

Reading a Pathology Report [1]

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A pathology report is a medical document written by a pathologist, a doctor who specializes in interpreting laboratory tests and evaluating cells, tissues, and organs to diagnose disease. The report specifies a diagnosis based on the pathologist's examination of a sample of tissue taken from the patient's tumor. This tissue sample (specimen) is obtained through a biopsy. Learn more about [biopsies](#) [3], including the various types.

The pathologist's examination reveals whether the tumor tissue from the biopsy is benign (noncancerous) or malignant (cancerous, meaning it can spread to other parts of the body). If it is cancerous, the pathologist may perform additional tests on the sample to learn more about the cancer. Your doctor will receive these test results as they become available, so it may take a few days to a few weeks to receive the full report, depending on the studies the pathologist performs.

The pathology report provides specific information about the characteristics of the tumor, which helps your doctor determine the best cancer treatment options to recommend for you. The report contains highly technical medical terms because it is a communication between two doctors—the pathologist and the oncologist (a doctor who specializes in treating people with cancer). However, you are entitled by law to receive a copy, and you can understand it with the help of your health care team. Ask your doctor to explain the pathology report results and what they mean. You may also speak directly with the pathologist for an explanation of the findings listed in the report.

Parts of a pathology report

Different pathologists use different words to describe the same things. However, most pathology reports include the following elements:

Patient, doctor, and specimen identification. This section lists the patient's name, birth date, and other personal information; the pathologist's and oncologist's contact information; and details about the specimen, including the type of biopsy or surgery performed and the type of tissue obtained.

Gross (obvious) description. This section describes the tissue sample (or tumor, if it was removed) as seen with the naked eye, including the general color, weight, size, and consistency.

Microscopic description. This highly technical section, which serves as the basis for the diagnosis section, describes what the cancer cells look like when viewed under a microscope. The microscopic part of the report also specifies the type of cancer.

In each organ, many different types of tumors can develop, each with a varying ability to spread to other organs. Tumors of many types may be classified as noninvasive (in situ) or invasive. Invasive tumors have the ability to metastasize (spread to other parts of the body). Although noninvasive tumors do not metastasize, they can develop into or raise a person's risk of a more serious, invasive tumor in the future. For invasive tumors, it is important for the pathologist to note how far the tumor has invaded into the wall or surrounding healthy tissues of the organ where it started, if that organ was examined.

Another important characteristic of each tumor is the histologic grade, which describes how the cancer cells look compared with healthy cells. In general, the pathologist is looking for differences in the size, shape, and staining characteristics of the cells. A tumor with cells that look more like healthy cells is called low grade or well differentiated, while a tumor with cells that look less like healthy cells is called high grade, poorly differentiated, or undifferentiated. In most situations, the prognosis (chance of recovery) is better for a person who has a tumor with cells that look more like healthy cells. There are different methods used to assign a cancer grade for different types of cancers. [Learn more about grading for specific cancer types \[4\].](#)

In addition, the pathologist usually will comment on how often he or she sees cells that are dividing, also known as the mitotic rate. Tumors with fewer dividing cells typically are low grade and are more likely to correspond to a better prognosis for the patient.

Another important factor is whether cancer cells can be found at the margins (edges) of the biopsy. If tumor cells are present, the margins are described as "positive" or "involved." This result suggests that cancerous cells may have been left behind in the body and may indicate the need for additional surgery to completely remove the tumor.

The pathologist will also document whether the cancer has spread to nearby lymph nodes (tiny, bean-shaped organs that help fight infection) or other organs. Lymph nodes that contain cancer are said to be "positive," while those that do not are described as "negative." If the tumor has invaded the blood vessels or lymph vessels that flow into the lymph nodes, the likelihood of distant spread may be greater. The pathologist will specifically comment on these findings in the report if they are observed.

Combining the tumor size, location, and spread enables the pathologist to assign a stage to the cancer, typically using the TNM system from the American Joint Committee on Cancer (AJCC) [5]. This system examines three factors: the size and location of the tumor (Tumor, T), whether cancer cells have spread to the lymph nodes located near the tumor (Node, N), and whether the tumor has spread to other parts of the body (Metastasis, M). The pathologic stage, along with the results of other diagnostic tests, helps determine the clinical stage of the cancer, which usually helps guide a person's treatment options. Learn more about the stages of cancer [6].

In many cases, the pathologist performs special tests to identify specific genes, proteins, and other factors that further characterize the tumor. The results of these tests may be listed in a separate section or in a separate report. These additional tests are especially important for diagnosis because choosing the best treatment option may depend on these results.

Diagnosis. This section provides the "bottom line" and may be found at either the beginning or the end of the report. If cancer has been diagnosed, the section may include the type of cancer (such as carcinoma or sarcoma), tumor grade, lymph node status, margin status, and stage. In addition, it will list any specialized test results, which could indicate the presence of hormone receptors or other tumor markers [7].

Sampling differences

In some cases, the pathology report for an initial biopsy may differ from a later report that evaluates the entire tumor after it has been removed. This happens because the characteristics of a tumor can sometimes vary in different areas. Your doctor will consider all of the reports to develop a treatment plan that best addresses your particular situation.

Questions to ask the doctor

To better understand what your pathology report means, consider asking your doctor the following questions:

- What type of cancer have I been diagnosed with, and where did it start?
- How large is the tumor?
- Is the cancer invasive or noninvasive?
- How fast are the cancer cells growing?
- What is the grade of the cancer? What does this mean?
- Has the whole cancer been removed, or is there evidence of cancerous cells at the edges of the sample?
- Are there cancerous cells in the lymph or blood vessels?
- What is the stage of the cancer? What does this mean?
- Does the pathology report specify the tumor characteristics clearly, or should we get another pathologist's opinion?
- Do any tests need to be repeated on another sample or in another laboratory?

Getting a second opinion

It may be valuable to seek the knowledge and advice of more than one doctor regarding your

diagnosis and treatment plan, which is based on the pathology report and the results of other diagnostic tests. This is called a second opinion. If you choose to get a second opinion, it is important to get a copy of the pathology report and any other medical records to share with the second doctor, but be aware that doctors work closely with their own pathologists and may prefer to have their pathologist's opinion in addition to the original pathology report. Additional tests can be performed on the biopsy if they are necessary or if the results of the original report are in question. The tissue specimen is kept for a long time and is available upon request. Learn more about [seeking a second opinion](#) [8].

More Information

[Tests and Procedures](#) [9]

[After a Biopsy: Making the Diagnosis](#) [10]

[When the Doctor Says Cancer](#) [11]

[The Oncology Team](#) [12]

Additional Resources

[National Cancer Institute: Pathology Reports](#) [13]

[My Biopsy.Org: How to Read Your Pathology Report](#) [14]

Links:

[1] <http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/reports-and-results/reading-pathology-report>

[2] <http://www.cancer.net/about-us>

[3] <http://www.cancer.net/node/24406>

[4] <http://www.cancer.net/patient/cancer-types>

[5] <http://www.cancerstaging.org/>

[6] <http://www.cancer.net/node/25070>

[7] <http://www.cancer.net/node/24730>

[8] <http://www.cancer.net/node/25355>

[9] <http://www.cancer.net/node/24959>

[10] <http://www.cancer.net/node/24371>

[11] <http://www.cancer.net/node/25270>

[12] <http://www.cancer.net/node/24957>

[13] <http://www.cancer.gov/cancertopics/factsheet/Detection/pathology-reports>

[14] http://www.cap.org/apps/microsites/MyBiopsy/pathology_report.html