

## ONCOLOGY PART-1



→ VIOLET/PURPLE RIBBON: CANCER AWARENESS

• MC cancer over all in world Q BREAST

• MC cancer in males Ca PROSTATE

• MC cancer in females Q BREAST

• MC cancer in females leading to death  
males

↳ Ca lung



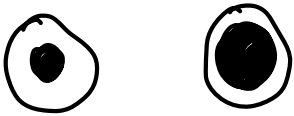
TABLE 69-1 Distribution of Cancer Incidence and Deaths for 2021

MALE			FEMALE		
SITES	%	NUMBER	SITES	%	NUMBER
<b>Cancer Incidence</b>					
Prostate	26 ✓	248,530	Breast	30 ✓	281,550
Lung	12	119,100	Lung	13	116,660
Colorectal	8	79,520	Colorectal	8	69,980
Bladder	7	64,280	Endometrial	7	66,570
Melanoma	6	62,260	Melanoma	5	43,850
Kidney	5	48,780	Lymphoma	4	35,930
Lymphoma	5	45,630	Thyroid	3	32,130
Oral cavity	4	38,800	Pancreas	3	28,480
Leukemia	4	35,530	Kidney	3	27,300
Pancreas	3	31,950	Leukemia	3	25,560
All others	20	195,870	All others	21	199,900
All sites	100	970,250	All sites	100	927,910
<b>Cancer Deaths</b>					
Lung ✓	22 *	69,410	Lung →	22 *	62,470
Prostate	11	34,130	Breast	15	43,600
Colorectal	9	28,520	Colorectal	8	24,460
Pancreas	8	25,270	Pancreas	8	22,950
Liver	6	20,300	Ovary	5	14,460

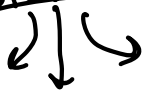
✓✓ Smoker: Columnar epithelium → Squamous: Metaplasie

cellated

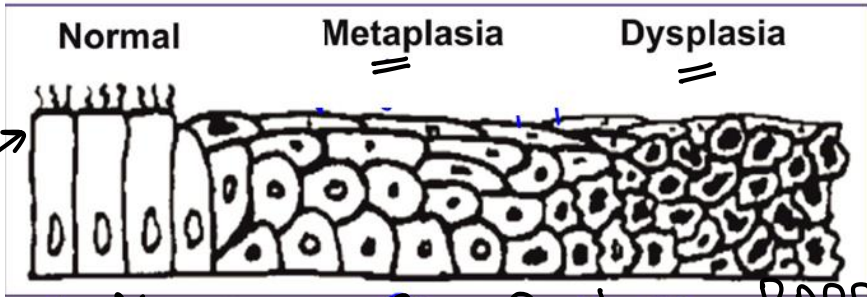
Meaning of cancer: UNCONTROLLED MITOSIS

Anaplasia →  N:C RATIO ↑, Intense basophilia

Dysplasia = DISORDERED arrangement of cells



MICROMETASTASIS



esophagus ⇒ S → C change: BARRETT Metaplasia  
GERD

# Routes of spread

## 1. Cervical cancer

On Friday, Ms Pandey's manager had announced her death from cervical cancer, causing widespread shock and disbelief. However, she later clarified on Instagram that **the news of her death was false**, revealing that the stunt was an unconventional attempt to spark a conversation about cervical cancer. "I am alive." 3 Feb 2024

NDTV  
<https://www.ndtv.com/Breaking-News/>  
 Poonam Pandey, Cervical Cancer: "Our Actions..." - NDTV

## 2. Thyroid cancer :

Studies among Chernobyl cleanup workers, who were exposed as adults, also reported an **increased risk of thyroid cancer after exposure to external irradiation and internal irradiation from <sup>131</sup>I intake (18-20)**.  
 5 Jan 2021

Frontiers  
<https://www.frontiersin.org/articles/10.3389/fonc.2020.569061/full>  
 Radiation Exposure to the Thyroid After the Chernobyl Accident



DIRECT CONTACT

URETER # Colorectal cancer  
 Renal failure : death  
 4. LIVER



portal vein

Via lymph nodes

RADIATION

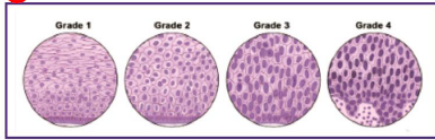
## 3. Prostate cancer



via BREAST → pathological #: lumbar spine  
 via PARAVERTEBRAL venous plexus / BATESON'S plexus  
 HEMATOGENOUS route

pathological #: LS spine

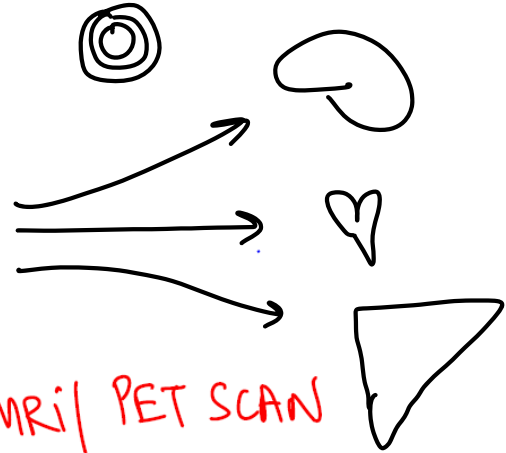
Gradings of cancer means: Tumor Growth rate






Low grade  
High grade

Staging of cancer means:

Spread of cancer  
TNM



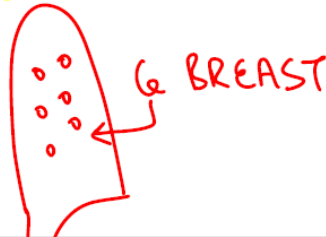
T	N	M
 Tumor size	 Lymph Node Status	 Metastasis
T-1: 0-2 centimeters T-2: 2-5 centimeters T-3: >5 centimeters T-4: Tumor has broken through skin or attached to chest wall	N-0: Surgeon can't feel any nodes N-1: Surgeon can feel swollen nodes N-2: Nodes feel swollen and lumpy N-3: Swollen nodes located near collarbone	M-0: Tested nodes are cancer-free M-1: Tested nodes show cancer cells or micrometastasis

- \* TUMOR SIZE
- \* NODAL STATUS
- \* METASTASIS

— MRI / PET SCAN

MC primary lung cancer : ADENOCARCINOMA lung

MC secondary lung cancer :



# Factors contributing to cancer

## Chemical carcinogens

Carcinogen	Cancer
Tobacco	ORAL CANCER
Betel nut	oral submucosal fibrosis: // "
Aniline dye exposure =	Ca BLADDER
Aflatoxin B	H.C.C
Benzene (PETROCHEMICAL)	LEUKAEMIA
Canned foods containing Nitrosamines =	STOMACH CANCER

# Factors contributing to cancer

## Viruses

Virus	Associated cancer
Human papilloma virus	HPV 16, 18 = Cervical CANCER, ANAL CANCER
Hepatitis B and hepatitis C	H.C.C
Ebstein barr virus	HL, NHL, Nasopharyngeal CA, Burkitt lymphoma
Helicobacter Pylori	M.A.L.T.oma mucosa associated lymphoid Tumor
Ionizing radiation	LEUKEMIA

Quadruple Therapy

AIDS defining cancer/ malignant

- 1 Invasive Cervical CANCER (HPV 16, 18)
- 2 Kaposi sarcoma: [HHV 8 = KHSV]
- 3 NHL: DLBCL

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MALTONA

# Cancer warning signs

Mnemonic: CAUTION



Incomplete evacuation

Change in bladder and bowel habits : Tenesmus

Any sore that does not heal SKIN CANCER?

Unusual bleeding or discharge → Oral cancer?

Unexplained weight loss CACHEXIA

Lump in breast or skin changes: PEANUT orange

Indigestion or difficulty in swallowing esophageal cancer?

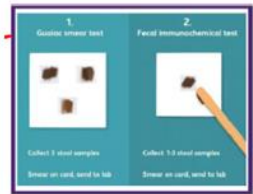
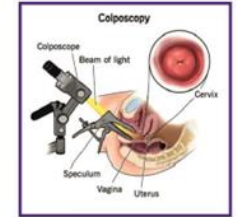
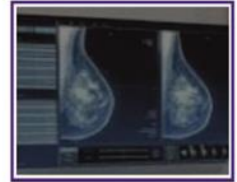
Obvious changes in wart/ mole

Nagging cough and hoarseness of voice ? Ge larynx

# Techniques for early detection of cancer

1. Breast self examination; Done 7-10 days after menses in both supine and upright position
2. Mammography 40-50yrs
3. Pap smear Cxal CANCER = colposcopic directed Bx
4. Colposcopy directed biopsy
5. Testis self examination
6. Skin inspection WARTS
7. Sigmoidoscopy / colonoscopy
8. Fecal occult blood test false ⊖ rates

Screening  
? colorectal cancer  
↓  
Sigmoidoscopy



# American Cancer Society screening recommendations for women at average breast cancer risk

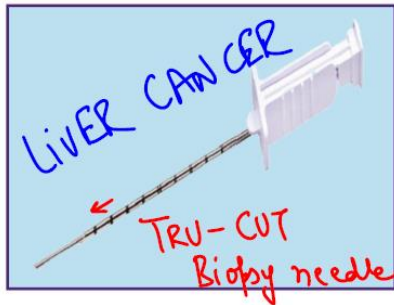
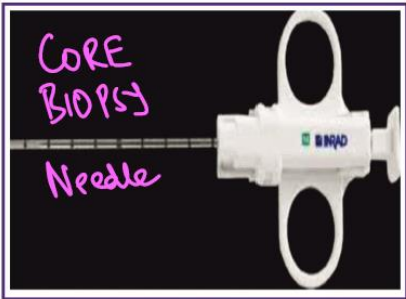
These guidelines are for women at **average risk** for breast cancer. For screening purposes, a woman is considered to be at average risk if she doesn't have a personal history of breast cancer, a strong family history of breast cancer, or a genetic mutation known to increase risk of breast cancer (such as in a *BRCA* gene), and has not had chest radiation therapy before the age of 30. (See below for guidelines for women at high risk.)

- **Women between 40 and 44** have the option to start screening with a **mammogram** every year.
- **Women 45 to 54** should get mammograms every year.
- **Women 55 and older** can switch to a mammogram every other year, or they can choose to continue yearly mammograms. Screening should continue as long as a woman is in good health and is expected to live at least 10 more years.

← → ↻ 📄 [breastcancerindia.net/early-detection-of-breast-cancer/early-detection-guidelines.html](http://breastcancerindia.net/early-detection-of-breast-cancer/early-detection-guidelines.html)

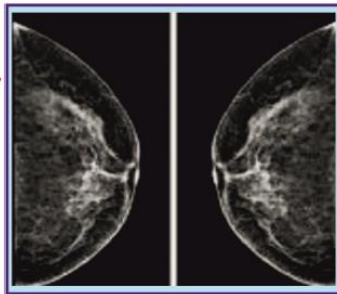
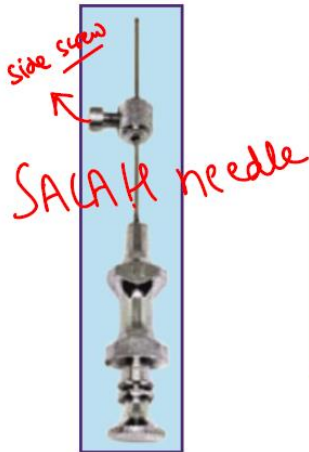


▶ **Mammography:** Most guidelines recommend Mammography *once* a year. Screening mammography does not help much in women below around 40 years of age, as the density of breast tissue is much more and small tumors can be missed. After 40 to 45 years, the *glandular* tissue starts reducing and *fatty* tissue starts dominating, and mammography becomes more sensitive. It can be done once a year, but depending on breast density, it can be done once in two years as well. Hence, it is always recommended that one should do a Mammography after consulting your doc.



KLIMA Needle

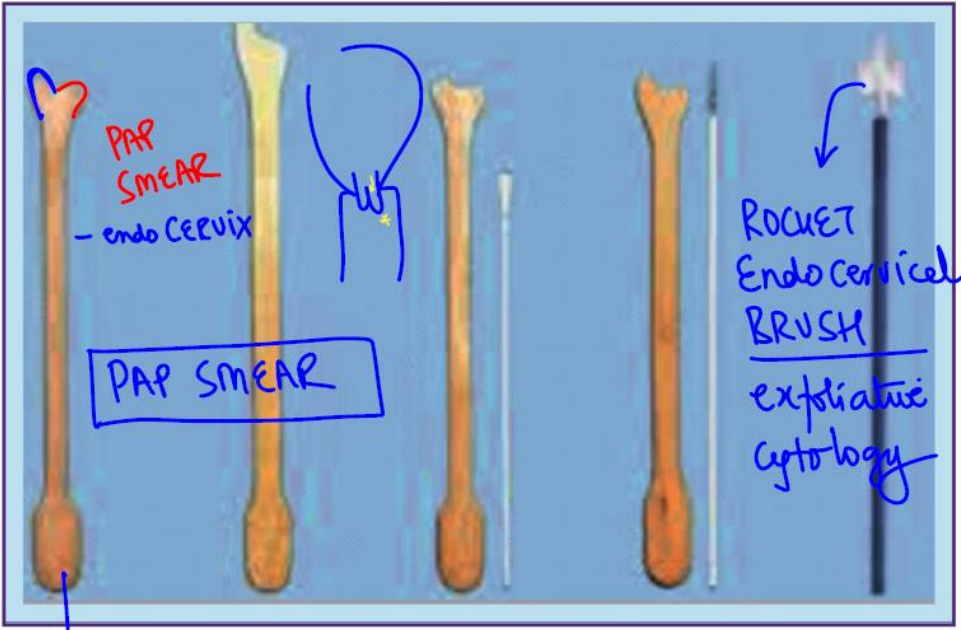
Bone Marrow  
aspiration



MAMMOGRAPHY: BIRAD SCORE

MICROCALCIFICATIONS: ⊕? malignancy

endocervix



PAP  
SMEAR  
- endo CERVIX

PAP SMEAR

ROCKET  
Endocervical  
BRUSH  
exfoliative  
cytology



AYRE SPATULA

# Tumor markers

- Ca19.9      Ce PANCREAS
- Ca 15.3      Ce BREAST
- Ca125      Ce ovary
- Alpha feto protein      → NSGCT, HCC
- Carcinoembryonic antigen : Colorectal cancer
- LDH      → Lymphoma, Multiple myeloma
- Beta HCG      → CHORIOCARCINOMA

MC skin CANCER : SCC



previous burns, electrical burns site develops Marjolin's  
ULCER