

# Testing Strategies by Population



To develop strategic and equitable testing plans, jurisdictions should consider the real-world factors and constraints of test capacity, turnaround time, and disease prevalence.

Population for testing	Test type	Recommendations	Rationale
<b>Symptomatic individuals<sup>1</sup></b>  Priority Level: <b>High</b>	NAAT or rapid antigen	<ul style="list-style-type: none"> <li>• Prioritize tests with fastest turnaround time</li> <li>• If using a rapid antigen test in a symptomatic person, confirm a negative test result with a NAAT test, but commence contact tracing immediately upon positive antigen test result</li> <li>• Home-based testing is useful to reduce exposures, but not at expense of rapid turnaround time</li> </ul>	Testing symptomatic populations is critical to epidemic control. Confirming a COVID-19 diagnosis is necessary to begin timely contact tracing and provide resources for a supported isolation/quarantine.
<b>Asymptomatic exposed contacts</b>  Priority Level: <b>High</b>	NAAT	<ul style="list-style-type: none"> <li>• Home-based testing is ideal for individuals already in quarantine to reduce exposure</li> <li>• Testing conducted before day 7 post-exposure is for contact tracing purposes and does not allow for discontinuation of quarantine<sup>2</sup></li> </ul>	Testing asymptomatic exposed contacts is critical to epidemic control. Confirming a COVID-19 diagnosis is necessary to begin timely contact tracing and provide resources for a supported isolation/quarantine.
<b>Localized outbreaks</b> <i>Rapid response to outbreaks at identified businesses, buildings, or other locations</i>  Priority Level: <b>Medium</b>	NAAT or rapid antigen	<ul style="list-style-type: none"> <li>• Use a mobile testing response team to target hotspots, such as factories or construction sites, with populations who may have hesitations or face barriers to accessing community testing sites, like inability to take time off from work</li> <li>• Immediately establish linkages to contact tracing programs and wraparound social supports</li> </ul>	While this testing strategy can be highly effective for reaching populations who otherwise might not have information and access to testing, it requires significant staffing resources and logistical planning that may not be sustainable in high prevalence settings.

<sup>1</sup> Including symptomatic exposed contacts

<sup>2</sup> <https://www.cdc.gov/coronavirus/2019-ncov/more/scientific-brief-options-to-reduce-quarantine.html#:~:text=CDC%20currently%20recommends%20a%20quarantine,been%20reported%20during%20daily%20monitoring.>

Population for testing	Test type	Recommendations	Rationale
<p><b>Entry testing/return-to-work screening</b></p> <p>Priority Level: <b>Medium</b></p>	Rapid antigen or NAAT on the day prior to entry if TAT <24 hours is guaranteed	<ul style="list-style-type: none"> <li>• Same-day one-time testing is sufficient for single entry, such as for nursing home visitors; a negative test in an asymptomatic individual indicates low likelihood of infectiousness on that day</li> <li>• For daily entry into a school or business, frequent testing is critical <ul style="list-style-type: none"> <li>○ <u>Rapid antigen</u>: test at least twice per week</li> <li>○ <u>NAAT</u>: test at least weekly</li> </ul> </li> <li>• If admitting a new resident to a nursing home or other congregate setting, a 7-day quarantine is recommended after entry, regardless of any test results prior to admission</li> <li>• Home based testing is useful to coordinate return-to-work programs, or to test students/teachers the day prior to returning</li> </ul>	A comprehensive testing strategy is critical to safely re-opening settings that are important to functioning society like schools and businesses.
<p><b>Routine screening for high-risk groups</b></p> <p><i>Nursing homes, senior buildings, prisons, shelters, other congregate living settings</i></p> <p>Priority Level: <b>Medium</b></p>	NAAT or rapid antigen	<ul style="list-style-type: none"> <li>• <u>Rapid antigen</u>: test at least twice per week</li> <li>• <u>NAAT</u>: test at least weekly</li> <li>• Pool samples to conserve resources if prevalence is low</li> </ul>	While a lower priority than testing (and isolating) symptomatic individuals, contacts of confirmed cases, or rapid response to a localized outbreak, routine testing in high-risk groups is important for identifying asymptomatic cases and preventing an outbreak among vulnerable populations.
<p><b>Transient individuals</b></p> <p><i>Those experiencing homelessness, day laborers, those in short-term jail custody</i></p> <p>Priority Level: <b>Medium</b></p>	Rapid antigen	<ul style="list-style-type: none"> <li>• Rapid turnaround time is critical to avoid loss to follow-up and to be able to provide essential public health supports if a test is positive</li> <li>• Immediately establish linkages to a contact tracing program and wraparound social supports for positive tests</li> </ul>	Transient populations are at increased risk for contracting COVID-19 and often are denied the resources to safely isolate or quarantine.

Population for testing	Test type	Recommendations	Rationale
<p><b>Asymptomatic general population</b>  <i>Anyone else who is seeking a test</i></p> <p>Priority Level: <b>Low</b></p>	NAAT or rapid antigen	<ul style="list-style-type: none"> <li>• Home-based testing provides an option to reduce the burden on public testing sites and during winter months</li> <li>• If testing with rapid antigen tests, positive tests must be confirmed by NAAT according to the CDC antigen testing algorithm<sup>3</sup> <ul style="list-style-type: none"> <li>○ Probability of a false positive is higher if prevalence is low</li> </ul> </li> </ul>	While jurisdictions should strive for free, equitable, and universal testing, this goal can have serious implications for testing turnaround times. Testing fewer people with turnaround times that are short enough (<24 hours) to enable informed decision-making, such as contact tracing and safe isolation, is preferable to universal testing leading to long turnaround times that preclude these public health actions.
<p><b>Population surveillance</b>  <i>Wastewater screening, other population-level studies</i></p> <p>Priority Level: <b>Low</b></p>	NAAT or antibody	<ul style="list-style-type: none"> <li>• Use to identify populations or communities with emerging outbreaks or “silent spread” <ul style="list-style-type: none"> <li>○ This is only informative, however, when disease prevalence is low enough such that trends can be delineated, and not during sustained high-level community-level spread</li> </ul> </li> </ul>	Surveillance testing is useful to provide population-level epidemiological insights, but can be resource-intensive and thus less feasible to implement when prevalence is high. The University of Illinois Urbana-Champaign, for example, has implemented a rigorous surveillance testing program for its over 50,000 <sup>4</sup> students and staff. Using a saliva test developed at the University, all eligible individuals are tested twice a week with rapid turnaround times. <sup>5</sup> In August 2020, the University was delivering as many as 17,000 test results daily <sup>6</sup> .

*The ideas presented in this document reflect the latest public health thinking and scientific evidence as of February 2021. You are advised that the COVID-19 vaccine landscape remains highly fluid, and it is your responsibility to ensure that decisions are made based on the most up-to-date information available. Partners In Health does not provide medical advice, diagnosis or treatment in the United States. The information, including but not limited to, text, graphics, images and other material contained in this document, are intended for informational purposes only.*

<sup>3</sup> [https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/Antigen\\_Testing\\_Algorithm\\_2020-12-14\\_v03\\_NO\\_DRAFT\\_SPW\\_508.pdf](https://www.cdc.gov/coronavirus/2019-ncov/lab/resources/Antigen_Testing_Algorithm_2020-12-14_v03_NO_DRAFT_SPW_508.pdf)

<sup>4</sup> <https://www.uillinois.edu/data/enrollment>

<sup>5</sup> <https://abcnews.go.com/US/inside-university-illinois-massive-covid-19-testing-operation/story?id=72686799>

<sup>6</sup> [https://splunk-public.machinedata.illinois.edu/en-US/app/uofi\\_shield\\_public\\_APP/home](https://splunk-public.machinedata.illinois.edu/en-US/app/uofi_shield_public_APP/home)