Health Industry Advisor, llc

"Strategic Guidance in an Era of Unprecedented Change"

COVID-19 Dashboard

Issue # 82

Sunday, June 21, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	>584,000
Test-Positivity Rate	Decline	5.5% test-positive on Friday; 5.1% for past 7 days
Number of Cases	Plateau	Cases increased nearly 25% week-over-week – concentrated in certain states
Deaths % of Total Cases	Decline	5.23%
Number of Deaths / 1M Population	Plateau	368.5
Recoveries : Death	Increase	7.98

- Several states - especially, Alabama, Arizona, Arkansas, Florida, North Carolina, South Carolina, Tennessee, Texas and Utah - are reeling from the spread of COVID-19, while much of the rest of the country continues to recover
  - The above-named states are in our "High" concern category, based on high new daily infection rates, coupled with either high test-positive, case growth or hospitalization rates
  - California, Georgia, Nevada, Oklahoma and South Dakota are in the "Moderately High" concern category
  - Louisiana, Minnesota, Mississippi, Nebraska, New Mexico and Virginia are in the "Moderate" concern category
  - All told, 28% of the population in the United States resides in a state designated as "High" concern. Last week, this was only 11%; the addition of Florida and Texas, in particular, drove this increase. On the positive side, 47% of the population resides in a "Low" concern state
- New cases exceeded 33,000 for the second consecutive day. Four states: Arizona, California, Florida and Texas accounted for nearly 50% of these new cases
- With another day of high-volume testing, the test-positive rate held steady at 5.5%. This rate is >10% now in several "problem" states: Alabama, Arizona, Florida, South Carolina, Texas and Washington. Encouragingly, it is <= 2% in Alaska, Connecticut, Hawaii, Maine, Michigan, Montana, New Hampshire, New Jersey, New York, Rhode Island, Vermont and West Virginia. This rate is flat or declining in 36 states; the largest rate of increase is, in order: South Carolina, Alabama, Arizona, Florida, Oklahoma and Washington
- New daily infections per million population are increasing fastest in Arizona (increase of 124 new cases per million per day for the past week, now at 301), Florida (+62, now at 134), Texas (+51, now at 116), South Carolina (+50, now at 162) and Utah (+40, now at 138). New infections are declining fastest in Mississippi (-31, now at 80), Maryland (-28, now at 63), Iowa (-21, now at 81), Connecticut (-18, now at 29), New Jersey (-16, now at 41), Rhode Island (-16, now at 53), Virginia (-15, now at 60) and Massachusetts (-15, now at 32)
- The death rate continued its month-long decline, dropping to a cumulative 5.23%. 573 deaths were recorded yesterday, making the 11th consecutive day of fewer than 1,000 deaths
  - From the Centers for Disease Control, as of June 13, 33.3% of deaths were in the 85 and older age cohort; 26.6% ages 75-84; 20.8% ages 65-74; 11.9% ages 55-64; 4.8% ages 45-54; 1.7% ages 35-44; 0.7% ages 25-34; 0.1% ages 15-24. Under age 15, 0.0%
- A recently-published report from TheLancet.com evaluated the risk of severe COVID-19, based on age and underlying health conditions. The report concluded that 73% of persons 70 & older had one or more underlying conditions that place them at high risk of COVID-19 infection; 19% of these are at high risk, meaning an infection would likely require hospitalization. Comparable numbers for other age cohorts: 60-69, 60% increased risk, 15% high risk; 60-64, 52% increased risk, 12% high risk; 55-59, 44% increased risk, 11% high risk; 50-54, 37% increased risk, 8% high risk; 40-49, 29% increased risk, 5% high risk; 30-39, 19% increased risk, 3% high risk; 20-29, 11% increased risk, 1% high risk; <20, 4% increased risk, 0% high risk

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 20

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	2,330,578	(1)	7,042	(4)	121,980	(1)	5.2%	(13)	368.6	(7)	1.3%	(16)	1,805	(6)	81.3	(6)
Brazil	1,070,139	(2)	5,036	(9)	50,058	(2)	4.7%	(16)	235.5	(11)	3.7%	(5)	703	(15)	147.4	(3)
Russia	576,952	(3)	3,954	(13)	8,002	(13)	1.4%	(25)	54.8	(18)	1.4%	(13)	2,391	(3)	55.6	(10)
India	411,727	(4)	298	(28)	13,277	(8)	3.2%	(19)	9.6	(27)	3.7%	(6)	130	(23)	9.3	(22)
UK	303,110	(5)	4,466	(11)	42,589	(3)	14.1%	(4)	627.4	(2)	0.4%	(22)	2,691	(2)	18.4	(18)
Spain	293,018	(6)	6,267	(5)	28,322	(6)	9.7%	(7)	605.8	(3)	0.1%	(28)	1,103	(9)	7.1	(26)
Peru	251,338	(7)	7,626	(3)	7,861	(14)	3.1%	(20)	238.5	(9)	1.5%	(12)	723	(14)	113.6	(5)
Italy	238,275	(8)	3,941	(14)	34,610	(4)	14.5%	(3)	572.4	(4)	0.1%	(29)	1,015	(11)	3.8	(29)
Chile	236,748	(9)	12,388	(2)	4,295	(19)	1.8%	(24)	224.7	(12)	5.7%	(1)	1,074	(10)	518.7	(1)
Iran	202,584	(10)	2,413	(19)	9,507	(10)	4.7%	(14)	113.2	(15)	1.3%	(17)	338	(20)	30.0	(14)
Germany	191,216	(11)	2,282	(20)	8,961	(11)	4.7%	(15)	107.0	(16)	0.3%	(25)	572	(17)	6.5	(27)
Turkey	186,493	(12)	2,212	(21)	4,927	(17)	2.6%	(21)	58.4	(17)	0.7%	(21)	614	(16)	16.6	(19)
Pakistan	171,666	(13)	778	(25)	3,382	(21)	2.0%	(23)	15.3	(26)	3.5%	(7)	151	(22)	25.4	(16)
Mexico	170,485	(14)	1,323	(23)	20,394	(7)	12.0%	(6)	158.2	(14)	3.0%	(10)	107	(25)	34.7	(13)
France	160,093	(15)	2,453	(18)	29,633	(5)	18.5%	(1)	454.0	(6)	0.3%	(24)	0	(29)	7.2	(25)
Saudi Arabia	154,233	(16)	4,432	(12)	1,230	(27)	0.8%	(27)	35.3	(21)	3.2%	(8)	847	(13)	127.0	(4)
Bangladesh	108,775	(17)	661	(26)	1,425	(26)	1.3%	(26)	8.7	(29)	3.7%	(4)	109	(24)	21.2	(17)
Canada	101,019	(18)	2,677	(17)	8,410	(12)	8.3%	(10)	222.9	(13)	0.4%	(23)	1,175	(8)	9.9	(21)
South Africa	92,681	(19)	1,563	(22)	1,877	(25)	2.0%	(22)	31.7	(23)	4.7%	(2)	561	(18)	64.9	(9)
Qatar	86,488	(20)	30,803	(1)	94	(30)	0.1%	(30)	33.5	(22)	1.4%	(15)	1,884	(5)	410.7	(2)
China	83,352	(21)	58	(30)	4,634	(18)	5.6%	(11)	3.2	(30)	0.0%	(30)	0	(28)	0.0	(30)
Colombia	65,633	(22)	1,290	(24)	2,126	(23)	3.2%	(18)	41.8	(19)	4.3%	(3)	324	(21)	47.4	(11)
Belgium	60,550	(23)	5,225	(8)	9,696	(9)	16.0%	(2)	836.7	(1)	0.1%	(27)	1,258	(7)	7.8	(23)
Belarus	57,936	(24)	6,131	(6)	343	(28)	0.6%	(29)	36.3	(20)	1.2%	(18)	2,195	(4)	71.0	(8)
Sweden	56,043	(25)	5,550	(7)	5,053	(16)	9.0%	(8)	500.4	(5)	1.4%	(14)	858	(12)	72.3	(7)
Egypt	53,758	(26)	526	(27)	2,106	(24)	3.9%	(17)	20.6	(25)	3.0%	(9)	0	(29)	15.1	(20)
Ecuador	49,731	(27)	2,820	(16)	4,156	(20)	8.4%	(9)	235.7	(10)	1.0%	(19)	79	(26)	27.3	(15)
Netherlands	49,502	(28)	2,889	(15)	6,089	(15)	12.3%	(5)	355.4	(8)	0.2%	(26)	519	(19)	7.2	(24)
Indonesia	45,029	(29)	165	(29)	2,429	(22)	5.4%	(12)	8.9	(28)	2.8%	(11)	74	(27)	4.0	(28)
UAE	44,533	(30)	4,504	(10)	301	(29)	0.7%	(28)	30.4	(24)	0.9%	(20)	5,943	(1)	36.7	(12)

Note: China does not report test volumes

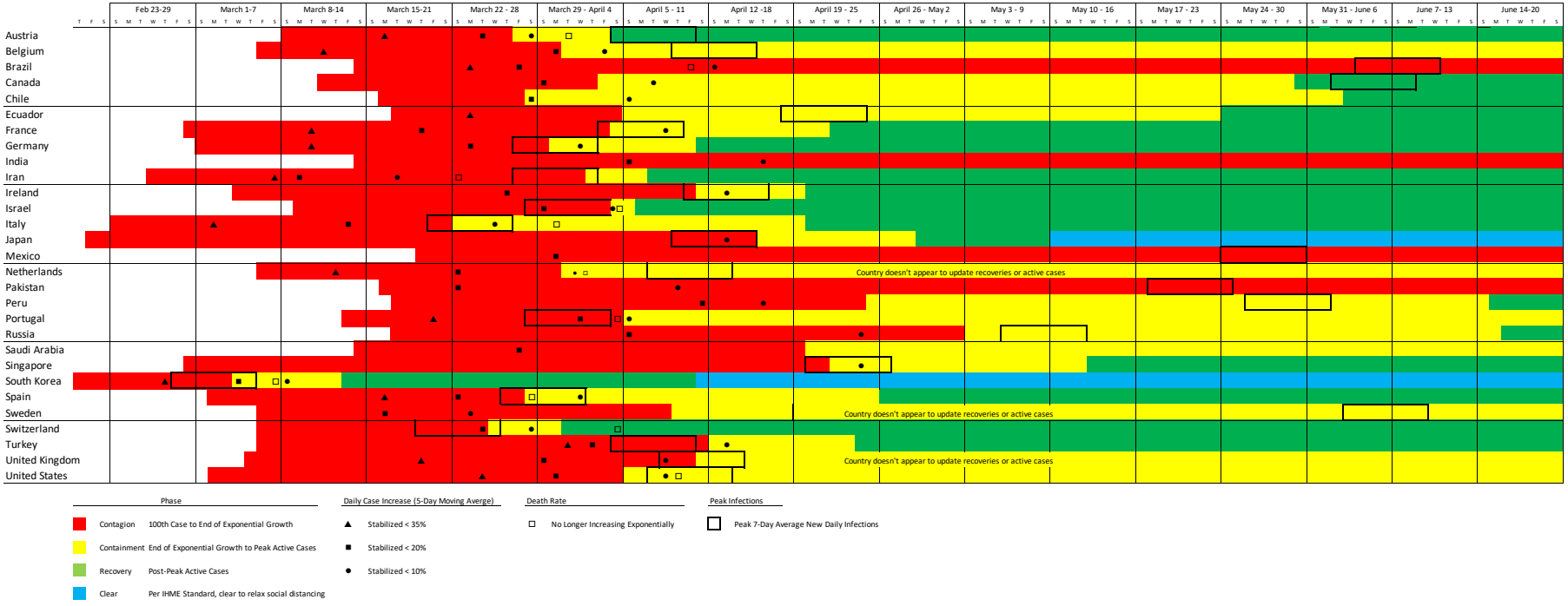
VIRUS PROGRESSION BY COUNTRY

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.



UNITED STATES & STATE-BY-STATE INFORMATION

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"Strategic Guidance in an Era of Unprecedented Change"

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 84.8% of all cases worldwide.

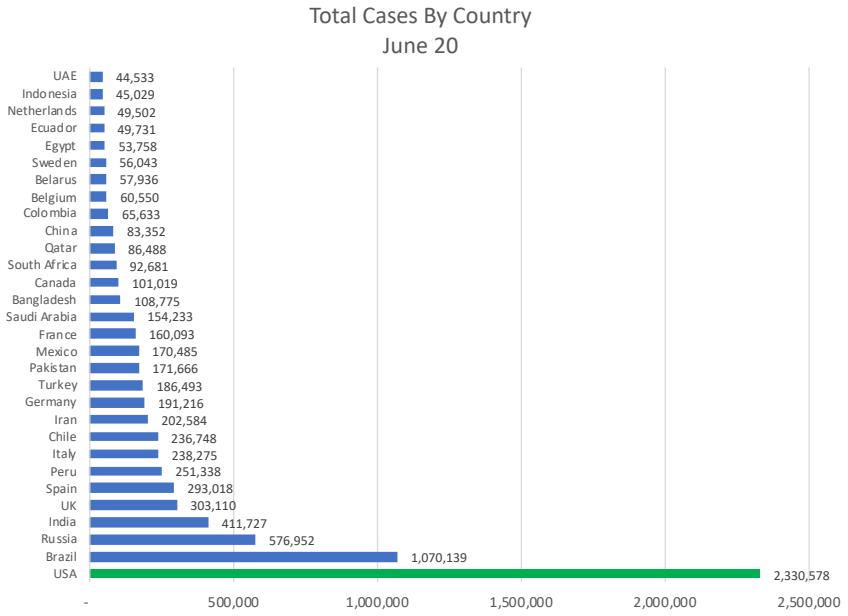
		Total Cases						
Rank	Country	20-Jun	Rank	Country	6-May	Rank	Country	27-Apr
1	USA	2,330,578	1	USA	1,263,092	1	USA	1,010,356
2	Brazil	1,070,139	2	Spain	253,682	2	Spain	229,422
3	Russia	576,952	3	Italy	214,457	3	Italy	199,414
4	India	411,727	4	UK	201,101	4	France	128,339
5	UK	303,110	5	France	174,191	5	Germany	158,758
6	Spain	293,018	6	Germany	168,162	6	UK	157,149
7	Peru	251,338	7	Russia	165,929	7	Turkey	112,261
8	Italy	238,275	8	Turkey	131,744	8	Iran	91,472
9	Chile	236,748	9	Brazil	126,611	9	Russia	87,147
10	Iran	202,584	10	Iran	101,650	10	China	82,830
11	Germany	191,216	11	China	82,883	11	Brazil	66,501
12	Turkey	186,493	12	Canada	63,496	12	Canada	48,500
13	Pakistan	171,666	13	Peru	54,817	13	Belgium	46,687
14	Mexico	170,485	14	India	52,987	14	Netherlands	38,245
15	France	160,093	15	Belgium	50,781	15	India	29,451
16	Saudi Arabia	154,233	16	Netherlands	41,319	16	Switzerland	29,164
18	Canada	101,019	17	Saudi Arabia	31,938	17	Peru	28,669
21	China	83,352	18	Switzerland	30,060	18	Portugal	24,070
23	Belgium	60,550	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	49,502	22	Sweden	23,918	22	Saudi Arabia	18,811
31	Singapore	41,833	23	Pakistan	23,214	23	Israel	15,555
34	Portugal	38,841	24	Chile	23,048	24	Austria	15,274
37	Switzerland	31,243	25	Ireland	22,248	25	Mexico	14,677
43	Ireland	25,374	26	Singapore	20,198	26	Singapore	14,423
48	Israel	20,633	29	Israel	16,310	27	Pakistan	13,915
51	Japan	17,799	31	Austria	15,684	28	Chile	13,813
52	Austria	17,323	32	Japan	15,253	29	Japan	13,614
59	S. Korea	12,373	38	S. Korea	10,806	35	South Korea	10,738
	Others	1,354,284		Others	356,176		Others	301,446
	World	8,908,555			3,817,382		World	3,062,515

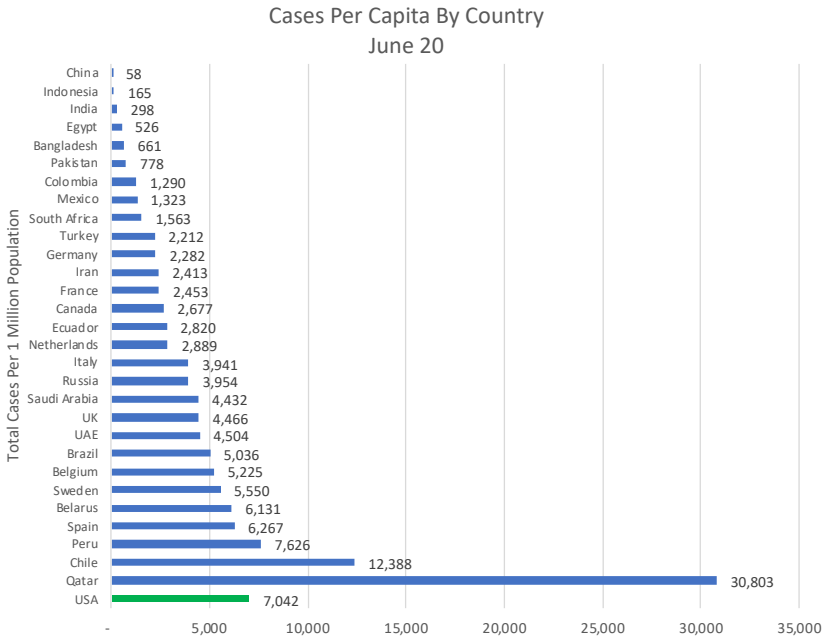
Country-by-Country

Cases & Cases Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



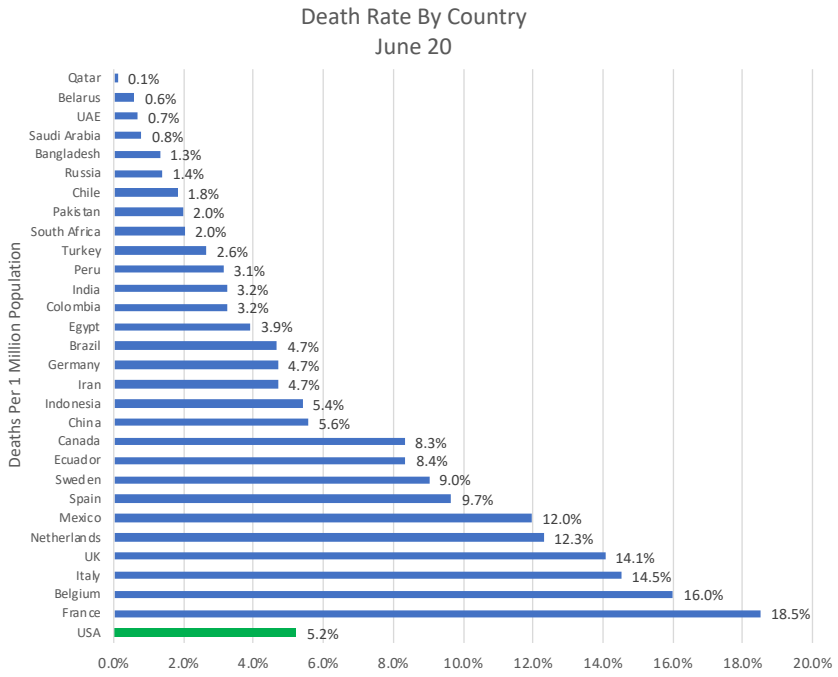


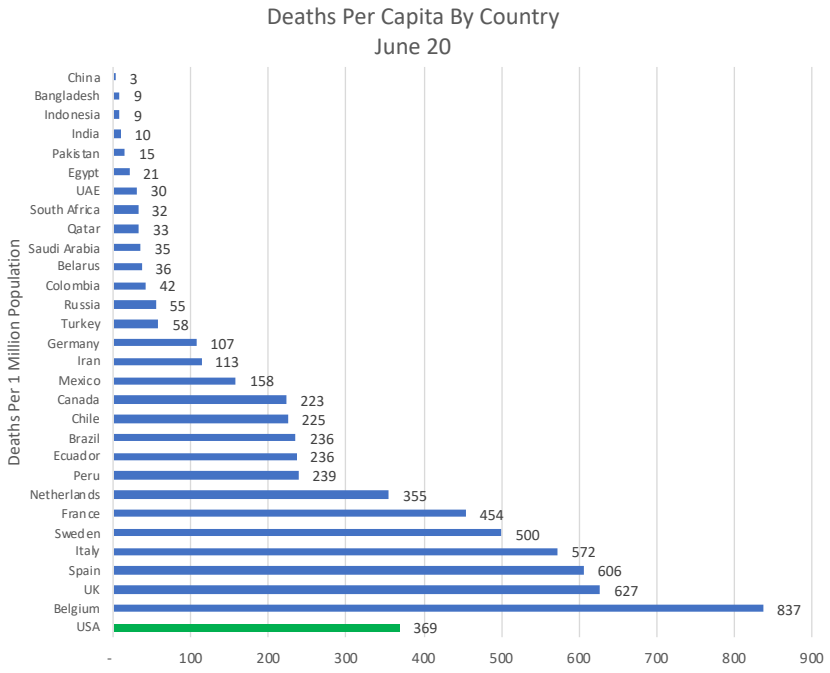
Country-by-Country

Deaths Per Cases & Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



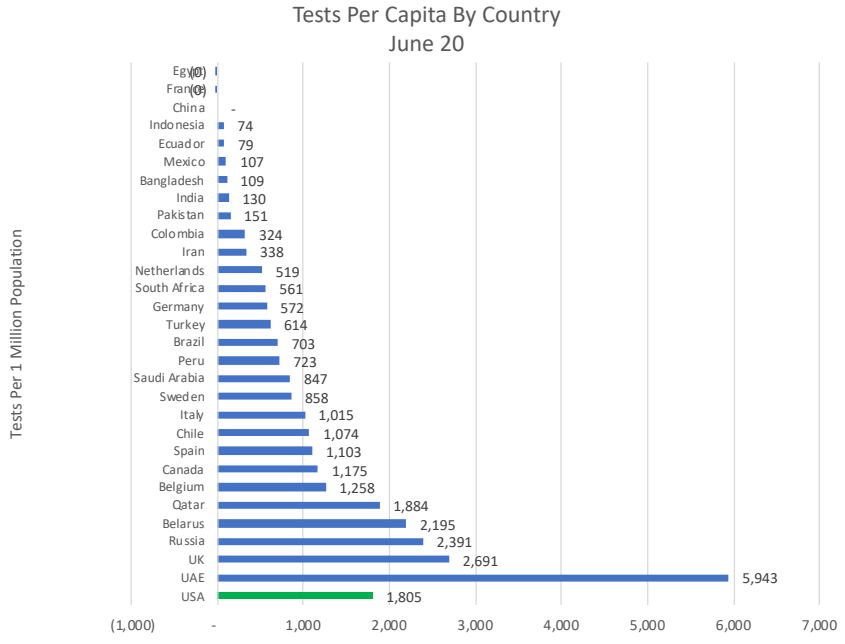


Country-by-Country

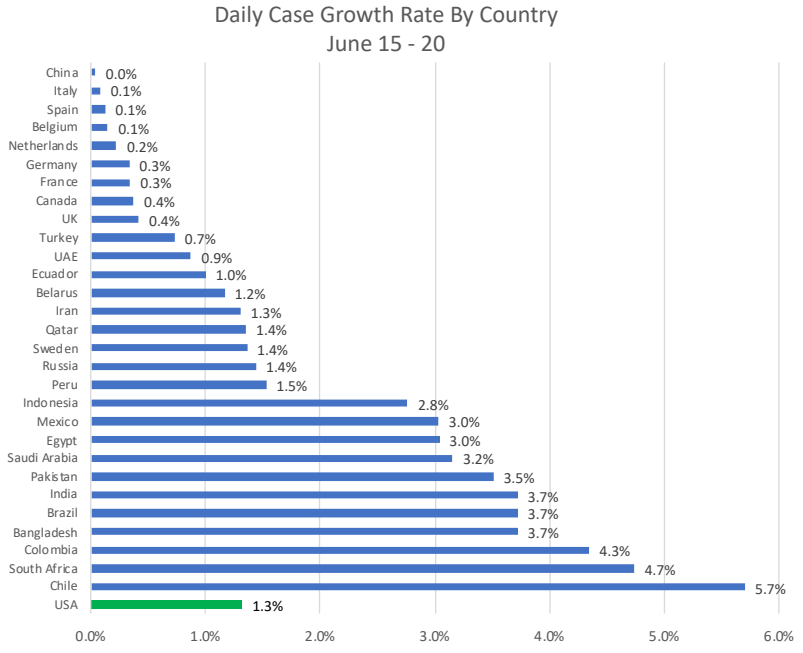
Daily Tests Per Capita & Daily Case Growth

"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

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Country-by-Country

New Daily Infection Rates

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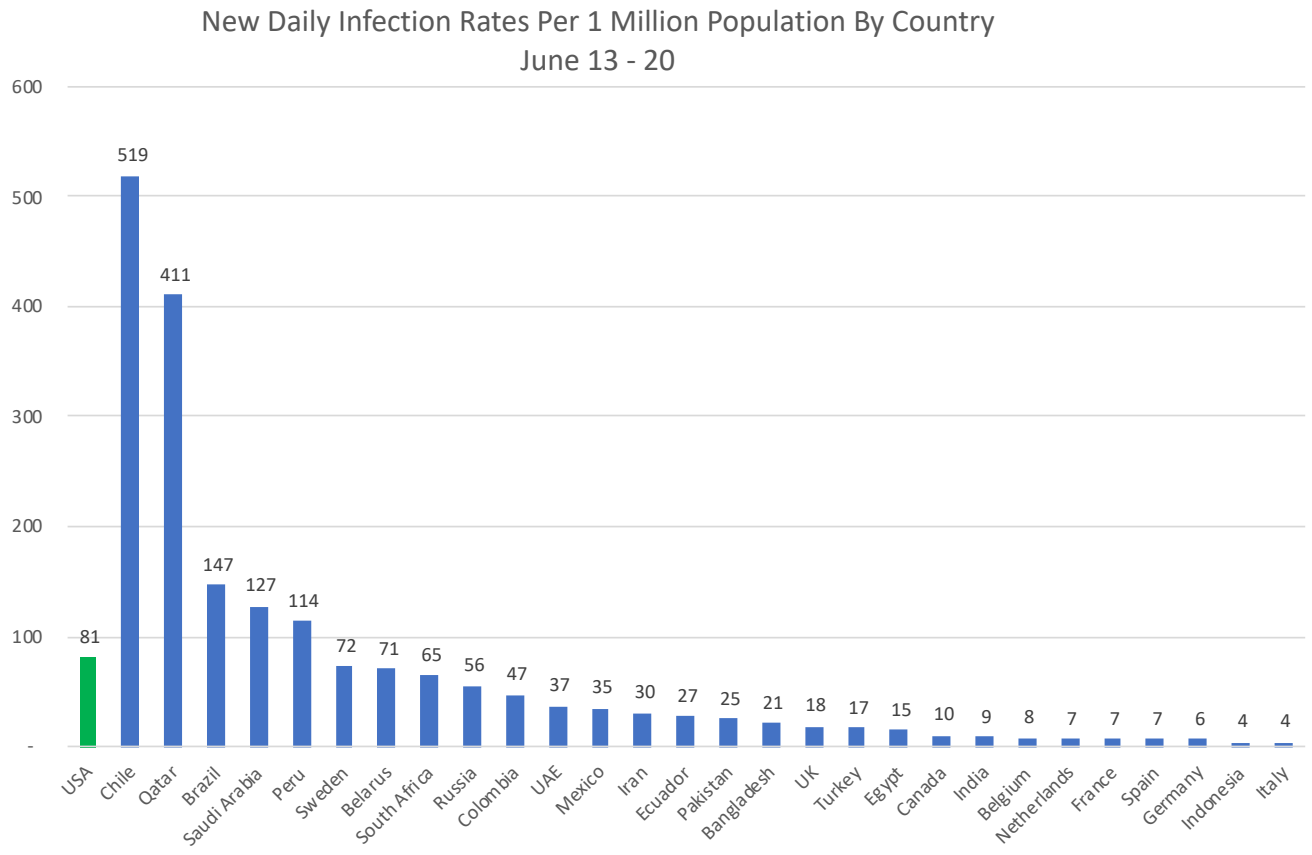

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"Strategic Guidance in an Era of Unprecedented Change"

STATE-BY-STATE
OVERALL ASSESSMENT SCORECARD

COVID-19 Dashboard
Sunday, June 21, 2020

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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)

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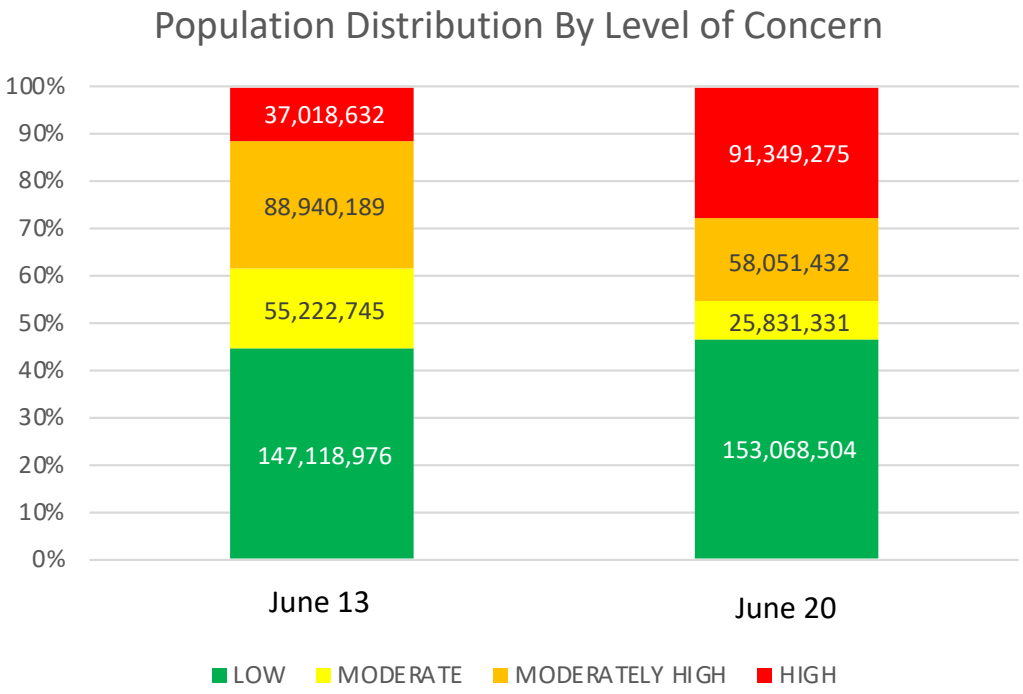
State-By-State

Population Distribution By Level of Concern

"Strategic Guidance in an Era of Unprecedented Change"

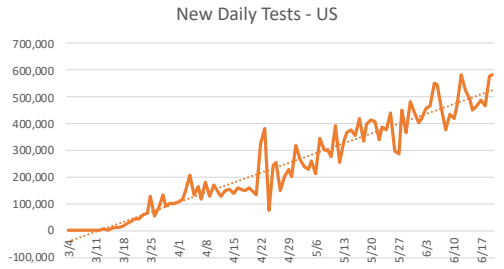


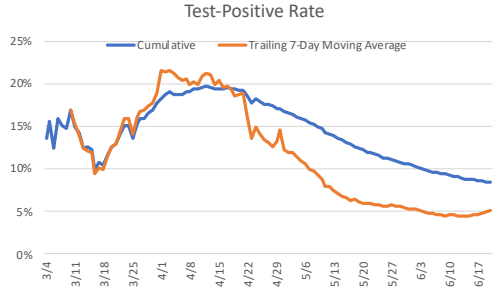
United States

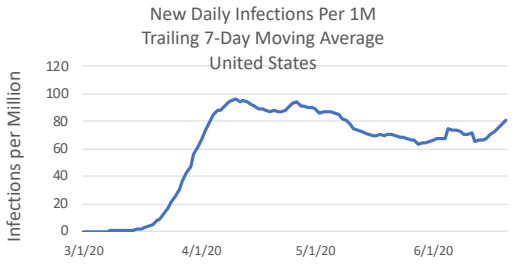
Overall Statistics

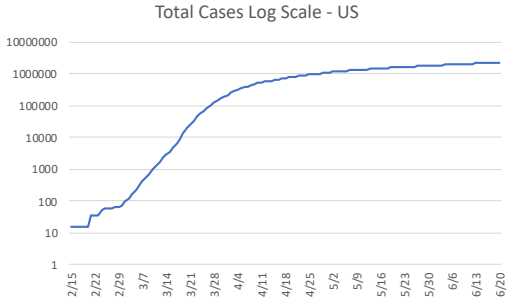
"Strategic Guidance in an Era of Unprecedented Change"

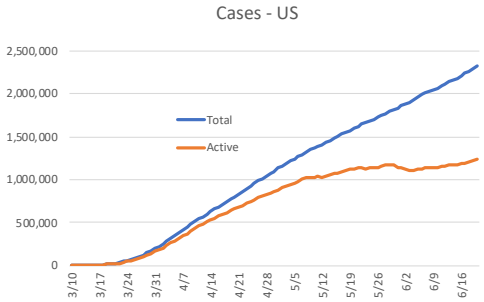
With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates.
Further, new daily infections continue to decline; the death rate seems to have stabilized.

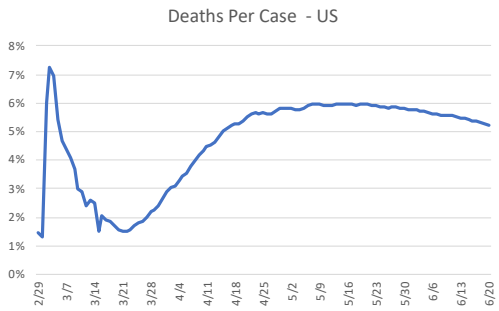










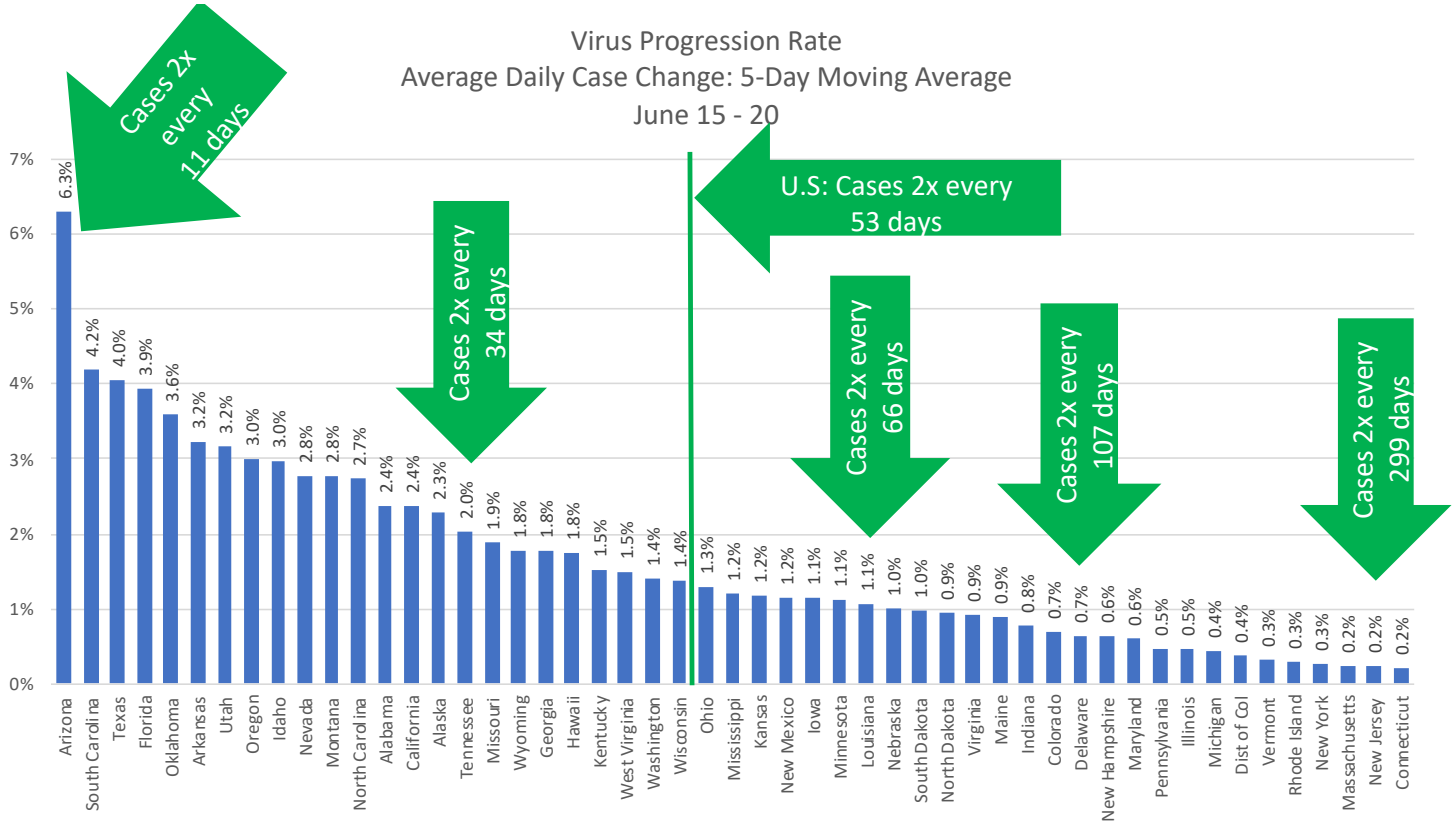


State-by-State

Average Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

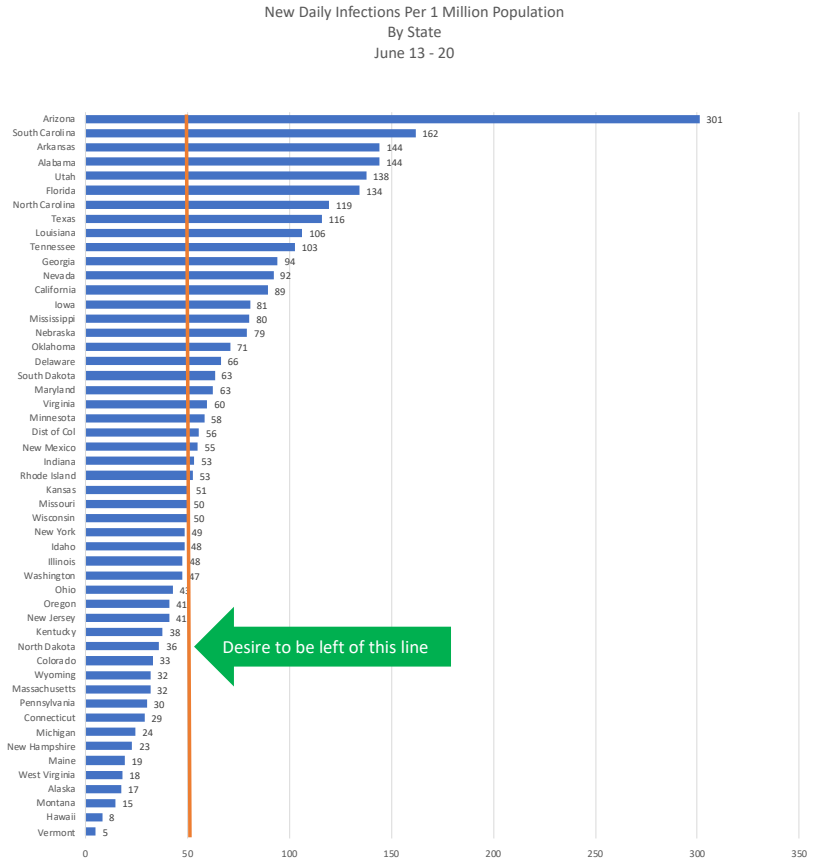
At the height of the epidemic, cases in some states were doubling every few days. Now, they would take from 11 – 329 days to double

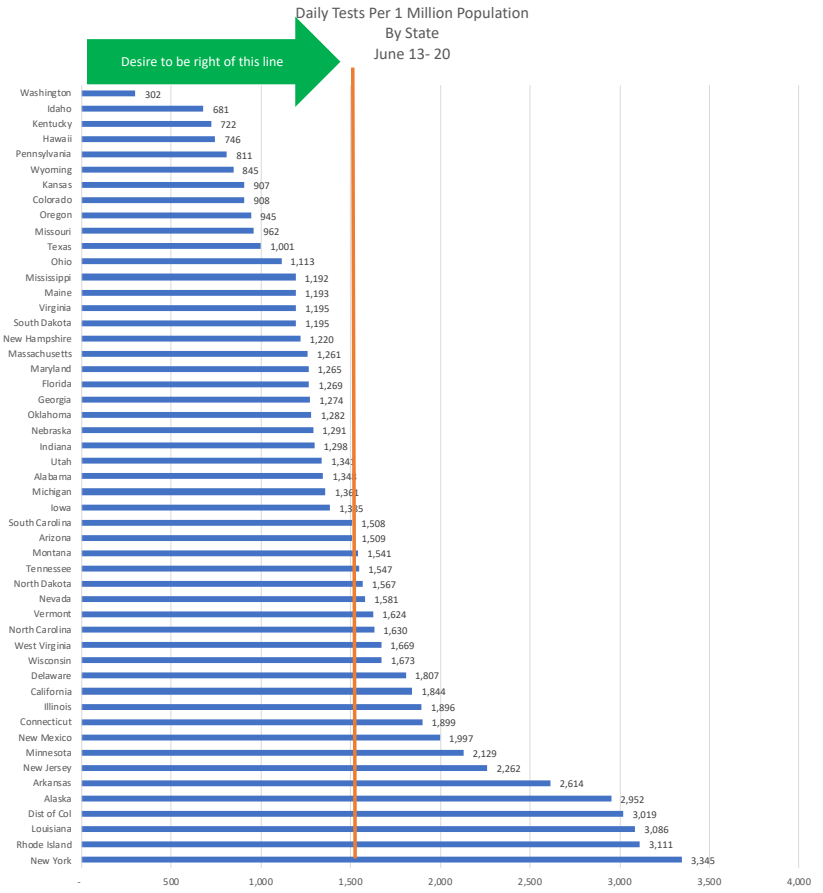


State-by-State

New Daily Infections & Tests Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

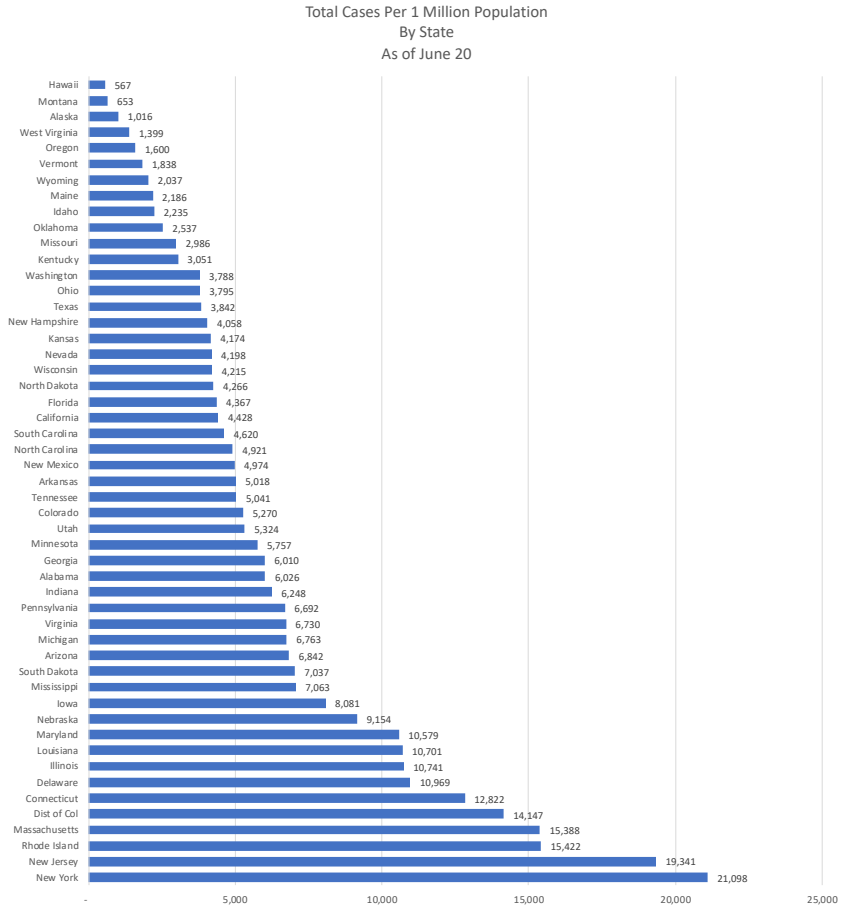


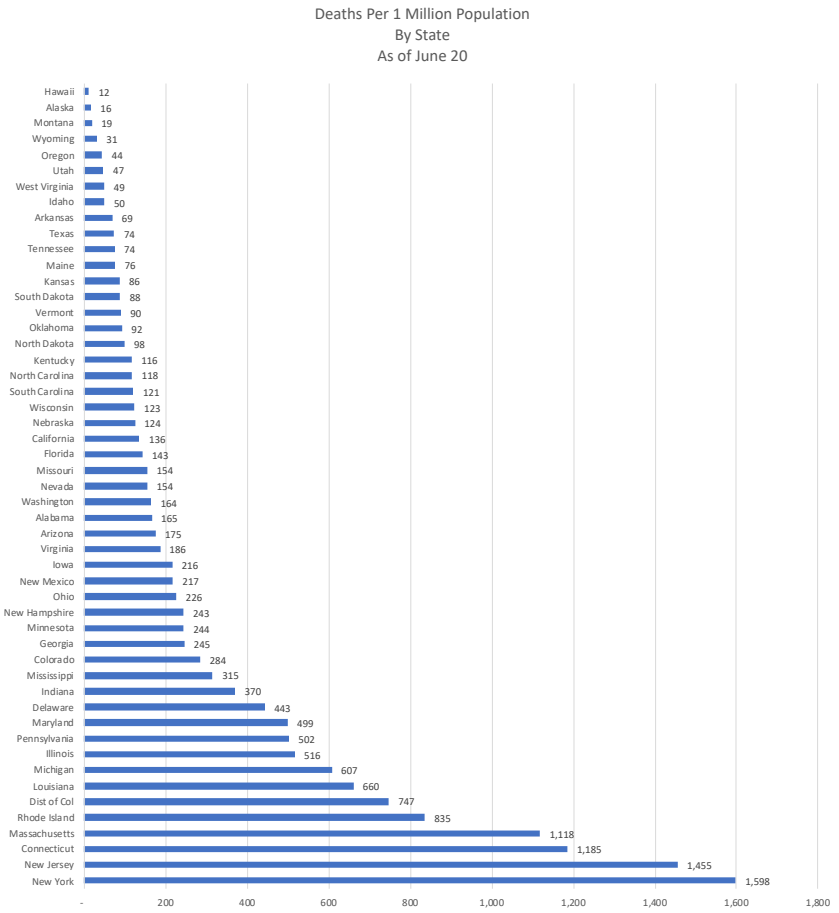


State-by-State

Cases & Deaths 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. Several states failed to meet this guideline for the past week

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State-by-State

Comparative Statistics- Page 1 of 2

"Strategic Guidance in an Era of Unprecedented Change"

As of June 20

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	29,549	(22)	6,026.5	(20)	838	(25)	2.8%	(33)	170.9	(24)	2.4%	(13)	1,348	(26)	154.2	(2)
Alaska	743	(50)	1,015.7	(49)	12	(51)	1.6%	(46)	16.4	(50)	2.3%	(15)	2,952	(5)	18.9	(47)
Arizona	49,798	(14)	6,841.6	(15)	1,338	(19)	2.7%	(37)	183.8	(23)	6.3%	(1)	1,509	(22)	270.3	(1)
Arkansas	15,142	(32)	5,017.5	(26)	224	(39)	1.5%	(48)	74.2	(43)	3.2%	(6)	2,614	(6)	146.0	(4)
California	174,978	(2)	4,428.5	(30)	5,494	(7)	3.1%	(30)	139.0	(29)	2.4%	(14)	1,844	(12)	84.9	(13)
Colorado	30,349	(21)	5,270.1	(24)	1,647	(16)	5.4%	(12)	286.0	(15)	0.7%	(38)	908	(44)	33.9	(41)
Connecticut	45,715	(16)	12,822.2	(6)	4,251	(8)	9.3%	(1)	1,192.3	(3)	0.2%	(51)	1,899	(10)	34.8	(40)
Delaware	10,681	(36)	10,968.8	(7)	434	(34)	4.1%	(23)	445.7	(12)	0.7%	(39)	1,807	(13)	64.3	(20)
District Of Columbia	9,984	(39)	14,146.7	(5)	531	(29)	5.3%	(14)	752.4	(6)	0.4%	(45)	3,019	(4)	60.3	(21)
Florida	93,797	(7)	4,367.2	(31)	3,147	(9)	3.4%	(29)	146.5	(28)	3.9%	(4)	1,269	(32)	124.9	(6)
Georgia	63,809	(11)	6,009.8	(21)	2,642	(13)	4.1%	(22)	248.8	(18)	1.8%	(19)	1,274	(31)	83.8	(15)
Hawaii	803	(49)	567.1	(51)	17	(50)	2.1%	(43)	12.0	(51)	1.8%	(20)	746	(48)	8.4	(50)
Idaho	4,006	(43)	2,235.4	(43)	89	(43)	2.2%	(41)	49.7	(44)	3.0%	(9)	681	(50)	41.3	(33)
Illinois	136,104	(4)	10,740.7	(8)	6,625	(4)	4.9%	(16)	522.8	(9)	0.5%	(43)	1,896	(11)	48.2	(29)
Indiana	42,061	(18)	6,247.7	(19)	2,536	(14)	6.0%	(10)	376.7	(13)	0.8%	(37)	1,298	(28)	55.2	(24)
Iowa	25,496	(24)	8,081.0	(12)	682	(27)	2.7%	(38)	216.2	(21)	1.1%	(29)	1,385	(24)	87.2	(12)
Kansas	12,161	(35)	4,174.3	(35)	258	(37)	2.1%	(42)	88.6	(39)	1.2%	(27)	907	(45)	49.1	(27)
Kentucky	13,630	(33)	3,050.8	(40)	524	(31)	3.8%	(24)	117.3	(34)	1.5%	(21)	722	(49)	41.2	(34)
Louisiana	49,746	(15)	10,700.8	(9)	3,109	(10)	6.2%	(7)	668.8	(7)	1.1%	(31)	3,086	(3)	108.2	(8)
Maine	2,938	(45)	2,185.7	(44)	102	(42)	3.5%	(28)	75.9	(41)	0.9%	(36)	1,193	(38)	20.4	(45)
Maryland	63,956	(10)	10,578.8	(10)	3,052	(11)	4.8%	(17)	504.8	(11)	0.6%	(41)	1,265	(33)	69.4	(17)
Massachusetts	106,936	(6)	15,387.6	(4)	7,828	(3)	7.3%	(6)	1,126.4	(4)	0.2%	(49)	1,261	(34)	32.7	(42)
Michigan	67,545	(9)	6,763.4	(16)	6,087	(6)	9.0%	(2)	609.5	(8)	0.4%	(44)	1,361	(25)	20.4	(46)
Minnesota	32,467	(20)	5,756.9	(22)	1,404	(18)	4.3%	(21)	249.0	(17)	1.1%	(30)	2,129	(8)	56.6	(23)
Mississippi	21,022	(27)	7,063.5	(13)	943	(23)	4.5%	(18)	316.9	(14)	1.2%	(26)	1,192	(39)	92.7	(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 20

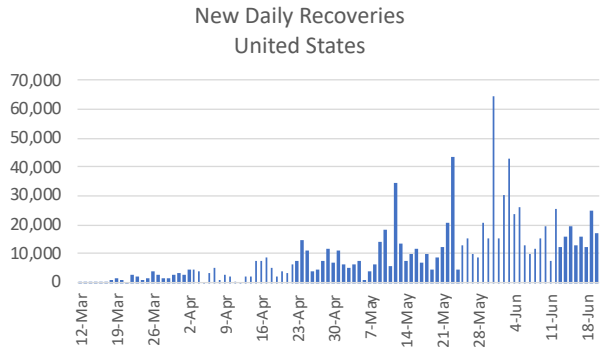
State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Missouri	18,327	(28)	2,986.1	(41)	979	(22)	5.3%	(13)	159.5	(26)	1.9%	(17)	962	(42)	40.9	(36)
Montana	698	(51)	653.1	(50)	20	(49)	2.9%	(32)	18.7	(49)	2.8%	(11)	1,541	(21)	12.4	(49)
Nebraska	17,707	(29)	9,153.7	(11)	244	(38)	1.4%	(49)	126.1	(31)	1.0%	(32)	1,291	(29)	79.6	(16)
Nevada	12,931	(34)	4,198.2	(34)	486	(32)	3.8%	(25)	157.8	(27)	2.8%	(10)	1,581	(18)	83.9	(14)
New Hampshire	5,518	(42)	4,058.2	(36)	339	(36)	6.1%	(8)	249.3	(16)	0.6%	(40)	1,220	(35)	24.7	(44)
New Jersey	171,787	(3)	19,340.6	(2)	12,985	(2)	7.6%	(5)	1,461.9	(2)	0.2%	(50)	2,262	(7)	41.8	(32)
New Mexico	10,430	(37)	4,974.2	(27)	466	(33)	4.5%	(19)	222.2	(20)	1.2%	(28)	1,997	(9)	50.0	(26)
New York	410,434	(1)	21,098.1	(1)	31,174	(1)	7.6%	(3)	1,602.5	(1)	0.3%	(48)	3,345	(1)	49.0	(28)
North Carolina	51,613	(13)	4,921.1	(28)	1,269	(20)	2.5%	(39)	121.0	(33)	2.7%	(12)	1,630	(16)	114.7	(7)
North Dakota	3,251	(44)	4,266.1	(32)	76	(46)	2.3%	(40)	99.7	(35)	0.9%	(34)	1,567	(19)	39.4	(38)
Ohio	44,355	(17)	3,794.6	(38)	2,701	(12)	6.1%	(9)	231.1	(19)	1.3%	(25)	1,113	(40)	41.0	(35)
Oklahoma	10,037	(38)	2,536.5	(42)	368	(35)	3.7%	(26)	93.0	(36)	3.6%	(5)	1,282	(30)	67.1	(19)
Oregon	6,750	(40)	1,600.4	(47)	189	(40)	2.8%	(34)	44.8	(47)	3.0%	(8)	945	(43)	40.5	(37)
Pennsylvania	85,677	(8)	6,692.5	(18)	6,477	(5)	7.6%	(4)	505.9	(10)	0.5%	(42)	811	(47)	30.3	(43)
Rhode Island	16,337	(31)	15,421.6	(3)	894	(24)	5.5%	(11)	843.9	(5)	0.3%	(47)	3,111	(2)	52.6	(25)
South Carolina	23,786	(26)	4,619.8	(29)	644	(28)	2.7%	(36)	125.1	(32)	4.2%	(2)	1,508	(23)	151.5	(3)
South Dakota	6,225	(41)	7,036.6	(14)	81	(45)	1.3%	(50)	91.6	(37)	1.0%	(33)	1,195	(36)	67.2	(18)
Tennessee	34,446	(19)	5,041.0	(25)	524	(31)	1.5%	(47)	76.7	(40)	2.0%	(16)	1,547	(20)	102.3	(10)
Texas	111,408	(5)	3,842.2	(37)	2,193	(15)	2.0%	(44)	75.6	(42)	4.0%	(3)	1,001	(41)	106.0	(9)
Utah	17,068	(30)	5,323.8	(23)	155	(41)	0.9%	(51)	48.3	(46)	3.2%	(7)	1,341	(27)	126.9	(5)
Vermont	1,147	(48)	1,838.2	(46)	56	(47)	4.9%	(15)	89.7	(38)	0.3%	(46)	1,624	(17)	5.7	(51)
Virginia	57,443	(12)	6,729.9	(17)	1,607	(17)	2.8%	(35)	188.3	(22)	0.9%	(35)	1,195	(37)	60.0	(22)
Washington	28,849	(23)	3,788.5	(39)	1,257	(21)	4.4%	(20)	165.1	(25)	1.4%	(23)	302	(51)	45.8	(31)
West Virginia	2,500	(46)	1,398.9	(48)	88	(44)	3.5%	(27)	49.2	(45)	1.5%	(22)	1,669	(15)	17.5	(48)
Wisconsin	24,539	(25)	4,214.6	(33)	744	(26)	3.0%	(31)	127.8	(30)	1.4%	(24)	1,673	(14)	46.8	(30)
Wyoming	1,179	(47)	2,037.1	(45)	20	(49)	1.7%	(45)	34.6	(48)	1.8%	(18)	845	(46)	36.0	(39)
United States	2,330,578		7,041.0		121,980		5.2%		368.6		1.3%		1,495		81.3	

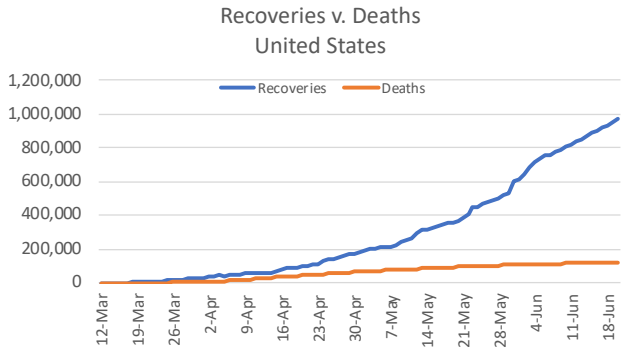
UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING

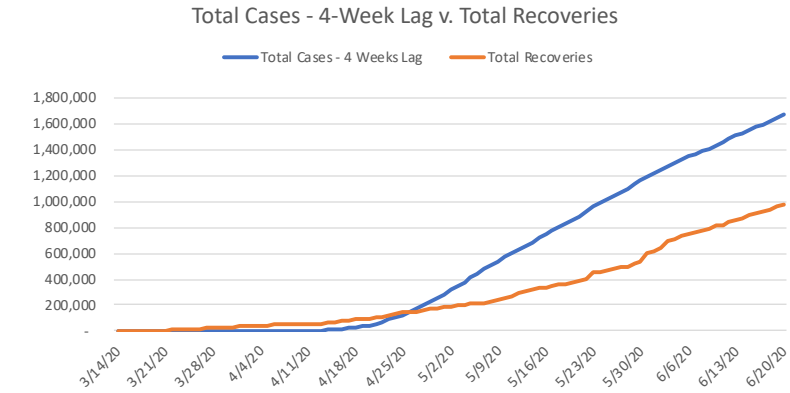
United States

Recoveries

"Strategic Guidance in an Era of Unprecedented Change"







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Recoveries

Reporting of Recoveries Seems to Be Lagging

"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

State	Recoveries	Expected Recoveries Low	Expected Recoveries High
Alabama	15,974	11,294	12,705
Alaska	464	326	367
Arizona	7,196	12,831	14,435
Arkansas	10,082	4,620	5,198
California	47,972	74,028	83,282
Colorado	4,560	19,171	21,568
Connecticut	9,091	32,018	36,020
Delaware	6,395	6,952	7,821
District Of Columbia	1,166	6,373	7,169
Florida	18,190	40,102	45,114
Georgia	4,696	33,794	38,018
Hawaii	644	514	579
Idaho	3,305	2,101	2,363
Illinois	103,806	86,237	97,016
Indiana	31,110	24,721	27,811
Iowa	15,905	13,518	15,208
Kansas	7,152	7,157	8,051
Kentucky	3,530	6,857	7,714
Louisiana	37,017	29,632	33,336
Maine	2,380	1,610	1,812
Maryland	4,745	36,396	40,946
Massachusetts	88,725	73,330	82,496
Michigan	49,290	43,492	48,929
Minnesota	28,205	15,876	17,861
Mississippi	15,323	10,404	11,705
Missouri	3,934	9,546	10,740
Montana	548	383	431
Nebraska	11,565	9,591	10,790
Nevada	9,234	6,157	6,926
New Hampshire	4,244	3,271	3,680
New Jersey	35,883	123,770	139,242
New Mexico	4,628	5,436	6,116
New York	87,131	295,725	332,690
North Carolina	29,219	18,291	20,578
North Dakota	2,882	1,892	2,129
Ohio	9,428	25,182	28,330
Oklahoma	7,414	4,768	5,364
Oregon	2,533	3,110	3,499
Pennsylvania	58,599	56,909	64,022
Rhode Island	1,515	11,162	12,557
South Carolina	10,790	7,916	8,906
South Dakota	5,335	3,574	4,021
Tennessee	22,838	15,831	17,810
Texas	67,096	44,388	49,937
Utah	9,390	6,608	7,434
Vermont	920	763	859
Virginia	7,607	28,599	32,174
Washington	9,277	16,316	18,356
West Virginia	1,672	1,383	1,556
Wisconsin	18,951	11,902	13,389
Wyoming	896	650	732
United States	972,941	1,333,462	1,500,145

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

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

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

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*

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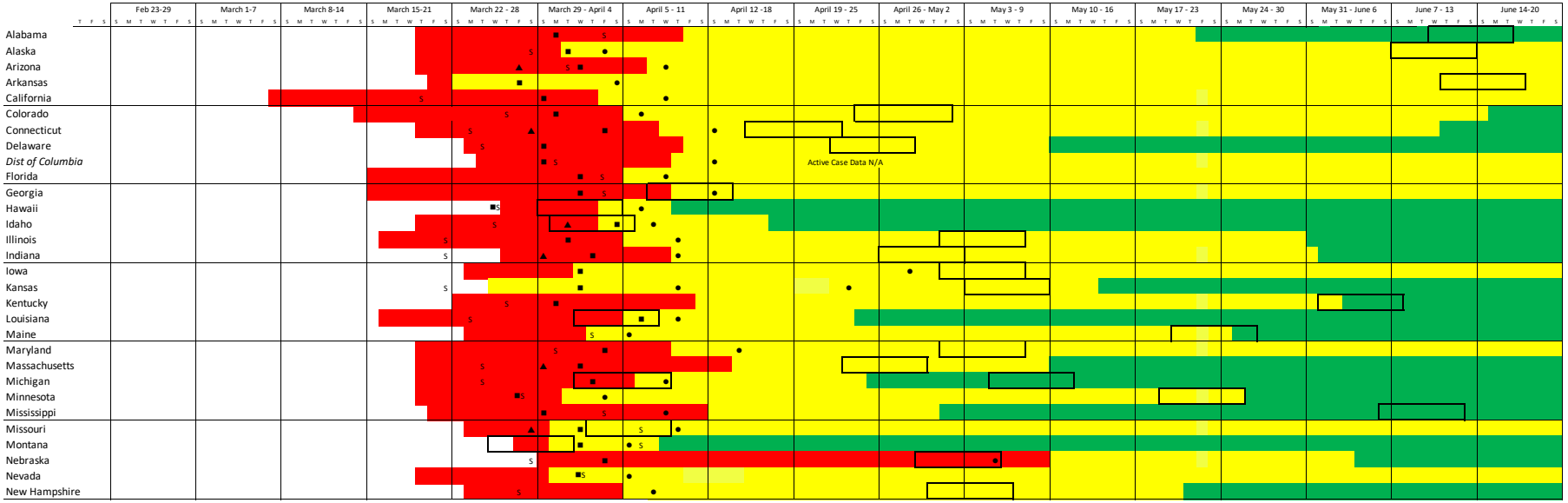

Note: Many states are in yellow because they fail to keep up-to-date in reporting recovered patients

Legend on following page

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State-by-State

Virus Progression – *2 of 2*

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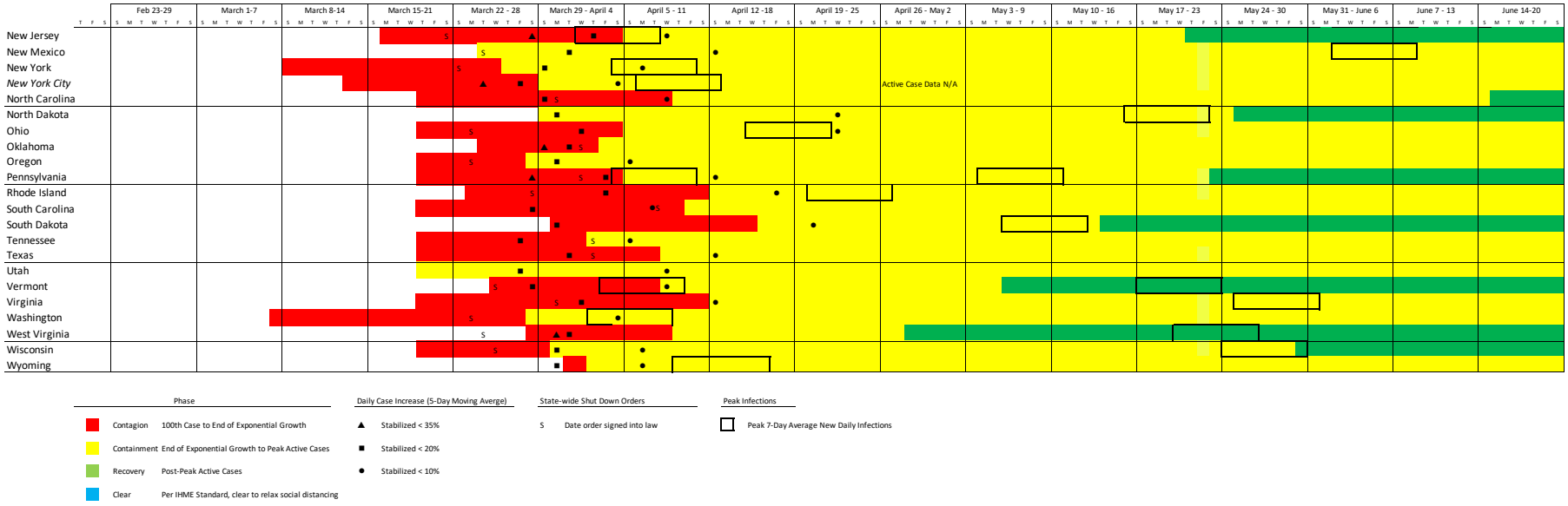

Note: Many states are in yellow because they fail to keep up-to-date in reporting recovered patients