REPORT ON CASES OF CANCERS IN SWAZILAND
(2014-2015)

MARCH 23, 2016

Acknowledgement

The Swaziland National Cancer Registry (SNCR) is grateful to local and international partners that supported the Registry during the year under establishment.

The success of the cancer data review was possible because of the commitment of the senior authorities in the Ministry of Health. Special gratitude is extended to Dr Velephi Okello the Deputy Director of Clinical Health Services, Ms. Rejoice Nkambule, the Deputy Director of Public Health Services and Dr Vusi Magagula, the Director of Health Services for their tireless participation throughout the process which saw the completion of the exercise. The effective involvement of various units and departments in the Ministry of Health is highly appreciated. Also contributing to the report were development and Implementing Partners of the Health Sector; their participation and inputs throughout the exercise is commendable.

The Swaziland cancer registry unit of the Ministry of Health under the leadership of the cancer registrar- epidemiologist, Ms. Xolisile Dlamini, deserves special mention for their tireless monitoring of the entire process from inception to report writing. It is because of the able leadership and commitment that such a quality report was produced. The Ministry is also grateful to the technical assistance Dr Marianne Calnan from University of Research Co, (URC), Tengetile Tsabedze International Health Management (IHM) and all those who were involved in the abstraction exercise-Sebentile Myeni, Priscilla Nomalanga Hlophe, Philile Simelane, Hloniphile Nkambule and Gcinaphi Mamba.

Table of Contents

Introduction

The Swaziland national cancer registry (SNCR) has been re-established to improve the response to the burden of cancers in the country. For more than ten years, Swaziland had a cancer registry, which was laboratory-based. The laboratory based cancer registry has not been useful for purposes of national planning for cancer prevention and control due to lack of nationally representative data on cancers. In order to improve the response to the burden of cancers in the country, World Health Organization (WHO) advised the country to re-establish the cancer registry as a Population Based Cancer Registry (PBCR). The PBCR will assist us to improve the effectiveness of cancer registration and surveillance by providing expert evaluation of the current cancer situation in the country. In addition, through the registry long term goals of strengthening health systems and creating research platforms for the problems, identifying targets for interventions and setting priorities.

The cancer registry office collected baseline data from 1st January 2014 to 31st December 2015 to enable better understanding of the magnitude of the cancers and also in order to address the cancer burden. The baseline data are also essential for the registry to maximally contribute to evolving medical knowledge. Another important reason for the baseline data is to provide insight into the demographic and disease characteristics of cancer patients in a range of clinical practices. It also creates solid records of baseline patient disease characteristics that provide a foundation for monitoring disease progression and response to treatment.

The overview of the available cancer data is critical for targeting programs focused on risk-related behaviors (for example, tobacco use and exposure to the sun) or on environmental risk factors (for example, radiation and chemical exposures). Such information is also essential for identifying when and where cancer screening efforts should be enhanced and for monitoring the treatment provided to cancer patients. In addition, reviewing the available data will assist in identifying the strength of the system and any information needed to be improved and in helping with setting priorities for allocating health resources.

Worth noting is that, so far there are no reports on the magnitude of cancers in the country and there is lack of high-quality incidence and mortality data. The quality data are necessary in order to inform government to develop effective policies for cancer control. Guided by reliable data, the right interventions for saving lives and improving the conditions of cancer patients and their families can be introduced. In this regard, the situational analysis of the data will help in providing baseline quantitative data on the cancer burden in the country. In addition, the exact magnitude of the incidence of cancer is unknown. WHO highlights that there are some cost effective interventions that can help with the management of cancer, including primary prevention and early detection. The advanced level of the WHO intervention will take into account treatment (surgery, chemotherapy, and radiotherapy) and control (palliative care). This reported will be shared with various medical facilities, including hospitals, physicians' offices, private surgical centers, and pathology laboratories.

Aim

The aim of the baseline assessment is to establish the level of attainment of cancer information and documentation in the country. This information will be used to:

- Inform the policy and public health practice of most common cancers reported to date
- Identify areas needing strengthening for documentation of cancer

Objectives of the baseline data assessment

The objectives of this activity were to:

- To collect baseline data on the burden of the cancer problem in the country
- To collate and analyse existing data on cancer diagnoses in the countries health from health facility records;
- To generate information on the types of the cancers prevalent in Swaziland;
- To establish and document the situation of referrals of cancers patients outside Swaziland
- To assess the quality and the completeness of the available data

Material and Methods

A purposive sampling was done to collect a total of 1426 cancer cases diagnosed between 1 January 2014 and 31st December 2015. The period started from 2014 because before then very few facilities especially from government screened for malignancy according to Service Availability Mapping (SAM) 2013. The data were collected from a sample of facilities in the country which have diagnostic equipment and able manage cancer patients. The sources of information were government and some private hospitals and the Hospice At Home and death certificates mentioning cancer as the contributory cause of death. The hospitals covered include one major governmental hospital, the Mbabane National government Hospital (MBGH)) and three regional hospitals (Mankayane (Mnk), Pigg's Peak (Ppk), Hlathikhulu (Hlath), two mission hospitals with surgeons, the Good Shepard hospital(GSH) and Raleigh Fitkin Memorial Hospital (RFM), and one private hospital, Philani Clinic in Manzini. The source of the data included; medical records, where disease index cards and patient-care registers were used to identify cancer cases.

On the job training of three health care providers and a fourth year nursing student was done before they abstracted data from the cancer medical records. These abstractors were then introduced to the facilities directors, provided with cancer abstraction forms (Annex 2) and data collected were returned to the cancer registry. They regularly visited establishments that dealt with cancer within the governorate for active data collection from medical records. A trained cancer registrar received the data from the abstractors whose assignment included data entry, data cleaning, coding and analysis.

Only data from cancer cases that are residents of the country were collected, the cases included those Swazis whose diagnoses was done outside the country. A resident was defined as anyone who has continuously lived/worked in the country for a period of at least six months and excludes persons who visited the country for purposes of accessing treatment. Benign and uncertain tumours (including in-situ tumours and cervical intraepithelial neoplasms (CIN) lesions) were also excluded.

Cancer cases who were referred to hospitals outside Swaziland for further diagnosis and management, so long as they were residents of the country were included in this analysis.

The abstracted data was entered into excel 2003 sheet; from there it was exported to STATA version 12.0 for analysis. Information generated from the analysis is presented in the form of proportions and absolute numbers using frequency tables, bar charts, pie charts with explanatory descriptive narratives.

Limitations of the assessment

- The data were available, however it was incomplete with a lot of missing variables such as socio-demographic information (date of birth, occupation, risk factors, national identity number, etc.), nature and type of primary tumor, laboratory and pathological tests
- The use of different medical terminology in diagnosing one and the same case was another big challenge
- Duplication of cases was noted especially cases referred from regional institutions via national hospital to neighbouring countries for further management.

- Issues of shared confidentiality remained a challenged as most private institutions could not share their data

Data analysis

The data were abstracted using the data abstracting tool as annex 2. The data were entered into an Excel worksheet and then exported to STATA version 12.0 for analysis. Information generated from the analysis is presented in the form of proportions and absolute numbers using frequency tables, bar charts, pie charts with explanatory descriptive narratives.

Results

The results are presented in tabular form as percentage and frequencies. Graphs are used to depict the predominant tumours and other relevant observations by gender and age group.

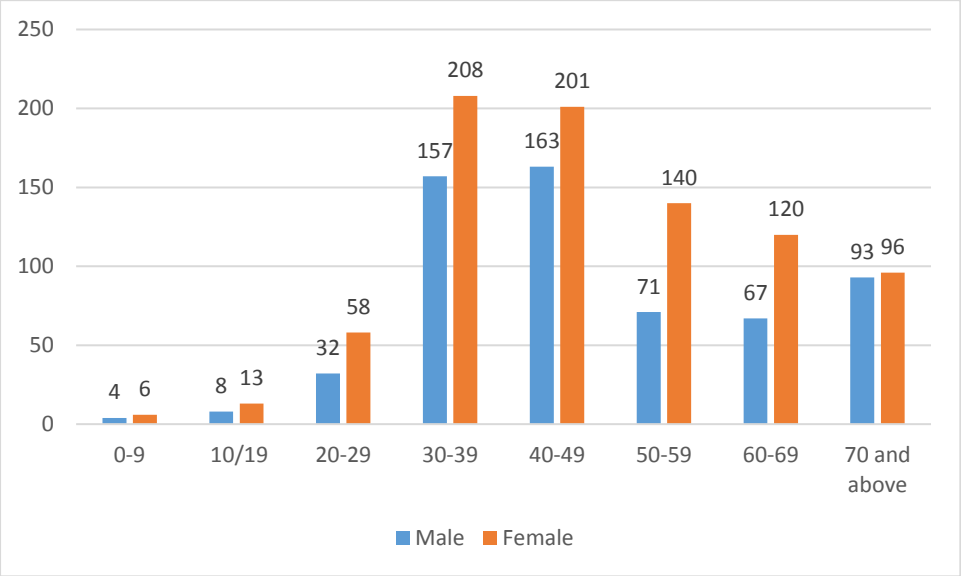
During the two-year period from 1st January 2014 – 31st December 2015, a total of 1426 cases of cancers based on ICD -9 codes were registered among Swaziland residents, 592 (41.5%) cases in men and 834 (58.5%) cases in women. Worth noting is that the abstracted data was incomplete with a lot of missing variables. Only 9.7% cases had the date of birth, 45.2% cases had records on occupation and most of them were labourers (35.5%) followed by housewives (27.0%). Only 70% were clearly shown the basis of diagnosis with most diagnosis were done clinically, followed by histology diagnosis 20% and no record on risk factors and national identity number

Table 1: The list of type of cancer cases diagnosed in 2014-2015

Serial No.	Topography	Freq.		Serial No.	Topography	Freq.
1	Anaemia	1		33	Lumbar spondylosis	1
2	Anal cancer	8		34	Lung Cancer	26
3	Angiosaroma	1		35	Lytic Bone Lesion	1
4	Ano-rectal	4		36	Malignant spindle cell tumour	1
5	Astrocytoma	1		37	Mandible	4
6	Axilla cancer	1		38	Meningioma	2
7	Basal cell	1		39	Mucoepidermis carcinoma	1
8	Bladder cancer	6		40	Neuro- Endocrine	2
9	Breast Cancer	92		41	Non-Hodgkin's Lymphoma	12
10	Cervical Cancer	440		42	Oesophagus cancer	28
11	Chronic Lymphonic leukaemia	9		43	Oral Cavity	5
12	Colorectal cancer	1		44	Osteosarcoma	2
13	Colon	10		45	Ovarian cancer	8
14	Congenital hypospadias	1		46	Pancreas cancer	8
15	Conjunctiva carcinoma	11		47	Pelvic cancer	1
16	Crania Pharyngioma	1		48	Penis cancer	5
17	Endometrial cancer	10		49	Pharyngeal Cancer	7
18	Exophytic cancer	1		50	Pituitary	1
19	Femur cancer	3		51	Prostate cancer	150
20	Forehead cancer	1		52	Rectum cancer	10
21	Gingiva cancer	1		53	Skin cancer	11
22	Glioblastoma	2		54	Small Bowel	2
23	High Grade Pheomorphic sarcoma	1		55	Squamous carcinoma	18
24	Hodgkin's Lymphoma	4		56	Stomach cancer	19
25	Hypopharynx	1		57	Throat cancer	3
26	Inguinal Lympha node	1		58	Tibia cancer	1
27	Invasive urothelial carcinoma	1		59	Vulva cancer	16
28	Kaposi Sarcoma	409		60	Wilms Tumour	3
29	Kidney cancer	3		61	Testes cancer	1
30	Larynx	2		62	Lytic Bone Lesion	1
31	Leukaemia	10		63	Malignant spindle cell tumour	1
32	Liver cancer	52				

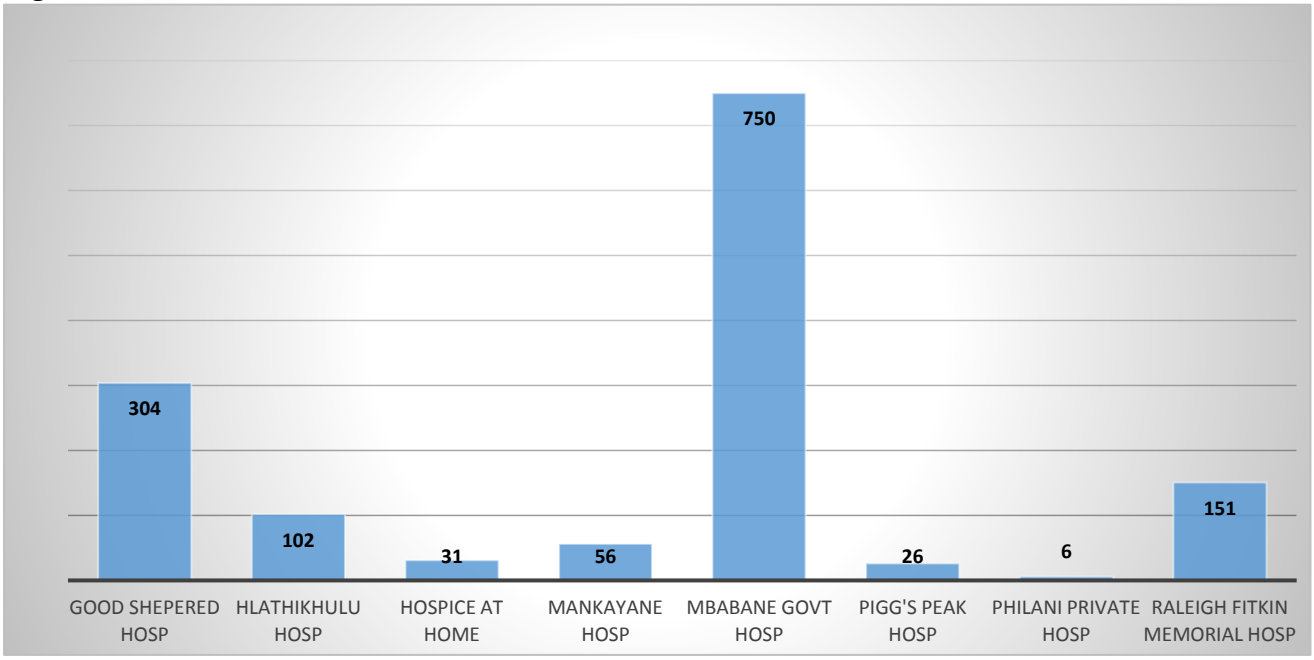
As shown in Table 1, only Sixty three (63) different types of cancers were diagnosed in that period with cervical cancer leading. The cancers occurred in all age groups and affecting both males and females.

Figure 1: Analysis of cancer cases by sex and age group, 2014-2015



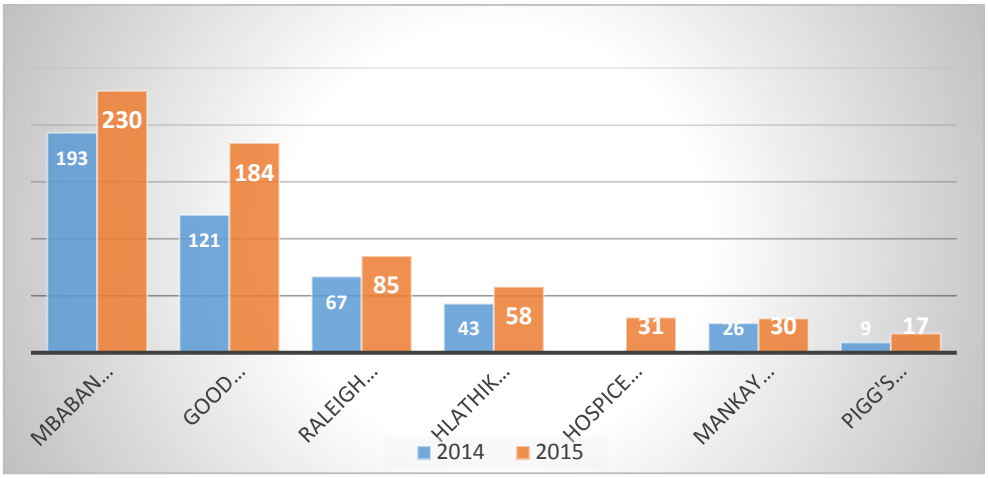
From the data collected, more cases of cancer were reported in women (58.5%) than men (41.5%). The majority of cancers as in Figure 1, show 730 (51.2%) occurred in the age group 30 -49 years with equal occurrence in 30 -39 (365) and 40 -49 (365). Less than 1% of all cancers were reported in children less than 10 years of age.

Figure 2: Number of diagnosed cancer cases by facility; n= 1426



Mbabane Government hospital had the highest number of cancer cases diagnosed between 2014-2015 (750; 52.6%) followed by Good Shepherd with 304 cases (21.3%) and Raleigh Fitkin Memorial (RFM) with 151 (10.6%). The remaining facilities had very low (26.1%) cancer cases possibly because they referred their patients to the national referral hospital or to advanced hospital outside the country as reported in SAM, 2014[1].

Figure 3: Trends of cancer cases by different data sources between year 2015 and 2016



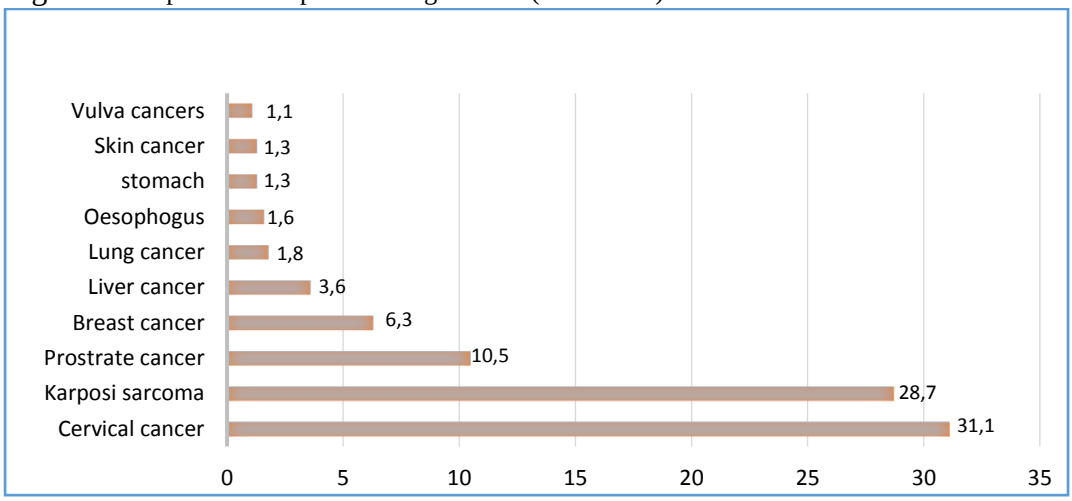
Cancer diagnoses are noted to be on the increase in all the facilities during the period of data collection. Mbabane government hospital increased by 16% from the previous year whilst Good Shepherd hospital, the only regional hospital in Lubombo region showed an increase of 34% of new cancer cases diagnosed. Overall, there was over 30% increase of new cancer cases in the facilities between 2014 and 2015.

The leading cancers

The most commonly occurring cancers in the country are shown in Figures 4. Cervical cancer was again the leading new cancer in 2014-2015 (440 cases, 31.1% of all cancers). Kaposi sarcoma was the second ranking cause of cancer death for men (409, 28.7% of total cancers). Prostate cancer was the leading male reproductive cancer accounting for 10.5% (150) of new cancer cases. Breast cancer was the fourth ranking cause of cancer death (6.3% of total). Liver cancer was the fifth most common cancer, with 52 cases (3.6% of all cancers) in these two years. The other cancers were lung 26 (1.8%), oesophageal 19 (1.6%), stomach 18 (1.3%), skin cancer 18 (1.3%) and vulval cancers with 16 (1.1%) of all cancers.

Apart from KS the greatest cancer burdens are in both males and females are cancers of the reproductive tract (prostate and cervical cancers),

Figure 4: Proportion of top ten leading cancers (2014-2015)



During this time of analysis, cervical cancer is the commonest malignancy in women, accounting for 440 of total cases as indicated in figure 5 , followed by Kaposi sarcoma (122), breast cancer (90), vulva cancer (16) and oesophagus cancer (8) pattern that is similar to that of the more or less the same with the same with the African regions.

In men, Kaposi sarcoma is the leading cancer accounting for 287 cases, followed closely by prostate cancer (150), lung cancer (21), and liver cancer (14) and lastly is the oesophageal cancer (10).

It seems likely, then, that there has been an increase in incidence of cancer of the prostate and of Kaposi sarcoma since 2014.

Figure 5: Analysis of leading cancer cases by sex

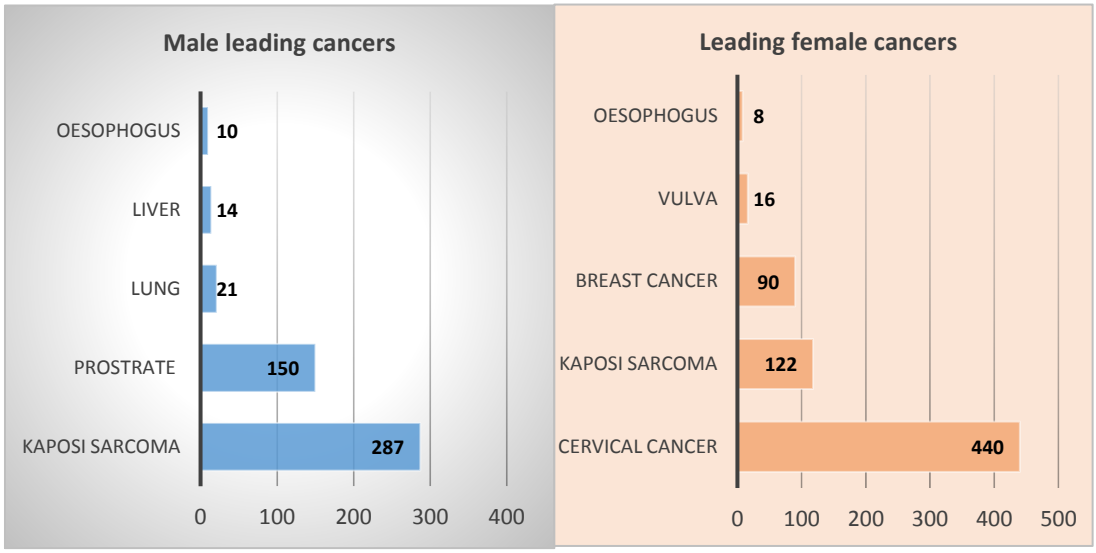
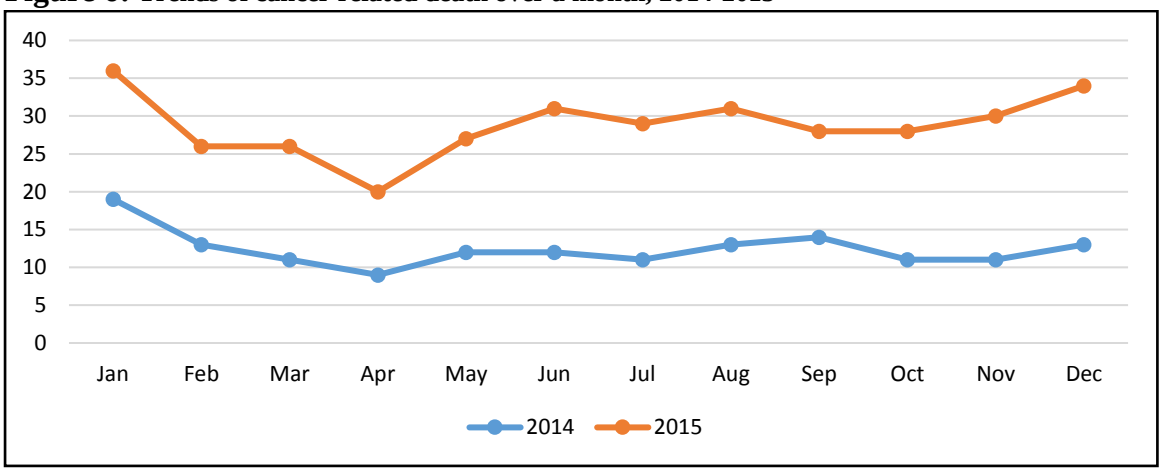


Figure 6 below shows about 12% average rise in cancer related death trend in 2015 when compared with 2014. However the pattern of the trends in both years are more or less the same.

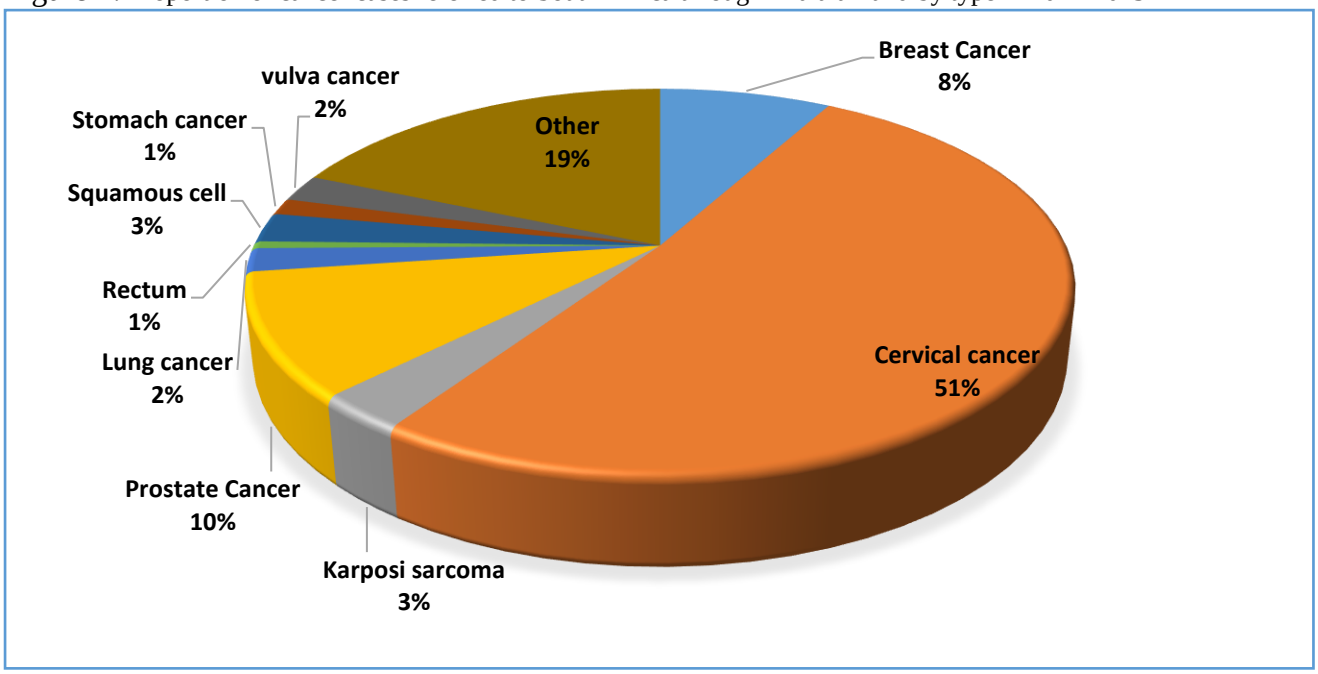
Figure 6: Trends of cancer related death over a month, 2014-2015



Referrals

Due to lack of some expertise and relevant diagnostic equipment the kingdom of Swaziland initiated the Phalala referral fund to assist financially deserving Swazi citizens who would otherwise not have access to specialist medical care and also secure such care either, within the Kingdom of Swaziland or, in special circumstances, outside the Kingdom of Swaziland.

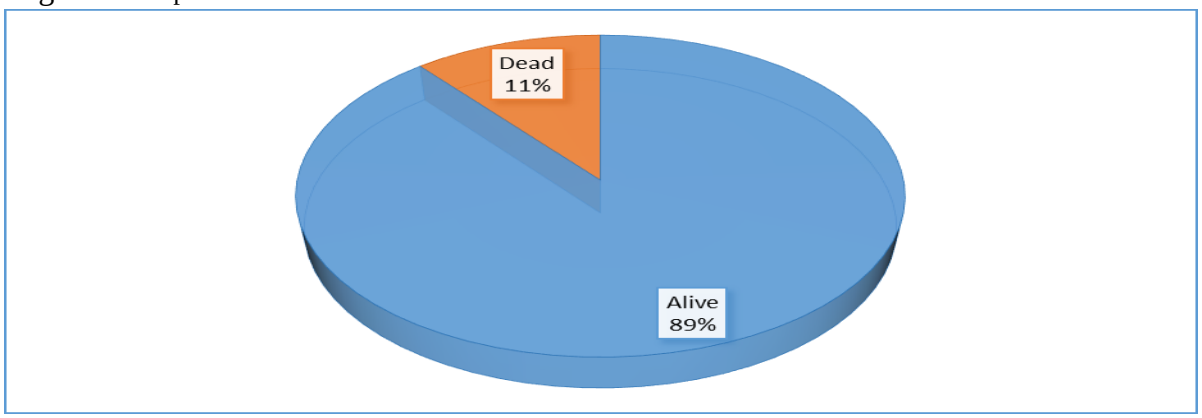
Figure 7: Proportion of cancer cases referred to South Africa through Phalala Fund by type in 2014-2015



Out of all cancers diagnosed in the two years of study 24.7% were referred to South Africa (SA). The cancer registry data base indicate that more than half (51%) of the cases referred for further management were cervical cancers followed by prostate cancer with 10% as seen in figure 7 above

The figure 8 below indicate that out of the 24.7% cancer cases referred to SA only 89% are still alive and on medical care.

Figure 8: Proportion of cancer cases referred to South Africa in 2014-2015



Discussions

Cancer registration in the country is in a fairly early stage of development. Until recently, the only systematic data available was based on the records of the pathology department in National referral laboratory, Mbabane. Histopathology services are available in this laboratory and in several stand-alone private histopathology laboratories like Lancet.

The study has shown a discrepancy of the medical records like use of different terminology in diagnosing cancer in one affected area/organ such as the abdominal and stomach. In some countries like Zimbabwe the ICD code is used (ICD-0)[2] for diagnosis to avoid such discrepancy. Also noted during the data abstraction valuable variables needed for analysis of cancer incidence, such as date of birth, sex, date of incidence, risk factors, occupation, status, extent/stage, cause of death, and behaviour were missing.

The report covers the period from 2014-2015 to provide the best perspective on long-term trends in cancer cases and mortality (death) rates for all.

The total number of new cancer cases recorded among Swazis in 2014-2015 was 1 426 comprising 592 (41.5%) cases in men and 834 (58.5%) cases in women. A majority of the new cancer (52.6%) cases were diagnosed in the Mbabane government hospital, as this national hospital has most Surgeons, Oncologist and national referral laboratory which links with Lancet for further diagnosis. An increasing trend noted can be attributed to many factors including HIV prevalence rate, population aging and exposure to risk factors, such as smoking, unhealthy diet and physical inactivity and environmental pollution. It is estimated that 40% of cancers can be prevented by risk factor modification.[3]

Cervical cancer which is caused by the Human Papilloma Virus (HPV) continues to be most predominant cancer among Swazis in the country followed by the Kaposi sarcoma (KS). This development is not entirely unexpected as the incidence of cervical cancer has been steadily increasing in the previous years. The increase in the incidence of HIV-related KS which predominated in some facilities like Good Sherpered is caused by manifestations of AIDS in HIV positive subjects. Some expectations to see a great decline in this conditions is very high as literature review in countries like Zimbabwe has shown that an early initiation of anti-retroviral treatment has a great positive effect in reducing the chances of new KS infections, good news for the country is that the Ministry of Health initiated large scale HIV Test and Treat strategy in October 2015. We believe that this strategy in both type of cancers warrants further epidemiological investigation. Furthermore cancer cases increased steeply between 2014 and 2015, largely due late health seeking behavior, unavailability of diagnostic equipment and low uptake of cancer screening especially the cervical cancer as noted in STEPS survey done in the country in 2014[1, 4]. The survey reported that only 13.4% of sexual active women were reported to have done the cervical cancer screening, whereas the SAM report also revealed that the prevalence of cancer associated with HIV like Kaposi sarcoma can decreased with increased availability and access to antiretroviral drugs. Furthermore, early diagnosis and treatment is a key necessity to reducing cancer-related mortality. However, observations from the study through SAM, 2014 shows that a majority of cancer patients report very late for cancer related health services when the malignancy has advanced and almost at an incurable stage.

The cases of prostate cancer has also shown an increase, overtaking the breast cancer which all along been one of the leading cancers as shown in Health Management Information System (HMIS) data, 2012[5].

An increase of over 12% death related to cancer has been noted over the months from 2014 to 2015. As the deaths arise, it is cause for concern on the need for preventive measures as this may have direct cost implications for management of cancers.

Worth noting is that, about 32% of cancer cases diagnosed local are being transferred to SA for further management which has a direct costs which includes expenditures for treatment, transportation, admission and lodge cost as well as the cost of care and rehabilitation related to the illness. Indirect costs include the loss of economic output due to missed work (morbidity costs) and premature death (mortality costs).In addition to the human toll of cancer, the financial cost is substantial. There are also hidden costs of cancer, such as health insurance premiums and nonmedical expenses (transportation, child or elder care, housekeeping assistance, meals, etc.)[6] The exact global cost of cancer is unknown, but it is thought to be in the hundreds of billions of dollars per year.[7] According to World Health Organization (WHO) (2012) the global cost of cancer is expected to increase due to increases in the number of new cancer cases, as well as the increasing cost of cancer therapies.[3, 7]

However, the incidence of other cancers in both males and females remains stable.

Recommendation

- Finalize and implement the cancer registry documents which includes the data collection tool
- Capacitation and implementation of ICD-10 coding for proper diagnoses
- Implement the Canreg5 software which input, store, check and analyse cancer registry data.
- The cancer registry office should sensitize the program to all the possible data sources institutions to capacitate the clinicians avoid the challenges of data sharing.
- Defining the role of the Cancer Registry and the essential links it needs to collect the information most effective in cancer control
- Linking the Cancer Registry with the appropriate clinical, pathology and palliative care databases
- Developing national data sets for cancers that have particular significance in the country

  Facilitating ongoing monitoring and cancer control research through an enhanced Cancer Registry.

References

1. Ministry of Health, *Service Availability Mapping Report* 2013: Mbabane.
2. E. Chokunonga, M.Z.B., Z.M. Chirenje, A.M. Nyakabau, *Zimbabwe National Cancer Registry Annual report 2010.* 2010.
3. WHO, *Towards a strategy for cancer control in the Eastern Mediterranean Region / World Health Organization.* WHO, 2009.
4. Ministry of Health, *SWAZILAND NON COMMUNICABLE DISEASES RISK FACTORS (STEPS)SURVEY REPORT*. 2014: Mbabane.
5. Swaziland Health Management Information System, *Annual data.* 2012.
6. Lambe M, H.C., Trichopoulos D, Ekbom A, Pavia M, Adami HO, *Transient increase in the risk of breast cancer after giving birth.* N Engl J Med, 1994. **331**: p. 5-9.
7. WHO, *WHO's cancer pain ladder for adults.* 2014.