

# Medical Oncology Terminology

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# **Oncology/Oncologist**

**Oncology:** The study of tumors, both malignant and benign

**Oncologist:** A doctor who specializes in treating cancer

# Cancer

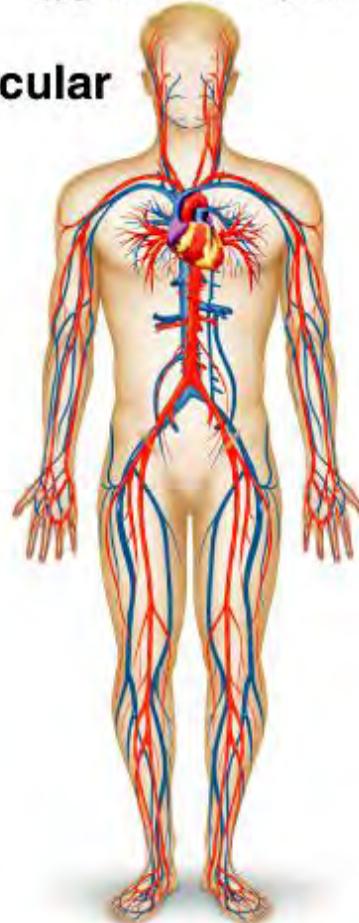
Cancer is an abnormal cells division without control and are able to invade other tissues.

- ▶ Cancer cells can spread to other parts of the body through the blood and lymph systems

# Blood and Lymphatic Systems

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**Cardiovascular system**



**Lymphatic system**



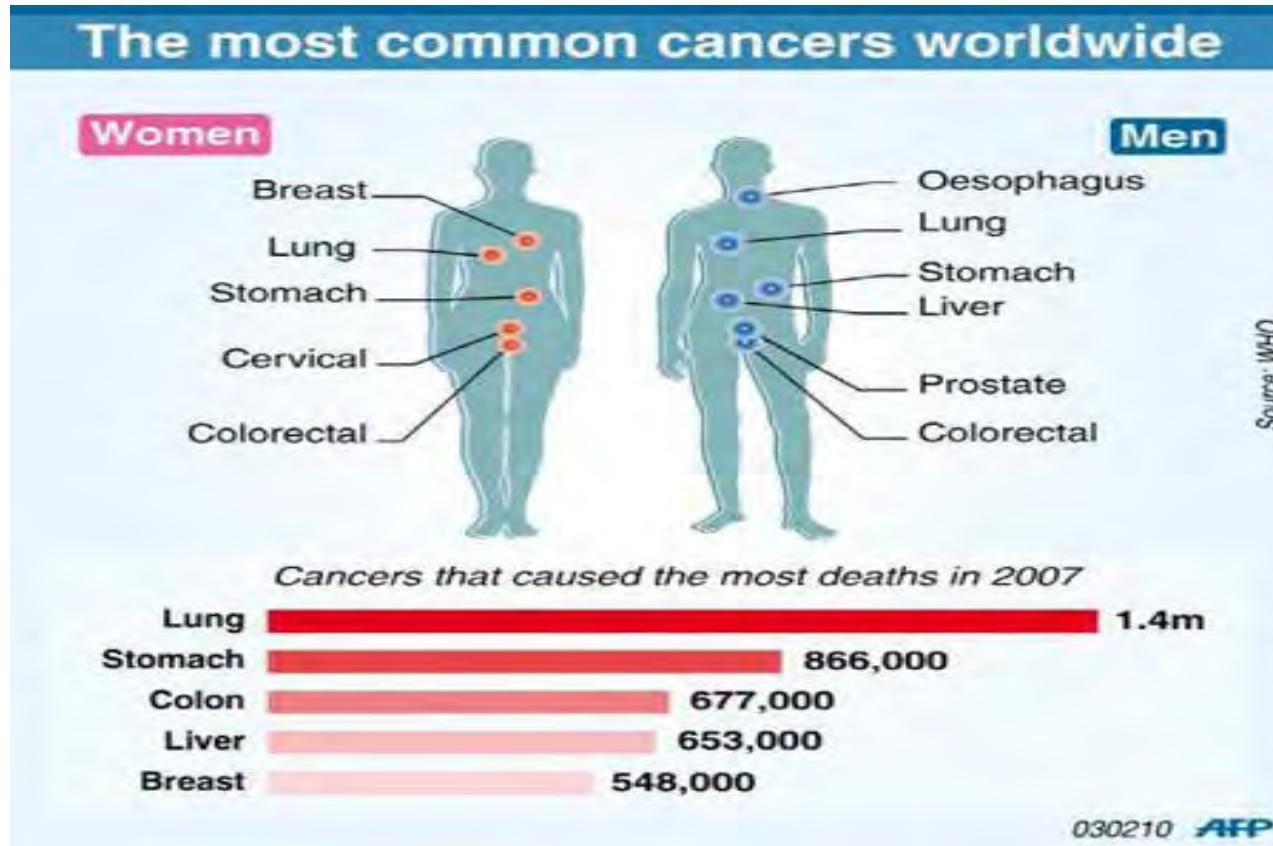
# Types of Tumors

- ▶ **Benign tumors** aren't cancerous.
- ▶ **Malignant tumors** are cancerous.
- ▶ Some cancers do not form tumors. For example, leukemia is a cancer of the bone marrow and blood.

# 2013 Cancer Statistics

- ▶ In 2013 there will be an estimated 11,630 cases of cancer diagnosed in children 14 and younger compared to over 1.6 million cases diagnosed in adults
- ▶ NCI.

# Worldwide Cancer



# Most Common Types of Childhood Cancers in USA

- ▶ Leukemia (31% of all childhood cancers, including benign brain tumors)
- ▶ Brain and other central nervous system tumors (25%)
- ▶ Neuroblastoma (6%)
- ▶ Wilms tumor (5%)
- ▶ Non-Hodgkin lymphoma (4%) and Hodgkin lymphoma (4%)
- ▶ Rhabdomyosarcoma (3%)
- ▶ Osteosarcoma (3%)
- ▶ Retinoblastoma (2%)
- ▶ Ewing sarcoma (1%)

# Etiology of Childhood Cancers

- ▶ Causes are largely unknown.
- ▶ Down syndrome,
- ▶ Other specific chromosomal and genetic abnormalities, and
- ▶ Ionizing radiation exposures, explain a small percentage of cases

# Most Common Types of Adult Cancer in USA

According to the National Health Institute (NHI):

- Lung and bronchial Cancer
- Colon and Rectal Cancer
- Breast Cancer
- Pancreatic Cancer
- Prostate Cancer
- Leukemia
- Non-Hodgkin Lymphoma
- Liver and Intrahepatic bile duct cancer
- Ovarian Cancer
- Esophageal cancer

# Etiology of Adult Cancer

- ▶ Environmental factors
- ▶ Viruses
- ▶ Lifestyle factors
- ▶ Medical - Drugs and Hormones
- ▶ Hereditary

# Environmental

- ▶ Industrial/Occupational
  - Coal miners, factory workers, asbestos
- ▶ Ultraviolet Light
  - ↑ risk of skin cancers
- ▶ Ionizing Radiation (Lifestyle Factor?)
  - X-rays, nuclear weapons or accidents
    - evidence from Japan & Chernobyl
      - ↑ risk of breast cancer and leukemia
    - Thyroid irradiation (for hyperthyroid)
      - ↑ risk thyroid cancer

# Viruses and Bacteria

Viruses or bacteria	Types of Disease
Epstein-Barr virus ( <b>EBV</b> )	Hodgkin's lymphoma
Human Immuno-deficiency virus ( <b>HIV</b> )	NHL and Kaposi's sarcoma
Human Papilloma virus ( <b>HPV</b> )	Cervical cancer
Hepatitis B and C	Hepatocellular cancer
Human T-cell leukemia/lymphoma virus ( <b>HTLV-1</b> )	Risk of leukemia and lymphoma
Helicobacter pylori ( <b>HP</b> )	Stomach cancer

# HPV Video

## **Introduction to HPV**

<http://www.youtube.com/watch?v=sHxm3crp4Yk>

# Lifestyle Factors

- ▶ Tobacco - Cigarette Smoking
  - lung, oropharygeal, and bladder cancers
- ▶ Radon
  - lung cancer
- ▶ Electromagnetic fields
  - cell phones and high tension power lines
  - causal relationship ?

# Lifestyle Factors

- ▶ Alcohol
  - associated with several cancers including esophageal, liver, oropharynx, breast and larynx
  - usually associated with another carcinogen
- ▶ Diet
  - implicated in colorectal cancer
  - Decrease Fat, Increase Fruits and Vegetables

# Drugs and Hormones

Drugs/Hormone	Example	Disease
Alkylating Agents	Cyclophosphamide Melphalan	-Bladder -leukemia
Antimetabolites	Azathioprine	- NHL, skin
Corticosteroids	Prednisone	- NHL
Estrogens	Diethylstilbestrol	- vaginal Ca in offspring
Combined Modalities	Chemo + Radiation	-leukemia
Others	Phenacetin Phenytoin Chloramphenicol	-Renal -liver (rats) -leukemia

# Heredity/Genetic

- ▶ Cancer as Primary Manifestation
  - Retinoblastoma, neuroblastoma, pheochromocytoma
- ▶ Inherited Condition
  - Familial polyposis, Fanconi's anemia, xeroderma pigmentosum
- ▶ Inherited Disease of Immune System
  - Wiskott-Aldrich Syndrome
- ▶ Chromosomal Aberrations
  - Down's Syndrome, Fanconi's anemia

**Video**

# Symptoms

- ▶ A thickening or lump in the breast or any other part of the body
- ▶ A new mole or a change in an existing mole
- ▶ A sore that does not heal
- ▶ Hoarseness or a cough that does not go away
- ▶ Changes in bowel or bladder habits
- ▶ Discomfort after eating
- ▶ A hard time swallowing
- ▶ Weight gain or loss with no known reason
- ▶ Unusual bleeding or discharge
- ▶ Feeling weak or very tired

# Screening

- ▶ **Breast:** A mammogram is the best tool doctors have to find breast cancer early. A mammogram is a picture of the breast made with x-rays.
- ▶ **Cervix:** The Pap test (sometimes called Pap smear) is used to check cells from the cervix. Women should begin having Pap tests 3 years after they begin having sexual intercourse, or when they reach age 21 (whichever comes first). Most women should have a Pap test at least once every 3 years

# Screening

- ▶ **Colon and rectum:** A number of screening tests are used to detect *polyps* (growths), cancer, or other problems in the colon and rectum. People aged 50 and older should be screened. People who have a higher-than-average risk of cancer of the colon or rectum should talk with their doctor about whether to have screening tests before age 50 and how often to have them.

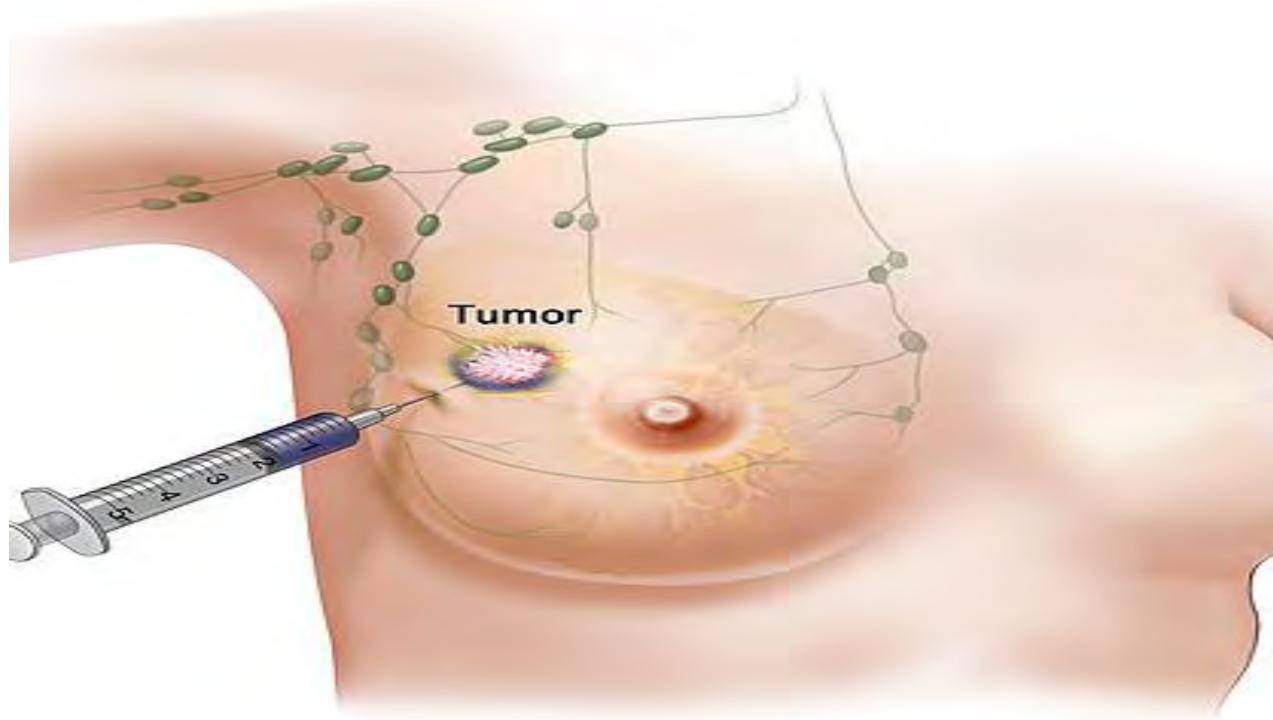
# Diagnosis

- ▶ Biopsy
- ▶ Hematology
- ▶ Histopathology
- ▶ Tumor markers
- ▶ Medical Imaging

# Biopsy

- ▶ This is the removal of a small section of the tumors:
- ▶ The sample will be analyzed by a **Histopathologist** in order to establish a precise diagnosis.
- ▶ Surgical procedure:
  - This may be a needle biopsy, where a very fine needle is used to take a tiny sample of the tumors.
  - Occasionally a surgeon may remove the whole tumors prior to diagnosis; a resection biopsy.

# Breast Biopsy



# Hematology

- ▶ Is a blood count where the various type's cells in the blood are measured. This may aid diagnosis and will be used during treatment to monitor toxicity.
- ▶ The Hematologist may also examine samples from a bone marrow aspiration (needle into the bone) and samples of spinal fluid from a lumbar puncture (needle between the vertebrae of the spine).

# Tumor Markers

- ▶ A substance in the body that may indicate the presence of cancer. Tumour markers may aid diagnosis or give an indicator of how treatment is progressing.
- ▶ Neuron-specific enolase (NSE) neuroblastoma.
- ▶ Alphafetoprotein -Germ cell tumors.

# Medical Imaging

Medical Imaging	Definition
<b>X-ray</b>	Examination of X-ray films may indicate the site and extent of the tumor and aid in the detection of metastatic spread
<b>CT</b>	makes a cross-sectional x-ray picture of a "slice" of the body. The machine rotates around the patient taking x-rays from different angles, the images are then processed by a computer.
<b>MRI (Magnetic resonance imaging)</b>	This is used to determine if the biochemical activity of a tissue responds normally to magnetic forces, tumors may give an abnormal signal.
<b>Ultrasound</b>	The use of sound waves to image the underlying structures of the body. Ultrasonic waves are reflected differently depending on the type of tissue they pass through, aiding the detection of abnormal tissues.

# Staging and Prognosis

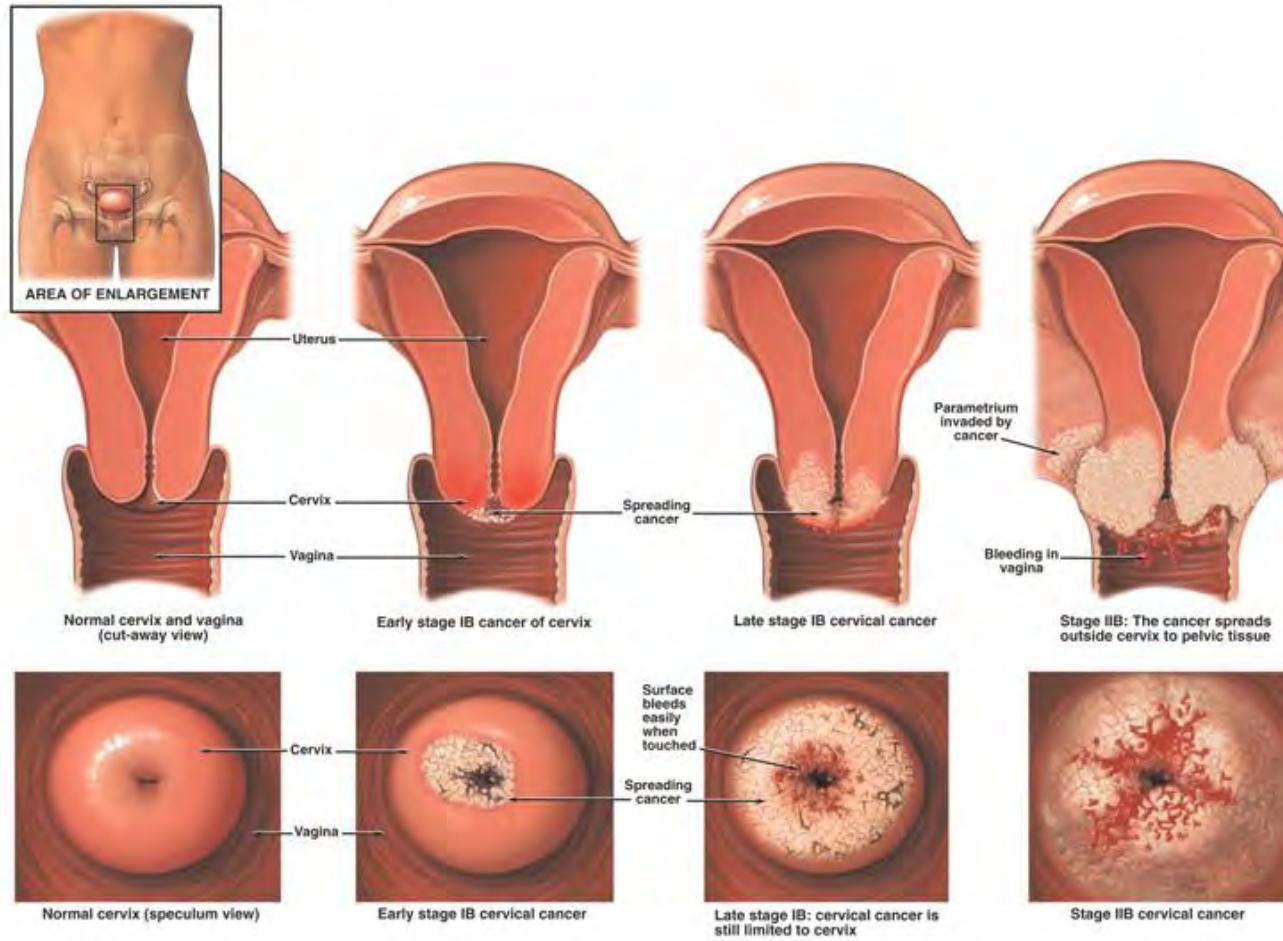
A number of different staging systems are used to classify cancers:

- The TNM staging system and
- The Summary Stage staging systems

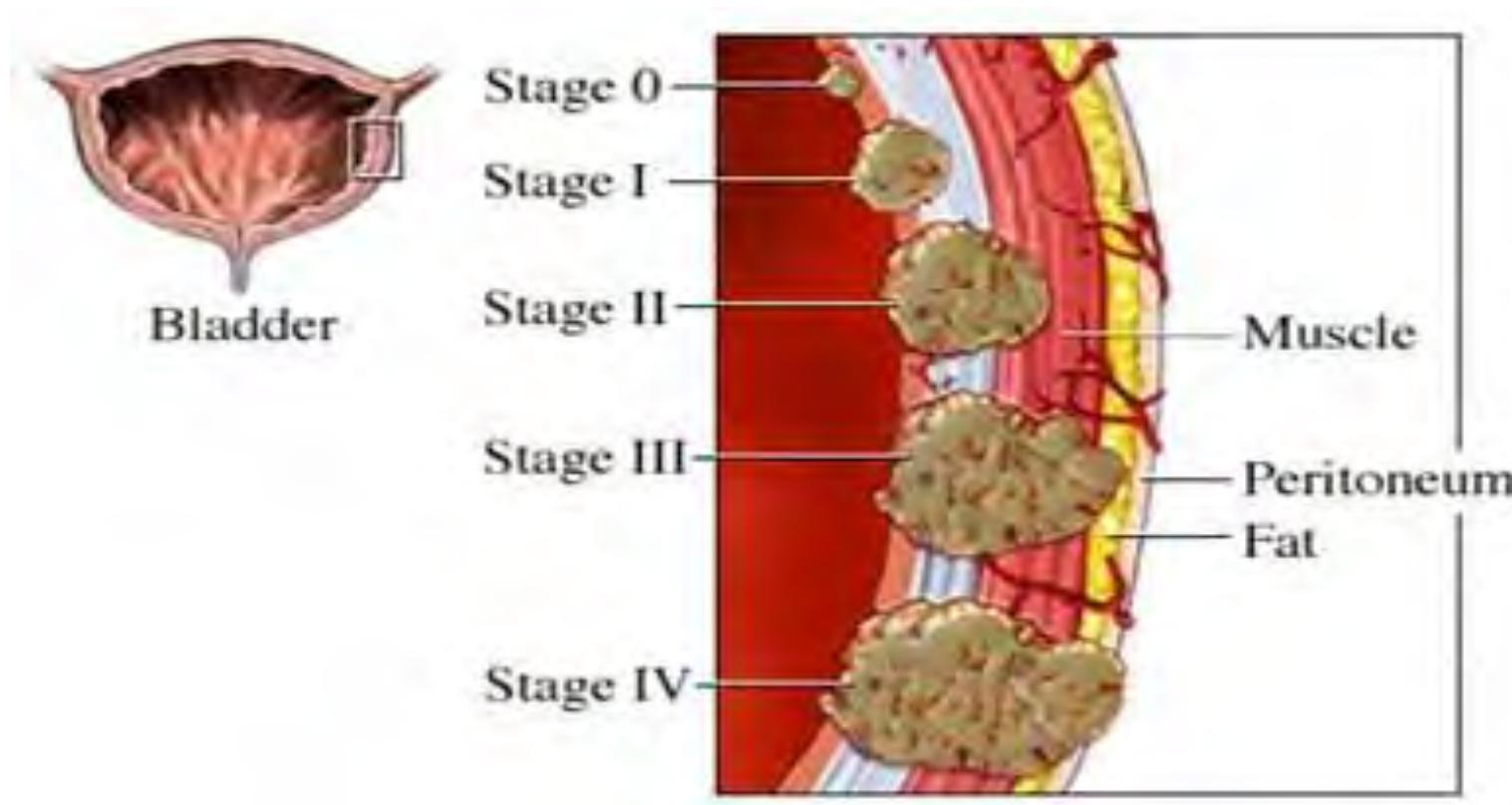
# TNM and Summary Stage staging systems

TNM (Tumor/Nodule/ Metastases)	Summary Stage
Stage 0	in situ
Stage I	local stage
Stage II	local or regional stage depending on lymph node involvement
Stage III	regional stage
Stage IV	distant stage

# Cervical Cancer



# Bladder Cancer



# Treatment

- ▶ Surgery
- ▶ Radiotherapy
- ▶ Chemotherapy
- ▶ Bone Marrow Transplantation (BMT)
- ▶ New approaches - Gene therapy / Immunotherapy

# Surgery

- ▶ **Pre-operative chemotherapy** - drugs given to shrink the tumour before surgery.
- ▶ **Complete resection** this is where all of the tumor has been totally removed during surgery, as opposed to an incomplete resection.
- ▶ **Prosthesis** - an artificial replacement e.g. for an amputated limb.
- ▶ **Endoprosthesis** - a prosthesis which fits *inside* the body e.g. replacing the thigh bone.

# Radiotherapy

- ▶ **External radiotherapy** - radioactivity from a source outside the body.
- ▶ **Internal radiotherapy** - placing radioactive source within the body in or near to the tumour to kill the cancer cells (Brachytherapy).
- ▶ **Systemic radiation:** The radiation comes from liquid or capsules containing radioactive material that travels throughout the body. The patient swallows the liquid or capsules or receives an injection.
- ▶ **Total Body Irradiation (TBI)** - radiation to the whole body e.g. to destroy all malignant cells prior to bone marrow transplant (BMT).

# Chemotherapy

- ▶ **Cytotoxic** - cytotoxic drugs kill or damage cells
- ▶ **Central line** - a thin plastic line into a vein in the chest used for the delivery of chemotherapy e.g. HICKMAN® catheter.

# Hormone Therapy

- ▶ Hormone therapy uses drugs or surgery:
- ▶ **Drugs:** The doctor gives medicine that stops the production of certain hormones or prevents the hormones from working.
- ▶ **Surgery:** The surgeon removes organs (such as the ovaries or testicles) that make hormones.

# **Bone Marrow Transplantation (BMT)**

- ▶ **Allogeneic BMT** Healthy marrow is taken from a matched donor and used to replace the patients bone marrow which has been destroyed by high dose chemotherapy.
- ▶ **Autologous BMT** In an autologous bone marrow transplant the marrow is first taken from the patient. The marrow is usually then purged with chemicals to kill any malignant cells in it, and may then be frozen to preserve it. High dose chemotherapy is given to the destroy the patient's remaining marrow. The frozen marrow is then thawed and transplanted back into the patient.
- ▶ **Peripheral Blood Stem Cell Rescue (PBSC)**

# Toxicity and Late Effects

- ▶ **Acute:** Transient. Some side effects may be of short duration. May be sudden or severe.
- ▶ **Chronic:** Long lasting. Some side effects may be long lasting e.g. kidney damage.
- ▶ **Immuno-suppressive:** Drugs may dampen the immune system making the patient prone to infections.
- ▶ **Neutropenia :** reduced levels of white cells in the blood. Febrile neutropenia -with fever.

# Prognosis

- ▶ **Remission** : Is where the symptoms of cancer are no longer present. There is no longer any evidence of the disease using the available investigations.
- ▶ **Relapse:** Is when the disease reoccurs after a period in remission.
- ▶ **Refractory** : This is where the cancer is resistant to treatment, patient may never go into remission, possibly with stable or progressive disease.
- ▶ **Restaging:** This is where the patient is staged again after a period of treatment to access the response to therapy.
- ▶ **Follow-up** : When treatment is complete the periodic visits to the physician are needed to monitor the patient and ensure there has been no recurrence of the disease.

## Prognosis

### Five-Year Relative Survival Rates (%) for Breast Cancer

Stage	Five-year overall survival
0 (non-invasive breast cancer, ductal carcinoma in situ (DCIS))	93%
I	88%
IIA	81%
IIB	74%
IIIA	67%
IIIB	41%
IIIC	49%
IV	15%

# Staging and Prognosis

Stages of Lung Cancer

<http://www.youtube.com/watch?v=Vff7o2WNZEw>

Colon Rectal cancer symptom and treatment (rectal cancer-and overview):

<http://www.youtube.com/watch?v=6kNrhPnNFMM>

Breast cancer symptom and treatment

<http://www.youtube.com/watch?v=VsViAPGfPUo>

Prostate cancer, prostate cancer symptoms, prostate cancer treatment, prostate cancer in men

<http://www.youtube.com/watch?v=bgXWIUIHtI0>

Pancreatic Cancer-patient guide 2

<http://www.youtube.com/watch?v=sjdm1w25QUE>

Leukemia a journey into the body

[http://www.youtube.com/watch?v=Qje0fG\\_JHLY](http://www.youtube.com/watch?v=Qje0fG_JHLY)

Melanoma staging-Stages of Cancer Video

[http://www.youtube.com/watch?v=kEUvKJM\\_BjA](http://www.youtube.com/watch?v=kEUvKJM_BjA)

# Questions ?

# Cancer Terminology

- ▶ **Root words** which are combined with
- ▶ **Prefixes** (at the start of a word) and
- ▶ **Suffixes** (at the end of a word).

# Medical Terminology Oncology

- ▶ Carcinogenesis: development of cancer
- ▶ Apoptosis: the body's normal restraining function to keep cell growth in check
- ▶ Metastasis: the spread of cancer to contiguous organs or distant sites
- ▶ Neoplasm: tumor
- ▶ Carcinoma: ectodermal or endodermal. cancer that begins in the skin or in tissues that line or cover internal organs. There are a number of subtypes of carcinoma, including adenocarcinoma, basal cell carcinoma, squamous cell carcinoma, and transitional cell carcinoma.
- ▶ Adenocarcinoma: from and organ or gland
- ▶ Sarcoma: - cancer that begins in bone, cartilage, fat, muscle, blood vessels, or other connective or supportive tissue. mesodermal (connective tissue) ex: chondrosarcoma, hemangiosarcoma, mesothelioma, glioma
- ▶ Lymphoma: Hodgkin's and non-hodgkins. cancers that begin in the cells of the immune system..
- ▶ Leukemia: bone marrow. - cancer that starts in blood-forming tissue such as the bone marrow and causes large numbers of abnormal blood cells to be produced and enter the blood.
- ▶ Myeloma: plasma cells in bone marrow
- ▶ Grading: the degree of dedifferentiation (anaplasia) ranging from I-IV, IV being the most dedifferentiated
- ▶ clinical staging: determined by various diagnostic techniques
- ▶ pathologic staging: determined by a pathologist's report
- ▶ TNM staging: T: Size of tumor, N: number of nodes, M: metastasis
- ▶ CIS: carcinoma in situ

# Medical Terminology Oncology

- ▶ ABCDE: asymmetry, border, color, diameter, elevation
- ▶ en bloc resection: removal of cancerous tumor and lymph nodes
- ▶ Lumpectomy: removal of tumor
- ▶ lymph node dissection: removal of clinically involved lymph nodes
- ▶ lymph node mapping: pattern of spread
- ▶ sentinel node: first node in which lymphatic drainage occurs in a particular area
- ▶ radical mastectomy: removal of breast containing cancer
- ▶ Margins: borders or normal tissue surrounding the cancer
- ▶ wide margin resection: significant amount of tissue around the tumor is removed
- ▶ simple mastectomy: removal of breast tissue containing cancer
- ▶ 3DCRT: 3-dimensional conformal radiation therapy
- ▶ Brachytherapy: therapy using radioactive sources that are placed inside the body
- ▶ gamma knife surgery: noninvasive type of surgery that uses gamma radiation to destroy brain tumor
- ▶ IMRT: intensity-modulated radiation therapy, high-dosage radiation delivered via a beam that changes dosage and shape
- ▶ BMT: bone marrow transplant
- ▶ Chemotherapy: the circulation of cancer destroying medicine throughout the body
- ▶ CAM: complementary and alternative medicine techniques

# Medical Terminology Oncology

- ▶ Immunotherapy: use the body's own defense system to attack cancer cells
- ▶ BSE: breast self-examination
- ▶ Bx: biopsy
- ▶ CA: cancer
- ▶ CTR: certified tumor registrar
- ▶ Mets: metastases
- ▶ adenoma: a benign epithelial tumor of glandular origin
- ▶ Adjuvant therapy : assisting primary treatment. Drugs are given assisting primary treatment. Drugs are given early in the course of treatment, along with surgery or radiation to attack deposits of cancer cells that may be too small to be detected by diagnostic techniques
- ▶ Anaplasia: loss of structural differentiation within a cell or group of cells often with increased capacity for multiplication, as in a malignant tumor
- ▶ Benign: noncancerous growth
- ▶ Carcinogenesis: development of cancer
- ▶ Cryosurgery: the use of extreme cold (usually liquid nitrogen) to destroy unwanted tissue (warts or cataracts or skin cancers)
- ▶ Dysplastic: Pertaining to abnormal formation or development of cells; not clearly malignant.
- ▶ Fungating: mushrooming pattern of growth in which tumor cells pile one on top of another and project from a tissue surface

# Medical Terminology Oncology

- ▶ Histogenesis : the formation and development of the tissues of the body
- ▶ Laparoscopy: visual examination of the abdominal cavity using small incisions and a laparoscope. Also known as peritoneoscopy.
- ▶ mixed tissue tumor: tissues capable of differentiating into epithelial tissues and connective tissues
- ▶ Necrotic: containing dead tissue
- ▶ Oncogenes: genes that cause cancer by blocking the normal controls on cell reproduction
- ▶ Osteosarcoma: malignant bone tumor
- ▶ Retinoblastoma: malignant ocular tumor of retinal cells
- ▶ Stereotactic radiosurgery: radiation treatment to inactivate malignant lesions, using multiple, precise external radiation beams focused on a target with the aid of a stereotactic frame and imaging such as CT, MRI, or angiography; used to treat inoperable brain tumors and other lesions
- ▶ Steroids: A type of lipid characterized by a carbon skeleton consisting of four rings with various functional groups attached.
- ▶ Ulcerating: characterized by an open, exposed surface resulting from death or overlying tissue

# Medical Terminology Oncology

- Osteosarcoma: malignant bone tumor
- Radiation (medicine): the treatment of disease (especially cancer) by exposure to radiation from a radioactive substance
- Remission: partial or complete disappearance of symptoms of disease
- Retinoblastoma: malignant ocular tumor of retinal cells
- Sarcoma: a usually malignant tumor arising from connective tissue (bone or muscle etc.)
- Stereotactic radio surgery : radiation treatment to inactivate malignant lesions, using multiple, precise external radiation beams focused on a target with the aid of a stereotactic frame and imaging such as CT, MRI, or angiography; used to treat inoperable brain tumors and other lesions
- Steroids : A type of lipid characterized by a carbon skeleton consisting of four rings with various functional groups attached.
- Ulcerating: characterized by an open, exposed surface resulting from death or overlying tissue

# Medical Terminology Oncology

## Suffixes

1. -able	to be
2. -al	pertaining to
3. -ant	pertaining to
4. -ar	pertaining to
5. -ary	pertaining to
6. -ated	pertaining to a condition; composed of
7. -ation	a process; being or having
8. -ectomy	surgical excision
9. -ed	pertaining to
10. -elle	little thing
11. -emia	condition of the blood; substance in the blood
12. -ery	process of
13. -esis	a process
14. -gen	that which produces
15. -gene	gene
16. -gram	a record or picture

# Medical Terminology Oncology

## Suffixes

17. -graphy	process of recording
18. -ic	pertaining to
19. -ical	pertaining to
20. -in	a substance
21. -ion	action; condition
22. -ism	process; disease from a specific cause
23. -ist	one who specializes in
24. -ite	thing that pertains to
25. -itis	inflammation of; infection of
26. -ity	state; condition
27. -ive	pertaining to
28. -ization	process of making, creating, or inserting
29. -ize	affecting in a particular way
30. -logy	the study of
31. -oid	resembling
32. -oma	tumor; mass

# Medical Terminology Oncology

## Suffixes

33. -opsy	process of viewing
34. -or	person or thing that produces or does
35. -ory	having the function of
36. -osis	condition; abnormal condition; process
37. -ous	pertaining to
38. -pathy	disease; suffering
39. -plasia	abnormal condition of growth
40. -plasm	growth; formed substance
41. -ptosis	state of prolapsed; drooping; falling
42. -scopy	process of using an instrument to examine
43. -some	a body
44. -stasis	condition of standing still; staying in one place
45. -therapy	treatment
46. -tic	pertaining to
47. -tomy	process of cutting or making an incision

# Medical Terminology Oncology

## Roots

48. -type	particular kind of; a model of
49. ablat/o	take away; destroy
50. aden/o	gland
51. adjuv/o	giving help or assistance
52. ALL	acute lymphocytic leukemia
53. AML	acute myelogenous leukemia
54. an-	without; not
55. ana-	apart from; excessive
56. angi/o	blood vessel; lymphatic vessel
57. anti-	against
58. apo-	away from
59. arteri/o	artery
60. aspir/o	to breathe in; to suck in
61. astr/o	starlike structure
62. bas/o	base of a structure
63. bi/o	life; living organisms; living tissue
64. blast/o	immature; embryonic
65. brachy-	short
66. bronch/o	bronchus

# Medical Terminology Oncology

## Roots

67. Ca	carcinoma, cancer
68. cancer/o	cancer
69. capsul/o	capsule (enveloping structure)
70. carcin/o	cancer
71. cavit/o	hollow space
72. cellul/o	cell
73. chem/o	chemical; drug
74. chemo	chemotherapy
75. cholangi/o	bile duct
76. chondr/o	cartilage
77. chori/o	chorion (fetal membrane)
78. chorion/o	chorion (fetal membrane)
79. chrom/o	color
80. CLL	chronic lymphocytic leukemia
81. clon/o	identical group derived from one
82. CML	chronic myelogenous leukemia

# Medical Terminology Oncology Roots

83. conform/o	having the same scale or angle
84. cry/o	cold
85. crypto	hidden
86. cutane/o	skin
87. cyt/o cell	
88. dendr/o	branching structure
89. desicc/o	to dry up
90. didym/o	testes (twin structures)
91. differentiat/o	being distinct; specialized
92. dissect/o	to cut apart
93. DNA	deoxyribonucleic acid
94. duct/o	bring; move; a duct
95. dys-	painful; difficult; abnormal
96. electr/o	electricity
97. embol/o	embolus (occluding plug)

# Medical Terminology Oncology

## Roots

98. embryon/o	embryo; immature form
99. emet/o	to vomit
100. en-	in; within; inward
101. endo-	innermost; within
102. enter/o	intestine
103. epi-	upon; above
104. ex-	out; away from
105. excis/o	to cut out
106. explorat/o	to search out
107. extern/o	outside
108. fibr/o	fiber
109. fulgur/o	spark of electricity
110. gen/o	arising from; produced by
111. gene/o	gene

# Medical Terminology Oncology

## Roots

112. germin/o	embryonic tissue
113. gli/o	cells that provide support
114. gonad/o	gonads (ovaries and testes)
115. hepat/o	liver
116. hered/o	genetic inheritance
117. hormon/o	hormone
118. implant/o	placed within
119. incis/o	to cut into
120. inhibit/o	block; hold back
121. intern/o	inside
122. interstiti/o	spaces within tissue
\123. intra-	within
124. invas/o	to go into
125. kary/o	nucleus
126. lapar/o	abdomen
127. lei/o	smooth

# Medical Terminology Oncology

## Roots

128. leuk/o	white
129. lip/o	lipid (fat)
130. locat/o	a place
131. log/o	word; the study of
132. lymph/o	lymph; lymphatic system
133. lys/o	break down; destroy
134. magnet/o	magnet
135. malign/o	intentionally causing harm; cancer
136. mamm/o	breast
137. medic/o	physician; medicine
138. melan/o	black
139. meta-	after; subsequent to; transition; change
140. metabol/o	change; transformation
141. metri/o	uterus (womb)
142. mit/o	threadlike structure
143. mon/o	one; single

# Medical Terminology Oncology

## Roots

144. mutat/o	to change
145. my/o	muscle
146. myel/o	bone marrow; spinal cord; myelin
147. ne/o	new
148. necr/o	dead cells, tissue, or body
149. nephr/o	kidney; nephron
150. neur/o	nerve
151. nucle/o	nucleus
152. olig/o	scanty; few
153. onc/o	tumor; mass
154. optic/o	lenses; properties of light
155. orch/o	testis
156. orchi/o	testis
157. organ/o	organ
158. oste/o	bone
159. path/o	disease; suffering

# Medical Terminology Oncology

## Roots

160. per-	through; throughout
161. peripher/o	outer aspects
162. peritone/o	peritoneum
163. plas/o	growth; formation
164. plasm/o	plasma
165. radi/o	radius (forearm bone); x-rays; radiation
166. radic/o	all parts including the root
167. recept/o	receive
168. remiss/o	send back
169. resect/o	to cut out; remove
170. resist/o	withstand the effect of
171. retin/o	retina
172. rhabd/o	rod shaped
173. rib/o	ribonucleic acid
174. sarc/o	connective tissue
175. scint/i	point of light
176. semin/o	spermatozoon; semen
177. sensit/o	affected by; sensitive to

# Medical Terminology Oncology

## Roots

178. son/o	sound
179. squam/o	scalelike cell
180. stas/o	standing still; staying in one place
181. stat/o	standing still; staying in one place
182. stere/o	three dimensions
183. suppress/o	press down
184. surg/o	operative procedure
185. tact/o	touch
186. terat/o	bizarre form
187. thec/o	sheath; layer of membranes
188. tom/o	cut; slice; layer
189. trans-	across; through
190. transit/o	change over from one to another
191. transplant/o	move something to another place
192. trop/o	having an affinity for; stimulating; turning
193. ultra-	beyond; higher
194. un-	not
195. vas/o	blood vessel; vas deferens
196. ven/o	vein
197. vesic/o	bladder; fluid-filled sac
198. vesicul/o	bladder; fluid-filled sac

# References

- ▶ <http://www.cancer.gov/cancertopics/wyntk/cancer/page10>