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Mortality Impact of COVID-19: Ontario, Canada Grey Bruce Public Health Unit

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Our publication "Mortality Impact of COVID-19: Ontario, Canada" dated October 6, 2021 used data for the entire Province of Ontario. Public health units within the Province of Ontario have data that is distinct from the province as a whole. This document exams Grey Bruce Public Health Unit for the period January 15, 2020 to October 14, 2021.[1]

Relative to the province as a whole, Grey Bruce Public Health Unit has experienced dramatically lower incidences of infection with the COVID-19 virus and attributed hospitalizations and deaths. Table 1 presents actual incidences compared to expected incidences had this health unit had similar experiences to the province as a whole.

For children and youth age 0-19, in the 21 months of exposure, provincial data suggests 0.06 COVID-19 deaths would be expected in this health unit and there were actually 0. For adults age 20-39, provincial data suggests 0.9 COVID-19 deaths would be expected in this health unit and there were actually 2. COVID-19 deaths in the elderly, over age 80, have been low in this health unit relative to the provincial experience, just 3% of expected.

Table 1 - Grey and Bruce Counties COVID-19 Relative to Provincial Average (Jan 2020 to Oct 2021)

Age Group	Population	Cases			Hospitalization			Death		
		Actual	Expected	A / E	Actual	Expected	A / E	Actual	Expected	A / E
0-19	36,012	564	1,164	48%	4	6.6	60%	0	0.06	0%
20-39	37,864	755	2,098	36%	15	29	51%	2	0.9	221%
40-59	42,666	569	1,880	30%	36	85	42%	7	7	94%
60-79	48,777	354	1,333	27%	46	199	23%	16	56	29%
80+	10,831	61	447	14%	13	128	10%	3	100	3%
Total	176,150	2,303	6,922	33%	114	448	25%	28	164	17%

Table 2 presents the data and statistics annualized; mortality is normally examined on an annual basis. COVID-19 deaths have been so rare among children and youth age 0-19 in the Province of Ontario, in Grey and Bruce counties combined, the expectation would be just 1 death over 26 years if COVID-19 remained at 2020-2021 impact levels indefinitely. Given that COVID-19 case rates in Grey and Bruce counties have been 48% of the provincial case rate for ages 0-19, if exposure continues at this lower level, the expectation reduces to just 1 death over 54 years in the 0-19 age group. In this same 54-year period, 316 other 0-19 age deaths would be expected in Grey and Bruce counties.

Table 3 presents expected deaths from all causes and relates both actual COVID-19 deaths and expected COVID-19 deaths to the larger total.[2] In terms of proportionality, COVID-19 deaths would be expected to be a small portion of

[1] Government of Ontario is source of data for province as a whole and for health unit.
[2] All causes of death rates are 2019 rates from Statistics Canada using Canadian average rates within age groupings.

deaths if the health unit had followed provincial averages. If following the province, COVID-19 deaths in the health unit would have been expected to have been 6% of deaths overall. In a normal year, it would be expected that there would be 1,778 deaths in this health unit. Actual COVID-19 deaths being 18 represents 1% of this total.

Table 2 - Grey and Bruce Counties COVID-19 Relative to Provincial Average (Jan 2020 to Oct 2021, Annualized)

Age Group	Population	Cases			Hospitalization			Death		
		Actual	Expected	A / E	Actual	Expected	A / E	Actual	Expected	A / E
0-19	36,012	356	735	48%	2.5	4.2	60%	0.00	0.04	0%
20-39	37,864	477	1,325	36%	9	18	51%	1.3	0.6	221%
40-59	42,666	359	1,188	30%	23	54	42%	4	5	94%
60-79	48,777	224	842	27%	29	125	23%	10	35	29%
80+	10,831	39	282	14%	8	81	10%	2	63	3%
Total	176,150	1,455	4,372	33%	72	283	25%	18	104	17%

Table 3 - Grey and Bruce Counties COVID-19 Deaths Relative to All Causes (Jan 2020 to Oct 2021, Annualized)

Age Group	Population	All Causes Expected Deaths	Actual COVID-19 Deaths	Ratio: Actual COVID-19 / Expected All Causes	Expected COVID-19 Deaths	Ratio: Expected COVID-19 / Expected All Causes
0-19	36,012	5.9	0.00	0.0%	0.04	0.7%
20-39	37,864	28	1.3	4.6%	0.6	2.1%
40-59	42,666	113	4	3.9%	5	4.2%
60-79	48,777	663	10	1.5%	35	5.3%
80+	10,831	968	2	0.2%	63	6.6%
All Ages	176,150	1,778	18	1.0%	104	5.8%

As another tool for perspective, the more familiar infectious diseases of influenza and pneumonia are compared to COVID-19. Of the expected total deaths of 1,778 in a normal year for the health unit, 50 of these would be expected to be caused by influenza or pneumonia.[3] Expected COVID-19 deaths were 2.1 times the normal number of influenza and pneumonia deaths. However, actual COVID-deaths were just 36% of normal influenza and pneumonia deaths. Year-to-year variation in the rate of death caused by influenza and pneumonia from 2015-2019 experience is a range of 43 to 57 deaths for this health unit; a 'good year' for influenza and pneumonia plus COVID-19 would not be distinguishable from a 'bad year' for influenza and pneumonia.

Table 4 - Grey and Bruce Counties All Causes / Influenza & Pneumonia / COVID-19 (Jan 2020 to Oct 2021, Annualized)

Age Group	Population	All Causes Expected Deaths	Expected Influenza & Pneumonia Deaths	Expected COVID-19 Deaths	Actual COVID-19 Deaths
0-19	36,012	5.9	0.12	0.04	0.0
20-39	37,864	28	0.2	0.6	1.3
40-59	42,666	113	2	5	4
60-79	48,777	663	11	35	10
80+	10,831	968	37	63	2
All Ages	176,150	1,778	50	104	18

Caution with respect to Biases

Please review section in the October 6, 2021 research paper discussing biases. The data of the Government of Ontario contains biases that may materially overstate the impact of the COVID-19 virus on mortality. Data available has been used. The reader is cautioned that the biases in the data result in an overstatement of the severity of outcomes from the COVID-19 virus.

[3] Influenza and pneumonia rates of death are Canadian average for 2015-2019 from Statistics Canada.