date.

## Plans for updating

WHO will continue to monitor the situation closely for any changes that may affect this policy brief. WHO will issue necessary updates as evidence becomes available and is reviewed.

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