

# COVID-19 Dashboard

Issue # 68 Saturday, June 6, 2020



# Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	>549,000 tests; most ever
Test-Positivity Rate	Decline	5.2% test-positive past 2 days; 4.8% for past 7 days
Number of Cases	Plateau	New Cases up 16.0% week-over-week
Deaths % of Total Cases	Decline	5.7%
Number of Deaths / 1M Population	Plateau	336.5
Recoveries : Death	Increase	6.63

- The United States reported a significant increase in new cases on Friday: more than 41,000 new cases, compared to 22,000 on Thursday. Week-over-week, cases are up 16.0%. At first glance, you might presume that it was an indication that the relaxing of restrictions were resulting in increasing infections (it is still too early for the widespread protests to have a discernible impact). Yet, just two states New York (~13,000 more than than day prior) and Michigan (5,000) accounted for most of the increase. Both states report high testing and low test-positive rates so, hopefully, this is only a short-term spike versus a signal of a new trend
- Testing volume in the United States shattered its previous daily high of 484,000, with nearly 550,000 tests performed on Friday. The test-positive rate was 5.2%. Minnesota and New Jersey accounted for the largest day-over-day testing increases
- For the past week, only Massachusetts and Arizona failed to achieve test-positive rates of <10%, the upper limit suggested by the World Health Organization to de-mark reasonably robust testing surveillance (above that rate, it is presumed that testing is too weighted toward more-severe and symptomatic cases)

- Twelve states Alabama, Connecticut, Illinois, Indiana, Minnesota, New Jersey, New Mexico, New York, Rhode Island, South Dakota, Vermont and Wisconsin - are testing above the minimum 1,520 tests per million population per day suggested by a team of Harvard scientists
- For those of you hoping to escape the virus by visiting Hawaii: this state had long enjoyed a new daily infection rate per million of less than 1 (the standard proposed by the Institute for Health Metrics and Evaluation; and, a level achieved only by China, South Korea and Japan.) Unfortunately, Hawaii exceeded that standard as of yesterday. It remains quite low, however, at 1.5
- Further indication of how the virus has shifted from its original epicenter to other parts of the world: India surpassed Italy in total cases and now ranks 6th; Peru surpassed Germany and is 8th; Saudi Arabia surpassed Canada and is now 15th. Among other early, hardhit countries, Israel has moved down to 43rd; Japan, 44th; Austria, 45th; and South Korea, 54th. As recently as the end of April, each of these countries were in the top 30



# **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 215 countries 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



# **Comparative Statistics**

"Strategic Guidance in an Era of Unprecedented Change"

As of June 3

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	Rank7	New Daily Infections Per 1M Population (5-Day M.A.)	Rank8
USA	1,901,783	(1)	5,746	(4)	109,142	(1)	5.7%	(13)	329.7	(9)	1.2%	(13)	57,718	(10)	67.3	(6)
Austria	16,771	(29)	1,862	(24)	670	(26)	4.0%	(20)	74.4	(19)	0.1%	(25)	51,425	(12)	2.9	(25)
Belgium	58,685	(19)	5,063	(7)	9,522	(8)	16.2%	(2)	821.6	(1)	0.2%	(22)	76,333	(4)	13.5	(16)
Brazil	583,980	(2)	2,747	(14)	32,547	(4)	5.6%	(15)	153.1	(13)	4.5%	(4)	4,378	(25)	113.8	(3)
Canada	93,085	(15)	2,466	(17)	7,498	(11)	8.1%	(10)	198.7	(11)	0.8%	(15)	46,555	(14)	21.1	(14)
Chile	113,628	(13)	5,944	(3)	1,275	(24)	1.1%	(28)	66.7	(20)	4.6%	(2)	32,890	(16)	234.2	(1)
China	83,021	(17)	58	(30)	4,634	(16)	5.6%	(14)	3.2	(30)	0.0%	(29)	0	N/A	0.0	(29)
Ecuador	40,966	(21)	2,322	(19)	3,486	(19)	8.5%	(9)	197.6	(12)	1.2%	(12)	6,774	(24)	23.2	(13)
France	151,677	(12)	2,324	(18)	29,021	(5)	19.1%	(1)	444.6	(6)	-4.1%	(30)	21,216	(21)	(68.4)	(30)
Germany	184,425	(8)	2,201	(20)	8,699	(9)	4.7%	(18)	103.8	(16)	0.2%	(24)	51,918	(11)	4.3	(24)
India	216,824	(7)	157	(28)	6,088	(12)	2.8%	(21)	4.4	(28)	4.6%	(3)	2,976	(26)	6.1	(23)
Iran	160,696	(11)	1,913	(23)	8,012	(10)	5.0%	(17)	95.4	(17)	1.8%	(10)	11,882	(23)	32.5	(9)
Ireland	25,111	(26)	5,085	(6)	1,659	(22)	6.6%	(11)	336.0	(8)	0.2%	(23)	70,622	(5)	8.9	(20)
Israel	17,377	(27)	2,008	(21)	291	(28)	1.7%	(26)	33.6	(23)	0.5%	(18)	64,528	(9)	9.6	(19)
Italy	233,836	(6)	3,867	(10)	33,601	(3)	14.4%	(3)	555.7	(4)	0.1%	(26)	66,144	(8)	6.4	(22)
Japan	16,986	(28)	134	(29)	900	(25)	5.3%	(16)	7.1	(26)	0.3%	(20)	2,374	(28)	0.4	(28)
Mexico	97,326	(14)	755	(25)	10,637	(7)	10.9%	(7)	82.5	(18)	3.6%	(6)	2,275	(29)	25.2	(12)
Netherlands	46,733	(20)	2,727	(15)	5,977	(13)	12.8%	(5)	348.8	(7)	0.3%	(21)	21,511	(20)	8.0	(21)
Pakistan	80,463	(18)	364	(26)	1,688	(21)	2.1%	(25)	7.6	(25)	4.7%	(1)	2,699	(27)	13.8	(15)
Peru	178,914	(9)	5,426	(5)	4,894	(15)	2.7%	(23)	148.4	(14)	3.8%	(5)	33,872	(15)	186.3	(2)
Portugal	33,261	(24)	3,262	(12)	1,447	(23)	4.4%	(19)	141.9	(15)	0.8%	(14)	83,067	(2)	27.6	(10)
Russia	432,277	(3)	2,883	(13)	5,215	(14)	1.2%	(27)	34.8	(22)	2.2%	(8)	78,298	(3)	58.7	(7)
Saudi Arabia	91,182	(16)	2,619	(16)	579	(27)	0.6%	(29)	16.6	(24)	2.2%	(9)	18,664	(22)	51.9	(8)
Singapore	36,405	(23)	6,223	(1)	24	(30)	0.1%	(30)	4.1	(29)	1.5%	(11)	25,049	(19)	86.2	(4)
South Korea	11,590	(30)	226	(27)	273	(29)	2.4%	(24)	5.3	(27)	0.3%	(19)	69,865	(7)	0.9	(27)
Spain	287,406	(4)	6,147	(2)	27,128	(6)	9.4%	(8)	580.2	(3)	0.1%	(27)	86,921	(1)	10.9	(18)
Sweden	40,803	(22)	4,040	(9)	4,542	(18)	11.1%	(6)	449.7	(5)	2.3%	(7)	27,292	(17)	80.8	(5)
Switzerland	30,893	(25)	3,607	(11)	1,921	(20)	6.2%	(12)	224.3	(10)	0.0%	(28)	46,714	(13)	2.0	(26)
Turkey	166,422	(10)	1,973	(22)	4,609	(17)	2.8%	(22)	54.6	(21)	0.5%	(17)	25,577	(18)	11.2	(17)
UK	279,856	(5)	4,122	(8)	39,728	(2)	14.2%	(4)	585.2	(2)	0.6%	(16)	70,531	(6)	26.5	(11)

Note: China does not report test volumes

On June 2 France modified its process for counting cases; historical data have yet to be updated in the data sources we use



# **VIRUS PROGRESSION BY COUNTRY**



# Country-by-Country Virus Progression — (

# 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.





# 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
- Oatar
- Panama
- Philippines
- Romania
- South Africa
- UAE
- Ukraine

The original 30 still account for 86.8% of all cases worldwide.

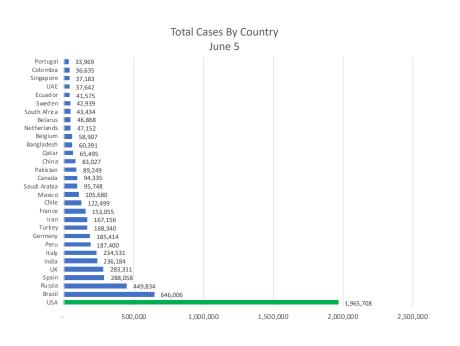
				Total Cases				
ank	Country	4-Jun	Rank	Country	6-May	Rank	Country	27-Apr
1 USA		1,965,708	1	USA	1,263,092	1	USA	1,010,35
2 Brazil		646,006	2	Spain	253,682	2	Spain	229,42
3 Russia		449,834	3	Italy	214,457	3	Italy	199,41
4 Spain		288,058	4	UK	201,101	4	France	165,84
5 UK		283,311	5	France	174,191	5	Germany	158,75
6 India		236,184	$\epsilon$	Germany	168,162	6	UK	157,14
7 Italy		234,531	7	' Russia	165,929	7	Turkey	112,26
8 Peru		187,400	8	Turkey	131,744	8	Iran	91,47
9 Germa	any	185,414	g	Brazil	126,611	9	Russia	87,14
10 Turkey	,	168,340	10	) Iran	101,650	10	China	82,83
11 Iran		167,156	11	. China	82,883	11	Brazil	66,50
12 France	<u>:</u>	153,055	12	Canada	63,496	12	Canada	48,50
13 Chile		122,499	13	Peru	54,817	13	Belgium	46,68
14 Mexico	0	105,680	14	India	52,987	14	Netherlands	38,24
15 Saudi A	Arabia	95,748	15	Belgium	50,781	15	India	29,45
16 Canada	а	94,335	16	Netherlands	41,319	16	Switzerland	29,16
17 Pakista	an	89,249	17	' Saudi Arabia	31,938	17	Peru	28,669
18 China		83,027	18	Switzerland	30,060	18	Portugal	24,07
21 Belgiu	m	58,907	19	Ecuador	29,420	19	Ecuador	23,24
22 Nether	rlands	47,152	20	Portugal	26,182	20	Ireland	19,64
25 Swede	n	42,939	21	Mexico	26,025	21	Sweden	18,92
26 Ecuado	or	41,575	22	Sweden	23,918	22	Saudi Arabia	18,81
28 Singap	ore	37,183	23	Pakistan	23,214	23	Israel	15,55
30 Portug	al	33,969	24	Chile	23,048	24	Austria	15,27
32 Switze	erland	30,936	25	Ireland	22,248	25	Mexico	14,67
37 Ireland	d	25,163	26	Singapore	20,198	26	Singapore	14,42
43 Israel		17,562	29	Israel	16,310	27	Pakistan	13,91
44 Japan		17,064	31	. Austria	15,684	28	Chile	13,81
45 Austria	3	16,843	32	! Japan	15,253	29	Japan	13,61
54 S. Kore	ea	11,668	38	S. Korea	10,806	35	South Korea	10,73
Others	;	902,991		Others	356,176		Others	263,94
World	-	6,839,487			3,817,382		World	3,062,51
	=							
30 cou	ntries' share	86.8%			90.7%			91.4%

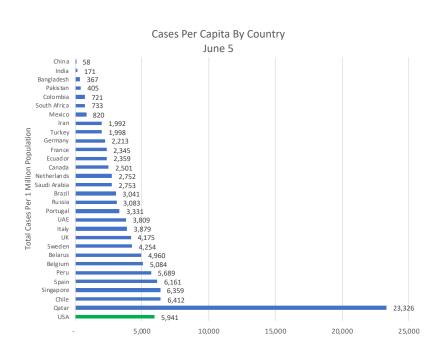


# Cases & Cases Per Capita

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#### Countries Ranked 1-30 In Total Cases



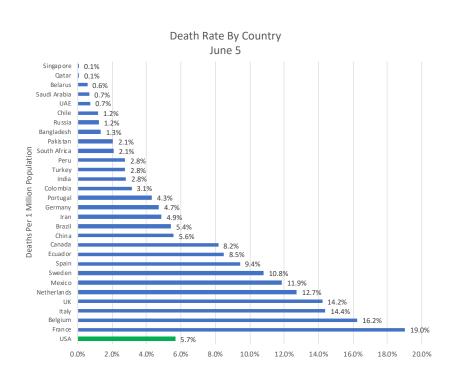


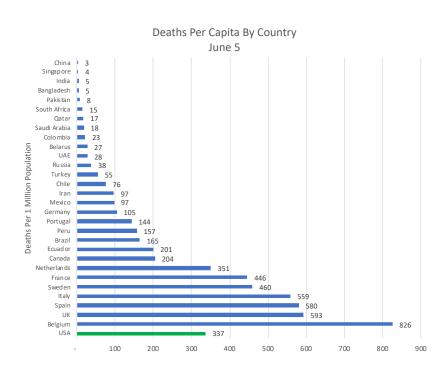


# Deaths Per Cases & Per Capita

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#### Countries Ranked 1-30 In Total Cases



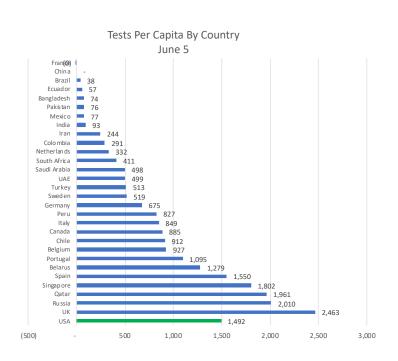


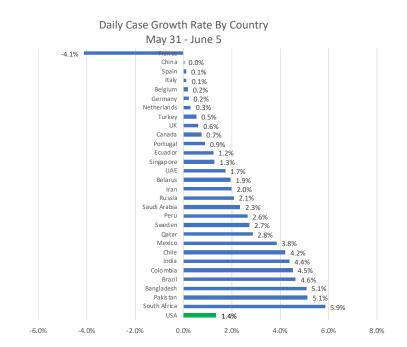


# Daily Tests Per Capita & Daily Case Growth

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#### Countries Ranked 1-30 In Total Cases





Daily Tests Per Capita For Past Week

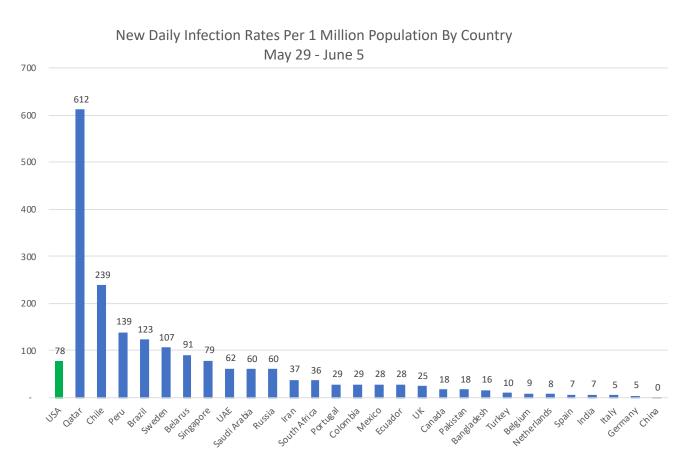
Daily Case Growth – 5-Day Moving Average

On June 2 France modified its process for counting cases; historical data have yet to be updated in the data sources we use



# New Daily Infection Rates

"Strategic Guidance in an Era of Unprecedented Change"





# UNITED STATES & STATE-BY-STATE INFORMATION



# Comparative Statistics- Page 1 of 2

"Strategic Guidance in an Era of Unprecedented Change"

#### As of June 5

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	19,387	(25)	3,954.0	(23)	676	(25)	3.5%	(34)	137.9	(26)	1.6%	(20)	891	(42)	68.6	(23)
Alaska	524	(51)	716.3	(49)	10	(51)	1.9%	(45)	13.7	(50)	2.6%	(5)	2,256	(5)	18.4	(45)
Arizona	24,332	(21)	3,342.9	(30)	1,012	(21)	4.2%	(27)	139.0	(25)	4.1%	(1)	1,061	(35)	115.1	(6)
Arkansas	8,651	(38)	2,866.6	(36)	152	(40)	1.8%	(47)	50.4	(43)	3.6%	(2)	1,318	(23)	88.7	(14)
California	126,408	(3)	3,199.2	(32)	4,558	(7)	3.6%	(32)	115.4	(29)	2.3%	(10)	1,457	(19)	71.1	(22)
Colorado	27,615	(18)	4,795.3	(19)	1,524	(16)	5.5%	(12)	264.6	(15)	0.9%	(41)	855	(43)	49.7	(31)
Connecticut	43,460	(13)	12,189.8	(6)	4,038	(8)	9.3%	(1)	1,132.6	(3)	0.6%	(48)	1,843	(9)	68.0	(24)
Delaware	9,773	(34)	10,036.3	(7)	388	(33)	4.0%	(29)	398.5	(12)	0.6%	(49)	1,349	(22)	78.8	(19)
District Of Columbia	9,199	(36)	13,034.4	(5)	479	(29)	5.2%	(14)	678.7	(6)	0.9%	(43)	1,620	(13)	133.8	(4)
Florida	61,488	(9)	2,862.9	(37)	2,660	(11)	4.3%	(23)	123.8	(28)	1.8%	(15)	1,009	(37)	46.5	(34)
Georgia	50,621	(11)	4,767.7	(21)	2,174	(14)	4.3%	(25)	204.8	(17)	1.5%	(28)	774	(45)	64.0	(28)
Hawaii	664	(49)	469.0	(51)	17	(50)	2.6%	(42)	12.0	(51)	0.4%	(51)	(49)	(51)	1.5	(51)
Idaho	3,111	(43)	1,736.0	(44)	83	(44)	2.7%	(40)	46.3	(45)	1.8%	(14)	707	(47)	24.6	(43)
Illinois	125,915	(4)	9,936.6	(8)	5,795	(6)	4.6%	(21)	457.3	(10)	0.9%	(40)	1,682	(11)	95.4	(12)
Indiana	36,578	(16)	5,433.3	(18)	2,258	(13)	6.2%	(9)	335.4	(13)	1.1%	(34)	911	(41)	64.1	(27)
Iowa	21,160	(23)	6,706.7	(12)	593	(27)	2.8%	(39)	188.0	(20)	1.6%	(21)	1,510	(15)	99.8	(9)
Kansas	10,426	(33)	3,578.7	(27)	232	(37)	2.2%	(44)	79.6	(38)	1.2%	(33)	917	(40)	32.5	(41)
Kentucky	10,977	(32)	2,457.0	(40)	466	(30)	4.2%	(26)	104.3	(32)	2.5%	(7)	676	(50)	48.4	(33)
Louisiana	42,016	(14)	9,038.0	(10)	2,918	(9)	6.9%	(7)	627.7	(7)	1.0%	(38)	2,021	(8)	98.6	(11)
Maine	2,482	(45)	1,846.4	(42)	98	(42)	3.9%	(31)	72.9	(40)	1.3%	(29)	1,257	(27)	27.2	(42)
Maryland	56,770	(10)	9,390.2	(9)	2,702	(10)	4.8%	(19)	446.9	(11)	1.5%	(27)	1,494	(16)	136.6	(3)
Massachusetts	102,557	(5)	14,757.5	(3)	7,235	(3)	7.1%	(6)	1,041.1	(4)	1.1%	(35)	1,296	(24)	144.8	(1)
Michigan	63,539	(8)	6,362.3	(13)	5,855	(5)	9.2%	(2)	586.3	(8)	2.1%	(12)	1,515	(14)	99.0	(10)
Minnesota	26,980	(19)	4,784.0	(20)	1,159	(19)	4.3%	(24)	205.5	(16)	1.7%	(19)	2,241	(6)	87.4	(17)
Mississippi	16,769	(26)	5,634.5	(17)	803	(23)	4.8%	(17)	269.8	(14)	1.6%	(22)	1,287	(25)	95.0	(13)

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"Strategic Guidance in an Era of Unprecedented Change"

#### As of June 5

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	14,691	(29)	2,393.7	(41)	817	(22)	5.6%	(11)	133.1	(27)	1.7%	(17)	1,087	(33)	35.9	(40)
Montana	541	(50)	506.2	(50)	18	(48)	3.3%	(35)	16.8	(49)	1.0%	(39)	984	(38)	6.4	(50)
Nebraska	15,379	(28)	7,950.2	(11)	189	(38)	1.2%	(50)	97.7	(33)	1.8%	(16)	1,478	(17)	127.4	(5)
Nevada	9,266	(35)	3,008.3	(35)	433	(31)	4.7%	(20)	140.6	(24)	1.5%	(24)	1,470	(18)	42.5	(36)
New Hampshire	4,953	(41)	3,642.7	(25)	278	(36)	5.6%	(10)	204.5	(18)	1.3%	(31)	1,356	(21)	48.4	(32)
New Jersey	165,162	(2)	18,594.7	(2)	12,082	(2)	7.3%	(5)	1,360.3	(2)	0.4%	(50)	3,257	(2)	76.7	(20)
New Mexico	8,672	(37)	4,135.8	(22)	387	(34)	4.5%	(22)	184.6	(21)	2.4%	(9)	2,331	(4)	80.3	(18)
New York	396,699	(1)	20,392.1	(1)	30,372	(1)	7.7%	(3)	1,561.3	(1)	0.9%	(44)	3,050	(3)	139.4	(2)
North Carolina	33,294	(17)	3,174.5	(34)	1,015	(20)	3.0%	(37)	96.8	(34)	3.0%	(3)	1,238	(28)	87.8	(16)
North Dakota	2,745	(44)	3,602.1	(26)	71	(45)	2.6%	(41)	93.2	(35)	1.3%	(30)	1,388	(20)	42.2	(37)
Ohio	37,792	(15)	3,233.1	(31)	2,363	(12)	6.3%	(8)	202.2	(19)	1.2%	(32)	933	(39)	38.7	(39)
Oklahoma	7,003	(39)	1,769.8	(43)	345	(35)	4.9%	(16)	87.2	(37)	1.5%	(26)	1,050	(36)	24.0	(44)
Oregon	4,570	(42)	1,083.5	(48)	161	(39)	3.5%	(33)	38.2	(46)	1.5%	(25)	697	(48)	14.9	(46)
Pennsylvania	78,920	(6)	6,164.7	(14)	5,969	(4)	7.6%	(4)	466.3	(9)	0.7%	(45)	680	(49)	42.9	(35)
Rhode Island	15,441	(27)	14,575.8	(4)	772	(24)	5.0%	(15)	728.7	(5)	0.7%	(46)	3,288	(1)	108.7	(7)
South Carolina	13,453	(30)	2,612.9	(38)	538	(28)	4.0%	(28)	104.5	(31)	2.6%	(6)	1,194	(30)	64.4	(26)
South Dakota	5,277	(40)	5,965.0	(15)	65	(46)	1.2%	(49)	73.5	(39)	1.1%	(36)	2,048	(7)	66.4	(25)
Tennessee	25,520	(20)	3,734.7	(24)	408	(32)	1.6%	(48)	59.7	(42)	2.1%	(11)	1,259	(26)	71.8	(21)
Texas	73,286	(7)	2,527.5	(39)	1,828	(15)	2.5%	(43)	63.0	(41)	2.5%	(8)	829	(44)	55.0	(30)
Utah	11,252	(31)	3,509.7	(28)	120	(41)	1.1%	(51)	37.4	(47)	2.8%	(4)	1,174	(31)	88.6	(15)
Vermont	1,027	(47)	1,645.9	(45)	55	(47)	5.4%	(13)	88.1	(36)	0.9%	(42)	1,656	(12)	11.9	(47)
Virginia	48,532	(12)	5,685.9	(16)	1,453	(17)	3.0%	(38)	170.2	(22)	1.7%	(18)	1,094	(32)	100.4	(8)
Washington	24,258	(22)	3,185.6	(33)	1,160	(18)	4.8%	(18)	152.3	(23)	1.5%	(23)	760	(46)	40.5	(38)
West Virginia	2,119	(46)	1,185.7	(47)	84	(43)	4.0%	(30)	47.0	(44)	1.1%	(37)	1,210	(29)	11.8	(48)
Wisconsin	20,249	(24)	3,477.8	(29)	633	(26)	3.1%	(36)	108.7	(30)	1.9%	(13)	1,774	(10)	62.4	(29)
Wyoming	933	(48)	1,612.1	(46)	17	(50)	1.8%	(46)	29.4	(48)	0.7%	(47)	1,072	(34)	10.4	(49)
United States	1,965,708		5,938.6		111,390		5.7%		329.7		1.4%		1,350		67.3	

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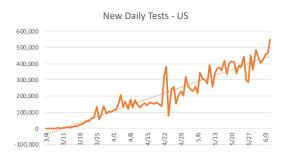
#### **United States**

# **Overall Statistics**

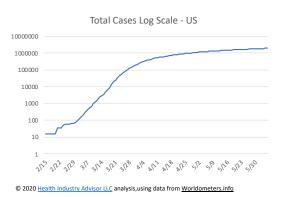
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With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates.

Further, new daily infections continue to decline; the death rate seems to have stabilized.



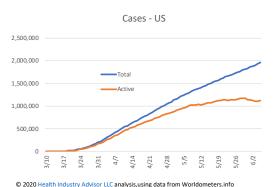
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Test-Positive Rate

25% — Cumulative — Trailing 7-Day Moving Average

20% — Trailing 7-Day Moving Average





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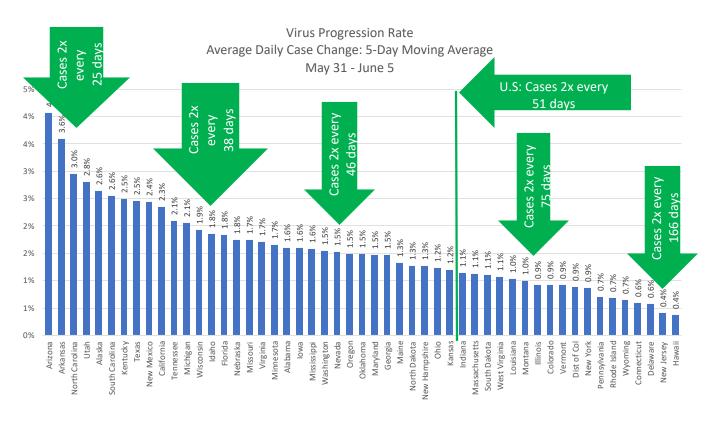
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# Average Daily Case Growth

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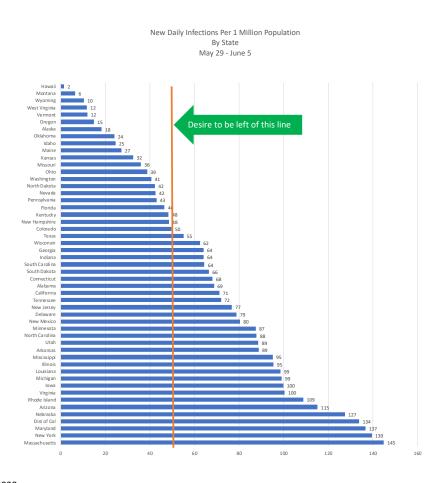
At the height of the epidemic, cases in some states were doubling every few days. Now, they would take from 1917 – 190 days to double

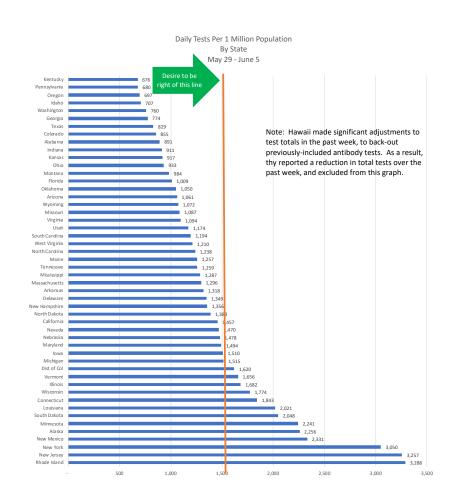




# New Daily Infections & Tests Per Capita

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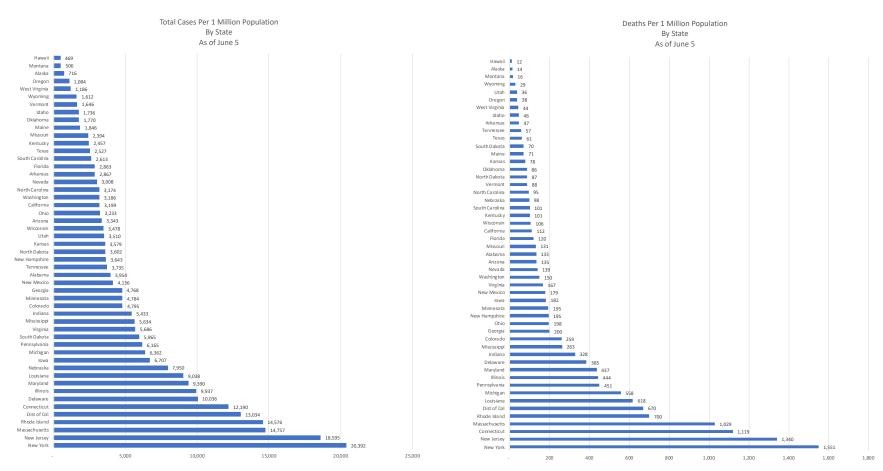


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# Cases & Deaths Per Capita

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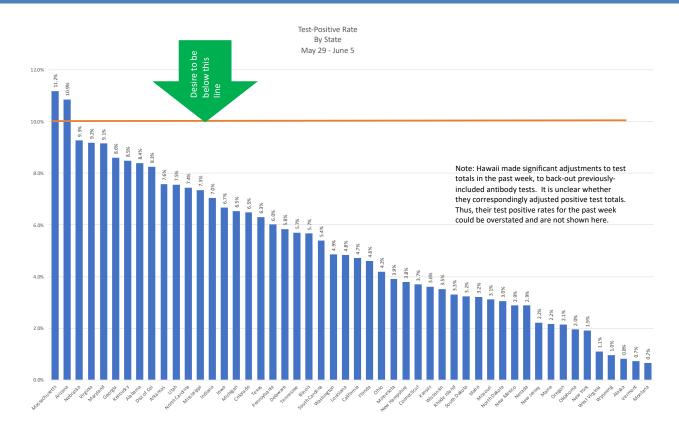




# Which States Are Performing Sufficient Tests?

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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 5 states met this guideline for the past week.





# VIRUS PROGRESSION: ROADMAP TO RECOVERY



# Virus Progression

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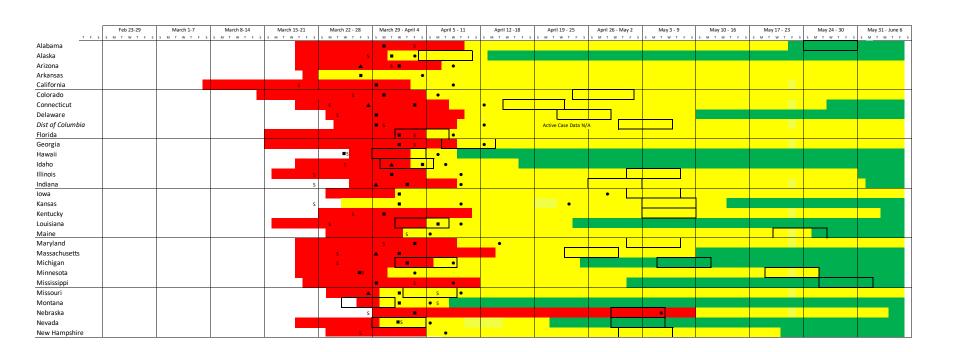
The graphic on the following two pages illustrates when the state first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses 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.



# Virus Progression − 1 of 2

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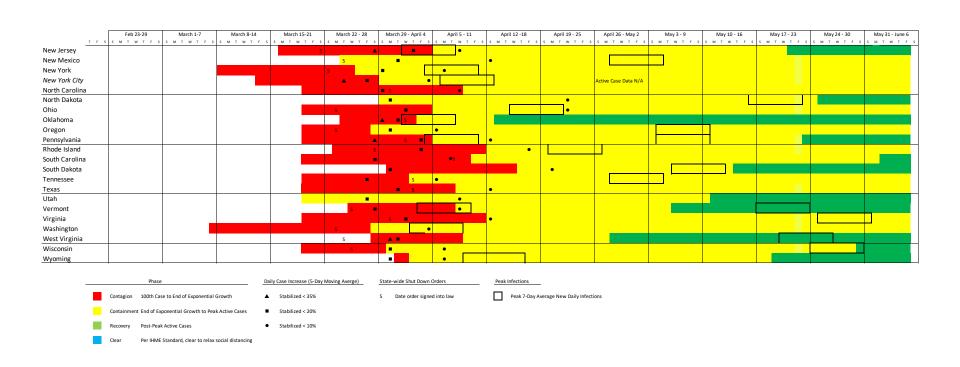
Legend on following page

 $\hbox{@ 2020} \, \underline{\text{Health Industry Advisor LLC}} \, \text{analysis, using data from } \underline{\text{worldometers.info}} \,$ 



# Virus Progression – 2 of 2

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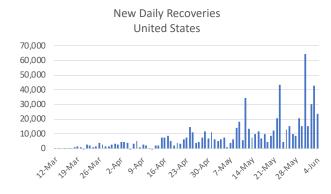
# UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING



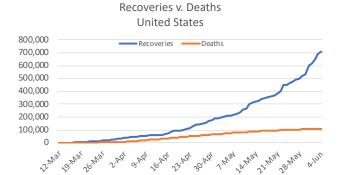
#### **United States**

# Recoveries

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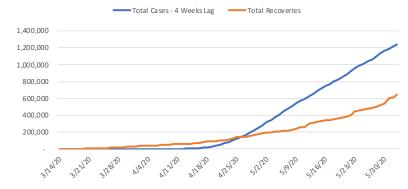


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#### Total Cases - 4-Week Lag v. Total Recoveries





#### Recoveries

# Reporting of Recoveries Seems to Be Lagging

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#### 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 ~322-425k

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

State	Recoveries	Expected R		State	Recoveries	Expected F	Recoveries
		Low	High			Low	High
Alabama	11,395	7,237	8,141	Montana	467	366	411
Alaska	376	299	337	Nebraska	7,598	5,752	6,094
Arizona	70	7,956	8,951	Nevada	6,818	4,613	5,097
Arkansas	5,919	2,955	3,325	New Hampshire	3,187	2,274	2,466
California	29,693	49,800	56,025	New Jersey	21,963	108,085	119,753
Colorado	2,227	14,697	16,534	New Mexico	3,115	3,594	3,862
Connecticut	7,689	25,427	28,606	New York	68,838	269,937	300,142
Delaware	5,562	4,751	5,345	North Carolina	18,860	10,814	11,749
District Of Columbia	1,138	4,523	5,089	North Dakota	2,209	1,097	1,191
Florida	10,173	31,062	34,945	Ohio	7,130	17,707	19,418
Georgia	858	25,264	28,422	Oklahoma	5,781	3,464	3,781
Hawaii	611	503	566	Oregon	1,894	2,391	2,624
Idaho	2,362	1,742	1,960	Pennsylvania	51,020	44,802	49,408
Illinois	65,964	56,698	63,786	Rhode Island	1,326	8,424	9,185
Indiana	23,707	18,002	20,253	South Carolina	6,976	5,714	6,242
Iowa	12,420	8,847	9,953	South Dakota	4,084	2,324	2,501
Kansas	4,752	5,066	5,699	Tennessee	16,643	11,277	12,544
Kentucky	3,303	4,902	5,515	Texas	46,857	29,240	31,797
Louisiana	31,728	24,522	27,587	Utah	6,628	4,579	5,036
Maine	1,739	1,064	1,197	Vermont	881	733	817
Maryland	3,985	23,499	26,437	Virginia	6,284	17,256	18,230
Massachusetts	78,108	58,977	66,349	Washington	7,332	13,554	15,025
Michigan	38,099	36,517	41,081	West Virginia	1,424	1,038	1,148
Minnesota	21,490	7,492	8,429	Wisconsin	12,980	7,372	8,011
Mississippi	11,203	6,949	7,817	Wyoming	735	508	568
Missouri	3,397	7,586	8,534				
				United States	712,252	1,034,098	1,136,783

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

<sup>-</sup> States seemingly up-to-date with reporting recoveries
- States only reporting~ 1/2 expected recoveries

<sup>-</sup> States well-behind in reporting recoveries



# STATE TEST, INFECTION AND CASE TRENDS



# Test, New Daily Infection and Active Case Trends

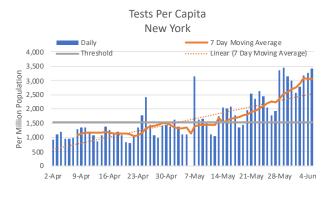
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On Friday, New York and Michigan reported significant increases in new cases. In order to provide visibility into how these states have been performing during the pandemic, on the following pages we have provided the graphs of testing volume, test-positive rates, new infection trends and active cases

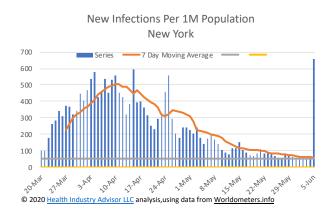


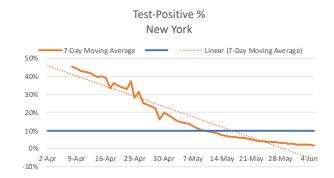
# Test, New Daily Infection and Active Case Trends

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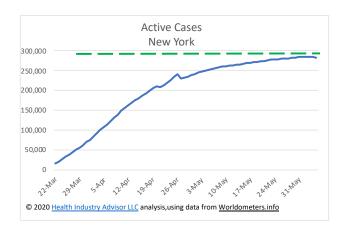


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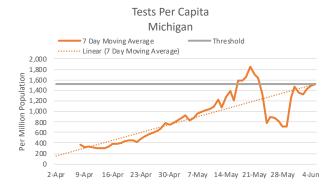
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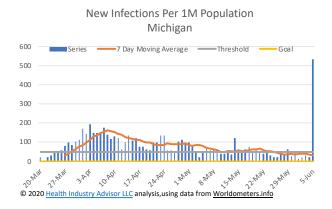


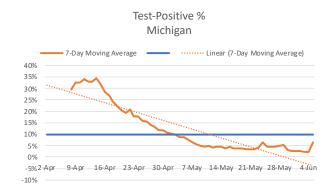
# Test, New Daily Infection and Active Case Trends

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