Health Industry Advisor, llc

"Strategic Guidance in an Era of Unprecedented Change"

COVID-19 Dashboard

Issue # 66

Thursday, June 4, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	>456,000 tests; 2nd most ever
Test-Positivity Rate	Decline	4.4% test-positive past 2 days; 5.1% for past 7 days
Number of Cases	Plateau	New Cases up 1.9% week-over-week
Deaths % of Total Cases	Decline	5.7%
Number of Deaths / 1M Population	Plateau	329.7
Recoveries : Death	Increase	6.31

- We continue our transition from tracking the 30 countries hardest-hit by the novel coronavirus, to tracking all 215 countries that have at least one case. Placing that in perspective, when we started in mid-March, South Korea ranked 20th in total cases; as of yesterday it ranked 51st.
- Today's report also focuses on the Large Central, Large Fringe and Medium Metro Areas in the United States that have the highest current rate of new daily infections per capita
- Testing in the United States was strong again on Wednesday: the 456,000 tests were the second highest daily total since the pandemic started. Coupled with a 4.4% test-positive rate, the United States' surveillance of the virus spread continues to be strong
- Only 5 states are reporting test-positive rates the past week higher than the 10% upper limit suggested by the World Health Organization - Arizona, Georgia, Massachusetts, Nebraska and Virginia. Each of these states are close to this standard, however, with Massachusetts reporting the highest rate at 10.9%
- In recent days, Alabama, Mississippi, Virginia and Wisconsin seemed to have moved beyond a peak in new daily infections. At this point, only Arizona, Arkansas, California, North Carolina, South Carolina, Texas and Utah have not established a peak in new daily infections
- Review of the case information by urban designation provides some challenging news for the in the Commonwealth of Virginia: Among Large Central Metro Areas, Richmond has the highest rate of new infections per capita over the past week, and its rate has yet to peak; Alexandria, Virginia is ranked 4th among Large Central Metro Areas. Among the Large Fringe Areas that have yet to peak, 11 of the 16 with the highest rate of new infections are in Virginia
- The death rate in the United States remains stable at 5.7%. Recoveries total 688,000 and outnumber deaths by 6.3:1 - and are likely substantially higher
- Among the 30 countries with the most cases, Qatar has the highest rate of cases per capita; Singapore is second. Qatar also has the highest rate of new daily infections, while Singapore is 6th

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 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

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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 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 - Past 7 Days	Rank7	New Daily Infections Per 1M Population (5-Day M.A.)	Rank8
USA	1,901,783	(1)	5,748	(5)	109,142	(1)	5.7%	(11)	329.9	(8)	2.4%	(22)	1,390	(6)	65.4	(8)
Brazil	583,980	(2)	2,749	(15)	32,547	(4)	5.6%	(13)	153.2	(11)	4.7%	(9)	39	(28)	108.9	(4)
Russia	432,277	(3)	2,962	(14)	5,215	(14)	1.2%	(24)	35.7	(19)	2.4%	(21)	1,968	(3)	61.2	(10)
Spain	287,406	(4)	6,147	(3)	27,128	(6)	9.4%	(8)	580.2	(3)	4.6%	(10)	1,550	(5)	7.5	(24)
UK	279,856	(5)	4,124	(9)	39,728	(2)	14.2%	(4)	585.4	(2)	1.4%	(25)	2,079	(1)	25.4	(17)
Italy	233,836	(6)	3,867	(11)	33,601	(3)	14.4%	(3)	555.7	(4)	4.8%	(8)	927	(11)	5.3	(27)
India	216,824	(7)	157	(29)	6,088	(12)	2.8%	(18)	4.4	(28)	4.6%	(11)	89	(23)	6.3	(26)
Germany	184,425	(8)	2,202	(21)	8,699	(9)	4.7%	(15)	103.9	(14)	1.4%	(26)	675	(15)	3.4	(28)
Peru	178,914	(9)	5,432	(6)	4,894	(15)	2.7%	(20)	148.6	(12)	-0.3%	(29)	911	(12)	186.0	(3)
Turkey	166,422	(10)	1,975	(22)	4,609	(17)	2.8%	(19)	54.7	(18)	0.7%	(28)	441	(18)	10.2	(23)
Iran	160,696	(11)	1,915	(23)	8,012	(10)	5.0%	(14)	95.5	(15)	6.4%	(2)	239	(22)	33.4	(12)
France	151,677	(12)	2,324	(20)	29,021	(5)	19.1%	(1)	444.7	(6)	-2.2%	(30)	0	(30)	(107.7)	(30)
Chile	113,628	(13)	5,948	(4)	1,275	(22)	1.1%	(25)	66.7	(17)	4.8%	(7)	850	(14)	240.7	(2)
Mexico	97,326	(14)	755	(24)	10,637	(7)	10.9%	(7)	82.6	(16)	4.1%	(13)	64	(26)	24.7	(18)
Canada	93,085	(15)	2,468	(18)	7,498	(11)	8.1%	(10)	198.8	(9)	0.9%	(27)	851	(13)	19.4	(19)
Saudi Arabia	91,182	(16)	2,622	(17)	579	(26)	0.6%	(27)	16.7	(23)	2.5%	(19)	479	(17)	54.2	(11)
China	83,021	(17)	58	(30)	4,634	(16)	5.6%	(12)	3.2	(30)	3.6%	(16)	0	(29)	0.0	(29)
Pakistan	80,463	(18)	365	(27)	1,688	(20)	2.1%	(22)	7.7	(26)	4.9%	(6)	62	(27)	14.9	(21)
Qatar	62,160	(19)	22,138	(1)	45	(29)	0.1%	(29)	16.0	(24)	8.0%	(1)	2,037	(2)	659.1	(1)
Belgium	58,685	(20)	5,065	(7)	9,522	(8)	16.2%	(2)	821.9	(1)	4.0%	(14)	979	(10)	10.8	(22)
Bangladesh	55,140	(21)	335	(28)	746	(25)	1.4%	(23)	4.5	(27)	6.0%	(3)	69	(25)	14.9	(20)
Netherlands	46,733	(22)	2,728	(16)	5,977	(13)	12.8%	(5)	348.9	(7)	2.5%	(20)	275	(20)	7.1	(25)
Belarus	45,116	(23)	4,774	(8)	248	(28)	0.5%	(28)	26.2	(21)	4.3%	(12)	1,333	(7)	92.1	(5)
Ecuador	40,966	(24)	2,325	(19)	3,486	(19)	8.5%	(9)	197.8	(10)	2.7%	(17)	79	(24)	27.2	(14)
Sweden	40,803	(25)	4,042	(10)	4,542	(18)	11.1%	(6)	449.9	(5)	2.6%	(18)	519	(16)	85.7	(7)
South Africa	37,525	(26)	633	(26)	792	(24)	2.1%	(21)	13.4	(25)	5.2%	(4)	364	(19)	28.0	(13)
Singapore	36,405	(27)	6,226	(2)	24	(30)	0.1%	(30)	4.1	(29)	3.7%	(15)	1,802	(4)	87.1	(6)
UAE	36,359	(28)	3,680	(12)	270	(27)	0.7%	(26)	27.3	(20)	1.9%	(23)	1,048	(9)	64.5	(9)
Colombia	33,354	(29)	656	(25)	1,045	(23)	3.1%	(17)	20.6	(22)	5.1%	(5)	256	(21)	26.2	(15)
Portugal	33,261	(30)	3,261	(13)	1,447	(21)	4.4%	(16)	141.9	(13)	1.4%	(24)	1,164	(8)	25.8	(16)

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

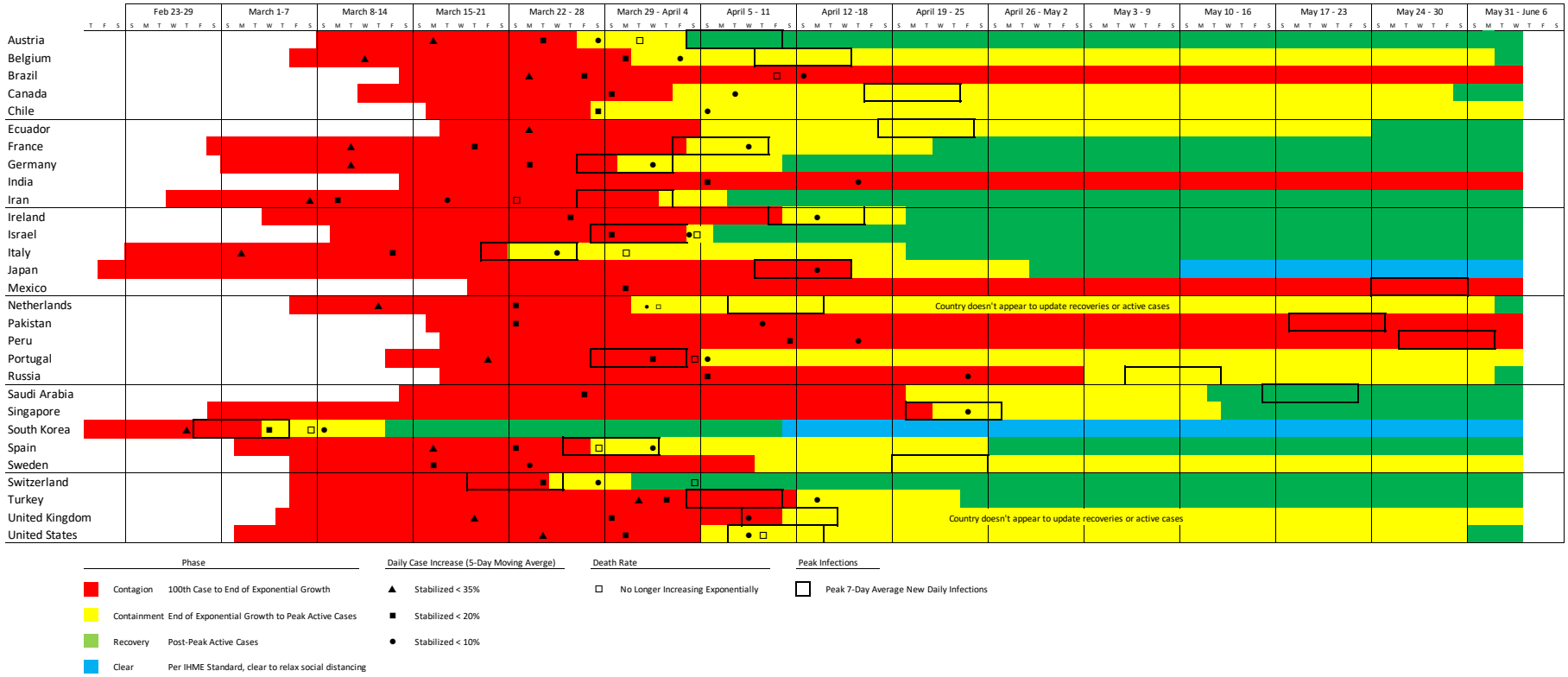
VIRUS PROGRESSION BY COUNTRY

Country-by-Country

Virus Progression – 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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"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 87.0% of all cases worldwide.

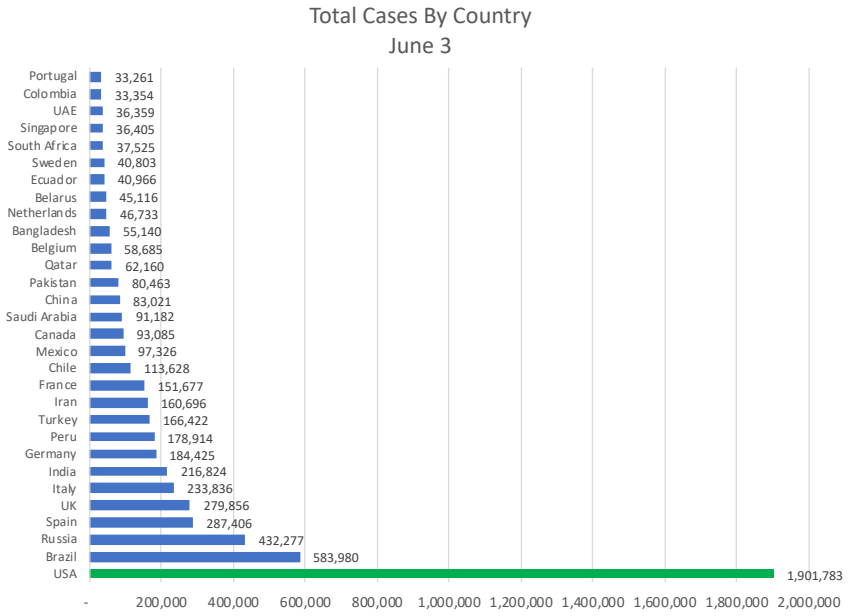
		Total Cases						
Rank	Country	3-Jun	Rank	Country	6-May	Rank	Country	27-Apr
1	USA	1,901,783	1	USA	1,263,092	1	USA	1,010,356
2	Brazil	583,980	2	Spain	253,682	2	Spain	229,422
3	Russia	432,277	3	Italy	214,457	3	Italy	199,414
4	Spain	287,406	4	UK	201,101	4	France	165,842
5	UK	279,856	5	France	174,191	5	Germany	158,758
6	Italy	233,836	6	Germany	168,162	6	UK	157,149
7	India	216,824	7	Russia	165,929	7	Turkey	112,261
8	Germany	184,425	8	Turkey	131,744	8	Iran	91,472
9	Peru	178,914	9	Brazil	126,611	9	Russia	87,147
10	Turkey	166,422	10	Iran	101,650	10	China	82,830
11	Iran	160,696	11	China	82,883	11	Brazil	66,501
12	France	151,677	12	Canada	63,496	12	Canada	48,500
13	Chile	113,628	13	Peru	54,817	13	Belgium	46,687
14	Mexico	97,326	14	India	52,987	14	Netherlands	38,245
15	Canada	93,085	15	Belgium	50,781	15	India	29,451
16	Saudi Arabia	91,182	16	Netherlands	41,319	16	Switzerland	29,164
17	China	83,021	17	Saudi Arabia	31,938	17	Peru	28,669
18	Pakistan	80,463	18	Switzerland	30,060	18	Portugal	24,070
20	Belgium	58,685	19	Ecuador	29,420	19	Ecuador	23,240
22	Netherlands	46,733	20	Portugal	26,182	20	Ireland	19,648
24	Ecuador	40,966	21	Mexico	26,025	21	Sweden	18,926
25	Sweden	40,803	22	Sweden	23,918	22	Saudi Arabia	18,811
27	Singapore	36,405	23	Pakistan	23,214	23	Israel	15,555
30	Portugal	33,261	24	Chile	23,048	24	Austria	15,274
31	Switzerland	30,893	25	Ireland	22,248	25	Mexico	14,677
35	Ireland	25,111	26	Singapore	20,198	26	Singapore	14,423
42	Israel	17,377	29	Israel	16,310	27	Pakistan	13,915
44	Japan	16,986	31	Austria	15,684	28	Chile	13,813
45	Austria	16,771	32	Japan	15,253	29	Japan	13,614
51	S. Korea	11,590	38	S. Korea	10,806	35	South Korea	10,738
	Others	850,313		Others	356,176		Others	263,943
	World	6,562,695			3,817,382		World	3,062,515
	30 countries' share	87.0%			90.7%			91.4%

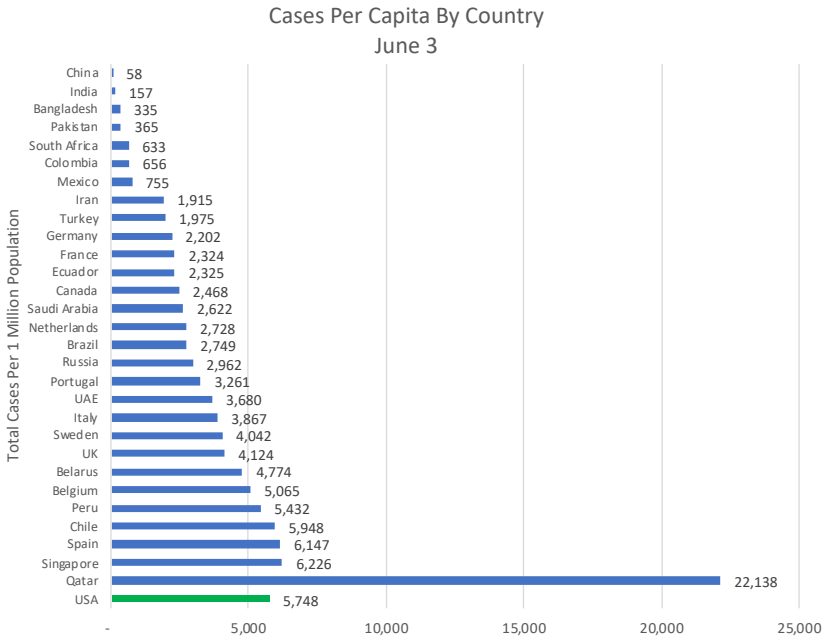
Country-by-Country

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

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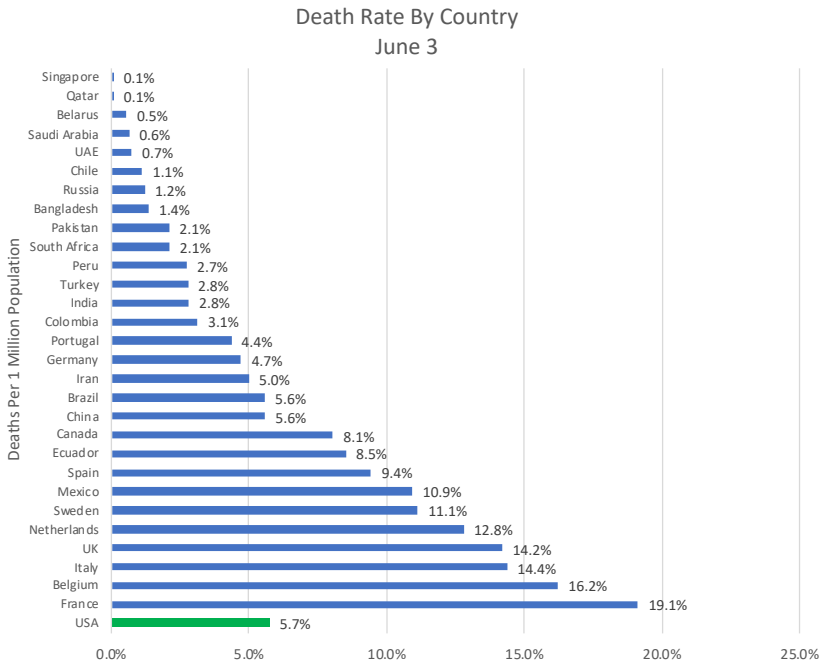
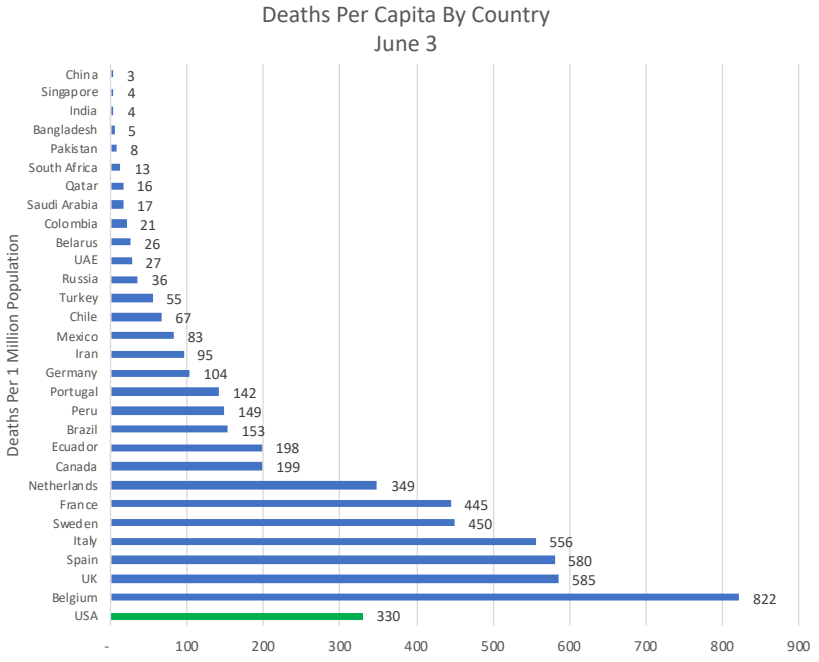
Countries Ranked 1-30 In Total Cases



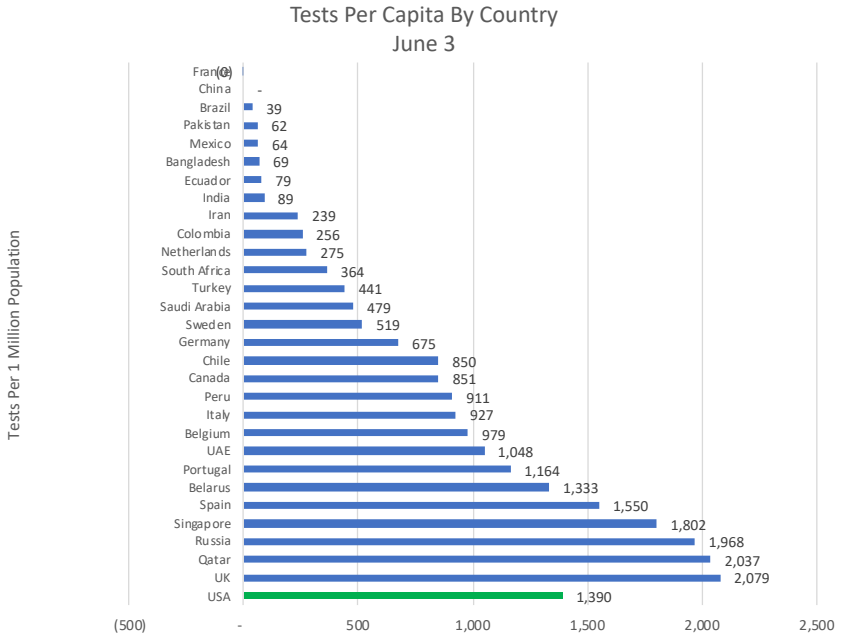


Country-by-Country

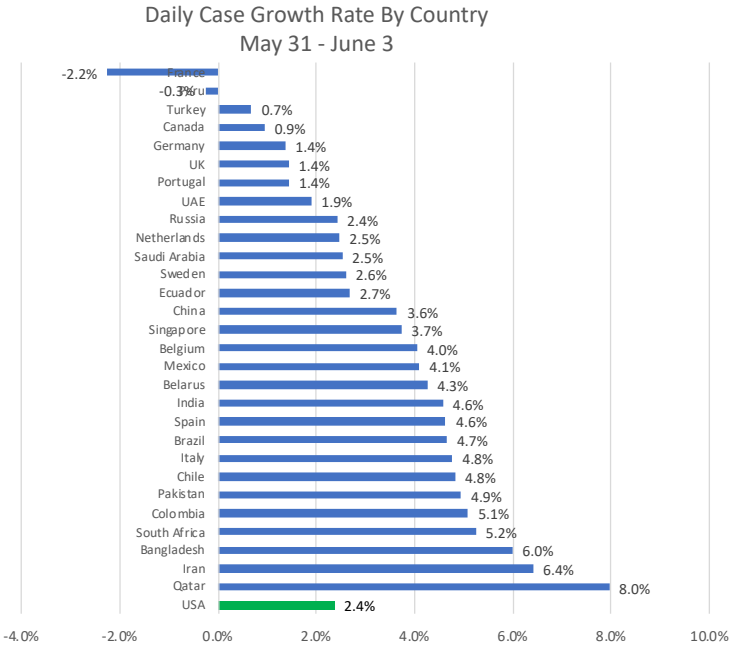
Daily Tests Per Capita & Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

Countries Ranked 1-30 In Total Cases



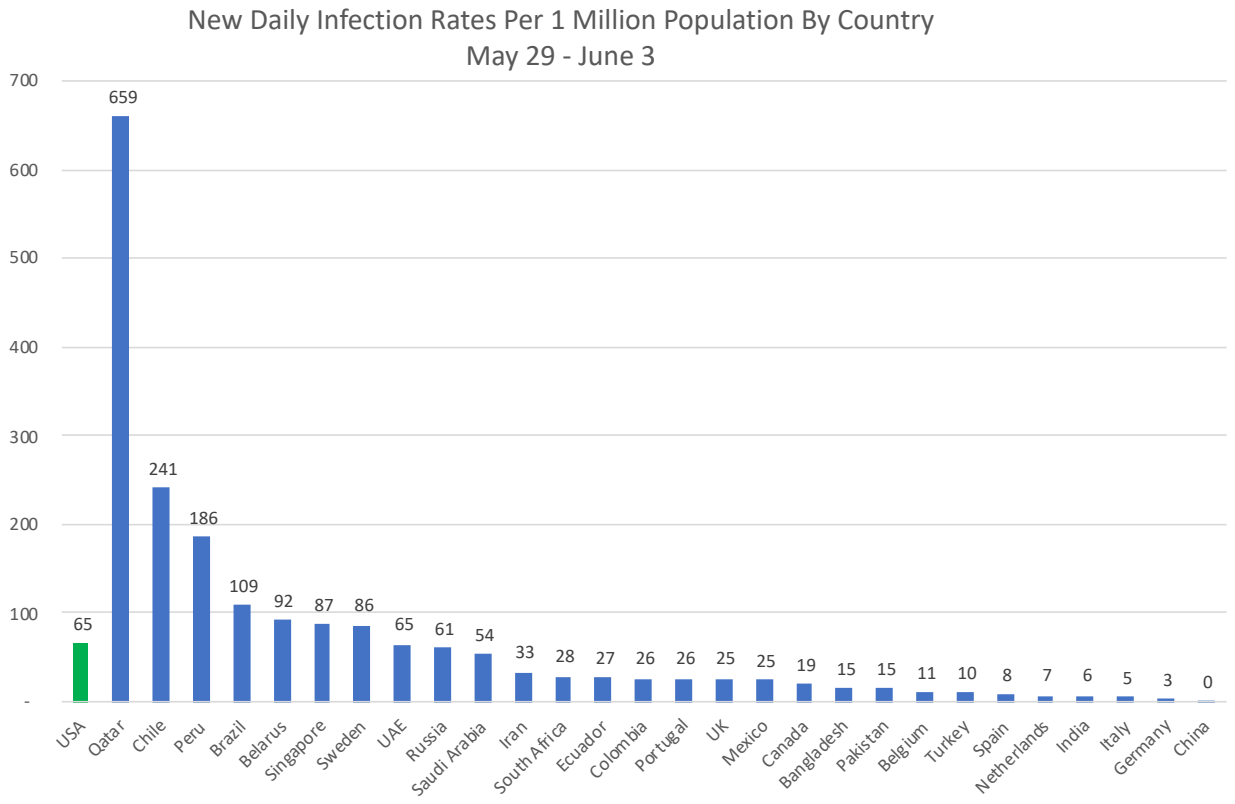
Daily Tests Per Capita For Past Week



Daily Case Growth – 5-Day Moving Average

New Daily Infection Rates

Countries Ranked 1-30 In Total Cases



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"

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	18,851	(25)	3,844.6	(23)	653	(25)	3.5%	(34)	133.2	(26)	2.1%	(10)	1,043	(36)	82.1	(16)
Alaska	505	(51)	690.3	(49)	10	(51)	2.0%	(45)	13.7	(50)	3.3%	(3)	2,308	(4)	18.2	(45)
Arizona	22,223	(22)	3,053.1	(32)	981	(21)	4.4%	(23)	134.8	(25)	3.8%	(1)	947	(39)	97.4	(9)
Arkansas	8,067	(38)	2,673.1	(37)	142	(40)	1.8%	(47)	47.1	(43)	3.5%	(2)	1,273	(25)	84.7	(15)
California	120,260	(4)	3,043.6	(33)	4,421	(7)	3.7%	(32)	111.9	(29)	2.4%	(7)	1,426	(16)	67.6	(24)
Colorado	27,060	(18)	4,698.9	(19)	1,494	(16)	5.5%	(13)	259.4	(15)	1.1%	(37)	862	(42)	56.9	(28)
Connecticut	43,091	(13)	12,086.3	(6)	3,989	(8)	9.3%	(2)	1,118.8	(3)	0.6%	(45)	2,046	(5)	72.2	(21)
Delaware	9,712	(34)	9,973.7	(7)	375	(34)	3.9%	(30)	385.1	(12)	1.0%	(41)	1,394	(19)	90.4	(11)
District Of Columbia	9,016	(35)	12,775.1	(5)	473	(29)	5.2%	(14)	670.2	(6)	1.1%	(38)	1,390	(20)	123.5	(4)
Florida	58,764	(8)	2,736.0	(36)	2,567	(11)	4.4%	(24)	119.5	(28)	1.5%	(21)	980	(38)	40.8	(35)
Georgia	48,894	(11)	4,605.1	(20)	2,123	(14)	4.3%	(25)	200.0	(16)	1.3%	(27)	565	(48)	57.3	(27)
Hawaii	653	(49)	461.2	(51)	17	(49)	2.6%	(41)	12.0	(51)	0.1%	(51)	(171)	(50)	0.9	(51)
Idaho	2,990	(43)	1,668.5	(44)	83	(43)	2.8%	(40)	46.3	(44)	1.3%	(26)	472	(49)	20.6	(44)
Illinois	123,830	(3)	9,772.1	(8)	5,621	(5)	4.5%	(22)	443.6	(10)	1.1%	(39)	1,750	(9)	107.4	(8)
Indiana	35,712	(16)	5,304.6	(18)	2,207	(13)	6.2%	(9)	327.8	(13)	1.3%	(30)	901	(41)	69.5	(23)
Iowa	20,301	(23)	6,434.4	(12)	574	(27)	2.8%	(39)	181.9	(20)	1.4%	(23)	1,128	(31)	87.8	(12)
Kansas	10,212	(33)	3,505.3	(27)	226	(37)	2.2%	(44)	77.6	(38)	0.9%	(42)	1,156	(30)	39.2	(37)
Kentucky	10,410	(32)	2,330.1	(40)	450	(30)	4.3%	(26)	100.7	(31)	1.9%	(13)	1,602	(12)	42.6	(34)
Louisiana	41,133	(14)	8,848.1	(10)	2,875	(9)	7.0%	(7)	618.4	(7)	1.2%	(36)	1,673	(11)	80.8	(17)
Maine	2,418	(45)	1,798.8	(42)	95	(42)	3.9%	(29)	70.7	(39)	1.7%	(18)	786	(43)	29.9	(42)
Maryland	54,982	(10)	9,094.4	(9)	2,641	(10)	4.8%	(18)	436.8	(11)	1.5%	(20)	1,549	(13)	155.0	(1)
Massachusetts	101,592	(5)	14,618.6	(3)	7,152	(3)	7.0%	(6)	1,029.1	(4)	1.2%	(31)	1,486	(14)	151.5	(2)
Michigan	58,035	(9)	5,811.1	(15)	5,570	(6)	9.6%	(1)	557.7	(8)	0.5%	(47)	1,420	(17)	34.7	(40)
Minnesota	25,870	(19)	4,587.2	(21)	1,097	(19)	4.2%	(27)	194.5	(19)	1.9%	(14)	1,246	(26)	86.3	(13)
Mississippi	16,322	(26)	5,484.3	(17)	782	(23)	4.8%	(20)	262.8	(14)	2.0%	(11)	1,758	(8)	109.3	(7)

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State-by-State

Comparative Statistics- Page 2 of 2

"Strategic Guidance in an Era of Unprecedented Change"

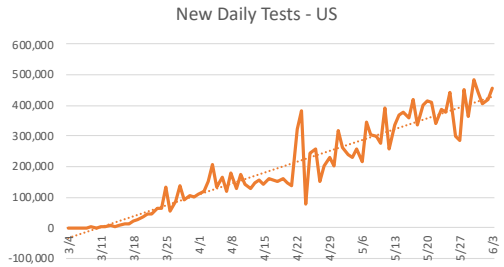
State	Total Cases	Rank	Cases per 1M Population	Rank2	Deaths	Rank3	Death Rate	Rank4	Deaths per 1 Million Population	Rank5	5-day Moving Average Case Growth Rate	Rank6	Tests per 1M Population Past 7 days	Rank7	New Daily Cases Per 1M Population (5-Day M.A.)	Rank8
Missouri	14,225	(29)	2,317.7	(41)	804	(22)	5.7%	(10)	131.0	(27)	1.6%	(19)	1,067	(33)	32.9	(41)
Montana	525	(50)	491.2	(50)	17	(49)	3.2%	(35)	15.9	(49)	1.3%	(28)	1,043	(35)	5.9	(49)
Nebraska	14,866	(28)	7,685.0	(11)	189	(38)	1.3%	(49)	97.7	(33)	1.7%	(16)	1,443	(15)	139.6	(3)
Nevada	8,935	(36)	2,900.8	(35)	429	(31)	4.8%	(19)	139.3	(24)	1.4%	(24)	1,285	(23)	38.1	(39)
New Hampshire	4,795	(41)	3,526.5	(25)	265	(36)	5.5%	(12)	194.9	(18)	1.3%	(25)	1,209	(28)	53.5	(30)
New Jersey	163,774	(2)	18,438.5	(2)	11,906	(2)	7.3%	(5)	1,340.4	(2)	0.4%	(48)	2,848	(3)	95.8	(10)
New Mexico	8,140	(37)	3,882.1	(22)	375	(34)	4.6%	(21)	178.8	(21)	1.7%	(17)	1,784	(6)	60.5	(25)
New York	382,837	(1)	19,679.5	(1)	30,164	(1)	7.9%	(3)	1,550.6	(1)	0.3%	(50)	3,069	(2)	60.0	(26)
North Carolina	31,221	(17)	2,976.8	(34)	999	(20)	3.2%	(36)	95.3	(34)	3.1%	(4)	1,159	(29)	86.2	(14)
North Dakota	2,679	(44)	3,515.5	(26)	66	(45)	2.5%	(43)	86.6	(36)	1.2%	(33)	1,343	(21)	45.0	(33)
Ohio	36,826	(15)	3,150.5	(30)	2,309	(12)	6.3%	(8)	197.5	(17)	1.2%	(32)	933	(40)	40.7	(36)
Oklahoma	6,805	(39)	1,719.7	(43)	341	(35)	5.0%	(15)	86.2	(37)	1.4%	(22)	1,062	(34)	20.8	(43)
Oregon	4,399	(42)	1,043.0	(48)	159	(39)	3.6%	(33)	37.7	(46)	1.3%	(29)	666	(46)	12.2	(48)
Pennsylvania	77,878	(6)	6,083.3	(13)	5,768	(4)	7.4%	(4)	450.6	(9)	0.7%	(44)	625	(47)	47.2	(32)
Rhode Island	15,236	(27)	14,382.3	(4)	742	(24)	4.9%	(16)	700.4	(5)	0.8%	(43)	3,258	(1)	119.1	(5)
South Carolina	12,651	(30)	2,457.1	(38)	518	(28)	4.1%	(28)	100.6	(32)	2.6%	(5)	1,311	(22)	56.3	(29)
South Dakota	5,162	(40)	5,835.0	(14)	62	(46)	1.2%	(50)	70.1	(40)	1.2%	(35)	1,721	(10)	73.0	(20)
Tennessee	24,822	(20)	3,632.6	(24)	388	(32)	1.6%	(48)	56.8	(42)	2.4%	(8)	1,278	(24)	73.5	(19)
Texas	69,437	(7)	2,394.7	(39)	1,768	(15)	2.5%	(42)	61.0	(41)	2.3%	(9)	744	(44)	50.8	(31)
Utah	10,497	(31)	3,274.2	(29)	117	(41)	1.1%	(51)	36.5	(47)	2.5%	(6)	1,041	(37)	79.8	(18)
Vermont	990	(47)	1,586.6	(45)	55	(47)	5.6%	(11)	88.1	(35)	0.3%	(49)	1,419	(18)	4.3	(50)
Virginia	46,905	(12)	5,495.3	(16)	1,428	(17)	3.0%	(38)	167.3	(22)	2.0%	(12)	1,094	(32)	111.4	(6)
Washington	23,484	(21)	3,084.0	(31)	1,141	(18)	4.9%	(17)	149.8	(23)	1.2%	(34)	676	(45)	38.7	(38)
West Virginia	2,077	(46)	1,162.2	(47)	78	(44)	3.8%	(31)	43.6	(45)	1.0%	(40)	1,224	(27)	14.2	(46)
Wisconsin	19,400	(24)	3,331.9	(28)	616	(26)	3.2%	(37)	105.8	(30)	1.8%	(15)	1,768	(7)	72.1	(22)
Wyoming	915	(48)	1,581.0	(46)	17	(49)	1.9%	(46)	29.4	(48)	0.5%	(46)	(5,082)	(51)	13.6	(47)
United States	1,901,783		5,745.5		109,142		5.7%		329.7		1.2%		1,292		67.3	

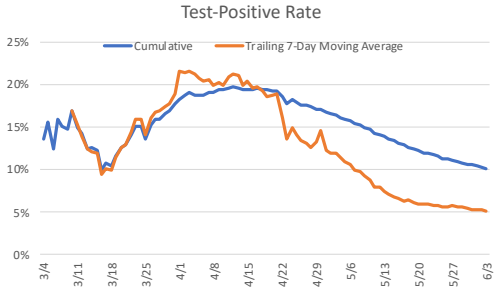
United States

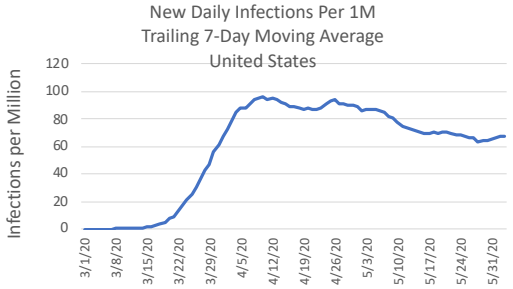
Overall Statistics

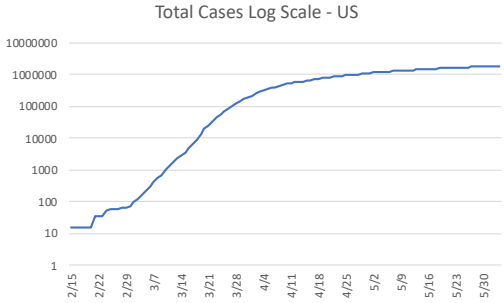
"Strategic Guidance in an Era of Unprecedented Change"

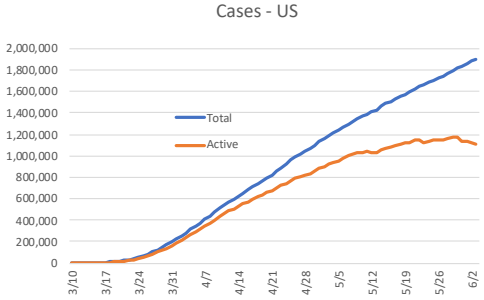
With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates.
Further, new daily infections continue to decline; the death rate seems to have stabilized.

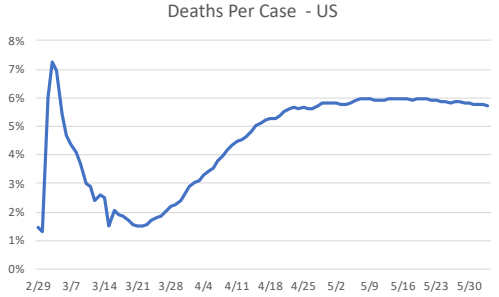












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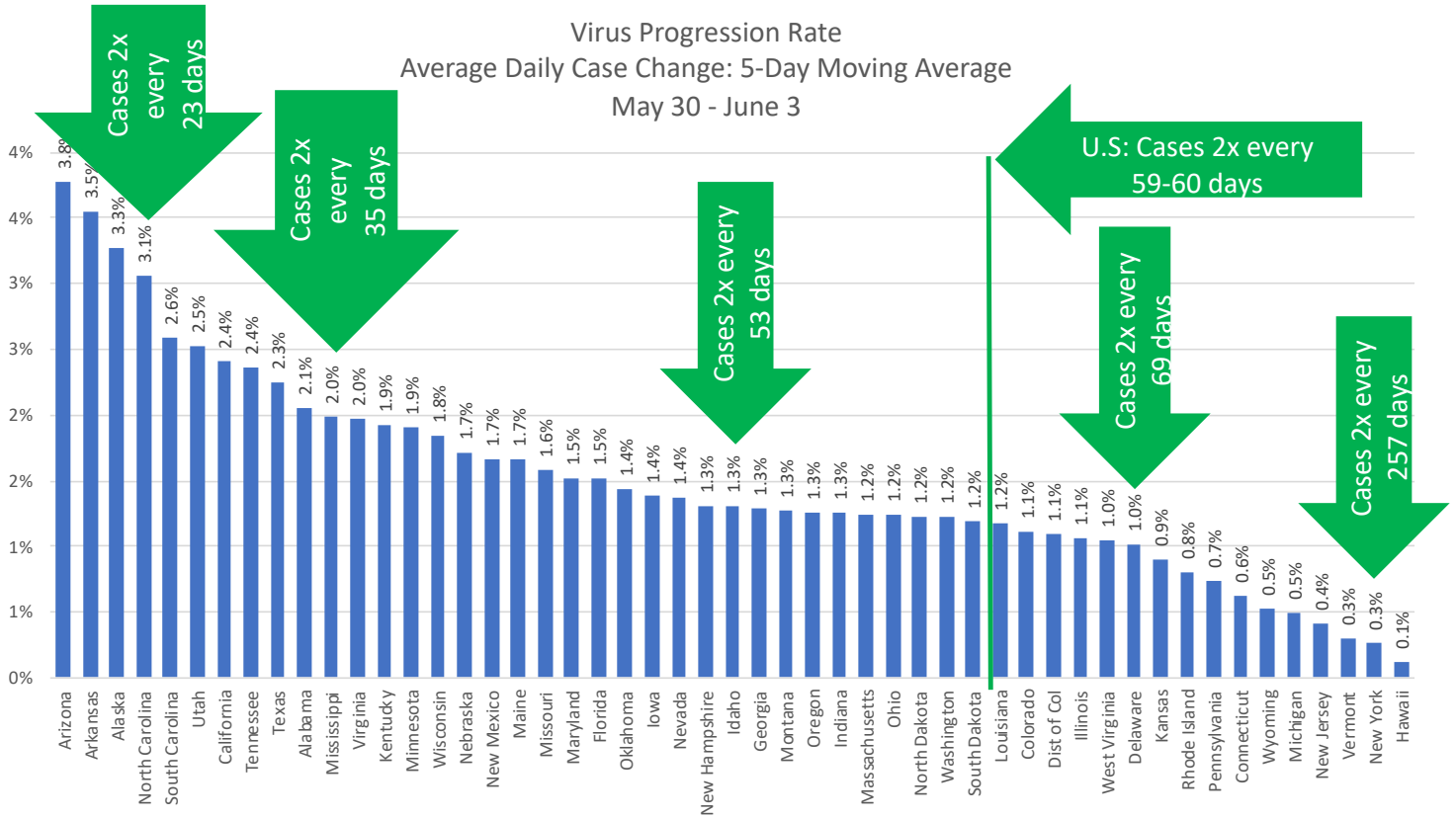
State-by-State

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 19 days to nearly 2 years to double



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State-by-State

New Daily Infections & Tests Per Capita

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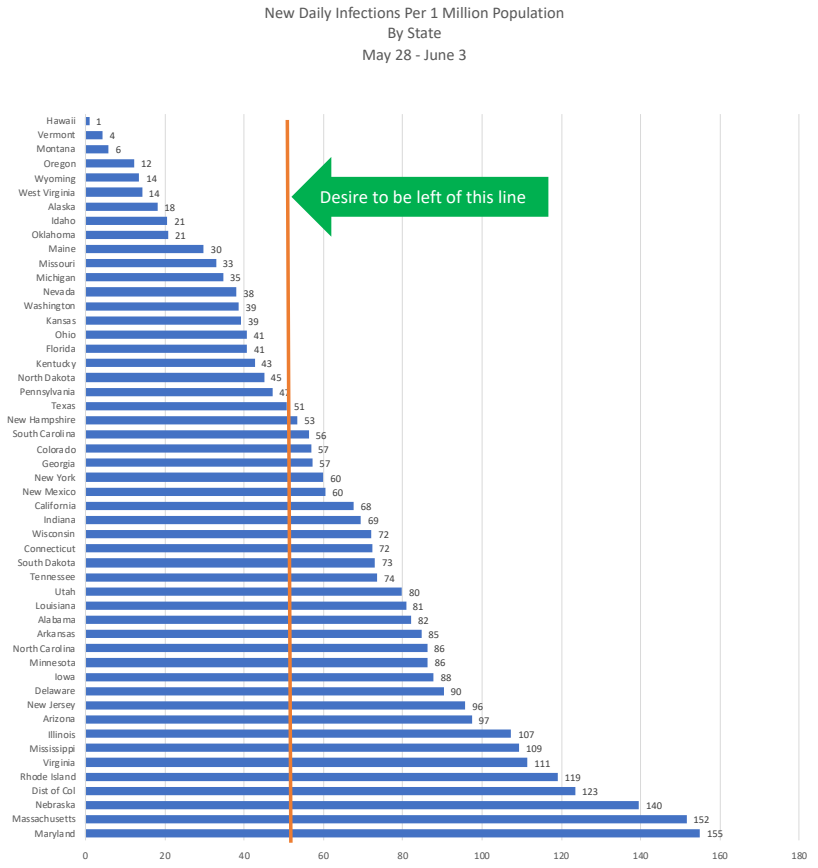

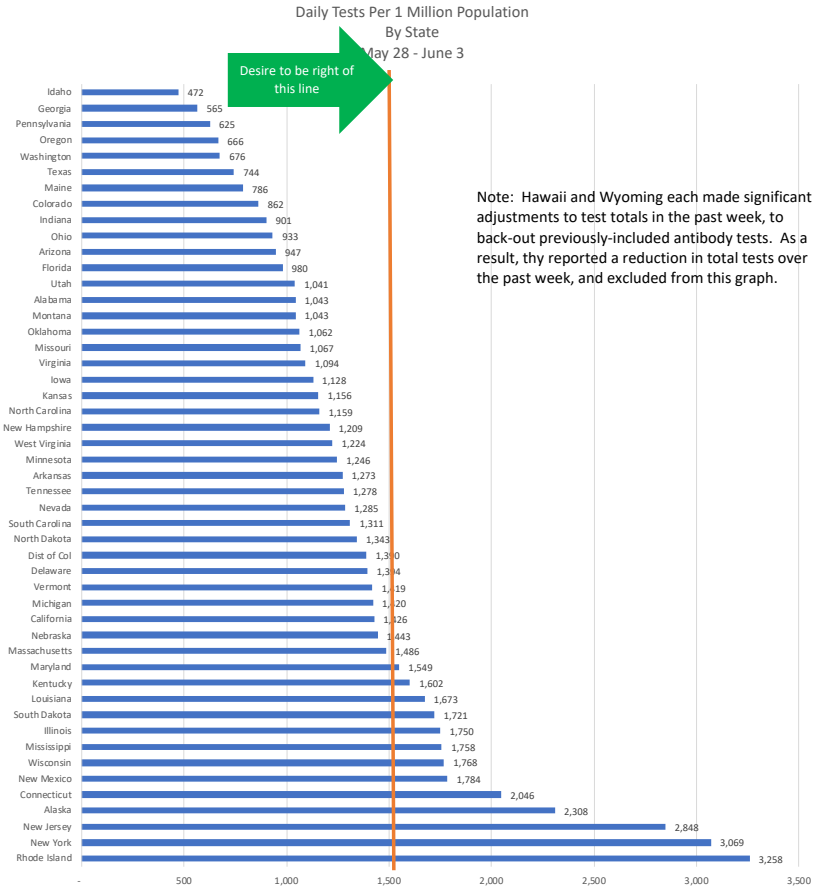

Note: Hawaii and Wyoming each made significant adjustments to test totals in the past week, to back-out previously-included antibody tests. As a result, thy reported a reduction in total tests over the past week, and excluded from this graph.

State-by-State

Cases & Deaths Per Capita

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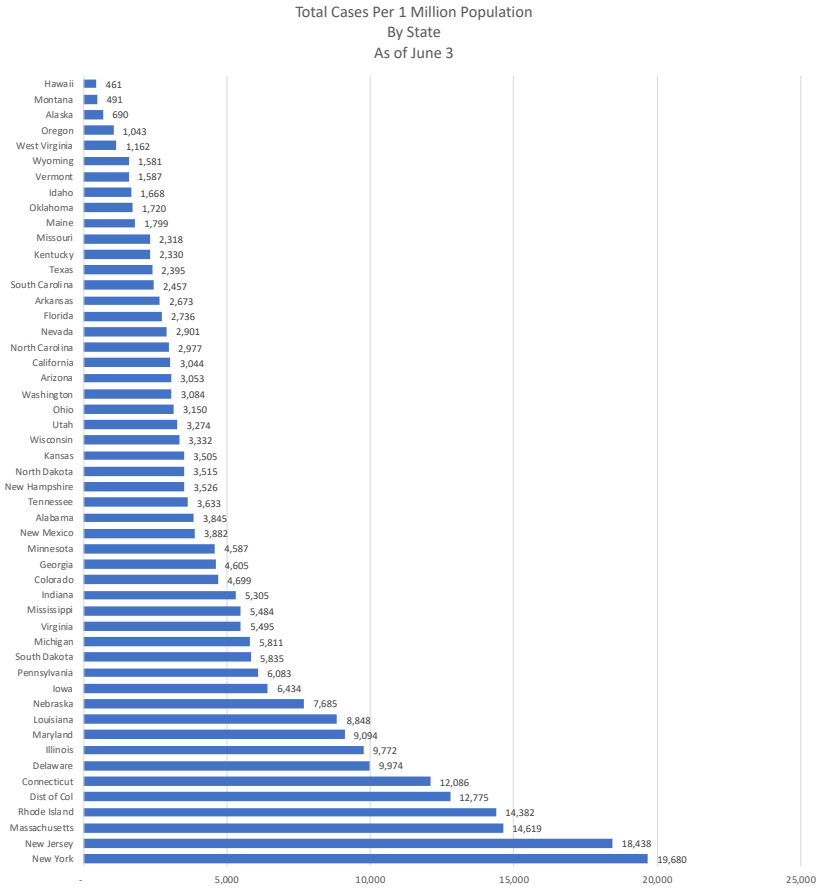

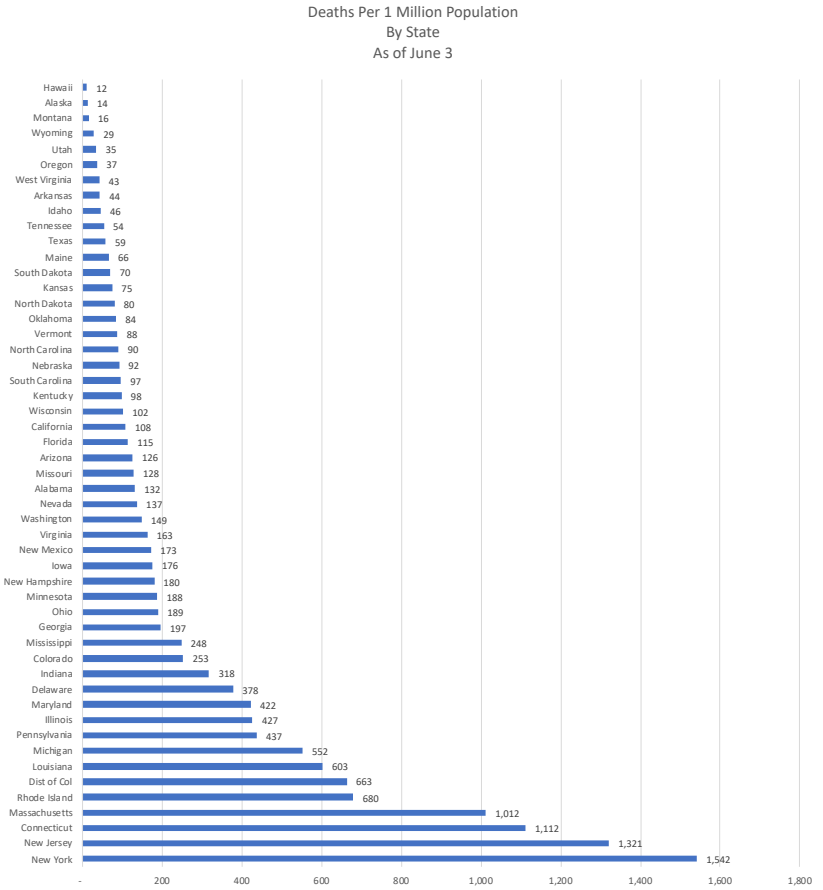

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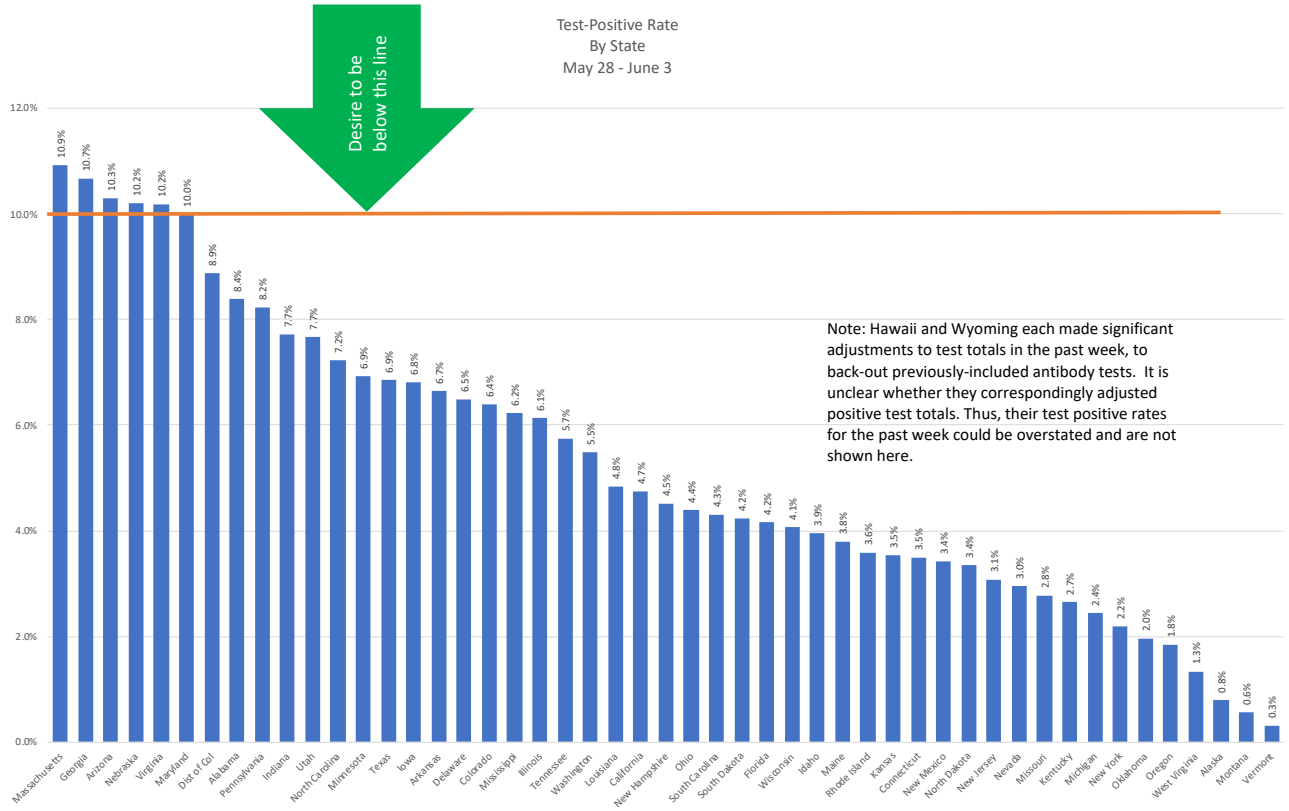
State-by-State

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 5 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.

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State-by-State

Virus Progression – *1 of 2*

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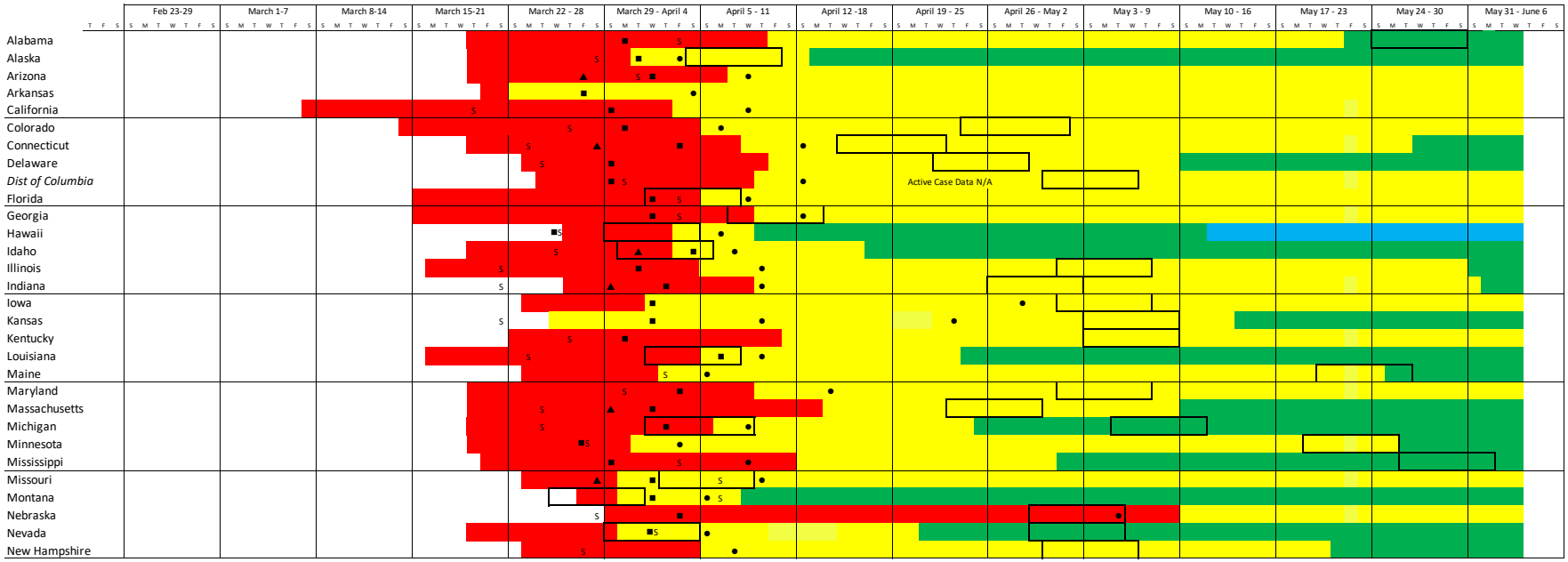

Legend on following page

State-by-State

Virus Progression – *2 of 2*

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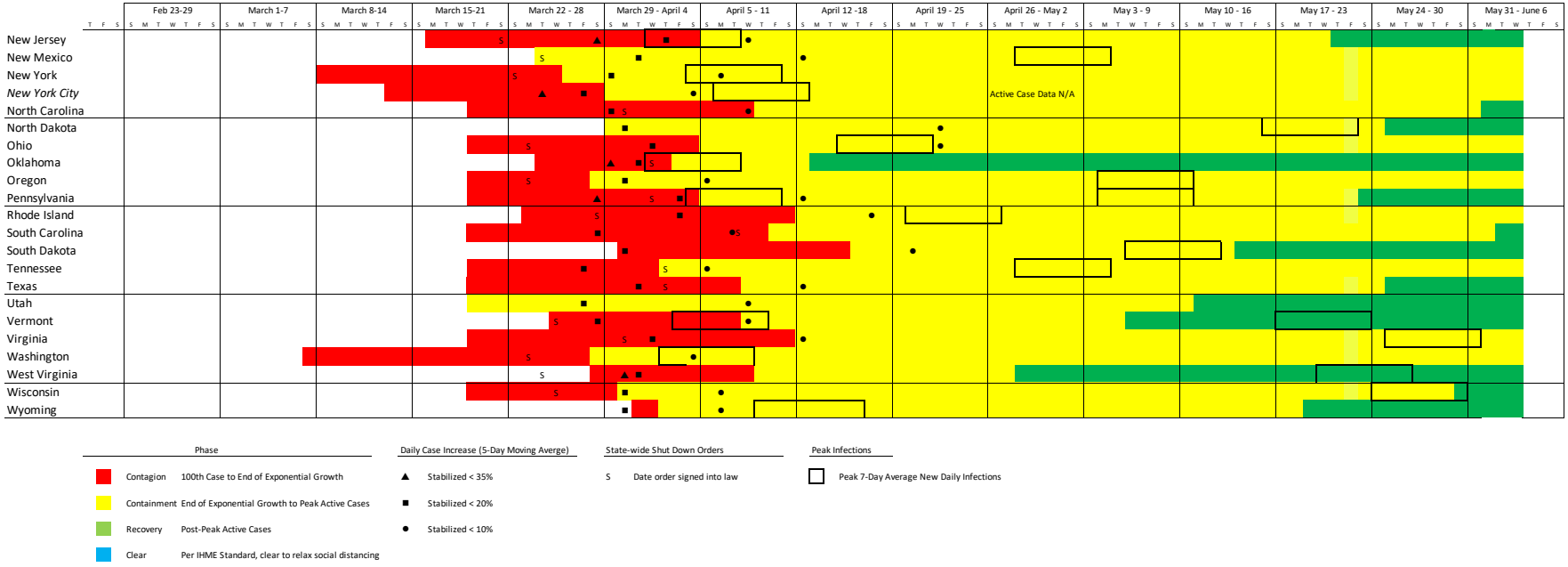
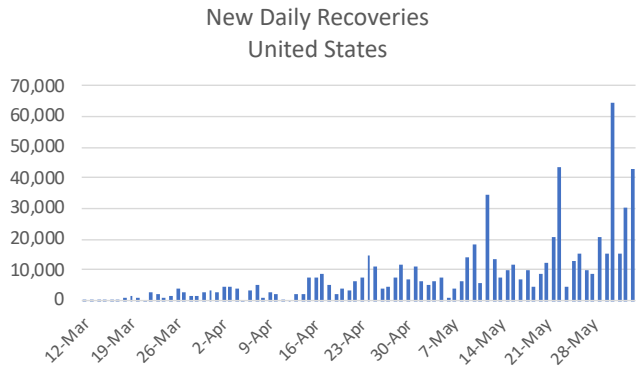
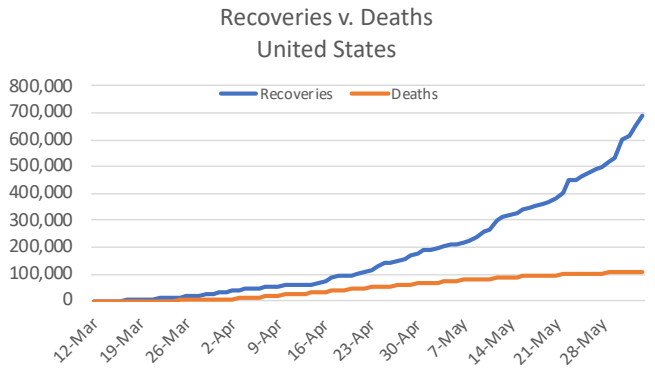


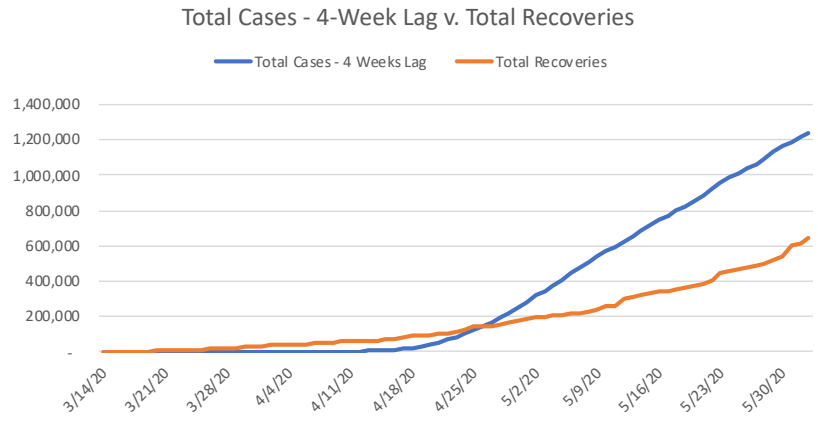
UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING

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 ~322-450k

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

State	Recoveries	Expected Recoveries Low	Expected Recoveries High
Alabama	9,355	6,953	7,822
Alaska	371	298	335
Arizona	70	7,766	8,736
Arkansas	5,717	2,889	3,250
California	25,494	48,403	54,454
Colorado	2,179	14,264	16,047
Connecticut	7,689	24,796	27,896
Delaware	5,442	4,622	5,200
District Of Columbia	1,137	4,369	4,915
Florida	10,173	30,402	34,202
Georgia	858	24,591	27,665
Hawaii	612	501	563
Idaho	2,311	1,726	1,942
Illinois	64,641	54,586	61,409
Indiana	23,182	17,496	19,683
Iowa	12,135	8,323	9,364
Kansas	4,552	4,794	5,394
Kentucky	3,283	4,747	5,341
Louisiana	31,728	24,319	27,359
Maine	1,699	1,003	1,129
Maryland	3,970	22,530	25,347
Massachusetts	78,108	57,620	64,823
Michigan	38,099	36,043	40,549
Minnesota	21,169	6,863	7,721
Mississippi	11,203	6,739	7,582
Missouri	3,318	7,413	8,339

State	Recoveries	Expected Recoveries Low	Expected Recoveries High
Montana	464	366	411
Nebraska	592	5,417	6,094
Nevada	6,700	4,530	5,097
New Hampshire	3,157	2,192	2,466
New Jersey	20,200	106,447	119,753
New Mexico	3,013	3,433	3,862
New York	68,406	266,793	300,142
North Carolina	18,860	10,443	11,749
North Dakota	2,169	1,058	1,191
Ohio	7,130	17,261	19,418
Oklahoma	5,711	3,361	3,781
Oregon	1,894	2,333	2,624
Pennsylvania	49,915	43,918	49,408
Rhode Island	1,302	8,164	9,185
South Carolina	6,976	5,549	6,242
South Dakota	4,084	2,223	2,501
Tennessee	15,916	11,150	12,544
Texas	45,859	28,264	31,797
Utah	6,501	4,476	5,036
Vermont	880	726	817
Virginia	6,165	16,205	18,230
Washington	7,113	13,355	15,025
West Virginia	1,398	1,021	1,148
Wisconsin	12,172	7,121	8,011
Wyoming	714	505	568
United States	688,670	1,010,474	1,136,783

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

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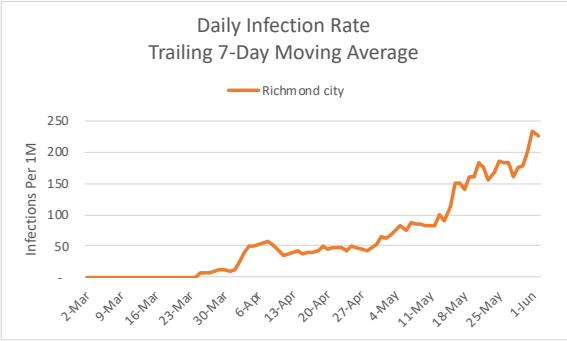
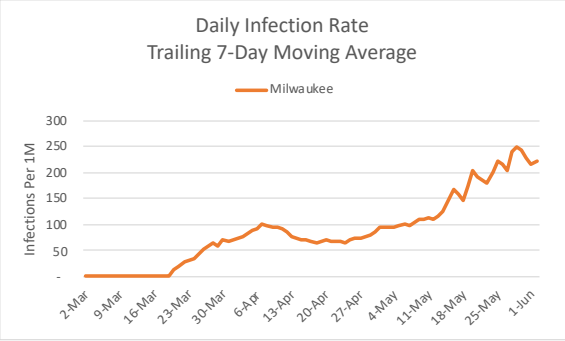
County-By-County

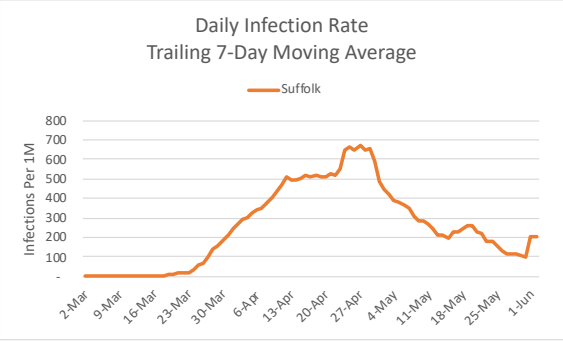
Counties/Municipalities With Highest New Infection Rates

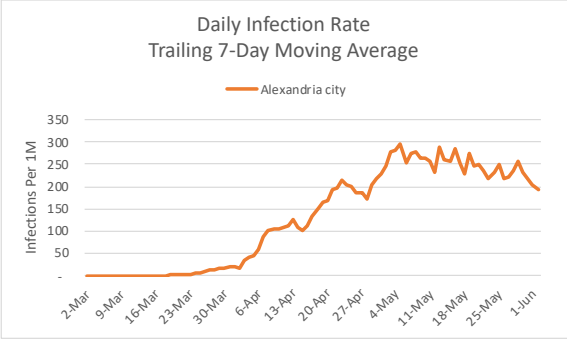
"Strategic Guidance in an Era of Unprecedented Change"

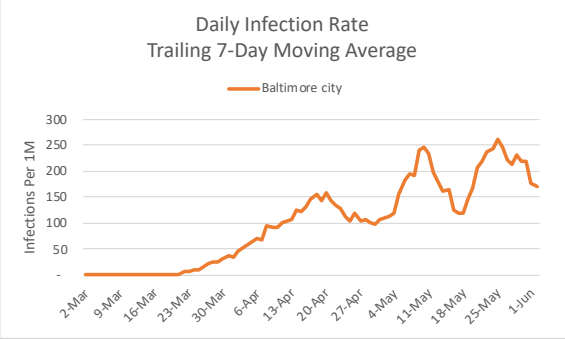
Large Central Metro Areas

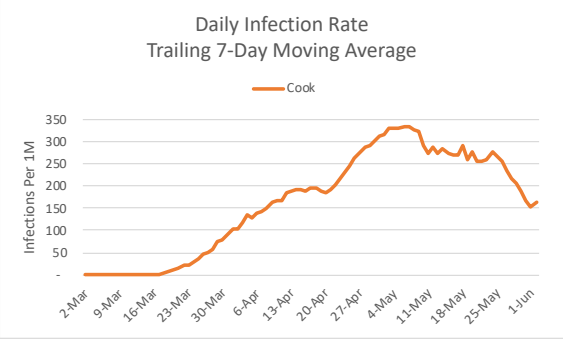










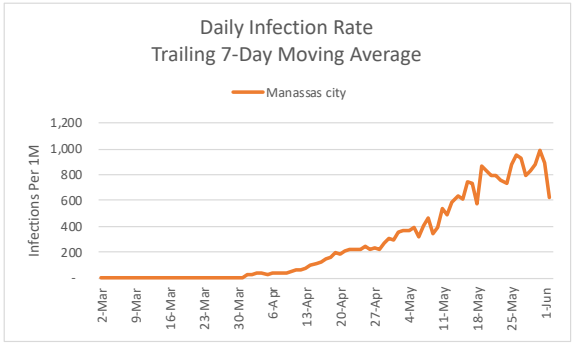


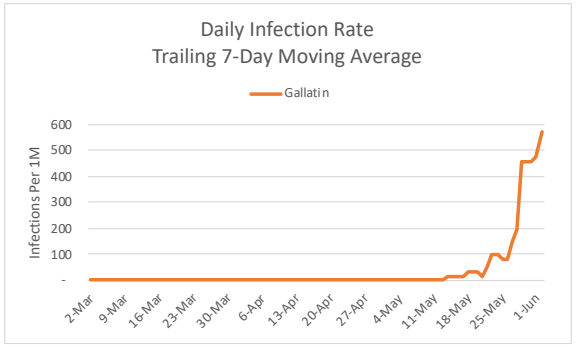
County-By-County

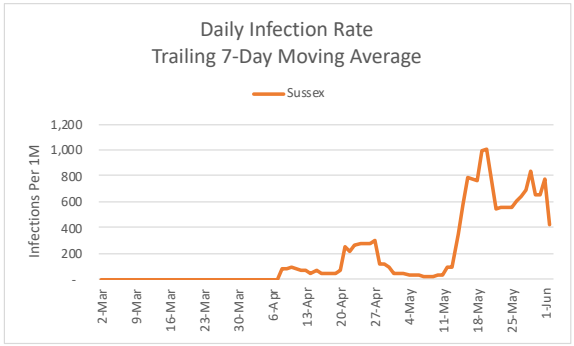
Counties/Municipalities With Highest New Infection Rates

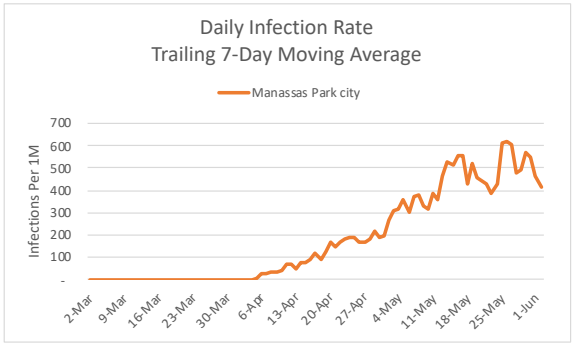
"Strategic Guidance in an Era of Unprecedented Change"

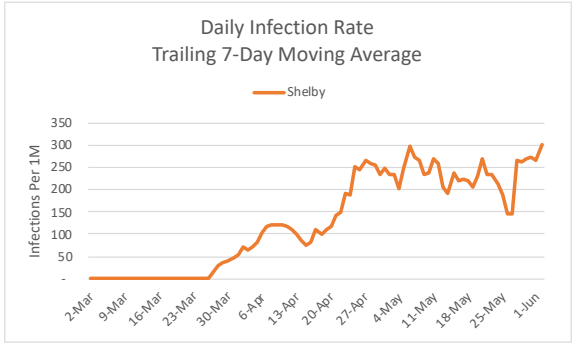
Large Fringe Metro Areas

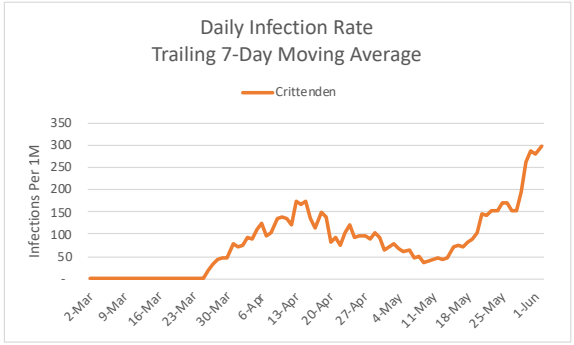












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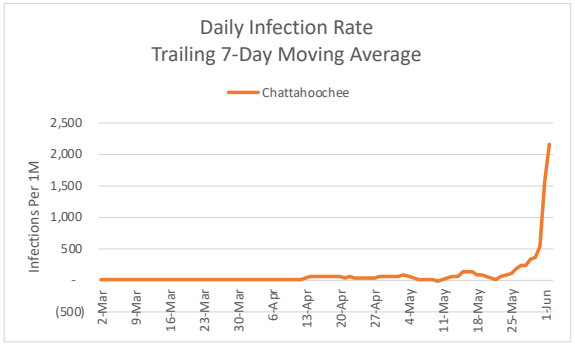
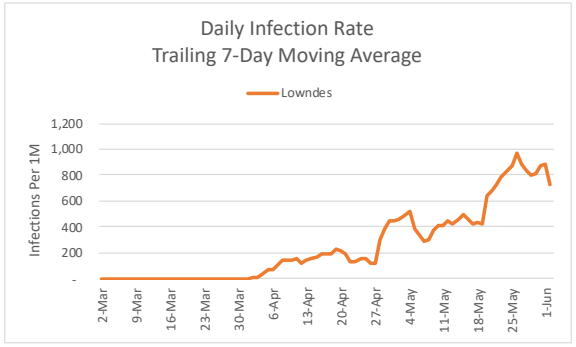
County-By-County

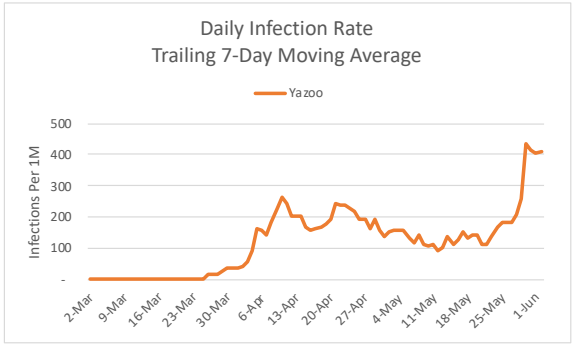
Counties/Municipalities With Highest New Infection Rates

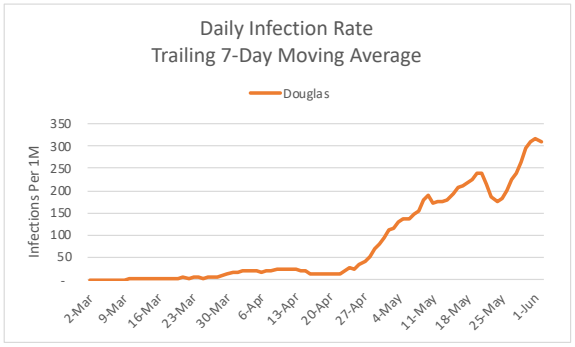
"Strategic Guidance in an Era of Unprecedented Change"

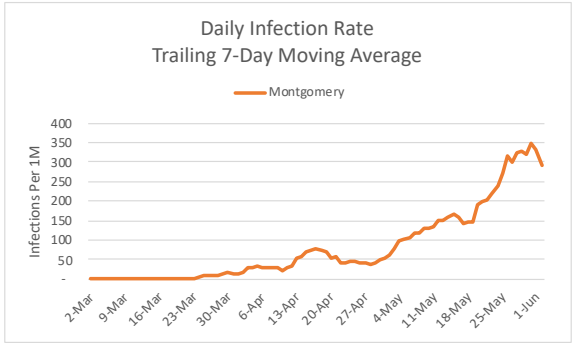
Medium Metro Areas

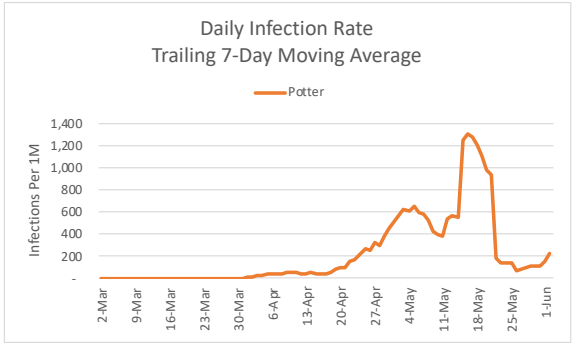












Daily Infection Rates Large Central Metro Areas

Areas Yet To Peak
Ranked By 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	1,434	6,602	227	235	yes	24	110	1.7%
37119	Mecklenburg	North Carolina	1	4,519	4,201	148	148	yes	95	88	2.1%
6037	Los Angeles	California	1	57,118	5,740	133	144	yes	2,443	245	4.3%
47157	Shelby	Tennessee	1	5,314	5,798	122	122	yes	117	128	2.2%
49035	Salt Lake	Utah	1	5,449	4,796	103	103	yes	74	65	1.4%
4013	Maricopa	Arizona	1	10,536	2,425	69	69	yes	448	103	4.3%
51710	Norfolk city	Virginia	1	530	2,523	54	71	yes	6	29	1.1%
37183	Wake	North Carolina	1	1,878	1,756	53	53	yes	40	37	2.1%
6001	Alameda	California	1	3,536	2,158	46	52	yes	104	63	2.9%
12057	Hillsborough	Florida	1	2,285	1,615	32	32	yes	81	57	3.5%

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

Daily Infection Rates Large Fringe Metro Areas

Areas Yet To Peak
Ranked By 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	1,135	27,469	619	989	yes	11	266	1.0%
21077	Gallatin	Kentucky	2	43	4,909	571	571	yes	4	457	9.3%
18145	Shelby	Indiana	2	553	12,657	301	301	yes	30	687	5.4%
5035	Crittenden	Arkansas	2	395	8,354	296	296	yes	9	190	2.3%
47111	Macon	Tennessee	2	157	6,581	293	293	yes	3	126	1.9%
51149	Prince George	Virginia	2	135	4,000	271	292	yes	-	-	0.0%
1127	Walker	Alabama	2	388	6,189	264	355	yes	2	32	0.5%
51153	Prince William	Virginia	2	5,724	12,349	226	328	yes	104	224	1.8%
51730	Petersburg city	Virginia	2	141	4,546	207	230	yes	3	97	2.1%
51059	Fairfax	Virginia	2	11,426	10,039	199	266	yes	391	344	3.4%
51630	Fredericksburg city	Virginia	2	172	6,496	194	248	yes	-	-	0.0%
51187	Warren	Virginia	2	166	4,232	178	178	yes	2	51	1.2%
51041	Chesterfield	Virginia	2	1,627	4,740	172	172	yes	37	108	2.3%
51087	Henrico	Virginia	2	1,919	5,887	163	164	yes	135	414	7.0%
51107	Loudoun	Virginia	2	2,636	6,516	159	266	yes	67	166	2.5%
51670	Hopewell city	Virginia	2	96	4,317	148	167	yes	1	45	1.0%

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Daily Infection Rates Large Metro Areas

Areas Yet To Peak
Ranked By 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
13053	Chattahoochee	Georgia	3	154	18,873	2,171	2,171	yes	-	-	0.0%
31055	Douglas	Nebraska	3	4,571	8,251	310	316	yes	41	74	0.9%
1101	Montgomery	Alabama	3	1,824	8,436	291	346	yes	44	203	2.4%
37023	Burke	North Carolina	3	436	4,989	229	229	yes	14	160	3.2%
5087	Madison	Arkansas	3	29	1,776	201	201	yes	-	-	0.0%
5143	Washington	Arkansas	3	620	2,717	198	198	yes	7	31	1.1%
5007	Benton	Arkansas	3	676	2,505	191	191	yes	2	7	0.3%
47065	Hamilton	Tennessee	3	1,178	3,320	186	186	yes	17	48	1.4%
37067	Forsyth	North Carolina	3	1,434	3,899	178	178	yes	13	35	0.9%
37063	Durham	North Carolina	3	1,706	5,628	176	176	yes	47	155	2.8%
1051	Elmore	Alabama	3	384	5,004	171	192	yes	9	117	2.3%
31153	Sarpy	Nebraska	3	680	3,724	160	160	yes	4	22	0.6%
18003	Allen	Indiana	3	1,719	4,662	156	156	yes	78	212	4.5%
33011	Hillsborough	New Hampshire	3	2,528	6,213	133	133	yes	148	364	5.9%
1001	Autauga	Alabama	3	240	4,358	132	171	yes	5	91	2.1%

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