

# 1. Introduction

Africa was the birthplace of mankind. It is estimated that *Homo sapiens* and his ancestors were confined to the African continent for most of their evolutionary period before migration began to other areas of the world some 140 000 years ago. As a result of the long period of evolutionary history in Africa, there is more genetic diversity between populations living within the African continent than between Africans and the rest of mankind (Cavalli-Sforza, 1997). Not only do populations within Africa vary considerably with respect to their genes, but across the continent there is a very wide range of environments, in terms of climate, vegetation (12 of 16 vegetation zones defined by Matthews (1983) are represented) and zoology (including micro-organisms and human parasites). For all of these reasons, one might expect a wide diversity of cancer patterns, the study of which would be illuminating to our understanding of the causes of human cancer.

Alas, knowledge of cancer patterns in Africa is woefully inadequate, as anyone who has tried to obtain reasonably accurate estimates of cancer risk in different areas can attest. Until quite recently, knowledge of cancer patterns was based primarily on the work of pioneering clinicians and pathologists who described the composition of series of cancer patients encountered in their professional lives, in terms of age, sex, cancer site and histology. These clinical and pathological case series enriched the literature in the 1950s and 1960s, and were the subject of several reviews that drew together information on the relative frequency of different types of cancer in different areas, to piece together some sort of overall picture. Several of these reviews bear the title, like this book, of 'Cancer in Africa' (Oettlé, 1964; Clifford *et al.*, 1968; Cook & Burkitt, 1971).

Unfortunately, comparisons based upon relative frequency of different cancers in case series can be very misleading. Almost all case series will be biased in terms of the probability that the different cancers occurring in the population will be included. Pathology series overrepresent those cancers that are readily biopsied and are correspondingly deficient in cancers such as liver, pancreas or brain, compared with the real incidence in the population. Hospital series are biased by the clinical facilities available (radiotherapy series always include, for example, many cancers of the head and neck and of the cervix, and few gastro-intestinal cancers). What is more, use of proportions (or percentages) of different cancers as the statistic for comparison introduces a further problem: since the total must always be 1 (or 100), so that if one cancer is 'common', all others in the series will appear to be rare, with respect to the comparison populations (see Boyle & Parkin, 1991).

The appropriate statistic for making comparisons of risk between populations is the incidence rate (although mortality rates may be used for the purpose for cancers with a high fatality or if incidence rates are not available). Incidence rates derive from population-based cancer registries, which aim to record information on *all* new cases of cancer which occur in a defined population (characterized, as a minimum, in terms of population size by age group and sex). The history of cancer registration in Africa, since the earliest registries set up in the 1950s, has, until fairly recently, been a sparse one. Cancer registration in economically under-

developed populations, such as all of the countries of northern and sub-Saharan Africa, is a difficult undertaking for a variety of reasons. The major problem is ensuring that every new case of cancer is identified. Cases can only be found when they come into contact with health services: hospitals, health centres, clinics and laboratories. When resources are restricted, the proportion of the population with access to such institutions may be limited, so that the statistics generated will not truly reflect the pattern of cancer. The ease with which the cases can be identified also depends on the extent of medical facilities available and the quality of statistical and record systems already in place (e.g., pathology request forms, hospital discharge abstracts, treatment records, etc.).

A further problem is to identify the 'usual' place of residence of the cancer patients so that, when incidence rates are calculated, the cases belonging to the population at risk can be selected. Place of residence is not an obvious concept in some African communities; especially in East and South Africa, individuals living and working in urban areas retain attachments to their home village, to which they may return intermittently, and permanently as they get older. On the other hand, persons normally living in rural areas frequently come to town to stay with a relative before visiting a hospital; the address given to the hospital will often be that of the city relative. Valid population estimates are also difficult to obtain. Censuses are infrequent (and also face problems of whom to include as residents of a particular area) and extensive, transient migrations make accurate intercensal and post-censal estimation problematic.

It is impossible to know, without an extensive population survey, what proportion of cancer cases never come into contact with modern diagnostic or treatment services, instead making use only of traditional healers or receiving no care at all. In the past, studies have suggested that some sections of the population may have been under-represented in hospital statistics, particularly older women or young men, who were more likely to return to their rural 'homes' to seek care (Flegg Mitchell, 1966). However, the consensus is that this is probably rather rare in contemporary urban Africa. Most cancer patients will, eventually, seek medical assistance, although very often at an advanced stage of disease. The situation in rural areas may be quite different. There have been few attempts to measure cancer incidence in rural populations, and certainly, when it has been tried, the recorded rates are low. For this reason, African cancer registries are almost all based on urban centres, where diagnostic and treatment facilities are situated. The main technical problem (as already noted) is then to exclude registration of 'temporary' residents, migrating into the urban area for treatment. From an epidemiological point of view, one must guess at how well the cancer profile from the urban areas reflects that in the country as a whole, given what is known of urban-rural differences in cancer patterns in other areas of the world (Nasca *et al.*, 1980; Friis & Storm, 1993).

A further problem is the lack of trained personnel. There is very often a shortage not only of epidemiologists and statisticians to design and operate information systems, but also of suitably trained personnel to man the statistical infrastructure at all levels.

Health information systems—such as medical records departments—have been automated only very recently, if at all, and manual filing and processing leads to long delays, problems of quality control, lack of feedback and disillusionment of those responsible for collecting information.

Finally, it should be recalled that in most developing countries cancer has not been a priority for health ministries; nutritional, parasitic and infectious diseases have presented a greater and more immediate challenge. The level of interest in and development of cancer statistics may reflect the low priority that has been given to malignant disease in the past. Some of the problems in the collection and analysis of data on cancer cases have been reviewed (Olweny, 1985; Parkin & Sanghvi, 1991).

The development of registration can, to some extent, be gauged by the availability of incidence data through the *Cancer Incidence in Five Continents* series, which publishes data considered to be sufficiently complete and accurate to allow valid comparisons between geographical regions, ethnic groups, and over time. Table 1 shows the number of African cancer registries and different populations (a registry may provide rates on two or more ethnic groups, for example) in volumes I–VIII of this series.

**Table 1. Cancer registries in *Cancer Incidence in Five Continents***

Volume	Period	Registries	Populations
I	1950s	4	4
II	1956–67	4*	7
III	1968–72	2*	2
IV	1973–77	1	1
V	1978–82	0	0
VI	1983–87	3	3
VII	1988–92	5	6
VIII	1993–97	6	6

\* One updates the entry in previous volumes

The low point was reached in 1978–82 (Volume V) which might have been retitled as 'Cancer Incidence in Four Continents', since there was no contribution from Africa at all. Since then, as Table 1 shows, there has been a slow improvement with, in 1993–97, six cancer registries qualifying, although others might have done so, had reasonable data on populations at risk been available in what, for most countries, was a period during which no census had been carried out.

In this volume, we have included a description of all current cancer registration activity in Africa, as well as past activity. The tables showing incidence of cancer by site include data from the six cancer registries appearing in *Cancer Incidence in Five Continents*, Volume VIII (Parkin *et al.*, 2002), as well as from several others which provide data useful for comparison purposes. Some registries have been established only recently (their results will probably appear in *Cancer Incidence in Five Continents*, Volume IX) or use somewhat shaky population estimates. The results from other registries were considered to be too dependent upon histopathology data, or probably somewhat incomplete, although they provide useful 'lower bound' estimates of the true incidence for several cancer sites. Results from registries for which no realistic population at risk could be derived, or for which calculated rates were considered by the editors to be too misleading, are simply reproduced as tables showing numbers of cases, by age group and sex, with the percentage frequencies by site and sex.

These recent data are presented country by country, within the five 'areas' used by the United Nations Population Division in presenting demographic statistics (Northern, Western, Middle (Central), Eastern and Southern Africa). The countries comprising these 'areas' may be different from those in other regional groupings—for example, Zimbabwe (and Zambia) are grouped with Eastern Africa, although considered in many other contexts as part of Southern Africa. Within these country chapters, other available data on the cancer profile are also presented. These include cancer mortality rates, plus historical data from cancer registries or, when no incidence data are available, published case series which give some clue as to the likely cancer profile.

With respect to mortality data, the situation in Africa is even more dismal than for incidence. Death registration and medical certification of cause of death are neither feasible nor a statutory requirement in almost all countries, and deaths are generally registered only for a definite purpose, such as inheritance or insurance claims. Reasonably complete and accurate statistics on mortality by cause are available only for Mauritius and the French overseas department of Reunion. The background to death registration in South Africa is described in the chapter on that country. It has never been complete, particularly for the rural black population. Nevertheless, something could be made of the data, at least until the 'race' variable was removed from the death certificate for several years after the end of the apartheid regime in 1994.

To accompany the country-by-country description of cancer profiles, a little background material on each country is presented. The brief synopsis on climate, geography, natural resources etc. has been taken from the on-line version of the World Factbook of the United States Central Intelligence Agency (<http://www.odci.gov/cia/publication/factbook/index.html>), editing out that organization's economic and social nostrums. Here, we also present some summary statistical data on each of the 53 countries in Africa (Table 2). These have been taken from the UN Demographic Yearbook for 2000 (UN, 2002). Included in Table 2 are:

- Population size (by sex)
- Percentage of the population aged less than 15 (children), 15–24, and 65+ years
- Annual average percentage growth rate (1995–2000)
- Crude birth rate
- Fertility rate
- Crude death rate
- Infant mortality rate
- Expectation of life at birth (by sex)

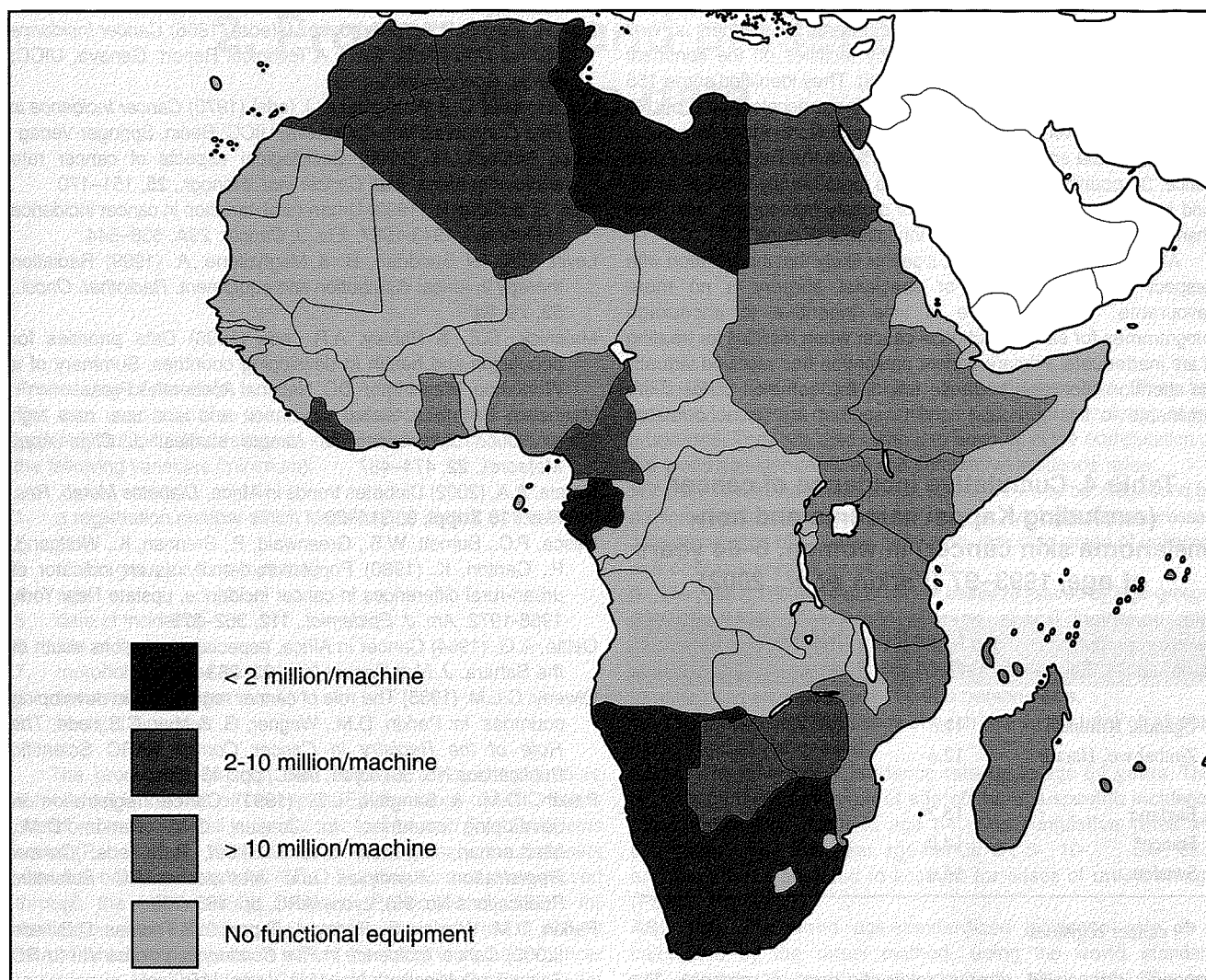
In addition to the 'country profiles', this volume includes reviews of the epidemiology and prevention of 19 major cancers of importance on the African continent, together with chapters on cancer in children and cancers related to AIDS. These chapters bring together all the descriptive data from Part 1, notably in cancer-specific tables summarizing recent estimates of incidence and, for certain cancers, the proportions of different histological subtypes in the different registry series. Historic data on incidence (or mortality) of the cancer are reviewed (Table 3). In addition, we have carried out what we hope is an exhaustive review of the literature on the epidemiology and prevention of each of these cancers in the African context. This review omits published articles which are simply descriptions of case series in different clinical settings (unless such data are the only pertinent material relating to the epidemiology of the cancer), but we hope that very little else of significance has been missed. The authors of any papers that have been overlooked are asked for their indulgence in advance. These chapters also include a description of geographical patterns (and sometimes ethnic and temporal variation) and of etiological studies. Few reports have been identified related to research on cancer prevention in Africa (and, for that matter, not a single study that has investigated cancer survival in a representative (population-based) sample of cancer patients). This surely reflects the low priority

**Table 2. Demographic statistics: 2000**

Country	Country code	Population (2000)						Average annual population growth rate (%)	Crude birth rate (per 1000 population) 1995-2000	Total fertility (children per woman) 1995-2000	Crude death rate (per 1000 population) 1995-2000	Infant mortality (deaths per 1000 live births) 1995-2000	Male expectation of life at birth (in years) 1995-2000	Female expectation of life at birth (in years) 1995-2000
		Both sexes	Male	Female										
		All ages	All ages	All ages	% 0-14	% 15-24	% 65+							
<b>AFRICA</b>	<b>903</b>	<b>793,627</b>	<b>396,374</b>	<b>397,253</b>	<b>42.6%</b>	<b>20.3%</b>	<b>3.3%</b>	<b>2.41</b>	<b>38.7</b>	<b>5.3</b>	<b>14.1</b>	<b>91.2</b>	<b>50.3</b>	<b>52.4</b>
<b>North Africa</b>	<b>912</b>	<b>174,150</b>	<b>87,955</b>	<b>86,195</b>	<b>35.6%</b>	<b>20.7%</b>	<b>4.1%</b>	<b>1.86</b>	<b>27.6</b>	<b>3.6</b>	<b>7.5</b>	<b>57.7</b>	<b>63.0</b>	<b>66.1</b>
Algeria	12	30,291	15,346	14,945	34.8%	21.7%	4.1%	1.82	25.7	3.3	5.7	50.0	67.5	70.3
Egypt	818	67,884	34,364	33,521	35.4%	20.3%	4.1%	1.82	26.2	3.4	6.8	50.8	64.7	67.9
Libyan Arab Jamahiriya	434	5,290	2,741	2,549	33.9%	23.7%	3.4%	2.13	26.4	3.8	4.7	27.8	68.3	72.2
Morocco	504	29,878	14,964	14,914	34.7%	20.6%	4.1%	1.87	26.8	3.4	6.6	52.2	64.8	68.5
Sudan	736	31,095	15,639	15,457	40.1%	19.7%	3.4%	2.13	36.1	4.9	12.2	85.9	53.6	56.4
Tunisia	788	9,459	4,776	4,682	29.7%	21.1%	5.9%	1.12	18.7	2.3	6.7	30.3	68.4	70.7
<b>West Africa</b>	<b>914</b>	<b>224,189</b>	<b>112,388</b>	<b>111,801</b>	<b>44.8%</b>	<b>20.3%</b>	<b>3.0%</b>	<b>2.67</b>	<b>42.3</b>	<b>5.9</b>	<b>15.1</b>	<b>96.0</b>	<b>49.3</b>	<b>50.7</b>
Benin	204	6,272	3,092	3,180	46.4%	20.3%	2.7%	2.66	42.8	6.1	13.1	87.7	51.8	55.3
Burkina Faso	854	11,535	5,576	5,959	48.7%	20.8%	3.2%	2.32	46.7	6.9	17.9	99.1	44.2	46.2
Cape Verde	132	427	199	228	39.3%	21.6%	4.6%	2.30	31.8	3.6	6.4	55.6	65.5	71.3
Côte d'Ivoire	384	16,013	8,206	7,807	42.1%	21.5%	3.1%	2.14	36.0	5.1	15.4	89.0	47.4	48.1
Gambia	270	1,303	644	658	40.3%	17.9%	3.1%	3.11	40.4	5.2	18.5	125.3	44.0	46.8
Ghana	288	19,306	9,613	9,692	40.9%	21.4%	3.2%	2.20	34.0	4.6	10.8	68.6	55.0	57.6
Guinea	324	8,154	4,102	4,052	44.1%	20.1%	2.8%	2.13	45.7	6.3	18.2	124.2	46.0	47.0
Guinea-Bissau	624	1,199	591	608	43.5%	18.7%	3.6%	2.14	44.8	6.0	20.4	130.8	42.7	45.5
Liberia	430	2,913	1,465	1,448	42.7%	25.0%	2.9%	7.07	50.1	6.8	16.6	111.4	47.1	49.0
Mali	466	11,351	5,624	5,727	46.1%	19.7%	4.0%	2.68	49.9	7.0	18.5	130.3	49.8	51.8
Mauritania	478	2,665	1,321	1,344	44.1%	19.7%	3.2%	3.16	43.5	6.0	15.4	105.6	48.9	52.1
Niger	562	10,832	5,459	5,373	49.9%	19.5%	2.0%	3.46	55.4	8.0	20.7	136.1	43.9	44.5
Nigeria	566	113,862	57,383	56,479	45.1%	20.2%	3.0%	2.74	41.7	5.9	14.1	88.1	51.0	51.5
Senegal	686	9,421	4,697	4,723	44.3%	20.0%	2.5%	2.54	39.5	5.6	13.0	62.4	50.5	54.2
Sierra Leone	694	4,405	2,165	2,239	44.2%	19.2%	2.9%	1.53	49.5	6.5	26.4	165.4	36.0	38.6
Togo	768	4,527	2,248	2,279	44.3%	20.3%	3.1%	3.27	40.5	5.8	13.9	83.1	50.1	52.6
<b>Central Africa</b>	<b>911</b>	<b>95,404</b>	<b>47,240</b>	<b>48,164</b>	<b>47.2%</b>	<b>19.2%</b>	<b>3.1%</b>	<b>2.61</b>	<b>46.0</b>	<b>6.4</b>	<b>16.2</b>	<b>98.2</b>	<b>47.5</b>	<b>50.2</b>
Angola	24	13,134	6,499	6,635	48.2%	19.0%	2.8%	2.94	51.0	7.2	20.2	126.2	43.3	46.0
Cameroon	120	14,876	7,405	7,471	43.1%	20.6%	3.7%	2.28	37.6	5.1	14.8	87.3	49.1	50.8
Central African Republic	140	3,717	1,811	1,907	43.0%	19.8%	4.0%	2.10	39.6	5.3	19.1	101.2	42.7	46.0
Chad	148	7,885	3,900	3,985	46.5%	19.1%	3.1%	3.15	48.4	6.7	19.6	122.5	43.9	46.4
Congo	178	3,018	1,478	1,540	46.3%	19.2%	3.3%	2.96	44.5	6.3	14.7	72.1	48.8	53.1
Democratic Republic of the Congo	180	50,948	25,245	25,703	48.8%	18.9%	2.9%	2.56	47.7	6.7	15.0	90.6	49.2	51.9
Equatorial Guinea	226	457	225	231	43.7%	18.3%	3.9%	2.68	43.2	5.9	16.5	107.7	48.4	51.6
Gabon	266	1,230	609	621	40.2%	17.1%	5.8%	2.63	37.8	5.4	15.8	87.7	51.2	53.7

Table 2 (Contd). Demographic statistics: 2000

Country	Country code	Population (2000)						Average annual population growth rate (%)	Crude birth rate (per 1000 population)	Total fertility rate (children per woman)	Crude death rate (per 1000 population)	Infant mortality (deaths per 1000 live births)	Male expectation of life at birth (in years)	Female expectation of life at birth (in years)
		Both sexes		Male		Female								
		All ages	All ages	All ages	% 0-14	% 15-24	% 65+							
<b>East Africa</b>	<b>910</b>	<b>250,318</b>	<b>124,381</b>	<b>125,938</b>	<b>45.3%</b>	<b>20.3%</b>	<b>2.9%</b>	<b>2.67</b>	<b>43.0</b>	<b>6.1</b>	<b>17.5</b>	<b>103.1</b>	<b>44.8</b>	<b>46.5</b>
Burundi	108	6,356	3,088	3,268	47.6%	20.5%	2.9%	0.89	43.1	6.8	21.3	120.0	39.6	41.5
Comoros	174	706	354	352	43.0%	21.5%	2.6%	2.95	38.9	5.4	9.5	76.3	57.4	60.2
Djibouti	262	632	297	335	43.2%	19.4%	3.2%	2.96	40.7	6.1	18.0	116.6	43.9	46.9
Eritrea	232	3,659	1,817	1,842	43.9%	19.2%	2.9%	2.75	40.9	5.7	14.0	89.3	50.1	53.0
Ethiopia	231	62,908	31,259	31,649	45.2%	19.1%	3.0%	2.55	44.6	6.8	19.0	114.8	43.6	45.4
Kenya	404	30,669	15,273	15,396	43.5%	22.7%	2.8%	2.32	35.4	4.6	12.1	64.7	51.2	53.2
Madagascar	450	15,970	7,943	8,028	44.7%	19.2%	3.0%	2.94	44.0	6.1	14.7	100.2	50.5	52.8
Malawi	454	11,308	5,617	5,692	46.3%	20.0%	2.9%	2.42	47.2	6.8	22.2	139.8	40.7	40.7
Mauritius	480	1,161	579	583	25.6%	18.2%	6.2%	0.83	17.1	2.0	6.7	18.5	66.9	74.8
Mozambique	508	18,292	9,042	9,251	43.9%	19.7%	3.2%	2.31	44.7	6.3	22.4	136.7	39.4	41.8
Réunion	638	721	352	369	28.1%	17.4%	6.7%	1.67	19.9	2.3	5.7	9.0	69.4	78.3
Rwanda	646	7,609	3,765	3,844	44.3%	22.2%	2.6%	8.48	42.4	6.2	21.7	121.9	38.7	40.2
Somalia	706	8,778	4,358	4,420	48.0%	19.3%	2.4%	3.56	52.3	7.3	18.5	122.3	45.4	48.5
Tanzania, United Republic of	834	35,119	17,422	17,697	45.0%	20.6%	2.4%	2.58	40.4	5.5	13.3	81.3	50.0	52.3
Uganda	800	23,300	11,625	11,676	49.2%	20.1%	2.5%	2.95	50.4	7.1	20.3	106.5	41.4	42.5
Zambia	894	10,421	5,236	5,185	46.5%	20.7%	2.9%	2.46	43.8	6.1	20.7	93.6	40.9	40.1
Zimbabwe	716	12,627	6,315	6,313	45.2%	21.8%	3.2%	1.91	37.4	5.0	18.0	65.0	43.2	42.7
<b>Southern Africa</b>	<b>913</b>	<b>49,567</b>	<b>24,411</b>	<b>25,156</b>	<b>35.0%</b>	<b>20.6%</b>	<b>3.6%</b>	<b>1.61</b>	<b>27.8</b>	<b>3.3</b>	<b>11.5</b>	<b>63.0</b>	<b>52.9</b>	<b>57.9</b>
Botswana	72	1,541	755	787	42.1%	22.5%	2.8%	1.61	33.6	4.4	17.0	73.9	43.8	44.7
Lesotho	426	2,035	1,009	1,026	39.3%	19.8%	4.2%	1.69	35.0	4.8	14.6	108.1	50.7	51.6
Namibia	516	1,757	868	889	43.7%	19.6%	3.8%	2.06	37.6	5.3	17.6	78.5	44.9	45.3
South Africa	710	43,309	21,323	21,986	34.0%	20.6%	3.6%	1.57	26.7	3.1	10.8	58.2	53.9	59.5
Swaziland	748	925	456	469	41.6%	20.5%	3.5%	2.04	35.6	4.8	14.0	86.9	49.3	52.2



**Figure 1.** Radiotherapy services in Africa  
From Levin *et al.* (1999)

which cancer has been accorded among the health and welfare problems facing African governments, and the international agencies involved in dealing with them.

In fact, a review of the policy documents published by the major agencies advising on (and financing) health care for the people of Africa shows no concern for the care of persons suffering from

**Table 3. Sources of historic incidence data (1953–74) in Chapter 4**

No.	Source
1	Doll <i>et al.</i> , 1966 ( <i>Cancer Incidence in Five Continents</i> vol. I)
2	Doll <i>et al.</i> , 1970 ( <i>Cancer Incidence in Five Continents</i> vol. II)
3	Waterhouse <i>et al.</i> , 1976 ( <i>Cancer Incidence in Five Continents</i> vol. III)
4	Waterhouse <i>et al.</i> , 1982 ( <i>Cancer Incidence in Five Continents</i> vol. IV)
5	Wabinga <i>et al.</i> , 2000
6	Skinner <i>et al.</i> , 1993

cancer. The European Union's Directorate of Development ([http://europa.eu.int/comm/development/sector/social/hap\\_policy\\_en.htm](http://europa.eu.int/comm/development/sector/social/hap_policy_en.htm)) gives priority to family planning, sexual and reproductive health and communicable disease (HIV/AIDS, malaria and tuberculosis). USAID (Malanick & Pebley, 1996) defines four strategic objectives—reduction of unintended pregnancies, maternal mortality, infant and child mortality, and sexually-transmitted disease (with a focus on HIV). The World Bank (1994) believes that better health in Africa will be achieved by reformed health care systems concentrating on basic health services delivered largely through local health centres and district hospitals.

From the purely objective point of view, concentration upon health problems in Africa that have been largely solved in the developed world (infant and child mortality, maternal mortality, infectious diseases) appears eminently reasonable. Unfortunately, these 'old' diseases co-exist in Africa with the emergence of new ones, most evidently AIDS, but also some of the non-communicable diseases, such as hypertension, diabetes and accidents/violence (Motala, 2002; Seedat, 2000; Reza *et al.*, 2001; Walker *et al.*, 2000) as well as cancer. Cancer is not a rare disease in Africa. Even ignoring the huge load of AIDS-related Kaposi sarcoma, the probability of developing a cancer by age 65 years in a woman living in present-day Kampala or Harare is only about 20% lower than that of her sisters in western Europe (Table 4). Yet the facilities for providing treatment for cancer cases in most of Africa are minimal.

This paucity of specialized treatment for cancer is well illustrated by a survey of radiotherapy facilities on the continent undertaken in 1998 by Levin *et al.* (1999). They identified some 155 megavoltage machines (cobalt units or linear accelerators), but 79 of these (51%) were in just four countries of North Africa (Morocco, Algeria, Tunisia and Egypt) and 40 (26%) in the Republic of South Africa. 34 countries (out of 56) had no radiotherapy facilities at all, and in many others, provision was grossly inadequate, with less than one machine per 10 million inhabitants (Figure 1).

Although there are no data, it seems likely that the situation with respect to chemotherapy or specialist surgery is no more favourable. In turn, there is little incentive to encourage programmes for early detection of cancer when facilities for treating it are inadequate. Primary cancer prevention has received virtually no attention, not least because few of the common cancers are amenable to this approach, and those that are (tobacco-related

**Table 4. Cumulative incidence of cancer (excluding Kaposi sarcoma and non-melanoma skin cancer) in women, 0–64 years of age, 1993–97 (Parkin *et al.*, 2002)**

	Cumulative incidence (0–64 years) %
Uganda, Kampala	11.3
Zimbabwe, Harare	12.6
England	15.2
France*	14.0
Sweden	14.4

\* 9 cancer registries

cancers, especially) remain relatively rare, at present. The exception is liver cancer, largely preventable by vaccination, as discussed in the relevant chapter, but where logistic problems and competing priorities have slowed implementation.

Hopefully, as the 21st century advances, cancer sufferers in Africa will receive more attention to their plight than has been evident in the past. The World Health Organization (2002) encourages all countries to implement a national cancer control programme within a comprehensive, systemic framework, comprising prevention, early diagnosis, screening, curative therapy, pain relief and palliative care. Appropriate decision-making can only be based upon the availability of epidemiological and programmatic data. It is hoped that this book will provide researchers and policy makers with this type of information, as best it exists in Africa today.

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