

How to Read Your Pathology Report

To diagnose diseases such as cancer, a sample of tissue called a biopsy is taken from a patient and examined by a pathologist to determine if cancer is present.

A pathologist is a medical doctor who specializes in the diagnosis and classification of diseases by looking at tissue or cells under a microscope and by interpreting medical laboratory tests.

The pathologist also is the doctor who examines specimens removed during surgery (resections) for conditions such as cancer, to determine whether a tumor is benign or cancerous, and if cancerous, the exact cell type, grade, and stage of the tumor. In some cases, the pathologist also performs molecular biomarker analysis and reports genetic alterations that may guide targeted therapy for a specific cancer.

The College of American Pathologists has developed the following information to help you understand your pathology report.



Your Surgical Pathology Report

Surgical pathology reports vary somewhat regarding the information they contain. However, each report will document the significant details that affect the management of your diagnosed condition or disease process.

2 Patient Identifiers and Clinical Information

To ensure that the report is about you and your specimen, each pathology report contains your **patient identifiers**—specific information that relates directly to you and includes your name, birth date, and hospital or medical record number. In addition, your pathologist's name and signature and the laboratory's name and address will appear on the report.

The container in which your specimen is sent to the laboratory also is labeled with your patient identifiers and matched to your medical record to ensure that the specimen is from you. After the specimen arrives in the laboratory and is processed and after the final pathology report is prepared, these identifiers are checked repeatedly to ensure the correct information is provided to your medical team.

All pathology departments have a numbering system that is used to specifically and uniquely label each patient specimen. These numbers are called **accession** or **surgical** numbers, and they help identify your specimen as it is processed by the pathology laboratory. All the microscope slides made from your specimen also have that accession or surgical number on them, which correlates with your patient identifiers.

Your treating doctor may supply additional clinical information, such as your symptoms, medical conditions, or details about your specimen to your pathologist at the time he or she examines the specimen. The source of the specimen sample is also given, such as "skin biopsy, left arm" or "right modified radical mastectomy."

Case#: S14-124567 Facility: Community Hospital Collected: 01/22/2019
Patient: Doe, Jane MRF: 8807788 Received: 01/22/2019
DOB: 10/13/1948 Age/Sex: 70 yo F Reported: 01/26/2019

Surgical Pathology Report

DIAGNOSIS:

1. Infiltrating Ductal Carcinoma, Moderately Differentiated (SBR score 6), Right Breast Core Biopsies.
2. Ductal Carcinoma in situ, high grade.

NOTE: breast marker analysis is pending (IHC and FISH) and an addendum report will be issued. The results were reviewed by the pathologist.

CLINICAL HISTORY: palpable right breast mass; calcifications on mammogram

SITES: right breast core biopsies

GROSS: Received in formalin are 4 cores of white and yellow tissue, each measuring 2.0 X .03 cm in diameter. Totally embedded in one cassette. MSIad

MICROSCOPIC: Sections reveal infiltrating ductal carcinoma. The tumor is composed of irregular, nests and cords of cells with focal gland formation. Individual cells have irregular nuclei and nucleoli. Well formed glands make up less than 20% of the tumor. Mitoses are occasionally encountered and these number 4 per 10 hpf. The tumor elicits a desmoplastic stromal reaction. Calcifications are seen within a few neoplastic ducts as well as the stroma. There is a focus of ductal carcinoma in situ involving one core. Nuclei are large and have prominent nucleoli. The duct lumen is filled with necrotic debris. All four core biopsies contain infiltrating carcinoma; the longest tumor segment is 1.7 cm in a 2 cm core. Breast Marker analysis is pending and an addendum report will be issued.

PREVIOUS BX/PAP HISTORY: FNA cyst left breast, benign (5/5/2005)

The pathologist, who is a member of your medical team, writes the pathology report that your treating doctor uses to provide the best care for you as a patient.

How to Read Your Pathology Report (continued)

2 Gross Description

The **gross description** describes how a specimen looks to the “naked eye” and details what portions of the specimen selected are examined under the microscope. It includes the size, color, number of tissue samples, and, when appropriate, weight of the specimen. A gross description of a small biopsy specimen is typically short. However, a more complex specimen, such as a cancer resection specimen, will have a more detailed description.

The pathologist uses his or her training and experience to select areas of the specimen that should be sampled for microscopic examination or special studies. Usually, if there are multiple tissues or organs in the specimen, each is described and sampled. Even for a single organ, different portions of the organ are often selected for microscopic examination, including areas that look abnormal as well as areas that look normal to the naked eye. Each of these samples is used to make a microscope slide and will be listed in your pathology report.

For a specimen that contains cancer, the pathologist uses specific guidelines when examining the specimen and sampling it for microscopic slides. These vary depending on the location and the type of the cancer.

3 Microscopic Description

The **microscopic section** details how the specimen looks under the microscope and how it compares with normal cells. It also describes if the cancer has invaded nearby tissues. Pathologists always perform the microscopic evaluation of a specimen, even if the final pathology report does not include a written description.

Using specially equipped microscopes and permanent inks applied to specimens, the pathologist can provide detailed and precise measurements, which are valuable because tumor cells may be present beyond what the naked eye can see. Able to measure distances as small as one-tenth of a millimeter, the pathologist can determine if the tumor has been completely removed and how far the tumor is from the margin of the surgically excised tissue. This information helps guide future treatment.

The microscopic description is then used, along with the gross description and your clinical history, to make the pathologic diagnosis and to ensure that the other members of your medical team have the most complete and accurate information to construct your treatment and follow-up plan.

The pathologist also uses the microscopic description to note small incidental findings that may not be important to the patient's care, but they may be of interest to other pathologists who may see the case. The microscopic description is also used to document the results of special studies that may have been used to reach the diagnosis and exclude other diagnoses.

4 Diagnosis Section

The **diagnosis section** provides the final pathology diagnosis that is established after thorough examination of the specimen. The pathologist is the medical doctor who makes this diagnosis. Some diagnoses are very short, such as “acute appendicitis.”

Cancer diagnoses may be lengthy as they need to describe many aspects that will affect the patient's treatment and outcome. For most cancers, the diagnosis will include the grade of the tumor. The grade is determined by applying specific criteria to the microscopic features of the tumor. The grade may also provide prognostic information and may guide treatment.

5 Synoptic Report

In cancer resection cases, there will be a special cancer case summary or **synoptic report**. The synoptic report lists all of the most important findings in the case, summarized as one concise table. The specific items listed in this summary are those that a panel of cancer experts has determined to be essential to cancer treatment. All this information helps determine which additional treatments or testing, if any, are needed, and helps predict how the patient will do over time (outcome). Pathology staging information is also provided in the synoptic report. Staging information details how extensive the tumor is and if it has spread beyond the organ in which it originated. This information directly affects subsequent treatment and helps to predict prognosis.

Comment Section

Sometimes there are diseases that are subtle and difficult to diagnose, or the disease process is considered controversial or unclear. Many pathologists tend to use the **comment section** to explain these types of issues and recommend possible additional testing.

Some pathology reports also contain additional data such as images, molecular studies, references, Internet links, and addendum information, all of which help the care team formulate the best possible treatment plan for the patient.

