

Cancer Diagnosis and Staging

Target Audience:

- *Community members*
- *Staff of Indian health programs, including Community Health Representatives*

Contents of Learning Module:

- *Instructor's Guide with Pre/Post Self-Assessment*
- *PowerPoint presentation*
- *Glossary*
- *References*

Length:

- *Introduction of session/module overview (:05)*
- *Pre-self-assessment (:07)*
- *Presentation of module including interactive activity (:30)*
- *Post-self-assessment (:05)*
- *Closing (:03)*

Goals

In this session, participants will gain an understanding of how cancer is diagnosed and how the extent or stage of cancer is determined.

Objectives

At the completion of Learning Module 4, participants will be able to demonstrate the following:

Section 1

- a) Describe what is meant by the term “biopsy.”
- b) Describe how tumors may behave differently from one another (e.g. well differentiated versus poorly differentiated).

Section 2

- a) Give two examples of the stages of cancer and their meaning.
- b) Give two reasons why staging is important.

Measures of Objective Accomplishment

The presenter will administer a pre self-assessment and a post self-assessment to measure participants' knowledge of the module's objectives. The pre self-assessment measures existing knowledge and the post self-assessment measures what was gained through the learning module.

NOTE

- Each major learning point is clearly identified by **boldface** type throughout the guide and emphasized in the PowerPoint presentation.
- See the glossary (at the end of the module) for words that are in ***bold italics*** throughout the module.

Pre/Post Self-Assessment

Cancer Diagnosis and Staging

Do you agree (A) or disagree (D) with these statements, or are you not sure (NS)? Circle Choice A, D, or NS.

1.	A D NS	A biopsy helps the doctor determine whether or not a tumor is benign (non-cancerous) or malignant cancerous).
2.	A D NS	Microscopic examination of the tumor is an important part of the cancer diagnosis.
3.	A D NS	Cancer in situ is an early cancer that has not yet spread to neighboring tissue and has a very poor outcome.
4.	A D NS	A cancer that is localized (has not spread to other areas of the body) has a good chance for control or cure.
5.	A D NS	The “staging” of cancer (determining the extent of disease) is an important part of determining treatment, disease outcome, and how the patient will respond to treatment.

Section 1

Cancer Diagnosis and Staging



To diagnose the presence of cancer, a doctor must look at a sample of the affected tissue under a microscope. So when an individual experiences any of the warning signals for cancer or the results of their screening tests indicate the possible existence of cancer, a doctor will want to perform a *biopsy*. A **biopsy** is the surgical removal of a small piece of tissue for *microscopic examination*. Microscopic examination will tell the doctor whether a tumor is actually present and if so, whether it is malignant (cancerous) or benign (non-cancerous).

There are three ways tissue can be removed for biopsy: *endoscopy*, *needle biopsy*, or *surgical biopsy*.

Endoscopy

By using a thin lighted tube, the doctor is able to look at areas inside the body and see what's going on, take pictures, and remove tissue or cells for examination, if necessary.

Needle Biopsy

The doctor takes a small tissue sample by inserting a needle into the abnormal (suspicious) area.

Surgical Biopsy

There are two types of surgical biopsies. An **excisional biopsy** is performed when the doctor removes the entire tumor, often with some surrounding normal tissue. An **incisional biopsy** is performed when the doctor removes just a portion of the tumor. If cancer is found to be present, the entire tumor may be removed immediately or during another operation.



Once the doctor has removed the tumor and determined the presence of cancer, he will want to determine the “aggressiveness” of the cancer or how fast the cancer is growing. To do this, the doctor will look at the tumor under the microscope to determine how alike or different the tumor cells are from one another. Under the microscope, some tumor cells look very much like the normal tissue they came from. If they do, they are called *well differentiated*. Other tumors may only slightly resemble the normal tissue that they came from or they may not resemble any specific tissues. These tumor cells are called *poorly differentiated* or *undifferentiated tumor cells*. Generally speaking, tumors that are undifferentiated or poorly differentiated tend to be more aggressive in their behavior. They grow faster, spread earlier, and have poorer outcomes than well differentiated tumors.

In summary, the biopsy has provided the doctor with the following important information:

- Whether or not the tumor is benign (non-cancerous) or malignant (cancer).
- The “type” of cancer (e.g. carcinoma versus sarcoma). See Module 2, Section 3: Types of Cancer.
- The “aggressiveness” or behavior of the tumor (e.g. well differentiated versus poorly differentiated).

Section 2

Staging of Cancer



Once the diagnosis of cancer has been made, the doctor will want to learn the stage, or extent, of the disease. This process is referred to as “*staging*” and tells the doctor how far the cancer has spread in the body. Treatment decisions are based on the results of staging. The four common stages of cancer are:

In situ

Early cancer that has not spread to neighboring tissue.

Local

Cancer is found only in the organ where it started to grow.

Regional

Cancer has spread to the surrounding tissues or lymph nodes.

Distant

Cancer has spread to other organs and systems of the body.

Staging is an important part of making a good diagnosis. Cancer *in situ*, cancer of an early stage with no invasion to surrounding tissue, carries a very good prognosis for complete cure. When cancer is more extensive (involving larger areas) but still has not spread to other sites, it is considered to be *localized*. Localized cancers also have a good chance for control or cure.



Cancers that have begun to spread are classified according to the manner and extent of spread: by direct extension, by involvement of the lymph nodes, and by evidence of distant metastasis or spread. Though each type of cancer has its own progression of disease and the medical community has various methods of staging classification, staging can be generally described as follows:

Stage 1 A cancerous tumor is found to be limited to the organ of origin.

Stage 2 The cancer has spread to the surrounding tissues and possibly to the local lymph nodes.

Stage 3 There is extensive growth of the primary tumor and possible other organ involvement.

Stage 4 The cancer has spread far into the other organs and systems of the body away from the original tumor site.

Each cancer grows differently. The stage of cancer at the time of diagnosis means different things for different cancers. For example, lymph node involvement does not necessarily mean the same thing in every kind of cancer. Thus, the information about the extent of the cancer must be considered in light of the tissue diagnosis obtained from the biopsy.

Staging is performed using a number of methods such as *imaging studies (ultrasound, magnetic resonance imaging (MRI), and computed tomography (CT or CAT scan), x-rays, various blood tests, bone marrow biopsy*, and even special surgery.

In summary, the staging of cancer is important for three reasons:

- 1) Staging determines the extent of the disease;
- 2) Treatment is determined by the stage of the specific cancer;
- 3) Staging helps determine the patient’s prognosis.

Glossary of Terms

Biopsy The surgical removal of a small piece of tissue for microscopic examination to check for cancer cells.

Bone Marrow Biopsy A procedure in which a needle is inserted into either the breast or pelvic bone to remove a small amount of liquid bone marrow (blood forming cells) for examination under a microscope.

Computed Tomography An x-ray test using a computer to produce a detailed (*CT or CAT scan*) picture of a cross-section of the body.

Endoscopy This is a type of biopsy by which the doctor uses a thin lighted tube, to look at areas inside the body to see what's going on, take pictures, and remove tissue or cells for examination, if necessary.

Imaging Tests Special tests that give detailed images of a person's body including x-rays, *ultrasound*, *magnetic resonance imaging (MRI)*, and *computed tomography (CT or CAT scan)*.

In Situ Early cancer that has not spread to neighboring tissue.

Localized Within the same part of the body.

Magnetic Resonance Imaging (MRI) A procedure using a magnet linked to a computer to create pictures of areas inside of the body.

Microscopic Examination Use of a microscopic to visualize cells.

Needle Biopsy Type of biopsy by which the doctor inserts a needle into an abnormal (suspicious) area to remove a small tissue sample for diagnosis.

Poorly Differentiated or Undifferentiated Tumor Cells Tumor cells that may only slightly resemble the normal tissue that they came from; this type of tumor may tend to be more aggressive in their behavior, spread faster, and have a poorer outcome.

Staging Describes how far the cancer has spread from the original site to other parts of the body (i.e. in situ, local, regional, or distant).

Surgical Biopsy There are two types of surgical biopsies. An **excisional biopsy** is performed when the doctor removes the entire tumor, often with some surrounding normal tissue. An **incisional biopsy** is performed when the doctor removes just a portion of the tumor.

Ultrasound An exam in which sound waves are bounced off tissues and the echoes are converted into a picture.

Well Differentiated Tumor Cells Cells that look and function similar to normal cells of the same type.

For more detailed information about the glossary terms, please refer to the Dictionary on www.cancer.gov OR call the Cancer Information Service at 1-800-4-CANCER (1-800-422-6237)

References

Kleinsmith, L. J., Kerrigan, D., Spangler, S. (2001). Understanding cancer. [CD-ROM]. National Cancer Institute.

National Cancer Institute (2000). What you need to know about cancer. (NIH Publication No. 00-1566).



Please Note—



- ✓ Use the Curriculum/Training Evaluation located in the Evaluation section, to get valuable participant feedback.
- ✓ The Health Change Checklist, located in the Evaluation section, directs the participants new attitudes towards new actions and may be used as a take home exercise.
- ✓ Please Complete the “Trainer Activity Report” in the Evaluation section of the curriculum. Your feedback allows us to track usage of the curriculum for reporting purposes and ensures you receive any updates to the material.

We look forward to hearing from you.
Thank You.

