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Clinical Diagnostics

COVID-19 Antigen Testing recommendations

EUROFINS, THROUGH ALL ITS DIVISIONS, IS AT THE FOREFRONT OF THE GLOBAL FIGHT AGAINST THE COVID-19 PANDEMIC.

Through Eurofins Clinical Diagnostics organisations can now avail of testing for the detection of SARS-CoV-2 by PCR, Antigen testing and also Antibody testing performed in world-leading laboratories.

SARS-CoV-2 Viral RNA vs Viral Antigens



Antigen tests are not as sensitive as PCR tests that detect the genetic material of the virus. PCR tests can pick up minuscule amounts of the SARS-CoV-2 virus that causes COVID-19. Whereas a typical PCR test can detect a single molecule of RNA in a microlitre of solution, antigen tests need a sample to contain thousands — probably tens of thousands — of virus particles per microlitre to produce a positive result. So, if a person has low amounts of virus in their body, the test might give a false-negative result.

PCR is therefore the gold standard for COVID-19 testing and should be the test of choice as long as it is available (i.e. TAT* of less than 48h).

*TAT or turnaround time: time needed to deliver results from sample reception at the lab.

COVID-19 ANTIGEN TESTING: HOW IT WORKS

- Antigen tests require nasal or nasopharyngeal sampling. Improper specimen collection may cause some swabs to have limited amounts of antigenic material for detection which will impact the performance of the test. Therefore sampling by a medical professional is recommended.
- Inadequate quality assurance procedures could result in cross contamination of the specimen, which could cause inaccurate test results.
- **Biosafety measures and instructions for use** should be followed precisely to ensure accurate testing and safety of those who perform the testing. A medical lab specialized in clinical testing is indeed necessary to perform the test.

CLEAR GUIDELINES FROM WHO:¹

- 1. The World Health Organization (WHO) has established minimum performance requirements of \geq 80% sensitivity and \geq 97% specificity.
- 2. Antigen testing is not recommended to be used:
 - On individuals without symptoms unless contact person
 - Where there are zero or only sporadic cases
 - For airport or border screening

1. https://www.who.int/publications/i/item/antigen-detection-in-the-diagnosis-of-sars-cov-2infection-using-rapid-immunoassays



COVID-19 ANTIGEN TESTING – RECOMMENDATIONS

Symptomatic individuals

- Need to take into account onset of symptoms and clinical history.
- The clinical performance of antigen tests largely depends on the circumstances in which they are used. Rapid antigen tests perform best when the person is tested in the **early stages** of infection with SARS-CoV-2, i.e. when viral load is generally highest and the person is experiencing symptoms.
- Due to the test sensitivity, false negative results are possible and a confirmatory PCR test is needed.



COVID-19 ANTIGEN TESTING – RECOMMENDATIONS

Asymptomatic individuals - close contacts

- Antigen testing is recommended for asymptomatic individuals only if they are close contacts of a confirmed case, and there is no available PCR testing capacity.
- As before, due to the sensitivity of antigen tests, negative cases will need to be confirmed by a PCR test.



**No PCR capacity available means that from sample to results delivery more than 48-72h are needed.

COVID-19 ANTIGEN TESTING – RECOMMENDATIONS

Population screening (closed or semi-closed groups or communities)

- Antigen testing can be used for the rapid identification of clusters when transmissions rate is high in a geographical area or in a target population.
- To compensate for the lower accuracy of the test, frequent testing of the target population is required. Once a positive case is confirmed, all population should be tested by PCR to be able to isolate confirmed positive cases.
- To use antigen testing in such collectives as colleges, nursing homes, sports teams, etc. approval from authorities is required in some countries.



• For rapid identification of an outbreak in collectives, the use of antigen test together with Eurofins SENTINEL[™] program is recommended. For more information please visit: https://www.eurofins.com/covid-19-response/safer-work/

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