Methods of estimation

Incidence

The methods to estimate the sex age-specific incidence **rates** of cancer for a country fall into one of the five following categories:

1. **National Incidence data**
   Incidence rates for a country were available.
2. **Mortality Data**
   Depending of the degree of detail and accuracy of the national mortality data, four variants have been used:

   2A. National mortality is complete for all of the cancers. National incidence can be estimated by applying site-specific regression models of incidence as a function of mortality, obtained from Poisson regression analyses of incidence and mortality data provided by regional cancer registries, including terms for sex and age (Bray et *al.*, 2002). The age groups used were 0-44, and then five-year age bands up to the last age group of over 75 years. The estimated number of cancer cases in the age group 0-44 was divided between age age groups 0-14 and 15-44 using proportions given by the same cancer registries. However, the incidence of childhood cancers (age group 0-14) was replaced by that extracted from the *International Incidence of Childhood Cancer, Vol. II*. The older age groups were grouped together to provide those presented in GLOBOCAN 2002.
   Several models were established, based upon the incidence and mortality data from cancer registries in *Cancer Incidence in Five Continents Vol. VIII* and from the EUROCIM databases. The model for Central Asia and the Caucasus (CAC) was based on unpublished incidence and mortality data.
   1. Latin America and Caribbean (LAC): Brazil, Campinas (1991-1995), Colombia, Cali (1992-1996), Costa Rica (1995-1996), Cuba, Villa Clara (1995-1997)*, Ecuador, Quito (1993-1997)
      **Except prostate*
   2. South America (SA): Argentina, Concordia (1993-1997), Brazil, Campinas (1991-1995), Colombia, Cali (1992-1996), Ecuador, Quito (1993-1997), Uruguay, Montevideo (1993-1995)
   3. Central Asia and Caucasus (CAC): Kazakhstan, Alma Alta (1984-1986), Kyrgyzstan (1986-1987), Georgia, Tbilissi (1986-1988), Uzbekistan, Tashkent (1984-1986).
   4. Developing countries (DEV): Cancer registries included in the LAC, CAC and China models
   5. Eastern Europe (EE): Czech Republic (1997-1999), Poland, Cracow (1997), Kielce and Warsaw City (1997-1999), Slovakia (1997).
   6. Southern Europe (SE): Croatia (1998-2000), Serbia and Montenegro, Vojvodina (1998), Central Serbia (1999), Slovenia (1998-1999) and the cancer registries included in the Italian and Spanish models (see below).
   7. Western Europe (WE): Austria, Tyrol and Vorarlberg (1997), Belgium, Flanders (1997-1998), France, Bas-Rhin and Haut-Rhin (1997), Germany, Saarland (1998-1999), The Netherlands (1998).

   Country specific models:

   Colombia
   - Cali (1992-1996)

   USA
   - Surveillance Epidemiology and End Results (SEER program)registries (1999-2000)

   China
   - Beijing (1993-1997)
   - Cixian (1993-1997), stomach and oesophageal cancers
   - Changle (1993-1997), stomach and oesophageal cancers
   - Jiashan (1993-1997)
   - Qidong County (1993-1997)
   - Shanghai (1993-1997)
   - Wuhan (1993-1997)

   Japan
   - Hiroshima (1995)
   - Miyagi prefecture (1997)
   - Nagasaki prefecture (1997)
   - Osaka prefecture (1997)
   - Saga prefecture (1997)
   - Yamagata prefecture (1997)

   Korea
   - Busan (1996-1997)

- Daegu (1997-1998)
- Kangwha County (1993-1997)
- Seoul (1996-1997)

Austria
- Tyrol (1995-1997)
- Vorarlberg (1995-1997)

Belarus (1997)
Belgium
- Flanders (1997-1998)

Bulgaria (1997-1998)
France
- Calvados (1997)
- Cote D'or (1997) digestive tract, breast and haematological malignancies
- Bas-Rhin (1997)
- Doubs (1997)
- Haut-Rhin (1997)
- Herault (1997)
- Isere (1997)
- Manche (1997)
- Tarn (1997)

Italy
- Ferrara Province (1997)
- Florence (1997)
- Friuli-Venezia Giula (1997-1998)
- Liguria, Genoa Province (1996)
- Lombardy, Varese Province (1997)
- Modena Province (1997)
- Parma Province (1997)
- Ragusa (1993-1997)
- Romagna (1997)
- Torino (1997)
- Veneto Region (1996)

Latvia
- Latvia (1993-1997)

Lithuania
- Lithuania (1993-1997)

Poland
- Cracow (1997)
- Kielce (1997-1999)
- Warsaw City (1997-1999)

Russia
- St Petersburg (1994-1997)

Slovakia (1995-1997)
Spain
- Albacete (1997)
- Asturias (1997-1998)
- Canary Islands (1997)
- Cuenca (1997)
- Girona (1997-1999)
- Granada (1997)
- Mallorca (1996)
- Navarra (1997)
- Tarragona (1997)
- Zaragoza (1997-1999)

Switzerland
- Basel (1996)
- Geneva (1997-1999)

- Graubunden and Glarus (1997-1999)
- St Gall-Appenzell (1997-1999)
- Ticino (1997-1998)
- Valais (1997-1998)

Ukraine (1999)

2B. National mortality data are available for the major cancer sites; incidence is estimated using modeling techniques as for **2A**. The residual group of cancers is converted into incidence using the same model then subdivided into the missing sites using proportions provided by cancer registries, within the countries/regions specified in **2A** .
2C. Same as the previous, but the mortality rates are known to be under estimates of the true mortality. So the published rates have been corrected (multiplied by the estimated percentage of under-registration) before conversion to incidence.
2D. Same as **2B** , but the mortality rates are derived from some sort of sample survey of deaths, then converted to incidence.

3. **Local (regional) incidence data**
   The estimates were derived from the data of one or more cancer registries covering a part of a country (state, province etc). This approach has been divided into two categories:
   3A. The cancer registry data have been used as representative of the country.
   3B. A correction has been applied to the cancer registry data, because of known under-reporting problem.
4. **Frequency data**
   For several developing countries, no data are available on cancer incidence and mortality. A set of age/sex specific incidence rates for all cancers was partitioned between different cancer sites using any available data on the relative frequency of different cancers (by age and sex). Height set of age-specific incidence rates for 'all sites but non-melanoma skin' were used. These rates were produced from the unweighted averages of the observed rates (by sex and age-group) in registries from:
   - Eastern Africa (EA): Unweighted average of Kenya, Eldoret (1998-2000), Malawi, Blantyre (2000-2001), Uganda, Kyadondo (1993-1997) and Zimbabwe, Harare (1993-1997).
   - Middle Africa (MA): Unweighted average of EA, NA, SA and WA.
   - Northern Africa (NA): Unweighted average of Algeria, Algiers (1993-1997), Constantine (1994-1997), Oran (1996-1998), Setif (1993-1997) and Tunisia, Sousse (1993-1997), Sfax (1997), Tunis (1994).
   - Southern Africa (SA): Unweighted average of Namibia (1995-1998), South African Republic (1997) and Swaziland (1996-1999).
   - Western Africa (WA): Unweighted average of Guinea, Conakry (1996-1999), The Gambia (1997-1998), Mali, Bamako (1993-1997), Niger, Niamey (1993-1999) .
   - CARIBBEAN: Cuba, Vila Clara (1995-1997), France, Martinique (1993-1997) and US, Puerto Rico (1992-1993).
   - Middle East (ME): Unweighted average of Oman: Omani (1998-2000), Kuwait (1994-1997), Jordan (1996-1997) and Israel, non-Jews (1999-2000).
   - Other Oceania OO: Unweighted average of Fidji (1998), New Caledonia, Noumea (1992-1994) and Vanuatu (1991-1992) .

   Note: The five African 'all sites but non-melanoma skin' rates were calculated after excluding Kaposi sarcoma which accounts for a variable but often high proportion of incident cases in certain registries. These rates were partitioned by relative frequency excluding Kaposi sarcoma, rates of which were then estimated separately and added to the total.
5. **No data**
   5A . The country-specific rates are calculated using data from neighbouring countries in the same region.
   5B. The country-specific rates represent simply those of the corresponding area (calculated from the other countries for which estimates could be made).

Estimate of the incidence of Kaposi sarcoma in Africa

For those countries with a cancer registry, and incidence rates for years after 1995, and with at least 20 cases, the observed rates were taken to be representative of the country:

Kenya (Eldoret)
Malawi (Blantyre)
Uganda (Kyadondo)
Zimbabwe (Harare)
Congo (Brazzaville)
Algeria (Algiers, Constantine, Oran and Setif)

Tunisia (Sfax, Sousse)
Namibia
Swaziland
Mali (Bamako)

For all other African countries, the following method was used:

1. We estimated first the number of endemic (pre-AIDS) KS cases using the percentage frequency of the disease, both sexes combined for periods before 1990 (source Hutt, 1984, and Parkin et *al*, 2003). This total number of KS was then partitioned by sex (ratio 10:1) and age (five age groups) according to the expected age-specific incidence pattern based on a smoothing of the rates from Uganda, Kyadondo County (1960-1971).
2. We calculated the number of epidemic (AIDS-related) KS cases, both sexes combined, for the year 2002, using estimates of AIDS deaths by country in 2001 (source UNAIDS (http://www.unaids.org/), and an estimate of the ratio of deaths from AIDS:cases of KS. This ratio was based on observed KS rates in several countries (from the sentinel registries listed above), and was specific by area (varying from 0.5% - 5%). This total number of AIDS-related KS was split into male and female cases in the ratio of 2:1 (as observed in the sentinel registries). For each sex, the resulting total number of KS was then partitioned into five age groups using age-specific rates of epidemic KS. These were based on the combined rates from the registries of:
    - Kyadondo County (1993-1997)
    - Zimbabwe, Harare, Black population (1993-1997)
    - Malawai, Blantyre (2000-2001)
    - Swaziland (1996-1999)

   minus the pre-AIDS (endemic) KS age-specific rates, as described above.
3. The Kaposi sarcoma rates presented in GLOBOCAN 2002 are the sum of the sex and age specific rates of endemic and epidemic KS.

Mortality

Depending of the degree of detail and accuracy of the national mortality data, five methods have been used:

1. **National Mortality Data.**
   National mortality data are complete for all the cancers.
2. **National Mortality Data.**
   National mortality data are available for the major cancer sites. The residual group is subdivided into the missing sites using proportions from mortality files provided by cancer registries.
3. **National Mortality Data.**
   Same as (**2**), but the mortality rates are known to be under estimates of the true mortality. The published rates have been corrected (multiplied by the estimated percentage of under-registration) and, when necessary, the missing sites computed using proportions from mortality files provided by cancer registries.
4. **Local (regional) mortality.**
   The estimates were derived from the data of one or more cancer registries covering a part of a country (state, province etc).
5. **No mortality data were available or known to be of poor quality.**
   5A. For most of the countries in developing areas, mortality was estimated from country-specific numbers of new cases and country or region-within a country-specific survival data. For a given cancer site and age group, mortality (M) is the product of incidence (I) and the probability of dying from the disease:
   $M = I[k\text{-}S_j]$
   where S_j is the relative survival at year *j* of follow-up and k is a constant depending on *j*. When 5-year relative survival probabilities are used, the constant k tends to be very close to 1 (Pisani et *al.*, 1999). The survival estimates were based on both sexes combined, as sex has been shown to have relatively little effect on cancer survival if other risks factors and competing causes of death are adequately controlled for (Pisani et *al.*, 2002). Two sources of population-based survival were used:
      1. The *Cancer Survival in Developing Countries* project (Sankaranarayanan et *al.*, 1999) which provides cancer survival data for populations in The Philippines, Thailand, India and Cuba for all the sites considered.
      2. Uganda, Kampala (Gondos et *al*., in press) and Zimbabwe, Harare, Black population (Chokunonga et *al.*, in press) for 13 sites: Nasopharynx, Oesophagus, Stomach, Colorectal, Liver, Lung, Breast, Cervix uteri, Ovary, Prostate, Thyroid, Lymphomas and Kaposi sarcomas.

   For countries with no survival data, one of three estimates of 5-year relative survival rates was used. Pooled estimates of survival for Africa, Asia, and for all developing countries combined (DEV) were applied to countries in Africa, Asia and other regions, respectively.
   5B. The country-specific rates are calculated from the average of those of neighbouring countries in the same regions.

Estimate of mortality from Kaposi sarcoma in Africa

Mortality from Kaposi sarcoma in Africa was estimated using incidence and survival (Method 5A):

1. For Uganda and Zimbabwe, we used the KS survival from Kampala and Harare, Black population respectively.
2. For those countries with a cancer registry, and for which incidence rates of KS were available and representative of the country, we estimated mortality using survival based on a pooled average of Uganda and Zimbabwe (Africa).
3. For all other African countries, the following method was used:
   3a. We applied a set of estimated survival for the endemic (pre-AIDS) KS cases (Templeton et *al.*, 1975).
   3b. We applied the Zimbabwe, Harare, Black population survival rates to the epidemic (AIDS-related) KS cases.

Population

Estimates of the population of countries (by age and sex) for the year 2000 and 2005 were taken from the United Nations population projections (the 2002 revision). The populations figures for the year 2002 were estimated by calculating the annual percentage change by sex and age between the year 2000 and 2005.

Prevalence

The methods to estimate the sex age-specific prevalent **cases** by cancer for a country have been described in detail by Pisani et *al.* , 2002. Partial prevalence (1-,3- and 5-year prevalent cases) were obtained by combining the annual number of new cases and the corresponding probability of survival by time:

n P_j = *n* -years prevalent cases of age *j* years = $\sum_{i=1}^{n} I_{j-i+0.5} \, S_{j-i+0.5}^{(i-0.5)}$ where *n* is the number of incident years cumulated in the partial prevalence (estimates for *n* equal 1, 3 or 5 have been compiled), $I_{j-i+0.5}$ is the annual number of new cases of age (*j-i+0.5*) when diagnosed and $S_{j-i+0.5}$ is the proportion of cases of age (*j-i+0.5*) surviving (*i-0.5*) years after diagnosis.

For example, one-year prevalence at a fixed point in mid-2002 was estimated from the number of new cases in 2002 multiplied by the probability of surviving at least six months. The above formula indicates that age was taken into account in both the incidence and survival data. The number of new cases for each country were those described and presented in *GLOBOCAN 2002*. The observed survival rates by age, sex, cancer and country at one and five years were obtained from various sources, as described below. Generally, survival data were available as relative survival , which is the probability of dying from the cancer concerned, excluding other causes of death. Observed survival was estimated from such data using life table mortality rates appropriate for the countries or regions concerned. The same set of age and site-specific observed survival was used for males and females. One and five-year prevalence is presented as the number of living patients by sex and country, for the same 27 cancer sites for which incidence is available. Several sources of site-specific survival were used:

1. **Africa**: First results from the Uganda, Kampala (1993-1997) and Zimbabwe, Harare (1993-1997) cancer registries, which supplied survival for 13 cancer sites: Nasopharynx, Oesophagus, Stomach, Colorectal, Liver, Lung, Breast, Cervix uteri, Ovary, Prostate, Thyroid, Lymphomas and Kaposi sarcoma.
2. **China**: unweighted mean of Shanghai (1988-1991) and Qidong (1982-1991) cancer registries.
3. **India**: unweighted mean of Chennai (Madras) 1984-1989 and Mumbay (Bombay) 1992-1994 cancer registries.
4. **Other Developing countries** : The *Cancer Survival in Developing Countries* project by IARC, which provides cancer survival data for populations in The Philippines, Thailand and Cuba.
5. **Europe**: The EUROCARE-3 project providing figures from several European cancer registries for the period 1990-1994. Where possible, country-specific survival estimates were used, based on regional cancer registries, and four regional estimates were prepared for countries where no local survival data were available.
6. **Northern America** : The Surveillance, Epidemiology, and End Results (SEER) programme of the US (1992-1998).
7. **Japan**: results from the Aichi Cancer Registry (1991-1997).

8. **Australia** : Mean of the survival rates from New South Wales (1980-1995), Queensland (1982-1995) and South Autralia (1977-1983).

Country/Region	**Source of surival**
EASTERN AFRICA	Pooled Africa[2] and DEV[1]
MIDDLE AFRICA	Pooled Africa[2] and DEV[1]
NORTHERN AFRICA	Pooled Africa[2] and DEV[1]
SOUTHERN AFRICA	Pooled Africa[2] and DEV[1]
South African Republic	DEV[1]
WESTERN AFRICA	Pooled Africa[2] and DEV[1]
[3]CARIBBEAN	DEV[1]
CENTRAL AMERICA	DEV[1]
SOUTH AMERICA	DEV[1]
NORTHERN AMERICA	SEER
EASTERN ASIA	Pooled Asia
China	Country-specific
Japan	Country-specific
SOUTH EASTERN ASIA	Pooled Asia
SOUTH CENTRAL ASIA	Pooled Asia
India	Country-specific
WESTERN ASIA	Pooled Asia
Israel	Southern Europe
CENTRAL AND EASTERN EUROPE	Pooled C&E Europe
Czech Republic	Country-specific
Poland	Country-specific
Slovakia	Country-specific
NORTHERN EUROPE	Pooled Northern Europe
Denmark	Country-specific
Estonia	Country-specific
Finland	Country-specific
Iceland	Country-specific
Norway	Country-specific
Sweden	Country-specific
United Kingdom	Country-specific
SOUTHERN EUROPE	Pooled Southern Europe
Italy	Country-specific
Malta	Country-specific
Portugal	Country-specific
Slovenia	Country-specific
Spain	Country-specific
WESTERN EUROPE	Pooled Western Europe
Austria	Country-specific
France	Country-specific
Germany	Country-specific
The Netherlands	Country-specific
Switzerland	Country-specific

AUSTRALIA-NEW ZEALAND	
Australia	Country-specific
New Zealand	Australia
MELANESIA	DEV[1]
[3]MICRONESIA	DEV[1]
[3]POLYNESIA	DEV[1]

[1]Pooled estimate of all developing countries: Africa, Asia (including China and India) and Cuba.
[2]Zimbabwe: black population for Kaposi sarcoma.
[3]For Caribbean, Polynesia and Micronesia, where the total population of the area (Ta) is largely greater than the sum of the populations of the countries for which data are available (ta), the number of prevalent cases by sex and site have been adjusted by a factor Ta/ta.
References

References

1. Adib, S.M., Mufarrij, A.A., Shamseddine, A.I., Kahwaji, S.G., Issa, P., El-Saghir, N.S., Cancer in Lebanon: An Epidemiological Review of the American University of Beirut Medical Center Tumor Registry (1983-1994). Ann. Epidemiol., 8:46-51 (1998).
2. Argentina, Ministry of Health, National Department of Health Statistics.
3. Aye S.S., Cancer statistics, 1983-1985, Yangon Cancer Registry, Yangon General Hospital, Myanmar (1991).
4. Australian Institute of Health and Welfare (http://www.aihw.gov.au/).
5. Baade. P, Coory. M, Ring. I. Cancer survival in Queensland 1982 to 1995. Brisbane, Health Information Centre, Queensland Health. 2000.
6. Booth, H., Cooper, N. and Quinn, M. Registrations of cancer diagnosed in 2000, England. Office of National Statistics. (http://www.statistics.gov.uk/)
7. Bourdeaux, L., Renard, F., Gigase, P.L., Mukolo-Ndjolo, Maldague, P. and de Muynck, A. L'incidence des cancers à l'Hôpital de Katana, Kivu, Est-Zaïre, de 1983 à 1986. Ann. Soc. belge Méd. trop., 68, 141-156 (1988).
8. Bray, F. Sankila, R. Ferlay, J. and Parkin, D.M. (2002). Estimates of Cancer Incidence and Mortality in Europe in 1995. Eur. J. Cancer 38, 99-166
9. Brazil, Ministry of Health, National Health Foundation, Mortality Information System (DATASUS http://www.datasus.gov.br/).
10. Cancer Incidence for 1997 in Aichi Prefecture, Japan. Department of Health, Aichi Prefectural Government, 2001 (http://www.pref.aichi.jp/kenkotaisaku)
11. Cancer Incidence in Sri Lanka in 1995. Cancer Institute, Maharagama, Sri Lanka. National Cancer Control Programme, 2002.
12. Centro Nacional de Oncologia National Cancer Registry Annual Report (1991).
13. Departamento Administrativo Nacional de Estadisticas (DANE): Mortalidad 1995,1996,1997,1998,1999. Bogota, 2000
14. Doll, R., Payne, P., Waterhouse, J.A.H., eds (1966). Cancer Incidence in Five Continents, Vol. I. Union Internationale Contre le Cancer, Geneva
15. Epidemiology of Cancer in South Australia 1977-1999. South Australian Cancer Registry, 2000. (//http://www.dh.sa.gov.au/pehs/)
16. EUROCIM version 4.1. European Incidence Database V2.4, ICD-10 entity dictionary, Lyon 2003.
17. Ferlay, J., Bray, F., Sankila, R., Parkin, D.M., EUCAN: Cancer Incidence, Mortality and Prevalence in the European Union in 1998, version 5.0. IARC CancerBase No. 4. Lyon, IARCPress, 1999.
18. Finnish Cancer Registry. Cancer Incidence in Finland 2000 and 2001. Helsinki, Cancer Society of Finland Publication No 65, 2003.
19. Gloeckler Ries, L.A., Kosary, C.L., Hankey, B.F., Miller, B.A., Harras, A., Edwards, B.K. (eds), SEER Cancer Statistics Review 1973-1994. NIH Publication No 97-2789, US Dept of Health and Human Services, NCI, Bethesda, MD, USA (1997).
20. Gulf Center for Cancer Registration (GCCR), GCC Cancer Incidence 1999.
21. Gulf Center for Cancer Registration (GCCR), GCC Cancer Incidence 2000.
22. Hans Storm, Gerda Engholm, Jacques Ferlay, Frøydis Langmark, Elínborg Ólafsdóttir, Eero Pukkala, Mats Talbäck NORDCAN: Cancer Incidence and Mortality in the Nordic Countries, Version 2.0. Danish Cancer Society, 2003
23. Ireland, National Cancer Registry (http://www.ncri.ie/).
24. Israel National Cancer Registry (http://www.health.gov.il/icr/).
25. Lindtjorn, B., Cancer in Southern Ethiopa. J. Trop. Med. Hyg., 90, 181-187, (1987).
26. Mitacek, E.J., Vallieres, D.St. and Polednak, A.P. Cancer in Haiti 1979-84: Distribution of various forms of cancer according to geographical area and sex. Int. J. Cancer, 38, 9-16 (1986).
27. Mohagheghi M., and Mosavi-Jarrahi A.. The 3rd annual report of Tehran Metropolitan Area Cancer Registry. The

Cancer Institute Resaech Center Publicaion No. 14. 2002
28. Mqoqi, N., Kellet, P., Madhoo, J., Sitas, F., Incidence of Histologically Diagnosed Cancer in South Africa, 1996-1997, National Cancer Registry of South Africa, National Health Laboratory Service, Johannesburg, 2003
29. Newton, R., Ngilimana, P.J., Grulich, A., Beral, V., Sindikubwabo, B., Nganyira, A. and Parkin, D.M. Cancer in Rwanda. Int. J. Cancer, 66, 75-81 (1996).
30. New Zealand Health Information Service (http://www.nzhis.govt.nz/). Cancer: New Registrations and Deaths 1999.
31. Nze-Nguema, F., Sankaranarayanan, R., Barthelemy, M., Nguizi-Ogoula, S., Whelan, S., Minko-Mi and Etona, D.. Cancer in Gabon, 1984-1993: a pathology registry based relative frequency study. Bull. Cancer, 83, 693-696 (1996).
32. Paksoy N, Bouchardy C, Parkin DM. Cancer incidence in Western Samoa. Int J Epidemiol. 1991 Sep; 20(3):634-41.
33. Parkin, D.M., Whelan, S.L., Ferlay, J.,Teppo, L., Thomas, D.B. (eds), Cancer Incidence in Five Continents Vol. VIII, IARC Scientific Publications No. 155, IARC, Lyon, 2002.
34. Parkin, D.M., Whelan, S.L., Ferlay, J.,Raymond, L., Young, J. (eds), Cancer Incidence in Five Continents Vol. VII, IARC Scientific Publications No. 143, IARC, Lyon, 1997.
35. Parkin, D.M., Muir, C.S., Whelan, S.L., Gao, Y.T., Ferlay, J.,Powell, J. (eds), Cancer Incidence in Five Continents Vol. VI, IARC Scientific Publications No. 120, IARC, Lyon, 1992.
36. Parkin, D.M., (ed), Cancer occurence in developing countries, IARC Scientific Publications No. 75, IARC, Lyon, 1986.
37. Parkin, D.M., Pisani, P. and Ferlay, J. (1999) Estimates of the worldwide incidence of twenty-five major cancers in 1990. Int J. Cancer: 80, 827-841.
38. Parkin, D.M., Kramárová, E., Draper, G.J., Masuyer, E., Michaelis, J., Neglia, J.,Qureshi, S., Stiller, C.A., (eds), International Incidence of Childhood Cancer Vol.II. IARC Scientific Publications No. 144. IARC, Lyon, 1998.
39. Parkin, D.M., Ferlay, J., Hamdi-Chérif, M., Sitas, F., Thomas, J.O., Wabinga, H., Whelan, S.L., (eds), Cancer in Africa Epidemiology and Prevention. IARC Scientific Publications No. 153. Lyon, IARC, 2003.
40. Pisani, P., Parkin, D.M., Bray, F. and Ferlay, J. (1999) Estimates of the worldwide mortality from twenty-five cancers in 1990. Int. J. Cancer: 83, 18-29.
41. Pisani, P., Bray, F., Parkin, D.M. (2002) Estimates of the worldwide prevalence of cancer for twenty-five sites in the adult population. Int. J. Cancer: 97,72-81.
42. Sadjadi, A., Malekzadeh, R., Derakhshan, M.H., Sepehr, A., Nouraie, M., Sotoudeh, M., Yazdanbod, A., Shokoohi, B., Mashayekhi, A., Arshi, S., Majidpour, A., Babaei, M., Mosavi, A., Mohagheghi, M.M., Alimohammadian, M., Cancer occurrence in Ardabil: results of a population-based cancer registry from Iran. Int J Cancer. 2003 Oct 20;107(1):113-8.
43. Sankaranarayanan, R., Black, R.J., Parkin, D.M. (eds), Cancer Survival in Developing Countries, IARC Scientific Publications No 145, IARC, Lyon, 1999.
44. Sant, M., Aareleid, T., Berrino, F., Bielska Lasota, M., Carli, P.M., Faivre, J., Grosclaude, P., Hédelin, G., Matsuda, T., Møller, H., Möller, T., Verdecchia, A., Capocaccia, R., Gatta, G., Micheli, A., Santaquilani, M., Roazzi, P., Lisi, D., and the EUROCARE Working Group. EUROCARE-3: survival of cancer patients diagnosed 1990–94—results and commentary. Ann Oncol. 2003; 14 Suppl 5: v61-v118
45. Sen U., Sankaranarayanan R., Mandal S., Ramanakumar A.V., Parkin D.M., Siddiqi M. Cancer patterns in eastern India: the first report of the Kolkata cancer registry. Int J Cancer. 2002 Jul 1;100(1):86-91.
46. Surveillance, Epidemiology, and End Results (SEER) Program (http://www.seer.cancer.gov) Public-Use Data (1973-2000), National Cancer Institute, DCCPS, Surveillance Research Program, Cancer Statistics Branch, released April 2003, based on the November 2002 submission.
47. Templeton AC, Bhana D. Prognosis in Kaposi's sarcoma. J Natl Cancer Inst. 1975 Dec;55(6):1301-4
48. United Nations Population Division. World population Prospects: The 2000 Revision (http://www.un.org/)
49. Uruguay, Ministry of Public Health, Department of Vital Statistics. Comision Honoraria de Lucha contra el Cancer, Epidemiological Surveillance System.
50. US National Center for Health Statistics (http://www.cdc.gov/nchs).
51. Waterhouse, J.A.H., Muir, C.S., Correa, P. and Powell, J. (eds), Cancer Incidence in Five Continents Vol. III, IARC Scientific Publication No 15, IARC, Lyon (1976).
52. Waterhouse, J.A.H., Muir, C.S., Shanmugaratnam, K. and Powell, J. (eds), Cancer Incidence in Five Continents Vol. IV. IARC Scientific Publication No 42, IARC, Lyon (1982).
53. World Health Statistics Annual, World Health Organisation (WHO) Databank, Geneva, Switzerland. WHO Statistical Information System (http://www.who.int/whosis/)
54. Yang L., Parkin D.M., Li L.D., Chen Y.D., Bray F. Estimation and projection of the national profile of cancer mortality in China: 1991-2005. Br J Cancer. 2004 Jun 1;90(11):2157-66.
55. Yu XQ, O'Connell DL, Gibberd RW, Smith DP, Armstrong BK. Cancer survival, incidence and mortality by Area Health Service in NSW 1994 to 2000. Sydney: The Cancer Council NSW, 2003 (http://www.nswcc.org.au/)
56. Zarihah M.Z., Mohd. Yusoff H., Devaraj T., Rokiah M., Aishah K., Rafidah M.N., Chan C.K., Nor Asikin A.K. Penang Cancer Registry Report 1994-1998. Penang Cancer Registry (2003) (http://www.moh.gov.my/JKNPenang)