CICT Job Aid for COVID-19 Testing: What You Need to Know

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Background

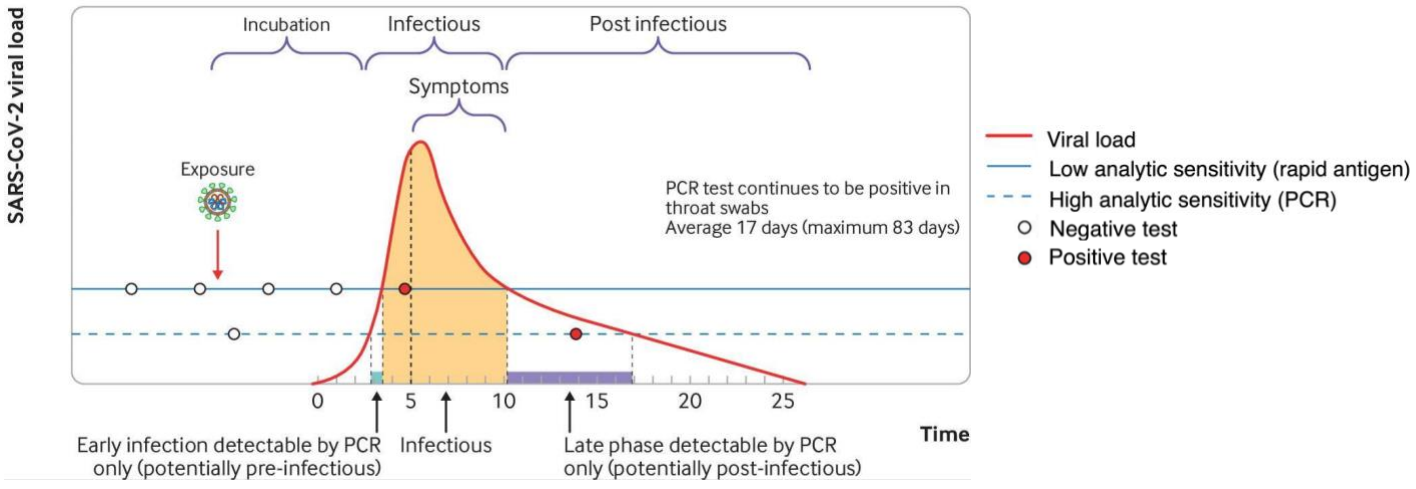
This job aid provides information on the key differences between PCR Testing and Rapid Antigen Testing. For tips on sharing this information with others please see: CICT COVID-19 Testing: Frequently Asked Questions.

Key Definitions

PCR Tests	PCR stands for Polymerase Chain Reaction. Looks for viral genetic material (RNA for coronaviruses). Considered the gold standard for diagnostic testing or detecting infection.
Rapid Antigen Tests	Includes most at-home and rapid tests. Looks for proteins (antigens) from the virus. If someone has symptoms and a positive antigen test, they are most likely contagious (able to spread the virus to others).
Positive	Positive means the test detected the virus.
Negative	Negative means the virus was not detected.
Sensitivity	The likelihood that a test will correctly identify those who have the disease as positive.
Specificity	The likelihood that a test will correctly identify those who do not have the disease as negative.
False-negative	When a person has the disease but tests negative.
False-positive	When a person does not have the disease but tests positive.

Understanding COVID-19 Viral Load and Test Recommendations:

As seen in the chart below, viral load starts low, increases as the virus replicates, and then decreases as time passes.



Source: Adapted from Alex Crozier et al. BMJ 2021;372:bmj.n208

COVID-19 Testing Information

	PCR TESTS	RAPID ANTIGEN TESTS
Results Ready	Most 1-3 days if lab-based; could be rapid (15-20 mins).	Typically, in 15 to 30 minutes.
How it Works	Looks for genetic material from the virus (RNA) and creates copies of it, making even tiny amounts detectable.	Looks for certain proteins (antigens) from the virus. Does not make copies of protein pieces so there has to be enough in the sample for the test to detect. Unlike PCR, it cannot detect tiny amounts.
False Negatives	High sensitivity. False negatives are unlikely but can occur (e.g., if the test is taken too early after exposure).	Moderate to high sensitivity. False negatives vary depending on when the test is taken and the person's viral load.
False Positives	High specificity. False positives are highly unlikely.	• High specificity. False positives are highly unlikely. • If no symptoms and a false positive is suspected, person should continue isolation until a follow-up PCR test is negative.
When To Test	• If symptomatic, test immediately. • If exposed, test on day 5 after exposure day; consider testing earlier to see if infected but still test on day 5 or later. See CDPH What to Do If Exposed. • If positive, isolate and notify those potentially exposed. See CDPH What to Do If You Test Positive.	• If symptomatic, test immediately. • If exposed, test on day 5 after exposure day; consider testing earlier to see if infected but still test on day 5 or later. See CDPH What to Do If Exposed. • If positive, isolate and notify close contacts. See CDPH What to Do If You Test Positive. • If infected, test at day 5. If results are negative and symptoms are not present or are resolving with no fever, discontinue isolation after day 5. See CDPH isolation guidance.
Screening Recommendations	• Can be used for asymptomatic screening, but results may take too long to be useful. • Might be required for travel.	• If meeting a high-risk person (e.g., someone at higher risk for severe COVID-19) or attending a gathering, test as close to the event as possible. • Might be required for travel. • To be safe after going to a high-risk event (e.g., concert or wedding), test 3-5 days after the event even if no symptoms or known exposures.
Benefits	• Lab-based tests are highly accurate for people with and without symptoms. • Effective at any time during infection; however, the test may remain positive after the person is no longer infectious, so it is **not** recommended for testing out of isolation.	• Easy to use at home • Fast results, lower cost per test • Confirms infections in those who are symptomatic. • May identify people who are more likely to transmit the virus. • Preferred for discontinuing isolation.
Concerns	Most need to be processed in a lab; takes longer to get lab-based results.	Higher rate of false negatives in people with low viral loads or in those testing early on during infection.
Access	Usually available in healthcare settings or testing sites. Find a testing site here.	• Available at pharmacies, grocery stores, or online. • If paid for out-of-pocket, insurance companies will reimburse a part of the cost. • Every home in the U.S. is eligible to receive 4 free at-home COVID-19 tests. Order tests here.