Independent Lebanese Committee for the Elimination of COVID-19

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Testing for COVID-19: Myths, Realities and Recommendations

Appropriate testing is a major pillar for controlling the spread and transmission of COVID-19 at both the clinical and the community levels. It helps in diagnosing current or previous COVID-19 infections. To protect the community and limit virus transmission, it is also crucial to test asymptomatic people and those in contact with them; infected people should be isolated and their contacts should be quarantined.

Value of COVID-19 tests

The value of a test depends on several factors: its type and quality, its validity (sensitivity and specificity), and its reliability (test-retest, inter-rater and intra-rater reliability); and the context in which the test is applied also affects its negative and positive predictive values.

COVID-19 testing in Lebanon

PCR (polymerase chain reaction) detects the genetic information of the virus, the RNA. The PCR test is rapid and reliable if the virus is active and abundant in symptomatic or asymptomatic persons. However, for a person with COVID-19, there may be a 2%-30% possibility of wrongly being given a 'false negative' result, meaning they that they do not have the disease, while in reality they do. This is because the PCR test sensitivity depends on several factors including the time period when the test is performed and the quality of the sampling procedure. Therefore, although it is currently the best we have, PCR testing is arguably not a "gold standard" for COVID-19.

COVID-19 rapid tests that are currently available detect serological antibodies (produced by the body), indicating that the patient has been exposed to the virus and has developed an immune response to it (with or without symptoms). Such rapid tests are of little to no use for preventing further transmission of the virus. It is valuable for knowing whether a person has had COVID-19 in the past for the follow-up of patients and the assessment of community viral circulation. This is because in most people antibodies reach a test detectable level 2-3 weeks after COVID-19 infection. The value of rapid antibody tests depends on their quality that may be variable.
A different type of rapid test for COVID-19 is currently being developed, which detects antigen (from the virus), and would possibly be a game-changer in allowing early detection of people who are still in the infectious phase for COVID-19.

Other tests might be available through unofficial channels; their value is largely unknown.

Myths & Realities

Myth 1: PCR results are absolute. A person with a negative PCR can live his life as if nothing happened.

Reality 1**:** *PCR results may change over time; a negative PCR can be false negative, due to a change in the patient' status, a faulty kit or a human error.*

Myth 2: If a person asks to do a PCR without the advice of a healthcare professional, a negative result should be accounted for as usual.

Reality 2: *If a person asks to do a PCR without the advice of a healthcare professional, a negative result has a higher probability of being false negative, because its timing might not be appropriate. This result may change over time.*

Myth 3: A negative rapid test has an absolute predictive value of infection.

Reality 3: *A negative rapid test has an absolute predictive value indicating that the patient did not develop antibodies. It might have been conducted too early, or the test quality might be inadequate.*

Myth 4: A PCR conducted in any laboratory is valuable.

Reality 4: *PCR should only be conducted in recognized laboratories by the Ministry of Public Health (MOPH).*

Recommendations

1. Regular validation of all recognized laboratories is warranted.
2. Strategies, methods, and results of massive, pooled, regular, random or targeted testing should be clearly displayed: results should not be combined for better evidence-base decision making.
3. Health care professionals should be educated through official channels regarding the validity and requirements for currently available tests.
4. Medical laboratories should collect appropriate data from patients, including the date of probable contact with an infected case and the date of infection confirmation of the case. They should advise the patients to come for testing 5 days after this date.
5. Patients should be advised about testing using appropriate messages conveyed through the media and MOPH. While MOPH has put in place a hotline, there are currently no clear guidelines regarding testing on its website.