

# Age Distribution of Cancer in Jamaica 2008

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## Abstract

**Objective:** To investigate the age distribution of cancer occurrence in Jamaica during 2008.

**Methods:** The distribution of cancer in Jamaica was investigated in the year 2008. The study included all fourteen parishes. Data was obtained from the Jamaica Cancer Registry located in the Pathology Department of the University of the West Indies. Population denominators were

obtained from the 2011 census taken by the Statistical Institute of Jamaica. The statistical package which was used to analyze the data was SPSS.

**Results:** A total of 2491 cases of cancer were examined across all parishes. It was determined that the crude incidence rate (178.6) was largest in Kingston and St Andrew. In St. Catherine, St.

Thomas, Clarendon, Portland, St. Mary and Manchester the crude incidence rates were 118.9, 80.9, 67.7, 62.3, 58.1 and 54.8 respectively. Hence there were parishes such as St. Thomas and St. Mary having large crude incidence rates. It was determined in 2008 that the leading cancers in Jamaica were the following in descending order, prostate cancer, cancer of the breast, cancer of the cervix, cancer of the lung, cancer of the colon and metastatic disease.

**Conclusion:** When all cancer cases in Jamaica for 2008 were considered, the highest frequency occurred in the age group 65 to 69 years. The mean age at which cancer was diagnosed was 59.1 years.

**Synopsis:** This study examined the age distribution of cancer in Jamaica 2008. A survey of the most prevalent cancer in Jamaica 2008 was included.

**Keywords:** age distribution; pathology; cancer

## Introduction

Since the inception of the Jamaica Cancer Registry in 1958 the incidence of cancer in Jamaica has been monitored by reports being produced regularly.[1] These reports are based upon the incidence of cancer in males and females in Kingston and St. Andrew which forms the population base of the registry. [1-2] Gibson et al. (2008) determined that the leading sites of cancer were prostate, breast, large bowel, bronchus, cervix uteri and lymphoma.[1] They ascertained that in males prostate was the leading site in those aged 60 years and above, cancer

of the lung for those aged 25 – 59 years.[1] They also determined that breast cancer was the commonest site in women aged 25 years and over.

They reported that the majority of cases of both breast cancer and cancer of the cervix uteri occurred between the ages of 25 and 59 years. Based upon the discourses, this present study has been undertaken to examine the distribution of cancers in Jamaica in the year 2008. This study encapsulated all fourteen parishes.

## Methods

### Study Population

This research project consists of persons from all parishes in Jamaica. A map of Jamaica is shown in figure 1.[3]



**Figure 1.** Map of Jamaica showing all the parishes

Data was obtained from the Jamaica Cancer Registry located in the Pathology Department of the University of the West Indies. The methodology of the registry has been previously stated. [4-5] Cases are registered from information gleaned from public and private hospitals and general practitioners in Kingston and St. Andrew then verified by pathologists at Jamaica Cancer Registry in accordance with standard techniques of registration.[6]

#### Data Extraction

Variables that were obtained from the Jamaica Cancer Registry included cancer code, date of diagnosis, age at diagnosis, permanent residence, parish of birth, diagnosis, gender, smoker, source of case and date of

death. The codes used for classification of the various types of cancers were cross-checked using the tenth edition of the International Statistical Classification of Diseases and Related Health Problems (ICD – 10).[7] Population denominators were obtained from the 2011 census taken by the Statistical Institute of Jamaica, Kingston, Jamaica.[8]

#### Statistical Analysis

The statistical package which was used to analyze the collected data was SPSS and Microsoft excel. The data was initially stored in an excel database. The crude incidence rate was also determined.

#### Results

Age (yr)	Frequency
0 – 4	18
5 – 9	8
10 – 14	9
15 – 19	11
20 – 24	29
25 – 29	52
30 – 34	79
35 – 39	112
40 – 44	156
45 – 49	201
50 – 54	231
55 – 59	262
60 – 64	288
65 – 69	302
70 – 74	273
75 – 79	216
80 – 84	145
85 – 89	73
90 – 94	17
95+	9
<b>TOTAL (N)</b>	<b>2491</b>

**Table 1:** Frequency table showing grouped data of persons diagnosed with Cancer in Jamaica 2008

Age (yr)	Frequency
0 – 4	0
5 – 9	0
10 – 14	0
15 – 19	0
20 – 24	0
25 – 29	0
30 – 34	0

35 – 39	0
40 – 44	2
45 – 49	10
50 – 54	25
55 – 59	50
60 – 64	99
65 – 69	86
70 – 74	96
75 – 79	54
80 – 84	40
85 – 89	27
90 – 94	4
95+	0
<b>TOTAL (N)</b>	<b>493</b>

**Table 2:** Frequency table showing grouped data of men diagnosed with Prostate cancer in Jamaica 2008

Age (yr)	Frequency
0 – 4	0
5 – 9	0
10 – 14	0
15 – 19	0
20 – 24	1
25 – 29	3
30 – 34	10
35 – 39	26
40 – 44	40
45 – 49	52
50 – 54	41
55 – 59	39
60 – 64	35
65 – 69	29
70 – 74	25
75 – 79	20
80 – 84	18
85 – 89	5
90 – 94	2
95+	1
<b>TOTAL (N)</b>	<b>347</b>

**Table 3:** Frequency table showing grouped data of women diagnosed with Breast Cancer in Jamaica 2008

The crude incidence rate (CIR) was calculated by dividing the cancer frequency in a specific parish by the population size and multiplying the result by 100000. The data was displayed in increasing order in Figure 2.

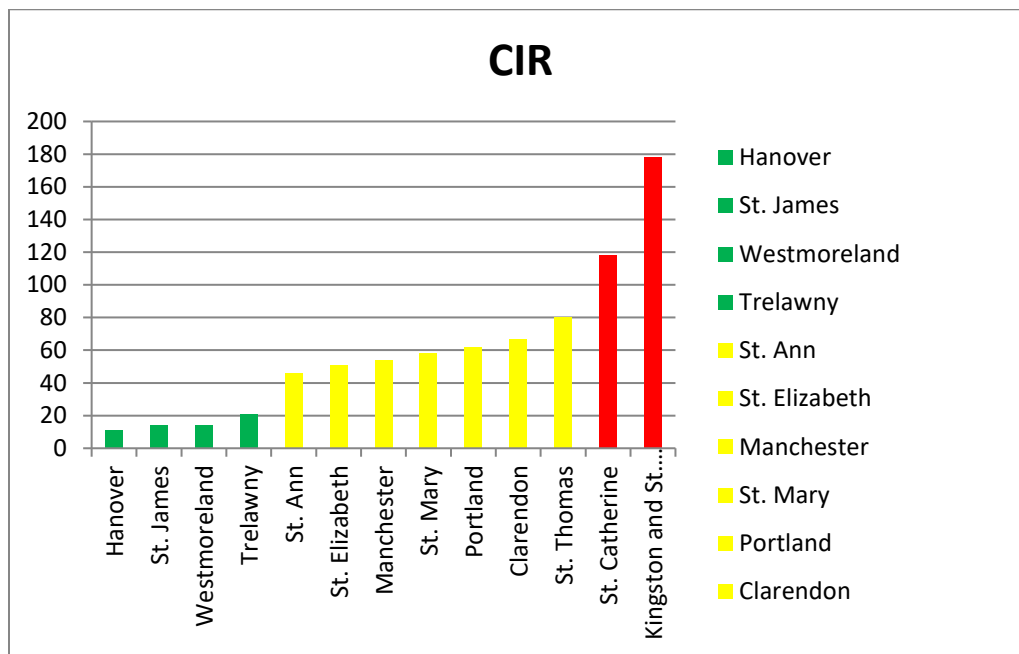


Figure 2: Bar chart comparing the crude incidence rate of all parishes

Type of Cancer	Frequency	Population	Crude Incidence Rate	Mean Age
Prostate Cancer	489	1334533	36.6	68.27 yr
Cancer of the Breast	351	1363450	25.7	56.19 yr
Cancer of the Cervix	317	1363450	23.2	45.64 yr
Cancer of the Lung	190	2697983	7.0	65.43 yr
Cancer of the Colon	142	2697983	5.3	63.97 yr

Table 4: The top five cancers in Jamaica 2008

## Discussion

Figure 2 shows a bar chart illustrating the CIR for all parishes. When the parishes are analyzed based on the CIR it can be clearly seen that persons are more prone to develop cancer in parishes such as Kingston and St. Andrew and St. Catherine and are least prone to develop cancer in Trelawny, Westmoreland, St. James and Hanover. Jahn, Giovannucci and Stampfer (2015) stated that several risk factors such as high body mass index, smoking, reduced lycopene intake have been observed to produce lethal or aggressive prostate cancer.[9] When all cancers were combined for 2008 it was determined in descending order that the top five cancers were prostate cancer, cancer of the breast, cancer of the cervix, cancer of the lung and cancer of the colon. Metastatic disease was sixth in that list. Table 4 displays a list of the top 5 cancers in Jamaica 2008, the crude incidence rate for each type of cancer has been included. Table 4 shows that prostate cancer, breast cancer and cancer of the cervix are extremely dangerous cancers in Jamaica. They are more than 3 times more dangerous than lung cancer and colon cancer. In the case of prostate cancer it is more than 5 times more dangerous than colon or lung cancer when they are compared using the crude incidence rate. This agrees with the study done by Gibson et al. (2008) who stated that prostate cancer is the leading cancer in Jamaican men.[1] Blake et al. (2002) stated that prostate cancer was the commonest cause of cancer death in this gender.[10] The results in table 4 also agrees with Gibson et al. (2010) who determined that in males the leading site for cancer was prostate followed by bronchus and large bowel and that in females breast was the leading site followed by cervix uteri and large bowel.[2] Table 4 displays some descriptive statistics regarding the major cancers identified in Jamaica prior to this discourse. The mean age shows that breast and cervical cancer appear early in the population however prostate, lung and colon cancers are more pervasive later in life.

All cancers across all parishes were summed. Table 1 shows the frequency distribution of ages which were grouped so that the width of each interval is 5. The total number of cancer cases in Jamaica in 2008 was 2491. The highest frequency occurred in the age group 65 to 69 years. The mean age at which cancer was diagnosed was 59.1 years. The median was 61 years and the range was the difference between 61 years and 0.5 years.

Table 2 shows the distribution of prostate cancer in Jamaica 2008. The number of men diagnosed with prostate cancer in 2008 was 493. Their ages ranged from 40 to 92 years. The mean age was 68.3 years and the median was 68 years. The largest frequency occurred in the age group 60 to 64 years.

The frequency table displaying the distribution of breast cancer in Jamaica 2008 is shown in table 3. The number of women diagnosed with breast cancer in 2008 was 347. Their ages ranged from 23 years to 95 years. The largest frequency occurred in the age group 45 to 49 years. The mean age was 56.2 years and the median was 55 years.

## Limitations

In 2008 and earlier there were two major cancer treatment centres in Jamaica for the public. These were Kingston Public hospital in Kingston and Cornwall Regional hospital in St. James. The machines they had at that time were cobalt machines. Hence many cases would be referred to Kingston Public hospital from other parishes or to Cornwall Regional hospital. This would depend on the proximity and the accessibility, meaning the length of the waiting list. Staff at the Jamaica Cancer Registry only gets data from hospitals and private sources in Kingston and St. Andrew Jamaica. Hence some patients from the western end of the island such as the parishes of St. James, Westmoreland, Trelawny and Hanover would not be recorded based upon the present practise.

Hence these would contribute to errors in the data from parishes in those regions of the island. In Kingston at that period there was the Radiation Oncology Centre of Jamaica which was established in 2001. This is a private centre for the treatment of cancer. Hence the limitation here would be your socioeconomic status. There would also be persons who would seek alternative ways to treat their cancer.

### Conclusion

This study showed that when all cancers were considered in Jamaica 2008, the highest frequency occurred in the age group 65 to 69 years. When grouped data was analyzed, no age group was immune to cancer. Hence there is a multiplicity of factors that predisposes an individual to develop cancer. This research also extracted the top 5 cancers in Jamaica in 2008 which agreed with other studies. [1-2] It can be deduced from these results that screening is vital in reducing the mortality associated with cancer.

**Ethical Approval:** Ethical approval was not requested because data was treated anonymously.

### Data Availability Statement

The data used were not available online and permission granted is in the document attached.

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