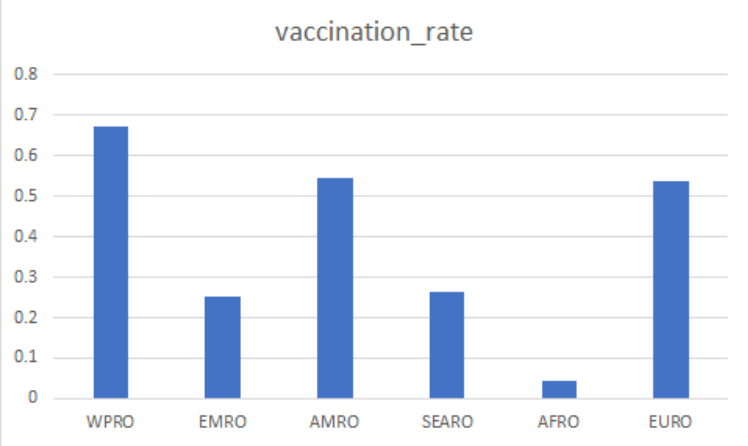
Phase 3 Discussion

We will discuss what we learned about our domain through the three investigative questions that we proposed.

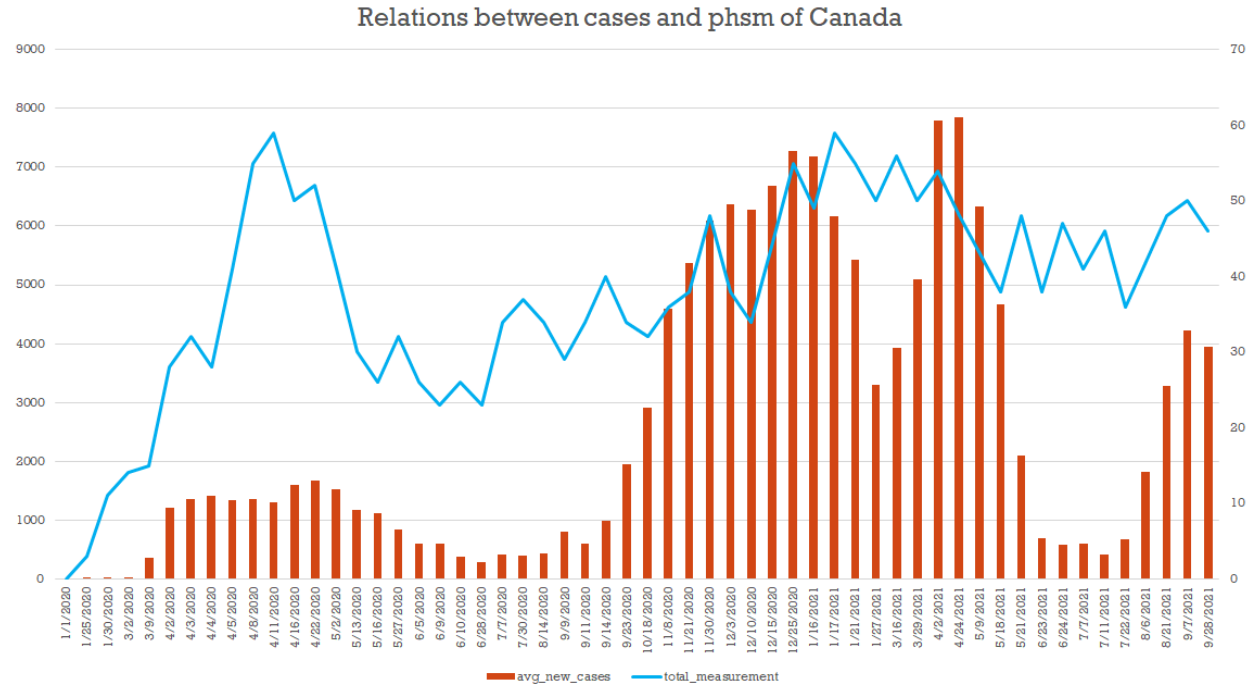
First, What is the given country's population that has been reported as a confirmed case of Covid-19 since 1/3/2020 for each quarter? What's the quarterly change of this measurement? What percentage of a given country's population has been fully vaccinated? This first question serves as a peek of the whole domain, we are doing basic statistical calculations here to understand all the data. As a result of the first question, we found that there is an increasing change for the first quarter in each country, but we can see eventually the change is decreasing, which means we are about to overcome this disease. The calculation of percentage of fully vaccinated population here is a start point. We will further investigate the relations between the vaccination process and daily cases in the second question.

Second, how are the vaccination process and daily cases related? Does higher vaccination rate imply less daily cases? How's the vaccination rate different across different WHO regions? Here, different from question 1, we separate the total cases for each country by their first vaccination date. We are trying to find out if there is a decrease of the country's new cases after the country has gotten injection vaccination. But for most of the countries, the total number of new cases is actually more than before. The possible reasons are: 1. We only have the date of the first day starting the vaccination, and we know it is not popular to get an injection for a long time even if there exists vaccination. 2. The virus has mutated many times and the vaccination can't have an efficient prevention for the mutated virus. 3. Vaccination is still an ongoing process, for now, it's influence may not be revealed yet. But through lots of web sites or news or science papers. We know vaccination is indeed more useful in preventing the virus than not injecting any vaccination. Thus, I hope everyone can get fully vaccinated as soon as possible to help our world be better. We've graph the vaccination rate across different regions into the following graph. WPRO has the highest vaccination rate which includes countries in the Pacific, Oceania and parts of Asia (from China and Mongolia from the north, to New Zealand in the south). AFRO (African Region
) has the lowest vaccination rate. The possible reasons behind these can be related to economy, development, transportation of the vaccines and so on.



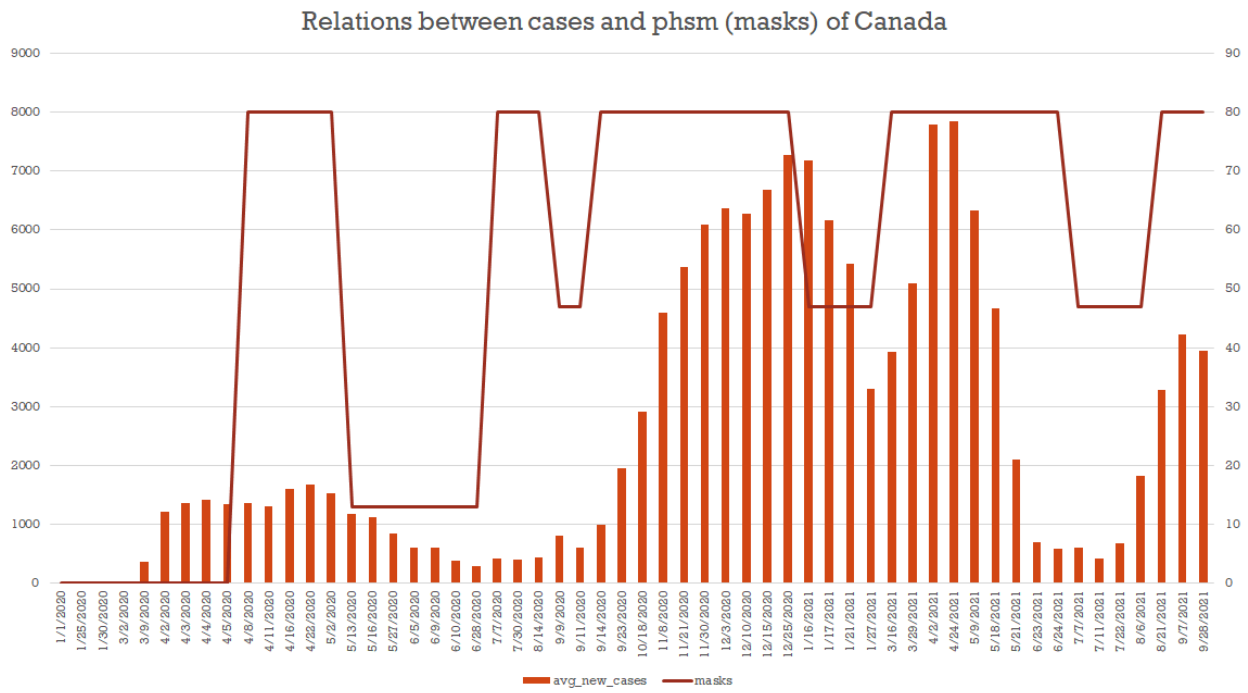
Third, our last question is: How are public health measures and daily cases related. To understand the relationship between these two, we did a complicated query to find out the average daily new cases during the term of the measurement (from the date when the measurement was put into effect until a new measurement came out). After the query, we looked at the results of several countries at random. The conclusion that we came up with is that public health measures and daily cases correlate with each other. Take Canada as an example: we graphed both the average daily new cases and the total_measurement of each period into the same graph. As the public health measures become stricter there will be a fall in the average of the daily new cases. The fall may not be immediate, this is reasonable since it takes time for the influence of the measurement to reveal. For example, after the strict measurement put into effect on 4/11/2020, there comes a gradual fall in the average of the daily new cases. The same thing happened around 1/17/2021. So, stricter public health measurement does, to a certain degree, imply fewer daily cases.

Another relation between public health measures and daily cases that we discovered, is that whenever there's a fall in the average daily new cases, there follows a drop in the strictness of public health measurement. By looking at the graph, we noticed that from 5/13/2020 to 7/7/2020, the number of average daily new cases fell along with the overall strictness of public health measurement during that period of time. A Similar situation happened around 5/21/2021 to 8/6/2021. This also agrees with our common sense that since there are fewer daily cases (which implies the condition of the pandemic eases up a little), public health measurement can also be allowed to relax a little.



Regarding which one of the measurements among masks, travel, gatherings, school, business, movements might contribute the most in preventing the spread of Covid-19, judging by the graph

we've concluded that masks might contribute the most in preventing the spread of Covid-19. Due to page restriction we will only include the graph of masks measurement and averaged daily new cases in Canada here:



Again as you can see, every strict measurement regarding masks was followed by a gradual drop in the average daily new cases. While on the other hand, there are no obvious relations that we can tell from the graph regarding other measurements. That's why we concluded that masks might contribute the most in preventing the spread of Covid-19.