Holistic response strategies for COVID-19

Interim Guidance: Testing, surveillance and contact tracing

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World Health Organization
Western Pacific Region

1. Introduction

1.1 Background

This document guides laboratory testing strategies for countries and areas with limited laboratory capacity to reduce morbidity and mortality from coronavirus disease 2019 (COVID-19).

1.1.1 Rationale

The World Health Organization (WHO) recommends that all suspected cases be tested, where possible.[1] Laboratories with sufficient capacity can additionally inform global understanding of the genetic characterization of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2).

Laboratory testing strategies for COVID-19 first and foremost inform the response and should thus be developed along with surveillance and response strategies.

In settings where testing capacities are limited due to resource constraints or global shortages of laboratory reagents and supplies, national health authorities must prioritize population groups to test. This document proposes strategic approaches that link laboratory testing with surveillance and contact tracing to guide the outbreak response using a reduced number of tests performed.

The strategies are organized according to stages of transmission:

- **No cases reported or observed (Stage 0)**
- **Imported cases (Stage 1):** Most cases have been acquired outside the location of reporting or are directly linked to imported cases, and the generation of secondary cases is limited.
- **Localized community transmission (Stage 2):** Local transmission has been detected (i.e. cases cannot be linked to importation), but most sources of infection are identified and most cases are occurring within a defined geographical area.
- **Large-scale community transmission (Stage 3):** Cases cannot be easily linked to a source of infection; people in the area are at high risk for infection.

The response strategy for each of these stages is different, so strategies for testing, surveillance and contact tracing should also be different. Different areas within a country are likely to be in different stages of transmission at any given time, so strategies should be oriented subnationally. For each stage, the recommended approaches indicate which testing strategy to prioritize when there are severe limitations on laboratory testing.

Changes in laboratory testing strategies make it challenging for surveillance to determine the true trend in disease incidence. It is thus important to follow strategies consistently and inform surveillance personnel of any change immediately.

Please note that this document is based on the current epidemiology of COVID-19 and real-time reverse transcription polymerase chain reaction (rRT-PCR) testing methods. As our understanding of the epidemiology improves and other testing methods become suitable for COVID-19, these strategies may be adapted accordingly.

1.1.2 Objective

To outline the minimum requirements of laboratory testing for COVID-19 to allow national health authorities to confirm active transmission as well as

[1] See Laboratory testing strategy recommendations for COVID-19. Geneva: World Health Organization; 2020 (https://apps.who.int/iris/handle/10665/331509).

to monitor transmission trends and geographical distribution.

1.1.3 Considerations

- Global shortage of laboratory supplies
- Limited capacity for testing in some countries and areas
- Crowding of health-care facilities, which can increase infections, especially among health workers

1.2 Target audience

COVID-19 laboratory and epidemiologic surveillance professionals.

2. Critical priority actions

2.1 Stage 1: Imported cases

2.1.1 Objectives

- Contain imported cases.
- Continually assess the transmission stage (know when in Stage 2).

2.1.2 Testing

- Test all suspected cases (according to case definition).
- Test all patients with severe clinical presentation[2] (in parallel with respiratory panel).
- If testing capacity allows, systematically select specimens from patients with severe acute respiratory infection (SARI) or influenza-like illness (ILI) (e.g. every *n*th specimen).
- If testing capacity is severely limited, prioritize those patients with severe conditions.
- Do not test for discharging confirmed cases; quarantine for 14 days after symptoms resolve.

Novel testing approaches have been used in some countries to test a substantial proportion of the population, including non-suspected cases, employing community screening stations, drive-through testing and home-based testing kits. Such strategies should only be used after considering the above objectives, capacity to test, local context and potential consequences. Risk communication and clear triage and referral criteria are essential to avoid overburdening the health-care system and prevent continued transmission of infection.

2.1.3 Surveillance

- Review all confirmed cases (importations, cases with no known epidemiological link, clusters and their sizes and generations, health workers, deaths).
- Monitor COVID-19 positivity trend.[3]
- Conduct active surveillance of severe respiratory clinical presentation in health-care settings.
- Monitor SARI/ILI surveillance trends and influenza positivity.
- Conduct event-based surveillance for reports of clusters of respiratory illness (to investigate).

2.1.4 Contact tracing

- Identify contacts of confirmed cases and ask them to self-quarantine for 14 days, alone if possible. Monitor symptoms or request to self-monitor.

2.2 Stage 2: Localized community transmission

2.2.1 Objectives

- Contain clusters of localized community transmission.
- Avoid crowding health-care facilities.
- Limit participation in settings of high transmissibility.
- Continually assess the transmission stage (know when in Stage 1 or 3).

[2] Severe clinical presentation includes either shortness of breath (respiratory rate (RR) >30 breaths/minute), 93% or lower oxygen saturation in resting state, arterial pressure of oxygen (PaO_2)/fraction of inspired oxygen (FiO_2) = 300 mmHg or lower (1 mmHg = 0.133 kPa), or chest imaging showing obvious lesion progression of more than 50% within 24–48 hours.

[3] Monitoring the change in positivity, along with the change in denominator, over time can indicate changes in transmission intensity in an area.

2.2.2 Testing

- Test all patients with severe clinical presentation[2] (in parallel with respiratory panel).
- Test the first 2–5 suspected cases among participants in gatherings or high-transmissibility settings with a confirmed case (i.e. contacts, including hospital workers). These may include special settings such as long-term care facilities and prisons.
- If testing capacity allows, test suspected cases identified through contact linking (see 2.2.4).
- If testing capacity allows, systematically select specimens from patients with SARI (e.g. every *n*th specimen).
- If no population movement restrictions are in place, test the first 2–5 suspected cases (according to case definition) in a geographical area (including settings such as long-term care facilities and prisons).
- If testing capacity is severely limited, prioritize those patients with severe conditions.
- Do not test for discharging confirmed cases; quarantine for 14 days after symptoms resolve.

2.2.3 Surveillance

- Review all confirmed cases (deaths, clusters, contacts, high-risk settings, health workers).
- Monitor COVID-19 positivity trend.[3]
- Assess ILI surveillance trends (to investigate).
- Monitor SARI surveillance trends and influenza positivity.[3]
- Conduct active surveillance of emergency department and outpatient visits.
- Monitor hospital bed and intensive care unit (ICU) occupancy.
- Monitor health worker availability/absenteeism.
- Conduct event-based surveillance (e.g. using International Health Regulations) to identify exported cases (i.e. travel history during incubation period) with no known link.
- Carry out event-based surveillance (e.g. traditional and social media) for clusters of respiratory illness, health-care capacity and intervention effectiveness.

2.2.4 Contact tracing

1. Identify contacts of confirmed cases and ask them to self-quarantine for 14 days, alone if possible. Monitor symptoms or request to self-monitor.
2. **Hotspot hunting:** Identify any gatherings of at least seven people in which a confirmed case participated during the incubation and infectious periods. Advise participants in such settings (even if not considered a contact) to self-quarantine for 14 days from the date of the event and to monitor symptoms. Any symptomatic person becomes a suspected case.
   Periodically review the list of documented settings and activities for all cases to identify common hotspots in different areas of the country. Use this list to inform and enhance infection prevention and control (IPC) measures, such as mandated closures. Use risk communication to advise the public to avoid participating in such activities. When other control measures such as strict population movement restrictions are eased, such activities can remain in place.
3. **Contact linking:** Periodically review lists of contacts from all cases to identify individuals who appear on multiple lists. Consider such individuals to be suspected cases. Test them, if possible, and conduct contact tracing and hotspot hunting (steps 1 and 2 above).

2.2.5 Early Stage 2: Special consideration

When the first few clusters of localized community transmission are detected, strong swift action can slow the rate of infection and thus allow more time for setting up the systems proposed above. These measures include:

1. Temporary expansion of contact tracing teams to identify contacts of confirmed cases and contacts of contacts and request that all self-quarantine for 14 days.
2. Active case finding for inpatients with respiratory illness in and around the geographical area where the cluster was detected.
3. Community screening (e.g. temperature, respiratory symptoms) in and around the cluster area.

4. Temporary suspension of gatherings (large and small) in and around the cluster area.
5. Strategic risk communication to gauge public perception and inform them of preparedness and response strategies.

2.2 Stage 3: Large-scale community transmission

2.2.1 Objectives

- Avoid crowding health-care facilities.
- Limit participation in settings of high transmissibility.
- Continually assess transmission stage (know when in Stage 2 or 1).

2.2.2 Testing

- Test patients with severe clinical presentation[2] (in parallel with respiratory panel).
- Test the first 2–5 suspected cases (according to case definition) in special settings, such as prisons and long-term care facilities.
- If testing capacity is severely limited, prioritize patients with severe conditions.
- Do not test for discharging confirmed cases; quarantine for 14 days after symptoms resolve.

2.2.3 Surveillance

- Conduct weekly surveillance of emergency department and outpatient visits.
- Monitor hospital bed and ICU occupancy.
- Monitor health worker availability/absenteeism.
- Conduct event-based surveillance (e.g. traditional and social media) for health-care capacity strains and intervention effectiveness.
- Use social media monitoring for health-care use and intervention effectiveness.
- Monitor laboratory testing trends.

2.2.4 Contact tracing

- None

3. Guidance development

3.1 Acknowledgements

This document was developed by a guideline development group composed of staff from the COVID-19 Incident Management Support Team of the WHO Regional Office for the Western Pacific.

3.2 Guidance development methods

This document was developed based on a review of relevant literature, sourced from MEDLINE using the following search terms: coronavirus, treatment, community care. The guideline development group reached consensus on the recommendations through group discussion.

3.3 Declaration of interests

Interests have been declared in line with WHO policy, and no conflicts of interest were identified from any of the contributors.