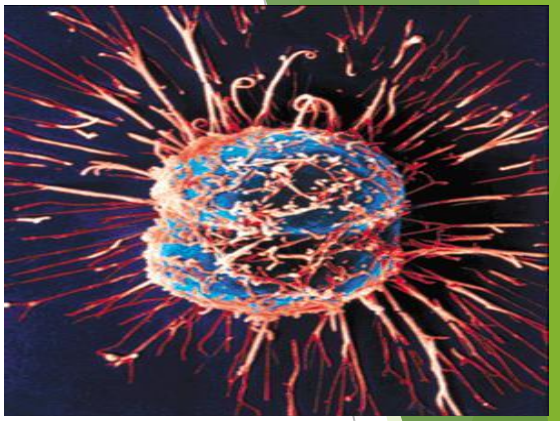
Cancer prevention

Shukir S. Hasan
PhD
Assist Professor - Cihan University Erbil
2019

Objectives

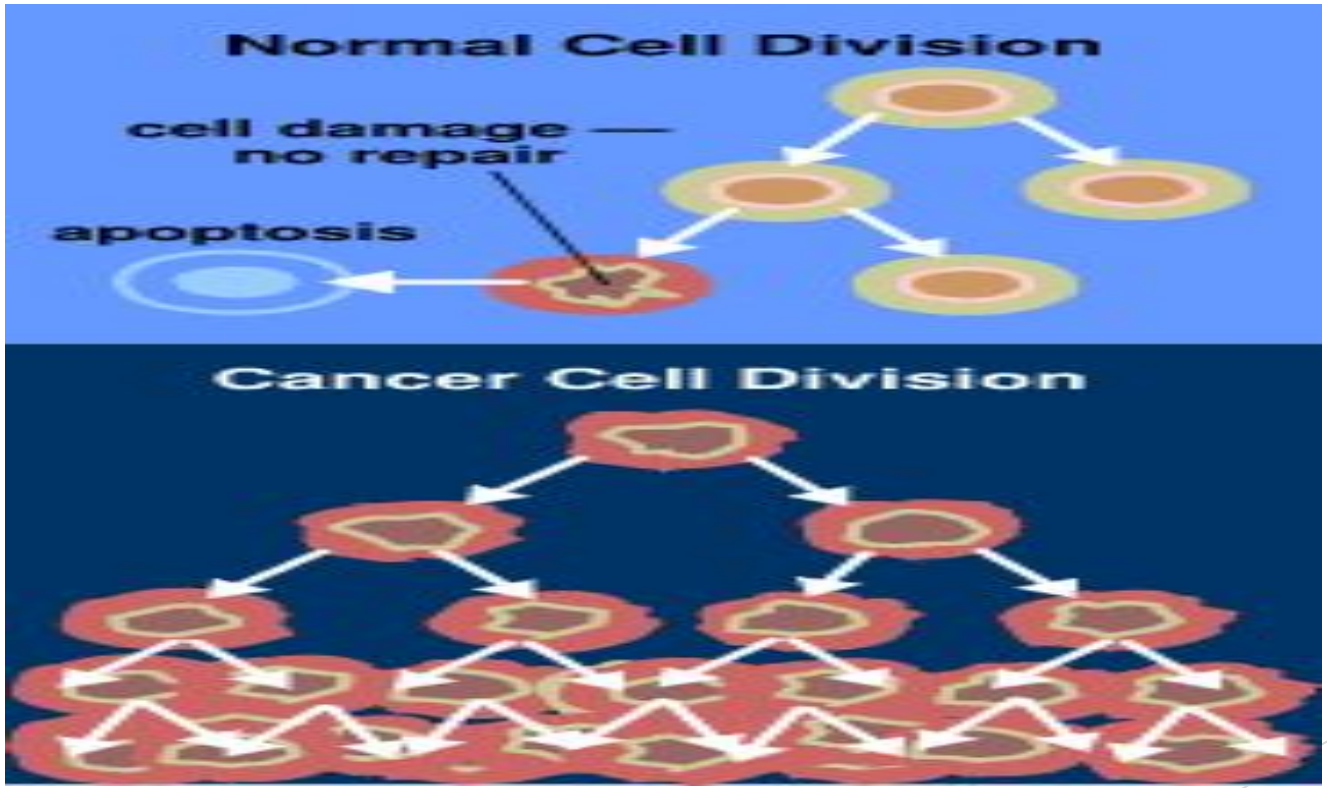
1. Identify the cancer
2. Differentiate between normal and abnormal cells
3. Identify the causes of risk factors.
4. How we do prevention of cancers

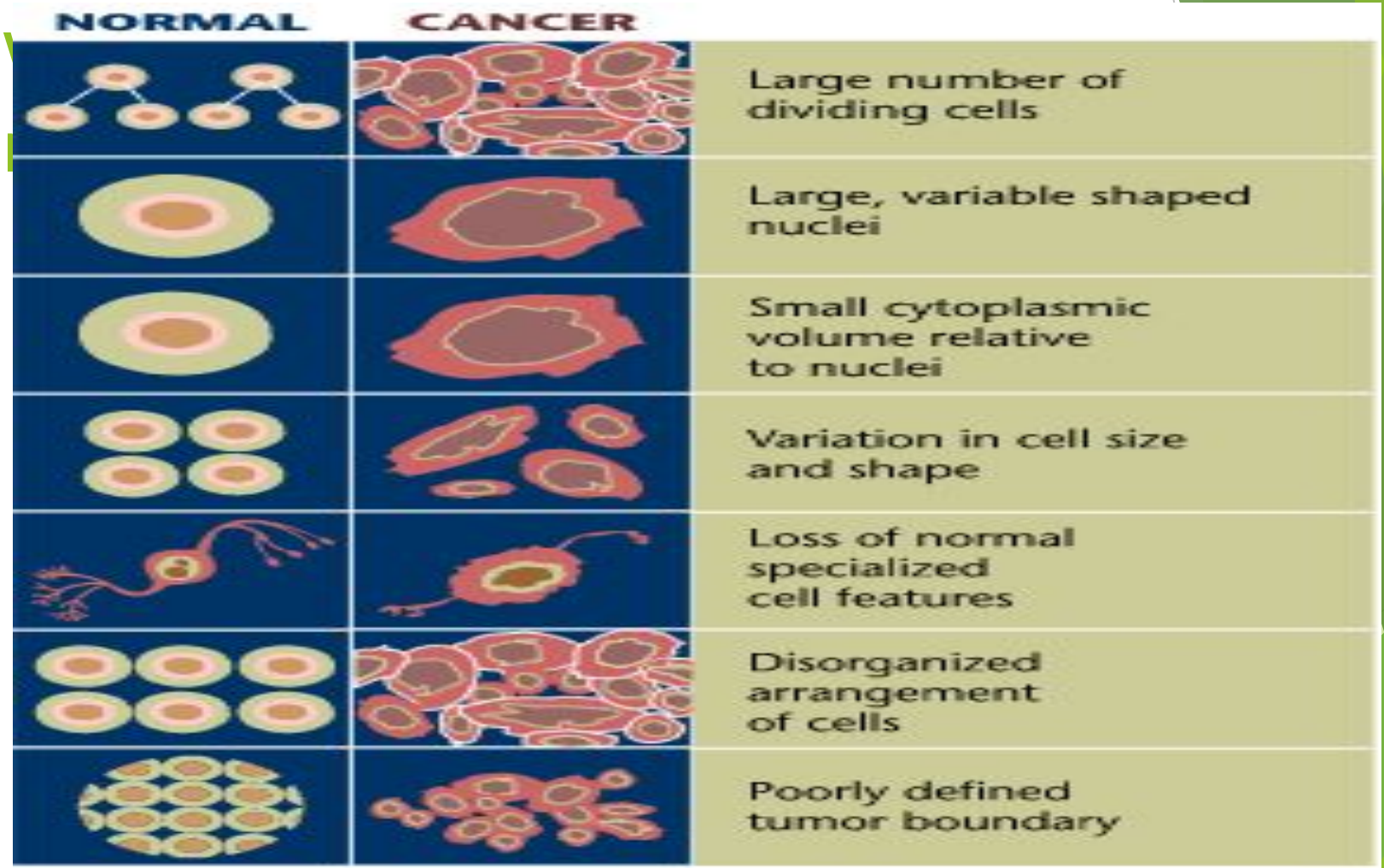
What is Cancer?



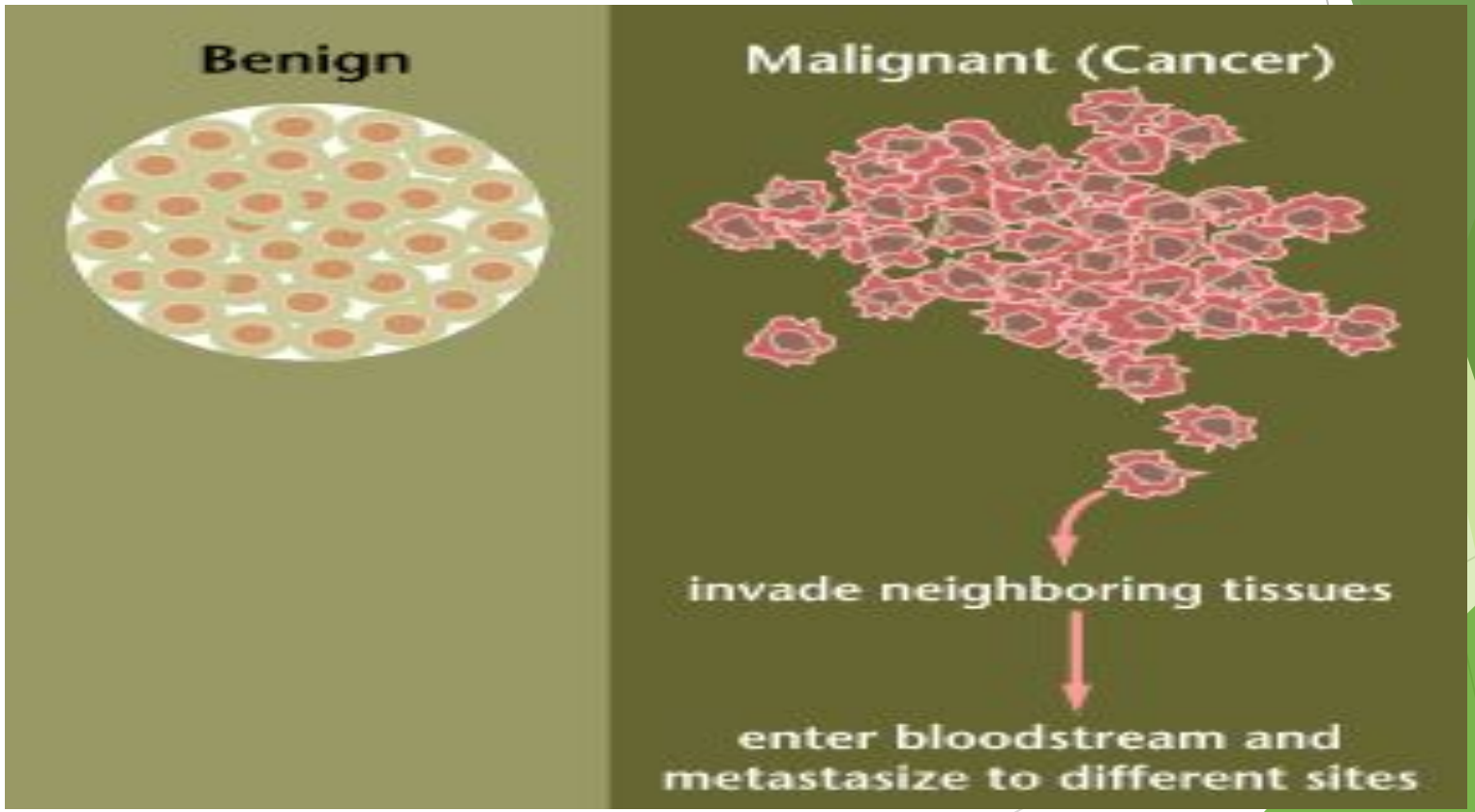
- Division – uncontrolled cell division
- Growth – formation of a lump (tumour) or large numbers of abnormal white cells in the blood
- Mutation – changes to how the cell is viewed by the immune system
- Spread – ability to move within the body and survive in another part

Normal and abnormal cell growth

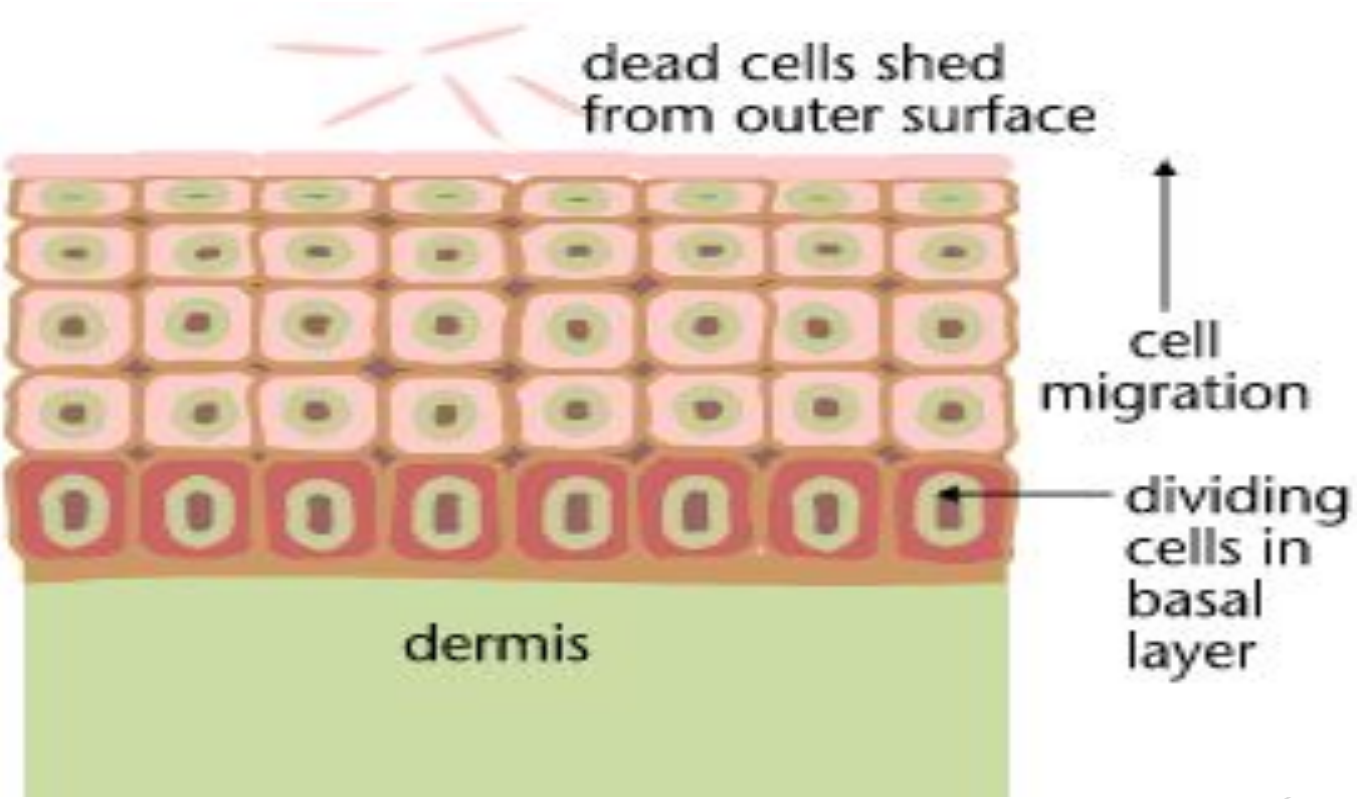



NORMAL
CANCER
Large number of dividing cells
Large, variable shaped nuclei
Small cytoplasmic volume relative to nuclei
Variation in cell size and shape
Loss of normal specialized cell features
Disorganized arrangement of cells
Poorly defined tumor boundary

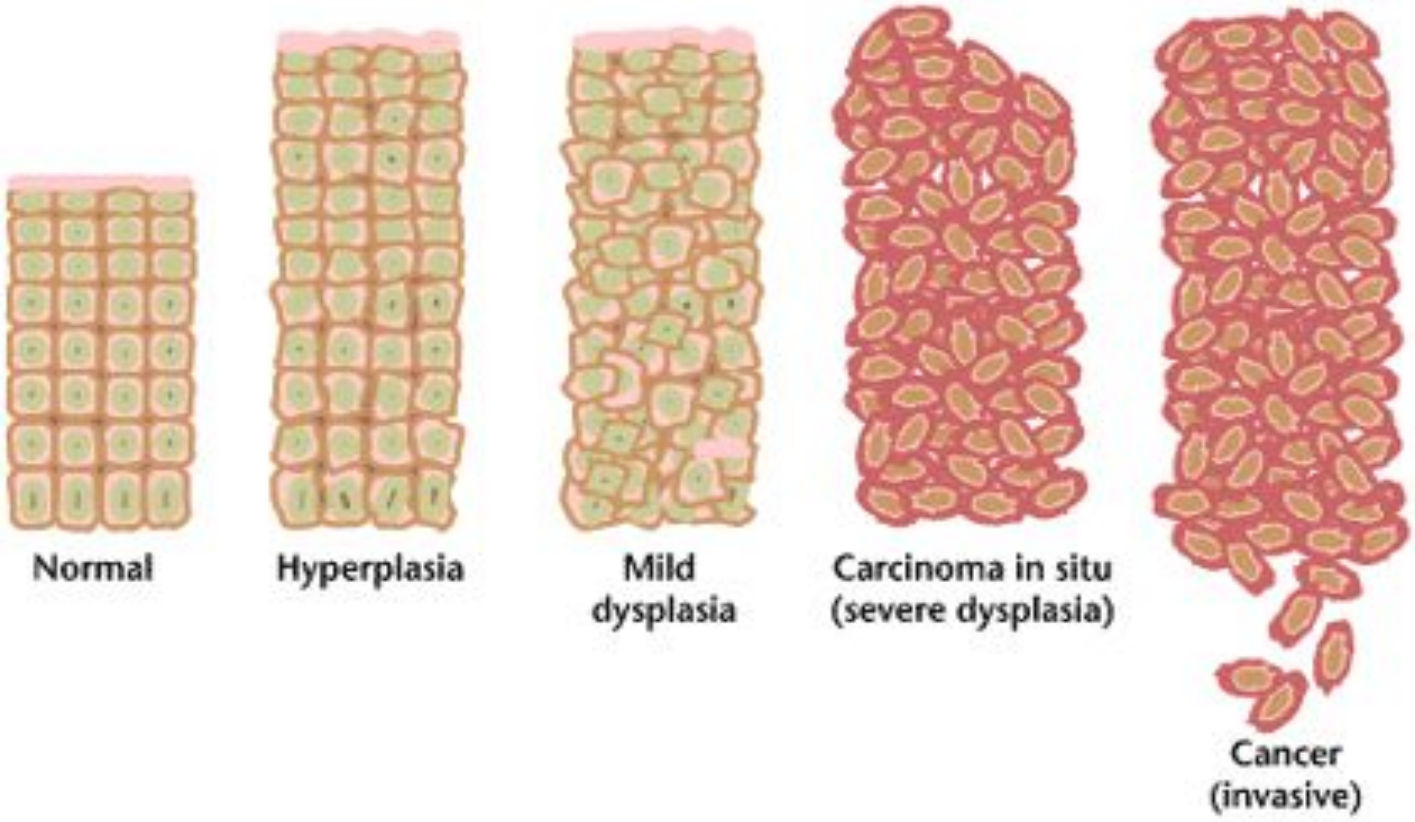
Malignant versus benign tumours



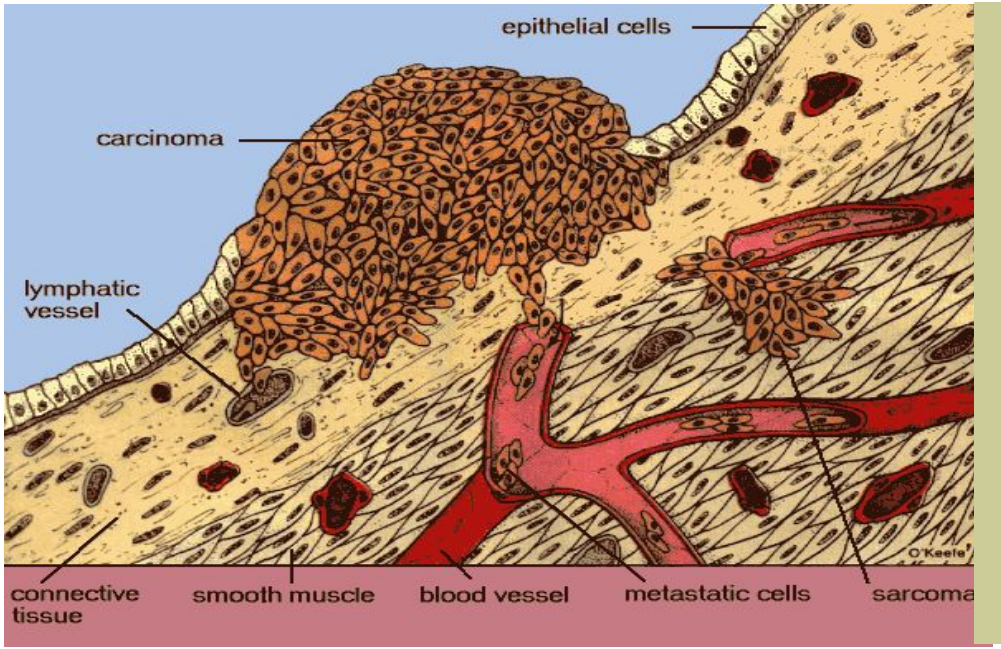
Normal cell growth

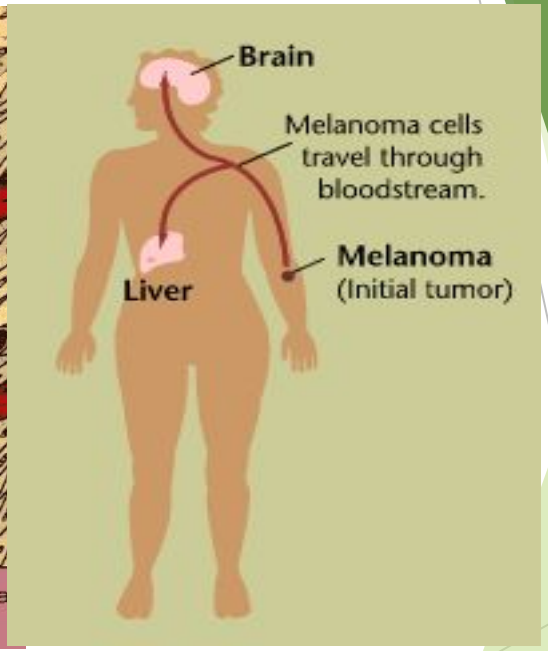


Cancerous growth



Metastatic cancer





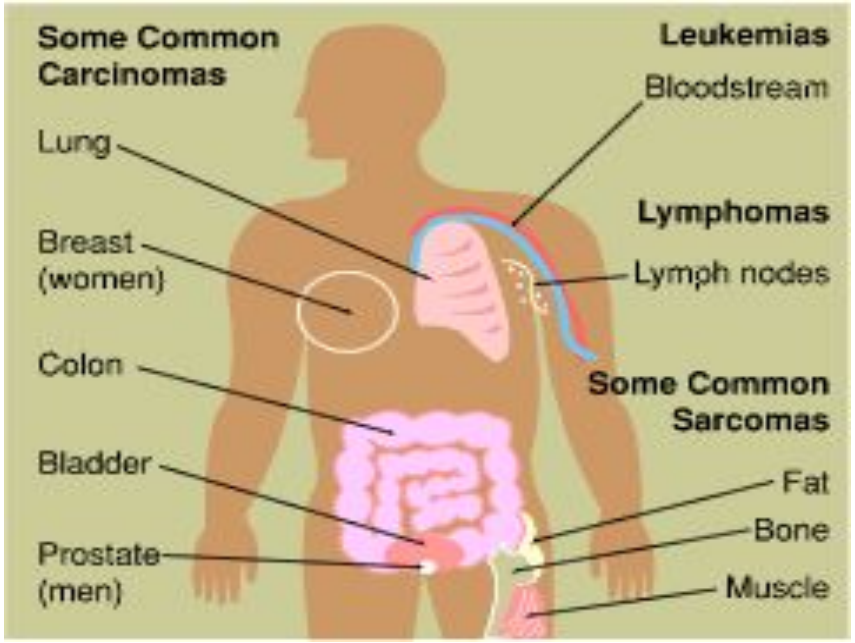
Statistics

- >9.7 million cases are detected each year
- 6.7 million people will die from cancer
- Every day, around 1700 Americans die of the disease
- 20.4 million people living with cancer in the world today
- 1 in 3 people will be diagnosed with cancer in the UK and 1 in 4 will die from their disease

In 2016, 8.9 million people are estimated to have died from the various forms of cancer.

WHO Statistics

- In 2020
- 15 million people will die from cancer

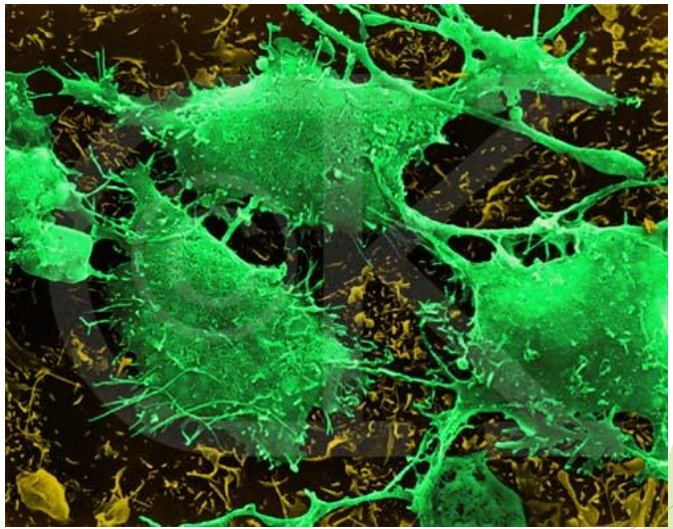


Some Prefixes Used in Naming Cancers	
PREFIX	MEANING
adeno-	gland
chrondro-	cartilage
erythro-	red blood cell
hemangio-	blood vessels
hepato-	liver
lipo-	fat
lympho-	lymphocyte
melano-	pigment cell
myelo-	bone marrow
myo-	muscle
osteo-	bone

causes of cancer

Carcinogenesis.
Some factors to consider…

- Heredity
- Immunity
- Chemical
- Physical
- Viral
- Bacterial
- Lifestyle



Heredity

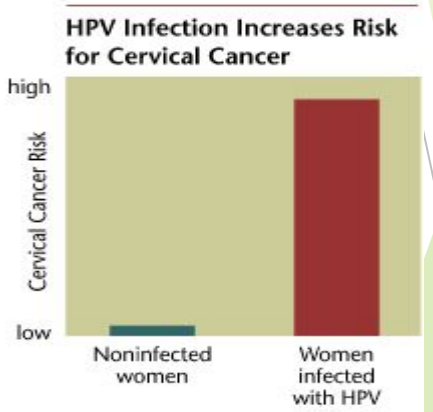
- Genes isolated for several classic familial cancer syndromes:
  - RB1 (retinoblastoma)
  - APC (familial polyposis)
  - Human Non Polyposis Colon Cancer (HNPCC)
  - BRCA (breast cancer)
  - (many cancers)

Immunity

- HIV / AIDS
- Immunosuppression

Virus's

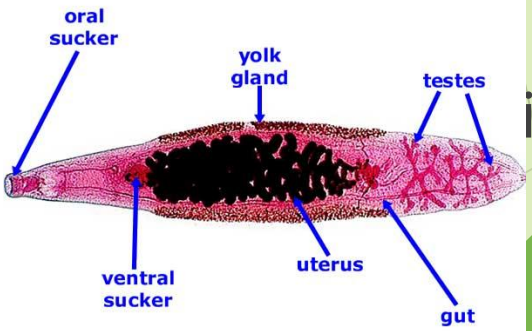
- Hepatitis B
- Human T-cell Leukaemia virus
- Epstein Barr Virus
- Human Papilloma Virus (HPV)



Bacterial

- H. pylori
- (**Helicobacter pylori**)

- Other Parasites:
  - is



Infections

- Infectious agents are responsible for almost 22% of cancer deaths in the developing world and 6% in industrialized countries.

Chemical

- Alcohol
- Asbestos
- Wood dust
- Rubber, plastics, dyes
- Aflatoxin
- Alkylating agents
- Tobacco

Smoking

- Single biggest cause of cancer
- 25-40% smokers die in middle age
- 9 in 10 lung cancers
- Know to cause

Obesity

Lifestyle:

- Highly caloric diet, rich in fat, refined carbohydrates and animal protein
- Low physical activity

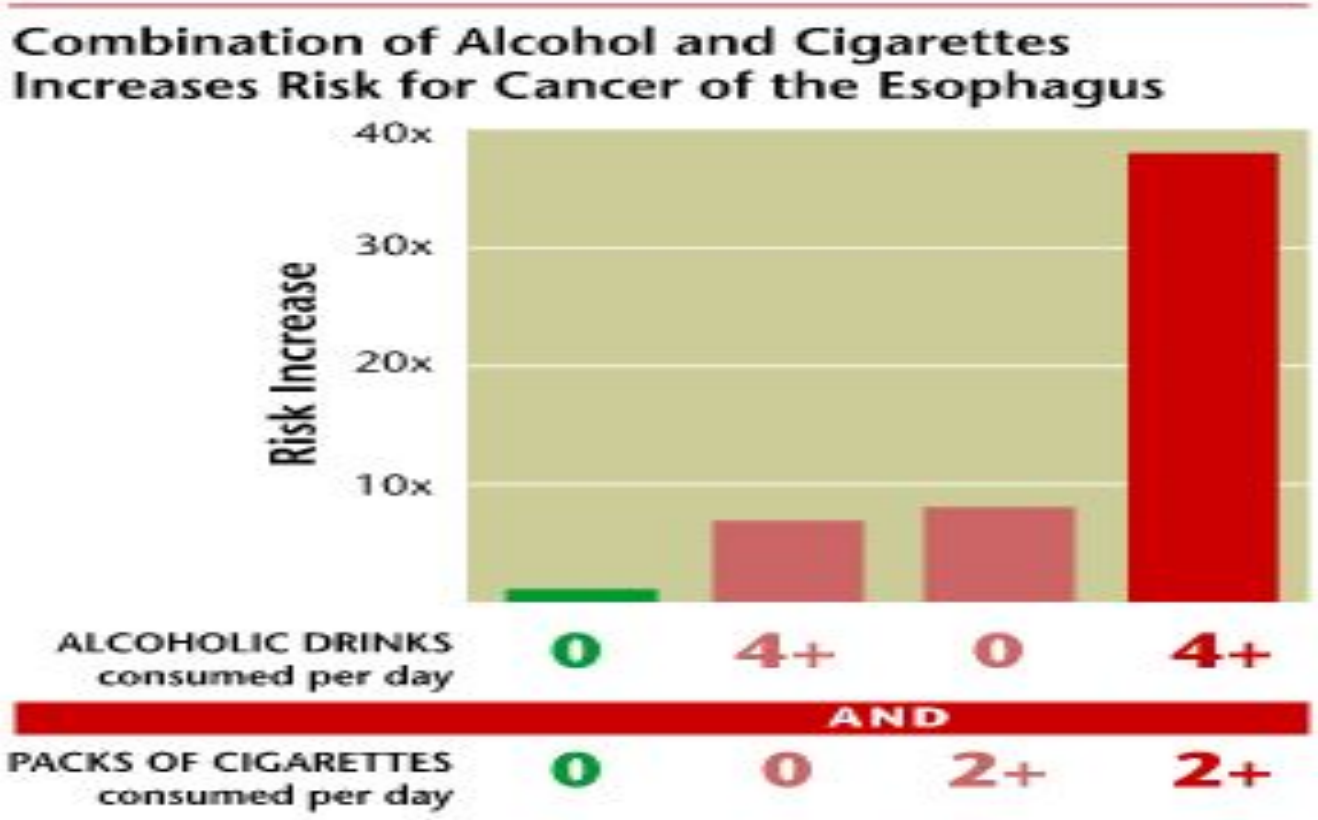
Consequences:

- **Cancer**
- Diabetes
- Cardiovascular disease
- Hypertension

Alcohol

- Alcohol abuse has a major impact on public health. It is ranked as the fifth leading risk factor for premature death and disability in the world.
- Drinking moderately is key in reducing cancer risk.

Smoking and alcohol



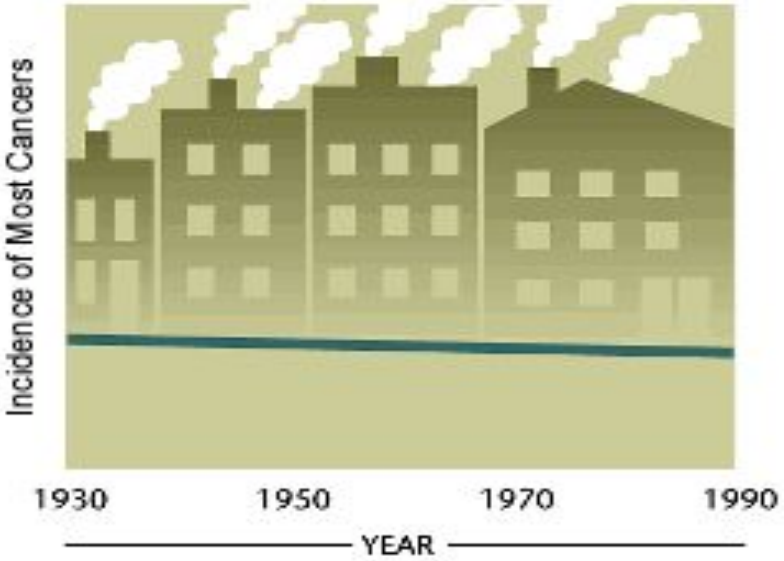
Sun exposure

- Between 50 and 90% of skin cancers a
  caused by excessive UV exposure.
- UV-emitting tanning devices are now also classified as carcinogenic to humans based on their association with skin and ocular melanoma cancers.

Environmental carcinogens

- Exposure to carcinogenic chemicals in the environment can occur through drinking water or pollution of indoor and ambient air.
- Worldwide, indoor air pollution from domestic coal fires is responsible for approximately 1.5% of all lung cancer deaths.

Industrial pollution



Cancer prevention

- Between 30-50% of all cancer cases are preventable.
- Prevention offers the most cost-effective.
- National policies and programmes should be implemented to raise awareness, to reduce exposure to cancer risk factors and to adopt healthy lifestyles.

Physical inactivity

- Regular physical activity and the maintenance of a healthy body weight, along with a healthy diet, will considerably reduce cancer risk.

- 30 minutes of physical activity per day is necessary to reduce your risk of cancer.

Life style

- Keep a healthy weight.
- Avoid sugary drinks. Limit consumption of energy-dense foods (particularly processed foods high in added sugar, or low in fibre, or high in fat)
- Eat more of a variety of vegetables, fruits, wholegrains, and pulses such as beans

Lifestyle

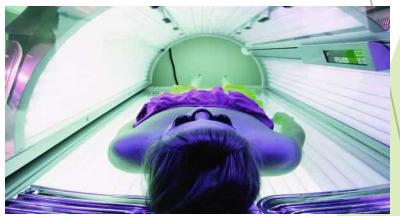
- Age
- Occupation
- Ethnicity
- Deprivation

- Preventive measures include vaccination and prevention of infection and infestation.

- Stop smoking, chewing and sniffing tobacco.
- Try to avoid exposure to passive smoke.

- Ultraviolet radiation
  - Sunlight
  - Certain industrial sources

- Radiation
  - Radon
  - Cancer treatment



How to prevent cancer

- Avoid tobacco
- Eat healthy
- Avoid alcohol
- Exercise
- Protect yourself from the sun
- Vaccinate
- Avoid pollution

Thank You