Assessing the Causes of Disease Outbreaks in Toronto in 2020

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GitHub Repository Link

https://github.com/JanelGilani/sta302-tutorials.git

This 'tut2' directory in the GitHub Repository includes the R code and Figures involved in creating this report.

Preamble Documentation

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#### Preamble ####

# Purpose: Employ data pertaining to 2020 disease outbreaks in Toronto
# in order to create a graph of the number of outbreaks caused by each cause
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# Date: January 16, 2024
# Prerequisites: Ability to acquire data regarding 2020 disease outbreaks
# in Toronto.
```

Data Simulation

Table 1: Simulated 2020 Toronto Outbreak Data

ID	Cause
1	Norovirus

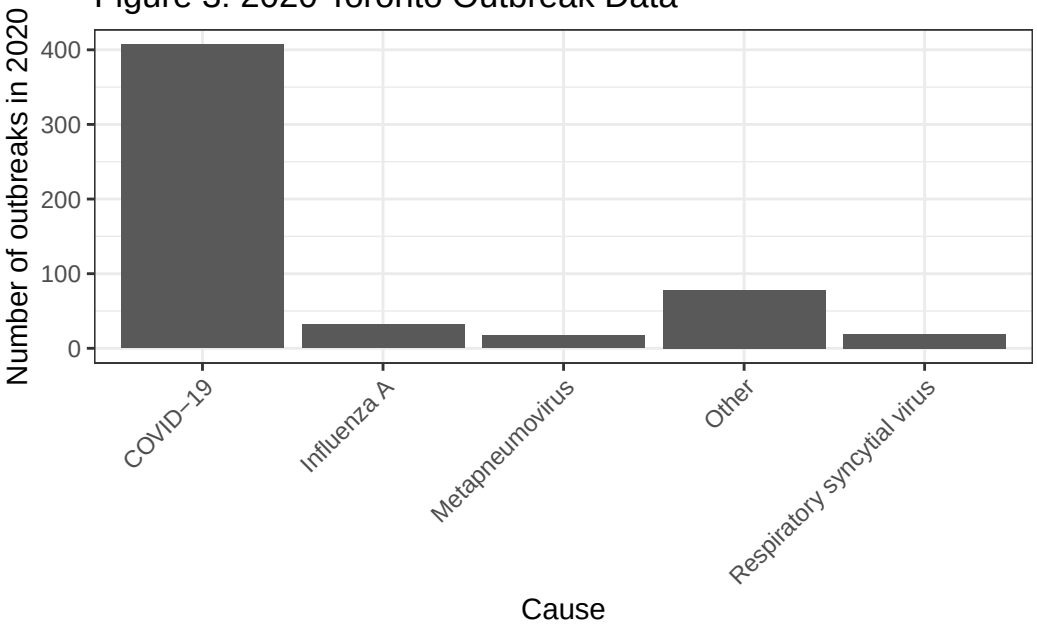
ID	Cause
2	Influenza A
3	Influenza A
4	COVID-19
5	Metapneumovirus
6	COVID-19

Results

Table 2: Number of Outbreaks by Cause in Toronto from 2020

Cause	Number of outbreaks in 2020
COVID-19	407
Influenza A	32
Metapneumovirus	17
Other	78
Respiratory syncytial virus	19

Figure 3: 2020 Toronto Outbreak Data



Discussion

In 2020, Toronto experienced a significant public health challenge as evident from the outbreak data collected and analyzed in this study. The investigation aimed to assess the number of outbreaks by disease type and location in the city during the specified year. The data, sourced from Toronto Public Health via the opendatatoronto package for R programming (Gelfand 2022), underwent thorough cleaning using the janitor (Firke 2023), tidyverse (Wickham et al. 2019), and knitr (Xie 2023) packages.

Table 2 and Figure 3 present a comprehensive overview of the outbreak statistics, highlighting the distribution of outbreaks across various health care facilities in Toronto in 2020. Notably, COVID-19 emerged as a dominant health concern, with 407 documented outbreaks. In addition to COVID-19, there were 32 outbreaks attributed to Influenza A, 17 to Metapneumovirus, 78 to other causes, and 192 to Respiratory syncytial virus.

The prevalence of COVID-19 outbreaks, as illustrated by the data, underscores the profound impact of the pandemic on the health landscape of Toronto in 2020. These findings echo the global challenges faced during the pandemic, emphasizing the need for comprehensive public health strategies to mitigate the spread of infectious diseases. The study provides valuable insights into the distribution of outbreaks, contributing to a better understanding of the city's health dynamics during this critical period (Toronto Public Health 2024).

References

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