Frequently Asked Questions: Medical Tests

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What is a false positive test result?

A false positive test result is one that leads a physician to suspect a disease or condition is present when one is NOT really there.

What is a false negative test result

A false negative test result is one that leads a physician to think a patient does not have a particular disease or condition when they actually DO have it.1

What causes false-positive test results?

There are many reasons why a test result may indicate the presence of a condition that is not really there. These include human error and the limits of the techniques used.

- **Example 1 (imaging)**: Many different types of imaging techniques are now used to diagnose disease. These include mammography, CT, PET, MRI, ultrasound and combinations of these. All of these techniques produce images that are then interpreted by physicians or trained technicians. Because image quality and experience factor into every test, there is always the chance that a result will be misreported. This will typically result in additional tests to confirm the result.
- **Example 2 (blood tests)**: A blood test commonly used to detect prostate cancer measures amounts of prostate specific antigen (PSA), a protein.1 This test is used because many prostate cancers over produce this protein. However, there are other reasons that a man's PSA levels can go up. These include inflammation and infection. In these cases, it is possible that a PSA test would come back positive, potentially leading to unnecessary additional procedures.

Why might a medical tests have a limited ability to detect a condition?

Many different things can limit the accuracy of medical tests.

- **Example 1 (imaging)**: Because young women have dense breast tissue, it may be difficult to identify a small cancerous growth on a mammogram, especially if it is the first exam because there is nothing with which to compare the results.
- **Example 2 (blood tests)**: As described in the previous question, the PSA test is used to detect prostate cancers. Because not all prostate cancers increased amounts of PSA, it is possible for a screening exam to miss a case of prostate cancer.

What does 'sensitivity' mean when used to describe medical tests?

No medical test is perfect. It is important to know the limitations of any test so you can judge how to factor in the test results to your treatment decisions. The sensitivity of a medical test is a measure of how well the test identifies people who **have** a particular disease. 1 Example: Suppose there is a group of ten women and three of them have breast cancer. If all of the women are given a test to detect the cancer and it finds two of the three, the test has only 66% (2/3) sensitivity.

Is there anything I can do to reduce the chance of my medical test giving a wrong result?

While there is nothing that a patient can do about the limitations of any particular test, there are things that you can do to reduce your chances of obtaining an incorrect result.

1. Make sure that you follow all the pre-test instructions. As an example, before a colonoscopy, it is important to make sure that you clear out your digestive system so that no small polyps or other abnormalities will be blocked from view.
2. Make sure that the individual/facility performing the test is fully accredited with the appropriate organization. This can usually be done online.
3. Write down any questions you have about the test beforehand and bring them with you to ask.
4. Don't hesitate to seek additional testing from a different provider.

- 1 a b c Segen, Joseph C., Wade, Josie."The Patient's Guide to Medical Tests."Infobase Publishing, 2002.