**What is Cancer?**

Uncontrolled growth of cells
Abnormal proliferation of cells

**One cell or Several Cells of Body**

Divide with

- Forms new cells
- Reproduce rapidly

Forms mass of tissues

TUMOR (Neoplasm)

Benign

- Non cancerous
- Cells inside tumor have not spread to nearby tissues or to other parts of the body.
- Can be easily removed
- Rarely life threatening

Malignant

- Cancerous
- "Invade" and damage nearby tissues & organs
- As tumor grows cancer cell separate from it & enters blood & stream
- Life threatening

**Spread of Cancer Cells to Other Parts of Body**

- From one tissue to other tissue
- METASTASIS
  - Blood stream
  - Lymphatic system

**No Role of Any External Organisms**

Cancer is a NON COMMUNICABLE DISEASE

SofG;/ ;?jf /fj
WHO
40% of Cancer is Preventable
30% of Cancer is Curative
30% of Cancer is Palliative

Global Cancer Burden
(World Health Organization [WHO])

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>New cases of cancer</td>
<td>10 million</td>
<td>20 million</td>
</tr>
<tr>
<td>No. of cancer-related deaths</td>
<td>6 million</td>
<td>12 million</td>
</tr>
<tr>
<td>Percentage of new cases in developing countries</td>
<td>50%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Global burden of cancer
- Cancer is a leading cause of death worldwide.
- The disease accounted for 7.4 million deaths (or around 13% of all deaths worldwide) in 2004.
- More than 70% of all cancer deaths occurred in low- and middle-income countries.

Global burden of cancer
- Deaths from cancer worldwide are projected to continue rising, with an estimated 12 million deaths in 2030.
- The most frequent types of cancer worldwide (in order of the number of global deaths) are:
  - Among men - lung, stomach, liver, colorectal, Oesophagus and prostate
  - Among women - breast, lung, stomach, colorectal and cervical.

The main types of cancer leading to overall cancer mortality each year are:
- Lung (1.3 million deaths/year)
- Stomach (803,000 deaths)
- Colorectal (639,000 deaths)
- Liver (610,000 deaths)
- Breast (519,000 deaths).
Ca. Lip      Ca. Buccal Mucosa
Ca. Oral cavity  Ca. Tongue       Ca. Post Ph Wall
Ca. Gingiva      Ca. Palate
Ca. Larynx (Voice Box)
Ca. Bladder
Ca. Kidney
Ca. Cervix
Ca. Lung
Ca. Oral cavity
Ca. Larynx
Ca. Bladder
Ca. Breast

Vf}gL, 1tL{}, g{, kfg, tDjfs', u'6sf, kfg kfu .

r"{fj6, ljF8L, lrnLd, x'Ssf, kfOk

Cause of Cancer

No Definite Cause of Cancer

Food habit
Life style
Hereditary
Radiation exposure

Carcinogenic Substances

Substances Which Causes Cancer
This picture shows former baseball player Rick Bender speaking about his oral cancer probably caused by chewing tobacco. He lost his jaw and part of his tongue in surgeries.

**Packaging & Marketing of Cigarettes in Nepal at present.**

**Packaging & Marketing of Cigarettes with Graphical Warnings in Thailand.**
Smoking causes fatal lung cancer
Cancer Prevention

Obesity and Cancer
- Obesity found to be responsible for 14% of all cancers in a study of 900,000 people, conducted by the American Cancer Society
- Excess body mass accounts for 5% of all cancers in the European Union

Reduction of Cancer Risk with Weight Control and Adequate Physical Activity

<table>
<thead>
<tr>
<th>Cancer Site</th>
<th>Risk Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon</td>
<td>Convincing (13-14%)</td>
</tr>
<tr>
<td>Breast</td>
<td>Convincing (11%)</td>
</tr>
<tr>
<td>Endometrium</td>
<td>Accumulating consistent results (11%)</td>
</tr>
<tr>
<td>Prostate</td>
<td>Inconsistent and problematic</td>
</tr>
<tr>
<td>Lung</td>
<td>Limited information, possible risk reduction</td>
</tr>
<tr>
<td>Ovary</td>
<td>Limited information—an increase?</td>
</tr>
</tbody>
</table>

What about Diet?
- “Five a day” remains best recommendation
- Diet is complex mixture of known and unknown substances
- Genetics and diet interactions are likely to be important

Infection and Cancer
- Infectious agents cause as much as 23% of cancers in developing countries and approximately 8% in developed countries
Infection and Cancer (contd.)

- Virus: Human papillomavirus (HPV) causes cervical cancer, anal cancer; can be prevented with use of condoms and with vaccine.
- Hepatitis B virus causes liver cancer; can be prevented with vaccine.
- Bacteria: Helicobacter pylori and stomach cancer.
- Parasites: schistosomiasis and bladder cancer.

Cancer Prevention through Control of Environmental Exposure to Carcinogens

Most prevalent carcinogens
- Asbestos, Nickel, Chromium, Radon
- Tobacco smoke (passive)
- Chlorinated drinking water
- Arsenic-contaminated water

Childhood Cancers

- Overall cure rate for cancer in children now exceeds 70% and is projected to reach 85% by the year 2010
- Estimated that early in the new millennium, 1 in every 1,000 young adults (20-29 years) will have been treated earlier in life for cancer

Eight Alarming Signs of Cancer

DIAGNOSIS

<table>
<thead>
<tr>
<th>History</th>
<th>Investigations</th>
<th>Histopathology</th>
</tr>
</thead>
<tbody>
<tr>
<td>(80% diagnosis)</td>
<td># Blood test</td>
<td># Tumour marker</td>
</tr>
<tr>
<td># X-ray</td>
<td># USG</td>
<td># CT scan</td>
</tr>
<tr>
<td># MRI</td>
<td></td>
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</tr>
</tbody>
</table>

Histopathology

Histological diagnosis is must to treat any cancer patient
TREATMENT

Surgery   Radiotherapy   Chemotherapy

Surgery

Radiotherapy

Radio = Radiation
Therapy = Treatment
RT:
# Completely painless
# Does not hurt
# Nothing hurt
# Nothing to see
# Like ordinary X-ray picture taking
# Each session lasts for just 1-2 mts

RT

Teletherapy
Brachytherapy

Chemotherapy

Chemo = Chemical
Therapy = Treatment

Anti-Cancer Drugs
Anti Neoplastic Agents

CT

To Cure Cancer
Keep Cancer from spreading
Slow Cancer’s Growth
Kill Cancer Cells going to other parts of the body

Surgery

Remove cancer tissue as much as possible &
Also remove draining lymph nodes

Ca. Pancreas   Ca. GB   Ca Stomach   Ca. Rectum
Conclusion

Initially …….. Cancer has no answer
Now ………. Cancer has multiple answer
# Surgery
# Radiotherapy
# Chemotherapy

40% of all Cancers are PREVENTABLE
Before Treatment  After Treatment

Before Treatment  After Treatment

Before Treatment  After Treatment

THE NEXT BIG THING IS REALLY SMALL!

THANK YOU

Any Questions?