Section 1

Understanding Cancer Basics

GOALS

Participants will learn how a cancer diagnosis is made and become familiar with common medical words used when describing cancer. Participants will be able to identify cancer risk factors. This section will also discuss common responses to receiving a cancer diagnosis and ways to provide support.

OBJECTIVES

At the end of this section, you will be able to:

UNDERSTAND what cancer is

STATE how a cancer diagnosis is made

IDENTIFY cancer risk factors

UNDERSTAND the importance of cancer stage

DISCUSS the emotional impacts of a cancer diagnosis

IDENTIFY ways to provide comfort and support for people diagnosed with cancer and their caregivers

Photo courtesy of Lee Bartnik

Developed with and for rural residents
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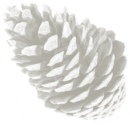

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Understanding Cancer Basics

Many of us are concerned about cancer. When people hear the word ‘cancer’ a lot of thoughts and feelings come to mind.

We may know family, friends or people in our community who have had cancer. We may also be aware of the many ways that a cancer diagnosis may affect their lives and the lives of loved ones.

By sharing our knowledge, together we help each other better understand cancer and how to help prevent it.

By sharing our knowledge, together we can help each other better understand cancer and how to prevent it.

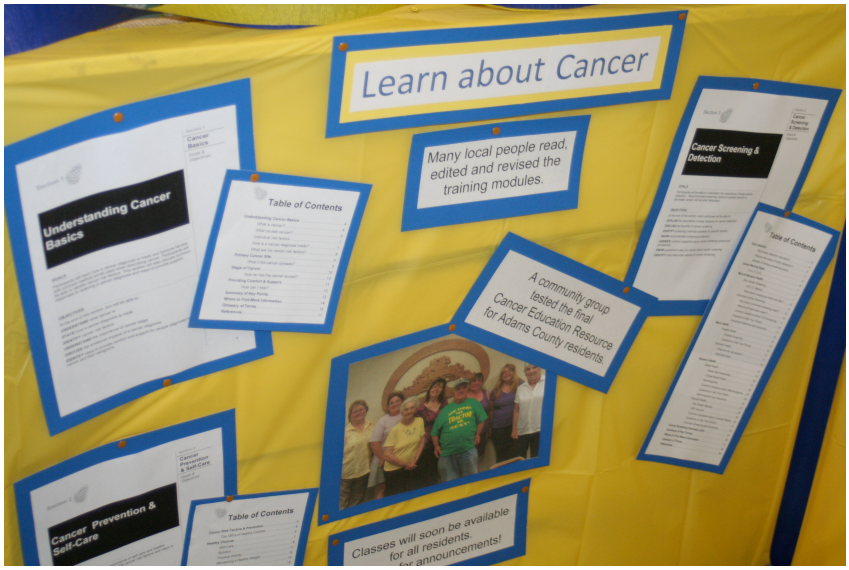


Photo courtesy of Maureen Bruce

What is cancer?

Cancer is not just one disease, but a group of over 200 different diseases. Cancer is an abnormal growth of cells.

Cancer is an abnormal growth of cells. **Cells** are the basic building blocks of all living things.

Cells are the basic building blocks of all living things. All parts of the body, organs, muscles, skin, bones and blood, are made of cells. Cells are so small that over 50,000 cells can fit on the head of a pin!

Within each cell is a set of instructions (DNA). The instructions (DNA) tell the cell when to reproduce and when to die.

Cells die when they are worn out or damaged, and new cells take their place. This process is called reproducing (or copying). Reproducing (copying) is part of a normal cell’s lifespan. Normally, cells grow, reproduce and die in an orderly fashion.

Sometimes, the cell's instructions (DNA) can be damaged and can result in a mutation.

A **mutation** is a change in the cell structure.

If a mutated cell keeps reproducing in an uncontrolled way, a mass forms. This solid mass of cells is called a growth or a **tumor**.

What is cancer (continued)?

Cancer is a disease in which cells start to grow out of control. This can happen when the cell's instructions (DNA) are damaged. This damage can result in a mutation. A **mutation** is a change in the cell structure.

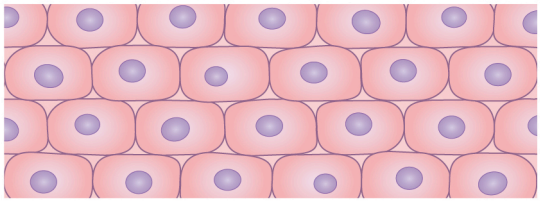
Generally our body responds by having the mutated cell self-destruct or the immune system destroys it. In some cases the mutated cell doesn't die but begins to reproduce at a faster rate.

If cells keep reproducing in an uncontrolled way, a mass forms. This solid mass of cells is called a growth or a **tumor**.

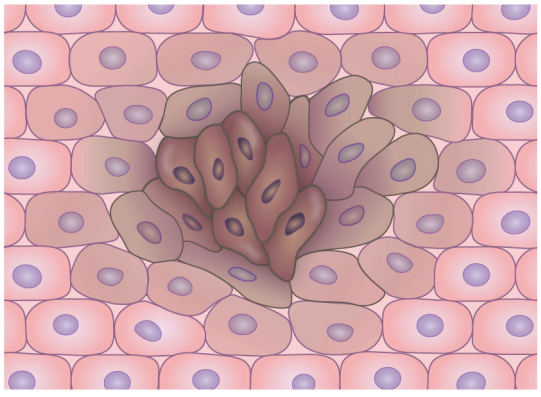
An easier way to think about cell growth

Think about cell growth like a car. Normally your body tells itself to stay on cell cruise control. Cell cruise control maintains a steady, orderly speed and always stays in its lane.

If the cruise control instructions are damaged, the cell growth gas pedal can get stuck in acceleration mode. Constant acceleration mode means that cells are reproducing at a faster rate than necessary. This equals higher speeds and more cells. If cells are going too fast in traffic, a pile up can happen. This cell pile up is called a tumor.



Normal cell growth is like *cell cruise control*. *Cell cruise control* maintains a steady, orderly speed and never gets out of control.



Uncontrolled cell growth is like an accelerating car. The gas pedal is stuck in acceleration mode. Cells are reproducing at a faster rate and more cells are on the road. If the cell is going too fast in traffic, a pile up happens. This cell pile up is called a tumor.

Tumors can be benign or malignant

Benign tumors are not cancer. They do not spread to other parts of the body and are not usually a threat to someone's life.

Malignant tumors are cancer cells which reproduce without control or order. Cancer cells can spread to other parts of the body.

What causes cancer?

Cancer is a very complex disease.

Cancer is very complex. It consists of over 200 different diseases. We know that there is no one single cause, and we are still learning exactly what causes cancer.

Most scientists believe that over time, a cell takes many "**hits**." These "hits" come from:

- what you are exposed to (environmentally, occupationally, radiation, viruses)
- how you live (tobacco, diet, alcohol, activity, etc.)

"Hits" come from what you are exposed to and how you live.

These "hits" damage the *cell's cruise control instructions*. The damage depends on the number of "hits," the type of hits, their frequency and their intensity.

"**Hits**" damage the cell's set of instructions and its structure.

After a cell is exposed to many "hits," the cell will eventually reach a breaking point. At this breaking point a cell mutation occurs.

Eventually, the cell reaches a breaking point and cell mutation occurs. Cell mutations can cause cancer.

Each individual's cells have different levels of resilience. **Resilience** is the cell's ability to maintain its original structure. Some cells may already have structural damage based on family history.

What are my cancer risk factors?

What are my cancer risk factors?

Our chance of developing cancer is affected by the choices that we make, what we do and how we live. **You CAN control most of your cancer risk.** Your behaviors influence the number of "hits" your cells endure and the number of risk factors that you are exposed to. A **risk factor** is anything that increases a person's chance of developing a disease.

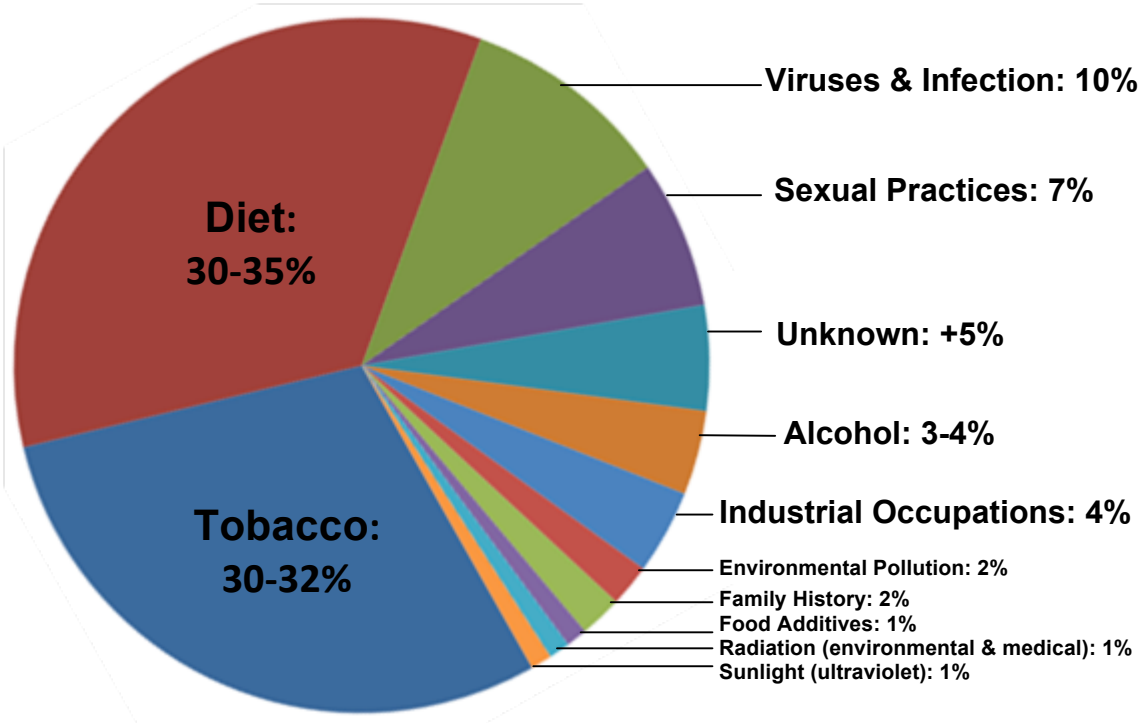
Your risk of developing cancer, as well as stroke, heart disease and diabetes, depends on:

- who you are (family history)
- what you are exposed to (environmentally, secondhand smoke, occupationally, viruses, radiation)
- how you live (tobacco, diet, alcohol, physical activity, etc.)

You can control most of your cancer risk.

National Cancer Risk Factors with Percentages

Adapted from Everyone's Guide to Cancer Therapy



Your behaviors influence the number of "hits" your cells endure and the number of risk factors that you are exposed to.

Diet and tobacco are related to 60-67% of all cancers.

If you are interested in more information about reducing your cancer risk, please see "Section 2: Cancer Prevention & Self-Care."

Individual Cancer Risk Factors

Family history, gender or age can also influence a person's risk for developing cancer.

Family History

About 2% of cancers are linked to family history.

Currently, about 2% of cancers are linked to family history.

These include cancer of the breast, colorectal (colon and/or rectum), kidney, leukemia (cancer of the blood), ovary, testicle, melanoma (cancer of the skin), prostate (a gland in the male reproductive system) and thyroid.

An individual's cancer risk, due to family history, varies depending on the number of relatives with cancer, the exact relationship, the age at diagnosis and the number of unaffected relatives.

It is helpful to know your family health history. Tell your health care provider if anyone in your family has had cancer, as well as the type of cancer and the person's age when they were diagnosed with cancer.

Sex

The risk of developing cancer increases with age.

Women can develop cancers of the vagina, uterus, cervix and ovaries.

Men can develop cancers of the prostate, testicles and penis.

Both men and women can get breast cancer, though breast cancer in men is very rare.

Age

The risk of developing cancer increases with age. One of the reasons we are seeing more cancer is because people are living longer.

For some of the most common cancers (breast, colorectal, and prostate), a person's risk increases after age 50.

People over the age of 55 experience about 78% of all new cancer diagnoses.

How is a cancer diagnosis made?

Cancer is diagnosed by taking a sample of cells, called a **biopsy**, and looking at those cells under a microscope.

A cancer diagnosis can only be made by looking at cells from a biopsy under a microscope. A **biopsy** is the removal of a small sample of cells. Under a microscope, cancer cells look different than normal cells in size and shape.

Primary Cancer Site

Most cancers are identified by the organ in which they first begin to grow. The place where the cancer first starts to grow is called the **primary site**.

The four most common primary sites are lung, colorectal (colon and/or rectum), breast and prostate (a gland in the male reproductive system).

Cancers are identified by the organ in which they begin to grow (i.e. lung cancer).

What if the cancer spreads?

When cancer spreads or **metastasizes**, the new tumor has the same type of cells as the original (primary) tumor. Cancer cells move through the bloodstream and lymph nodes to other parts of the body.

Lymph nodes are small, oval-shaped organs of the immune system. They act as filters or traps for foreign particles and are found throughout the body.

If lung cancer spreads to the liver, the lung cancer is said to have metastasized to the liver. The tumor in the liver is called metastatic lung cancer.

The person's diagnosis is lung cancer with metastasis to the liver (not liver cancer).

Example: Lung cancer has spread to the liver:

When cancer spreads or **metastasizes**, the new tumor has the same type of cells as the original (primary) tumor

An easier way to think about how cancer spreads

Let's think back to the car example. Cancer cells, like cars, can move. However, cars have to take other routes when a pile up happens. In the case of cancer, these alternative routes are the bloodstream and lymph nodes. The alternative routes bring cancer cells to other parts of the body.

Just like cars are different depending on their manufacturer, cells are also different depending on what part of the body they are from. Cells from one organ are different than cells from another organ. Cells, like cars, can travel to different to parts of the body. But it still doesn't change what kind of cell they are.

Now let's apply this concept to cancer. If lung cancer cells spread to the liver, it doesn't mean that it is no longer lung cancer. The person's diagnosis would be lung cancer which has spread to the liver (not liver cancer).

The primary site and the location of the metastases help the doctor determine appropriate treatment.

Cancer cells move through the bloodstream and lymph nodes to other parts of the body.

Stage of Cancer

The stage describes how far the cancer has spread beyond the organ where it first started to grow.

How far has the cancer spread?

The **stage** describes how far the cancer has spread.

There are four stages used to describe how far the cancer has spread. Stages vary by specific cancer type. The four common stages of cancer are:

STAGE 0 (In-situ) - Cancer cells are found in one tissue area and have not invaded normal surrounding tissue.

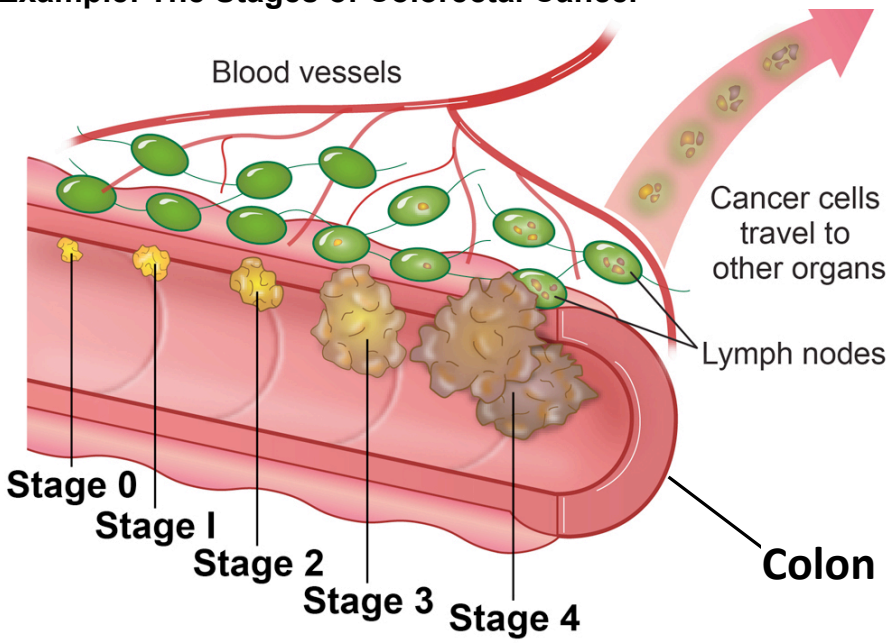
STAGE 1 AND 2 (Local) - Cancer is found only in the organ where it started to grow.

STAGE 3 (Regional) - Cancer has spread to the surrounding tissues or lymph nodes.

STAGE 4 (Distant) - Cancer has spread to other organs and systems of the body.

There are four stages used to describe how far the cancer has spread.

Example: The Stages of Colorectal Cancer



The best way to treat cancer is to find it early!

The cancer stage helps the doctor plan the appropriate treatment. It can also be used to estimate a patient's recovery.

In general, an early stage cancer is very treatable. A cancer which has spread to distant organs is more advanced and more difficult to treat.

Providing Comfort & Support

People respond to a cancer diagnosis in many ways. Common reactions include: shock, confusion, anger, grief, sadness, disappointment, despair, disbelief, denial and fear. Each of us has our own personal way of responding to a situation. Some people need time; some people need support from those closest to them. This section will outline how to provide comfort and support to those *living* with cancer.

People respond to a cancer diagnosis in many ways. Some people need time; some people need support from those closest to them.

How can I help?

Although cancer is an individual diagnosis, no one needs to feel like they have to experience cancer alone. It takes a lot of heart and courage to cope with cancer. Cancer not only affects the person with cancer but also his or her family and friends.

Sometimes people refer to cancer as the 'Big C' or the 'C word.' Remember there are three simple letters at the beginning of the word cancer…CAN. Together, we CAN make a difference.

Think about other supportive "C" words:

- Comfort
- Cope
- Compassion
- Communication
- Community
- Cuddle
- Chocolate
- Chuckle
- Courage
- Call
- Counsel
- Care

Local support is available to help people with cancer and their friends and family.

Local support services might be available in your community. Please call your local Human Services Department for more information.

Ways to provide comfort and support

- Listen
- Focus on the person, not the disease
- Share feelings, laughter and tears
- Share silence. Be present. We are human beings; we don't always have to be human doings
- Stay connected with the person
- Bring a meal
- Share photos
- Go with the person to their medical appointments if they would like you to go
- Run errands and shop for food
- Support caregivers by spending time with their kids and grandkids
- Pray together
- Tell or read stories of hope and courage
- Play games or cards
- Watch funny movies together; laughter is healing medicine
- Go for a walk together and enjoy nature
- Tailor support based on your relationship
- Help out with household chores
- Learn more about your loved one's cancer type and share information

Remind people that they are not alone. They are part of a caring community of family and friends.

Summary of Key Points

After completing this section, you should understand cancer basics. Let's review the important points from this section.

- ☑ **Cancer** is an abnormal growth of cells.
- ☑ **Tumors** can be **benign** (non-cancerous) or **malignant** (cancerous).
- ☑ Your risk of developing cancer depends on:
  - who you are
  - what you are exposed to
  - how you live
- ☑ A cell **mutation** can occur because its structure is damaged by environmental exposure and lifestyle choices.
- ☑ Cancer is diagnosed by taking a sample of cells, called a **biopsy**, and looking at those cells under a microscope.
- ☑ The **primary site** is where the cancer first starts to grow.
- ☑ The four most common cancers are lung, colorectal (colon and/or rectum), breast and prostate (a gland in the male reproductive system).
- ☑ **Metastasis** is when the cancer spreads from the part of the body where it started (primary site). When cancer spreads, the tumor has the same type of cells as the original (primary) tumor.
- ☑ The **stage** describes how far the cancer has spread.
- ☑ People respond to a cancer diagnosis in different ways.
- ☑ There are many different ways to provide comfort and support to someone with cancer and their family.

Where to Find More Information

Listed below are a few of the many helpful national cancer resources to find reliable cancer-related information and support.

National Cancer Institute (NCI)
www.cancer.gov
1-800-4CANCER (1-800-422-6237)
Provides accurate and up-to-date information about cancer types, prevention, detection, diagnosis, treatment, survivorship and end of life care.

American Cancer Society (ACS)
www.cancer.org
1-800-227-2345
Provides literature, information and resources on cancer detection, treatment, survivorship and end of life. Local programs may be available in your area. ACS also conducts and funds cancer research.

American Institute for Cancer Research (AICR)
http://www.aicr.org
1-800-843-8114
Researches the role of diet and nutrition in the prevention and treatment of cancer. AICR offers a variety of information to help you eat and live healthier, including a recipe corner.

Cancer Hope Network
www.cancerhopenetwork.org
1-877-HOPENET (1-877-467-3638)
Matches patients with trained volunteers who have experienced cancer. Provides support and hope for cancer survivors.

Cancer*Care*
www.cancercare.org
1-800-813-HOPE (1-800-813-4673)
Helps people face the many challenges of a cancer diagnosis. Provides free telephone and education workshops.

Glossary of Terms

Benign: A tumor that is not cancerous and does not spread to other parts of the body.

Biopsy: The removal of a sample of tissue that is examined under a microscope (by a specially trained doctor called a pathologist) to look for cancer cells.

Cancer: A term for a disease that develops when cells divide and form more cells without control or order. There are more than 200 different types of cancer.

Cells: Basic unit or building block of human tissue.

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

DNA: The set of instructions inside each cell that carries genetic information and passes it from one generation to the next.

Family History: The health history of related individuals.

In-Situ: Cancer cells are found but have not invaded normal surrounding tissue.

Local: Cancer found only in the organ where the cancer first started to grow.

Lymph Node: A small ball or an oval-shaped organ of the immune system. Lymph nodes are distributed widely throughout the body and are connected to organs through lymph vessels. Also called a lymph gland.

Malignant: Tumors which are cancerous; they grow wildly and have the potential to spread.

Metastasis: The spread of cancer from one part of the body to another.

Mutation: Any change in the cell. Mutations may be caused by mistakes during cell division, or they may be caused by exposure to damaging agents in the environment and within the body.

Pathologist: A medical doctor who diagnoses disease by studying cells and tissues under a microscope.

Glossary of Terms

Primary site: The place in the body where cancer starts.

Regional: Cancer has spread to the surrounding tissues or lymph nodes.

Risk factor: Something in an individual, in his or her lifestyle, or environment, which increases the chance of developing cancer.

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

Tissue: Group or layer of cells.

Tumor: An abnormal growth of cells or tissues; tumors may be benign (not cancer) or malignant (cancer).

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