

# **Cancer Scenario in India**

**Particular Reference to Jammu Region**

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Regional Cancer Center  
Govt. Medical College  
Jammu

## Health Statistics in (**British**) India:

- Common causes of death in 1930-31
  - Cholera
  - Smallpox
  - Plague
  - Fevers (Rural fever)
  - Diarrhea / dysentery
  - Respiratory diseases
  - Death rate: 25/1000 and life span: Less than 30 yrs
  - Cancer did not figure in that report

*\* Health Statistics of India, 1931*

# Health Scenario in India:

- Population: >One billion
- Life expectancy: 62.5 years
- GNP: Rs. 12184/-
- Literacy rate: 60%
- Cancer is among the ten leading causes of death and a major public health problem

# Cancer:

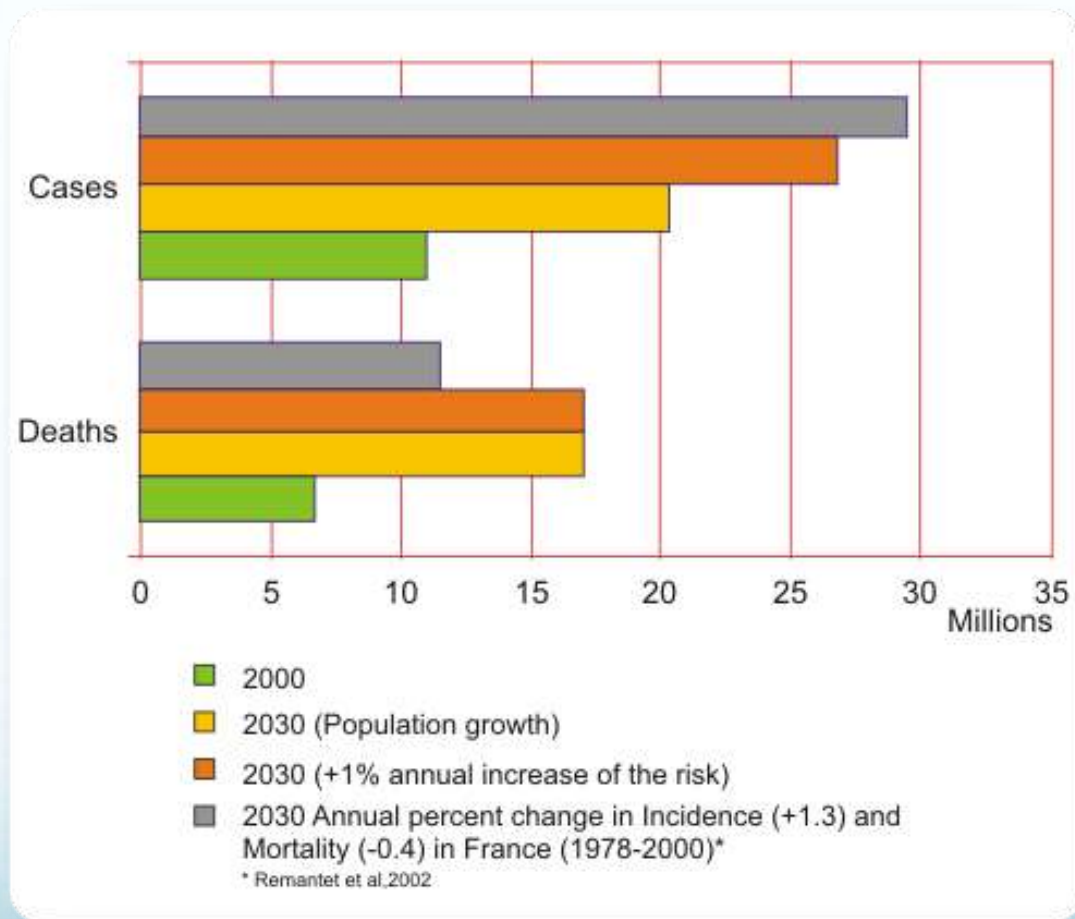
- Cancer is not a single disease.
- There are more than 100 types of cancers
- Any part of the body can be affected.
- More than 70% of all cancer deaths occur in low and middle income countries.

*World Health Organization*



# World

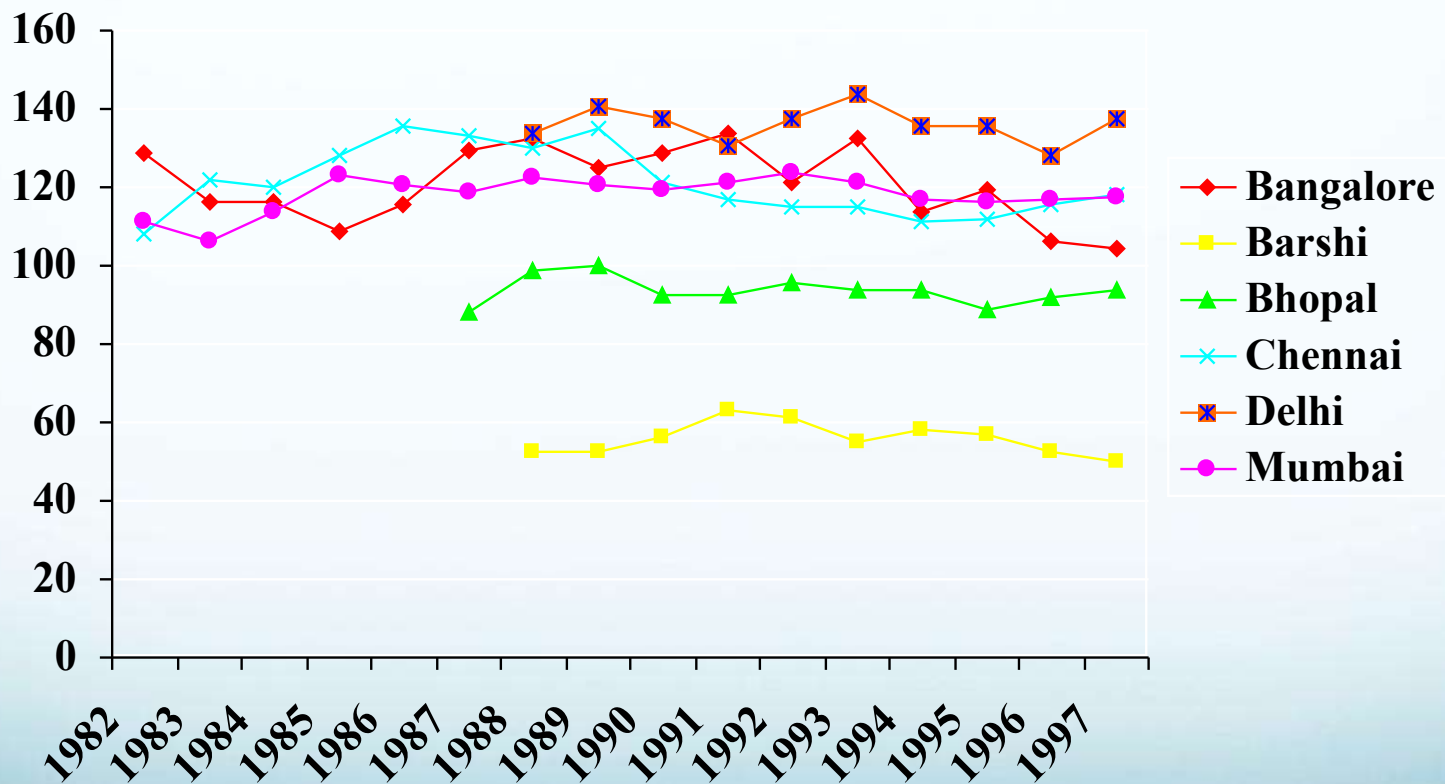
## Estimated Cancer Burden in 2030



## Magnitude of Cancer in India:

- ❖ About 10 lakh new cases are diagnosed annually.
- ❖ Approximately, 25 lakh cases exist a given point of time.
- ❖ More than 70% present in advanced stage.
- ❖ About 5 lakh die every year due to cancer.

## Incidence of Cancers per Hundred Thousand Population:



# Leading cancers:

## Males

- Head & Neck
- Lung
- Esophagus
- Bowel

## Females

- Cervix
- Breast
- Bowel

Upcoming cancers: GB, Brain,  
Colorectal, Prostate, U. Bladder



# Common Cancers in among Men in India

Rank	Bangalore	Bhopal	Chennai	Delhi	Mumbai	Barshi
1	Stomach 10.9	Lung 14.5	Stomach 15.4	Lung 13.2	Lung 14.3	Hypopharynx 6.1
2	Oesophagus 9.4	Tongue 10.6	Lung 10.9	Larynx 9.7	Oesophagus 11.0	Oesophagus 4.9
3	Lung 9.2	Hypopharynx 8.5	Oesophagus 9.2	Prostate 7.1	Larynx 8.5	Penis 3.4
4	Hypopharynx 6.4	Oesophagus 8.3	Mouth 7.3	Oesophagus 6.6	Hypopharynx 8.2	Mouth 3.1
5	Prostate 5.1	Mouth 7.5	Hypopharynx 5.7	Uri Bladder 6.3	Prostate 7.5	Larynx 2.7

# Common Cancers in among Women in India:

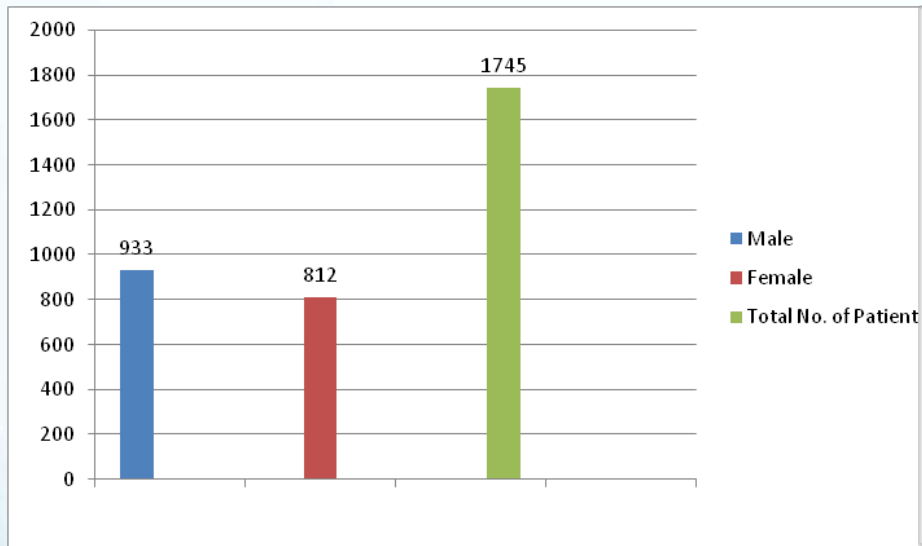
Rank	Bangalore	Bhopal	Chennai	Delhi	Mumbai	Barshi
1	Cervix 30.8	Cervix 24.9	Cervix 41.9	Breast 29.0	Breast 27.1	Cervix 27.7
2	Breast 21.4	Breast 22.2	Breast 22.4	Cervix 29.0	Cervix 19.5	Breast 8.0
3	Mouth 9.9	Ovary 6.1	Mouth 8.0	Gall Bladder 8.4	Oesophagus 8.2	Oesophagus 2.1
4	Oesophagus 9.0	Mouth 5.8	Stomach 7.0	Ovary 8.4	Ovary 7.2	
5	Stomach 5.8	Oesophagus 5.8	Oesophagus 6.4	Lymphoma 4.9	Mouth 4.6	

# Changing Spectrum

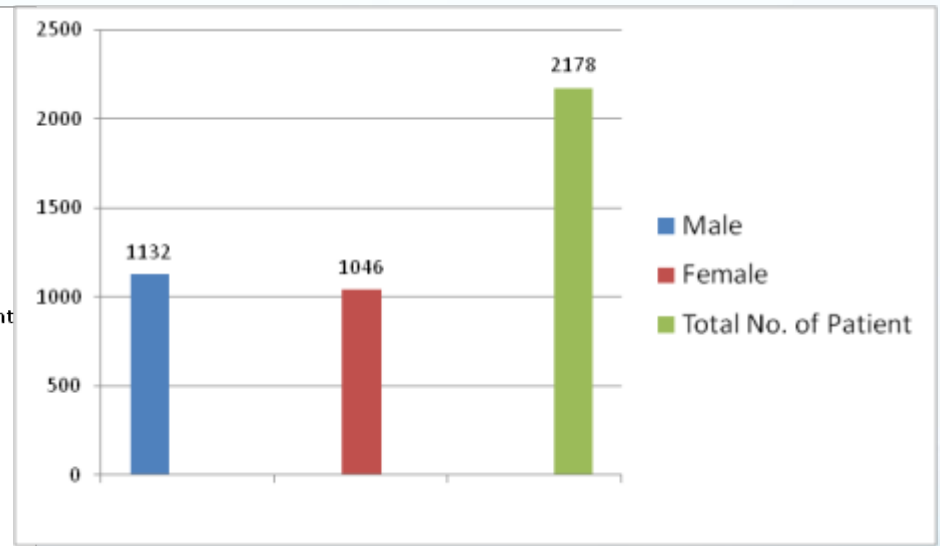
- **Females:** Breast has taken a lead over cervical cancer in Delhi & Mumbai
- **Males:** Lung is the commonest cancer in Delhi ,Mumbai & Bhopal
- Cancer of Gall bladder is the third commonest in Delhi

# **CANCER DATA FOR THE YEAR 2015-16 IN G.M.C. Jammu**

A detailed analysis of Cancer patients' data for the year 2015 &16 was undertaken.

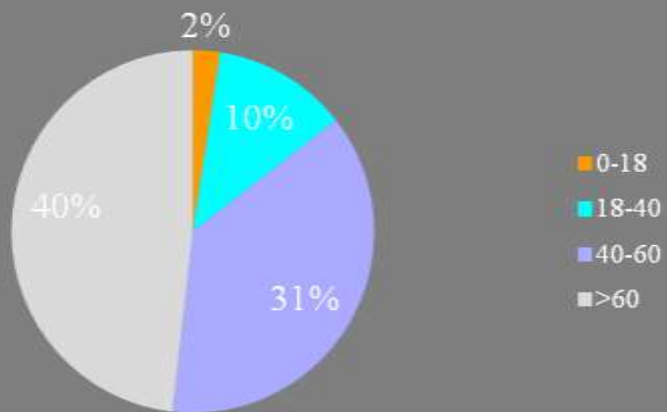


Year 2014



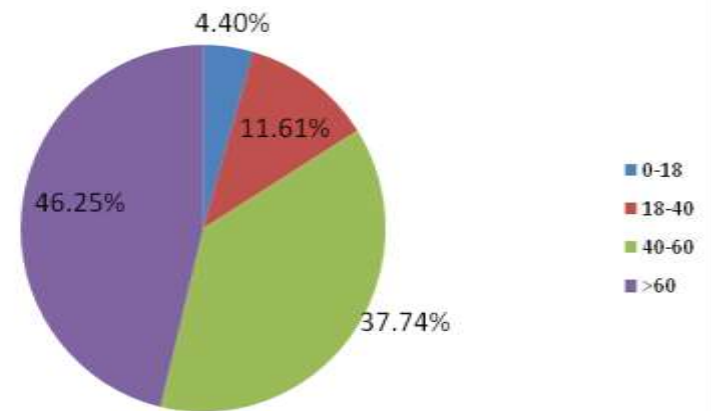
Year 2015

Age in Years



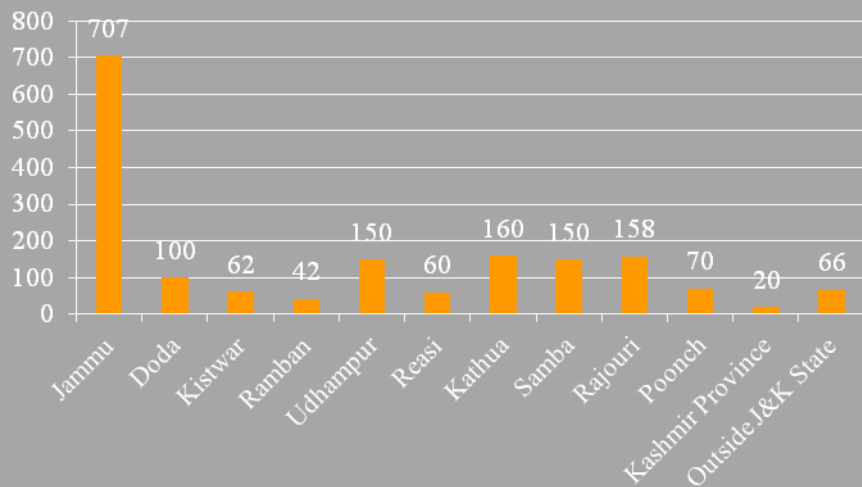
Year 2014

Age in Years



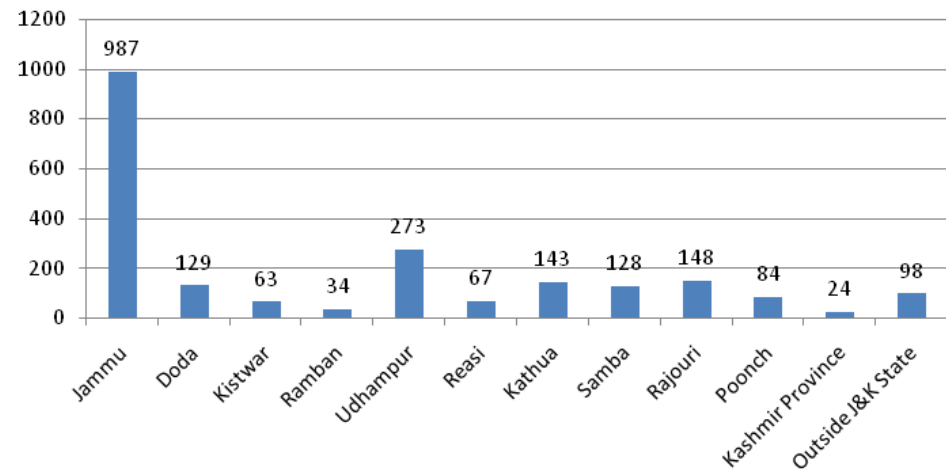
Year 2015

### District wise Distribution of Malignant Disease

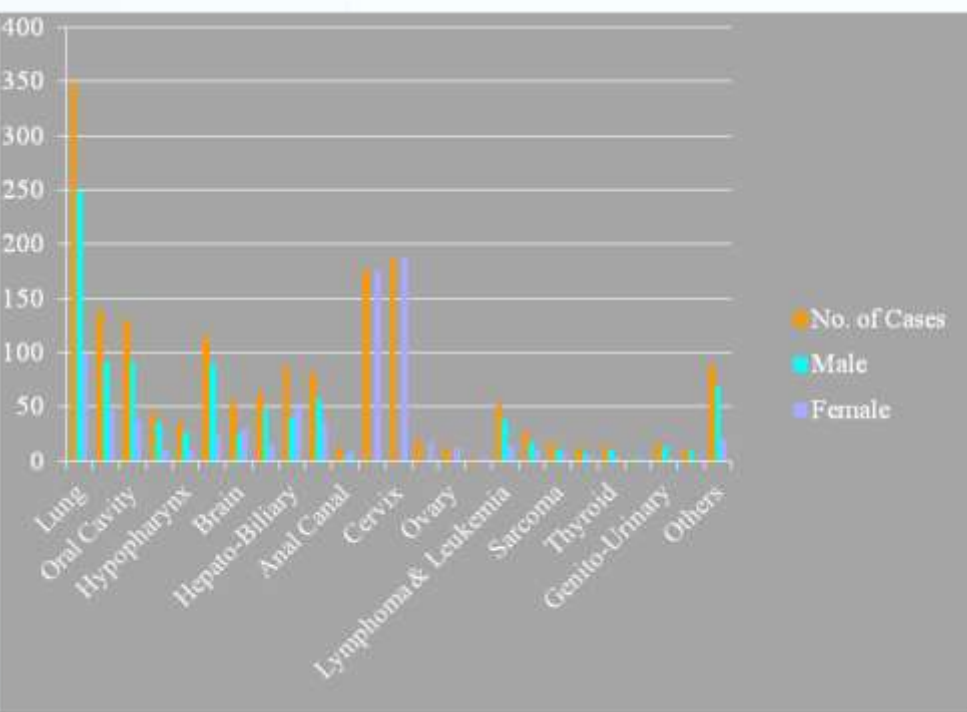


Year 2014

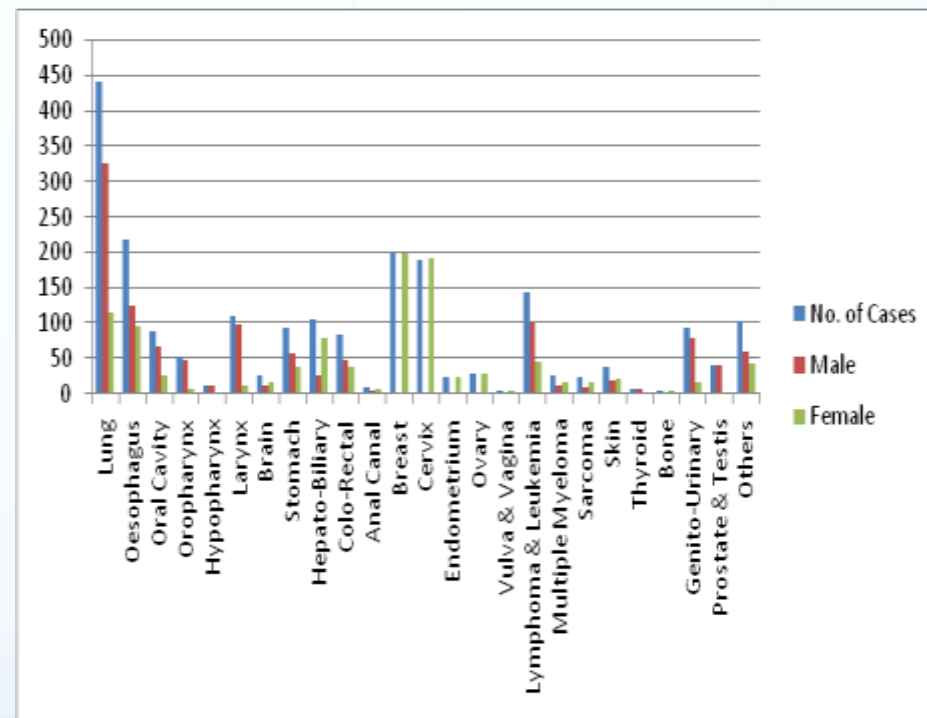
### District wise Distribution of Malignant Disease



Year 2015



Year 2014

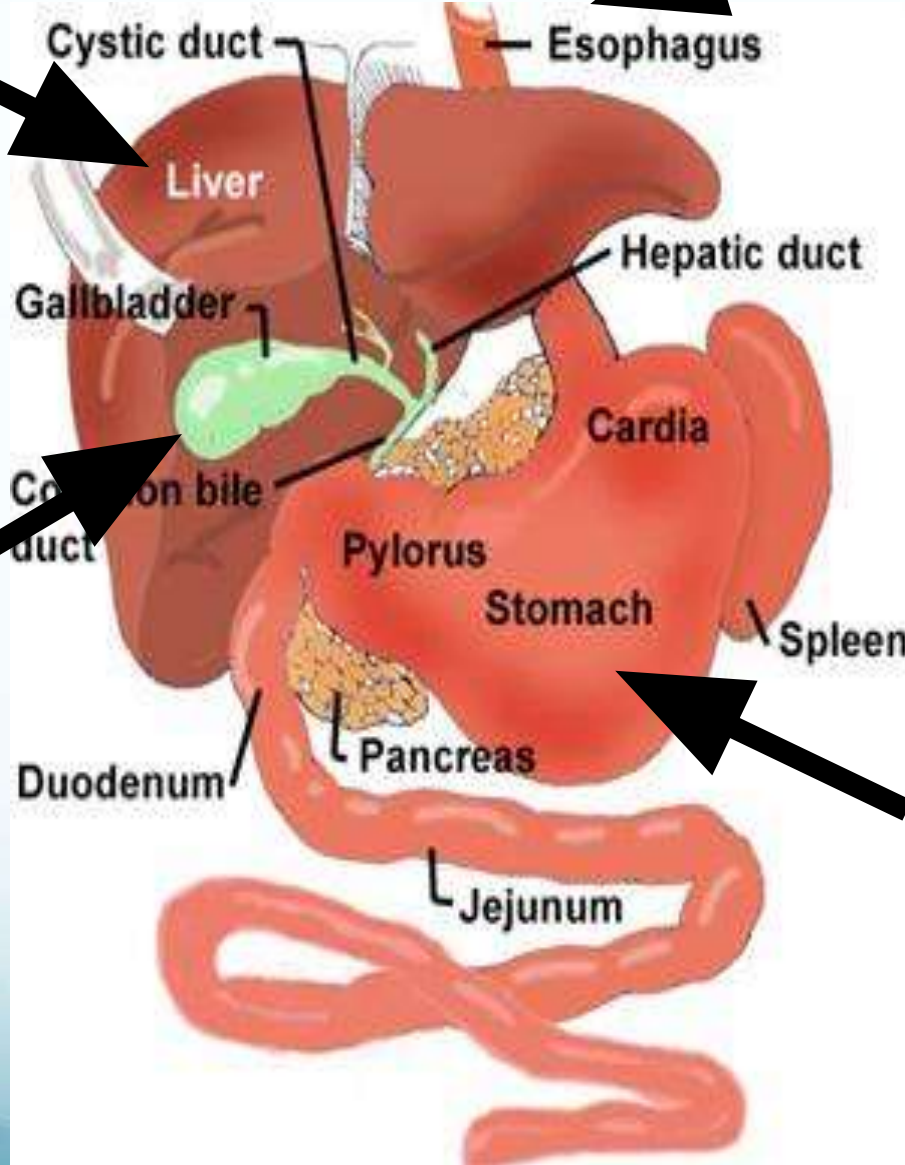


Year 2015



**North East  
regions**

**Karnataka  
Kashmir**

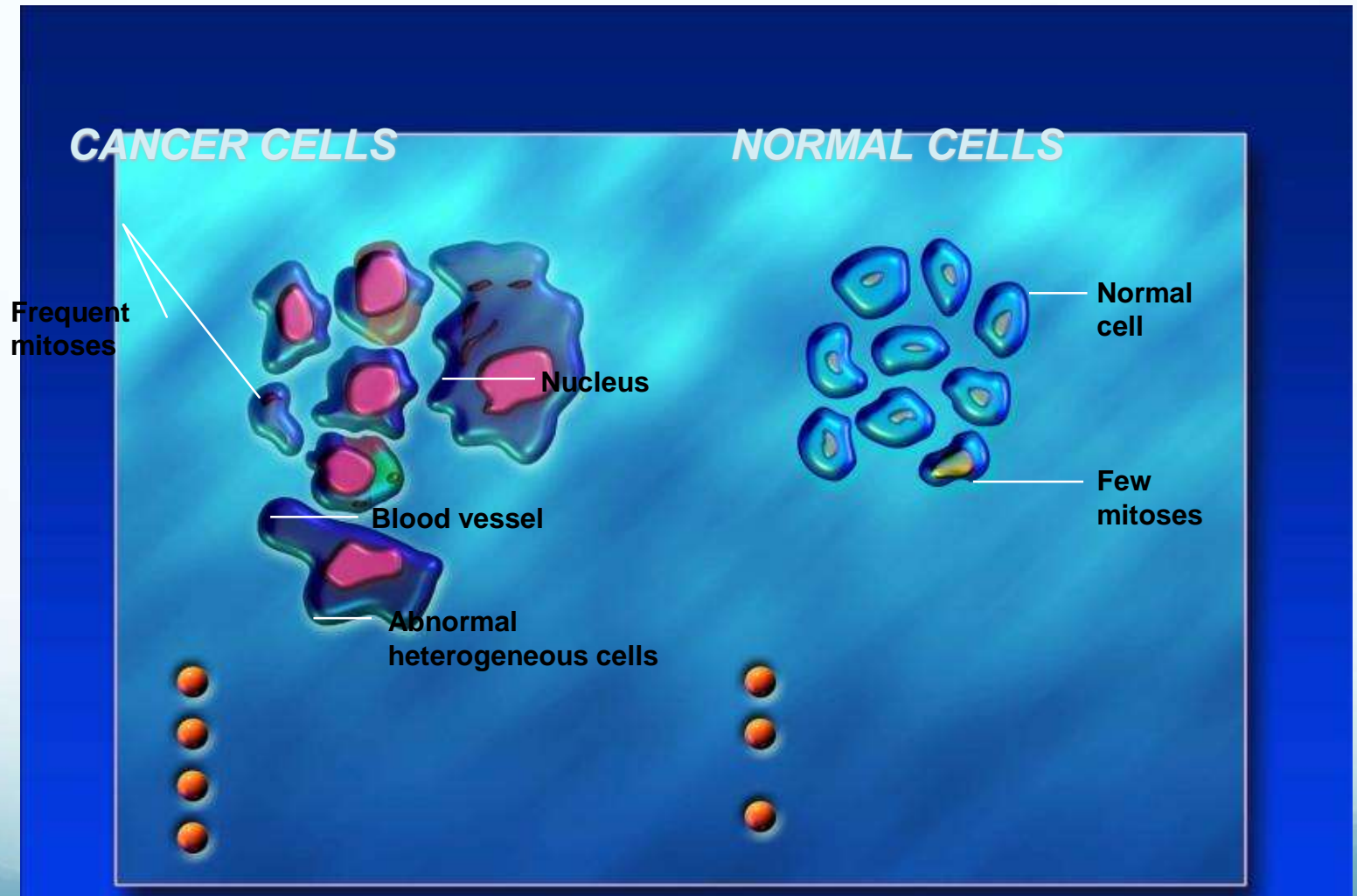


**UP, Bihar**

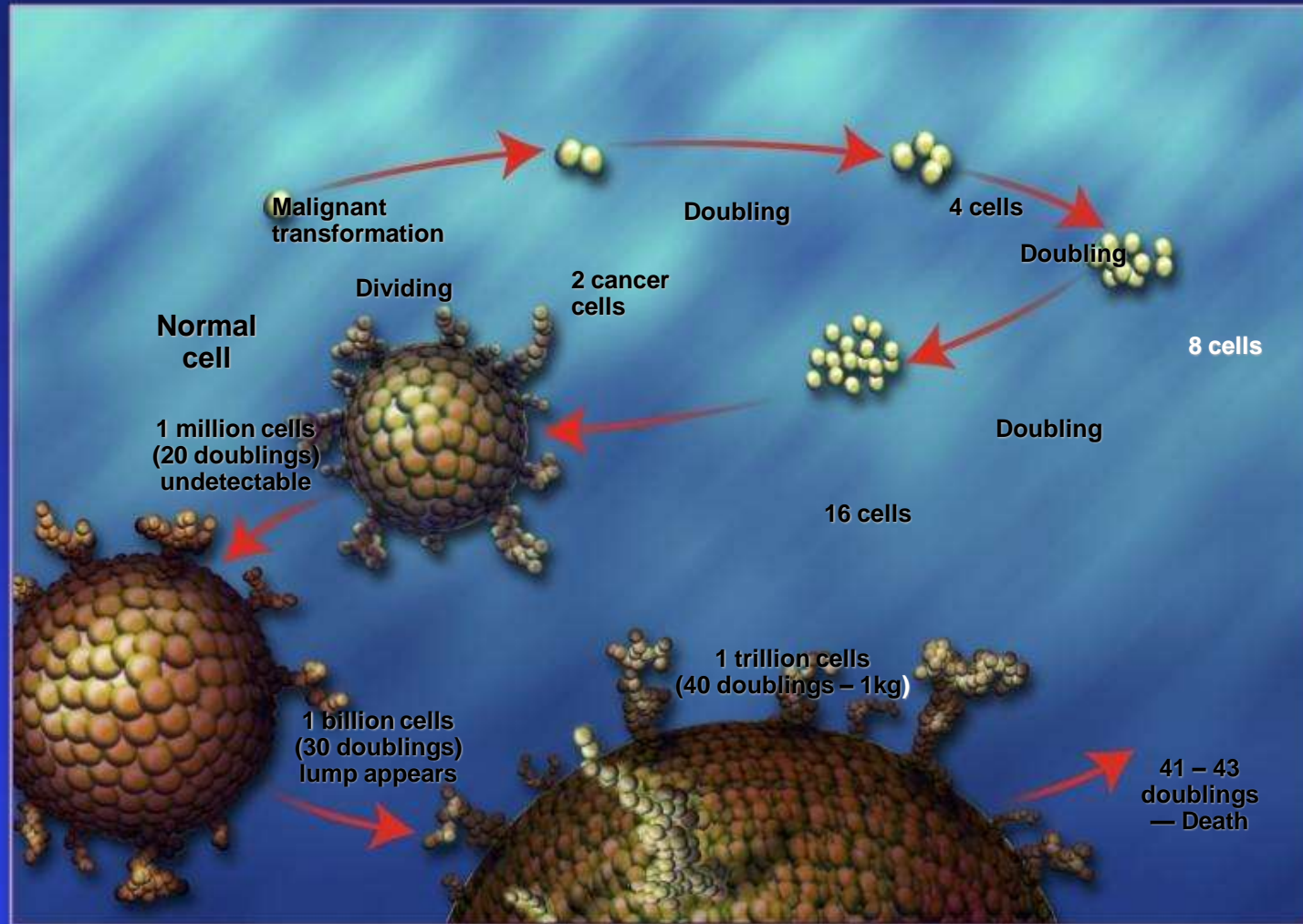
**Tamilnadu,  
Andhra Pradesh**

Why does Cancer  
occur?

# Cancer Develops As A Result of Un-regulated Cell Growth



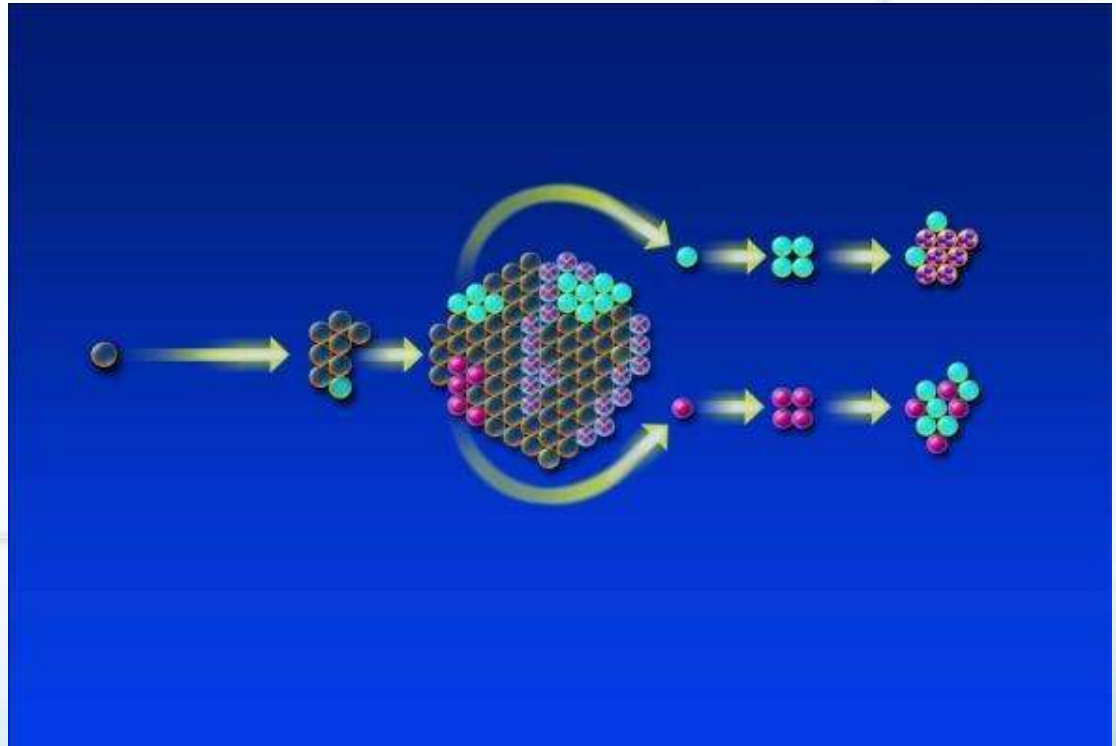
# Cancerous Growth:



# What Causes un-regulated cell growth?

There are some Wrong signals sent from the “Controlling authorities” in the Cells:-

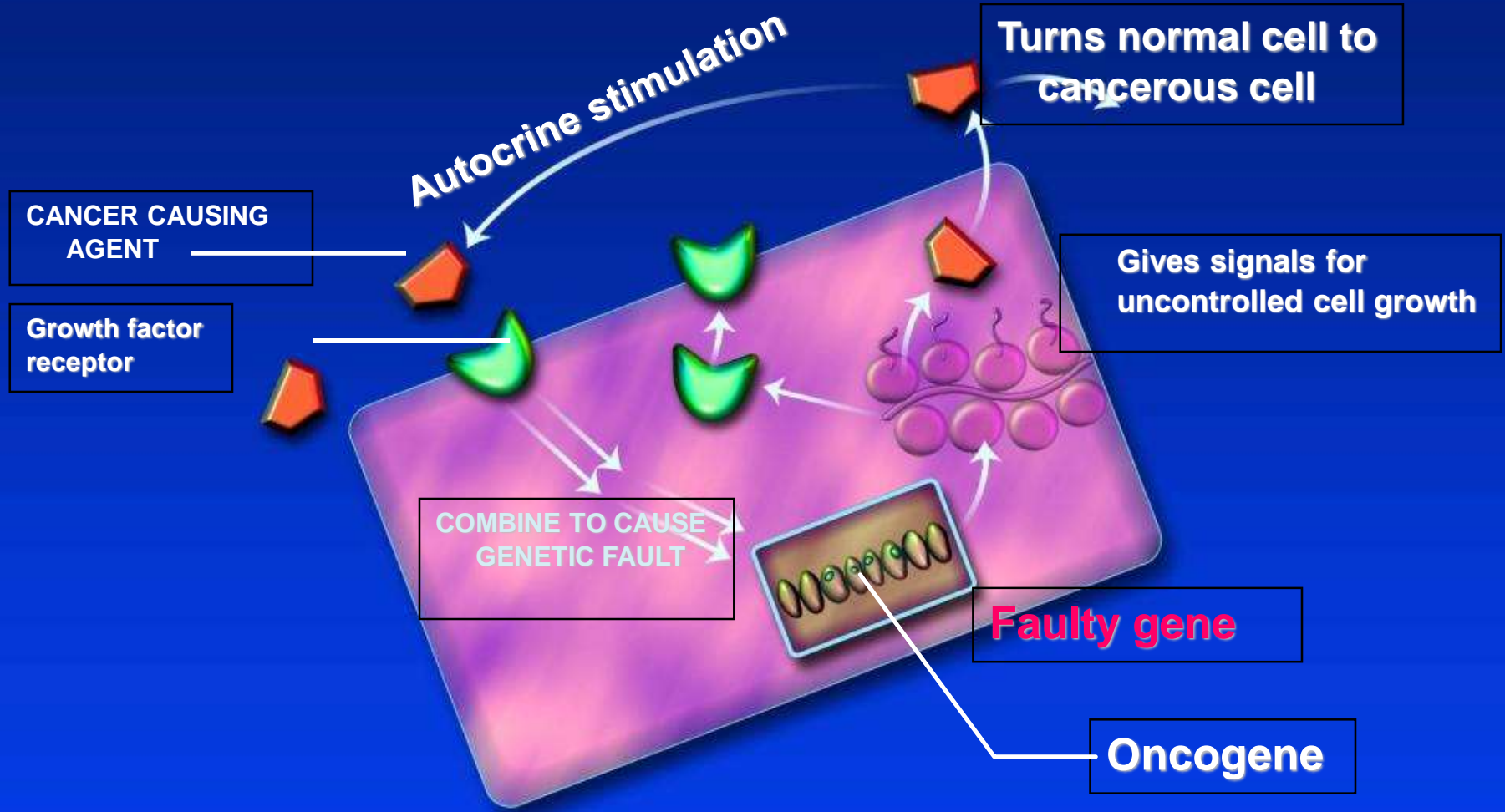
“THE GENES”



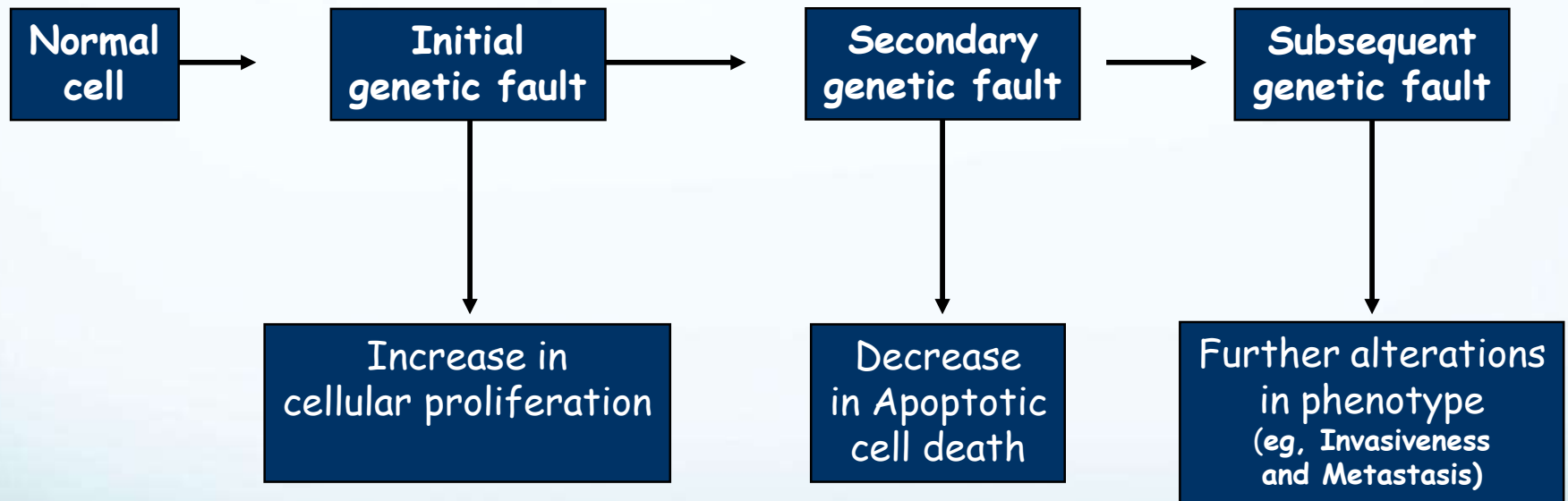
**Cancer is due to Genetic fault**



# What Causes Cancer?



# Multiple genetic faults needed to cause cancer:





# What causes genetic faults?

➤ Germ line Faults: Rare.

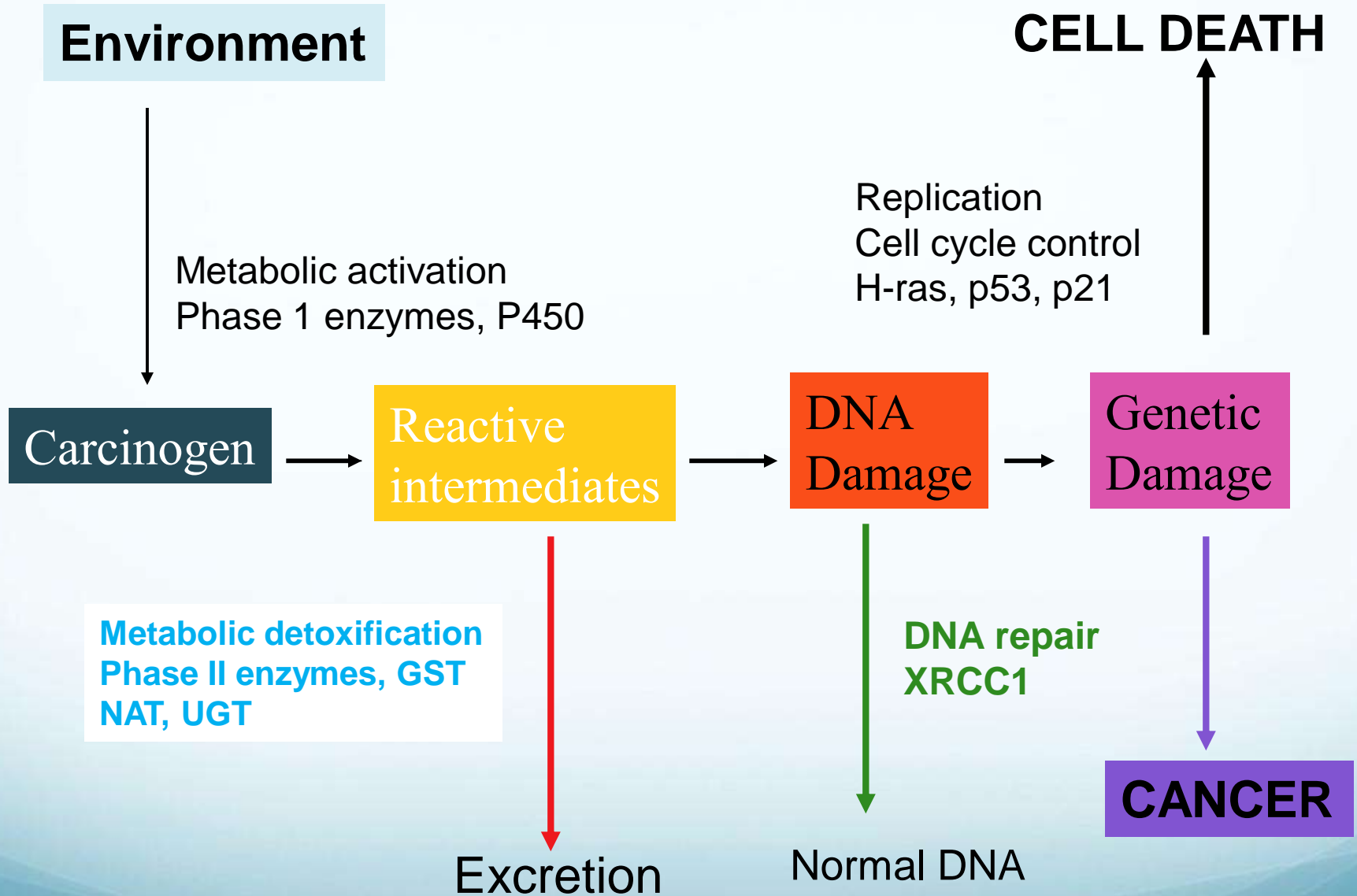
Will cause childhood cancers.

➤ Somatic Alterations : More frequent.

Accumulated Over A Period of Time  
Due to:

- **Inherent Effect of Cellular Proliferation.**
- Effects of Man Made Environmental
- Toxins Also Called

## **Carcinogens**



# **Carcinogens**

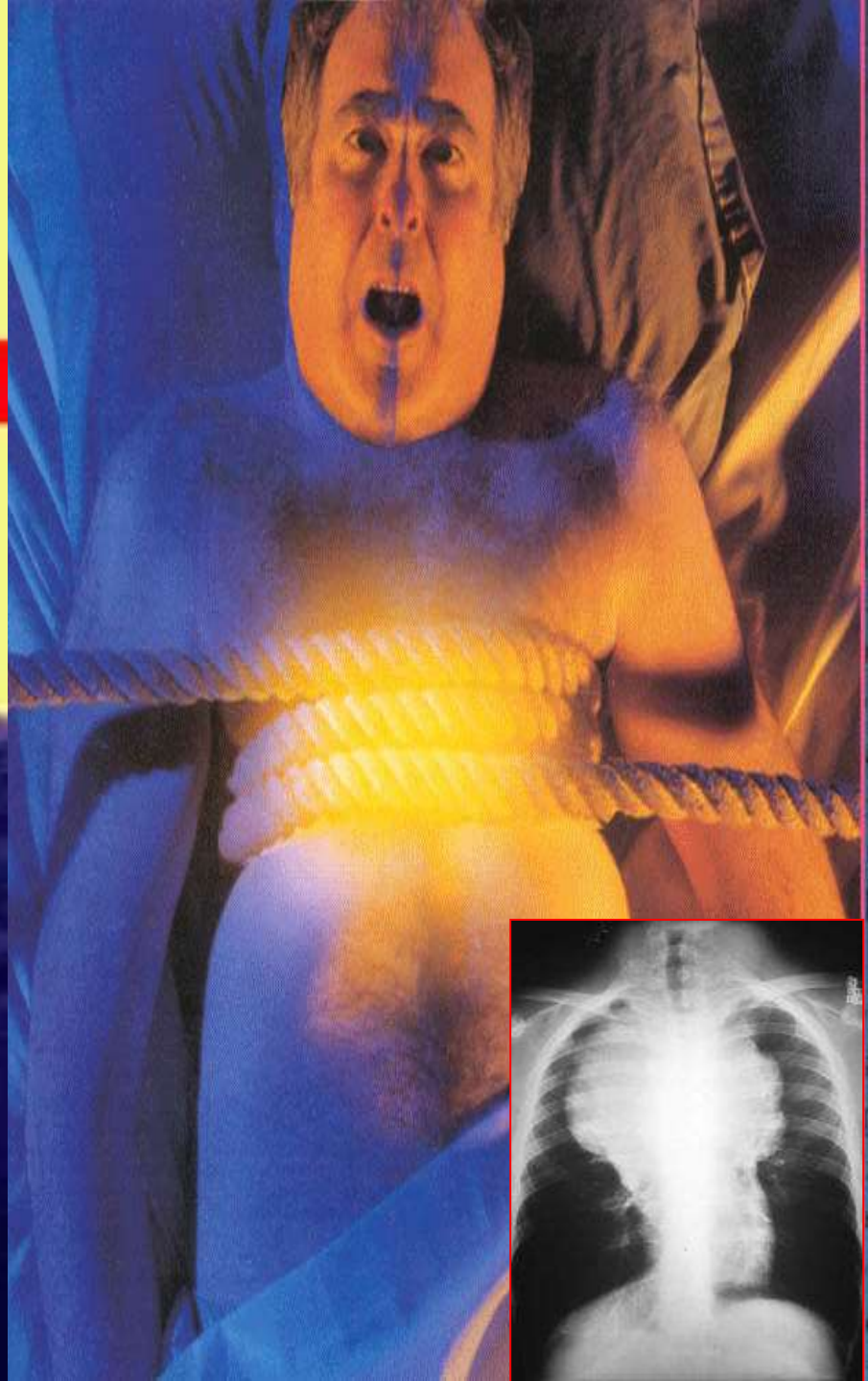


## Carcinogens enter the body through:

- Air
- Water
- Food
- Clothing
- Vehicle



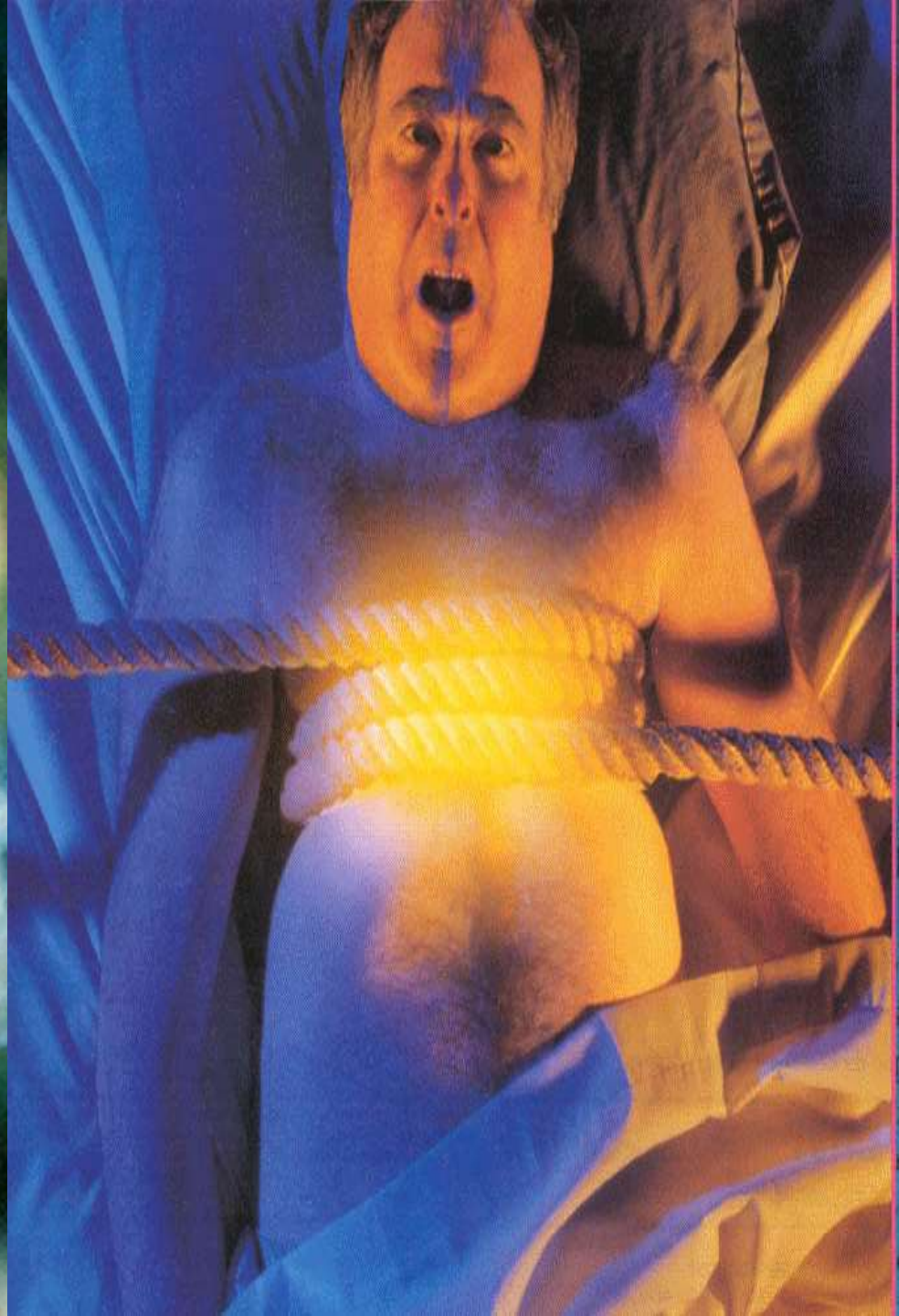
# Adulterated Air



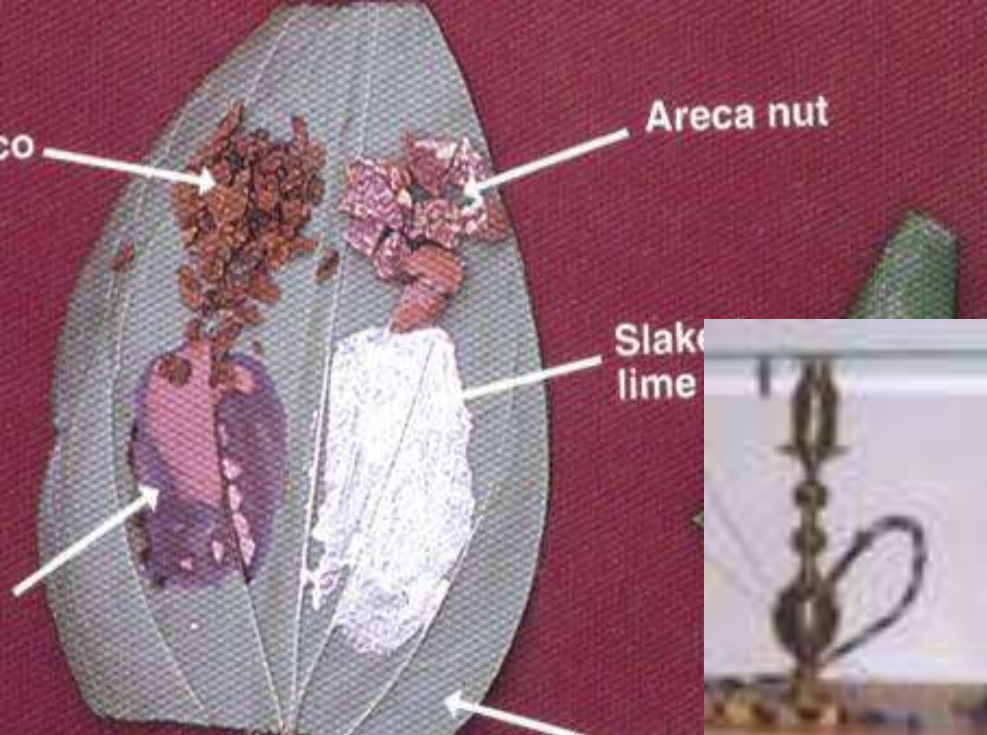




# Smoking









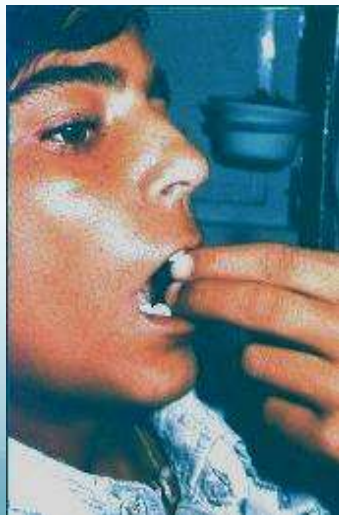




**Gutka industry grew from 0 to \$ 500m in 15- 20 yr**

- **One of the highest growing industry - 25-30% / yr**





# Mouth Cancer



**50 times more  
likely to die from  
cancer of the mouth.**

**Throat cancer**



**10 times more likely to die  
from cancer of throat.**

# Lung Cancer



**12 times more likely to die  
from lung cancer**





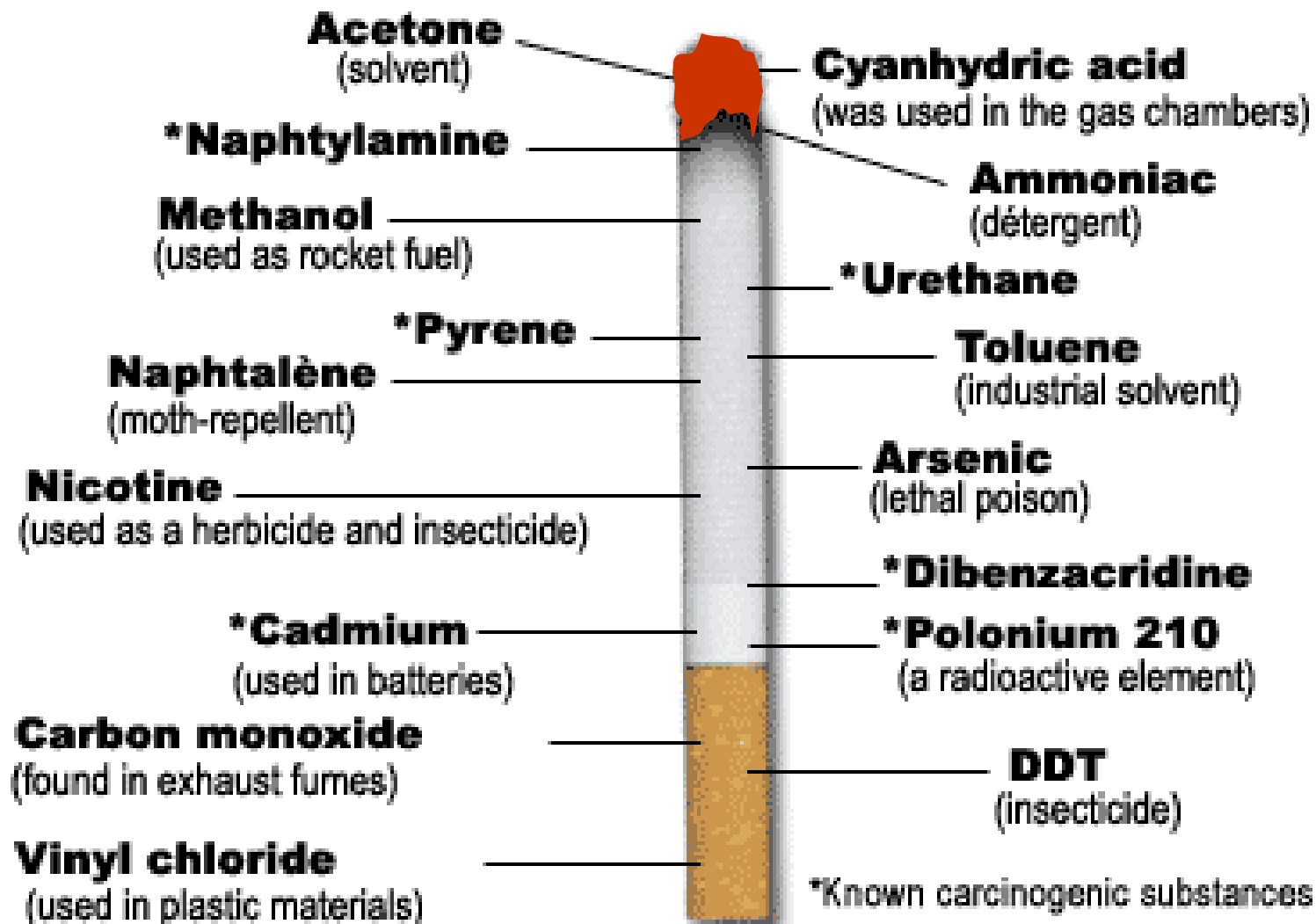
# What's Inside?

## Some chemicals...



**60 carcinogens**

# DANGER POISON !





**Violent**



**Silent**



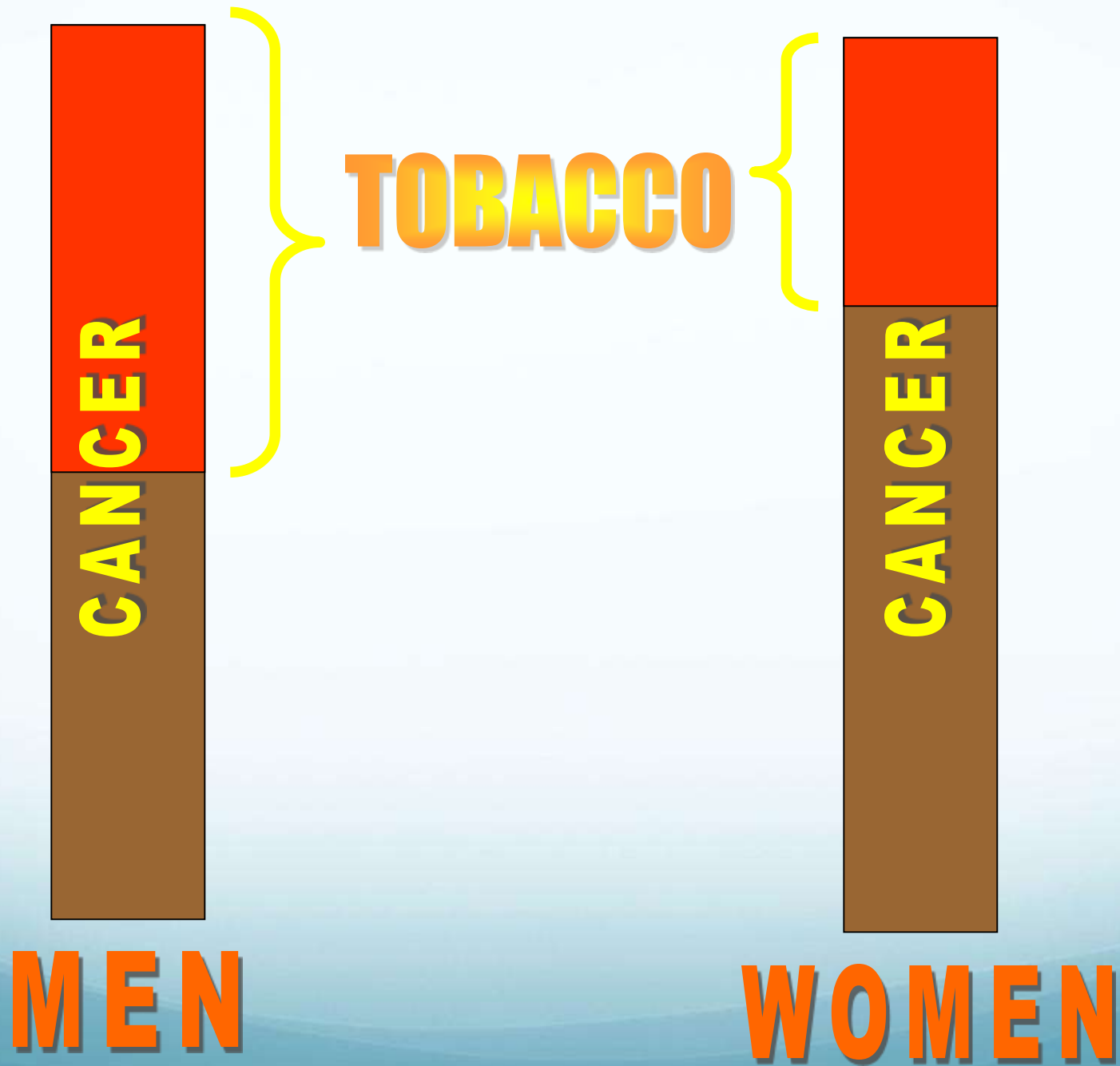
**Smoke: Tobacco > Nuclear**



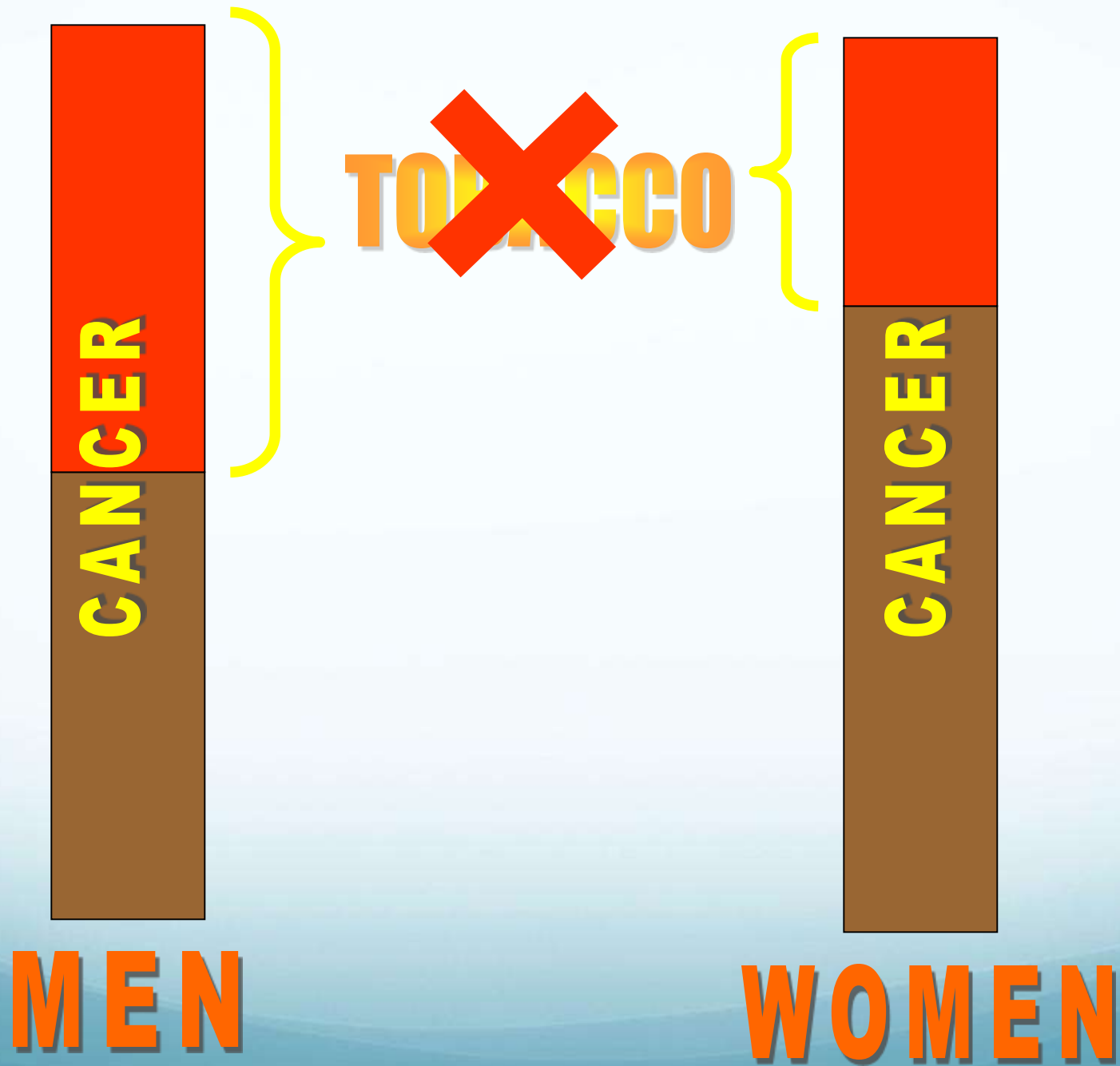
**2200 deaths every day**

**One death every 10 seconds.**

**Tobacco**





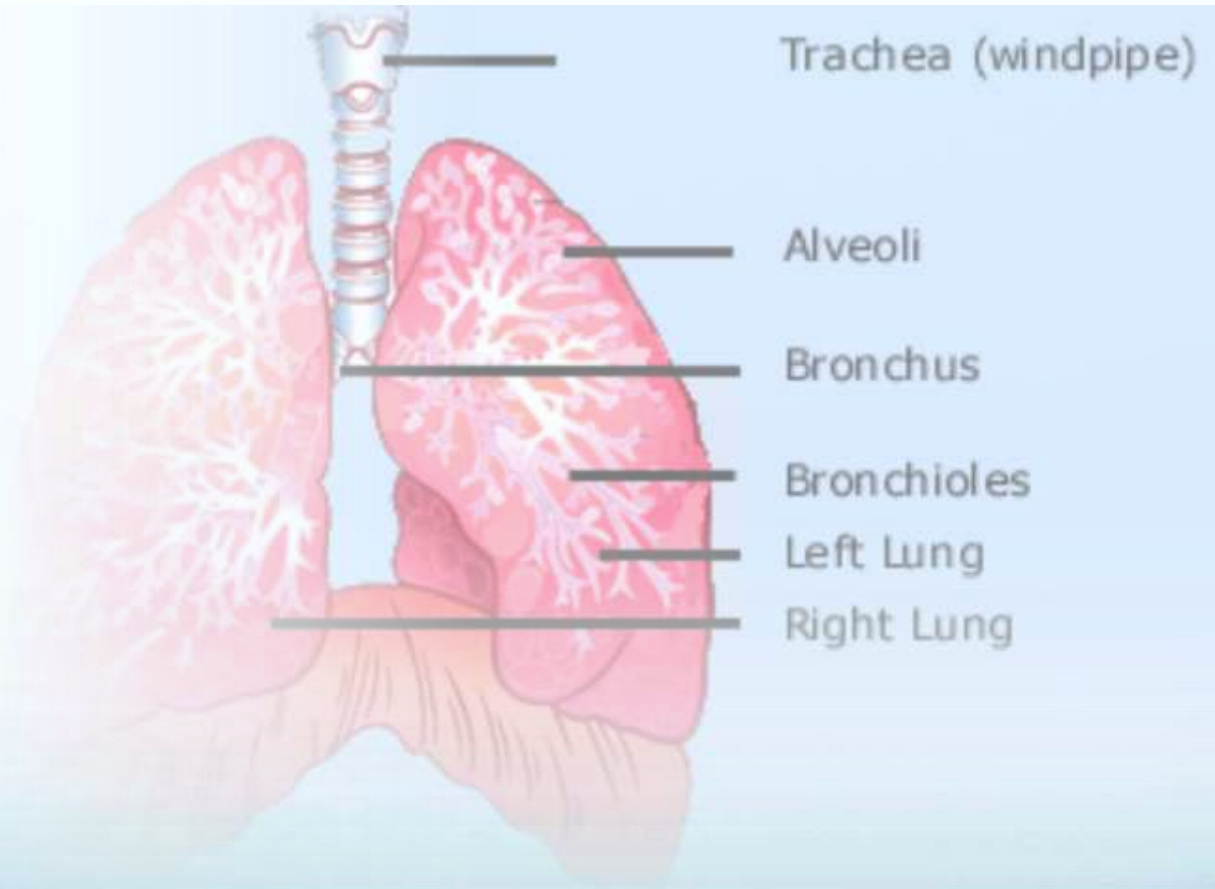


# Most Common Cancers:

- Lung Cancer
- Breast Cancer
- Stomach Cancer
- Cervical Cancer
- Head and Neck Cancer
- Colon and rectal Cancer
- Gall Bladder Cancer

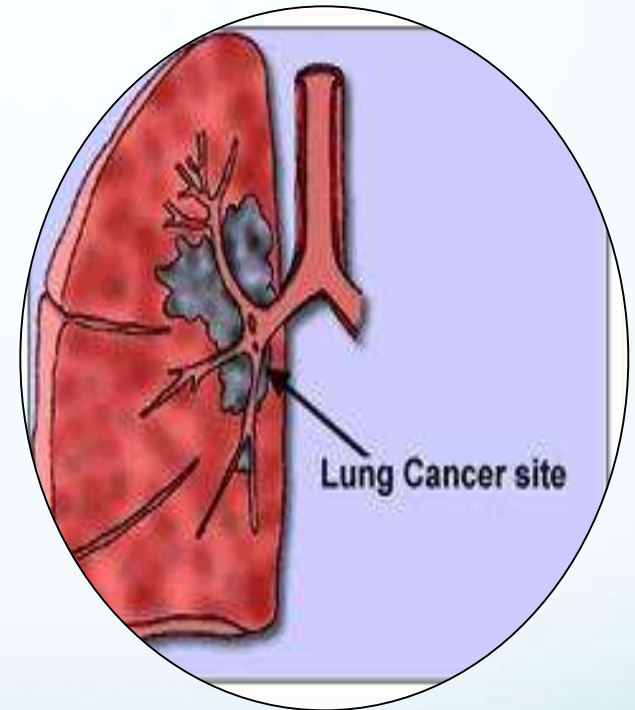


# Lung Cancer:

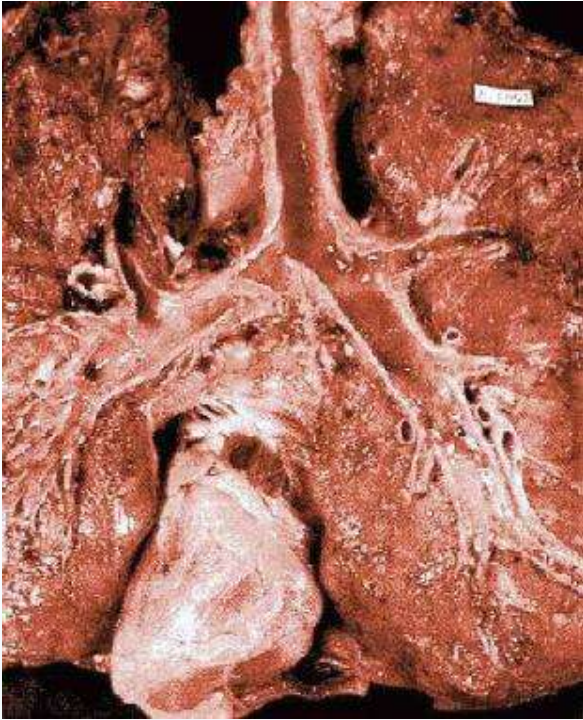


# Lung Cancer:

- Leading killer worldwide.
- While normal lung tissue cells reproduce and develop into healthy lung tissue, these abnormal cells reproduce rapidly and never grow into normal lung tissue
- Lumps of cancer cells (tumors) then form and disrupt the lung, making it difficult to function properly



# Lungs



Normal Lung



Lung with cancer



Coronal Phase 0%

Ex: 4664

Se: 10 +c

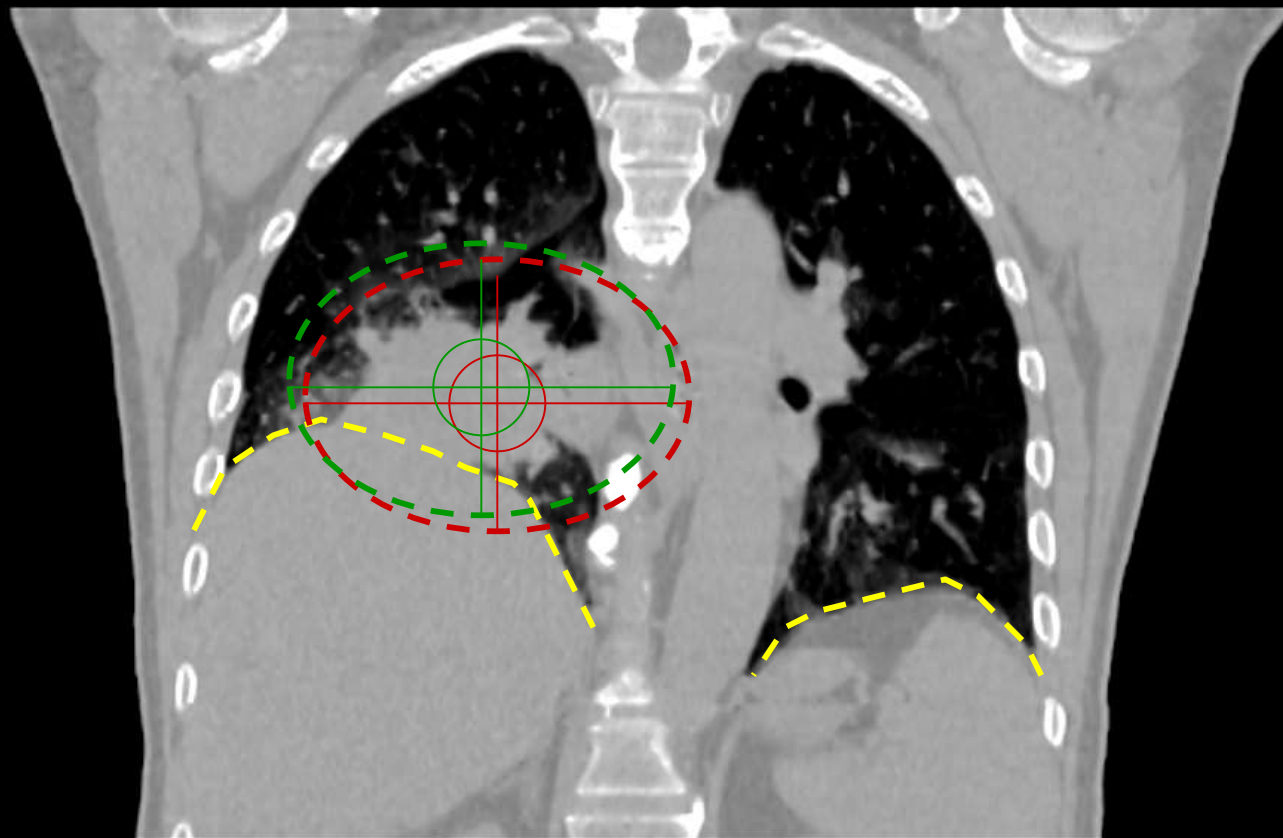
P: 18.1

2.5 mm/2.5sp

DFOV 50.0cm

S 221

R



L

1.0 /

W = 1789 L = -219

I 279



# Lung Cancer Risk Factors - Smoking

## Smoking has been implicated in:

- 80% of lung cancer deaths in men.
- 75% of lung cancer deaths in women.
- 17% of lung cancer cases in nonsmokers.
- 28% of all cancer deaths.

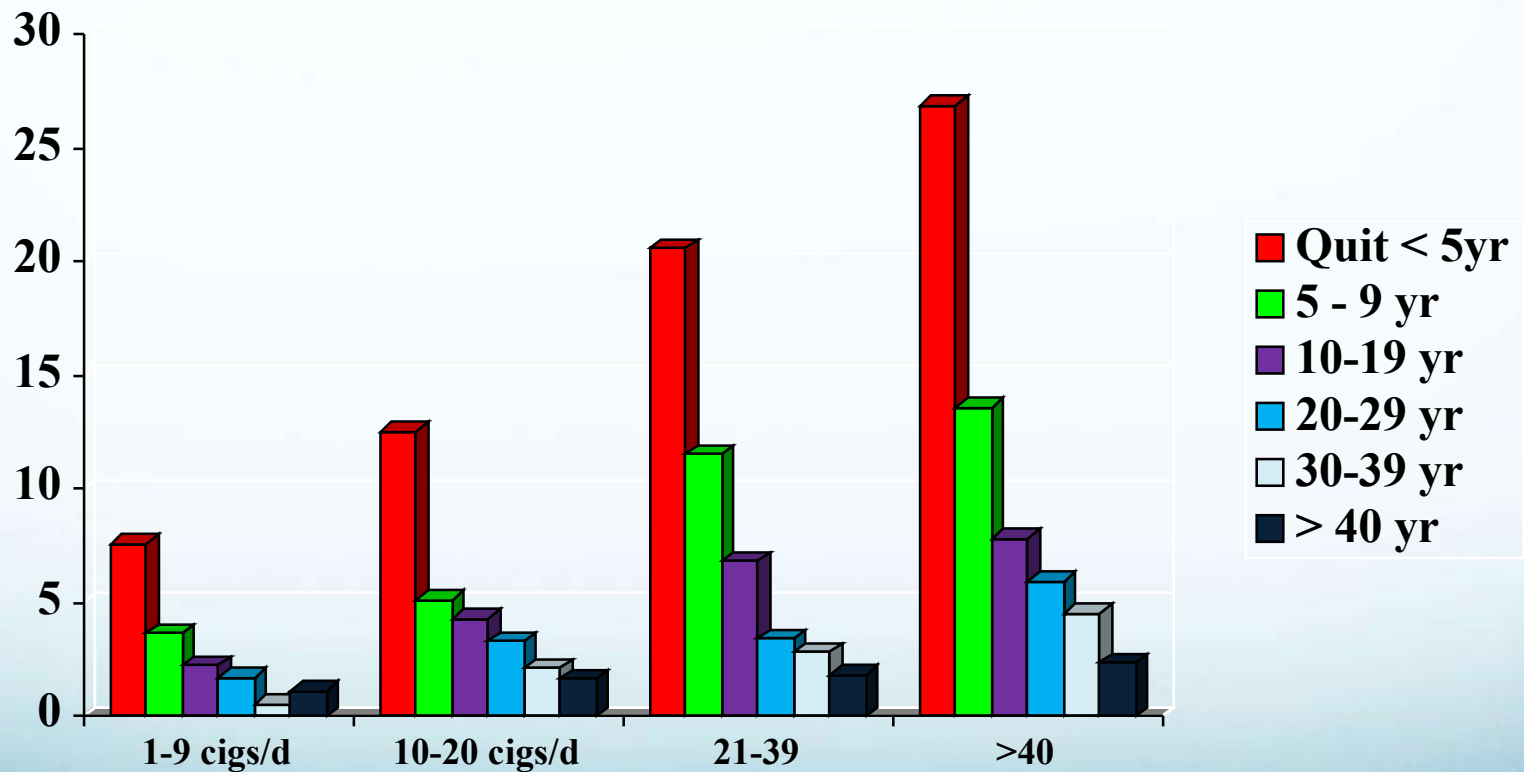
## 35-year old male who smokes $\geq 25$ cigarettes per day:

- 13% risk of dying from lung cancer before age 75.
- 10% risk of dying from coronary disease.
- 28% risk of dying from smoking-related disease.

## **Lung Cancers** contd...

- More than 87% of lung cancers are smoking related.
- Quitting smoking reduces an individual's risk significantly, although former smokers remain at greater risk for lung cancer than people who never smoked.

# Smoking Cessation and Lung Cancer



## Lung Cancer - Impact of smoking on risk

Cigarettes smoked/day	Risk of developing lung cancer*	Risk after 16 years of smoking cessation*
1-20	10.3-fold	1.6-fold
≥20	21.2-fold	4.0-fold

\*Data in women; risk compared to nonsmokers.

# Lung Cancer - Risk factors other than smoking:

- Asbestos
- Radon (from mining or indoor exposure)
- Other “occupational carcinogens”
  - Chloromethyl ether
  - Chromium
  - Nickel
  - Arsenic
- Diet (vitamins A, C, E,  $\beta$ -carotene deficiencies)
- Genetic/familial factors

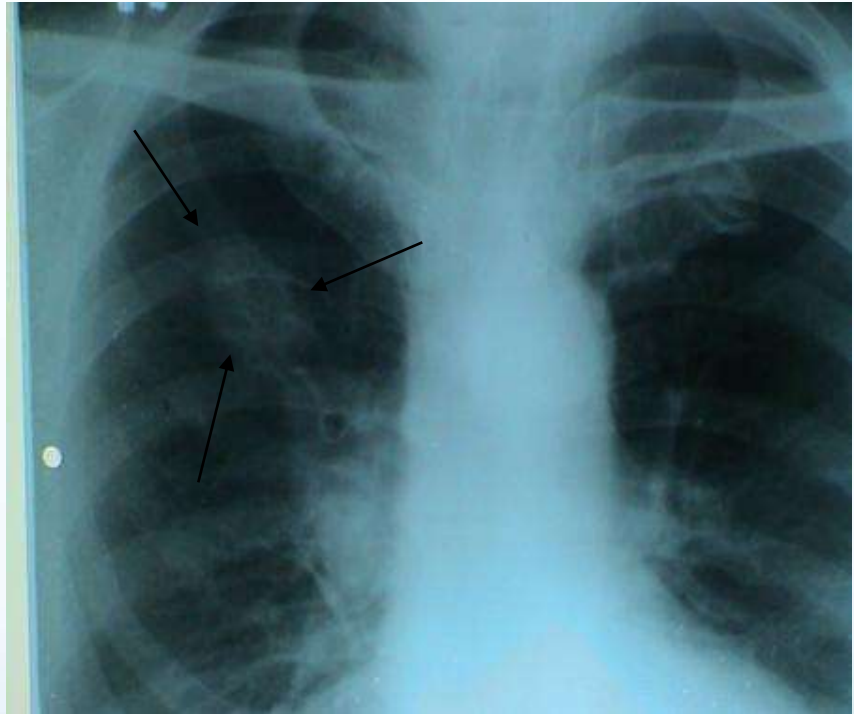
# Symptoms:

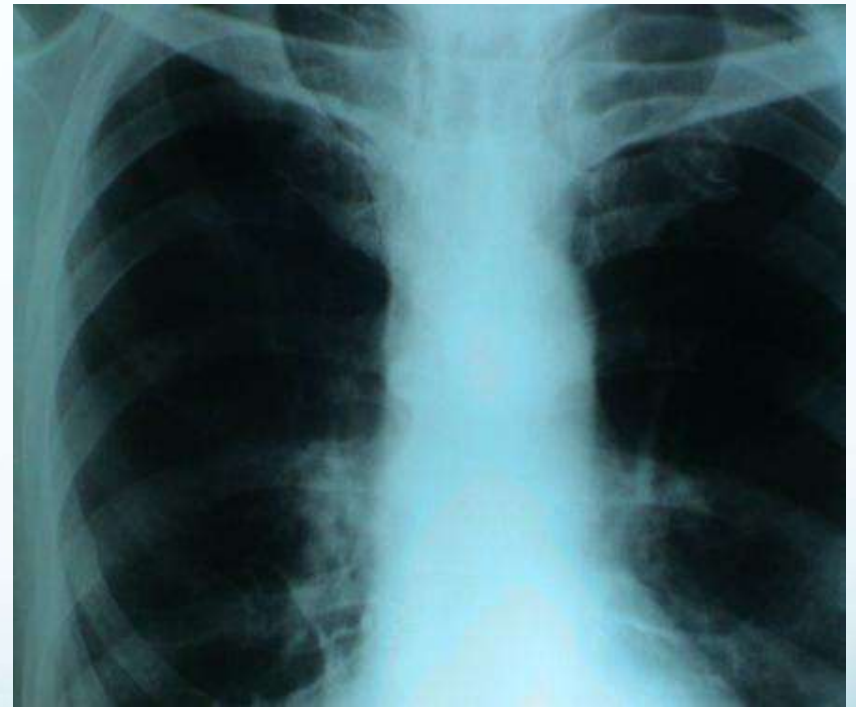
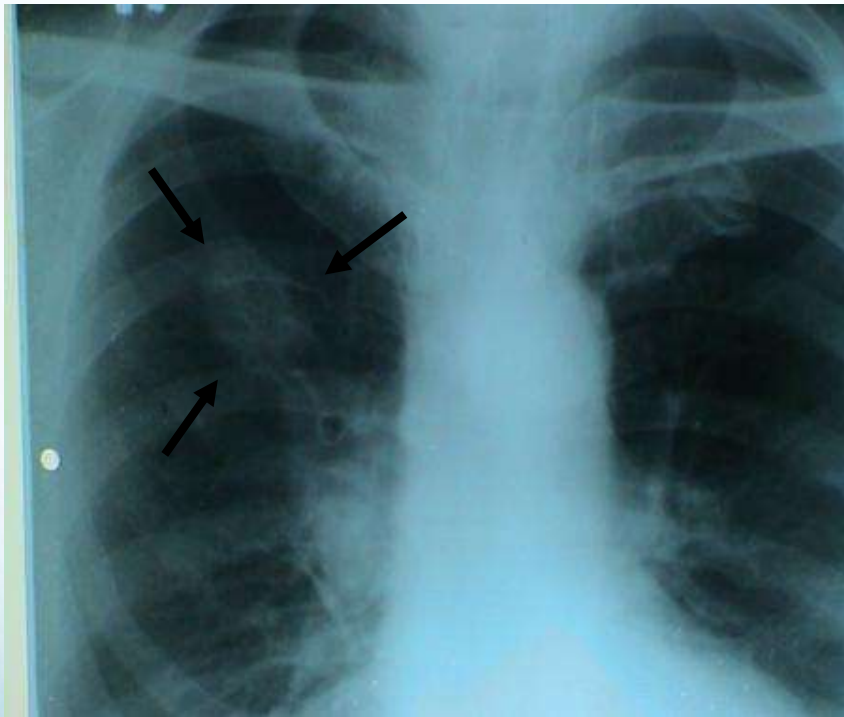
- Having a cough most of the time.
- A change in a cough you have had for a long time.
- Being short of breath.
- Coughing up phlegm (sputum) with signs of blood in it.
- 
- An ache or pain when breathing or coughing.
- Loss of appetite/Fatigue/Losing weight

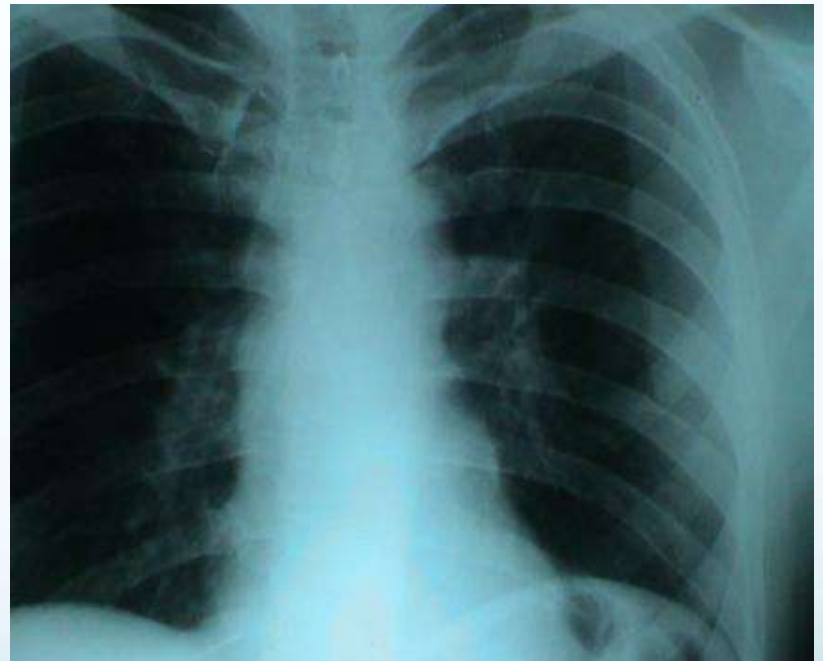
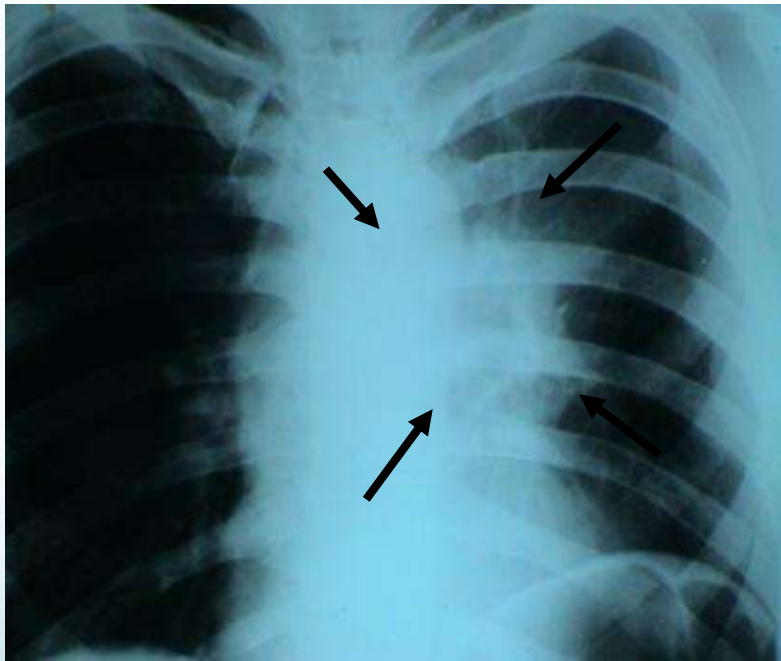


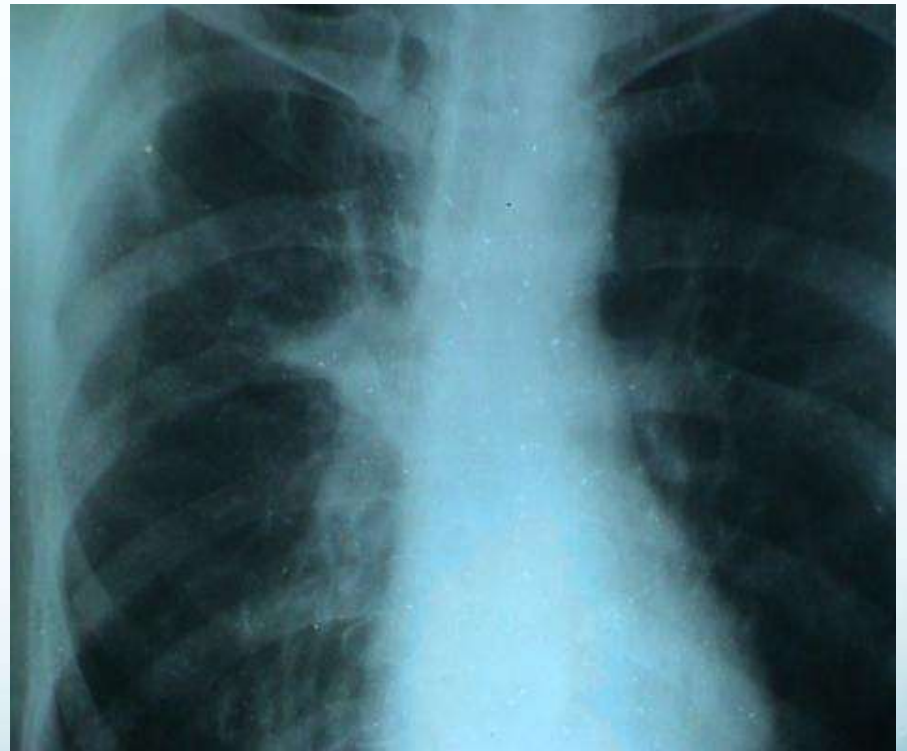
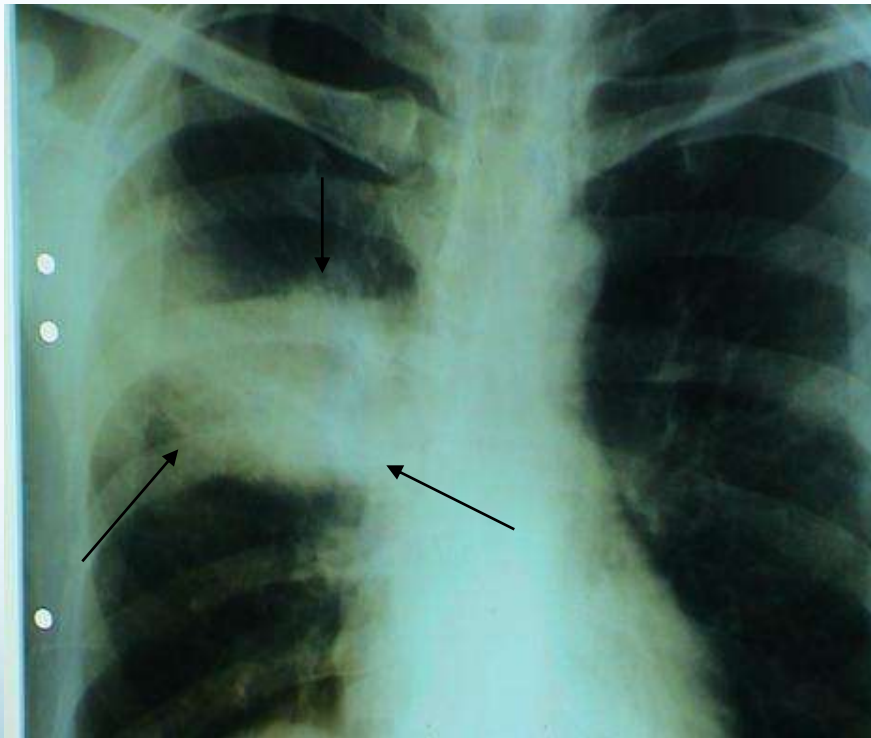
# Screening for Lung cancer:

- Early detection of lung cancer is critical to improving survival.
- Testing people who are known to be at high risk for developing lung cancer can help to find tumors that are small and more easily treated

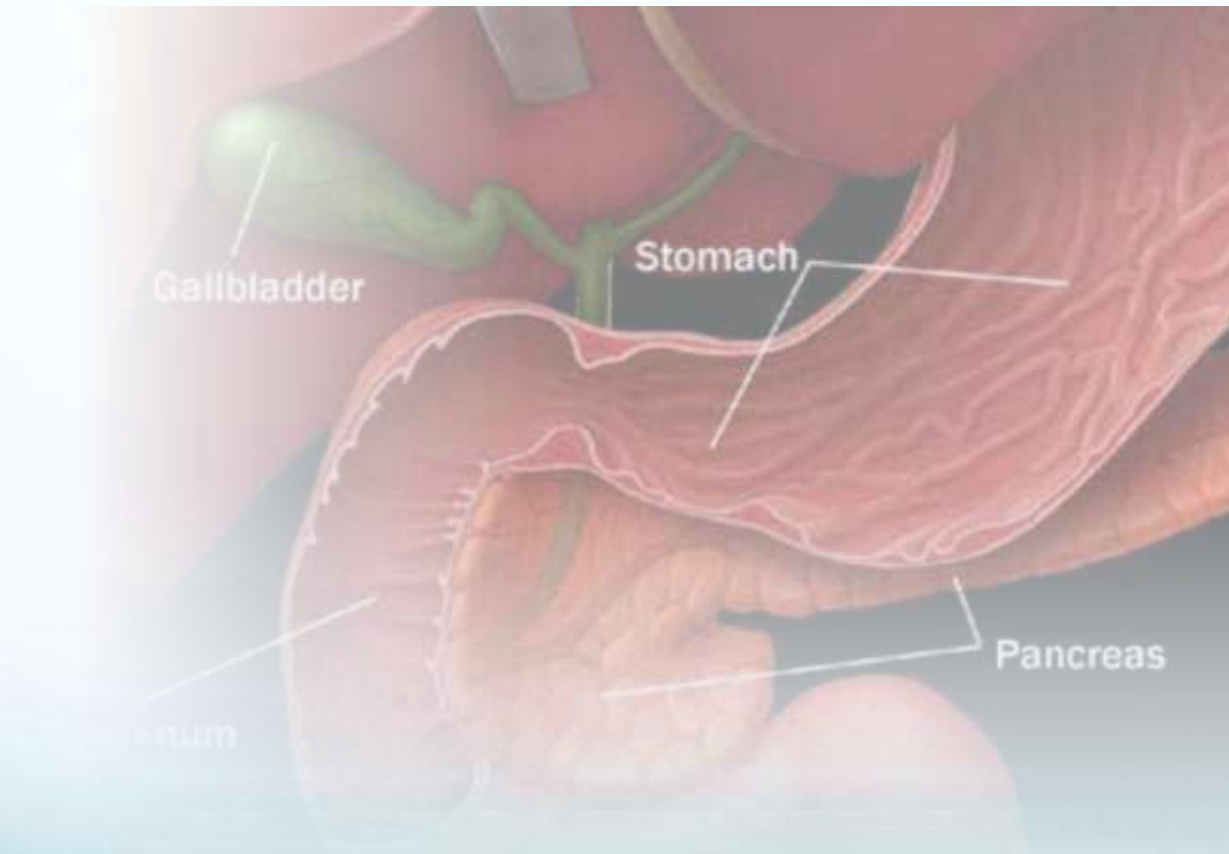








# Gastrointestinal Cancers:

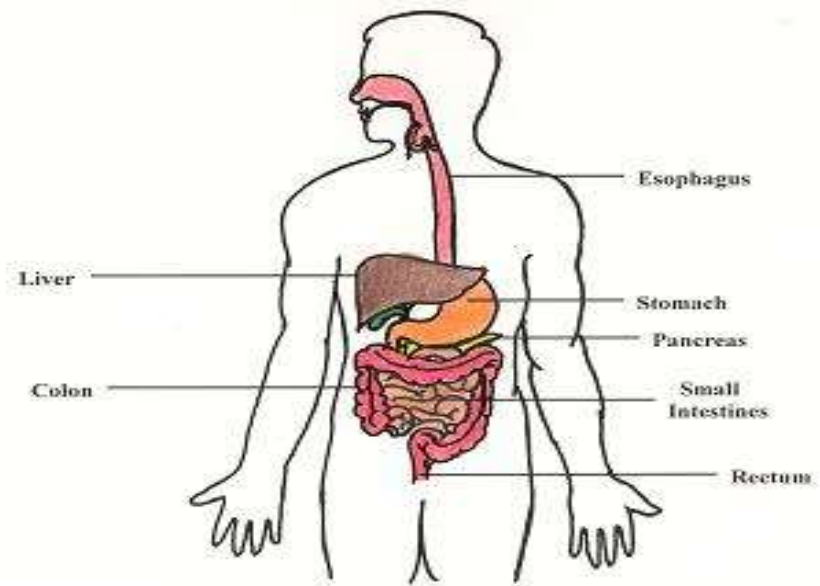




# Gastrointestinal cancers:

## Includes:

- Cancer of food pipe
- Cancer of Stomach
- Cancer of large intestine
- Cancer of the rectum
- Cancer of Gall Bladder



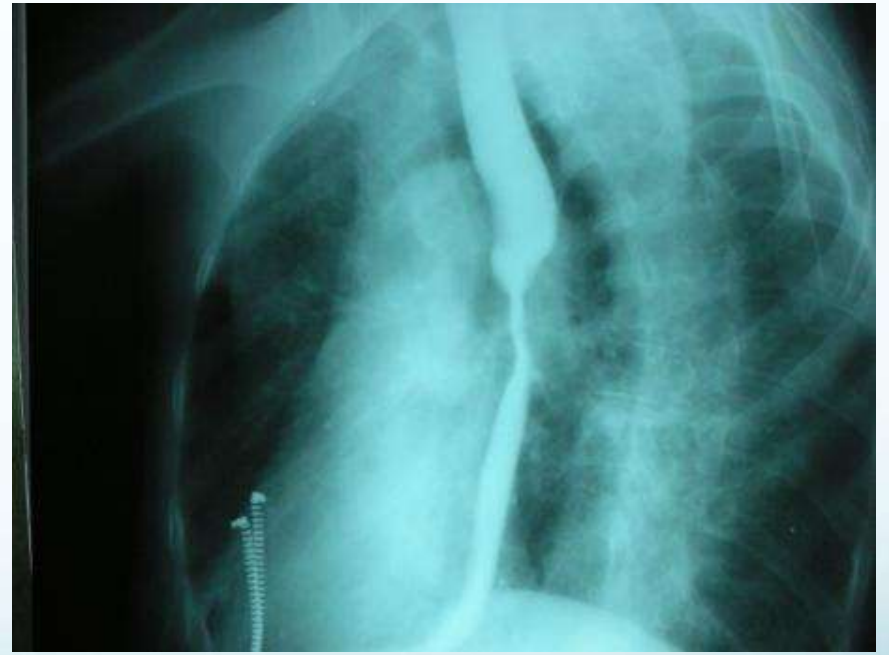
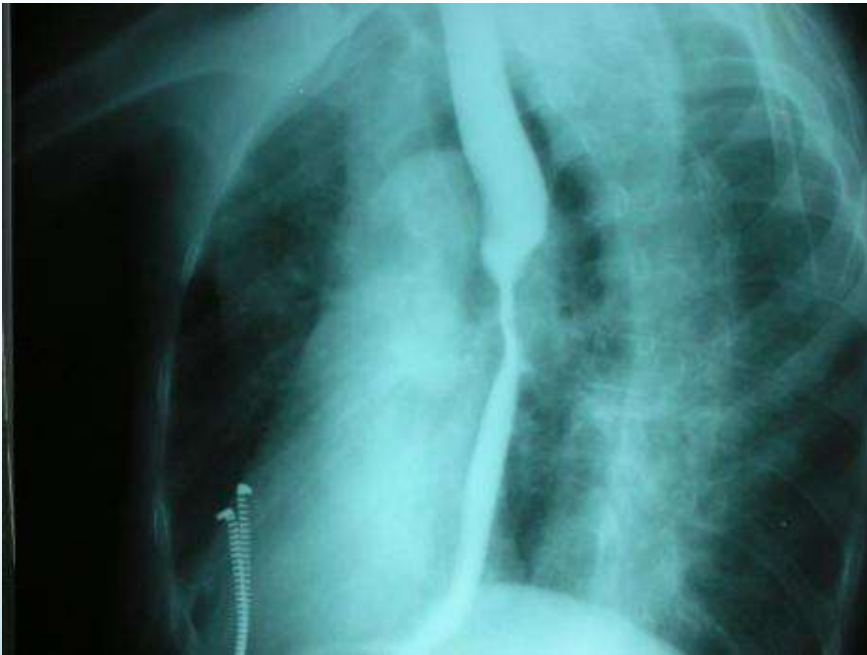
# Cancer of food pipe & Stomach:

One of the common cancers in developing world

## **Risk factors:**

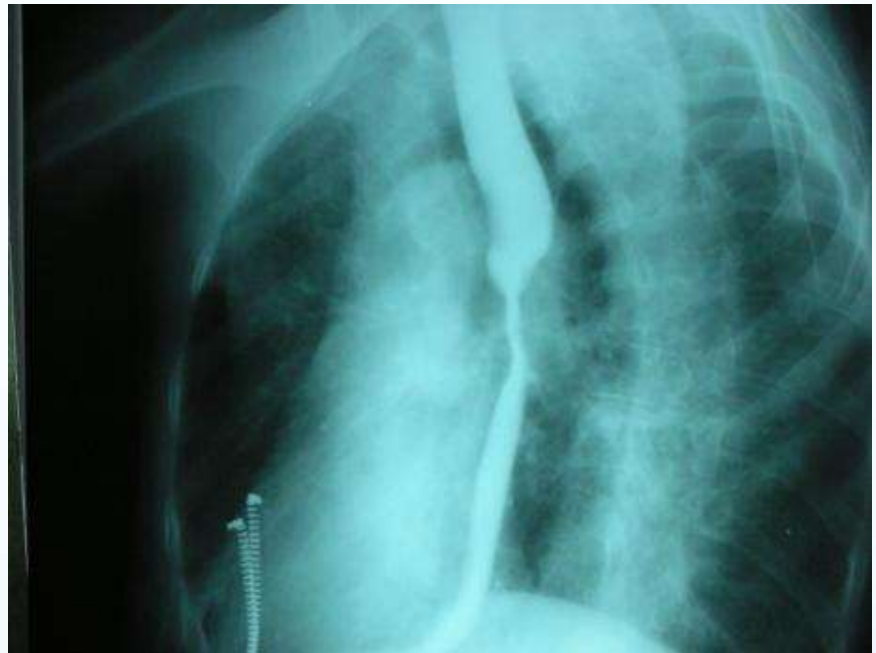
- Smoking.
- Alcohol.
- Iron deficiency/ Deficiency in micronutrients.
- Infection with *Helicobacter Pylori*.
- High salt food / High use of smoked food .

# Cancer of food pipe:



# Symptoms of food pipe/stomach cancer:

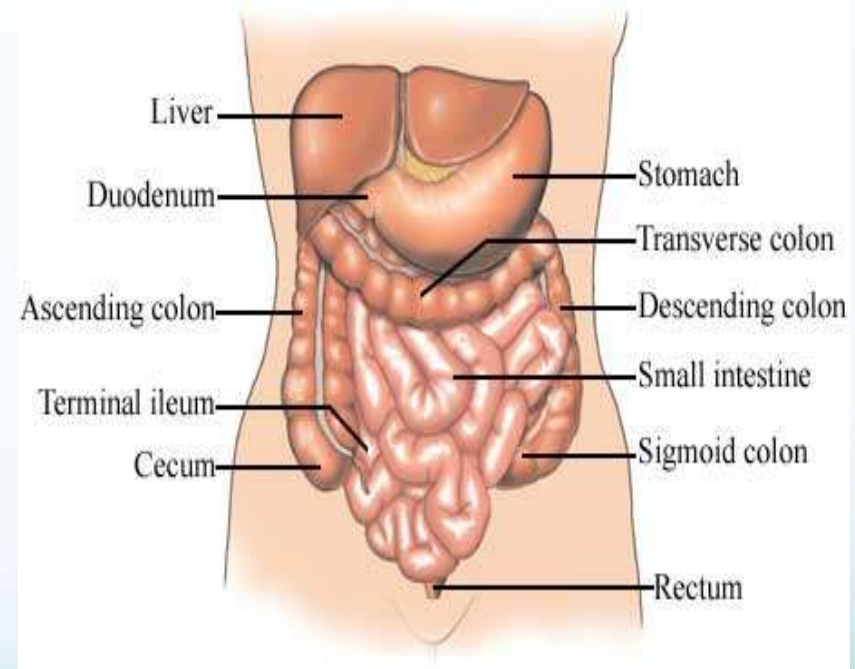
- Difficulty in swallowing.
- Discomfort in the food pipe.
- Indigestion.
- Heartburn
- Loss of appetite/ loss of weight



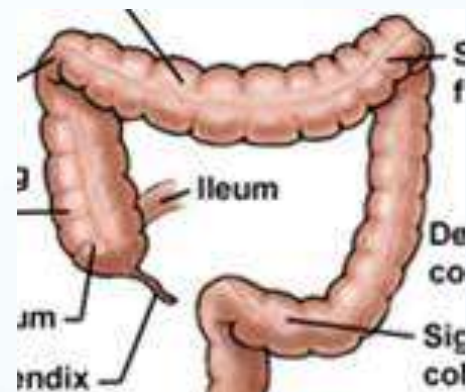
**As these symptoms can be associated with other conditions such as Ulcer, the Doctor can determine the cause and suggest way forward**

# Colorectal Cancer - Risk Factors:

- **Diet** - Diet high in fat, low in fruits and vegetables, and low in high-fiber foods such as whole-grain breads and cereals.
- **Family history** - Close relatives of a person who has had colorectal cancer have a higher than average risk of developing the disease. The risk for colon cancer is even higher among members of a family in which many relatives have had it. (In such cases, the disease is called familial colon cancer.)







## Symptoms:

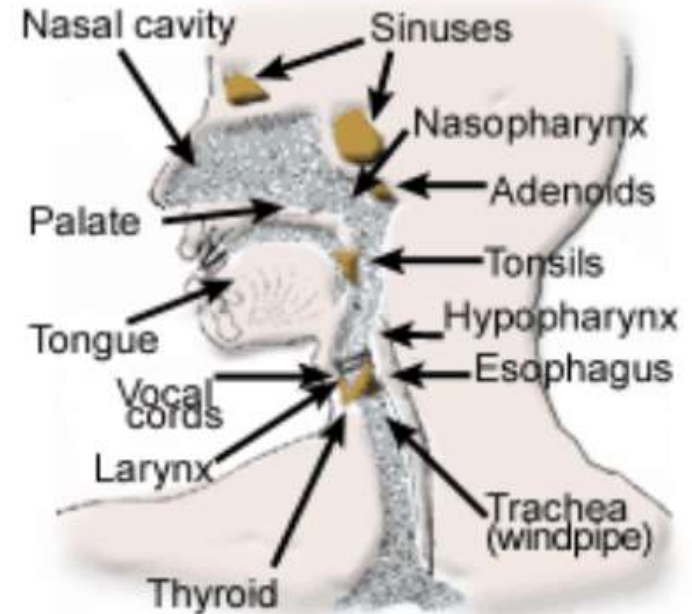
- Change in bowel habits.
- Diarrhea or constipation.
- Blood in or on the stool (either bright red or very dark in color)
- Stools that are narrower than usual.
- A feeling that the bowel does not empty completely
- Weight loss with no known reason/Constant tiredness

# Head & Neck cancers:



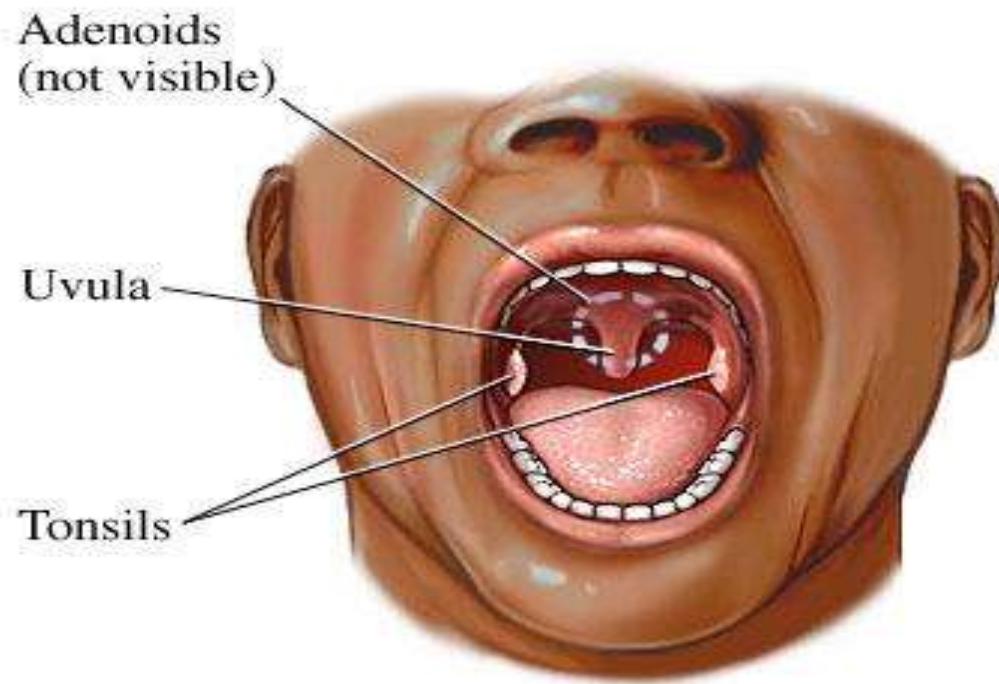
# Head & Neck cancers:

- Oral cavity
- Pharynx
- Nasopharynx
- Larynx
- Salivary glands
- Paranasal sinuses and nasal cavity



# Tumors of Oral Cavity

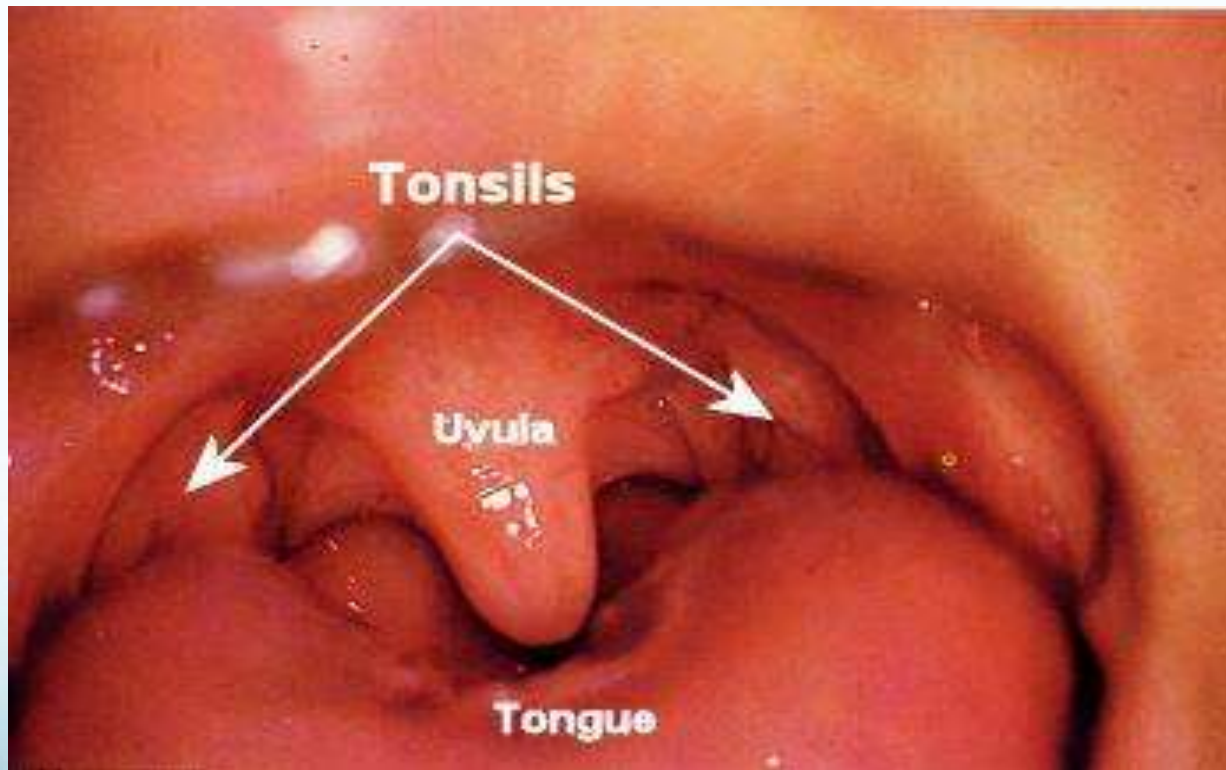
Khaini, Tobacco, Gutka, Pan masala





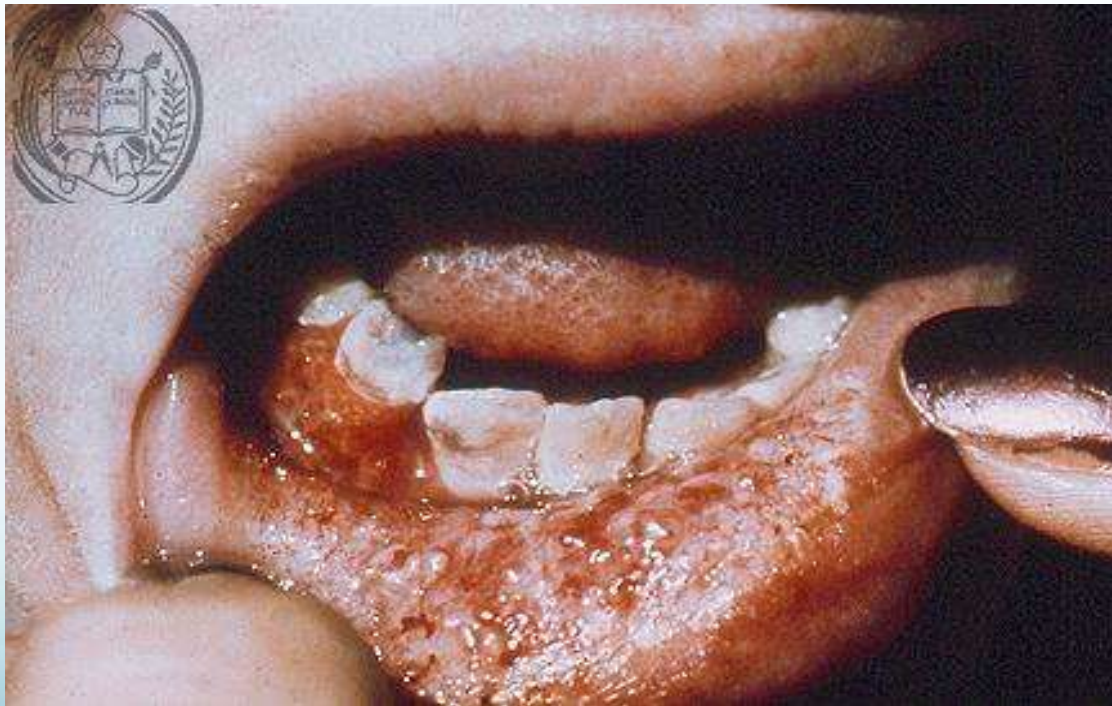
## Tumors of throat:

Cigarette smoke, tobacco and pan masala



# Tumor of Lower Lip:

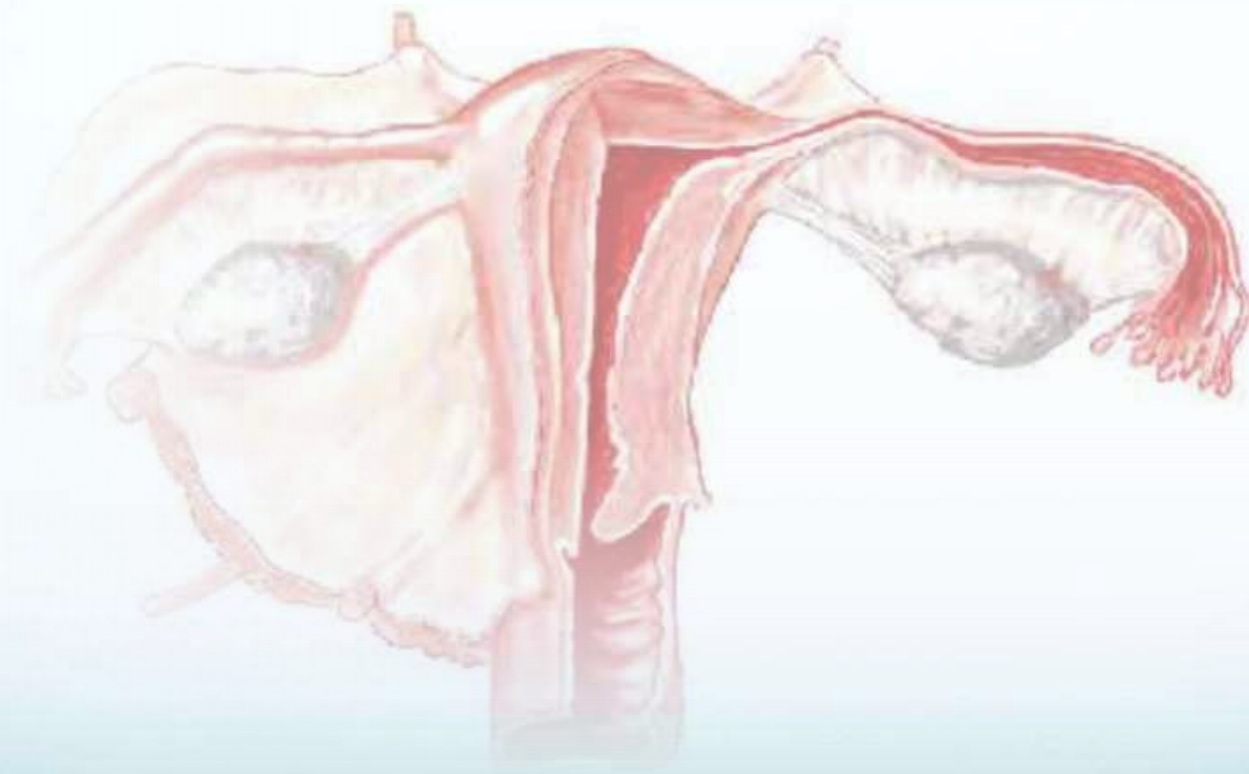
Cigarette smoking and Khaini



# Symptoms of Head & Neck cancer:

- Lump in neck.
- Sore that does not heal, a sore throat that does not go away.
- Change or hoarseness in the voice.
- **Oral cavity**: A white or red patch on the gums, tongue, or lining of the mouth; a swelling of the jaw that causes dentures to fit poorly or become uncomfortable.
- Unusual bleeding or pain in the mouth.

# Womens' Cancers:

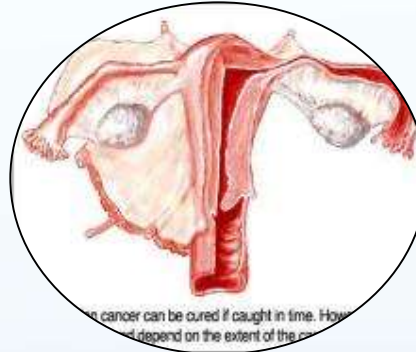


# Major Womens' Cancers:

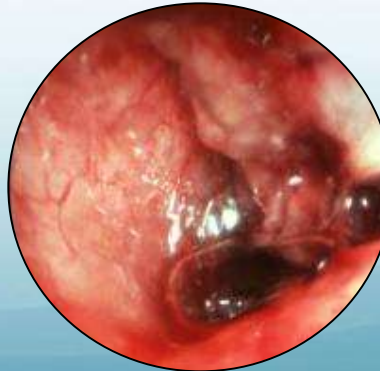
- **Breast Cancer**



- **Ovarian Cancer**



- **Cervical Cancer**





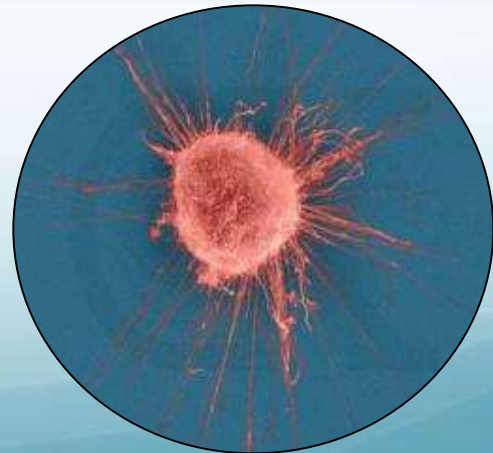
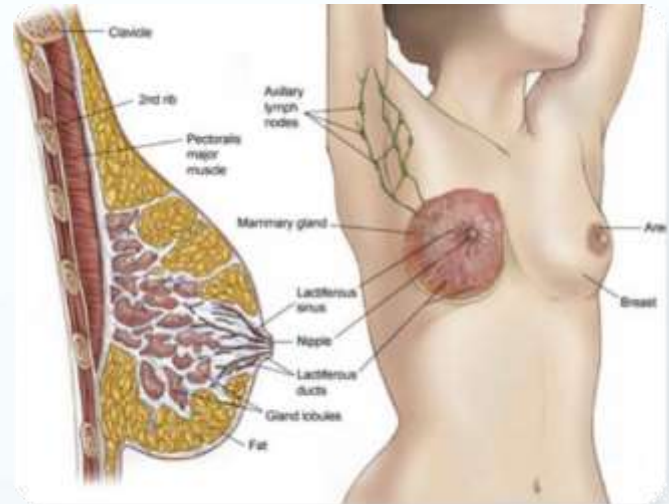


- **Type A personality**
- **Spinster**
- **No Children**
- **Late Children**
- **No Breast Feeding**



# Breast cancer:

- Abnormal cell growth in lobes or ducts of breast
- Breast cells grow out of control
- Cells clump together forming a mass



# Breast cancer in India:

- Breast cancer is amongst the leading cancers in women
- The incidence varies between urban and rural women; the incidence in Mumbai is about 27 new cases per 100,000 women per year while in rural Maharashtra it is only 8 per 100,000<sup>1</sup>
- Cancer of the breast is common among women in Delhi with incidence rate 25.4 per 100,000<sup>2</sup>

# Breast cancer:

- Early detection can help it treat successfully
- Awareness of the symptoms is very important
- Self Breast Examination is a key to detect any abnormal changes in the breast



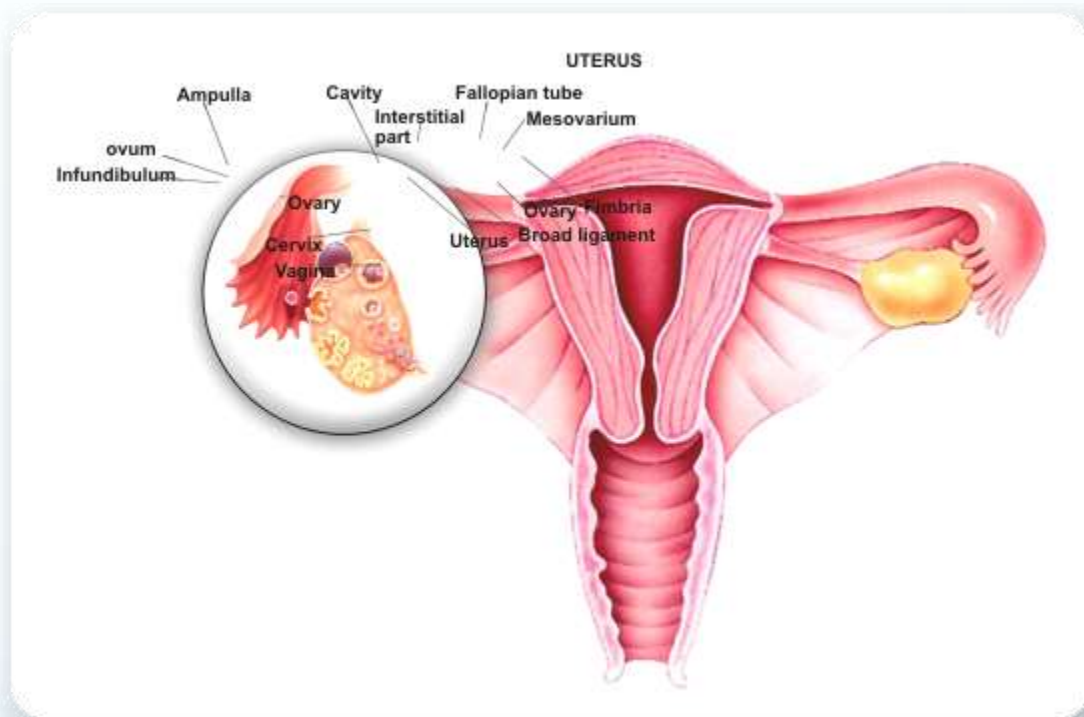
# Risk Factors for Breast Cancer:

- Relative (mother or sister)
- Menstrual history:
  - early onset
  - late menopause
- Child birth
  - After the age of 30
- Obesity
- Life Style
- Genes-BRCA 1, 2





# Ovaries:



# Ovarian Cancer:

- Second most common gynecological cancer.
- Leading cause of death among gynecological cancers.
- Approximately 70 % of patients are diagnosed with advanced disease.
- The overall 5-year survival rate is only 30 %.
- In India Ovarian cancer is a leading site of cancer constituting around 5% cancers in women.

# Ovarian Cancer - Risks

- Family history of ovarian cancer.
- Postmenopausal use of hormone replacement therapy (HRT).
- Use of fertility drugs.
- Agents such as asbestos-contaminated talc.
- Increased intake of meat and animal fat.
- History of no children.
- Genetic Risk: BRCA1, BRCA2.

# Ovarian Cancer - Symptoms

- Stomach ache and abdominal discomfort accompanied by a feeling of bloatedness or fullness of the stomach.
- Abnormal vaginal bleeding.
- Sudden weight gain or weight loss without any apparent reason.
- Loss of appetite.
- Nausea, vomiting, constipation and frequent urination in some cases.

# CERVIX CANCER

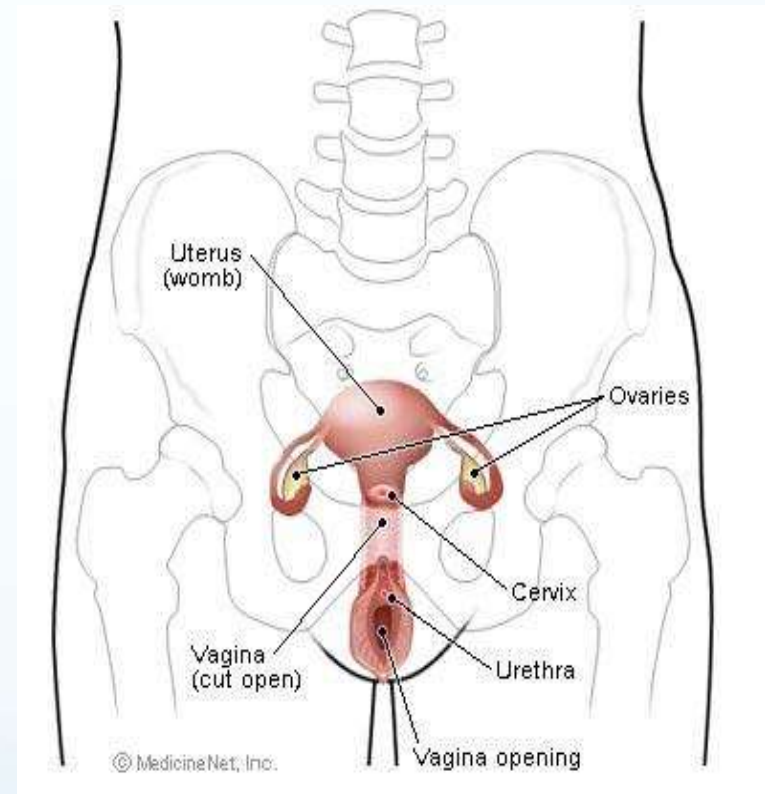


- **Poor Hygiene**
- **Unsafe Sex**
- **Multi-parity**



# Tumor of Uterine Cervix:

- Excessive partners.
- Early age at marriage.
- Sexually Transmitted Diseases.
- Cigarette smoking & poor vaginal hygiene.





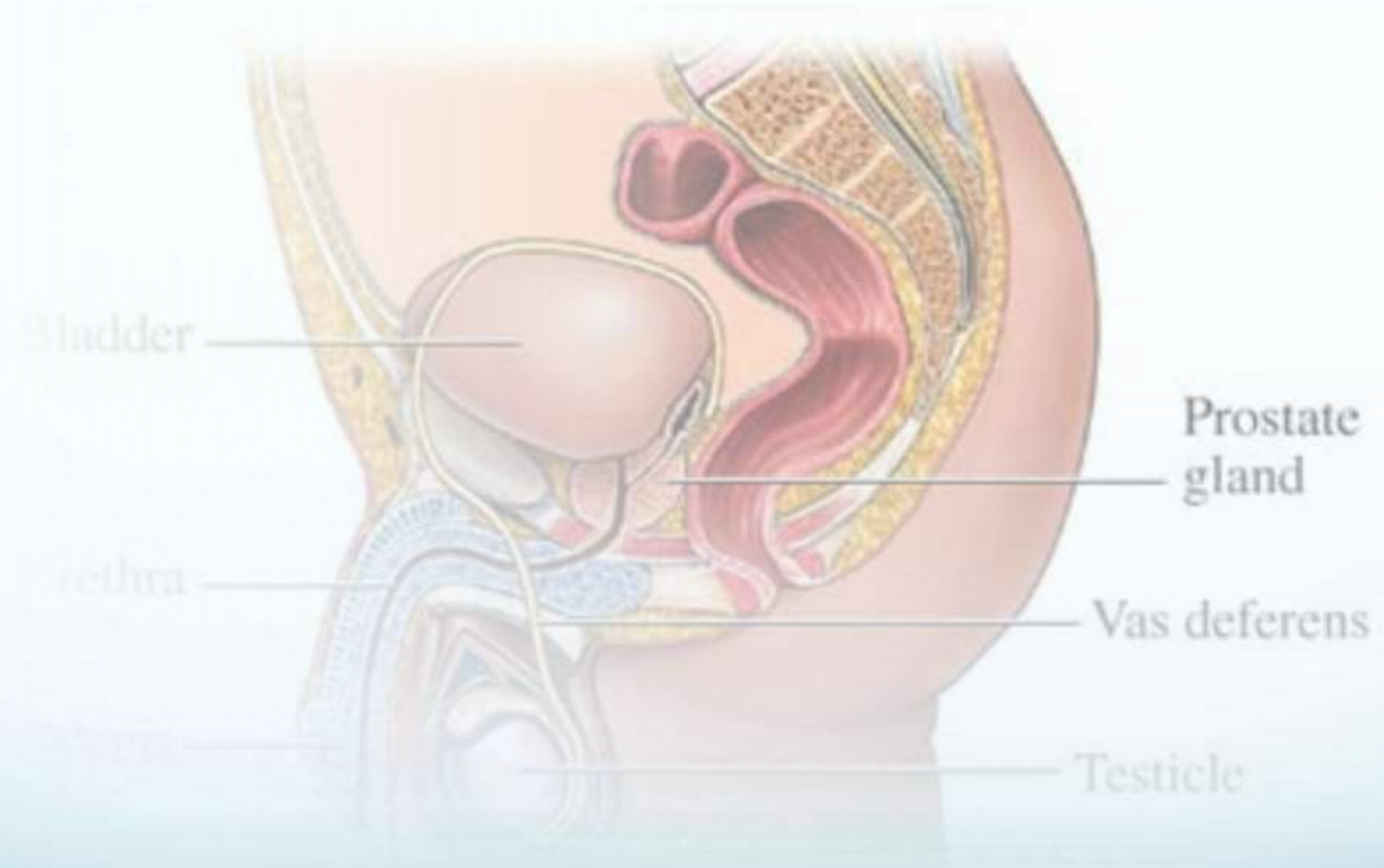
# Cervical cancer - Signs & Symptoms

- Cervix is usually indurated and hard to feel, friable, easily bleeds on touch and its mobility may be restricted or lost.
- Asymptomatic in early cases/ preclinical stage.
- Haemorrhage- Metrorrhagia / Post coital.
- Discharge- watery, offensive, blood stained.
- Cachexia and Pain-in advanced cases.

# Investigations:

- PAP smear examination.
- Colposcopy.
- Biopsy: -
  - Excisional biopsy is preferable to punch biopsy
  - Employing Schiller's test / Acetic acid test helps in selecting the biopsy site where the growth is not obvious.
  - Cone biopsy in early cases
- Endocervical curettage.

# Prostate cancer:





# Prostate Cancer:

- Most commonly diagnosed cancer in men after 50.
  - Life time risk -30% (microscopic)
  - Risk of developing clinical disease -10%
- Incidence : 36% of all cancers in males.
- Prostate cancer is inherently biologically heterogenous

# **Prostate Cancer Signs & Symptoms:**

- Urgency of urinating or Frequent urination.
- A condition may be experienced in which urination is more in the nights called nocturia.
- Hesitancy may also be a prostate cancer symptom in which difficulty starting urination can be experienced.
- 
- Maintaining a steady stream of urine.

## **Prostate Cancer – Diagnosis:**

- Digital Rectal Examination (DRE).
- Prostate Specific Antigen (PSA).
- Transurethral ultrasound.

# Tumor of Gall bladder

Excessive fat intake in diet



# **Tumors of Eye**

(Retinoblastoma in children)

White reflex







# Skin Cancers



# **What you can do to prevent Cancer ?**

# Say Yes To:

## Ist:

**A low calorie diet taken as small meals periodically that should include:**

- At least 5 servings of fruits and vegetables per day.
- Poultry products (chicken, duck, geese) and sea food (fish, shell fish etc.).
- Fibrous foods (whole grain cereals, brown rice), fresh fruits and vegetables (tomatoes, citrus fruits, carrots, green leafy vegetables).

## Say yes to (contd.):

- > Drinking at least 6 - 8 glasses of filtered water daily.  
Healthy oils (vegetable oil or olive oil).
- > Quality protein (wheat flour, groundnut, milk, rice, soyabean, almond, chicken, and eggs ).
- > Minerals like folic acids (found in citrus fruits and dark green leafy vegetables esp. spinach).
- > Calcium rich food (milk, cheese, curds, and dark-green leafy vegetables).
- > Food rich in Vitamin D (cow's milk, egg yolks, chicken livers, butter, soya and ragi).

Say yes to:

Ind:

By being physically active and  
doing light exercises daily.



# Say No to:

## 1 **A high fat content diet that includes:**

- > Red meat (mutton and lamb) and processed meat.
- > > > Sugar rich desserts, high-fat dairy products and fried foods.
- > Potential food allergens such as preservatives and food additives.
- > Too much coffee and other stimulants.
- > Spicy, very hot, very cold or highly acidic foods

## 2. **Smoking.**

## 3. **Soft drinks and alcohol.**

## 4. **Sedentary and unhealthy lifestyle.**



**Keep  
mouth clean**



**Quit Tobacco!**



- Maintain an appropriate weight for your body size
- Limit adult weight gain to no more than 11 pounds.

**Women who are both lean and regularly active have a 72 percent reduced risk of breast cancer**



- **Eat 5 or more servings of vegetables and fruits a day.**
- **Choose whole grains over processed grains.**

**Balanced, low-fat diet with at least  
11 servings of fruits, Veggies , grains  
& beans / day reduces the chances of**



**colon cancer  
by 75 percent**



**breast cancer  
by 50 percent**



**lung cancer  
by 30 percent.**





**Limit alcoholic drinks to one (for women)  
and two (for men) daily.**



**Engage in daily moderate and weekly vigorous exercise.**

**Taking the stairs instead of the elevator, when possible**



**Limit intake of fatty foods,  
particularly those of animal origin.**



**Limit red meat to about three ounces a day**