

Current cancer incidence and trends in Yaounde, Cameroon

Enow Orock GE,¹ Ndom P,² Doh AS²

¹Yaounde Cancer Registry, Cameroon

²National Cancer Control Program, Yaounde, Cameroon

ABSTRACT

Background: Except for some information on relative frequencies of different cancers in selected areas, the epidemiology of cancer in Cameroon is relatively unknown. Though there is no reliable data on its incidence and pattern, with an estimated 15,000 new cases diagnosed annually and a prevalence of about 25,000 cases throughout the country, cancer is being increasingly recognized as a public health problem in Cameroon. The Yaounde Cancer Registry is a population registry physically located at the General Hospital Yaounde that has been operating since 2004. It collects data from about 20 sources that cover the entire population of Yaounde estimated in 2010 at about 1,299,369. **Objectives:** The objective of this study was to find out the incidence and trends of cancer in the Yaounde population in the period 2004–2006/2010–2011. It is hoped that this will enable policy makers, health providers and other stake holders plan appropriate health management policy in this population. **Materials and Methods:** This report presents the cancer incidence for 5 years, 2004–2006/2010–2011 in the Yaounde population estimated at 1,299,369. Data of the Yaounde Cancer Registry was reviewed for the period under study using Canreg5 software. Only malignant cases registered during the period under study were used in the analysis while benign and other uncertain tumours were excluded. The 2010 census estimates by the National Institute of Statistics was employed to calculate the incidence, age-standardized and crude rates. Other software like excel, epi info were also used for analysis. Survival studies were not carried out in this study. **Results:** A total of 4,689 new malignant cases were reported, of which 2,901 (68%) were females and 1,788 (32%) were males. The incidence showed an average of 358 for men and 580 for women. The average age of cancer patients in Yaounde is 44.8 years. Morphologically confirmed cases accounted for 89%. The annual number of cases varied from 970 in 2004 to 784 in 2011. There is a persistent relative increase in HIV-related malignancies (Non Hodgkin lymphoma and Kaposi sarcoma) and colorectal cancers in both sexes. The overall Age Standardized Incidence Rate (ASR) for all cancers during the period was 44.35 per 100, 000 in males and 62.35 in females. The commonest cancers found in the population were breast (18.5%), cervix (13.8%), Non-Hodgkin lymphoma (11.9%), prostate (7.3%), Kaposi sarcoma (6.9%), liver (2.9%), colorectal (2.9%), soft tissue (2.8%), ovary (2.4%) and skin (2.3%). **Conclusion:** Cancer is a public health problem in Cameroon. HIV-associated and colorectal cancers are emerging cancers in this community. This calls for more population-based cancer registries in the country to provide reliable information on cancer incidence in different localities while cancer and cancer-related deaths should be made compulsorily reportable if proper monitoring is to be achieved.

Keywords: Cancer, Yaounde, Incidence, Survival, HIV, Cameroon, Epidemiology.

INTRODUCTION

Although infectious diseases are more predominant in the developing world with a high morbidity/mortality rate, chronic diseases including cancer have recently been recognized as public health problems in many of these communities. Except for some information on relative frequencies of different cancers in selected areas, the epidemiology

*Corresponding address:

Dr Enow Orock George, Yaounde Cancer Registry,
Department of Pathology, General Hospital Yaounde,
BP 5408, Yaounde, Cameroon.
Tel 237-7771-6045
Email: enowrock24@yahoo.com

DOI: 10.5530/ogh.2012.1.14

of cancer in Cameroon is relatively unknown. Though there is no reliable data on its incidence and pattern, with an estimated 15,000 new cases diagnosed annually and a prevalence of about 25,000 cases throughout the country, cancer is being increasingly recognized as a public health problem in Cameroon. The Yaounde Cancer Registry is a population registry physically located at the General Hospital Yaounde that has been operating since 2004. It collects data from about 20 sources that cover the entire population of Yaounde estimated in 2010 at about 1,299,369.

MATERIALS AND METHODS

This report presents new cancer cases reported during the periods of 2004–2006/2010–2011 in the Yaounde population, Cameroon. Data of the Yaounde Cancer Registry (YCR) were reviewed for the period under study. All cancer cases registered during this period were retrieved and analyzed. All other cases out of the period of study and all benign tumours were excluded. The 2010 population census data was used as a base for the population estimates to calculate the incidence rates for each year. The cancer cases data of the years 2007–2009 were not included in this report due to overt underreporting during this period. A direct age standardization method was used in this analysis where the age standard population was the world standard population. CANREG5 was used for data analysis as well as other software like Excel, EPI INFO etc.

RESULTS

Hist. prim. is histology of primary, Hist. met. Is histology of metastasis, cyto/haemato is cytology/haematology, clin. Inv/ultr. Is clinical investigation/ultrasound.

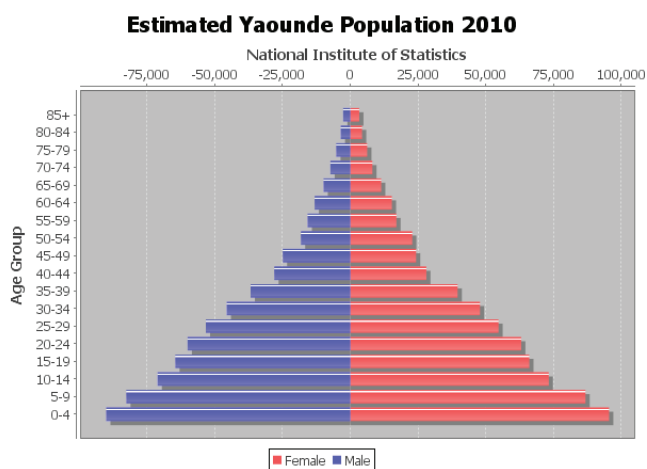


Figure I. Pyramid of Yaounde population estimates June 2010.

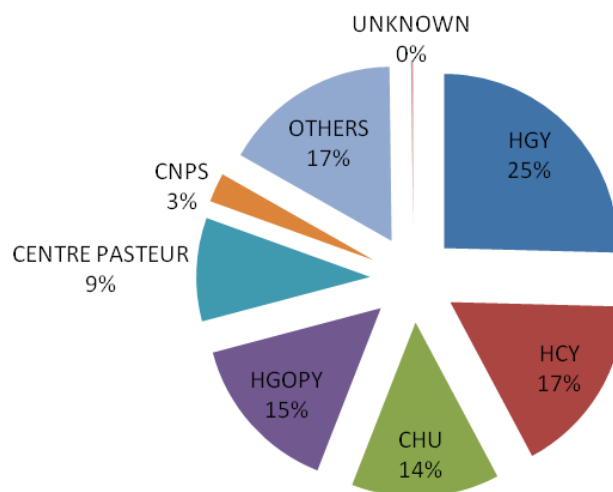


Figure II. Data sources for YCR 2004–2006/2010–2011.

DISCUSSION

A total of 4,689 new malignant cases were recorded in the Yaounde population during the 5 years period 2004–2006/2010–2011 in the Yaounde Cancer Registry. This gave an annual average of 938. 1,788 (32%) were males and 2,852 (68%) were females. Our observation is. The number of cases per year showed an increase from 970 in 2004 to 1096 in 2005 only to drop continuously from 1071 in 2006 to 784 in 2011. This minor irregularity is seen in both males and females. It is common to have minor irregularities on incident cases on commencement of population cancer registration^[1].

The most predominant age range for cancer in both sexes is 35–64 years with peak at 40–44 years and an average age of 44.8 (±2) years. For males the average age is 45.4 (±1) years and the commonest range is 40–69 years with peak at 55–59 years. For females the average age is 44.7 (±2) years and the most common range is 35–64 years with peak at 45–49 years. This finding is similar to what Ogunbiyi reported in the Ibadan population^[2].

The overall Age Standardized Incidence Rate (ASR) for all cancers during the period was 44.35 per 100,000 in males and 62.35 in females. Lymphomas and Burkitt’s in particular are commonest childhood cancers in this population^[3]. Generally, cancer is more common among male infants, to adolescence. After the age 20, the disease becomes persistently more common in females upto about 70 years after which the pattern becomes irregular (Table I).

Since cancer is more common in older ages, comparison of simple crude rates can give a false picture because

Table I Cancer trends by age and sex in the Yaounde population, YCR 2004–2006/2010–2011

Age Range Count	Period				
	2004–2006		2010–2011		Total
Age Range	Male	Female	Male	Female	
0–4	46	37	12	9	104
5–9	71	49	22	15	157
10–14	56	39	16	10	121
15–19	37	39	20	16	112
20–24	51	40	16	27	134
25–29	46	93	18	52	209
30–34	54	131	19	97	299
35–39	78	187	28	93	386
40–44	106	243	38	138	525
45–49	113	245	38	129	523
50–54	120	201	46	126	493
55–59	122	132	49	99	401
60–64	103	143	55	63	364
65–69	101	96	41	55	292
70–74	85	79	32	63	258
75–79	66	33	18	17	134
80–84	26	22	4	8	60
≥85	8	6	3	6	23
Unknown	3	13	21	50	87
Total	1292	1828	496	1073	4690

of differences in the age structure of the population to be compared^[4]. Crude rates are higher in older populations than younger ones. Thus, when comparing cancer prevalence/incidence between two or more areas, or when investigating the pattern of cancer over time for the same area, it is important to allow for the changing population structure, this is accomplished by age standardization. The direct standardization method was used in this study where the age standard population used was the world standard population^[4].

Cancer of the breast topped the list followed by cancer of the cervix in females as well as when both sexes were combined. In males, cancer of the prostate was the commonest cancer. Globally, the commonest cancers found in this population were: breast (18.5%), cervix (13.8%), Non-Hodgkin lymphoma (11.9%), prostate (7.3%), Kaposi sarcoma (6.9%), liver (2.9%), colorectal (2.9%), soft tissue (2.8%), ovary (2.4%) and skin (2.3%). Breast cancer was the most frequent cancer during this period followed by cancer of the cervix among females. Non-Hodgkin lymphoma, Kaposi sarcoma, ovary, soft tissue, colorectal, skin (non-melanoma), corpus uteri, and stomach were also among the top ten cancer sites in females. In females, breast and cervical cancers occupy first and second place respectively throughout the period of study. Many previous studies in this population and elsewhere have observed similar trends^[3,5].

The trends of cancer incidence in males showed a persistent significant number of cancers of the prostate, non Hodgkin lymphomas, Kaposi sarcoma, liver and colorectal throughout the period of study. But for minor initial fluctuations (in 2004) prostate cancer remains the most common in males throughout the period of study. Studies in other populations have found similar epidemiology in male cancers^[1,5]. Another consistency that is observed over the time is a persistent larger number of females as compared to male cases captured in our registry. There is a persistent relative increase in HIV-related malignancies (Non Hodgkin lymphoma and Kaposi sarcoma) and colorectal cancers in both sexes. Contrary to observations about 2 decades earlier in this population, HIV-associated malignancies (non Hodgkin lymphoma and Kaposi sarcoma) and colorectal cancers are have increased in frequency^[3]. This observation which is seen in both sexes may be attributed to the HIV pandemic in the country and changes in diet and lifestyle in the community^[6].

The Yaounde Cancer Registry uses a proactive method for data collection, from about 20 sources of data consisting of referral hospitals, teaching hospitals, general hospitals, pathology laboratories and some privately owned hospitals and clinics in the city. Completeness of registration of cancer cases in this population is estimated at about 75%. The reliability of data collected on the incident cases of cancer depends greatly on the basis of diagnosis used. The classified methods of diagnosis have been represented in the pie chart in Figure III.

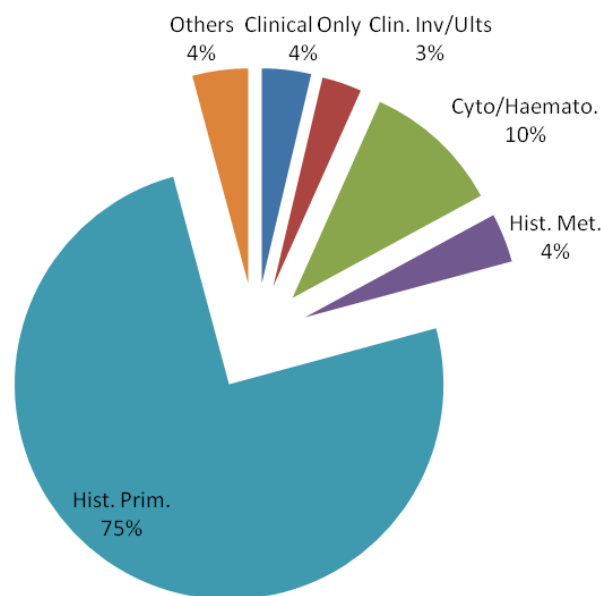


Figure III. Basis of cancer diagnosis, YCR 2004–2006/2010–2011.

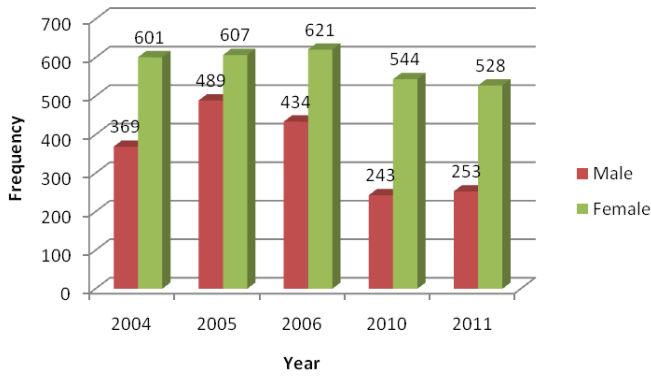


Figure IV. Number of cancer cases recorded each year by sex, YCR, 2004–2006/2010–2011.

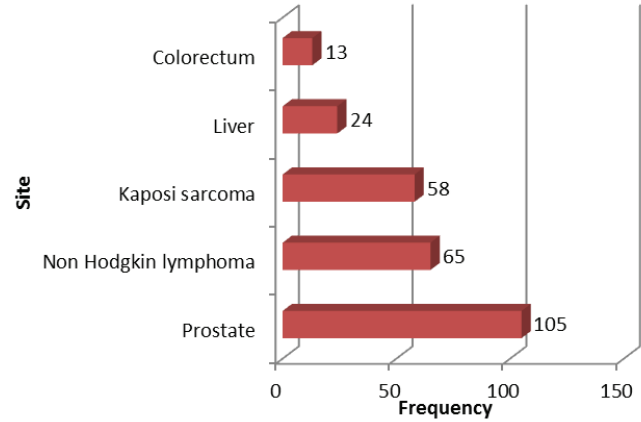


Figure VII. Leading cancers 2006, male.

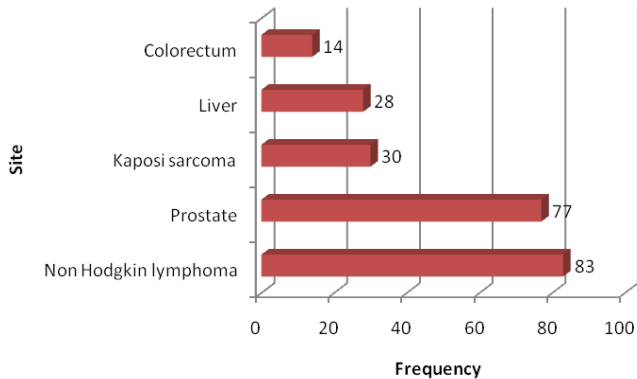


Figure V. Leading cancers 2004, male.

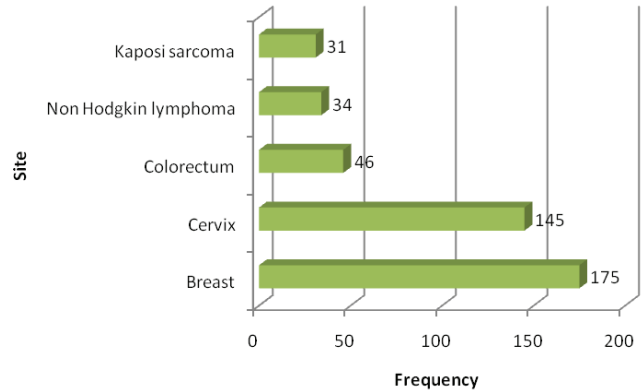


Figure VIII. Leading cancers 2006, female.

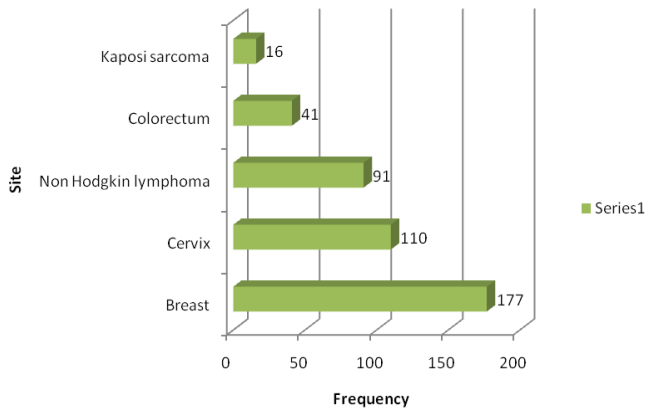


Figure VI. Leading cancers 2004, female.

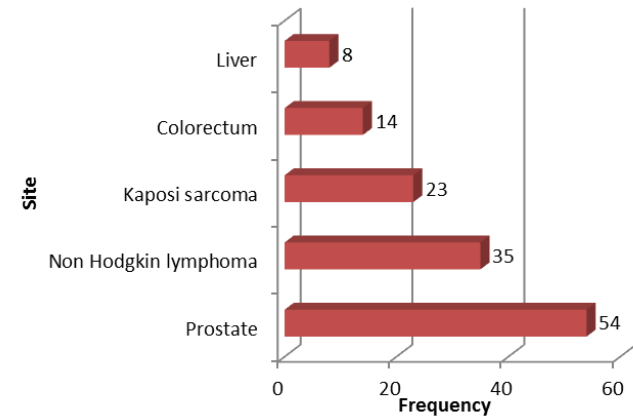


Figure IX. Leading cancers 2011, male.

The morphologically confirmed cases accounted for 89% (histology of primary and secondary 79% and cytology/haematology 10%), followed by clinical 7% and others 4%. Cases diagnosed by autopsy, laboratory examination or Death Certificate Only (DCO) were negligible.

Leading cancers in the Yaounde population 2004–2006/2010/2011

Breast

Cancer of the female breast was the top ranking cancer among females as well as when cancers in both sexes were

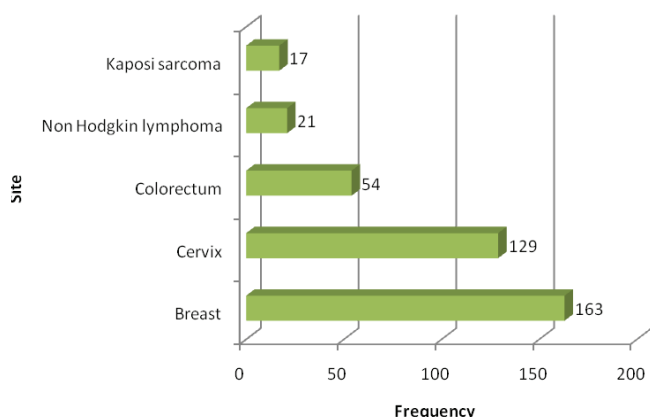


Figure X. Leading cancers 2011, female.

combined^[7]. 837 new breast cancers were diagnosed in females and 32 in males giving a total of 869 cases during the period 2004–2006/2010–2011. This represents 18.5% of all cancers and 32% of female cancers. The most common type of breast cancer of all microscopically verified cases is the invasive ductal carcinoma (71% N=613), followed by lobular carcinoma (7.5% N=65). Others were carcinoma unspecified (3.1%), medullary and adenocarcinoma (each 1.2%). Predominantly diagnosed by histology of the primary organ, the cluster of incidence of breast cancer was between 30–50 years with the peak incidence occurring in the age group 45–49 years. The average annual incidence of breast cancer was 174 with Crude Incidence Rate (CIR) and Age Standardized Rate (ASR) at 25.89 and 35.25 respectively. At about 3% of breast cancer in both sexes, male breast cancer is relatively high in the Yaounde population.

Cervix

Cancer of the cervix uteri was the second most common cancer among females as well as when cancers in both sexes were combined. During the period 2004–2006/2010–2011, a total of 651 new cases were diagnosed representing 22.4% among female cancers, 13.8% of all cancers (see Table II)^[7]. The annual average of cervical

cancer was 130 and the Crude Incidence rate (CIR) and Age Standardized rate (ASR) were 20.83 and 27.75 respectively. Squamous cell carcinoma represented 69.8% (N=454) of histologically verified cases of cervical cancer, adenocarcinoma 5.7%, 4% of cancer unspecified and others 21.5%. Histological verification was achieved in 77.4% of these cancers^[8]. The incidence of cervical cancer was highest in the age groups 35–60 years and peaked at 50–54 years.

Non Hodgkin Lymphoma

Non Hodgkin lymphoma is the third most frequent cancer in both sexes combined, constituting 10.4% of all cancer cases^[9]. A total of 559 cases were diagnosed during the period 2004–2006/2010–2011 (291 males and 268 females). This cancer ranked second in males and third in females (see Tables V and VI) with an ASR and CIR of 17.2 and 16.18 respectively.

Prostate

Cancer of the prostate was fourth top ranking cancer overall and the most common cancer in men. During the period 2004–2006/2010–2011, prostate cancer accounted for 19.1% of all male cancers and 7.3% of cancers in all persons. The annual average of this cancer was 69. The CIR and ASR during the period were 10.03 and 16.7 respectively. The incidence of prostate cancer starts to increase between 55–59 years with the peak occurrence between 65 and 69 years^[10]. The distribution of the morphological types entered in the registry showed adenocarcinomas to be 88% and carcinoma unspecified 1.7%^[11].

Kaposi sarcoma

A total of 322 cases of Kaposi sarcoma was recorded at the YCR during the period 2004–2006/2010–2011 (116 females and 209 males) constituting 6.9% of cancers in all persons, 11.5% of male cancers and 3.9% of female cancers during this period^[11]. 72.5% of the cases were histologically verified, while 18.2% were diagnosed clinically and 9.3% by other investigative methods.

Survival studies were not carried out in this population study^[12] due to migration of the cases, and sometimes absence of adequate information on exact physical address of the patients.

CONCLUSION

Cancer is a public health problem in Cameroon. It is important to monitor cancer incidence and trends in

Table II Top ten cancers in all persons, in the Yaounde population, 2004–2006/2010–2011

S/N	Cancer	Frequency	%
1	Breast	869	18.5
2	Cervix	651	13.8
3	Non Hodgkin lymphoma	559	11.9
4	Prostate	342	7.3
5	Kaposi Sarcoma	321	6.9
6	Liver	141	2.9
7	Colorectum	135	2.9
8	Soft tissue	133	2.8
9	Ovary	110	2.4
10	Skin	108	2.3

order to be able to plan for adequate care and prevent cancer occurrence in the country. Reliable cancer data are important for elaboration and implementation of cancer control programs. HIV-associated and colorectal cancers are emerging cancers in this community. This calls for more population-based cancer registries in the country to provide reliable information on cancer incidence and trends in different localities. The occurrence of cancer and cancer-related deaths should be made compulsorily reportable if proper monitoring is to be achieved.

REFERENCES

1. Jensen OM, Parkin DM, MacLennan R, Muir CS, Skeet RG 1991, Cancer Registration principles and methods. IARC scientific publications No. 95.
2. Ogunbiyi JO, Fabowale AO, Ladipo AA, 2010. Cancer Incidence and Top Ten Cancers in Eleven Local Government Areas in Ibadan and Its Environs, 2004–2008: Ibadan Cancer registry, Nigeria Technical Report.
3. Doh AS et al. 2007 National Cancer Control Committee: Practical Guide, 1st edition, Yaounde, Cameroon.
4. Boyle P, Parkin DM. 1991. Statistical methods for registries. International Agency for Research on Cancer: Lyon, France.
5. Mbakop A, Essame Oyono J.L, Mbgangako MC, Abondo A 1992, Epidemiologie actuelles des cancers au Cameroun (Afrique Centrale), Bull Cancer 1992, 79:1001–4.
6. WHO. 2012 World Health Statistics Report.
7. Parkin DM, Pisani P, Ferlay J. 1999. Estimates of the worldwide incidence of 25 major cancers in 1990. International Journal of Cancer; 80:827–41.
8. Parkin DM, Ferlay J, et al. 2003. Cancer in Africa: Epidemiology and Prevention. IARC Scientific Pub. No 153.
9. Parkin DM, Whelan S, Ferlay J, Raymond L, Young J (Eds). 1997. Cancer Incidence in Five Continents Vol. VII. IARC Scientific Publications No. 143. International Agency for Research on Cancer: Lyon, France.
10. Curado B, Edwards HRRR, Shin HR, Storm H, Ferlay J, Heanue M, Boyle P. Cancer Incidence in Five Continents 2009. IARC Scientific Publications, (9), 160, 534–6.
11. Curado MP, Edwards B, Shin HR, Storm H, Ferlay J, Heanue M, and Boyle P. (Eds). 2007. Cancer Incidence in Five Continents Vol IX, IARC Scientific Publication No. 160: International Agency for Research on Cancer: Lyon, France.
12. National Institute of Statistics. Population Census. 2010. Census 2010 Report.