

A Study of Epidemiology on Dominica

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## **ABSTRACT**

Despite the fact that Dominicans have their own unique culture, most diseases that affect Dominicans are based on a Western lifestyle with a few remnants from their status as a developing nation. They struggle with infectious and lifestyle induced diseases similar to developed nations, but the mortality rate of some diseases is unusual which should stimulate future research into the risks that increase or decrease the incidence of certain neoplasms. Health education should continue to encourage sanitary practices in addition to safe sexual encounters.

## **INTRODUCTION**

An important aspect of an individual's quality of life is their measure of health. Dominica is a small island in the Caribbean Sea with a population of 70,000, so their isolation and ethnicity can provide clues to their lifestyles and the things that plague them. The objective of this study is to evaluate what diseases exist on the island, how that affects the people, and how the diseases reflect on the culture.

## **MATERIALS AND METHODS**

The resources used for this study were the Ministry of Health in Roseau and an interview with Dr. Adé. To gather the data, an appointment was made with Dr. Adé at

his office in Roseau. The Ministry of Health has a statistical office that was approached with the request of available data on diseases and causes of mortality on the island.

## **RESULTS**

Table 1 reveals the causation of mortality between 2001 and 2003 in Dominica. The major diseases of public health concern from 1990 to 2003 are shown in Table 2.

## **DISCUSSION**

Many of the diseases that affect Dominica are not confined just to Dominica, but show the influence of a Western lifestyle. In the interview with Dr. Adé, he said that many of the diseases that he treats now are related to people's lifestyles. Diseases like hypertension, heart disease, and diabetes show a diet high in fats, cholesterol, and a sedentary lifestyle that doesn't allow the body to consume the additional fats and cholesterol. From Table 1, it is clear that diseases of the circulatory system and diabetes are the most common reason for death. Women tend to suffer from these diseases more often than men. It is culturally ideal for the women to be more heavy set than the men which could be a contributing factor for this trend.

Women generally outnumber men in any population because men engage in riskier activities than women. One example of this is the number of homicides on the island. There were 15 deaths for men compared to three for women in the same time span. Marijuana, although illegal, is still heavily apart of the island's culture. Disputes

over drug access or use, especially between gangs, may have a strong impact to the homicide levels. Women generally are not involved in gangs, and the three homicides could have been a result of being in the wrong place at the wrong time or being murdered after being raped. Men also outnumber women in the ratio of those killed by land transport accidents. While in Dominica, it was much more common to see men riding in the backs of trucks than women. A collision on their narrow, winding roads would throw these occupants out of the vehicle which greatly increases their chances for mortality just by not wearing a seatbelt. Those killed could have also been engaged in such activities as consuming alcohol and then driving vehicles. Men also had a much higher rate of mortality from HIV disease than women. This suggests that men are engaging in unprotected sexual intercourse, non-sterile needle sharing when using drugs or when receiving a tattoo. Any number of other activities could be contributors to the unnecessary deaths of Dominicans that are preventable. All of these contribute to the reiterated fact that the per annum ratio of deaths by men is higher by .8% to 3% than women.

Cancer is also a leading cause of mortality among Dominicans. Stomach neoplasms were the only reported cancer where women had a slightly higher rate of mortality over men. Neoplasms of the lungs, trachea, bronchus, and leukemia affected both sexes at approximately the same ratio which suggests that cigarette smoking, among other risks, has not had a strong impact on Dominica. One thing that was quite interesting was the rate of mortality of breast cancer. Neoplasms of the breast are commonly thought of as a cancer that affects only women; however, on Dominica, men have a higher mortality rate. In the three years of data on Table 1, 19 men died as a result

of breast neoplasms compared to 11 for women. This is a highly unusual finding, and more research should be done to evaluate what risk factors are greatly elevating a male's chance for this kind of cancer. The high rate of mortality by prostate neoplasms could be affected by men being reluctant to have an annual examination done by a physician to catch the cancer before metastasis occurs. Healthcare in Dominica is readily available so aggressive education about increased occurrence of breast, prostate, and cervix neoplasms could reduce the mortalities seen on the island.

Dominica struggles with typically non-life threatening infectious diseases like any other country. Most of the diseases on Table 2 are unnecessary, but treatable. Pulmonary tuberculosis, typhoid fever, dysentery, and measles are all diseases that are now associated with the developing world because of lack of sanitary facilities. Their decrease since the late 1990s is a positive sign that adequate facilities, increased hand washing, and reduced fecal contamination are all occurring. These diseases generally have a low fatality rate, but they are mostly associated with poverty because of the lack of the aforementioned qualities and when an individual does get infected, they often do not have the resources for medical care.

It is not unusual to find so many cases of gastroenteritis among small children because they are notorious for putting unclean things in their mouths. Spread from one child to another can rapidly occur through sharing toys, eating, or drinking after one another in addition to lack of hand washing. The large number of cases might also reflect worried mothers who bring their children in because they cannot evaluate the condition of their child as accurately as a teenager or adult who can communicate effectively. Gastroenteritis may also be more severe in small children because their immune systems

are not fully developed until six years of age. Illnesses like strep throat also continually affect the Dominican children; however, Dr. Adé has never seen a case of Fifth's Disease which is a common childhood rash. The whole island population commonly struggles with staph infections and rotovirus. Rotovirus is especially common when the cruise ships stop in Dominica in the spring and summer months. Considering the Western style of living in Dominica and the trend for diabetes and heart disease, it is unusual to see so many cases of malnutrition among children. Malnutrition on Dominica could be a result of foods that are not fortified with vitamins and minerals that are less available for consumption on the island or an unbalanced diet.

Diseases like sexually transmitted diseases (STDs), Acquired Immune Deficiency Syndrome (AIDS), and Human Immuno-deficiency Virus (HIV) are generally spread through unprotected sexual contact between individuals, especially when a person has multiple partners. The increasing occurrence of STDs on the island suggests that people's attitudes towards safe sex have relaxed, so fewer precautions are taken. The trend of an increase followed by a decrease in AIDS and HIV cases is expected based on the time that it took to understand the disease and how it is transmitted followed by aggressive educational campaigns.

Finally, based on the interview with Dr. Adé, it is evident that Dominica has very few cases of idiopathic or genetic diseases. Approximately one to three percent of the island population has sickle cell anemia with the occurrence generally in pockets on the eastern coast of the island. Asthma is also a common genetic disease seen. It usually impacts the Dominican children who out-grow it with age. Depression is also common, with most treated cases in the female population. It is rare to see many of types of

genetic or idiopathic diseases, especially the more complicated ones, because the island population is so small. The island is also fortunate to not struggle with bacterial drug resistance like many other Western countries are which is due to unnecessary use and overuse. Dr. Adé explained that thorough evaluations are completed before prescribing medicine to reduce the risk of developing drug resistant strains. Overall, he said, the island is a healthy population, especially when compared to many other nations.

Table 1. Major causes of mortality in Dominica from 2001 to 2003

Major Causes	2001					2002					2003				
	M	% of Total	F	% of Total	Total	M	% of Total	F	% of Total	Total	M	% of Total	F	% of Total	Total
<b>Symptoms, Signs and Ill-defined Conditions</b>	<b>19</b>	<b>3.7</b>	<b>22</b>	<b>4.3</b>	<b>41</b>	<b>32</b>	<b>5.4</b>	<b>23</b>	<b>3.9</b>	<b>55</b>	<b>28</b>	<b>5.1</b>	<b>18</b>	<b>3.2</b>	<b>46</b>
<b>Communicable Diseases</b>	<b>32</b>	<b>6.3</b>	<b>14</b>	<b>2.7</b>	<b>46</b>	<b>17</b>	<b>2.9</b>	<b>20</b>	<b>3.4</b>	<b>37</b>	<b>21</b>	<b>3.8</b>	<b>19</b>	<b>3.4</b>	<b>40</b>
HIV Disease	9	1.8	1	0.2	10	6	1	3	0.5	9	10	1.8	2	0.4	12
Acute Respiratory Infections	16	3.1	11	2.2	27	5	0.8	10	1.7	15	5	0.9	11	2	16
<b>Neoplasms</b>	<b>48</b>	<b>9.4</b>	<b>36</b>	<b>7.1</b>	<b>84</b>	<b>87</b>	<b>14.6</b>	<b>55</b>	<b>9.3</b>	<b>142</b>	<b>68</b>	<b>12.3</b>	<b>55</b>	<b>9.9</b>	<b>123</b>
Stomach	4	0.8	5	1	9	8	1.3	10	1.7	18	7	1.3	9	1.6	16
Lungs, Trachea, and Bronchus	4	0.8	4	0.8	8	8	1.3	6	1	14	6	1.1	5	0.9	11
Prostate	21	4.1	0	0	21	39	6.6	0	0	39	33	6	0	0	33
Breast	6	1.2	0	0	6	0	0	11	1.9	11	13	2.3	0	0	13
Cervic	0	0	0	0	0	0	0	3	0.5	3	0	0	3	0.5	3
Leukemia	4	0.8	1	0.2	5	2	0.3	1	0.2	3	1	0.2	0	0	1
<b>Diseases of the Circulatory System</b>	<b>80</b>	<b>15.7</b>	<b>98</b>	<b>19.2</b>	<b>178</b>	<b>84</b>	<b>14.1</b>	<b>114</b>	<b>19.2</b>	<b>198</b>	<b>82</b>	<b>14.8</b>	<b>101</b>	<b>18.2</b>	<b>183</b>
Hypertensive Disease	37	7.3	52	10.2	89	29	4.9	53	8.9	82	30	5.4	56	10.1	86
Heart Disease	24	4.7	27	5.3	51	36	6.1	32	5.4	68	35	6.3	29	5.2	64
Cerebrovascular Disease	11	2.2	11	2.2	22	9	1.5	20	3.4	29	12	2.2	14	2.5	26
<b>Certain Conditions Originating in the Perinatal Period</b>	<b>10</b>	<b>2</b>	<b>3</b>	<b>0.6</b>	<b>13</b>	<b>5</b>	<b>0.8</b>	<b>5</b>	<b>0.8</b>	<b>10</b>	<b>9</b>	<b>1.6</b>	<b>5</b>	<b>0.9</b>	<b>14</b>
<b>External Causes</b>	<b>12</b>	<b>2.4</b>	<b>5</b>	<b>1</b>	<b>17</b>	<b>22</b>	<b>3.7</b>	<b>4</b>	<b>0.7</b>	<b>26</b>	<b>23</b>	<b>4.2</b>	<b>3</b>	<b>0.5</b>	<b>26</b>
Land Transport Accidents	5	1	1	0.2	6	5	0.8	1	0.2	6	5	0.9	0	0	5
Assault (Homicide)	0	0	1	0.2	1	10	1.7	0	0	10	5	0.9	2	0.4	7
<b>Other Diseases</b>	<b>59</b>	<b>11.6</b>	<b>72</b>	<b>14.1</b>	<b>131</b>	<b>61</b>	<b>10.3</b>	<b>65</b>	<b>10.9</b>	<b>126</b>	<b>66</b>	<b>11.9</b>	<b>59</b>	<b>10.6</b>	<b>122</b>
Diabetes	14	2.7	30	5.9	44	17	2.9	24	4	41	13	2.3	18	3.2	31
Diseases of the Respiratory Systems	5	1	2	0.4	7	7	1.2	9	1.5	16	8	1.4	8	1.4	16
<b>Total</b>	<b>260</b>	<b>47.3</b>	<b>250</b>	<b>49</b>	<b>510</b>	<b>308</b>	<b>51.9</b>	<b>286</b>	<b>48.1</b>	<b>594</b>	<b>294</b>	<b>53.1</b>	<b>260</b>	<b>46.9</b>	<b>554</b>

Table 2. Major Public Health Disease Cases Reported 1990-2003. ND=No Data.

Year	Pulmonary Tuberculosis	Typhoid Fever	Dysentery	Gastro enteritis Under 5	Measles	Mal nutrition Under 5	Hyper tension (1)	Diabetes (1)	STD (2)	AIDS (3)	HIV (4)
1990	6	9	17	151	13	ND	ND	ND	119	6	9
1991	14	10	9	332	6	88	ND	ND	240	9	10
1992	13	1	5	611	2	82	ND	ND	374	6	24
1993	7	15	9	490	1	65	191	99	348	15	16
1994	10	7	6	146	1	ND	ND	ND	399	6	19
1995	5	3	0	68	0	ND	75	47	473	5	16
1996	6	1	0	366	0	48	81	54	382	14	23
1997	6	2	0	43	6	52	140	130	350	19	20
1998	7	9	0	70	0	45	117	96	445	12	17
1999	10	3	0	107	1	25	243	173	363	15	20
2000	1	0	1	26	1	97	266	128	529	4	18
2001	0	1	0	16	0	89	204	192	71	5	23
2002	0	2	1	139	0	87	332	163	521	7	18
2003	0	2	0	66	0	91	248	216	504	3	8

Source: Health Statistics Department, Ministry of Health

Notes: (1) For 1993, number of cases implies number of visits.

(2) STD- Sexually Transmitted Diseases

(3) AIDS- Acquired Immune Deficiency Syndrome

(4) HIV- Human Immuno-deficiency Virus