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

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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 2,032 (16.8%) - reported on Feb. 4, 2022, to 2,490 (19.5%) - reported on Feb.10, 2022.

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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://ivim.ca/vv/pdf/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 cases among fully-vaccinated in the past month was almost an order of magnitude (x10) larger than among unvaccinated and partially-vaccinated (87% vs. 11% and 2%). Taking into account that the average vaccination rates in the same time period for fully vaccinated vs. unvaccinated and partially vaccinated were (77% vs.18% and 5%) leads to the conclusion that, in the considered period (December 04, 2021 and January 15, 2022), fully-vaccinated people were *more likely* to be infected with COVID compared to unvaccinated. One can apply the same analysis for the cases resulting *in deaths*, to similarly obtain that the majority of COVID-19 deaths within the considered period was also among fully vaccinated.

The analysis is currently being conducted with the latest reported data and will be provided shortly.

Conclusion:

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), 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. In the meantime, the following recommendations are made.

Recommendations:

- Start computing and reporting Cases and Deaths following vaccination statistics in PHAC 'COVID-19 Daily Epidemiology Updates' [2] without the embedded bias, as done elsewhere [7-8], i.e. using weekly (or monthly) cases totals, instead using of totals since December 14, 2020.

- Reconsider all policies that require vaccination, based on the new data that has become available in the past several months, in particular since October 2021, and the new unbiased data reporting metrics.

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 (mirror: www.ivim.ca/vv/pdf/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] '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/

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

Appendix:

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

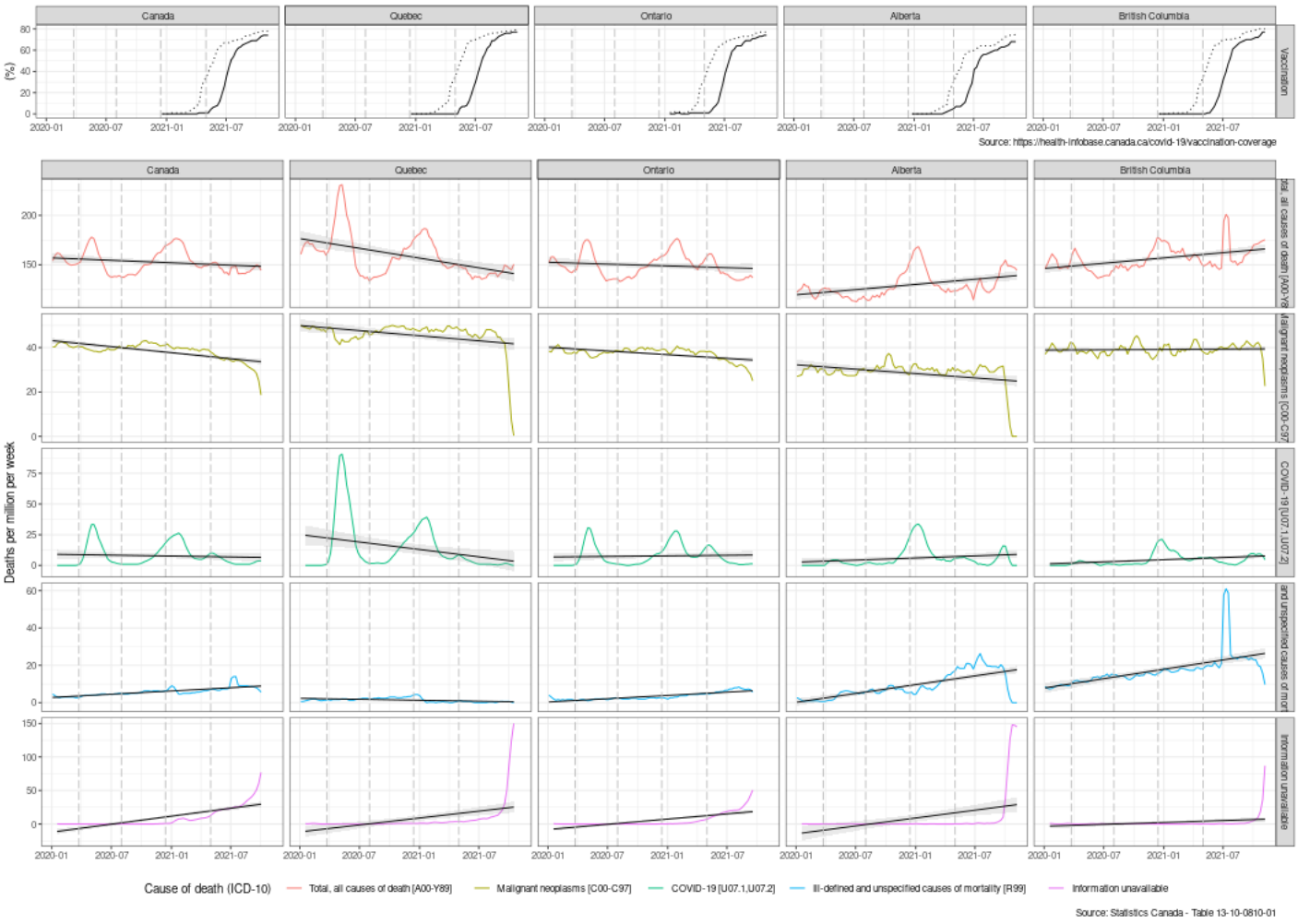

Figure 1: Vaccination and weekly death rates by cause in Canada and during the pandemic and vaccination.

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.

Multiple insights and anomalies (possibly, "new normals") are observed:

- the total number of deaths over the entire period is comparable to (and in some provinces lower than) five-year average;
- rather small number of COVID deaths – compared to the very large (x1000) number of COVID cases that have been reported,
- there was practically no "first wave" in Alberta and British Columbia at the start of pandemic);
decrease in all non-covid causes, since the start of the pandemic,
- sharp increase in the number of unexplained deaths, since April, which is when the vaccination was extended to younger (low-risk) populations, and finally,
- increased delay in reporting deaths - from 2 months to 3 (and 6 in some provinces)