Health Industry Advisor, llc

"Strategic Guidance in an Era of Unprecedented Change"

COVID-19 Dashboard

Issue # 70

Tuesday, June 9, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	Averaged >380,000 on Monday
Test-Positivity Rate	Decline	4.3% test-positive past 2 days; 4.7% for past 7 days
Number of Cases	Plateau	New Cases down 3.4% week-over-week (after adjusting for accounting changes)
Deaths % of Total Cases	Decline	5.6%
Number of Deaths / 1M Population	Plateau	341.6
Recoveries : Death	Increase	6.84

- With the re-opening of the United States, all eyes are on the rate of new infections. To date, there has been no general increase - indeed, the rate of new infections may be at its lowest point since the pandemic began: Adjusting for accounting changes made by New York (Suffolk County) and Michigan last Friday (both discussed in prior reports), new daily infections per million were 64.0 during the past week. The previous low of 64.2 was recorded on May 28
- Of the 8 states showing the highest rate of new daily infections:
  - The rates in New York and Michigan are overstated due to the accounting adjustments; factoring these out brings the rates in these states to 30 and 29.5, respectively
  - Iowa and Maryland are reporting declining 7-, 14- and 28-day hospitalizations from the virus (Iowa: -22%, - 30%, -33%; Maryland: -17%, -23%, -37%), as well and declining test-positive rates over the same timeframe. Conclusion: high new infection rates are likely due to better surveillance
  - Nebraska does not report its hospitalization rates; its test-positive rate is steady at 10% and its rate of new infections is declining
  - In Arizona, Arkansas and Utah, however, 7-, 14- and 28-day hospitalization rates are increasing (Arizona: +31%, +52%, +77%; Arkansas: +49%, +86%, +180%; Utah: +36%, +39%, +14%) and test-positive rates are increasing. Conclusion: the infection spread is likely increasing in these states
- The declining death rate is encouraging: for the 3rd consecutive day fewer than 710 deaths were recorded (546 yesterday). The cumulative death rate per case has now declined for 12 consecutive days
- Among Large Central Metro Areas, Richmond VA continues to report the highest new daily infection rate per million. Providence RI and Allegheny PA reported the lowest. Among Large Fringe Metro Areas, Manassas City VA and Manassas Park City VA report the highest rates. Indeed, Virginia has 12 of the 28 of these areas with the highest rates; Massachusetts has 5 of the 28
- Among the 30 countries with the most cases, those with the highest % daily change in cases over the past 5 days: South Africa, 6.3%; Pakistan, 5.2%; Bangladesh, 4.4%; Egypt, 4.4%; India, 4.1:, Chile, 4.1%; Columbia, 4.1%; Brazil, 4.0% and Mexico, 3.8%

COUNTRY-BY-COUNTRY INFORMATION

Countries Included

- In Mid-March, we began tracking the twenty countries with the most coronavirus cases; in mid-April, we expanded it to the thirty countries with the most cases
- We now have visibility to all 213 countries and 2 conveyances that have at least 1 coronavirus case
- Case and death information is sourced from the worldometers.info, the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University and the New York Times, each of which are accessed daily; analysis by Health Industry Advisor LLC

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Country-by-Country

Comparative Statistics

"Strategic Guidance in an Era of Unprecedented Change"

Top 30 Countries By Total Cases
As of June 8

Country	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population - Past 7 Days	Rank7	New Daily Infections Per 1M Population (5-Day M.A.)	Rank8
USA	2,026,493	(1)	6,124	(5)	113,055	(1)	5.6%	(12)	341.7	(8)	1.3%	(18)	1,543	(6)	75.4	(8)
Brazil	710,887	(2)	3,346	(13)	37,312	(3)	5.2%	(13)	175.6	(11)	4.0%	(8)	47	(27)	119.5	(4)
Russia	476,658	(3)	3,266	(14)	5,971	(14)	1.3%	(25)	40.9	(18)	2.0%	(14)	2,049	(3)	60.8	(11)
Spain	288,797	(4)	6,177	(4)	27,136	(6)	9.4%	(8)	580.4	(3)	0.1%	(29)	1,227	(7)	6.0	(27)
UK	287,399	(5)	4,235	(10)	40,597	(2)	14.1%	(4)	598.2	(2)	0.5%	(23)	3,043	(2)	22.2	(17)
India	265,928	(6)	193	(29)	7,473	(12)	2.8%	(18)	5.4	(28)	4.2%	(5)	97	(22)	7.1	(26)
Italy	235,278	(7)	3,891	(12)	33,964	(4)	14.4%	(3)	561.7	(4)	0.1%	(28)	771	(12)	4.8	(28)
Peru	199,696	(8)	6,062	(6)	5,571	(15)	2.8%	(19)	169.1	(12)	2.2%	(12)	551	(15)	126.2	(3)
Germany	186,205	(9)	2,223	(20)	8,783	(9)	4.7%	(15)	104.8	(15)	0.2%	(27)	675	(13)	4.2	(29)
Iran	173,832	(10)	2,071	(21)	8,351	(10)	4.8%	(14)	99.5	(16)	1.6%	(17)	257	(21)	31.3	(13)
Turkey	171,121	(11)	2,030	(22)	4,711	(16)	2.8%	(20)	55.9	(17)	0.6%	(22)	520	(17)	11.2	(24)
France	154,188	(12)	2,362	(19)	29,209	(5)	18.9%	(1)	447.5	(6)	0.3%	(25)	0	(28)	7.7	(25)
Chile	138,846	(13)	7,267	(2)	2,264	(20)	1.6%	(23)	118.5	(13)	4.1%	(6)	967	(9)	264.0	(2)
Mexico	117,103	(14)	909	(23)	13,699	(7)	11.7%	(6)	106.3	(14)	3.8%	(9)	72	(26)	30.7	(14)
Saudi Arabia	105,283	(15)	3,027	(15)	746	(26)	0.7%	(27)	21.5	(22)	2.9%	(10)	632	(14)	81.1	(7)
Pakistan	103,671	(16)	470	(26)	2,067	(21)	2.0%	(22)	9.4	(26)	5.2%	(2)	94	(23)	21.0	(18)
Canada	96,244	(17)	2,551	(17)	7,835	(11)	8.1%	(10)	207.7	(9)	0.7%	(21)	886	(11)	16.7	(19)
China	83,040	(18)	58	(30)	4,634	(18)	5.6%	(11)	3.2	(30)	0.0%	(30)	0	(28)	0.0	(30)
Qatar	70,158	(19)	24,987	(1)	57	(29)	0.1%	(29)	20.3	(23)	2.5%	(11)	1,716	(5)	569.7	(1)
Bangladesh	68,504	(20)	416	(27)	930	(25)	1.4%	(24)	5.7	(27)	4.4%	(3)	78	(25)	16.2	(20)
Belgium	59,348	(21)	5,122	(8)	9,606	(8)	16.2%	(2)	829.1	(1)	0.2%	(26)	904	(10)	11.4	(23)
South Africa	50,879	(22)	859	(24)	1,080	(24)	2.1%	(21)	18.2	(24)	6.3%	(1)	483	(19)	45.1	(12)
Belarus	49,453	(23)	5,233	(7)	276	(28)	0.6%	(28)	29.2	(19)	1.9%	(15)	1,204	(8)	91.8	(5)
Netherlands	47,739	(24)	2,786	(16)	6,016	(13)	12.6%	(5)	351.1	(7)	0.4%	(24)	542	(16)	11.7	(22)
Sweden	45,133	(25)	4,471	(9)	4,694	(17)	10.4%	(7)	465.0	(5)	2.0%	(13)	519	(18)	85.8	(6)
Ecuador	43,378	(26)	2,461	(18)	3,642	(19)	8.4%	(9)	206.6	(10)	1.2%	(19)	81	(24)	27.4	(16)
Colombia	40,719	(27)	801	(25)	1,308	(22)	3.2%	(17)	25.7	(21)	4.1%	(7)	286	(20)	29.0	(15)
UAE	39,376	(28)	3,984	(11)	281	(27)	0.7%	(26)	28.4	(20)	1.6%	(16)	5,623	(1)	61.1	(10)
Singapore	38,296	(29)	6,549	(3)	25	(30)	0.1%	(30)	4.3	(29)	1.0%	(20)	1,802	(4)	64.7	(9)
Egypt	35,444	(30)	347	(28)	1,271	(23)	3.6%	(16)	12.4	(25)	4.4%	(4)	0	(28)	13.4	(21)

Note: China does not report test volumes

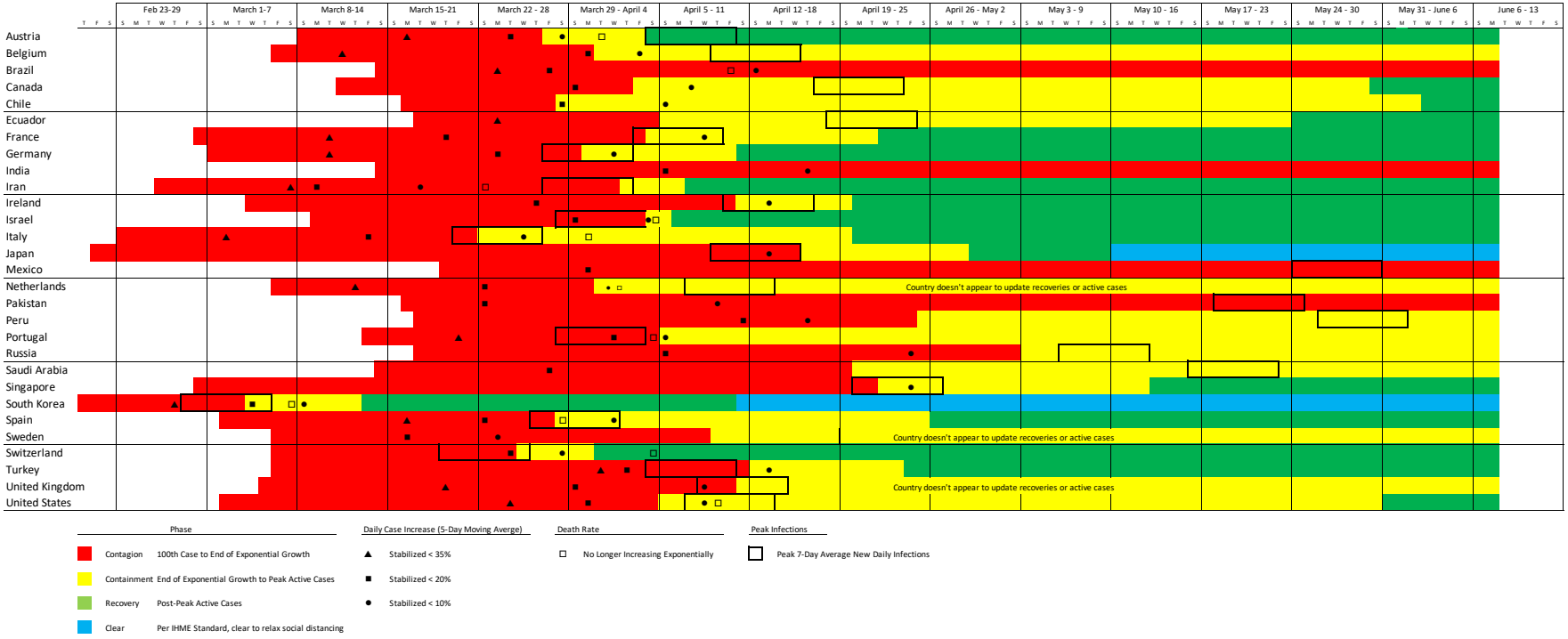
VIRUS PROGRESSION BY COUNTRY

Country-by-Country

Virus Progression – Original 30 Hardest-Hit Countries

"Strategic Guidance in an Era of Unprecedented Change"

This graphic illustrates when the country first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses symbols to indicate when average daily case growth rates fell (and were sustained) below certain benchmarks, as well as when deaths stopped growing exponentially.



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Country-By-Country
Listing of Countries By Total Cases

Countries making large upward movements are highlighted

When we first expanded our tracking to 30 countries in mid-April, they represented the most countries with cases in the world. Since that time, Austria, Israel, Japan and South Korea have dropped in the rankings. Among the countries that have moved up:

- **Afghanistan**
- **Argentina**
- **Bangladesh**
- **Belarus**
- **Columbia**
- **Denmark**
- **Dominican Republic**
- **Indonesia**
- **Kuwait**
- **Poland**
- **Qatar**
- **Panama**
- **Philippines**
- **Romania**
- **South Africa**
- **UAE**
- **Ukraine**

The original 30 still account for 86.4% of all cases worldwide.

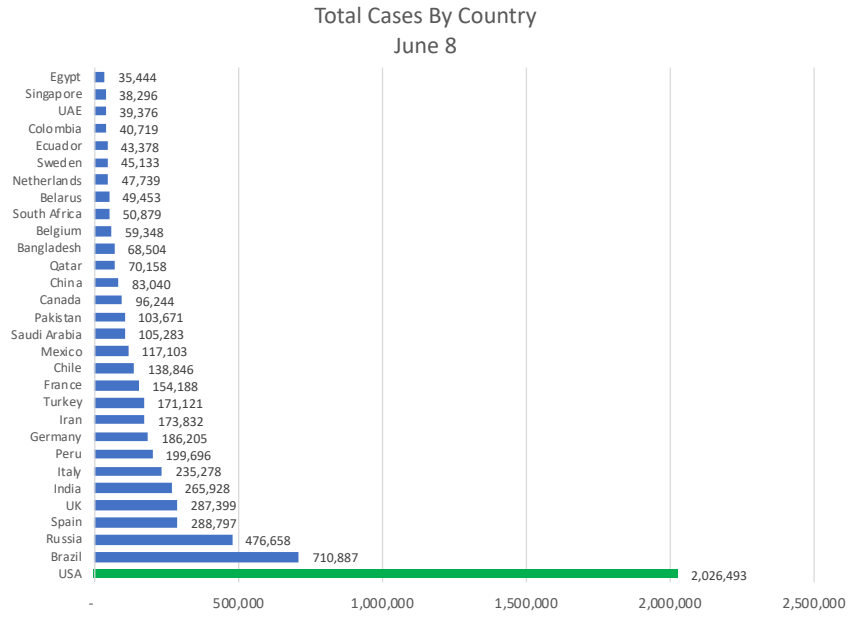
Rank	Country	8-Jun	Rank	Country	6-May	Rank	Country	27-Apr
1	USA	2,026,493	1	USA	1,263,092	1	USA	1,010,356
2	Brazil	710,887	2	Spain	253,682	2	Spain	229,422
3	Russia	476,658	3	Italy	214,457	3	Italy	199,414
4	Spain	288,797	4	UK	201,101	4	France	128,339
5	UK	287,399	5	France	174,191	5	Germany	158,758
6	India	265,928	6	Germany	168,162	6	UK	157,149
7	Italy	235,278	7	Russia	165,929	7	Turkey	112,261
8	Peru	199,696	8	Turkey	131,744	8	Iran	91,472
9	Germany	186,205	9	Brazil	126,611	9	Russia	87,147
10	Iran	173,832	10	Iran	101,650	10	China	82,830
11	Turkey	171,121	11	China	82,883	11	Brazil	66,501
12	France	154,188	12	Canada	63,496	12	Canada	48,500
13	Chile	138,846	13	Peru	54,817	13	Belgium	46,687
14	Mexico	117,103	14	India	52,987	14	Netherlands	38,245
15	Saudi Arabia	105,283	15	Belgium	50,781	15	India	29,451
16	Pakistan	103,671	16	Netherlands	41,319	16	Switzerland	29,164
17	Canada	96,244	17	Saudi Arabia	31,938	17	Peru	28,669
18	China	83,040	18	Switzerland	30,060	18	Portugal	24,070
21	Belgium	59,348	19	Ecuador	29,420	19	Ecuador	23,240
24	Netherlands	47,739	20	Portugal	26,182	20	Ireland	19,648
25	Sweden	45,133	21	Mexico	26,025	21	Sweden	18,926
26	Ecuador	43,378	22	Sweden	23,918	22	Saudi Arabia	18,811
29	Singapore	38,296	23	Pakistan	23,214	23	Israel	15,555
31	Portugal	34,885	24	Chile	23,048	24	Austria	15,274
34	Switzerland	30,972	25	Ireland	22,248	25	Mexico	14,677
37	Ireland	25,207	26	Singapore	20,198	26	Singapore	14,423
43	Israel	18,032	29	Israel	16,310	27	Pakistan	13,915
45	Japan	17,174	31	Austria	15,684	28	Chile	13,813
46	Austria	16,968	32	Japan	15,253	29	Japan	13,614
56	S. Korea	11,814	38	S. Korea	10,806	35	South Korea	10,738
	Others	980,243		Others	356,176		Others	301,446
	World	7,189,858			3,817,382		World	3,062,515
	30 countries' share	86.4%			90.7%			90.2%

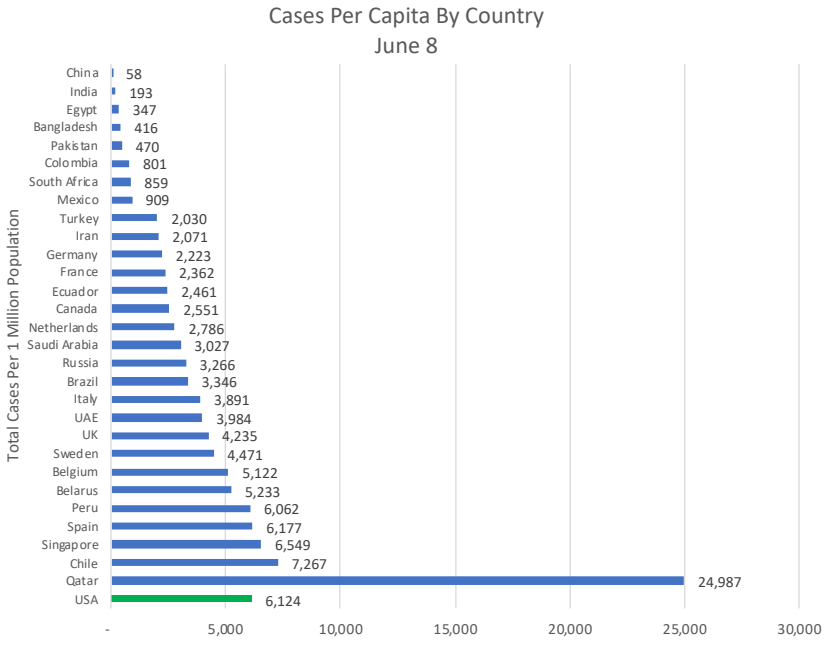
Country-by-Country

Cases & Cases Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



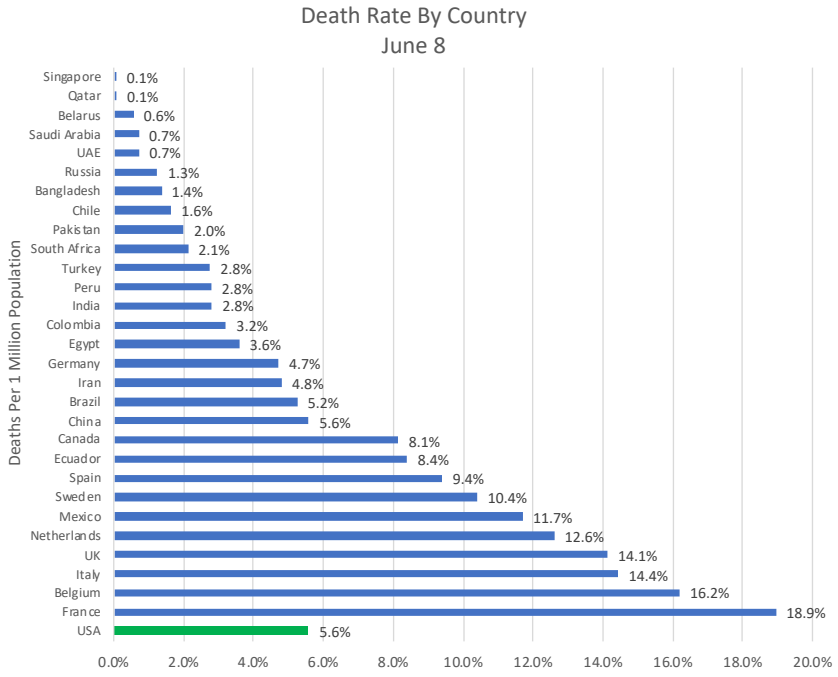


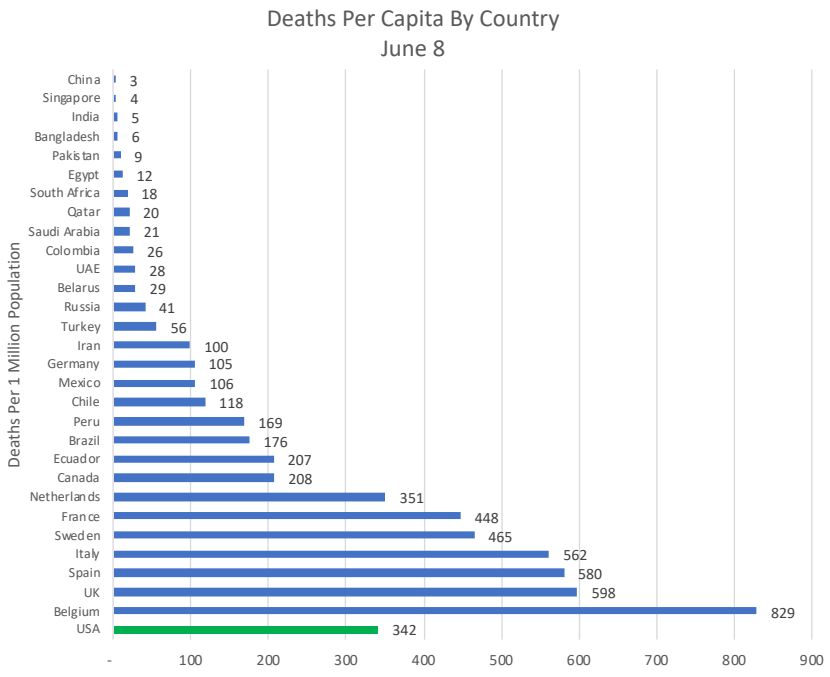
Country-by-Country

Deaths Per Cases & Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



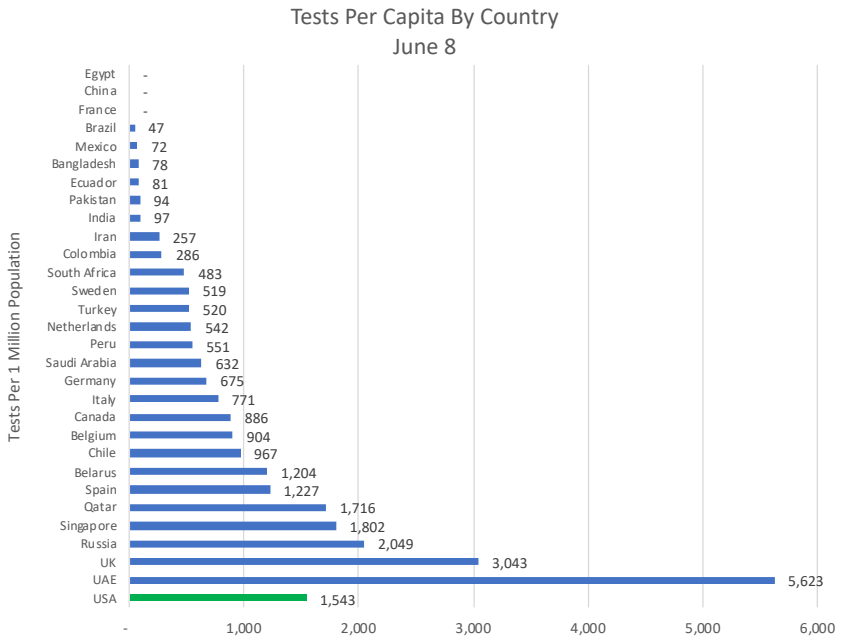


Country-by-Country

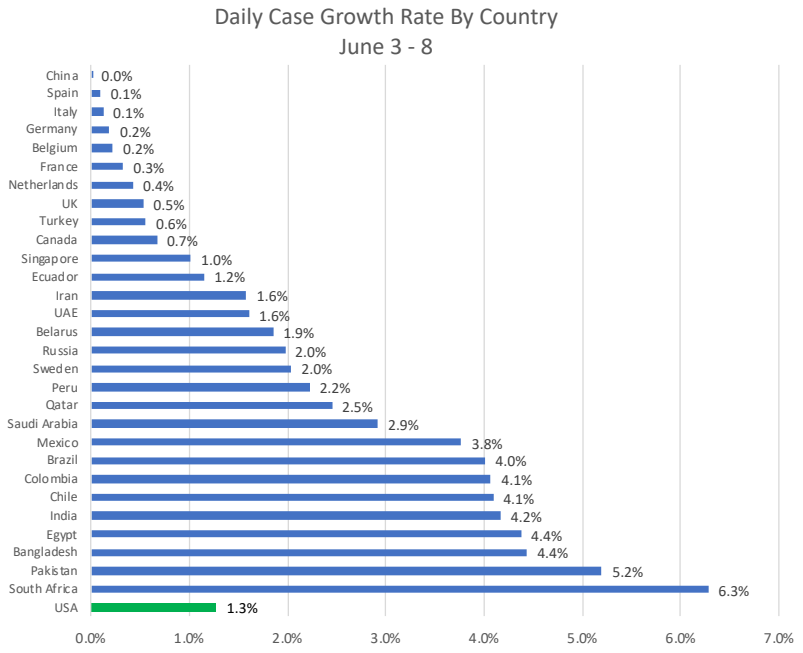
Daily Tests Per Capita & Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



Daily Tests Per Capita For Past Week

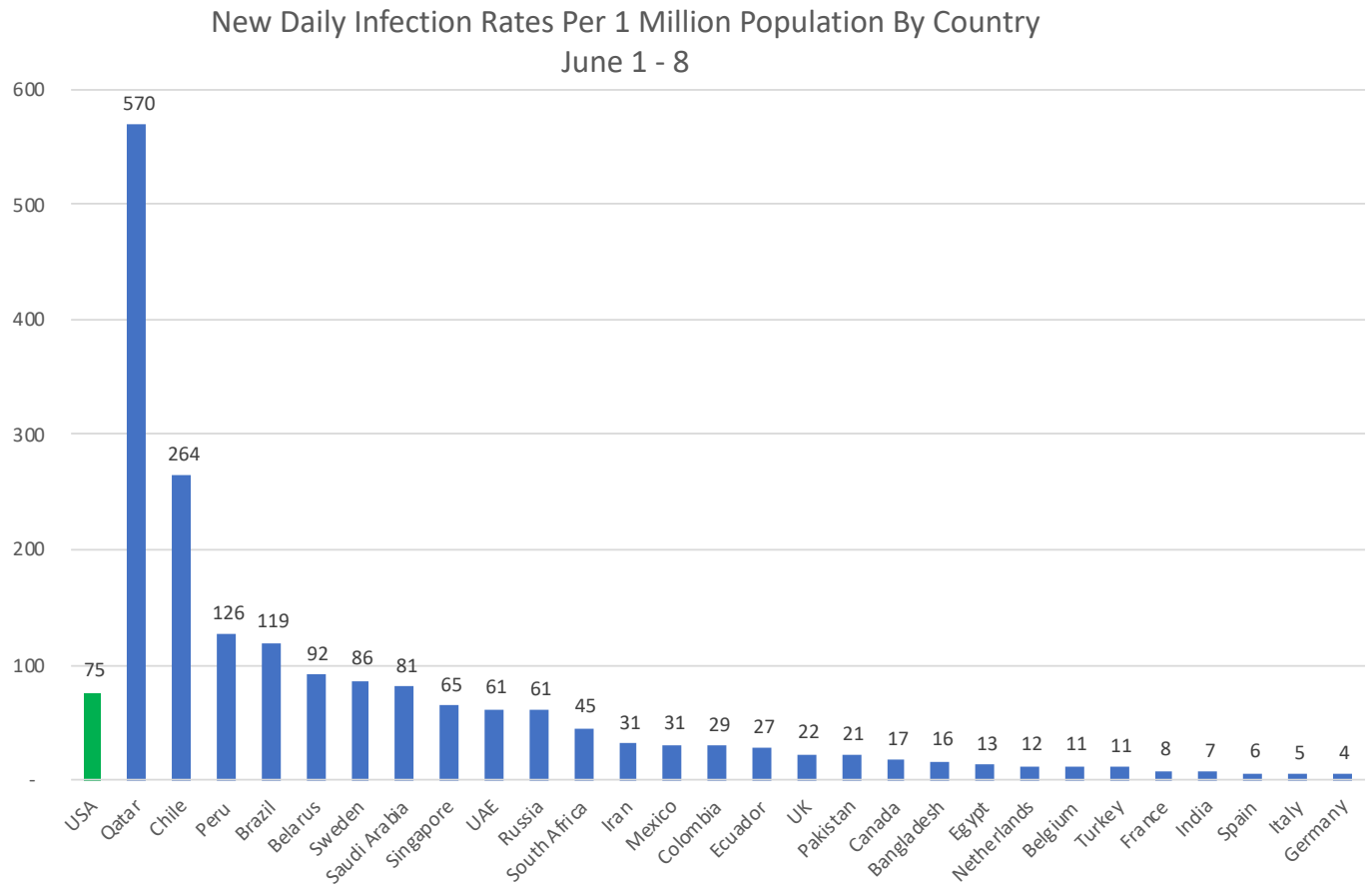


Daily Case Growth – 5-Day Moving Average

Country-by-Country

New Daily Infection Rates

"Strategic Guidance in an Era of Unprecedented Change"



UNITED STATES & STATE-BY-STATE INFORMATION

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State-by-State

Comparative Statistics- Page 1 of 2

"Strategic Guidance in an Era of Unprecedented Change"

As of June 8

State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Alabama	20,925	(25)	4,267.6	(23)	718	(25)	3.4%	(33)	146.4	(24)	2.1%	(12)	1,063	(38)	72.5	(19)
Alaska	563	(50)	769.6	(49)	10	(51)	1.8%	(45)	13.7	(50)	2.2%	(8)	2,289	(6)	18.7	(47)
Arizona	27,678	(20)	3,802.6	(26)	1,047	(20)	3.8%	(30)	143.8	(25)	4.5%	(1)	1,178	(33)	148.3	(1)
Arkansas	9,740	(36)	3,227.5	(35)	155	(40)	1.6%	(47)	51.4	(43)	3.8%	(2)	1,295	(26)	108.7	(4)
California	133,989	(3)	3,391.1	(32)	4,676	(7)	3.5%	(32)	118.3	(29)	2.2%	(9)	1,513	(18)	68.2	(23)
Colorado	28,183	(19)	4,894.0	(21)	1,543	(16)	5.5%	(11)	267.9	(15)	0.8%	(41)	772	(46)	39.8	(38)
Connecticut	44,092	(13)	12,367.0	(6)	4,084	(8)	9.3%	(1)	1,145.5	(3)	0.5%	(49)	1,870	(10)	54.2	(29)
Delaware	9,972	(34)	10,240.7	(7)	398	(34)	4.0%	(27)	408.7	(12)	0.5%	(47)	1,100	(37)	53.8	(30)
District Of Columbia	9,389	(37)	13,303.6	(5)	491	(29)	5.2%	(13)	695.7	(6)	0.8%	(42)	1,721	(11)	107.7	(5)
Florida	64,904	(8)	3,021.9	(37)	2,715	(11)	4.2%	(25)	126.4	(28)	2.0%	(13)	1,291	(27)	53.7	(31)
Georgia	52,497	(11)	4,944.4	(20)	2,208	(14)	4.2%	(24)	208.0	(18)	1.4%	(24)	1,046	(39)	61.9	(24)
Hawaii	676	(49)	477.4	(51)	17	(50)	2.5%	(41)	12.0	(51)	0.7%	(45)	672	(49)	2.4	(51)
Idaho	3,189	(43)	1,779.5	(44)	83	(44)	2.6%	(40)	46.3	(45)	1.3%	(28)	745	(47)	22.6	(44)
Illinois	128,415	(4)	10,133.9	(8)	5,924	(5)	4.6%	(20)	467.5	(10)	0.7%	(44)	1,593	(14)	81.0	(16)
Indiana	37,623	(16)	5,588.5	(18)	2,316	(13)	6.2%	(9)	344.0	(13)	1.0%	(35)	925	(44)	59.3	(26)
Iowa	22,007	(23)	6,975.1	(12)	617	(27)	2.8%	(39)	195.6	(20)	1.6%	(22)	1,564	(15)	104.5	(6)
Kansas	10,688	(33)	3,668.7	(29)	236	(37)	2.2%	(44)	81.0	(38)	0.9%	(37)	1,190	(32)	31.9	(41)
Kentucky	11,476	(32)	2,568.7	(40)	472	(30)	4.1%	(26)	105.6	(32)	2.0%	(14)	1,177	(34)	45.7	(34)
Louisiana	43,050	(14)	9,260.5	(10)	2,949	(9)	6.9%	(7)	634.4	(7)	0.9%	(38)	1,697	(13)	83.1	(15)
Maine	2,588	(45)	1,925.3	(42)	99	(42)	3.8%	(29)	73.6	(39)	1.4%	(25)	1,277	(29)	25.4	(42)
Maryland	58,404	(10)	9,660.5	(9)	2,776	(10)	4.8%	(17)	459.2	(11)	1.2%	(29)	1,483	(19)	120.0	(3)
Massachusetts	103,626	(5)	14,911.3	(3)	7,353	(3)	7.1%	(6)	1,058.1	(4)	0.4%	(50)	1,324	(24)	58.0	(27)
Michigan	64,701	(9)	6,478.6	(13)	5,912	(6)	9.1%	(2)	592.0	(8)	2.2%	(7)	2,189	(7)	102.5	(9)
Minnesota	28,224	(18)	5,004.6	(19)	1,208	(18)	4.3%	(23)	214.2	(16)	1.8%	(17)	2,498	(4)	76.4	(17)
Mississippi	17,768	(26)	5,970.1	(17)	837	(22)	4.7%	(18)	281.2	(14)	1.7%	(18)	1,534	(17)	96.8	(11)

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State-by-State

Comparative Statistics- Page 2 of 2

"Strategic Guidance in an Era of Unprecedented Change"

As of June 8

State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Missouri	15,223	(29)	2,480.4	(41)	832	(23)	5.5%	(12)	135.6	(27)	1.4%	(26)	972	(42)	35.7	(39)
Montana	548	(51)	512.7	(50)	18	(48)	3.3%	(35)	16.8	(49)	0.9%	(40)	1,462	(20)	3.9	(50)
Nebraska	15,752	(27)	8,143.1	(11)	188	(38)	1.2%	(49)	97.2	(34)	1.2%	(31)	1,310	(25)	103.9	(7)
Nevada	9,786	(35)	3,177.1	(36)	442	(31)	4.5%	(21)	143.5	(26)	1.8%	(15)	1,541	(16)	50.9	(32)
New Hampshire	5,079	(41)	3,735.4	(28)	286	(36)	5.6%	(10)	210.3	(17)	1.2%	(32)	1,376	(21)	41.4	(36)
New Jersey	166,917	(2)	18,792.3	(2)	12,292	(2)	7.4%	(5)	1,383.9	(2)	0.4%	(51)	2,887	(3)	68.8	(22)
New Mexico	9,062	(38)	4,321.8	(22)	400	(33)	4.4%	(22)	190.8	(21)	2.2%	(10)	2,369	(5)	86.0	(14)
New York	399,892	(1)	20,556.2	(1)	30,516	(1)	7.6%	(3)	1,568.7	(1)	0.9%	(39)	3,247	(1)	140.0	(2)
North Carolina	36,516	(17)	3,481.7	(31)	1,041	(21)	2.9%	(38)	99.3	(33)	3.2%	(5)	1,338	(23)	94.3	(12)
North Dakota	2,880	(44)	3,779.2	(27)	72	(45)	2.5%	(42)	94.5	(35)	1.5%	(23)	1,290	(28)	47.8	(33)
Ohio	38,863	(15)	3,324.7	(33)	2,412	(12)	6.2%	(8)	206.3	(19)	1.1%	(34)	962	(43)	34.7	(40)
Oklahoma	7,205	(39)	1,820.8	(43)	348	(35)	4.8%	(16)	87.9	(37)	1.1%	(33)	1,030	(40)	22.8	(43)
Oregon	4,922	(42)	1,167.0	(48)	164	(39)	3.3%	(34)	38.9	(46)	2.3%	(6)	619	(51)	21.0	(46)
Pennsylvania	80,437	(6)	6,283.2	(14)	6,019	(4)	7.5%	(4)	470.2	(9)	0.6%	(46)	732	(48)	41.3	(37)
Rhode Island	15,642	(28)	14,765.5	(4)	799	(24)	5.1%	(15)	754.2	(5)	0.5%	(48)	3,012	(2)	87.8	(13)
South Carolina	14,800	(30)	2,874.5	(38)	557	(28)	3.8%	(31)	108.2	(31)	3.2%	(4)	1,109	(35)	73.6	(18)
South Dakota	5,471	(40)	6,184.3	(15)	65	(46)	1.2%	(50)	73.5	(40)	1.2%	(30)	1,963	(9)	70.6	(21)
Tennessee	26,944	(21)	3,943.1	(24)	421	(32)	1.6%	(48)	61.6	(42)	1.7%	(20)	1,344	(22)	70.9	(20)
Texas	77,249	(7)	2,664.1	(39)	1,868	(15)	2.4%	(43)	64.4	(41)	2.2%	(11)	643	(50)	55.3	(28)
Utah	12,322	(31)	3,843.5	(25)	124	(41)	1.0%	(51)	38.7	(47)	3.3%	(3)	1,105	(36)	103.5	(8)
Vermont	1,075	(47)	1,722.8	(45)	55	(47)	5.1%	(14)	88.1	(36)	1.7%	(19)	1,711	(12)	21.1	(45)
Virginia	51,251	(12)	6,004.4	(16)	1,477	(17)	2.9%	(37)	173.0	(22)	1.8%	(16)	985	(41)	98.0	(10)
Washington	25,117	(22)	3,298.4	(34)	1,170	(19)	4.7%	(19)	153.6	(23)	1.4%	(27)	828	(45)	42.7	(35)
West Virginia	2,161	(46)	1,209.2	(47)	84	(43)	3.9%	(28)	47.0	(44)	0.8%	(43)	1,240	(30)	10.6	(49)
Wisconsin	21,038	(24)	3,613.3	(30)	646	(26)	3.1%	(36)	111.0	(30)	1.6%	(21)	2,016	(8)	61.2	(25)
Wyoming	960	(48)	1,658.7	(46)	17	(50)	1.8%	(46)	29.4	(48)	1.0%	(36)	1,191	(31)	12.3	(48)
United States	2,026,493		6,122.3		113,055		5.6%		329.7		1.3%		1,412		67.3	

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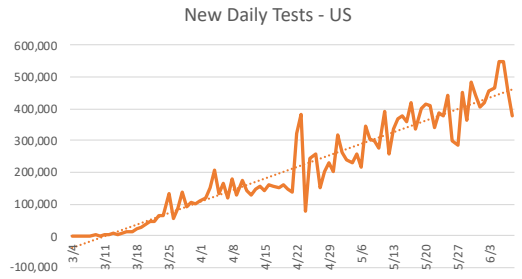
United States

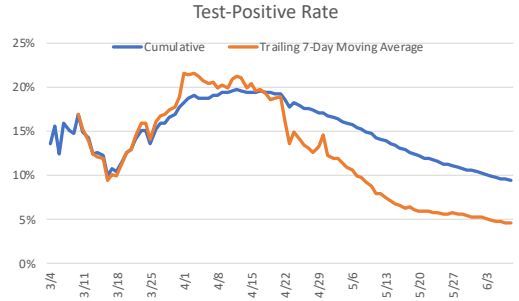
Overall Statistics

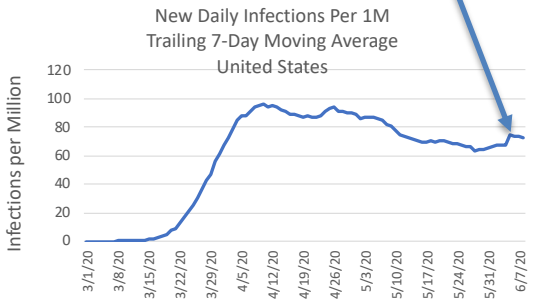
New York and Michigan made accounting adjustments to the case totals on June 5. These had the effect of adding 8.7 new daily infections per million to the US totals. Data here has not been adjusted to account for these accounting changes

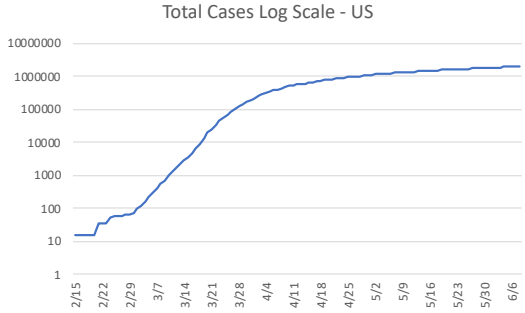
"Strategic Guidance in an Era of Unprecedented Change"

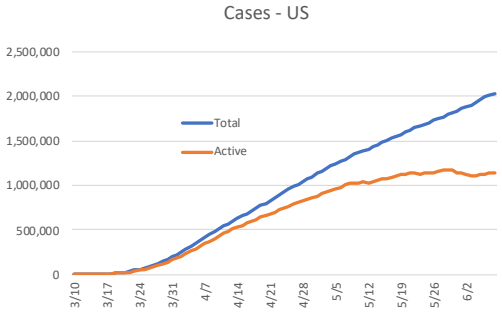
With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates.
Further, new daily infections continue to decline; the death rate seems to have stabilized.

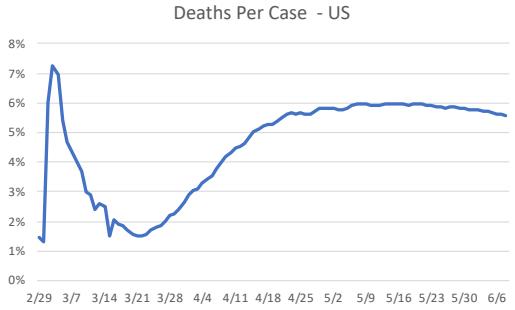










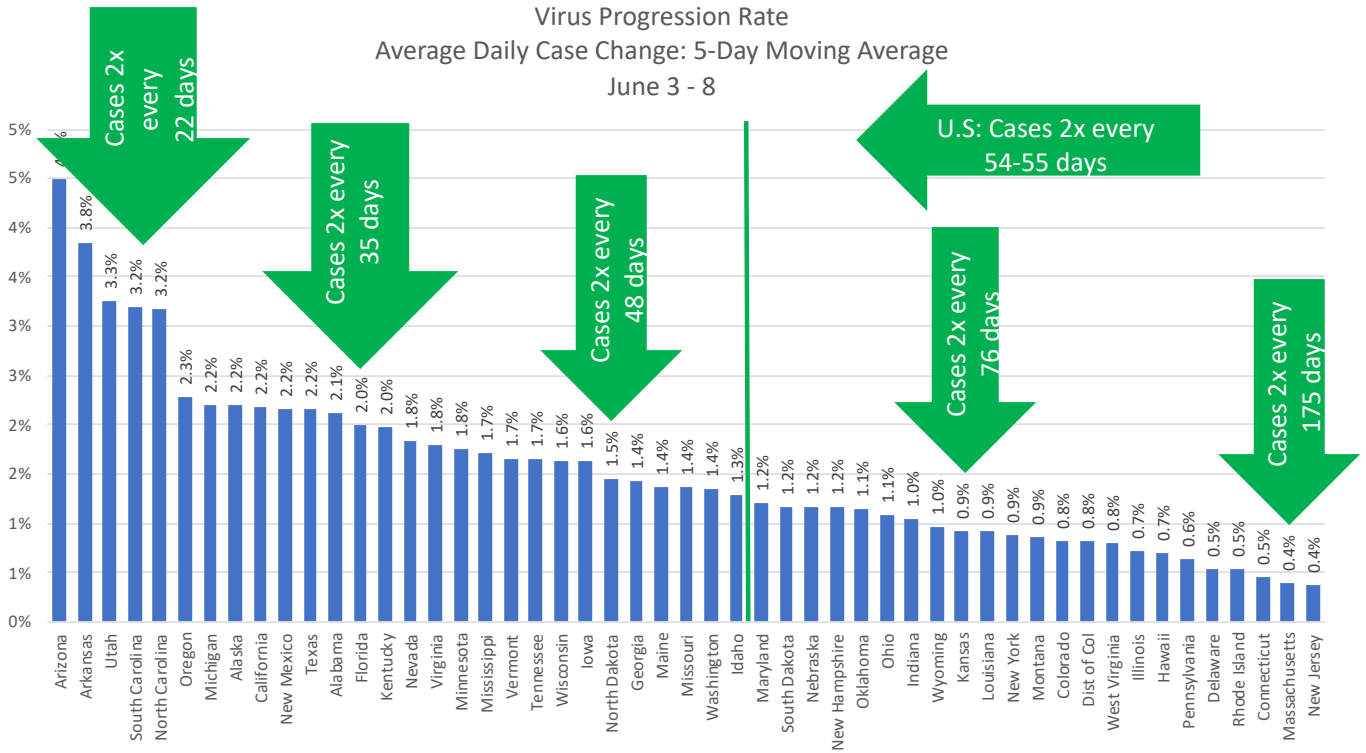


State-by-State

Average Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

At the height of the epidemic, cases in some states were doubling every few days. Now, they would take from 16 – 182 days to double



State-by-State

Cases & Deaths Per Capita

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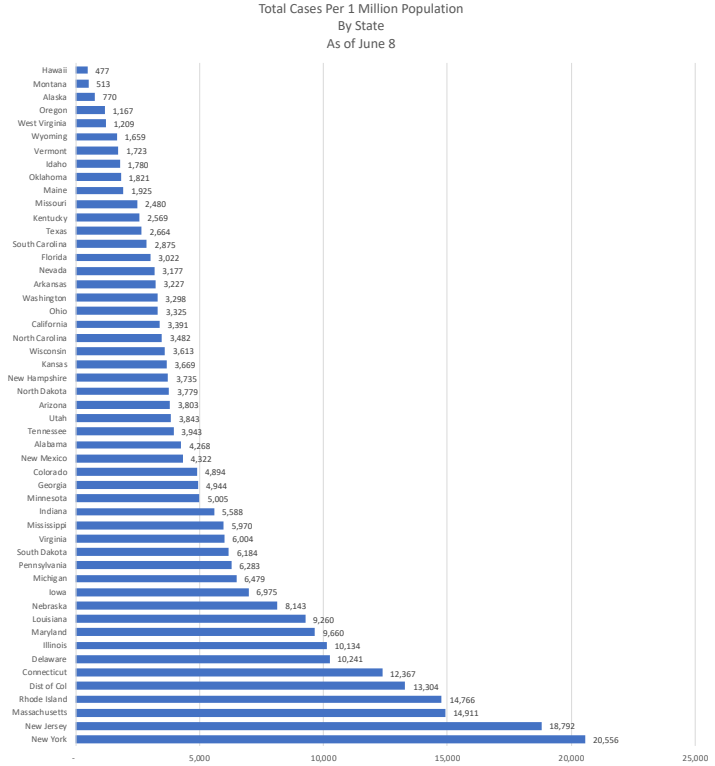
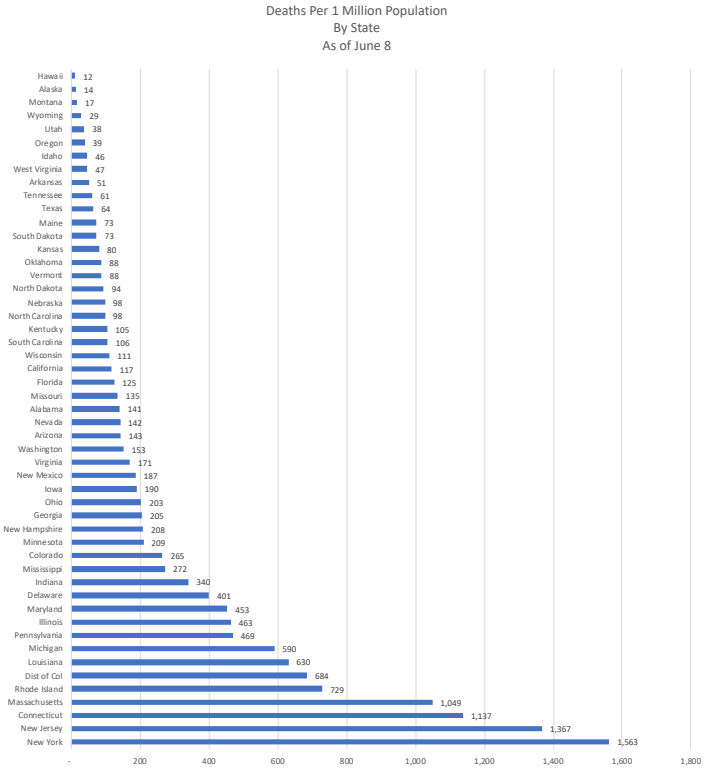
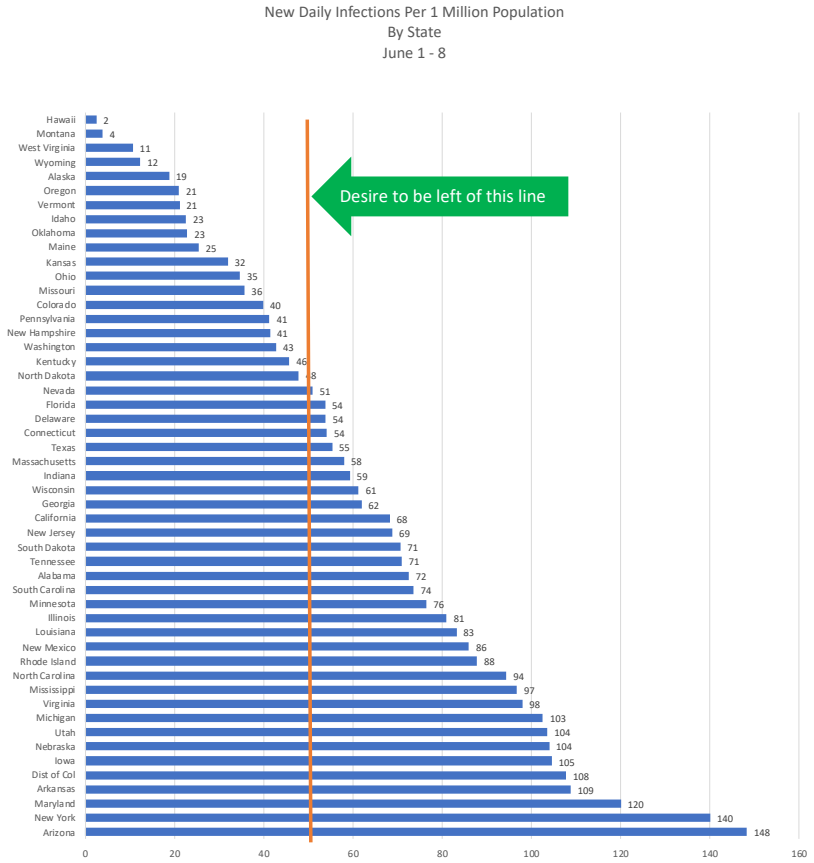


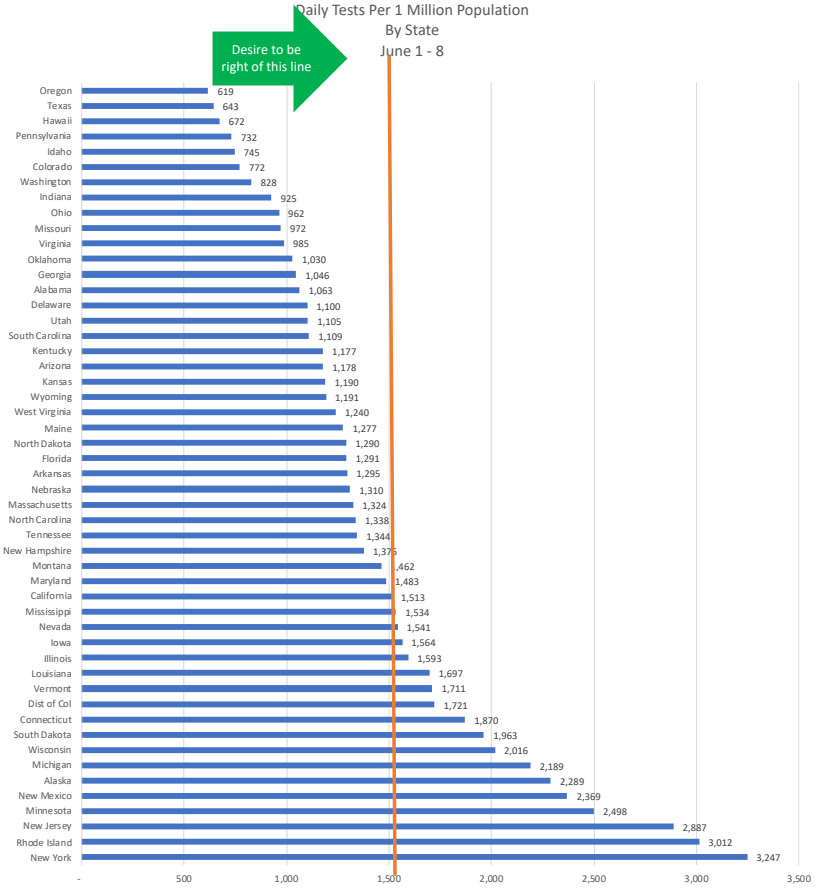


State-by-State

New Daily Infections & Tests Per Capita

"Strategic Guidance in an Era of Unprecedented Change"





State-by-State

Which States Are Performing Sufficient Tests?

"Strategic Guidance in an Era of Unprecedented Change"

The World Health Organization suggested that the test-positive rate should be 10% or lower, for testing to be sufficient to assess the true prevalence of the virus. All except 2 states met this guideline for the past week.

VIRUS PROGRESSION: ROADMAP TO RECOVERY

Virus Progression

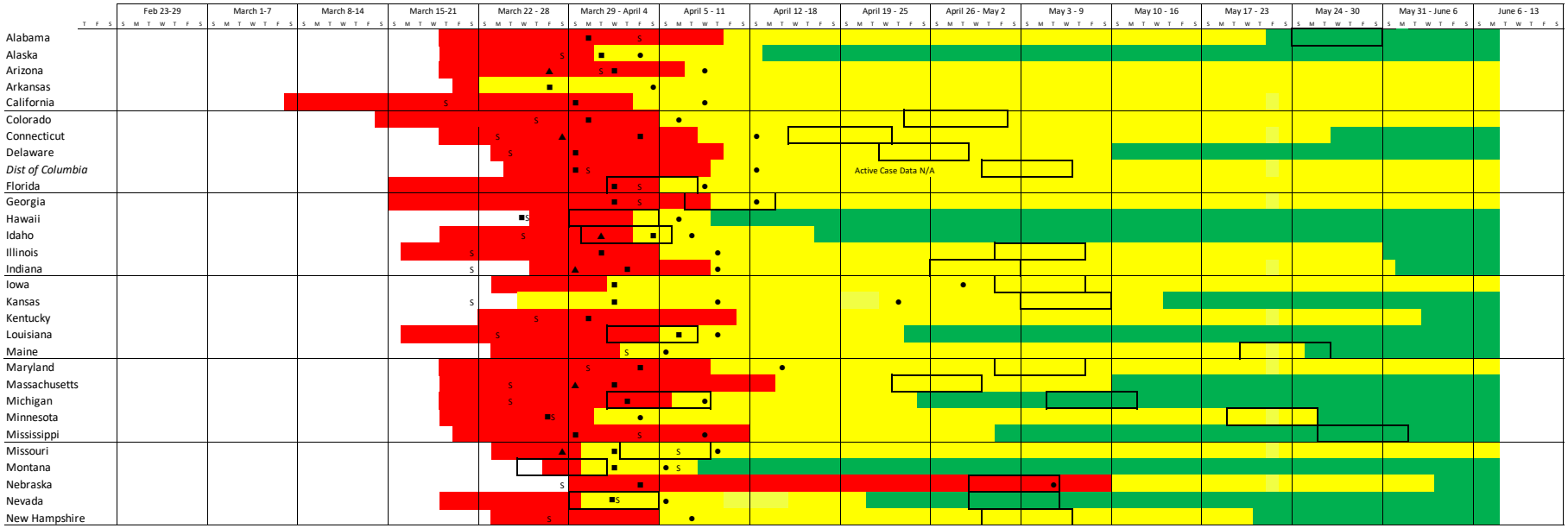
The graphic on the following two pages illustrates when the state first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses symbols to indicate when average daily case growth rates fell (and were sustained) below certain benchmarks, as well as when deaths stopped growing exponentially.

A state is not shaded green until active cases appear to have peaked.

State-by-State

Virus Progression – *1 of 2*

"Strategic Guidance in an Era of Unprecedented Change"



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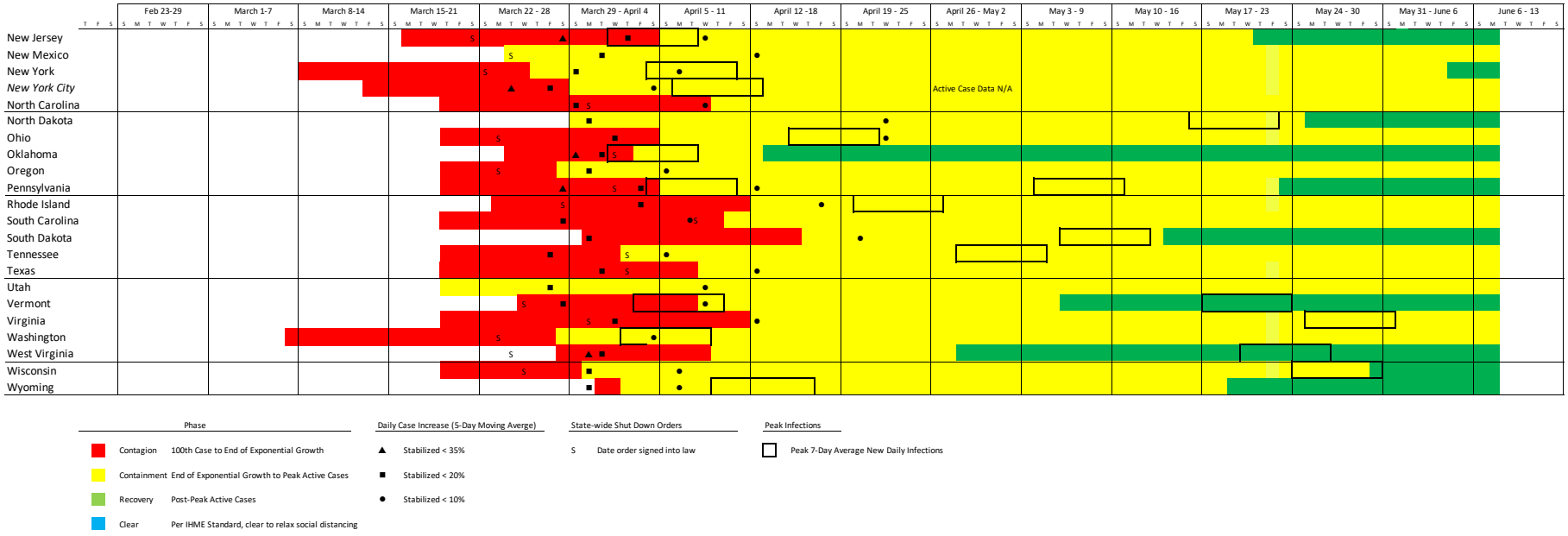
State-by-State

Virus Progression – *2 of 2*

"Strategic Guidance in an Era of Unprecedented Change"



U.S. COUNTY-BY-COUNTY INFORMATION

U.S. County-By-County

Case and Death Information By County For States With Increasing Infection Rates

"Strategic Guidance in an Era of Unprecedented Change"

- On the following pages, case and death information[1] is presented by county/municipality in the United States
  - New York case and death information are reported on a combined basis for Bronx, Kings, New York, Queens and Richmond counties
  - Cities that are not otherwise part of a county are listed separately
- Counties are grouped according to the 2013 Rural/Urban classification from Center for Disease Control, "NCHS Urban-Rural Classification Scheme for Counties"[3]:
  - **Large Central Metro Areas** – Located in MSA of 1 million population that: 1) contain the entire population of the largest principal city of the MSA, or 2) are completely contained within the largest principal city of the MSA, or 3) contain at least 250,000 residents of any principal city in the MSA
  - **Large Fringe Metro Areas** – Located in in MSA of 1 million or more population
  - **Medium Metro Areas** – Located in in MSA of 250,000-999,999 population
  - **Small Metro Areas** – Located in MSAs of less than 250,000 population
  - **Micropolitan Areas** – Located in micropolitan statistical area
  - **Non-Core Areas** - not in micropolitan statistical areas data access website
- Population information is the 2019 official estimate from the US Census Bureau[2]

1. Data from The New York Times, based on reports from state and local health agencies. Accessed May 10-20, 2020
2. "Annual Estimates of the Resident Population for Counties in the United States: April 1, 2010 to July 1, 2019 (CO-EST2019-ANNRES)",Source: U.S. Census Bureau, Population Division, Release Date: March 2020. Accessed May 12, 2020
3. Urban-Rural Classification of counties from CDC's "NCHS Urban-Rural Classification Scheme for Counties". Accessed May 19, 2020

Daily Infection Rates Large Central Metro Areas

Ranked By Highest Recent Daily Infection Rate

FIPS	County	State	2013 CDC Urban / Rural Classification	Total Cases	Cases Per 1M	Daily Inf Rate (Last 7-Day MA)	Peak Daily Inf Rate (Trailing 7-Day MA)	Highest Occured in Past 3 Days?	Total Deaths	Deaths Per 1M	Deaths / Case
51760	Richmond city	Virginia	1	1,592	7,330	226	235		25	115	1.6%
25025	Suffolk	Massachusetts	1	18,955	24,885	203	669		923	1,212	4.9%
37119	Mecklenburg	North Carolina	1	5,358	4,981	177	177	yes	106	99	2.0%
47037	Davidson	Tennessee	1	6,032	9,046	160	187		73	109	1.2%
55079	Milwaukee	Wisconsin	1	8,709	9,399	160	247		325	351	3.7%
27123	Ramsey	Minnesota	1	3,445	6,441	155	222		152	284	4.4%
24510	Baltimore city	Maryland	1	6,149	10,620	142	261		276	477	4.5%
47157	Shelby	Tennessee	1	5,812	6,341	135	141		129	141	2.2%
17031	Cook	Illinois	1	81,924	16,080	135	332		3,913	768	4.8%
6037	Los Angeles	California	1	62,338	6,264	125	144		2,620	263	4.2%
27053	Hennepin	Minnesota	1	9,255	7,482	124	208		667	539	7.2%
49035	Salt Lake	Utah	1	6,096	5,366	123	123	yes	81	71	1.3%

Ranked By Lowest Recent Daily Infection Rate

FIPS	County	State	2013 CDC Urban / Rural Classification	Total Cases	Cases Per 1M	Daily Inf Rate (Last 7-Day MA)	Peak Daily Inf Rate (Trailing 7-Day MA)	Highest Occured in Past 3 Days?	Total Deaths	Deaths Per 1M	Deaths / Case
44007	Providence	Rhode Island	1	11,052	18,123	-	600		518	849	4.7%
42003	Allegheny	Pennsylvania	1	1,989	1,678	11	44		168	142	8.4%
6067	Sacramento	California	1	1,536	1,009	13	28		59	39	3.8%
6085	Santa Clara	California	1	2,920	1,528	14	42		145	76	5.0%
40109	Oklahoma	Oklahoma	1	1,360	1,752	18	32		64	82	4.7%
48085	Collin	Texas	1	1,447	1,447	21	28		35	35	2.4%
41051	Multnomah	Oregon	1	1,268	1,590	23	29		65	82	5.1%
53033	King	Washington	1	8,419	3,821	24	88		578	262	6.9%
12031	Duval	Florida	1	1,764	1,897	24	49		53	57	3.0%
29095	Jackson	Missouri	1	696	1,010	26	26	yes	22	32	3.2%
12095	Orange	Florida	1	2,255	1,668	30	48		44	33	2.0%
6075	San Francisco	California	1	2,715	3,129	30	62		43	50	1.6%

2013 Rural/Urban classification from Center for Disease Control, "NCHS Urban-Rural Classification Scheme for Counties"

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State-By-State

Daily Infection Rates Large Fringe Metro Areas

"Strategic Guidance in an Era of Unprecedented Change"

Ranked By Highest Recent Daily Infection Rate

FIPS	County	State	2013 CDC Urban / Rural Classification	Total Cases	Cases Per 1M	Daily Inf Rate (Last 7-Day MA)	Peak Daily Inf Rate (Trailing 7-Day MA)	Highest Occured in Past 3 Days?	Total Deaths	Deaths Per 1M	Deaths / Case
51683	Manassas city	Virginia	2	1,214	29,381	581	989		12	290	1.0%
51685	Manassas Park city	Virginia	2	351	20,375	431	622		6	348	1.7%
48325	Medina	Texas	2	216	4,452	427	427	yes	2	41	0.9%
51183	Sussex	Virginia	2	175	20,210	346	1,006		2	231	1.1%
26125	Oakland	Michigan	2	10,980	8,806	305	305	yes	1,055	846	9.6%
5035	Crittenden	Arkansas	2	452	9,560	257	338		9	190	2.0%
47111	Macon	Tennessee	2	177	7,420	246	293		3	126	1.7%
51187	Warren	Virginia	2	222	5,659	244	277	yes	4	102	1.8%
1127	Walker	Alabama	2	443	7,066	226	355		3	48	0.7%
51153	Prince William	Virginia	2	6,121	13,206	219	328		110	237	1.8%
24033	Prince George's	Maryland	2	16,838	18,993	203	435		595	671	3.5%
51047	Culpeper	Virginia	2	745	14,835	202	683		8	159	1.1%
25009	Essex	Massachusetts	2	15,170	19,629	198	480		998	1,291	6.6%
24031	Montgomery	Maryland	2	12,662	12,138	188	250		652	625	5.1%
51630	Fredericksburg city	Virginia	2	192	7,251	183	248		-	-	0.0%
51670	Hopewell city	Virginia	2	114	5,127	173	173	yes	2	90	1.8%
51730	Petersburg city	Virginia	2	163	5,255	166	230		3	97	1.8%
47147	Robertson	Tennessee	2	545	7,777	163	261		6	86	1.1%
21077	Gallatin	Kentucky	2	46	5,251	163	571		5	571	10.9%
21211	Shelby	Kentucky	2	216	4,597	158	252		5	106	2.3%
25023	Plymouth	Massachusetts	2	8,347	16,470	149	479		588	1,160	7.0%
51107	Loudoun	Virginia	2	2,939	7,265	145	266		67	166	2.3%
51059	Fairfax	Virginia	2	12,056	10,592	144	266		413	363	3.4%
13199	Meriwether	Georgia	2	106	5,100	144	158		2	96	1.9%
25017	Middlesex	Massachusetts	2	22,686	14,547	143	362		1,701	1,091	7.5%
25005	Bristol	Massachusetts	2	7,635	13,910	142	396		467	851	6.1%
51041	Chesterfield	Virginia	2	1,797	5,235	140	172		37	108	2.1%
25021	Norfolk	Massachusetts	2	8,689	12,626	140	314		859	1,248	9.9%

2013 Rural/Urban classification from Center for Disease Control, "NCHS Urban-Rural Classification Scheme for Counties"