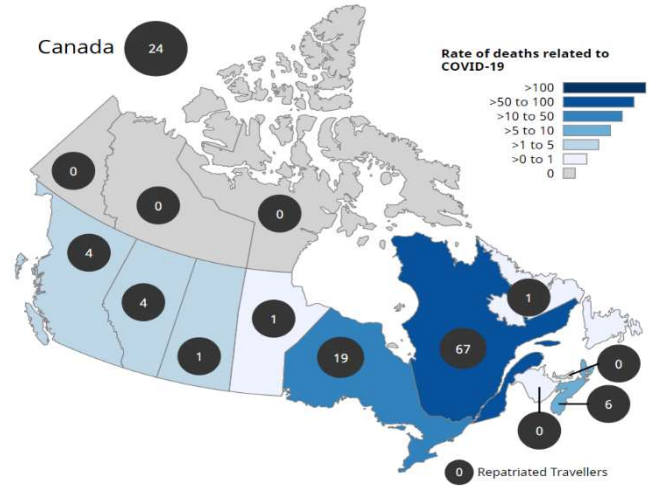


COVID-19: ABOUT THOSE MORTALITY RATES

WORSE THAN CANADA? In a recent Facebook post an acquaintance celebrated Canada's success in minimizing COVID-19 mortality—only about 25 deaths per 100,000 population compared to 41 for the US. How can this be?

We questioned whether looking at responses on a national basis made sense: In the US, responses—lockdowns, business closures, etc.—have been driven by state and local choices and actions.

Looking at the components—states, in the US—provides some insight. Looking at the change in mortality rates over time provides more. Finally, looking at COVID-19 mortality rates compared to other causes of death by age group provides context.



Source: <https://health-infobase.canada.ca/covid-19/epidemiological-summary-covid-19>

SOME STATES ARE BETTER.

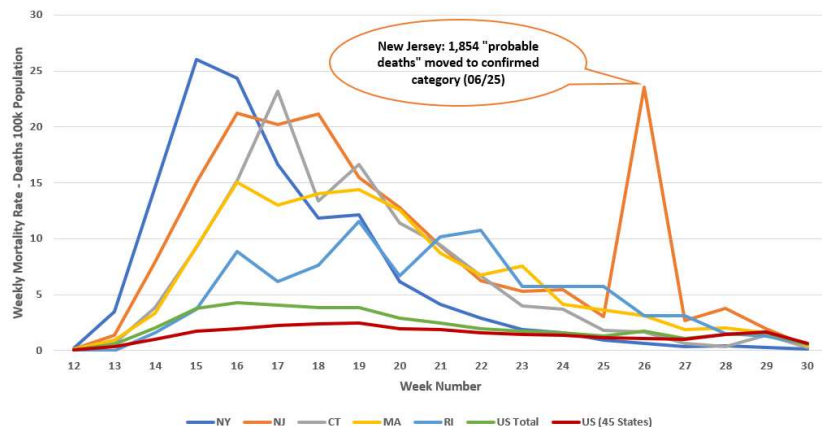
State COVID-19 mortality rates (deaths per 100,000 population) vary from a high of 177 in New Jersey to a low of 1.7 in Hawaii. New York City's rate is 280. The US average, as of July 21st was 40.9, and the median was 60.6, with half of states better than that value and half worse.

Five states—New Jersey, New York, Connecticut, Massachusetts, and Rhode Island—comprise 12% of US population, but experienced 41% of COVID deaths. Likewise, in Canada, provincial governments took the lead. Quebec was remarkably worse than British Columbia.

Taking those five US states' results out of the US totals lowers the US mortality rate to 27.6 deaths per 100,000 population, making the US look much more like Canada. This highlights the fact, given that states responded differently, the grand average of mortality rate in the US means little from a public policy perspective. Again, responses

Mortality Rate Deaths per 100,000 Pop					Mortality Rate Deaths per 100,000 Pop						
State	YTD Rank (Worse to Best)	YTD Mortality	Cumulative US Mortality	Deaths	Population	State	YTD Rank (Worse to Best)	YTD Mortality	Cumulative US Mortality	Deaths	Population
NJ	1	177.2	177.2	15,737	8,882,190	CA	27	19.6	53.0	120,628	227,648,676
NY	2	128.8	144.0	40,795	28,335,751	WA	28	19.1	51.9	122,081	235,263,569
CT	3	123.6	141.7	45,201	31,901,038	MO	29	18.6	51.0	123,224	241,400,997
MA	4	122.6	138.3	53,651	38,793,541	NC	30	15.9	49.6	124,892	251,889,081
RI	5	94.0	137.1	54,647	39,852,902	NE	31	15.8	49.3	125,198	253,823,489
DC	82.2	136.2	55,227	40,558,651	KY	32	15.1	48.7	125,872	258,291,162	
LA	6	77.6	130.1	58,835	45,207,445	WI	33	14.9	48.0	126,738	264,113,596
MI	7	63.9	118.2	65,217	55,194,302	TX	34	14.3	44.7	130,889	293,109,477
IL	8	59.3	107.2	72,734	67,866,123	SD	35	13.3	44.6	131,007	293,994,136
MD	9	56.3	103.0	76,136	73,911,803	TN	36	12.8	43.8	131,878	300,823,310
PA	10	55.0	95.9	83,174	86,713,792	AR	37	12.4	43.5	132,252	303,841,114
DE	11	53.9	95.5	83,699	87,687,556	OK	38	11.4	43.1	132,704	307,798,085
MS	12	46.7	93.9	85,088	90,663,705	ND	39	11.0	43.0	132,788	308,560,147
IN	13	42.3	90.3	87,934	97,395,924	KS	40	10.5	42.7	133,095	311,473,461
AZ	14	40.1	86.8	90,852	104,674,641	VT	41	9.0	42.7	133,151	312,097,450
GA	15	30.6	81.6	94,106	115,292,064	ME	42	8.8	42.5	133,269	313,441,662
NH	16	29.3	81.0	94,504	116,651,775	UT	43	7.8	42.2	133,520	316,647,620
MN	17	28.2	78.6	96,092	122,291,407	ID	44	6.8	42.0	133,642	318,434,685
CO	18	28.0	76.3	97,707	128,050,143	OR	45	6.4	41.5	133,911	322,652,422
NM	19	27.6	75.5	98,285	130,146,972	WV	46	5.6	41.3	134,012	324,444,569
OH	20	27.5	71.6	101,504	141,836,072	WY	47	4.3	41.2	134,037	325,023,328
AL	21	26.6	70.1	102,807	146,739,257	MT	48	3.7	41.1	134,077	326,092,106
IA	22	25.4	69.1	103,609	149,894,327	AK	49	2.5	41.0	134,095	326,823,651
FL	23	24.8	63.6	108,928	171,372,064	HI	50	1.7	40.9	134,119	328,239,523
VA	24	24.0	61.7	110,976	179,907,583						
SC	25	23.7	60.6	112,197	185,056,297						
NV	26	21.9	60.0	112,873	188,136,453						
						US Total		40.9			
						US (45 States)		27.6			
						Canada		25.2			

Weekly Mortality Rate (Deaths per 100 k Population)
3/15/2020 thru 7/21/2020



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mostly were at the state and local level, not the national level.

The good news is that weekly mortality rates (deaths per week) have been trending down—the result of states not repeating tragic public policy choices in the early spring and doctors learning how to better care for patients.

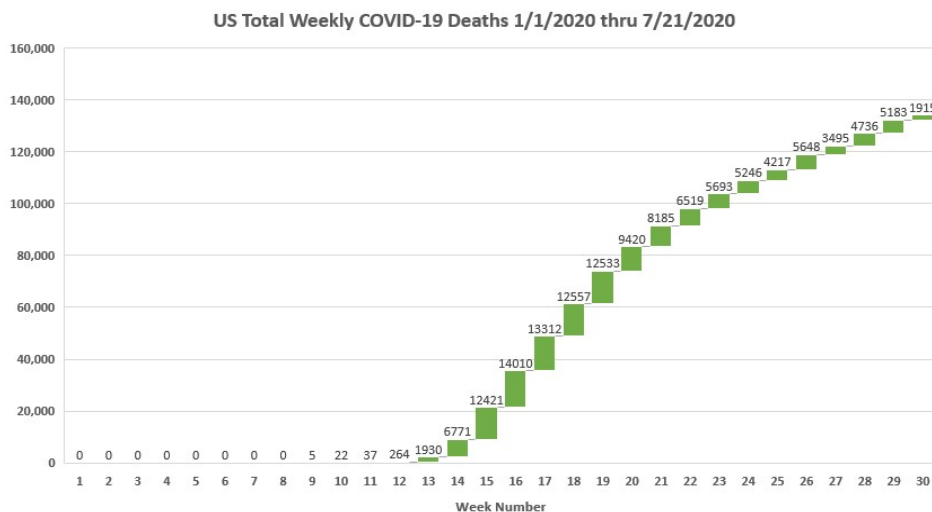
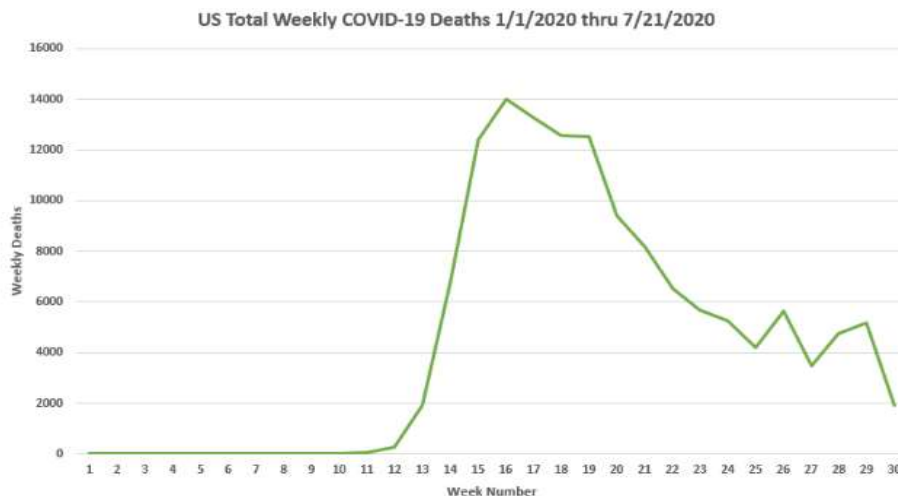
OTHER CAUSES OF DEATH.

In 2018 (the last year, for which mortality rates are available from the CDC), the leading cause of deaths in the US was heart disease. It claimed more than 655,000 lives and resulted in a mortality rate of 201 per 100,000 population. It was responsible for 23% of US deaths *during the entire year.*

The current mortality rate of COVID is between that of Alzheimer’s (37.4) and stroke (45.3), and we are a bit more than half-way through the year. Given the large initial number of deaths in some states and the downward trend, annualizing the current COVID death rate would be misleading.

Starting with the current year-to-date total (134,119 at week 30 of 2020) and adding 22 more weeks of deaths at several assumed rates allows us to develop a range for the estimated mortality rate.

	Estimated Total 2020 Deaths	Estimated Mortality Rate
At 7/21/2000	134,119	40.9
4,000 per week	222,119	67.7
5,000 per week	244,119	74.4
6,000 per week	266,119	81.0



Extrapolating from the current total, as of July 21st, it seems likely the final mortality rate for the year will be between 65 (assuming about 4,000 weekly deaths) and 75 deaths (assuming about 5,000 weekly deaths) per 100,000. This would make COVID-19 the third most common cause of death for 2020, behind heart disease and cancer. But that rate is for the entire US population. For people under 55 the mortality rate will likely be considerably less. For those between 25 and 54, the mortality rate may be as high as suicide (18.5).

The numbers are clear: COVID-19 is a serious mortality risk, but the risk is location- and age-specific.

WHAT WE DON'T KNOW.

Anecdotally, clinicians will tell you they are seeing collateral damage from isolations, lockdowns, and the delay of “elective” procedures. Reports of suspected child abuse to authorities, which frequently originate in schools—now closed—are down.

It will likely be mid-2022 before the CDC publishes its 2020 mortality statistics. We have no current data about the effect of COVID on other causes of death—those resulting



from delayed diagnoses, depression, substance abuse, etc. It will be some time before the economic toll of public policies will be calculated. Because states are following different mitigation strategies, these impacts will probably be measured. Someday.

Given COVID’s age-selectivity (much higher mortality rates on older populations), our estimates (above) are likely on the high side of expectations.

The data tell us mortality rates are both location specific and age specific. Responses that focus on vulnerable people—i.e., those over 65 years of age—will be more effective in mitigating outbreaks. The wide variability in state mortality rates suggests that responding to local “hotspots” seems more efficient than broad nation-wide or state-wide responses.

	Mortality Rate (Deaths per 100,000) - 2018					Total
	< 15	15 to 24 yrs	25 to 54 yrs	55 to 64 yrs	> 64	
Heart Disease	0.46	2.09	35.94	192.13	1031.26	200.65
Malignant Neoplasms	1.91	3.16	40.06	270.15	844.39	183.47
Unintentional Injury	6.24	27.78	54.58	56.17	112.06	51.17
Chronic Low. Respiratory Disease	0.30	0.38	2.95	44.58	265.52	48.83
Cerebrovascular	0.21		5.74	30.32	249.23	45.25
Alzheimer’s Disease					236.33	37.36
Diabetes Mellitus		0.57	7.40	35.42	117.88	26.01
Influenza & Pneumonia	0.40	0.46	2.91	13.89	95.76	18.10
Nephritis					82.72	15.73
Suicide	0.97	14.33	18.54	20.25		14.80
All Other Causes	24.42	11.79	19.01	47.18	64.61	29.83
Total Deaths - 2018	34.92	60.56	187.14	710.09	3099.74	869.25
COVID-19 thru 7/11/2020	0.06	0.44	7.69	37.65	204.16	39.88
COVID-19 as % of Total Deaths	0.2%	0.7%	4.1%	5.3%	6.6%	4.6%

Note: This work was completed without commercial sponsorship of any kind from any source. We established a GoFundMe site (<https://gofundme.com/f/just-the-numbers>) to help underwrite our effort to develop independent, politics-free analyses.

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