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PDF generated on July 21, 2016 from

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Reading a Pathology Report [1]

This section has been reviewed and approved by the [Cancer.Net Editorial Board \[2\]](#), 01/2016

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

By looking at and testing the tumor tissue, the pathologist is able to find out the following:

- If the tissue is noncancerous or cancerous. A cancerous tumor is malignant, meaning it can grow and spread to other parts of the body. A benign tumor means the tumor can grow but will not spread.
- Other specific details about the tumor's features. This information helps your doctor determine the best treatment options.

Your doctor will receive these test results as they become available. It may take a few days to a few weeks to receive the full report. The timing depends on the testing needed. You are entitled by law to receive a copy of your pathology report. However, you should expect the report to contain highly technical medical terms. Ask your doctor to explain the pathology report results and what they mean.

Parts of a pathology report

Different pathologists use different words to describe the same things. However, most pathology reports include the sections discussed below.

Patient, doctor, and specimen

This section lists the following items:

- Patient's name, birth date, and other personal information
- An individual number assigned to the patient to help identify samples
- The pathologist's and oncologist's contact information, as well as the laboratory where the sample was tested
- Details about the specimen, including the type of biopsy or surgery and the type of tissue

Gross, or obvious, description

This section describes the tissue sample or tumor as seen with the naked eye. This includes the general color, weight, size, and consistency.

Microscopic description

This is the most technical section of the report. It describes what the cancer cells look like when viewed under a microscope. There are several factors noted in this section that affect diagnosis and treatment.

- **Whether the cancer is invasive.** Tumors of many types may be noninvasive (in situ, which means "in place") or invasive. Invasive tumors can spread to other parts of the body through a process called metastasis. Although noninvasive tumors do not spread, they may grow or develop into an invasive tumor in the future. For invasive tumors, it is important for the pathologist to note how much the tumor has grown into nearby healthy tissues.
- **Grade.** Grade describes how the cancer cells look compared with healthy cells. In general, the pathologist is looking for differences in the size, shape, and staining features of the cells. A tumor with cells that look more like healthy cells is called low grade or well

differentiated. A tumor with cells that look less like healthy cells is called high grade, poorly differentiated, or undifferentiated. In general, the lower the tumor's grade, the better the prognosis. There are different methods used to assign a cancer grade for different types of cancers. Learn more about [grading for specific cancer types](#) [4].

- **How quickly cells are dividing, mitotic rate.** The pathologist usually notes how many cells are dividing. This is called the mitotic rate. Tumors with fewer dividing cells are usually low grade.
- **Tumor margin.** Another important factor is whether there are cancer cells at the margins (edges) of the biopsy sample. A “positive” or “involved” margin means there are cancer cells in the margin. This means that it is likely that cancerous cells are still in the body.
- **Lymph nodes.** The pathologist will also note whether the cancer has spread to nearby lymph nodes or other organs. Lymph nodes are tiny, bean-shaped organs that help fight disease. A lymph node is called “positive” when it contains cancer and “negative” when it does not. A tumor that has grown into blood or lymph vessels is more likely to have spread elsewhere. If the pathologist sees this, he or she will include it in the report.
- **Stage.** Usually, the pathologist assigns a stage using the TNM system from the [American Joint Committee on Cancer \(AJCC\)](#) [5]. This system uses 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)
 - 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. This information guides a person's treatment options. Learn more about the [stages of cancer](#) [6].

- **Results of other tests.** The pathologist may perform special tests to identify specific genes, proteins, and other factors unique to 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." You may find this section at the beginning or the end of the report. If cancer has been diagnosed, the section may include the following:

- The type of cancer, such as carcinoma or sarcoma
- Tumor grade
- Lymph node status
- Margin status
- Stage
- Any other test results, such as whether the tumor has hormone receptors or other [tumor markers](#) [7]

Synoptic report, or summary

When the entire tumor was removed, the pathologist will include a summary. This lists the most important results in a table. These are the items considered most important in determining a person's treatment options and chance of recovery.

Comments section

Sometimes, a cancer may be difficult to diagnose or the development of the cancer is unclear. In these situations, the pathologist may use the comments section. Here, he or she can explain the issues and recommend other tests. This section may also include other information that can help the doctor plan treatment.

Sampling differences

Sometimes, the pathology report for a biopsy may be different from a later report for the entire tumor. This happens because the features of a tumor can sometimes vary in different areas. Your doctor will consider all of the reports to develop a treatment plan specific to you.

Questions to ask the doctor

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

- What type of cancer do I have? 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?
- Was the entire cancer removed? Are there signs of cancer cells at the edges of the sample?
- Are there cancer cells in the lymph vessels or blood vessels?
- What is the stage of the cancer? What does this mean?
- Does the pathology report specify the tumor characteristics clearly? Should we get another pathologist's opinion?
- Do any tests need to be done again on another sample or in another laboratory?

Getting a second opinion

It may be helpful to talk with more than one doctor about your diagnosis and treatment plan. This is called a second opinion. It is important to get a copy of the pathology report and any other medical records. If you choose to get a second opinion, you will want to share these with the second doctor. Be aware that doctors work closely with their own pathologists and may want their own pathologist's opinion too. Other tests can be performed on the biopsy sample if needed. The tissue specimen is kept for a long time and is available upon request. Learn more about [getting 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]

College of American Pathologists: [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/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/about-cancer/diagnosis-staging/diagnosis/pathology-reports-fact-sheet>

[14]

http://www.cap.org/web/home/resources/read-your-pathology-report?_afrLoop=768749518212689#%40%3F_afrLoop%3D768749518212689%26_adf.ctrl-state%3Djrs505u3g_25