**CancerStats**

**Worldwide Cancer**

April 2005

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**Introduction**

This report describes variation in cancer incidence and mortality in different regions of the world. The data are derived from the IARC GLOBOCAN 2002 database, incidence and mortality rates cited are per 100,000 population and are age standardised to the world population. Each year 10.9 million people worldwide are diagnosed with cancer and there are 6.7 million deaths from the disease. It is estimated that there are 24.6 million people alive who have received a diagnosis of cancer in the last five years.

**Demographic facts**

**Population size and density**

The estimated population of the world in 2002 is 6.3 billion (Table One) and it is increasing by 78 million each year. It is estimated that the world population will reach 7 billion in 2013, 8 billion in 2028 and 9 billion in 2054. Around 80% of the world’s population live in the less developed regions and 95% of the annual increase in population is in these regions. By 2050, the share of the world population living in the currently less developed regions will have risen to 90%.

China is the country with the biggest population in the world with 21.1% of the total world population. The second biggest is India with 17% and by 2050 India is expected to overtake China to become the most populous country on earth. These two countries alone contributed more than 35% of the growth in the population of the world between 1995-2000. The most densely populated countries are Macau, China Hong Kong and Singapore. The least densely populated countries are Western Sahara, Mongolia and Namibia.

**Age distribution and life expectancy**

The population of the world is ageing; this is important because cancer predominantly affects older people. The median age increased from 23.5 years in 1950 to 26.4 years in 1999. By 2050, the median age is projected to reach 37.8 years. The proportion of people in the world aged 60 or older will rise from the current 10% to 22% in 2050. Increases in the numbers of older people will inevitably lead to more cases of cancer, even if current rates remain the same.

There are big variations in the age structures of populations of more developed compared with less developed countries (Table One). Currently 20% of the population in the more developed regions are aged over 60 compared with 8% in the less developed regions. By 2050 these proportions are expected to rise to 33% and 19% respectively. The countries with the oldest populations in the world include Italy, Japan and Germany and the countries with the youngest include Uganda, Niger and Yemen.

World life expectancy at birth is now at 65 years, having increased by a remarkable 20 years since 1950. By 2050, life expectancy is expected to exceed 76 years. People in Japan have the highest life expectancy at birth at 82 years and the lowest life expectancy is 37 in Sierra Leone (Table One). The proportion of people in the world who will die, and reflects both the incidence of cancer and its associated survival pattern.

**Cancer incidence and mortality**

Each year 10.9 million people worldwide are diagnosed with cancer and 6.7 million people die from the disease (Table One). Because of the size of the population most of these people (45%) are in Asia. There is a five-fold difference in male cancer incidence rates worldwide and a four-fold difference in female rates. Male rates are highest in the USA, Hungary and New Zealand and are lowest in Niger, Gambia and the Congo. Female cancer incidence rates are highest in the USA, Israel and New Zealand and lowest in Tunisia, Gambia and Oman. The UK male incidence rate ranks 25th in the world and the female rate ranks 8th.

Around 12% of deaths worldwide are from cancer. The proportion of all deaths caused by cancer varies, from only 4% in Africa to 23% in Northern America (Figure One) overleaf. In the UK around 24% of all deaths are caused by cancer.

**Cancer prevalence**

It is estimated that worldwide there are 24.6 million people alive who have received a diagnosis of cancer in the last five years. Around half of these people live in Europe and North America. Prevalence includes people with a diagnosis who will be cured and others who will die, and reflects both the incidence of cancer and its associated survival pattern.

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**Table One: Population measures, cancer incidence and mortality for the regions of the world 2002**

<table>
<thead>
<tr>
<th>Region</th>
<th>Population total (thousands)</th>
<th>Population under 15 (%)</th>
<th>Population over 65 (%)</th>
<th>Life expectancy at birth (years)</th>
<th>New cases of cancer diagnosed number</th>
<th>Cancer deaths number</th>
<th>Mortality/incidence ratio</th>
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<tbody>
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<td><strong>Africa</strong></td>
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<td>50.1</td>
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<td>43.1</td>
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<td>66.3</td>
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</table>

Note: The incidence and mortality data in this report excludes non-melanoma skin cancer as data on this type of cancer is unreliable.
Lung cancer
Each year approximately 1.4 million people are diagnosed with lung cancer and it accounts for 12% of all cases (Figure Two). Since 1975 the number of people being diagnosed with lung cancer worldwide has doubled (Figure Three), it is now the most common cancer and the most common cause of death from cancer accounting for 18% of all deaths from cancer (Figure Four, overleaf). Lung cancer rates reflect smoking prevalence some 20 years previously and smoking prevalence is a predictor of future lung cancer incidence.

The incidence rate for male lung cancer varies by twelve fold between the different regions of the world, while the female rate varies by more than thirty fold. Five-year survival rates for lung cancer are consistently poor at between 7-14%, so mortality patterns follow incidence patterns closely. The most important cause of lung cancer is tobacco smoking, and incidence rates closely reflect the history of tobacco smoking. Figures Five (a) and (b) (overleaf) show lung cancer incidence rates and smoking prevalence in the different regions of the world.

Manufactured cigarettes were introduced at the beginning of the twentieth century, since when the global consumption of cigarettes has risen steadily. While consumption is levelling off, and even decreasing in some countries, worldwide more people are smoking and they are smoking more cigarettes. The numbers of smokers will increase mainly due to expansion of the world’s population. By 2030 there will be at least another 2 billion people in the world. The expected continuing decrease in male smoking prevalence will be offset by the increase in female smoking rates, especially in developing countries.

Male lung cancer incidence rates are highest in Eastern Europe at 95 in Hungary and 82 in Poland. Smoking prevalence is high in the region with around 56% of men smoking. With declines in smoking prevalence among men in Northern America and Northern and Western Europe male lung cancer incidence rates have peaked and are now declining. While large parts of Asia currently have lower rates of male lung cancer; smoking prevalence is high and incidence is increasing in these regions. In parts of Africa male lung cancer rates are >5 but increases in smoking prevalence in these regions will lead to large increases in the incidence of lung cancer.

In most countries of the world women have taken up smoking later than men and in smaller proportions. It is thought that the incidence of female lung cancer has only just peaked in Northern America and Northern and Western Europe, where female rates are currently the highest (Figure Five (b)). While far fewer women in Asia, Africa and South America currently smoke compared to men the trend is increasing and without intervention will lead to big increases in female lung cancer incidence in coming decades.
Breast cancer
One in ten of all new cancers diagnosed and almost one in four cancers diagnosed in women worldwide is a breast cancer (Figure Two). More than 1.1 million women are diagnosed each year and it is the main cause of death from cancer in women globally. The numbers of women being diagnosed annually worldwide has almost doubled since 1975 (Figure Three). Incidence rates of breast cancer are increasing in most countries, and the changes are usually greatest in areas where rates were previously low.

Breast cancer incidence rates vary by six fold and mortality rates by four fold between the different regions of the world (Figure Six). Incidence rates are highest in the US (101), France (92) and Belgium (92). The breast cancer incidence rate in UK females ranks 10th out of 172 countries worldwide and the mortality rate ranks 14th. In some African countries incidence and mortality for breast cancer rates are below 10. Reproductive behaviour, and to a lesser extent body size, physical exercise and diet, are thought to be the main reasons for such differences. Breast cancer rates in developed countries could be half of current rates if women had larger family sizes and breastfed for longer11, although such measures are generally agreed to be not practicable.

Bowel cancer
Each year an estimated one million people are diagnosed with bowel cancer and it accounts for 9% of all cases (Figure Two). There have been steady increases worldwide in the numbers of people being diagnosed with bowel cancer over the last 25 years (Figure Three). Male and female bowel cancer incidence rates differ by more than twenty- and eleven-fold between the different regions of the world respectively (Figure Seven (a) and (b) overleaf). Male incidence rates are highest in the Eastern European countries; the Czech Republic (59), Hungary (57) and Slovakia (55). Female rates are highest in New Zealand (42) and Norway (37). UK male incidence rates rank 22nd of the 172 countries worldwide and female rates rank 21st. The lowest male and female rates are estimated for Bangladesh (1). These large geographic differences represent the effects of different diets and the incidence of colorectal cancer is increasing in most countries worldwide.

Bowel cancer is the fourth most common cause of death from cancer worldwide accounting for 8% of deaths from cancer (Figure Four). There is a nine fold variation in male bowel cancer mortality rates between the different regions of the world and a six fold variation in female rates (Figure Seven (a) and (b)). Male mortality reflects incidence with the highest rates in Eastern Europe and female rates are high in Hungary and Denmark.
male mortality rates rank 30\textsuperscript{th} of the 172 countries worldwide and female rates rank 25\textsuperscript{th}. Reflecting incidence the lowest mortality rates are estimated for Bangladesh.

Stomach cancer
In the mid 1970s stomach cancer was the most commonly diagnosed cancer worldwide (Figure Three \textsuperscript{11}), but falls in incidence in the West mean, accounting for around 9\% of all new cases (Figure Two \textsuperscript{1}). There is a more than thirteen fold variation in male stomach cancer incidence rates between the regions of the world and an eight fold variation in female rates (Figure Eight (a) and (b)). Variations in incidence are related to diet and prevalence of Helicobacter pylori, the prevalence of which is 80-90\% in parts of the developing world. The decline in incidence is the result of improvements in food preservation and storage combined with falls in the prevalence of H.pylori as a result of improved hygiene and reduction of overcrowding.

The highest male rates are reported in Korea (70) and Japan (62) and the highest female rates are recorded for Peru (31) and Ecuador (27). Rates of less than 1 are reported in Gabon, Malawi, Mozambique, Cameroon and Sri Lanka. UK male rates rank 82\textsuperscript{nd} of the 172 countries worldwide and female rates rank 103\textsuperscript{rd}.

Stomach cancer is the second most common cause of death from cancer, accounting for 1 in 10 of all deaths from the disease (Figure Four \textsuperscript{1}). Mortality rates for stomach cancer follow a similar pattern to incidence rates with a ten fold variation in male rates and a seven fold variation in female rates across the regions of the world (Figure Eight (a) and (b)).

Prostate cancer
While prostate cancer is the fifth most commonly diagnosed cancer worldwide (Figure Two \textsuperscript{1}), it is only the tenth most common cause of death from cancer (Figure Four \textsuperscript{1}). There have been large increases in the incidence of prostate cancer over the last 25 years (Figure Three \textsuperscript{11}), most of this increase has been in the developed world and has been influenced by the diagnosis of latent cancers found during the screening of asymptomatic men. In areas where this is common, such as the USA, incidence is consequently very high (Figure Nine overleaf). However, inter-ethnic variations in rates within countries imply that important genetic determinants of risk exist, for example it is the most commonly diagnosed cancer in the Caribbean where prostate screening is not commonplace. There is less variation in mortality rates, the highest rates are recorded for Barbados (55) and the Dominican Republic (42) and lowest in China and Bangladesh. UK incidence ranks 24\textsuperscript{th} of the 172 countries worldwide and mortality ranks 48\textsuperscript{th}.

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Liver cancer
Liver cancer is the sixth most commonly diagnosed cancer (Figure Two) and the third most common cause of death from cancer worldwide (Figure Four). Prognosis for liver cancer is poor so incidence and mortality patterns are very similar. There is a fourteen fold variation in male incidence rates between the different regions of the world and in women the difference is ten fold (Figure Ten). The major risk factors for liver cancer are infection with hepatitis B and C and consumption of foods contaminated with aflatoxin. Hepatitis B is more common and the distribution of this infection worldwide largely explains differences in rates of liver cancer; with the exception of Japan that has high levels of infection with hepatitis C. The highest rates are reported for Mongolia (99 in males and 57 in females) and Mozambique (79 and 42), while the lowest rates are recorded for Lebanon and Algeria at <1. Liver cancer is rare in the UK, male rates rank 140th of the 172 countries worldwide and female rates rank 136th.

Cervical cancer
One in ten female cancers diagnosed worldwide are cancers of the cervix (Figure Two) and it is the most commonly diagnosed cancer among women in Southern Africa and Central America (Map). There is a seven-fold variation in the incidence of cervical cancer between the different regions of the world (Figure Eleven). Human papillomavirus (HPV) is the most important cause of cervical cancer and much of the international variation in rates of cervical cancer may relate to population prevalence of HPV and other co-factors that modify the risk in women infected with HPV such as the Pill and smoking. Incidence and mortality rates have declined substantially in Western countries with screening programmes, such as the UK where incidence rates rank 141st of the 172 countries worldwide and the mortality rate ranks 148th.

Worldwide there are more than 273,000 deaths from cervical cancer each year and it accounts for 9% of female cancer deaths (Figure Four). Mortality rates vary seventeen fold between the different regions of the world (Figure Eleven). Cervical cancer contributes over 2.7 million years of life lost among women between the ages of 25 and 64 worldwide, some 2.4 million of which occur in developing areas and only 0.3 million in developed countries.

Oesophageal cancer
Each year 462,000 people are diagnosed with oesophageal cancer worldwide (Figure Two) and 386,000 people die from it (Figure Four). There is an eighteen fold variation in incidence rates between the different regions of the world and an almost forty fold variation in female rates (Figure Twelve) overleaf, variation in mortality rates are similar. The highest male rates are estimates for Ethiopia (28) and China (27), female rates are highest in Mongolia (20) and Iran (14). In parts of Africa incidence rates for oesophageal cancer are <1. The UK male and female incidence ranks 34th out of 172 countries worldwide.
In Europe and Northern America most oesophageal cancers are caused by tobacco plus alcohol, but in South America the consumption of hot beverages are thought to be important. Nutritional deficiencies may underlie the high rates in Central Asia and China.

**Kaposi’s sarcoma**

Kaposi’s sarcoma is an extremely rare type of cancer in most regions of the world but is one of the most commonly diagnosed cancers in Eastern, Middle and Southern Africa (Map), around two thirds of cases in these regions are diagnosed in people under 45. It was one of the first clinical manifestations to be reported of HIV infection and has become a main characteristic of AIDS*. In countries such as Botswana and Zimbabwe as many as 1 in 5 of the adult population is HIV positive.

**Oral cavity**

While cancers of the oral cavity only account for 3% of all cancers diagnosed worldwide (Figure Two), they are the third most commonly diagnosed cancer in South Central Asia, accounting for 9% of cancers diagnosed in this region each year. Tobacco smoking and alcohol consumption are the major causes of oral cancer in developed countries, whereas tobacco chewing explains the high incidence in some developing countries.

**Malignant melanoma**

Around 2% of all cancers diagnosed worldwide are malignant melanomas (Figure Two) but they account for one in ten cancers diagnosed in Australia and New Zealand each year (Map). Malignant melanoma of the skin is a tumour particularly common in white-skinned populations living in sunny climates.

* excluding non-melanoma skin cancer

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**References**