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CARIBBEAN STUDIES IA DRAFT

Introduction:

"The recent recurrent reports of outbreaks of Chikungunya disease have frightened the nation. The persistence of other vector-borne diseases – such as dengue, filaria and malaria – is a threat to public health”[[1]](#footnote-1). Diseases have been a major issue for life in Guyana. Casualties have increased steadily over the past decades. Clearly, some diseases are more lethal than others. We have heard of most vector-borne and water-borne diseases present here. It is important to know which type of disease is more deadly so that the death/mortality rate can be reduced.

This research answers the question "Is the type of disease related to the mortality of victims in the Stabroek neighbourhood?” These are the overall objectives that will be focused on in this paper – to assess the types of diseases infecting the residents of Stabroek; to assess the casualties associated with each type of disease; and to analyse the statistical association between disease type and disease casualties in Stabroek residents.

The data gathered from this research can not only enlighten readers of health issues, but can also be used to investigate more complex diseases based on their type. A statistical relationship has been formed between disease type and outbreak lethality, which can be used to understand the current rise in casualties. This research is beneficial to educators, and doctors, more specifically – pathologists.

Disease[[2]](#footnote-2) is defined as a condition of the living animal or plant body or of one of its parts that impairs normal functioning and is typically manifested by distinguishing signs and symptoms. Mortality[[3]](#footnote-3) is defined as the number of deaths in a given time or place.

Literature Review:

There have been numerous surveys, researches and journals done by professionals to analyse the mortalities due to diseases in Georgetown. However, since this research is focused on the Stabroek neighbourhood, these studies will not be reviewed in depth, and only referred to when appropriate.

There are a total of 2 major disease types seen in Guyana, both of which are present in the Stabroek neighbourhood (namely *food or waterborne diseases,* and *vectorborne diseases*)[[4]](#footnote-4). Among the *food or waterborne diseases* disease type, bacterial and protozoal diarrhoea, hepatitis A and typhoid fever seem to be most prevalent for Stabroek residents. Likewise, among the *vectorborne diseases* disease type, dengue fever, yellow fever, Chikungunya and malaria are reported as frequent in lethal outbreaks among those residents.

From Gampat[[5]](#footnote-5) (2015: Chapter 21-3), “Yellow fever…the attack of 1837, following that of 1822, carried off around 5 percent of Georgetown’s population.” Malaria had 0.1 percent of deaths in 1991, and climbed to 0.8 percent in 2004 and remained there till 2009. There is a resurgence from 2009 onwards and it is climbing to this day at 0.7 percent with annual mortality rate of approximately 30,000. Typhoid had a percentage of death of 14.53 from 1899-1990 that decreased to 1902-1903 in Georgetown and was ranked 2 in terms of mortality. The highest mortality rate went to protozoal diarrhoea which initially has death percent of 15.06 but increased to 18.76.

Common pathogens of *food or foodborne diseases* include Salmonella, E. coli, L. monocytogenes, hepatitis A and parasites Cryptosporidium and Cyclospora as reported in Collins (2015)[[6]](#footnote-6). It was added that a pH of 4.0 and below are considered safe, as bacteria can survive in the pulp of many fruits and vegetables above a pH of 4.0. However this statement is restricted to fruit and vegetable juices as studies have shown that bacteria adapt, overtime to pH, and grow best at neutral pH (6.5 to 7.0). According to Blamire (2000), professor at *Science at a distance*, “each species of microbe has its own characteristic range of pH values in which it grows and reproduces best”[[7]](#footnote-7). Generally, pathogens such as eukaryotes, can only persist in fixed conditions in the environment. It seems that some of these conditions include temperature, pH, dissolved gases in water and food, osmotic pressure (i.e. pressure between particles in and out of a liquid) and water availability, factors to be considered that may impact the growth of the pathogen(s). Vectorborne diseases on the other hand, are caused solely due to polluted spaces and sewage. It is known that Chikungunya and other *vectorborne diseases* are transmitted through a vector (the host of the parasite virus) which carries the virus to the infected persons. Mosquitos transfer the virus when they suck blood from human species. Flies are known to carry dengue and cholera and they inhibit extremely polluted spaces, populated by parasitic worms and bacteria[[8]](#footnote-8).

The current state of research on this topic is that there is information on diseases, types of diseases and their causes. However, the link between the type of disease and how much harm it causes to residents is often overlooked. There is instead a link between the cause of disease and the outbreak lethality. Including this tiny bit of insight is what this research hopes to achieve and showcase to the reader, through findings – the statistical association between disease type and outbreak lethality.

1. Gita (2014, June 22). The perils of vector-borne diseases in Guyana today. *Kaieteur News.* Retrieved from http://www.kaieteurnewsonline.com/2014/06/22/the-perils-of-vector-borne-diseases-in-guyana-today/ [↑](#footnote-ref-1)
2. Disease. (2015). In *Merriam-Webster.com*. Retrieved from <http://www.merriam-webster.com/dictionary/disease> [↑](#footnote-ref-2)
3. Mortality. (2011). In *Merriam-Webster.com.* Retrieved from <http://www.merriam-webster.com/dictionary/mortality> [↑](#footnote-ref-3)
4. The World Factbook. (n.d.). Retrieved from <https://www.cia.gov/library/publications/resources/the-world-factbook/fields/2193.html> [↑](#footnote-ref-4)
5. Gampat, R. (2015). [Kindle DX version]. Retrieved from <http://amzn.to/1QxAf5W> [↑](#footnote-ref-5)
6. Collins, M. (2015, October 16). Hygienic handling of ready-to-eat fruit and vegetables - Stabroek News. Retrieved from <http://www.stabroeknews.com/2015/business/10/16/hygienic-handling-of-ready-to-eat-fruit-and-vegetables/> [↑](#footnote-ref-6)
7. Blamire, J. (2000). Properties of Microbes. Retrieved November 20, 2015, from <http://www.brooklyn.cuny.edu/bc/ahp/CellBio/Growth/MGpH.html> [↑](#footnote-ref-7)
8. Gita (2014, June 22). The perils of vector-borne diseases in Guyana today. *Kaieteur News.* Retrieved from <http://www.kaieteurnewsonline.com/2014/06/22/the-perils-of-vector-borne-diseases-in-guyana-today/> [↑](#footnote-ref-8)