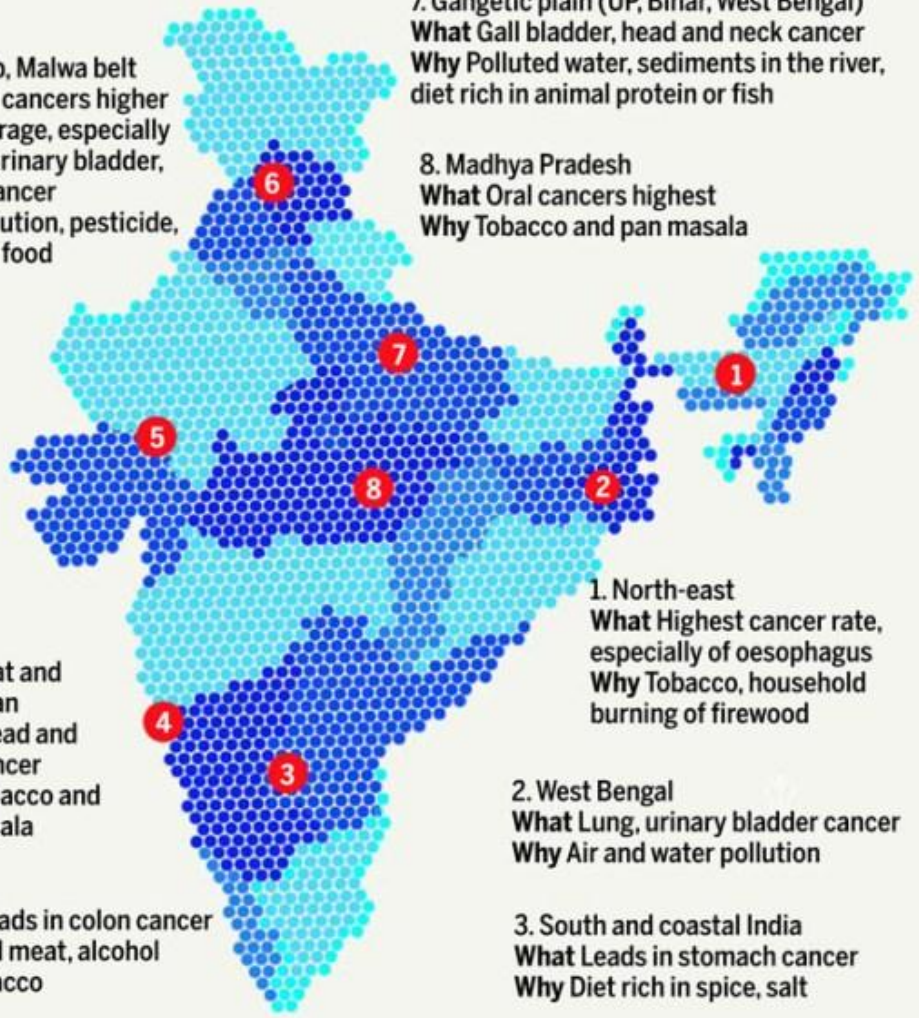
Cancer Outlook 2022

Past, Present & Future

SGCCRI, Thakurpukur, Kolkata

Dr Jyotirup Goswami
Senior Consultant, Radiation Oncology
Saroj Gupta Cancer Centre & Research Institute,
Thakurpukur, Kolkata

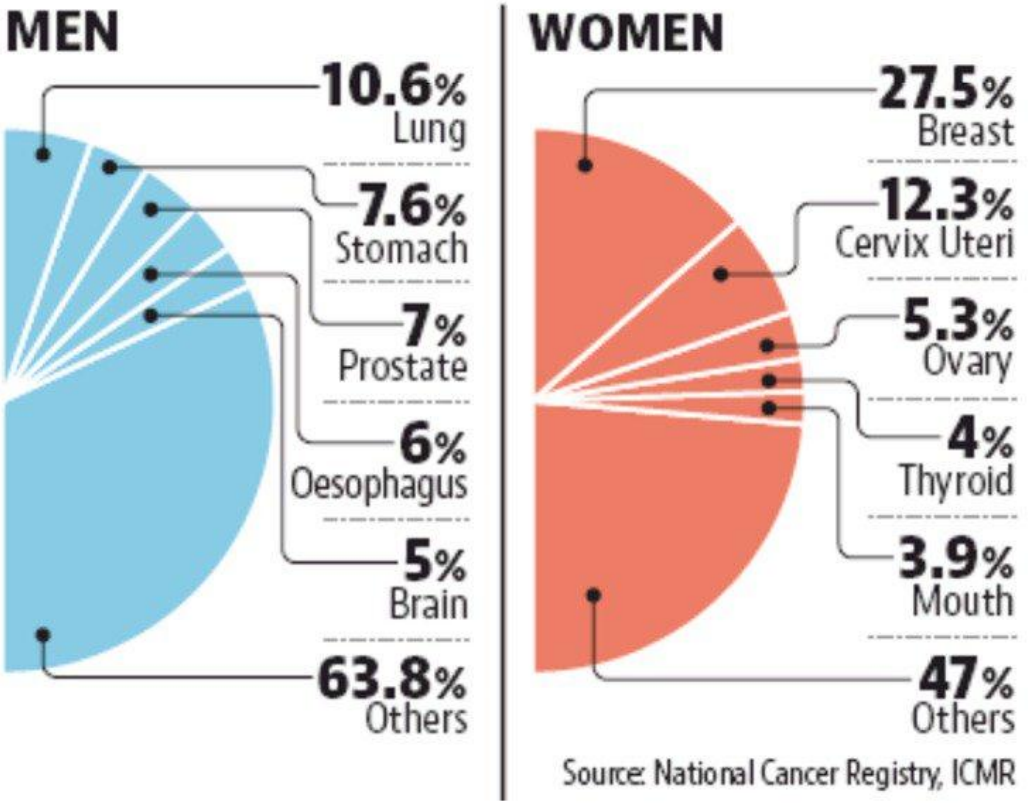
GEOGRAPHY OF CANCER



Case Break Up

Common cancers in India

It is a big cause of morbidity and mortality in India. Here is a break-up of cases in Indian men and women:



The Big Outlook

1.1
MILLION
New cases diagnosed in India each year

0.7
MILLION
Number of deaths

2.2
MILLION
Number of people afflicted

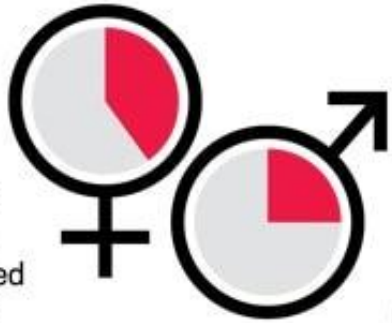
>30
PER CENT
5-year survival rate in India

8
PER CENT
of global cancer deaths in India

7 in 10
Indian patients consult doctors at the terminal stage



40
PER CENT
lower death rate from cancer in Indian men, 30% in women, compared with the UK or the US



25
PER CENT
higher cancer in men than women globally; in India, cancer afflicts more women than men

Treatment Directions

OUTSIDE THE COOKIE-CUTTER

Cancer treatment is going beyond the troika of surgery, chemotherapy and radiation



PRECISION MEDICINE

Using the genetic changes in a patient's tumour to determine its treatment



TARGETED THERAPY

Drugs that zero in on specific molecules that allow cancers to grow fast and abnormally



IMMUNOTHERAPY

Treatment that helps your immune system fight cancer



CRISPR-CAS9

Fast and precise software that allows scientists to edit, remove or replace abnormal genes

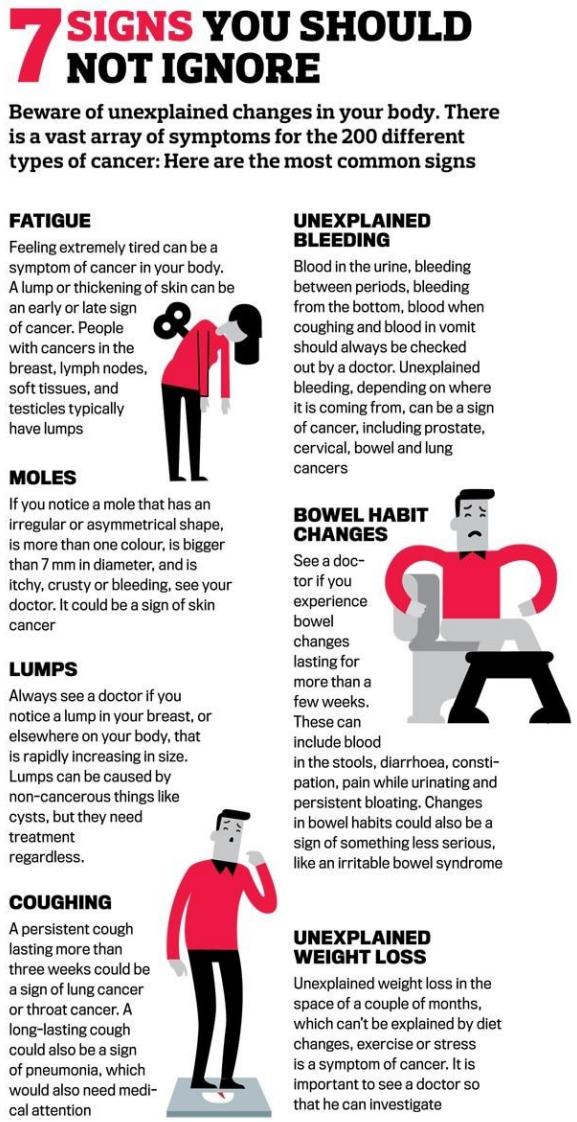


ARTIFICIAL INTELLIGENCE

AI, machine learning and deep learning are revolutionising cancer detection

Be Careful

- Fatigue
- Moles
- Lumps
- Coughing
- Unexplained Bleeding
- Bowel Habit Changes
- Unexplained Weight Loss



7 SIGNS YOU SHOULD NOT IGNORE

Beware of unexplained changes in your body. There is a vast array of symptoms for the 200 different types of cancer: Here are the most common signs

FATIGUE

Feeling extremely tired can be a symptom of cancer in your body. A lump or thickening of skin can be an early or late sign of cancer. People with cancers in the breast, lymph nodes, soft tissues, and testicles typically have lumps

MOLES

If you notice a mole that has an irregular or asymmetrical shape, is more than one colour, is bigger than 7 mm in diameter, and is itchy, crusty or bleeding, see your doctor. It could be a sign of skin cancer

LUMPS

Always see a doctor if you notice a lump in your breast, or elsewhere on your body, that is rapidly increasing in size. Lumps can be caused by non-cancerous things like cysts, but they need treatment regardless.

COUGHING

A persistent cough lasting more than three weeks could be a sign of lung cancer or throat cancer. A long-lasting cough could also be a sign of pneumonia, which would also need medical attention

UNEXPLAINED BLEEDING

Blood in the urine, bleeding between periods, bleeding from the bottom, blood when coughing and blood in vomit should always be checked out by a doctor. Unexplained bleeding, depending on where it is coming from, can be a sign of cancer, including prostate, cervical, bowel and lung cancers

BOWEL HABIT CHANGES

See a doctor if you experience bowel changes lasting for more than a few weeks. These can include blood in the stools, diarrhoea, constipation, pain while urinating and persistent bloating. Changes in bowel habits could also be a sign of something less serious, like an irritable bowel syndrome

UNEXPLAINED WEIGHT LOSS

Unexplained weight loss in the space of a couple of months, which can't be explained by diet changes, exercise or stress is a symptom of cancer. It is important to see a doctor so that he can investigate

CCWHRI/SGCCRI

Hospital Cancer Registry

1996-2020

Acknowledgements

- Dr Arnab Gupta
- Dr Samir Bhattacharya
- Dr Rahul Roy Choudhury
- Dr Cancer Registry Team

Salient points

- Years covered=25
- 1996-2020
- Total patients=1,89,315
- Average patients/ year=7572
- Evaluated in individual years & 5-year blocks
- 1996-2000, 2001-2005, 2006-2010, 2011-2015, 2016-2020

5 leading causes of cancer (2016-2020)

- **Males**

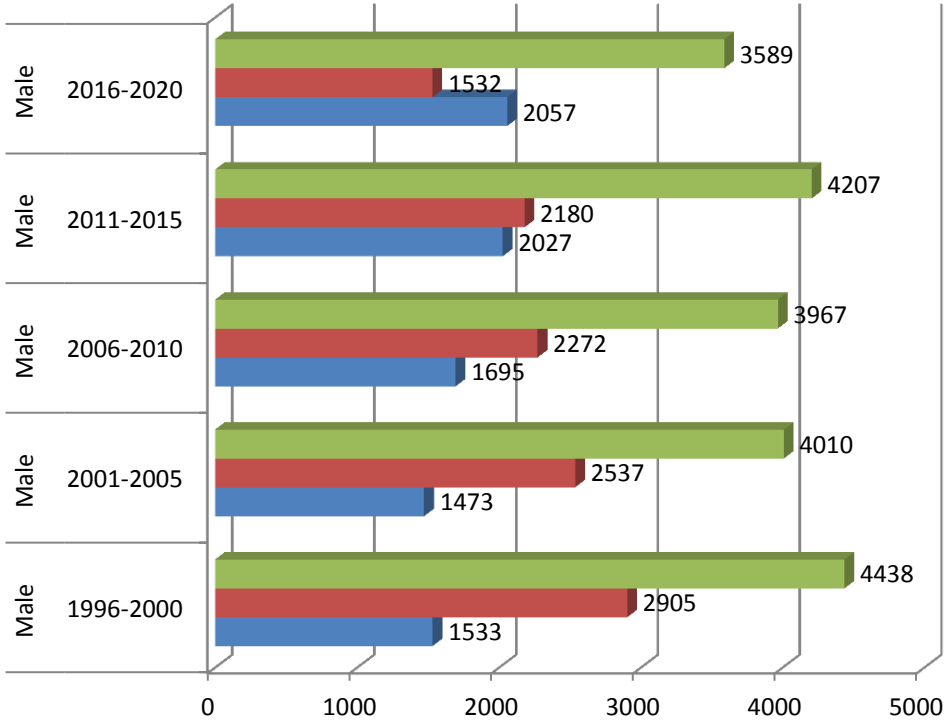
- Lung
- Oral cavity
- ENT
- Stomach
- Colorectal

- **Females**

- Breast
- Cervix
- Hepatobiliary
- Oral Cavity
- Ovary

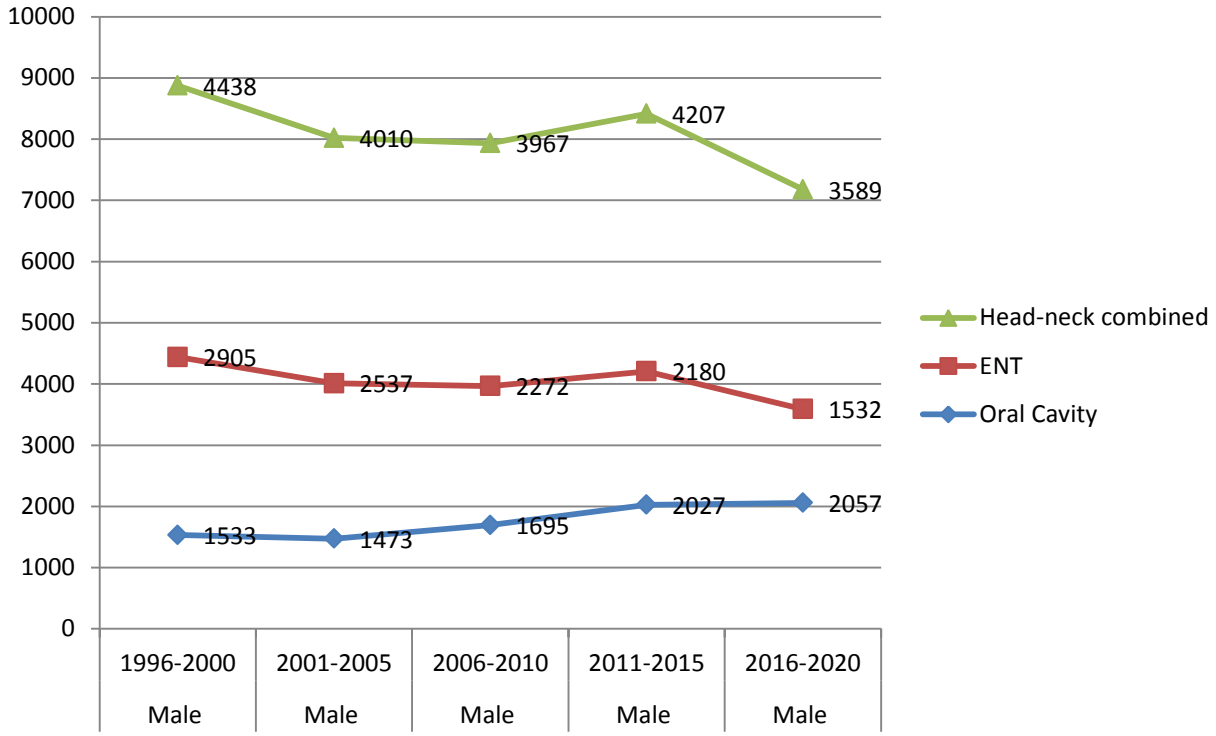
HEAD-NECK CANCER

Head-Neck-Male

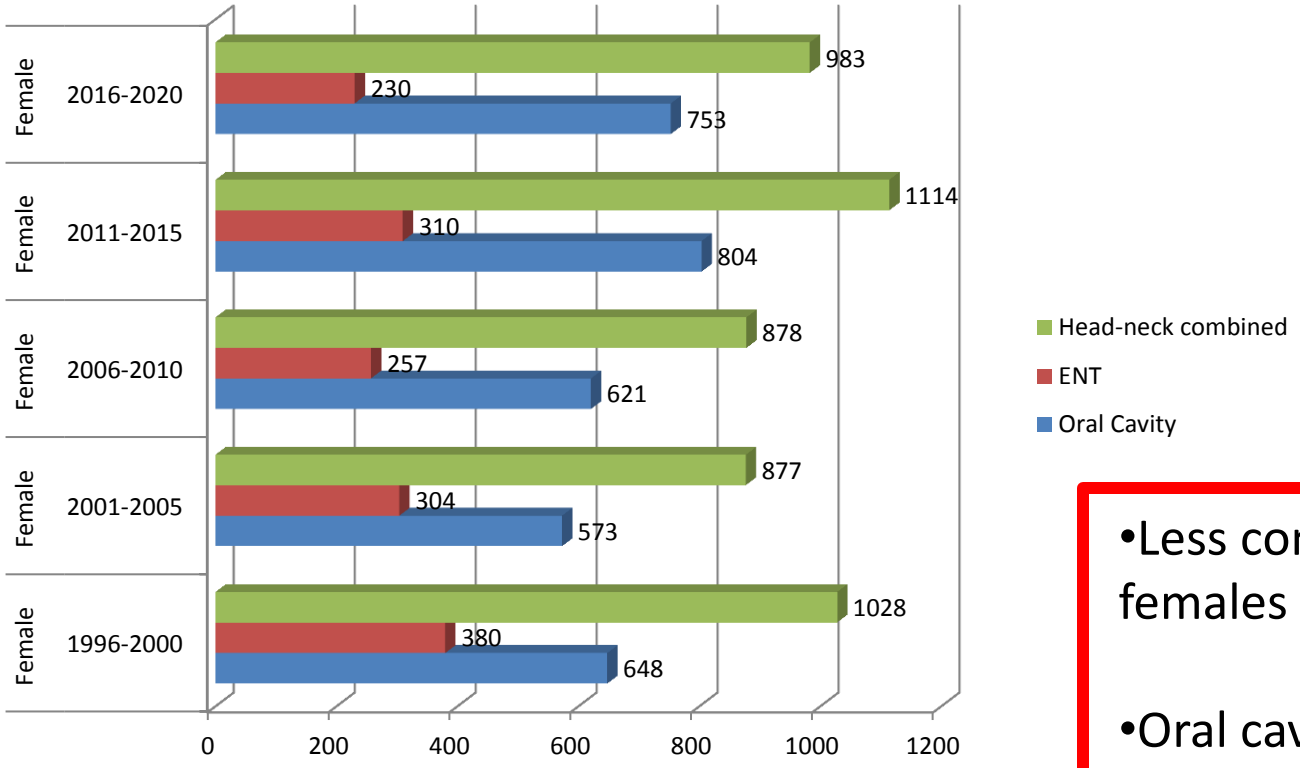


- Consistent rise in oral cavity cancers
- Other ENT cancers reducing over time
- Head-neck cancers overall slightly reducing over time

Head-Neck –Male



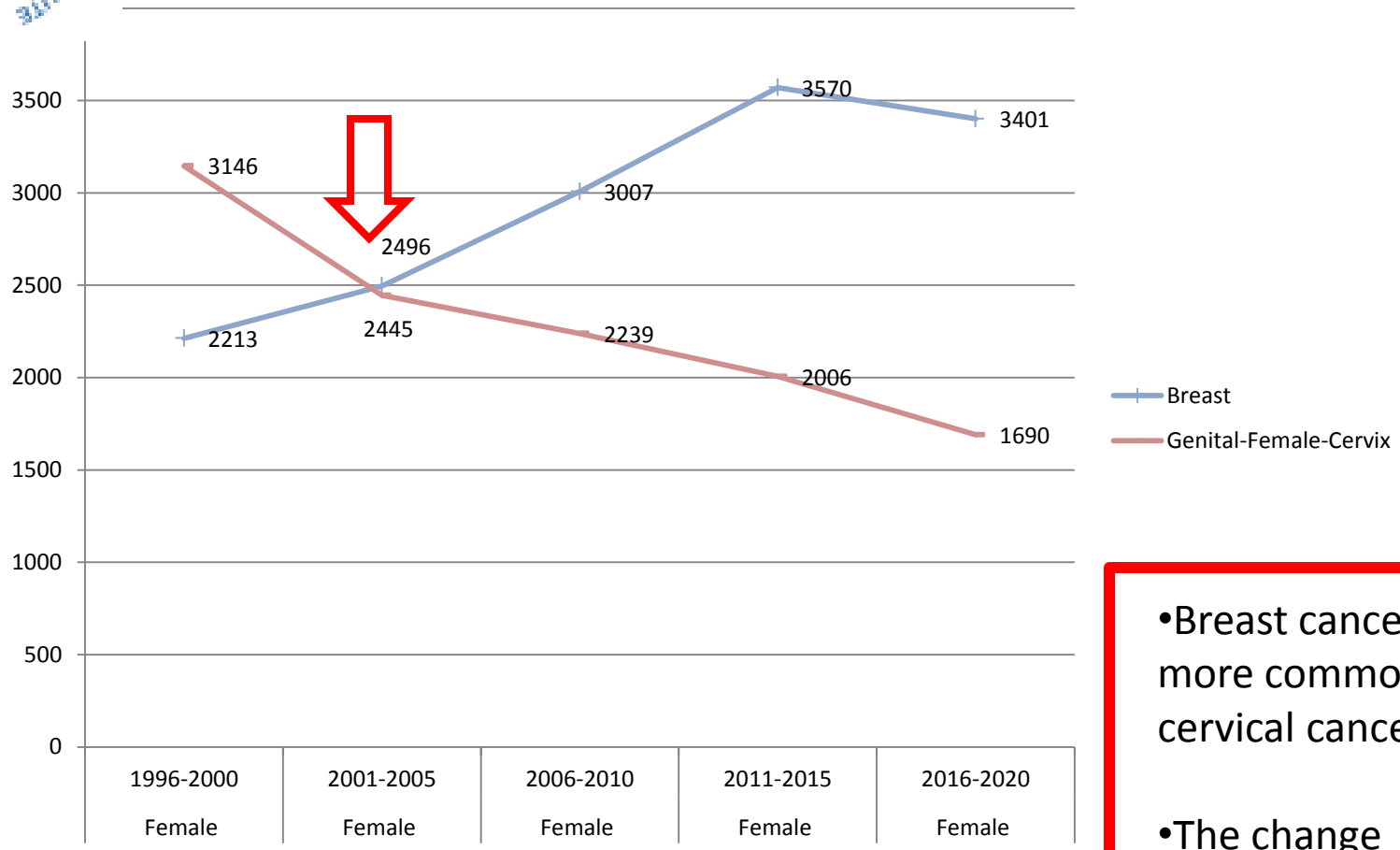
Head-Neck-Female



- Less common in females
- Oral cavity cancers slightly increased
- Overall incidence slightly reduced

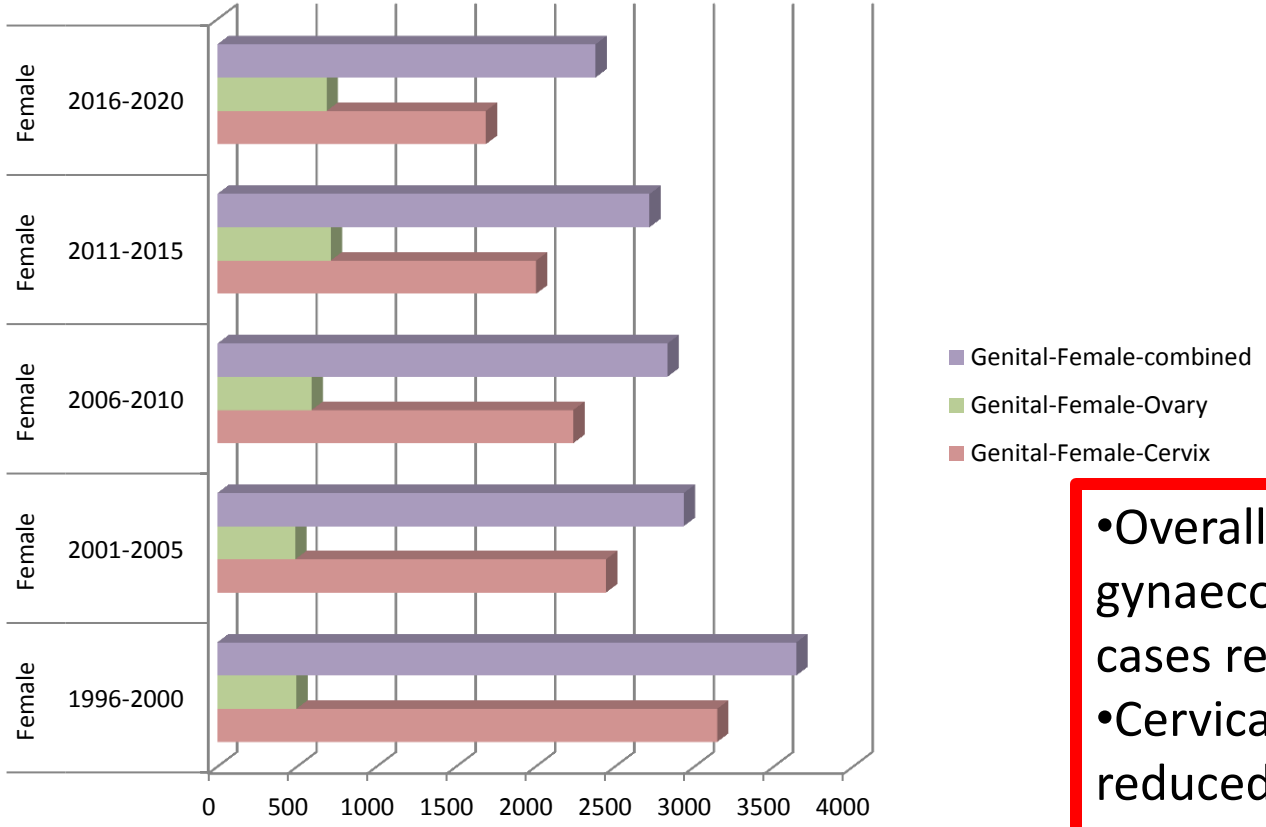
GYNAECOLOGICAL CANCERS

Breast vs Genital -Female



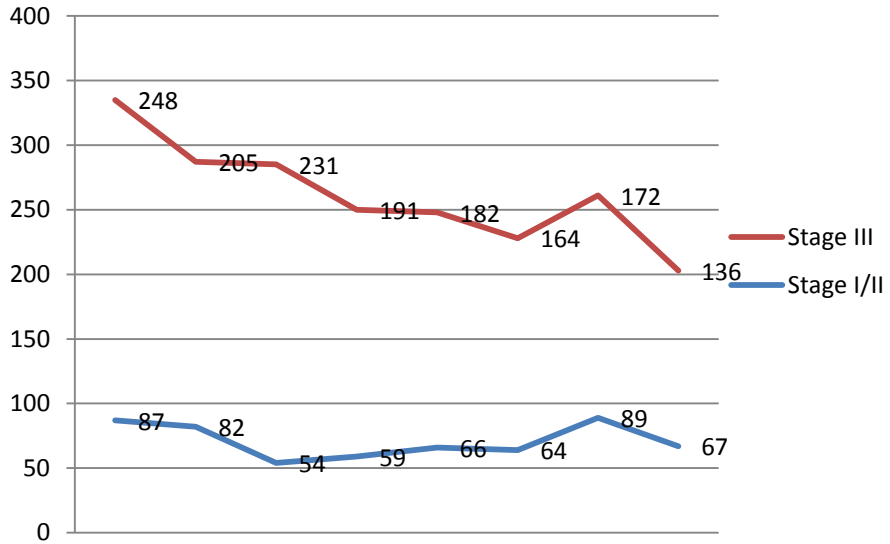
- Breast cancer now more common than cervical cancer
- The change happened over the 2000s

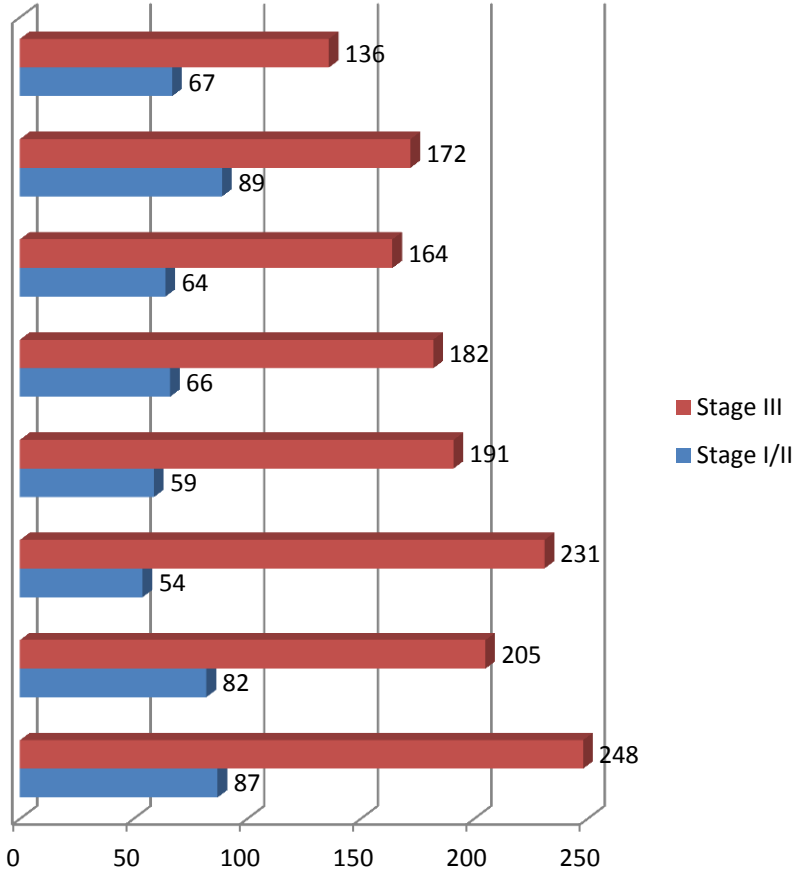
Genital-Female



- Overall, gynaecological cancer cases reduced
- Cervical cancers have reduced significantly
- Ovarian cancers rising significantly

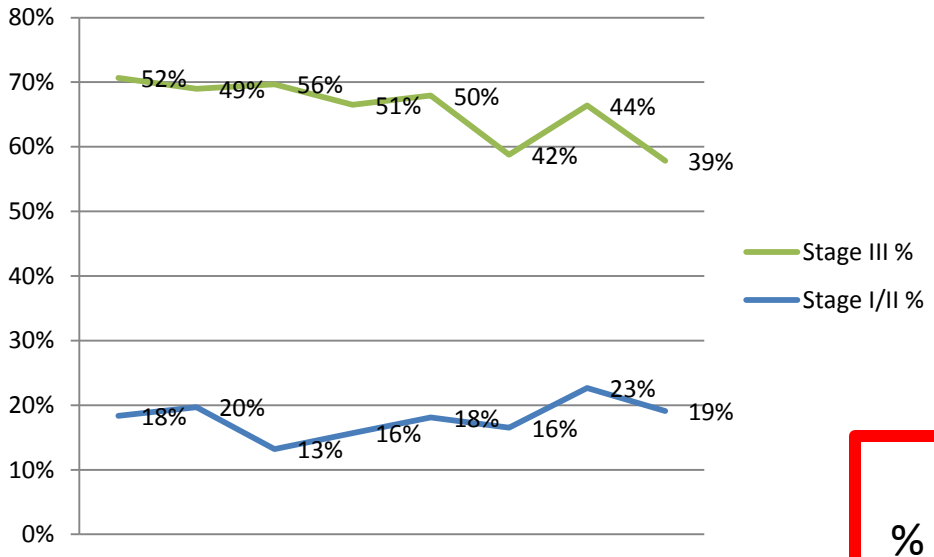
Cervical cancer-stage I/II vs III





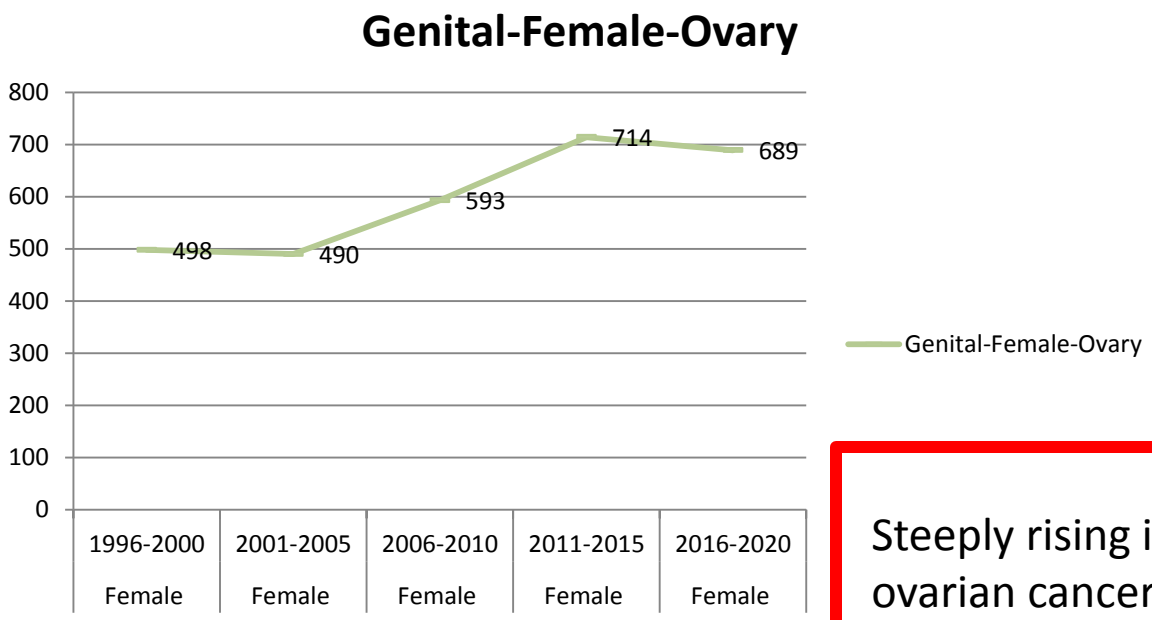
Some reduction in absolute numbers of advanced stage vs early stage disease

Cervical Cancer-stage I/II vs III



% of advanced stage cases vs early stage cases has also reduced

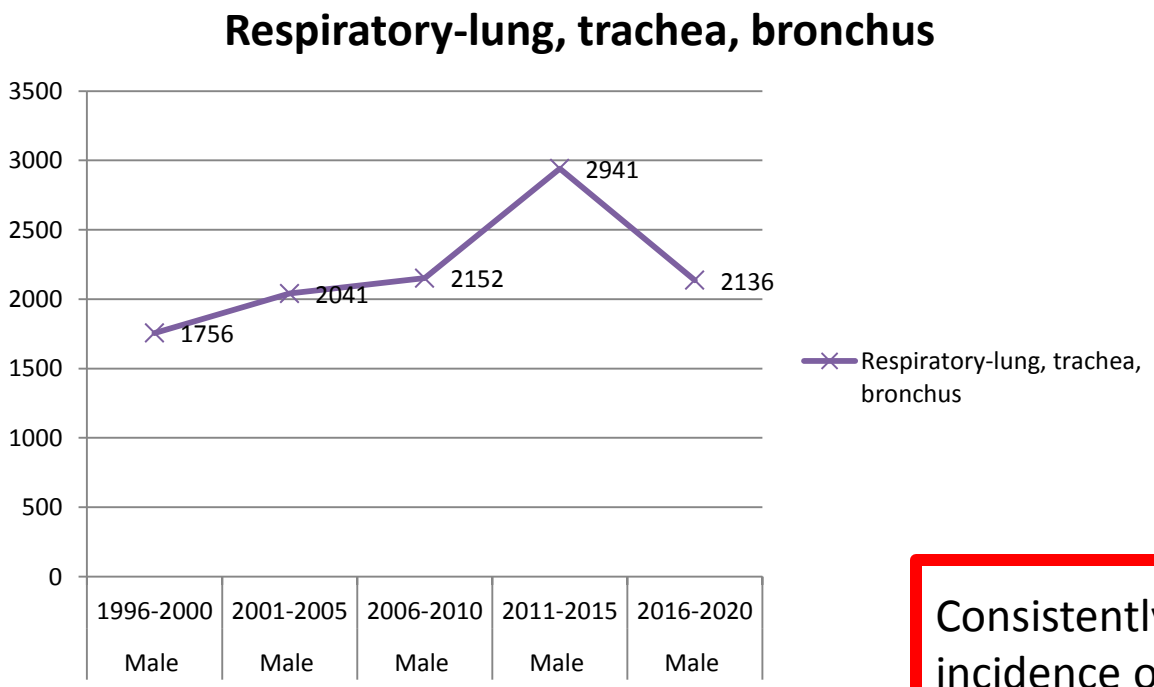
Ca Ovary



Steeply rising incidence of ovarian cancers

LUNG CANCER

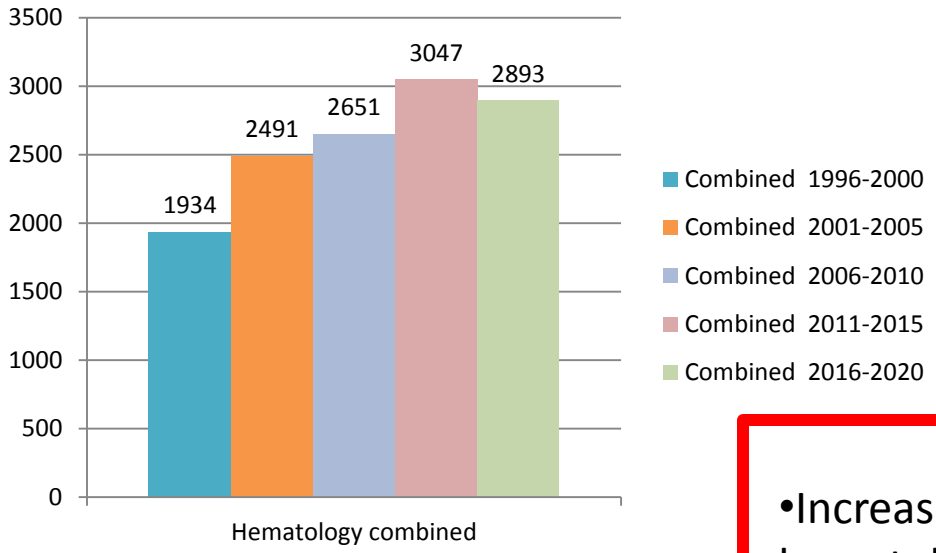
Respiratory-Lung-Male



Consistently increasing incidence of lung cancers in males

HEMATOLOGICAL CANCERS

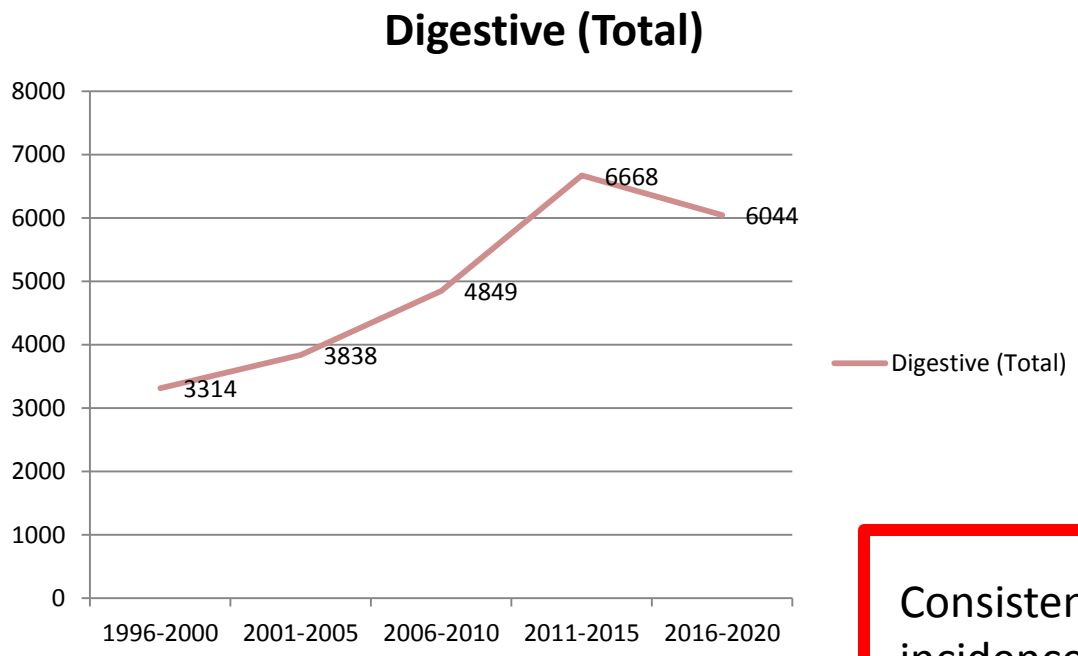
Hematological



- Increasing number of hematological malignancy registrations
- In parallel with expansion of hemato-oncology facilities

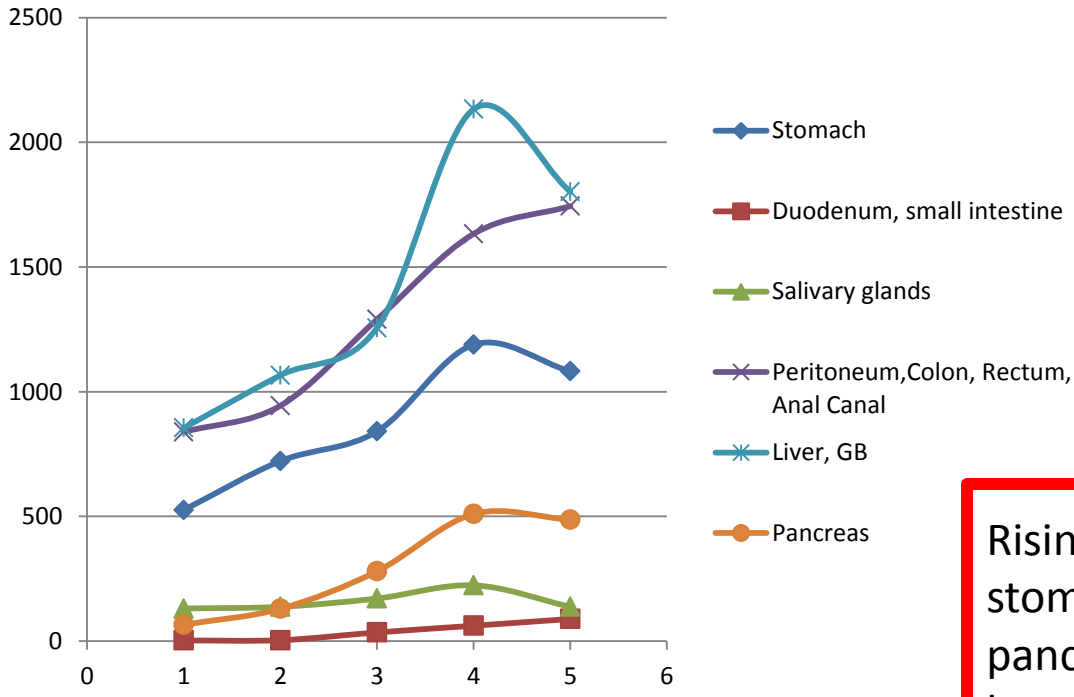
GASTROINTESTINAL CANCERS

GI cancers-Incidence vs Time



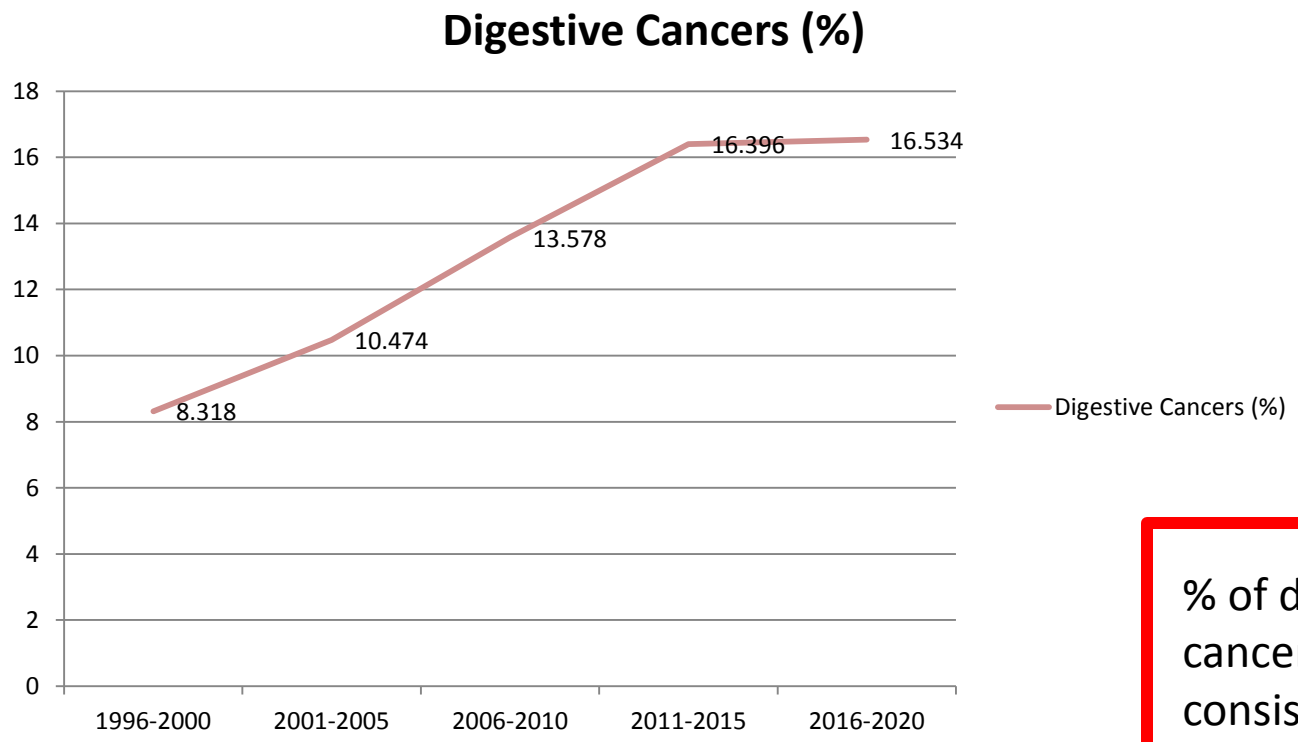
Consistently rising incidence of Digestive Cancers

GI cancers-Relative Incidence vs Time



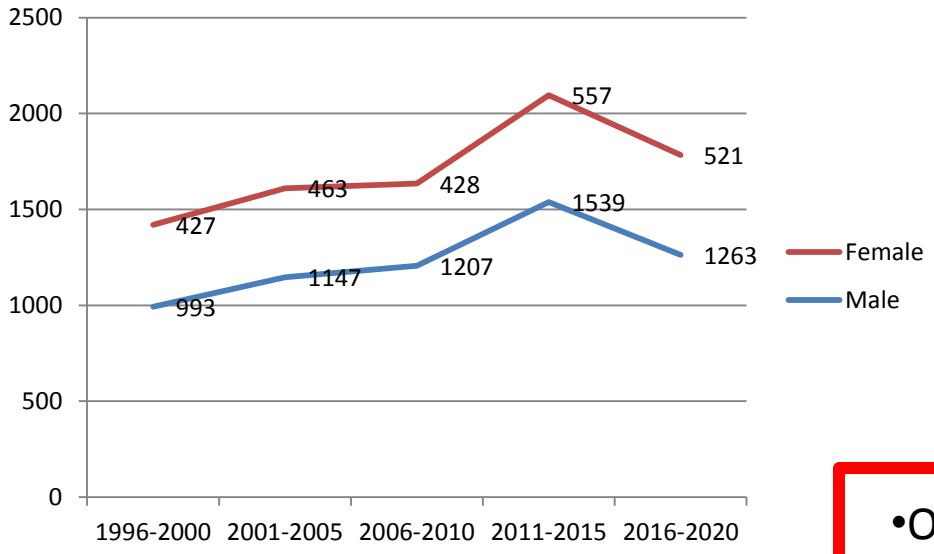
Rising incidence of stomach, colorectal, pancreatic and hepatobiliary cancers

% of GI cancers vs Time



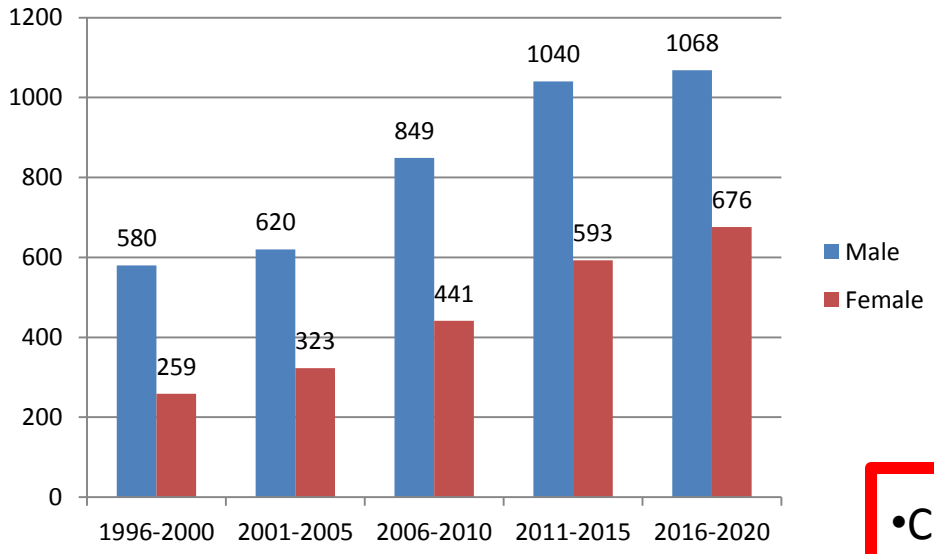
% of digestive cancers has consistently increased from 8.3% to 16.5%

Oesophagus + Stomach vs Gender across Time



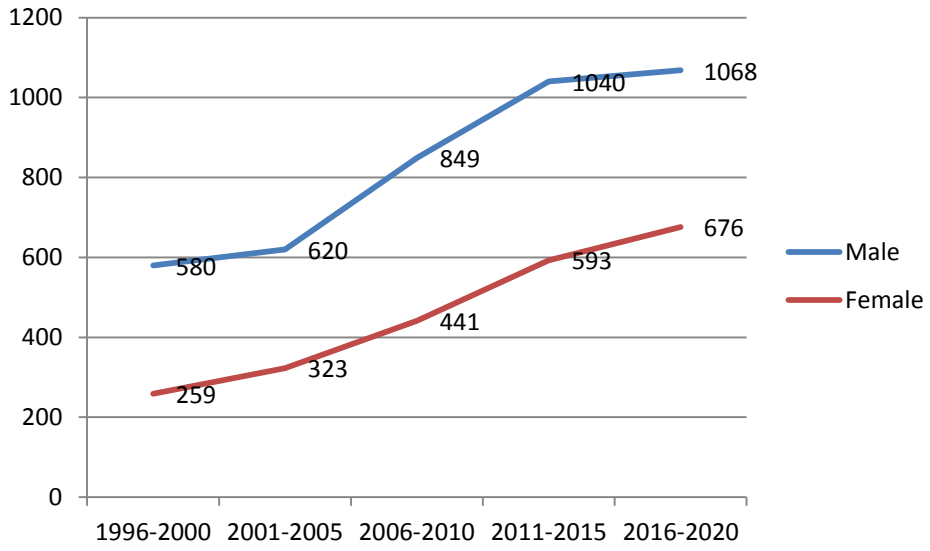
- Oesophagus & stomach cancers have increased over time
- More common in females than males

CRC vs Gender over 5-year blocks

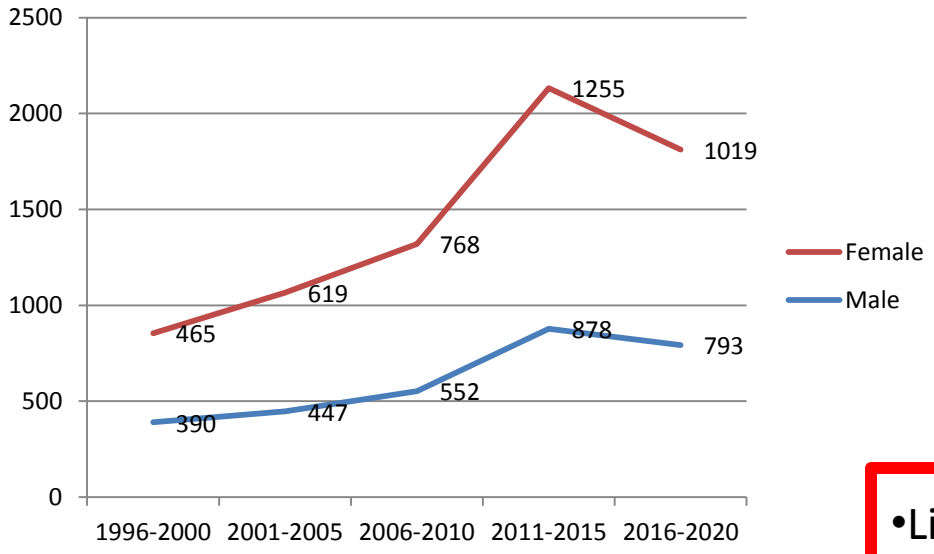


- Colorectal cancers have increased over time
- More common in males than females

CRC vs Gender over Time

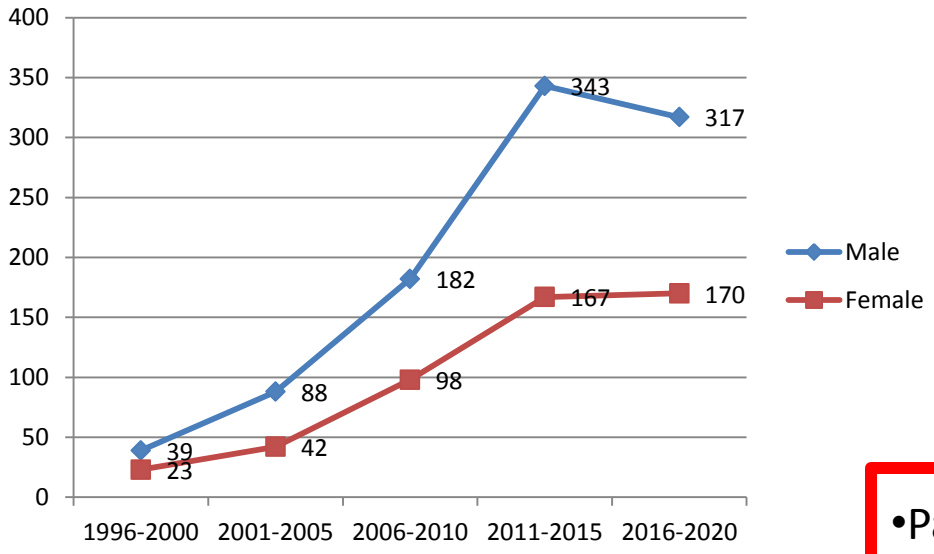


Liver+GB vs Gender over Time



- Liver & GB cancers have increased over time
- More common in females than males

Pancreas vs Gender over Time



- Pancreatic cancers have increased over time
- More common in males than females

Interesting trends

- Consistent rise in oral cavity cancers & lung cancer in males
- Consistent rise in breast cancer & ovarian cancers in females
- Consistent fall in other head-neck cancers & cervical cancers
- Consistent rise in number of hematological malignancy cases

- Breast cancer has now overtaken cervical cancer in the mid-2000s as the leading cancer in women.
- Slight decrease in the relative incidence of cervical cancer cases presenting in advanced stage (III) vs early stage (I/II)

- Digestive cancers have doubled over the last 25 years.
- The commonest digestive cancers are stomach cancer & colorectal cancers.
- The incidence of stomach cancers has increased quite steeply.
- Oesophago-gastric & hepatobiliary cancers have been more common in women, while colorectal & pancreastic cancers have been more common in men.

Effect of Covid

- Patients in 2020=4031
- Caused by lockdown & difficulty of access
- As a result, some of the trends in the 5-year period 2016-2020 are somewhat blunted (though not reversed)
- The disease outcomes for patients during this period are likely to be inferior due to delayed diagnosis and workup

STATE PBCR DATA-2021

Coverage



Population Based Cancer Registry- *Reports on cancer incidence in a defined geographic area*

Location	Chittaranjan National Cancer Institute (CNCI)
Establishment Year	2005
Coverage Area	Kolkata Municipal Corporation
Area (in Sq.km)	206.08
Urban & Rural (%)	100.0% & 0.0%

Hospital Based Cancer Registry: *Reports on the clinical profile of patients availing of care at a specific hospital*

Number of Hospitals: 5

- Tata Medical Center, Kolkata
- Chittaranjan National Cancer Institute, Kolkata
- Apollo Gleneagles Hospitals, Kolkata
- Peerless Hospital & Research Centre ltd, Kolkata
- Saroj Gupta Cancer Centre & Research Institute, Kolkata

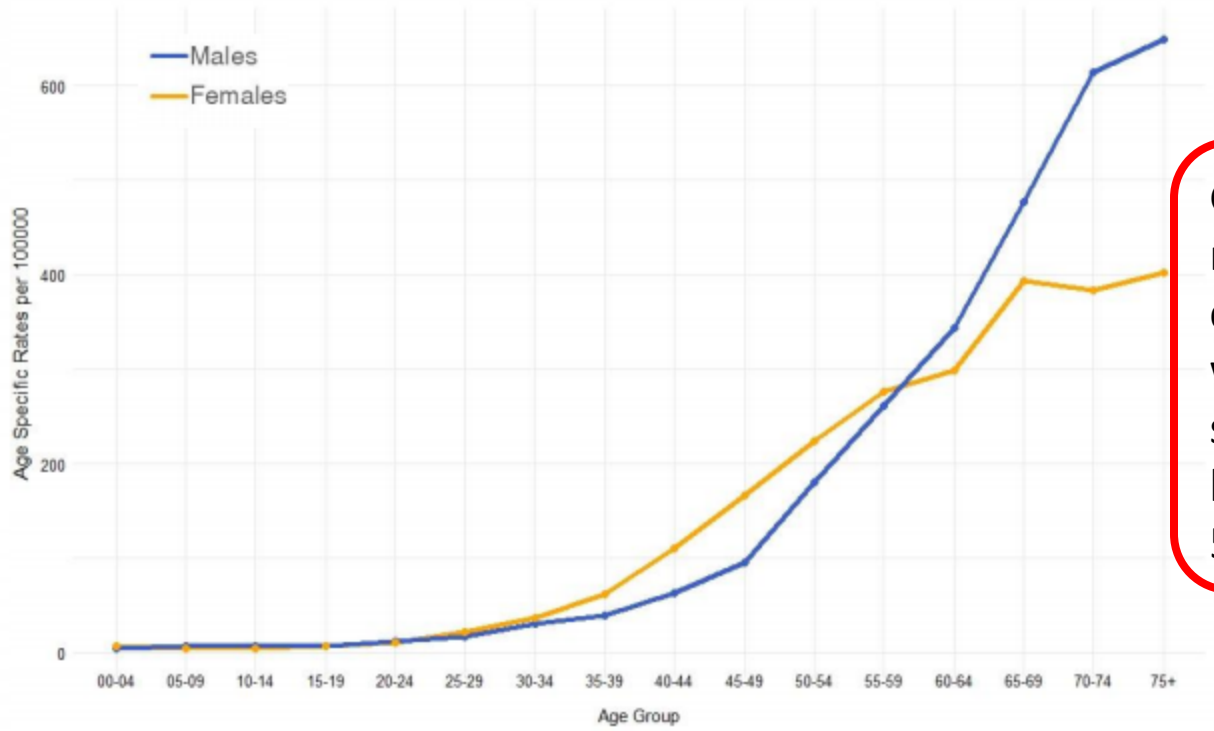
Annual Incidence Rates (per lakh population)



Cumulative risk of developing cancer of any site in 0-74 years of age group

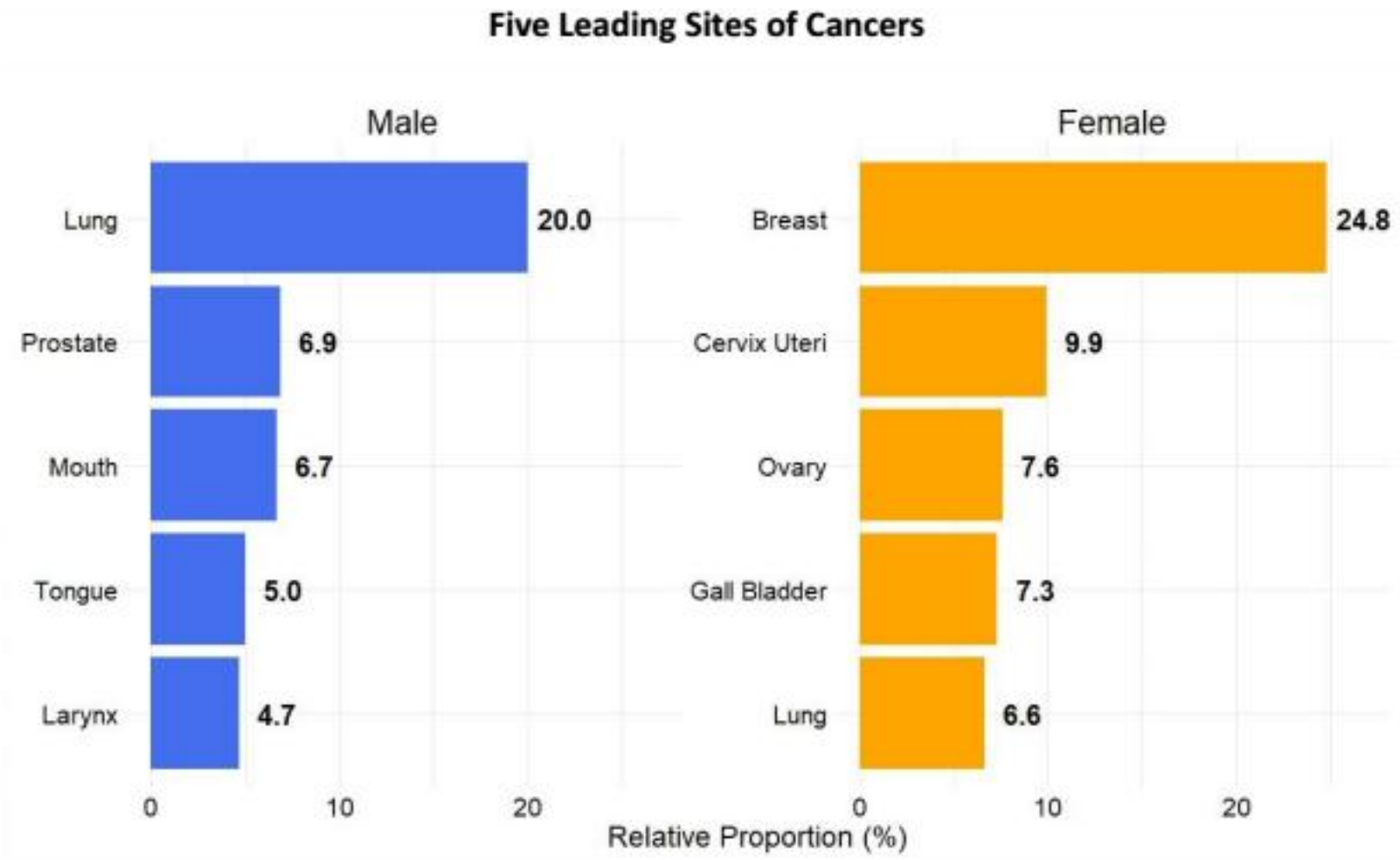


Age Specific Incidence Rates (All sites of Cancer)

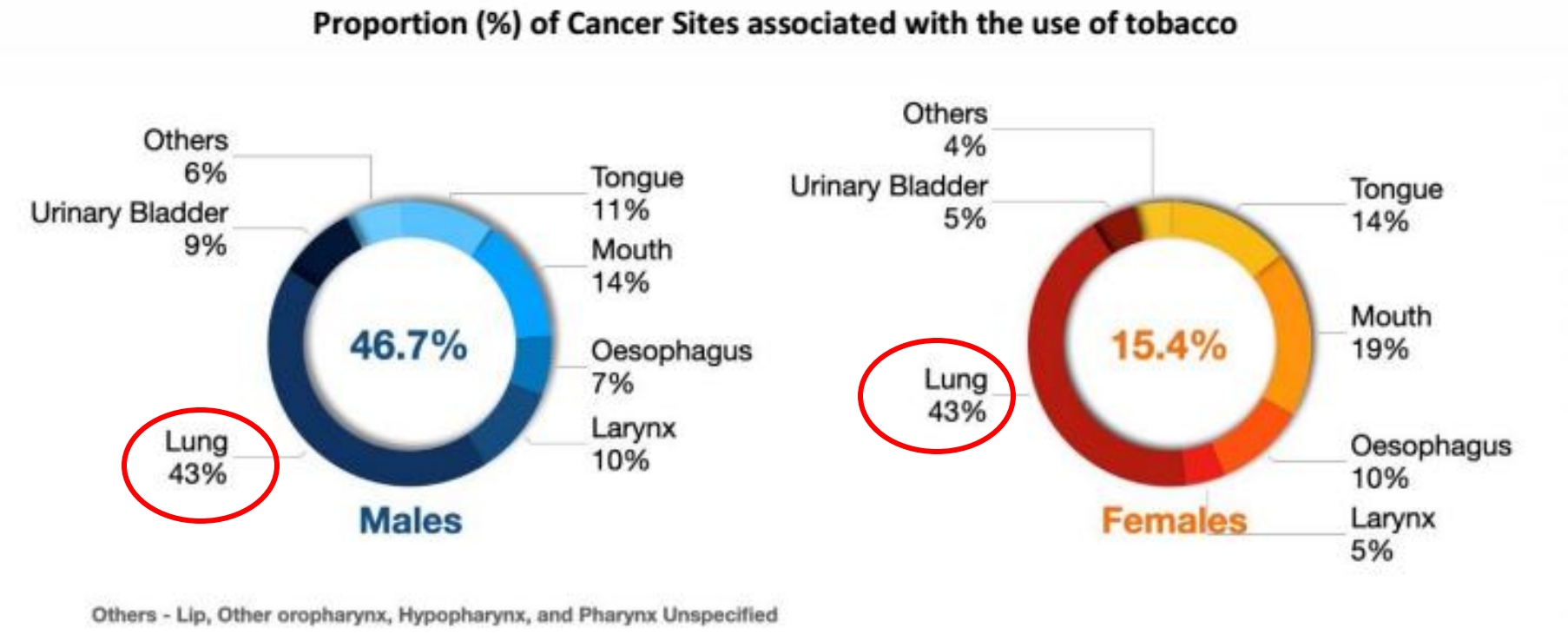


Generally risk of cancer rises with age steadily beyond 45-50 years

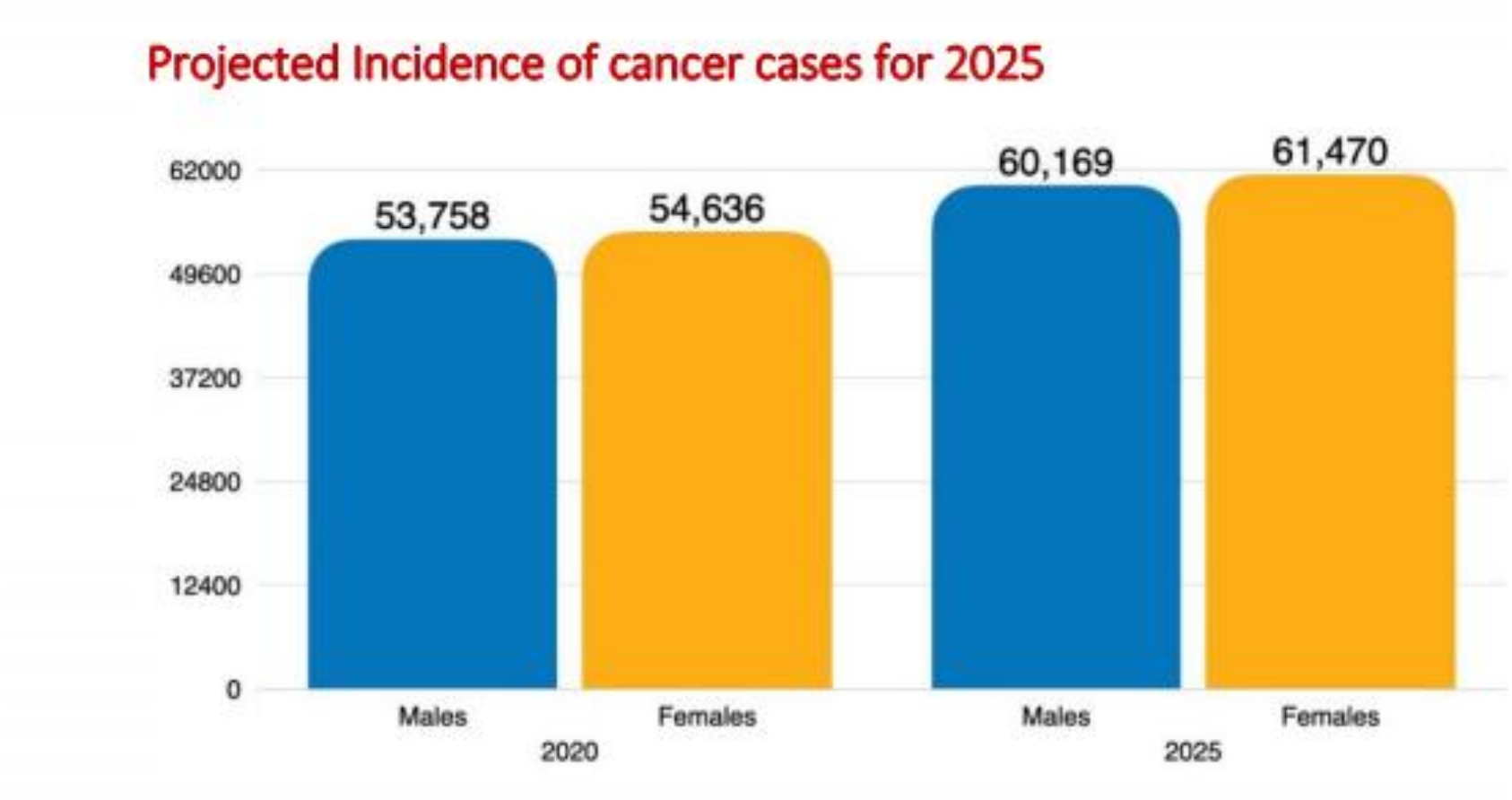
Five Leading Sites of Cancer

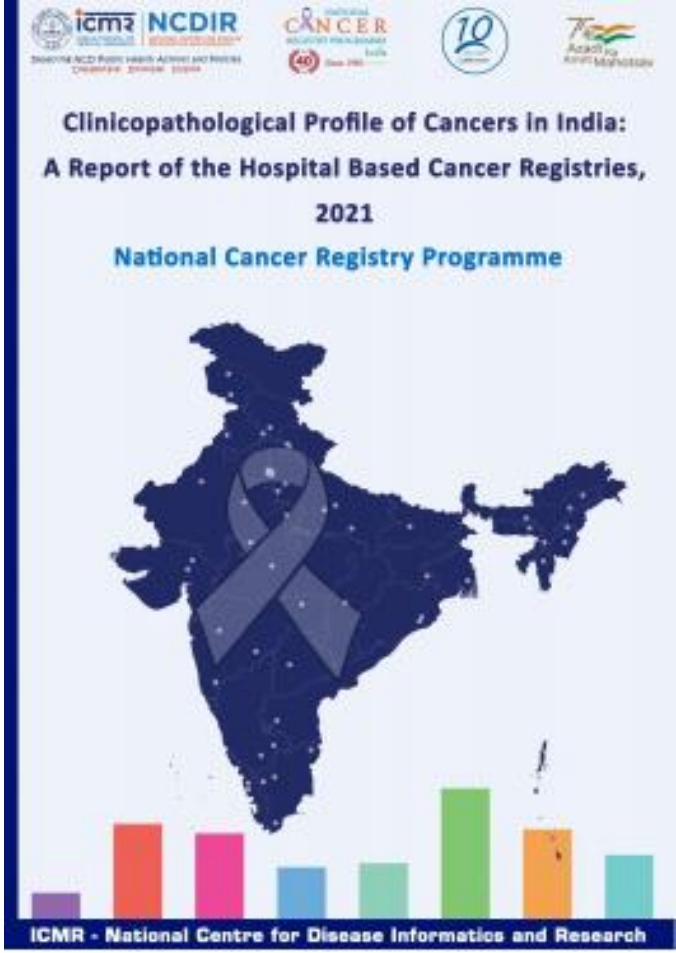


Tobacco-associated Cancers



Projected Incidence -2025





NATIONAL HBCR DATA-2021

A total of 1332207 cancer cases were recorded from the 96 hospitals during the period 2012-19. The data of 610084 cases, for which complete details are available, were included for analysis

Key Findings

- Out of 610084 cancers, 319098 (52.4%) cancers were reported in males, and 290986 (47.6%) in females.
- Childhood cancers (0-14 years) comprised 7.9% of all cancers.
- Cancers in sites associated with tobacco use comprised 48.7% of cancers among males and 16.5% among females.
- Cancers of the head and neck region accounted for nearly one third (31.2%) of the cancers among males. Gynaecologic cancers, including breast cancer (51%), accounted for over half of all cancers in females.
- The relative proportion of site-specific cancers was higher in males than females except for thyroid cancer (2.5 % in females versus 1% in males) and gall bladder cancer (3.7% in females versus 2.2 % in males)
- The highest proportion of cancer from all sites were reported in the age group 45 to 64 years, except for prostate cancer, which was higher in those over 65.
- Over 90% of the cancers in different organ sites got diagnosed by microscopic examination.
- Among all the cancers, the highest proportion of distant metastasis at presentation was seen in patients with lung cancer (49.2% males and 55.5% females), followed by gall bladder cancer (40.9% males and 45.7% females) and prostate cancer (42.9%).

GI Cancers-relative incidence rates

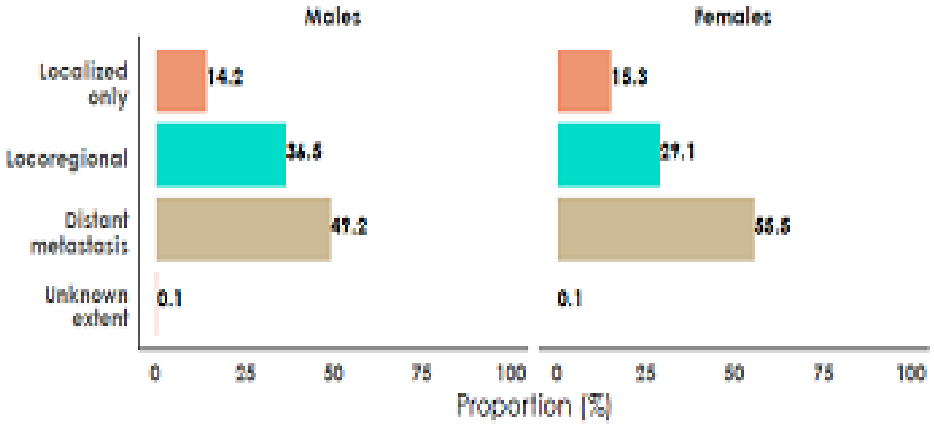
Table 2.1: Number (n) and relative proportion (%) by sites of GI tract cancers relative to all sites of cancer

Site of cancer	Males		Females		Total	
	n	%	n	%	n	%
Oesophagus	16758	5.3	9978	3.4	26736	4.4
Stomach	14170	4.4	6548	2.3	20718	3.4
Colon	6610	2.1	4382	1.5	10992	1.8
Rectum	9565	3.0	6323	2.2	15888	2.6
Liver And Intrahepatic Bile Ducts	6374	2.0	1912	0.7	8286	1.4
Gall Bladder	6883	2.2	10873	3.7	17756	2.9
Other GI tract	5776	1.8	3615	1.2	9391	1.5
Total GI tract cancer	66136	20.7	43631	15.0	109767	18.0
All sites	**319098**	**100.0**	**290986**	**100.0**	**610084**	**100.0**

Key Findings-GI cancers

- Gall Bladder Cancer more common in females & seen in younger age (45-49 years)
- Among GI cancers seen below age 20 years, liver cancer is commonest (50%)
- Between age 20-34 years (both sexes), 25% are rectal cancers
- Gall bladder & liver cancers more commonly present with distant metastases

Lung Cancer



•<u>Key points:</u>

•Lung Cancers account for 10% of male cancers but less than 4% of all female cancers

•Adenocarcinoma is the most common type of Lung Cancer in both genders

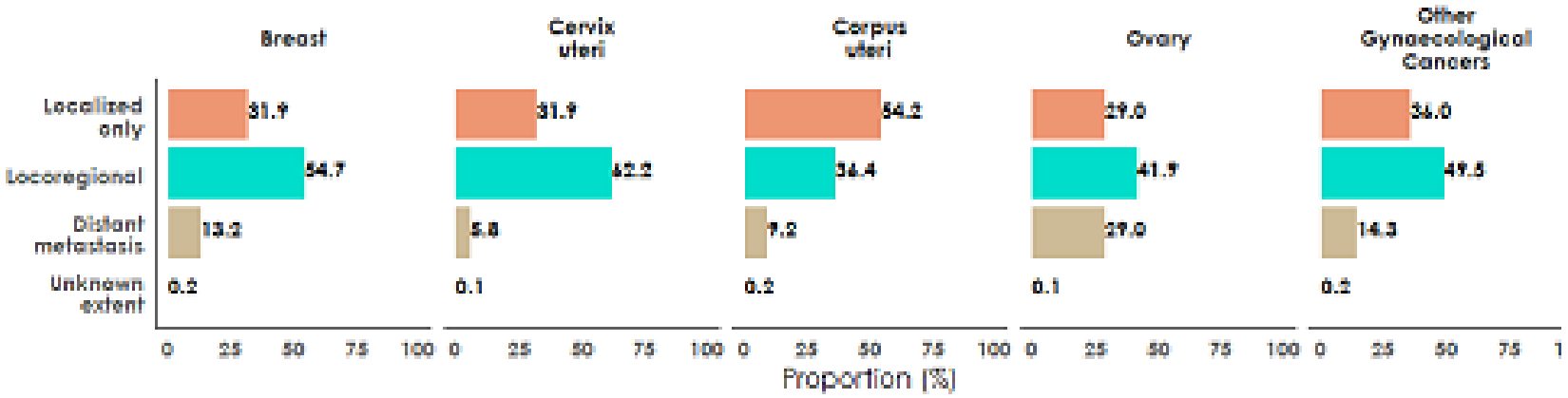
•Around 50% of lung cancers present with distant metastases

Gynaecological & Breast Cancer- relative incidence rates

Table 4.1: Number (n) and relative proportion (%) of gynaecological cancers including breast cancer relative to all sites of cancer among women

Site of cancer (ICD-10 Code)	n	%
Breast (C50)	**73998**	**25.4**
Cervix Uteri (C53)	**44300**	**15.2**
Corpus Uteri (C54)	**7648**	**2.6**
Ovary (C56)	**18411**	**6.3**
Other Gynaecological Cancers (C51, C52, C55, C57, C58)	**3981**	**1.4**
C51(Vulva)	1112	0.4
C52(Vagina)	1749	0.6
C55 (Uterus part unspecified)	691	0.2
C57 (Fallopian tube)	216	0.1
C58 (Placenta)	213	0.1
Gynaecological cancers including breast cancer	**148338**	**51.0**
All sites of cancer in women	**290986**	**100.0**

Stage at presentation-Gynaecological & Breast Cancers



Key Findings-Gynaecological & Breast Cancers

- Gynae & breast cancers account for over 50% of all female cancers (breast cancer 25.4% and cervical cancer 15.2%)
- Below 25 years, ovarian cancers are commonest type. Above this, breast cancers are the commonest at all ages
- Most common in age 45-49 years
- 50% of uterine corpus cancers present with localised disease
- Nearly 30% of ovarian cancers present with distant spread

Prostate Cancer

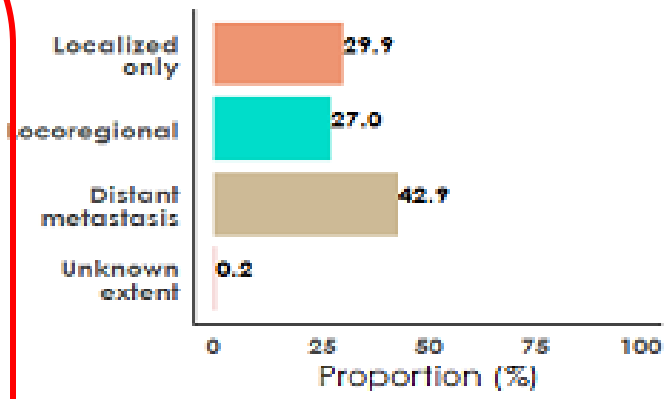
•<u>Key Points:</u>

•3% of all male cancers

•Most cases (80%) are seen above age 60 years

•Most cases (77%) are of Adenocarcinoma histology

•Nearly half (42.9%) present with distant metastases



Tobacco-associated Cancers According to region

- Most common in NE, followed by Central & East Zones

Table C.1 Number (n) and relative proportion (%) of cancers associated with use of tobacco according to geographic region

Region	Males			Females			Total		
	All Cases	n	%	All Cases	n	%	All Cases	n	%
Central	13963	8895	63.7	13342	2577	19.3	27305	11472	42.0
East	27036	10314	38.1	27198	3402	12.5	54234	13716	25.3
North	74700	35215	47.1	60512	9274	15.3	135212	44489	32.9
North East	28677	18972	66.2	21274	6228	29.3	49951	25200	50.4
South	102641	45210	44.0	114205	16719	14.6	216846	61929	28.6
West	72081	36699	50.9	54455	9937	18.2	126536	46636	36.9
Total	**319098**	**155305**	**48.7**	**290986**	**48137**	**16.5**	**610084**	**203442**	**33.3**

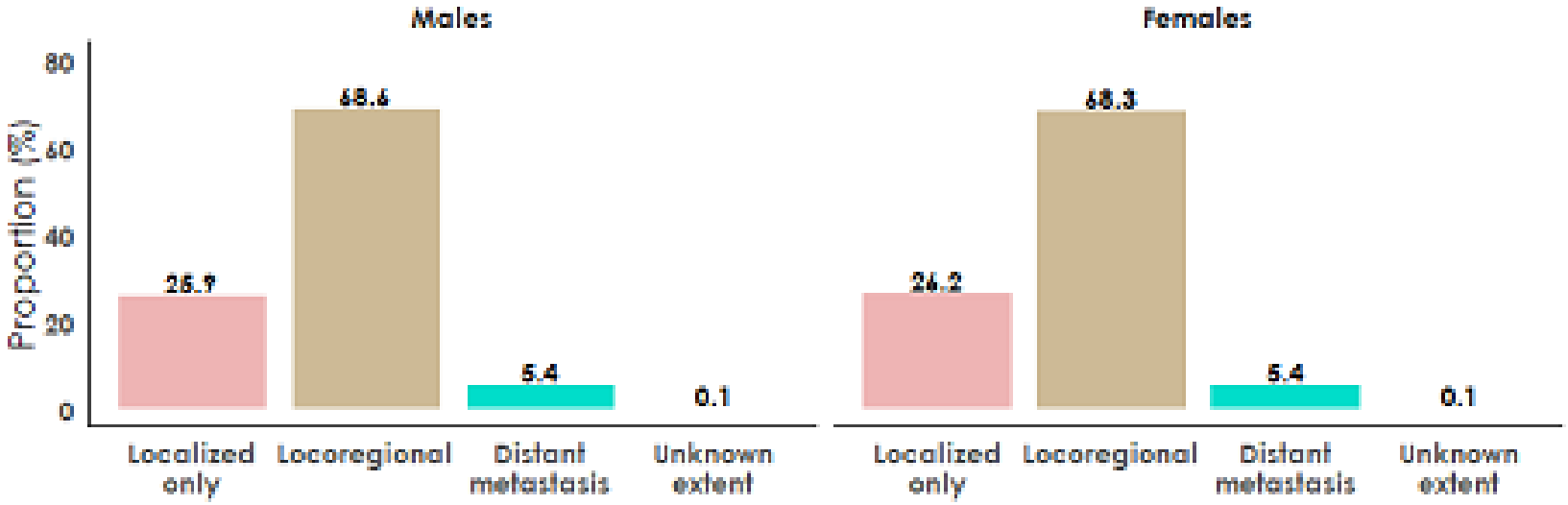
Tobacco-associated Cancers According to Cancer Site

•Most common tobacco-associated cancer in males is Mouth Cancer (24.4%) followed by Lung Cancer (22.4%) & Tongue Cancer (16.6%).

•Most common tobacco-associated cancer in females is Mouth Cancer (26.4%), followed by Lung Cancer (22.9%) & Oesophageal Cancer (20.8%)

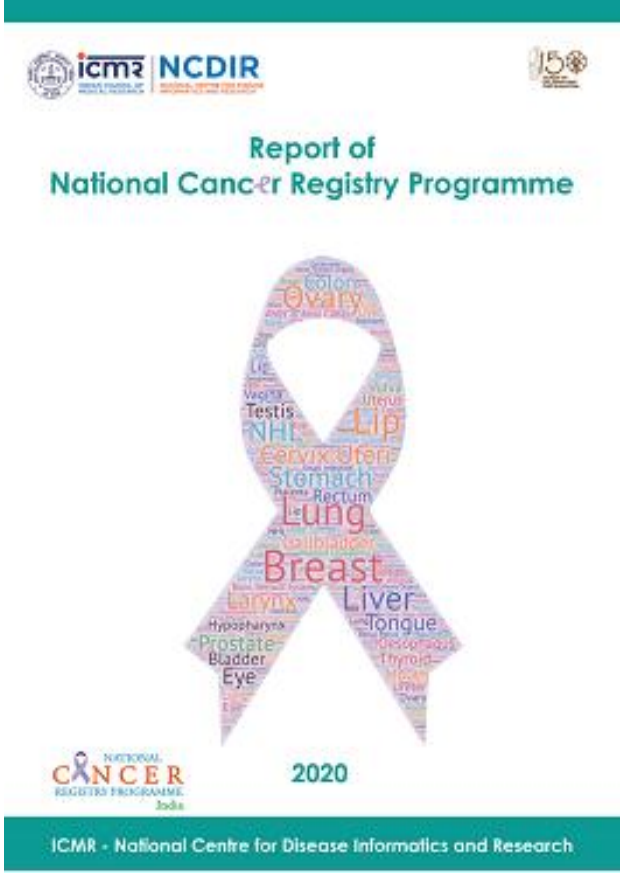
Site of Cancer (ICD-10 codes)	Males		Females	
	n	%	n	%
Lip (C00)	1723	1.1	688	1.4
Tongue (C01-C02)	25721	16.6	7149	14.9
Mouth (C03-C06)	37972	24.4	12722	26.4
Oropharynx (C10)	5122	3.3	654	1.4
Hypopharynx (C12-C13)	12856	8.3	3092	6.4
Pharynx Unspecified (C14)	1019	0.7	243	0.5
Oesophagus (C15)	16853	10.9	10029	20.8
Larynx (C32)	14466	9.3	1507	3.1
Lung etc. (C33-C34)	34832	22.4	11026	22.9
Urinary Bladder (C67)	4741	3.1	1027	2.1
Total	**155305**	**100.0**	**48137**	**100.0**

Head-Neck Cancers
Stage at Presentation



Head-Neck Cancer
Key Points

- Head-neck cancers account for 32.4% of all male cancers
- Most common in age group 45-64 years
- Higher incidence of distant metastases in nasopharyngeal cancers



NATIONAL CANCER TRENDS

Cancer Projections-ICMR data (2020)

- Expected=15.7 lakhs by 2025.
- Information from 28 Population Based Cancer Registries (PBCRs) and 58 Hospital Based Cancer Registries (HBCRs).

Site-wise

- Tobacco related cancers =3.7 lakhs (27.1%)
- Breast cancers =2.0 lakhs (14.8%) and cervical =0.75 lakhs (5.4%) in women
- Cancers of the gastrointestinal tract = 2.7 lakhs (19.7%) in both men & women.

Region-wise

- Males:
- Highest= 269.4/lakh in Aizawl district
- Lowest= 39.5/lakh in Osmanabad & Beed district

- Females:
- Highest= 219.8 /lakh in Papumpare district
- Lowest= 49.4 /lakh in Osmanabad & Beed district

Tobacco-associated Cancers

- Highest in the North-eastern region of the country
- Higher proportions in men.

Gender-wise

- Most common cancers among men:

- Lung Cancer
- Mouth Cancer
- Stomach & oesophagus Cancer.

- Most common cancers among women:

- Breast Cancer
- Cervical Cancer

Presentation & treatment

- Most often diagnosed after distant spread: Lung Cancers

- Most often diagnosed after loco-regional spread: head- neck cancers , stomach cancer, breast cancer and cervical cancer.

- Breast cancer & and head & neck cancers: a varied combination of surgery, chemotherapy and radiation therapy

- Cervical cancer : mainly radiotherapy and chemo-therapy

- Lung cancers/ stomach cancer: systemic therapy

Trends

- Increase:

- Breast cancers (women)
- Lung cancer (both sexes)
- Head & neck cancers in (both sexes).
- A declining trend was seen in most of the registries for cancer of the cervix.

- Decrease:

- Cervical cancer