



# **General Facts About Cancer**

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# Statistics of Cancer

- **Globally, there are about 14 million new cases of cancer throughout the world and cancer causes about 8 million deaths each year (about 15% of all deaths)**
- **In the United States, there are about 1.6 million new cases of cancer each year.**
- **More than one-half million people die each year from cancer**
- **From 2001-2010, the death rate from cancer fell compared to the prior decade**
- **Survival from cancer depends on many factors, including the stage of detection, age, and cancer type**
- **In children under age 15 at diagnosis, the 5-year survival rate in the developed world is about 80%**
- **For cancer in the United States, the average 5-year survival rate is about 66%**

# **What is Cancer?**

## **Definitions**

- **There are many synonyms for “cancer”, including “malignancy” and “neoplasm”**
- **Cancer can be defined as the abnormal growth and development of a cell**

# How Cells Normally Work

- **Our bodies are divided into systems (for example, the digestive system) and each system is divided into organs (for example, within the digestive system is the stomach, pancreas, intestines).**
- **Each organ contains millions of units called cells.**
- **Normally, cells grow and divide, forming new cells, while the old cells die. This process is much faster and dynamic during childhood. In adults, new cells do form, but generally only to replace old cells.**
- **Every cell has genetic material called DNA, which performs critical functions in the cell like directing cell growth.**

# How Cancer Cells Develop

- **When the DNA in cells becomes damaged, cell development and growth becomes disordered.**
- **While normal cells can repair DNA, cancer cells cannot.**
- **Unlike most cells in our body that develop, grow and die in a logical fashion, cancer cells continue to grow.**
- **In cancer, this results in a disturbance in the normal growth and development of that cell.**
- **With the abnormal DNA, cancer cells grow fast.**
- **In summary, cancer can be best defined as abnormal growth of cells in your body.**

# How Tumors Develop

- **Cancer cells join together to form lumps or masses.**
- **Cancer cells affect the tissue or organ (eg, pancreas) they originate in, but also can spread (metastasize) to other tissues. They travel to distant organs in blood vessels and in the lymph system (part of the blood system that participates in our immune system).**
- **While cancer can spread throughout the body, some “tumors” stay in one spot, grow much less quickly, and are much less harmful. One exception is leukemia, in which the cancer is in the blood stream.**

# **What Causes Cancer?**

## **Genes and Cancer-Part I**

- **The genetic material (genes, DNA) in our cells directs all cell functions.**
- **There are many types of genes in the cell, including ones that tell the cell to divide, ones that tell the cell not to divide, and ones that tell the cell to die.**
- **In cancer, the genes that tell the cell divide are the strongest, and the abnormal cells divide uncontrollably, while the genes supposed to keep the cells healthy are weaker.**

# **What Causes Cancer?**

## **Genes and Cancer-Part II**

- **Most of the DNA we get is inherited (from our parents).**
- **The DNA we inherit determines how many normal and damaged cells we have at birth.**
- **Some cells develop damaged DNA from new errors that develop after birth.**
- **Once a cell becomes damaged, it may become cancerous.**
- **There are many causes of damaged cells, but it is often difficult to know what caused the cell to become damaged and start the cancer process.**



# Causes of Cancer-Part I

**Tobacco: The most widely known cause of cancer. Please see the following link:**

<http://www.cancer.org/cancer/cancercauses/tobaccocancer/index>

**Asbestos- Please see the following link:**

<http://www.cancer.gov/cancertopics/factsheet/Risk/asbestos>

**Arsenic- Please see the following link:**

<http://www.cancer.org/cancer/cancercauses/othercarcinogens/intheworkplace/arsenic>

**Radiation (examples include x-rays and the sun) - Please see the following link:**

<http://www.cancer.org/cancer/cancercauses/radiationexposureandcancer/index>

# Causes of Cancer-Part II

**Poor diet- Please see the following links:**

<http://www.cancer.org/cancer/cancercauses/dietandphysicalactivity/index>

<http://www.cancer.org/healthy/eathealthygetactive/index>

**Lack of exercise- Please see the following link:**

<http://www.cancer.org/cancer/cancercauses/dietandphysicalactivity/index>

**Alcohol-Please see the following link:**

<http://www.cancer.org/cancer/cancercauses/dietandphysicalactivity/alcohol-use-and-cancer>

# Causes of Cancer-Part III

**Viruses** (for example, human papillomavirus, hepatitis B and C, Epstein-Barr virus, human immunodeficiency virus (HIV))-Please see the following link:

<http://www.cancer.org/cancer/cancercauses/othercarcinogens/infectiousagents/infectiousagentsandcancer/infectious-agents-and-cancer-viruses>

**Obesity**- Please see the following link:

<http://www.cancer.org/cancer/cancercauses/dietandphysicalactivity/bodyweightandcancerrisk/index>

**Pollutants** (for example, car exhaust fumes) - Please see the following link:

<http://www.cancer.org/cancer/cancercauses/othercarcinogens/pollution>

**Inherited genes**

# How to Reduce the Likelihood of Developing Cancer

- **Not smoking**
- **Maintaining a healthy weight**
- **Regular exercise**
- **Reducing excessive intake of alcohol**
- **Healthy diet: Rich in vegetables, fruits , whole grains, moderate red meat**
- **Vaccinations: Those against certain infectious diseases**
- **Avoiding excessive exposure to sunlight**
- **Early detection and screening**

# Symptoms of Cancer-Part I

- **The symptoms of cancer are variable and largely dependent on what tissue/organ the cancer is present in.**
- **Symptoms may also depend on the size, location and type of tumor:**
  - **Some cancers (for example, lung, pancreas) are usually well hidden until local and often distant spread has occurred**
  - **Some cancers are easily felt through the skin (for example, breast cancer)**
  - **Some are visible on the skin (for example, melanoma)**
  - **Some cause obvious discomfort (for example, mouth or throat cancer)**

# **Symptoms of Cancer-Part II**

- **Many generally less harmful diseases may cause symptoms similar to cancer, sometimes resulting in confusion for the individual and their doctor**
- **It is vital to report any new, persistent symptoms to your doctor**

# Symptoms of Cancer-Part III

- **Extreme fatigue without other exertion**
- **A new lump**
- **Excessive bleeding**
- **Persistent fever, without sign of infection**
- **Prolonged cough and shortness of breath**
- **Unplanned weight loss**
- **Significant change in urine output**
- **Significant, persistent change in bowel movements (eg, frequent diarrhea, constipation)**
- **Swollen lymph nodes (especially without an obvious infection)**
- **Frequent, new headaches (especially with other signs such as confusion or blurred vision)**
- **Abdominal (belly) pain, frequent nausea**  
**Yellow color to skin or whites of eyes**

# **Top Cancer Centers: US News and World Report, 2015**

<http://health.usnews.com/best-hospitals/rankings/cancer>

- 1) Memorial Sloan Kettering Cancer Center, New York, NY**
- 2) University of Texas MD Anderson Cancer Center, Houston, TX**
- 3) Mayo Clinic, Rochester, MN**
- 4) Dana-Farber/Brigham and Women's Cancer Center, Boston, MA**
- 5) Johns Hopkins Hospital, Baltimore, MD**
- 6) University of Washington Medical Center, Seattle, WA**
- 7) Massachusetts General Hospital, Boston, MA**
- 8) UCSF Medical Center, San Francisco, CA**
- 9) UCLA Medical Center, Los Angeles, CA**
- 10) Stanford Hospital and Clinics, Stanford, CA**



# References and Resources

**American Cancer Society:**

**<http://www.cancer.org>**

**Telephone: 800-227-2345**

**National Cancer Institute:**

**<http://www.cancer.gov>**

**Telephone: 800-4-CANCER (1-800-422-6237)**

***Mail:***

**BG 9609 MSC 9760**

**9609 Medical Center Drive**

**Bethesda, MD 20892-9760**

**Cancer.net:**

**<http://www.cancer.net>**

**Medical News Today (MNT)**

**<http://www.medicalnewstoday.com/info/cancer-oncology>**