

COVID-19 Dashboard

Issue # 81
Saturday, June 20, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	>579,000
Test-Positivity Rate	Decline	5.5% test-positive on Friday; 5.0% for past 7 days
Number of Cases	Plateau	Cases increased nearly 21% week-over-week – concentrated in certain states
Deaths % of Total Cases	Decline	5.3%
Number of Deaths / 1M Population	Plateau	366.8
Recoveries : Death	Increase	7.87

- The storyline of the past week continues: while much of the United States continues to make progress, a handful of states are reeling from the virus spread
 - New cases reached an all-time high of ~33,500 on Friday - a nearly 15% increase day-over-day. New cases are up 20.7% on a week-over-week basis
 - Nearly 50% of the new cases came from just 4 states: Arizona, California, Florida and Texas
- We now rank 8 states at "High" concern for the state of the virus progression: Alabama, Arizona, Arkansas, North Carolina, South Carolina, Tennessee, Texas and Utah. These ratings are based on a high new daily infection rate, in combination with a high test-positive, case growth or hospitalization rate
 - Six states are rated at "Moderately High" concern: California, Georgia, Mississippi, Nevada, Oklahoma and South Dakota
 - Four states are of "Moderate" concern: Louisiana, Minnesota, Nebraska and Virginia
 - Comparing these ratings to a week ago, four states have regressed (Florida, Oklahoma, Tennessee and Texas) and 10 have improved (Delaware, Illinois, Louisiana, Minnesota, Mississippi, Nebraska, New Jersey, New Mexico, Rhode island and Virginia)
- New daily infections per capita are still increasing and have yet to peak in 11 states: Arizona, California, Florida, Nevada, North Carolina, Oklahoma, Oregon, South Carolina, Tennessee, Texas and Utah
 - On an encouraging development, these rates may have peaked in Alabama on June 16 and Arkansas on June 17
 - These states join 6 others where new daily infections have peaked in the past 3 weeks: Alaska, Kentucky, Mississippi, New Mexico, Virginia and Wisconsin
- Test volume was strong again, with >579,000 tests. Tests are up 4.5% on a week-over-week basis. Test-positive rate yesterday was 5.5%; for the past week, it was 5.0%, versus 4.4% a week earlier
- Test-positive rates over the past week have trended up in eleven states: Alabama, Arizona, Florida, Hawaii, Mississippi, Oklahoma, South Carolina, South Dakota, Texas, Washington and Wyoming. They have trended down in Colorado, Delaware, Illinois, Maryland, Massachusetts, Michigan, Nebraska, Pennsylvania and Virginia
- Hospitalizations from COVID-19 continue to rise, and is at or near peak levels in Arizona, Georgia, North Carolina, South Carolina, Texas and Utah. Still, of the states consistently reporting COVID-19 hospitalizations, those showing declining patients outnumber those showing increases by nearly 2:1
- The death rate continues its downward descent: Yesterday, 719 deaths were recorded in the United States, the 10th consecutive day of fewer than 1,000 deaths and the 12th in the past 13. The death rate is now under 5.3% (5.285%). Relative to its high of nearly 6% on May 16, the lower rate is the equivalent of nearly 16,000 fewer deaths in the United States

COUNTRY-BY-COUNTRY INFORMATION

Countries Included

"Strategic Guidance in an Era of Unprecedented Change"

- 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

Country-by-Country Comparative Statistics

"Strategic Guidance in an Era of Unprecedented Change"

Top 30 Countries By Total Cases
As of June 19

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 (7-Day M.A.)	Rank8
USA	2,297,190	(1)	6,941	(4)	121,407	(1)	5.3%	(13)	366.9	(7)	1.6%	(19)	1,529	(6)	77.8	(7)
Brazil	1,038,568	(2)	4,887	(9)	49,090	(2)	4.7%	(14)	231.0	(11)	4.6%	(9)	659	(14)	140.3	(3)
Russia	569,063	(3)	3,899	(14)	7,841	(13)	1.4%	(25)	53.7	(18)	2.2%	(15)	2,059	(3)	56.4	(10)
India	395,812	(4)	287	(28)	12,970	(8)	3.3%	(18)	9.4	(27)	5.0%	(6)	110	(23)	8.9	(22)
UK	301,815	(5)	4,447	(11)	42,461	(3)	14.1%	(4)	625.6	(2)	0.6%	(22)	2,100	(2)	18.7	(18)
Spain	292,655	(6)	6,259	(5)	28,315	(6)	9.7%	(7)	605.6	(3)	0.2%	(28)	1,104	(8)	7.2	(25)
Peru	247,925	(7)	7,523	(3)	7,660	(14)	3.1%	(20)	232.4	(10)	2.3%	(13)	631	(15)	117.8	(5)
Italy	238,011	(8)	3,936	(13)	34,561	(4)	14.5%	(3)	571.6	(4)	0.1%	(29)	885	(11)	4.0	(28)
Chile	231,393	(9)	12,108	(2)	4,093	(20)	1.8%	(24)	214.2	(13)	7.5%	(1)	924	(10)	527.3	(1)
Iran	200,262	(10)	2,385	(19)	9,392	(10)	4.7%	(16)	111.9	(15)	1.9%	(16)	295	(20)	30.2	(15)
Germany	190,660	(11)	2,276	(20)	8,960	(11)	4.7%	(15)	107.0	(16)	0.4%	(26)	572	(16)	5.8	(27)
Turkey	185,245	(12)	2,197	(21)	4,905	(17)	2.6%	(21)	58.2	(17)	1.1%	(21)	544	(17)	17.0	(19)
Mexico	165,455	(13)	1,284	(23)	19,747	(7)	11.9%	(6)	153.2	(14)	4.3%	(10)	93	(25)	34.9	(13)
Pakistan	165,062	(14)	748	(25)	3,229	(21)	2.0%	(23)	14.6	(26)	5.6%	(4)	131	(22)	25.3	(16)
France	159,452	(15)	2,443	(18)	29,617	(5)	18.6%	(1)	453.8	(6)	0.4%	(24)	0	(29)	6.9	(26)
Saudi Arabia	150,292	(16)	4,319	(12)	1,184	(27)	0.8%	(27)	34.0	(21)	4.6%	(8)	746	(13)	124.6	(4)
Bangladesh	105,535	(17)	641	(26)	1,388	(26)	1.3%	(26)	8.4	(29)	5.3%	(5)	97	(24)	20.8	(17)
Canada	100,629	(18)	2,667	(17)	8,346	(12)	8.3%	(10)	221.2	(12)	0.5%	(23)	1,011	(9)	10.2	(21)
South Africa	87,715	(19)	1,480	(22)	1,831	(25)	2.1%	(22)	30.9	(23)	7.2%	(2)	481	(19)	62.1	(9)
Qatar	85,462	(20)	30,437	(1)	93	(30)	0.1%	(30)	33.1	(22)	2.2%	(14)	1,671	(5)	451.5	(2)
China	83,325	(21)	58	(30)	4,634	(18)	5.6%	(11)	3.2	(30)	0.1%	(30)	0	(28)	0.0	(30)
Colombia	63,276	(22)	1,244	(24)	2,045	(23)	3.2%	(19)	40.2	(19)	6.2%	(3)	275	(21)	46.1	(11)
Belgium	60,476	(23)	5,219	(8)	9,695	(9)	16.0%	(2)	836.6	(1)	0.2%	(27)	1,116	(7)	8.1	(23)
Belarus	57,333	(24)	6,067	(6)	337	(28)	0.6%	(29)	35.7	(20)	1.8%	(17)	1,888	(4)	72.8	(8)
Sweden	56,043	(25)	5,550	(7)	5,053	(16)	9.0%	(8)	500.4	(5)	2.4%	(12)	858	(12)	90.0	(6)
Egypt	52,211	(26)	511	(27)	2,017	(24)	3.9%	(17)	19.7	(25)	4.8%	(7)	0	(29)	15.2	(20)
Ecuador	49,731	(27)	2,820	(16)	4,156	(19)	8.4%	(9)	235.7	(9)	1.7%	(18)	79	(26)	32.0	(14)
Netherlands	49,426	(28)	2,885	(15)	6,081	(15)	12.3%	(5)	354.9	(8)	0.4%	(25)	519	(18)	8.0	(24)
UAE	44,145	(29)	4,465	(10)	300	(29)	0.7%	(28)	30.3	(24)	1.2%	(20)	5,945	(1)	38.2	(12)
Indonesia	43,803	(30)	160	(29)	2,373	(22)	5.4%	(12)	8.7	(28)	3.8%	(11)	64	(27)	3.9	(29)

Note: China does not report test volumes

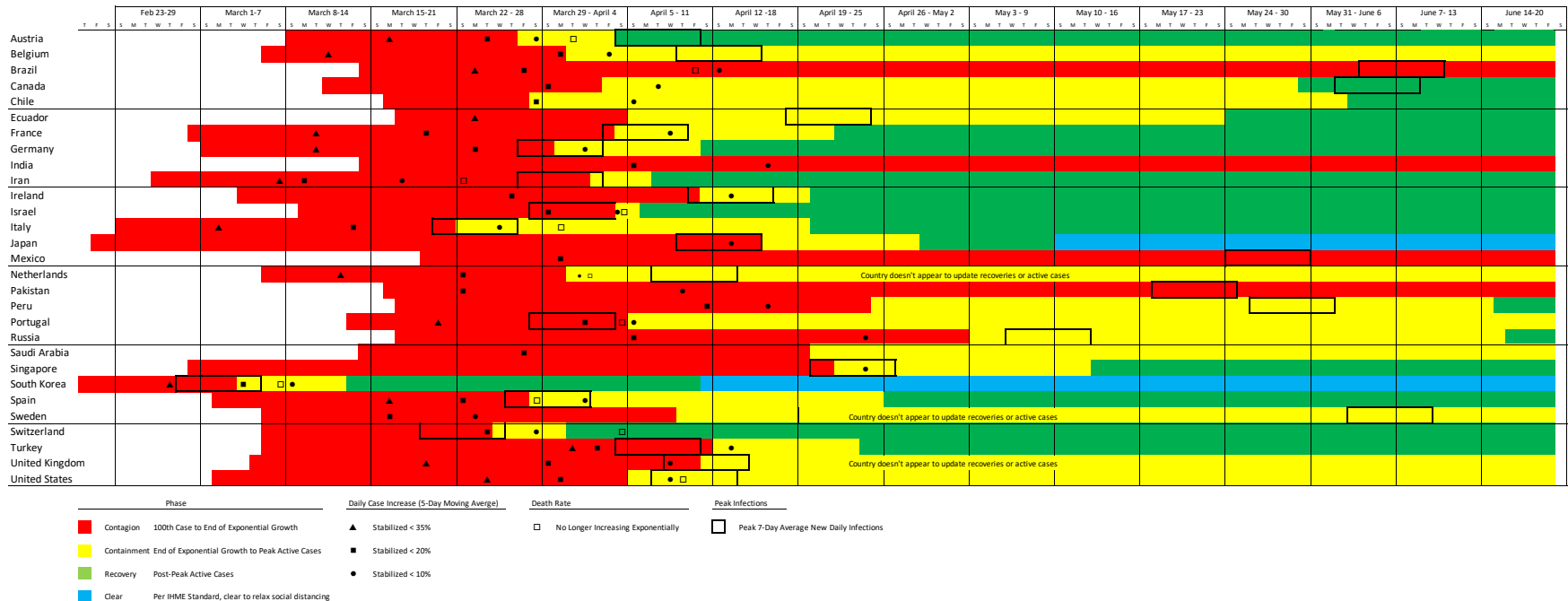
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VIRUS PROGRESSION BY COUNTRY

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.



UNITED STATES & STATE-BY-STATE INFORMATION

Country-By-Country Listing of Countries By Total Cases

"Strategic Guidance in an Era of Unprecedented Change"

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 84.9% of all cases worldwide.

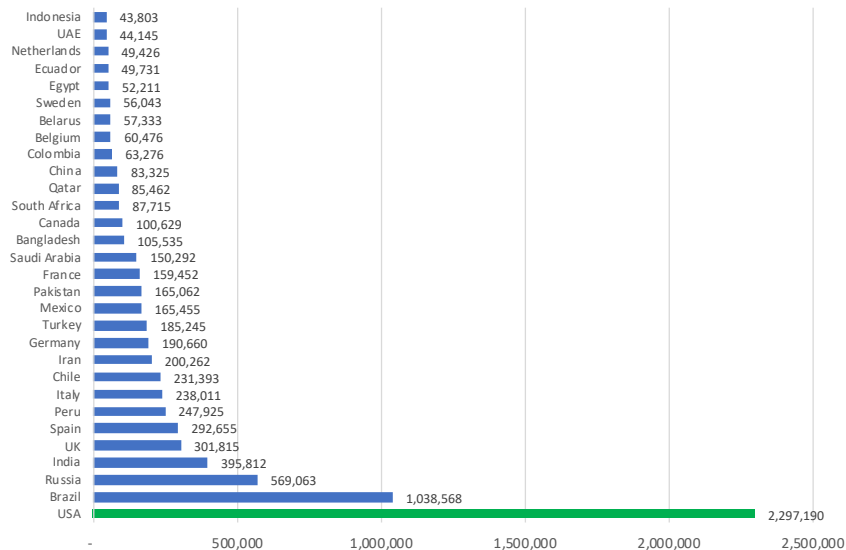
		Total Cases						
Rank	Country	19-Jun	Rank	Country	6-May	Rank	Country	27-Apr
1	USA	2,297,190	1	USA	1,263,092	1	USA	1,010,356
2	Brazil	1,038,568	2	Spain	253,682	2	Spain	229,422
3	Russia	569,063	3	Italy	214,457	3	Italy	199,414
4	India	395,812	4	UK	201,101	4	France	128,339
5	UK	301,815	5	France	174,191	5	Germany	158,758
6	Spain	292,655	6	Germany	168,162	6	UK	157,149
7	Peru	247,925	7	Russia	165,929	7	Turkey	112,261
8	Italy	238,011	8	Turkey	131,744	8	Iran	91,472
9	Chile	231,393	9	Brazil	126,611	9	Russia	87,147
10	Iran	200,262	10	Iran	101,650	10	China	82,830
11	Germany	190,660	11	China	82,883	11	Brazil	66,501
12	Turkey	185,245	12	Canada	63,496	12	Canada	48,500
13	Mexico	165,455	13	Peru	54,817	13	Belgium	46,687
14	Pakistan	165,062	14	India	52,987	14	Netherlands	38,245
15	France	159,452	15	Belgium	50,781	15	India	29,451
16	Saudi Arabia	150,292	16	Netherlands	41,319	16	Switzerland	29,164
18	Canada	100,629	17	Saudi Arabia	31,938	17	Peru	28,669
21	China	83,325	18	Switzerland	30,060	18	Portugal	24,070
23	Belgium	60,476	19	Ecuador	29,420	19	Ecuador	23,240
25	Sweden	56,043	20	Portugal	26,182	20	Ireland	19,648
27	Ecuador	49,731	21	Mexico	26,025	21	Sweden	18,926
28	Netherlands	49,426	22	Sweden	23,918	22	Saudi Arabia	18,811
31	Singapore	41,615	23	Pakistan	23,214	23	Israel	15,555
34	Portugal	38,464	24	Chile	23,048	24	Austria	15,274
37	Switzerland	31,235	25	Ireland	22,248	25	Mexico	14,677
42	Ireland	25,368	26	Singapore	20,198	26	Singapore	14,423
48	Israel	20,339	29	Israel	16,310	27	Pakistan	13,915
51	Japan	17,740	31	Austria	15,684	28	Chile	13,813
52	Austria	17,271	32	Japan	15,253	29	Japan	13,614
58	S. Korea	12,306	38	S. Korea	10,806	35	South Korea	10,738
	Others	1,318,162		Others	356,176		Others	301,446
	World	8,750,990			3,817,382		World	3,062,515

Country-by-Country Cases & Cases Per Capita

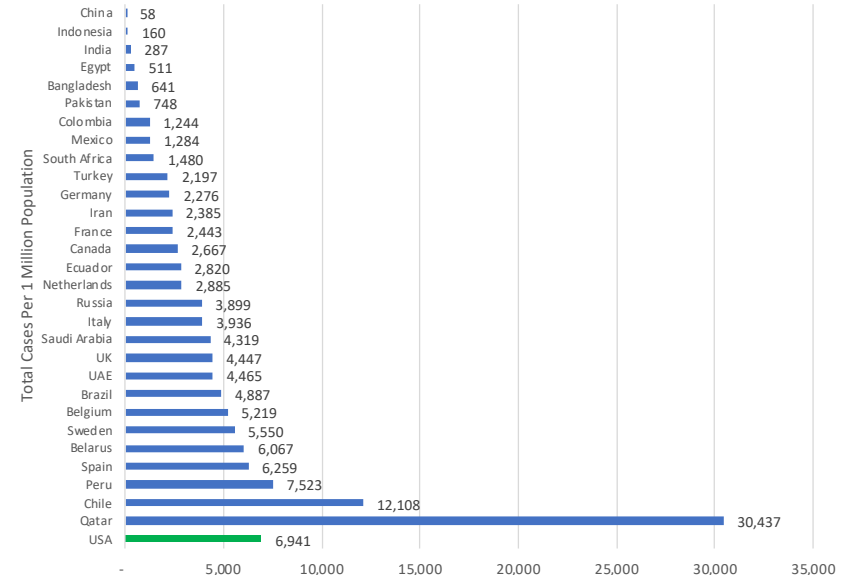
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Countries Ranked 1-30 In Total Cases

Total Cases By Country
June 19

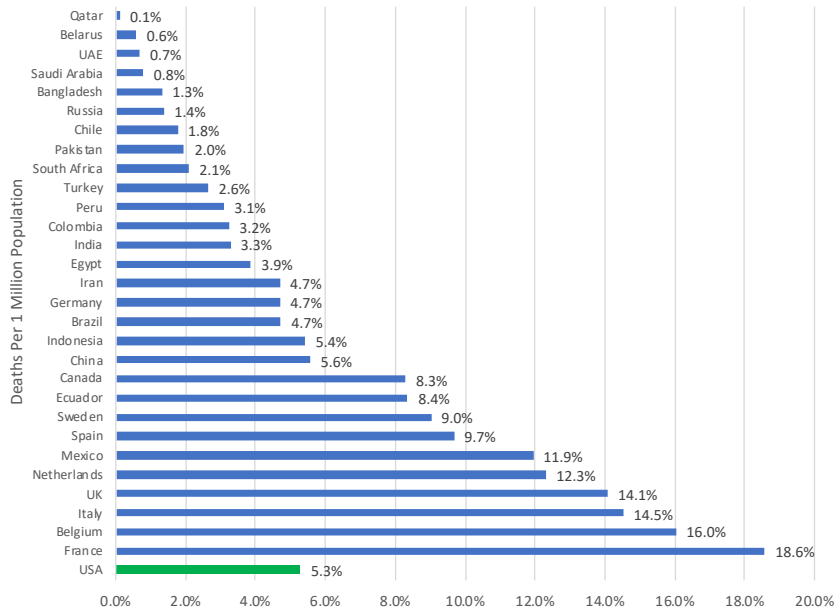


Cases Per Capita By Country
June 19

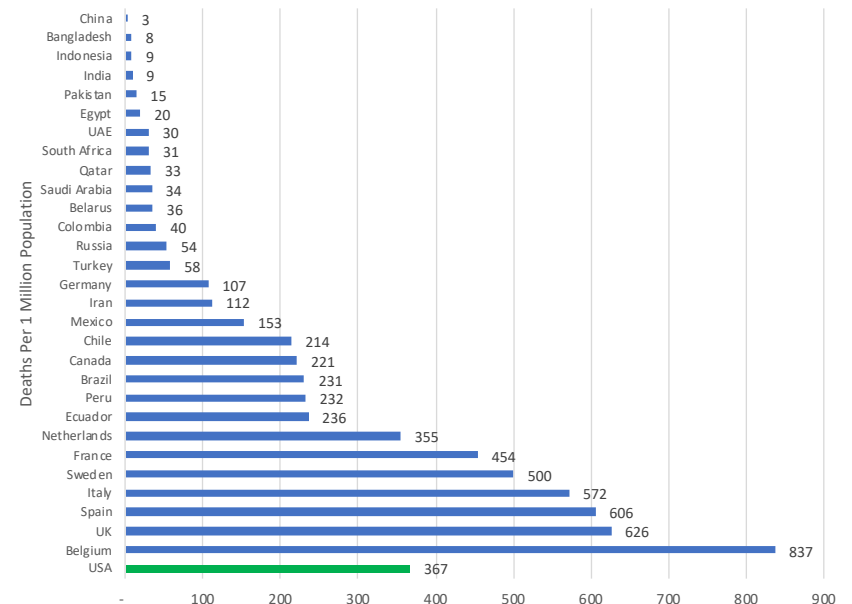


Countries Ranked 1-30 In Total Cases

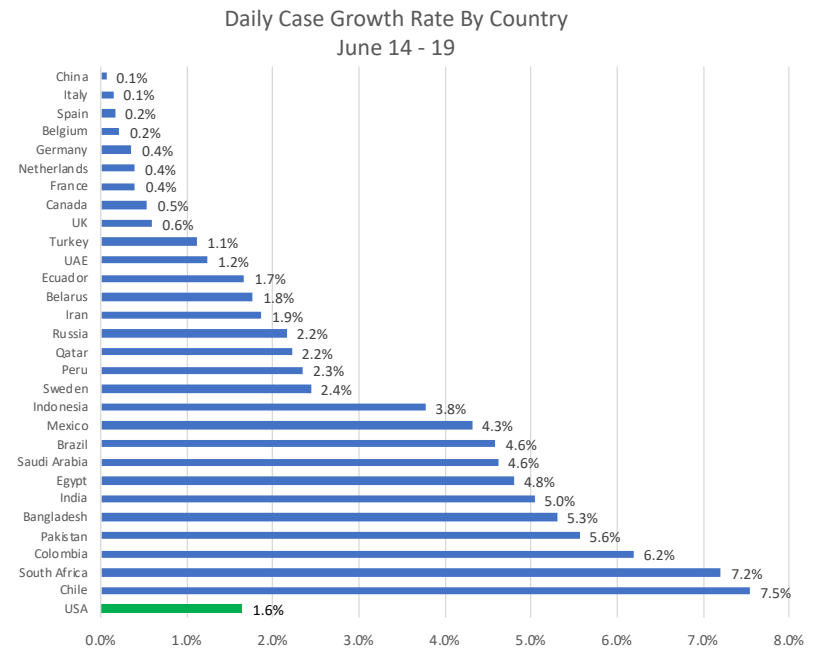
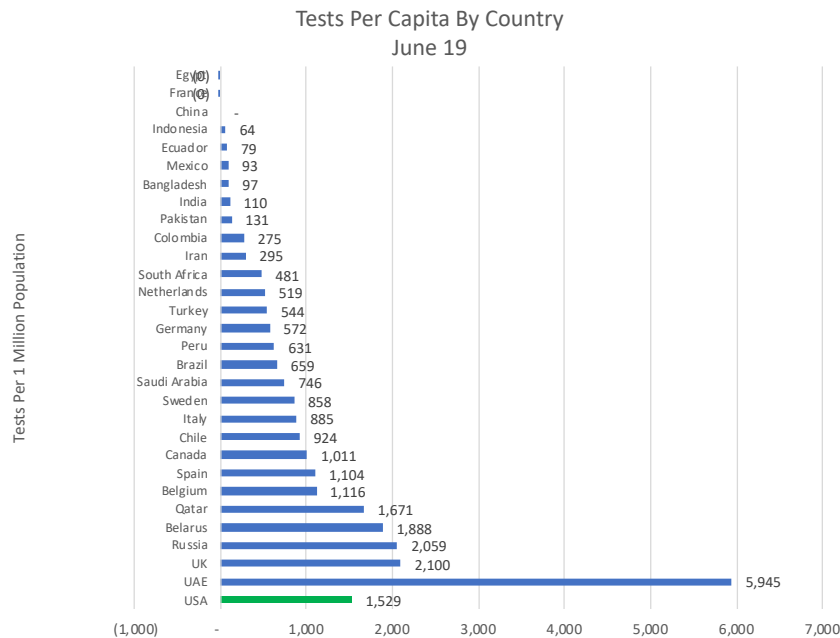
Death Rate By Country
June 19



Deaths Per Capita By Country
June 19



Countries Ranked 1-30 In Total Cases

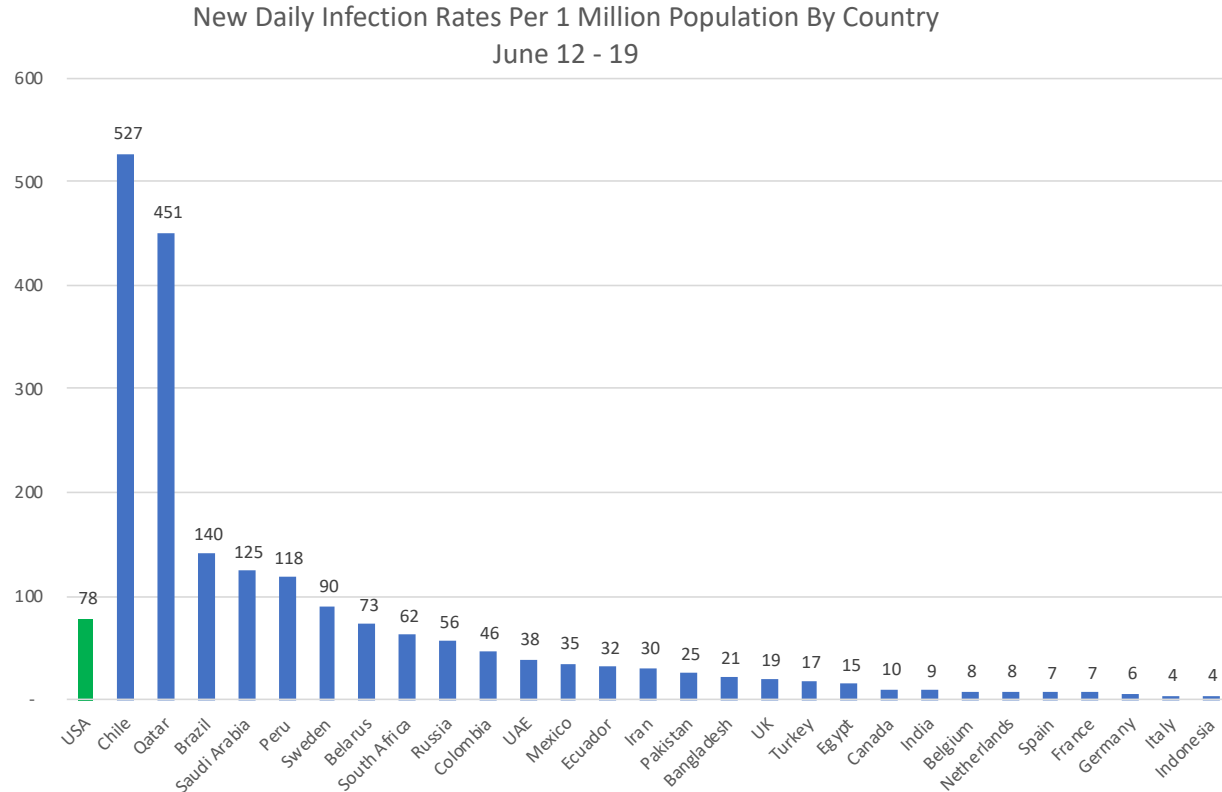


Daily Tests Per Capita For Past Week

Daily Case Growth – 5-Day Moving Average

Country-by-Country New Daily Infection Rates

"Strategic Guidance in an Era of Unprecedented Change"



STATE-BY-STATE OVERALL ASSESSMENT SCORECARD

State-By-State Overall Assessment Scorecard

"Strategic Guidance in an Era of Unprecedented Change"

Several factors should be considered when assessing where a state stands with its virus progression status:

- Current rate of new infections, relative to its peak (is it declining or near its peak?)
- Test-positive rate
- Rate of change in cases
- Hospitalized patients v. its peak

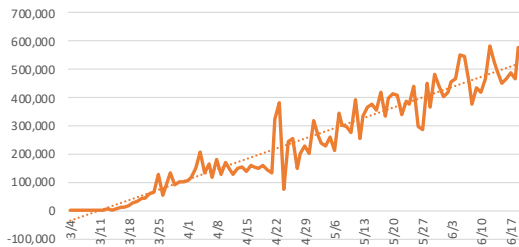
We combined these criteria into a single score, reflective of our relative degree of concern of each state's current status (High, Moderately High, Moderate, Low)



"Strategic Guidance in an Era of Unprecedented Change"

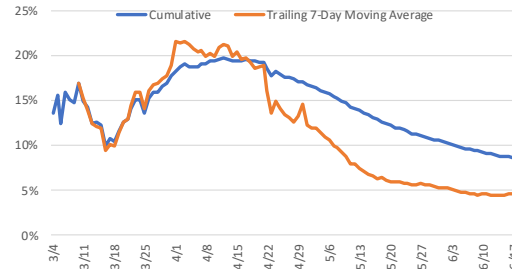
With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates. Further, new daily infections continue to decline; the death rate seems to have stabilized.

New Daily Tests - US



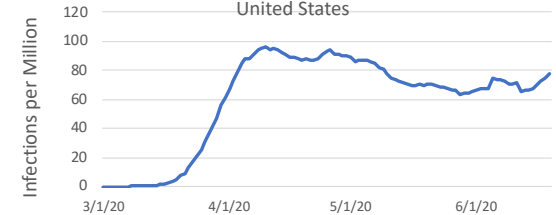
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Test-Positive Rate



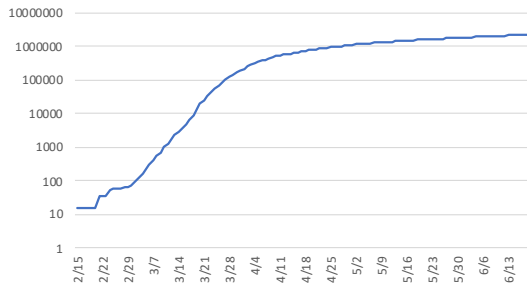
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New Daily Infections Per 1M
Trailing 7-Day Moving Average
United States



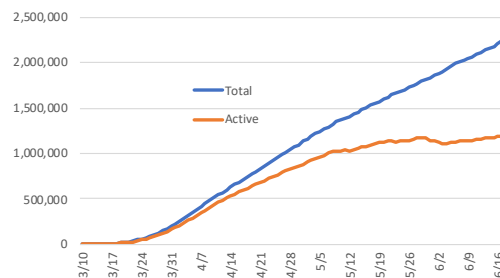
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Total Cases Log Scale - US



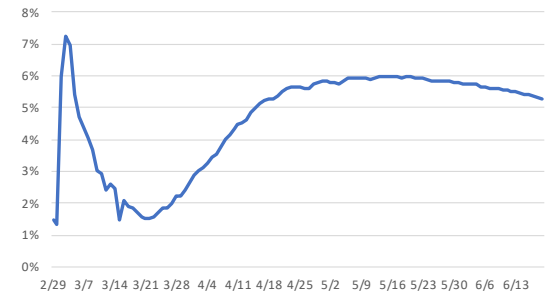
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Cases - US



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Deaths Per Case - US

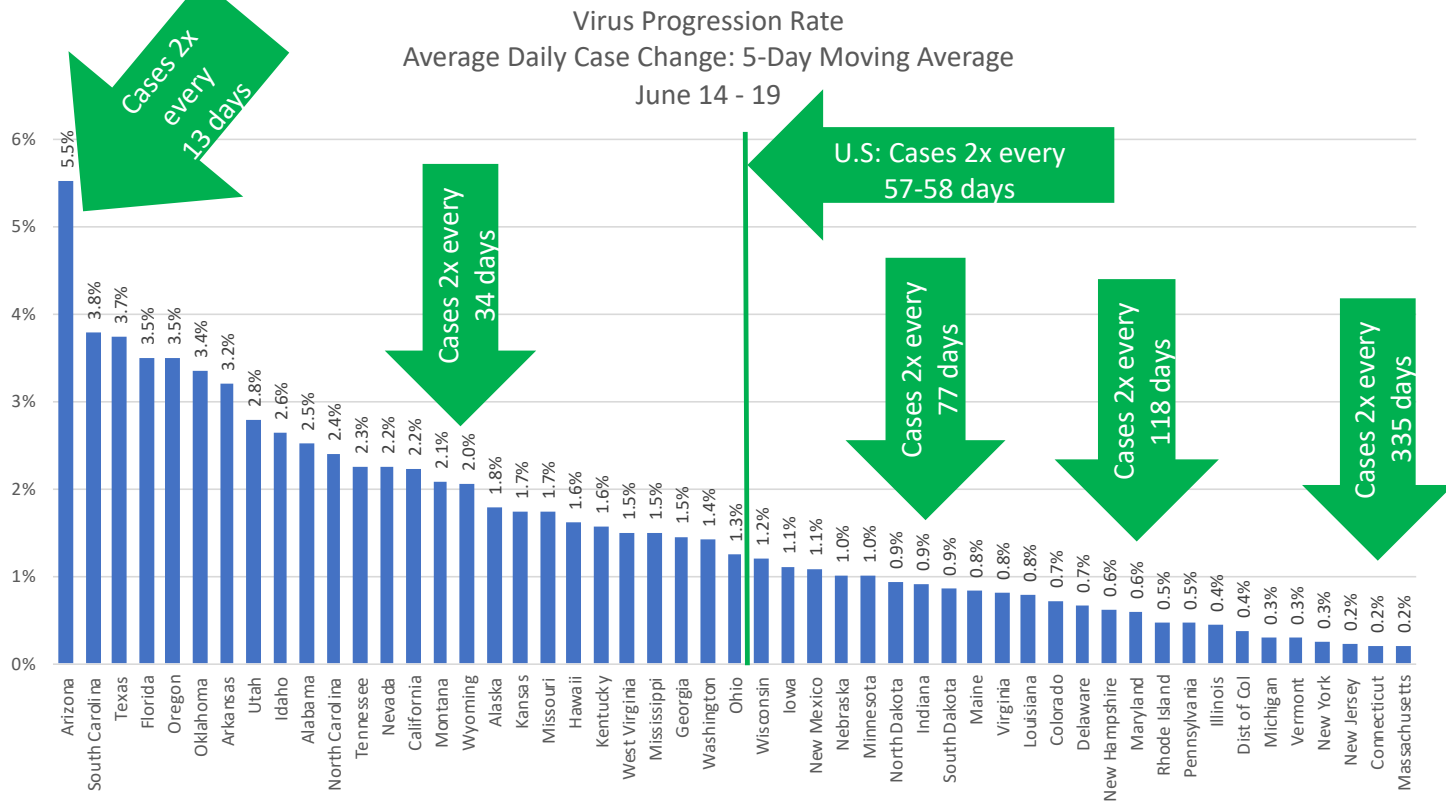


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State-by-State Average Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

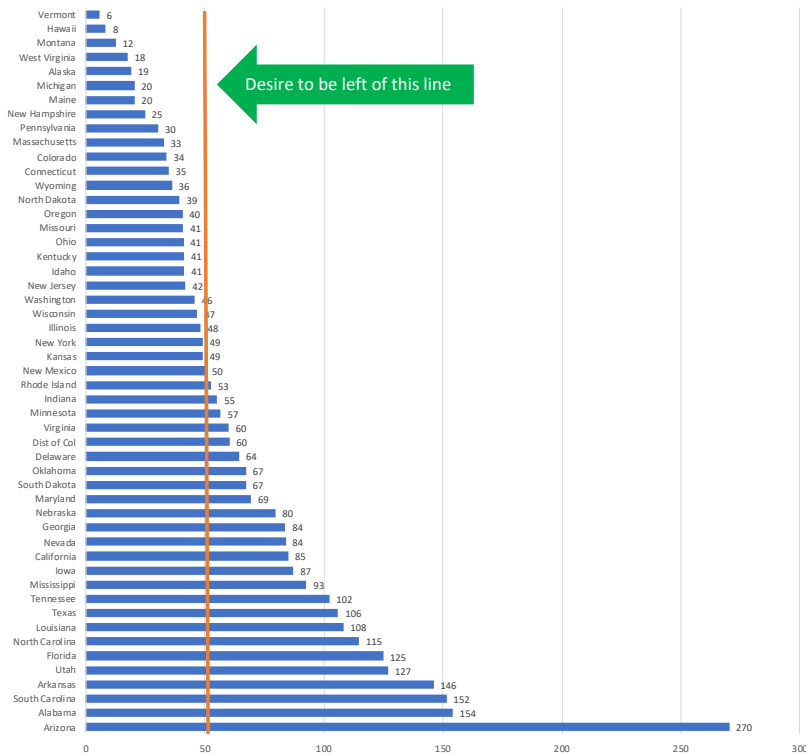
At the height of the epidemic, cases in some states were doubling every few days. Now, they would take from 13 – 350 days to double



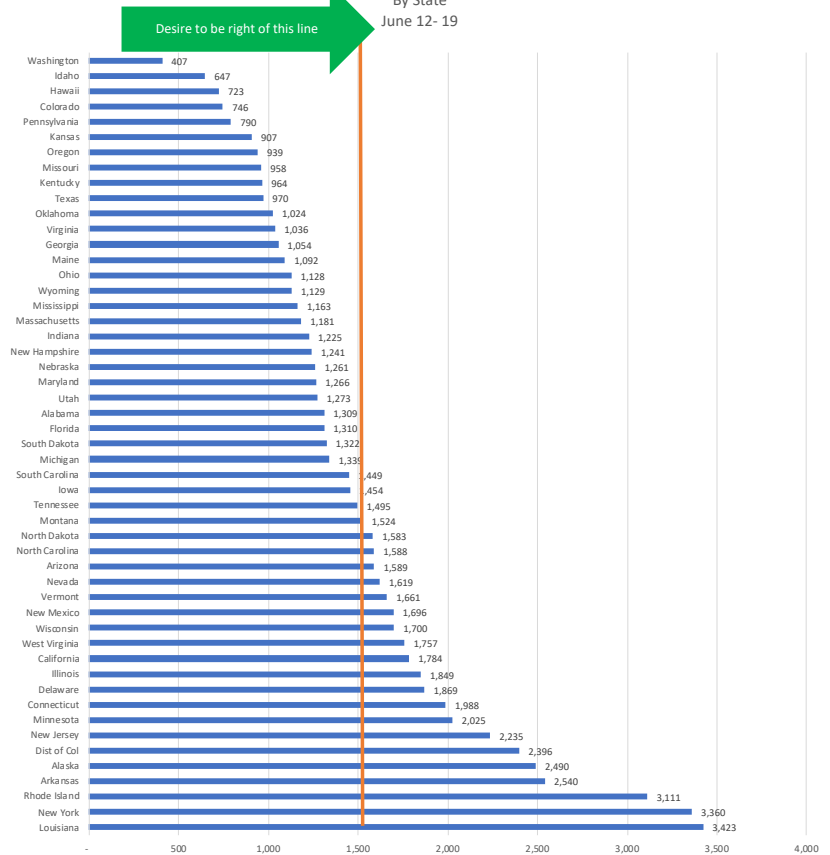
State-by-State New Daily Infections & Tests Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

New Daily Infections Per 1 Million Population
By State
June 12 - 19



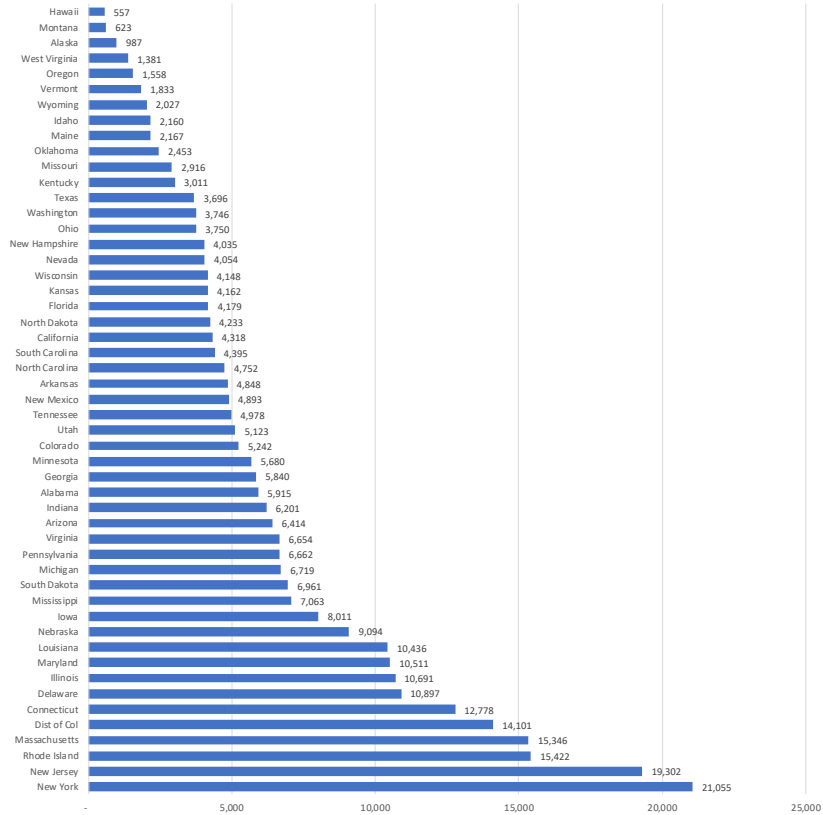
Daily Tests Per 1 Million Population
By State
June 12- 19



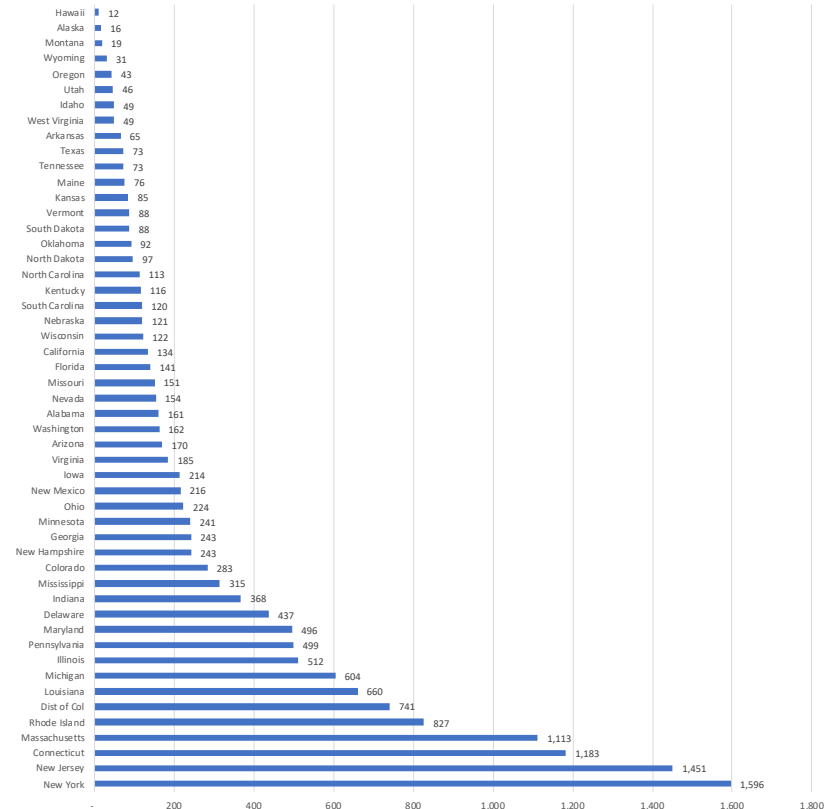
State-by-State Cases & Deaths Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

Total Cases Per 1 Million Population
By State
As of June 19



Deaths Per 1 Million Population
By State
As of June 19



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. Only Alabama, Arizona and South Carolina failed to meet this guideline for the past week (Washington made an adjustment to their test data yesterday, impacting its rate calculation).



As of June 19

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	29,002	(22)	5,914.9	(20)	822	(25)	2.8%	(34)	167.6	(24)	2.5%	(10)	1,309	(28)	156.2	(2)
Alaska	722	(50)	987.0	(49)	12	(51)	1.7%	(46)	16.4	(50)	1.8%	(17)	2,490	(5)	19.1	(47)
Arizona	46,689	(15)	6,414.5	(18)	1,312	(19)	2.8%	(37)	180.3	(23)	5.5%	(1)	1,589	(18)	239.0	(1)
Arkansas	14,631	(32)	4,848.2	(27)	214	(39)	1.5%	(48)	70.9	(43)	3.2%	(7)	2,540	(4)	147.3	(3)
California	170,615	(3)	4,318.0	(30)	5,427	(7)	3.2%	(30)	137.3	(29)	2.2%	(14)	1,784	(12)	85.0	(14)
Colorado	30,187	(21)	5,241.9	(23)	1,643	(16)	5.4%	(12)	285.3	(15)	0.7%	(38)	746	(48)	31.1	(42)
Connecticut	45,557	(16)	12,777.9	(6)	4,238	(8)	9.3%	(1)	1,188.7	(3)	0.2%	(50)	1,988	(9)	42.0	(32)
Delaware	10,611	(36)	10,896.9	(7)	433	(34)	4.1%	(23)	444.7	(12)	0.7%	(39)	1,869	(10)	57.7	(23)
District Of Columbia	9,952	(38)	14,101.3	(5)	530	(29)	5.3%	(14)	751.0	(6)	0.4%	(45)	2,396	(6)	63.6	(19)
Florida	89,748	(7)	4,178.7	(32)	3,107	(9)	3.5%	(29)	144.7	(28)	3.5%	(4)	1,310	(27)	112.1	(8)
Georgia	62,009	(11)	5,840.3	(21)	2,636	(13)	4.3%	(22)	248.3	(16)	1.5%	(24)	1,054	(39)	79.9	(15)
Hawaii	789	(49)	557.3	(51)	17	(50)	2.2%	(42)	12.0	(51)	1.6%	(20)	723	(49)	7.1	(50)
Idaho	3,871	(43)	2,160.1	(44)	89	(43)	2.3%	(41)	49.7	(44)	2.6%	(9)	647	(50)	35.2	(39)
Illinois	135,470	(4)	10,690.6	(8)	6,580	(4)	4.9%	(16)	519.3	(9)	0.4%	(44)	1,849	(11)	47.1	(28)
Indiana	41,746	(18)	6,200.9	(19)	2,516	(14)	6.0%	(10)	373.7	(13)	0.9%	(33)	1,225	(33)	57.1	(24)
Iowa	25,276	(24)	8,011.2	(12)	681	(27)	2.7%	(38)	215.8	(21)	1.1%	(28)	1,454	(23)	85.2	(13)
Kansas	12,125	(35)	4,161.9	(33)	254	(37)	2.1%	(43)	87.2	(39)	1.7%	(18)	907	(46)	41.2	(33)
Kentucky	13,454	(33)	3,011.4	(40)	522	(30)	3.9%	(24)	116.8	(34)	1.6%	(21)	964	(43)	40.0	(34)
Louisiana	48,515	(14)	10,436.0	(10)	3,084	(10)	6.4%	(7)	663.4	(7)	0.8%	(37)	3,423	(1)	127.9	(5)
Maine	2,913	(45)	2,167.1	(43)	102	(42)	3.5%	(28)	75.9	(40)	0.8%	(35)	1,092	(38)	22.4	(45)
Maryland	63,548	(10)	10,511.3	(9)	3,030	(11)	4.8%	(17)	501.2	(11)	0.6%	(41)	1,266	(30)	71.6	(18)
Massachusetts	106,650	(6)	15,346.4	(4)	7,800	(3)	7.3%	(6)	1,122.4	(4)	0.2%	(51)	1,181	(34)	36.1	(38)
Michigan	67,097	(9)	6,718.5	(15)	6,067	(6)	9.0%	(2)	607.5	(8)	0.3%	(46)	1,339	(25)	19.3	(46)
Minnesota	32,031	(20)	5,679.6	(22)	1,393	(18)	4.3%	(21)	247.0	(18)	1.0%	(31)	2,025	(8)	59.8	(22)
Mississippi	21,022	(27)	7,063.5	(13)	943	(23)	4.5%	(19)	316.9	(14)	1.5%	(23)	1,163	(35)	103.6	(9)

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As of June 19

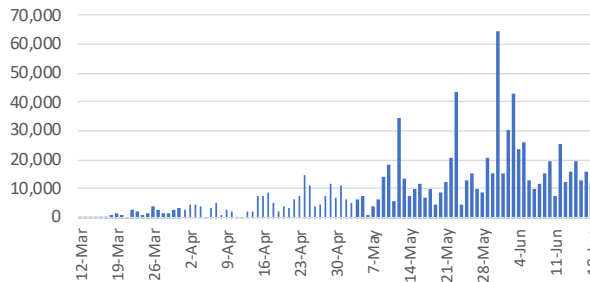
State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Missouri	17,898	(28)	2,916.2	(41)	970	(22)	5.4%	(13)	158.0	(26)	1.7%	(19)	958	(44)	30.1	(43)
Montana	666	(51)	623.1	(50)	20	(49)	3.0%	(32)	18.7	(49)	2.1%	(15)	1,524	(21)	12.3	(49)
Nebraska	17,591	(29)	9,093.7	(11)	244	(38)	1.4%	(49)	126.1	(30)	1.0%	(30)	1,261	(31)	102.7	(10)
Nevada	12,486	(34)	4,053.7	(35)	478	(32)	3.8%	(25)	155.2	(27)	2.2%	(13)	1,619	(17)	77.8	(16)
New Hampshire	5,486	(42)	4,034.7	(36)	337	(36)	6.1%	(8)	247.8	(17)	0.6%	(40)	1,241	(32)	25.3	(44)
New Jersey	171,442	(2)	19,301.8	(2)	12,960	(2)	7.6%	(5)	1,459.1	(2)	0.2%	(49)	2,235	(7)	45.4	(30)
New Mexico	10,260	(37)	4,893.1	(26)	464	(33)	4.5%	(18)	221.3	(20)	1.1%	(29)	1,696	(15)	53.6	(26)
New York	409,593	(1)	21,054.9	(1)	31,159	(1)	7.6%	(3)	1,601.7	(1)	0.3%	(48)	3,360	(2)	47.0	(29)
North Carolina	49,840	(13)	4,752.1	(28)	1,250	(20)	2.5%	(39)	119.2	(33)	2.4%	(11)	1,588	(19)	124.2	(6)
North Dakota	3,226	(44)	4,233.3	(31)	76	(46)	2.4%	(40)	99.7	(35)	0.9%	(32)	1,583	(20)	39.9	(35)
Ohio	43,834	(17)	3,750.0	(37)	2,672	(12)	6.1%	(9)	228.6	(19)	1.3%	(26)	1,128	(37)	39.2	(36)
Oklahoma	9,706	(39)	2,452.9	(42)	367	(35)	3.8%	(26)	92.7	(36)	3.4%	(6)	1,024	(41)	62.4	(20)
Oregon	6,572	(40)	1,558.2	(47)	188	(40)	2.9%	(33)	44.6	(47)	3.5%	(5)	939	(45)	38.2	(37)
Pennsylvania	85,293	(8)	6,662.5	(16)	6,456	(5)	7.6%	(4)	504.3	(10)	0.5%	(43)	790	(47)	31.9	(41)
Rhode Island	16,337	(31)	15,421.6	(3)	894	(24)	5.5%	(11)	843.9	(5)	0.5%	(42)	3,111	(3)	54.9	(25)
South Carolina	22,631	(26)	4,395.5	(29)	639	(28)	2.8%	(35)	124.1	(32)	3.8%	(2)	1,449	(24)	141.7	(4)
South Dakota	6,158	(41)	6,960.9	(14)	81	(45)	1.3%	(50)	91.6	(37)	0.9%	(34)	1,322	(26)	71.7	(17)
Tennessee	34,017	(19)	4,978.2	(25)	515	(31)	1.5%	(47)	75.4	(41)	2.3%	(12)	1,495	(22)	93.8	(12)
Texas	107,158	(5)	3,695.6	(39)	2,173	(15)	2.0%	(44)	74.9	(42)	3.7%	(3)	970	(42)	94.6	(11)
Utah	16,425	(30)	5,123.3	(24)	155	(41)	0.9%	(51)	48.3	(46)	2.8%	(8)	1,273	(29)	115.3	(7)
Vermont	1,144	(48)	1,833.4	(46)	56	(47)	4.9%	(15)	89.7	(38)	0.3%	(47)	1,661	(16)	5.7	(51)
Virginia	56,793	(12)	6,653.7	(17)	1,602	(17)	2.8%	(36)	187.7	(22)	0.8%	(36)	1,036	(40)	60.1	(21)
Washington	28,526	(23)	3,746.1	(38)	1,248	(21)	4.4%	(20)	163.9	(25)	1.4%	(25)	407	(51)	42.6	(31)
West Virginia	2,468	(46)	1,381.0	(48)	88	(44)	3.6%	(27)	49.2	(45)	1.5%	(22)	1,757	(13)	16.1	(48)
Wisconsin	24,154	(25)	4,148.4	(34)	730	(26)	3.0%	(31)	125.4	(31)	1.2%	(27)	1,700	(14)	47.8	(27)
Wyoming	1,173	(47)	2,026.8	(45)	20	(49)	1.7%	(45)	34.6	(48)	2.0%	(16)	1,129	(36)	33.3	(40)
United States	2,297,190		6,940.1		121,407		5.3%		366.9		1.1%		1,497		77.8	

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UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING

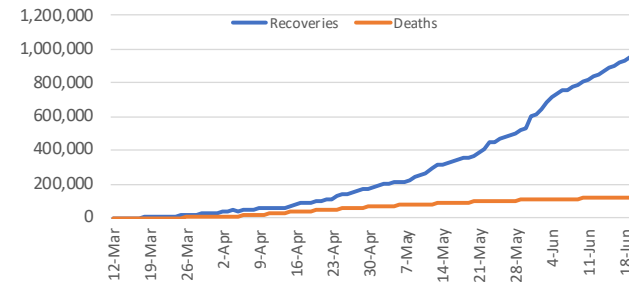
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New Daily Recoveries
United States



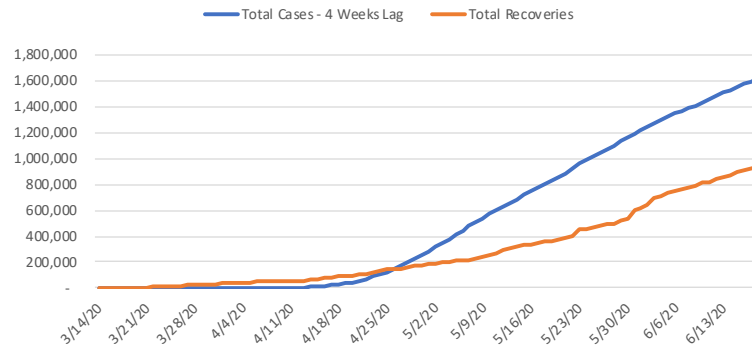
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Recoveries v. Deaths
United States



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Total Cases - 4-Week Lag v. Total Recoveries



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"Strategic Guidance in an Era of Unprecedented Change"

Which states seem to be lagging in reporting?

At this point, we should be expecting far more recoveries in the U.S.

Comparing the reported recoveries to Total Cases 4 weeks ago*, this shortfall is ~360-525k

* - 4 weeks is the presumed time from infection-onset to recovery referenced by many states

State	Recoveries	Expected Recoveries	
		Low	High
Alabama	15,974	10,936	12,303
Alaska	457	323	364
Arizona	6,863	12,486	14,047
Arkansas	9,712	4,490	5,051
California	46,963	72,470	81,529
Colorado	4,450	18,790	21,138
Connecticut	9,039	31,712	35,676
Delaware	6,395	6,823	7,676
District Of Columbia	1,155	6,314	7,104
Florida	17,160	39,561	44,506
Georgia	4,526	33,186	37,334
Hawaii	642	514	578
Idaho	3,183	2,076	2,336
Illinois	103,806	84,355	94,900
Indiana	30,760	24,327	27,368
Iowa	15,889	13,206	14,857
Kansas	7,021	7,219	8,122
Kentucky	3,506	6,741	7,583
Louisiana	37,017	29,540	33,233
Maine	2,323	1,558	1,753
Maryland	4,685	35,539	39,982
Massachusetts	88,725	72,711	81,800
Michigan	45,089	43,130	48,522
Minnesota	27,709	15,204	17,105
Mississippi	15,323	10,099	11,362
Missouri	3,915	9,482	10,667

Low = 80% of Total Cases 4 week ago
High = 90% of Total Cases 4 week ago

State	Recoveries	Expected Recoveries	
		Low	High
Montana	546	383	431
Nebraska	11,312	9,330	10,496
Nevada	8,716	5,921	6,661
New Hampshire	4,209	3,211	3,613
New Jersey	35,445	123,479	138,914
New Mexico	4,512	5,300	5,963
New York	87,002	294,349	331,142
North Carolina	29,219	17,688	19,899
North Dakota	2,840	1,854	2,085
Ohio	9,327	24,692	27,779
Oklahoma	7,071	4,679	5,264
Oregon	2,502	3,091	3,478
Pennsylvania	58,365	56,265	63,298
Rhode Island	1,502	10,989	12,362
South Carolina	9,734	7,710	8,674
South Dakota	5,276	3,485	3,920
Tennessee	21,949	15,515	17,455
Texas	65,331	43,693	49,154
Utah	8,786	6,446	7,251
Vermont	917	762	857
Virginia	7,563	27,960	31,455
Washington	9,164	16,141	18,158
West Virginia	1,669	1,364	1,535
Wisconsin	17,613	11,517	12,956
Wyoming	889	642	723
United States	956,061	1,316,075	1,480,585

- States seemingly up-to-date with reporting recoveries
- States only reporting ~ 1/2 expected recoveries
- States well-behind in reporting recoveries

VIRUS PROGRESSION: ROADMAP TO RECOVERY

"Strategic Guidance in an Era of Unprecedented Change"

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.

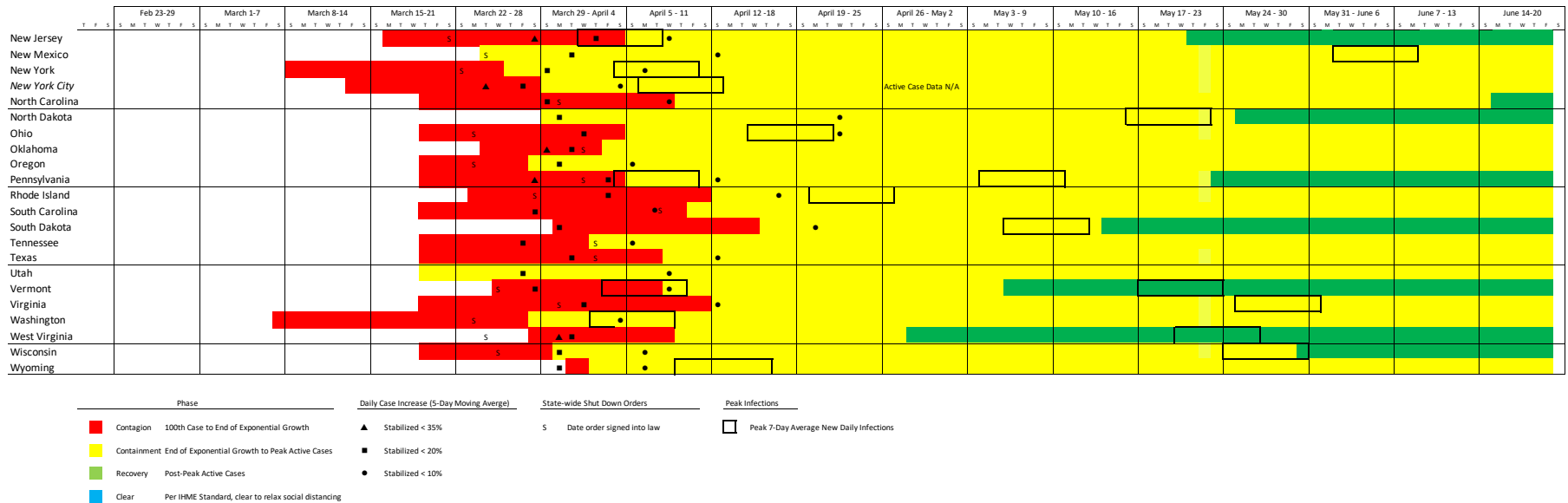
A state is not shaded green until active cases appear to have peaked.

[illegible]

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State-by-State Virus Progression – 2 of 2

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