FAQ # 05 (05 May 2021): COVID-19 TESTING STRATEGY

1. What tests are available to detect COVID-19?

(a) ***Molecular Test*** like Reverse Transcriptase Polymerase chain reaction (***RTPCR***) and ***TrueNat*** are the gold standard tests used to detect SARS-CoV-2 infection. Molecular tests detect virus by amplifying the viral genetic material to detectable levels. They require Bio Safety Level 2 to 3 laboratory to perform.

(b) ***Rapid Antigen Detection Test (RADT)*** is also used to detect SARS-CoV-2 infection and they detect the viral proteins (known as antigens). These tests are cheaper than RTPCR, quicker, and does not require elaborate laboratory settings to perform. For both tests, the samples are collected from the nose and/or throat with a swab. Improper sample collection can reduce the accuracy of tests.

(c) ***Antibody Test*** is used to detect protective antibody produced by body against SARS-CoV-2 and test positivity denotes past COVID infection. The IgM Antibody test detects antibody against recent infection whereas IgG Antibody test indicates old infection. They are primarily used for surveillance (to estimate the prevalence of infection in a community) and not for diagnosis of the disease. Blood sample is used for Antibody Test.

2. How accurate are these tests?

(a) ***RTPCR/ TRUNAT*** are the gold standard tests and have a high sensitivity and specificity of above 95%. It means that these test have very low False Negative results - once tested negative, the result indicates absence of virus. However, it can detects any virus remnant/ dead virus in recovered non-infectious person, leading to false positive results.

(b) ***RADTs*** are less accurate than Molecular tests and perform best when there is more virus circulating in the community (more number of cases in the community, containment zones). A person tested as positive by RAT is definitely infected with SARS-CoV-2 and infectious to others. However, a symptomatic person tested negative by RAT may still be infected with SARS-CoV-2, meaning they might give false negative result, and in such cases, RTPCR/ TRUNAT is to be conducted.

(c) ***Antibody Tests*** are less accurate than Molecular Tests and chances of detection of antibodies are higher 14 days after onset of infection.

3. **Does high viral transmission in community (when more number of cases are present) have a bearing on the outcome of tests?**

As the case count increases in a community, the sensitivity of low accuracy test like RADT increases and they are able to detect SARS-CoV-2 infected person more accurately. On the other hand, molecular tests like RTPCR/ TRUNAT will also detect more cases, some of which would probably be non-infectious.

4. **Given the above considerations, what test should be used when?**

(a) ***RTPCR/ TRUENAT*** are used to detect Symptomatic person and High Risk Contacts of confirmed cases (07 to 10 days if asymptomatic or earlier if becomes symptomatic). They are also used before discharge of a severe case from hospital (on case to case basis). In addition, RTPCR test is conducted before a treatment procedure at hospital or when mandated before travel

(b) ***RADTs*** perform best when there is more virus circulating in the community (more number of cases in the community). Hence, they are used for rapid detection of cases in field settings like in outbreaks, containment zones and in community transmission phase. They can also be used to test person after travel related quarantine before entering afloat platform and high-density work place.

(c) ***Antibody Tests*** are primarily used for surveillance (to estimate prevalence of infection in a community) and estimate vaccine effectiveness.

While a person is waiting for test results, they should remain isolated from others.

References.

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