

Global Action Against Cancer

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The Twentieth Century

The twentieth century saw the greatest increase in life expectancy among the human population in such a short period of time [see Cairns J. *Cancer Science and Society* (1977)].

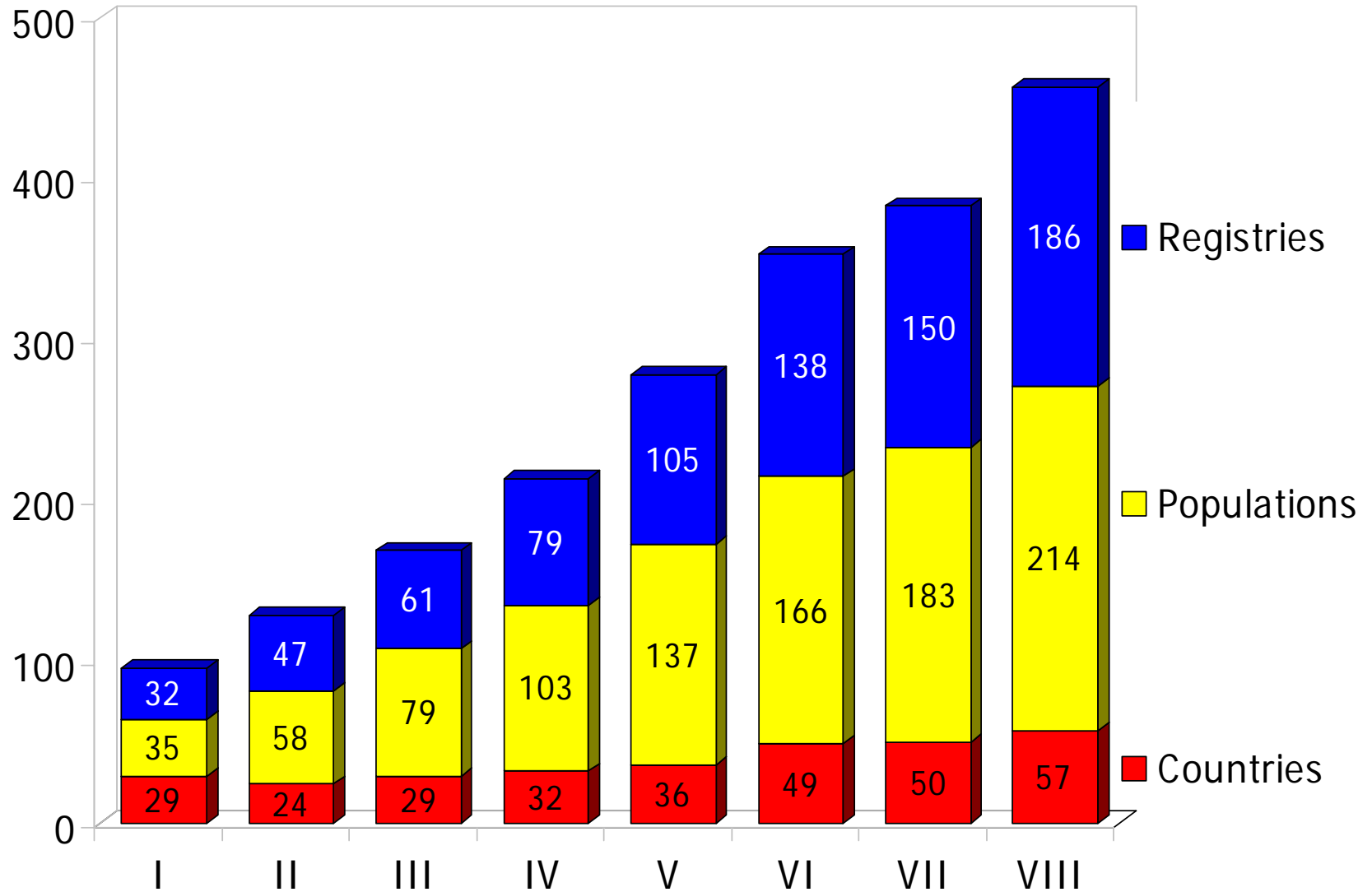
Increasing control of infections, improvements in surgical and anaesthetic techniques, implementation of high sanitary standards and improving social circumstances have all contributed to a soaring life expectancy in many parts of the world, particularly in the most developed countries.

One major down-side has been the emergence of a group of chronic diseases, particularly cancer and cardiovascular disease.

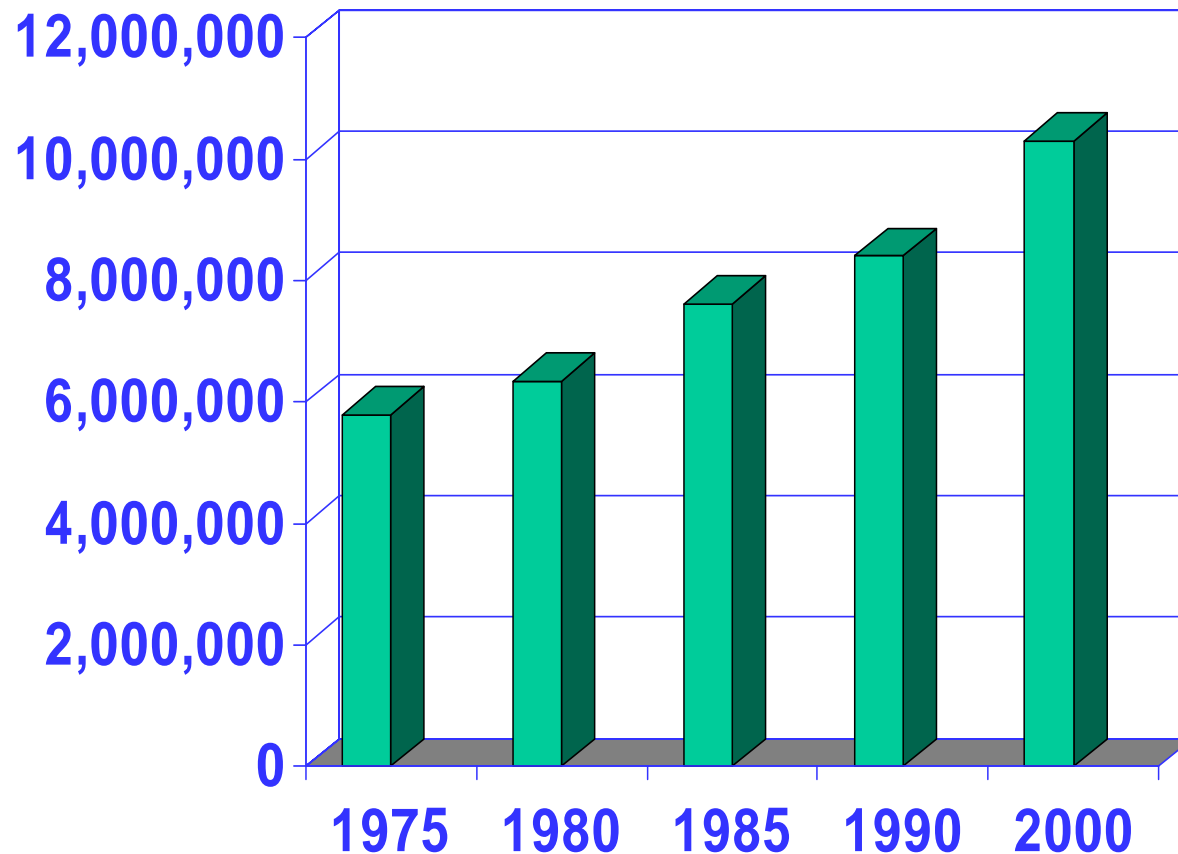
Global Cancer Burden

- When IARC was founded 40 years ago there was little known about the incidence of cancer even in the developed countries.
- IARC is devoted to encouraging the development of new and sustainable Cancer Registries, developing standards for quality control in cancer registration, developing methods for the analysis of cancer data and ensuring its dissemination.

Population Coverage in the eight volumes of Cancer Incidence in Five Continents

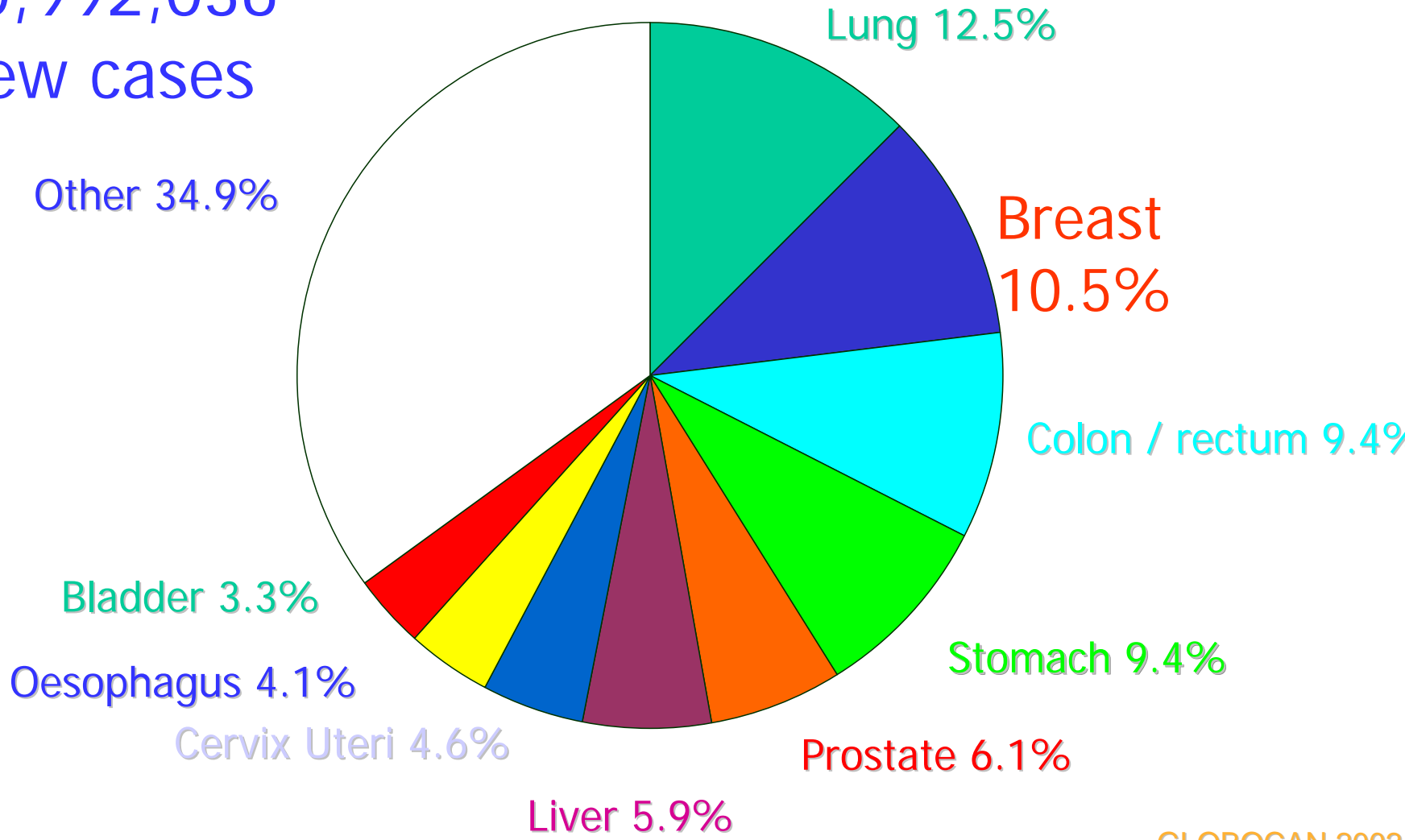


Estimated Global Cancer Burden (Numbers of new cases of cancer per annum)



Incident Cancer World-wide: 2002 Estimates

10,992,036
New cases



Broad outlook (around 1990)

“Western-Lifestyle” Countries

- North America,
- Northern, Southern and Western Europe
- Australasia and New Zealand

“Other” Countries

- Rest of World

Cancer and Western Lifestyle

Men

Broad regions	Total Cancer	Colorectal
Western Lifestyle (12.6%)	1,449,500	183,200
Other Countries (7.7%)	2,844,000	218,700
Combined (9.4%)	4,293,500	401,900

Colorectal Cancer and Western Lifestyle

Women

Broad regions	Total Cancer	Colorectal
Western Lifestyle (14.1%)	1,312,600	185,100
Other Countries (7.9%)	2,477,200	195,900
Combined (10.1%)	3,789,800	381,000

CANCER – WORLDWIDE BURDEN (2002)



11 million New Cases

6.8 million Deaths

25 million Living with Cancer

Tobacco-related diseases

- Tobacco smoking causes more deaths from cardiovascular and respiratory diseases and stroke than from cancer
- Half of all persistent smokers will be killed by their habit
 - 1/4 in middle age (35-69 years)
 - 1/4 in old age (> 70 years)
- Smokers in developed countries lose an average 16 years of non-smokers life expectancy



IARC Monographs on the Evaluation of Carcinogenic Risks to Humans

VOLUME 83

Tobacco Smoke and Involuntary Smoking

WARNING
**YOU'RE NOT THE ONLY ONE
SMOKING THIS CIGARETTE**
The smoke from a cigarette is not just inhaled by the smoker, it becomes second-hand smoke, which contains more than 50 cancer-causing agents.
Health Canada

**Rökning skadar
allvarligt dig
själv och
personer i din
omgivning.**

**Tupakoivat
kuolevat
nuorempina
Rökäre dör
i förtid**

**O Ministério da Saúde Adverte
FUMAR NA GRAVIDEZ
PREJUDICA O BEBÊ**

**Rauchen
kann tödlich
sein**

**Ryning
kan dräbe**

**Il fumo danneggia
gravemente te e
chi ti sta intorno**

**احتريس
التدخين يدمر الصحة
ويسبب الوفاة**

**Roken
is dodelijk
Fumer tue
Rauchen
ist tödlich**

**あなたの健康を損なうおそれ
がありますので吸いすぎに注意し
ましょう
喫煙マナーをまもりましょ**

**Yasal Uyarı:
Sağlığa Zararlıdır.**

**Fumar
puede matar**

吸烟有害健康

Fumer tue

**Fumer nuit gravement
à votre santé et à celle
de votre entourage**

Estimación del número de decesos en Canadá, 1996

Meurtres - 916	AVERTISSEMENT CHAQUE ANNÉE, L'ÉQUIVALENT DE LA POPULATION D'UNE PETITE VILLE MEURT DES SUITES DU TABAGISME
Alcool - 1 900	
Accidents de la route - 2 900	
Suicides - 3 900	
Tabac - 45000	

تنبیه هام : التدخين مضر بالصحة

**CIGARS ARE
NOT A SAFE
ALTERNATIVE
TO CIGARETTES**

Some facts:
over 3500 references
750 pages of tables
1452 pages

2004

Vol. 38 - 1986

Oral cavity

Pharynx

Larynx

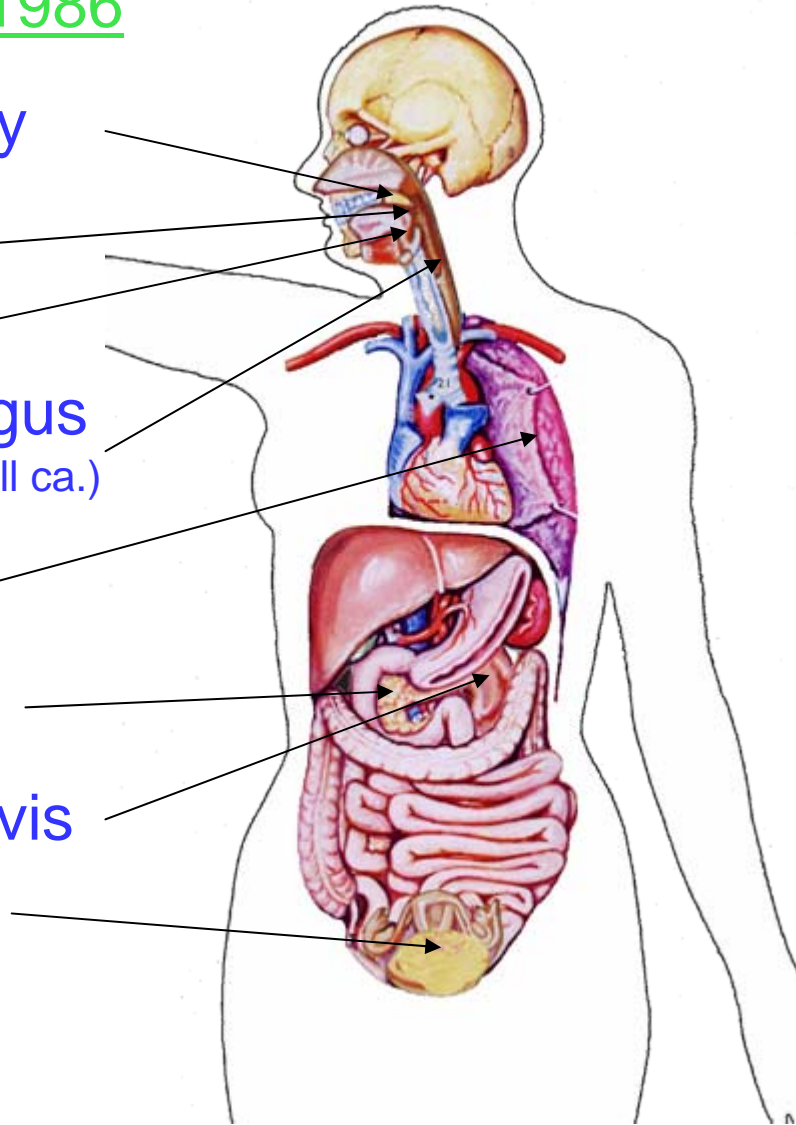
Oesophagus
(Squamous cell ca.)

Lung

Pancreas

Renal pelvis

Bladder



Vol. 38 - 1986

Oral cavity

Pharynx

Larynx

Oesophagus
(Squamous cell ca.)

Lung

Pancreas

Renal pelvis

Bladder

Vol. 83 - 2004

Nasal cavities

Nasal sinuses

Oesophagus
(Adenocarcinoma)

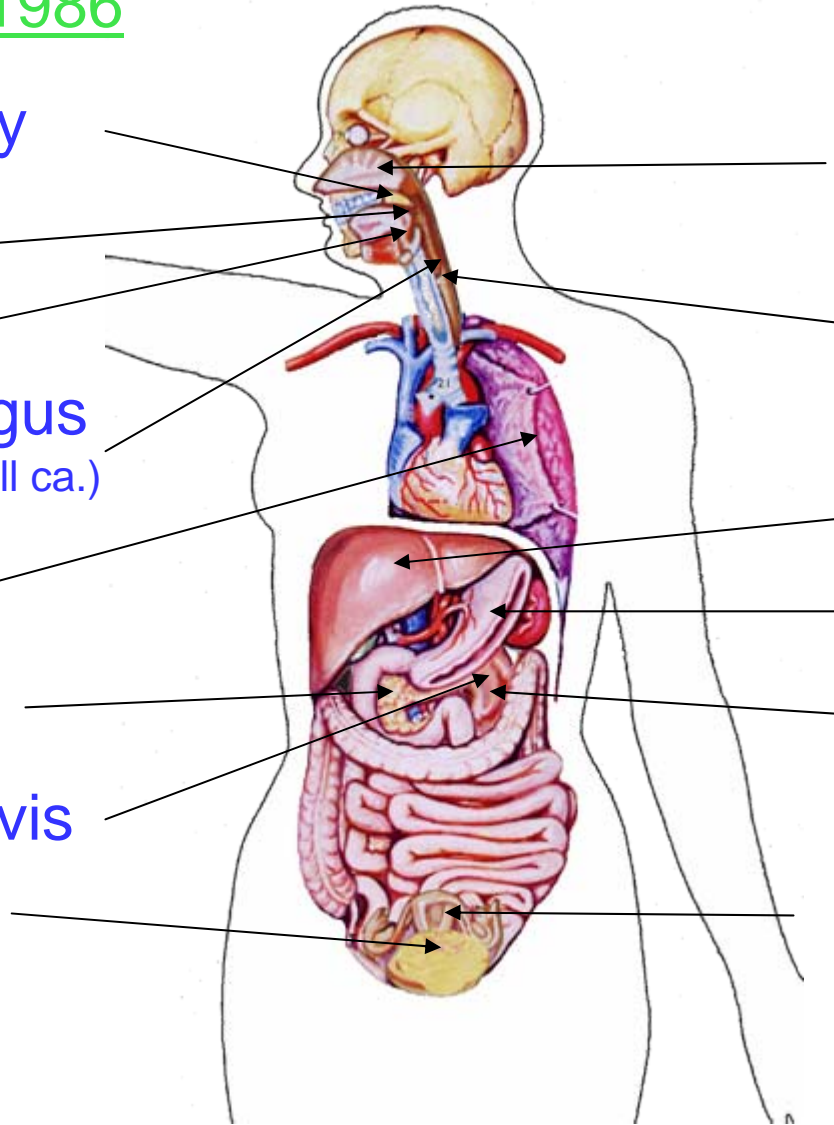
Liver

Stomach

Kidney
(Renal cell)

Uterine cervix

Myeloid
leukaemia



Other forms of smoked tobacco

Cigars



Bidis



Shisha



Burley



Virginia



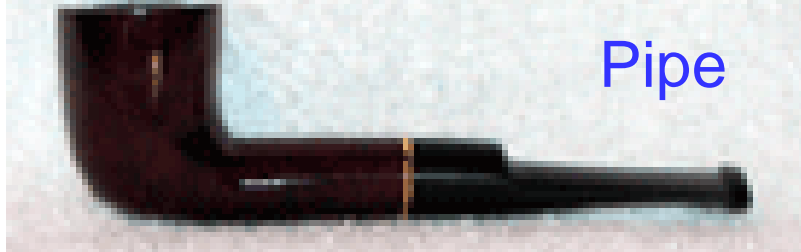
Cavendish



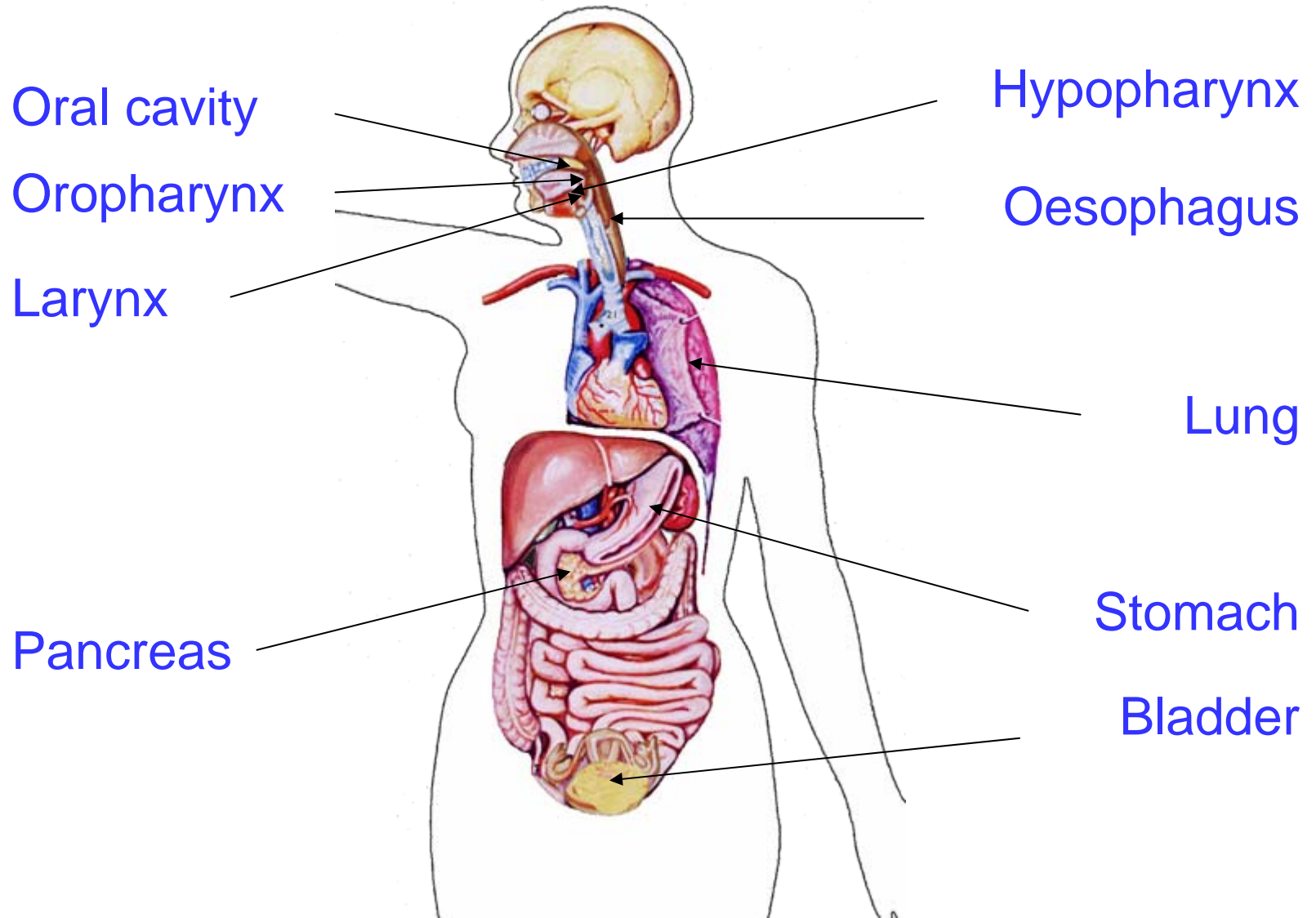
Blend



Pipe



Cancer sites causally associated with smoking exclusively cigar and/or pipe



Can Others' Smoking Effect an Innocent Party?

- Smoking as well as the use of mobile telephones is a recognised cause of road traffic accidents.
- Lit or badly extinguished cigarettes are a source of a large number of household fires.
- In the case of the two examples above, death and invalidity can occur and the action of a smoker can have a real and important effect on (innocent) non-smokers (and other smokers).

Results of the evaluation :

Risk of cancer in involuntary smokers

- **Spouses** of smokers who had never smoked had a significant and consistent increase in lung cancer risk when exposed to second-hand tobacco smoke.
- **Husbands** of women who smoked experienced a 30% increase in risk of lung cancer.
- **Wives** of men who smoked experienced a 20% increase in risk of lung cancer.
- Risk increased with increasing exposure.

Overall evaluation

Involuntary smoking is
carcinogenic to humans

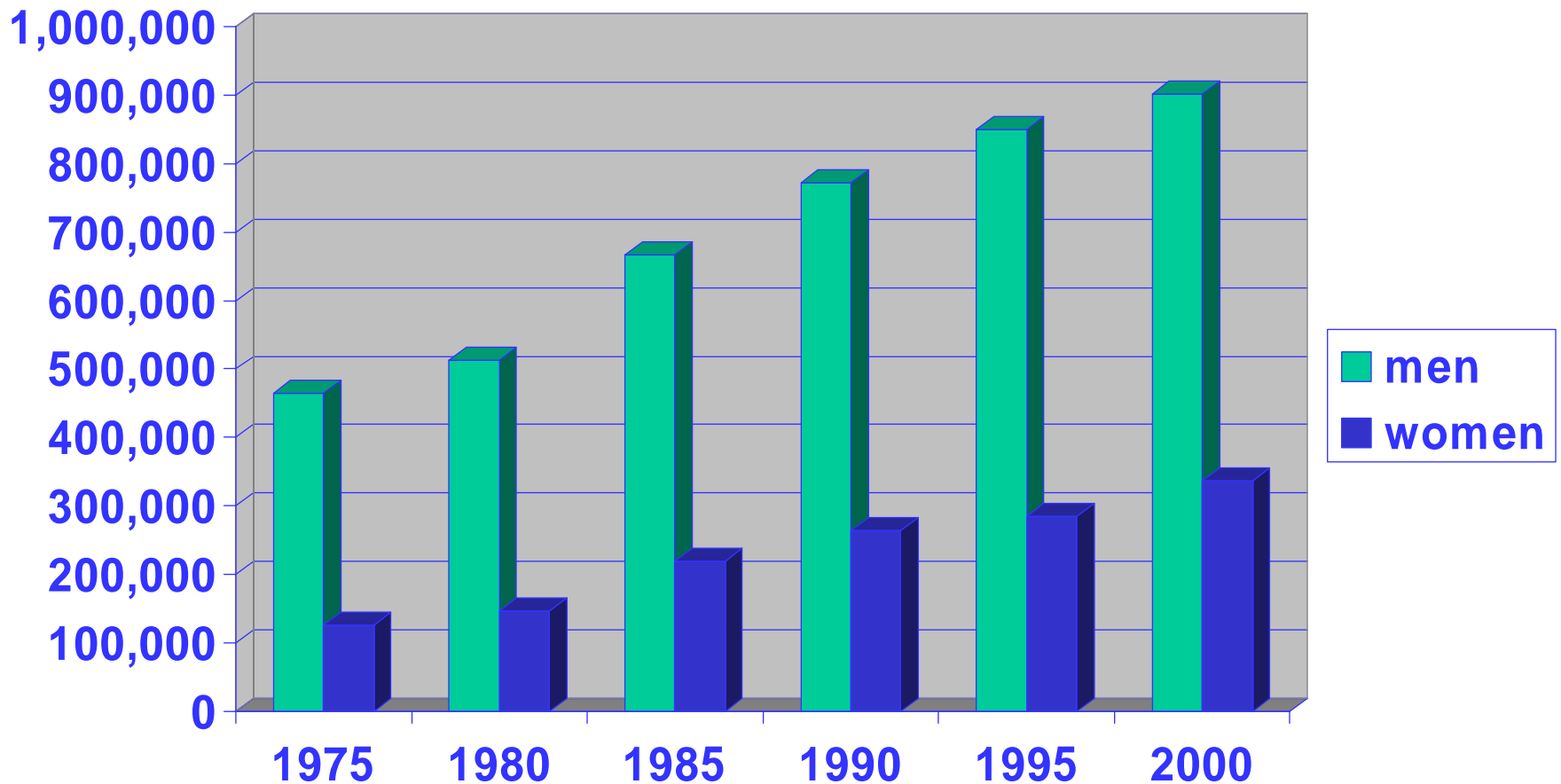
IARC, 2004

In the beginning of the century.

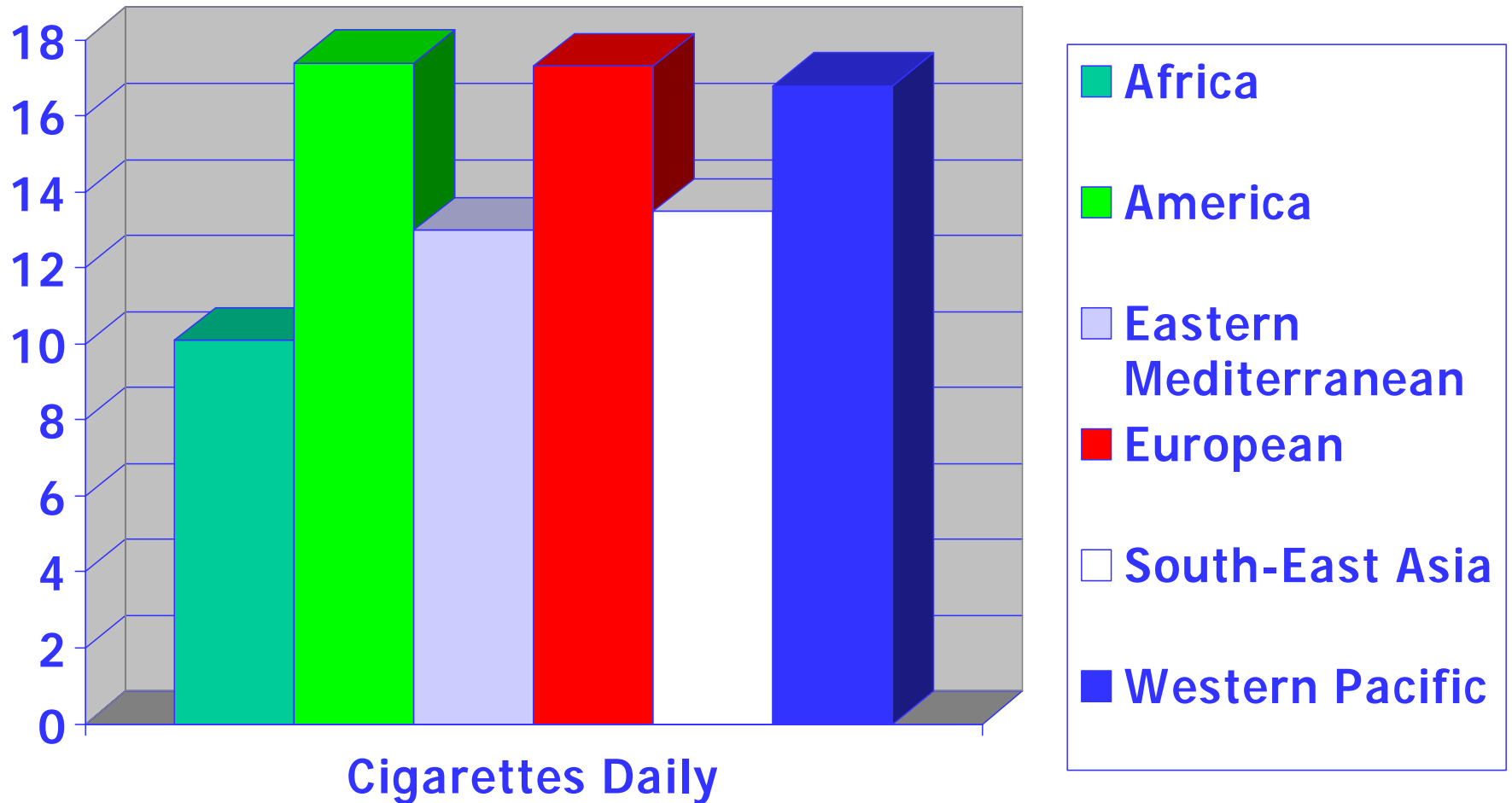
“Is it worthwhile to write a monograph on the subject of primary malignant tumours of the lung? In the course of the last two centuries an ever-increasing literature has accumulated around this subject. But this literature is without correlation, much of it buried in dissertations and other out-of-the-way places, and, with but a few notable exceptions, no attempt has been made to study the subject as a whole, either the pathological or the clinical aspect having been emphasised at the expense of the other, according to the special predilection of the author. On one point, however, there is nearly complete consensus of opinion, and that is that primary malignant neoplasms of the lungs are among the rarest forms of the disease. This latter opinion of the extreme rarity of primary tumours has persisted for centuries.”

(I Adler, Primary Malignant Growths of the Lungs and Bronchi: A pathological and clinical study. Longmans, Green and Co., London, 1912).

Global Burden of Lung Cancer, 1975-2000



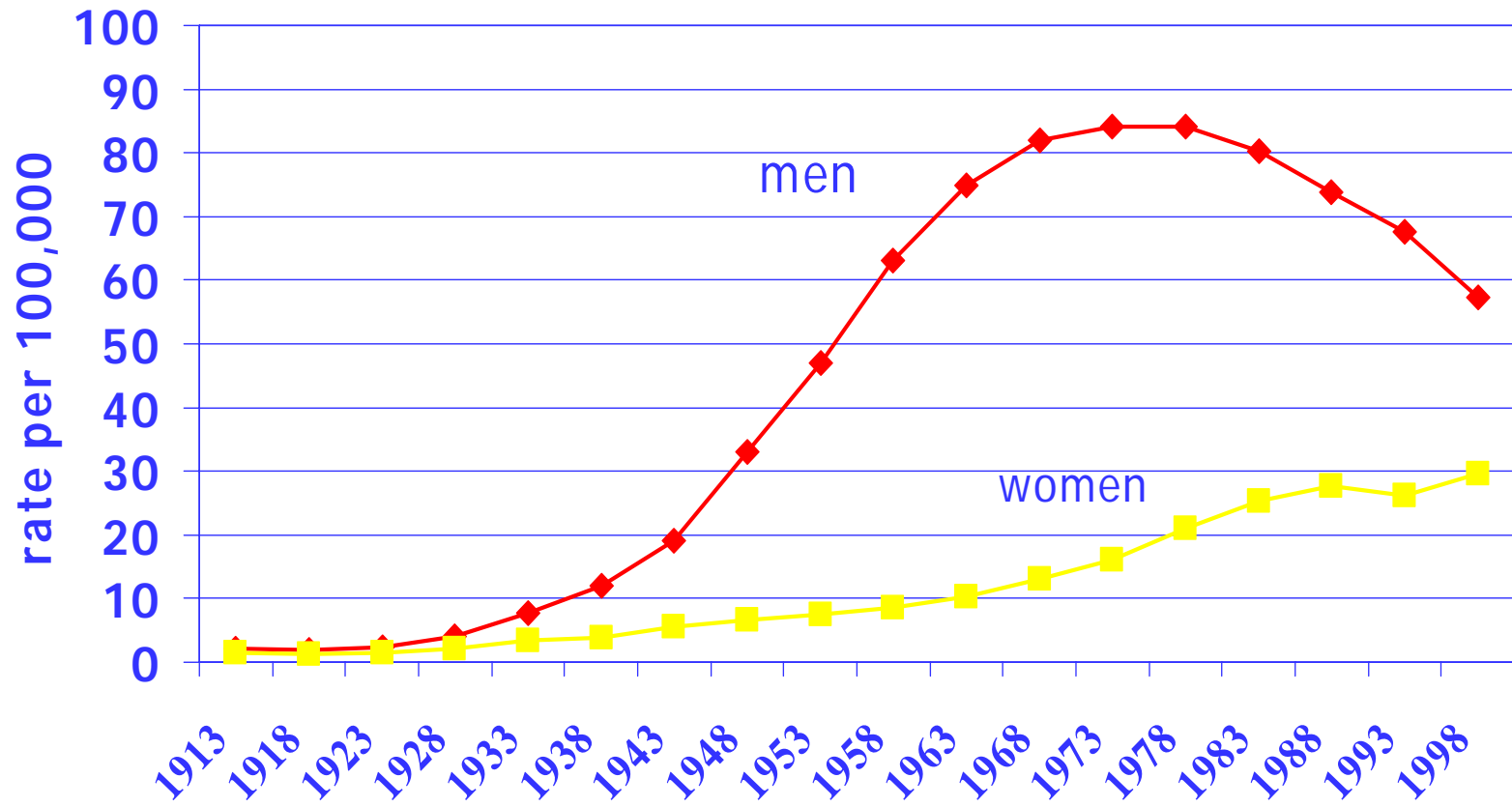
Number of Cigarettes Smoked per day by daily smokers in WHO Regions



Lung cancer burden in men and women world-wide in 2000

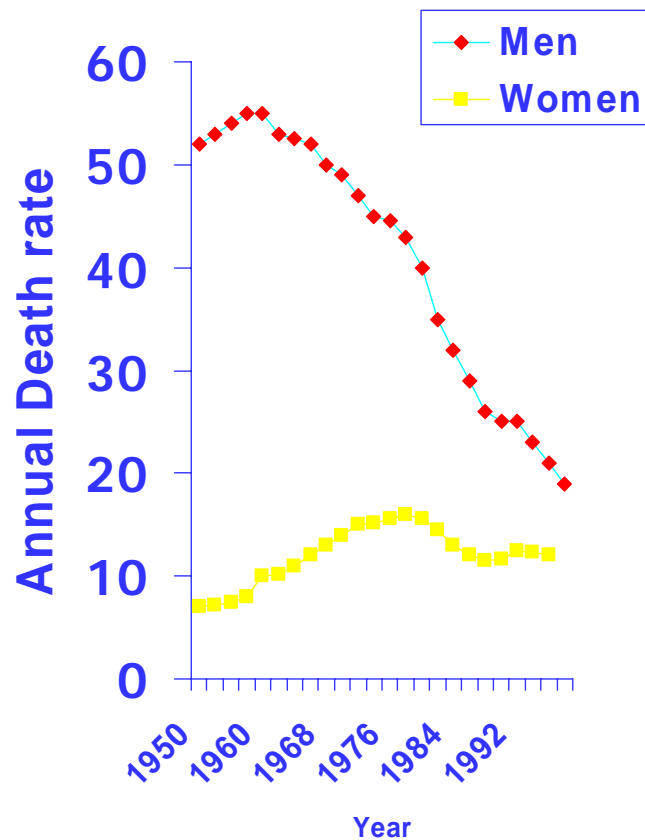
Region	Incidence	Mortality
World	1,238,861	1,103,119
Developed	646,228	581,202
Less-developed	592,638	521,827

Age-adjusted mortality rates from Lung Cancer in Scotland, 1911-1999

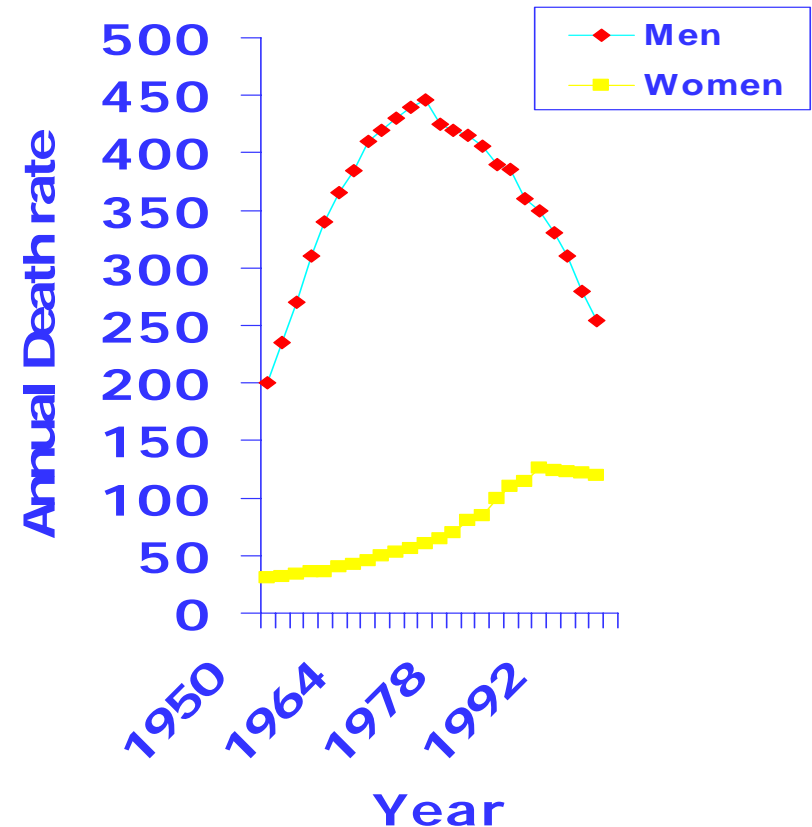


Mortality from Lung Cancer in United Kingdom, 1950-1996

Aged 35-54



Aged 55-74

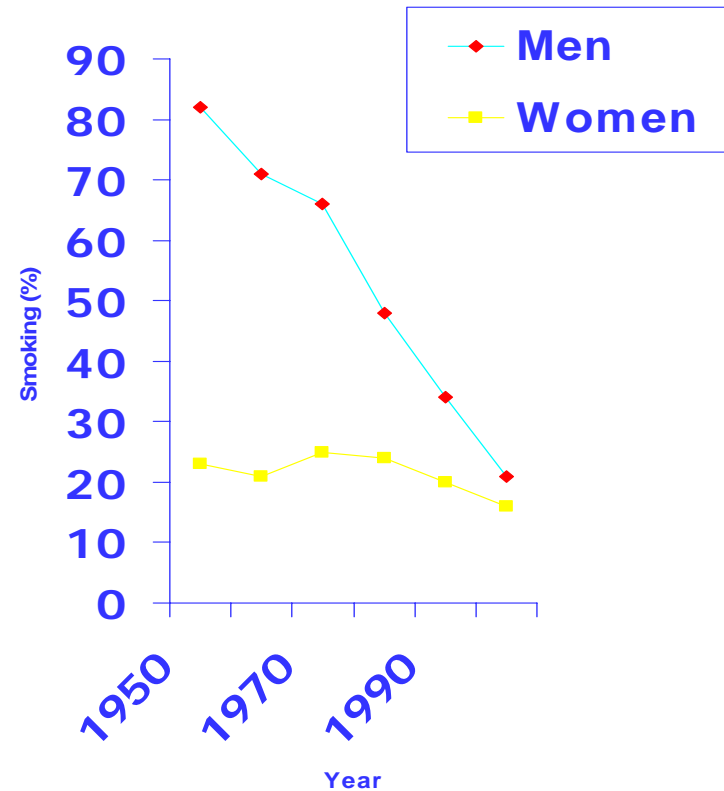
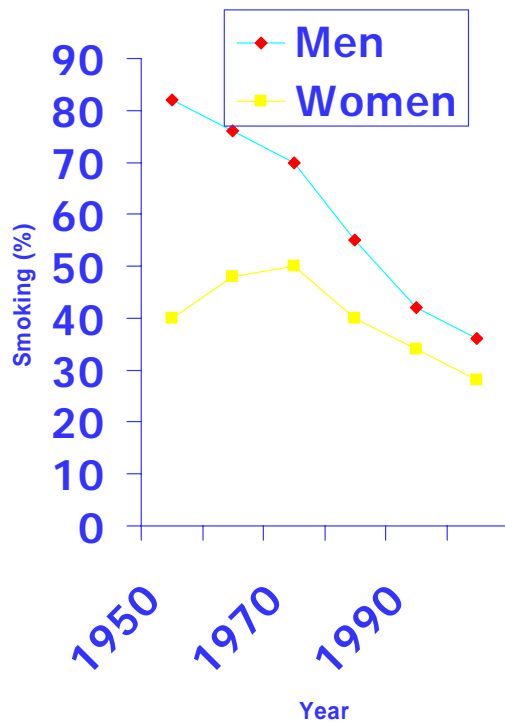


Data abstracted from Peto et al, BMJ, August 2000

Prevalence of Smoking in United Kingdom, 1950-1998

Aged 35-59

Aged 60+



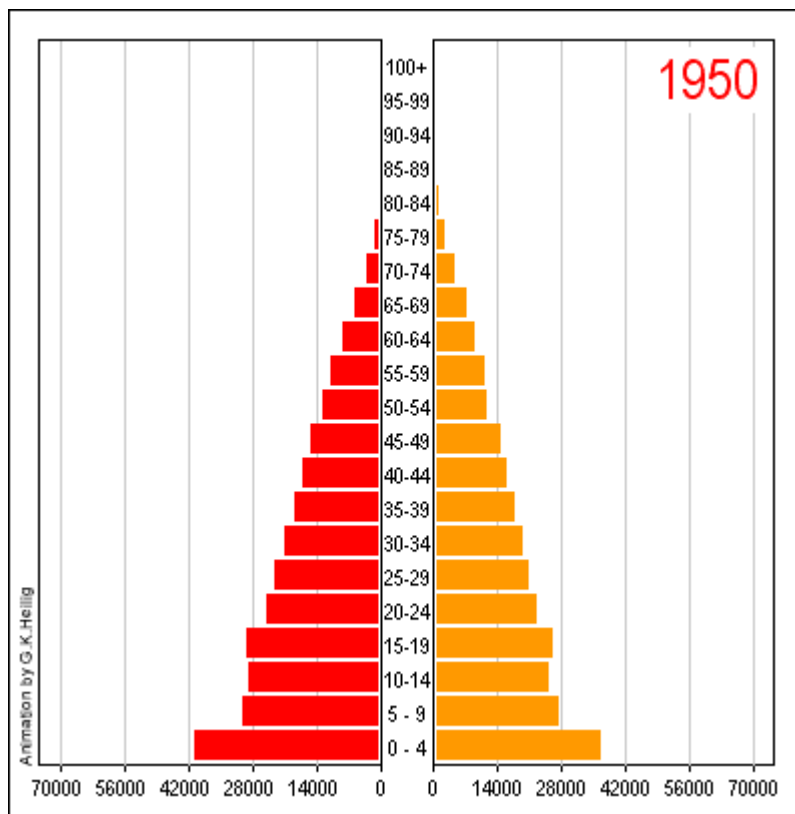
Data abstracted from Peto et al, BMJ, August 2000

Populations Facts

- Today there are 6 billion persons alive and this will increase to 9 billion by 2050. Eighty Billion persons have ever lived.
- In 1820, the median age in United States was 17. In 1990, it was 33. It is projected to be 42 in 2030.
- By 2080, it is projected that there will be one million people over the age 100.
- Two-thirds of all seniors (over 65) in the world who have ever lived are alive today.

The population pyramid for China unfolds over a 100 (1950-2050) year period and the aging of the population becomes quite obvious.

For the period 1950 to 1995 the pyramid is based on population estimates of the UN Population Division; the data for 2000 to 2050 are from the most recent medium variant UN population projection.





WORLD

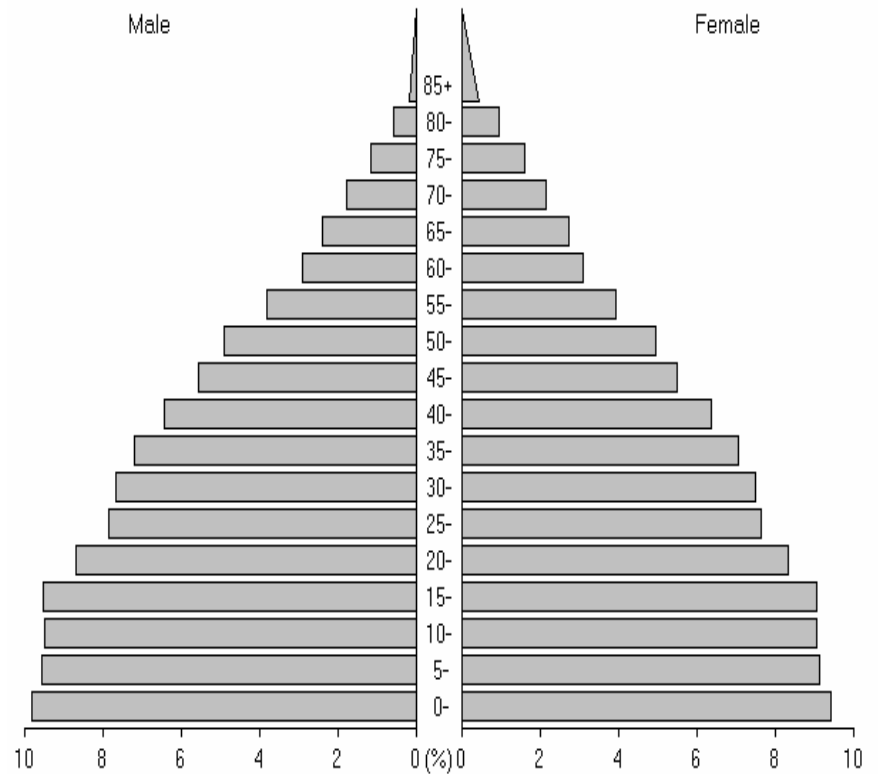


Population (2005)

6.454,000,000

3.245,000,000

3.209,000,000





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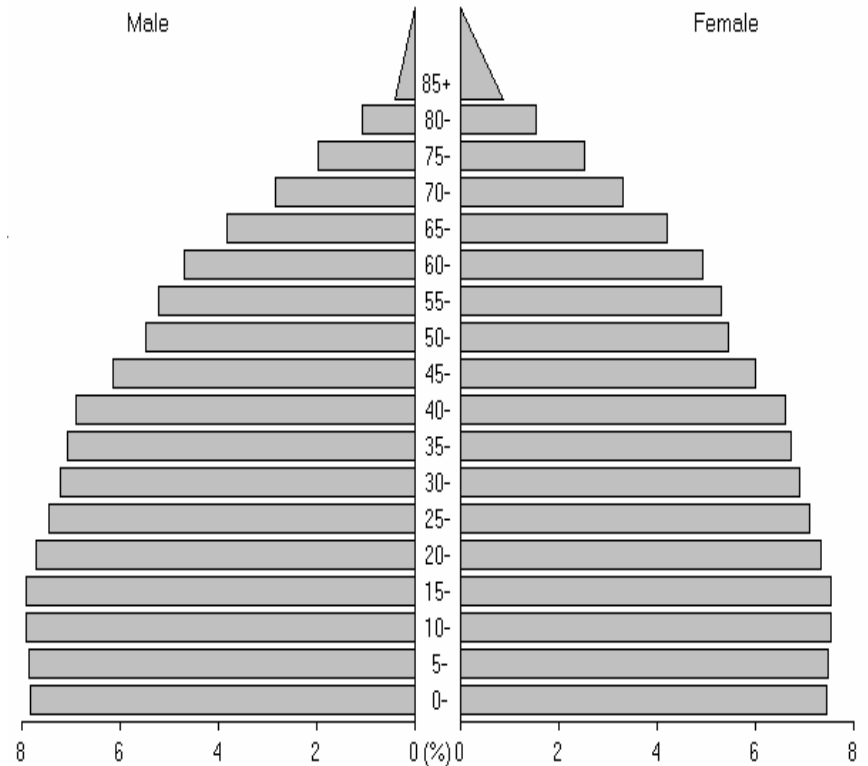


Population (2030)

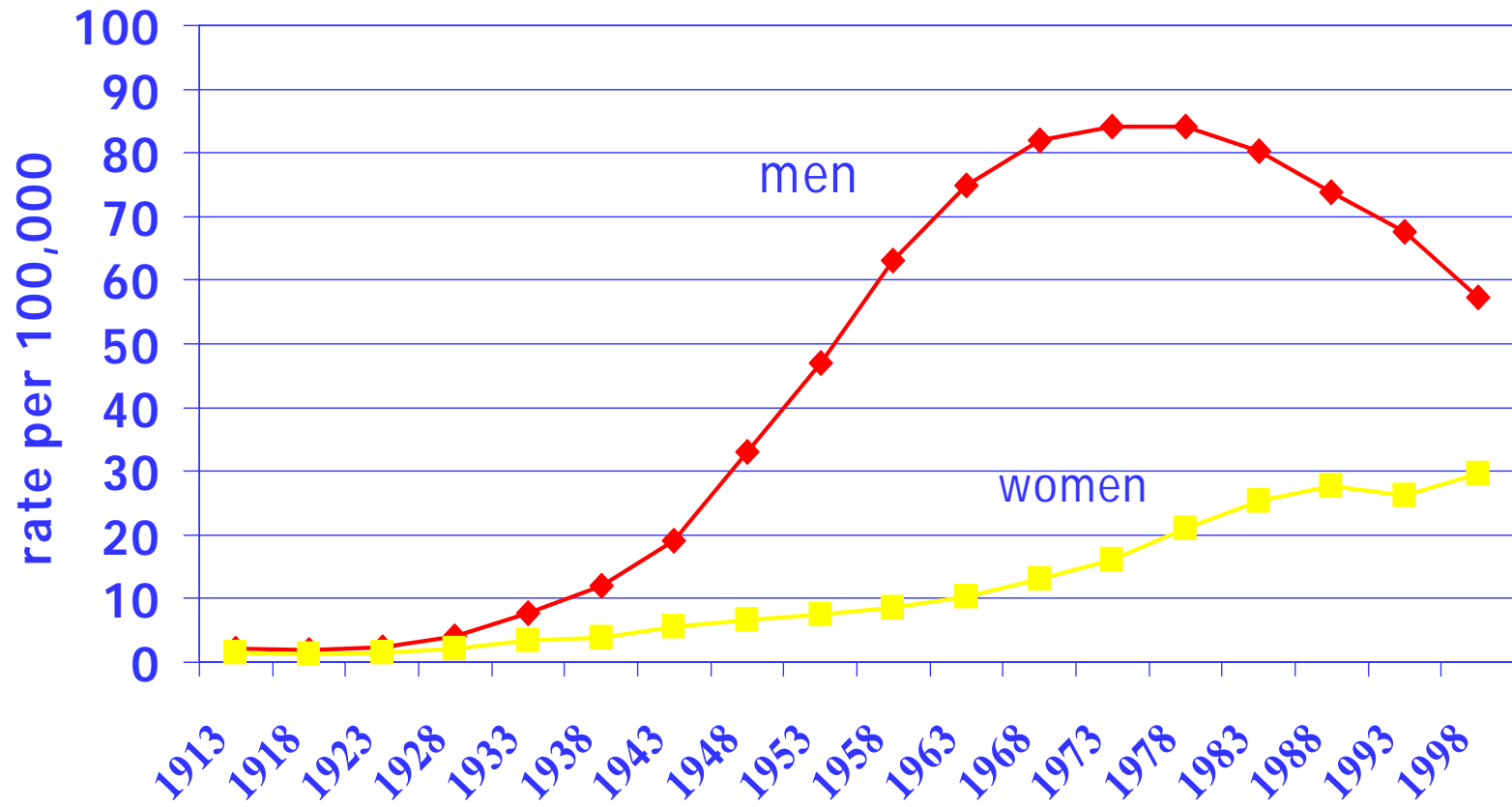
8.130,000,000

4.068,000,000

4.062,000,000



Age-adjusted mortality rates from Lung Cancer in Scotland, 1911-1999

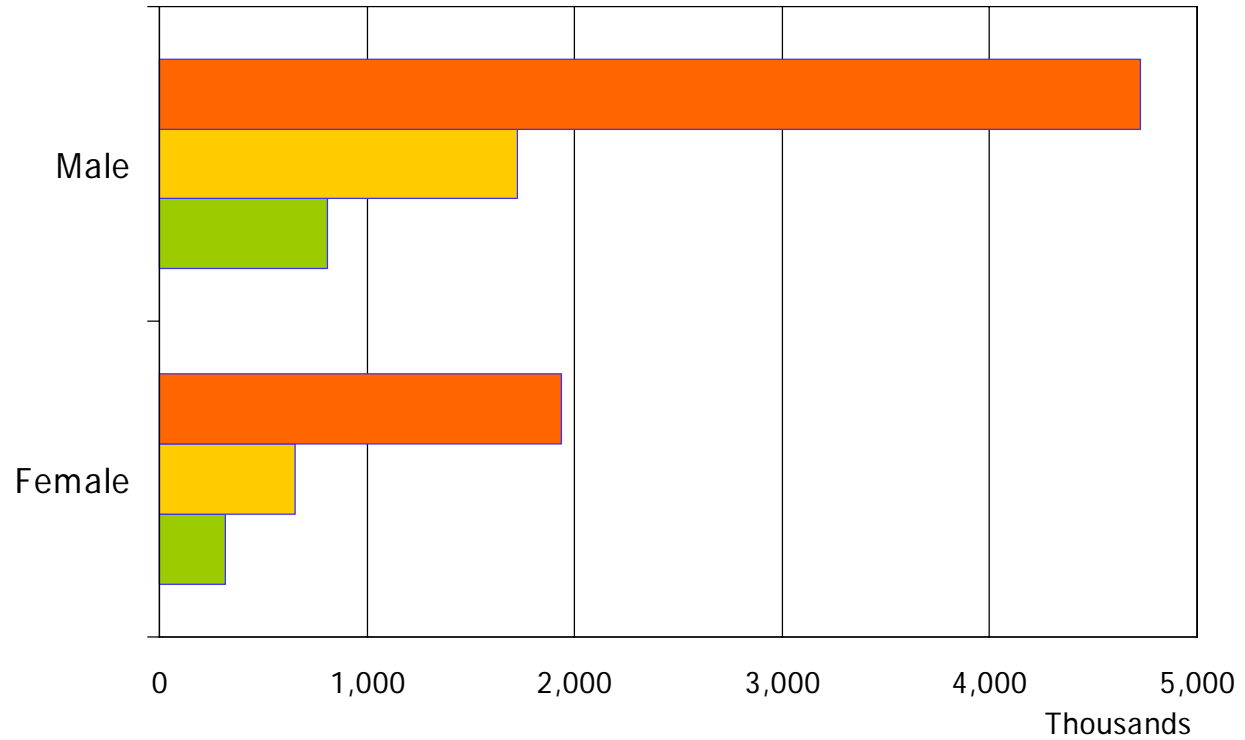




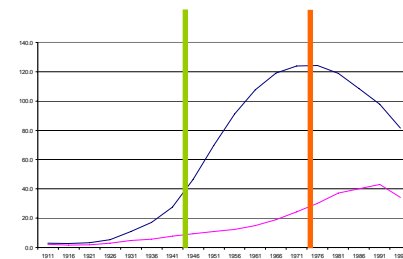
World



Estimated Lung Cancer Deaths



- 2000
- 2030 (Population growth)
- 2030 (Long-term time trends in Scotland)





WPRO: China

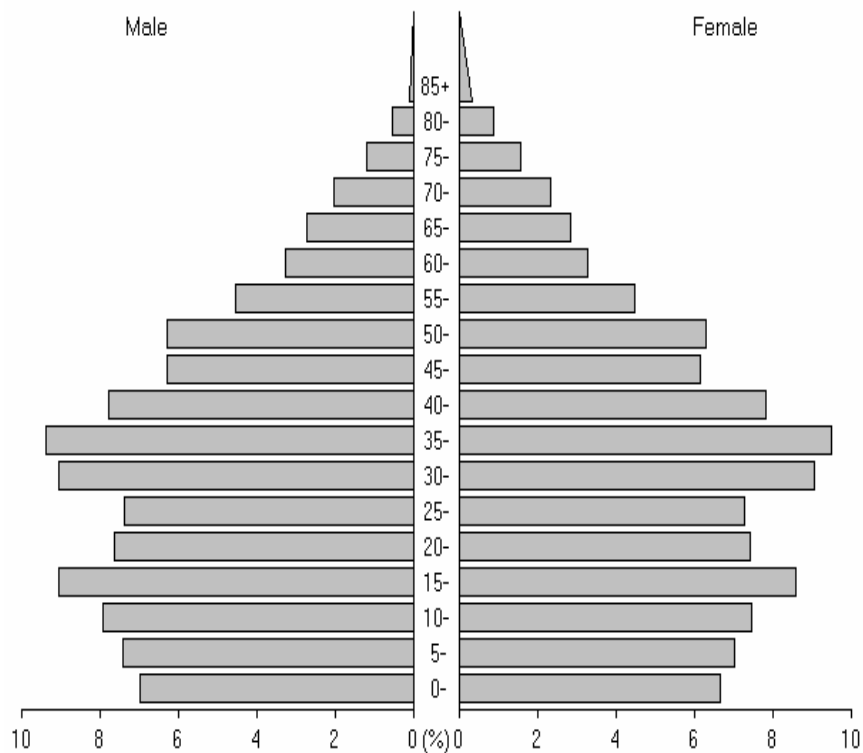
Population (2005)

1.322,000,000



678,000,000

644,000,000





WPRO: China

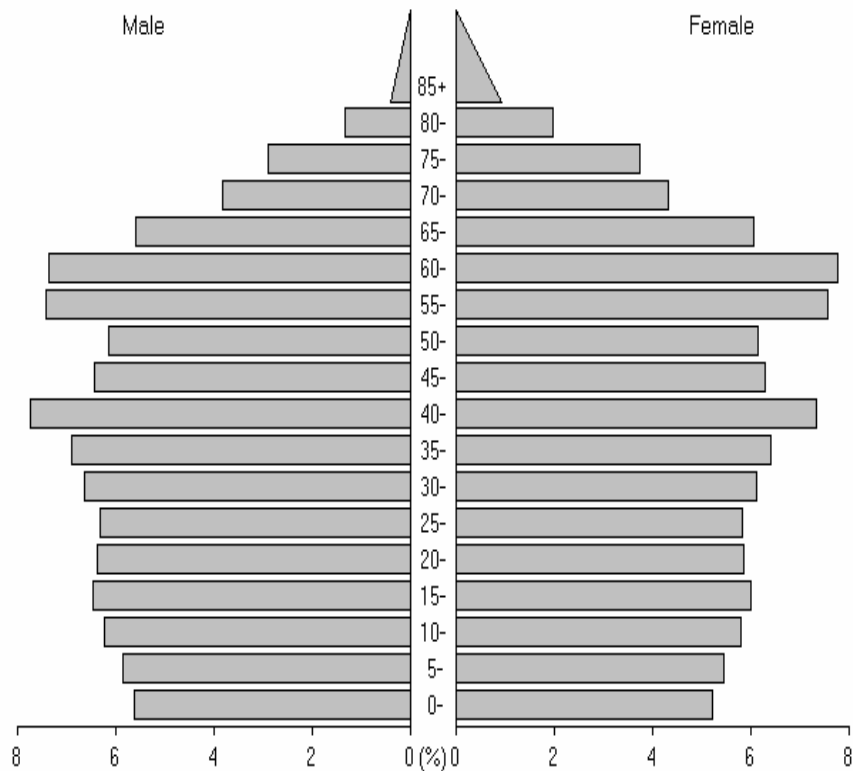
Population (2030)

1.451,000,000



730,000,000

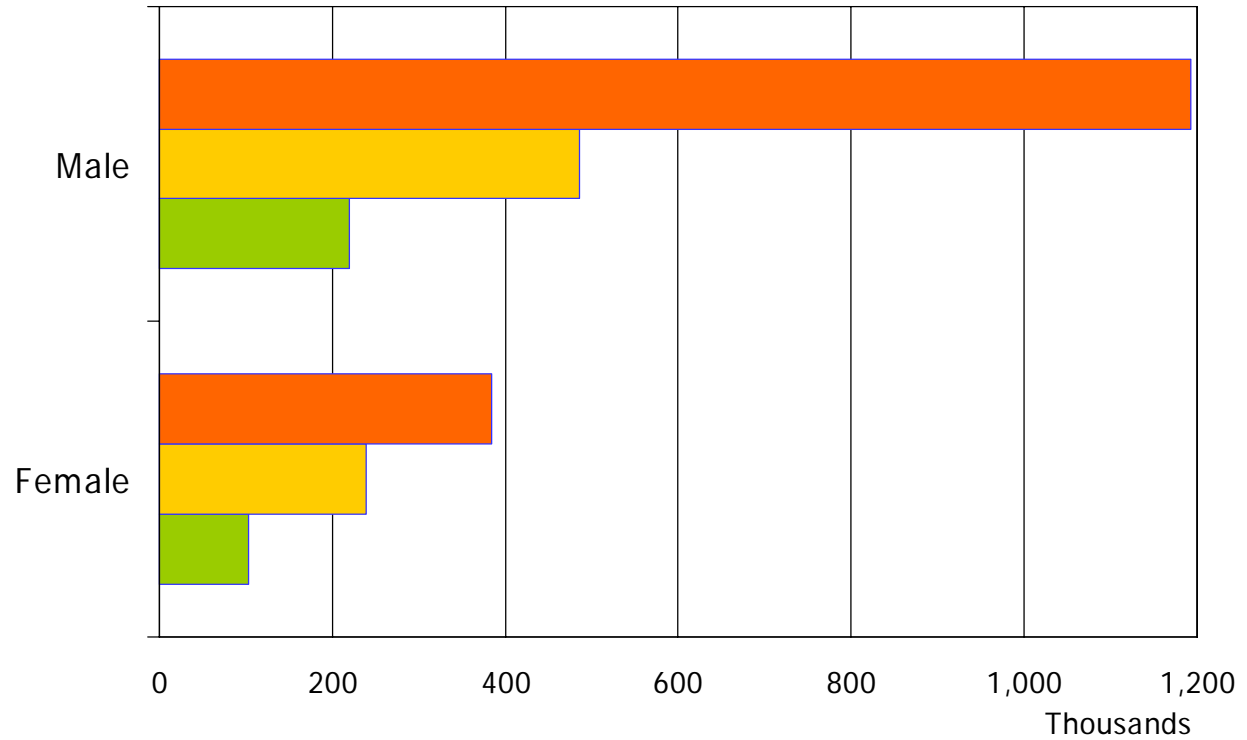
721,000,000



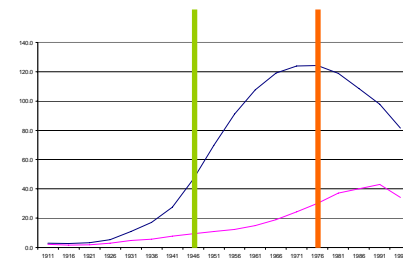


WRO: China

Estimated Lung Cancer Deaths



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The Tragedy of Lung Cancer

- This situation is truly tragic since the large majority of lung cancer is easily avoidable.
- Smokers should stop smoking. If you do not smoke, do not start. If you cannot stop, do not smoke in the presence of others.

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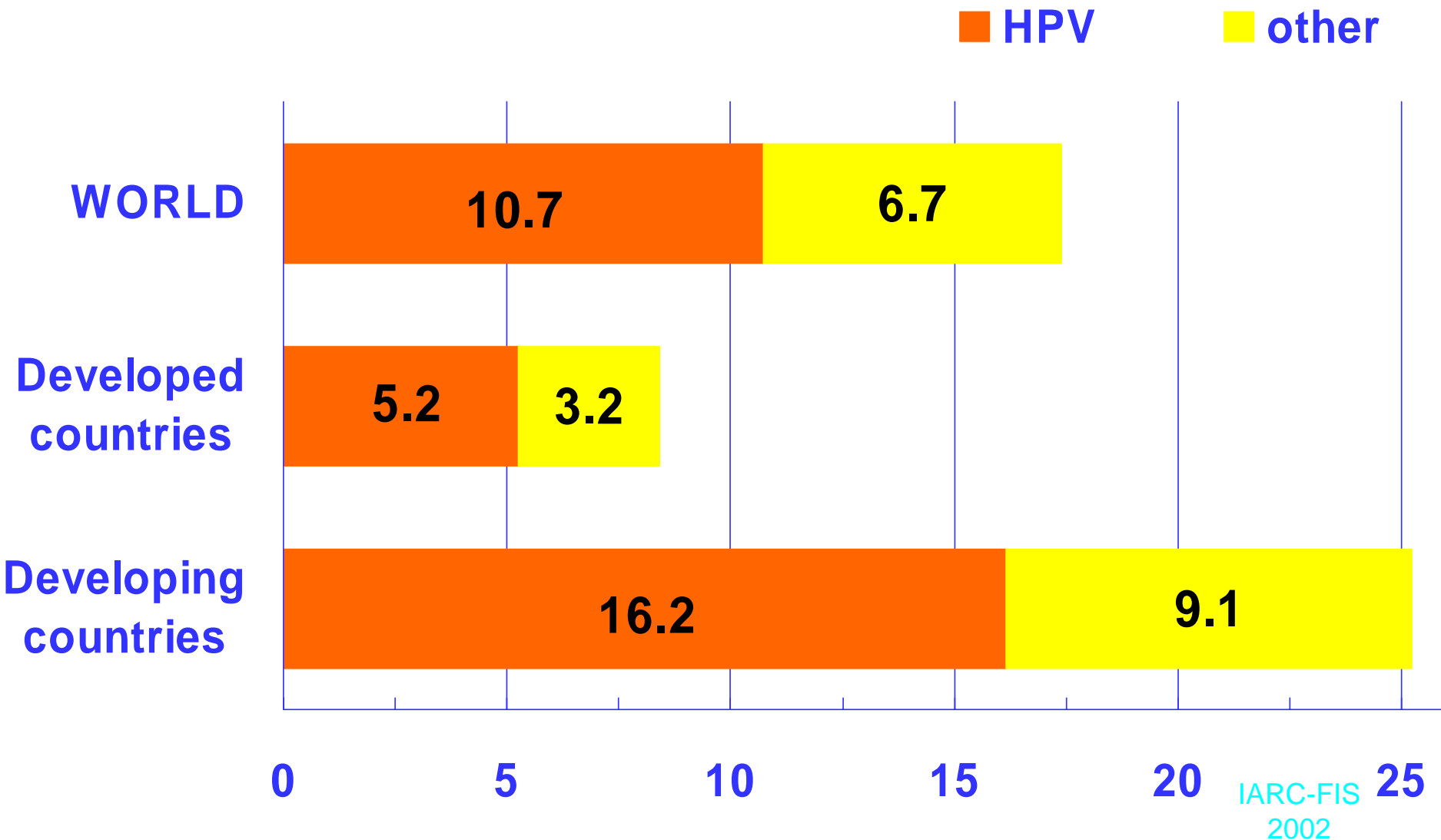
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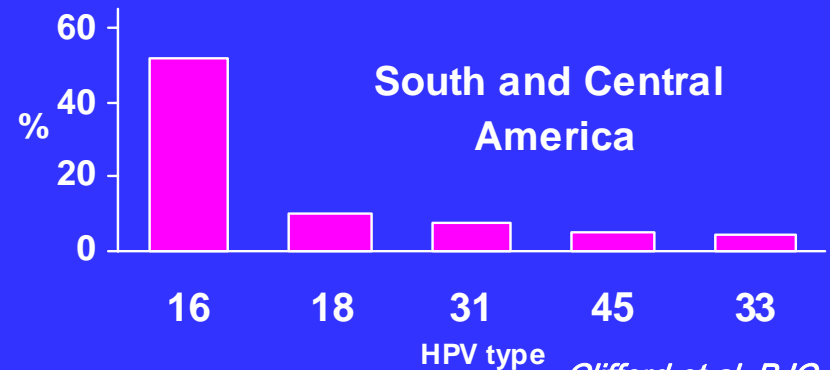
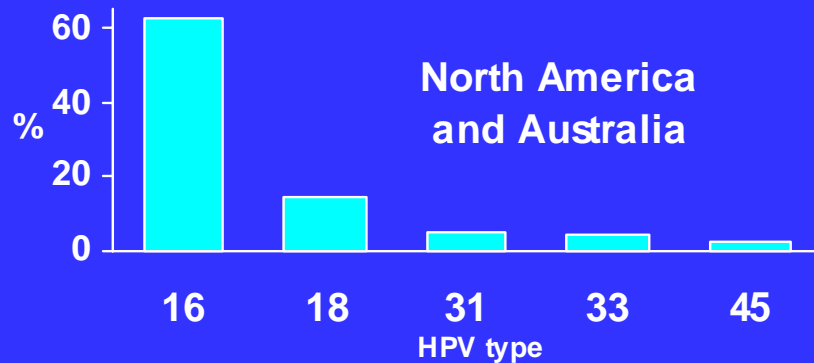
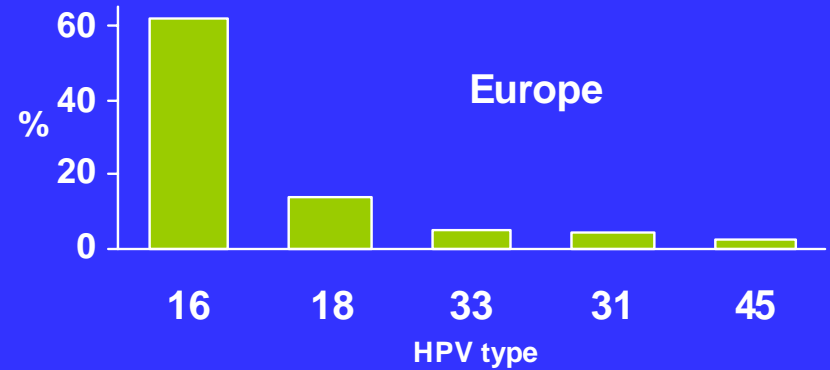
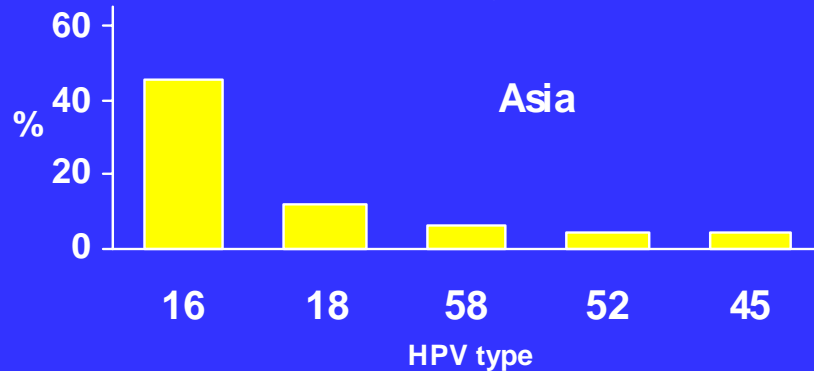
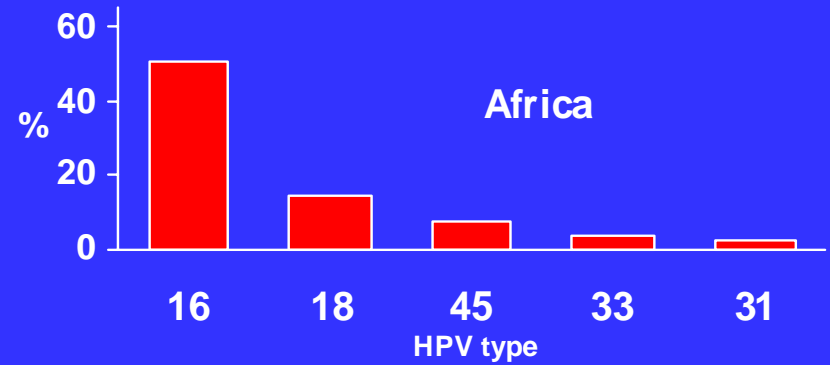
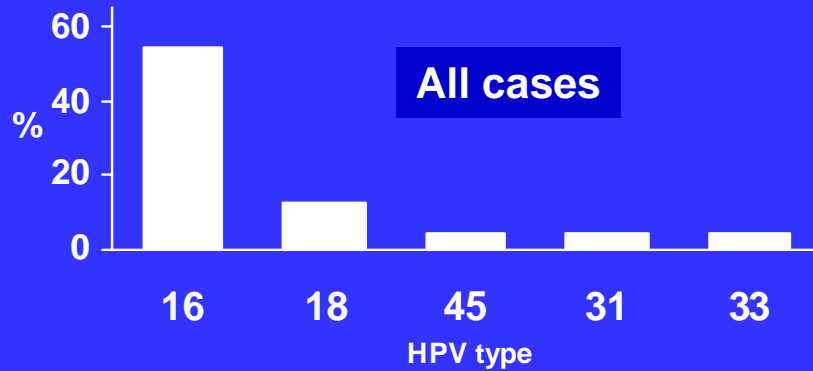
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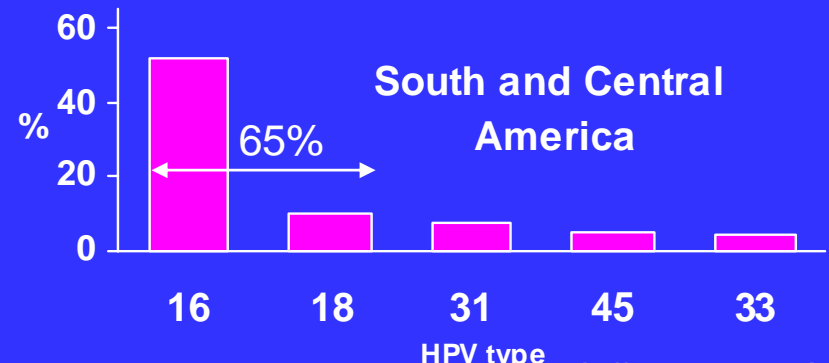
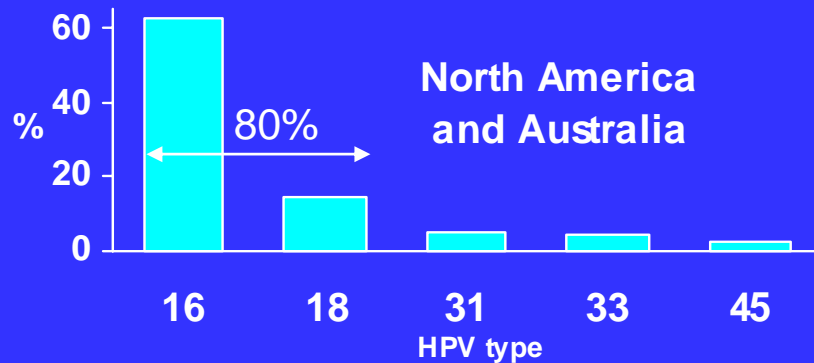
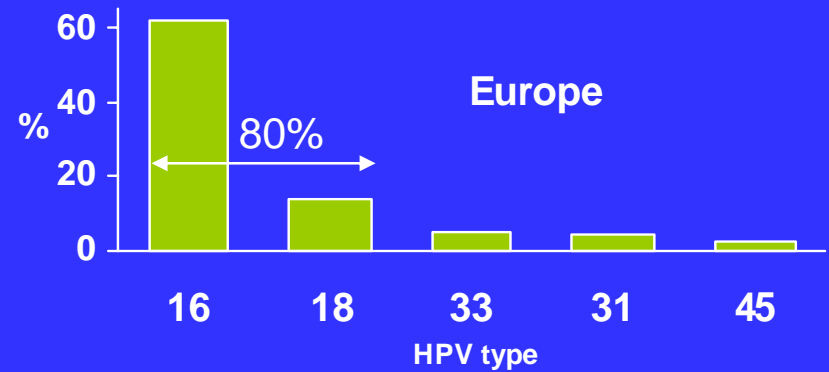
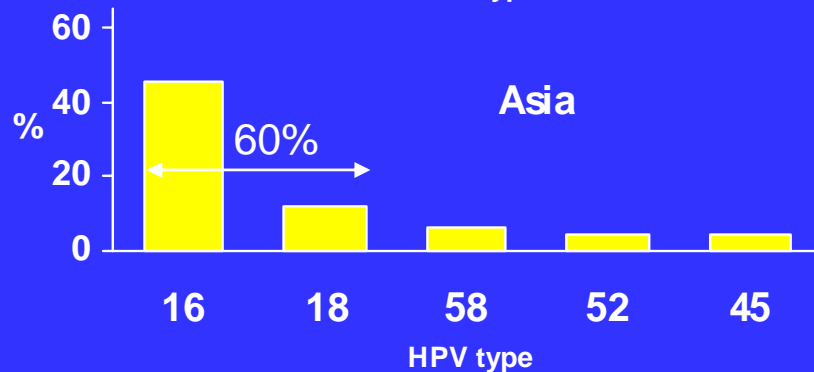
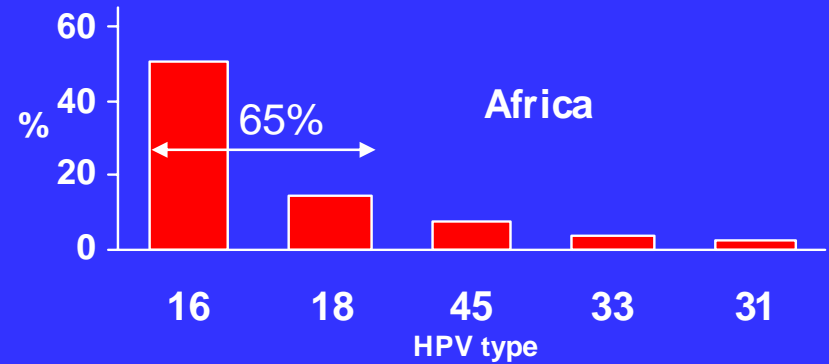
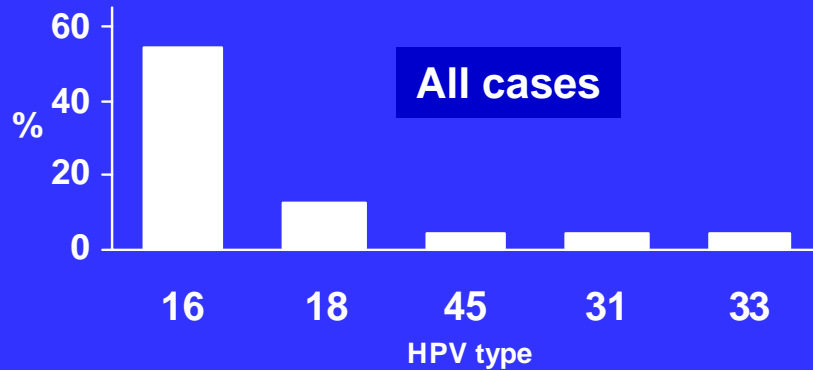
Percentage of cancer in women attributable to infectious agents



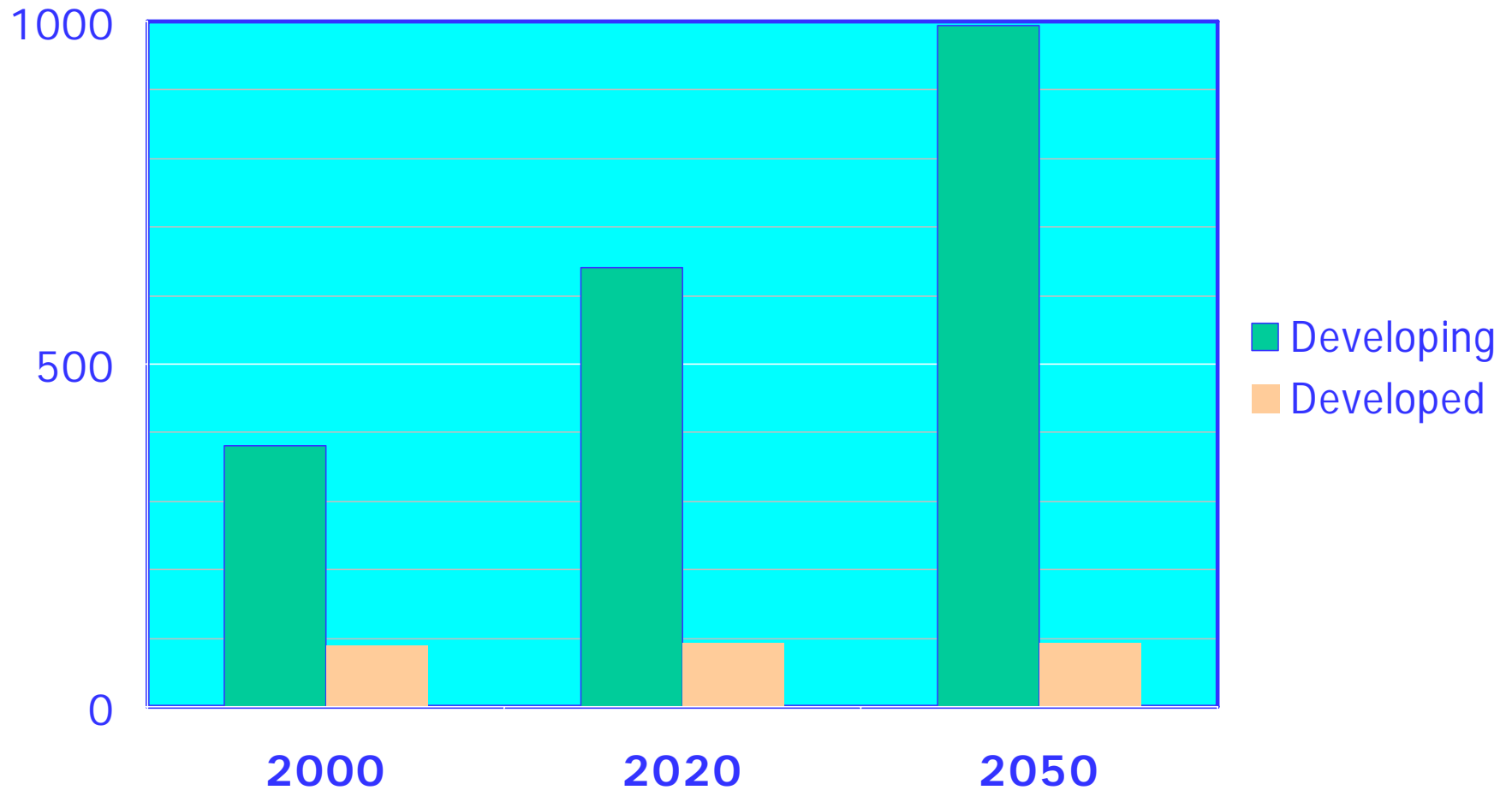
5 most common HPV types in squamous cell carcinoma by region



5 most common HPV types in squamous cell carcinoma by region



Estimated Cervical Cancers (thousands)



The Tragedy of Cervix Cancer

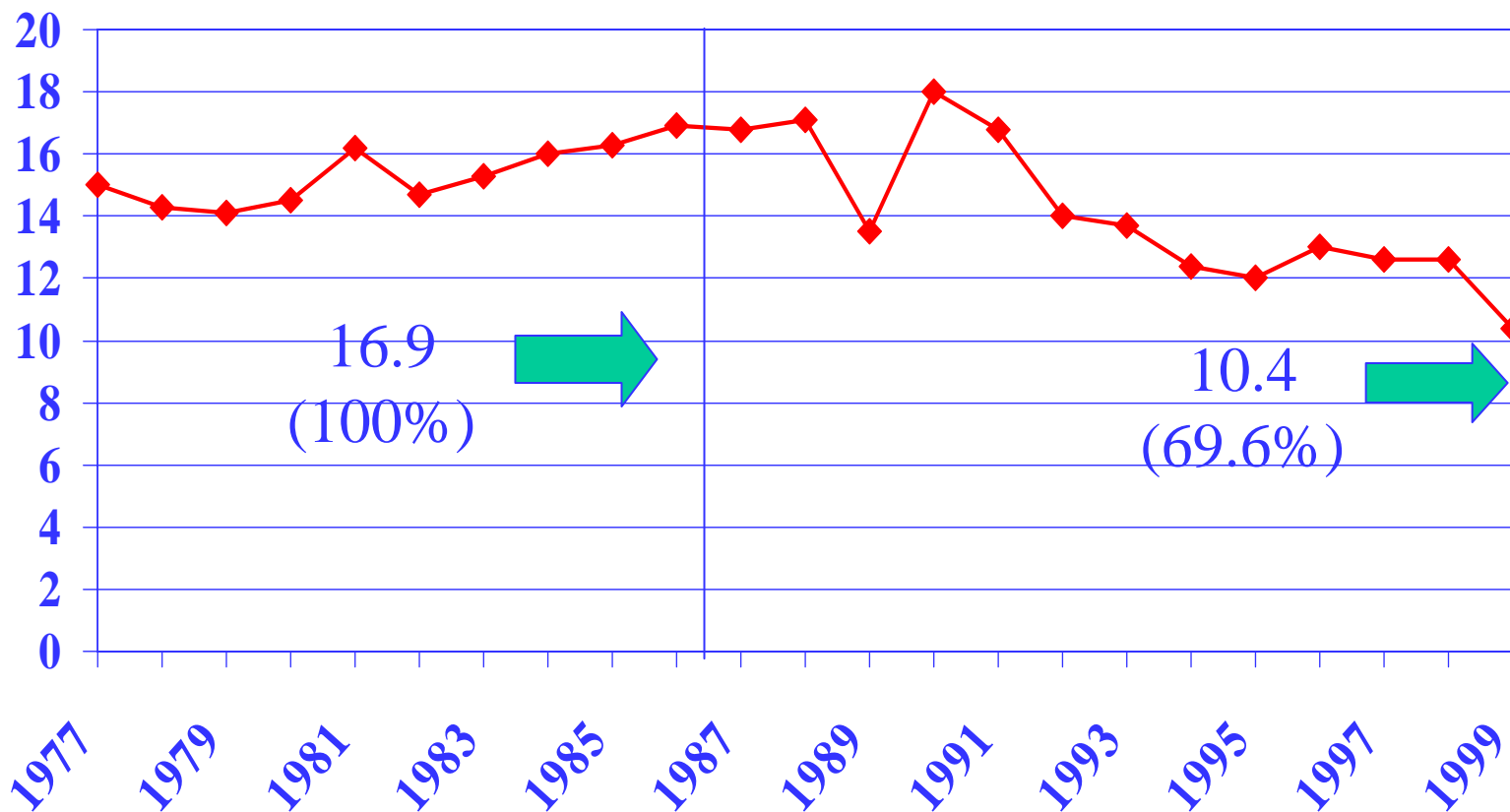
- This situation is truly tragic since the large majority of invasive cervix cancer is easily avoidable.
- Population based, cervical cancer screening is efficient in reducing the incidence and mortality of this common cancer.

Participation in United Kingdom Cervix Cancer Screening Programme

England	84.0%
Wales	81.9%
Scotland	86.6%

Target population is women aged 25-64 in England, aged 20-64 in Wales and aged 20-59 in Scotland, who have been screened in previous five years (5.5 years in Scotland).

Incidence of Cervix Cancer in Women (all ages) in Scotland, 1977-2000.



Cervix Cancer Screening

- The Health of the Nation Target for cervical cancer: **To reduce the incidence of invasive cervical cancer by at least 20% by the year 2000 (Baseline 1986).**
- The most recent incidence data available from SOCRATES (the Scottish Cancer Registration System) is for 2000 and between the baseline year of 1986 and 2000 there was a decrease in incidence of 30.4%.

1 Health of the Nation, Department of Health, January 1993

2 Incidence rates have been age-standardised to the European Standard Population and cover females of all ages.



WORLD

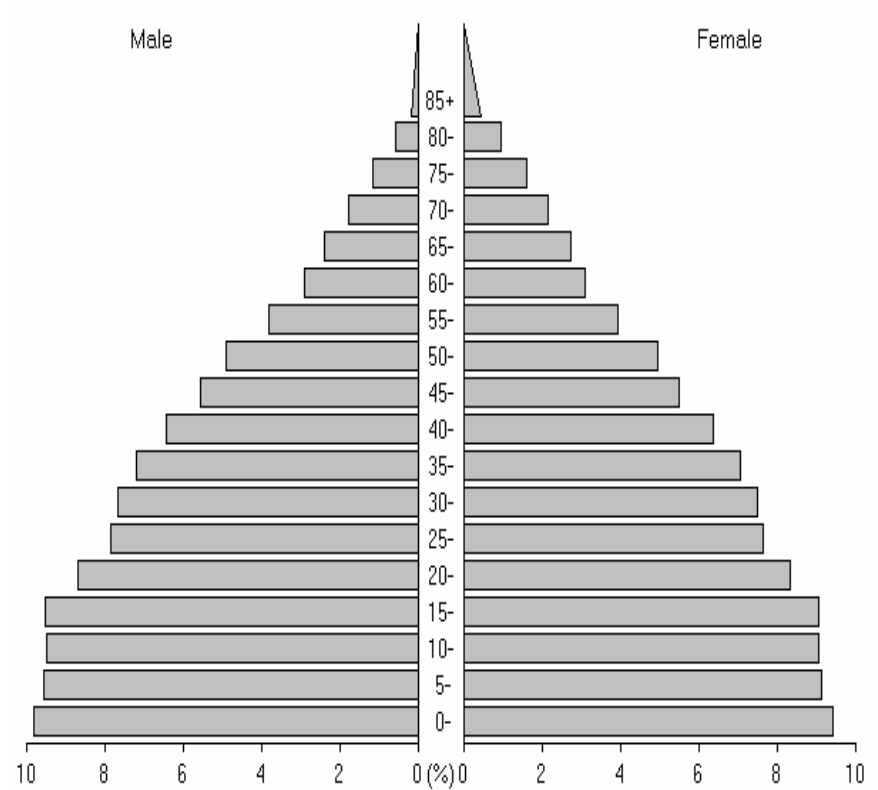


Population (2005)

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WORLD

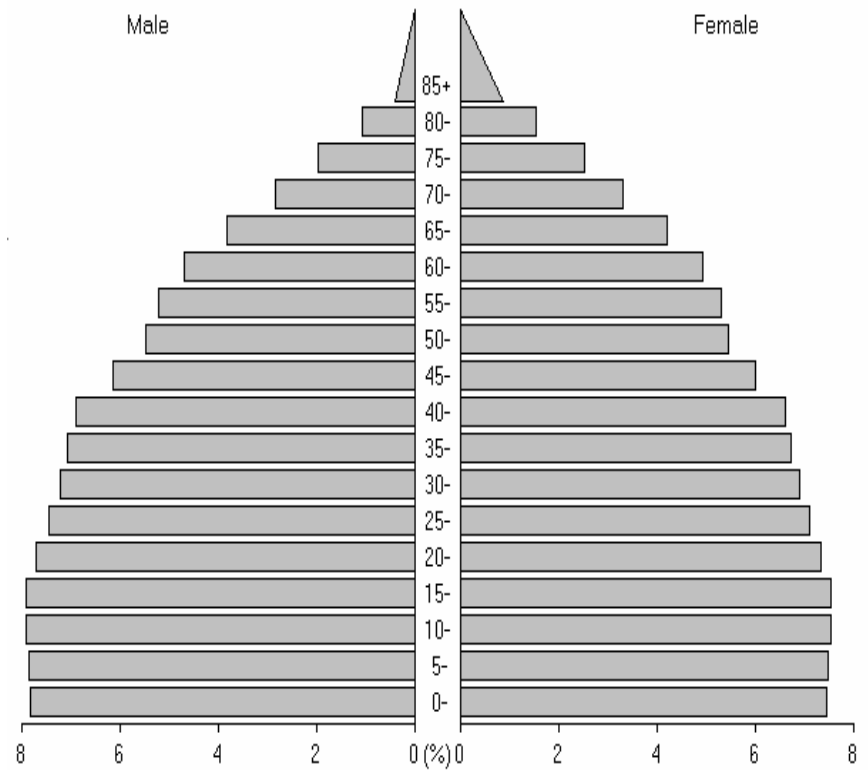


Population (2030)

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4,068,000,000

4,062,000,000

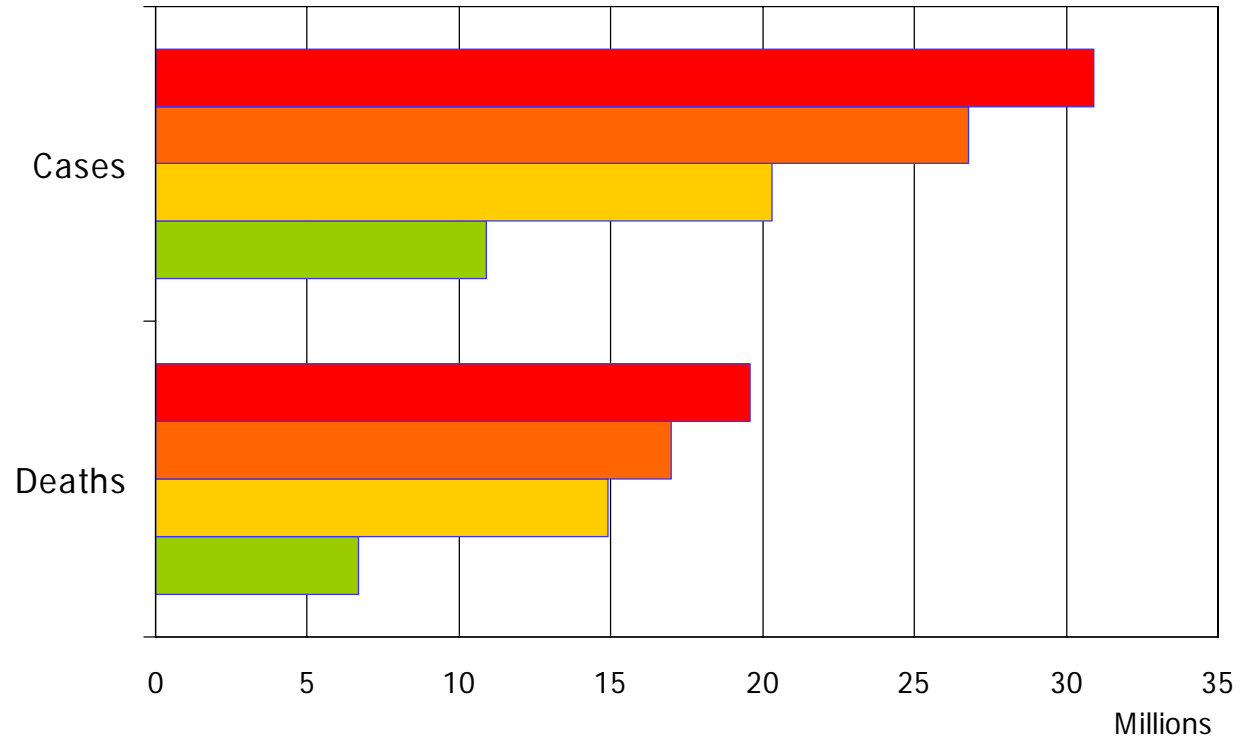




World



Estimated Cancer Burden in 2030



2000

2030 (Population growth)

2030 (1% annual increase of the risk)

2030 (1.5% annual increase of the risk)

Summary and Conclusions I

- Cancer is an important problem throughout the world today. The growth and ageing of the world's population is going to have an enormous impact on the future cancer burden.
- IARC has a unique role to play in acting as a central force in cancer prevention research in all aspects: discovery, development and delivery:
- **Discovery** of the causes of cancer;
- **Development** of scientific proof of prevention efficacy;
- **Delivery** and evaluation of prevention policy implementation.

Summary and Conclusions II

- The new reality means that while continuing to improve prospects for cancer prevention in developed countries, IARC needs to develop a bigger focus on low- and medium-resource countries.
- IARC depends on international collaboration with international centres of excellence.
- Thailand has pioneering programmes in Tobacco Control and Cervix Cancer Screening.
- IARC looks forward to extending collaborations with the Thailand National Cancer Institute to improve prospects for cancer prevention in Thailand and worldwide.

CANCER – WORLDWIDE BURDEN (2002)



11 million New Cases

6.8 million Deaths

25 million Living with Cancer

CANCER – WORLDWIDE BURDEN-2030



27 million New Cases

17 million Deaths

75 million Living with Cancer

CANCER – WORLDWIDE BURDEN-2030



27 million *Persons diagnosed with cancer*

17 million *Persons dying from cancer*

75 million *Persons living with Cancer*