

Blood Tests for Cancer

Compiled by: Christopher Arzur

Blood testing is a tool healthcare providers use to help diagnose and manage cancer. Examples include complete blood count and tumor markers. The results can provide important information about overall health, organ function and potential disease.

Test used to diagnose Cancer?

Blood testing is one of many tools healthcare providers use to diagnose and manage cancer.

The tests can provide important information about:

- Chemicals and proteins in your blood that might indicate cancer.
- Levels of blood cells that are too high or too low, perhaps because of cancer.
- Overall health.
- Organ function.
- Stage of cancer.
- Treatment options.
- Whether treatment is working or if the disease is progressing.
- To check whether cancer has come back, (recurrence).

What tests are done to check for cancer?

Blood tests for cancer fall into five general categories:

1. Complete blood count (CBC)
2. Tumor markers
3. Blood protein testing
4. Circulating tumor cell tests
5. Genetic Testing
6. Liquid biopsy



It's essential to understand that these tests are not perfect, and false positives or negatives can occur. The results of blood tests are typically considered alongside other diagnostic methods, such as imaging studies, biopsies, and clinical evaluations, to form a comprehensive picture of a patient's condition.



What cancers are detected by blood tests?

Blood tests can be useful in many types of cancers including:

a. Prostate Cancer

b. Colo-rectal Cancer

c. Leukemia (including myeloma)



Who performs blood tests for cancer?

These blood tests are usually carried out in laboratories by well-trained staff using high-performance analysers. When monitoring the progress of a cancerous disease, it is preferable to always perform the tests in the same laboratory. On the one hand, to have the previous results, but above all because the techniques used to perform the tests may differ from one laboratory to another and therefore the interpretation of the results may be different from one laboratory to another.

A complete blood count (CBC) measures three types of blood cells circulating in your bloodstream. The results can help healthcare providers diagnose cancer or detect whether cancer has spread.

The blood smear is also examined under the microscope for the presence of abnormal circulating cells, which may be markers of certain types of blood cancer.

This test requires the expertise of a well-trained technician or clinical pathologist.

In addition, some cancer treatments can affect blood counts, so your healthcare provider may recommend regular CBCs as you're going through treatment.

Each type of blood cell has a range that's considered normal or healthy.

The three cell types and their ranges are:

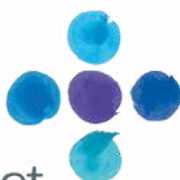
- Platelets, which help blood clot. The normal range for platelet count is 150,000/milliliter (mL) to 400,000/mL.
- White blood cells, which fight infection. The normal range for white blood cells is 5,000/mL to 10,000/mL.
- Red blood cells, which deliver oxygen throughout your body. Red blood cells may be measured in two different ways. Hematocrit is the proportion of red blood cells in your blood. The normal range for men is 40% to 55% and for women is 36% to 48%. Hemoglobin is a protein in red blood cells. The normal range for men is 13.0/deciliter (dL) to 17.0 g/dL & for women is 11.5/dL to 15.5 g/dL.



DID YOU KNOW?

Labs use ranges because the number can vary from person to person or within the same person from day to day.

Many factors can affect your CBC. Your healthcare provider will help you understand what your numbers mean. The results must be considered along with other factors, such as symptoms and additional test results.





Frequently Asked Questions: 1. What are tumor markers?

Tumor markers are substances made by cancerous cells or your body's normal cells in response to cancer. Some tumor markers indicate a specific type of cancer. Others can indicate several different types of cancer. Scientists are still learning about known tumor markers and discovering new tumor markers. Some tumor markers currently used include:

- Alpha-fetoprotein (AFP) Elevated levels may indicate liver cancer or certain testicular cancers.
- Beta 2-microglobulin (B2M) and lactate dehydrogenase (LDH) for blood cancers.
- Calcitonin for thyroid cancer.
- Cancer antigen 125 (CA 125) for ovarian cancer.
- Cancer antigens 15-3 and 27-29 for breast cancer.
- Carcinoembryonic antigen (CEA) for colorectal cancer, lung cancer, stomach cancer, pancreatic cancer & others.
- Human chorionic gonadotropin (HCG) for testicular cancer and ovarian cancer.
- Prostate-specific antigen (PSA) for prostate cancer.
- If a blood test detects a tumor marker, your healthcare provider will discuss what that means and recommend additional testing.



2 What is blood protein testing?

Blood protein testing uses a special process called electrophoresis to find certain proteins in your blood. The proteins are called immunoglobulins, which your immune system releases in response to diseases such as myeloma.



3. What is a circulating tumor cell test?

A new type of blood test for cancer looks for circulating tumor cells. These cells have broken off from a tumor and are in your bloodstream. This may indicate that cancer is spreading (metastasizing). The test can currently help monitor certain types of cancer, such as breast, prostate and colorectal cancers. Scientists are still developing the technology.



4 What is Genetic Testing?

Some blood tests can detect specific genetic mutations or alterations that are associated with an increased risk of certain types of cancer. For example, BRCA gene mutations are linked to breast and ovarian cancers.



5 What is Liquid Biopsy?

This is a relatively new and evolving technique that involves analyzing genetic material, such as DNA and RNA, released by tumors into the bloodstream. It can provide information about the genetic profile of the tumor and help guide treatment decisions.