Cancer II

Dr Vaibhavi Patel.

Cancer registries: - two types

National Cancer Registry Programme (NCRP), Indian Council of Medical Research

Hospital based registries: -

"WHO handbook for standardized cancer registers."

Population based registries: - to establish hospital based cancer registries & extend the same to a population based registries.

- Aim is to cover the complete cancer situation in a given geographic area. 2-5 million.

Cancer registries

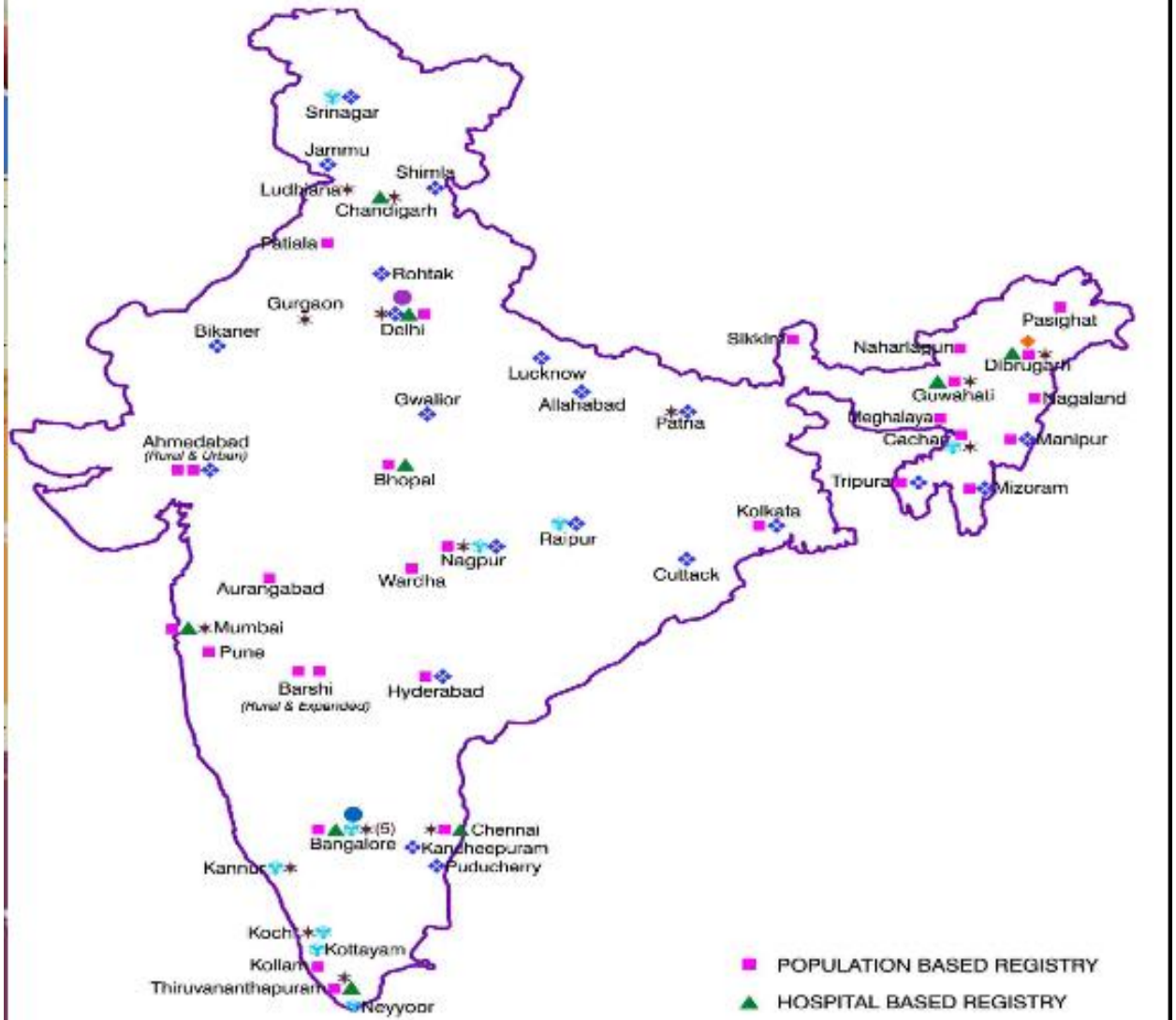
- The three PBCRs at Bangalore, Chennai and Mumbai and three HBCRs at Chandigarh, Dibrugarh and Thiruvananthapuram were commenced from 1 January 1982.

- The Bombay Cancer Registry was first PBCR of India established by the Indian cancer society Bombay

- at present a total of 31 PBCRs and 29 HBCRs are functioning in India (NCDIR, 2016-17)

NATIONAL CANCER REGISTRY PROGRAMME - NETWORK

(Indian Council of Medical Research)



CANCER SCREENING

- Search for unrecognized malignancy by means of rapidly applied tests in an apparently healthy individuals .
- ***Cancer screening is possible because:***
  - pre-malignant lesion,
  - a high cure rate can be obtained
  - 75% of all cancers occur in body sites that are accessible.
  - **30% of all Ca. Curable, 40% preventable, rest 30% = palliative care**

Tumor marker

Table 19D.5: Some common tumor markers and associated cancers.

Sr. no.	Tumor marker	Associated cancers
1.	Alpha-fetoprotein (AFP)	Hepatocellular carcinoma and Germ cell tumor
2.	Cancer antigen-125 (CA-125)	Ovarian cancers (monitoring disease progression)
3.	Prostate-specific antigen (PSA)	Prostate cancers (monitoring disease progression)
4.	Carcinoembryonic antigen (CEA)	Cervix, ovary, gastrointestinal, pancreatic, breast, and lung cancers (monitoring)
5.	CA15-3 (also known as HER-2neu, OVX1, OVX2)	Breast cancer
6.	Estrogen and progesterone receptors (ER and PR)	Breast cancer
7.	Human chorionic gonadotrophin (HCG)	Gestational trophoblastic disease, germ cell tumor, and choriocarcinoma
8.	CA19-9 antigen	Pancreatic, colorectal cancers, and some gastrointestinal tumors.

Methods of cancer screening

- mass screening by comprehensive cancer detection examination.
- Mass screening at single sites
- Selective screening

EPIDEMIOLOGY OF ORAL CANCER

- One of the most common cancers in the world.
- Epidemiological features: -

➢ Tobacco: -

- ➢ 90% of all oral cancer in SEAR
- ➢ side of the mouth where the tobacco quid was kept & risk was 36 times higher if the quid was kept in the mouth during sleep.
- ➢ betel quid- consist of betel leaf, arecanut, lime & tobacco- *The mixture- Khaini-*
- ➢ In eastern coastal regions of A.P., epidermoid carcinoma of hard palate- due to reverse smoking of cigar.
- ➢ Nasswar – USSR

Alcohol: -

- high concentrations of alcohol,
- synergistic effect in tobacco users

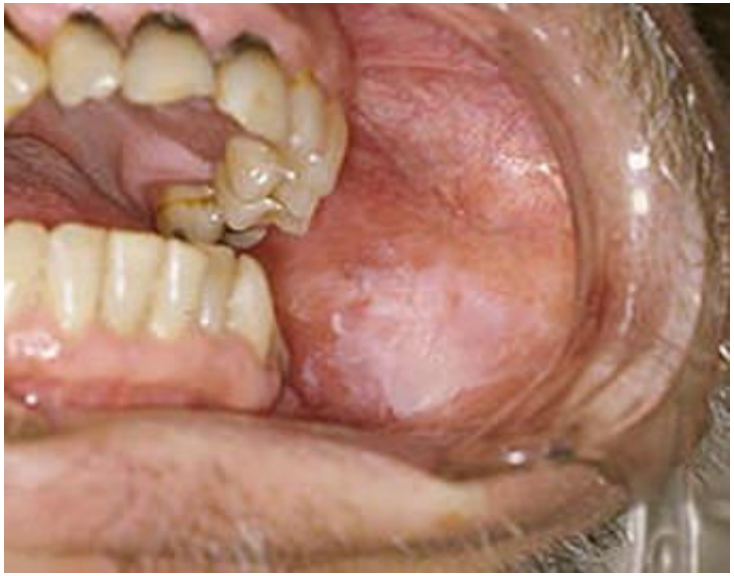
Other risk factors

- Excessive sun exposure
- Poor oral hygiene
- Long standing dental caries
- Poor oral cleaning after chewing tobacco
- Dental trauma
- Poor fitting denture
- Sharp tooth
- X-rays - Cumulative exposure
- Biological factors: - Viruses and fungus - HPV 16

Warning signs

- **Leukoplakia**
- **Erythroplakia**
- **Lump or thickening of oral soft tissue**
- **Soreness or “lump” in throat**
- **Difficulty chewing or swallowing**
- **Difficulty in opening of mouth**
- **Bleeding mouth**
- **Ear pain**
- **Difficulty moving jaw, tongue**
- **Hoarseness, change of** voice

Leukoplakia



Pre-cancerous stage: -

- leukoplakia, erythroplakia and oral sub mucous fibrosis can be detected for up to 15 years prior to their change to an invasive carcinoma.

- Intervention at this stage may result in total regression of the lesion.

Prevention and control of oral cancer

Primary prevention	secondary prevention	Tertiary prevention
• Education • Motivation for cessation of tobacco use • Legislative	• Screening for premalignant lesion • Prompt treatment	• Palliative care • rehabilitation

Tobacco control legislation

- **COTPA 2003**
- Cigarettes and other Tobacco Product (prohibition of advertisement and Regulation of Trade and Commerce, production, supply and distribution) Act 2003.
- Main provision of the act are
- A prohibition of smoking in public places
- Prohibition of advertisement, sponsorship and and promotion of tobacco product
- Prohibition of the sale of the tobacco product to minors or sale within 100 yards of educational institute
- Display of pictorial health warning on tobacco product
- And regulation of the tar and nicotine content of the tobacco product.

SECONDARY PREVENTION

- Screening
- Visual inspection may be performed by themselves
- Treatment: Multidisciplinary treatment is ideal.
- Three types of treatments:
  - Surgery
  - Radiation
  - Chemotherapy
- General health of mouth is analyzed and treatment accordingly

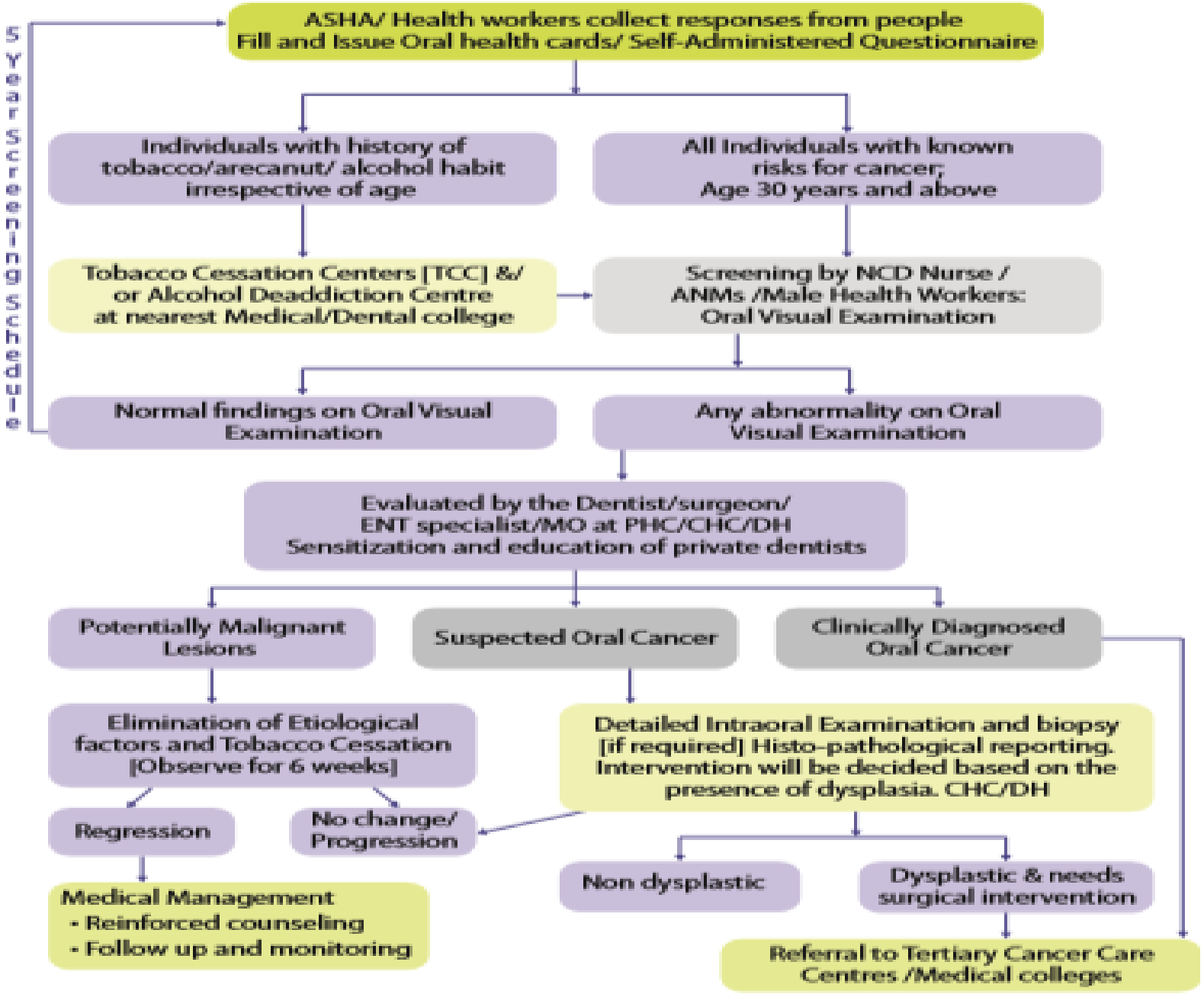
- Guideline for Operational frame work
- Management of common cancer : under National Health Mission.
- Oral cancer: all adult men and women over 30 years and all tobacco users
- Cervical and Breast Cancers: all women over 30 years

Table 1: Screening and follow up processes

Type of Cancer	Age of beneficiary	Method of Screening	Frequency of screening	If positive
Oral	30 -65 years	Oral Visual Examination (OVE)	Once in 5years	Referred to Surgeon/Dentist/ENT specialist/Medical officer at CHC/ DH for confirmation* and biopsy.
Cervical	30-65 years	Visual Inspection with Acetic acid (VIA)	Once in 5years	Referred to the PHC/CHC/DH for further evaluation and management of pre-cancerous conditions where gynecologist/trained Lady Medical Officer is available.
Breast	30-65 years	Clinical Breast Examination (CBE)	Once in 5years	Referred to Surgeon at CHC/DH for confirmation using a Breast ultra sound probe followed by biopsy as appropriate.

*The biopsy specimen either to be sent to the nearest Medical college or using the mechanism under the Free Diagnostics Initiative under NHM,to the nearest NABL certified laboratory.

Annexure 1c: Screening and Management Algorithm for oral cancer



Epidemiology of Lung Cancer

- **Epidemiological features: -**

1) Age & sex: -

➢ 1/3rd of all lung cancer death – below age of 65.

➢ In industrialized countries- more female are involved.

Epidemiology of Lung Cancer

2) Risk factors: -

Smoking: - smokers is 8.6 times higher.

- Type of smoking habits-
- Tar, nicotine and carbon monoxide.
- Filtered/non filtered, king size filtered, bidi
- “passive smoking’ (somebody else’s smoke)

Other factors: - air pollution, radioactivity occupational exposure to asbestoses, As, Cr, PAH etc.

Primary Prevention

- Control **"smoking epidemic."**
- **Public information & education:** school, colleges
- **National anti-smoking campaign** - to change human behavior of life style associated with smoking.

Legislative & restrictive measures:-

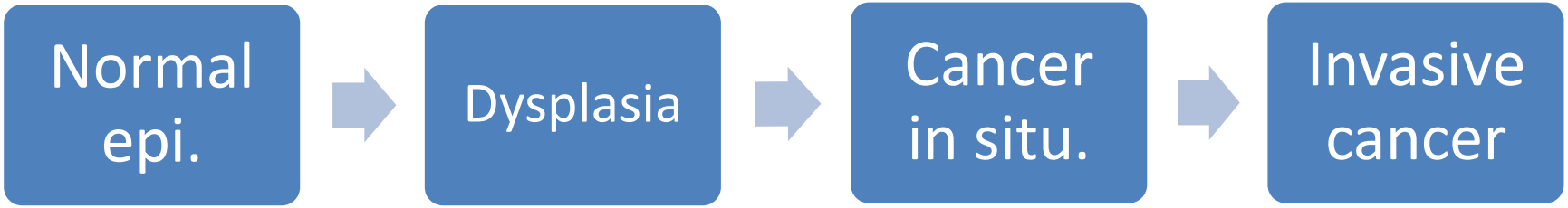
- The cigarettes act 1975
- Display of statutory warning *'cigarette smoking is injurious to health'*
- *COTPA 2003*

- **Smoking cessation activities**
  - 90% of those who give up smoking do so of their own volition-
  - *Carried out through smoking cessation clinics, nicotine substitute, hypnosis etc*
- **National & international co ordination**
  - Coordinated political & non political approaches at local, national & international levels

Epidemiology of Ca. Cervix

- fourth most common cancer in women world wide (#2 globally)
- In industrialized countries- declining

Hypothetical model of the natural history of Ca. Cervix



Agent

- The central cause of cervical cancer is human papilloma virus or **HPV**
- HPV is **sexually transmitted**
- **Different types** of HPV:
  - **Low-risk types** can cause warts
  - **High-risk types** can cause cancer of the cervix
  - Virus is necessary but not sufficient cause

Risk factors

- **Age**: - 25- 45 years - common
- **Genital warts**: - Past or present genital warts
- **Marital status**: - Less likely in single.
- having multiple sexual partners.
- Common among CSWs.
- **Early marriage**: - Early marriage, early coitus, early child bearing, repeated childbirths
- **Oral contraceptive pills**: possible. Oestrogen
- **Socio-economical class**: - poor hygiene

Screening for Ca. Cervix

- Pap test at beginning of sexual activity & then every 3 years thereafter.
- Directed to women in poor SE groups-
- Problems: -

1) Related to diseases: -

- Many gaps in natural H/o disease.

2) Related to test: - False negative rate is 20% (sensitivity is 80%). Sensitivity also depends on whether cervical smear is prepared from vaginal aspiration or direct cervical scraping.

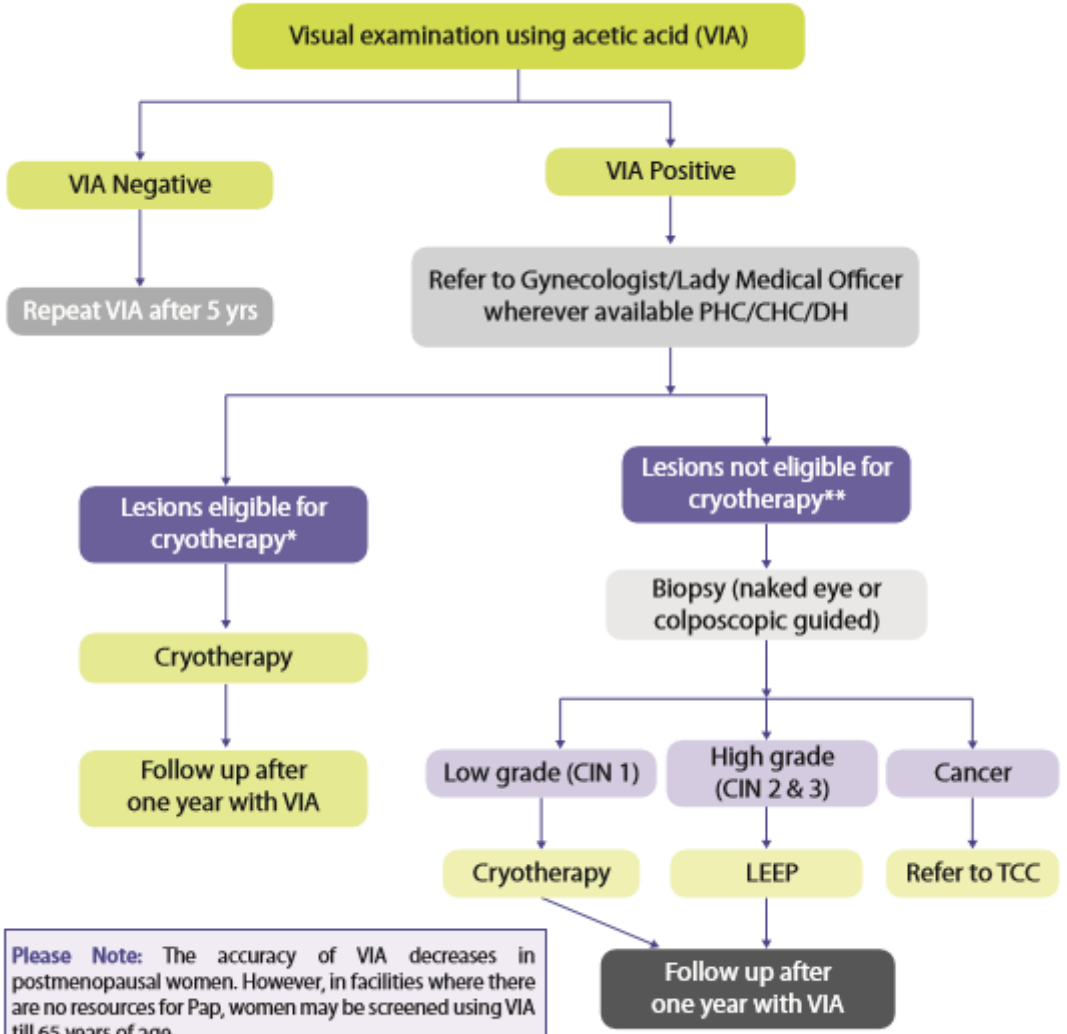
Screening-Cytology

- The mainstay of cervical cancer screening for the last 60 years has been the Papanicolaou test.
- The Papanicolaou test, also known as Pap smear, was developed in the 1940s by Georgios Papanikolaou.
- It involves exfoliating cells from the transformation zone of the cervix to enable examination of these cells microscopically for detection of cancerous or precancerous lesions.

1883-1962

- Visual Inspection Involves 3 different approaches:
- Visual inspection of cervix with acetic acid (VIA).
- Visual inspection with magnification (VIAM).
- Visual inspection after application of Lugol's iodine (VILI).

Annexure 1b: Screening and Management Algorithm for Cervical cancer



Please Note: The accuracy of VIA decreases in postmenopausal women. However, in facilities where there are no resources for Pap, women may be screened using VIA till 65 years of age.

***Eligibility for cryotherapy:**

- The lesion should not be spread over more than 2 quadrant of cervix
- The entire lesion is located in the ectocervix without extension to

****Cryotherapy not recommended if:**

Symptoms:

1. Postcoital bleeding

PREVENTION

Primary Prevention –

– Improved personal hygiene & birth control

Secondary prevention –

– Early detection through screening

– Treatment by radical Surgery & radiotherapy.

5 year survival rate is –

– 100% for carcinoma in situ

– 79% for local invasive disease

– 45% for regional invasive diseases.

BREAST CANCER

- most common cancer in developed and developing countries.
- but rank fifth in terms of mortality because of more favorable survival rate in developed countries but in developing countries it is still most frequent cause of death

- **Risk factors: -**
- **1) Age: -**
  - **A light bimodal trend** Uncommon below ages of 35 and incidence increase between 35-50 and after age of 65
  - Women <40 with Ca. Breast = 3 times more risk of developing a second breast cancer

2) **Family history** - Esp. if mother or sisters

3) **Parity** - An early first, full term pregnancy and h/o breast feeding- **protective** role.

4) **First pregnancy**- **delayed** upto late 30 – at greater risk

5) **Age at menarche & menopause** - **Early menarche** & **late menopause**

6) **Hormonal factors** - **Elevated** estrogen as well as progesterone

7) **Prior breast biopsy** - for benign disease- increases risk

8) **Diet** - **high fat diet** – increased risk

9) **Socio-economic status** - **Higher socioeconomic group-** delayed marriage

10) **Others** - Radiation, **oral contraceptives** etc.

Screening for Ca. Breast

- **Breast self-examination by the patient**
  - All women should be encouraged to perform breast self-examination.
- **Palpation by physician**
  - during routine examination
- **Thermography**
  - not a sensitive tool.

Screening for Ca. Breast

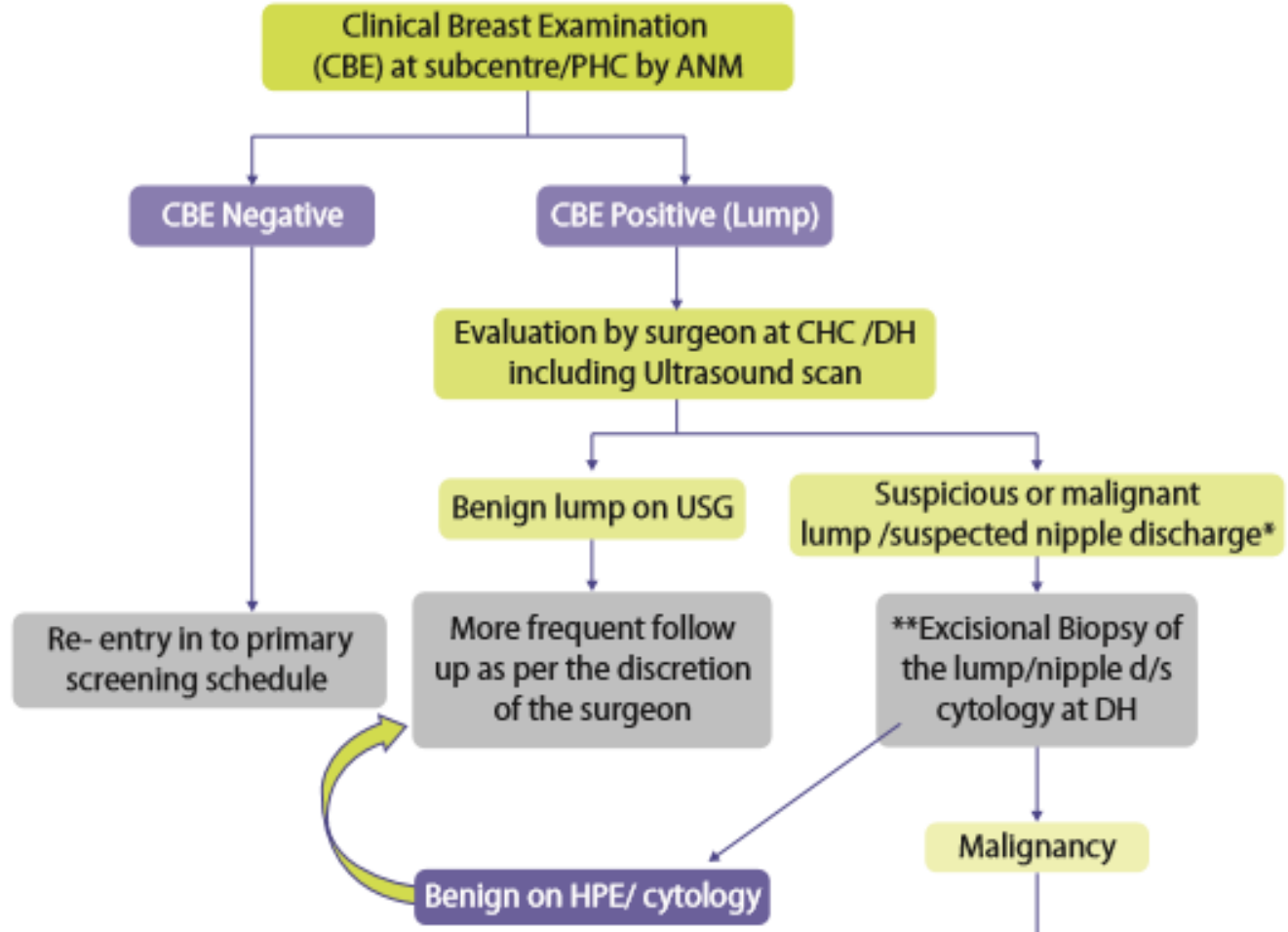
- **Mammography - Most sensitive & specific in detecting small tumors.**
  - **Drawbacks**: -

l) exposure to radiation & breast cancer

ii) requires technical equipment of high standard & radiologist with considerable experience.

So, can't be used for mass screening programmes

Annexure 1a: Screening and Management Algorithm for breast cancer

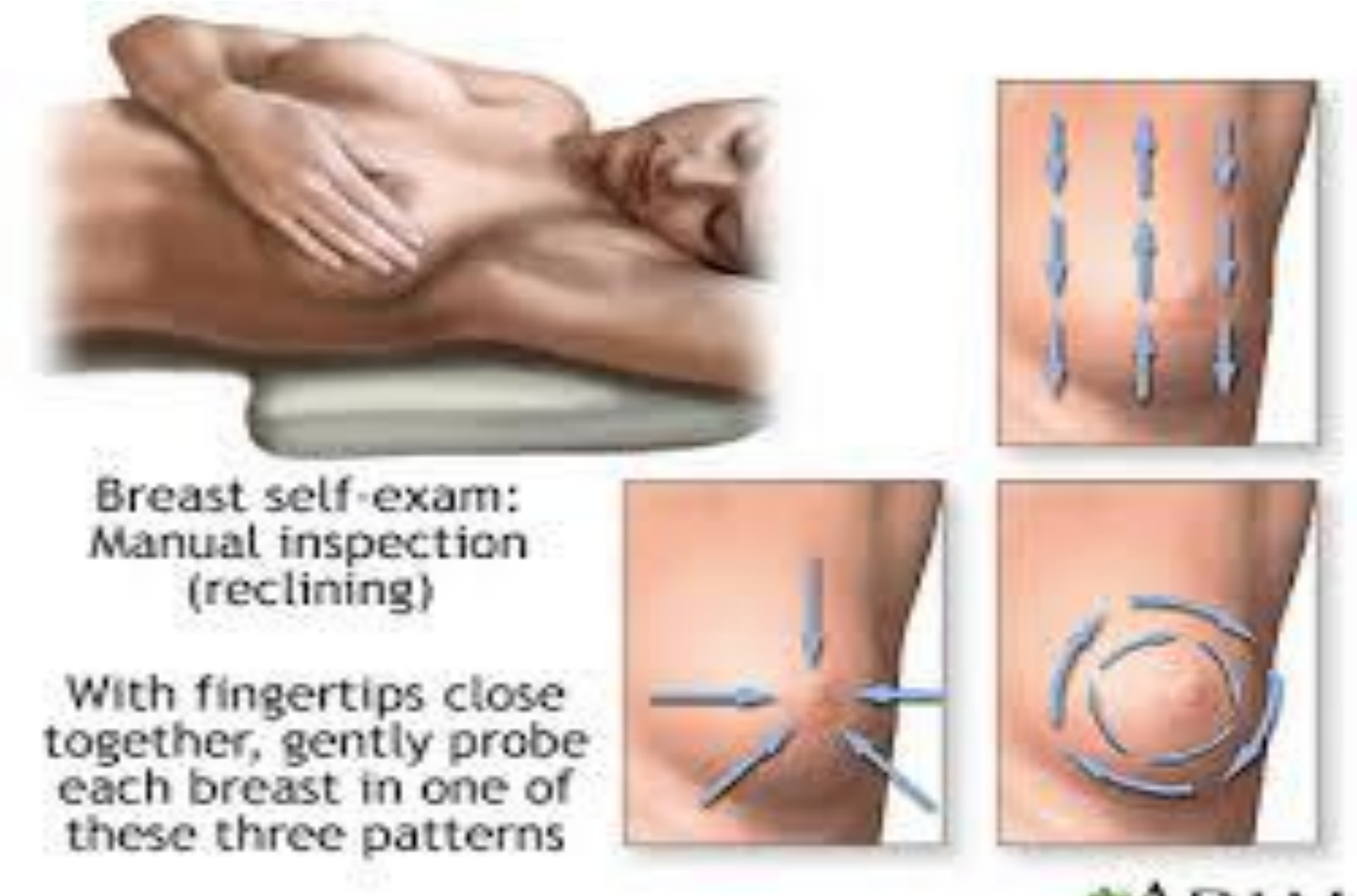


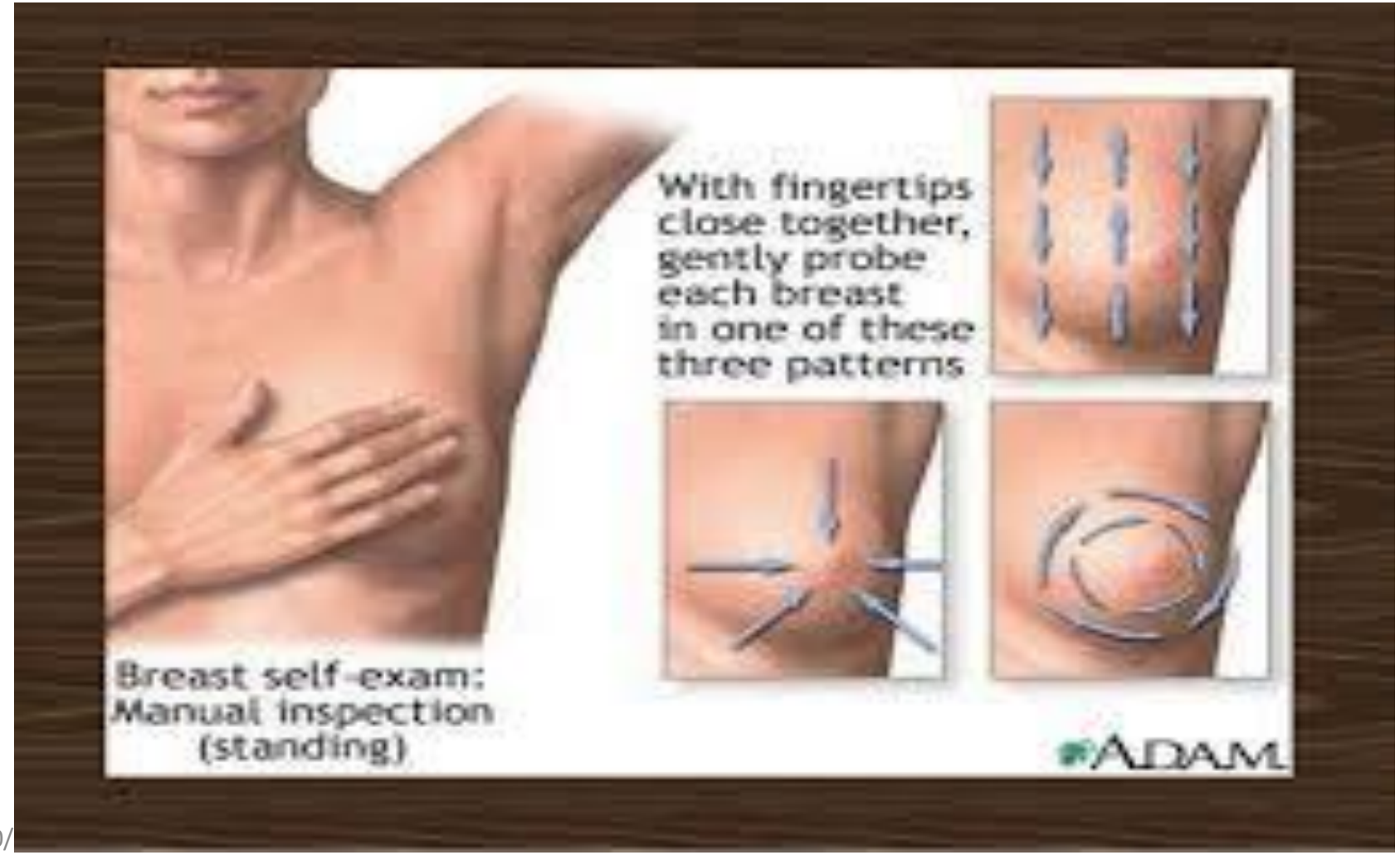
Note:

*Mammography, if available, should also be done in age 35 and above in addition to ultrasound.

**Preferably core biopsy; if not possible, fine needle cytology with arrangement for sending to higher level for diagnosis.

BSE


Breast self-exam:
Manual inspection
(reclining)
With fingertips close together, gently probe each breast in one of these three patterns
ADAM.


With fingertips close together, gently probe each breast in one of these three patterns
Breast self-exam: Manual inspection (standing)
A.D.A.M.

PREVENTION

- **Primary Prevention:**
  - Elimination of risk factors
  - Promotion of cancer education
  - Average age at menarche could be increased by reduction in childhood obesity & increase in strenuous physical activity.

PREVENTION

- **Secondary prevention: -**
  - Breast screening leads to early diagnosis of breast cancer- useful for treatment.
  - **Main component is follow-up**. To detect recurrence as early as possible, to detect cancer in the opposite breast at an early stage.

Dos

- **(a) Adopt a healthy lifestyle:**
- 7-8 hour sleep
- Make sure your diet includes all the required nutrients
- A diet rich in saturated fats be minimised or avoided.
- Avoid obesity, Keep your weight in the normal range
- Be physically active and regular exercise.
- Eat plenty of fresh vegetables and fruits
- Be aware of warning signs and symptoms

Dos

- **(b) Adopt safe sexual practices:**
- Avoid sex with multiple partners
- Avoid sex with partners having multiple partners
- **(c) Avoid/limit exposure to known environmental carcinogens**
- **(d) Go for regular health checkups and cancer screening:** After 30 year of age please consult your health care provider for age appropriate screening.

Don’ts

- Do not use tobacco, Arecanut in any form
- Avoid second hand smoke exposure (Don’t sit in the vicinity of a person who is smoking.)
- Quit alcohol
- Avoid spicy, fried, preserved, processed and junk food, salt preserved food like pickles and very hot beverages
- Avoid stress
- Avoid sedentary lifestyle
- Over over exposure to sunlight

Thank you