CANCER

MAGNITUDE & PROBLEM
CANCER
### Global Problem of Cancer

<table>
<thead>
<tr>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cancer</td>
<td>12 Million</td>
</tr>
<tr>
<td>Developed Countries</td>
<td>5.4 Million</td>
</tr>
<tr>
<td>Developing Countries</td>
<td>6.7 Million</td>
</tr>
</tbody>
</table>
## COMMON CANCERS : GLOBAL

<table>
<thead>
<tr>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Developed</td>
<td>Developed</td>
</tr>
<tr>
<td>Developing</td>
<td>Developing</td>
</tr>
</tbody>
</table>

- **Prostate**
- **Lung**
- **Breast**
- **Breast**
- **Lung**
- **Stomach** *
- **Colorectal**
- **Cervix** *
- **Liver** *

* Related to Infection

All the three common cancers above (both developed & developing) are also leading causes of cancer death.

15% of all cancers – infection related (3 times more in developing countries)
CANCER IN DEVELOPING COUNTRIES

- Increasing deaths from infectious diseases
- Childhood mortality
- Longevity
- Adoption of Western lifestyle
  - Cigarette smoking
  - Higher consumption of saturated fat
  - Consumption of calorie-dense foods
- Survival rates poorer in developing countries (lack of availability of early detection and treatment services)
CANCER PROBLEM IN INDIA

- Estimated Population: 1,048 million
- Estimated New Cancer Cases: 9.50 lakhs
  - 4.3 M males
  - 5.2 F females
- Estimated TRC: 2,66,000
- Estimated Breast Cancer: 1,15,251
- Estimated Cervix Cancer: 1,34,420
  - (27% of world burden)
ESTIMATED TUMOUR BURDEN IN INDIA - 2007

- OVER 8,06,000 INCIDENT (NEW) CASES OF CANCER
- ABOUT 2.8 MILLION PREVALENT CANCER CASES
- ABOUT 5,60,000 CANCER DEATHS OCCUR EACH YEAR
COMMON CANCERS IN INDIA

MEN:
- Cancers of Lung, Oral Cavity, Pharynx, Oesophagus and Stomach

WOMEN:
- Cancers of Cervix, Breast, Ovary, Oral Cavity and Oesophagus
CANCER CASES IN BANGALORE

- Population Covered: 7.2 Millions
- Cancer cases: Total 6785 cases
  - Males: 3068
  - Females: 3717

AAR (Per 100,000): 118 for males and 132 for females

Common Cancers:
- Males: Lung, Stomach, Prostate, Oesophagus and Liver
- Females: Breast, Cervix, Ovary, Oral cavity and Oesophagus
TREND

Cancer of Breast is showing significantly rising trend among urban women and Cervical cancer incidence is gradually declining
TOBACCO RELATED CANCERS (TRC)

TRC constitute half of all cancers in males and one-third in females, i.e., overall about 35-40 percent of cancers are related to the use of tobacco.
POOR SURVIVAL - REASONS

Over 75 percent of the cases report for diagnostic and treatment services in advanced stages of the disease resulting in poor survival and high mortality rates.
AGE – ADJUSTED INCIDENCE RATES OF CANCER PER 100,000: 2010

<table>
<thead>
<tr>
<th>City</th>
<th>Males</th>
<th>Females</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangalore</td>
<td>95.2</td>
<td>120.2</td>
</tr>
<tr>
<td>Bhopal</td>
<td>93.5</td>
<td>95.4</td>
</tr>
<tr>
<td>Chennai</td>
<td>109.4</td>
<td>119.0</td>
</tr>
<tr>
<td>Delhi</td>
<td>119.7</td>
<td>114.7</td>
</tr>
<tr>
<td>Mumbai</td>
<td>96.6</td>
<td>104.6</td>
</tr>
<tr>
<td>Barshi*</td>
<td>45.3</td>
<td>59.9</td>
</tr>
</tbody>
</table>

* Rural based cancer Registry
Over 45,000 new cases of cancers were estimated to have occurred in Karnataka during the year 2008 and about 150,000 prevalent cancer cases
TUMOUR BURDEN AT KMIO

About one-third of the cancer cases of Karnataka are treated at KMIO.
PATIENT LOAD AT KMIO

- Over 17,000 new cases are registered every year.
- Daily about 800 patients attend this hospital for their follow-up treatment.
- About 20% of the patients are from outside Karnataka.
COMMON CANCERS AT KMIO

Males:
- Pharynx
- Oral Cavity
- Leukaemias
- Oesophagus
- Lung

Females:
- Cervix uteri
- Breast
- Oral Cavity
- Oesophagus
- Ovary
The cumulative risk among Bangaloreans was found to be 15% among males and about 17% among females. In other words, one in six persons in either sex has the risk of developing cancer in their lifetime.
WHO CAN GET CANCER?

YOUNG  OLD
MEN  WOMEN  CHILDREN

Anybody can get CANCER
<table>
<thead>
<tr>
<th>Age Group</th>
<th>% of Cancer</th>
<th>% of Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>00-14</td>
<td>4</td>
<td>35</td>
</tr>
<tr>
<td>15-34</td>
<td>10</td>
<td>39</td>
</tr>
<tr>
<td>35-64</td>
<td>62</td>
<td>22</td>
</tr>
<tr>
<td>65+</td>
<td>24</td>
<td>3</td>
</tr>
</tbody>
</table>
Cancer deaths in the UK

<table>
<thead>
<tr>
<th>Cause</th>
<th>Attributable (%)</th>
<th>Range of (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tobacco</td>
<td>29</td>
<td>27 – 33</td>
</tr>
<tr>
<td>Diet</td>
<td>25</td>
<td>15 – 35</td>
</tr>
<tr>
<td>Reproductive</td>
<td>15</td>
<td>10 – 20</td>
</tr>
<tr>
<td>Alcohol</td>
<td>6</td>
<td>4 – 8</td>
</tr>
<tr>
<td>Ionising radiation</td>
<td>5</td>
<td>4 – 6</td>
</tr>
<tr>
<td>Infection</td>
<td>5</td>
<td>4 – 15</td>
</tr>
<tr>
<td>Occupation</td>
<td>2</td>
<td>1 – 5</td>
</tr>
<tr>
<td>Pollution</td>
<td>2</td>
<td>1 – 5</td>
</tr>
<tr>
<td>UV Light</td>
<td>1</td>
<td>&lt; 1 – 1</td>
</tr>
<tr>
<td>Physical Inactivity</td>
<td>&lt; 1</td>
<td>0 – 1</td>
</tr>
</tbody>
</table>

*Diet includes overweight and obesity*
Tobacco Epidemic:

- 5 million deaths due to tobacco use
- 1.42 Million resulted from cancer
- 8,50,000 deaths due to lung cancer

100 Million deaths – 20th Century

1 Billion deaths – 21st Century (Projected)

Majority will be developing countries
Overweight, Obesity and Cancer Risk

- Being overweight or obese increases risk of several cancers including colon and breast.

- Two-thirds of men and half of women in Britain are overweight.

- An estimated 13,000 cases of cancer could be prevented each year in the UK if no one had BMI greater than 25.
WARNING SIGNALS FOR CANCER

- Change in bowel/bladder habits
- A sore that does not heal
- Unusual bleeding or discharge
- Thickening or lump in breast/elsewhere
- Indigestion or difficulty to swallow
- Obvious change in wart/mole
- Nagging cough or Hoarseness of voice
Cancer Prevention

- Avoiding tobacco
- Avoiding/limiting alcohol consumption
- Eating adequate fruits and vegetables daily
- Knowing family history of cancer
- Limiting exposure to sun/radiation
Cancer Prevention (contd..)

- Choosing healthy food reduces cancer risk by 30–40%
- Eating a low fat diet
- Regular exercising
- Maintaining healthy weight throughout life
Screening for cancer

- Early detection provides the best opportunity for successful treatment.

- Cancer screening examinations are medical tests performed when you’re healthy.

- Reliable screening tests are available for certain cancers, e.g., cervix, breast, colon, etc.
Sea of Carciogens

CANCER INCIDENCE BY SITE

Mo 29%  F 7.7% Mo
HP 6.2%  Br 22.5%
OE 8.5%  OE 6.3%
LU 10.0%  
ST 11.6%  OV 4.2%
RE 3.6%  CX 27.2%
1.8% RE

Mo=Mouth; HP=Hypopharynx; OE=Oesophagus; LU=Lung; ST=Stomach; RE=Rectum; BR=Breast; OV=Ovary; CX=Cervix

Bangalore
WHAT IS CANCER?

CELLWALL

NUCLEUS

CYTOPLASM

NORMAL CELLS

NORMAL CELLS

EXTERNAL STIMULUS (CARCINOGENS)

NORMAL CELLS

ABNORMAL CANCER CELL
FEATURES OF A CANCER CELL

PARASITIC & USELESS

MULTIPLIES RAPIDLY & DESTROYS
SURROUNDING TISSUES

SPREADS TO DISTANT PARTS OF THE BODY
WHY DOES CANCER OCCUR?

ULTRA VIOLET RADIATION

TOBACCO

NORMAL CELL

DYES CHEMICALS

ABNORMAL CANCER
SMOKING

BALANCED DIET
OTHER FACTORS PROMOTING CANCER

AGING

FAMILY HISTORY
SOME SYMPTOMS SUGGESTIVE OF CANCER

HOARSENESS OF VOICE

DIFFICULTY IN SWALLOWING

CHANGE IN SIZE AND APPEARANCE OF MOLE/WART
SOME SYMPTOMS SUGGESTIVE OF CANCER

ABNORMAL BLEEDING

CHANGE IN BOWEL/BLADDER HABIT
NUCLEAR SCAN

CAT SCAN
ENDOSCOPIC EXAMINATION

Surgery in Cancer
LINEAR ACCELERATION TO DELIVER RADIOTHERAPY

CHEMOTHERAPY
MYTHS & MISCONCEPTIONS ABOUT CANCER

CANCER IS A DEATH SENTENCE

PAIN IS AN EARLY SIGN OF CANCER

IF YOU IGNORE THE SYMPTOMS THEY WILL GO AWAY
MYTHS & MISCONCEPTIONS ABOUT CANCER

CANCER IS A COMMUNICABLE DISEASE

ALL CANCERS ARE HEREDITARY
HOW CAN YOU HELP YOURSELF?

DO NOT USE TOBACCO

FOLLOW A HEALTHY DIET
The best way to serve is to manifest it by actions.

- St. Gregory