PATHOLOGY TESTS EXPLAINED

Information about pathology tests to help everyone take control of their health and make the right decisions about their care.

WHAT YOU SHOULD KNOW ABOUT YOUR **COVID-19 TESTS**

The virus that causes COVID-19 is made up of a genetic material called RNA which is surrounded by proteins and fats. When the virus enters your cells it uses the RNA to copy itself.

TWO TYPES OF TESTS

PCR testing

PCR testing is being used around the world to test for the virus that causes COVID-19. It detects the genetic material of the virus and it is very accurate.

However, PCR testing looks for DNA – another form of genetic material. This means the first step in the testing process is to convert the virus's RNA into DNA and then use chemicals to increase the amount so that the PCR instrument can more easily detect it.

PCR testing can only tell if you had live or very recently dead virus in your body when the test sample was taken. After you recover and the virus starts to clear, the PCR test will show negative.

PCR tests are generally used to find out if someone is currently infected.

Having the test

Usually, this means having a swab taken from the top of the inside of your nose or the back of your throat.

You may be asked to give a sputum sample. This means you need to cough deeply into a container. Sputum comes from the lungs and is not the same as the spit in your mouth.

Antibody testing

Testing for antibodies is another way to check for COVID-19. Instead of measuring genetic material from the actual virus, these tests measure your body's response to being infected by the virus.

When your body is infected, your immune system makes antibodies specifically designed to fight that particular type of virus. These antibodies bind very tightly to the virus to help deactivate it so that your body can get rid of it.

The first type of antibody produced is called IgM and this usually appears within a few days. IgM antibodies typically fade away a few months after the infection but sometimes they persist for longer.

Other types of antibodies produced are IgG, and in respiratory infections like coronavirus, IgA. IgG antibodies usually stay around in the bloodstream much longer after you have recovered – for years or even in some diseases, for life.

Antibody tests are generally used to find out if someone has been infected in the past. They are not reliable enough to rule out a current infection.

Having the test

This test is performed on a blood sample. Sometimes this is a finger-prick blood sample

Is your COVID-19 test accurate?

There is no such thing as a perfect test – one that correctly answers the question being asked 100% of the time. Many factors come into play, and not all of them are obvious. The analytical accuracy and precision of pathology tests are typically very good. If you do the same test multiple times on the same sample you will generally get the same answer.

What matters to test accuracy?

Getting a good sample

The most important thing in the case of COVID-19 PCR testing is the sample swab. Swabs that do not reach a part of the nose or throat where the virus is present will not come back positive. Repeat testing should always be done on a fresh sample.

Timing

PCR tests

Timing is important. If the sample for a PCR test was taken too soon after the person was exposed to the virus, the viral load may not be high enough to be detected. On the other hand, doing a test when someone has recovered will give a negative result.

Antibody tests

These are very likely to give a false negative result in the first few days of infection. The body takes time to produce the antibodies against the virus. Antibody tests are most useful to detect past infection and potential immunity. But the body also produces antibodies against other similar coronaviruses like the common cold and these may be detected by some of these tests giving false positives.

Sensitivity and specificity

Tests are usually described in terms of their sensitivity and specificity. Developing laboratory tests is a balancing act. Tests need to be sensitive enough to detect the virus at low levels, but also specific enough not to give a positive result when the virus isn't present or in response to something else such as another virus.

A highly sensitive test will pick up people who have the virus but may also give positive results for people who don't have the virus. A highly specific test will not pick up people who don't have the virus but may miss a lot of people who have the virus.

False negatives and false positives

You may come across these terms when COVID-19 testing is being discussed.

- If the test gives a negative result in a person who is actually infected that is called a false negative.
- A person who does not have the infection but whose test gives a positive result is a false positive.

For more detailed information on these and many other tests go to **pathologytestsexplained.org.au**

Please use this QR code to access more information

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www.pathologytestsexplained.org.au

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Pathology Tests Explained is managed by a consortium of medical and scientific organisations representing pathology practice in Australia. More details at: **www.pathologytestsexplained.org.au/about**

When you have pathology tests you can have your results sent directly to your My Health Record.

You'll find a direct link to the Pathology Tests Explained website embedded in the pathology results pages of your record.

Click on the link to find information about what your tests are investigating or measuring and what your results can tell your doctor.