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Covid-19 - The Comeback Kids And Firebirds

Will Covid-19 (CV) be better in the second-half year of 2020 than the first? This paper looks at the US experience during the 16-week period from Mar 10 to Jun 30. Then what significant changes, if any, occurred in the first 8 weeks of the second half year, ie, from Jul 1 to Aug 25. The 16 weeks to Jun 30 are called Period 1. The following 8 weeks comprise Period 2. When both are combined, we call those 24 weeks of data, Period 3...

By Brian Woolf (September 25, 2020)

Looking back, we found that after Period 1 (P1) ended, Period 2 (P2) was a lot of the same but gave us some big surprises-especially with changes in states' death rates, which ranged from an almost 8-fold huge hike of 774% to a deep drop of 94%. These are amazing changes in an 8-week period. To give us an idea as to what might occur again, this paper highlights two 5-state groups: those with the greatest percentage reduction in death rates from P1 to P2 and those that with the greatest hikes. The former states are labeled the Comeback Kids (CK); the latter the Firebirds (FB). The former because they came back from very bloodied results in P1; the latter because after Jun 30 they were confronted with unexpected firestorms of CV deaths. They were fighting the equivalent of wildfires, not knowing which ways the wind might change. The dramatic changes in both groups in such a short period tells us of the virus' potential volatility.

Despite these extremes, **the good news is that P2 was more successful than P1**- the average weekly CV death count among the 50 states **dropped 20%.** That's progress! Death rates improved in 24 states and in 26, worsened. Almost 50:50.

This paper's goal is to lay out some of the differences between P1 and P2 as well as provide a base of reliable data to compare in future 8-weekly periods.

The data source is Worldometers.info, one of two major free global services. (The other is Johns Hopkins University.) Daily, each is fed CV data from states and organizations to update its website of every state and country. Well, that's what supposed to happen: some days, in some states, data is lost, overlooked, or misclassified. Often such errors are later caught and corrected. With that caveat, these two websites provide the most reliable CV data in the world.

We shall cover the three prime CV numbers: tests, cases, and deaths. They are the foundation of our data. Percentages and ratios are added for clarification.

Comeback Kids and Firebirds

Table 1 shows the extreme drops and hikes in death rates between P1 and P2 (col. J) and the differences in their average weekly deaths (col. G & H) upon which the rates were calculated. Providing context, it shows the population and area (square miles) of each state (col. E & F). From these two columns a state's density (col D) and density ranking (col. B) is derived.

The Comeback Kids are the five high-density states centered on New York which were one of the US's major CV origination areas which resulted in many deaths. Their P2 dramatic drop in all their death rate reflects their speedy turnaround. [Note that MI and VT also had similar-sized improvements but for other reasons.]

In contrast, the five Firebird states (MT, ID, TX, SC, FL) are dotted across the nation with low to high populations and densities. In P1, their death rates were significantly lower than the 50-state average. But in P2, they were plagued with hotspot outbursts of Covid cases that caused huge jumps in their death rates.

Table 1 CV Deaths: Comeback Kids vs Firebirds. Avg Per Week Before/After Jun 30, 2020

COMEBACK KIDS (CB)

A	B	C	D = E/F	E	F	G	H	I =H/G	J =H/G
row	Den.	State	Density	Population	Area	CV Deaths: Avg Per Wk			
#	rank (1-50)	sorted by density	ppsm	#	sq. miles	P1 #	P2 #	P2/P1 #	P2/P1 %
1	44	New York	357	19,453,536	54,555	1,969	184	0.09	(91)%
2	47	Connecticut	643	3,565,285	5,543	270	17	0.06	(94)%
3	48	Massachusetts	653	6,892,516	10,554	506	107	0.21	(79)%
4	49	Rhode Island	686	1,059,361	1,544	59	11	0.18	(82)%
5	50	New Jersey	1,018	8,882,193	8,723	947	112	0.12	(88)%
6	Total of 5 States		493	39,852,891	80,919	3,751	431	0.11	(89)%
7	Avg of 5 States		493	7,970,578	16,184	750	86	0.11	(89)%
8	Annualized Avg Death Rate					0.489%	0.056%	0.11	(89)%

FIREBIRDS (FB)

row	Den.	State	Density	Population	Area	CV Deaths: Avg Per Wk			
#	rank (1-50)	sorted by density	# ppsm	#	sq. miles	P1 #	P2 #	P2/P1 #	P2/P1 %
11	3	Montana	7	1,068,776	147,040	1.4	8.6	6.3	627%
12	7	Idaho	21	1,787,073	83,569	5.7	27.9	4.9	490%
13	29	Texas	108	28,995,831	268,596	152	1,179	7.7	774%
14	33	South Carolina	161	5,148,726	32,020	46	222	4.8	480%
15	43	Florida	327	21,477,784	65,758	219	884	4.0	404%
16	Total of 5 States		98	58,478,190	596,983	425	2,322	5.5	547%
17	Avg of 5 States		98	11,695,638	119,397	85	464	5.5	547%
18	Annualized Avg Death Rate					0.038%	0.206%	5.5	547%
19	Ann Avg DR	CB vs FB (x)				13.0	0.3		

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The average Comeback Kids state saw their average weekly deaths drop from 750 to 85 people (row 7, col G-H). The average Firebird state saw the reverse: an increase from 85 to 464 deaths per week (row 17, col G-H). But as the average Firebird state has a population about 50% larger, their death rate % was lower overall.

	Table 2	Comeback Kids & Firebirds: Tests, Cases, and Deaths						
A	B	C	D	E	F	G	H	I
	State	Tests Per Week		Cases Per Week		Deaths Per Week		
	CB/FB	P1 (16)	P2 (8)	P1 (16)	P2 (8)	P1 (16)	P2 (8)	
1	NY	244,684	471,032	26,111	5,402	1,969	184	
2	CT	29,026	76,404	2,907	687	270	17	
3	MA	56,745	107,619	6,798	2,157	506	107	
4	RI	15,143	28,924	1,051	561	59	11	
5	NJ	87,749	159,104	11,026	2,391	947	112	
6	MT	5,679	17,852	60	690	1.4	8.6	
7	ID	5,548	18,656	360	3,040	5.7	28	
8	TX	128,871	375,205	9,957	56,188	152	1,179	
9	SC	25,525	68,791	2,275	9,519	46	222	
10	FL	121,657	315,854	9,527	56,634	219	884	
11	Avg CB	**86,669**	**168,616**	**9,579**	**2,240**	**750**	**86**	
12	Avg FB	**57,456**	**159,272**	**4,436**	**25,214**	**85**	**464**	
	Read:	*P1 = Period 1 (16 wks). P2 = Period 2 (8 weeks).*						

	State	Cases/ Tests %		Deaths/ Cases %		Tests	Cases	Deaths
	CB/FB	P!	P2	P!	P2	P2>P1	P2>P1	P2>P1
21	NY	10.7%	1.1%	7.5%	3.4%	193%	(79)%	(91)%
22	CT	10.0%	0.9%	9.3%	2.5%	263%	(76)%	(94)%
23	MA	12.0%	2.0%	7.4%	4.9%	190%	(68)%	(79)%
24	RI	6.9%	1.9%	5.7%	1.9%	191%	(47)%	(82)%
25	NJ	12.6%	1.5%	8.6%	4.7%	181%	(78)%	(88)%
26	MT	1.1%	3.9%	2.3%	1.2%	314%	1142%	627%
27	ID	6.5%	16.3%	1.6%	0.9%	336%	846%	490%
28	TX	7.7%	15.0%	1.5%	2.1%	291%	564%	774%
29	SC	8.9%	13.8%	2.0%	2.3%	270%	418%	480%
30	FL	7.8%	17.9%	2.3%	1.6%	260%	594%	404%
31	Avg CB	**11.1%**	**1.3%**	**7.8%**	**3.8%**	195%	(77)%	(89)%
32	Avg FB	**7.7%**	**15.8%**	**1.9%**	**1.8%**	277%	568%	547%
	Read:	*Row 21, Col C = Row 1, Col E/ Col C. Row 21, Col G= Row 1, Col D/Col C.*						

Table 2 provides a deeper look into the two groups. On row 11, we see that even though the Comeback Kids almost **doubled** their tests per week in P2 (195%, as seen in row 31, col G), the number of cases resulting from that doubling of tests actually fell 77% (r31, cH), from 9,579 to 2,240 (r11, c E-F). It was as though they squeezed the lemon twice as hard but got almost 80% less juice. Does this amazing result suggest the good news that herd immunity was at work during P1? Or the bad news that being in lockdown they haven't been exposed to the virus yet and their case rates will rise once lockdown rules are loosened? Time will tell.

In contrast, the Firebird states almost tripled their weekly tests (277%, see r32, cG) yet their weekly case numbers had an almost 6-fold increase (568%, see r32, cH). Such demonstrates CV's virulence as a spreader as some suggest that looser distancing practices combined with large events contributed to the hotspot outbursts.

Now, one of the most simple and helpful ways to see what's really "going on" are in the first 4 columns of the rows 31-32 of Table 2. What do they tell us about the Comeback Kids and the Firebirds?

<u>For the Comeback Kids (row 31)-</u>

In P1, 11.1% (1 in 9) tests resulted in a case (ie, CV infected). Of all cases, 7.8% died.

In P2, 1.3% (1 in 77) tests resulted in a case (ie, CV infected). Of all cases, 3.8% died.

<u>For the Firebirds (row 32)-</u>

In P1, 7.7% (1 in 13) tests resulted in a case (ie, CV infected). Of all cases, 1.9% died.

In P2, 15.8% (1 in 6) tests resulted in a case (ie, CV infected). Of all cases, 1.8% died.

The lower the *cases/tests percentage*, generally the fewer the potential CV cases there are "out there" which suggests the Comeback Kids (at 1.3%) are in a good position for the near future. Not so for the Firebirds at 15.8%. That suggests it may take at least 12 weeks after the end of P2 to get things back closer to their earlier level.

On the other hand, the Comeback Kids Deaths/Cases readings of 7.8% and now down to 3.8% (r31, c E-F) although an excellent trend, still has some way to go to reach the low 1.8% level of the Firebirds (r32, cF). This is important because this D*eaths/Cases percentage* signals, among other things, the quality of care a state offers its citizens once

identified as cases, whether they are recovering at home or being looked after in hospitals, or both. The ultimate D*eaths/Cases* goal is to be under 1% so that citizens contracting the virus understand they have a 99% chance of survival.

The State of Health of Each State

Table 3 comes in two parts to allow easy printing. The table is sorted from lowest to highest density (seen in col. C) as death rates (deaths as a percentage of the population) often move in the same direction.

As deaths are our biggest concern with Covid-19, as it has been for all earlier pandemics and plagues, this table focuses just on the death details of each of 50 states. It covers the Average number of Deaths Per Week (ADPW) for P1 (16 weeks) and P2 (8 weeks) and also the average for all 24 weeks combined (col F-H).

Table 3A **CV Deaths: 50 States CV Deaths in 16, 8, and the 24 weeks Total to Aug 25 2020**

	Covers 3 Periods	Per 1: 16 wks Mar 10-Jun 30			Per 2: 8 wks Jul 1-Aug 25			Per 3: 24 wks Mar 10-Aug 25	
A	B	C	D	E	F	G	H	I = G/F	J = G/F
Den	**State**	**Den**	**Population**	**CV Deaths**	**Avg Deaths Per Wk in Period**			**Chg in Wkly Avg P2/P1**	
rank	**sorted by density**	**ppsm**	**#**	**YTD 24 wks**	P1-16wk	P2-8wk	P3-24wk	**P2/P1 #**	**P2/P1 %**
1	Alaska	1	731,544	32	0.9	2.3	1.3	2.57	257%
2	Wyoming	6	578,758	37	1.3	2.1	1.5	1.70	170%
3	Montana	7	1,068,776	91	1.4	9	3.8	6.27	627%
4	North Dakota	11	762,064	138	4.9	7	6	1.49	149%
5	South Dakota	11	884,657	161	6	9	7	1.54	154%
6	New Mexico	17	2,096,831	747	31	32	31	1.03	103%
7	Idaho	21	1,787,073	314	6	28	13	4.90	490%
8	Nebraska	25	1,934,411	383	17	14	16	0.85	(15)%
9	Nevada	28	3,080,154	1,200	32	87	50	2.73	273%
10	Kansas	35	2,913,313	430	17	20	18	1.15	115%
11	Utah	38	3,205,961	390	11	28	16	2.64	264%
12	Maine	38	1,344,213	131	7	3.3	5	0.50	(50)%
13	Oregon	43	4,217,732	420	13	27	18	2.06	206%
14	Colorado	55	5,758,724	1,919	105	30	80	0.28	(72)%
15	Iowa	56	3,155,073	1,048	45	42	44	0.94	(6)%
16	Oklahoma	57	3,956,963	730	24	43	30	1.77	177%
17	Arkansas	57	3,017,807	696	17	53	29	3.16	316%
18	Mississippi	61	2,976,144	2,248	67	147	94	2.19	219%
19	Arizona	64	7,278,696	4,771	102	392	199	3.85	385%
20	Minnesota	65	5,639,625	1,817	92	43	76	0.46	(54)%
21	Vermont	65	623,987	58	3.5	0.3	2.4	0.07	(93)%
22	West Virginia	74	1,792,149	187	6	12	8	2.02	202%
23	Missouri	88	6,137,422	1,544	65	63	64	0.97	(3)%
24	Louisiana	89	4,648,800	4,764	201	193	199	0.96	(4)%
25	Wisconsin	89	5,822,431	1,081	49	37	45	0.76	(24)%

Note: In col I, all ratios under 1.0 are changed from an absoute to a declining % in col J to highlight the improvement.

Table 3B	CV Deaths: 50 States CV Deaths in 16, 8, and the 24 weeks Total to Aug 25 2020								
A	B	C	D	E	F	G	H	I = G/F	J = G/F
Den	State	Den	Population	CV Deaths	Avg Deaths Per Wk in Period			Chg in Wkly Avg P2/P1	
rank	sorted by density	ppsm	#	YTD 24 wks	P1-16wk	P2-8wk	P3-24wk	P2/P1 #	P2/P1 %
26	Alabama	94	4,903,174	2,024	59	134	84	2.26	226%
27	Michigan	103	9,986,877	6,663	387	59	278	0.15	(85)%
28	Washington	107	7,614,888	1,867	83	68	78	0.83	(17)%
29	Texas	108	28,995,831	11,871	152	1,179	495	7.74	**774%**
30	Kentucky	111	4,467,667	885	35	41	37	1.16	116%
31	Hawaii	130	1,415,870	49	1.1	3.9	2	3.44	344%
32	New Hampshire	145	1,359,710	429	23	8	18	0.34	(66)%
33	South Carolina	161	5,148,726	2,511	46	222	105	4.80	480%
34	Tennessee	162	6,829,165	1,588	37	125	66	3.36	336%
35	Georgia	179	10,617,403	5,156	175	294	215	1.68	168%
36	Indiana	185	6,732,232	3,225	165	73	134	0.44	(56)%
37	North Carolina	195	10,488,102	2,574	85	151	107	1.77	177%
38	Virginia	200	8,535,502	2,494	110	91	104	0.83	(17)%
39	Illinois	219	12,671,796	8,097	445	122	337	0.27	(73)%
40	California	241	39,512,287	12,261	374	784	511	2.10	210%
41	Ohio	261	11,689,064	3,999	180	140	167	0.78	(22)%
42	Pennsylvania	278	12,801,928	7,672	419	122	320	0.29	(71)%
43	Florida	327	21,477,784	10,580	219	884	441	4.04	404%
44	New York	357	19,453,536	32,972	1,969	184	1,374	0.09	(91)%
45	Delaware	391	973,764	604	32	12	25	0.37	(63)%
46	Maryland	487	6,045,672	3,707	199	65	154	0.32	(68)%
47	Connecticut	643	3,565,285	4,460	270	17	186	0.06	**(94)%**
48	Massachusetts	653	6,892,516	8,949	506	107	373	0.21	(79)%
49	Rhode Island	686	1,059,361	1,035	59	11	43	0.18	(82)%
50	New Jersey	1018	8,882,193	16,051	947	112	669	0.12	(88)%
51		**86**	**327,533,641**	**177,060**	**7,902**	**6,329**	**7,378**	**0.80**	**(20)%**
52			ADPW x Wks in Per.		16	8	24		
53	brianwoolf.com		= Deaths in Per.		**126,425**	**50,635**	**177,060**		

The total death losses of all states for the 24 weeks is in col E. Should you wish to compare death rates of different states simply take the 24-week average weekly death figure (col H), annualize it by multiplying it by 52, and divide the result by the state's population (col D). For example, let's compare the least and most dense states.

Alaska 1.3 x 52 = 67.6 / 731,544 = **0.009**% annlzd. death rate*

New Jersey 669 x 52 = 34,788 / 8,882,193 = **0.392%** annlzd. death rate*

*based on deaths for the 24 w/e Aug 25.

What we see is that NJ's death rate is currently 43 times that of AK's, based on the 24 weeks of data. We know that NJ is one of the Comeback Kids with recent plunging death rates so we should expect that gap to narrow somewhat over coming months.

We can also compare AK and NJ with the 50 states average. That can be calculated from rows 51-52. Their CV deaths of all 50 states for the 24 weeks was **177,060** (r51, cE). Averaged per week that number **is 7,378** (r51, cH). Multiply that by 52 to get the annualized total based solely upon the first 24 weeks results and we find the **annualized death total is 383,656**. Divide that by the population of 327,533,641 (r51, cD) and you find the current annualized death rate of **0.117%,** which is just over one-tenth of 1% of our population. Fortunately, the 50-state average is a lot closer to Alaska's rate than New Jersey's.

Closing Comments

This paper provides a framework to understand and manage Covid-19:

- Expectation parameters are provided with the results of the Comeback Kids and Firebirds.

- We see how using averages per week is an easy comparison tool.

- Measuring results in 4-, 8-, or 16-week periods is easier to identify improvement or regression than ever-growing year-to-date numbers.

- Focusing on nurturing improvements in key metrics such as cases/tests and deaths/cases goes to the heart of getting on top of the CV challenge.

- Comparing performance with one's past and with one's peers using a standardized framework is a quick path to improvement.

Covid-19 should be managed based on numeric facts rather than headline fears.

About the author...

Besides a full business life in retailing, and later, loyalty marketing, the other part of Brian Woolf's life has been filled with diverse interests: particularly speaking (including Toastmasters), travel (including all seven continents), and reading (including history). And he has written seven books sharing what he has learned along the journey. Ask him, two favorite trips? Antarctica and the Nile. Ask him, two favorite books? The Lessons of History (Will & Ariel Durant) and Over the Edge of the World (Laurence Bergreen). He loves learning and sharing.

And there's more where this came from...

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www.brianwoolf.com

Email: brian@brianwoolf.com
Tel: +1 864 458-8277

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