Gorodnichy v. CBSA (FPSLREB 566-02-48305)
Exhibit G-14

Exhibit sheet description:

Grievor's book. Vol. 3, pg. 66 to 69 - additional observations prepared by the grievor and used in the investigation report.

Source documents and page ranges:

566-02-48305_Grievor_Book-03-r4gc.pdf:

PDF pages 66-69

566-02-48305

Additional observations related to the "Elephant in the Room" – from Government of Canada COVID-19 daily epidemiology updates

Dmitry Gorodnichy, Stan Matwin, Anonymous 1, Anonymous 2, Anonymous 3, Anonymous 4 [1]

Disclaimer: **The views expressed in this publication are those of the authors. They do not purport to reflect the views of any Canadian Agency, University, or Department.**

This comment follows up on previous observations [1] made in relation to the COVID-19 vaccine and death statistics since the start of the general public vaccination in Canada in Spring 2021 that were made by analyzing Open Canada Vital Statistics Death (CVSD) database [2,3]. Here we make additional observations related to the same "Elephant in the Room" (safety and efficacy of COVID-19 accines). This time the observations are made from another Open Canada data source: "COVID-19 epidemiology updates" that are published by the Public Health Agency of Canada (PHAC) [4], the cached copies of which can be retrieved using "WayBackMachine" Internet Archive [5] and archived on GitHub [6].

Main observation: algorithmic bias detected

The slide below summarizes the main observation. - The way statistics is reported in "COVID-19 epidemiology updates" [2] exposes the algorithmic bias that is introduced in calculating the statistics related to the percentage of unvaccinated COVID-19 deaths vs. that of vaccinated COVID-19 deaths (pages 20-22, Figure 5, Tables 2-3 in PDF versions of the report).

Reverse-engineering algorithmic bias. Case Study: Vaccinated vs. Non-vaccinated deaths

https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html

Recall: There were no fully-vaccinated before January, <1% before March, <3% before May, and … most* (50-75%), deaths happened exactly then.

Try it yourself:
- Open link above, write down numbers in red boxes and compare them a week later!
- Or, compare these numbers in past reports since November (archived here).

Observe:
These numbers monotonically change (one down, one up) every week - according to math behind them…

*computed using Vitals App Calculator

Table 2. Characteristics and severe outcomes associated unvaccinated, partially vaccinated and fully vaccinated confirmed cases reported to PHAC, as of December 18, 2021

		Unvaccinated (n=727,925)	Cases not yet protected (n=43,471)	Partially vaccinated (n=53,171)	Fully vaccinated (n=122,843)	Total cases (n=947,410)
Gender*	Male	371,897 (78.5%)	20,959 (4.4%)	24,980 (5.3%)	56,197 (11.9%)	474,033 (100%)
	Female	354,365 (75.2%)	22,454 (4.8%)	28,113 (6.0%)	66,344 (14.1%)	471,276 (100%)
Hospitalizations		40,788 (79.5%)	3,062 (6.0%)	3,374 (6.6%)	4,099 (8.0%)	51,323 (100%)
Deaths		8,013 (75.6%)	759 (7.2%)	744 (7.0%)	1,077 (10.2%)	10,593 (100%)

Source: Detailed case information received by PHAC from provinces and territories, since December 14, 2020

As of today, February 4, 2022 : Total cases (n=1,458,433)
Fully vaccinated 2,032 (16.8%), +3% since last week, +8% since November

While this comment was being written, the proportion of Fully vaccinated deaths (the number in the right red box) has increased within a week from 2032 (16.8%) reported on Feb. 4, 2022, to 2490 (19.5%) reported on Feb.10, 2022.

[1] Dmitry Gorodnichy is a Senior Data Scientist with the Government of Canada, Adjunct Professor at the Department of Mathematics and Statistics, University of Ottawa, and Royal Academy of Sciences of Canada's Partnership Group for Science and Engineering "Leader of Tomorrow" nominee. Stan Matwin is Full Professor and Director of the Institute for Big Data Analytics, Dalhousie University, Halifax, Emeritus Distinguished Professor of Computer Science at the University of Ottawa, and Professor in the Institute of Computer Science of the Polish Academy of Sciences in Warsaw. Anonymous 1-4 are Data Scientists with the Government of Canada and Academia who wished to remain anonymous. Corrections and comments to this paper should be emailed to dmitry@gorodnichy.ca.
Suggested reference: *D.Gorodnichy et al. "Additional observations related to the 'Elephant in the Room' – from Government of Canada COVID-19 daily epidemiology updates. Time to act!". 2022/02/10, https://ivi-m.github.io/vitals/comment2.pdf*

As shown in Appendix and as can be validated using the Open Canada Vital Statistics (Deaths) Tracker App (https://open-canada.github.io/Apps/vitals), the majority (over 75%) of all deaths that happened in the analyzed period (which is from December 14, 2020, when the first vaccine dose was administered, to the date when the report is published) happened right after Christmas 2020, when there were practically no (statistically speaking, insignificant number of) fully-vaccinated people. More specifically:

> There were 0 fully-vaccinated as of January 4, less than 1% as of February 18, less than 2 % as of April 6, less than 3% as of April 30, and less than 10% as of June 10, 2021, after which the full-vaccination quickly reached 78% by November, and staying the same approximately the same (+/- 2%) since then.

In other words, whether deliberately or undeliberately, a significant positive bias (or "advantage") for fully-vaccinated has been embedded directly in the way the proportion of fully-vaccinated deaths has been computed and reported to the public. Having access to the past archived "COVID-19 epidemiology updates" however allows one to reverse-engineer and remove this bias from computation.

Removing algorithmic bias from reported data statistics

To remove algorithmic bias from the reported weekly (or monthly) data statistics, it is simply sufficient to subtract the numbers (of vaccinated and unvaccinated COVID-19 deaths) reported in two consecutive reports. The difference between those numbers will be the true observed number of deaths observed between the dates of the two reports, which can then be used to compute the true (bias-removed) proportions of unvaccinated COVID deaths vs. vaccinated COVID deaths in the considered period.

The following example illustrates how to use the described technique to compute the true ratio of fully-vaccinated cases to unvaccinated cases for any given time period (e.g., for the period between December 4,2021 and January 15, 2022).

Consider two published reports one for January 15, 2022 and the other for December 04, 2021 (see below)

Characteristics and severe outcomes associated unvaccinated, partially vaccinated and fully vaccinated confirmed cases reported to PHAC, as of January 15, 2022

Status	Cases
Unvaccinated	771,095
Cases not yet protected	44,494
Partially vaccinated	61,209
Fully vaccinated	581,635

Characteristics and severe outcomes associated unvaccinated, partially vaccinated and fully vaccinated confirmed cases reported to PHAC, as of December 04, 2021

Status	Cases
Unvaccinated	709,123
Cases not yet protected	43,114
Partially vaccinated	52,116
Fully vaccinated	88,742

By subtracting the numbers in two tables, one obtains that between December 04, 2021 and January 15, 2022, there were 492,893 cases among fully vaccinated, 61,971 cases among the unvaccinated, and 9.093 cases among partially vaccinated.

That is, the number of COVID-19 cases in the considered period (December 04, 2021 and January 15, 2022) among fully-vaccinated was almost eight times larger than among unvaccinated and partially-vaccinated (87% vs. 11% and 2%).

Taking into account the number of fully vaccinated people at that time was only five times larger than the number of unvaccinated and partially vaccinated people (77% vs. 18% and 5%, according to [6]), leads to the conclusion that, in the considered period, fully-vaccinated people were *more likely* to be infected with COVID-19 than unvaccinated people.

The analysis still continues, as the latest reported data are still being processed. In the meanwhile, some conclusions and recommendations can already be made.

DRAFT FOR CONSULTATION

Conclusions:

The data from the Government of Canada's "COVID-19 epidemiology updates" do not support the claims about COVID-19 vaccines, as having over high (over 90%) efficacy [8], as claimed originally a year ago. In contrast, they provide evidence that COVID-19 vaccines, which as known, were approved under Emergency Use Authorization and did not go through the same lengthy testing protocol as all previous vaccines, may have a negative impact on a person's immunity towards the COVID-19 infection. Whether this is true only for a particular variant of the infection, or only for a particular portion of the Canadian population needs to be further investigated.

Recommendations:

- Start computing and reporting Cases and Deaths following vaccination statistics in 'COVID-19 Daily Epidemiology Updates' [4] without the embedded bias, as done elsewhere [9-10], i.e. using weekly cases totals, instead reporting totals numbers since December 14, 2020.

- Report empirically measured COVID-19 vaccines efficacy and track it over time based on the data that has become available since October 2021 and using the unbiased data reporting metrics discussed in this paper.

References

[1] "Some observations from Canadian Vital Statistics Death (CVSD) Database related to the 'Elephant in the Room'" (D.Gorodnichy, R.Kulik, S.Matwin). Submission to The Lancet Journal. 2022/01/06, https://open-canada.github.io/vitals/comment.pdf

[2] Statistics Canada, Canadian Vital Statistics - Death database (CVSD), https://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3233 .
Provisional weekly death counts, by selected grouped causes of death. Table: 13-10-0810-01. URL: https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1310081001)

[3] Open Canada Vital Statistics Tracker. URL: https://open-canada.github.io/Apps/vitals (Mirror: https://o-canada.shinyapps.io/vitals/). Code Source: https://github.com/open-canada/vitals

[4] 'Cases following vaccination', COVID-19 Daily Epidemiology Update, Public Health Agency of Canada, https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19-cases.html#a9

[5] "WayBackMachine" Internet Archive: https://web.archive.org

[6] Archive of COVID-19 Daily Epidemiology Update from Public Health Agency of Canada: https://github.com/IVI-M/vv/tree/main/docs/COVID-19%20epidemiology%20updates

[7] https://health-infobase.canada.ca/covid-19/vaccination-coverage/

[8] Scientific Considerations for Using COVID-19 Vaccination Certificates, Report of the Chief Science Advisor of Canada, March 31, 2021, https://science.gc.ca/eic/site/063.nsf/eng/h_98229.html

[9] 'Reported side effects following COVID-19 vaccination in Canada', Canadian COVID-19 vaccination safety report, Public Health Agency of Canada, https://health-infobase.canada.ca/covid-19/vaccine-safety/

[10] Hospitalizations by vaccination status, COVID-19 (coronavirus) in Ontario, https://covid-19.ontario.ca/data/hospitalizations#hospitalizationsByVaccinationStatus

DRAFT FOR CONSULTATION

Appendix:

Analysis of Canadian Vital Statistics Death Statistics using the Vitals App: https://open-canada.github.io/Apps/vitals

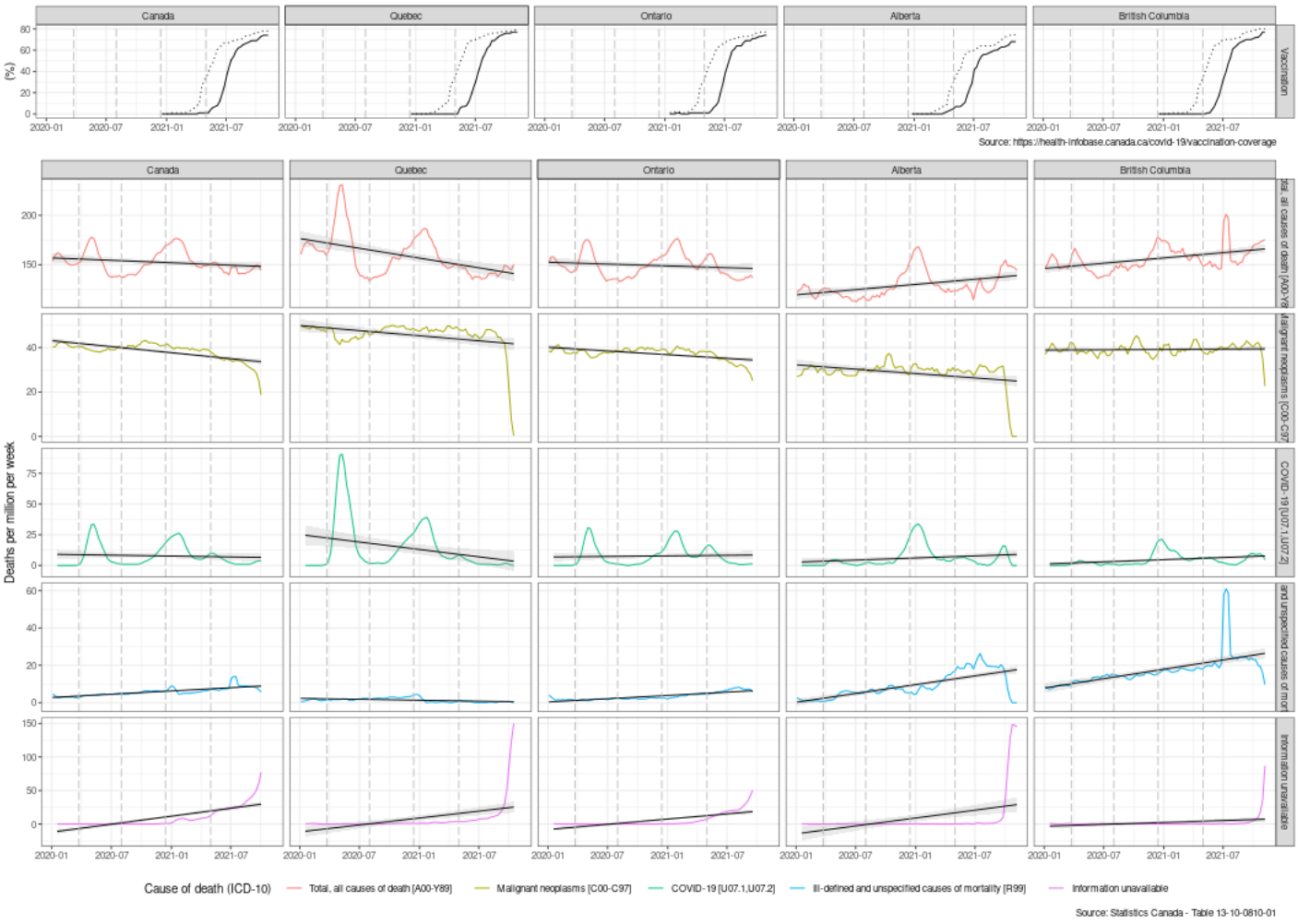


Figure 1: Vaccination and weekly death rates by cause in Canada and during the pandemic and vaccination.

Coloured time-series lines show CVSD statistics (deaths per million per week) at the national level and in four most populated provinces for the total number of deaths, cancer (the leading cause of death), “COVID deaths”, as well for two unexplained causes (Ill-defined and unspecified causes [R99] and the number of unreported causes [Information unavailable]). In the top graph, solid lines show full vaccination rate, dash lines show the rate of vaccination with at least one dose. Vertical lines mark four distinct periods observed: early pandemic pre-vaccination (varying policies across provinces), late pandemic pre-vaccination phase (consistent policies across policies), early (high-risk population) vaccination, late (general public) vaccination). The use of different scales for each cause category is noted.

The following observations from the figure are made (see [1] for more details):

- total number of deaths over the entire period is comparable to (and in some provinces lower than) their five-year average;
- small number of COVID deaths, compared to the number of reported COVID cases, and leading causes of death;
- absence of “first wave” in Alberta and British Columbia, in contrast to Quebec and Ontario;
- decrease in all non-COVID causes, since the start of the pandemic, including those that historically go up;
- increased number of unexplained deaths since the start of pandemic and especially since the start of mass vaccination;
- increased delay in reporting deaths statistics

DRAFT