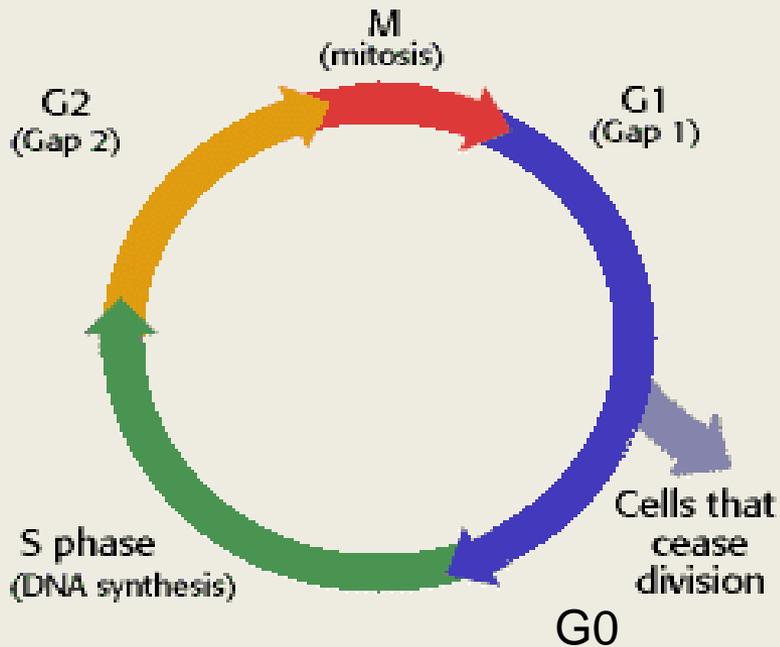


COMMON SOLID TUMORS

BY

PROFESSOR AHMED ABDELWARITH

FEB 2012

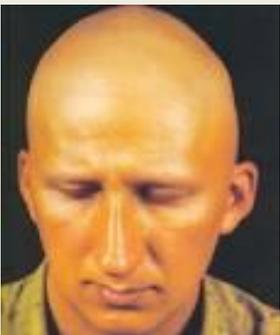


- Constantly dividing cell types include
1- skin cells, 2- GIT
3- blood cells in the bone marrow.
- Constantly dividing cells have a **higher risk of becoming malignant and develop cancer**, dividing uncontrollably

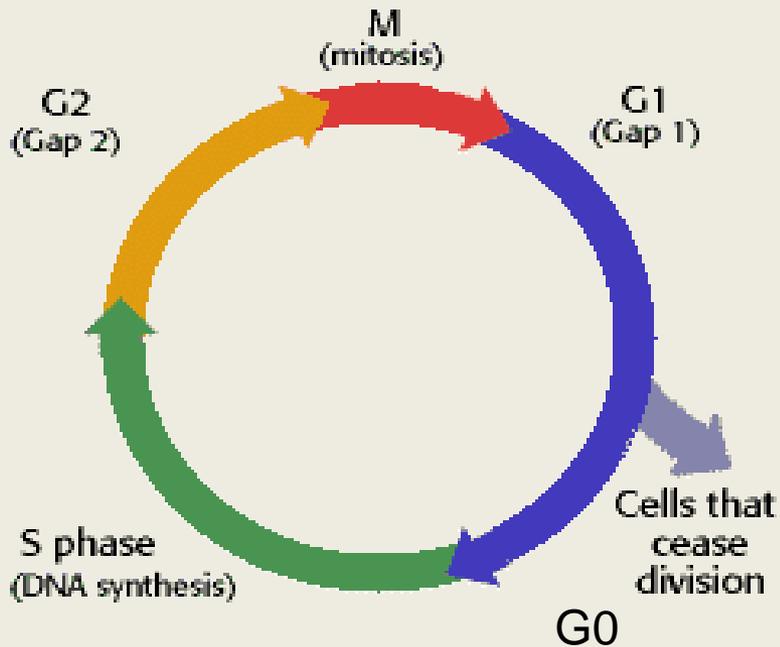
DIVIDING CELLS IN HUMAN BODY

- cytotoxic drugs, such as used in treatment of cancer, work by inhibiting the proliferation of dividing cells, the malignant cells as the desired target .

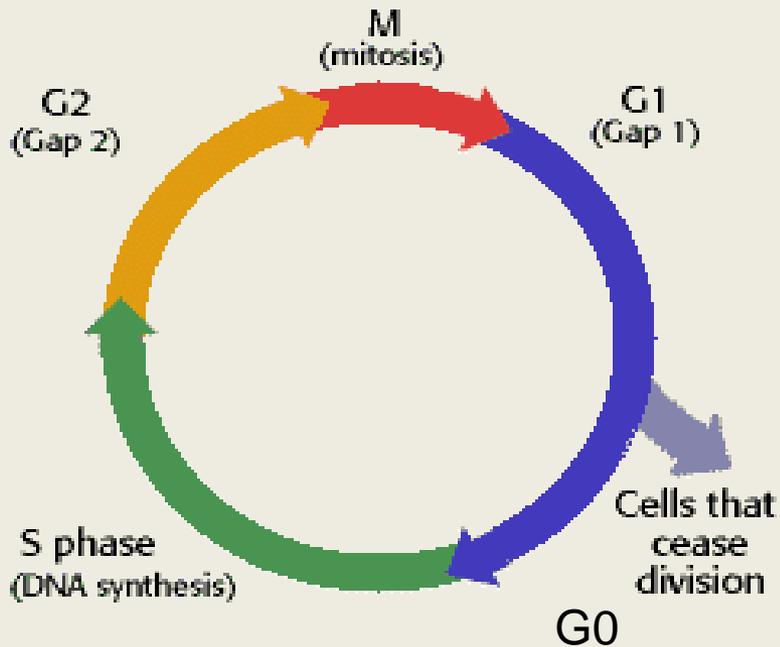
However, this has the adverse effect against the cells normally dividing in the body, and **Hair, skin, GI tract and bone marrow.**



MYELOSUPPRESSION



- **Stable cells** : multiply only when needed.
- most of the time in the quiescent G0 phase
- but can be stimulated to enter the cell cycle when needed.
- Examples include: the liver,



- **Permanent cells:**
do not have a
division potential
Neurons
Muscle cells
When damaged (by
radiotherapy)
they can not be
replaced

Definitions

Defining Cancer

Cancer is a term used for diseases in which abnormal cells divide and escape the body control.

Depressed immunity

These cells are able to:

- 1-Invade surrounding tissues
- 2-Send distant metastases.
- 3- Lost their functions

To exclude
Benign tumors

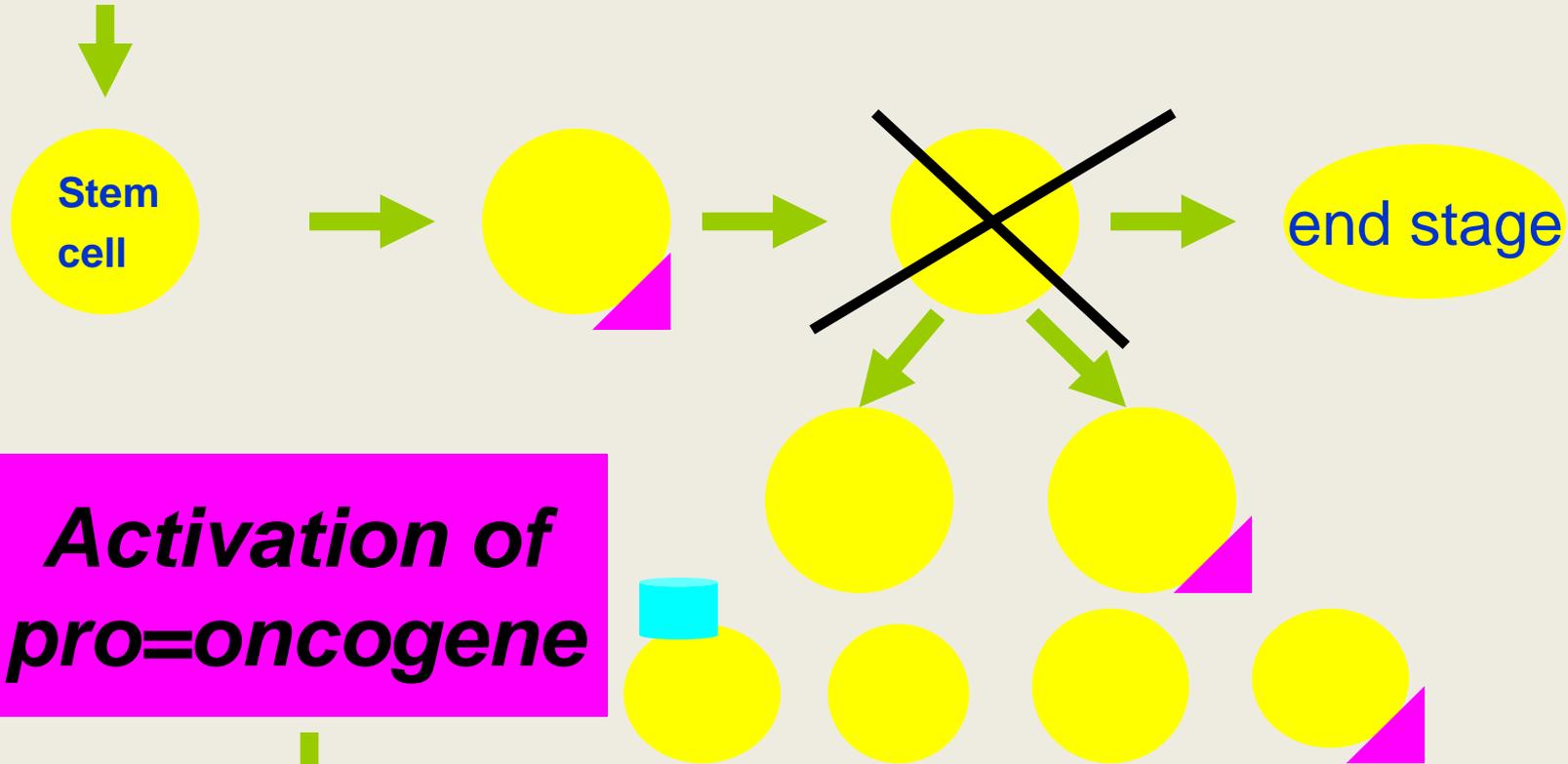
To exclude
locally malignant

What causes cancer?

- Cell division is controlled by the genes which are formed of DNA
- Cancer arises from the **mutation** of a normal gene resulted from DNA defect

Mutated genes that cause cancer are activated pro-oncogene (genes related to cell division) called **oncogenes**.

Development of Malignant Disease



***Activation of
pro=oncogene***

oncogenes

***Cell Arrest & clonal
expansion***

Causes of Cancer

- **DNA Mutations**
 - – Radiation – and other environmental factors (Tobacco, Alcohol, Radon, Asbestos, etc)
 - – Random somatic mutations
 - – Inherited germ line mutations
- **Infectious agents**
 - – **Viral**
 - • HPV – cervical cancer
 - • Hepatitis – liver cancer

When to suspect cancer?

Cancer Signs and Symptoms

-Cancer gives most people no symptoms or signs that exclusively indicate the disease.

-Unfortunately, every complaint or symptom of cancer can be explained by a harmless condition as well.

1- When to suspect cancer?

Cancer Signs and Symptoms

What are the clues???????

-Persistent **P**

-Progressive **P**

-Disabling **D**

Cancer Signs and Symptoms

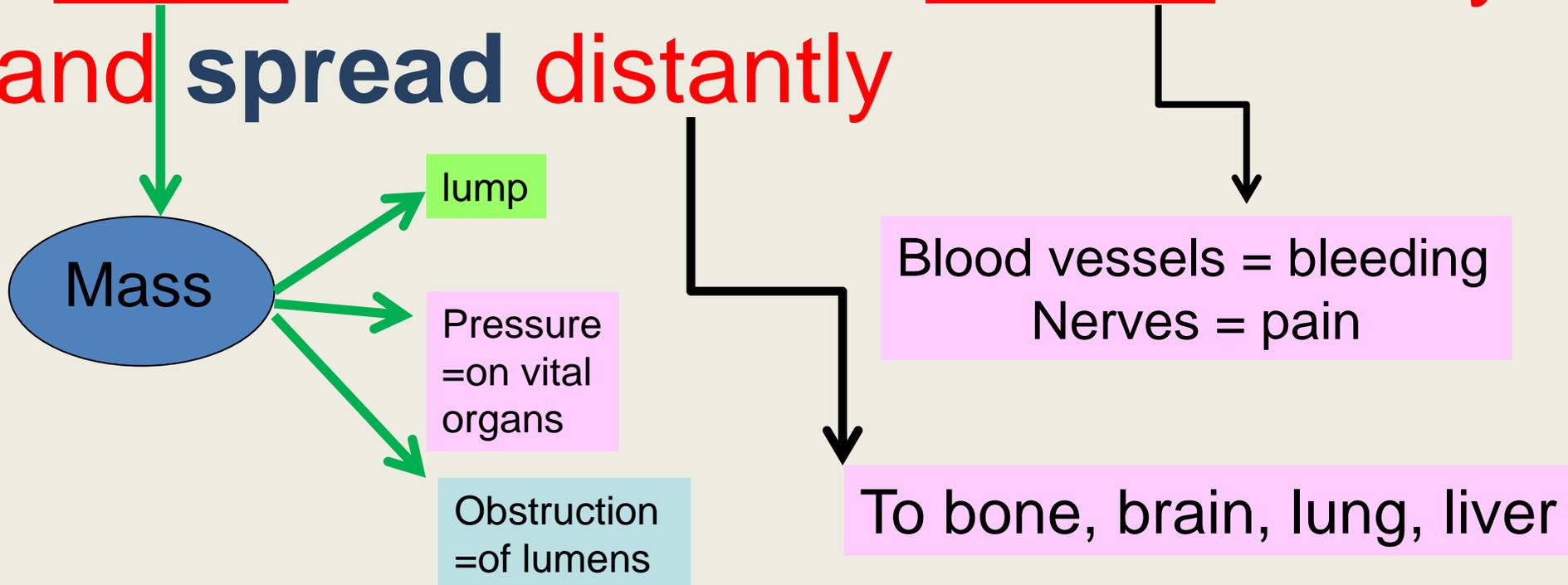
What are the clues???????

- **Symptoms & Signs**

**changes according to the
site of origin**

Cancer Signs and Symptoms

Think about the pathology and site:
- Mass that is able to invade locally
and **spread distantly**



Classification Of Solid Tumors

Solid Tumors

```
graph TD; A[Solid Tumors] --> B[Epithelial tissues]; A --> C[Connective tissues]; B --> D[Surface]; B --> E[glandular]; D --> F[Carcinoma]; E --> F; C --> G[Bone]; C --> H[Soft tissues]; G --> I[Sarcoma]; H --> I;
```

Epithelial tissues

Connective tissues

Surface glandular

Bone Soft tissues

Carcinoma

Sarcoma

Cancers are classified by the Type of cell

that the tumor cells presumed to be originating from.

- Carcinoma: Cancers derived from epithelial cells. This is the most common cancers, breast, prostate, lung, pancreas, and colon.
- Sarcoma: Cancers arising from connective tissue (i.e. bone, cartilage, fat, nerve), each of which develop from cells originating in mesenchymal cells outside the bone marrow.

OTHER TUMOR TYPES

- Germ cell tumor: Cancers derived from pluripotent cells, in the testicle or the ovary (seminoma and dysgerminoma, respectively).
- Blastoma: Cancers derived from immature "precursor" cells or embryonic tissue.

most common in children.

blastoma as a suffix, with the Latin or Greek word for the organ or tissue of origin as the root.

hepatoblastoma,

General Staging of solid malignancies

Early

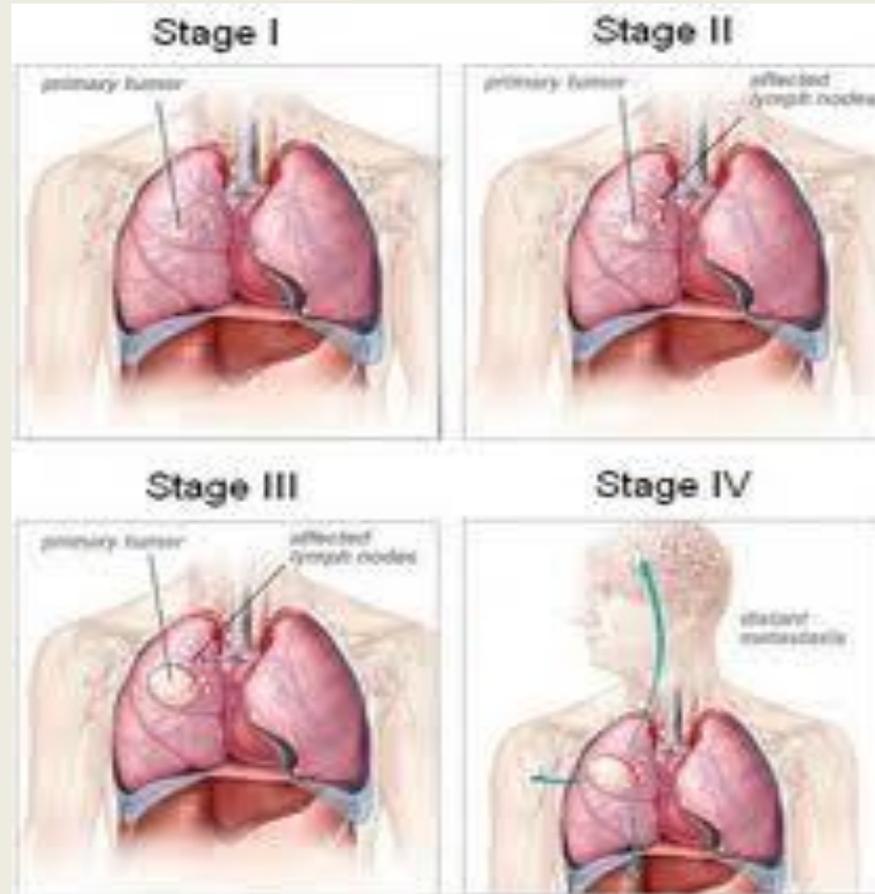
**Locally
Advanced**

Metastatic

Staging of Lung Cancer

Early

**Locally
Advanced**



Metastatic

COMMON SOLID TUMORS

COMMON SOLID TUMORS IN KSA

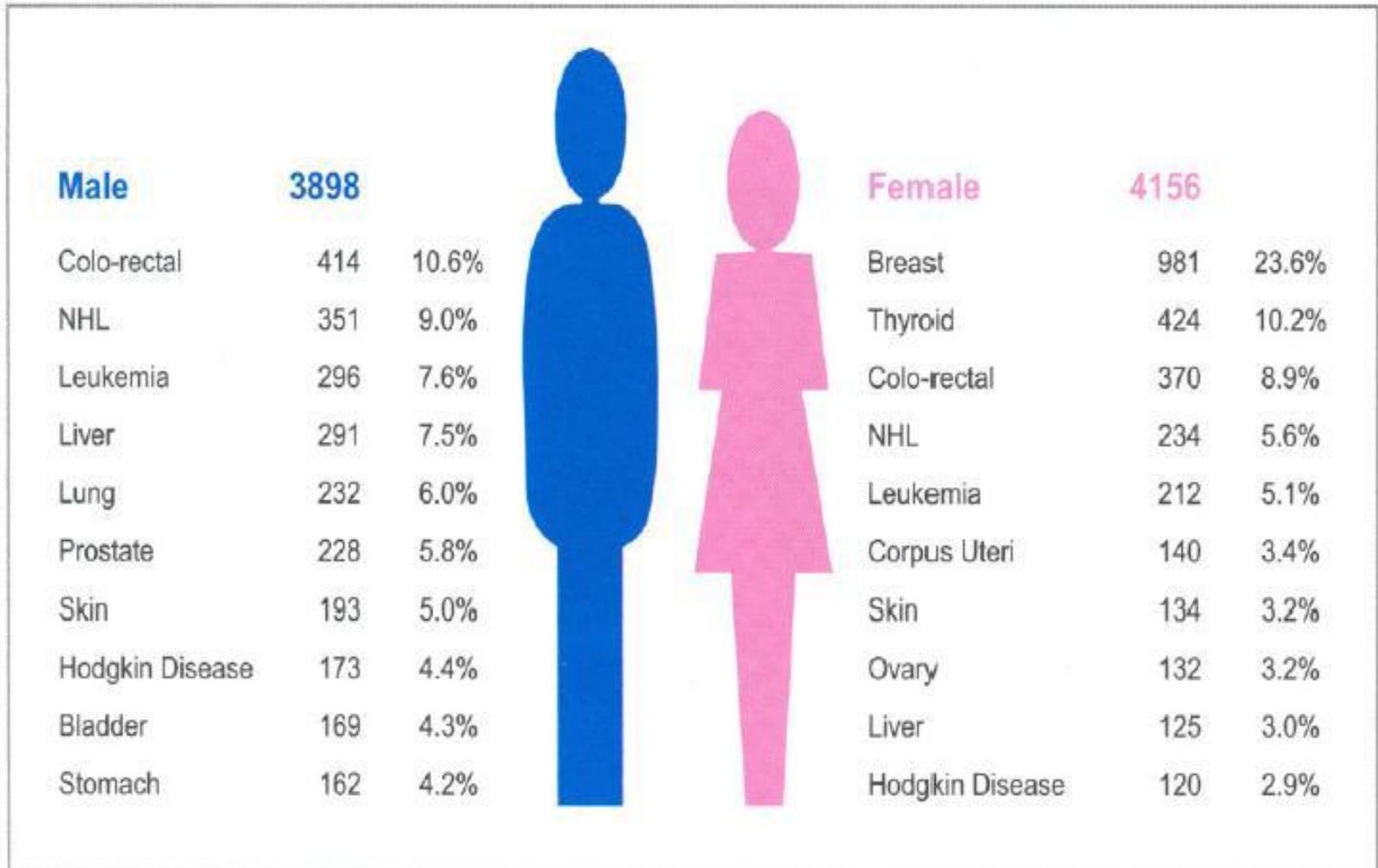
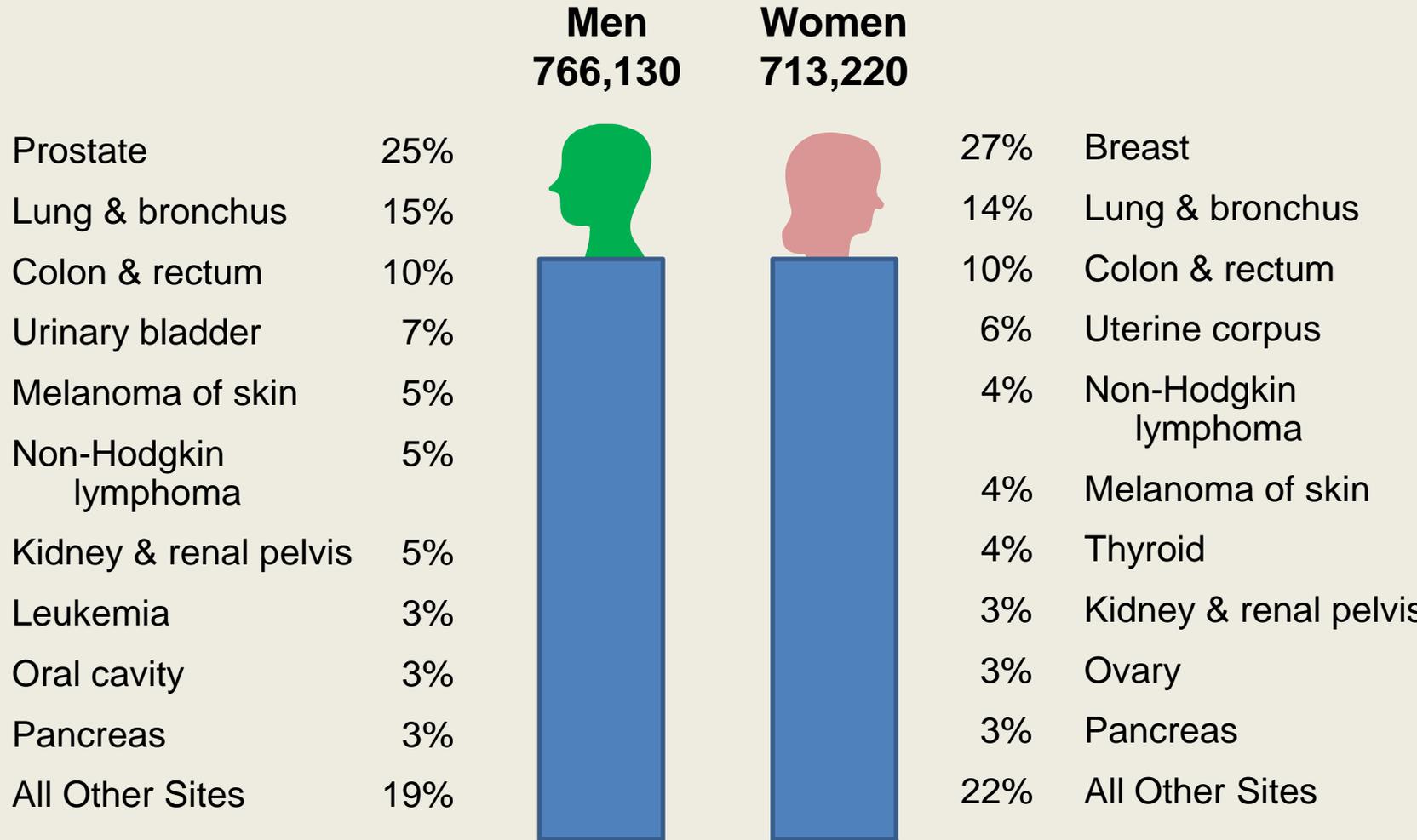


Figure 2.3 Ten Most Common Cancers among Saudis by Sex, 2006

2009 Estimated US Cancer Cases*



*Excludes basal and squamous cell skin cancers and in situ carcinomas except urinary bladder.

Source: American Cancer Society, 2009.

COMMON SOLID TUMORS

- In the U.S., The three most common cancers:
- **Men:** Prostate, lung, colorectal
- **Women:** Breast, colorectal, lung

- In the KSA., The three most common cancers:
- **Men:** colorectal, Lymphoma, leukemia
- **Women:** Breast, Thyroid, colorectal,

STUDY OF SOLID TUMORS

- EPIDEMIOLOGY
- AETIOLOGY
- PATHOLOGY
- CLINICAL PRESENTATION
- STAGING
- MANGEMENT
- PROGNOSIS

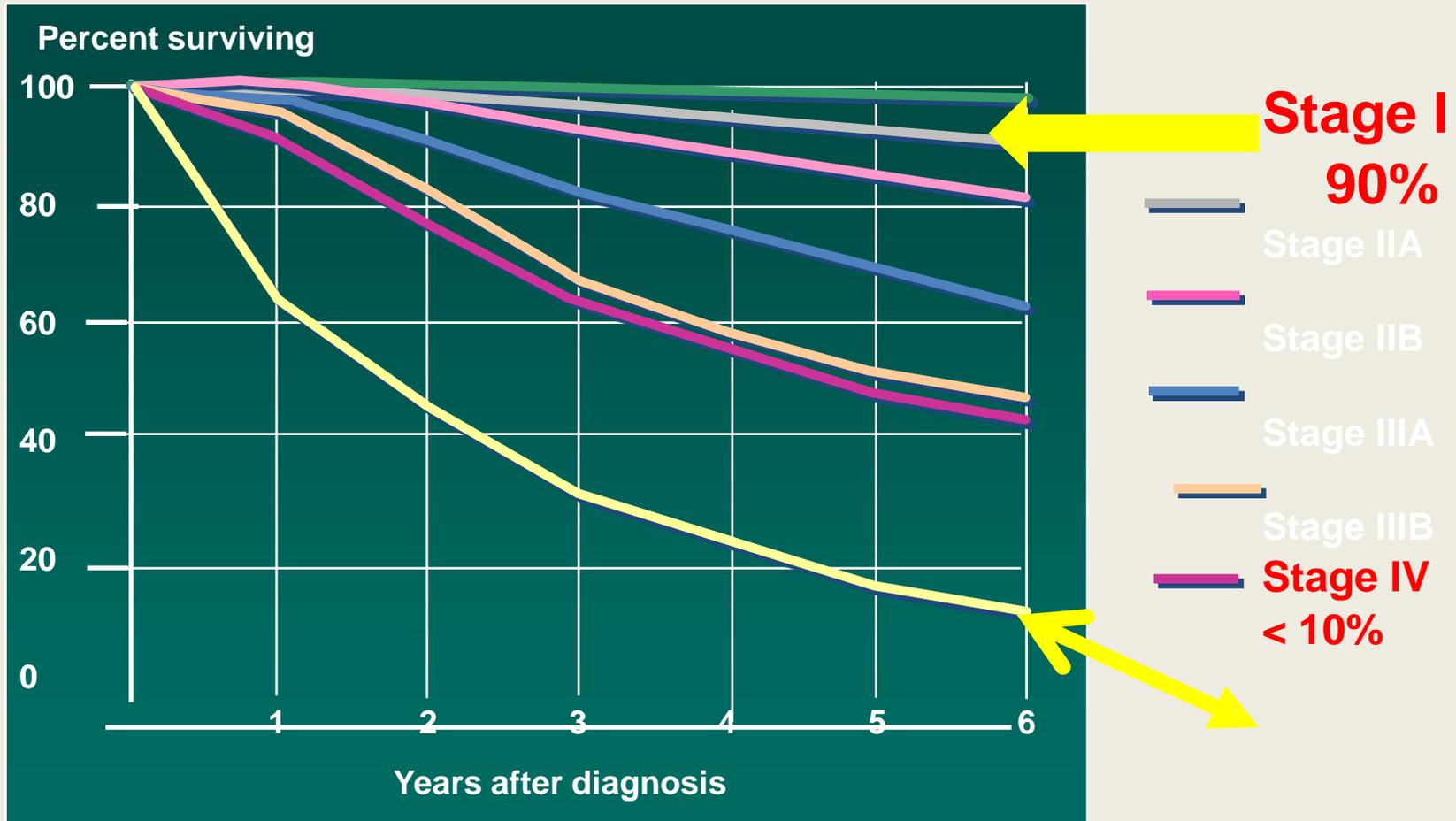
- BREAST CANCER
- COLON CANCER

Breast Cancer Facts

- **1st** most common cancer in females.
- **2nd** leading cause of death.

BREAST CANCER

Survival by stage



**WE NEED EARLY
DETECTION**

It Is A Simple Equation

LATE PRESENTATION

+

ADVANCED STAGE

=

POOR OUTCOME

EARLY PRESENTATION

+

EARLY STAGE

=

GOOD OUTCOME

A Good Health Plan

1. Mammograms

2. Self Awareness
(Monthly Self
Exams) (BSE)



Suspect Breast Cancer

**Why?
When?
What?
Which?**

Why?

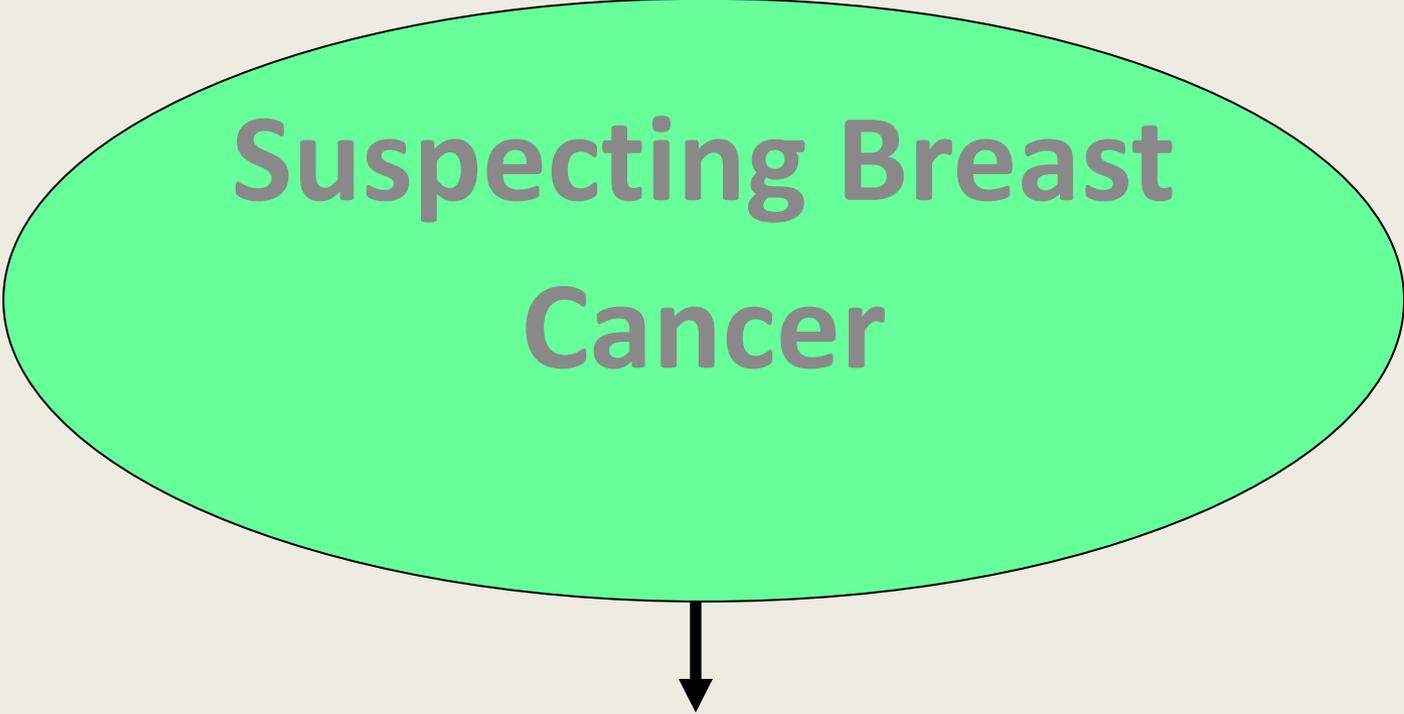
**Many good reasons
to suspect breast
cancer**

Remember:

Breast cancer :

- **Most common cancer in females.**
- **Wide age range 20 - +70y.**
- **Breast cancer can occur during pregnancy ,during lactation.**
- **Breast cancer can occur in pre, peri and post menopausal females.**

Suspecting Breast Cancer



**Is one of the most important
and the first step in
diagnosing Early Breast
cancer**

Risk factors

- **History of breast cancer**
- **Family history of breast cancer, especially in first-degree relatives**
- **Benign breast diseases / atypical hyperplasia**
- **Early menarche, late menopause**
- **Late first pregnancy/no pregnancy**
- **Exogenous estrogens**
- **Radiation (HD)**

**What
To do**

**If you Suspect Breast
Cancer?**

**If you
Suspect Breast
Cancer**

- Do not just reassure the patient**
- Do not give hormonal therapy**
- Do not give antibiotics.**

**If you
Suspect Breast
Cancer**

```
graph TD; A([If you Suspect Breast Cancer]) --> B[Careful history & Careful physical ex];
```



**Careful history &
Careful physical ex**

Warning Signs

Warning signs and symptoms:

- Painless lump or thickening
(can be painful)
- Thickening or swelling that persist
- Nipple pain or retraction
- Nipple discharge
- Breast skin irritation or dimpling

Physical examination

+ve

Diagnostic imaging
- mammogram
- ultrasound

**Palpable
mass**

**Equivocal or
suspicious**

Normal

FNA

**Short-term
follow-up**

Physical examination

-ve

Screening mammogram

Normal

Suspicious

FNA

Physical examination

+ve

Diagnostic imaging
- mammogram
- ultrasound

Palpable
mass

Equivocal or
suspicious

Normal

FNA

Short-term
follow-up

conclusion

Suspecting Breast
Cancer



**Is one of the most important
steps in diagnosing
Early Breast cancer.**

Conclusion

**If you
Suspect Breast Cancer**



- Careful Hist & Ex**
- Perform Bilateral mamogram
+ breast US**
- +/- Fine needle aspiration**

To improve patients Prognosis



1-EARLY DIAGOSIS

2-EARLY & PROPER INTERVENTION

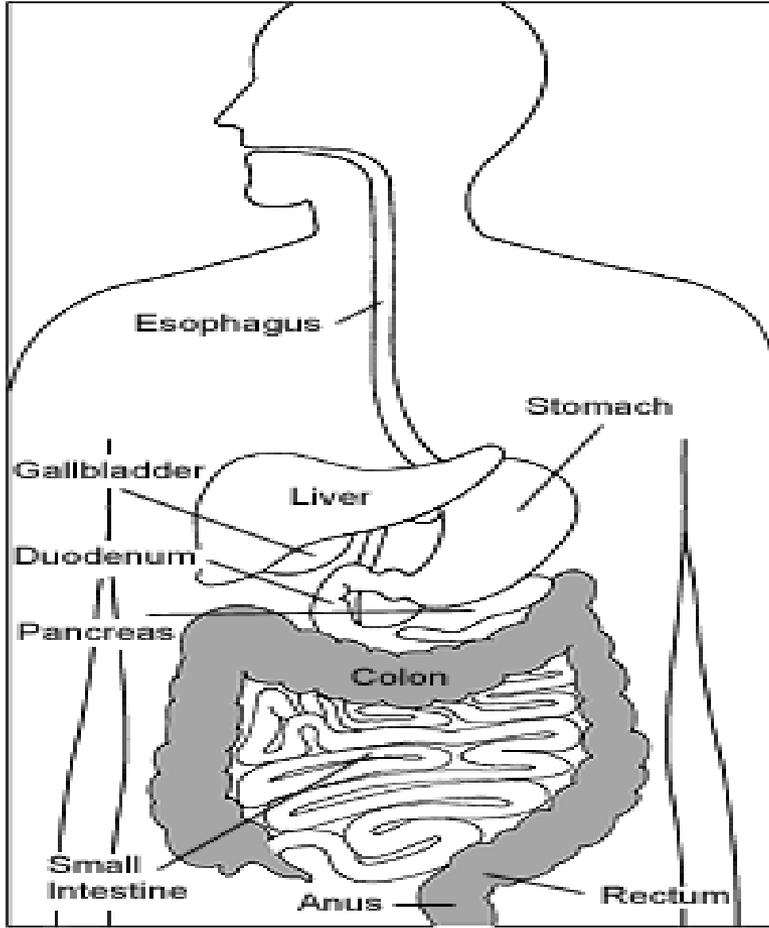
LOCAL THERAPY
SURGERY
RADIOTHERAPY

SYSTEMIC THERAPY
- CHEMOTHERAPY
- HORMONAL THERAPY
- BIOLOGICAL THERAPY

COLON CANCER

Colon cancer is the second leading cause of cancer deaths

What is the Colon



- The Colon is a long, coiled, tubular digestive tract
- It basically acts as a waste processor
- Takes digested food in the form of Solid waste pushing it out of the rectum and anus
- The Colorectal tube is a prime location for the development and growth of small polyps or tumors

Risk factors of colon cancer

- **Older age.** About 90 percent of people diagnosed with colon cancer are older than 50. Colon cancer can occur in younger people, but it occurs much less frequently.
- **A personal history of colorectal cancer or polyps.** If you've already had colon cancer or adenomatous polyps, you have a greater risk of colon cancer in the future.

Risk factors of colon cancer

- **Inflammatory intestinal conditions.** ulcerative colitis and Crohn's disease,
- **Inherited syndromes that increase colon cancer risk..** familial adenomatous polyposis and hereditary nonpolyposis colorectal cancer, which is also known as Lynch syndrome.

Risk factors of colon cancer

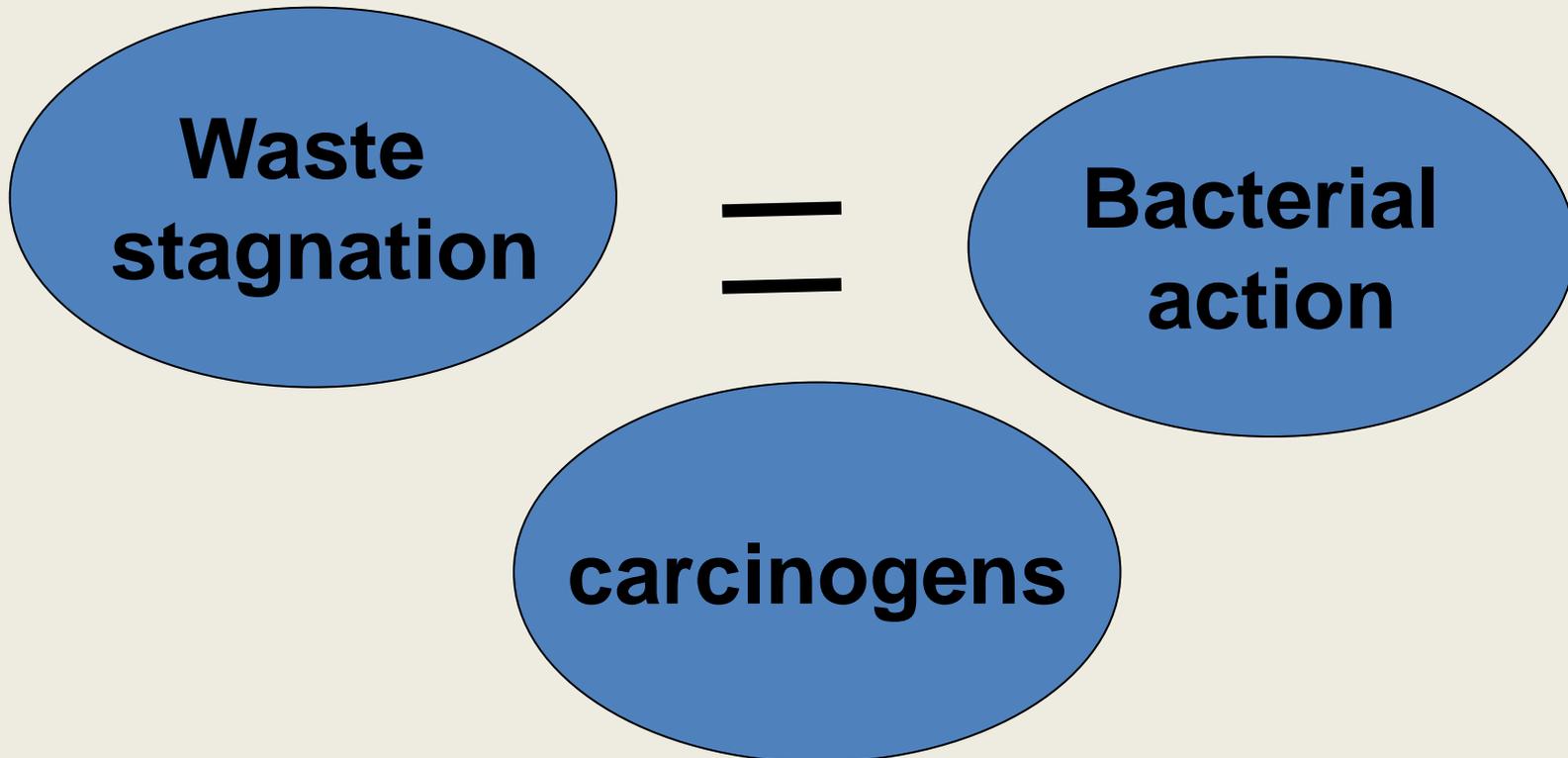
- **Family history of colon cancer and colon polyps.** a parent, sibling or child with the disease.
- **Low-fiber, high-fat diet..**
- **A sedentary lifestyle.**

Risk factors of colon cancer

- **Diabetes.** insulin resistance may have an increased risk of colon cancer.
- **Obesity.**
- **Smoking.** People who smoke cigarettes may have an increased risk of colon cancer.
- **Alcohol.** Heavy use of alcohol may increase your risk of colon cancer.
- **Radiation therapy for cancer**

constipation

- Why does constipation is a risk factor?



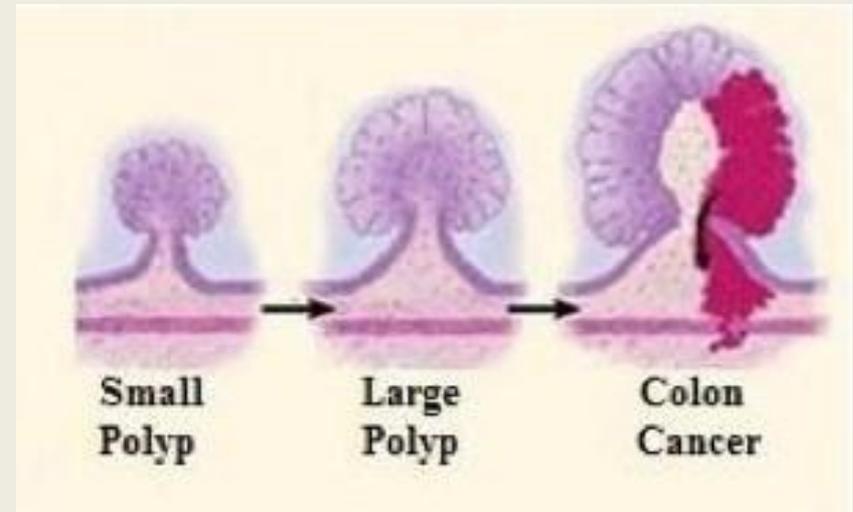
Colon Cancer Pathogenesis

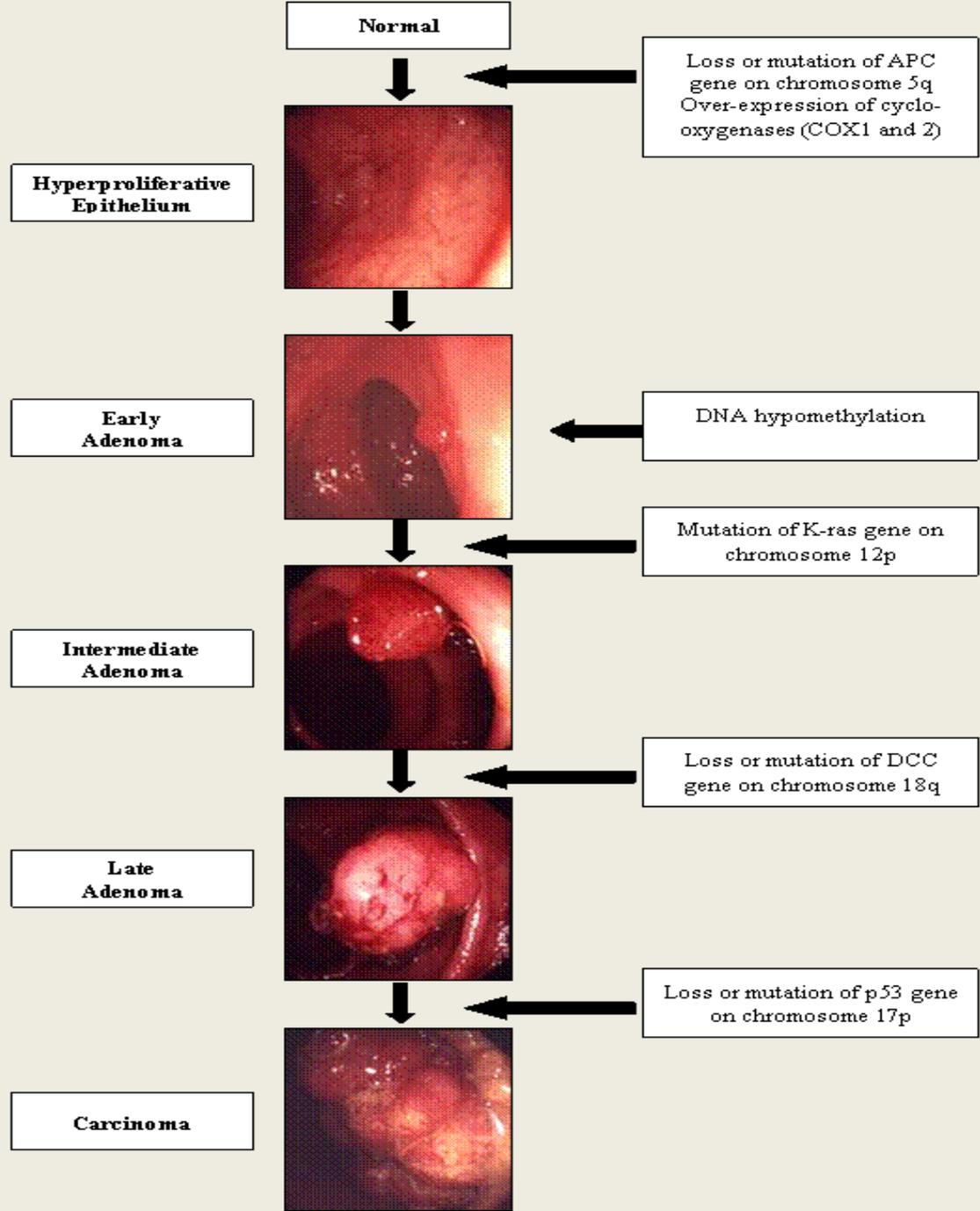
- It starts with a simple cell that mutates and grows into a polyp
- If a polyp is allowed to remain in the colon it can grow into a cancerous tumor that can invade other organs.
- Colon cancer is the second leading cause of cancer deaths



Colon; The Cancer Its Self

- If a polyp is allowed to remain in the colon it can grow into a cancerous tumor that can invade other organs.





Signs & Symptoms

It can occur at any age but mostly if your of 45 years of age

- Change in bowel habits
- Blood in Stool
 - Bright red
 - Very dark red
 - Black/Tarry Stool
- Diarrhea
- Constipation
- Does your bowel feel like it emptied completely?
- General abdominal discomfort
 - Gas pains
 - Bloating
 - Fullness
 - Cramps
- Weight loss w/ no explained reason
- Constant tiredness
- Vomiting (coffee grounds)

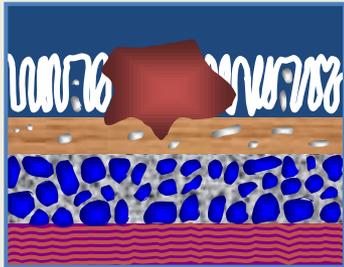
Symptoms of Colon Cancer

- And Unexplained Fatigue
- Unexplained iron deficiency anemia

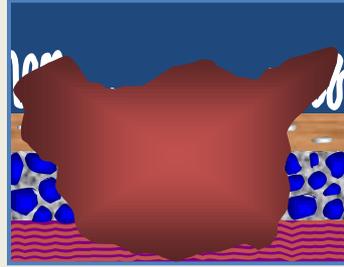


Colon cancer staging

I



II



III



IV



**Confined
To wall**

**Beyond
the wall**

**Nodal
involvement**

Metastases

5y OS= **90%**

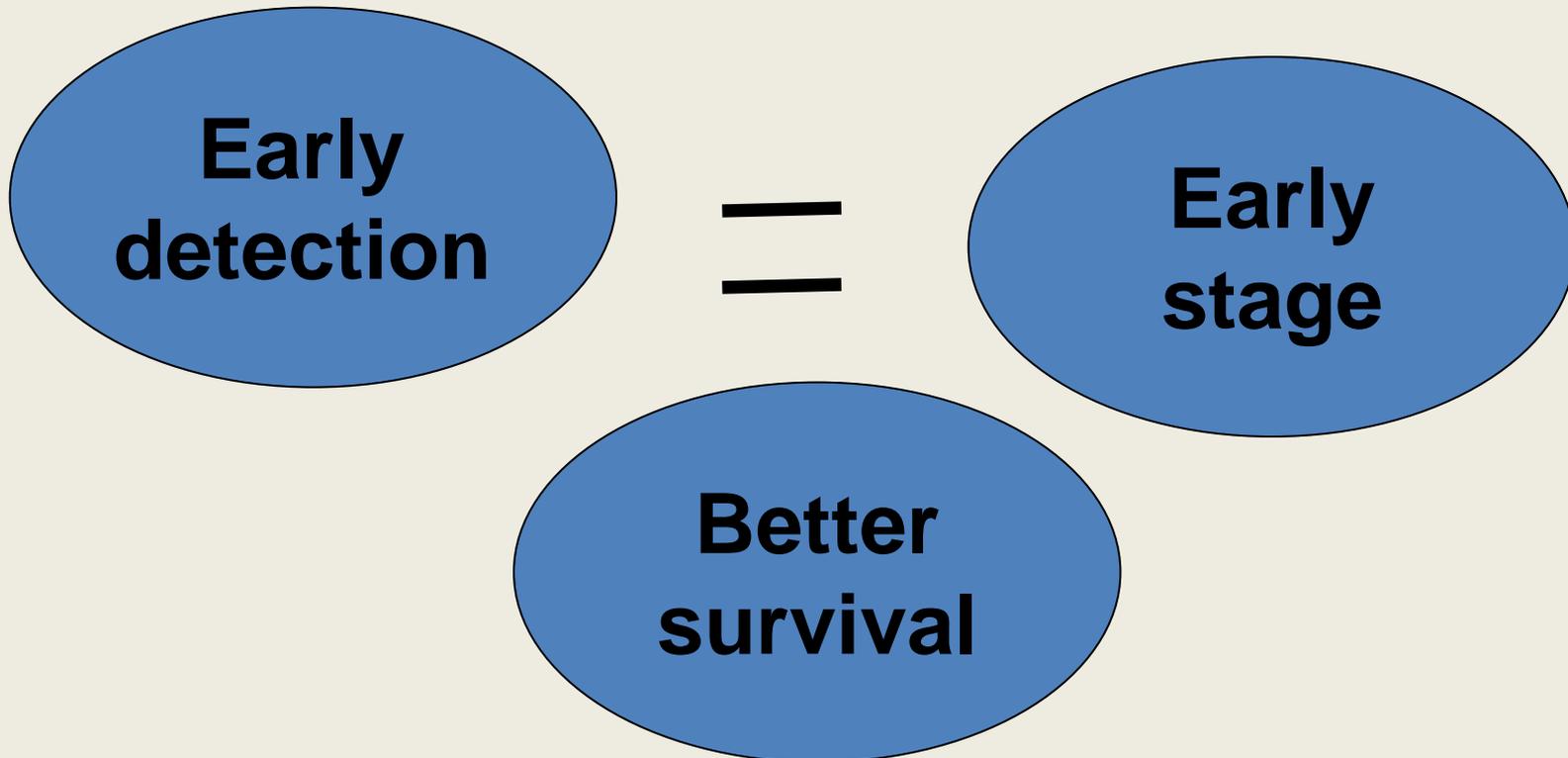
60-80%

30-60%

< 5%

Early detection:

- **Why does this contribute to a better survival?**



Early detection:

- **1- Occult blood in stools**
- **2- Colonoscopy,**
- **3- Better imaging,**
- **4- Better public and physician awareness.**

MANGEMENT OF COLON CANCER

- **1- Occult blood in stools**
- **2- Colonoscopy,**
- **3- Better imaging,**
- **4- Better public and physician awareness.**

MANGEMENT OF COLON CANCER

Early

SURGERY

**Locally
Advanced**

**SURGERY
+
ADJUVANT
CHEMOTHERAPY**

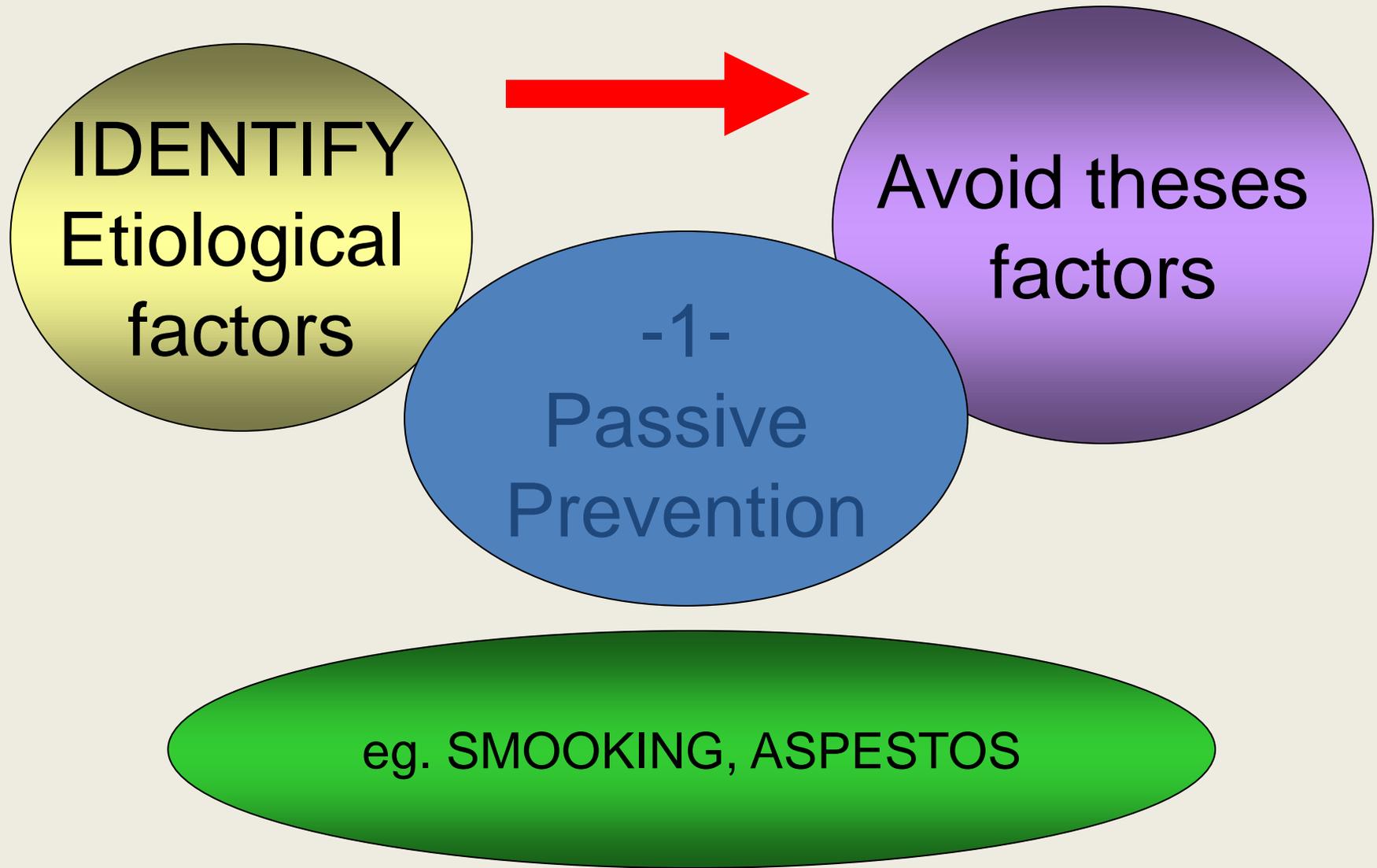
Metastatic

**CHEMOTHERAPY
+
SURGERY**

**CAN WE PREVENT
BREAST or colon
CANCER?**

MAY 2011

Different Strategies for Cancer Prevention



-1-

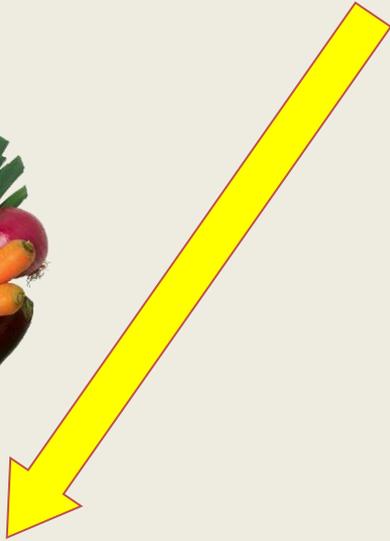
Passive Prevention

- General health maintenance
 - Eat a healthy diet
 - Don't smoke
 - Don't drink too much
 - Exercise/ maintain optimal weight

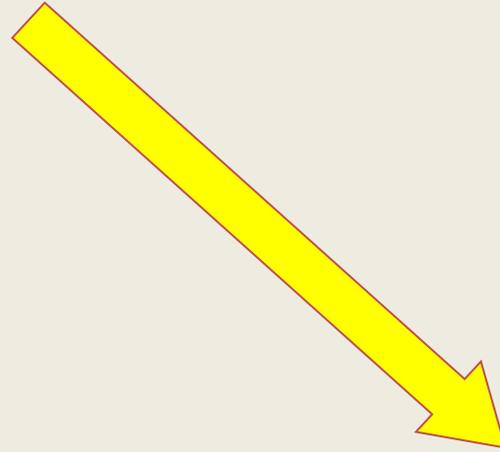
TRY TO AVOID THE
Risk Factors for Breast Cancer

- Weight Gain as an adult /obesity
- Estrogen & Progestin use
- Alcohol use

NOT AN EASY TASK



Social change is
difficult and
takes
a long time



Not good
enough
In high risk
people



Different Strategies for Cancer Prevention

Discover
pre-malignant
lesions



-2-
Active
prevention

Get rid of
them before
developing
invasive cancer

eg. Colonic polyps & DCIS

-2-

Active
prevention

- **Eliminate or prevent pre-invasive disease before invasion develops**

Chemoprevention

Surgery