

COVID-19 testing recommendations to improve speed, capacity, and equity in care

December 7, 2020

Background

An integrated, multi-pronged approach is required to curb the spread of Covid-19 in the United States. This includes 1) community mitigation measures, such as mask wearing and social distancing; 2) testing; 3) case management and contact tracing; 4) supported isolation and quarantine; and 5) vaccination. If one component in this response cascade is not functioning efficiently, the other components become less effective and the pandemic propagates.

Across the US, testing is currently insufficient, in scale, speed, and accessibility, and requires immediate investments. Addressing testing challenges will allow faster and more targeted contact tracing and linkage to care and resources for supported isolation, ultimately driving toward pandemic control.

Challenges

- ***Current testing capacity is insufficient to meet national needs:*** As cases surge across the country, the demand for testing continues to increase; meanwhile, national testing vendors forecast insufficient HR and supply chain capacity to meet this need.¹ To control transmission and allow safe resumption of economic activities, additional testing is needed for diagnosis and screening in high-risk and high-exposure groups, such as nursing homes, essential workers, and schools.
- ***The speed of test results is too slow to prevent transmission:*** Modelling has shown the timeline from receiving a positive test result to tracing and quarantining all exposed contacts must fall within three days to drive the reproduction rate below 1 ($R < 1$) and control the epidemic.² Testing turnaround time of more than two to three days is therefore of little public health value for breaking transmission chains via contact tracing; turnaround time of test results should target 24 hours. Despite this, average testing turnaround times around the country have vastly exceeded this time frame throughout the epidemic, impeding timely contact tracing and linkage to care.
- ***Access to testing is inequitable:*** Existing racial and socio-economic inequities correlate with inequitable access to testing; on average, there are fewer test sites in communities of color and in communities with lower median household income.³ Though testing costs should be waived under the Families First Coronavirus Response Act, about 2.4% of Covid-19 tests billed to insurance still require patient payments, creating both real cost barriers and perpetuating misconceptions around costs that prevent test-seeking.⁴ Additionally, historically marginalized groups face added barriers to testing, including insurance status, immigration status, distrust in government systems, transient living situations, language and communication gaps, and fear of lost work or income.

Recommended Solutions

To control the pandemic, significant federal investments in both policy development and resource mobilization will be critical to improve the scale, speed, and equity of testing:

1. Massively scale up production, authorization, and use of rapid antigen testing to complement traditional methods of molecular laboratory-based testing.

Rapid antigen tests are cheaper and faster, and many have sensitivity comparable to traditional molecular testing methods like PCR. Scaling production and widespread use of antigen testing both for diagnosis and screening can relieve the current burden on laboratories that has resulted in prohibitively long turnaround times. Further, the rapid delivery of results makes antigen tests uniquely suited for expansion of active screening in transient populations, including people experiencing homelessness, and for entry requirements into settings like nursing homes and schools.

Scaling antigen testing requires significant federal investment to jumpstart manufacturing. Additionally, federal leadership is required to produce guidelines for confirmatory testing to rule out false positives (either a second antigen test or PCR), to clarify reporting of confirmatory antigen tests into state epidemiological systems, and to streamline the regulatory approvals process to ensure powerful new testing technologies are rapidly approved and deployed. If necessary to meet need, the U.S. government should be prepared to scale up federal manufacturing of COVID-19 diagnostic tests, including rapid antigen tests, through use of the Defense Production Act and appropriate licenses for manufacturing and marketing.

2. ***Decentralize testing by expanding the number of community access points and enabling wider use of home-based testing.***

Decentralizing testing to additional community locations is critical to promoting equitable access to testing and patient care. The federal government should mandate test site numbers by population density and community vulnerability metrics. Further, scaling up widespread home-based testing would allow for additional patient convenience and privacy while reducing both human resource strain and provider exposures at community testing sites. The FDA should immediately work with manufacturers to clarify explicit standards for at-home testing guidance and patient-follow-up, provide a framework for integrated data reporting of at-home results, and address the other regulatory hurdles preventing the fast-track of at-home molecular and antigen testing.

3. ***Streamline data reporting systems at the point of testing and require a standard set of data variables to be reported by all laboratory vendors for nationwide performance monitoring.***

Integrated and streamlined data systems will reduce the turnaround time of results to patients and epidemiological reporting systems, while standardization of data variables will allow for faster and more targeting contact tracing and linkage to support services. Inclusion of additional data variables in laboratory reporting should be mandated, including cycle threshold (CT) values to guide prioritization of contact tracing resources toward cases with the highest viral load to maximize the chance for breaking cycles of transmission. All states should be mandated to publicly report a standardized set of testing performance indicators, including test positivity rates and daily average turnaround times, broken down by laboratory provider and local jurisdiction, to allow for transparent performance review of national testing programs. To ensure compliance with standardized reporting systems, federal reimbursements for testing should be contingent on the data quality and completeness.

Conclusion

The pandemic has surged to its highest peak, threatening the capacity of hospitals, impacting the economy, and leading to the loss of thousands of lives. To reverse this course and achieve pandemic control, the US government must invest in a dramatically scaled up testing program that allows for frequent, cheap and accessible tests for all, integrated into a robust program of contact tracing and supported isolation.

¹ Lim D. "[Labs sound alarm on coronavirus testing capacity, supplies.](#)" Politico, 12 November 2020.

² Ferretti L et al. "[Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing.](#)" Science vol. 368, 8 May 2020. DOI: 10.1126/science.abb6936

³ Surgo Foundation Analysis, COVID-19 Community Vulnerability Index

⁴ Kliff S. "[Coronavirus Tests Are Supposed to Be Free. The Surprise Bills Come Anyway.](#)" New York Times, 9 September 2020.