Burden of Cancer in Asia

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Non communicable disease and health promotion
WHO Western Pacific Region
Burden of Cancer

- Incidence, Mortality, Morbidity (Prevalence): by site, age group, sex
- Summary measurements: DALY (disability adjusted life year), YLLs (years life lost due to premature death), YLD (years lived with disability), HeaLY (healthy life years lost), etc
- Economic burden: Medical cost, non-Medical cost
Estimate of the Global Burden of Cancer: The GLOBOCAN project

The aim of the GLOBOCAN project is to provide contemporary estimates of the incidence of, and mortality from the major types of cancer, at national level, for every country in the world.

GLOBOCAN 2008 in June 2010

Members of Editorial board:
Jacques Ferlay, Hai-Rim Shin (IARC)
Max Parkin, Freddie Bray (Cancer team for GBD, WHO)
Colin Mathers (WHO HQ)
Estimate of the Global Burden of Cancer: The GLOBOCAN project

Data sources (1)

Incidence and survival data:

- Provided by cancer registries thru the *International Association of Cancer Registries (IACR)*
- Mostly regional.
- Not always recent (generally 5 year *late*): request time to be compiled and published.
- *Detailed information* (site, histology, laterality, grade, stage).
Coverage of cancer registration worldwide
% of the population covered (around 2000)

16.5% total
(21% in 2006- 8% in Asia )
Preparing National Incidence Estimates

- National incidence data
- Mortality data
- Regional incidence data
- Relative frequency
- No data

Average

GLOBOCAN 2008
Same
Data sources (2)

Mortality data (number of death from cancer):

- National level
- Provided by the WHO
- Recent and available for long time periods (1950 to 2008).
- Limited number of cancers.
- Quality can be poor (under-reporting, coverage-not full, high percentage of ill-defined causes of deaths etc.)
Mortality data (WHO databank)
% of the population covered (around 2005)

- 100.0
- 95.0
- 13.8* (Egypt and South-African Republic)
- 98.0
- 9.0
- 33% total
- 76.5

*Egypt and South-African Republic
Preparing National Mortality Estimates

National mortality data

Regional mortality data

No data

Country-specific survival data only to the country of origin and to the neighboring countries: India, Bangladesh, Nepal and Sri Lanka using Indian survival probabilities, and Thailand, Cambodia, Laos and Myanmar using Thai and/or Chinese survival data.

For the other countries, country-specific survival, by cancer, using socio-economic data (country specific GDP).

GLOBOCAN 2008
The results are presented for 170 countries of the world, plus build-in areas (six WHO regions, more and less developed countries and the world)

Data available for 28 major cancers, for men and women, and for 5 age groups: 0-14, 15-44, 45-54, 55-64, 65+

Accessible thru the Internet or using a Windows-based PC software
THE GLOBOCAN PROJECT

Welcome to the GLOBOCAN project. The aim of the project is to provide contemporary estimates of the incidence of, and more have been prepared separately for each sex and for ten broad age groups. Please note that

1. The GLOBOCAN estimates for 2008 are based on the most recent data available at IARC and on information publicly
2. Because the sources of data are continuously improving in quality and extent, estimates may not be truly comparable
differences may be the result of a change in the methodology and should not be interpreted as a time trend effect.

Usage:

› For a quick access to a summary of the burden of cancer in a country or for a cancer, use the FACT SHEETS option. Fact Sheets were developed to provide a quick overview of frequently-requested cancer incidence and mortality statistics.
› If you want to perform simple analysis or create your own graphs using GLOBOCAN data, use the ONLINE ANALYSIS menu.

Notes:

› The material extracted from this website is in the public domain. You may use it “as is” but must cite the corresponding reference.
› The Cancer Information Section (CIN) of IARC reserves the right to update or change information contained in the database.
› IARC has proprietary rights to the materials on the Website. Systematic retrieval of data to create or compile, directly or indi
GLOBOCAN2008
Pop: 6,750 M
Cases: 12.7M
Deaths: 7.7M

In incidence, the leading causes are:
- Lung (34.7%)
- Breast (12.7%)
- Large bowel (10.3%)
- Stomach (9.7%)
- Liver (9.7%)
- Prostate (7.2%)
- Other (5.9%)

In mortality, the leading causes are:
- Lung (34.4%)
- Breast (10.2%)
- Stomach (6.1%)
- Liver (6.1%)
- Prostate (3.9%)
- Other (3.4%)

Other categories include:
- Cervix uteri
- Oesophagus

Source: World Health Organization
Male

Estimated age-standardised incidence rate per 100,000
All cancers excl. non-melanoma skin cancer: male, all ages

GLOBOCAN 2008 (IARC) - 20.7.2010
Female

Estimated age-standardised incidence rate per 100,000
All cancers excl. non-melanoma skin cancer: female, all ages

GLOBOCAN 2008 (IARC) - 20.7.2010
More developed regions

- all regions of Europe,
- Northern America,
- Australia/New Zealand
- and Japan.

Less developed regions

- all regions of Africa,
- Asia (excluding Japan)
- Latin America and the Caribbean,
- Melanesia, Micronesia and Polynesia.
## Countries in Asia

<table>
<thead>
<tr>
<th>Eastern (6)</th>
<th>South-Eastern (11)</th>
<th>South-Central (13)</th>
<th>Western (17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Brunei</td>
<td>Afghanistan</td>
<td>Armenia</td>
</tr>
<tr>
<td>Japan</td>
<td>Cambodia</td>
<td>Bangladesh</td>
<td>Azerbaijan</td>
</tr>
<tr>
<td>S Korea</td>
<td>Indonesia</td>
<td>Bhutan</td>
<td>Bahrain</td>
</tr>
<tr>
<td>N Korea</td>
<td>Lao PDR</td>
<td>India</td>
<td>Georgia</td>
</tr>
<tr>
<td>Mongolia</td>
<td>Malaysia</td>
<td>Iran</td>
<td>Israel</td>
</tr>
<tr>
<td>Taiwan</td>
<td>Myanmar</td>
<td>Kazakhstan</td>
<td>Jordan</td>
</tr>
<tr>
<td></td>
<td>Philippines</td>
<td>Kyrgyzstan</td>
<td>Kuwait</td>
</tr>
<tr>
<td></td>
<td>Singapore</td>
<td>Nepal</td>
<td>Oman</td>
</tr>
<tr>
<td></td>
<td><em>Timor-Leste</em></td>
<td>Pakistan</td>
<td>Turkey</td>
</tr>
<tr>
<td></td>
<td>Thailand</td>
<td>Sri Lanka</td>
<td>Others (4)</td>
</tr>
<tr>
<td></td>
<td>Viet Nam</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Data used for Asian Countries

### Eastern Asia

<table>
<thead>
<tr>
<th></th>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Regional CR data and national mortality estimates</td>
<td>Sample mortality</td>
</tr>
<tr>
<td>Japan</td>
<td>Regional CR data</td>
<td>National mortality</td>
</tr>
<tr>
<td>Korea, N</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Korea, S</td>
<td>National incidence</td>
<td>National mortality</td>
</tr>
<tr>
<td>Mongolia</td>
<td>National incidence</td>
<td>National mortality</td>
</tr>
<tr>
<td>Chinese, Taipei</td>
<td>National incidence</td>
<td>National mortality data</td>
</tr>
</tbody>
</table>
### Data used for Asian Countries

**South-Eastern Asia**

<table>
<thead>
<tr>
<th>Country</th>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei</td>
<td><em>National cancer registry</em></td>
<td>National mortality data 2006</td>
</tr>
<tr>
<td>Cambodia</td>
<td>Frequency data</td>
<td>No data</td>
</tr>
<tr>
<td>Indonesia</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Lao</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Regional CR data</td>
<td>No data</td>
</tr>
<tr>
<td>Myanmar</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Philippines</td>
<td>Regional CR data</td>
<td>Sample mortality data</td>
</tr>
<tr>
<td><strong>Singapore</strong></td>
<td>National Incidence</td>
<td>National mortality</td>
</tr>
<tr>
<td>Thailand</td>
<td>Regional CR data</td>
<td>No data</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>Regional CR data</td>
<td>Sample mortality</td>
</tr>
</tbody>
</table>
# Data used for Asian Countries

## South-Central and Western Asia

<table>
<thead>
<tr>
<th>Country</th>
<th>Incidence</th>
<th>Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Afghanistan, Bangladesh,</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tajikistan, Kazakhstan, Kyrgyzstan</td>
<td>No data</td>
<td>No data</td>
</tr>
<tr>
<td>Bhutan, Palestine, Sri Lanka</td>
<td>National incidence</td>
<td>No data</td>
</tr>
<tr>
<td>Jordan, Lebanon, Oman, Qatar, Saudi, UAE</td>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>Turkmeistan, Uzbekistan</td>
<td>No data</td>
<td>corrected</td>
</tr>
<tr>
<td>Nepal, Iraq</td>
<td>Regional CR</td>
<td>No data</td>
</tr>
<tr>
<td>India, Pakistan, Iran, Yemen</td>
<td>National Incidence</td>
<td>National mortality</td>
</tr>
<tr>
<td>Israel, Bahrain, Kuwait, Palestine</td>
<td>National Incidence</td>
<td>National mortality</td>
</tr>
</tbody>
</table>
## GLOBOCAN 2008 Methods for Turkey

**Incidence:** Incidence rates were estimated as the weighted average of those observed in:
1. Iran, Ardabil province (2004-2006) for the East and Southeast regions (20% of the Turkish population)

**Mortality:** The number of cancer deaths in 2008 was estimated from incidence estimates (see above) and site specific survival, estimated by the GDP method (by Who HQ). Finally, the number of cancer cases AND cancer deaths were scaled to the estimated WHO total number of cancer deaths by sex for 2008.
# GLOBOCAN2008 in Asia

<table>
<thead>
<tr>
<th>Region</th>
<th>Eastern</th>
<th>South-eastern</th>
<th>South-central</th>
<th>Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pop</td>
<td>1,570M</td>
<td>574.5M</td>
<td>1,729M</td>
<td>223.2M</td>
</tr>
<tr>
<td>(% of World)</td>
<td>(23.3%)</td>
<td>(8.5%)</td>
<td>(25.6%)</td>
<td>(3.3%)</td>
</tr>
<tr>
<td>Cases (1,000)</td>
<td>3720.6</td>
<td>724.7</td>
<td>1,423</td>
<td>223.3</td>
</tr>
<tr>
<td>(%)</td>
<td>(29.3%)</td>
<td>(5.7%)</td>
<td>(11.2%)</td>
<td>(1.8%)</td>
</tr>
<tr>
<td>Deaths (1,000)</td>
<td>2,399.4</td>
<td>500.3</td>
<td>979.9</td>
<td>151.2</td>
</tr>
<tr>
<td>(%)</td>
<td>(31.7%)</td>
<td>(6.6%)</td>
<td>(12.9%)</td>
<td>(2.0%)</td>
</tr>
</tbody>
</table>
GLOBOCAN 2008 (Eastern Asia)

Incidence

- 645,764 (17.4%)
- 601,314 (16.2%)
- 472,287 (12.7%)
- 402,406 (22.6%)
- 281,072 (7.6%)
- 240,318 (6.6%)
- 201,872 (7.6%)
- 97,702 (2.6%)
- 90,768 (2.4%)
- 86,108 (2.3%)

Mortality

- 550,518 (22.6%)
- 457,815 (18.8%)
- 429,682 (17.6%)
- 418,536 (17.2%)
- 225,046 (9.3%)
- 180,406 (6.9%)
- 81,742 (2.5%)
- 61,993 (0.9%)
- 39,723 (1.5%)
- 21,900 (0.8%)
- 18,285 (0.7%)

- Lung
- Stomach
- Liver
- Large bowel
- Oesophagus
- Breast
- Corpus uteri
- Cervix uteri
- Leukaemia
- Other
GLOBOCAN 2008 (South-Eastern Asia)

### Incidence

- 232,565 (32.1%)
- 66,945 (12.0%)
- 24,859 (3.4%)
- 25,906 (3.8%)
- 43,281 (6.0%)
- 74,888 (10.3%)
- 86,889 (9.5%)
- 44,404 (6.1%)

### Mortality

- 149,894 (29.9%)
- 36,764 (7.3%)
- 69,192 (13.8%)
- 65,665 (17.1%)
- 22,487 (4.5%)
- 22,864 (4.5%)
- 44,325 (8.8%)
- 15,388 (3.1%)
- 19,087 (3.8%)
- 35,357 (7.1%)

**Legend:**
- Lung
- Breast
- Liver
- Large bowel
- Cervix uteri
- Stomach
- Leukaemia
- Non-Hodgkin lymphoma
- Nasopharynx
- Other
GLOBOCAN 2008 (South-central Asia)
GLOBOCAN 2008
(Western Asia)
### Burden of cancer in Asia

<table>
<thead>
<tr>
<th></th>
<th>East +South Eastern</th>
<th>South Central+ Western</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>2,144.6M (31.8%)</td>
<td>1952.2M (28.9%)</td>
</tr>
<tr>
<td>Cases</td>
<td>4,445 (35.1%)</td>
<td>1646.3 (13.0%)</td>
</tr>
<tr>
<td>Deaths</td>
<td>2,900 (38.3%)</td>
<td>1131.1 (14.9%)</td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td>4096.8M (60.7%)</td>
</tr>
<tr>
<td>Cases</td>
<td></td>
<td>6091.6 (48.0%)</td>
</tr>
<tr>
<td>Deaths</td>
<td></td>
<td>4030.8 (53.2%)</td>
</tr>
</tbody>
</table>

The majority of the increase is expected in low- and middle-income countries where health services are least able to meet the impending challenge.
Summary

**Eastern Asia**
- Lung
- Stomach
- Liver
- Colorectum
- Esophagus
- Breast

**Western Asia**
- Lung
- Colorectum
- Lip, Oral
- Oesophagus
- Breast
- Uterine
- Prostate

**Risk factors**
- Development (Industrialization) vs Westernized Life style
Burden of cancer

- Incidence, Mortality, Prevalence, Survival
- Causes of cancer
  - Tobacco Smoking
  - Infectious Agents
  - Environment
  - Diet
  - Obesity
  - Genetic
  - Alcohol Drinking
  - Occupation
  - Radiation
  - Reproductive factors
  - Physical inactivity
  - HRT/Oral Contraceptive
- Population Attributable Fraction
- Cancer Control (planning/monitoring/Evaluation)
Registries in Asia in CI5 IX

44 Registries (15 Countries): Population coverage 4%
Cancer Registries in Asia and the Pacific
- Subdivided into Categories -

Population coverage: 8%-10%
Special Thanks for the contribution of cancer registries in Asia

Thank you for your time and attention!
Questions and Comments