

Assignment 1 Report

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Background:

The dataset comes from vaccination coverage section of Coronavirus (COVID-19) part of website Canada.ca (Here is the link <https://health-infobase.canada.ca/covid-19/vaccination-coverage/>). The main variables in the dataset are region, time, sex group, age group, number and proportion of people who have received at least one dose, been partially, fully vaccinated and fully vaccinated with an additional dose. This dataset is currently used by the government of Canada to display demographics of vaccination coverage in Canada as a whole and also in each province respectively to the public.

Motivation:

By diving into the data and visualizing it, we hope we can have a clearer grasp of current vaccination coverage, changes of vaccination rates in each age group over the past year and differences of vaccination rates between various age groups. We know that vaccines are at first allocated almost in decreasing order of age, but we wonder whether relative difference in vaccination rates would change when people of all ages get access to the vaccines and how it changes over time. Also, we want to have a look at the growth rate of the vaccination proportion and make a prediction about future increases. This may provide insight into possible actions government could take to improve vaccination coverage and understanding of our current and future prevention ability against COVID-19.

Methods:

The figure I made is a line plot of multiple groupings because I want to track trends of vaccination coverage over long periods of time among different age groups and line plot tend to display changes over time more clearly. Different colors were used to

indicate different age groups. I also add a widget that allows readers to switch between visualization of proportion of people who have received at least one dose, been fully vaccinated and fully vaccinated with an additional dose. In addition, background is set to be grid style so that values can be more easily read from the graph. The date ranges from 2020-12-19 to 2022-01-16 (two weeks before the date that the graph was generated so as to avoid less reliable recent reported data). To avoid confusion, one thing for readers to note is that the lines for each age group begin only when data for that age group became available.

Conclusion:

We could tell from the data and plot that, so far, more than 80 percentage of population of each age group that are 12 years old and above have been fully vaccinated. Fully vaccinated proportion reaches a value of over 90 percent among adults that are over 60 years old. Also, it is consistent with the policy which prioritize elderly people that the older the group is, the earlier they began to receive each dose of vaccines. And vaccination proportion of age groups of greater age remain higher throughout the year. In other words, so far, even though people of all ages have access to the vaccine, no certain age group evidently exceeds groups of greater age in terms of vaccination proportion. This might be because of elderly people's earlier accessibility, apparent vulnerability to COVID-19 virus, increased access to the medical system and less impact of vaccine's misinformation.

Up to 2022-01-16, more than 70 percent of people who are over 70 years old have received an additional dose while people who are between 60-69 following closely with a value of about 60 percent. The proportion of additional dose surges among all age groups these days. This might be because the base is still low and people who are already vaccinated are mostly willing to continue to receive vaccines.