

## Cancer in the North - Western region of Nigeria: an update analysis of Zaria cancer registry data

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### Abstract

**Objective:** *To update the pattern of cancer in the North -western region of Nigeria*

**Methods:** *Data on new cancer cases registered at Zaria cancer registry of Ahmadu Bello University Teaching Hospital, Zaria, for a period of five years (1992-1996), inclusive of the period of previous study, were obtained and analyzed. Data was collected from various sources within the hospital complex through active reporting. Classification of primary sites of cancer was based on international classification of disease (ICD) 9<sup>th</sup> edition by WHO.*

**Results:** *From January 1992 to December 1996, a total number of 1887 new cancer cases were registered at the hospital- based cancer registry of Ahmadu Bello University Teaching Hospital (ABUTH) Zaria. There were 879 (46.6%) males and 1008 (53.4%) females with male to female ratio of 1:1.2. Malignant lymphoma, 201 (22.9%) was the commonest cancer in men. This was followed by carcinoma of the urinary bladder, 99 (11.3%) and prostate, 81 (9.2%). In women cancer of the cervix, 256 (25.4), Breast, 223 (22.1%) and malignant lymphoma, 74 (7.3%) were the commonest in that order. All the four new cases of cancer of the lung occurred in men. Brain tumor is rare and occurred during childhood.*

**Conclusion:** *Cancer, a non-communicable disease is increasingly becoming a major public health concern, hence the need for a national policy formulation for its management and control.*

**Key words:** Cancer, Cancer registry.

### Introduction

Cancer, a non-communicable disease is being recognized as a major health problem worldwide. It is likely to increase in importance in developing countries with the control of infectious disease and increased life expectancy<sup>1</sup>. Cancer accounts for one tenth of deaths worldwide and the second leading cause of death in developed countries<sup>1</sup>. It is no longer regarded as a problem of developed world, as Perkin in 1988 found that more than half of all cancers occurred among the three-quarters of the world's people, who reside in the developing countries<sup>2</sup>. Unless controlled, the burden of cancer in developing nations will increase in the near future, due to increase in the proportion of the elderly people, industrialization and increased population being increasingly exposed to causative factor such as tobacco. Cancer registration, which is an integral part of cancer control program, has been practiced for many years in several countries including Nigeria<sup>3</sup>. The first population-based cancer registry in Nigeria was established at Ibadan in 1960<sup>4</sup>. Ever since, cancer registry has not witnessed any remarkable growth in Nigeria as virtually all existing cancer registries in Nigeria are either hospital-based or departmental-based registry. Thus cancer registration has been facing a serious set- back; as a result, determination of the magnitude of cancer nationwide has been elusive.

Reports from Belgium, Canada, Finland and Norway<sup>5,6</sup> indicate marked variation in sex and body organ distribution of the different cancers from one country to another. The same phenomenon of variation has been noted to some extent in Africa. Thus in Ibadan western Nigeria<sup>9</sup>, prostate, liver, Non-Hodgkin's lymphoma in males compared with breast

cancer, cervix uteri and ovary in females are the main types. Cancer registry data from Cameroon and central Africa<sup>10</sup> have also recorded some variations. The Uganda report is striking with the prominence of Kaposi's tumor. Zaria Cancer registry of ABUTH Zaria, located in North western region of Nigeria, became functional as a hospital-based cancer registry in 1991. The registry has data on various types of cancer by primary sites, age and sex. Earlier, the registry data from 1992-1994 had been published<sup>14</sup>. It was felt that an update of this data over a period of five years should be undertaken in order to provide valuable information on the magnitude of cancer, its relative occurrences and further update the existing basic data on cancer in this part of the country. This could probably accelerate and justify the need for establishment of population-based cancer registry in the other regions of the Nigeria.

#### Patients and methods

The Zaria Cancer Registry (ZCR) of Ahmadu Bello University Teaching Hospital Zaria is a hospital-based registry. The data presented for the purpose of this communication were the new cancer cases diagnosed among hospital patients and surgical tissues at ABUTH Zaria and were registered at ZCR from January 1992 – December 1996. All malignant neoplasm, (ICD-9 rubrics 140-208 of WHO), unequivocally confirmed clinically, by radiology, autopsy or verified by histology or cytology were registered. Non-melanocytic skin cancers were excluded. Notification of cancer was voluntary. To ensure completeness of data, collection of data was by active reporting. The main sources

of information on cancer within the hospital were medical record department, out-patient clinics, pathology and hematology laboratories, radiology department and autopsy log books. The registry personnel regularly visited the various sources of data to abstract the following information on cancer: patient's name, age, sex, hospital number, residential address, occupation and habits. Other information collected were date of diagnosis, topography (primary site) and sources of information. These details were recorded into the registry abstract form. Each case was given registry identification number. Incoming information was matched against the register or index card arranged alphabetically by name to avoid double registration. Where in doubt, the case would be followed back to the data source for additional information.

Coding of the primary sites of cancer was according to International classification of disease 9<sup>th</sup> revision of W.H.O.<sup>12</sup>. The results are presented in the form of tables and bar charts.

#### Results

Within a period of five years, January 1992 to December 1996, a total of 1887 new cancer cases were registered at the Zaria cancer registry. Averagely, 377 new cases were registered annually. Of the 1887 cases registered, 88.2% were histologically verified. There were 879 (46.6%) males and 1008 (53.4%) females, giving male to female ratio of 1:1.2, Table 1. In males the leading cancers were malignant lymphoma, 201 (22.9%), and cancers of the urinary bladder, 99 (11.3%), prostate, 81 (9.2%), colorectal, 73 (8.3%) and

**Table 1. Cancer cases registered by sites and sex at Zaria**

<b><u>SITES</u></b>	<b><u>ICD-9</u></b>	<b><u>MALE</u></b>	<b><u>FEMALE</u></b>	<b><u>TOTAL</u></b>
<b>Oro-pharynx</b>	<b>140-149</b>	<b>69</b>	<b>39</b>	<b>108</b>
Lip	140	4	4	8
Salivary Gland	142	10	8	18
Floor of the mouth	144	31	16	47
Pharynx	146-148	15	4	7
Others and unspecified	143,145,149	9	7	16
<b>Digestive organs</b>	<b>159-159</b>	<b>120</b>	<b>73</b>	<b>193</b>
Esophagus	150	7	9	16
Stomach	151	11	10	21
Colorectal	152-154	73	39	112
Liver and Biliary passage	155-156	24	12	36
Other and unspecified	152,157,159	5	3	8
<b>Respiratory system</b>	<b>160-165</b>	<b>8</b>	<b>1</b>	<b>9</b>
Lung	162	4	0	4
Other and unspecified	160,161,163-165	4	1	5
<b>Bone Tissue and Skin</b>	<b>170-172</b>	<b>96</b>	<b>62</b>	<b>158</b>
Bone	170	19	18	37
Connective Tissue	171	56	26	82
Skin (melanoma)	172	21	20	41
<b>Breast</b>	<b>174-175</b>	<b>3</b>	<b>223</b>	<b>226</b>
<b>Genital Organs</b>	<b>179-187</b>	<b>83</b>	<b>376</b>	<b>459</b>
Cervix uteri	180	NA	256	256
Corpus uteri	181	NA	28	28
Ovary	183	NA	39	39
Prostate	185	81	NA	81
Others and unspecified	179,184,186,187	2	53	55

<b>Urinary organs</b>	<b>188-189</b>	<b>116</b>	<b>25</b>	<b>141</b>
Bladder	188	99	12	111
Kidney and other	189	17	13	30
<b>Eye</b>	190	23	20	43
<b>Brain and central nervous system</b>	<b>191-192</b>	2	2	4
<b>Endocrine glands</b>	<b>193-194</b>	<b>6</b>	<b>10</b>	<b>16</b>
Thyroid	193	6	10	16
Other endocrine	194	0	0	0
<b>Leukemia</b>	204-208	11	13	24
<b>Other blood and Lymphoid Tissue</b>	200-203	201	74	275
Hodgkins disease	201	39	7	46
Other Lymphomas	200, 202 ,S203	162	67	229
<b>All other and unspecified sites</b>	<b>195-199</b>	<b>140</b>	<b>87</b>	<b>227</b>
<b>All cancer sites</b>	<b>140-208</b>	<b>879</b>	<b>1008</b>	<b>1887</b>

N A Not applicable

1 ICD-9 refers to the ninth revision of international classification of diseases

TABLE 2. Cancer cases registered by group site and age at ABUTHZaria

Ages and SITES	ICD-9	0-4	5-9	9-14	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+	U*	TOTAL	%
Oro-Pharynx	140-149	0	0	0	3	3	1	8	11	14	9	16	8	14	6	8	3	3	108	5.7
Digestive Organs	150-159	0	0	0	3	5	12	16	15	18	17	22	25	30	10	6	10	5	194	10.4
Respiratory System	160-165	0	0	0	0	0	0	1	1	0	0	2	2	1	2	0	0	0	9	0.5
Bone and Skin	170-172	2	4	5	12	17	20	16	12	14	13	11	5	8	8	6	4	3	161	8.4
Breast	174-175	0	0	2	0	5	18	24	42	35	32	29	7	12	6	6	3	5	226	11.9
Genital Organs	179-187	2	1	1	15	5	30	28	44	48	65	50	40	45	27	15	31	13	460	24.3
Urinary Organs	188-189	12	5	1	1	3	5	9	13	10	14	19	17	16	5	8	4	1	143	7.6
Eye	190	25	10	0	0	0	1	2	1	2	0	1	1	0	0	0	0	0	43	2.3
CNS	191-192	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	0.3
Endocrine Organs	193-194	0	0	1	0	1	0	2	2	4	0	3	0	2	0	1	0	0	16	0.8
Leukemia	204-208	0	0	1	0	0	2	4	4	4	1	4	1	3	0	0	0	0	24	1.3
Lymph Tissue	200-203	12	62	30	27	16	26	16	11	18	6	12	11	5	5	6	3	6	272	14.3
Others and Unspecified	195-199	5	16	5	2	7	8	26	22	32	20	26	14	21	6	7	6	4	227	12.5
<b>All Cancer Sites</b>	<b>140-208</b>	<b>59</b>	<b>100</b>	<b>47</b>	<b>63</b>	<b>62</b>	<b>123</b>	<b>152</b>	<b>178</b>	<b>199</b>	<b>177</b>	<b>195</b>	<b>131</b>	<b>158</b>	<b>75</b>	<b>63</b>	<b>64</b>	<b>41</b>	<b>1887</b>	<b>100</b>

U\*=Unknown

connective tissue, 56 (6.4%). Cancer of the floor of the mouth and liver were 31 (3.5%) and 24 (2.7%) respectively. Only three cases of breast cancer in males were registered. On the other hand, in females, cancers were of the cervix, 256 (25.4%), breast, 223 (22.1%) and lymphoid tissue, 74 (7.3%), Table I. No single case of cancer of the lung was registered among the females.

Table 2 shows the age distribution of the new cases registered. The peak age of incidence was the 5<sup>th</sup> decade with 376 (19.9%) cases. During the period, 206 (10.9%) children, aged 0-14 years, developed cancer. The types of cancer during childhood were different from those in later life. Burkitt's lymphoma, 99

(48.1%), retinoblastoma, 35(17.0%), nephroblastoma, 16 (7.8%) and connective tissue 8, (3.9) were the commonest types. In the elderly (65 years and above), 202 (10.7%) new cases were registered 40% of which were prostate cancer. On the other hand, 1019 (54%) cases occurred in people under 45 years of age. However in the age group 25-54 years, there were 1038 (54.6%) cases, which were mainly due to cancers occurring in the female during reproductive age group (breast and cervix). The top five anatomic organs involved in this study were genital organs, 460 (24.4%), lymphoid tissue, 272 (14.4%), breast, 226 (12.0%), digestive organ, 194 (10.5%), bone tissue, and skin, 161 (8.5%). However for

selective primary sites, lymph node, 272 (14.41%) , cervix, 256(13.57%) ranged highest and these were followed by the breast, 226 (11.98%), urinary bladder,115 (6.09%) and colorectum, (5.99%).

The smallest number of cases were recorded in the lung, 4 (0.21%) and central nervous system, 5 (0.26%). All other and unspecified sites (ICD 195-199) accounted for 230 (12.2%) cases, which were mostly due to metastatic cancer of unknown primary sites.

### Discussion

It is expected that non-communicable diseases will account for 54% of all deaths in 2015 while tropical infections and parasitic diseases will have decreased to 16% from the 1985 level of 35 percent <sup>1</sup>. Cancer is one of the leading non-communicable diseases and is being recognized as a major health problem to mankind. Through decades of successful research, it is now known that one third of cancer cases are preventable and one third are potentially curable provided they are diagnosed early <sup>1</sup>.

Efforts in the fight against cancer are based on data of a properly functioning cancer registry. Cancer registry is being defined as a facility for the collections, storage, analysis and interpretation of data on persons with cancer <sup>2</sup>. The values of cancer registration in any cancer control programs cannot be over emphasized. Cancer registration facilitates the determination of cancer incidence in its operational area and provides information for organization and planning of prevention and treatment of malignant neoplasm <sup>4</sup>. It also provides basic data for epidemiological research,, which could suggest possible etiological factors <sup>3,4,13</sup>. Zaria cancer registry of ABUTH, Zaria, has steadily registered cancer for a period of 5 years (1992 – 1996). The data of the registry illustrate the cancer situation in Zaria, the age and sex distribution and the relative frequency of various cancer sites. In our previous publication from the same center, cancer occurred more in females than males and this was attributed to high incidence of cancer of the breast and uterine cervix.<sup>14</sup> The commonest cancers among men in Norway were cancer of the prostate,

lung and colon whereas in women, cancer of the breast, colon and lung were common<sup>8</sup>. In this present communication, 378 new cancer cases registered annually is higher than the number in the previous study <sup>14</sup>. This is probably due to increased public awareness on cancer and improved data collection. This also justifies the need for the establishment of a population based cancer registry in the geopolitical region for complete coverage and registration of all cancer cases.

Cancer occurs more in female than male in this present study similar to findings in some other studies <sup>14,15</sup> but different from the findings in certain other reports <sup>5,16,19</sup>. Lymphoid tissue and rectum are the leading sites in men. Prostate ranks third whereas it is the commonest in Victoria and Norway <sup>8, 17</sup>. In women, cervix, breast, lymphoid tissue, ovary and rectum are the five commonest sites in that order. The predominance of cervical carcinoma in this study is note worthy unlike in some other countries <sup>6,8,18</sup>. This justifies the need for establishment of cervical (PAP Smears) centers for its early detection in order to reduce its morbidity and mortality. Children (0-14 years) accounted for 10.9% of the new cases registered during the period. This is relatively high, compared with reports from other studies <sup>6,7</sup>. This is attributed to high incidence of malignant lymphoma (Burkitt's) and retinoblastoma, accounting for 71.3% of the total childhood tumour. Ten percent of the cases occur in the elderly (65 years and older), which is similar to the report from Chandigarh, but different from that from Canada where elderly patients accounted for 60% of the new cases <sup>16,6</sup>. This is probably due to fewer people attaining old age in developing countries. Lung and central nervous system are uncommon sites of cancer in Zaria unlike other countries, such as Southern Sweden and Ontario <sup>18, 19</sup>. Under diagnosis or incomplete data collection could be some of the contributing factors. In conclusion, information on cancer in Nigeria is inadequate. Thus, there is the need for the establishment of a functioning National population-based cancer registry in order to

correctly ascertain the cancer magnitude in the country.

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