EASTERN CAPE PROVINCE CANCER REGISTRY TECHNICAL REPORT

Cancer incidence in selected municipalities of the
Eastern Cape Province
2003–2007

SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

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Eastern Cape Province Cancer Registry
Technical Report

Cancer incidence in selected municipalities of the Eastern Cape Province, 2003–2007

August 2013

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Designed by Dermot Petersen

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The following hospitals are collaborating with the Registry:

HOSPITALS IN REGISTRATION AREA

North-Eastern Region

Bizana	St Patrick's & Greenville Hospitals
Lusikisiki	St Elizabeth, Holy Cross and Bambisana Hospitals

South-Western Region

Butterworth	Butterworth Hospital
Centane	Tafalofefe Hospital
Nqamakwe	Nqamakwe Health Day Centre

REFERRAL HOSPITALS

Eastern Cape Province Hospitals

East London	Oncology Radiation Unit, Paediatric Unit and Haematology Department, Frere Hospital
Mthatha	Oncology Unit, Nelson Mandela Medical School, Nelson Mandela Pathology Laboratory, Mthatha General Hospital Complex

KwaZulu-Natal Hospitals

Durban	Inkosi Albert Luthuli Comprehensive, King George V Cardio-Thoracic Surgery Unit, Addington Oncology and Radiotherapy Department
Kokstad	Usher Memorial Hospital

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EXECUTIVE SUMMARY

The South African Medical Research Council has maintained a register of cancer patients living in a rural area of the Eastern Cape Province for more than 20 years. The main objective of the register is to provide timely, complete, comparable and high-quality cancer data to policy makers, health professionals, researchers, non-governmental organisations (NGOs) and communities to improve the health of the people living in this area. This observational study has developed steadily and currently includes eight magisterial areas of the Eastern Cape Province. Cancer incidence for the period 2003–2007 is reported, following the initial report for the period 1998–2002.

Both active and passive methods were used to collect data from collaborating hospitals and the pathology laboratory. Cancer sites were manually coded for topography and morphology according to the International Classification of Diseases for Oncology (ICD-O), and captured using CanReg4, a computer program designed by the Unit of Descriptive Epidemiology of the International Agency for Research on Cancer. Only malignant cases were included in the analysis. Duplicates were carefully assessed to clarify whether they were new malignancies, secondary cancers or duplicate information. The geographic information was coded according to a list of village codes based on the 1985 census and has been amended with any new residential areas that have formed. The 2001 census, projected to 2005 based on the age specific population growth rates between 1996 and 2001, was used as a base for the population estimates to calculate the incidence rates for each magisterial area. A direct method of age standardisation was used, using the World Standard Population to allow for differing population age structures between the magisterial areas as well as comparison with other studies.

A total of 2 808 cases were observed during the period 2003–2007, of which 1 113 (39.6%) were males and 1 695 (60.4%) were females with an average annual number of 222.6 and 338.8 males and females, respectively. The average number of cases per year was 561.4. Fifty-four per cent of the cases came from the hospitals inside the registration area and a further 4.3% were identified at the state pathology laboratory (Nelson Mandela Pathology Laboratory) servicing the area. Referral hospitals in the Eastern Cape Province (Mthatha and Frere), but outside of the registration area, contributed 34.9% whereas KwaZulu-Natal hospitals (Inkosi Albert Luthuli, Addington, King George V) contributed only 6.4%.

The number of reported cancers and the percentage distribution of the 10 leading cancers for males and females, for the period 2003–2007, are shown in Table S1. Among males, oesophagus cancer is the most commonly diagnosed cancer and accounts for 42.2% of the total cancers, whereas in females, cervical cancer is the most common, accounting for 34.0% of the total cancers reported. There were relatively few Kaposi sarcoma cases in spite of the HIV/AIDS epidemic.

Table S1: Percentage distribution of the top 10 cancers by sex, 2003–2007

	Males			Females	
Site (ICD-O)	**Numbers**	**%**	**Site (ICD-O)**	**Numbers**	**%**
Oesophagus (C15)	475	42.2	Cervix (C53)	572	34.0
Prostate (C61)	105	9.4	Oesophagus (C15)	531	31.6
Lung (C33-C34)	68	6.1	Breast (C50)	173	10.3
Larynx (C32)	49	4.4	Kaposi sarcoma (C46)	31	1.8
Kaposi sarcoma (C46)	42	3.8	Liver (C22)	28	1.7
Liver (C22)	38	3.4	Colo-rectum (C18; C20)	26	1.6
Mouth (C03-06)	32	2.9	Corpus Uteri (C54)	24	1.4
Tongue (C01-02)	31	2.8	Ovary (C56)	21	1.2
Colo-rectum (C18; C20)	25	2.3	Lung (C33-C34)	20	1.2
Eye (C69)	17	1.5	Non-Hodgkin Lymphoma (C82-C85; C96)	17	1.0
Leading 10 sites	**882**	**79.3**	**Leading 10 sites**	**1 443**	**85.8**
Other & unspecified	54	4.9	Other & unspecified	39	2.3
Remaining sites	176	15.8	Remaining sites	199	11.8
Total	**1 112**	**100.0**	**Total**	**1 681**	**100.0**

The proportions and incidence rates of the top cancers in males as well as Kaposi sarcoma and liver cancer are shown in Table S2. Oesophageal cancer remains the important across the region, but incidence rates vary with the highest rates continuing to be experienced in Centane (ASR 54.3 per 100 000) and Lusikisiki (ASR 50.6 per 100 000). High incidence rates were also observed in Butterworth (ASR 42.0 per 100 000), Bizana (ASR 32.2 per 100 000), Idutywa (ASR 26.2 per 100 000) and Willowvale (ASR 22.4 per 100 000). Flagstaff (ASR 17.6 per 100 000) and Nqamakwe (ASR 17.0 per 100 000) had the lowest incidence rates. While Nqamakwe rates actually showed a decrease, Flagstaff remained relatively unchanged.

Table S2: Proportion of total cancers and ASR (per 100 000 population) of the top five cancers by magisterial areas and period for males

Males		Proportion of total cancers and (ASR per 100 000 population)				
Magisterial area	**Period**	**Oesophageal**	**Prostate**	**Lung**	**Liver**	**Kaposi sarcoma**
Bizana	2003–2007	40.4 (32.2)	8.6 (5.8)	7.3 (5.2)	6.6 (5.4)	12.6 (8.1)
	1998–2002	48.4 (37.2)	3.2 (2.1)	11.5 (9.6)	6.4 (4.9)	4.5 (3.3)
Flagstaff	2003–2007	36.1 (17.6)	8.3 (3.3)	4.2 (2.2)	5.6 (2.7)	6.9 (3.2)
	1998–2002	38.1 (17.2)	3.2 (1.4)	7.9 (3.9)	12.7 (4.2)	6.3 (2.2)
Lusikisiki	2003–2007	42.2 (50.6)	11.8 (27.8)	4.5 (5.3)	3.8 (4.3)	3.1 (4.1)
	1998–2002	51.7 (43.4)	3.5 (2.5)	4.8 (3.8)	10.0 (7.8)	2.6 (2.0)
Butterworth	2003–2007	40.5 (42.0)	5.2(7.0)	9.2 (8.5)	3.3 (3.2)	0.7 (0.5)
	1998–2002	28.7 (32.1)	13.3 (15.4)	8.0 (8.7)	2.0 (1.9)	1.3 (1.1)
Centane	2003–2007	60.3 (54.3)	11.5 (8.2)	5.1 (5.6)	0.6 (0.6)	1.3 (1.1)
	1998–2002	57.1 (48.5)	7.9 (5.0)	5.0 (4.5)	4.3 (5.3)	0.0 (0.0)
Idutywa	2003–2007	39.6 (26.2)	4.0 (1.4)	5.9 (4.0)	3.0 (2.2)	0.0 (0.0)
	1998–2002	34.1 (20.6)	7.1 (3.8)	7.1 (3.8)	2.4 (1.0)	2.4 (1.6)
Nqamakwe	2003–2007	32.5 (17.0)	8.8 (4.8)	8.8 (4.6)	0.0 (0.0)	5.0 (3.3)
	1998–2002	34.5 (27.3)	8.2 (5.6)	9.1 (8.0)	6.4 (4.6)	0.9 (1.0)
Willowvale	2003–2007	39.3 (22.4)	13.4 (7.0)	5.4 (3.3)	3.6 (2.2)	1.8 (2.0)
	1998–2002	40.2 (20.0)	9.2 (3.6)	5.7 (3.4)	3.4 (1.7)	0.0 (0.0)

The proportions and incidence of the top cancers in females as well as Kaposi sarcoma and liver cancer are shown in Table S3. Cervical and oesophageal cancers had the highest incidence rates and dominated the other cancers (Table S3). Cervical cancer accounted for 34% of all cancers reported, and rates remained unchanged across the region with very little difference over the past 10 years with the exception of Lusikisiki (ASR 53.6 per 100 000), which had a remarkable increase (Table S3), while Nqamakwe (ASR 8.3 per 100 000) and Willowvale (ASR 6.8 per 100 000) had a remarkable decrease.

Out of 572 cases of cervix cancer reported; 28.2% were clinically only diagnosed and 63.5% with pathological verification including 8.3% that were by cytology. 96.3% were squamous cell carcinomas and only 2.4% were adenocarcinomas. Breast cancer is the third most common cancer in this region with overall relatively low rates (ASR 5.8 per 100 000) that are evenly distributed across the region with rates ranging between ASRs 5.5 and 8.9 per 100 000 (Table S3). Similar to males, Kaposi sarcoma and liver cancers have relatively low rates with overall rates of ASRs 1.1 per 100 000 and 0.9 per 100 000, respectively.

Table S3: Proportion of total cancers and ASR (per 100 000 population) of the top five cancers by proportion magisterial areas and period for females

Females		Proportion of total cancers and (ASR per 100 000 population)				
Magisterial area	**Period**	**Cervical**	**Oesophageal**	**Breast**	**Kaposi sarcoma**	**Liver**
Bizana	2003–2007	32.9 (18.7)	23.8 (14.1)	15.6 (7.9)	6.5 (3.4)	0.4 (0.2)
	1998–2002	27.1 (14.4)	37.9 (19.4)	7.5 (4.3)	0.5 (0.4)	2.8 (1.4)
Flagstaff	2003–2007	43 (26.4)	21.5 (12.7)	13.9 (8.9)	2.4 (1.4)	5.5 (3.6)
	1998–2002	42.6 (26.4)	30.5 (17.2)	7.8 (4.8)	1.4 (0.9)	2.1 (1.0)
Lusikisiki	2003–2007	42.9 (53.6)	27.9 (26.5)	7.7 (8.5)	1.2 (1.1)	1.8 (1.8)
	1998–2002	39.8 (39.8)	29.3 (20.3)	13.0 (10.0)	0.8 (0.5)	1.9 (1.3)
Butterworth	2003–2007	28.2 (20.5)	31.2 (21.5)	11.2 (7.8)	0.6 (0.4)	0.6 (0.5)
	1998–2002	29.0 (26.6)	24.7 (23.2)	17.7 (15.2)	0.0(0.0)	0.0(0.0)
Centane	2003–2007	23.3 (19.5)	51.1 (38.9)	5.7 (6.0)	0.4 (0.9)	0.9 (1.1)
	1998–2002	21.3 (19.9)	48.9 (40.5)	6.8 (6.9)	0.0(0.0)	0.0(0.0)
Idutywa	2003–2007	31.0 (23.5)	28.0 (19.5)	9.5 (6.3)	1.8 (1.4)	3.0 (1.8)
	1998–2002	45.2 (22.1)	31.9 (8.0)	8.7 (3.9)	0.9 (0.5)	0.0(0.0)
Nqamakwe	2003–2007	22.2 (8.3)	37.5 (19.5)	15.3 (5.5)	1.4 (0.8)	0.0(0.0)
	1998–2002	30.1 (14.2)	28.0 (12.7)	12.9 (5.9)	0.0(0.0)	3.2 (1.9)
Willowvale	2003–2007	28.6 (6.8)	37.3 (8.2)	11.2 (7.6)	0.0(0.0)	1.2 (0.7)
	1998–2002	32.2 (17.3)	37.1 (18.9)	11.9 (6.4)	0.0(0.0)	1.4 (0.9)

Childhood cancers accounted for 1.7% of the total cancers reported. There were 47 cases. The most common cancers observed in boys were retinoblastoma, renal tumours, central nervous system (CNS), lymphomas and soft tissue sarcoma; while in girls, the most common were renal tumours, lymphomas, CNS tumours, leukemia and soft tissue sarcomas. A decrease of 1.1% in the total number of cases was observed compared to the previous report. This may be associated with rarity of cancer in children and mis-diagnosis, especially in a rural setting where there are no specialists such as paediatricians and oncologists. Surprisingly, leukemia was not amongst the common cancers in boys; instead, soft tissue sarcomas showed up in both boys and girls.

Table S4: Most common cancers in children aged 0–14 years by site and sex, 2003–2007

BOYS			GIRLS		
Site (ICD-10)	**N**	**%**	**Site (ICD-10)**	**N**	**%**
Retinoblastoma	6	23.1	Renal tumours	7	31.6
Renal tumours	4	15.4	Lymphomas	5	26.3
CNS tumours	4	15.4	CNS tumours	3	15.8
Lymphomas	2	15.4	Leukemia	2	10.5
Soft tissue sarcomas	3	11.5	Soft tissue sarcomas	2	10.5
Total cases	**19**		**Total cases**	**19**	

Oesophageal cancer remains the most important cancer in this region. Incidence rates vary across the area with the highest rates still in Centane for both males and females. Cervical cancer remains the most frequent cancer observed in females with the highest incidence rates observed in Lusikisiki. Between 1998/2002 and 2003/2007 the incidence of prostate cancer and Kaposi sarcoma increased slightly, while the incidence rates of lung and liver cancers decreased slightly, showing promising signs that may be associated with public health policies. The decrease in lung cancer incidence may possibly be related to tobacco smoking control in South Africa, implemented in 1999 (Tobacco Products Control Act, 1993, as amended), and the decrease in liver cancer may be related to increased vaccination against hepatitis B and increased tap water utilisation even by rural communities. However, the high incidence of cervical cancer reflects a public health failure. Despite South Africa adopting a policy to provide three Pap smears for all women at age 30, 40 and 50 years, it is clear that screening in this rural area has not been fully implemented. In order to save the lives of women living in this area, there must be greater commitment to expanding cervical cancer screening and HPV vaccination in girls to prevent future cases. Health education for men and women is the key to increasing awareness about the risk factors of cervical cancer and other common cancers, including prevention and early detection, treatment, and quality life after cancer diagnosis.

South Africa has taken an important step towards cancer control by passing a regulation on cancer registration (Government Gazette R380, 2011), in terms of the Health Act, at the right time when non-communicable diseases including cancer are high on the agenda of public health. The regulation will enable the National Cancer Registry to extend their pathology-based register to include hospital-based information with both pathologically and clinically diagnosed cases as well. Most importantly, a channel for generating cancer data will be opened and the dream of establishing provincial population-based cancer registries in this country becomes a reality.

The Eastern Cape Province Cancer Registry is one of the stable population-based registries in the African continent and has developed as the only functional population-based cancer registry in South Africa. It has a critical role to play in providing information about the patterns and trends of cancers for the rural population in the Eastern Cape Province.

INTRODUCTION

Cancer is a growing health issue, ranked as one of the top causes of morbidity, mortality and economic cost in low- and middle-income countries (Boyle and Levin, 2008). Growing and aging populations, coupled with increased tobacco consumption, unhealthy diet, lack of physical activity and harmful alcohol use, are projected to result in these dramatic increases in cancer cases and cancer deaths. In Africa, lifetime risk in females (between 0 and 64 years) is about 10% with the lifetime risk of dying of cancer almost double the risk in developed countries (Parkin et al., 2008). According to Joubert & Bradshaw (2006), the expected growth and aging of the population in South Africa can be expected to result in a growing future burden of cancer and other non-communicable diseases despite the effect of the AIDS pandemic.

However, cancer receives little attention in Africa, partly because of the overwhelming burden of communicable diseases including HIV and AIDS (Parkin et al., 2008). The 2011 Millennium Summit of the United Nations has opened a window of opportunity for decisive action to set developing countries, including Africa, on the road towards sustainable cancer control (UN Report, 2011). Head of states and health ministers committed themselves to promoting, establishing and strengthening multi-sectoral national plans for the prevention and control of non-communicable diseases, which includes cancer, by 2013. Development of population-based national registries and strengthened health information systems were recognised as important foundations towards planning and management of cancer in developing countries.

Efforts to control cancer need to be based on accurate information, particularly the incidence (which is the number of new cases occurring in a year), and to some extent, the prevalence (a measure of cancer load, which is the number of new and surviving cancer patients at any point in time) (Sitas, 1992). The collection of reliable information is well established in developed countries, while in developing countries, there are still many hurdles. These include the competing demands on the health-care delivery system due to the multiple burden of disease experienced by these countries, including South Africa. However, an attempt to collect cancer data was made by South Africa more than 20 years ago. There are two reliable sources of cancer data: the National Cancer Registry (NCR) and the Eastern Cape Cancer Registry (PROMEC Cancer Registry). The NCR is pathology-based and collects data passively by collaborating with private and public laboratories. It covers the whole country population and is one of the biggest registries in the world. NCR generates good quality cancer incidence data. However, burden of cancer is under-estimated because clinically diagnosed cases are not included. Legislation governing data collection in South Africa, that includes Promotion of Access to Information Act (Information Act, 2000), had a negative impact on this Registry, which resulted in laboratories not supplying NCR with data. The last cancer incidence report is for 2004.

The Eastern Cape Cancer Registry (also known as the PROMEC Cancer Registry) is one of the long-term projects established by the South African Medical Research Council. The main objective of the Registry is to provide timely, complete, comparable and high-quality cancer data to policy makers, health professionals, researchers, non-governmental organisations (NGOs) and communities for better planning and feedback. The Registry covers just over one million in a rural population that includes eight magisterial areas of Butterworth, Centane (Kentani), Idutywa, Nqamakwe, Willowvale, Bizana, Flagstaff and Lusikisiki (Figure 1).

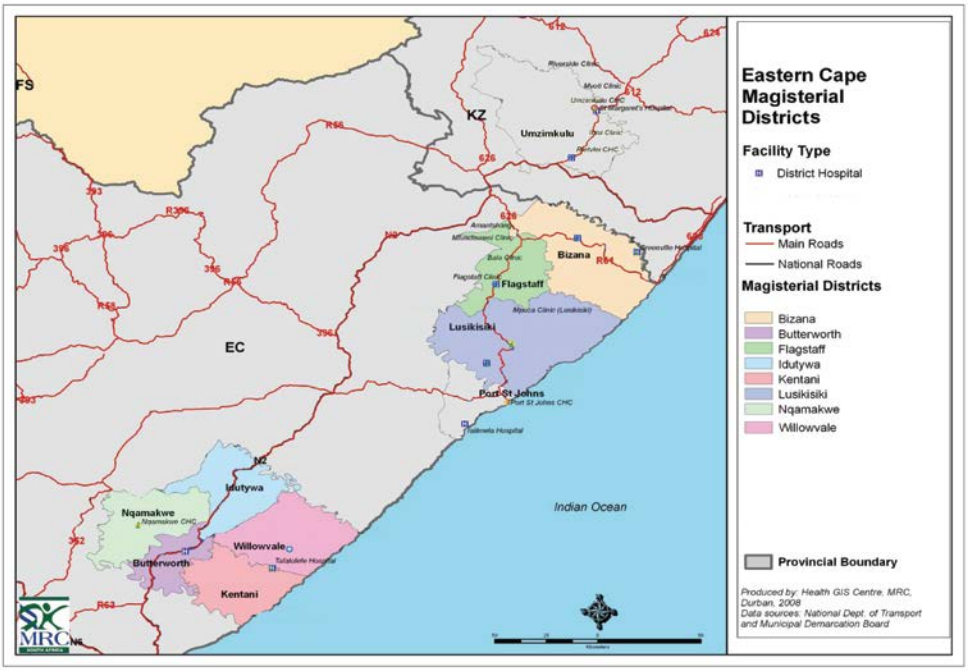


Figure 1: Map showing the cancer registration area in the Eastern Cape Province

POPULATION AND RISK PROFILE

The age and gender structure of the population is typical of a South African rural population (Figure 2). It reflects that the area is a labour reservoir with a lower number of working age adults than might be expected, accompanied by higher proportions of children and older persons, particularly women. Women comprise 53% of the provincial population. The number of children under five years of age is markedly smaller than the next age group. This is likely to due to declining fertility on one hand and under-enumeration of young children on the other. Migration, related to work, has a long history in South Africa as does circulatory movement of people between an urban and a rural-based home. Such a migratory pattern may result in a lower cancer incidence in the area, as it is possible that people from this area who develop a cancer while working in an urban area do not return to their rural home.

The age and sex distribution of the population shown in Figure 2 is projected from the 2001 census to 2005, which is the mid-point of the period under review. The population projection was based on the age-specific population growth rates between 1996 and 2001.

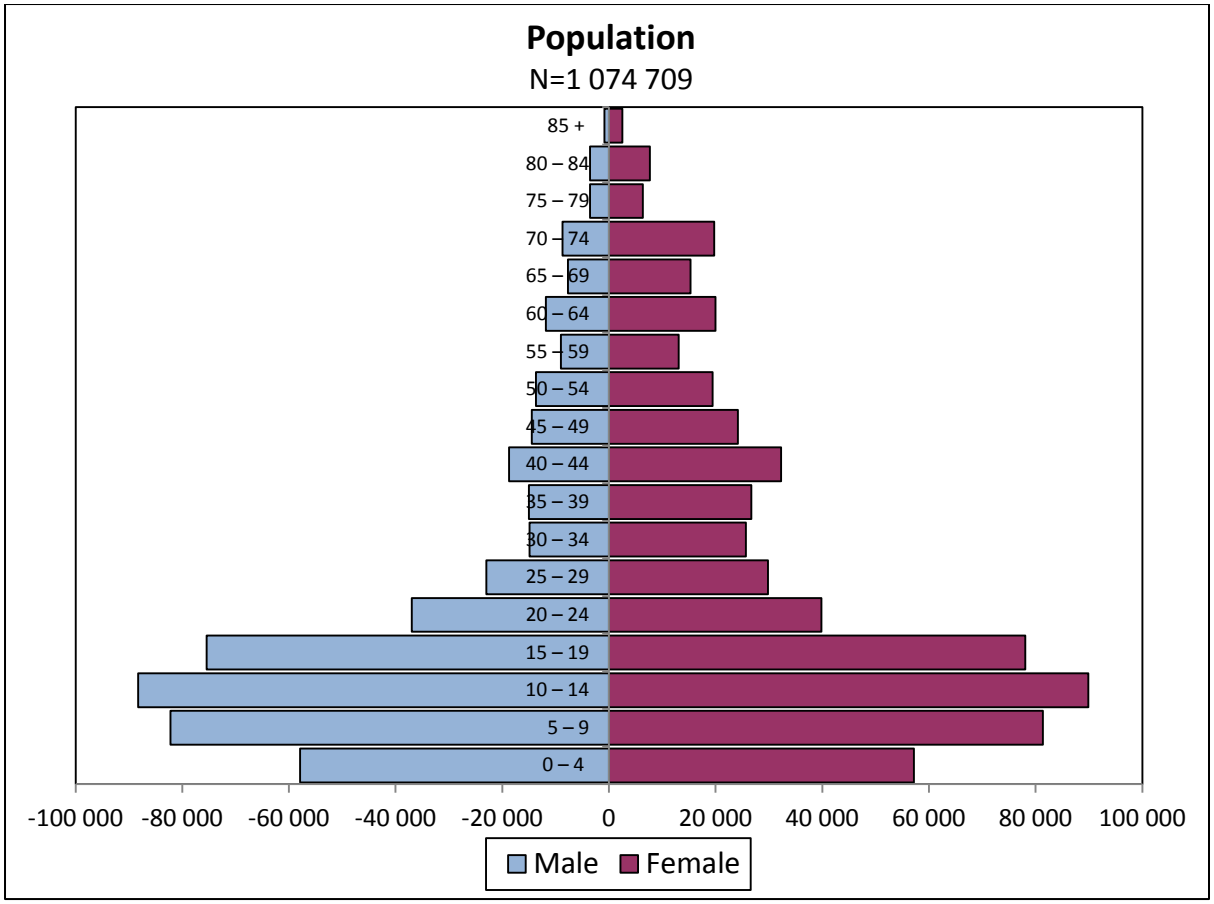


Figure 2: Population pyramid, 2005

The unemployment rate in the Eastern Cape Province is 37.4% and rated as the highest in the country (Community Survey, 2007). People live on subsistence farming, remittances and government grants. Use of piped water (safe water) in the municipalities covered by the Registry is between 41.7% and 4.6%; the lowest rates are in the north-east area. The majority of the community uses river water (50.6%). These municipalities include Mbashe, Mnquma in the south; and Mbizana, Ntabankulu and Qaukeni in the north-east. Communities without toilets in this area range between 47.8% and 25.8%. Use of electricity for cooking varies between 33.6% and 14.8%, with the majority using wood and paraffin across the area. Results from the provincial household survey conducted during 2002 by the Eastern Cape Department of Health and Equity Project (as reported by Bradshaw et al., 2004) indicated that in the former Transkei region, 16% of men drink alcohol regularly while 13% partake in communal drinking. The prevalence is much lower in women, with only 4% drinking regularly and another 4% partaking in communal drinking. This survey also found that 31% of men and only 5% of women smoke tobacco.

METHODS

The Registry continued to collaborate with 15 hospitals that serve the area, including a pathology laboratory under the National Health Laboratory Services (NHLS) situated in Nelson Mandela Medical School, Mthatha. During 2003–2007, both active and passive methods were used to collect data from collaborating hospitals and the pathology laboratory.

The active case-finding system involved collecting data from multiple sources. Collaborating hospitals located in eight magisterial areas were each visited annually during two separate field trips. As before, case finding extended to major hospitals outside the registration area. These included Mthatha General Hospital, which is the regional referral centre, East London's Frere Hospital, which is the regional radiotherapy referral centre, and four hospitals in KwaZulu-Natal Province, Usher Memorial in Kokstad, Inkosi Albert Luthuli, King George V and Addington in Durban.

During a facility visit, the registers in both the oncology wards and general medical wards were reviewed to identify potential cases resident in the surveillance areas based on names and addresses. Folders for all potential cases were retrieved and reviewed. Data were manually abstracted from the records. Patient information, including demographic details, tumour characteristics, type and behavior, as well as vital status, were captured onto a customised form for each individual considered to have a cancer.

Passive case finding was used to supplement the active method. This involved part-time nurses trained in oncology or working in the oncology units of the registration area major hospitals. After being trained in cancer notification and data abstraction by the cancer registry head, the nurses completed the specially designed cancer notification forms and sent them to the Registry on a monthly basis. An important purpose for the passive case finding was to promote an awareness of the cancer register in the facilities involved.

In the Registry, cancer sites were manually coded for topography and morphology according to the International Classification of Diseases for Oncology (ICD-O), third edition (Fritz et al., 2000) and captured using CanReg4, a computer program designed by the Unit of Descriptive Epidemiology of the International Agency for Research on Cancer. Only malignant cases were included in the analysis. Duplicates were carefully assessed to clarify whether they were new malignancies, secondary cancers or duplicate information. The geographic information was coded according to a list of village codes based on the 1985 census, which was amended with any new residential areas that had formed.

The 2001 census was used as a base for the population estimates to calculate the incidence rates for each magisterial area. The direct method as described by Boyle and Parkin (1991) was used to calculate age-standardised rates (ASR) and the standard population used was the World Standard Population.

RESULTS

Characteristics of registered cancer cases

A total of 2 808 cases were observed during the period 2003–2007. The number of cases from each of the participating hospitals during the period 2003–2007 is shown in Figure 3. Fifty-four per cent of the cases came from the hospitals inside the registration area and a further 4.3% were identified at the state pathology laboratory (Nelson Mandela Pathology Laboratory) servicing the area. Referral hospitals in the Eastern Cape Province (Mthatha and Frere) contributed 34.9%, whereas KwaZulu-Natal hospitals (Inkosi Albert Luthuli, Addington, King George V) only 6.4%.

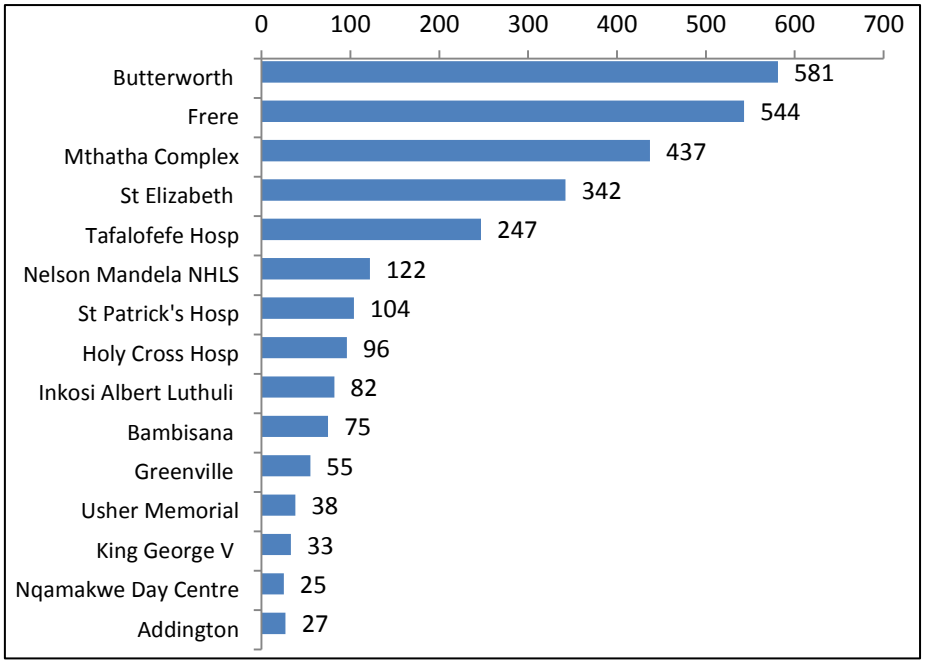


Figure 3: Total number of cancer cases by source, 2003–2007

The monthly distribution of the cases is shown in Figure 4. There was an average of 233.9 cases per month. December had the lowest number (N=177), while February and October had the highest (N==277 and N=279, respectively).

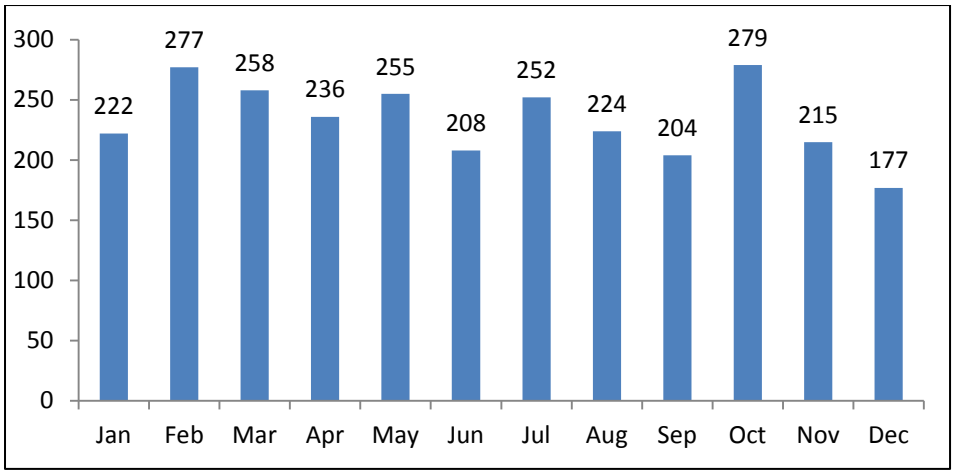


Figure 4: Number of cases by month, 2003–2007

Over the five-year period, there were 1 113 (39.7%) male cases and 1 695 (60.3%) female cases, with an average annual number of 222.6 (males) of 338.8 (females) cases. The average number of cases per year was 561.4. The lowest number of 482 cases was observed in 2004 (Table 1). The numbers increased in 2006 and 2007.

Table 1: Number of cases recorded each year by sex, 2003–2007

Year	Male	Female	Total
2003	206	311	517
2004	184	298	482
2005	244	312	556
2006	269	365	634
2007	210	410	619
2003–2007	**1 113**	**1 695**	**2 808**

Figure 5 shows the annual number of cases for the period 1998–2007 for each magisterial district. A sharp increase in the number of cases, particularly in 2006 and 2007, was observed in Lusikisiki (Figure 5). For other magisterial areas there is constant number of cases excepting in Nqamakwe where there is steady decrease (Figure 5).

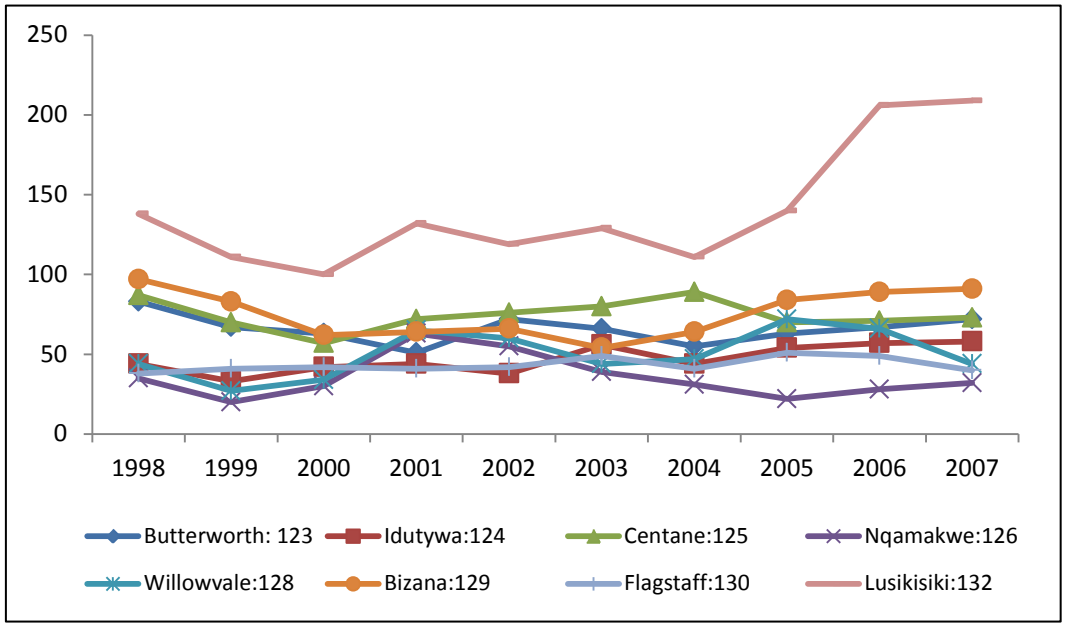


Figure 5: Number of cases by year and magisterial district, 1998–2007

Basis of diagnosis

Table 2 shows the number of cases according to the most valid basis of diagnosis. It can be seen that for all cancer cases recorded during 2003–2007, 67.7% of the cases were histologically confirmed. This is higher than the 52.3% observed during the period 1998–2002 (Somdyala *et al.*, 2008), which is a significant sign indicating that more cases had a chance of having their diagnoses verified.

Table 2: Most valid basis of diagnosis, 2003–2007

Method of diagnosis	*No. of cases*	*Percentage*
Non-microscopic	**912**	**32.3**
- Clinical only	422	15.0
- With clinical investigations	406	14.4
- With laboratory test	84	2.9
Microscopic	**1 896**	**67.7**
- Cytology	59	2.1
- Histology of primary	1 811	64.7
- Histology of metastases	26	0.9
Death certificate only	-	-
Total	**2 808**	**100.0**

The low number of cytology cases suggests that few cases of cervical cancer were diagnosed through the cervical cancer screening programme in this area. The relatively high proportion of cases with clinical diagnoses (32.3%) could possibly be related to the high proportion of oesophagus cancers, which can be diagnosed clinically. However, 68% of oesophageal cancer cases have histology-verified diagnoses, which are a great improvement when compared with the previous report for the period 1998–2002 (Somdyala *et al.*, 2008). In addition, the scarcity of specialists, including oncologists, in a rural setting may also contribute to this pattern. Figure 6 shows the trend in the percentage of cases that were histologically verified. Despite annual fluctuations, there has been a clear improvement in the period 2003–2007 compared with the earlier years. However, the percentage in 2007 showed a decline. Out of eight magisterial areas, only two (Idutywa and Nqamakwe) had more than 70% of cases with histology verification, the rest ranging between 50% and 60%. Oesophageal cancer is the highest contributor to the high percentage of clinically diagnosed cancers, particularly in Lusikisiki (71 cases), Bizana (35 cases), Centane (32) and Butterworth (30).

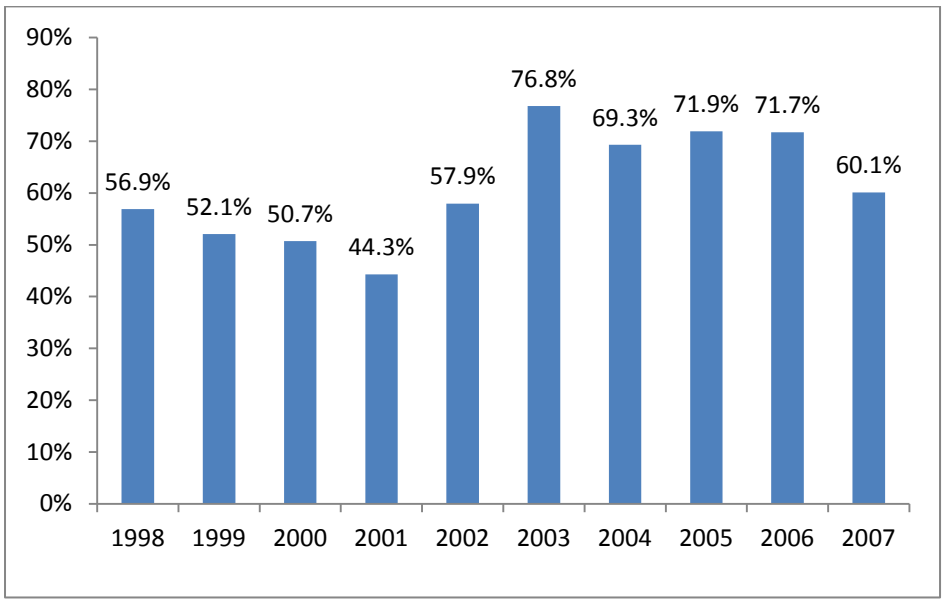


Figure 6: Percentage of histologically verified cases by year

Incidence of cancer

The age-standardised rate (ASR) for cancer among males was 74.6 per 100 000, excluding skin cancers, and 75.3 per 100 000 for all cancers. The respective ASRs for females were 67.4 per 100 000 and 67.4 per 100 000. Figure 7 (a) shows the age-specific cancer incidence rated per 100 000 by sex and Figure 7 (b) shows the same rates on a log scale. The cancer incidence shows the typical increase with age. However, the rates are slightly higher for females in the age range 20–49 years and higher for males in the age range 60+. The higher rates in the older ages accounts for the overall higher ASR among males.

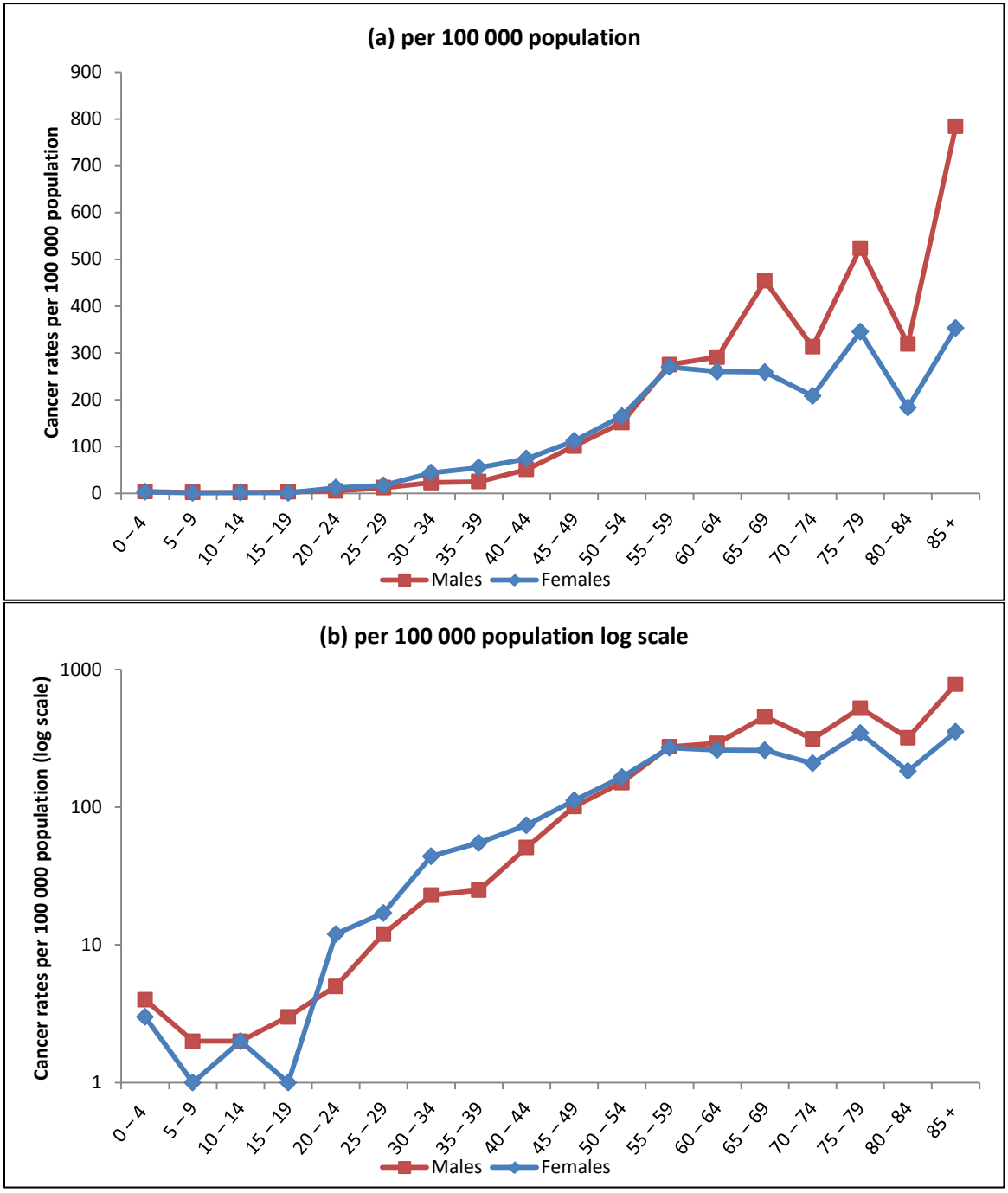


Figure 7 (a & b): Age specific cancer incidence rates by sex, 2003–2007

Common cancers

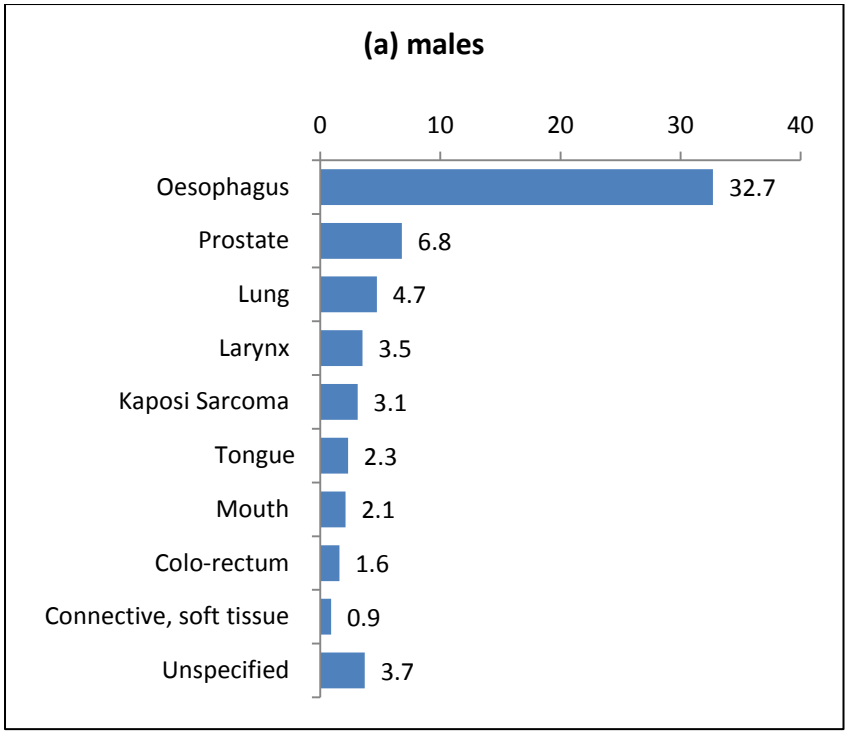
The leading cancers for males and females are shown in Table 3. Among men, oesophageal cancer is the most common and accounts for 42.2% of total male cancers, followed by prostate (9.4%) and lung cancer (6.1%). Other cancers including larynx, Kaposi sarcoma, liver, mouth, tongue, colo-rectum and eye each comprise less than 5% of the total (Table 3). Among women, cervix and oesophagus cancers are the most frequently diagnosed, accounting for 34.0% and 31.6%, respectively while breast cancer was ranked the third most frequent cancer, accounting for 10.3% of the total cancers reported during this period. Other cancers, including Kaposi sarcoma, liver, colo-rectum, corpus uteri, ovary and non-Hodgkin's lymphoma, comprise less than 5% of the total cancers reported during this period (Table 3).

Table 3: Percentage distribution of the top 10 cancers by sex, 2003–2007

	Males			Females	
Site (ICD-O)	**Numbers**	**%**	**Site (ICD-O)**	**Numbers**	**%**
Oesophagus (C15)	475	42.2	Cervix (C53)	572	34.0
Prostate (C61)	105	9.4	Oesophagus (C15)	531	31.6
Lung (C33-C34)	68	6.1	Breast (C50)	173	10.3
Larynx (C32)	49	4.4	Kaposi sarcoma (C46)	31	1.8
Kaposi sarcoma (C46)	42	3.8	Liver (C22)	28	1.7
Liver (C22)	38	3.4	Colo-rectum (C18; C20)	26	1.6
Mouth (C03-06)	32	2.9	Corpus Uteri (C54)	24	1.4
Tongue (C01-02)	31	2.8	Ovary (C56)	21	1.2
Colo-rectum (C18; C20)	25	2.3	Lung (C33-C34)	20	1.2
Eye (C69)	17	1.5	Non-Hodgkin Lymphoma (C82-C85; C96)	17	1.0
Leading 10 sites	**882**	**79.3**	**Leading 10 sites**	**1 443**	**85.8**
Other & unspecified	54	4.9	Other & unspecified	39	2.3
Remaining sites	176	15.8	Remaining sites	199	11.8
Total	**1 112**	**100.0**	**Total**	**1 681**	**100.0**

Incidence rates of common cancers

Figure 8(a) shows age-standardised incidence rates (ASR) of the top 10 cancers in males. Oesophageal cancer ASR was 32.7 per 100 000, prostate 6.8 per 100 000, lung 4.7 per 1 000 000, larynx 3.5 per 100 000 and Kaposi sarcoma 3.1 per 100 000. The following cancers had ASRs ranging between 2.3 and 0.9 per 100 000: tongue, mouth, colo-rectum and connective soft tissue. Unspecified and other cancers had ASR 3.7 per 100 000. Figure 8(b) shows the ASRs of the top 10 cancers in females. Oesophageal cancer ASR was 19.9 per 100 000, cervical 19.4 per 100 000 and breast 7.2 per 100 000. The following had ASRs ranging between 1.5 and 0.6 per 100 000: liver, colo-rectum, corpus uteri, ovary and non-Hodgkin's lymphoma. Unspecified and other cancers had ASR 1.5 per 100 000.



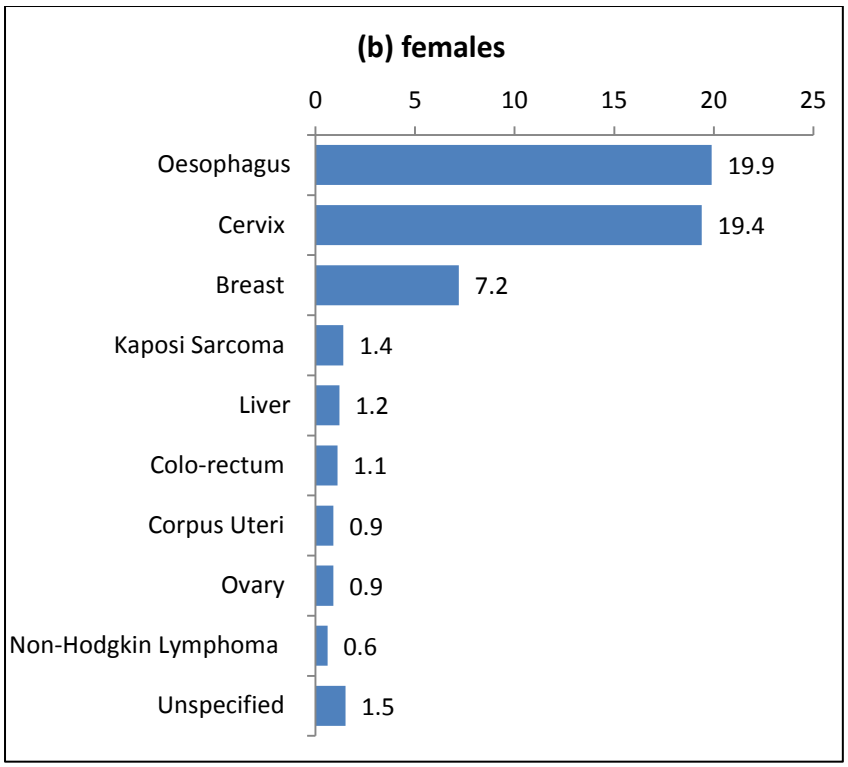


Figure 8 (a & b): Annual age-standardised rates (per 100 000 population) of the top 10 cancers by sex, 2003–2007

Male trends in common cancers by magisterial district

The incidence rate for some cancers increased (oesophageal, prostate cancers and Kaposi sarcoma) between the periods 1998–2002 and 2003–2007, while it decreased for others (lung and liver cancer) (Figure 9).

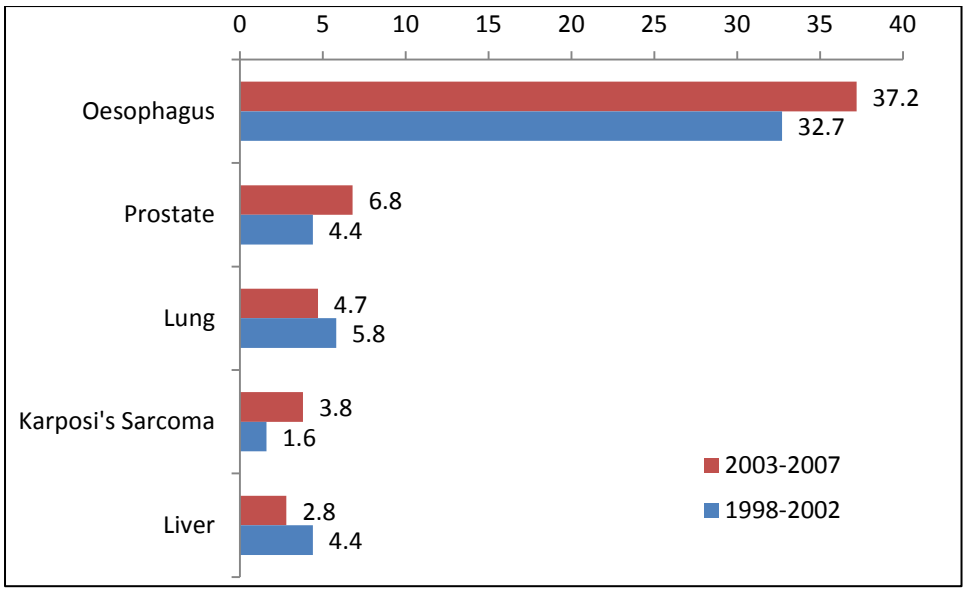


Figure 9: Age-standardised rates (per 100 000 population) of the most common cancers in males for the 1998–2002 & 2003–2007 periods

Table 4 shows the cancer profile by magisterial district for males for the two five-year periods 1998–2002 and 2003–2007. The top three cancers among males (oesophageal, prostate and lung) are reported, as well as liver cancer and Kaposi sarcoma. In all districts, oesophageal cancer was by far the most common cancer and the district variations are shown in more detail in Figure 10. Prostate cancer has increased in many districts, particularly in Lusikisiki, and is examined in more detail in Figure 11. Bizana, Centane and Butterworth all had lung cancer ASRs that were higher than 8 per 100 000 in the earlier period. While the rates for Bizana and Centane declined to similar levels experienced in the other districts, the rate for Butterworth remained higher than ASR 8 per 100 000. Both Kaposi sarcoma and liver cancers are rare in this region, especially in the south-western part of the region. Kaposi sarcoma incidence rates increased to ASR 8.1 per 100 000 in Bizana. Fluctuations are consistent with low rates.

Table 4: Proportion of total cancers and ASR (per 100 000 population) of the top five cancers by magisterial areas and period for males

Males		Proportion of total cancers and (ASR per 100 000 population)				
Magisterial area	**Period**	**Oesophageal**	**Prostate**	**Lung**	**Liver**	**Kaposi sarcoma**
Bizana	2003–2007	40.4 (32.2)	8.6 (5.8)	7.3 (5.2)	6.6 (5.4)	12.6 (8.1)
	1998–2002	48.4 (37.2)	3.2 (2.1)	11.5 (9.6)	6.4 (4.9)	4.5 (3.3)
Flagstaff	2003–2007	36.1 (17.6)	8.3 (3.3)	4.2 (2.2)	5.6 (2.7)	6.9 (3.2)
	1998–2002	38.1 (17.2)	3.2 (1.4)	7.9 (3.9)	12.7 (4.2)	6.3 (2.2)
Lusikisiki	2003–2007	42.2 (50.6)	11.8 (27.8)	4.5 (5.3)	3.8 (4.3)	3.1 (4.1)
	1998–2002	51.7 (43.4)	3.5 (2.5)	4.8 (3.8)	10.0 (7.8)	2.6 (2.0)
Butterworth	2003–2007	40.5 (42.0)	5.2(7.0)	9.2 (8.5)	3.3 (3.2)	0.7 (0.5)
	1998–2002	28.7 (32.1)	13.3 (15.4)	8.0 (8.7)	2.0 (1.9)	1.3 (1.1)
Centane	2003–2007	60.3 (54.3)	11.5 (8.2)	5.1 (5.6)	0.6 (0.6)	1.3 (1.1)
	1998–2002	57.1 (48.5)	7.9 (5.0)	5.0 (4.5)	4.3 (5.3)	0.0 (0.0)
Idutywa	2003–2007	39.6 (26.2)	4.0 (1.4)	5.9 (4.0)	3.0 (2.2)	0.0 (0.0)
	1998–2002	34.1 (20.6)	7.1 (3.8)	7.1 (3.8)	2.4 (1.0)	2.4 (1.6)
Nqamakwe	2003–2007	32.5 (17.0)	8.8 (4.8)	8.8 (4.6)	0.0 (0.0)	5.0 (3.3)
	1998–2002	34.5 (27.3)	8.2 (5.6)	9.1 (8.0)	6.4 (4.6)	0.9 (1.0)
Willowvale	2003–2007	39.3 (22.4)	13.4 (7.0)	5.4 (3.3)	3.6 (2.2)	1.8 (2.0)
	1998–2002	40.2 (20.0)	9.2 (3.6)	5.7 (3.4)	3.4 (1.7)	0.0 (0.0)

Incidence rates for oesophageal cancer are shown in Figure 10 and Table 4. The age-standardised rates varied across the area, with the highest rate still in Centane (54.3 per 100 000) and Lusikisiki (50.6 per 100 000). The rates in Butterworth (ASR 42.0 per 100 000), Idutywa (ASR 26.2 per 100 000) and Willowvale (ASR 22.4 per 100 000) have increased; whereas the rate in Flagstaff (17.6 per 100 000) remained relatively unchanged, and those in Bizana (32.3 per 100 000) and Nqamakwe (17.0 per 100 000) decreased.

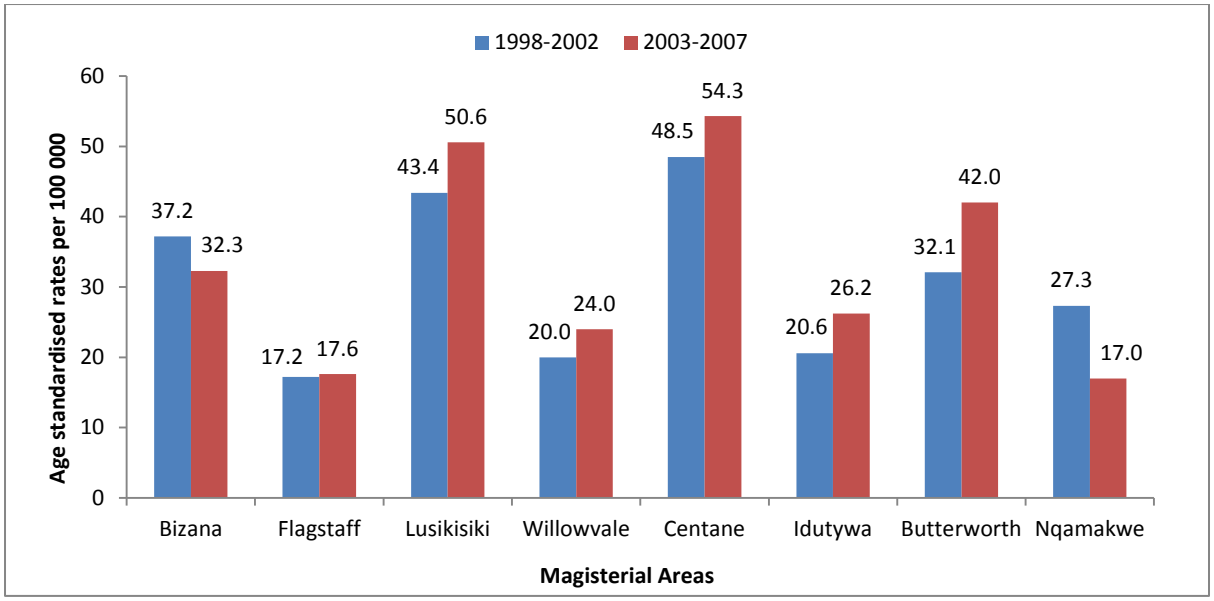


Figure 10: Annual age-standardised rates (per 100 000 population) of oesophageal cancer in males, 1998–2007

The second most common cancer among males was prostate cancer, and variations between districts are shown for 1998–2002 and 2003–2007 in Figure 11. The highest incidence rates reported were in Lusikisiki with ASR 27.8 per 100 000, accounting for 32.3% (34 cases) of all prostate cancers reported in this area; a substantial increase from the earlier period. Out of the 34 cases observed from 2003–2007, 16 were histology verified, six were diagnosed using a laboratory test (PSA) and 12 were clinically diagnosed. Investigation about this new trend revealed that during the period 2006–2008, a specialist urologist working at St Elizabeth Hospital had an interest in prostate cancer and motivated men to be tested for prostate cancer (personal communication – Miss Mbuzi, Oncology-trained Nurse, St Elizabeth Hospital).

Centane had the second highest rates with ASR 8.2 per 100 000. The rates in Butterworth (7.0 per 100 000) and Willowvale decreased by more than 50% when compared to the previous period (Somdyala *et al*., 2008). Bizana with ASR 5.8 per 100 000 showed more than 50% increase when compared with the previous period (Somdyala *et al*., 2008). The lowest ASRs were observed in Nqamakwe (4.8 per 100 000), Flagstaff (3.3 per 100 000) and Idutywa (1.4 per 100 000).

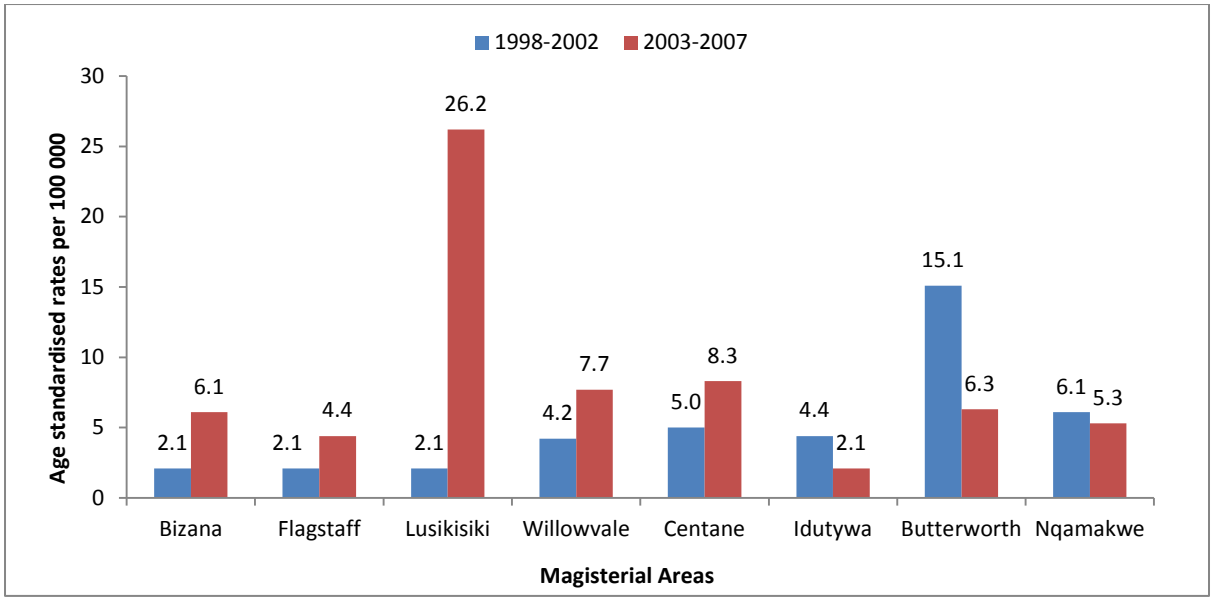


Figure 11: Annual age-standardised rates (per 100 000 population) of prostate cancer in males, 1998–2007

Figure 12 shows variations in lung cancer incidence rates across the area. A remarkable decrease in rates was observed in Bizana (5.2 per 100 000), Flagstaff (2.2 per 100 000) and Nqamakwe (4.6 per 100 000), whereas in Butterworth (8.5 per 100 000) and Willowvale (3.3 per 100 000), little or no change was observed. Only Centane (5.6 per 100 000) and Lusikisiki (5.3 per 100 000) rates increased when compared to the previous period (Figure 12).

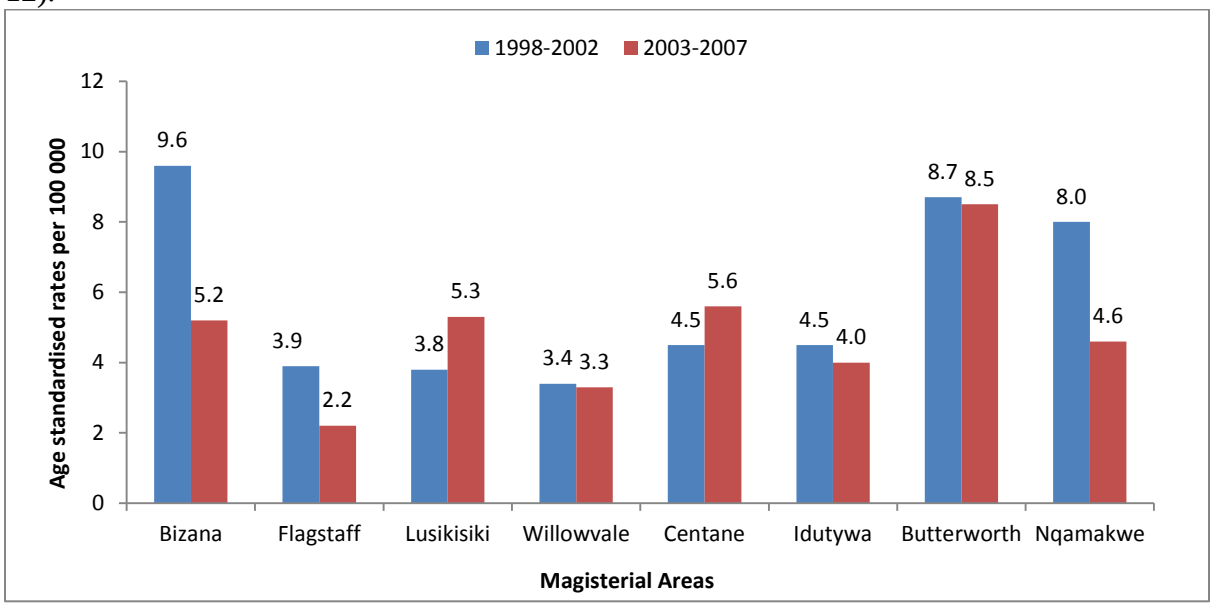


Figure 12: Annual age-standardised rates (per 100 000 population) of lung cancer in males, 1998–2007

Female trends in common cancers by magisterial district
The overall incidence rates for cervical cancer (24.0 per 100 000) increased while oesophageal (19.2 per 100 000) cancer and breast (5.8 per 100 000) cancer rates slightly decreased. Kaposi sarcoma (1.1 per 100 000) incidence rates increased, although very low rates were observed in this population (Figure 13). There was no change in liver cancer (0.9 per 100 000).

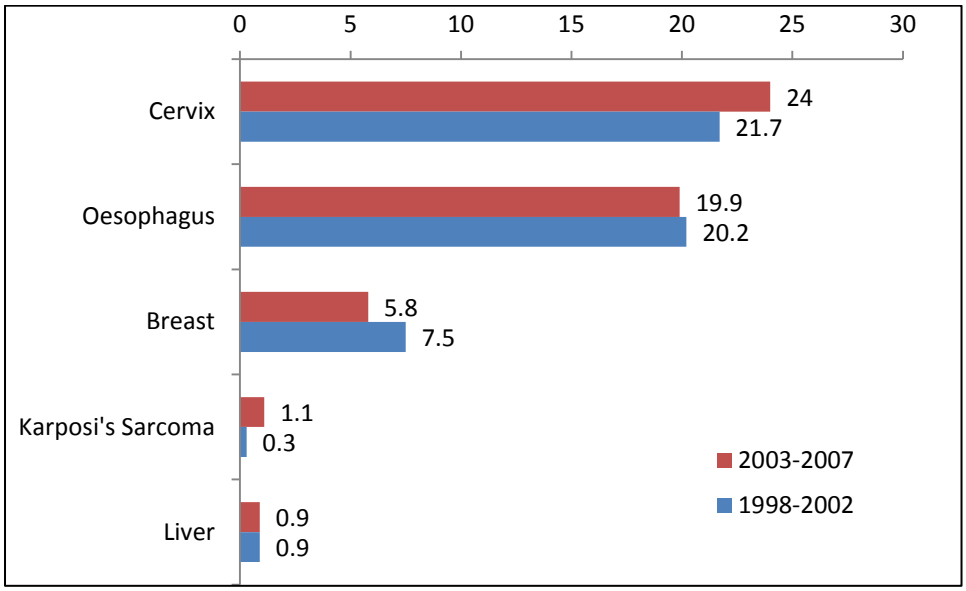


Figure 13: Age-standardised rates (per 100 000 population) of the most common cancers in females for the 1998–2002 & 2003–2007 periods

Table 5 shows the cancer profile by magisterial area for females for the two five-year periods 1998–2002 and 2003–2007. Cervical and oesophageal cancers had the highest incidence rates followed by breast cancer (Table 5). Kaposi sarcoma and liver cancer rates are also shown in Table 5. Cervical cancer accounted for 34% of all cancers reported, and rates remained the same across the region with very little difference over the past 10 years with the exception of Lusikisiki, which had a remarkable increase (Figure 14). Breast cancer is the third most common cancer in this region, with overall relatively low rates (5.8 per 100 000) that are evenly distributed across the region with rates ranging between 5.5 and 8.9 per 100 000 population (Table 5). Similar to males, Kaposi sarcoma and liver cancers have relatively low rates with overall rates of 1.1 per 100 000 population, accounting for 1.8 % of total cancers.

Table 5: Proportion of total cancers and ASR (per 100 000 population) of the top five cancers by magisterial areas and period for females

Females		Proportion of total cancers and (ASR per 100 000 population)				
Magisterial area	**Period**	**Cervical**	**Oesophageal**	**Breast**	**Kaposi sarcoma**	**Liver**
Bizana	2003–2007	32.9 (18.7)	23.8 (14.1)	15.6 (7.9)	6.5 (3.4)	0.4 (0.2)
	1998–2002	27.1 (14.4)	37.9 (19.4)	7.5 (4.3)	0.5 (0.4)	2.8 (1.4)
Flagstaff	2003–2007	43 (26.4)	21.5 (12.7)	13.9 (8.9)	2.4 (1.4)	5.5 (3.6)
	1998–2002	42.6 (26.4)	30.5 (17.2)	7.8 (4.8)	1.4 (0.9)	2.1 (1.0)
Lusikisiki	2003–2007	42.9 (53.6)	27.9 (26.5)	7.7 (8.5)	1.2 (1.1)	1.8 (1.8)
	1998–2002	39.8 (39.8)	29.3 (20.3)	13.0 (10.0)	0.8 (0.5)	1.9 (1.3)
Butterworth	2003–2007	28.2 (20.5)	31.2 (21.5)	11.2 (7.8)	0.6 (0.4)	0.6 (0.5)
	1998–2002	29.0 (26.6)	24.7 (23.2)	17.7 (15.2)	0.0(0.0)	0.0(0.0)
Centane	2003–2007	23.3 (19.5)	51.1 (38.9)	5.7 (6.0)	0.4 (0.9)	0.9 (1.1)
	1998–2002	21.3 (19.9)	48.9 (40.5)	6.8 (6.9)	0.0(0.0)	0.0(0.0)
Idutywa	2003–2007	31.0 (23.5)	28.0 (19.5)	9.5 (6.3)	1.8 (1.4)	3.0 (1.8)
	1998–2002	45.2 (22.1)	31.9 (8.0)	8.7 (3.9)	0.9 (0.5)	0.0(0.0)
Nqamakwe	2003–2007	22.2 (8.3)	37.5 (19.5)	15.3 (5.5)	1.4 (0.8)	0.0(0.0)
	1998–2002	30.1 (14.2)	28.0 (12.7)	12.9 (5.9)	0.0(0.0)	3.2 (1.9)
Willowvale	2003–2007	28.6 (6.8)	37.3 (8.2)	11.2 (7.6)	0.0(0.0)	1.2 (0.7)
	1998–2002	32.2 (17.3)	37.1 (18.9)	11.9 (6.4)	0.0(0.0)	1.4 (0.9)

Figure 14 shows the ASRs for cervical cancer for the magisterial districts for the periods 1998–2002 and 2003–2007. There were generally only small changes, with the exception of Lusikisiki, which had a remarkable increase. The area had a total number of 217 cases in 2002–2007, which accounted for 37.6% of the total cervical cancers reported in the registration area.

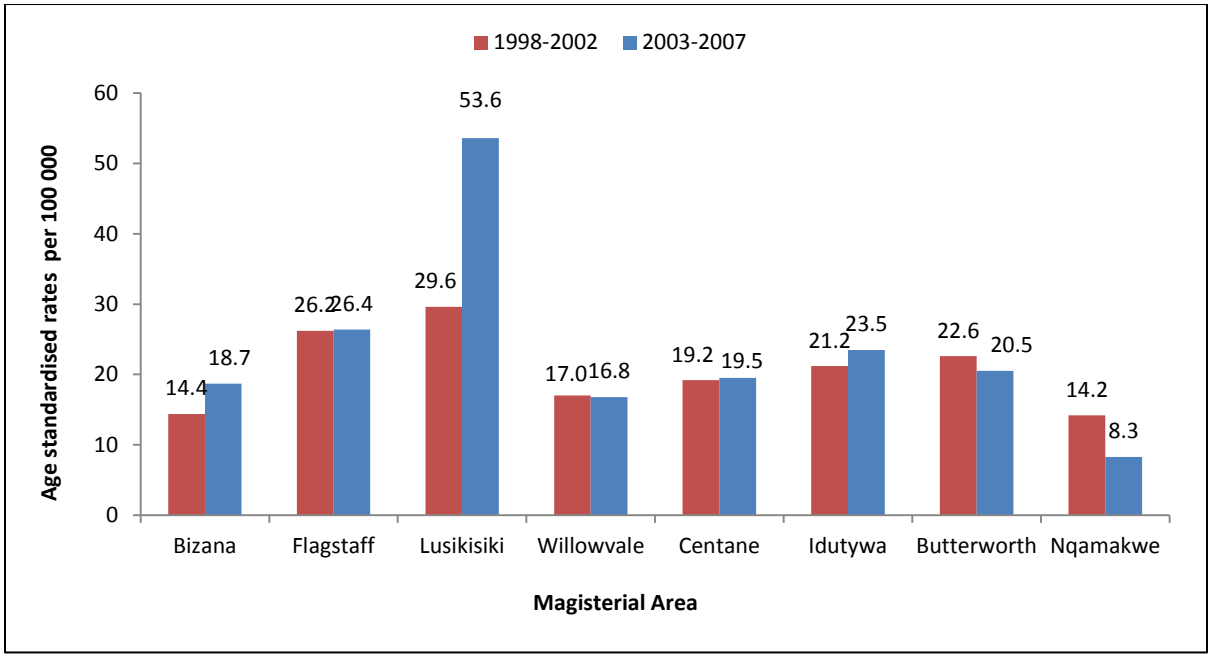


Figure 14: Annual age-standardised rates (per 100 000 population) of cervical cancer in females, 1998–2002 and 2003–2007

Out of 577 cervical cancer cases reported in this population, a high proportion (63.5%) was pathologically verified, including 8.3% that were verified by cytology. There were 28.2% of cases that were only clinically diagnosed. Of the total number of cases, 96.3% were squamous cell carcinomas and only 2.4% were adenocarcinomas. Unfortunately, more than 50% of cases had unknown staging. In view of the relatively high percentage of pathologically verified cases (63.5%), the number of cases with staging was expected to be higher. However, it is of concern that of the cases with known staging, there were 16.3% of cases in stage I, 26.7% in stage II, 40.4% in stage III and 16.7% in stage IV based on the numbers shown in Figure 15. For Lusiksiki, the district with the highest incidence rate, 36.7% had a clinical diagnosis only whereas 64% were pathologically verified.

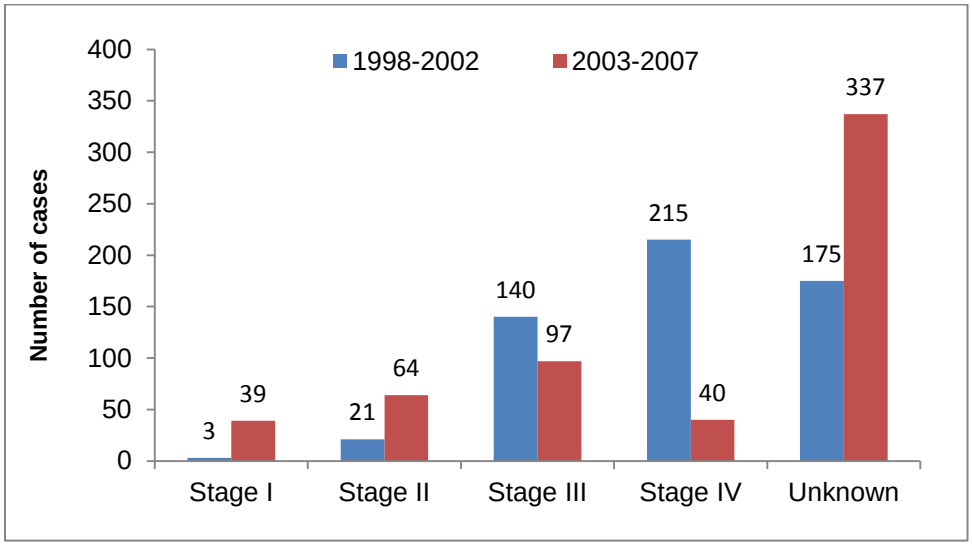


Figure 15: Cervical cancer staging distribution, 1998–2002 and 2003–2007

Oesophageal cancer accounted for 34% of all female cancers reported in this population. Figure 16 shows that the highest incidence rates occurred in Centane (38.9 per 100 000 in 2003-2007); followed by Lusikisiki (26.5 per 100 000); Idutywa (19.5 per 100 000) and Willowvale (18.2 per 100 000). The lowest incidence rates were in Bizana 14.1 per 100 000, Flagstaff (12.7 per 100 000) and Nqamakwe (11.2 per 100 000).

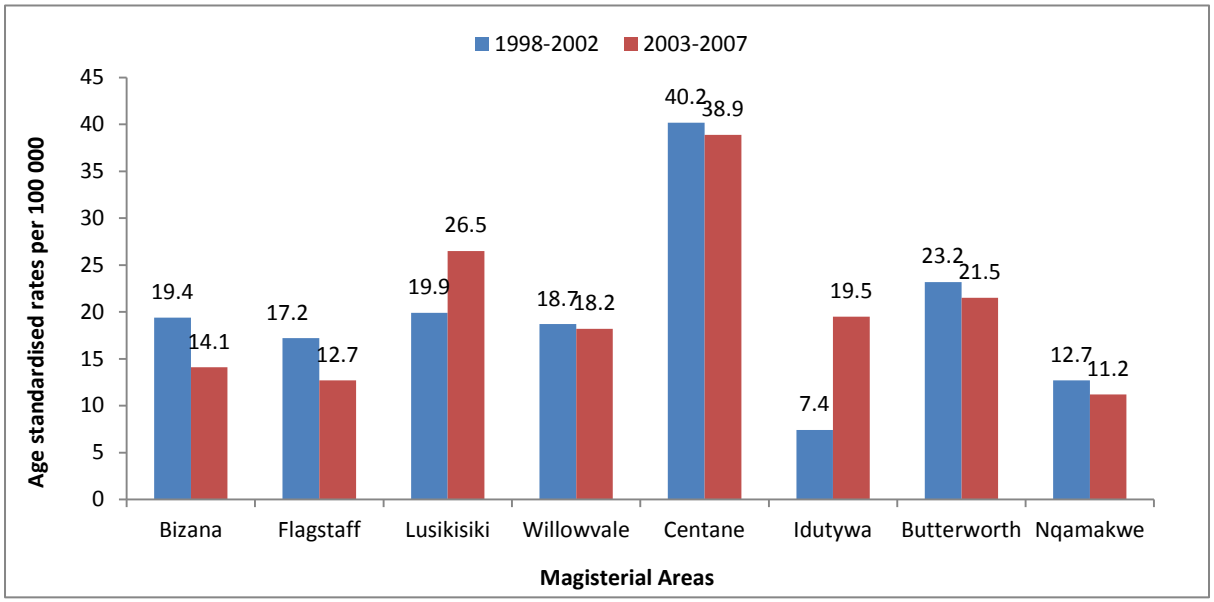


Figure 16: Annual age-standardised rates (per 100 000 population) of oesophageal cancer in females, 1998–2002 and 2003–2007

Childhood cancers

Childhood cancers accounted for 1.7% of the total cancers reported. There were 47 cases reported. The most common cancers observed in boys were retinoblastoma, renal tumours, central nervous system (CNS), lymphomas and soft tissue sarcoma (Table 5). In girls, the most common cancers were renal tumours, lymphomas, CNS tumours, leukemia and soft tissue sarcomas. Retinoblastoma was not amongst the top five cancers in girls. In general, there was a decrease of about 1.1% in the overall cases compared to the previous report. This may be associated with the rarity of cancer in children and mis-diagnosis, especially in rural settings where there are no specialists such as paediatricians and oncologists. Surprisingly, leukemia was not amongst the common cancers in boys. Instead, soft tissue sarcomas occurred in both boys and girls.

Table 6: Most common cancers aged 0–14 years by site and sex, 2003–2007

BOYS			GIRLS		
Site (ICD-10)	**N**	**%**	**Site (ICD-10)**	**N**	**%**
Retinoblastoma	6	23.1	Renal tumours	7	31.6
Renal tumours	4	15.4	Lymphomas	5	26.3
CNS tumours	4	15.4	CNS tumours	3	15.8
Lymphomas	2	15.4	Leukemia	2	10.5
Soft tissue sarcomas	3	11.5	Soft tissue sarcomas	2	10.5
Total cases	**19**		**Total cases**	**19**	

DISCUSSION

Cancer incidence

Oesophageal cancer remains a dominant cancer in this region (Makaula et al., 1996, Somdyala *et al*., 2003, Somdyala et al., 2008 and Somdyala *et al*., 2010). Incidence rates vary across the area with the highest incidence rates being in Centane, in both males and females. Figure 17 compares the average incidence rates in the region for the period 2003–2007 with the estimates for southern Africa, sub-Saharan Africa, and developed and less developed regions of the world for 2008. Incidence rates for males in this region are more than three times higher than the global average of 10.1 per 100 000 population and more than six times higher than the global average of 4.1 per 100 000 population for females. The lack of a large difference between the sexes in the region suggest that factors other than smoking and alcohol drinking must play a role, as these two risk behaviours are generally more common among men.

Globally, extensive research has been conducted in understanding the aetiology of this disease. Oesophageal cancer is a devastating disease that has less than 10% 5-year survival despite advances in multimodality therapy (Pickens and Mark, 2003). Development of oesophageal cancer is a multi-factorial process associated with a wide variety of risk factors which include tobacco smoking, heavy alcohol drinking, micronutrient deficiency and dietary carcinogen exposure (Zhao, *et al*., 2010). However, even in the at-risk population, only a portion of exposed individuals develop the cancer in their life span, indicating that there may be important genetic basis rendering such individuals susceptible to the disease. There is active research in understanding role played by gene-gene and gene-interactions contribution to oesophageal cancer susceptibility (Zhao, *et al.,* 2010).

Several studies were conducted by scientists in South Africa to understand the aetiology of oesophageal cancer in the rural population of the Eastern Cape Province region. These include studies on genes and environment (Gamieldien, *et, al*., 1998, Matsha, *et al.,* 2002, Dandara, Ballo & Parker, 2005), diet, cultural behaviour and food contaminants (Marasas, *et al.,* 1998, Marasas, *et al.,* 2001, Sewram *et al.,* 2001, Matsha, *et al.,* 2006 van der Westhuizen, *et al.,* 2010). However, very little has been done with respect to prevention and control. How much information do communities in this region have with regards to oesophageal cancer etiology, risk factors and prevention is not known and needs to be addressed.

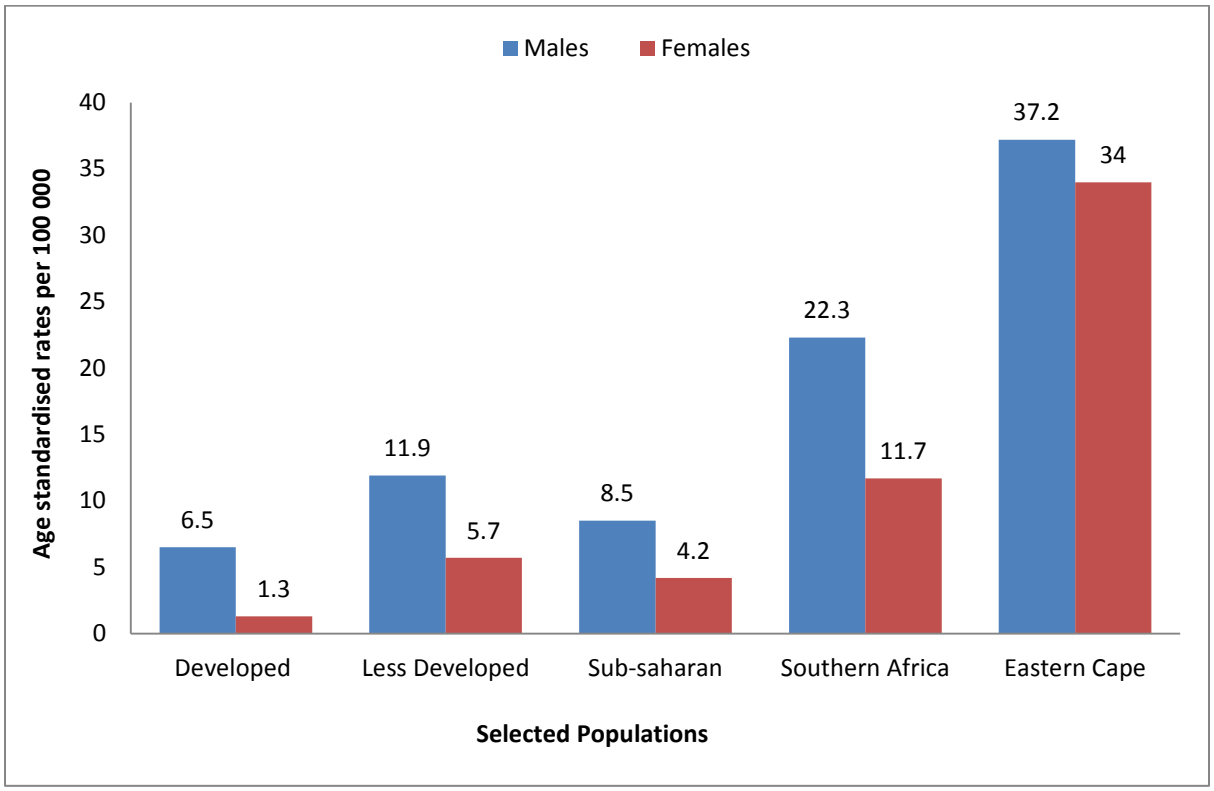


Figure 17: Age-standardised incidence rates (per 100 000 population) of oesophageal cancer in selected populations 2008 Source: (Ferlay et al., 2010)

Cervical cancer remains the leading cancer in females in this population. The incidence of cervical cancer is extremely high compared to the global average of 8.8 per 100 000 in 2008. Figure 18 shows that the rates are even higher than the estimate for sub-Saharan Africa. High rates are typical in rural populations where there are limited resources for implementing a screening programme. South Africa adopted a screening policy as part of the Cancer Control Programme in 2000. The presenting at late stage of cervical cases is indicative of a failed screening programme. In order to save the lives of women in this area, there must be greater commitment to expanding cervical cancer screening and HPV vaccination in girls to prevent future cases. Education and awareness need to be targeted to both men and women, including health-care providers, to ensure the success of such interventions. While cervical cancer rates are extremely high, the incidence of breast cancer is much lower than the global rates, even for less developed countries (Figure 18).

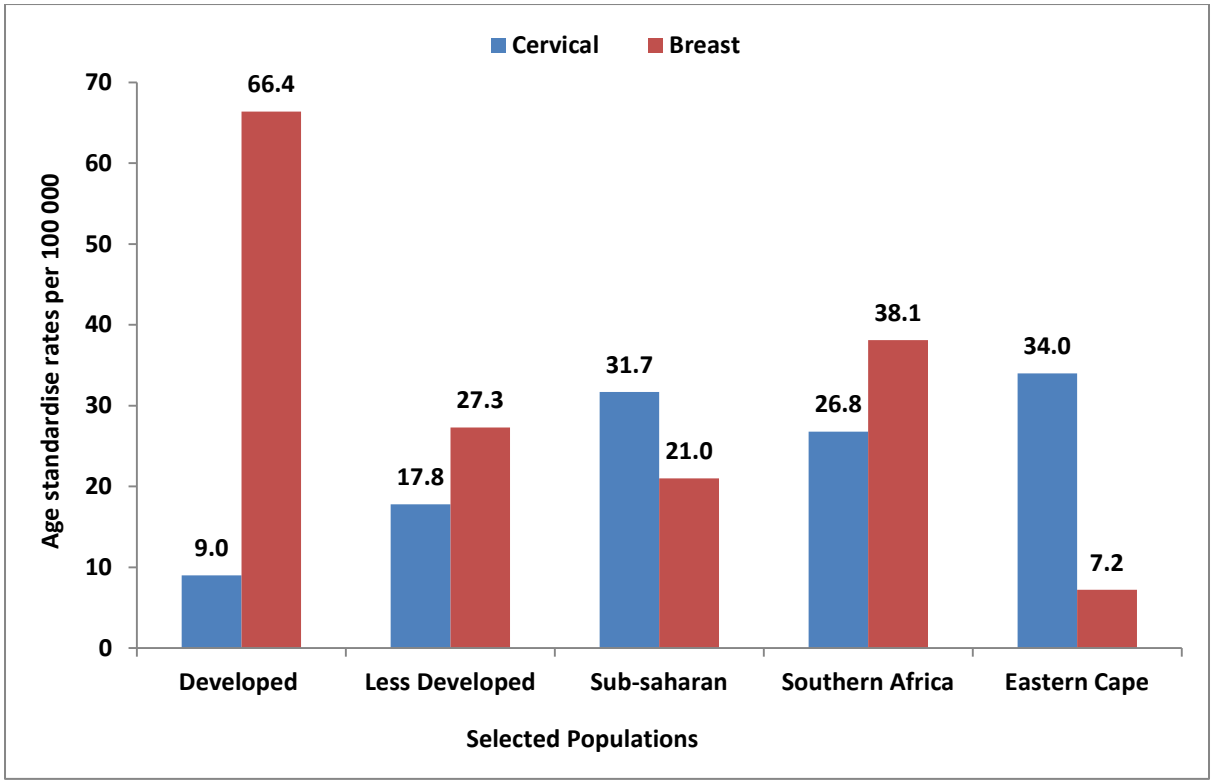


Figure 18: Age-standardised incidence rates (per 100 000 population) for cervical and breast cancers in selected populations 2008 Source: (www.cansa.org and www.cancer.gov)

Breast cancer is less common in black women than in other population groups with the age-standardised rates of 7.2 per 100,000 population and 38.1 per 100 000 in the Eastern Cape and southern Africa, respectively (Figure 18). In contrast, the rate for black women in the United States is 121.4 per 100,000 (Figure 19). In white women, rates in South Africa of 64.8 per 100,000 are high compared to other developed countries such as United States of America (127.4 per 100 000). Studies on breast cancer in South Africa also showed low incidence of this cancer in black women (Vorobiof, Sitas & Vorobiof, 2001). Certain factors known to be important in the epidemiology of breast cancer that are unique to black women include late menarche, relatively early age at birth of the first baby, high parity and prolonged lactation (Vorobiof, Sitas & Vorobiof, 2001). One study from South Africa has reported a doubling of breast cancer incidence rates in women living in urban areas compared with those residing in rural areas (Hoffman, 2000). Urban areas frequently are characterised by westernised behaviours and lifestyles, and more affluent women typically reside in urban areas.

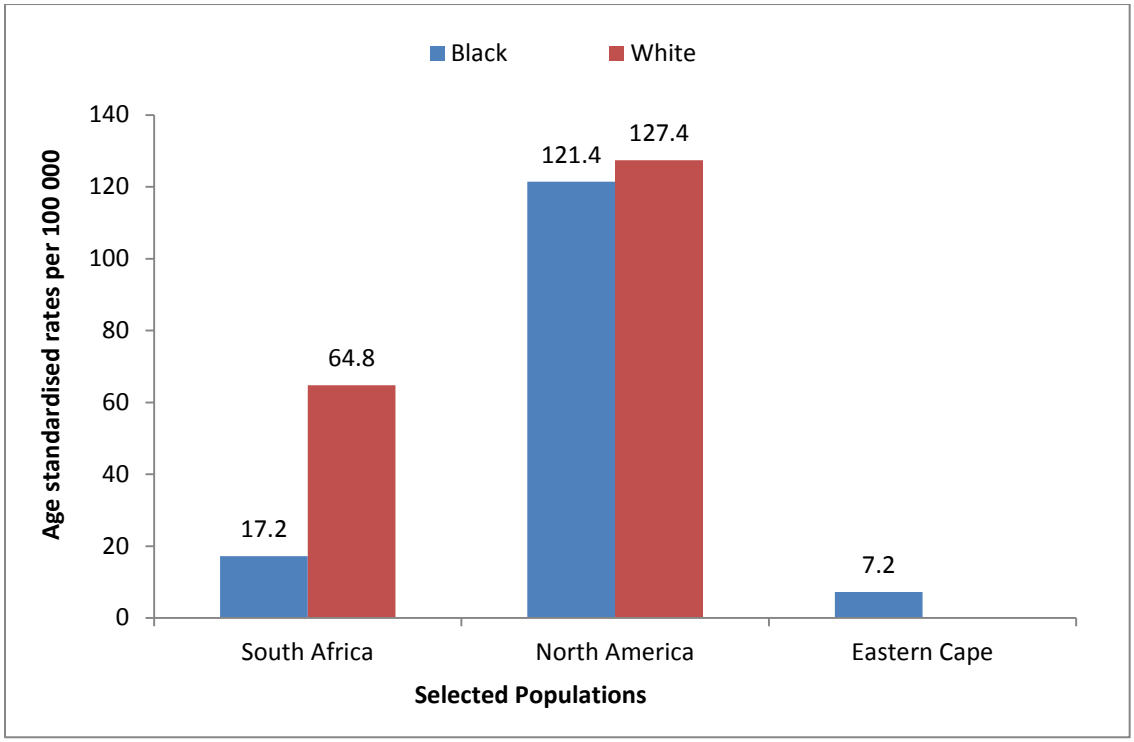


Figure 19: Age-standardised incidence rates (per 100 000 population) for breast cancer by race in selected populations 2008 Source: (Ferlay *et al.*, 2010)

The observed decrease in the incidence of lung and liver cancers could possibly be associated with public health policies, tobacco smoking control in South Africa implemented in 1999 (Tobacco Control Act, 1993, as amended) as well as vaccination against hepatitis B and increased tap water utilisation even by rural communities.

Prostate cancer rates have increased between 1998-2002 and 2003-2007, but are still relatively low. Prostate cancer is generally associated with better economic status and urban life, food with a high fat content and low vegetable consumption. In South Africa, the incidence rates for white men have been much higher than the rates for black men. The lower rates in black men are also associated with poor access to diagnostic and screening facilities.

Kaposi sarcoma incidence rates are surprisingly low when compared to sub-Saharan Africa and southern Africa rates (Figure 19). Despite the high prevalence of HIV in the region, it would appear that Kaposi sarcoma is not that common.

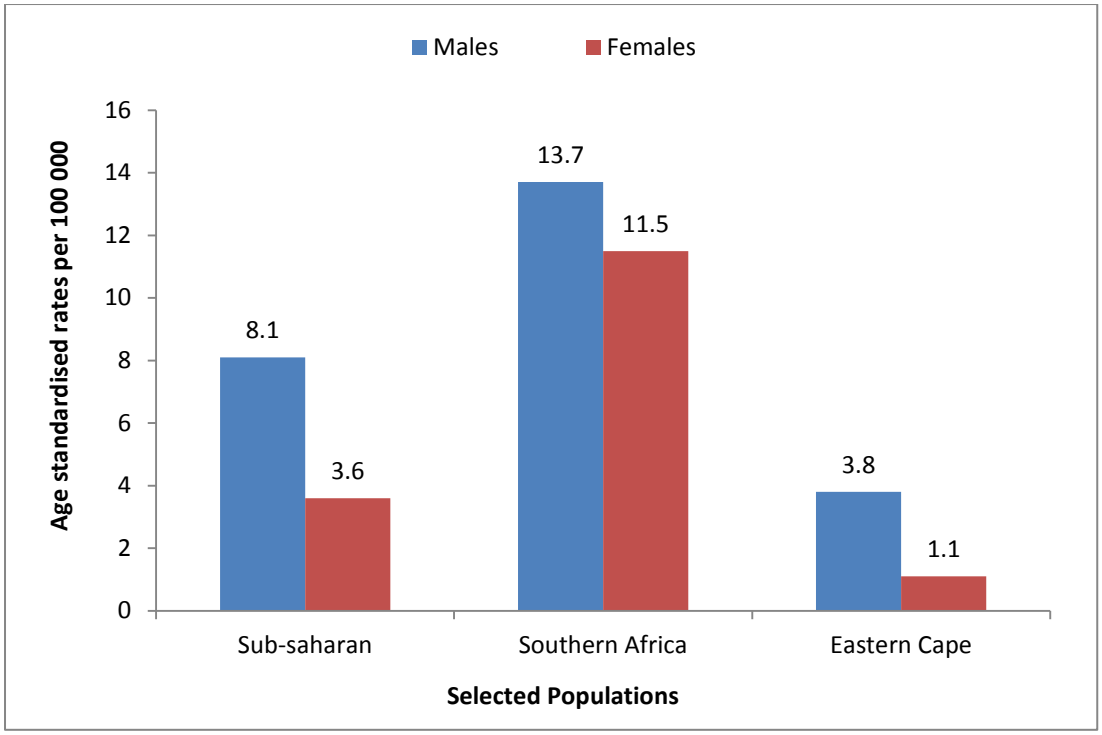


Figure 20: Age-standardised incidence rates (per 100 000 population) for Kaposi sarcoma by sex in selected populations in 2008 Source: (Ferlay *et al*., 2010)

Cancer registration

The Eastern Cape Cancer Registry is one of the stable population-based registries in the Africa region and has developed as the only functional population-based cancer registry in South Africa. Measures in ensuring generation of good quality data were employed which include active case finding using multiple sources and routine checking of data for validity and consistency. The registry tested the degree of accuracy by comparing data abstracted by data collectors to those captured by the registry staff (unpublished data). Agreement on identified variables, which included age, sex, date of diagnosis, basis of diagnosis and vital status, were checked. Results from that exercise were acceptable with some variations specifically on the basis of diagnosis, with a higher percentage of histologically verified cases abstracted by the registry staff. This is due to the fact that registry staff are able to link data of one case to many sources (unpublished data).

The CanReg data capture system has in-built checks to ensure that items such as sex, age/date of birth, incidence date, site of primary, histology and behaviour, and grade are within acceptable ranges for these values. Logical consistency checks are done between data items such as the date of diagnosis needs to occur after the date of birth of a patient, or a man cannot have ovarian cancer. In addition, the program carries out checks for internal validity of site versus age and histology versus site, impossible or unlikely combinations of codes for different data items are flagged for checking, for example, some specific morphological diagnoses being made without a histological examination.

However, there are many challenges experienced during data collection that impact on the quality of the data. These include the following:

- **Case finding and record keeping**
  Rural health facilities generally do not have a computerised patient information system that could help to identify all the cancer cases from that facility nor in the abstraction of the record.

- **Health seeking behavior**
  Due to ignorance about and attitude towards cancer in rural communities, a registry loses a small percentage of cases that prefer traditional healers to western medicine. In some cases, the patient will eventually seek care at a health facility, but in others, the patient may die at home. In such an event, there is no alternative date source, such as post-mortem records, because such forensic pathology services are only available for the deaths that arise from unnatural causes.

- **Completeness and accuracy of records**
  Complete information on these records demands accurate recording by admission clerks, which is often compromised by work pressure due to limited staff resources. The registry depends on the information recorded by hospital clerks in discharge summary books, which may have enough details to cater for hospital requirements.

- **Improper filing of records**
  While some referral hospitals have good filing systems, peripheral hospitals are not so well organised. Manual filing is used for all records (in-patients' files/medical history) and the systems used differ from hospital to hospital: some file numerically and others alphabetically. More frequently than not, there is a backlog of filing due to a shortage of personnel and it is common to find records for newly discharged patients unsorted. This makes retrieval of cancer cases very difficult or impossible at times, requiring repeat efforts to obtain the data. The ideal would be for the registry to have its own records' clerks in different collaborating hospitals that are the major sources of cases, even if they worked on a part-time basis.

- **Commitment and collaboration from medical specialists**
  Specialists, including paediatricians, haematologists and oncologists, are a scarce commodity in rural areas. General care to patients including those with cancer is rendered by general medical practitioners who are overwhelmed by the work in these hospitals. As a consequence, these practitioners are not sympathetic to helping cancer registration as they sometimes regard this as irrelevant to general patient care. Special efforts to encourage participation are needed.

- **Diagnosis and verification**
  Diagnosis is based on clinical examination by general medical practitioners due to scarcity of specialists such as oncologists, pathologists, trained laboratory technicians and diagnostic equipment. For verification of diagnosis or better definition of the cancer site, patients are referred to a regional referral hospital. The referral of the patient depends on the stage at which he/she presents himself at the health facility, and most of the time is very late. Thus, the diagnosis is sometimes restricted to the initial clinical assessment. While this may not provide the optimal verification, it

none-the-less reflects a strength of the registry that clinical diagnosed cancers are included.

- **Missing cases**
  Some patients prefer to travel on their own and sometimes have to use addresses of relatives living in surrounding areas, thus rendering themselves non-residents of the registration area. This is a challenge to a population-based cancer registry, which uses addresses to identify residents of the registration area.

Despite these challenges, the registry staff appreciates the cooperation, understanding and assistance received from medical and nursing personnel of collaborating hospitals and facilities during cancer data collection. Over and above generation of cancer incidence statistics, the registry is undertaking additional projects utilising information in the database. These include evaluation of cervical cancer screening project in the registration area, a follow-up study on cancer treatment and population-based cancer survival studies. The latter is a key measure of the effectiveness of health-care systems in the management of cancer patients, the goal of which is to provide policy makers with high quality evidence with which they can take action (Coleman *et al.*, 2011). Even small improvements in survival from common cancers can prevent large numbers of premature deaths (Richards *et al.*, 2000).

The International Agency for Research on Cancer (IARC) of the World Health Organization has a mandate in monitoring cancer surveillance worldwide. Subsequently, cancer data generated by population-based cancer registries are published in Cancer Incidence in Five Continents (CI5) publications. In 2006, about 21% of the world population was covered by population-based cancer registries, with sparse registration in Asia (8% of the total population) and in Africa (11%) (Parkin, 2006). This is due to the fact that high-quality data are required to meet specific and strict criteria prescribed by the IARC before being considered for inclusion in the CI5 publication. While the information from most of the developing countries, including South Africa, might not meet the specific criteria for quality for inclusion in CI5, this information is still of unique importance as it often remains the only relatively unbiased source of information available on the profile of cancer. It is also essential and urgently needed for both research, and planning and evaluation of cancer control programmes in these countries.

South Africa has taken an important step in passing regulation on cancer registration (Government Gazette R380, 2011) in terms of the Health Act. This regulation has been effected at a time when non-communicable diseases, including cancer, are high on the agenda of public health and more importantly in South Africa, where the growth in population numbers and aging is expected to result in the future growth of the cancer burden. Existing registries will be strengthened and improved, while new registries, particularly population-based registries, must be established to monitor cancer incidence in the different provinces in our country with diverse culture.

Conclusion

With the exception of liver cancer, the common cancers (oesophagus, cervix, lung, prostate and breast) reported in the region are preventable or potentially curable if diagnosed early. Oesophageal cancer seems to occur in areas of poverty and poor nutritional status. The high incidence of oesophageal cancer in the Transkei region of the Eastern Cape Province has been associated with the monotonous consumption of maize, which contains low concentrations of niacin, riboflavin, vitamin C, zinc, calcium, and magnesium, and is sometimes contaminated with fungal toxins produced by *Fusarium* sp (Marasas *et al.*, 1998).

The results from the cancer register indicate the need for appropriate strengthening of the clinical services in the area and the implementation of prevention interventions. While we cannot change our genes, we can apply our knowledge of our family medical history to predict our risk to specific problems. This in turn allows us to focus on things we can change, including diet and lifestyle, to ensure a long and healthy life, and regular screening for early detection of cancer and compliance with treatment will ensure quality life even after cancer diagnosis. Community awareness around cancer prevention and early detection is also a key factor. Dissemination of the findings from the register can play an important part in raising such awareness.

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APPENDIX 1: EASTERN CAPE (PROMEC) POPULATION-BASED CANCER REGISTRY CONFIDENTIAL NOTIFICATION FORM

Registry No.

Today's Date

Day **Month** **Year**

Please complete and return to;
Medical Research Council
PROMEC Cancer Registry
Burden of Disease Research Unit
PO Box 19070
Tygerberg
7505

PATIENT INFORMATION

Surname…… … …….. **First Name**……

Other Name…….. **Maiden Name (Married female)**……

Day **Month** **Year**

Sex ☐ **M** ☐ **F** **Estimated Age** ☐☐ **Date of Birth** ☐☐☐☐ ☐☐☐☐

Identity Number ☐☐☐☐☐☐☐☐☐☐☐☐☐

PATIENT ADDRESS/ RESIDENCE/CONTACT

Magisterial **Area/Town**……

Address Details ……

……

Phone (Work)…….....**Code** **No**..... **Cell**…….....

Chief /Headman/ Mayor/ Councillor ……

Ethnic Group ☐ **Black** ☐ **White** ☐ **Asian** ☐ **Coloured** ☐ **Unknown**

Marital Status ☐ **Single (Never married)** ☐ **Married** ☐ **Widowed** ☐ **Divorced** ☐ **Separated** ☐ **Minor** ☐ **Unknown**

Smoker ☐ **Stopped** ☐ **Years** ☐ **Non-smoker**

SOURCE OF INFORMATION

Hospital/ Private Practi tioner/ Clinic/ Laboratory/Other……..

Ward……

Folder /In-Patient/Out-Patient Number ☐☐☐☐☐☐☐☐☐

TUMOUR INFORMATION

Full Diagnosis……..

Site of Tumour……..

Pathology Report/ Radiology/Scope/.Disease History/Notes

……

……

Ever had Pap-smear? ☐ **Yes** ☐ **No** ☐ **Unknown** **Ever had PSA testing?** ☐ **Yes** ☐ **No** ☐ **Unknown**

Year? …… **Parity**…….. **Year**……..

Pathology Number ☐☐☐☐ ☐☐☐☐☐☐

Topography **C** ☐☐ **/** ☐

Morphology **M** ☐☐☐☐ **/** ☐

Behaviour ☐

Extent of Disease ☐ **1** ☐ **2** ☐ **3** ☐ **4** ☐ **Unknown**

Stage of Disease ☐ **I** ☐ **II** ☐ **III** ☐ **IV** ☐ **Unknown**

HIV Status: ☐ **Negative** ☐ **Positive** ☐ **Unknown**

Incidence Date ☐☐ ☐☐ ☐☐☐☐

Basis of Diagnosis: ☐ **Clinical only** ☐ **Radiography** ☐ **Pathology** ☐ **Death Certificate Only**

☐ **Scan** ☐ **Unknown** ☐ **Other Specify**

……

TREATMENT

Surgery ☐ **Radiotherapy** ☐ **Chemotherapy** ☐ **Hormone Therapy** ☐ **Immunotherapy** ☐ **Palliative**

☐ **Unknown** ☐ **Other (Specify)** ……

VITAL STATUS

Date of last follow-up ☐☐ ☐☐ ☐☐☐☐ ☐ **Alive** ☐ **Dead**

Abstraction done by: ……

Please print name

APPENDIX 2: Table of Incidence by site, sex and age group

NUMBER OF CASES - Male

Site	All Ages	0-4	5 -9	-10 -14	-15 -19	-20 -24	-25 -29	-30 -34	-35 -39	-40 -44	-45 -49	-50 -54	-55 -59	-60 -64	-65 -69	-70 -74	-75 -79	-80 -84	85+	% of Total	ICD (10th)
Lip	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0.20%	C00
Tongue	31	0	0	0	0	0	0	0	0	1	5	11	1	3	2	2	3	1	2	2.80%	C01-C02
Mouth	32	0	0	0	0	0	0	0	0	1	2	3	5	5	5	7	2	2	0	2.90%	C03-C06
Salivary glands	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.10%	C07-C08
Tonsil	9	0	0	0	0	0	0	0	0	0	0	2	0	3	1	1	1	1	0	0.80%	C09
Other Oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C10
Nasopharynx	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.10%	C11
Hypopharynx	2	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0.20%	C12-C13
Pharynx unspec.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C14
Oesophagus	475	0	0	0	0	0	1	1	2	15	27	46	64	85	85	67	45	24	13	42.70%	C15
Stomach	13	0	0	0	0	0	0	1	0	0	0	1	4	0	4	2	0	0	1	1.20%	C16
Small intestine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C17
Colon	13	0	0	0	0	0	1	0	1	0	2	1	3	1	1	2	0	1	0	1.20%	C18
Rectum	12	0	0	0	0	0	0	1	1	0	0	1	1	2	1	1	0	4	0	1.10%	C19-C20
Anus	9	0	0	0	0	0	0	1	0	1	0	0	3	4	0	0	0	0	0	0.80%	C21
Liver	38	0	0	0	0	0	1	1	3	4	2	5	4	7	6	1	3	0	1	3.40%	C22
Gallbladder etc.	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10%	C23-C24
Pancreas	5	0	0	0	0	0	0	0	0	0	1	0	2	0	0	1	1	0	0	0.40%	C25
Nose, sinuses etc.	3	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0.30%	C30-C31
Larynx	49	0	0	0	0	0	0	0	0	2	3	6	5	8	14	5	4	1	1	4.40%	C32
Trachea,Bronchus,Lung	68	0	0	0	0	0	0	1	0	1	8	10	8	14	11	6	5	4	0	6.10%	C33-C34
Other Thoracic organs	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.10%	C37-C38
Bone	13	0	0	0	7	1	0	0	0	2	0	0	1	1	0	1	0	0	0	1.20%	C40-C41
Melanoma of Skin	11	0	0	0	0	0	0	0	0	1	0	0	0	2	2	2	2	2	0	1.00%	C43
Other Skin	9	0	0	0	0	0	0	0	0	1	3	1	1	1	1	0	1	0	0	0.80%	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C45
Kaposi sarcoma	42	0	0	0	1	1	4	3	10	11	10	1	1	0	0	0	0	0	0	3.80%	C46
Connective,Soft tissue	14	0	2	0	0	1	1	0	1	0	1	0	3	1	2	0	2	0	0	1.30%	C47;C49
Breast	11	0	0	0	0	0	1	0	0	0	2	0	0	2	2	4	0	0	0	1.00%	C50
Penis	11	0	0	0	0	0	1	1	0	1	0	0	2	1	3	1	0	0	1	1.00%	C60
Prostate	105	0	0	0	0	0	0	0	0	0	0	2	7	10	20	22	16	15	13	9.40%	C61
Testis	2	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0.20%	C62
Other male genital	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0.10%	C63
Kidney	6	3	1	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0.50%	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C65
Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C66
Bladder	12	0	0	1	1	0	0	0	0	1	1	0	0	1	2	3	1	1	0	1.10%	C67
Other Urinary organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C68
Eye	17	6	1	0	0	0	1	1	1	1	1	1	0	3	0	1	0	0	0	1.50%	C69
Brain, Nervous system	9	2	1	2	2	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0.80%	C70-C72
Thyroid	4	0	0	0	0	0	0	0	0	1	0	0	0	1	1	1	0	0	0	0.40%	C73
Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C74
Other Endocrine	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10%	C75
Hodgkin disease	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.20%	C81
Non-Hodgkin lymphoma	11	0	1	2	0	1	0	3	0	0	0	0	0	2	1	1	0	0	0	1.00%	C82-C85;C96
Immunoproliferative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C88
Multiple Myeloma	9	0	0	0	0	0	0	0	0	0	1	2	1	2	2	0	1	0	0	0.80%	C90

Lymphoid Leukaemia	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.10%	C91
Myeloid Leukaemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C92-C94
Leukaemia unspec.	2	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0.20%	C95
Other & unspecified	54	0	0	1	0	2	3	1	0	3	2	8	4	11	8	4	4	1	2	4.90%	Other
All sites Total	1112	11	8	7	12	9	14	17	19	48	73	103	124	172	175	136	93	57	34	100.00%	All
All sites but C44	1103	11	8	7	12	9	14	17	19	47	70	102	123	171	174	136	92	57	34	99.20%	Not C44

INCIDENCE RATES - Male

Site	All Ages	0 -4	5 -9	10 -14	15 -19	20 -24	25 -29	30 -34	35 -39	40 -44	45 -49	50 -54	55 -59	60 -64	65 -69	70 -74	75 -79	80 -84	85+	Crud Rate	ASR World	ICD (10th)
Lip	2	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	2.3	-	-	-	0.1	0.1	C00
Tongue	31	-	-	-	-	-	-	-	-	1.1	6.9	16.1	2.2	5.1	5.2	4.6	16.9	5.6	46.1	1.3	2.3	C01-C02
Mouth	32	-	-	-	-	-	-	-	-	1.1	2.8	4.4	11.1	8.5	13	16.1	11.3	11.2	-	1.3	2.1	C03-C06
Salivary glands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	0	0.1	C07-C08
Tonsil	9	-	-	-	-	-	-	-	-	-	-	2.9	-	5.1	2.6	2.3	5.6	5.6	-	0.4	0.6	C09
Other Oropharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C10
Nasopharynx	1	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	0	0.1	C11
Hypopharynx	2	-	-	-	-	-	-	-	-	-	-	-	4.4	-	-	-	-	-	-	0.1	0.2	C12-C13
Pharynx unspec.	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C14
Oesophagus	475	-	-	-	-	-	0.9	1.3	2.7	16	37.4	67.3	142	143.7	220	154.1	254	134.2	299.6	19.6	32.7	C15
Stomach	13	-	-	-	-	-	-	1.3	-	-	-	1.5	8.9	-	10.4	4.6	-	-	23	0.5	1	C16
Small intestine	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C17
Colon	13	-	-	-	-	-	0.9	-	1.3	-	2.8	1.5	6.7	1.7	2.6	4.6	-	5.6	-	0.5	0.9	C18
Rectum	12	-	-	-	-	-	-	1.3	1.3	-	-	1.5	2.2	3.4	2.6	2.3	-	22.4	-	0.5	0.7	C19-C20
Anus	9	-	-	-	-	-	-	1.3	-	1.1	-	-	6.7	6.8	-	-	-	-	-	0.4	0.7	C21
Liver	38	-	-	-	-	-	0.9	1.3	4	4.3	2.8	7.3	8.9	11.8	15.6	2.3	16.9	-	23	1.6	2.8	C22
Gallbladder etc.	1	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C23-C24
Pancreas	5	-	-	-	-	-	-	-	-	-	1.4	-	4.4	-	-	2.3	5.6	-	-	0.2	0.4	C25
Nose, sinuses etc.	3	-	-	0.2	-	-	-	1.3	-	-	1.4	-	-	-	-	-	-	-	-	0.1	0.2	C30-C31
Larynx	49	-	-	-	-	-	-	-	-	2.1	4.2	8.8	11.1	13.5	36.3	11.5	22.6	5.6	23	2	3.5	C32
Trachea,Bronchus,Lung	68	-	-	-	-	-	-	1.3	-	1.1	11.1	14.6	17.8	23.7	28.5	13.8	28.2	22.4	-	2.8	4.7	C33-C34
Other Thoracic organs	1	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	0	0.1	C37-C38
Bone	13	-	-	-	1.9	0.5	-	-	-	2.1	-	-	2.2	1.7	-	2.3	-	-	-	0.5	0.5	C40-C41
Melanoma of Skin	11	-	-	-	-	-	-	-	-	1.1	-	-	-	3.4	5.2	4.6	11.3	11.2	-	0.5	0.6	C43
Other Skin	9	-	-	-	-	-	-	-	-	1.1	4.2	1.5	2.2	1.7	2.6	-	5.6	-	-	0.4	0.7	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C45
Kaposi sarcoma	42	-	-	-	0.3	0.5	3.5	4	13	11.8	13.8	1.5	2.2	-	-	-	-	-	-	1.7	3.1	C46
Connective,Soft tissue	14	-	0.5	-	-	0.5	0.9	-	1.3	-	1.4	-	6.7	1.7	5.2	-	11.3	-	-	0.6	0.9	C47;C49
Breast	11	-	-	-	-	-	0.9	-	-	-	2.8	-	-	3.4	5.2	9.2	-	-	-	0.5	0.7	C50
Penis	11	-	-	-	-	-	0.9	1.3	-	1.1	-	-	4.4	1.7	7.8	2.3	-	-	23	0.5	0.9	C60
Prostate	105	-	-	-	-	-	-	-	-	-	-	2.9	15.5	16.9	51.9	50.6	90.2	83.9	299.6	4.3	6.8	C61
Testis	2	-	-	-	-	-	-	-	-	-	1.4	-	2.2	-	-	-	-	-	-	0.1	0.2	C62
Other male genital	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	0	0.1	C63
Kidney	6	1	0.2	-	-	-	-	-	-	-	-	-	2.2	1.7	-	-	-	-	-	0.2	0.3	C64
Renal Pelvis	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C65
Ureter	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C66
Bladder	12	-	-	0.2	0.3	-	-	-	-	1.1	1.4	-	-	1.7	5.2	6.9	5.6	5.6	-	0.5	0.6	C67
Other Urinary organs	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C68
Eye	17	2.1	0.2	-	-	-	0.9	1.3	1.3	1.1	1.4	1.5	-	5.1	-	2.3	-	-	-	0.7	1	C69

Brain, Nervous system	9	0.7	0.2	0.5	0.5	-	-	1.3	-	-	-	-	-	1.7	-	-	-	-	-	0.4	0.3	C70-C72
Thyroid	4	-	-	-	-	-	-	-	-	1.1	-	-	-	1.7	2.6	2.3	-	-	-	0.2	0.3	C73
Adrenal gland	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C74
Other Endocrine	1	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C75
Hodgkin disease	2	-	0.2	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	C81
Non-Hodgkin lymphoma	11	-	0.2	0.5	-	0.5	-	4	-	-	-	-	-	3.4	2.6	2.3	-	-	-	0.5	0.6	C82-C85;C96
Immunoproliferative	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C88
Multiple Myeloma	9	-	-	-	-	-	-	-	-	-	1.4	2.9	2.2	3.4	5.2	-	5.6	-	-	0.4	0.7	C90
Lymphoid Leukaemia	1	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C91
Myeloid Leukaemia	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C92-C94
Leukaemia unspec.	2	-	-	-	-	0.5	-	-	-	-	-	-	-	-	2.6	-	-	-	-	0.1	0.1	C95
Other & unspecified	54	-	-	0.2	-	1.1	2.6	1.3	-	3.2	2.8	11.7	8.9	18.6	20.7	9.2	22.6	5.6	46.1	2.2	3.7	Other
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All sites Total	1112	4	2	2	3	5	12	23	25	51	101	151	275	291	454	313	524	319	784	45.8	75.3	All
All sites but C44	1103	4	2	2	3	5	12	23	25	50	97	149	273	289	451	313	519	319	784	45.4	74.6	Not C44

Ranked

_____INCIDENCE RATES - Male_____

Site	All	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	-70	-75	80	- 85+	Crud	ASR	ICD
	Ages	-4	-9	-14	-19	-24	-29	-34	-39	-44	-49	-54	-59	-64	-69	-74	-79	-84		Rate	World	(10th)
Oesophagus	475	-	-	-	-	-	0.9	1.3	2.7	16	37.4	67.3	142	143.7	220	154.1	254	134.2	299.6	19.6	32.7	C15
Prostate	105	-	-	-	-	-	-	-	-	-	-	2.9	15.5	16.9	51.9	50.6	90.2	83.9	299.6	4.3	6.8	C61
Trachea,Bronchus,Lung	68	-	-	-	-	-	-	1.3	-	1.1	11.1	14.6	17.8	23.7	28.5	13.8	28.2	22.4	-	2.8	4.7	C33-C34
Other & unspecified	54	-	-	0.2	-	1.1	2.6	1.3	-	3.2	2.8	11.7	8.9	18.6	20.7	9.2	22.6	5.6	46.1	2.2	3.7	Other
Larynx	49	-	-	-	-	-	-	-	-	2.1	4.2	8.8	11.1	13.5	36.3	11.5	22.6	5.6	23	2	3.5	C32
Kaposi sarcoma	42	-	-	-	0.3	0.5	3.5	4	13	11.8	13.8	1.5	2.2	-	-	-	-	-	-	1.7	3.1	C46
Liver	38	-	-	-	-	-	0.9	1.3	4	4.3	2.8	7.3	8.9	11.8	15.6	2.3	16.9	-	23	1.6	2.8	C22
Tongue	31	-	-	-	-	-	-	-	-	1.1	6.9	16.1	2.2	5.1	5.2	4.6	16.9	5.6	46.1	1.3	2.3	C01-C02
Mouth	32	-	-	-	-	-	-	-	-	1.1	2.8	4.4	11.1	8.5	13	16.1	11.3	11.2	-	1.3	2.1	C03-C06
Eye	17	2.1	0.2	-	-	-	0.9	1.3	1.3	1.1	1.4	1.5	-	5.1	-	2.3	-	-	-	0.7	1	C69
Connective,Soft tissue	14	-	0.5	-	-	0.5	0.9	-	1.3	-	1.4	-	6.7	1.7	5.2	-	11.3	-	-	0.6	0.9	C47;C49
Stomach	13	-	-	-	-	-	-	1.3	-	-	-	1.5	8.9	-	10.4	4.6	-	-	23	0.5	1	C16
Colon	13	-	-	-	-	-	0.9	-	1.3	-	2.8	1.5	6.7	1.7	2.6	4.6	-	5.6	-	0.5	0.9	C18
Rectum	12	-	-	-	-	-	-	1.3	1.3	-	-	1.5	2.2	3.4	2.6	2.3	-	22.4	-	0.5	0.7	C19-C20
Bone	13	-	-	-	1.9	0.5	-	-	-	2.1	-	-	2.2	1.7	-	2.3	-	-	-	0.5	0.5	C40-C41
Melanoma of Skin	11	-	-	-	-	-	-	-	-	1.1	-	-	-	3.4	5.2	4.6	11.3	11.2	-	0.5	0.6	C43
Breast	11	-	-	-	-	-	0.9	-	-	-	2.8	-	-	3.4	5.2	9.2	-	-	-	0.5	0.7	C50
Penis	11	-	-	-	-	-	0.9	1.3	-	1.1	-	-	4.4	1.7	7.8	2.3	-	-	23	0.5	0.9	C60
Bladder	12	-	-	0.2	0.3	-	-	-	-	1.1	1.4	-	-	1.7	5.2	6.9	5.6	5.6	-	0.5	0.6	C67
Non-Hodgkin lymphoma	11	-	0.2	0.5	-	0.5	-	4	-	-	-	-	-	3.4	2.6	2.3	-	-	-	0.5	0.6	C82-C85;C96
Tonsil	9	-	-	-	-	-	-	-	-	-	-	2.9	-	5.1	2.6	2.3	5.6	5.6	-	0.4	0.6	C09
Anus	9	-	-	-	-	-	-	1.3	-	1.1	-	-	6.7	6.8	-	-	-	-	-	0.4	0.7	C21
Other Skin	9	-	-	-	-	-	-	-	-	1.1	4.2	1.5	2.2	1.7	2.6	-	5.6	-	-	0.4	0.7	C44
Brain, Nervous system	9	0.7	0.2	0.5	0.5	-	-	1.3	-	-	-	-	-	1.7	-	-	-	-	-	0.4	0.3	C70-C72
Multiple Myeloma	9	-	-	-	-	-	-	-	-	-	1.4	2.9	2.2	3.4	5.2	-	5.6	-	-	0.4	0.7	C90
Pancreas	5	-	-	-	-	-	-	-	-	-	1.4	-	4.4	-	-	2.3	5.6	-	-	0.2	0.4	C25
Kidney	6	1	0.2	-	-	-	-	-	-	-	-	-	2.2	1.7	-	-	-	-	-	0.2	0.3	C64
Thyroid	4	-	-	-	-	-	-	-	-	1.1	-	-	-	1.7	2.6	2.3	-	-	-	0.2	0.3	C73
Lip	2	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	2.3	-	-	-	0.1	0.1	C00

Hypopharynx	2	-	-	-	-	-	-	-	-	-	-	-	4.4	-	-	-	-	-	-	0.1	0.2	C12-C13
Nose, sinuses etc.	3	-	-	0.2	-	-	-	1.3	-	-	1.4	-	-	-	-	-	-	-	-	0.1	0.2	C30-C31
Testis	2	-	-	-	-	-	-	-	-	-	1.4	-	2.2	-	-	-	-	-	-	0.1	0.2	C62
Hodgkin disease	2	-	0.2	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1	C81
Leukaemia unspec.	2	-	-	-	-	0.5	-	-	-	-	-	-	-	-	2.6	-	-	-	-	0.1	0.1	C95
Salivary glands	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	0	0.1	C07-C08
Other Oropharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C10
Nasopharynx	1	-	-	-	-	-	-	-	-	1.1	-	-	-	-	-	-	-	-	-	0	0.1	C11
Pharynx unspec.	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C14
Small intestine	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C17
Gallbladder etc.	1	-	-	-	-	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C23-C24
Other Thoracic organs	1	-	-	-	-	-	-	-	-	-	-	1.5	-	-	-	-	-	-	-	0	0.1	C37-C38
Mesothelioma	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C45
Other male genital	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.6	-	-	0	0.1	C63
Renal Pelvis	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C65
Ureter	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C66
Other Urinary organs	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C68
Adrenal gland	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C74
Other Endocrine	1	-	-	-	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C75
Immunoproliferative	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C88
Lymphoid Leukaemia	1	-	0.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C91
Myeloid Leukaemia	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C92-C94
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All sites Total	1112	4	2	2	3	5	12	23	25	51	101	151	275	291	454	313	524	319	784	45.8	75.3	All
All sites but C44	1103	4	2	2	3	5	12	23	25	50	97	149	273	289	451	313	519	319	784	45.4	74.6	Not C44

NUMBER OF CASES - Female

Site	All Ages	0 -4	-5 -9	-10 -14	-15 -19	-20 -24	-25 -29	-30 -34	-35 -39	-40 -44	-45 -49	-50 -54	-55 -59	-60 -64	-65 -69	-70 -74	-75 -79	-80 -84	85+	% of Total	ICD (10th)
Lip	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C00
Tongue	12	0	0	0	0	0	0	0	0	0	2	1	0	2	1	3	1	0	2	0.70%	C01-C02
Mouth	8	0	0	0	0	1	0	0	0	0	0	2	0	1	1	1	1	0	1	0.50%	C03-C06
Salivary glands	2	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0.10%	C07-C08
Tonsil	3	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0.20%	C09
Other Oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C10
Nasopharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C11
Hypopharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C12-C13
Pharynx unspec.	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0.10%	C14
Oesophagus	531	0	0	0	0	0	0	2	3	18	21	55	53	103	74	97	45	35	25	31.60%	C15
Stomach	15	0	0	0	0	0	0	0	0	0	1	2	1	2	2	4	2	0	1	0.90%	C16
Small intestine	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C17
Colon	15	0	0	0	0	0	0	0	3	2	0	2	2	2	0	2	1	1	0	0.90%	C18
Rectum	11	0	0	0	0	0	0	1	1	0	2	1	0	1	3	1	1	0	0	0.70%	C19-C20
Anus	3	0	0	0	0	0	0	0	0	0	0	0	2	0	0	1	0	0	0	0.20%	C21
Liver	28	0	0	0	0	1	0	0	2	4	4	1	3	3	6	2	1	1	0	1.70%	C22
Gallbladder etc.	3	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0.20%	C23-C24
Pancreas	11	0	0	0	0	0	0	0	1	0	2	0	1	2	1	2	2	0	0	0.70%	C25
Nose, sinuses etc.	4	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0.20%	C30-C31
Larynx	9	0	0	0	0	0	0	1	0	0	1	1	0	2	2	1	1	0	0	0.50%	C32
Trachea,Bronchus,Lung	20	0	0	0	0	0	0	0	0	1	2	3	4	3	3	2	1	0	1	1.20%	C33-C34
Other Thoracic organs	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C37-C38
Bone	13	0	0	0	1	2	0	0	0	0	0	3	0	1	2	1	2	1	0	0.80%	C40-C41
Melanoma of Skin	10	0	0	0	0	0	0	0	0	3	3	0	0	1	0	0	1	1	0	0.60%	C43
Other Skin	5	0	0	0	0	0	0	1	0	1	0	1	2	0	0	0	0	0	0	0.30%	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C45
Kaposi sarcoma	31	0	0	1	1	5	9	4	6	3	1	0	1	0	0	0	0	0	0	1.80%	C46
Connective,Soft tissue	9	1	0	0	0	2	0	0	0	1	2	0	1	1	1	0	0	0	0	0.50%	C47;C49
Breast	173	0	0	0	0	3	5	12	13	25	14	18	18	21	13	16	8	6	1	10.30%	C50
Vulva	7	0	0	0	0	2	0	1	1	0	0	2	0	0	0	0	1	0	0	0.40%	C51
Vagina	8	0	0	0	0	0	0	0	0	0	0	2	1	1	2	2	0	0	0	0.50%	C52
Cervix Uteri	572	0	0	0	0	2	5	22	27	55	72	48	67	87	73	57	35	12	10	34.00%	C53
Corpus Uteri	24	0	0	0	0	0	0	0	1	0	0	0	5	7	4	7	0	0	0	1.40%	C54
Uterus unspec.	10	0	0	0	0	0	0	0	0	0	0	1	2	3	1	1	1	0	1	0.60%	C55
Ovary	21	0	0	0	0	1	0	3	4	1	2	2	2	2	1	0	1	1	1	1.20%	C56
Other Female Genital	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.10%	C57
Placenta	7	0	0	0	0	1	2	2	1	1	0	0	0	0	0	0	0	0	0	0.40%	C58
Kidney	9	5	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	1	0	0.50%	C64
Renal Pelvis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C65
Ureter	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.10%	C66
Bladder	5	0	0	0	0	0	0	0	0	0	0	0	2	0	2	0	1	0	0	0.30%	C67

Other Urinary organs	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0.10%	C68
Eye	10	0	1	0	0	0	2	2	1	0	0	2	2	0	0	0	0	0	0	0.60%	C69
Brain, Nervous system	5	1	1	1	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0.30%	C70-C72
Thyroid	8	0	0	0	0	0	0	1	2	0	2	0	2	0	0	1	0	0	0	0.50%	C73
Adrenal gland	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C74
Other Endocrine	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.10%	C75
Hodgkin disease	3	0	0	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0.20%	C81
Non-Hodgkin lymphoma	17	0	0	4	0	3	1	2	2	2	0	0	1	0	1	0	0	1	0	1.00%	C82-C85;C96
Immunoproliferative	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.00%	C88
Multiple Myeloma	4	0	0	0	0	0	0	0	0	0	1	1	0	0	1	0	1	0	0	0.20%	C90
Lymphoid Leukaemia	2	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0.10%	C91
Myeloid Leukaemia	2	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0.10%	C92-C94
Leukaemia unspec.	6	1	0	1	1	0	0	0	0	0	0	1	0	2	0	0	0	0	0	0.40%	C95
Other & unspecified	39	0	0	0	0	1	1	0	5	2	3	5	1	10	1	3	1	5	1	2.30%	Other
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All sites Total	1681	8	3	8	3	24	25	57	74	120	136	160	176	260	198	205	109	70	44	100.00%	All
All sites but C44	1676	8	3	8	3	24	25	56	74	119	136	159	174	260	198	205	109	70	44	99.70%	Not C44

INCIDENCE RATES - Female

Site	All	0	-5	-10	-15	-20	-25	-30	-35	-40	-45	-50	-55	-60	-65	70	- 75-	-80	85+	Crud	ASR	ICD
	Ages	-4	-9	-14	-19	-24	-29	-34	-39	-44	-49	-54	-59	-64	-69	-7	4 -79	-84		Rate	World	(10th)
Lip	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C00
Tongue	12	-	-	-	-	-	-	-	-	-	1.7	1	-	2	1.3	3	3.2	-	16	0.4	0.4	C01-C02
Mouth	8	-	-	-	-	0.5	-	-	-	-	-	2.1	-	1	1.3	1	3.2	-	8	0.3	0.3	C03-C06
Salivary glands	2	-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	2.6	-	0.1	0.1	C07-C08
Tonsil	3	-	-	-	-	-	-	-	-	-	-	2.1	1.5	-	-	-	-	-	-	0.1	0.2	C09
Other Oropharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C10
Nasopharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C11
Hypopharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C12-C13
Pharynx unspec.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	0.1	0	C14
Oesophagus	531	-	-	-	-	-	-	1.6	2.2	11.1	17.4	56.7	81.2	103.1	96.7	98.3	142.3	91.5	200.5	18	19.9	C15
Stomach	15	-	-	-	-	-	-	-	-	-	0.8	2.1	1.5	2	2.6	4.1	6.3	-	8	0.5	0.6	C16
Small intestine	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C17
Colon	15	-	-	-	-	-	-	-	2.2	1.2	-	2.1	3.1	2	-	2	3.2	2.6	-	0.5	0.6	C18
Rectum	11	-	-	-	-	-	-	0.8	0.7	-	1.7	1	-	1	3.9	1	3.2	-	-	0.4	0.5	C19-C20
Anus	3	-	-	-	-	-	-	-	-	-	-	-	3.1	-	-	1	-	-	-	0.1	0.1	C21
Liver	28	-	-	-	-	0.5	-	-	1.5	2.5	3.3	1	4.6	3	7.8	2	3.2	2.6	-	1	1.2	C22
Gallbladder etc.	3	-	-	-	-	-	-	0.8	0.7	-	-	-	-	-	-	-	-	2.6	-	0.1	0.1	C23-C24
Pancreas	11	-	-	-	-	-	-	-	0.7	-	1.7	-	1.5	2	1.3	2	6.3	-	-	0.4	0.4	C25
Nose, sinuses etc.	4	-	-	-	-	-	-	-	-	-	-	1	1.5	1	-	-	3.2	-	-	0.1	0.2	C30-C31
Larynx	9	-	-	-	-	-	-	0.8	-	-	0.8	1	-	2	2.6	1	3.2	-	-	0.3	0.4	C32
Trachea,Bronchus,Lung	20	-	-	-	-	-	-	-	-	0.6	1.7	3.1	6.1	3	3.9	2	3.2	-	8	0.7	0.9	C33-C34
Other Thoracic organs	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C37-C38
Bone	13	-	-	-	0.3	1	-	-	-	-	-	3.1	-	1	2.6	1	6.3	2.6	-	0.4	0.5	C40-C41

Melanoma of Skin	10	-	-	-	-	-	-	-	-	1.9	2.5	-	-	1	-	-	3.2	2.6	-	0.3	0.4	C43
Other Skin	5	-	-	-	-	-	-	0.8	-	0.6	-	1	3.1	-	-	-	-	-	-	0.2	0.3	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C45
Kaposi sarcoma	31	-	-	0.2	0.3	2.5	6	3.1	4.5	1.9	0.8	-	1.5	-	-	-	-	-	-	1.1	1.4	C46
Connective,Soft tissue	9	0.4	-	-	-	1	-	-	-	0.6	1.7	-	1.5	1	1.3	-	-	-	-	0.3	0.4	C47;C49
Breast	173	-	-	-	-	1.5	3.4	9.3	9.7	15.5	11.6	18.5	27.6	21	17	16.2	25.3	15.7	8	5.9	7.2	C50
Vulva	7	-	-	-	-	1	-	0.8	0.7	-	-	2.1	-	-	-	-	3.2	-	-	0.2	0.3	C51
Vagina	8	-	-	-	-	-	-	-	-	-	-	2.1	1.5	1	2.6	2	-	-	-	0.3	0.3	C52
Cervix Uteri	572	-	-	-	-	1	3.4	17.1	20.2	34.1	59.5	49.4	102.7	87.1	95.4	57.8	110.7	31.4	80.2	19.4	24	C53
Corpus Uteri	24	-	-	-	-	-	-	-	0.7	-	-	-	7.7	7	5.2	7.1	-	-	-	0.8	0.9	C54
Uterus unspec.	10	-	-	-	-	-	-	-	-	-	-	1	3.1	3	1.3	1	3.2	-	8	0.3	0.4	C55
Ovary	21	-	-	-	-	0.5	-	2.3	3	0.6	1.7	2.1	3.1	2	1.3	-	3.2	2.6	8	0.7	0.9	C56
Other Female Genital	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	0	0	C57
Placenta	7	-	-	-	-	0.5	1.3	1.6	0.7	0.6	-	-	-	-	-	-	-	-	-	0.2	0.3	C58
Kidney	9	1.8	0.2	-	-	-	-	-	-	-	-	1	-	-	-	1	-	2.6	-	0.3	0.3	C64
Renal Pelvis	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C65
Ureter	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	-	-	-	0	0	C66
Bladder	5	-	-	-	-	-	-	-	-	-	-	-	3.1	-	2.6	-	3.2	-	-	0.2	0.2	C67
Other Urinary organs	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	0	0.1	C68
Eye	10	-	0.2	-	-	-	1.3	1.6	0.7	-	-	2.1	3.1	-	-	-	-	-	-	0.3	0.5	C69
Brain, Nervous system	5	0.4	0.2	0.2	-	-	-	0.8	-	-	-	-	1.5	-	-	-	-	-	-	0.2	0.2	C70-C72
Thyroid	8	-	-	-	-	-	-	0.8	1.5	-	1.7	-	3.1	-	-	1	-	-	-	0.3	0.4	C73
Adrenal gland	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C74
Other Endocrine	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	0	0	C75
Hodgkin disease	3	-	-	0.2	-	-	-	-	-	0.6	-	1	-	-	-	-	-	-	-	0.1	0.1	C81
Non-Hodgkin lymphoma	17	-	-	0.9	-	1.5	0.7	1.6	1.5	1.2	-	-	1.5	-	1.3	-	-	2.6	-	0.6	0.6	C82-C85;C96
Immunoproliferative di	s. 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C88
Multiple Myeloma	4	-	-	-	-	-	-	-	-	-	0.8	1	-	-	1.3	-	3.2	-	-	0.1	0.2	C90
Lymphoid Leukaemia	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	-	2.6	-	0.1	0.1	C91
Myeloid Leukaemia	2	-	-	-	-	-	-	-	-	-	0.8	-	-	-	1.3	-	-	-	-	0.1	0.1	C92-C94
Leukaemia unspec.	6	0.4	-	0.2	0.3	-	-	-	-	-	-	1	-	2	-	-	-	-	-	0.2	0.2	C95
Other & unspecified	39	-	-	-	-	0.5	0.7	-	3.7	1.2	2.5	5.2	1.5	10	1.3	3	3.2	13.1	8	1.3	1.5	Other
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All sites Total	1681	3	1	2	1	12	17	44	55	74	112	165	270	260	259	208	345	183	353	57.1	67.7	All
All sites but C44	1676	3	1	2	1	12	17	44	55	74	112	164	267	260	259	208	345	183	353	56.9	67.4	Not C44

RANKED

_____INCIDENCE RATES - Female_____

Site	All Ages	0 -4	-5 -9	-10 -14	-15 -19	-20 -24	-25 -29	-30 -34	-35 -39	-40 -44	-45 -49	-50 -54	-55 -59	-60 -64	-65 -69	70 -7	- 75- 4 -79	-80 -84	85+	Crud Rate	ASR World	ICD (10th)
Cervix Uteri	572	-	-	-	-	1	3.4	17.1	20.2	34.1	59.5	49.4	102.7	87.1	95.4	57.8	110.7	31.4	80.2	19.4	24	C53
Oesophagus	531	-	-	-	-	-	-	1.6	2.2	11.1	17.4	56.7	81.2	103.1	96.7	98.3	142.3	91.5	200.5	18	19.9	C15
Breast	173	-	-	-	-	1.5	3.4	9.3	9.7	15.5	11.6	18.5	27.6	21	17	16.2	25.3	15.7	8	5.9	7.2	C50

Other & unspecified	39	-	-	-	-	0.5	0.7	-	3.7	1.2	2.5	5.2	1.5	10	1.3	3	3.2	13.1	8	1.3	1.5	Other
Kaposi sarcoma	31	-	-	0.2	0.3	2.5	6	3.1	4.5	1.9	0.8	-	1.5	-	-	-	-	-	-	1.1	1.4	C46
Liver	28	-	-	-	-	0.5	-	-	1.5	2.5	3.3	1	4.6	3	7.8	2	3.2	2.6	-	1	1.2	C22
Corpus Uteri	24	-	-	-	-	-	-	-	0.7	-	-	-	7.7	7	5.2	7.1	-	-	-	0.8	0.9	C54
Trachea,Bronchus,Lung	20	-	-	-	-	-	-	-	-	0.6	1.7	3.1	6.1	3	3.9	2	3.2	-	8	0.7	0.9	C33-C34
Ovary	21	-	-	-	-	0.5	-	2.3	3	0.6	1.7	2.1	3.1	2	1.3	-	3.2	2.6	8	0.7	0.9	C56
Non-Hodgkin lymphoma	17	-	-	0.9	-	1.5	0.7	1.6	1.5	1.2	-	-	1.5	-	1.3	-	-	2.6	-	0.6	0.6	C82-C85;C96
Stomach	15	-	-	-	-	-	-	-	-	-	0.8	2.1	1.5	2	2.6	4.1	6.3	-	8	0.5	0.6	C16
Colon	15	-	-	-	-	-	-	-	2.2	1.2	-	2.1	3.1	2	-	2	3.2	2.6	-	0.5	0.6	C18
Tongue	12	-	-	-	-	-	-	-	-	-	1.7	1	-	2	1.3	3	3.2	-	16	0.4	0.4	C01-C02
Rectum	11	-	-	-	-	-	-	0.8	0.7	-	1.7	1	-	1	3.9	1	3.2	-	-	0.4	0.5	C19-C20
Pancreas	11	-	-	-	-	-	-	-	0.7	-	1.7	-	1.5	2	1.3	2	6.3	-	-	0.4	0.4	C25
Bone	13	-	-	-	0.3	1	-	-	-	-	-	3.1	-	1	2.6	1	6.3	2.6	-	0.4	0.5	C40-C41
Mouth	8	-	-	-	-	0.5	-	-	-	-	-	2.1	-	1	1.3	1	3.2	-	8	0.3	0.3	C03-C06
Larynx	9	-	-	-	-	-	-	0.8	-	-	0.8	1	-	2	2.6	1	3.2	-	-	0.3	0.4	C32
Melanoma of Skin	10	-	-	-	-	-	-	-	-	1.9	2.5	-	-	1	-	-	3.2	2.6	-	0.3	0.4	C43
Connective,Soft tissue	9	0.4	-	-	-	1	-	-	-	0.6	1.7	-	1.5	1	1.3	-	-	-	-	0.3	0.4	C47;C49
Vagina	8	-	-	-	-	-	-	-	-	-	-	2.1	1.5	1	2.6	2	-	-	-	0.3	0.3	C52
Uterus unspec.	10	-	-	-	-	-	-	-	-	-	-	1	3.1	3	1.3	1	3.2	-	8	0.3	0.4	C55
Kidney	9	1.8	0.2	-	-	-	-	-	-	-	-	1	-	-	-	1	-	2.6	-	0.3	0.3	C64
Eye	10	-	0.2	-	-	-	1.3	1.6	0.7	-	-	2.1	3.1	-	-	-	-	-	-	0.3	0.5	C69
Thyroid	8	-	-	-	-	-	-	0.8	1.5	-	1.7	-	3.1	-	-	1	-	-	-	0.3	0.4	C73
Other Skin	5	-	-	-	-	-	-	0.8	-	0.6	-	1	3.1	-	-	-	-	-	-	0.2	0.3	C44
Vulva	7	-	-	-	-	1	-	0.8	0.7	-	-	2.1	-	-	-	-	3.2	-	-	0.2	0.3	C51
Placenta	7	-	-	-	-	0.5	1.3	1.6	0.7	0.6	-	-	-	-	-	-	-	-	-	0.2	0.3	C58
Bladder	5	-	-	-	-	-	-	-	-	-	-	-	3.1	-	2.6	-	3.2	-	-	0.2	0.2	C67
Brain, Nervous system	5	0.4	0.2	0.2	-	-	-	0.8	-	-	-	-	1.5	-	-	-	-	-	-	0.2	0.2	C70-C72
Leukaemia unspec.	6	0.4	-	0.2	0.3	-	-	-	-	-	-	1	-	2	-	-	-	-	-	0.2	0.2	C95
Salivary glands	2	-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	-	-	2.6	-	0.1	0.1	C07-C08
Tonsil	3	-	-	-	-	-	-	-	-	-	-	2.1	1.5	-	-	-	-	-	-	0.1	0.2	C09
Pharynx unspec.	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5.2	-	0.1	0	C14
Anus	3	-	-	-	-	-	-	-	-	-	-	-	3.1	-	-	1	-	-	-	0.1	0.1	C21
Gallbladder etc.	3	-	-	-	-	-	-	0.8	0.7	-	-	-	-	-	-	-	-	2.6	-	0.1	0.1	C23-C24
Nose, sinuses etc.	4	-	-	-	-	-	-	-	-	-	-	1	1.5	1	-	-	3.2	-	-	0.1	0.2	C30-C31
Hodgkin disease	3	-	-	0.2	-	-	-	-	-	0.6	-	1	-	-	-	-	-	-	-	0.1	0.1	C81
Multiple Myeloma	4	-	-	-	-	-	-	-	-	-	0.8	1	-	-	1.3	-	3.2	-	-	0.1	0.2	C90
Lymphoid Leukaemia	2	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	-	2.6	-	0.1	0.1	C91
Myeloid Leukaemia	2	-	-	-	-	-	-	-	-	-	0.8	-	-	-	1.3	-	-	-	-	0.1	0.1	C92-C94
Lip	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C00
Other Oropharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C10

Nasopharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C11
Hypopharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C12-C13
Small intestine	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C17
Other Thoracic organs	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C37-C38
Mesothelioma	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C45
Other Female Genital	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	0	0	C57
Renal Pelvis	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C65
Ureter	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1.3	-	-	-	-	0	0	C66
Other Urinary organs	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	0	0.1	C68
Adrenal gland	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C74
Other Endocrine	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	0	0	C75
Immunoproliferative di	s. 0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	C88
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All sites Total	1681	3	1	2	1	12	17	44	55	74	112	165	270	260	259	208	345	183	353	57.1	67.7	All
All sites but C44	1676	3	1	2	1	12	17	44	55	74	112	164	267	260	259	208	345	183	353	56.9	67.4	Not C44