

Cancer incidence and mortality worldwide: Sources, methods and major patterns in GLOBOCAN 2012

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Estimates of the worldwide incidence and mortality from 27 major cancers and for all cancers combined for 2012 are now available in the GLOBOCAN series of the International Agency for Research on Cancer. We review the sources and methods used in compiling the national cancer incidence and mortality estimates, and briefly describe the key results by cancer site and in 20 large “areas” of the world. Overall, there were 14.1 million new cases and 8.2 million deaths in 2012. The most commonly diagnosed cancers were lung (1.82 million), breast (1.67 million), and colorectal (1.36 million); the most common causes of cancer death were lung cancer (1.6 million deaths), liver cancer (745,000 deaths), and stomach cancer (723,000 deaths).

According to WHO estimates for 2011, cancer now causes more deaths than all coronary heart disease or all stroke.¹ The continuing global demographic and epidemiologic transitions signal an ever-increasing cancer burden over the next decades, particularly in low and middle income countries (LMIC), with over 20 million new cancer cases expected annually as early as 2025.² The GLOBOCAN estimates for 2012³ aim to provide the evidence and impetus for developing resource-contingent strategies to reduce the cancer burden worldwide.

We review here the fifth version of GLOBOCAN, the sources and methods used in compiling cancer incidence and mortality estimates for 2012 in 184 countries worldwide, and briefly describe the key results by cancer site. The basic units for estimation are countries, although we present the results globally, by level of development and for aggregated regions, as defined by the United Nations.⁴ Such estimates have been prepared for 27 major cancers and for all cancers combined and by sex. While the methods of estimation have been refined over time, they still rely upon the best available data

on cancer incidence and mortality at the national level in assembling regional and global profiles. Facilities for the tabulation and graphical visualisation of the full dataset of 184 countries and 30 world regions by sex can be accessed *via* the GLOBOCAN homepage (<http://globocan.iarc.fr>).

To document the methods used in compiling the estimates and guide users as to their validity, we introduce an alphanumeric scoring system that provides information on the availability and quality of the incidence and mortality sources at the country level.

Data

Incidence data derive from population-based cancer registries (PBCR). Although PBCR may cover national populations, more often they cover smaller, subnational areas, and, particularly in countries undergoing development, only selected urban areas. In 2006, about 21% of the world population was covered by PBCR, with sparse registration in Asia (8% of the total population) and in Africa (11%).⁵ In terms of what is considered data of high quality (for example, those included in the latest volume (X) of the IARC Cancer Incidence in Five Continents (CI5) series⁶), these percentages are even lower: only 14% of the world population is covered by PBCR that match the CI5 inclusion criteria, with the figures 5% and 2% in Asia and Africa, respectively. While cancer registries in lower resource settings may find it difficult to match the strict criteria of data quality set for inclusion in CI5, the information generated by such PBCR remains of critical importance to cancer control as a unique and relatively unbiased source of information on the profile of cancer. Population-based cancer registries can produce survival

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What's new?

In this report, we present the most recent cancer incidence and mortality statistics (for 2012) for the major cancers in 20 regions of the world. Details of the data sources and methods used in GLOBOCAN to compile the estimates at the national level are provided, and we introduce a novel alphanumeric scoring system to give a broad indication of the robustness of the estimation within each country. A global snapshot of the patterns by cancer site brings focus to the need for regional prioritisation of cancer control efforts, as well as the ongoing efforts to improve the limited surveillance systems in many low and middle income countries.

statistics by following up the vital status of cancer patients. In the absence of information on national mortality, it can be estimated using incidence and survival probabilities⁷ and *vice versa*.

Mortality statistics are collected and made available by the WHO.⁸ Their great advantage is national coverage and long-term availability in higher income settings, although not all datasets are of the same quality. For some countries, coverage of the population is incomplete, so that the mortality rates produced are implausibly low, and in others, the quality of cause of death information is poor. By 2005, around one-third of the world population was covered by mortality statistics.⁹ While almost all the European and American countries have comprehensive death registration systems, most African and Asian countries (including the populous countries of Nigeria, India and Indonesia) do not. The mortality data used to estimate the burden of cancer in China was obtained from a sample survey based on the "disease surveillance points" (DSP) project for the period 2004 to 2010 covering around 6% of the total Chinese population.¹⁰ These statistics are considered nationally representative given the samples include both urban and rural areas. As the figures were available for a limited number of cancers, they were supplemented by cancer registry mortality files for certain sites.

National population estimates for 2012 were extracted from the United Nations website.⁴ The geographical definition of the regions follows the rules as defined by the UN, except for Cyprus, which is included in Southern Europe instead of Western Asia (Fig. 1).

An alphanumeric scoring system has been introduced with the release of GLOBOCAN 2012 that independently classifies the source availability and estimation methods for incidence and mortality by country. These scores are provided together with the results online, and the classification of sources and methods is described below.

Sources

Incidence data. Depending on the availability and quality of the information, the countries have been classified as follows (Fig. 2a):

- A. High quality* national data or high quality regional (coverage greater than 50% of the population): 37 countries
- B. High quality* regional data (coverage between 10% and 50%): 11 countries.
- C. High quality* regional data (coverage lower than 10%): 19 countries.

D. National data (PBCR): 24 countries.

E. Regional data (PBCR): 18 countries.

F. Frequency data (hospital-based or pathological –based series): 13 countries.

G. No data: 62 countries.

*Data included in Cancer Incidence in Five Continents (CI5) volume IX¹¹ and/or X.⁶

Mortality data. Similar to incidence data, the following schema has been defined (Fig. 2b):

1. High quality complete vital registration**: 23 countries.
2. Medium quality complete vital registration**: 48 countries.
3. Low quality complete vital registration**: 24 countries.
4. Incomplete or sample vital registration: 2 countries.
5. Other sources (cancer registries, verbal autopsy surveys etc.): 7 countries.
6. No data: 80 countries.

**The criteria defined in points 1–3 are taken from Mathers *et al.*⁹

Methods of estimation

Cancer incidence and mortality rates for 2012 by sex and for 10 age groups (0–14, 15–39, 40–44, 45–49, ..., 75 and over) are estimated for the 184 countries or territories of the world having a total population greater than 200,000.⁴ Results are presented for the following cancer sites or cancer types as defined by the 10th edition of the International Classification of Diseases (ICD-10):¹² lip, oral cavity (ICD-10 C00-08), nasopharynx (C11), other pharynx (C09-10, C12-14), oesophagus (C15), stomach (C16), colon and rectum (including anus C18-21), liver (C22), gallbladder (C23-24), pancreas (C25), larynx (C32), lung (including trachea, C33-34), melanoma of skin (C43), Kaposi sarcoma (C46), female breast (C50), cervix uteri (C53), corpus uteri (C54), ovary (C56), prostate (C61), testis (C62), kidney (including renal pelvis and ureter, C64-66), bladder (C67), brain and central nervous system (C70-72), thyroid (C73), Hodgkin lymphoma (C81), non-Hodgkin lymphoma (C82-85, C96), multiple myeloma (C88 + C90), leukaemia (C91-95) and all cancers combined, excluding non-melanoma skin cancer (C00-97, except C44). This last category was calculated by summing the estimated counts for each individual cancer site, and the residual

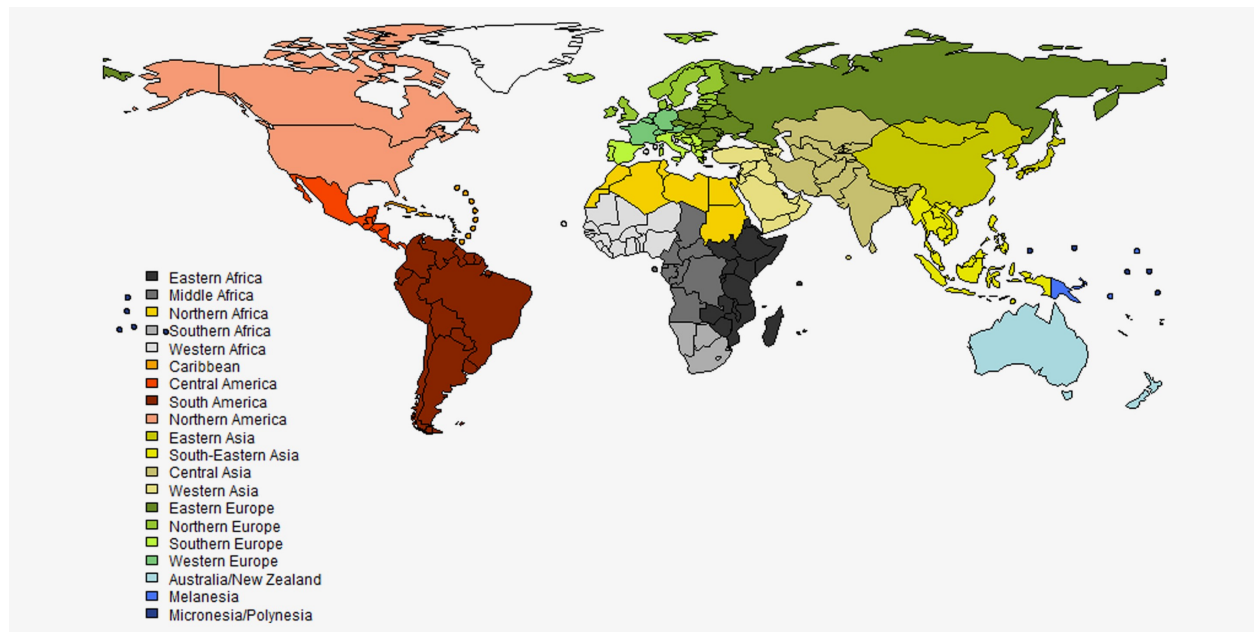


Figure 1. Map showing the 20 world regions.

category “other and unspecified cancers”. Further details of the criteria for inclusion are provided in Appendix A.

The methods of incidence and mortality estimation described below are undertaken at the national level and hence their validity depends upon the representativeness and quality of the source information from the country itself. The methods are largely those developed previously,¹³ although one improvement in the 2012 estimation of both incidence and mortality is the utilisation of the Human Development Index (HDI)¹⁴ to predict survival in countries lacking the requisite data, as described in detail in Appendix B. The methods are summarized below, ranked in descending order of the probable accuracy of the derived estimates.

Estimates of cancer incidence by country.

1. When incidence data were available historically with sufficient numbers of cases, recorded incidence rates were projected to 2012 using models and the 2012 national population applied to the fitted rates (38 countries)
2. When recent incidence data were available from a national registry, the 2012 national population was applied to the most recently recorded incidence rates (20 countries)
3. When registries were regional and where national mortality data were available, national incidence was estimated from national mortality using statistical models, with the fitted mortality to incidence (M:I) ratios derived from recorded data from one or more cancer registries within the country (13 countries)
4. For Europe, when registries were regional rather than national, and where national mortality data were available, method (3) was used but with the fitted M:I ratios derived

from recorded data in cancer registries in neighbouring countries (nine European countries)¹⁵

5. When national or regional registries were not available, but where national mortality data were available, national incidence was estimated from national mortality estimates and modelled survival (32 countries, see Appendix B for method)
6. When national or regional registries were available, but where national mortality data was not available, national incidence was estimated as the weighted average of the recorded incidence rates obtained from multiple cancer registries within the country (16 countries)
7. When incidence data were available from a single registry, but national mortality data were not available, national incidence was estimated from the recorded incidence rates obtained from one cancer registry within the country (11 countries)
8. When neither national or regional registries, nor national mortality data were available, and the within-country source information was considered to lack the necessary level of accuracy, a set of age- and sex-specific national incidence rates for all cancers combined were obtained averaging overall rates from selected neighbouring countries. These rates were then partitioned to obtain the national incidence for specific sites using available cancer-specific relative frequency data (by age and sex, 12 countries).
9. When neither national or regional registries, nor national mortality data were available, and the within-country source information was either unavailable or useable, average incidence rates from selected neighbouring countries in the same region were used to derive national incidence within the country (33 countries).

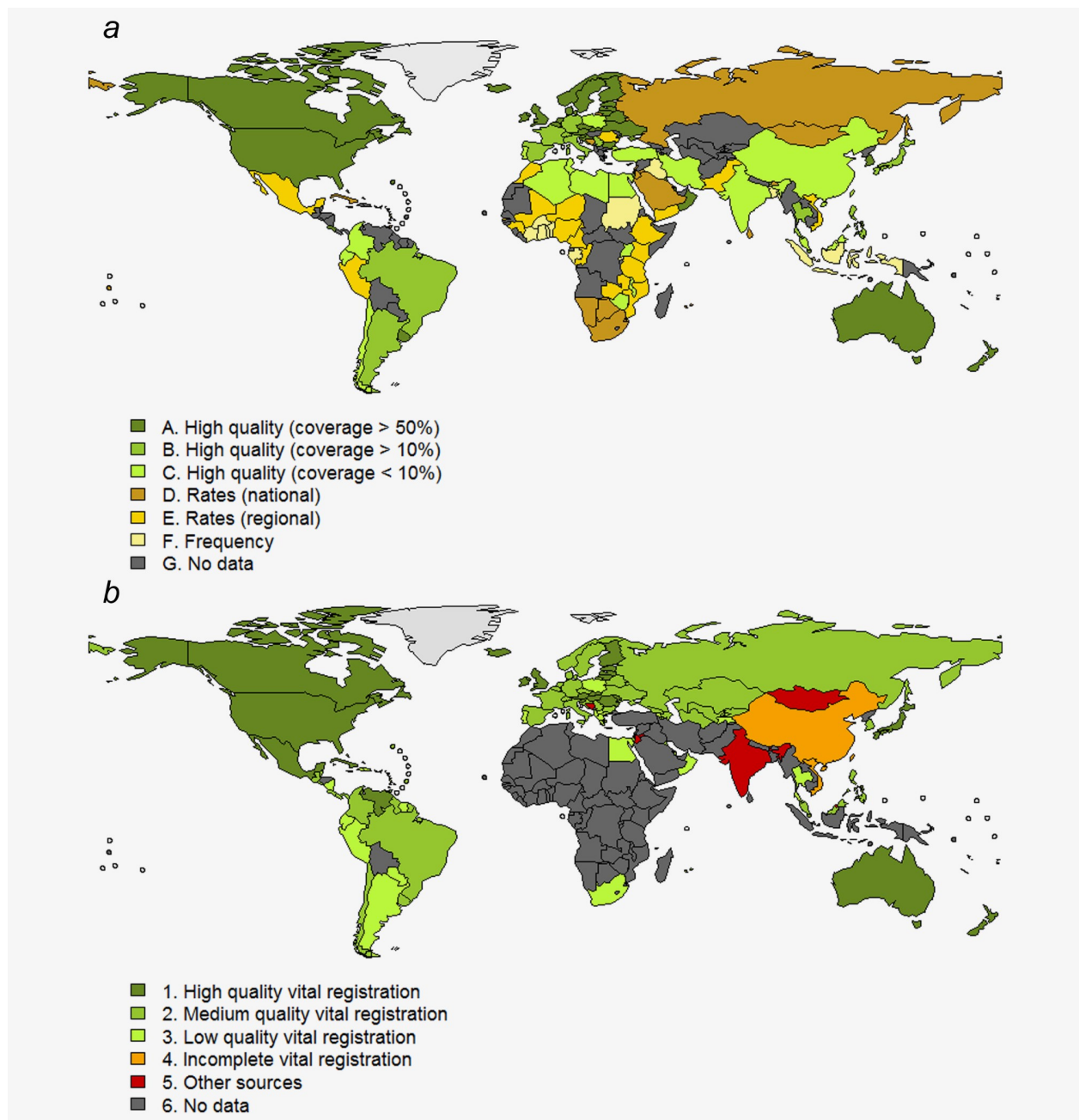


Figure 2. (a) Map showing the availability of incidence data. (b) Map showing the availability of mortality data.

Kaposi sarcoma (KS) incidence estimation in Sub-Saharan Africa. Estimates of the incidence of KS were derived using one of the methods described above, with the exception of Sub-Saharan Africa, where in certain regions the rates are correlated with the HIV epidemic and the prevalence of HIV/AIDS:

- We first estimated the number of endemic (pre-AIDS) KS cases using the percentage frequency of the disease, by sex and age, based on data from Uganda, Kampala (1961–1980) and Nigeria, Ibadan (1971–1990). These percentages

were applied to countries in Eastern and Western Africa respectively. For countries in Middle and Southern Africa, we applied a simple average of these frequencies.

- We calculated the number of epidemic (AIDS-related) KS cases, both sexes, for the year 2011, using estimates of AIDS deaths by country in 2011 (source UNAIDS, <http://www.unaids.org/>), and an estimate of the ratio of deaths from AIDS to incident cases of KS. This ratio was based on observed KS rates in several countries (from the sentinel registries listed below, minus the endemic KS), and was

specific by region (varying from 0.7% in Western Africa to 6% in Eastern Africa). This total number of AIDS-related KS was partitioned by sex and age using sex- and age-specific proportions in sentinel registries of Malawi, Blantyre, Uganda, Kampala and Zimbabwe, Harare (Eastern Africa), Congo, Brazzaville (Middle Africa), Botswana and Namibia (Southern Africa), Mali, Bamako and Niger, Niamey (Western Africa).

Estimates of cancer mortality by country. National statistics from vital registration sources are known to be of variable quality and some corrections were made before they were used for estimation purposes:

- Where necessary, the overall number of deaths was corrected for under-reporting or incompleteness using the percentages provided by the WHO.⁸
- The category “ill-defined cause of deaths” (ICD-9 codes 780-799 and ICD-10 codes R00-R99) was partitioned, by sex and age into “cancer deaths” and “other” specific causes of death. The corrected “cancer deaths” category was then partitioned into cancer-specific categories using proportions from the uncorrected data.
- Given the large variations in the accuracy of death certificates related to cancer of the uterus, with many deaths recorded as “uterus cancer, not otherwise specified” (ICD-10 C55), these proportions were relocated to specified sites. By default, the number of cancer deaths coded as “uterus unspecified” was reallocated to either cervix (C53) or corpus (C54) uterine cancer according to age-specific proportions in the same population.¹⁶ For the countries for which country-specific incidence and survival data were available, mortality for cervix uteri (C53) and corpus uteri (C54) cancers was estimated from incidence and 5-year relative survival probabilities.

Depending on the coverage, completeness and degree of detail of the mortality data available, six methods were utilised, ranked in descending order of the probable accuracy of the derived estimates:

1. When mortality data were available historically from national sources and a sufficient number of recorded cancer deaths were available, mortality rates were projected to 2012 using models and applied to 2012 national population (69 countries)
2. When recent mortality data were available from national sources, the most recent mortality rates were applied to 2012 national population (26 countries)
3. When recent mortality data were available from regional sources, national mortality was estimated as the weighted average of the local mortality rates (one country)
4. When recent mortality data were not available from national sources but country-specific survival estimates were available, national mortality was estimated from

national incidence estimates and country-specific survival (two countries)

5. When recent mortality data were not available from national sources, national mortality was estimated from national incidence estimates using modelled survival as described in Appendix B (83 countries)
6. When recent mortality data were not available from national sources, and survival estimates could not be derived using the previous method, the country-specific rates represent simply those of neighbouring countries in the same region (three countries).

Random fluctuations in the predicted age-specific incidence and mortality rates were smoothed using a *loess* function, a locally weighted regression, by country, sex and cancer site. Estimates for the 20 world regions (Fig. 1) were obtained by the population-weighted average of the incidence and mortality rates of the component countries. These rates were applied to the corresponding population for the region for 2012 to obtain the estimated numbers of new cancer cases and deaths in 2012. The rates were age-standardized (ASRs per 100,000 person-years) using the direct method and the World standard population as proposed by Segi¹⁷ and modified by Doll *et al.*¹⁸ The cumulative risk of developing or dying from cancer before the age of 75 in the absence of competing causes of death was also calculated using the age-specific rates and expressed as a percentage. Both of these indicators allow comparisons between populations that are not influenced by differences in their age structures.

The list of the 184 countries or territories together with their corresponding indicators of data availability and methods of estimation is given in Appendix C. The full description of GLOBOCAN 2012 in terms of the data sources and methods used for each country and further details of the estimations are available online (<http://globocan.iarc.fr>). Similar information for Europe has also been described for 40 countries¹⁵ and the results are available online at the European Cancer Observatory (ECO) (<http://eco.iarc.fr>). The overall and cancer-specific results are described and presented here by world region, and for historical reference, according to the dichotomy of ‘developed’ and ‘developing’ regions: the former comprising Northern America, Europe, Australia/New Zealand and Japan, the latter, the remaining regions and countries.

Results

Global burden of cancer

We estimated that 14.1 million new cancer cases and 8.2 million cancer deaths occurred in 2012 worldwide. Tables 1 and 2 show the estimated number of cases and deaths (in thousands) for all cancers combined (excluding non-melanoma skin cancers) and for 27 specific cancers in men, women and both sexes, together with the corresponding ASRs and the cumulative risk. Lung cancer remains the most common cancer in the world, both in term of new cases (1.8

Table 1. Estimated new cancer cases (thousands), ASRs (per 100,000) and cumulative risks to age 75 (percent) by sex and cancer site worldwide, 2012

Cancer site	Both sexes				Male				Female			
	Cases	(%)	ASR (World)	Cum. risk (0–74)	Cases	(%)	ASR (World)	Cum. risk (0–74)	Cases	(%)	ASR (World)	Cum. risk (0–74)
Lip, oral cavity	300	2.1	4.0	0.5	199	2.7	5.5	0.6	101	1.5	2.5	0.3
Nasopharynx	87	0.6	1.2	0.1	61	0.8	1.7	0.2	26	0.4	0.7	0.1
Other pharynx	142	1.0	1.9	0.2	115	1.5	3.2	0.4	27	0.4	0.7	0.1
Oesophagus	456	3.2	5.9	0.7	323	4.3	9.0	1.1	133	2.0	3.1	0.4
Stomach	951	6.8	12.1	1.4	631	8.5	17.4	2.0	320	4.8	7.5	0.8
Colorectum	1360	9.7	17.2	2.0	746	10.0	20.6	2.4	614	9.2	14.3	1.6
Liver	782	5.6	10.1	1.1	554	7.5	15.3	1.7	228	3.4	5.4	0.6
Gallbladder	178	1.3	2.2	0.2	77	1.0	2.1	0.2	101	1.5	2.3	0.3
Pancreas	338	2.4	4.2	0.5	178	2.4	4.9	0.6	160	2.4	3.6	0.4
Larynx	157	1.1	2.1	0.3	138	1.9	3.9	0.5	19	0.3	0.5	0.1
Lung	1825	12.9	23.1	2.7	1242	16.7	34.2	3.9	583	8.7	13.6	1.6
Melanoma of skin	232	1.6	3.0	0.3	121	1.6	3.3	0.4	111	1.7	2.8	0.3
Kaposi sarcoma	44	0.3	0.6	0.1	29	0.4	0.8	0.1	15	0.2	0.4	0.0
Breast	1677	11.9	43.3	4.6					1677	25.2	43.3	4.6
Cervix uteri	528	3.7	14.0	1.4					528	7.9	14.0	1.4
Corpus uteri	320	2.3	8.3	1.0					320	4.8	8.3	1.0
Ovary	239	1.7	6.1	0.7					239	3.6	6.1	0.7
Prostate	1112	7.9	31.1	3.8	1112	15.0	31.1	3.8				
Testis	55	0.4	1.5	0.1	55	0.7	1.5	0.1				
Kidney	338	2.4	4.4	0.5	214	2.9	6.0	0.7	124	1.9	3.1	0.3
Bladder	429	3.1	5.3	0.6	330	4.4	9.0	1.0	99	1.5	2.2	0.2
Brain, nervous system	257	1.8	3.4	0.3	140	1.9	3.9	0.4	117	1.8	3.0	0.3
Thyroid	298	2.1	4.0	0.4	68	0.9	1.9	0.2	230	3.5	6.1	0.6
Hodgkin lymphoma	66	0.5	0.9	0.1	39	0.5	1.1	0.1	27	0.4	0.7	0.1
Non-Hodgkin lymphoma	386	2.7	5.1	0.5	218	2.9	6.0	0.6	168	2.5	4.1	0.4
Multiple myeloma	114	0.8	1.5	0.2	62	0.8	1.7	0.2	52	0.8	1.2	0.2
Leukaemia	352	2.5	4.7	0.4	201	2.7	5.6	0.5	151	2.3	3.9	0.4
All cancers excl. non-melanoma skin cancer	14090	100.0	182.3	18.5	7427	100.0	205.4	21.0	6663	100.0	165.3	16.4

million cases, 12.9% of total) and deaths (1.6 million deaths, 19.4%) because of the high case fatality. Breast cancer is the second most common cancer overall (1.7 million cases, 11.9%) but ranks 5th as cause of death (522,000, 6.4%) because of the relatively favourable prognosis; these are followed, in terms of incidence, by colorectal cancer (1.4 million cases, 694,000 deaths), prostate cancer (1.1 million cases, 307,000 deaths), stomach cancer (951,000 cases, 723,000 deaths) and liver cancer (782,000 cases and 745,000 deaths). These six cancers represent 55% of the global incidence burden in 2012; in more developed regions, just four cancers—female breast, prostate, lung and colorectum (Fig. 3a)—comprise half of the total incidence, whereas lung, female breast, stomach and colorectal cancers combined with liver and cer-

vical cancers explain over half the incidence burden (54%) in less developed regions (Fig. 3b).

The ranking of the 15 most common cancers are shown for men (Fig. 4a) and women (Fig. 4b), as numbers of new cases and deaths in more and less developed regions of the world. Although lung cancer is the most common cancer worldwide among men, it ranks second in more developed regions (490,000 cases) after prostate cancer (759,000 cases). Cancers of the lung (751,000 cases, 682,000 deaths), liver (462,000 cases, 441,000 deaths) and stomach (456,000 cases, 362,000 deaths) predominate among males in less developed regions, representing 40% of the new cancer cases and 48% of the total cancer deaths. In women, breast cancer is the most common cancer diagnosed in more and less developed

Table 2. Estimated cancer deaths (thousands), ASRs (per 100,000) and cumulative risks to age 75 (percent) by sex and cancer site world-wide, 2012

Cancer site	Both sexes				Male				Female			
	Deaths	(%)	ASR (World)	Cum.risk (0–74)	Deaths	(%)	ASR (World)	Cum.risk (0–74)	Deaths	(%)	ASR (World)	Cum.risk (0–74)
Lip, oral cavity	145	1.8	1.9	0.2	98	2.1	2.7	0.3	47	1.3	1.2	0.1
Nasopharynx	51	0.6	0.7	0.1	36	0.8	1.0	0.1	15	0.4	0.4	0.0
Other pharynx	97	1.2	1.3	0.2	78	1.7	2.2	0.3	19	0.5	0.5	0.1
Oesophagus	400	4.9	5.0	0.6	281	6.0	7.7	0.9	119	3.4	2.7	0.3
Stomach	723	8.8	8.9	1.0	469	10.1	12.8	1.4	254	7.2	5.7	0.6
Colorectum	694	8.5	8.4	0.9	374	8.0	10.0	1.0	320	9.0	6.9	0.7
Liver	745	9.1	9.5	1.0	521	11.2	14.3	1.6	224	6.3	5.1	0.6
Gallbladder	142	1.7	1.7	0.2	60	1.3	1.6	0.2	82	2.3	1.8	0.2
Pancreas	331	4.0	4.1	0.4	174	3.7	4.8	0.5	157	4.4	3.4	0.4
Larynx	83	1.0	1.1	0.1	73	1.6	2.0	0.2	10	0.3	0.2	0.0
Lung	1590	19.4	19.7	2.2	1099	23.6	30.0	3.3	491	13.8	11.1	1.2
Melanoma of skin	55	0.7	0.7	0.1	31	0.7	0.9	0.1	24	0.7	0.6	0.1
Kaposi sarcoma	27	0.3	0.4	0.0	17	0.4	0.5	0.1	10	0.3	0.3	0.0
Breast	522	6.4	12.9	1.4					522	14.7	12.9	1.4
Cervix uteri	266	3.2	6.8	0.8					266	7.5	6.8	0.8
Corpus uteri	76	0.9	1.8	0.2					76	2.1	1.8	0.2
Ovary	152	1.9	3.8	0.4					152	4.3	3.8	0.4
Prostate	307	3.7	7.8	0.6	307	6.6	7.8	0.6				
Testis	10	0.1	0.3	0.0	10	0.2	0.3	0.0				
Kidney	144	1.7	1.8	0.2	91	2.0	2.5	0.3	53	1.5	1.2	0.1
Bladder	165	2.0	1.9	0.2	123	2.6	3.2	0.3	42	1.2	0.9	0.1
Brain, nervous system	189	2.3	2.5	0.3	106	2.3	3.0	0.3	83	2.3	2.1	0.2
Thyroid	40	0.5	0.5	0.1	13	0.3	0.4	0.0	27	0.8	0.6	0.1
Hodgkin lymphoma	25	0.3	0.3	0.0	15	0.3	0.4	0.0	10	0.3	0.3	0.0
Non-Hodgkin lymphoma	200	2.4	2.5	0.3	115	2.5	3.2	0.3	84	2.4	2.0	0.2
Multiple myeloma	80	1.0	1.0	0.1	43	0.9	1.2	0.1	37	1.0	0.8	0.1
Leukaemia	265	3.2	3.4	0.3	151	3.2	4.2	0.4	114	3.2	2.8	0.3
All cancers excl. non-melanoma skin cancer	8201	100.0	102.4	10.5	4653	100.0	126.3	12.7	3548	100.0	82.9	8.4

regions, with more cases occurring in less developed (883,000 cases) than more developed regions (794,000). Cervical cancer, the second most common cancer in less developed regions (445,000 cases), ranks only 11th in more developed regions (83,000 cases). Lung cancer is now the leading cause of cancer death among women in more developed regions (210,000 deaths) followed by breast cancer (198,000 deaths) which ranks as the most frequent in women in less developed regions (324,000 deaths) followed by cancers of the lung (281,000 deaths) and cervix (230,000 deaths).

Figure 5 shows the distribution of the global cancer cases and deaths (all types of cancer, both sexes combined) by world region. Most cases (4.1 million, 29.4% of the total) and deaths (2.75 million, 33.6%) occurred in Eastern Asia with its vast

population (1.6 billion, 22% of the global population in 2012). Northern America ranks second in terms of number of new cases (1.78 million, 12.7%) but third (691,000, 6.4%) in terms of cancer deaths after South-Central Asia (1.0 million deaths, 12.5%). Almost a quarter of the new cases (3.44 million) and one fifth of the deaths (1.75 million) occurred in the four European regions, despite containing 10% of the global population.

Tables 3 and 4 show the estimated incidence and mortality ASRs (world standard), respectively, by sex and cancer site for the 20 regions of the world, and for more developed and less developed regions. Tables 5 and 6 portray the estimates of the numbers of cancer cases and deaths, and Tables 7 and 8 the estimates of cumulative risk (ages 0–74, percent) for the same categories. A brief description of the patterns for each cancer site follows.

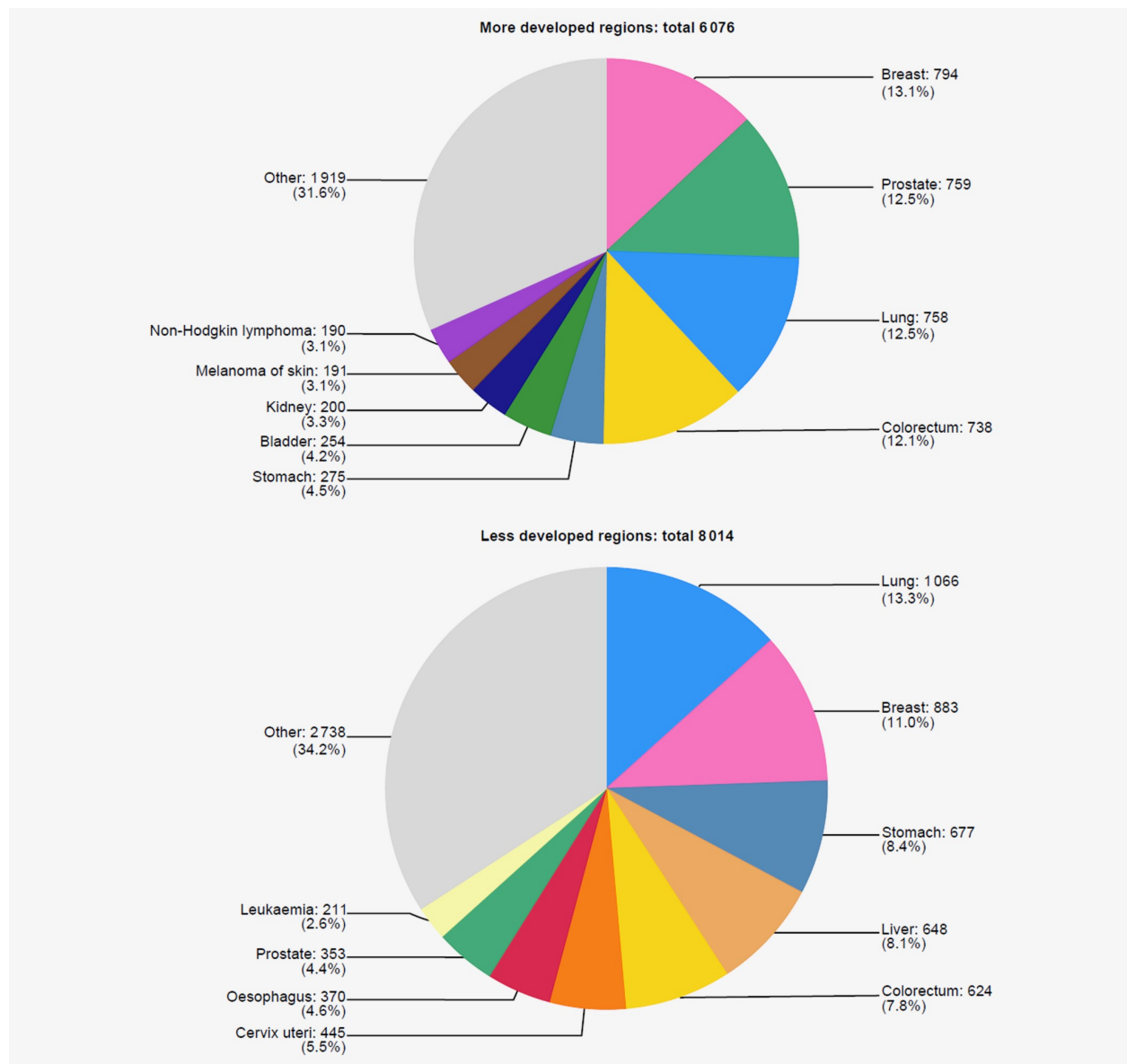


Figure 3. Estimated global numbers of new cases (thousands) with proportions for (a) more developed and (b) less developed regions, both sexes combined, 2012. The area of the pie is proportional to the number of new cases.

All sites combined (excluding non-melanoma skin cancer). Overall incidence rates are almost 25% higher in men (ASR 205 per 100,000) than in women (165 per 100,000), with male incidence rates varying almost fivefold across the different regions of the world, from 79 per 100,000 in Western Africa to 365 per 100,000 in Australia/New Zealand, with high rates of prostate cancer making a significant contribution to the latter (Table 3). There is less variation in female incidence, rates ranging from 103 per 100,000 in South-Central Asia to 295 per 100,000 in Northern America (Table 3). In terms of mortality, the cumulative risk of dying from cancer is 20% higher in more developed than less developed regions in men, and 10% higher in women (Table 4). The

risk of dying from cancer among men is highest in Central and Eastern Europe (19%) and lowest in Western Africa (7%) (Table 8). In contrast, the highest risk of cancer death in women is in Melanesia and Eastern Africa (both 12%), and the lowest in Eastern Asia (8%) and South-Central Asia (7%).

Lung cancer. Lung cancer emerged as the most common cancer worldwide several decades ago: with 660,000 new cases estimated in 1980, it had risen to equal stomach cancer.¹⁹ Of the estimated 1.8 million new cases in 2012 (12.9% of the total) (Table 1), 58% occurred in less developed regions. It is the most common cancer in men worldwide

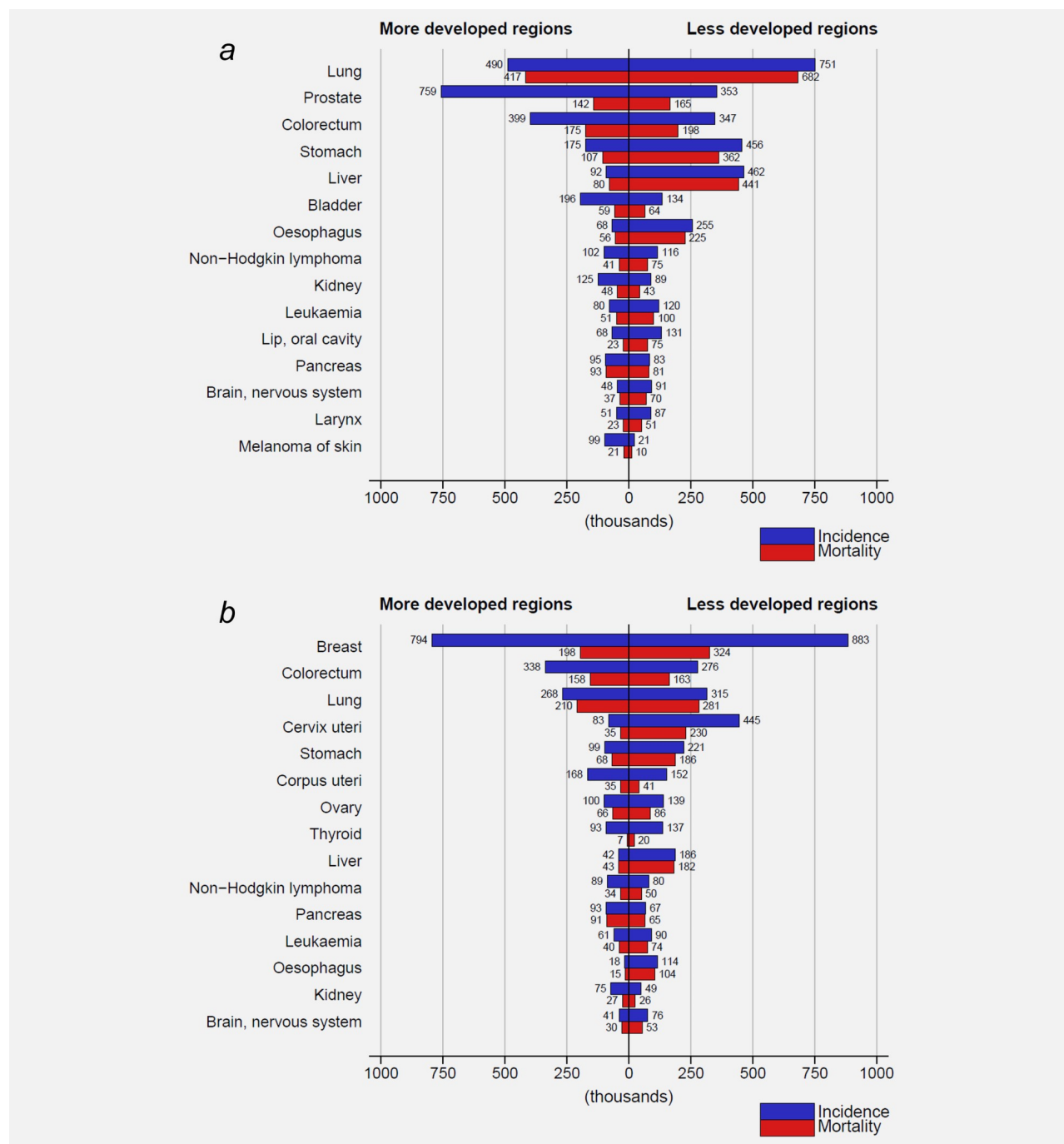


Figure 4. (a) Estimated numbers (thousands) of new cancer cases (incidence) and deaths (mortality) in men in more developed and less developed regions of the world in 2012. (b) Estimated numbers (thousands) of new cancer cases (incidence) and deaths (mortality) in women in more developed and less developed regions of the world in 2012.

(1.2 million, 16.7% of the total), with the highest rates in Central and Eastern Europe (53.5 per 100,000) and Eastern Asia (50.4 per 100,000). Incidence rates are very low in Middle and Western Africa (2.0 and 1.7 per 100,000, respectively) (Table 3). In women, the incidence rates are generally lower and the geographical pattern somewhat different, reflecting in

part variations in the uptake and consumption of tobacco. The highest estimated rates are in Northern America (33.8) and Northern Europe (23.7) compared with low rates in Western and Middle Africa (1.1 and 0.8 respectively) (Table 3). The relatively high rate in women in Eastern Asia (19.2) has been of particular interest, since tobacco smoking is

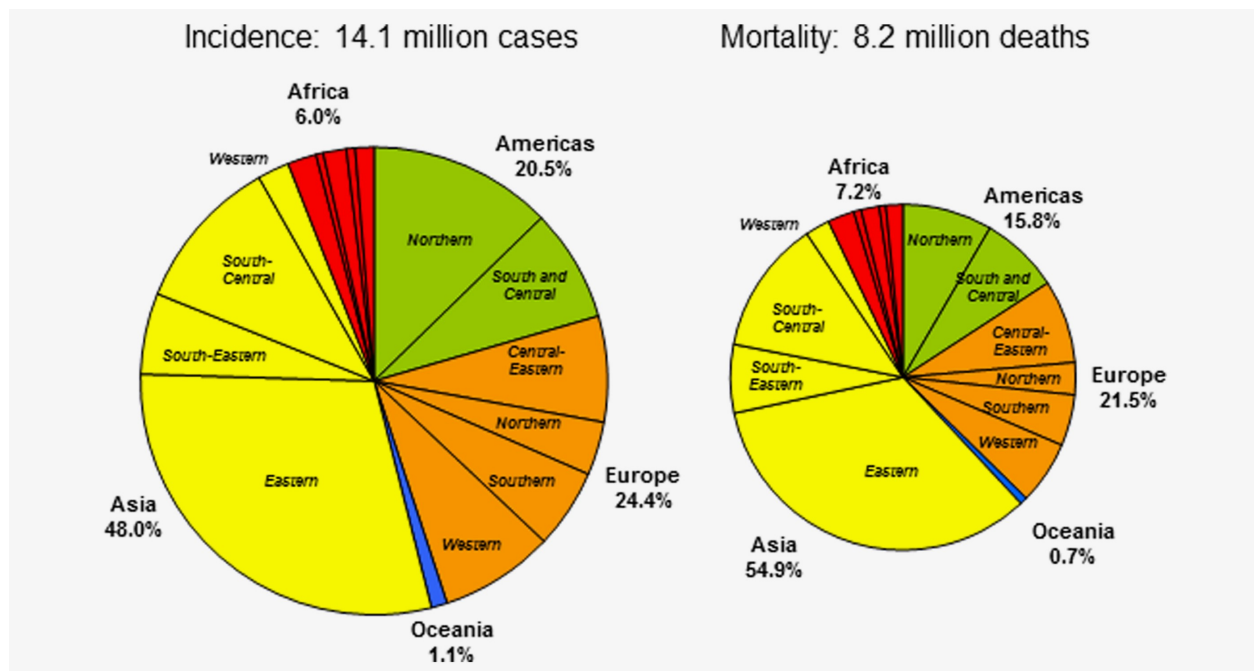


Figure 5. Estimated global numbers of new cases and deaths with proportions by world regions, both sexes combined, 2012. The area of the pie is proportional to the number of new cases or deaths.

generally very rare in these populations. The disease is the most common cause of death from cancer worldwide, responsible for nearly one cancer death in five (1.59 million deaths, 19.4% of the total). Because of the high fatality associated with the disease, the geographical patterns in mortality closely follow those of incidence.

Breast cancer. Breast cancer is the second most common cancer in the world and, by far the most frequent cancer among women with an estimated 1.67 million new cancer cases diagnosed in 2012 (25% of all cancers) (Table 1). A slight majority of cases occur in women in less developed regions (Table 5). Incidence rates vary nearly fourfold across the world regions, with rates ranging from 27 per 100,000 in Middle Africa and Eastern Asia to 96 in Western Europe (Table 3).

Breast cancer ranks as the fifth cause of death from cancer overall (522,000 deaths) and while it is the most frequent cause of cancer death in women in less developed regions (324,000 deaths, 14.3% of total), it is now the second cause of cancer death in more developed regions (198,000 deaths, 15.4%) after lung cancer (Table 6). The range in mortality rates between world regions is less than that for incidence because of the more favourable survival from breast cancer in (high-incidence) developed regions.

Colorectal cancer. Colorectal cancer is the third most common cancer in men (746,000 cases, 10.0% of the total) and the second in women (614,000 cases, 9.2% of the total) worldwide (Table 1). Almost 55% of the cases occur in more developed regions (Table 5). There is a 10-fold variation in

incidence across the world and the patterns are very similar in men and women, with the highest rates in Australia/New Zealand (ASR 44.8 and 32.2 per 100,000 in men and women, respectively), and lowest in Western Africa (4.5 and 3.8 per 100,000) (Table 3).

Mortality is considerably lower (694,000 deaths in both sexes, 8.5% of the total) with more deaths (52%) in less developed regions of the world, reflecting poorer prognosis in these regions (Table 6). There is less variability in mortality rates worldwide (sixfold in men, fourfold in women), with rates highest in Central and Eastern Europe (20.3 per 100,000 for men, 11.7 per 100,000 for women), and lowest in Western Africa (3.5 and 3.0, respectively) (Table 4).

Prostate cancer. Prostate cancer is the fourth most common cancer in both sexes combined and the second most common cancer in men. An estimated 1.1 million cases were diagnosed worldwide with prostate cancer in 2012, accounting for 15% of the cancers diagnosed in men, with almost 70% of them (759,000) occurring in more developed regions (Table 5). Prostate cancer incidence varies more than 25-fold worldwide; the rates are highest in Australia/New Zealand and Northern America (ASR 111.6 and 97.2 per 100,000, respectively), and in Western and Northern Europe (ASR 94.9 and 85 per 100,000), largely because the widespread practice of prostate specific antigen (PSA) testing and subsequent biopsy in those regions (Table 3). Incidence rates are also relatively high in certain less developed regions such as the Caribbean (79.8), Southern Africa (61.7) and South America (60.1), but remain low in Asian populations, with

Table 3. Estimated age-standardised rates (ASRs, World standard) of cancer incidence by sex, cancer site and regions, 2012 (Continued)

	Breast (C50)		Cervix uteri (C53)		Corpus uteri (C54)		Ovary (C56)		Prostate (C61)		Testis (C62)		Kidney (C64-66)		Bladder (C67)		Brain, CNS (C70-72)		Thyroid (C73)		Hodgkin (C81)		NHL (C82-85,C96)		Multiple myeloma (C88+C90)		Leukaemia (C91-95)		All sites but C44 (C00-97/C44)																		
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M																	
World	43.3		14.0		8.3		6.1		31.1		1.5		6.0		3.0		9.0		2.2		3.9		3.0		1.9		6.1		1.1		0.7		6.0		4.1		1.7		1.2		5.6		3.9		205.4		165.3
More developed regions	74.1		9.9		14.7		9.1		69.5		5.2		12.6		6.2		16.9		3.7		5.9		4.4		3.6		11.1		2.3		1.9		10.3		7.1		3.3		2.2		8.8		5.8		308.7		240.6
Less developed regions	31.3		15.7		5.5		4.9		14.5		0.7		3.4		1.8		5.3		1.5		3.3		2.7		1.4		4.7		0.8		0.5		4.3		2.8		1.0		0.8		4.3		3.2		163.0		135.8
Africa	36.2		27.6		3.5		4.8		23.2		0.4		1.4		1.1		6.3		2.0		2.1		1.6		0.9		2.4		1.0		0.7		5.5		3.8		1.1		0.9		3.3		2.6		115.6		132.4
Eastern Africa	30.4		42.7		3.4		5.5		23.3		0.3		1.1		1.3		3.3		2.0		1.3		1.1		1.1		2.7		0.9		0.7		5.6		3.5		1.1		1.0		3.8		3.4		120.7		154.8
Middle Africa	26.8		30.6		3.4		4.1		27.0		0.2		0.7		0.6		2.2		1.3		0.5		0.5		0.7		1.2		0.6		0.4		4.4		3.2		1.1		0.9		2.6		1.8		91.8		110.7
Northern Africa	43.2		6.6		3.1		5.6		10.6		0.6		2.5		1.6		15.1		3.2		5.6		4.4		1.4		4.4		1.8		1.3		7.6		5.4		1.4		1.0		5.6		3.9		133.5		127.7
Southern Africa	38.9		31.5		6.5		5.2		61.8		0.6		1.6		0.8		7.5		1.9		2.0		1.2		0.6		1.6		1.2		0.5		5.2		4.1		2.0		1.7		3.6		2.6		210.3		161.1
Western Africa	38.6		29.3		3.3		3.6		25.1		0.3		0.8		0.7		2.1		1.3		0.4		0.3		0.3		1.0		0.7		0.4		3.7		2.5		0.4		0.4		1.4		1.2		78.7		112.4
The Americas	67.6		14.9		12.3		6.8		75.0		3.2		9.8		5.2		12.9		3.6		5.5		4.2		3.7		12.1		1.8		1.3		9.9		7.0		3.1		2.2		7.8		5.6		263.0		228.2
Caribbean	46.1		21.0		10.4		5.0		79.8		1.0		2.9		1.5		7.6		1.8		3.3		3.3		1.3		4.2		1.0		0.9		4.9		3.6		2.1		1.7		4.7		3.7		207.7		168.0
Central America	32.8		23.5		6.6		5.0		28.4		2.3		4.1		2.3		3.4		1.8		4.5		3.4		1.2		3.8		1.3		0.9		4.2		3.3		1.3		1.0		5.8		4.9		125.8		141.9
South America	52.2		20.4		5.5		5.8		60.1		2.3		5.1		2.7		6.9		2.1		5.4		4.3		1.9		8.4		1.1		0.8		6.0		4.3		1.9		1.5		5.3		4.1		206.7		180.6
Northern America	91.6		6.6		19.1		8.1		97.2		5.0		15.5		8.3		19.5		5.2		6.1		4.6		6.3		20.0		2.7		2.2		14.6		10.2		4.3		3.0		10.4		7.2		344.2		295.4
Asia	29.1		12.7		5.9		5.0		9.4		0.6		3.8		1.9		5.5		1.4		3.3		2.7		1.5		5.0		0.7		0.4		4.2		2.7		1.0		0.7		4.6		3.3		174.1		134.3
Eastern Asia	27.0		7.9		8.6		4.7		10.5		0.5		5.8		2.7		5.8		1.6		4.0		3.5		2.0		7.6		0.2		0.2		4.0		2.8		1.0		0.6		5.1		3.8		225.4		151.9
South-Eastern Asia	34.8		16.3		5.1		6.5		11.2		0.9		1.9		0.9		4.3		1.0		2.6		2.1		1.8		4.5		0.5		0.3		5.7		3.8		0.9		0.8		4.9		4.0		147.6		132.6
South-Central Asia	28.2		19.3		2.7		4.9		4.5		0.6		1.4		0.7		3.6		0.8		2.4		1.5		0.7		1.8		1.0		0.5		3.3		1.8		0.8		0.5		3.4		2.3		98.4		103.3
Western Asia	42.8		4.4		7.6		5.3		28.0		1.7		5.0		3.0		19.0		3.1		5.3		5.0		2.4		9.8		2.4		1.5		7.8		5.6		2.3		1.7		6.8		4.8		192.8		150.2
Europe	71.1		11.4		13.9		9.9		64.0		5.6		12.3		5.9		17.7		3.5		6.3		4.6		2.5		7.8		2.3		2.0		8.8		5.9		3.2		2.1		8.7		5.6		298.9		226.7
Central and Eastern Europe	47.7		16.3		15.6		11.4		31.3		3.2		12.4		6.1		15.1		2.7		5.8		4.5		1.8		7.4		1.9		1.9		4.8		3.6		1.6		1.3		7.7		5.1		260.0		193.5
Northern Europe	89.4		8.7		14.1		11.0		85.0		7.2		11.1		5.8		12.4		3.6		7.0		5.1		1.7		5.6		2.6		1.9		11.5		8.1		4.1		2.7		9.2		6.0		298.4		263.9
Southern Europe	74.5		8.5		12.9		9.1		58.6		5.9		11.2		4.6		21.8		3.8		6.8		4.8		3.8		8.6		2.5		2.1		10.3		6.6		3.3		2.3		8.7		5.6		297.6		220.4
Western Europe	96.0		7.3		11.6		7.5		94.9		8.7		13.4		6.5		19.7		4.3		6.1		4.4		3.1		8.8		2.5		2.3		10.9		7.7		4.3		2.8		9.6		6.0		343.7		263.7
Oceania	79.2		10.2		12.4		8.0		101.9		5.0		11.0		5.3		10.6		2.7		5.3		3.4		3.4		11.3		2.0		1.7		13.3		9.4		4.2		2.7		10.4		6.4		338.5		264.8
Australia/New Zealand	85.8		5.5		12.4		7.6		111.6		6.8		12.6		6.1		11.3		2.9		6.4		4.3		3.8		11.8		2.5		2.2		14.3		10.1		4.6		3.0		11.3		7.2		365.3		277.9
Melanesia	41.0		33.3		10.3		8.1		22.7		0.4		1.4		0.5		3.5		0.7		0.9		0.2		2.3		10.6		0.6		0.2		6.9		4.8		1.1		0.7		5.3		3.3		152.1		182.1
Micronesia/Polynesia	59.7		9.9		12.3		5.2		72.3		0.4		3.6		0.9		6.4		0.9		0.8		0.3		3.0		12.3		0.4		0.0		6.3		3.4		1.6		0.4		5.9		2.1		215.2		165.3

Table 4. Estimated age-standardised rates (ASRs, World standard) of cancer mortality by sex, cancer site and regions, 2012

	Oral cavity (C00-08)		Naso- pharynx (C11)		Other pharynx (C09-14)		Oesopha- gus (C15)		Stomach (C16)		Colorectum (C18-21)		Liver (C22)		Gallblad- der (C23-24)		Pancreas (C25)		Larynx (C32)		Lung (C33-34)		Mela- noma (C43)		Kaposi sarcoma (C46)	
			M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
World	2.7	1.2	1.0	0.4	2.2	0.5	7.7	2.7	12.8	5.7	10.0	6.9	14.3	5.1	1.6	1.8	4.8	3.4	2.0	0.2	30.0	11.1	0.9	0.6	0.5	0.3
More developed regions	2.3	0.6	0.2	0.1	2.2	0.3	5.2	0.9	9.1	4.2	14.7	9.3	7.1	2.5	1.5	1.4	8.3	5.5	2.2	0.2	36.8	14.3	2.0	1.2	0.0	0.0
Less developed regions	2.8	1.4	1.3	0.5	2.2	0.5	9.0	3.6	14.4	6.5	7.8	5.6	17.0	6.4	1.6	2.0	3.2	2.3	2.0	0.3	27.2	9.8	0.4	0.3	0.6	0.3
Africa	2.1	1.3	1.1	0.6	0.9	0.4	5.3	3.3	4.1	3.0	5.1	4.2	11.9	5.6	0.5	0.9	2.3	1.6	1.5	0.2	7.0	2.4	0.5	0.6	4.9	2.2
Eastern Africa	3.2	1.9	1.4	0.9	0.9	0.5	11.2	7.3	5.0	3.7	5.5	4.6	4.6	3.1	0.4	0.9	1.5	1.6	1.5	0.2	3.5	2.0	0.6	0.9	14.2	6.2
Middle Africa	2.9	1.4	1.1	0.6	1.6	0.6	4.0	1.9	4.0	3.8	3.8	3.9	9.9	5.4	0.1	0.1	1.3	0.8	1.1	0.2	1.8	0.8	1.0	1.5	1.0	0.4
Northern Africa	1.3	0.8	1.4	0.6	0.6	0.6	2.3	1.4	3.9	2.4	5.6	4.5	17.4	6.7	1.1	1.8	3.2	1.8	2.0	0.2	14.0	2.8	0.2	0.2	0.2	0.1
Southern Africa	2.8	1.0	0.2	0.1	2.2	0.6	12.8	6.2	5.2	2.5	10.0	5.8	6.7	3.2	0.5	0.5	5.2	3.4	2.5	0.4	23.8	9.1	1.6	0.8	4.3	2.8
Western Africa	1.2	1.0	0.6	0.3	0.5	0.1	0.8	0.4	3.2	2.5	3.5	3.0	15.6	7.7	0.3	0.3	1.9	1.2	0.9	0.1	1.5	0.9	0.5	0.4	0.9	0.5
The Americas	1.5	0.6	0.2	0.1	1.5	0.3	4.8	1.1	6.8	3.7	9.8	7.4	6.2	3.3	1.0	1.6	6.4	5.0	2.1	0.3	25.9	15.9	1.7	0.9	0.1	0.0
Caribbean	2.0	0.6	0.3	0.1	2.5	0.6	4.1	1.0	6.8	4.0	9.1	9.1	6.0	4.3	0.5	0.9	4.1	3.6	4.0	0.5	23.7	12.1	0.3	0.2	0.1	0.0
Central America	0.8	0.5	0.1	0.0	0.7	0.2	1.6	0.5	8.8	6.7	4.8	3.8	6.6	6.1	1.0	2.1	3.5	3.5	1.5	0.2	9.0	4.3	0.6	0.4	0.1	0.0
South America	2.2	0.7	0.2	0.1	2.2	0.4	5.6	1.5	12.0	5.7	9.4	7.7	5.4	3.7	1.7	2.9	5.2	4.4	3.3	0.4	18.5	8.9	1.0	0.6	0.1	0.0
Northern America	1.2	0.5	0.2	0.1	1.2	0.3	5.1	1.0	2.8	1.5	11.3	7.8	6.8	2.3	0.6	0.7	8.0	5.9	1.2	0.3	34.8	23.5	2.6	1.2	0.0	0.0
Asia	3.0	1.4	1.4	0.5	2.4	0.5	9.9	3.8	16.7	7.2	8.6	6.0	18.9	6.7	2.1	2.3	3.6	2.5	1.9	0.2	31.6	11.0	0.3	0.2	0.0	0.0
Eastern Asia	1.1	0.5	1.5	0.6	0.7	0.1	14.1	4.5	24.0	9.8	10.2	6.8	29.9	9.6	2.8	2.6	5.2	3.4	1.1	0.2	44.8	16.2	0.4	0.3	0.0	0.0
South-Eastern Asia	1.9	1.2	3.8	1.4	2.1	0.5	3.3	0.9	7.3	3.5	9.7	6.4	21.4	6.8	1.3	1.1	2.5	1.9	1.3	0.2	26.6	9.4	0.3	0.2	0.0	0.0
South-Central Asia	6.3	3.0	0.4	0.1	5.3	1.2	6.0	3.6	8.5	3.9	5.1	3.8	3.6	2.1	1.3	2.1	1.2	0.9	3.0	0.4	10.7	3.0	0.2	0.1	0.0	0.0
Western Asia	1.0	0.6	0.7	0.3	0.6	0.3	2.7	1.9	10.2	6.2	10.0	7.1	4.9	2.5	1.4	1.2	4.7	3.0	2.9	0.4	34.0	6.2	0.6	0.5	0.2	0.1
Europe	3.0	0.7	0.3	0.1	2.7	0.3	4.9	0.9	9.7	4.6	16.2	9.9	6.1	2.2	1.1	1.3	8.2	5.3	3.0	0.2	39.8	11.8	2.0	1.3	0.0	0.0
Central and Eastern Europe	5.1	0.7	0.3	0.2	3.8	0.3	5.0	0.6	16.8	7.1	20.3	11.7	5.4	2.2	1.3	1.5	9.0	4.9	4.9	0.2	47.6	8.3	2.0	1.4	0.0	0.0
Northern Europe	1.6	0.7	0.2	0.1	1.4	0.3	7.2	2.3	4.8	2.4	13.4	9.1	4.0	1.8	0.6	0.8	7.1	5.6	1.3	0.2	29.6	19.0	2.5	1.6	0.0	0.0
Southern Europe	1.9	0.6	0.3	0.1	1.8	0.3	2.8	0.5	8.3	4.0	15.4	8.7	7.5	2.5	1.5	1.5	7.4	4.9	2.9	0.2	39.1	10.0	1.6	1.0	0.0	0.0
Western Europe	2.0	0.6	0.2	0.1	2.7	0.5	5.0	1.2	5.1	2.5	13.3	8.3	6.5	2.1	0.9	1.0	8.0	5.8	1.5	0.2	35.3	14.8	2.0	1.3	0.0	0.0
Oceania	2.7	1.9	0.3	0.1	1.3	0.3	4.5	1.4	3.9	2.1	11.4	8.2	6.9	2.9	0.6	0.7	5.9	4.6	1.0	0.2	23.1	14.1	5.4	2.3	0.0	0.0
Australia/New Zealand	1.4	0.6	0.2	0.1	1.2	0.3	4.7	1.3	3.6	1.7	11.6	8.5	5.4	2.0	0.5	0.7	6.3	4.9	0.9	0.1	23.5	14.9	5.9	2.4	0.0	0.0
Melanesia	14.4	10.2	0.3	0.1	2.8	0.4	3.4	1.4	6.6	4.7	7.7	4.9	14.4	7.3	1.6	0.6	2.3	1.2	1.9	0.4	13.3	5.0	2.1	2.3	0.1	0.0
Micronesia/Polynesia	1.7	0.0	0.9	0.4	1.1	0.2	3.2	0.2	6.2	3.0	8.2	5.1	10.1	2.2	0.0	1.1	3.9	1.1	1.1	0.4	38.4	17.3	1.0	0.4	0.0	0.0

Table 4. Estimated age-standardised rates (ASRs, World standard) of cancer mortality by sex, cancer site and regions, 2012 (Continued)

	Breast (C50)		Cervix uteri (C53)		Corpus uteri (C54)		Ovary (C56)		Prostate (C61)		Testis (C62)		Kidney (C64-66)		Bladder (C67)		Brain, cns (C70-72)		Thyroid (C73)		Hodgkin (C81)		NHL (C82-85, C96)		Multiple myeloma (C88 + C90)		Leukemia (C91-95)		All sites but C44 (C00-97/C44)	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
World	12.9	6.8	1.8	3.8	7.8	0.3	2.5	1.2	3.2	0.9	3.0	2.1	0.3	0.6	0.4	0.3	3.2	2.0	1.2	0.8	4.2	2.8	126.3	82.9						
More developed regions	14.9	3.3	2.3	5.0	10.0	0.3	4.2	1.7	4.5	1.1	4.0	2.7	0.3	0.4	0.4	0.3	3.5	2.0	1.8	1.2	4.6	2.8	138.0	86.2						
Less developed regions	11.5	8.3	1.5	3.1	6.6	0.3	1.7	0.9	2.6	0.7	2.6	1.9	0.4	0.7	0.4	0.3	2.8	1.8	0.8	0.6	3.7	2.6	120.1	79.8						
Africa	17.3	17.5	1.3	3.8	17.0	0.3	1.1	0.9	3.5	1.2	1.6	1.3	0.6	1.3	0.8	0.5	4.3	2.9	0.9	0.8	3.1	2.5	92.9	88.7						
Eastern Africa	15.6	27.6	1.3	4.4	18.7	0.2	1.0	1.1	2.2	1.3	1.1	0.9	0.8	1.8	0.9	0.6	4.6	2.9	1.0	0.9	3.7	3.3	103.8	110.5						
Middle Africa	14.9	22.2	1.5	3.3	24.2	0.2	0.6	0.5	1.6	0.9	0.5	0.5	0.5	0.8	0.5	0.4	3.8	2.7	1.0	0.8	2.5	1.7	82.3	82.3						
Northern Africa	17.4	3.2	0.9	4.1	7.0	0.3	1.9	1.2	7.6	1.6	4.0	3.1	0.7	1.8	1.2	0.8	5.4	3.7	1.2	0.8	4.9	3.4	99.9	75.7						
Southern Africa	15.5	17.9	1.8	3.8	24.4	0.3	1.5	0.6	3.0	0.9	1.9	1.1	0.3	0.4	0.4	0.2	4.0	2.9	1.8	1.4	3.4	2.3	136.5	98.7						
Western Africa	20.1	18.5	1.4	3.0	21.2	0.2	0.6	0.6	1.5	0.9	0.4	0.3	0.3	0.7	0.6	0.4	3.0	2.0	0.4	0.4	1.3	1.1	68.5	75.7						
The Americas	14.0	5.9	2.0	4.3	13.1	0.4	3.1	1.4	3.2	1.0	3.8	2.8	0.3	0.5	0.4	0.3	3.8	2.4	2.0	1.3	5.0	3.4	116.4	89.2						
Caribbean	15.1	8.6	3.3	3.0	29.3	0.2	1.4	0.7	3.0	0.9	2.5	2.3	0.2	0.3	0.5	0.3	2.8	1.9	1.7	1.3	3.7	2.7	119.8	87.7						
Central America	9.5	8.9	1.7	3.3	12.1	0.6	2.3	1.3	1.2	0.6	2.5	1.9	0.4	0.8	0.6	0.4	2.4	1.9	1.0	0.7	4.2	3.5	76.6	72.1						
South America	14.0	8.6	1.5	3.6	16.6	0.4	2.8	1.3	2.7	0.9	4.0	3.2	0.3	0.6	0.4	0.2	3.2	2.1	1.6	1.1	4.2	3.1	118.0	88.4						
Northern America	14.8	2.6	2.2	5.0	9.8	0.3	3.7	1.6	4.0	1.2	4.1	2.6	0.3	0.3	0.3	0.2	4.5	2.6	2.4	1.5	5.3	3.2	123.2	91.7						
Asia	10.2	6.4	1.5	3.0	3.8	0.3	1.7	0.9	2.5	0.6	2.5	1.8	0.3	0.7	0.4	0.2	2.7	1.6	0.8	0.5	3.8	2.6	126.3	77.0						
Eastern Asia	6.2	3.3	1.9	2.0	3.1	0.1	2.1	1.0	2.3	0.7	3.2	2.3	0.3	0.4	0.1	0.1	2.3	1.4	0.7	0.5	4.2	2.9	159.3	80.2						
South-Eastern Asia	14.1	7.9	1.5	4.4	6.7	0.5	1.3	0.7	2.2	0.5	1.9	1.5	0.8	1.6	0.3	0.2	4.0	2.5	0.8	0.6	4.3	3.4	114.1	79.5						
South-Central Asia	13.5	10.9	1.0	3.7	2.9	0.3	1.0	0.4	2.0	0.5	1.9	1.1	0.2	0.6	0.6	0.3	2.3	1.3	0.7	0.5	2.9	2.0	74.8	64.7						
Western Asia	15.1	2.0	1.9	3.7	13.1	0.7	3.2	1.9	8.4	1.3	3.6	3.3	0.7	1.7	1.3	0.8	4.9	3.3	1.7	1.3	5.6	3.8	129.3	81.3						
Europe	16.1	3.8	2.6	5.3	11.3	0.4	4.8	1.9	5.2	1.1	4.6	3.0	0.3	0.4	0.5	0.3	3.1	1.8	1.7	1.2	4.6	2.8	147.5	87.6						
Central and Eastern Europe	16.5	6.2	3.4	6.0	11.6	0.5	5.8	2.1	6.1	0.9	4.7	3.2	0.4	0.6	0.7	0.5	2.7	1.5	1.2	0.9	4.6	2.8	173.4	91.6						
Northern Europe	16.3	2.2	2.3	5.9	14.4	0.2	4.2	2.0	4.4	1.5	4.7	3.0	0.2	0.3	0.3	0.2	3.5	2.2	2.3	1.5	4.1	2.5	125.9	94.2						
Southern Europe	14.9	2.4	2.1	4.4	9.1	0.3	3.6	1.3	6.0	1.0	4.7	3.1	0.3	0.3	0.5	0.3	3.2	1.9	1.7	1.3	4.7	2.8	137.9	78.9						
Western Europe	16.1	1.8	1.9	4.7	10.7	0.3	4.6	1.8	4.0	1.1	4.2	2.7	0.3	0.3	0.3	0.2	3.2	1.9	1.9	1.3	4.4	2.7	131.3	83.6						
Oceania	15.6	4.5	1.9	4.9	13.0	0.2	2.8	1.3	3.2	1.0	4.0	2.6	0.3	0.8	0.3	0.2	4.1	2.6	2.1	1.4	4.9	2.9	117.8	90.0						
Australia/New Zealand	14.5	1.5	1.5	4.5	12.9	0.2	3.0	1.4	3.3	1.0	4.6	3.0	0.2	0.3	0.3	0.2	3.8	2.3	2.3	1.5	4.4	2.7	115.3	82.6						
Melanesia	19.8	20.6	3.8	6.5	13.3	0.3	1.1	0.4	2.0	0.4	0.9	0.3	1.5	5.7	0.5	0.2	5.9	3.7	0.8	0.6	4.8	2.9	117.9	118.5						
Micronesia/Polynesia	13.1	3.9	2.5	3.2	13.7	0.0	1.0	0.2	1.2	0.9	0.3	0.7	0.9	0.7	0.0	0.0	2.9	1.6	1.0	0.5	4.6	1.5	116.9	76.2						

Table 5. Estimated numbers of new cancer cases (thousands) by sex, cancer site and regions, 2012

	Oral cavity (C00-08)		Nasopharynx (C11)		Other pharynx (C09-10,C12-14)				Oesophagus (C15)		Stomach (C16)		Colorectum (C18-21)		Liver (C22)		Gallbladder (C23-24)		Pancreas (C25)		Larynx (C32)		Lung (C33-34)		Melanoma (C43)		Kaposi sarcoma (C46)	
	M F		M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
World	199.0	101.4	60.9	25.8	115.1	27.3	323.0	132.8	631.3	320.3	746.3	614.3	554.4	228.1	76.8	101.3	178.2	159.7	138.1	18.8	1241.6	583.1	120.6	111.5	29.0	15.2		
More developed regions	68.0	32.8	5.1	2.1	44.4	9.2	67.7	18.4	175.1	99.4	398.9	338.0	92.0	42.3	27.8	34.8	94.7	92.8	50.7	7.0	490.3	267.9	99.4	91.7	2.6	0.7		
Less developed regions	130.9	68.6	55.8	23.7	70.7	18.1	255.3	114.4	456.2	220.9	347.4	276.3	462.4	185.8	49.1	66.5	83.5	66.9	87.4	11.8	751.3	315.2	21.3	19.8	26.4	14.5		
Africa	10.2	7.0	5.3	3.0	3.4	1.9	16.1	11.5	13.2	10.6	21.2	19.9	38.7	20.0	1.6	3.0	6.6	5.5	7.6	1.1	21.8	8.6	2.8	3.8	23.8	13.7		
Eastern Africa	4.1	2.9	1.9	1.3	0.9	0.6	9.8	7.5	4.4	3.7	6.2	6.2	4.6	3.4	0.4	1.0	1.2	1.6	1.9	0.3	3.1	2.0	0.7	1.3	19.8	11.1		
Middle Africa	1.1	0.6	0.5	0.3	0.6	0.2	1.2	0.7	1.4	1.4	1.5	1.8	3.7	2.1	0.0	0.0	0.4	0.3	0.4	0.1	0.6	0.3	0.4	0.7	0.5	0.2		
Northern Africa	2.2	1.6	2.0	0.9	0.6	0.6	1.9	1.2	3.4	2.3	6.8	6.1	13.8	5.9	0.9	1.6	2.5	1.5	3.2	0.3	11.9	2.6	0.2	0.3	0.2	0.1		
Southern Africa	1.3	0.6	0.1	0.0	0.8	0.4	2.5	1.7	1.4	0.7	2.6	2.3	1.4	0.9	0.1	0.1	1.0	0.9	1.0	0.2	4.8	2.6	0.9	1.0	2.2	1.4		
Western Africa	1.5	1.4	0.8	0.5	0.5	0.2	0.7	0.3	2.8	2.4	4.0	3.6	15.4	7.7	0.2	0.3	1.5	1.2	1.1	0.1	1.4	1.0	0.5	0.6	1.1	0.9		
The Americas	31.9	17.3	2.7	1.2	17.6	4.5	30.4	9.6	51.7	33.6	125.1	120.6	40.3	22.9	9.7	16.1	37.0	38.1	25.0	5.0	177.9	146.4	50.3	38.0	2.6	0.5		
Caribbean	1.1	0.5	0.1	0.0	0.8	0.2	1.1	0.3	1.9	1.4	3.9	4.6	1.4	1.2	0.2	0.3	1.0	1.0	1.8	0.2	6.0	3.5	0.2	0.2	0.1	0.0		
Central America	1.8	1.4	0.1	0.1	0.7	0.2	1.1	0.5	7.2	6.4	6.0	5.6	4.7	5.1	0.8	1.8	2.5	2.9	2.7	0.4	6.9	3.9	1.4	1.1	0.1	0.0		
South America	10.1	5.8	0.9	0.4	5.6	1.3	13.3	4.9	27.2	16.7	33.0	34.5	10.0	8.0	4.1	8.2	9.5	10.7	9.8	1.5	39.5	24.7	5.7	5.3	1.3	0.3		
Northern America	18.9	9.7	1.6	0.7	10.5	2.8	14.9	3.9	15.3	9.2	82.3	75.9	24.2	8.6	4.7	5.9	23.9	23.4	10.7	2.8	125.5	114.2	43.0	31.5	1.0	0.2		
Asia	112.0	56.9	49.8	20.3	65.0	15.0	240.1	100.3	480.4	219.6	347.5	259.7	430.7	163.7	53.2	63.8	80.7	62.7	68.8	8.7	742.7	303.0	11.6	10.2	1.0	0.5		
Eastern Asia	25.5	12.6	25.9	10.5	13.4	1.9	183.0	66.9	384.3	168.6	243.2	178.2	342.2	124.2	38.2	41.7	61.0	46.4	23.9	2.2	556.1	240.4	6.4	5.7	0.3	0.1		
South-Eastern Asia	10.5	7.6	18.0	7.6	6.9	2.0	9.4	2.9	21.3	12.3	38.5	30.5	58.5	21.5	3.6	3.6	6.4	5.9	6.9	1.4	74.0	31.0	1.3	1.0	0.1	0.1		
South-Central Asia	73.6	35.1	4.5	1.7	43.9	10.8	45.3	28.5	64.6	31.7	50.7	39.0	25.8	15.6	10.2	17.2	9.3	7.5	32.4	4.4	80.9	24.8	2.3	1.8	0.2	0.1		
Western Asia	2.4	1.6	1.3	0.6	0.7	0.4	2.4	2.0	10.1	7.0	15.1	12.0	4.3	2.5	1.3	1.3	4.0	2.9	5.6	0.8	31.7	6.7	1.6	1.6	0.4	0.2		
Europe	42.6	18.8	2.9	1.2	28.4	5.7	35.1	10.8	84.2	55.4	241.8	205.3	42.8	20.6	11.9	17.9	52.0	51.9	36.0	3.9	290.9	119.3	47.3	53.2	1.5	0.6		
Central and Eastern Europe	17.7	6.0	1.1	0.5	10.2	1.4	11.0	2.6	41.1	28.6	70.3	69.5	9.5	6.5	3.4	6.6	17.8	16.9	15.3	1.2	107.0	31.7	8.6	11.8	0.2	0.2		
Northern Europe	4.8	3.0	0.3	0.1	2.6	0.8	7.6	3.5	7.2	4.5	35.3	29.9	4.2	2.3	0.8	1.4	6.9	7.3	2.9	0.6	33.5	26.7	11.2	12.1	0.2	0.0		
Southern Europe	7.7	3.8	0.8	0.3	4.1	0.7	4.5	1.1	18.3	12.1	60.0	45.0	14.1	6.4	3.6	4.5	11.5	11.5	9.6	0.9	69.9	21.8	9.3	10.0	0.9	0.3		
Western Europe	12.3	6.0	0.7	0.3	11.5	2.7	11.9	3.6	17.6	10.3	76.2	60.9	15.0	5.5	4.1	5.4	15.7	16.2	8.1	1.3	80.6	39.2	18.2	19.3	0.2	0.1		
Oceania	2.3	1.4	0.1	0.1	0.7	0.2	1.4	0.6	1.8	1.0	10.7	8.8	1.9	0.8	0.4	0.5	1.9	1.6	0.7	0.1	8.4	5.8	8.6	6.4	0.1	0.0		
Australia/New Zealand	1.7	0.9	0.1	0.0	0.6	0.1	1.3	0.5	1.6	0.9	10.3	8.5	1.4	0.6	0.4	0.4	1.8	1.6	0.7	0.1	7.8	5.5	8.5	6.2	0.1	0.0		
Melanesia	0.6	0.5	0.0	0.0	0.1	0.0	0.1	0.0	0.2	0.2	0.3	0.2	0.5	0.3	0.0	0.0	0.1	0.0	0.1	0.0	0.3	0.2	0.1	0.1	0.0	0.0		
Micronesia/Polynesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	

Table 5. Estimated numbers of new cancer cases (thousands) by sex, cancer site and regions, 2012 (Continued)

	Breast (C50)		Cervix uteri (C53)		Ovary (C56)		Prostate (C61)		Testis (C62)		Kidney (C64-66)		Bladder (C67)		Brain, CNS (C70-72)		Thyroid (C73)		Hodgkin (C81)		NHL (C82- 85,C96)		Multiple myeloma (C88 + C90)		Leukaemia (C91-95)		All sites but C44 (C00-97/C44)	
	F		F		F		M		M		M		M		M		M		M		M		M		M		M	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
World	1676.6	527.6	319.6	238.7	1111.7	55.3	213.9	123.9	330.4	99.4	139.6	116.6	68.2	229.9	38.5	27.4	217.6	168.1	62.5	51.8	200.7	151.3	7427.1	6663.0				
More developed regions	793.7	83.1	167.9	99.8	758.7	32.7	125.4	74.6	196.1	57.8	48.2	40.7	29.7	93.1	15.6	13.3	101.9	88.5	36.5	31.5	80.3	61.0	3243.5	2832.4				
Less developed regions	882.9	444.5	151.7	139.0	353.0	22.5	88.5	49.3	134.3	41.6	91.4	75.9	38.5	136.8	23.0	14.1	115.8	79.6	26.0	20.3	120.4	90.3	4183.6	3830.6				
Africa	133.9	99.0	11.4	17.8	59.5	1.5	5.1	4.9	17.7	6.8	7.6	6.3	2.9	9.1	4.7	3.2	21.1	15.7	3.0	2.9	13.3	10.7	362.0	484.9				
Eastern Africa	33.5	45.7	3.1	5.9	17.2	0.4	1.4	1.8	2.8	2.0	1.5	1.3	1.1	2.8	1.4	1.0	7.0	4.8	0.9	1.0	4.9	4.1	116.8	170.5				
Middle Africa	10.9	11.5	1.1	1.6	6.9	0.1	0.4	0.3	0.6	0.4	0.3	0.2	0.2	0.5	0.3	0.2	2.2	1.8	0.3	0.3	1.1	0.8	30.3	43.8				
Northern Africa	39.5	5.8	2.6	5.1	7.5	0.6	2.0	1.5	11.2	2.7	4.8	4.1	1.2	4.3	1.8	1.3	6.4	4.8	1.1	0.9	5.0	3.7	105.8	114.8				
Southern Africa	10.3	8.7	1.7	1.4	10.3	0.2	0.3	0.2	1.3	0.5	0.5	0.3	0.1	0.4	0.3	0.2	1.3	1.2	0.4	0.4	0.8	0.7	39.9	43.0				
Western Africa	39.7	27.3	2.8	3.8	17.6	0.3	1.0	1.0	1.7	1.2	0.5	0.4	0.3	1.1	1.0	0.5	4.2	3.0	0.3	0.3	1.5	1.3	69.2	112.9				
The Americas	408.3	83.2	74.3	41.5	412.7	16.2	52.9	32.1	75.7	25.9	28.0	23.7	19.4	66.1	8.8	6.9	54.3	45.3	17.2	14.4	41.2	32.9	1453.7	1428.7				
Caribbean	11.3	5.0	2.6	1.2	18.7	0.2	0.7	0.4	1.8	0.5	0.7	0.8	0.3	1.0	0.2	0.2	1.1	0.9	0.5	0.5	1.1	0.9	48.3	42.5				
Central America	24.9	18.8	4.8	3.9	19.0	2.0	2.8	1.7	2.3	1.4	3.3	2.7	0.9	3.0	1.0	0.7	3.1	2.5	0.9	0.7	4.4	3.9	87.3	110.3				
South America	115.9	45.0	12.2	12.8	114.7	5.0	9.7	6.0	13.4	5.3	10.5	9.4	3.9	18.5	2.2	1.7	11.8	9.7	3.7	3.3	10.3	8.7	397.5	410.2				
Northern America	256.2	14.4	54.7	23.5	260.3	9.0	39.8	24.0	58.1	18.7	13.4	10.9	14.3	43.6	5.3	4.2	38.3	32.1	12.2	9.9	25.5	19.5	970.6	865.7				
Asia	651.0	284.8	131.8	111.9	196.2	15.1	81.4	42.0	115.6	32.9	72.1	59.4	32.9	111.6	15.3	8.7	89.4	60.6	20.6	15.2	97.3	70.2	3694.9	3068.2				
Eastern Asia	277.1	78.0	89.4	48.3	118.6	4.3	61.5	31.2	64.7	20.8	39.6	35.7	19.9	72.2	2.1	1.5	41.5	30.1	10.5	7.4	47.6	34.0	2431.5	1713.5				
South-Eastern Asia	107.5	50.6	15.3	19.9	26.5	2.6	4.9	2.8	10.8	3.0	7.5	6.3	5.0	14.3	1.5	0.9	15.3	11.3	2.3	2.2	13.8	12.0	382.9	403.5				
South-Central Asia	223.9	151.8	20.0	38.4	29.3	5.9	10.4	5.1	24.4	6.2	19.5	12.2	5.5	14.7	8.9	4.6	25.2	13.6	5.9	4.0	28.9	19.2	711.8	802.3				
Western Asia	42.5	4.5	7.1	5.2	21.8	2.3	4.6	2.9	15.8	2.9	5.5	5.1	2.5	10.5	2.8	1.8	7.5	5.6	2.0	1.6	7.0	5.0	168.7	148.9				
Europe	464.2	58.4	99.0	65.6	417.1	21.5	71.8	43.5	118.4	32.9	30.7	26.4	12.3	40.7	9.3	8.3	49.6	43.9	20.5	18.4	46.4	35.9	1830.5	1611.7				
Central and Eastern Europe	123.6	33.9	42.0	28.3	65.4	4.9	23.8	16.6	30.9	8.9	9.9	9.7	3.2	16.0	3.0	3.1	8.8	9.3	3.2	4.0	13.2	11.7	513.8	523.1				
Northern Europe	78.2	5.4	13.8	10.0	81.7	3.6	9.5	5.9	12.7	4.6	4.7	3.8	1.2	3.8	1.4	1.1	9.8	8.3	3.9	3.1	7.3	5.2	271.6	254.2				
Southern Europe	100.8	9.3	19.5	12.9	91.4	4.8	15.4	7.6	34.8	8.0	7.7	6.3	3.8	9.9	2.2	1.8	12.7	10.4	5.1	4.6	11.2	8.1	430.5	338.7				
Western Europe	161.5	9.8	23.6	14.4	178.7	8.2	23.0	13.4	40.0	11.3	8.4	6.6	4.1	11.0	2.6	2.3	18.3	15.9	8.4	6.7	14.8	10.8	614.7	495.7				
Oceania	19.3	2.2	3.1	2.0	26.1	1.0	2.7	1.4	3.0	0.9	1.2	0.8	0.8	2.5	0.4	0.3	3.3	2.6	1.1	0.8	2.5	1.7	86.0	69.4				
Australia/New Zealand	17.6	0.9	2.8	1.7	25.3	1.0	2.7	1.4	2.9	0.9	1.2	0.8	0.7	2.0	0.4	0.3	3.0	2.4	1.1	0.8	2.3	1.5	81.0	62.4				
Melanesia	1.4	1.2	0.3	0.3	0.5	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.2	0.2	0.0	0.0	0.2	0.1	4.0	6.1				
Micronesia/Polynesia	0.4	0.1	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.0				

Table 6. Estimated numbers of cancer deaths (thousands) by sex, cancer site and regions, 2012

	Oral cavity (C00-08)		Nasophar- ynx (C11)		Other phar- ynx (C09- 10,C12-14)		Oesophagus (C15)		Stomach (C16)		Colorectum (C18-21)		Liver (C22)		Gallbladder (C23-24)		Pancreas (C25)		Larynx (C32)		Lung (C33-34)		Melanoma (C43)		Kaposi sarcoma (C46)	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
World	97.9	47.4	35.8	15.1	77.6	18.5	281.2	118.9	468.9	254.1	373.6	320.3	521.0	224.5	60.3	82.5	173.8	156.6	73.3	10.1	1098.6	491.2	31.4	24.1	17.4	9.6
More developed regions	23.4	9.9	2.3	1.1	21.4	4.1	56.1	15.2	106.7	68.0	175.4	157.7	80.4	42.6	19.0	25.8	93.1	91.3	22.7	2.7	416.6	209.8	21.3	15.0	0.3	0.1
Less developed regions	74.5	37.5	33.5	14.0	56.2	14.4	225.1	103.7	362.3	186.1	198.2	162.5	440.6	181.8	41.3	56.6	80.7	65.3	50.6	7.5	682.0	281.4	10.1	9.1	17.1	9.5
Africa	6.1	4.3	3.5	2.1	2.6	1.5	14.7	10.5	12.0	9.8	15.1	14.3	37.0	19.0	1.5	2.8	6.4	5.3	4.3	0.6	19.4	7.7	1.5	2.1	16.3	9.2
Eastern Africa	2.8	1.9	1.3	0.9	0.8	0.5	8.9	6.9	4.1	3.5	4.6	4.6	4.3	3.2	0.3	0.9	1.2	1.5	1.2	0.2	2.8	1.8	0.5	0.8	13.9	7.5
Middle Africa	0.9	0.5	0.4	0.2	0.5	0.2	1.1	0.6	1.3	1.3	1.2	1.4	3.5	2.0	0.0	0.0	0.4	0.3	0.3	0.1	0.5	0.3	0.3	0.5	0.4	0.2
Northern Africa	1.0	0.7	1.2	0.5	0.5	0.5	1.7	1.2	3.0	2.1	4.4	3.9	13.1	5.6	0.8	1.5	2.4	1.5	1.5	0.1	10.6	2.4	0.1	0.2	0.1	0.1
Southern Africa	0.5	0.2	0.0	0.0	0.4	0.1	2.3	1.6	0.9	0.7	1.8	1.5	1.3	0.8	0.1	0.1	0.9	0.9	0.5	0.1	4.3	2.3	0.3	0.2	1.2	0.9
Western Africa	1.0	0.9	0.6	0.3	0.4	0.1	0.6	0.3	2.6	2.3	3.1	2.8	14.8	7.4	0.2	0.3	1.5	1.1	0.8	0.1	1.2	0.9	0.4	0.4	0.8	0.6
The Americas	8.5	4.3	1.1	0.5	8.4	2.2	27.0	8.0	39.1	26.0	57.1	55.1	34.7	23.2	5.9	11.3	36.5	37.3	11.7	2.1	149.5	112.9	9.9	5.8	0.4	0.1
Caribbean	0.5	0.2	0.1	0.0	0.6	0.2	1.0	0.3	1.6	1.1	2.2	2.7	1.4	1.2	0.1	0.2	1.0	1.0	0.9	0.1	5.6	3.3	0.1	0.1	0.0	0.0
Central America	0.5	0.4	0.1	0.0	0.5	0.2	1.1	0.4	6.1	5.4	3.3	3.1	4.5	4.8	0.7	1.6	2.4	2.8	1.0	0.2	6.2	3.5	0.4	0.3	0.0	0.0
South America	4.2	1.8	0.4	0.2	4.2	0.9	10.8	3.7	23.2	14.0	18.3	19.0	10.4	8.9	3.4	6.9	9.9	10.8	6.2	1.0	35.3	20.8	2.0	1.5	0.2	0.1
Northern America	3.3	1.9	0.6	0.3	3.1	1.0	14.2	3.6	8.2	5.5	33.2	30.3	18.4	8.2	1.7	2.6	23.2	22.7	3.5	0.8	102.4	85.3	7.4	3.9	0.1	0.0
Asia	65.0	32.4	29.7	11.7	51.0	12.1	208.0	90.7	353.1	174.0	185.0	146.6	407.7	159.2	44.9	55.1	76.7	60.6	39.0	5.7	668.8	267.3	6.4	5.4	0.5	0.3
Eastern Asia	12.2	6.2	15.9	6.1	7.9	1.4	155.3	59.9	266.3	128.3	115.5	92.2	322.9	121.0	31.8	35.7	58.0	45.1	12.4	1.9	501.7	211.1	4.0	3.4	0.1	0.1
South-Eastern Asia	5.0	3.5	10.0	4.2	5.4	1.5	8.5	2.7	18.6	10.6	24.1	19.1	55.8	20.5	3.1	3.2	6.2	5.7	3.3	0.7	65.8	27.8	0.7	0.5	0.1	0.1
South-Central Asia	46.9	22.0	3.1	1.1	37.2	8.9	41.9	26.4	59.6	29.0	37.0	28.4	24.9	15.2	8.9	15.1	8.6	7.0	20.8	2.7	73.0	22.5	1.1	0.9	0.1	0.1
Western Asia	0.9	0.6	0.7	0.3	0.5	0.3	2.3	1.8	8.6	6.0	8.4	6.9	4.0	2.5	1.1	1.2	3.9	2.8	2.4	0.4	28.4	5.9	0.6	0.5	0.2	0.1
Europe	17.6	6.0	1.4	0.7	15.2	2.7	30.3	9.2	63.6	43.7	113.2	101.6	39.9	22.3	7.9	13.0	52.6	51.9	18.1	1.7	254.6	99.1	12.1	10.2	0.2	0.1
Central and Eastern Europe	10.1	2.4	0.6	0.4	7.3	0.9	9.9	2.1	34.3	24.0	42.5	41.9	10.8	7.6	2.7	5.3	18.1	17.0	9.8	0.6	95.7	26.3	3.9	4.0	0.1	0.0
Northern Europe	1.4	0.8	0.1	0.1	1.1	0.4	6.9	3.1	4.9	3.2	14.2	12.6	3.9	2.4	0.6	1.1	7.0	7.3	1.2	0.2	29.5	22.8	2.3	1.7	0.0	0.0
Southern Europe	2.7	1.3	0.4	0.2	2.3	0.4	4.1	1.0	13.8	9.3	27.1	21.0	12.2	6.4	2.6	3.6	11.5	11.2	4.4	0.4	61.3	18.3	2.3	1.7	0.1	0.1
Western Europe	3.4	1.5	0.3	0.1	4.5	1.0	9.4	2.9	10.6	7.3	29.4	26.1	13.0	5.9	2.0	3.0	16.1	16.4	2.8	0.5	68.1	31.7	3.6	2.8	0.0	0.0
Oceania	0.7	0.5	0.1	0.0	0.3	0.1	1.2	0.5	1.1	0.6	3.2	2.7	1.7	0.8	0.2	0.2	1.6	1.5	0.3	0.1	6.3	4.3	1.5	0.7	0.0	0.0
Australia/New Zealand	0.3	0.2	0.0	0.0	0.3	0.1	1.1	0.4	0.9	0.5	2.9	2.5	1.2	0.6	0.1	0.2	1.5	1.5	0.2	0.0	5.8	4.1	1.4	0.6	0.0	0.0
Melanesia	0.3	0.3	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.1	0.2	0.1	0.4	0.2	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.1	0.1	0.1	0.0	0.0
Micronesia/Polynesia	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0

Table 6. Estimated numbers of cancer deaths (thousands) by sex, cancer site and regions, 2012 (Continued)

	Breast (C50)		Cervix uteri (C53)		Corpus uteri (C54)		Ovary (C56)		Prostate (C61)		Testis (C62)		Kidney (C64-66)		Bladder (C67)		Brain, cns (C70-72)		Thyroid (C73)		Hodgkin (C81)		NHL (C82-85,C96)		Multiple myeloma (C88+C90)		Leukaemia (C91-95)		All sites but C44 (C00-97/C44)	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M
World	521.8	265.7	76.2	151.9	307.5	10.4	90.8	52.6	123.0	42.0	106.4	83.0	12.6	27.1	15.5	10.0	115.4	84.2	43.1	36.9	151.3	114.1	4653.1	3547.9						
More developed regions	197.5	35.5	34.7	65.9	142.0	2.2	47.9	27.0	58.9	21.0	36.8	29.8	3.7	6.7	3.6	2.7	40.8	34.3	22.3	20.7	51.3	40.3	1591.2	1286.7						
Less developed regions	324.3	230.2	41.4	86.0	165.5	8.1	42.9	25.6	64.1	21.0	69.6	53.2	9.0	20.4	11.9	7.3	74.5	50.0	20.8	16.2	100.0	73.8	3061.9	2261.2						
Africa	63.2	60.1	4.0	13.1	42.8	0.9	4.2	4.0	9.4	3.9	5.4	4.6	1.5	4.0	2.8	2.0	15.0	11.4	2.6	2.5	11.6	9.5	277.8	313.3						
Eastern Africa	17.0	28.2	1.2	4.5	13.9	0.3	1.2	1.6	1.8	1.3	1.2	1.0	0.6	1.5	0.9	0.7	5.1	3.7	0.8	0.9	4.4	3.7	92.4	116.1						
Middle Africa	6.0	7.9	0.5	1.2	5.9	0.1	0.3	0.3	0.4	0.3	0.2	0.2	0.1	0.3	0.2	0.1	1.7	1.4	0.3	0.3	1.0	0.8	25.6	31.2						
Northern Africa	15.6	2.7	0.8	3.5	5.0	0.3	1.5	1.1	5.5	1.3	3.2	2.7	0.5	1.5	1.0	0.7	4.3	3.2	0.9	0.7	4.2	3.1	77.0	66.5						
Southern Africa	4.0	4.7	0.5	1.0	3.8	0.1	0.3	0.2	0.5	0.2	0.4	0.3	0.0	0.1	0.1	0.1	0.9	0.8	0.3	0.4	0.7	0.6	25.1	25.9						
Western Africa	20.5	16.5	1.1	2.9	14.3	0.2	0.8	0.9	1.1	0.8	0.4	0.3	0.2	0.6	0.6	0.4	3.1	2.3	0.3	0.3	1.3	1.2	57.8	73.6						
The Americas	92.1	35.7	13.6	28.5	85.4	2.0	17.8	10.2	20.4	8.4	20.2	16.8	1.9	3.4	2.1	1.6	22.0	17.8	11.4	9.6	27.8	22.1	676.6	618.2						
Caribbean	3.9	2.3	0.9	0.8	8.0	0.0	0.3	0.2	0.8	0.3	0.6	0.6	0.1	0.1	0.1	0.1	0.6	0.5	0.4	0.4	0.8	0.7	29.5	23.7						
Central America	7.3	6.9	1.3	2.6	9.0	0.5	1.5	1.0	0.9	0.5	1.8	1.5	0.3	0.6	0.4	0.3	1.7	1.5	0.7	0.6	3.1	2.8	53.9	56.8						
South America	32.0	19.4	3.7	8.1	34.4	0.9	5.3	3.0	5.4	2.3	7.8	7.0	0.6	1.5	0.7	0.5	6.2	5.0	3.0	2.7	8.2	6.9	230.5	209.0						
Northern America	48.9	7.1	7.8	17.0	34.1	0.5	10.7	6.0	13.3	5.3	10.1	7.7	0.9	1.2	0.8	0.6	13.5	10.9	7.3	6.0	15.6	11.7	362.8	328.7						
Asia	231.0	144.4	34.2	66.2	82.7	5.8	36.8	20.3	52.8	16.5	55.2	40.5	7.1	15.3	7.9	4.4	56.9	36.6	16.3	12.2	81.0	57.3	2689.5	1810.1						
Eastern Asia	68.5	36.3	20.8	21.9	37.6	1.0	23.7	13.1	27.3	10.2	31.5	23.7	3.1	4.9	0.8	0.6	24.6	16.3	8.0	5.9	39.8	27.1	1756.1	1002.2						
South-Eastern Asia	43.0	24.0	4.4	13.0	15.8	1.2	3.4	1.9	5.4	1.5	5.2	4.3	1.8	4.7	0.8	0.5	10.4	7.6	1.8	1.8	11.7	10.2	290.2	238.3						
South-Central Asia	104.7	82.2	7.2	27.8	18.9	2.8	6.9	3.5	13.4	3.4	15.0	9.3	1.6	4.2	5.0	2.5	17.6	9.5	5.1	3.4	24.0	16.0	533.0	490.4						
Western Asia	14.8	1.9	1.8	3.5	10.4	0.8	2.8	1.8	6.8	1.3	3.5	3.3	0.6	1.5	1.3	0.8	4.4	3.2	1.4	1.2	5.5	3.9	110.1	79.2						
Europe	131.3	24.4	23.7	42.7	92.3	1.6	31.3	17.7	39.5	12.9	24.6	20.4	2.1	4.3	2.6	2.0	20.3	17.5	12.2	12.1	29.5	24.3	976.6	779.2						
Central and Eastern Europe	48.7	15.4	10.7	16.8	25.9	0.9	11.7	6.9	13.2	3.5	8.5	7.9	0.8	2.3	1.3	1.0	5.1	4.6	2.4	2.9	8.6	7.9	351.2	287.0						
Northern Europe	17.8	1.9	2.9	6.6	18.1	0.1	4.1	2.6	5.2	2.4	3.6	2.7	0.2	0.4	0.3	0.2	3.5	3.0	2.4	2.1	4.1	3.1	129.0	115.5						
Southern Europe	27.5	3.5	4.6	7.8	20.2	0.3	5.9	3.0	11.7	3.0	5.9	4.8	0.5	0.8	0.6	0.4	5.0	4.2	3.1	3.1	7.6	5.8	227.6	162.8						
Western Europe	37.2	3.5	5.5	11.5	28.1	0.3	9.6	5.3	9.5	4.0	6.5	5.1	0.5	0.8	0.5	0.3	6.7	5.8	4.3	4.0	9.2	7.5	268.7	213.9						
Oceania	4.3	1.1	0.6	1.4	4.3	0.0	0.8	0.4	1.0	0.4	1.0	0.7	0.1	0.2	0.1	0.1	1.1	0.9	0.6	0.5	1.3	0.9	32.5	27.1						
Australia/New Zealand	3.6	0.4	0.4	1.2	3.9	0.0	0.7	0.4	0.9	0.4	0.9	0.7	0.1	0.1	0.1	0.0	0.9	0.7	0.6	0.5	1.1	0.8	29.0	23.0						
Melanesia	0.6	0.7	0.1	0.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	2.9	3.7						
Micronesia/Polynesia	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4						

Table 7. Estimated cumulative risk to age 75 (percent) by sex, cancer site and regions, 2012—Incidence (Continued)

	Breast (C50)		Cervix uteri (C53)		Corpus uteri (C54)		Ovary (C56)		Prostate (C61)		Testis (C62)		Kidney (C64-66)		Bladder (C67)		Brain, CNS (C70-72)		Thyroid (C73)		Hodgkin (C81)		NHL (C82-85,C96)		Multiple myeloma (C88 + C90)				Leukaemia (C91-95)				All sites but C44 (C00-97 / C44)	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M		
World	4.6	1.4	1.0	0.7	3.8	0.1	0.7	0.3	1.0	0.2	0.4	0.3	0.2	0.6	0.1	0.1	0.6	0.4	0.2	0.2	0.5	0.4	21.0	16.4										
More developed regions	8.0	0.9	1.8	1.0	8.8	0.4	1.5	0.7	2.0	0.4	0.6	0.4	0.4	1.1	0.2	0.2	1.1	0.8	0.4	0.3	0.9	0.5	30.9	23.3										
Less developed regions	3.3	1.6	0.6	0.5	1.6	0.1	0.4	0.2	0.6	0.2	0.3	0.3	0.1	0.4	0.1	0.0	0.4	0.3	0.1	0.1	0.4	0.3	16.6	13.4										
Africa	3.7	3.0	0.4	0.5	2.8	0.0	0.1	0.1	0.8	0.2	0.2	0.2	0.1	0.3	0.1	0.1	0.6	0.4	0.1	0.1	0.3	0.3	12.3	13.4										
Eastern Africa	3.2	4.6	0.4	0.6	2.8	0.0	0.1	0.1	0.4	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.6	0.3	0.2	0.1	0.4	0.3	12.6	15.6										
Middle Africa	2.8	3.4	0.4	0.4	3.5	0.0	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.3	0.2	0.1	0.3	0.2	10.3	11.6										
Northern Africa	4.4	0.7	0.4	0.6	1.2	0.1	0.3	0.2	1.8	0.4	0.6	0.4	0.2	0.4	0.2	0.1	0.8	0.6	0.2	0.1	0.5	0.4	14.2	12.8										
Southern Africa	4.1	3.1	0.8	0.5	7.3	0.1	0.2	0.1	0.8	0.2	0.2	0.1	0.1	0.2	0.1	0.1	0.5	0.4	0.2	0.2	0.4	0.3	21.6	15.8										
Western Africa	3.9	3.2	0.4	0.4	2.9	0.0	0.1	0.1	0.3	0.1	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.4	0.2	0.1	0.1	0.1	8.3	11.3										
The Americas	7.4	1.4	1.5	0.8	9.4	0.2	1.1	0.6	1.5	0.4	0.5	0.4	0.4	1.2	0.2	0.1	1.1	0.8	0.4	0.3	0.7	0.5	26.8	22.5										
Caribbean	4.9	2.0	1.3	0.5	9.4	0.1	0.3	0.2	0.9	0.2	0.3	0.3	0.1	0.4	0.1	0.1	0.5	0.4	0.3	0.2	0.4	0.3	21.9	16.8										
Central America	3.5	2.3	0.8	0.5	3.3	0.2	0.5	0.3	0.4	0.2	0.4	0.3	0.1	0.4	0.1	0.1	0.4	0.3	0.2	0.1	0.5	0.4	13.0	14.2										
South America	5.6	2.0	0.7	0.6	7.1	0.2	0.6	0.3	0.8	0.2	0.6	0.4	0.2	0.8	0.1	0.1	0.6	0.5	0.2	0.2	0.5	0.4	21.3	17.8										
Northern America	10.0	0.6	2.3	0.9	12.3	0.4	1.8	0.9	2.2	0.6	0.6	0.4	0.7	1.9	0.2	0.2	1.6	1.1	0.5	0.4	1.0	0.7	33.9	28.3										
Asia	3.0	1.3	0.7	0.5	1.0	0.1	0.4	0.2	0.6	0.1	0.3	0.3	0.2	0.5	0.1	0.0	0.4	0.3	0.1	0.1	0.4	0.3	17.5	13.2										
Eastern Asia	2.8	0.7	0.9	0.5	1.1	0.0	0.6	0.3	0.6	0.2	0.4	0.3	0.2	0.7	0.0	0.0	0.4	0.3	0.1	0.1	0.5	0.3	21.8	14.5										
South-Eastern Asia	3.7	1.7	0.6	0.7	1.3	0.1	0.2	0.1	0.5	0.1	0.3	0.2	0.2	0.4	0.1	0.0	0.6	0.4	0.1	0.1	0.4	0.3	15.6	13.5										
South-Central Asia	2.9	2.1	0.3	0.5	0.5	0.1	0.2	0.1	0.4	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.3	0.2	10.8	10.7										
Western Asia	4.5	0.5	0.9	0.6	3.5	0.1	0.6	0.3	2.3	0.4	0.6	0.5	0.3	0.9	0.2	0.1	0.8	0.6	0.3	0.2	0.6	0.4	20.5	15.2										
Europe	7.6	1.1	1.7	1.1	8.2	0.4	1.4	0.7	2.1	0.4	0.6	0.4	0.3	0.8	0.2	0.2	1.0	0.6	0.4	0.3	0.9	0.5	30.3	22.3										
Central and Eastern Europe	5.3	1.5	1.9	1.3	3.9	0.2	1.5	0.7	1.9	0.3	0.6	0.4	0.2	0.7	0.2	0.1	0.5	0.4	0.2	0.2	0.8	0.5	27.2	19.6										
Northern Europe	9.6	0.8	1.8	1.2	10.6	0.5	1.3	0.7	1.4	0.4	0.7	0.5	0.2	0.5	0.2	0.2	1.3	0.9	0.5	0.3	0.9	0.6	29.8	25.5										
Southern Europe	7.7	0.8	1.6	1.0	7.6	0.4	1.3	0.5	2.5	0.4	0.7	0.5	0.4	0.9	0.2	0.2	1.1	0.7	0.4	0.3	0.8	0.5	29.8	21.2										
Western Europe	10.2	0.7	1.5	0.9	12.1	0.6	1.6	0.8	2.3	0.5	0.6	0.4	0.3	0.8	0.2	0.2	1.2	0.9	0.5	0.3	0.9	0.6	34.1	25.4										
Oceania	8.4	0.9	1.5	0.9	12.4	0.4	1.3	0.6	1.1	0.3	0.6	0.3	0.4	1.1	0.2	0.1	1.5	1.1	0.5	0.3	1.0	0.6	32.9	25.2										
Australia/New Zealand	9.1	0.5	1.5	0.9	13.6	0.5	1.5	0.7	1.2	0.3	0.7	0.4	0.4	1.1	0.2	0.2	1.6	1.1	0.5	0.3	1.1	0.7	35.0	26.3										
Melanesia	4.1	3.2	1.2	0.8	2.7	0.0	0.1	0.1	0.4	0.1	0.1	0.0	0.2	1.1	0.1	0.0	0.8	0.5	0.2	0.1	0.5	0.3	16.5	17.4										
Micronesia/Polynesia	6.2	1.0	1.4	0.6	8.5	0.0	0.4	0.1	0.7	0.1	0.1	0.0	0.3	1.2	0.0	0.0	0.7	0.3	0.2	0.1	0.6	0.2	23.4	16.6										

Table 8. Estimated cumulative risk to age 75 (percent) by sex, cancer site and regions, 2012 —Mortality

	Other pharynx (C09-10,C12-14)																	
	Oral cavity (C00-08)			Nasopharynx (C11)			Oesophagus (C15)			Stomach (C16)			Colorectum (C18-21)			Liver (C22)		
	M	F		M	F		M	F		M	F		M	F		M	F	
World	0.3	0.1	0.1	0.1	0.0	0.3	0.1	0.9	0.3	1.4	0.6	1.0	0.7	1.6	0.6	0.2	0.2	0.0
More developed regions	0.3	0.1	0.0	0.0	0.0	0.3	0.0	0.6	0.1	1.0	0.4	1.6	0.9	0.8	0.3	0.2	0.1	0.0
Less developed regions	0.3	0.2	0.2	0.1	0.3	0.1	0.3	1.0	0.4	1.5	0.7	0.8	0.6	1.8	0.7	0.2	0.2	0.0
Africa	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.6	0.4	0.5	0.3	0.6	0.5	1.3	0.6	0.1	0.1	0.0
Eastern Africa	0.4	0.2	0.2	0.1	0.1	0.1	0.1	1.3	0.9	0.6	0.4	0.6	0.5	0.5	0.3	0.0	0.1	0.0
Middle Africa	0.3	0.2	0.1	0.1	0.2	0.1	0.2	0.5	0.2	0.5	0.4	0.4	0.4	1.1	0.6	0.0	0.0	0.0
Northern Africa	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.3	0.2	0.4	0.3	0.6	0.5	2.1	0.8	0.1	0.2	0.0
Southern Africa	0.3	0.1	0.0	0.0	0.3	0.1	0.3	1.5	0.7	0.6	0.3	1.1	0.6	0.7	0.3	0.1	0.1	0.0
Western Africa	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.4	0.3	0.4	0.3	1.6	0.8	0.0	0.0	0.0
The Americas	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.6	0.1	0.8	0.4	1.1	0.8	0.7	0.4	0.1	0.2	0.0
Caribbean	0.2	0.1	0.0	0.0	0.3	0.1	0.5	0.1	0.1	0.8	0.4	1.0	1.0	0.7	0.5	0.1	0.1	0.0
Central America	0.1	0.1	0.0	0.0	0.1	0.0	0.2	0.1	0.0	1.0	0.7	0.6	0.4	0.7	0.7	0.1	0.3	0.0
South America	0.3	0.1	0.0	0.0	0.3	0.0	0.7	0.2	0.2	1.4	0.6	1.1	0.8	0.6	0.4	0.2	0.3	0.0
Northern America	0.1	0.1	0.0	0.0	0.1	0.0	0.6	0.1	0.3	0.3	0.2	1.2	0.8	0.8	0.3	0.1	0.1	0.0
Asia	0.3	0.2	0.2	0.1	0.3	0.1	1.1	0.4	1.8	0.7	0.9	0.6	0.6	2.0	0.7	0.2	0.2	0.0
Eastern Asia	0.1	0.1	0.2	0.1	0.1	0.0	1.5	0.4	2.5	0.9	0.9	0.9	0.6	3.1	1.0	0.3	0.2	0.0
South-Eastern Asia	0.2	0.1	0.4	0.2	0.2	0.1	0.4	0.1	0.8	0.4	1.1	0.7	2.4	0.8	0.2	0.1	0.3	0.0
South-Central Asia	0.7	0.4	0.1	0.0	0.6	0.1	0.7	0.4	1.0	0.4	0.6	0.4	0.4	0.4	0.2	0.2	0.3	0.0
Western Asia	0.1	0.1	0.1	0.0	0.1	0.0	0.3	0.2	1.2	0.7	1.2	0.8	0.6	0.6	0.3	0.2	0.2	0.0
Europe	0.4	0.1	0.0	0.0	0.3	0.0	0.6	0.1	1.1	0.5	1.8	1.0	0.7	0.7	0.2	0.1	0.1	0.0
Central and Eastern Europe	0.6	0.1	0.0	0.0	0.5	0.0	0.6	0.1	2.0	0.8	2.4	1.4	0.7	0.7	0.3	0.2	0.2	0.0
Northern Europe	0.2	0.1	0.0	0.0	0.2	0.0	0.8	0.2	0.5	0.2	1.4	0.9	0.5	0.5	0.2	0.1	0.1	0.0
Southern Europe	0.2	0.1	0.0	0.0	0.2	0.0	0.3	0.1	0.9	0.4	1.7	0.9	0.9	0.9	0.3	0.2	0.2	0.0
Western Europe	0.2	0.1	0.0	0.0	0.3	0.1	0.6	0.1	0.5	0.3	1.4	0.8	0.8	0.8	0.2	0.1	0.1	0.0
Oceania	0.3	0.2	0.0	0.0	0.2	0.0	0.5	0.1	0.4	0.2	1.2	0.8	0.8	0.8	0.3	0.1	0.1	0.0
Australia/New Zealand	0.2	0.1	0.0	0.0	0.2	0.0	0.6	0.1	0.4	0.2	1.3	0.9	0.6	0.6	0.2	0.1	0.1	0.0
Melanesia	1.8	1.2	0.0	0.0	0.5	0.0	0.4	0.2	0.8	0.5	0.9	0.6	1.5	0.8	0.2	0.1	0.3	0.0
Micronesia/Polynesia	0.2	0.0	0.1	0.1	0.1	0.0	0.3	0.0	0.9	0.3	1.0	0.6	1.3	0.2	0.2	0.0	0.1	0.0

Table 8. Estimated cumulative risk to age 75 (percent) by sex, cancer site and regions, 2012 –Mortality (Continued)

	Breast (C50)		Cervix uteri (C53)		Corpus uteri (C54)		Ovary (C56)		Prostate (C61)		Testis (C62)	Kidney (C64-66)		Bladder (C67)		Brain, CNS (C70-72)		Thyroid (C73)		Hodgkin (C81)		NHL (C82-85, C96)		Multiple myeloma (C88+C90)		Leukaemia (C91-95)		All sites but C44 (C00-97/C44)	
	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
World	1.4	0.8	0.2	0.4	0.2	0.4	0.2	0.4	0.6	0.0	0.0	0.3	0.1	0.3	0.1	0.3	0.2	0.0	0.1	0.0	0.0	0.3	0.2	0.1	0.1	0.4	0.3	12.7	8.4
More developed regions	1.6	0.3	0.3	0.6	0.3	0.6	0.3	0.6	0.8	0.0	0.0	0.5	0.2	0.4	0.1	0.4	0.3	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.1	0.5	0.3	14.3	9.0
Less developed regions	1.2	0.9	0.2	0.3	0.6	0.0	0.2	0.1	0.3	0.6	0.0	0.2	0.1	0.3	0.1	0.3	0.2	0.0	0.1	0.0	0.0	0.3	0.2	0.1	0.1	0.3	0.3	12.0	8.1
Africa	1.8	2.0	0.2	0.4	0.2	0.4	0.2	0.4	1.5	0.0	0.0	0.1	0.1	0.4	0.1	0.2	0.1	0.1	0.2	0.1	0.1	0.4	0.3	0.1	0.1	0.3	0.3	9.5	9.4
Eastern Africa	1.7	3.1	0.2	0.5	0.2	0.5	0.1	0.1	1.7	0.0	0.0	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.5	0.3	0.1	0.1	0.4	0.3	10.6	11.8
Middle Africa	1.6	2.6	0.2	0.4	0.2	0.4	0.2	0.4	2.5	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.4	0.3	0.2	0.1	0.3	0.2	8.7	9.0
Northern Africa	1.9	0.4	0.1	0.5	0.1	0.5	0.0	0.2	0.6	0.0	0.0	0.2	0.1	0.9	0.2	0.4	0.3	0.1	0.2	0.1	0.1	0.6	0.4	0.1	0.1	0.5	0.3	10.7	8.0
Southern Africa	1.7	1.9	0.2	0.4	0.2	0.4	0.0	0.2	2.2	0.0	0.0	0.2	0.1	0.3	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.4	0.3	0.2	0.2	0.3	0.2	13.5	10.0
Western Africa	2.1	2.1	0.2	0.3	0.2	0.3	0.0	0.1	1.7	0.0	0.0	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.1	0.1	6.5	8.0
The Americas	1.5	0.6	0.2	0.5	0.2	0.5	0.0	0.4	1.1	0.0	0.0	0.4	0.2	0.3	0.1	0.4	0.3	0.0	0.1	0.0	0.0	0.4	0.2	0.2	0.2	0.5	0.3	12.0	9.4
Caribbean	1.7	0.9	0.4	0.3	0.2	0.3	0.0	0.2	2.7	0.0	0.0	0.2	0.1	0.3	0.1	0.3	0.3	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.2	0.4	0.3	12.1	9.2
Central America	1.1	1.0	0.2	0.4	0.2	0.4	0.0	0.1	1.0	0.1	0.1	0.3	0.2	0.1	0.1	0.3	0.2	0.1	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.4	0.3	7.8	7.7
South America	1.5	0.9	0.2	0.4	0.2	0.4	0.0	0.3	1.4	0.0	0.0	0.3	0.1	0.3	0.1	0.4	0.3	0.0	0.1	0.0	0.0	0.3	0.2	0.2	0.1	0.4	0.3	12.2	9.3
Northern America	1.6	0.3	0.3	0.6	0.3	0.6	0.0	0.4	0.8	0.0	0.0	0.4	0.2	0.3	0.1	0.4	0.3	0.0	0.0	0.0	0.0	0.5	0.3	0.3	0.2	0.5	0.3	12.7	9.8
Asia	1.1	0.7	0.2	0.3	0.2	0.3	0.0	0.2	0.3	0.0	0.0	0.2	0.1	0.2	0.1	0.3	0.2	0.0	0.1	0.0	0.0	0.3	0.2	0.1	0.1	0.3	0.2	12.4	7.6
Eastern Asia	0.6	0.3	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.0	0.0	0.2	0.1	0.2	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.4	0.3	14.9	7.5
South-Eastern Asia	1.6	0.9	0.2	0.5	0.2	0.5	0.0	0.2	0.6	0.0	0.0	0.2	0.1	0.2	0.1	0.2	0.2	0.1	0.2	0.0	0.0	0.5	0.3	0.1	0.1	0.4	0.3	12.2	8.7
South-Central Asia	1.5	1.2	0.1	0.4	0.3	0.4	0.0	0.1	0.3	0.0	0.0	0.1	0.1	0.2	0.1	0.2	0.1	0.0	0.1	0.1	0.0	0.3	0.1	0.1	0.1	0.3	0.2	8.3	7.0
Western Asia	1.7	0.2	0.2	0.4	0.2	0.4	0.1	0.4	1.3	0.1	0.1	0.4	0.2	1.0	0.2	0.4	0.3	0.1	0.2	0.2	0.1	0.6	0.4	0.2	0.2	0.6	0.4	14.0	8.8
Europe	1.8	0.4	0.3	0.6	0.3	0.6	0.0	0.6	1.0	0.0	0.0	0.6	0.2	0.5	0.1	0.5	0.3	0.0	0.1	0.1	0.0	0.3	0.2	0.2	0.1	0.5	0.3	15.5	9.2
Central and Eastern Europe	1.9	0.6	0.4	0.7	0.4	0.7	0.1	0.7	1.3	0.1	0.1	0.7	0.3	0.7	0.1	0.5	0.3	0.1	0.1	0.1	0.0	0.3	0.2	0.1	0.1	0.5	0.3	19.0	10.0
Northern Europe	1.7	0.2	0.3	0.7	0.3	0.7	0.0	0.5	1.1	0.0	0.0	0.5	0.2	0.4	0.1	0.5	0.3	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.4	0.2	12.8	9.8
Southern Europe	1.6	0.3	0.3	0.5	0.3	0.5	0.0	0.4	0.7	0.0	0.0	0.4	0.1	0.6	0.1	0.5	0.3	0.0	0.0	0.1	0.0	0.3	0.2	0.2	0.1	0.5	0.3	14.2	8.0
Western Europe	1.8	0.2	0.2	0.6	0.2	0.6	0.0	0.5	0.9	0.0	0.0	0.5	0.2	0.4	0.1	0.5	0.3	0.0	0.0	0.0	0.0	0.3	0.2	0.2	0.1	0.4	0.3	13.6	8.6
Oceania	1.6	0.5	0.2	0.6	0.2	0.6	0.0	0.3	1.0	0.0	0.0	0.3	0.1	0.3	0.1	0.4	0.3	0.0	0.1	0.0	0.0	0.4	0.3	0.2	0.2	0.5	0.3	11.7	9.1
Australia/New Zealand	1.5	0.2	0.2	0.5	0.2	0.5	0.0	0.3	0.9	0.0	0.0	0.3	0.2	0.3	0.1	0.5	0.3	0.0	0.0	0.0	0.0	0.4	0.2	0.2	0.2	0.4	0.2	11.4	8.4
Melanesia	2.1	2.2	0.4	0.7	0.4	0.7	0.0	0.1	1.4	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.7	0.1	0.0	0.7	0.4	0.1	0.1	0.4	0.3	13.1	12.3
Micronesia/Polynesia	1.5	0.5	0.3	0.3	0.3	0.3	0.0	0.1	1.5	0.0	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.4	0.2	0.1	0.1	0.5	0.2	13.0	8.7

estimated rates of 10.5 and 4.5 in Eastern and South-Central Asia. Prostate cancer is the fifth leading cause of death from cancer in men, with an estimated 307,000 deaths representing 6.6% of the total male cancer mortality (Table 2). Unlike incidence, there is relatively less variation in mortality rates worldwide (10-fold from approximately 3 to 30 per 100,000) than is observed for incidence, with the number of deaths from prostate cancer larger in less than developed regions (165,000 and 142,000, respectively) (Table 6). Mortality rates are generally high in populations of African descent (Caribbean, 29 per 100,000 and Sub-Saharan Africa, ASRs 19–24 per 100,000), intermediate in the Americas and Oceania, and very low in Asia (2.9 per 100,000 in South-Central Asia, for example) (Table 4).

Stomach cancer. Almost one million new cases of stomach cancer were estimated to have occurred in 2012 (951,000 cases, 6.8% of the total), making it the fifth most common malignancy in the world, after cancers of the lung, breast, colorectum and prostate (Table 1). This represents a substantial change since the very first estimates in 1975,²⁰ when stomach cancer was the most common neoplasm. More than 70% of cases (677,000 cases) occur in developing countries (456,000 in men, 221,000 in women), and half the world total occurs in Eastern Asia (mainly in China) (Table 5). Age-standardized incidence rates are twofold greater in men than women, with male incidence rates ranging from 3.3 in Western Africa to 35.4 in Eastern Asia (Table 3). Stomach cancer is the third leading cause of cancer death in both sexes worldwide (723,000 deaths, 8.8% of the total) (Table 2). The highest estimated mortality rates are in Eastern Asia (14.0 per 100,000 in men, 9.8 per 100,000 in women), the lowest in Northern America (2.8 and 1.5, respectively). High mortality rates are also seen in Central and Eastern Europe, and in Central and South America (Table 4).

Liver cancer. Liver cancer is a major cancer in less developed regions where 83% of the estimated 782,000 new cancer cases worldwide occurred in 2012 (Table 5) (50% in China alone). It is the fifth most common cancer in men (554,000 cases, 7.5% of the total) and the ninth in women (228,000 cases, 3.4%) (Table 1). In men, the regions of high incidence are Eastern and South-Eastern Asia (ASRs 31.9 and 22.2 respectively). Intermediate rates are seen in Southern Europe (9.5) and Northern America (9.3), while the lowest rates are in Northern Europe (4.6) and South-Central Asia (3.7). In women, the rates are generally much lower, with the highest rates in Eastern Asia and Western Africa (10.2 and 8.1, respectively) (Table 3). Liver cancer is the second most common cause of death from cancer worldwide, estimated to be responsible for nearly 745,000 deaths in 2012 (9.1% of the total) (Table 2). Given the very poor prognosis for liver cancer (the ratio of mortality to incidence is 0.95), the geographical patterns in incidence and mortality are quite similar.

Cancer of the cervix uteri. Cervical cancer is the fourth most common cancer in women, and the seventh overall, with an estimated 528,000 new cases in 2012 (Table 1). Although the annual number of cases has increased, cancer of the cervix has declined in relative importance: it was the second most common cancer of women in 1975.²⁰ As with liver cancer, a large majority (around 85%) of the global burden occurs in the less developed regions, where it accounts for almost 12% of all female cancers (Table 5). High-risk regions, with estimated ASRs over 30 per 100,000, include Eastern Africa (42.7), Melanesia (33.3), Southern (31.5) and Middle Africa (30.6). Rates are lowest in Australia/New Zealand (5.5) and Western Asia (4.4). Cervical cancer remains the most common cancer in women in Eastern and Middle Africa (Table 3).

There were an estimated 266,000 deaths from cervical cancer worldwide in 2012, accounting for 7.5% of all female cancer deaths (Table 2). Almost nine in 10 (87%) cervical cancer deaths occur in less developed regions (Table 6). The average risk of dying from cervical cancer before age 75 is three times higher in the less than in more developed regions (Table 8). Mortality varies 18-fold between the different regions of the world, ranging from less than 2 per 100,000 in Western Asia, Western Europe and Australia/New Zealand to above 20 per 100,000 in Melanesia (20.6), Middle (22.2) and Eastern (27.6) Africa (Table 4).

Oesophageal cancer. Oesophageal cancer is the eighth most common cancer worldwide, with an estimated 456,000 new cases in 2012 (3.2% of the total), and the sixth most common cause of death from cancer with an estimated 400,000 deaths (4.9% of the total) (Tables 1 and 2). These figures include both adenocarcinoma and squamous cell carcinoma subtypes. Around 80% of the cases worldwide occur in less developed regions (Table 5), with global incidence rates threefold higher in men compared with women (Table 1). In both sexes there are more than 20-fold differences in incidence between world regions, with rates ranging from 0.8 per 100,000 in Western Africa to 17.0 per 100,000 in Eastern Asia in men, and 0.2 per 100,000 in Micronesia/Polynesia to 7.8 per 100,000 in Eastern Africa in women (Table 3).

Cancer of the oesophagus has a very poor survival (M:I ratio is 0.88), and the geographical patterns of mortality closely follows those of incidence. Mortality rates are elevated in Eastern Asia (14.1 per 100,000) and Southern Africa (12.8) in men, and in Eastern Africa (7.3) and Southern Africa (6.2) in women (Table 4).

Bladder cancer. An estimated 429,000 bladder cancer cases occurred in 2012, making the disease the ninth most common cause of cancer for both sexes combined (Table 1). Bladder cancer is relatively common in more developed regions, where 60% of all incident cases occur, and occurs among men more than in women (sex ratio worldwide of 3.5:1) (Table 5). Male rates are high in Southern and Western Europe (ASRs 21.8 and 19.7 per 100,000, respectively) and in

Western Asia (19.0) and Northern Africa (15.1) where bladder cancer is linked to chronic schistosomal infection. Female rates are much lower, with the highest in Northern America (5.1) and Western Europe (4.3). In both sexes, low incidence rates are seen in South-Eastern and South-Central Asia, and in sub-Saharan Africa (Table 3).

There were an estimated 165,000 deaths from bladder cancer worldwide, with similar numbers in less (85,000) and more (80,000) developed regions (Table 6). Mortality rates are much lower than the incidence rates, with the highest ASR estimated in Western Asia in men (8.4 per 100,000) and in Northern Africa (1.6) in women (Table 4).

Non-Hodgkin lymphoma. An estimated 386,000 cases of non-Hodgkin Lymphoma (NHL) occurred in 2012 (2.7% of all cancers). NHL is slightly more common in less developed regions (50.5% of cases worldwide, Table 5) although the rates are highest in Northern America (ASR 14.6 and 10.2 per 100,000 in men and women respectively), in Australia/New Zealand (14.3 and 10.1) and in Europe (except Central and Eastern Europe). The lowest rates are estimated in South-Central Asia (3.3 in male and 1.8 in female) (Table 3). About 200,000 deaths from NHL were estimated worldwide (2.4% of all deaths), two-third 125,000 occurring in the less developed regions of the world, reflecting a poorer survival in those regions (Table 6).

Leukaemia. Leukaemia accounted for some 352,000 new cases (2.5% of all new cancer cases) and for 265,000 deaths (3.2% of all deaths) (Tables 1 and 2). The rather high M:I ratio (0.75) reflects the poor prognosis of leukaemia in many parts of the lower-resource world. The range of incidence rates is about six - to eightfold in women and men respectively, with the lowest rates in Middle and Western Africa (less than 3 per 100,000 in men and less than 2 per 100,000 in women) and the highest in Northern America and Australia/New Zealand (over 10 per 100,000 in men and 7 per 100,000 in women) (Table 3). Variations in mortality are less than for incidence, due to better survival (and hence lower mortality) in more developed regions. Mortality rates range between 1.3 per 100,000 and 6.3 per 100,000 in males, and 1.1 and 3.8 in females (Table 4). The low incidence (and hence mortality) rates estimated in Sub-Saharan Africa may be partly due to failure to diagnose the disease, especially in the elderly or very young.

Pancreatic cancer. Pancreatic cancer is responsible for 331,000 deaths per year, and is the seventh most common cause of death from cancer in both sexes combined (Table 2), a higher relative position than seen for incidence (12th) given the very poor prognosis (M:I ratio is 0.98) (Table 1). The sex ratio is close to one, and the majority of cases and deaths (55%) occur in the more developed regions (Table 5), with rates varying between 7 and 9 per 100,000 in men and 5 and 6.5 per 100,000 in women, with lower rates in the less developed regions (Table 3). Part of the variation in both

incidence and mortality patterns worldwide may relate to under diagnosis (particularly among elderly patients), or to imperfect mortality data.

Kidney cancer. The highest rates of kidney cancer incidence (338,000 new cases, 2.4% of the world total) are estimated in Northern America, Australia/New Zealand and Europe, where rates were over 10 per 100,000 in men and over 5 per 100,000 in women (except Southern Europe). Incidence rates are lowest (below 1.5 per 100,000) in Africa and in the Pacific Islands (Table 3). Of the 144,000 deaths from kidney cancer (1.7% of all deaths) estimated in 2012, 75,000 (52%) were in more developed regions (Table 6).

Corpus uteri cancer. Cancer of the corpus uteri appears more important as a cause of new cases (320,000 or 4.8% of cancers in women and 2.3% of the total, Table 1) than in terms of mortality (76,000 deaths or 2.1% of cancer deaths in women, Table 2) because of the reasonable prognosis associated with the disease. The highest incidence rates were estimated in Northern America (19.1 per 100,000) and Northern and Western Europe (12.9–15.6). Rates are low in South-Central Asia (2.7) and most of Africa (less than 5 per 100,000) (Table 3). Mortality rates ranged between 0.9 per 100,000 in Northern Africa and 3.8 per 100,000 in Melanesia (Table 4).

Cancer of the lip and oral cavity. These cancers accounted for 300,000 cases in 2012 (2.1% of the world total), with two-thirds occurring in men (Table 1). The region with the highest incidence among both males and females was by far Melanesia (22.9 per 100,000 and 16.0 per 100,000, respectively). Rates were also relatively high in men in South-Central Asia (9.9) and in Central and Eastern Europe (9.1) (Table 3). Worldwide, 145,000 deaths occurred (1.8% of the world total), of which 77% were in the less developed regions (Table 6).

Thyroid cancer. Cancer of the thyroid (298,000 new cases, 2.1% of the total) is considerably more common among females than among males (Female:Male sex ratio 3), comprising 3.5% of cancers in women (Table 1). Elevated rates are estimated in Northern America (6.3 per 100,000 in males and 20.0 per 100,000 in females) and in Oceania (3.4 and 11.3, respectively) (Table 3). Relative to incidence, thyroid cancer accounted for rather few deaths (40,000 or 0.5% of all cancer deaths, Table 2), with mortality rates lower than 1 per 100,000 in men and 2 in per 100,000 in women (except in Melanesia) (Table 4).

Cancers of brain and central nervous system. Cancers of the brain and central nervous system accounted for 256,000 new cases and 189,000 deaths in 2012 (1.8% of new cancers; 2.3% of cancer deaths) (Tables 1 and 2). The highest incidence and mortality rates are in more developed regions (Australia/New Zealand, Europe, and Northern America) and are lowest in Africa and the Pacific (Tables 3 and 4). As for pancreatic cancer, the variation in both mortality and

incidence patterns worldwide may be in part due to variations in the availability of diagnostic facilities or due to inaccuracy in assigning the underlying cause of death.

Ovarian cancer. Ovarian cancer (239,000 cases and 152,000 deaths) is the seventh most common cancer and the eighth cause of death from cancer in women (3.6% of cases and 4.3% deaths) (Tables 1 and 2). Incidence rates are highest in more developed regions, with rates in these areas exceeding 7.5 per 100,000 and lowest in Sub-Saharan Africa with rates below 5 per 100,000 (Table 3). The average risk of dying from ovarian cancer before age 75 is twice as high in more than in less developed regions (Table 8), with deaths from the disease ranking as 5th most common among women (Table 6).

Malignant melanoma of skin. Malignant melanoma of skin accounted for 232,000 new cases (1.6% of new cancers) (Table 1). The regions affected are largely those with white populations (of European origin), with by far the highest incidence in both males and females in Australia/New Zealand (40.3 per 100,000 and 30.5 per 100,000 respectively) followed by Northern America and by Northern and Western Europe (rates over 10 per 100,000 in both sexes). Very low incidence rates (below 0.5 per 100,000 in both males and females) are estimated in South-Eastern Asia and South-Central Asia (Table 3).

Mortality rates ranged from 0.1 in women of South-Central Asia to almost 6 per 100,000 in Australia/New Zealand men (Table 4). There were an estimated 55,000 deaths in 2012 worldwide (0.7% of cancer deaths), with almost two of three deaths occurring in more developed regions, and among men (sex ratio of 1.3) (Table 6).

Cancer of gallbladder. Gallbladder cancer (178,000 new cases, 1.3% of the total) is one of the few malignancies that are more common in females than males (sex ratio of 0.76) (Table 1). About 65% of the cases were seen in less developed regions (mainly in Eastern and South-Central Asia), with the highest incidence rates estimated in South America (particularly among females of around 3.5 per 100,000) and Eastern Asia (3.4 per 100,000 in males, 3.2 per 100,000 in females) (Table 3). Gallbladder cancer accounted for 142,000 deaths (1.7% of all cancer deaths), of which 45,000 are in the more developed regions (Table 6).

Larynx cancer. Larynx cancer (157,000 new cases, 1.1% of new cancers) is a cancer that is notably frequent among men, where it comprises 1.9% of male cancer cases. The sex ratio (7:1) is greater than for any other site. It is a rare cancer in women with only 19,000 new cases estimated in 2012 (Table 1). In men, the regions of high-risk were the Caribbean and Central and Eastern Europe (7.9 per 100,000), Southern Europe (7.2) and Western Asia (6.5) (Table 3). Cancer of the larynx is responsible for 83,000 deaths in 2012 (1.0% of cancer deaths), of which 73,000 occurred in men (1.6% of deaths) (Table 2).

Other pharyngeal cancers. Cancer of the pharynx (excluding nasopharynx) accounted for 142,000 new cases in 2012 (1% of the world total), and was much more common among males than among females (sex ratio of 4:1) (Table 1). The region with the highest incidence for both sexes was Western Europe (7.5 per 100,000 and 1.6 per 100,000 respectively, with the lowest rates (below 1.0) in Northern and Western Africa and Western Asia (Table 3). Worldwide, 97,000 deaths from “other pharyngeal” cancers occurred (1.2% of the world total), three-quarters in less developed regions (Table 6).

Multiple myeloma. Multiple myeloma constituted 0.8% of all cancers worldwide (114,000 new cases) (Table 1). Incidence rates varied from 0.4 to almost 5 per 100,000, with rates highest in more developed regions of Northern America, Australia/New Zealand and Europe (but Central and Eastern). Low rates (below 1.0 per 100,000) were seen in Asia (except Western Asia) (Table 3). Multiple myeloma accounted for 80,000 deaths worldwide (1.0% of cancer deaths), the majority in more developed regions (Table 6).

Nasopharyngeal cancer. Nasopharyngeal cancer (NPC) is a relatively rare tumour (87,000 new cases, 0.6% of all cancers), more common in males (sex ratio of 2.3:1) with very distinct geographic areas of high risk (Table 1). The highest rates are in populations in South-Eastern Asia (ASR 6.4 in men, 2.4 in women), and in Micronesia/Polynesia, Eastern Asia and Northern Africa, where rates are above 2 and 1 in men and women respectively (Table 3). An estimated 51,000 deaths from NPC were estimated in 2012, representing 0.6% of all cancer deaths (Table 2).

Hodgkin lymphoma. An estimated 66,000 cases of Hodgkin Lymphoma occurred in 2012 (0.5% of all cancers) (Table 1). Similar to NHL, the incidence rates are high in more developed regions (Northern America, Australia/New Zealand and Europe) but also in Western Asia where the ASR is over 2.0 in men and 1.5 in women. Incidence rates are particularly low (below 0.5) in Eastern and South-Eastern Asia where the disease is very rare (Table 3). Survival for Hodgkin lymphoma is reasonable in more developed regions so that of the estimated 25,000 deaths worldwide (0.5% of all cancer deaths), only about one-quarter (6,300) occurred in more developed regions (Table 6).

Testicular cancer. Testicular cancer is relatively rare, with 55,000 new cases estimated in 2012 (0.7% of cancers in men, Table 1), but common in younger men (ages 15–39) of white Caucasian origin. The highest incidence rates are in more developed regions and particularly in Europe (7.2 and 8.7 in Northern and Western Europe, respectively), with rates low in Asia and Africa (rates lower than 1.0) (Table 3). As a consequence of the very favourable survival from testicular cancer in more developed regions, around 10,000 deaths from testicular cancer were estimated in 2012 worldwide, only 2,200 deaths occurring in more developed regions (Table 6).

Kaposi sarcoma. Kaposi sarcoma (KS) is an extremely rare form of cancer in most regions of the world, but it is one of the most common in certain regions of Sub-Saharan Africa, where 84% of the estimated 44,000 cases occurred (29,000 in men, 15,000 in women) (Table 5), the great majority occurring in subjects with HIV-AIDS. About 70% of cases occurred in Eastern Africa, where the highest incidence rates are observed (15.1 in men, 7.6 in women) (Table 3) and where the disease is the leading cancer in men and third ranking in women (after cervical and breast cancer) (Table 5). KS is extremely rare in Asian populations with only 1,500 cases estimated in its population of 4.3 billion in 2012. Of the 27,000 estimated deaths from KS (0.3% of all cancer deaths, Table 2), 25,000 were in sub-Saharan Africa, of which 21,000 deaths (84%) were seen in Eastern Africa (Table 6).

Discussion

The global and region-specific estimates presented here and in more detail online (<http://globocan.iarc.fr>) provide a key resource for cancer researchers, policy-makers and the media on the burden of cancer in 2012, and the cancer-specific patterns in 184 countries worldwide. The primary aim of this article is to clearly document the methods used to build up these global figures. While IARC's estimation methods have been refined in the last decades to account for the increasing availability and quality of source information, the underlying methodological principle has remained a constant: wherever possible, the country-specific estimates are based upon local sources of cancer incidence (from cancer registries) and mortality (mainly from vital registration systems). The results are of course more or less accurate for different countries, depending on the extent and accuracy of the locally available data.

To guide users in the validity of the national estimates and to aid interpretation of the results, an alphanumeric scoring system has been introduced for the 2012 estimates that describes the availability of incidence and mortality data at the country level, and the quality of sources ranging from A1 for the highest (16 countries such as Australia, Finland or Singapore) to G6 for the lowest (34 countries such as Afghanistan, Central African Republic or Honduras). For the incidence data, results from population-based cancer registries are regularly published through the CI5 series and inclusion in one of the last two volumes sets the standard of high quality incidence data. Beyond the criterion of CI5 inclusion, the cancer registries are classified according to their ability to either produce reasonably accurate incidence rates per 100,000 (e.g. population-based) or simple tabulations by cancer type and sex (hospital or pathology-based). The extent of coverage of the catchment population (national or sub-national) is also taken into consideration, since subnational coverage requires extrapolations from often limited sample populations. For national mortality data available through the WHO mortality database, the per-

centages of completeness and coverage by country are provided alongside the datasets online; the proportions of ill-defined causes of deaths, and of unknown and ill-defined cancer deaths are also used as recognised indicators of the quality of vital registration systems.⁹

The use of site-, sex- and age-specific M:I ratios from cancer registries to estimate national incidence rates from national mortality has been used extensively over several decades.²¹ Using data within a country, the method assumes greater representativeness and lesser variation in case fatality than in incidence rates between registry populations, and is robust to the quality of the mortality data, provided any deficiencies are equally present in both national and registry mortality sources. In the absence of cancer registry data within the country of interest, M:I ratios from cancer registries in neighbouring countries were used previously (described as method 2B in GLOBOCAN 2008¹³ and for some European countries for these 2012 estimates.¹⁵ With this methodology, the national and the regional mortality are not from the same vital statistics systems, the resulting national incidence could be distorted, for example when the national mortality data is over-estimated for some cancer sites (such as liver and brain tumours due to the inclusion of metastatic or unknown behaviour diagnoses). In addition, regional M:I ratios may be lower than the true national survival if there is under-reporting of cancer deaths, while using regional M:I ratios for a group of countries with possibly different profiles of cancer survival is evidently problematic. For these reasons, and for the countries outside Europe, we instead employed a different method, which scales the M:I ratios between countries according to levels of HDI. As in the majority of LMIC there are no survival estimates available, we created proxies based on SURVCAN²² and historical data from two Nordic countries (Finland and Denmark), assuming that survival is linked to a country's level of human development.

Under-reporting and failure of diagnosis could be sources of bias in cancer registration particularly in the less developed countries where most of the data do not qualify for CI5, and therefore some of the national estimates based on regional cancer registries may be underestimates for leukaemia, brain, lung, liver and pancreas depending on the local facilities available. Conversely, estimates based on a single cancer registry in an urban setting might result in an overestimation of the final estimates for some lower income countries with substantial rural populations. Recent data from rural settings in Sub-Saharan Africa or India⁶ indicate that incidence rates for most cancers may be much lower than those reported by cancer registries covering urban populations. Contrarily to failure of diagnosis, the high cancer incidence estimated in some developed regions is partly due to over-diagnosis of *cancers* detected by intense sensitive investigations, such as prostate cancer in Northern American and Western European countries as well as thyroid cancer in Eastern Asia, especially South Korea.⁶ This does not affect

the corresponding mortality estimates which are more comparable across regions at those sites.

Other possible sources of bias related to the prediction of cancer rates using the M:I ratio method have been described elsewhere.¹⁵ Of the 34 countries representing 5.6% of the world population for which no information is available (indexed G6), 19 are located in Sub-Saharan Africa, representing 23% of this population. Incidence estimates were computed simply as the average of the rates from neighbouring countries.

Evidently the inclusion of uncertainty intervals for country-specific estimates would be useful aid where they truly able to capture the uncertainty in the source information. Collaborative work is underway to take into account not only the inherent statistical uncertainty in the modelling exercises but also the more qualitative relative deficiencies in the quality and availability of the source information at the national level.

While comparisons of estimates compiled in this and previous versions of GLOBOCAN seem an instinctively reasonable and valid exercise, we would warn again such temporal analyses: the changes in the incidence and mortality counts or rates may in part be due to an increasing availability and quality of the incidence data from cancer registries worldwide and correspondingly, a more robust set of estimation methods. As an example, the estimates of cancer incidence in Germany in 2008 were based on national mortality data and modelling of local M:I ratios, while those from 2012 were derived from the projection of regional incidence rates.

As well as providing a global snapshot of the cancer burden in 2012, these GLOBOCAN estimates bring to a focus the need for regional and national prioritisation of cancer control efforts given the cancer patterns observed today. Of the predicted 20 million new cancer cases by 2025,²³ the greatest increases are anticipated in the low income countries and longer-term planning is needed to reduce the future can-

cer burden through resource-appropriate interventions. They include the generally applicable targeting of lifestyle factors amenable to reduction with proven actions that lead to tobacco avoidance or cessation, the reduction of alcohol consumption and obesity, and increased levels of physical activity. In the less-developed regions, infectious agents are the most important causes of cancer,²⁴ so that the introduction of appropriate vaccination and treatment programmes into existing national systems would make a major contribution to future cancer control. There are many critical observations among these results that can serve to provide the evidence base and impetus for developing such resource-contingent strategies to reduce the cancer burden worldwide in the decades that follow.

Finally, estimation of the cancer incidence worldwide would not be possible without population-based cancer registries (PBCR), yet many LMICs have limited or no such surveillance systems in place. The agreed collection by WHO Member States of “cancer incidence, by type of cancer, per 100,000 population”—as one of 25 indicators of progress in reducing NCDs—should compel countries to commit appropriate levels of investment to the planning and developing of PBCR. Linking in with this, the IARC-led the *Global Initiative for Cancer Registry Development* (GICR, <http://gicr.iarc.fr>), a concerted, multi-partner international action aims to markedly increase the coverage of populations in LMIC by such high quality institutions, thus supporting cancer surveillance and cancer control where it is needed most.

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