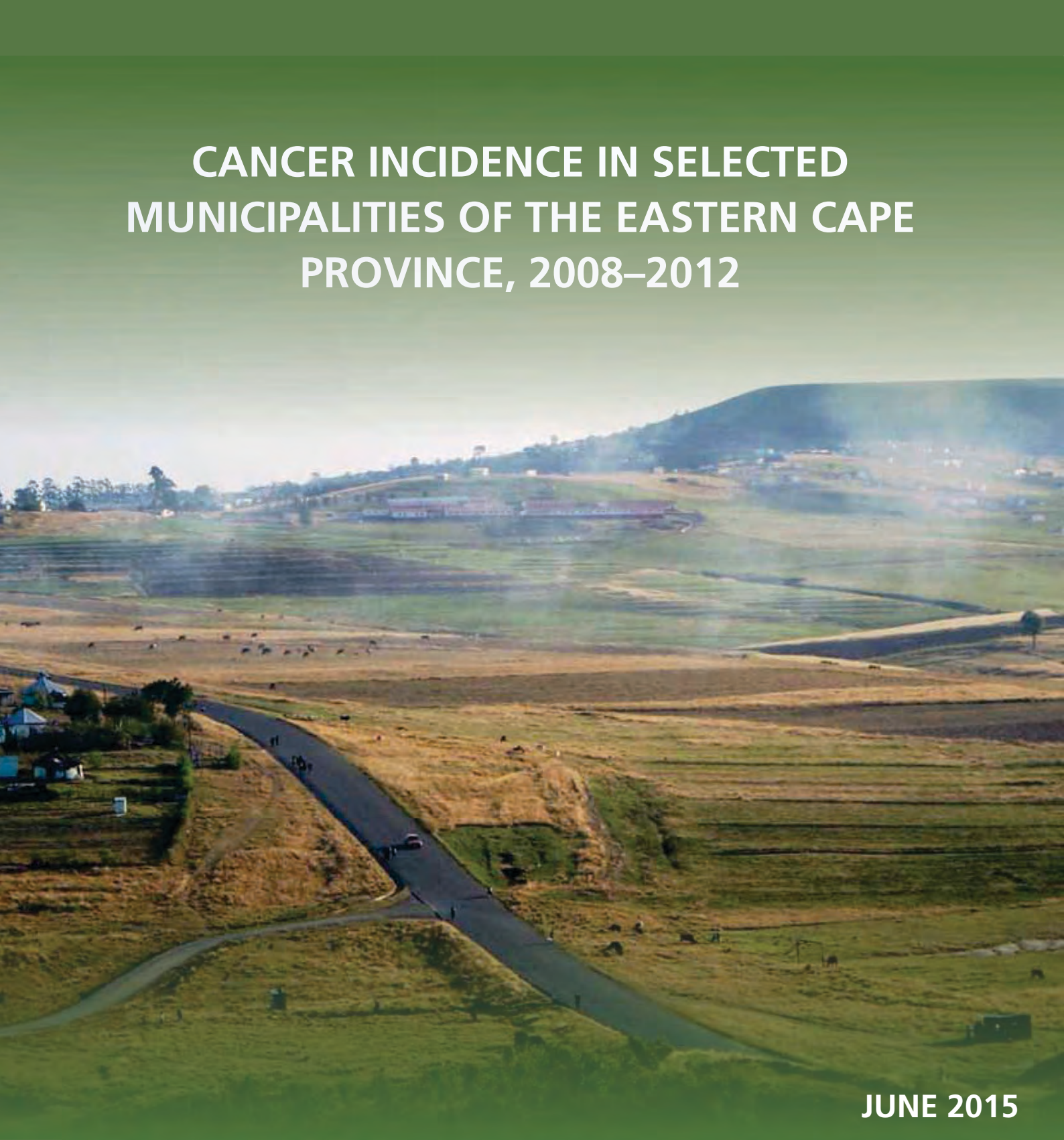
CANCER INCIDENCE IN SELECTED MUNICIPALITIES OF THE EASTERN CAPE PROVINCE, 2008–2012



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SOUTH AFRICAN MEDICAL RESEARCH COUNCIL

AFCRN

IACR International Association of Cancer Registries

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FOREWORD

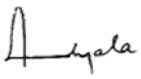
I am excited to be able to produce this technical report within a year since the last report of the Eastern Cape Province Cancer Registry formerly known as PROMEC Cancer Registry. This can only be attributed to the diligence, commitment and most importantly co-operation received from data collectors, collaborating hospitals, laboratory and health centres in the Eastern Cape Province. I am also grateful to the African Cancer Registry Network (AFCRN) under the umbrella of the International Agency for Research on Cancer (IARC) which injects intellectual energy to the registry staff through financial and technical support. It is through the various partnerships and hard work we have managed to generate good quality data of acceptable international standard and therefore to contribute for the first time to the international cancer incidence publication; "Cancer Incidence in Five Continents (CI5)". This then is a realization of the registry's dream as these achievements led to the registry being upgraded to a full member with voting power in the International Association of Cancer Registries (IACR). This report therefore comes as a special issue.

The Eastern Cape Province Cancer Registry is one of the few stable population-based registries in the Africa region and has developed as the only functional population-based cancer registry (PBCR) in South Africa. 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 understand the burden of cancer in this population for better utilization of minimal resources in planning cancer control and intervention programmes. Measures such as active case finding using multiple sources and frequent checking of data for validity and consistency are used to ensure generation of good quality data.

It is clear from this report that prevention and cancer control programmes are urgently needed that include improved cervical, breast and prostate screening, community awareness campaigns and education around cancer prevention, early detection and early treatment for better quality life after cancer diagnosis. Dissemination of findings from the register can play an important role in raising such awareness.

While we cannot change our genes, we can apply knowledge of our family medical history to predict our risk to specific problems and focus on things we can change, including diet, lifestyle and environment, to ensure long and healthy life.

Ntuthu Somdyala



Registry Head

ACKNOWLEDGEMENTS

Collaborating hospitals including medical and nursing personnel in the registration area are acknowledged, without their support and co-operation; this report would not be possible.

The following hospitals are collaborating with the registry

Hospitals in the 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 outside the registration area

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 Dinuzulu Hospital (formerly King George V) Cardio-Thoracic Surgery Unit, Addington Oncology and Radiotherapy Department
Kokstad	Usher Memorial Hospital

Data collectors
The following data collectors are acknowledged for their invaluable contribution to this report. They are:
Mrs Nqabisa Sixaba (Frere Hospital)
Ms Lungiswa Sokhaya (Tafalofefe Hospital)
Miss Ntombifikile Mbuzi (St Elizabeth Hospital)

Financial support from the South African Medical Research Council (SAMRC) and Calum Muir Fellowship of the International Agency for Research on Cancer (IARC) awarded to Ms Ntuthu Somdyala.

Technical skills and training in cancer registration and data management by IARC and African Cancer Registry Network (AFCRN) to Miss Nomfuneko Sithole (data manager) and Miss Ntombifikile Mbuzi (data collector).

The Registry is a member of the African Cancer Registry Network (AFCRN) and voting full member of the International Association of Cancer Registries (IACR).

ABBREVIATIONS AND ACRONYMS

PROMEC	Programme on Mycotoxins and Experimental Carcinogenesis
AFCRN	African Cancer Registry Network
IARC	International Agency for Research on Cancer
IACR	International Association of Cancer Registries
CI5	Cancer Incidence in Five Continents
NGOs	Non-Governmental Organisations
PBCR	Population-based Cancer Registry
SAMRC	South African Medical Research Council
NHLS	National Health Laboratory Services
ICD-O	International Coding for Diseases in Oncology
ICD-10	International Statistical Classification of Diseases and Related Problems (10th revision edition)
CanReg	Cancer Registration Computer Software
Cum. Rate	Cumulative Rate
LR	Lifetime Risk
HPV	Human Papilloma Virus

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BACKGROUND

The Eastern Cape Province Cancer Registry is one of the long-term projects established by the South African Medical Research Council (SAMRC). 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. It is one of the stable rural population-based cancer 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.

A series of reports have been produced over the period of time which include 2003, 2008 and 2013 technical reports (Somdyala, *et al.*, 2003, 2008, 2010) and the current report has been just timeously available. Continuous support from collaborating hospitals and data collectors contributed a great deal. This registry survived the challenges of under staffing and limited expertise in epidemiology. However, technical and financial support received from the International Agency for Research on Cancer (IARC) and the African Cancer Registry Network (AFCRN), which needs a special mention, was greatly appreciated.

POPULATION COVERED

(i) Geography

The Eastern Cape Province is located in the South-Eastern part of South Africa. It shares its borders with KwaZulu–Natal, Lesotho, Free State, Northern Cape and Western Cape. The Province is made up of seven district municipalities that include Nelson Mandela Bay Metro, Cacadu, Amathole, Chris Hani, UKhahlamba, O.R.Tambo and Alfred Nzo of which **only two** are covered by the registry; **Amathole and OR Tambo municipalities**. This is a rural population of just over one million that includes eight magisterial areas of Butterworth, Centane (Kentani), Idutywa, Nqamakwe, Willowvale, Bizana, Flagstaff and Lusikisiki.

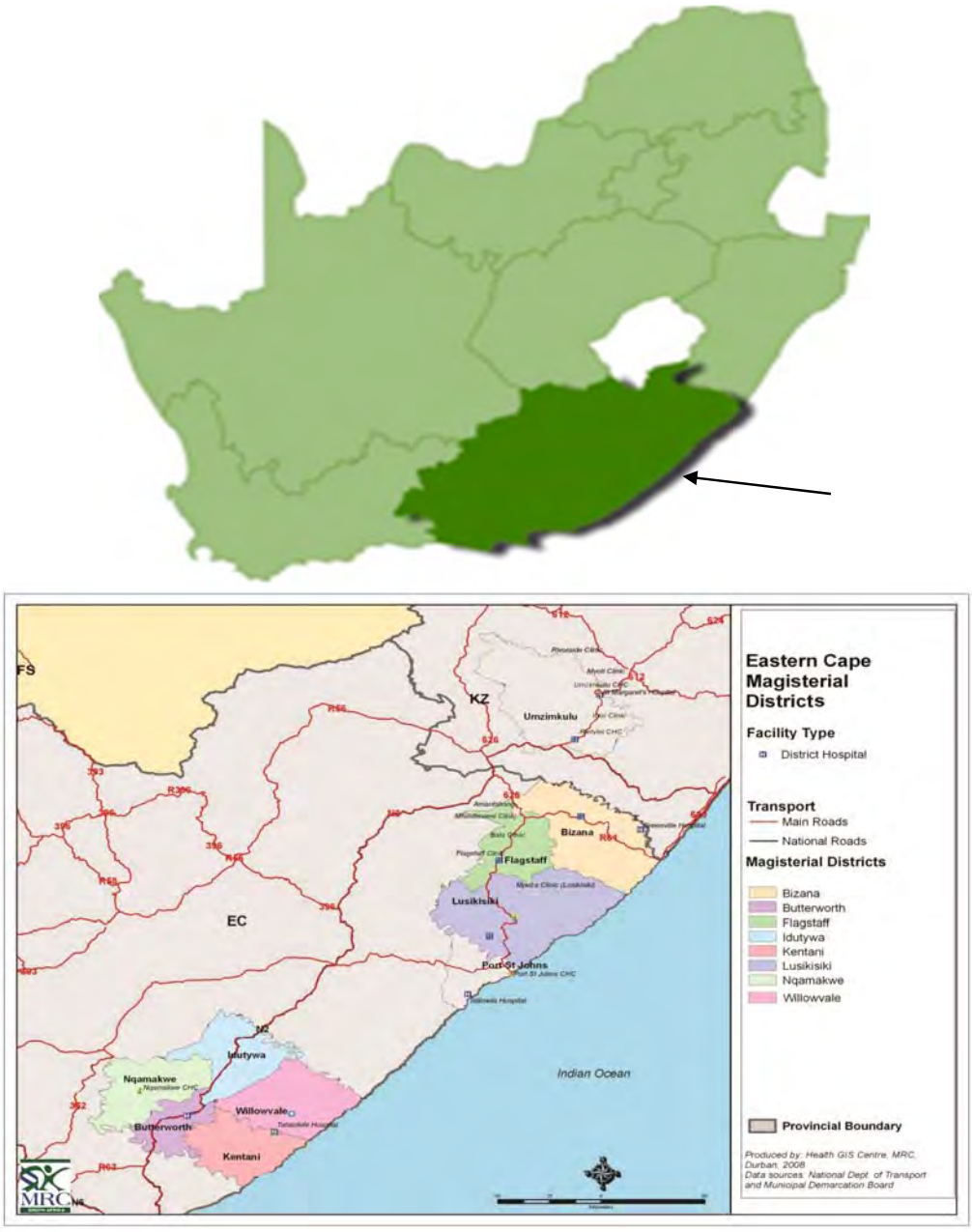

Figure 1: Map of South Africa showing cancer registration area in the Eastern Cape Province

(ii) Population size and composition

Population covered by the registry is rural and comprised of 99% African Black. The registry covered just above 1 million population during 2008-2012 of which 54% are women and 46% men. Ethnic groups found in this population include; amaGcaleka, Fingos and Pondos. Work related migration is common and there is circulatory movement of people between an urban and a rural-based home.

The most recent population census in South Africa was in 2011. Based on the annual growth rate in the population, in each sex and five-year age group, annual inter-censal estimates were prepared for the years 2002-2010. Using the population estimates for the years 2008 - 20012, the average annual population for the five year period was 107 3423; 578, 669 (females) and 494, 754 (males) The composition by sex and five year age group is shown in the population pyramid (Figure 2).

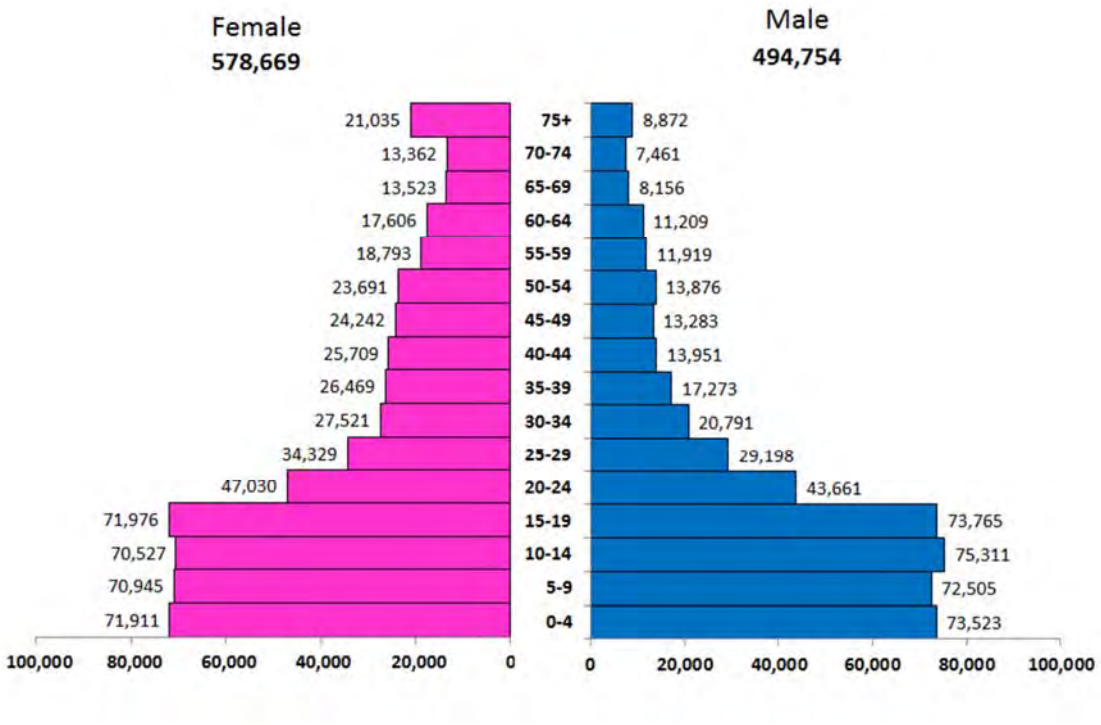

Figure 2: Estimated average annual population of eight magisterial areas for the period 2008-2012

METHODS

The registry collaborates 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. Below is the list of hospitals inside and referral hospitals outside the registration area;

Hospitals in the 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 outside the registration area

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East London	Oncology Radiation Unit, Paediatric Unit and Haematology Department, Frere Hospital
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KwaZulu-Natal Hospitals

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

Active method is mainly used in collecting data where registry staff visits collaborating hospitals once a year. This involves collecting and following cancer cases from the local hospitals to referral. It might appear as tedious kind of work but very useful in improving the information on each cancer patient collected. In rural hospitals almost 99% of patients have clinical only diagnoses and thereafter referred to the regional hospital for further investigations. It is at the referral hospital clinics and the regional pathology laboratory where names of cases are linked to the laboratory report. This has improved the percentage of cases with histological verified diagnoses a great deal and a significant indicator of patients having an opportunity for further investigation and treatment. The schematic diagram below shows pathway of patients from local hospitals until getting treatment in the oncology radiation hospital in the region.

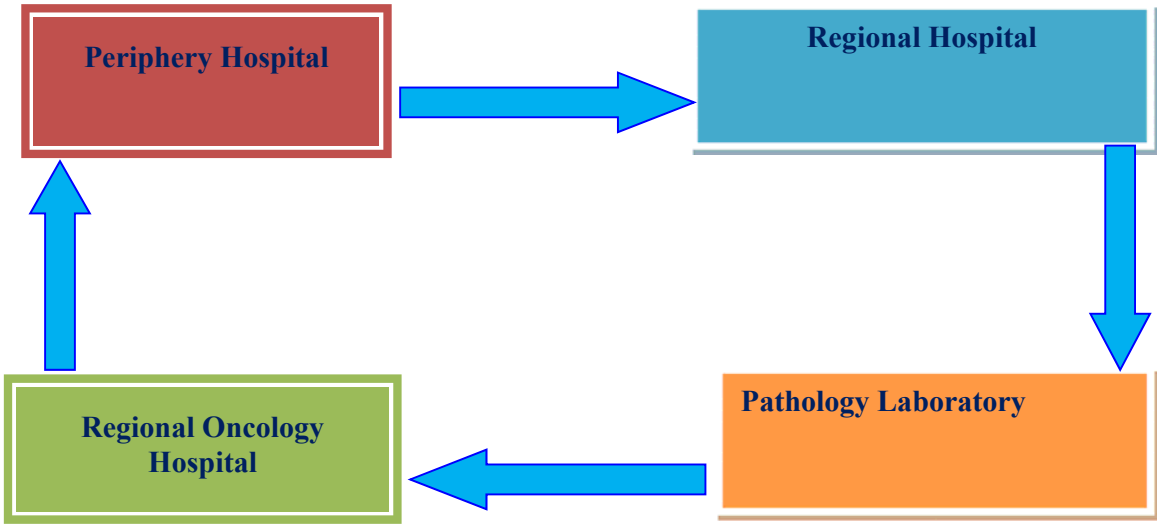

Figure 3: Illustration of patients' movements in the process of cancer diagnosis verification and treatment

Passive method is used as supplementary to active method and details including data processing are available elsewhere (Somdyala, *et al*., 2008, 2010, and 2013).

Variables

The variables collected for each patient include; patient information that include address, source of information, tumour information, treatment and vital status (Appendix 1).

Classification and coding

Site and histology

Cancer diagnoses are coded for topography and morphology according to the International Classification of Diseases for Oncology (ICD-O) (Fritz *et al*., 2000) and entered into the database managed with the CanReg software; a computer program designed by the Unit of Descriptive Epidemiology of the International Agency for Research on Cancer (IARC).

ICD-O codes entered into CanReg system are automatically converted to the appropriate codes of the 10th version edition of the International Classification of Diseases and Related Health Problems (ICD-10) in order to facilitate international comparison of results.

Demographic data

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. Socio-economic status data coding is done according to the modified codes generated by the registry.

Coding by ethnic groups

Information on ethnic groups is controversial in the Republic of South Africa and strictly collected for the purpose of demographic classification; Black African, White, Coloured and Indian. In the area covered by the registry; almost 99% of the population is comprised of Black Africans. It is important to point out that the registry treats ethnicity as one of the critical variables to collect since it is important in epidemiology.

Incidence date

Incidence date (date of diagnosis) is defined according to the 1991 original recommendations of the IARC. They refer to the date in decreasing order of priority:

a) Date of first consultation at or admission to, a hospital, clinic or institution for the cancer in question;

b) Date of first diagnosis of the cancer by the physician or the date of the first pathology report – a population-based registry should seek this information only when necessary for recording the incidence date;

c) Date of death (year only), when the cancer is first ascertained from the death certificate and the follow-back attempts have been unsuccessful; or

d) Date of death preceding an autopsy, when this is the time at which cancer is first found and was unsuspected clinically (without even a vague statement, such as ‘tumour suspected’, ‘malignancy suspected’).

Multiple primaries

Duplicates were carefully assessed to clarify whether they were new malignancies, secondary cancers or duplicate information. Only one tumour from a primary site at a given time can be accepted for counting. If two tumours are found in one individual; the advice of the oncologist is sort.

Basis of diagnosis

Basis of diagnosis is coded according to the ICD-O-3 scheme. When multiple notifications are received for the same cancer, the highest code and most valid basis of diagnosis is recorded.

Table 1: IARC-IACR Basis of Diagnosis Codes

Code	Description	Criteria
0	Death Certificate Only	Information provided is from a death certificate.
Non-microscopic		
1	Clinical	Diagnosis made before death, but without any of the following (codes 2-7).
2	Clinical investigation	All diagnostic techniques, including x-ray, endoscopy, imaging, ultrasound, exploratory surgery (e.g., laparotomy), and autopsy, without a tissue diagnosis.
4	Specific tumor markers	Including biochemical and/or immunological markers that are specific for a tumor site.
Microscopic		
5	Cytology	Examination of cells from a primary or secondary site, including fluids aspirated by endoscopy or needle; also includes the microscopic examination of peripheral blood and bone marrow aspirates.
6	Histology of a metastasis	Histologic examination of tissue from a metastasis, including autopsy specimens.
7	Histology of a primary tumor	Histologic examination of tissue from primary tumor, however obtained, including all cutting techniques and bone marrow biopsies; also includes autopsy specimens of primary tumor.
9	Unknown	

Software

CanReg cancer registration software developed by the IARC is used for data processing. Data analysis was done using the analysis module of CanReg4.

Confidentiality

The Eastern Cape Province Cancer Registry strictly observes the IARC/IACR rules on confidentiality (IARC Internal Report No. 92/003). Data collectors sign a binding confidentiality agreement which is renewed annually. The information included in this agreement is as follows:

Confidentiality agreement

- I understand and accept the responsibility of maintaining the confidentiality of all data and information collected and processed by the Eastern Cape Province Cancer Registry
- I also understand my role in upholding and protecting the right to privacy of persons and institutions co-operating with the cancer registry data collection activities
- I understand that I cannot disclose any confidential information to any third party except those authorized to receive such information, such as South African Medical Research Council (SAMRC) staff working with the cancer registry or the original reporting source
- I also understand that failure to adhere to this agreement is a breach of the terms of my employment by the SAMRC and may result in disciplinary action being taken against me, including dismissal
- I am aware of the confidentiality policies and procedures regulating patients' information and agree to act in accordance with these policies and procedures

Statistical methods

Results are presented as numbers of cases registered in the three year period (2008-2012), the frequency of different cancers (as a percentage of the total) and average annual incidence rates. The latter are calculated as:- number of cases x 100 000, divide by average annual population at risk x 5 either for the whole population of males and females (crude rates) or for 5 year age groups (age specific rates), per 100 000 population.

Age standardization is carried by two methods

i) Direct standardization

Using age specific rates applied to the World Population (Doll & Smith, 1982) to obtain the (World) Age Standardised Rate (ASR) per 100 000 population. Age standardisation is carried out by calculating Proportional Incidence Ratios (PIRs). In the PIR, the expected number of cases in the sub group due to a specific cancer is calculated, and the PIR is the ratio of the cases observed to those expected. The expected number of cases is obtained by multiplying the total cancers in each age group in the sub group, by the corresponding sex-age-cause-specific proportions in a standard (Boyle & Parkin 1991).

ii) Cumulative Rates (to age 74)

This is obtained by adding age specific rates for individual years of age up to age 64 or age 74. If these rates are expressed per 100,000, the result is divided by 1000, to obtain the cumulative rate (Cum. Rate) per 100 (%). It is approximately equal to the probability (percentage chance) of developing the given cancer by age 74, given the age specific incidence rates in the tables.

RESULTS

Incidence

A total of 3 286 new cancer cases were observed; comprising 1206 (36.7.9%) males and 2080 (63.2%) females during the period 2008-2012. Table 2 shows the distribution of cases by year and sex of which the average number of cases observed was 657.2

Table 2: Number of cases recorded each year by sex, 2008–2012

Year	Male	Female	Total
2008	222	364	586
2009	237	386	623
2010	243	456	700
2011	246	422	667
2012	258	452	710
2008–2012	**1206**	**2080**	**3286**

(i) Number of cases in period by age group and sex

Figure 4 shows the distribution of cases observed during the period 2008-2012 year period, by broad age grouping and sex. Overall (both sexes) some 2 % of cancer cases occurred in childhood (ages 0-14), and 29% in the elderly (ages 70 or more).

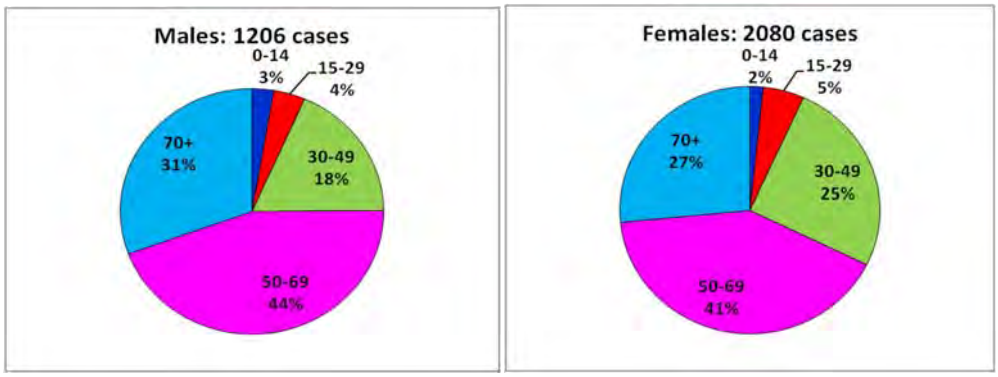

Figure 4: Distribution of cases registered; 2008-2012 by age group and sex

(ii) Most common cancers, by sex

Figures 5 and 6 show the most common cancers in men and women, according to the number of cases recorded during the period 2008-2012 In men, oesophagus cancer was the most commonly diagnosed malignancy, with 361 cases followed by prostate (175 cases). In women, cancer of the cervix uteri was the most predominant cancer with 720 cases followed by cancer of the oesophagus (411 cases).

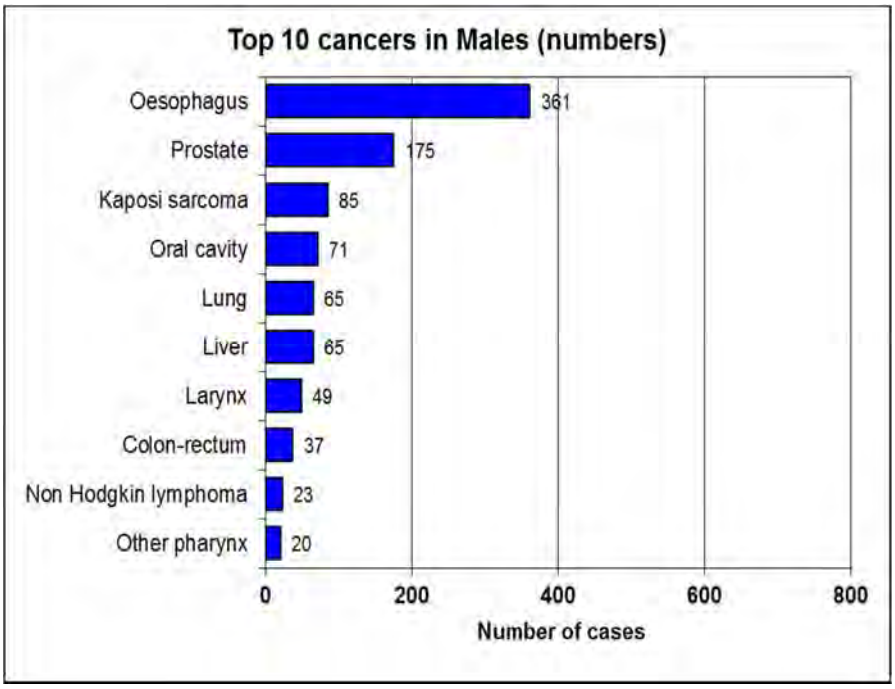

Figure 5: Total number of top 10 cancers in men

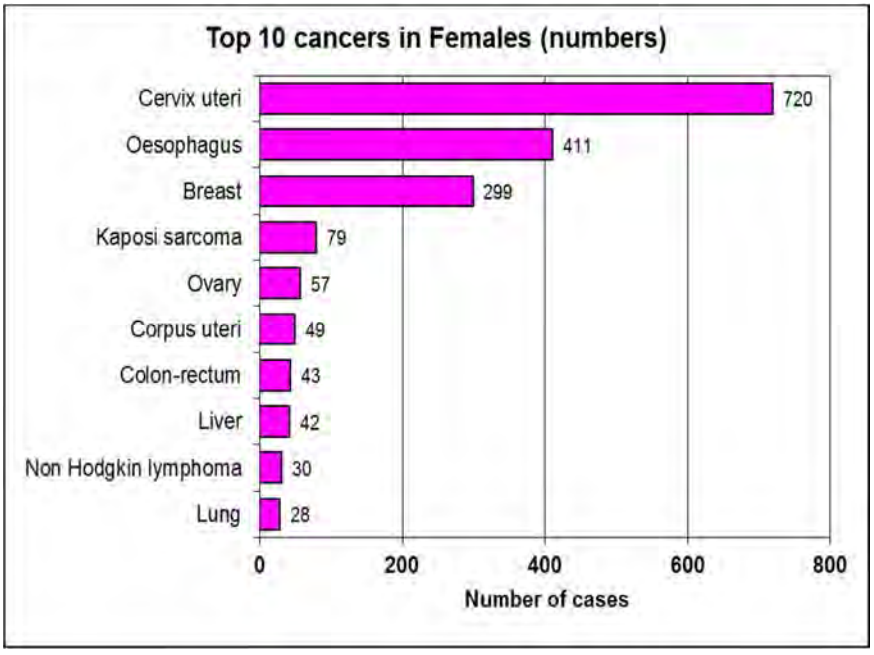

Figure 6: Total number of top 10 cancers in women

Figures 7 and 8 show the ranking of cases according to the cumulative incidence (0-74). In men (Figure 7) the highest cumulative incidence is for oesophagus cancer (2.7%) followed by

prostate cancer (1.1%) whereas in women cervix cancer leads with (3.3%), followed by oesophagus (1.8%) and breast (1.3%) (Figure 8).

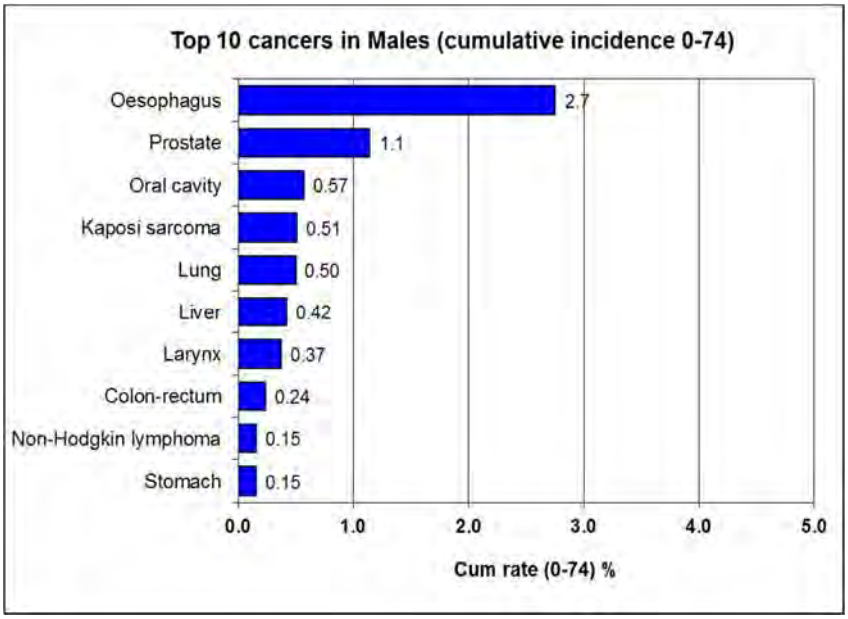

Figure 7: Top 10 cancers in males; cumulative incidence 0-74

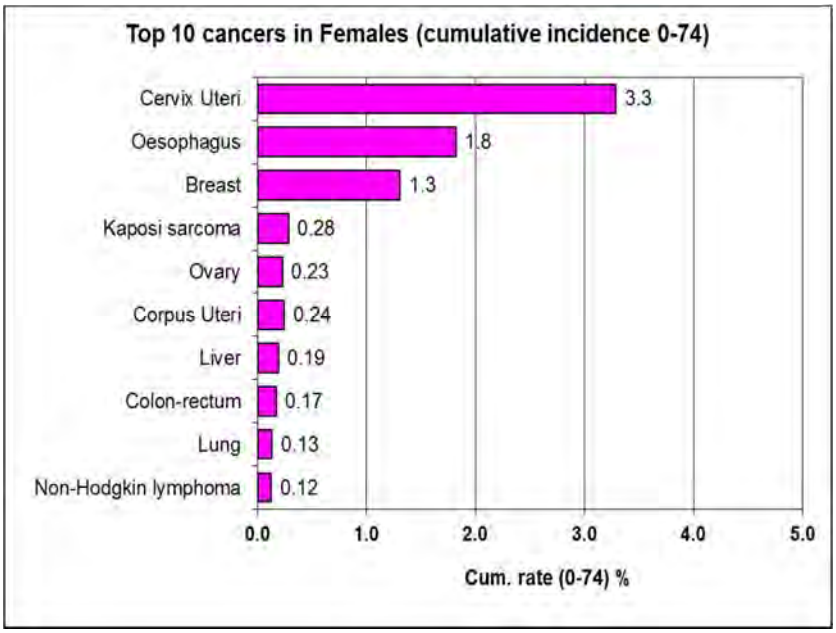

Figure 8: Top 10 cancers in females; cumulative incidence 0-74

Figure 9 shows the age specific incidence rates for the five most common cancers (a) in men and (b) in women. In men; oesophageal, prostate, oral cavity and lung cancers show steadily increasing incidence by age whereas Kaposi sarcoma incidence is quite high in younger age with its peak at age 34-39. In women; cervical, oesophageal and breast cancers steadily increase

with age, however, with cervical cancer incidence increase starts at an earlier age than the other two cancers. The incidence starts to increase at the age of 25-29. Kaposi sarcoma incidence is higher with the younger age whereas ovarian cancer starts later in life and stabilized throughout.

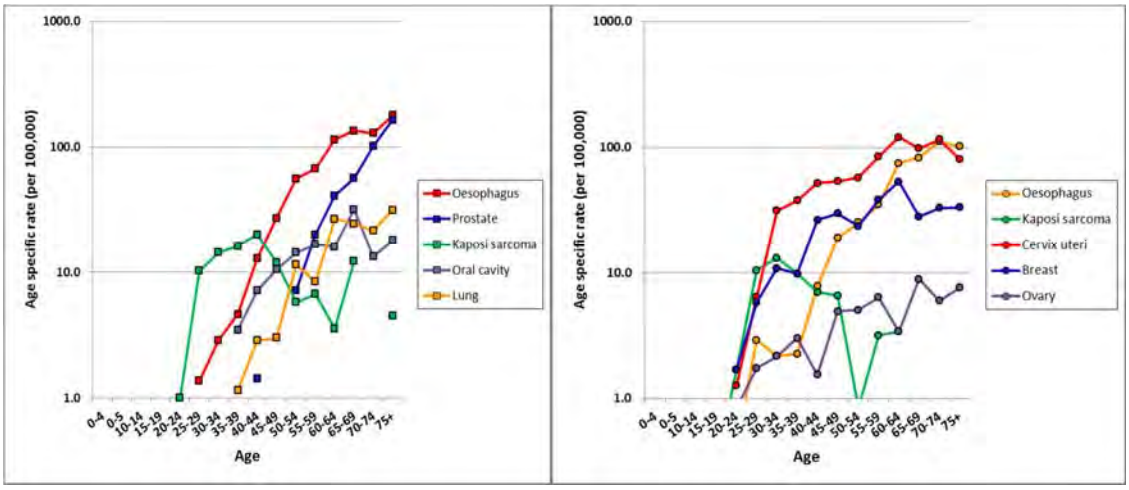

Figure 9: Age specific cancer incidence rates by sex, 2003–2007(a; males & b; females)

Childhood cancer

Table 3 shows the childhood cancer cases (ages 0-14) registered during the period 2008-2012. The numbers of cases recorded and incidence rates (per million) by five year age group are shown, for the most important cancers of childhood, defined according to the International Classification of Childhood Cancer (Steliarova-Foucher *et al*, 2005). The ratio of the number of cases in boys and girls is shown (M/F) as well as the crude rate, and age standardised rate, for each type of cancer.

A total of 64 cases were recorded during the period 2008-2012. Wilm's tumour was the most frequent cancer followed by leukemia, retinoblastoma and soft tissue sarcomas. There are also quite a high percentage of other cancers; this probably is one of indicators of scarcity of paediatric oncologists in this area.

Table 3: Childhood cancers (age 0-14) by site and sex, 2008-2012

	NUMBER OF CASES					REL FREQ	RATES PER MILLION				
	0-4	5-9	10-14	**All**	*M/F*	(%)	0-4	5-9	10-14	Crude	**ASR**
LEUKAEMIA	1	7	3	11	*0.8*	17.2%	2.3	16.3	6.9	8.4	**8.1**
LYMPHOMA	1	1	2	4	*0.3*	4.7%	2.3	2.3	4.6	3.1	**3.0**
Hodgkin disease	0	0	0	0		0.0%	0.0	0.0	0.0	0.0	**0.0**
Burkitt lymphoma	0	0	0	0		0.0%	0.0	0.0	0.0	0.0	**0.0**
CNS NEOPLASMS	2	0	1	3	-	4.7%	4.6	0.0	2.3	2.3	**2.4**
NEUROBLASTOMA	0	0	1	1	-	1.6%	0.0	0.0	2.3	0.8	**0.7**
RETINOBLASTOMA	7	2	0	9	*3.5*	14.1%	16.0	4.6	0.0	6.9	**7.7**
WILMS TUMOUR	11	1	1	13	*1.2*	20.3%	25.2	2.3	2.3	10.0	**11.2**
BONE TUMOURS	0	0	3	3	*0.5*	4.7%	0.0	0.0	6.9	2.3	**2.0**
SOFT TISSUE SARCOMAS	4	3	0	7	*1.3*	10.9%	9.2	7.0	0.0	5.4	**5.8**
Kaposi sarcoma	0	1	0	1	-	1.6%	0.0	2.3	0.0	0.8	**0.7**
GERM CELL TUMOURS	0	1	2	3	*2.0*	4.7%	0.0	2.3	4.6	2.3	**2.1**
OTHER	5	2	3	10	*0.7*	15.6%	11.5	4.6	6.9	7.7	**7.9**
ALL	31	17	16	64	0.9	100%	71.1	39.5	36.6	49.1	**50.9**

Frequency of certain cancers by sex

Certain cancers appear to be more frequent in this population as seen in Figures 5 & 6. Below is the table of all cancers observed in this population. Oesophageal cancer in men accounts for 30.5% of the total cancers reported in men whereas in women is 19.9%. Second most frequent cancer is prostate (14.8%), followed by Kaposi sarcoma (7.0%), lung (5.2%) and liver (5.1%) cancers. In women; cervical cancer was the most frequent (34.5%) of the total cancers observed in women, followed by breast (14.4%), Kaposi sarcoma (3.8%) and ovarian cancers (2.8%). Kaposi sarcoma in men was almost two times higher than in women though comparatively speaking for African standards is quite low.

Table 4: Number and frequency (percentage) of cancers observed during 2008-2012

Cancer Site	ICD -10	Males		Females	
		No. of cases	% of the total	No. of cases	% of the total
Oral cavity & pharynx	C00-C14	96	7.8%	36	1.7%
Oesophagus	C15	368	30.5%	406	19.9%
Stomach	C16	20	1.7%	25	1.2%
Large bowel	C18-C21	41	3.4%	44	2.1%
Liver	C22	62	5.1%	41	2.0%
Pancreas	C25	10	0.8%	10	0.5%
Larynx	C32	47	3.9%	9	0.4%
Lung	C33-C34	63	5.2%	28	1.4%
Bone	C40-C41	16	1.3%	11	0.5%
Melanoma of Skin	C43	6	0.5%	13	0.6%
Other Skin	C44	9	0.7%	11	0.5%
Kaposi sarcoma	C46	84	7.0%	78	3.8%
Connective, soft tissue	C47-C49	15	1.2%	14	0.7%
Breast	C50	17	1.4%	294	14.4%
Cervix Uteri	C53			706	34.5%
Corpus Uteri	C54			47	2.3%
Ovary	C56			58	2.8%
Prostate	C61	178	14.8%		
Eye	C69	12	1.0%	18	0.9%
Hodgkin lymphoma	C81	3	0.2%	1	0%
Non-Hodgkin lymphoma	C82-C85	23	1.9%	27	1.3%
Multiple Myeloma	C90	8	0.7%	6	0.4%
Leukemia	C91-C95	10	0.8%	12	0.5%
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All sites Total	**All**	**1206**	**100%**	**2045**	**100%**

DATA QUALITY

(a) Quality control methods

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 was able to link data of one case to many sources (unpublished data).

CanReg, a software used for capturing and storage of data has in-built checks to ensure that variables 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. For example, 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.

(b) Basis of diagnosis

Detailed basis of diagnosis for the Eastern Cape Province Registry is shown on Table 5 below. 67 percent of cases had diagnoses verified either histologically or by cytology; a slight decrease of 0.7% compared to 2003-2007 (Somdyala *et al*., 2013). There is still room for improvement of this percentage with continuous checking of medical records for subsequent visits for each case. This is a significant sign indicating that more cases had a chance of having their diagnoses verified. The percentage of the verified cases differ from site to site; as observed in oesophageal cancer which is very common in the area with quite a high percentage of clinically diagnosed cases. The registry is negotiating with the Republic of South Africa (RSA) Home Affairs which keeps a register for reported deaths to identify death certificate only (DCO) cancer cases in future.

Table 5: Basis of diagnosis by ICD-10

Cancer site	ICD-10	Basis of diagnosis			
		No. of cases	% of total cases	Clinical	M.V
Oral cavity	C00-C006	93	2.8	14%	86%
Nasopharynx	C11	31	0.9	0%	100%
Other pharynx	C09-C10,C12-14	7	0.2	13%	88%
Oesophagus	C15	774	23.8	55%	45%
Stomach	C16	45	1.3	39%	61%
Large bowel	C18-C21	85	2.6	26%	74%
Liver	C22	103	3.3	58%	42%
Pancreas	C25	20	0.6	100%	0%
Larynx	C32	56	1.7	11%	89%
Lung	C33-C34	91	2.8	26%	74%
Bone	C40-C41	27	0.8	15%	85%
Melanoma of Skin	C43	19	0.7	14%	86%
Other Skin	C44	20	0.6	20%	80%
Kaposi sarcoma	C46	162	5.0	46%	54%
Breast	C50	311	9.5	10%	90%
Cervix Uteri	C53	706	21.7	18%	83%
Corpus Uteri	C54	47	1.5	43%	57%
Ovary	C56	58	1.7	25%	75%
Prostate	C61	178	5.4	64%	36%
Kidney	C64	18	0.6	21%	79%
Bladder	C67	15	0.5	13%	88%
Eye	C69	30	0.9	21%	79%
Brain, Nervous system	C70-C72	13	0.4	54%	46%
Thyroid	C73	18	0.5	17%	83%
Hodgkin disease	C81	4	0.1	0%	100%
Non-Hodgkin lymphoma	C82-C85;C96	50	1.5	21%	79%
Myeloma	C90	14	0.4	0%	100%
Leukaemia	C91-C95	22	0.6	59%	41%
All sites Total	**All**	**3251**	**100**	**33%**	**67%**

DISCUSSION

Oesophageal cancer remains a dominant cancer both in men and women in this region more than 2 decades (Makaula *et al*., 1996, Somdyala *et al*., 2003, Somdyala *et al*., 2008, Somdyala *et al*., 2010, Somdyala *et al*., 2014). 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 (Ferlay *et al*., 2010). Prostate cancer rates have increased between 1998-2002 and 2003-2007, but are still relatively low. In South Africa, the incidence rates for white men (65.4 per 100 000) have been much higher than the rates for black men (17.6 per 100 000) (Babb, *et al.* 2014). The life time risk (LR) of developing prostate cancer is 1:12 in White men whereas in Black men is 1:52 (Babb, *et al;* 2014). The lower rates prostate cancer in black men are associated with poor access to diagnostic and screening facilities but it may also reflect different environmental exposures in this rural setting and may be a consequence of low prevalence rather than failure to diagnose and register cases (Heyns, Fisher, Lecuona, van der Merwe, 2011). Lung, liver and Kaposi sarcoma cancers are amongst common cancers in men, however, with relatively low rates.

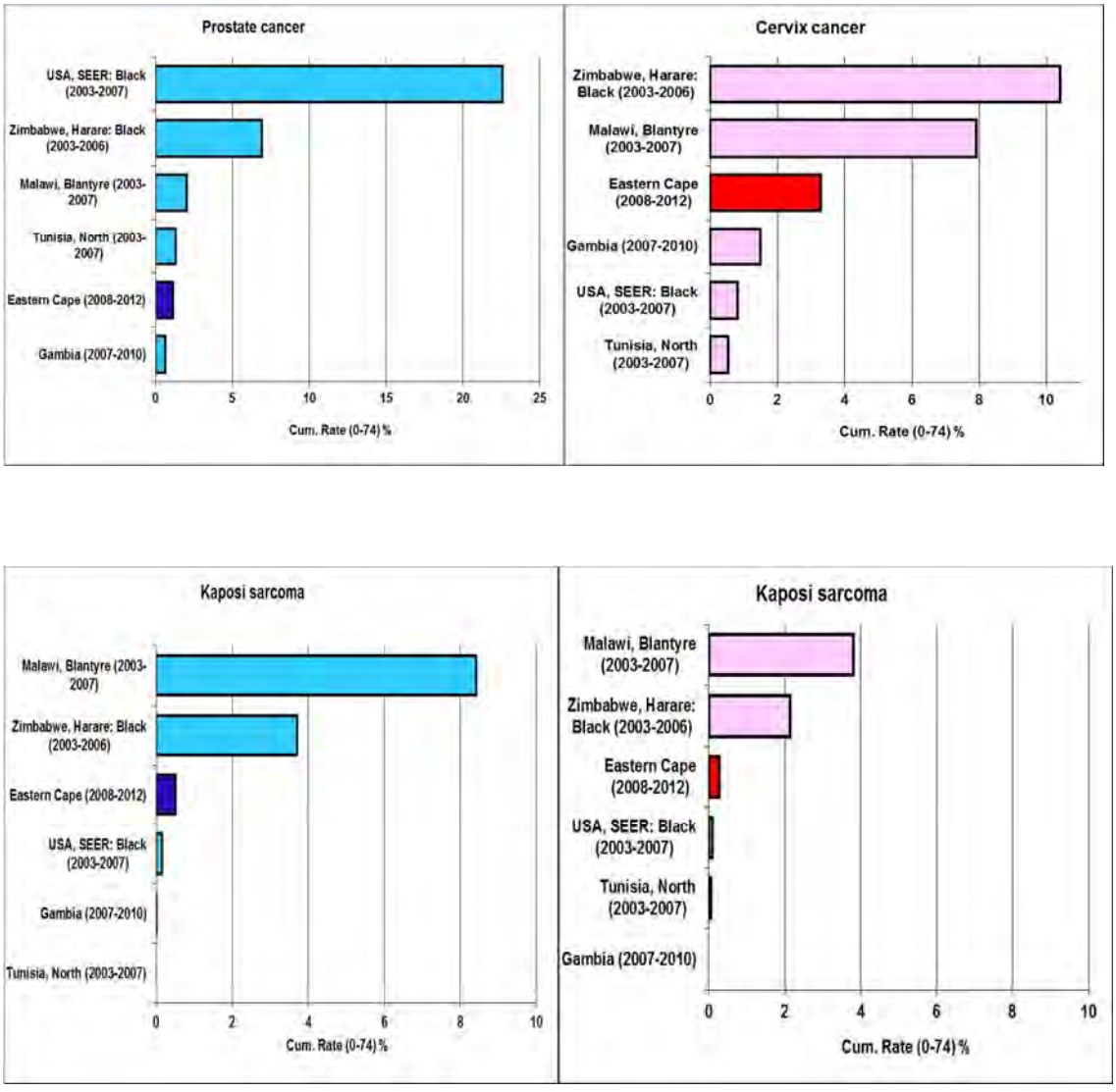
Cervical cancer remains the leading cancer in females in this population. The incidence of cervical cancer among this population is extremely high compared to the global average of 8.8 per 100 000 in 2008 (Ferlay*, et al.,* 2010). High rates of cervical cancer are typical in rural populations where there are limited resources for implementing a screening programme. Oesophageal cancer is the second most common cancer among the females in this study followed by breast, Kaposi sarcoma and ovarian cancers.

Comparison of summary rates with other registries

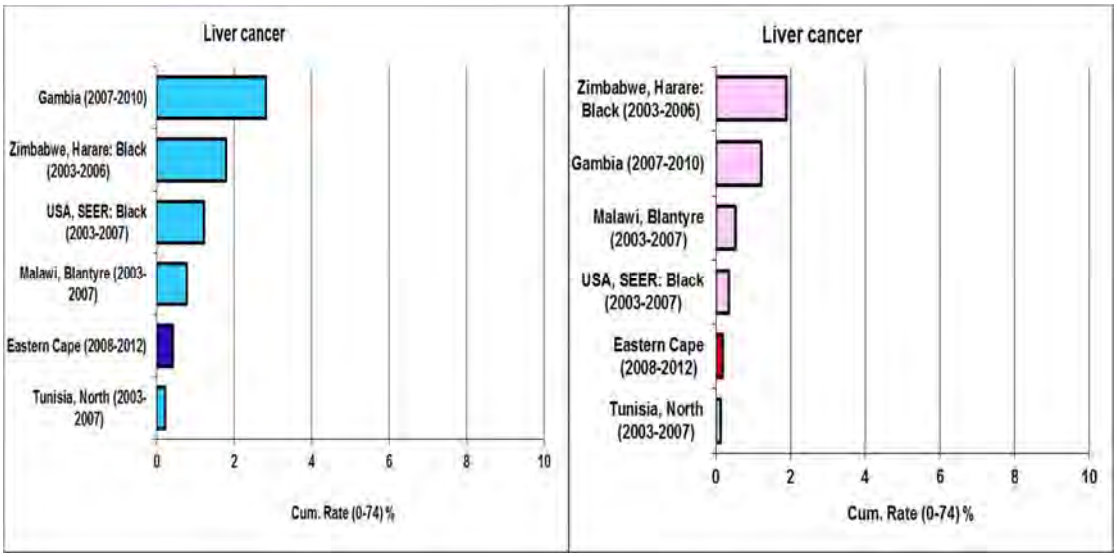
Figures 10-19 show a comparison of cumulative rates in the Eastern Cape (2008-2012) with those observed in 2003-2007 in Harare Blantyre, Malawi (Forman, *et al*., 2013), in 2003-2007 in Setif, Algeria (Forman, *et al*., 2013), in Kampala, Uganda 2003-2007 (Forman, *et al*., 2013), in the Gambia 2007-2010 (Ferlay *et al,* 2013) and in the black population of the SEER Registry areas of the USA (Howlader *et al*, 2013).

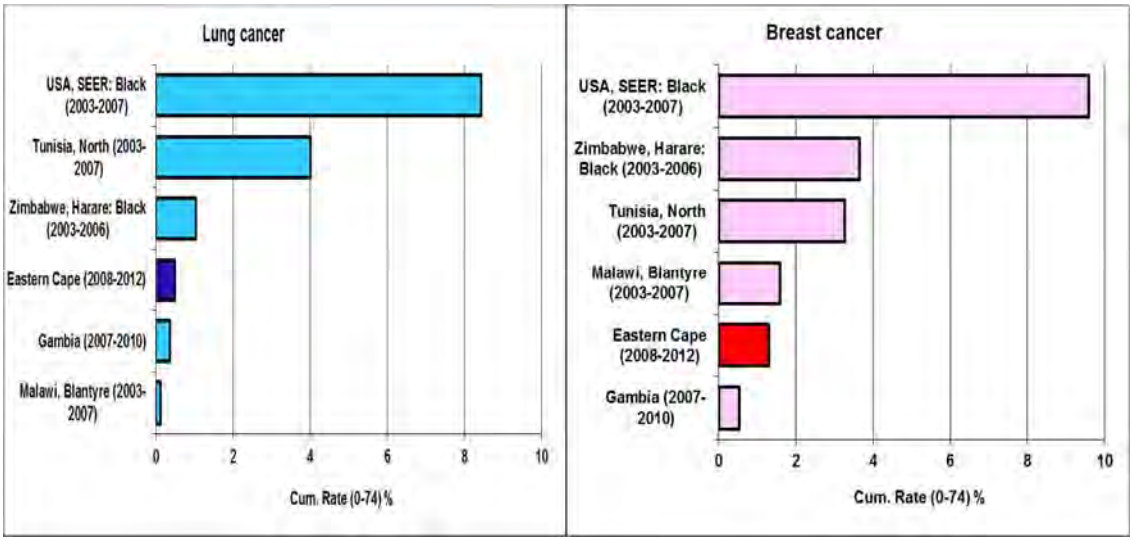
The relatively high incidence of prostate cancer and Kaposi sarcoma in men and cervical cancer and breast cancer in women respectively is of note.

Male **Female**

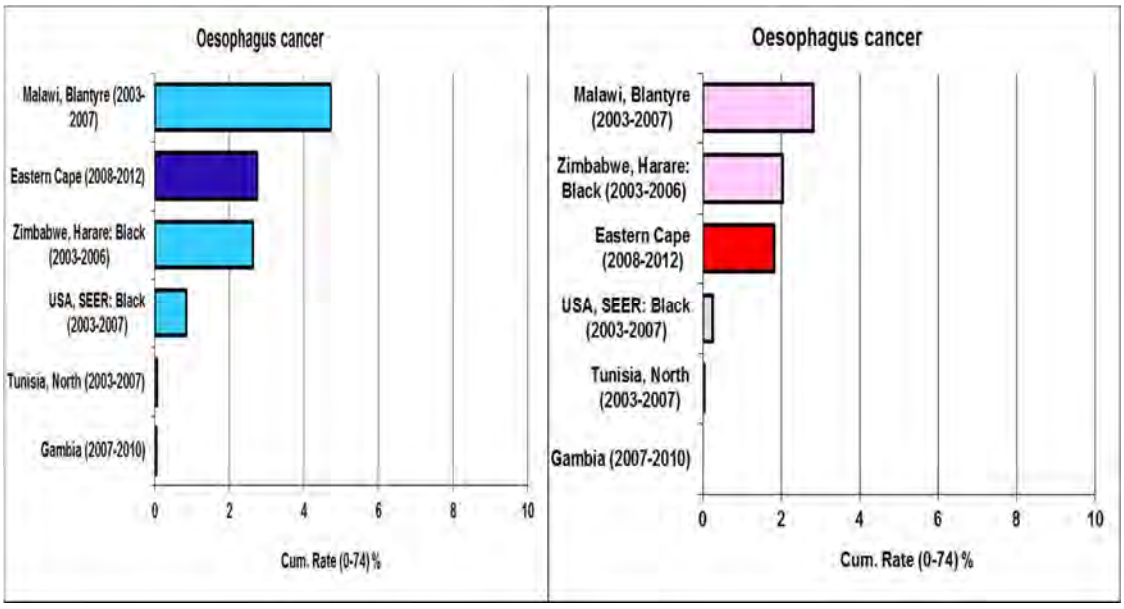


Figures 10-13: Comparison of cumulative rates of most common cancers in selected populations. Sources: Forman, *et al.,* 2013, Ferlay *et al,* 2013 and Howlader *et al*, 2013).





Figures 14-17 Comparison of cumulative rates of most common cancers in selected populations. Sources: Forman, et al., 2013, Ferlay et al, 2013 and Howlader et al, 2013).



Figures 18-19 Comparison of cumulative rates of most common cancers in selected populations. Sources: Forman, *et al.*, 2013, Ferlay *et al,* 2013 and Howlader *et al*, 2013).

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APPENDIX 1

EASTERN CAPE PROVINCE CANCER REGISTRY
CONFIDENTIAL CANCER NOTIFICATION FORM

Registry No.

Today's Date

Day	Month	Year

Please complete and return to;
Medical Research Council
Burden of Disease Research Unit – Cancer Registry
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**

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

SOURCE OF INFORMATION

Hospital/ Private Practitioner/ 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**

Year…… **Parity……..**

Ever had PSA Testing? ☐ **Yes** ☐ **No** ☐ **Unknown** **Year……**

Pathology Number ☐☐☐☐☐☐☐☐☐☐

Topography **C** ☐☐ / ☐

Morphology **M** ☐☐☐☐ / ☐

Behaviour ☐

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

Stage of Disease **I** ☐ **II** ☐ **I** ☐ **nknown** ☐

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 A2.1: Incident cases by sex, age and site (Numbers and Percentages), Eastern cape Register 2008-2012

MALES

Site	All Ages	0-4	0-5	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+	% of Total	ICD (10 th)
Lip	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0.2%	C00
Tongue	24	0	0	0	1	0	0	0	1	1	2	3	3	1	7	2	3	2.0%	C01-C02
Mouth	42	0	0	0	0	0	0	0	1	3	4	7	7	6	6	3	5	3.5%	C03-C06
Salivary glands	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2	0.3%	C07-C08
Tonsil	15	0	0	0	0	0	0	0	0	0	1	3	4	4	0	1	2	1.2%	C09
Other Oropharynx	3	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0.2%	C10
Nasopharynx	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0.1%	C11
Hypopharynx	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1%	C12-C13
Pharynx unspec.	2	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0.2%	C14
Oesophagus	368	0	0	0	0	0	2	2	4	9	18	39	43	64	54	53	80	30.5%	C15
Stomach	20	0	0	0	0	0	0	1	1	1	3	4	0	1	4	2	3	1.7%	C16
Colon	20	0	0	0	1	1	2	0	2	2	3	0	1	3	4	0	1	1.7%	C18
Rectum	16	0	0	0	0	0	0	0	0	4	1	1	2	1	1	0	6	1.3%	C19-C20
Anus	5	0	0	0	0	0	0	1	1	0	0	2	0	0	1	0	0	0.4%	C21
Liver	62	0	0	1	1	0	0	8	9	0	6	7	1	6	8	4	11	5.1%	C22
Gallbladder etc.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C23-C24
Pancreas	10	0	0	0	0	0	0	0	0	0	0	1	1	2	3	2	1	0.8%	C25
Nose, sinuses etc.	5	0	0	0	0	0	0	0	0	1	0	1	1	1	0	1	0	0.4%	C30-C31
Larynx	47	0	0	0	0	0	0	0	0	2	4	3	7	8	6	7	10	3.9%	C32
Trachea,Bronchus,Lung	63	0	0	0	0	0	0	0	1	2	2	8	5	14	10	7	14	5.2%	C33-C34
Bone	16	0	0	1	2	1	2	0	1	0	4	1	1	0	1	2	0	1.3%	C40-C41
Melanoma of Skin	6	0	0	0	0	0	0	0	0	0	0	0	2	2	0	1	1	0.5%	C43
Other Skin	9	0	0	0	0	2	0	0	0	3	1	2	1	0	0	0	0	0.7%	C44
Mesothelioma	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C45
Kaposi sarcoma	84	0	0	0	0	2	15	15	14	14	7	4	4	2	5	0	2	7.0%	C46
Connective,Soft tissue	16	3	0	0	2	0	1	3	0	3	1	0	0	0	1	2	0	1.3%	C47;C49
Breast	17	0	0	0	0	0	0	0	0	2	1	3	2	3	1	3	2	1.4%	C50
Penis	14	0	0	0	0	0	1	4	1	1	1	1	1	2	1	1	0	1.2%	C60
Prostate	178	0	0	0	0	0	0	0	0	1	0	5	13	24	24	38	73	14.8%	C61
Testis	7	0	1	0	1	0	2	0	1	1	0	1	0	0	0	0	0	0.6%	C62
Other male genital	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0.1%	C63
Kidney	8	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.7%	C64

Ureter	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0.1%	C66
Bladder	9	0	0	0	0	0	0	0	0	0	2	2	1	2	0	0	2	0.7%	C67
Eye	12	5	2	0	0	0	0	2	0	2	0	0	1	0	0	0	0	1.0%	C69
Brain, Nervous system	4	0	0	1	0	1	1	0	0	0	0	1	0	0	0	0	0	0.3%	C70-C72
Thyroid	3	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0.2%	C73
Hodgkin disease	3	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	0	0.2%	C81
Non-Hodgkin lymphoma	23	1	0	0	0	3	2	2	3	2	4	0	2	0	3	1	0	1.9%	C82-C85;C96
Multiple Myeloma	8	0	0	0	0	0	0	0	0	0	1	0	1	0	0	3	3	0.7%	C90
Lymphoid Leukaemia	5	0	0	0	0	0	0	0	0	1	0	0	0	2	1	0	1	0.4%	C91
Myeloid Leukaemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C92-C94
Leukaemia unspec.	5	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0.4%	C95
Other & unspecified	66	1	1	0	2	0	0	2	4	4	5	7	5	9	9	12	5	5.5%	Other
	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	
All sites Total	1206	16	9	6	10	11	28	40	45	60	71	110	115	161	150	145	228	100.0%	All
All sites but C44	1196	16	9	6	10	9	28	40	45	57	70	108	114	161	150	145	228	99.3%	Not C44

FEMALES

Site	All Ages	0-4	0-5	0-14	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+	%	ICD 10
Lip	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0.1%	C00
Tongue	3	0	0	0	0	0	1	0	0	0	0	0	0	1	0	1	0	0.1%	C01-C02
Mouth	19	0	0	0	0	0	0	1	0	2	0	1	3	1	1	5	5	0.9%	C03-C06
Salivary glands	6	0	0	0	0	0	0	0	1	0	0	1	0	0	1	1	2	0.3%	C07-C08
Tonsil	3	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0.1%	C09
Other Oropharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C10
Nasopharynx	2	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0.1%	C11
Hypopharynx	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C12-C13
Pharynx unspec.	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0.0%	C14
Oesophagus	406	0	0	0	0	1	5	3	3	10	24	32	33	64	57	69	105	19.9%	C15
Stomach	25	0	0	0	0	0	1	1	1	1	1	2	2	3	0	5	8	1.2%	C16
Colon	25	0	0	0	0	2	1	0	2	1	0	2	1	3	5	3	5	1.2%	C18
Rectum	18	0	0	0	0	0	3	0	1	0	0	2	1	1	1	3	5	0.9%	C19-C20
Anus	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0.0%	C21
Liver	41	0	0	0	0	2	0	0	4	1	2	4	4	3	8	6	7	2.0%	C22
Gallbladder etc.	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	0.1%	C23-C24
Pancreas	10	0	0	0	0	0	0	0	0	0	2	1	3	0	1	2	1	0.5%	C25
Nose, sinuses etc.	5	0	0	0	0	0	0	0	0	1	3	0	0	1	0	0	0	0.2%	C30-C31

Larynx	9	0	0	0	0	0	1	0	0	0	1	1	0	5	0	0	1	0.4%	C32
Trachea,Bronchus,Lung	28	0	0	0	0	0	0	1	0	0	1	3	3	5	5	4	6	1.4%	C33-C34
Bone	11	0	0	2	0	0	0	0	0	0	1	2	0	2	1	0	3	0.5%	C40-C41
Melanoma of Skin	13	0	0	0	0	0	0	0	0	0	0	1	2	1	2	2	5	0.6%	C43
Other Skin	11	0	0	0	0	1	0	0	1	0	0	1	2	3	1	2	0	0.5%	C44
Mesothelioma	2	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0.1%	C45
Kaposi sarcoma	78	0	1	0	2	3	17	17	13	9	9	1	3	3	0	0	0	3.8%	C46
Connective,Soft tissue	14	1	1	2	0	1	0	2	0	1	1	1	2	1	0	0	1	0.7%	C47;C49
Breast	294	0	0	0	0	4	10	17	14	31	32	28	35	46	19	21	37	14.4%	C50
Vulva	21	0	0	0	0	1	4	3	1	0	2	3	0	2	2	1	2	1.0%	C51
Vagina	5	0	0	0	0	0	0	0	1	1	0	0	0	0	0	1	2	0.2%	C52
Cervix Uteri	706	0	0	0	0	2	12	42	48	66	59	68	77	109	64	76	83	34.5%	C53
Corpus Uteri	47	0	0	0	0	0	1	0	0	4	4	3	5	7	11	6	6	2.3%	C54
Uterus unspec.	18	0	0	0	0	0	0	0	1	0	0	2	1	5	2	5	2	0.9%	C55
Ovary	58	0	0	1	2	2	3	3	4	2	6	6	8	3	7	3	8	2.8%	C56
Placenta	11	0	0	0	1	1	2	0	3	2	1	0	1	0	0	0	0	0.5%	C58
Kidney	10	6	0	0	0	1	0	0	0	0	0	1	0	1	0	1	0	0.5%	C64
Ureter	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C66
Bladder	6	0	0	0	0	0	0	0	0	0	1	1	0	0	2	1	1	0.3%	C67
Eye	18	3	0	0	0	0	2	1	4	3	2	0	1	1	0	1	0	0.9%	C69
Brain, Nervous system	9	2	0	1	1	0	0	1	1	0	1	0	0	2	0	0	0	0.4%	C70-C72
Thyroid	15	0	0	0	0	0	1	0	2	0	3	3	2	1	0	3	0	0.7%	C73
Hodgkin disease	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0.0%	C81
Non-Hodgkin lymphoma	27	0	1	2	1	0	2	5	1	4	1	0	1	0	5	2	2	1.3%	C82-C85;C96
Multiple Myeloma	6	0	0	0	0	0	0	0	0	0	0	1	2	1	0	1	1	0.3%	C90
Lymphoid Leukaemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C91
Myeloid Leukaemia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0%	C92-C94
Leukaemia unspec.	6	0	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0.3%	C95
Other & unspecified	51	3	0	1	2	2	5	1	2	2	4	2	3	10	2	2	10	2.5%	Other
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All sites Total	2045	15	8	10	9	23	72	99	110	141	163	173	195	287	198	229	312	100.0%	All
All sites but C44	2034	15	8	10	9	22	72	99	109	141	163	172	193	284	197	227	312	99.5%	Not C44

Table A2.2: Incidence rates by sex, age and site (Crude Rate, ASR and Cummulative %), Eastern Cape Register 2008-2012

MALES

Site	All Ages	0-4	0-5	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+	Crude Rate	ASR	Cum %	
Lip	3	-	-	-	-	-	-	-	1.2	-	-	-	1.7	-	-	-	2.3	0.1	0.2	0.01	C00
Tongue	24	-	-	-	0.3	-	-	-	1.2	1.4	3	4.3	5	1.8	17.2	5.4	6.8	1	1.6	0.20	C01-C02
Mouth	42	-	-	-	-	-	-	-	1.2	4.3	6	10.1	11.7	10.7	14.7	8	11.3	1.7	2.9	0.33	C03-C06
Salivary glands	4	-	0.3	-	-	0.5	-	-	-	-	-	-	-	-	-	-	4.5	0.2	0.2	0.00	C07-C08
Tonsil	15	-	-	-	-	-	-	-	-	-	1.5	4.3	6.7	7.1	-	2.7	4.5	0.6	1	0.11	C09
Other Oropharynx	3	-	-	-	-	-	-	-	-	-	-	1.4	-	1.8	2.5	-	-	0.1	0.2	0.03	C10
Nasopharynx	1	-	-	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	0	0.1	0.01	C11
Hypopharynx	1	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	-	-	0	0.1	0.01	C12-C13
Pharynx unspec.	2	-	-	-	-	-	-	-	-	-	-	-	1.7	1.8	-	-	-	0.1	0.1	0.02	C14
Oesophagus	368	-	-	-	-	-	1.4	1.9	4.6	12.9	27.1	56.2	72.1	114.1	132.4	142	180	14.9	23.6	2.82	C15
Stomach	20	-	-	-	-	-	-	1	1.2	1.4	4.5	5.8	-	1.8	9.8	5.4	6.8	0.8	1.4	0.15	C16
Colon	20	-	-	-	0.3	0.5	1.4	-	2.3	2.9	4.5	-	1.7	5.4	9.8	-	2.3	0.8	1.4	0.14	C18
Rectum	16	-	-	-	-	-	-	-	-	5.7	1.5	1.4	3.4	1.8	2.5	-	13.5	0.6	1.1	0.08	C19-C20
Anus	5	-	-	-	-	-	-	1	1.2	-	-	2.9	-	-	2.5	-	-	0.2	0.3	0.04	C21
Liver	62	-	-	0.3	0.3	-	-	7.7	10.4	-	9	10.1	1.7	10.7	19.6	10.7	24.8	2.5	4	0.40	C22
Gallbladder etc.	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C23-C24
Pancreas	10	-	-	-	-	-	-	-	-	-	-	1.4	1.7	3.6	7.4	5.4	2.3	0.4	0.7	0.10	C25
Nose, sinuses etc.	5	-	-	-	-	-	-	-	-	1.4	-	1.4	1.7	1.8	-	2.7	-	0.2	0.4	0.05	C30-C31
Larynx	47	-	-	-	-	-	-	-	-	2.9	6	4.3	11.7	14.3	14.7	18.8	22.5	1.9	3.1	0.36	C32
Trachea,Bronchus,Lung	63	-	-	-	-	-	-	-	1.2	2.9	3	11.5	8.4	25	24.5	18.8	31.5	2.5	4.1	0.48	C33-C34
Bone	16	-	-	0.3	0.5	0.5	1.4	-	1.2	-	6	1.4	1.7	-	2.5	5.4	-	0.6	1	0.10	C40-C41
Melanoma of Skin	6	-	-	-	-	-	-	-	-	-	-	-	3.4	3.6	-	2.7	2.3	0.2	0.4	0.05	C43
Other Skin	9	-	-	-	-	0.9	-	-	-	4.3	1.5	2.9	1.7	-	-	-	-	0.4	0.6	0.06	C44
Mesothelioma	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C45
Kaposi sarcoma	84	-	-	-	-	0.9	10.3	14.4	16.2	20.1	10.5	5.8	6.7	3.6	12.3	-	4.5	3.4	5.7	0.50	C46
Connective,Soft tissue	15	0.8	-	-	0.5	-	0.7	2.9	-	4.3	1.5	-	-	-	-	5.4	-	0.6	0.8	0.08	C47;C49
Breast	17	-	-	-	-	-	-	-	-	2.9	1.5	4.3	3.4	5.4	2.5	8	4.5	0.7	1.2	0.14	C50
Penis	14	-	-	-	-	-	0.7	3.8	1.2	1.4	1.5	1.4	1.7	3.6	2.5	2.7	-	0.6	0.9	0.10	C60
Prostate	178	-	-	-	-	-	-	-	-	1.4	-	7.2	21.8	42.8	58.8	101.8	165	7.2	10.1	1.17	C61
Testis	7	-	0.3	-	0.3	-	1.4	-	1.2	1.4	-	1.4	-	-	-	-	-	0.3	0.4	0.03	C62
Other male genital	1	-	-	-	-	-	-	-	-	-	-	1.4	-	-	-	-	-	0	0.1	0.01	C63
Kidney	8	1.4	0.6	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.3	0.2	0.01	C64

Ureter	1	-	-	-	-	-	-	-	-	-	-	-	1.7	-	-	-	-	0	0.1	0.01	C66
Bladder	9	-	-	-	-	-	-	-	-	-	3	2.9	1.7	3.6	-	-	4.5	0.4	0.6	0.06	C67
Eye	12	1.4	0.6	-	-	-	-	1.9	-	2.9	-	-	1.7	-	-	-	-	0.5	0.6	0.04	C69
Brain, Nervous system	4	-	-	0.3	-	0.5	0.7	-	-	-	-	1.4	-	-	-	-	-	0.2	0.2	0.01	C70-C72
Thyroid	3	-	-	-	-	-	-	-	-	-	-	1.4	1.7	1.8	-	-	-	0.1	0.2	0.02	C73
Hodgkin disease	3	-	-	-	-	-	-	-	-	1.4	-	1.4	1.7	-	-	-	-	0.1	0.2	0.02	C81
Non-Hodgkin lymphoma	23	0.3	-	-	-	1.4	1.4	1.9	3.5	2.9	6	-	3.4	-	7.4	2.7	-	0.9	1.5	0.15	C82-C85;C96
Multiple Myeloma	8	-	-	-	-	-	-	-	-	-	1.5	-	1.7	-	-	8	6.8	0.3	0.5	0.06	C90
Lymphoid Leukaemia	5	-	-	-	-	-	-	-	-	1.4	-	-	-	3.6	2.5	-	2.3	0.2	0.3	0.04	C91
Myeloid Leukaemia	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C92-C94
Leukaemia unspec.	5	0.3	0.6	0.5	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.1	0.01	C95
Other & unspecified	66	0.3	0.3	-	0.5	-	-	1.9	4.6	5.7	7.5	10.1	8.4	16.1	22.1	32.2	11.3	2.7	4.3	0.55	Other
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All sites Total	1205	4	2	2	3	5	19	38	52	86	107	158	193	287	368	389	514	48.7	76.3	8.57	All
All sites but C44	1196	4	2	2	3	4	19	38	52	82	105	156	191	287	368	389	514	48.3	75.7	8.51	Not C44

FEMALES

Site	All Ages	0-4	0-5	10-14	15-19	20-24	5-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75+	Crude Rate	ASR	Cum %	
Lip	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	1	0.1	0	0.01	C00
Tongue	3	-	-	-	-	-	0.6	-	-	-	-	-	-	1.1	-	1.5	-	0.1	0.1	0.02	C01-C02
Mouth	19	-	-	-	-	-	-	0.7	-	1.6	-	0.8	3.2	1.1	1.5	7.5	4.8	0.7	0.6	0.08	C03-C06
Salivary glands	6	-	-	-	-	-	-	-	0.8	-	-	0.8	-	-	1.5	1.5	1.9	0.2	0.2	0.02	C07-C08
Tonsil	3	-	-	-	-	-	-	-	-	-	0.8	-	-	1.1	-	-	1	0.1	0.1	0.01	C09
Other Oropharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C10
Nasopharynx	2	-	-	-	-	-	-	-	-	-	0.8	-	-	1.1	-	-	-	0.1	0.1	0.01	C11
Hypopharynx	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C12-C13
Pharynx unspec.	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.5	-	0	0	0.01	C14
Oesophagus	406	-	-	-	-	0.4	2.9	2.2	2.3	7.8	19.8	27	35.1	72.7	84.3	103.2	99.8	14	14.4	1.79	C15
Stomach	25	-	-	-	-	-	0.6	0.7	0.8	0.8	0.8	1.7	2.1	3.4	-	7.5	7.6	0.9	0.8	0.09	C16
Colon	25	-	-	-	-	0.9	0.6	-	1.5	0.8	-	1.7	1.1	3.4	7.4	4.5	4.8	0.9	0.9	0.11	C18
Rectum	18	-	-	-	-	-	1.7	-	0.8	-	-	1.7	1.1	1.1	1.5	4.5	4.8	0.6	0.6	0.06	C19-C20
Anus	1	-	-	-	-	-	-	0.7	-	-	-	-	-	-	-	-	-	0	0	0.00	C21
Liver	41	-	-	-	-	0.9	-	-	3	0.8	1.6	3.4	4.3	3.4	11.8	9	6.7	1.4	1.5	0.19	C22
Gallbladder etc.	3	-	-	-	-	-	-	-	0.8	-	-	-	-	-	-	-	1.9	0.1	0.1	0.00	C23-C24
Pancreas	10	-	-	-	-	-	-	-	-	-	1.6	0.8	3.2	-	1.5	3	1	0.3	0.4	0.05	C25
Nose, sinuses etc.	5	-	-	-	-	-	-	-	-	0.8	2.5	-	-	1.1	-	-	-	0.2	0.2	0.02	C30-C31

Larynx	9	-	-	-	-	-	0.6	-	-	-	0.8	0.8	-	5.7	-	-	1	0.3	0.4	0.04	C32
Trachea,Bronchus,Lung	28	-	-	-	-	-	-	0.7	-	-	0.8	2.5	3.2	5.7	7.4	6	5.7	1	1	0.13	C33-C34
Bone	11	-	-	0.6	-	-	-	-	-	-	0.8	1.7	-	2.3	1.5	-	2.9	0.4	0.4	0.03	C40-C41
Melanoma of Skin	13	-	-	-	-	-	-	-	-	-	-	0.8	2.1	1.1	3	3	4.8	0.4	0.4	0.05	C43
Other Skin	11	-	-	-	-	0.4	-	-	0.8	-	-	0.8	2.1	3.4	1.5	3	-	0.4	0.4	0.06	C44
Mesothelioma	2	-	-	-	-	-	-	-	0.8	-	-	-	-	-	1.5	-	-	0.1	0.1	0.01	C45
Kaposi sarcoma	78	-	0.3	-	0.6	1.3	9.9	12.3	9.8	7	7.4	0.8	3.2	3.4	-	-	-	2.7	3.5	0.28	C46
Connective,Soft tissue	14	0.3	0.3	0.6	-	0.4	-	1.5	-	0.8	0.8	0.8	2.1	1.1	-	-	1	0.5	0.5	0.04	C47;C49
Breast	294	-	-	-	-	1.7	5.8	12.3	10.6	24.1	26.4	23.6	37.2	52.2	28.1	31.4	35.2	10.2	11.9	1.27	C50
Vulva	21	-	-	-	-	0.4	2.3	2.2	0.8	-	1.6	2.5	-	2.3	3	1.5	1.9	0.7	0.9	0.08	C51
Vagina	5	-	-	-	-	-	-	-	0.8	0.8	-	-	-	-	-	1.5	1.9	0.2	0.2	0.02	C52
Cervix Uteri	706	-	-	-	-	0.9	7	30.5	36.3	51.3	48.7	57.4	81.9	123.8	94.6	113.7	78.9	24.4	28.4	3.23	C53
Corpus Uteri	47	-	-	-	-	-	0.6	-	-	3.1	3.3	2.5	5.3	7.9	16.3	9	5.7	1.6	1.9	0.24	C54
Uterus unspec.	18	-	-	-	-	-	-	-	0.8	-	-	1.7	1.1	5.7	3	7.5	1.9	0.6	0.7	0.10	C55
Ovary	58	-	-	0.3	0.6	0.9	1.7	2.2	3	1.6	4.9	5.1	8.5	3.4	10.3	4.5	7.6	2	2.3	0.24	C56
Placenta	11	-	-	-	0.3	0.4	1.2	-	2.3	1.6	0.8	-	1.1	-	-	-	-	0.4	0.5	0.04	C58
Kidney	10	1.7	-	-	-	0.4	-	-	-	-	-	0.8	-	1.1	-	1.5	-	0.3	0.4	0.03	C64
Ureter	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C66
Bladder	6	-	-	-	-	-	-	-	-	-	0.8	0.8	-	-	3	1.5	1	0.2	0.2	0.03	C67
Eye	18	0.8	-	-	-	-	1.2	0.7	3	2.3	1.6	-	1.1	1.1	-	1.5	-	0.6	0.8	0.07	C69
Brain, Nervous system	9	0.6	-	0.3	0.3	-	-	0.7	0.8	-	0.8	-	-	2.3	-	-	-	0.3	0.3	0.03	C70-C72
Thyroid	15	-	-	-	-	-	0.6	-	1.5	-	2.5	2.5	2.1	1.1	-	4.5	-	0.5	0.6	0.07	C73
Adrenal gland	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C74
Other Endocrine	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C75
Hodgkin disease	1	-	-	-	-	-	0.6	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C81
Non-Hodgkin lymphoma	27	-	0.3	0.6	0.3	-	1.2	3.6	0.8	3.1	0.8	-	1.1	-	7.4	3	1.9	0.9	1.1	0.11	C82-C85;C96
Multiple Myeloma	6	-	-	-	-	-	-	-	-	-	-	0.8	2.1	1.1	-	1.5	1	0.2	0.2	0.03	C90
Lymphoid Leukaemia	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C91
Myeloid Leukaemia	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0	0	0.00	C92-C94
Leukaemia unspec.	6	-	1.4	0.3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.2	0.01	C95
Other & unspecified	51	0.8	-	0.3	0.6	0.9	2.9	0.7	1.5	1.6	3.3	1.7	3.2	11.4	3	3	9.5	1.8	1.9	0.17	Other
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All sites Total	2045	4	2	3	2	10	42	72	83	110	134	146	207	326	293	343	297	70.7	79.5	8.89	All
All sites but C44	2034	4	2	3	2	9	42	72	82	110	134	145	205	322	291	340	297	70.3	79.1	8.82	Not C44