Health Industry Advisor, llc

"Strategic Guidance in an Era of Unprecedented Change"

COVID-19 Dashboard

Issue # 59

Monday, May 25, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	>380,000 tests per day over the weekend
Test-Positivity Rate	Decline	5.7% for the weekend; 5.8% for past 7 days
Number of Cases	Plateau	New Cases down ~1% week-over-week
Deaths % of Total Cases	Decline	5.9%
Number of Deaths / 1M Population	Plateau	300
Recoveries : Death	Increase	4.15

- An updated look at deaths in New York City from the virus (21.3% of all U.S. deaths were in the City):
  - 48.6% of deaths were of persons >74 years old; 72.5% >64 years old
  - Blacks/African Americans and Hispanic/Latinos had higher age-adjusted deaths per capita than whites and Asian/Pacific Islanders, at all age cohorts
  - Known underlying health conditions were present in >78% of all deaths at every age cohort (for most of the remaining 22%, it was unknown as to whether the person had an underlying health condition)
- Deaths in the U.S. reached 300 per million population yesterday. Nonetheless, this rate, as well as the rate of deaths per case in the U.S remains lower than many of the other counties worldwide that have been hardest-hit by the virus
- Infection rates for most of the country continue to decline. The exceptions are Alabama, California, Maine, Minnesota, Mississippi, North Carolina, North Dakota, Utah and Wisconsin. Of these states, however, only Minnesota is experiencing more than 100 new daily infections per million population
- Other states experiencing more than 100 new daily infections per million (albeit with declining rates): Connecticut, Delaware, Illinois, Iowa, Maryland, Nebraska, New Jersey and Rhode Island. New Jersey's rate of 115 is down from its peak of 414 (recorded April 1-7)
- With states re-opening, we are monitoring testing and infection rates to determine if, when and how much impact relaxation has on renewed spread of the virus. Here, we focus on Florida, Georgia and Wisconsin:
  - Wisconsin's infection rate has been increasing since the Governor's executive orders were ruled unconstitutional by its Supreme Court
  - Its testing rate also increased significantly during this time
  - Thus, it is unclear how much of the case increase is due to increased testing v. increased infection
  - Test-positive and new infection rates in all three states remain relatively low
  - Recent criticisms of Florida seem thus far unwarranted, as their test-positive rate is currently at 2.4%, with only 35 new daily infections per million population

ANALYSIS OF DEATHS BY AGE AND UNDERLYING HEALTH CONDITION

Analysis of Deaths By Age and Underlying Health Condition

- Using data from NYC Coronavirus Disease 2019 (COVID-19), we analyzed the deaths from coronavirus in New York City by:
  - Age
  - Ethnicity
  - Underlying Health Conditions
- New York City represented 11.5% of all U.S. cases and 21.3% of U.S. deaths, as of May 23
- All three factors were significant in understanding deaths from the virus:
  - 48.6% of deaths were of persons >74 years old; 72.5% >64 years old
  - Blacks/African Americans and Hispanic/Latino had higher age-adjusted deaths per capita than whites and Asian/Pacific Islanders, at all age cohorts
  - Known underlying health conditions were present in >78% of all deaths at every age cohort (for most of the remaining 22%, it was unknown as to whether the person had an underlying health condition)
- Graphics illustrating these factors are provided on the following page

New York City

Analysis of Deaths By Age and Underlying Health Condition

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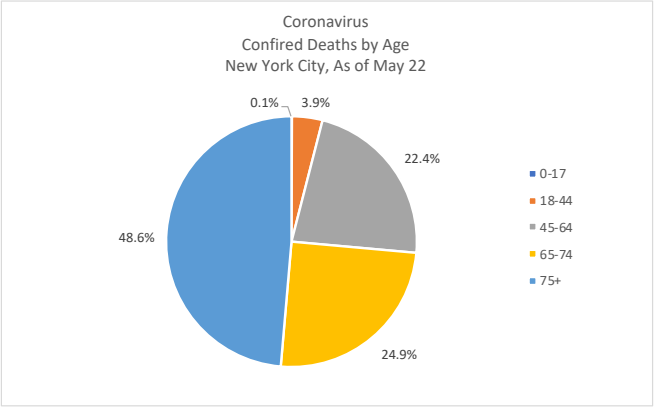
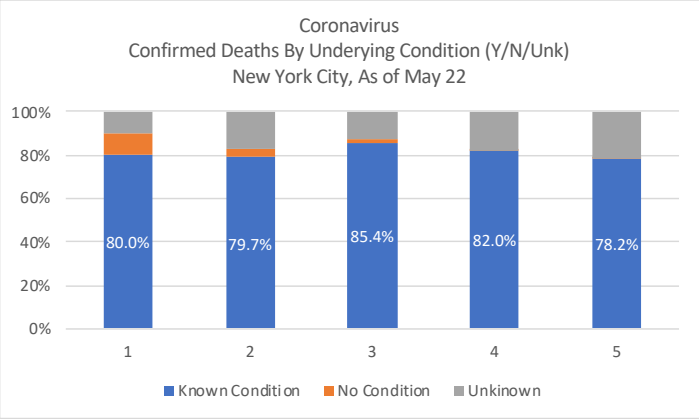
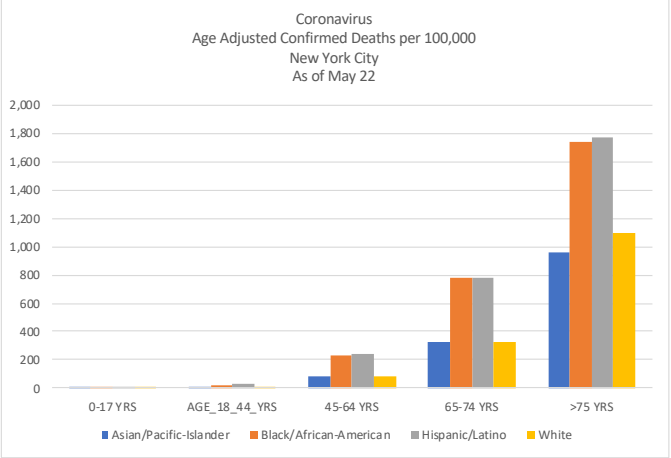
	NYC	US	NYC %
Total Cases	194,667	1,686,436	11.5%
Deaths			
Confirmed	16,403		
Probable	4,735		
Total	21,138	99,300	21.3%
Death Rate	10.9%	5.9%	







Source: Analysis by Health Industry Advisor LLC
NYC Coronavirus Disease 2019 (COVID-19) Data
https://www1.nyc.gov/site/doh/covid/covid-19-data-deaths.page
Data as of May 22, 2020

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
- Since that time, 15 countries have moved ahead of South Korea in total cases
- We continue to track the 30 countries, which still account for 88.5% of the more than 5 million total cases worldwide
- Case and death information is sourced from the worldometers.info, which is accessed daily; analysis by Health Industry Advisor LLC

Note: we are beginning to analyze the differences in cases and deaths reported by worldometers.info and The Center for Systems Science and Engineering (CSSE) at Johns Hopkins University. For many countries, case counts from the two sources are within <1%; significant exceptions include:

France: worldometers.info higher by 20.8% on May 23
Chile: worldometers.info higher by 5.4%
Brazil and India: worldometers.info higher by 4.8%
United States: worldometers.info higher by 3.9%
Peru and Saudi Arabia: v worldometers.info higher by 3.5%

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Country-by-Country

Comparative Statistics

"Strategic Guidance in an Era of Unprecedented Change"

As of May 24

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	1,686,436	(1)	5,095	(3)	99,300	(1)	5.9%	(14)	300.0	(9)	1.4%	(13)	44,587	(11)	68.5	(6)
Austria	16,503	(29)	1,832	(22)	640	(26)	3.9%	(20)	71.1	(18)	0.2%	(25)	44,645	(10)	4.1	(25)
Belgium	57,092	(18)	4,926	(5)	9,280	(7)	16.3%	(1)	800.7	(1)	0.5%	(18)	67,442	(3)	22.3	(13)
Brazil	363,618	(2)	1,711	(23)	22,716	(6)	6.2%	(12)	106.9	(14)	6.0%	(2)	3,461	(25)	82.4	(4)
Canada	84,699	(13)	2,244	(16)	6,424	(11)	7.6%	(10)	170.2	(12)	1.4%	(14)	38,700	(14)	29.1	(10)
Chile	69,102	(16)	3,615	(9)	718	(25)	1.0%	(27)	37.6	(21)	6.9%	(1)	24,700	(16)	189.2	(1)
China	82,974	(14)	58	(30)	4,634	(13)	5.6%	(15)	3.2	(29)	0.0%	(30)		N/A	0.0	(30)
Ecuador	36,756	(21)	2,083	(19)	3,108	(19)	8.5%	(9)	176.2	(11)	1.5%	(12)	6,022	(24)	28.9	(11)
France	182,584	(7)	2,797	(13)	28,367	(5)	15.5%	(2)	434.6	(5)	0.2%	(27)	21,217	(18)	6.6	(22)
Germany	180,328	(8)	2,152	(17)	8,371	(8)	4.6%	(18)	99.9	(16)	0.3%	(22)	42,922	(12)	6.3	(23)
India	138,536	(10)	100	(29)	4,024	(15)	2.9%	(21)	2.9	(30)	5.4%	(3)	2,135	(28)	4.4	(24)
Iran	135,701	(11)	1,616	(24)	7,417	(9)	5.5%	(16)	88.3	(17)	1.7%	(10)	9,544	(23)	26.4	(12)
Ireland	24,639	(26)	4,990	(4)	1,608	(21)	6.5%	(11)	325.6	(8)	0.3%	(20)	59,940	(4)	15.2	(17)
Israel	16,717	(27)	1,931	(20)	279	(28)	1.7%	(26)	32.2	(22)	0.1%	(29)	58,438	(6)	1.7	(27)
Italy	229,858	(6)	3,802	(7)	32,785	(3)	14.3%	(3)	542.2	(3)	0.3%	(23)	57,003	(7)	10.5	(19)
Japan	16,550	(28)	131	(28)	820	(24)	5.0%	(17)	6.5	(25)	0.2%	(24)	2,144	(27)	0.3	(29)
Mexico	65,856	(17)	511	(25)	7,179	(10)	10.9%	(7)	55.7	(19)	5.0%	(4)	1,674	(29)	20.7	(15)
Netherlands	45,236	(20)	2,640	(14)	5,822	(12)	12.9%	(5)	339.8	(7)	0.4%	(19)	18,315	(21)	10.3	(20)
Pakistan	54,601	(19)	247	(26)	1,133	(23)	2.1%	(25)	5.1	(27)	4.4%	(5)	2,149	(26)	9.3	(21)
Peru	119,959	(12)	3,638	(8)	3,456	(18)	2.9%	(22)	104.8	(15)	3.8%	(7)	24,936	(15)	120.0	(2)
Portugal	30,623	(25)	3,003	(12)	1,316	(22)	4.3%	(19)	129.1	(13)	0.8%	(16)	67,621	(2)	22.2	(14)
Russia	344,481	(3)	2,298	(15)	3,541	(17)	1.0%	(28)	23.6	(23)	2.8%	(8)	59,518	(5)	59.8	(7)
Saudi Arabia	72,560	(15)	2,084	(18)	390	(27)	0.5%	(29)	11.2	(24)	3.9%	(6)	16,001	(22)	73.1	(5)
Singapore	31,616	(23)	5,404	(2)	23	(30)	0.1%	(30)	3.9	(28)	1.9%	(9)	20,242	(20)	87.4	(3)
South Korea	11,190	(30)	218	(27)	266	(29)	2.4%	(24)	5.2	(26)	0.2%	(26)	50,365	(9)	0.4	(28)
Spain	282,852	(4)	6,050	(1)	28,752	(4)	10.2%	(8)	615.0	(2)	0.3%	(21)	76,071	(1)	15.7	(16)
Sweden	33,459	(22)	3,313	(11)	3,998	(16)	11.9%	(6)	395.9	(6)	1.7%	(11)	20,797	(19)	46.9	(8)
Switzerland	30,736	(24)	3,589	(10)	1,906	(20)	6.2%	(13)	222.6	(10)	0.1%	(28)	42,837	(13)	2.5	(26)
Turkey	156,827	(9)	1,859	(21)	4,340	(14)	2.8%	(23)	51.5	(20)	0.7%	(17)	21,749	(17)	12.5	(18)
UK	259,559	(5)	3,823	(6)	36,793	(2)	14.2%	(4)	542.0	(4)	0.8%	(15)	50,979	(8)	33.4	(9)

Note: China does not report test volumes

VIRUS PROGRESSION BY COUNTRY

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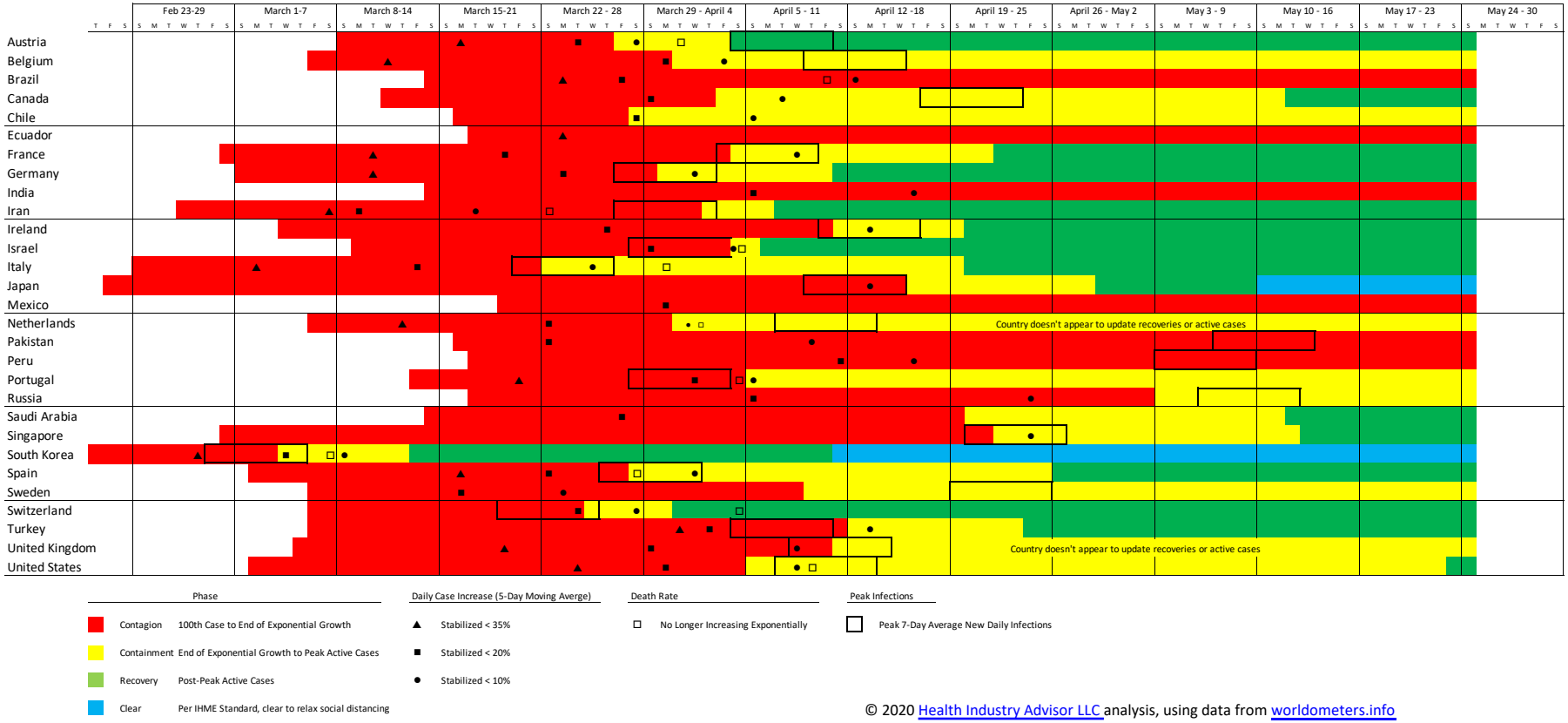
Country-by-Country

Virus Progression

"Strategic Guidance in an Era of Unprecedented Change"

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



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Country-By-Country
Listing of Countries By Total Cases

Countries making large upward movements are highlighted

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

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

The original 30 still account for 89% of all cases worldwide.

	Total Cases							
Rank	Country	24-May	Rank	Country	6-May	Rank	Country	27-Apr
1	USA	1,686,436	1	USA	1,263,092	1	USA	1,010,356
2	Brazil	363,618	2	Spain	253,682	2	Spain	229,422
3	Russia	344,481	3	Italy	214,457	3	Italy	199,414
4	Spain	282,852	4	UK	201,101	4	France	165,842
5	UK	259,559	5	France	174,191	5	Germany	158,758
6	Italy	229,858	6	Germany	168,162	6	UK	157,149
7	France	182,584	7	Russia	165,929	7	Turkey	112,261
8	Germany	180,328	8	Turkey	131,744	8	Iran	91,472
9	Turkey	156,827	9	Brazil	126,611	9	Russia	87,147
10	India	138,536	10	Iran	101,650	10	China	82,830
11	Iran	135,701	11	China	82,883	11	Brazil	66,501
12	Peru	119,959	12	Canada	63,496	12	Canada	48,500
13	Canada	84,699	13	Peru	54,817	13	Belgium	46,687
14	China	82,974	14	India	52,987	14	Netherlands	38,245
15	Saudi Arabia	72,560	15	Belgium	50,781	15	India	29,451
16	Chile	69,102	16	Netherlands	41,319	16	Switzerland	29,164
17	Mexico	65,856	17	Saudi Arabia	31,938	17	Peru	28,669
18	Belgium	57,092	18	Switzerland	30,060	18	Portugal	24,070
19	Pakistan	54,601	19	Ecuador	29,420	19	Ecuador	23,240
20	Netherlands	45,236	20	Portugal	26,182	20	Ireland	19,648
22	Ecuador	36,756	21	Mexico	26,025	21	Sweden	18,926
25	Sweden	33,459	22	Sweden	23,918	22	Saudi Arabia	18,811
26	Singapore	31,616	23	Pakistan	23,214	23	Israel	15,555
27	Switzerland	30,736	24	Chile	23,048	24	Austria	15,274
28	Portugal	30,623	25	Ireland	22,248	25	Mexico	14,677
30	Ireland	24,639	26	Singapore	20,198	26	Singapore	14,423
39	Israel	16,717	29	Israel	16,310	27	Pakistan	13,915
40	Japan	16,550	31	Austria	15,684	28	Chile	13,813
41	Austria	16,503	32	Japan	15,253	29	Japan	13,614
46	S. Korea	11,190	38	S. Korea	10,806	35	South Korea	10,738
	Others	632,807		Others	356,176		Others	263,943
	World	5,494,455			3,817,382		World	3,062,515
	30 countries' share	88.5%			90.7%			91.4%

Country-by-Country

Cases & Cases Per Capita

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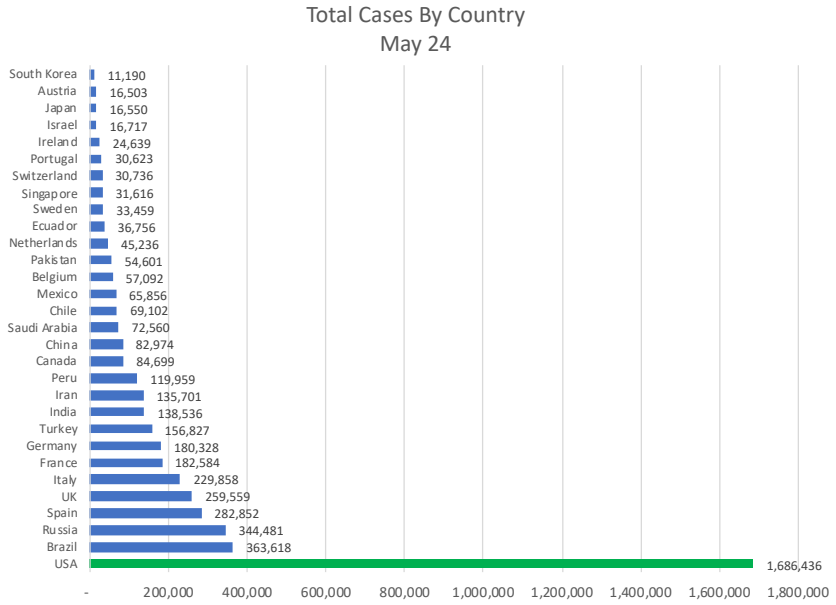
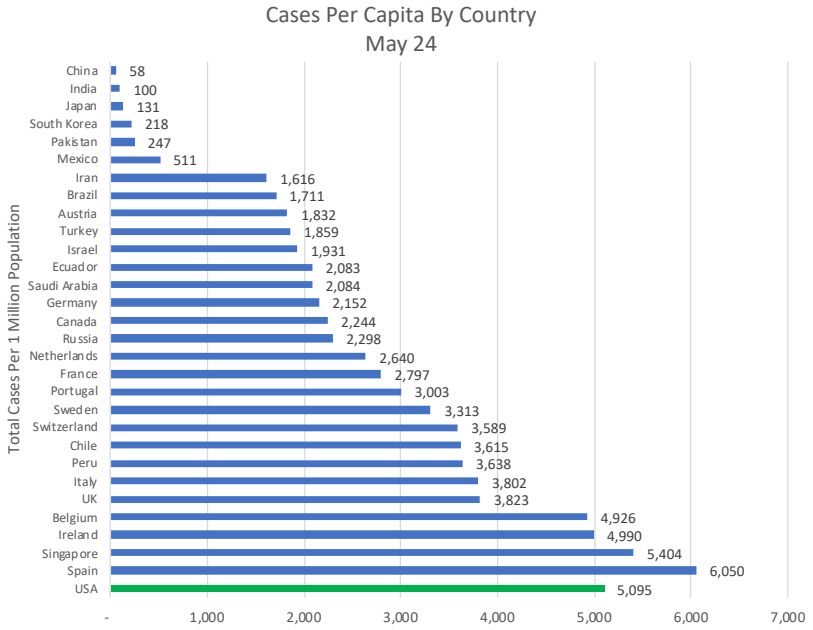
Brazil, Chile, India, Mexico, Pakistan, Peru, Russia and Saudi Arabia are moving up in the ranks of most cases; Austria, Israel, Japan and South Korea are dropping

Cases per capita remain the highest in European countries, Singapore and the US.





Country-by-Country

Deaths Per Cases & Per Capita

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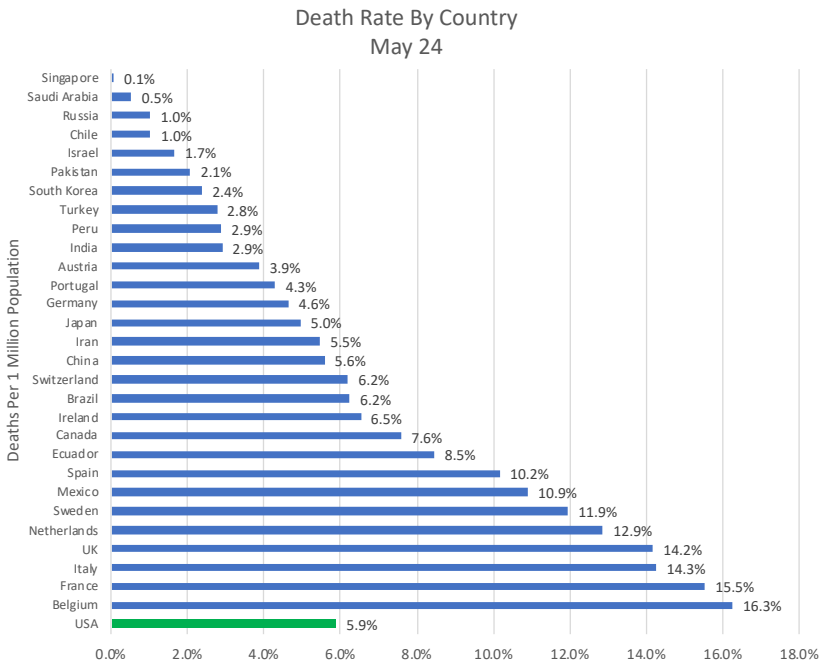
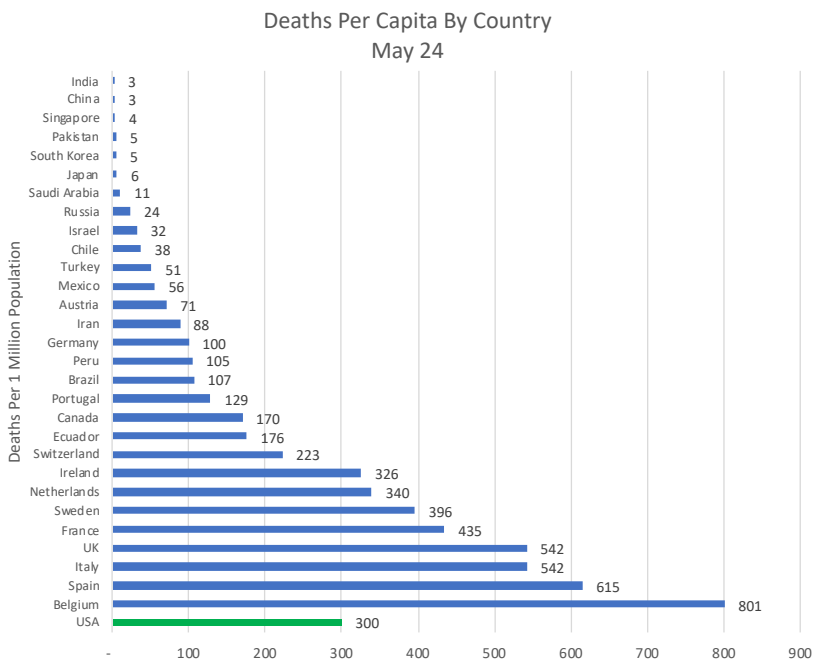
Death rates per case and per capita are the highest in Belgium, France, Italy, Spain and the UK. Rates in the US are in the middle of this group of countries





Country-by-Country

Tests Per Capita & Case Growth Rate

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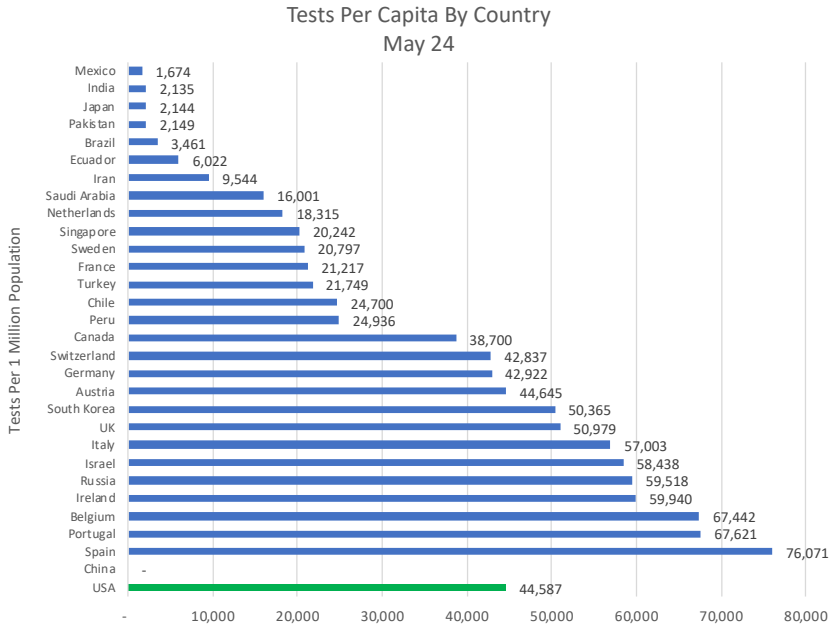
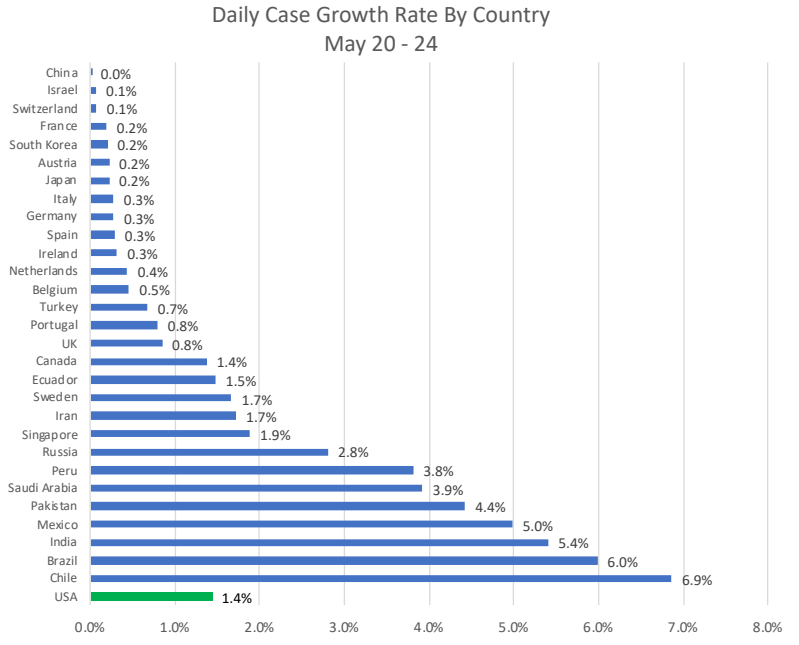
Testing per capita varies widely among these countries. The US, while ramping up testing over the past several weeks, still lags that of many European countries.

Case growth among the hardest-hit countries has fallen sharply over the past month; relatively high in Brazil, Chile, India, Mexico, and Peru





Country-by-Country

New Daily Infection Rate

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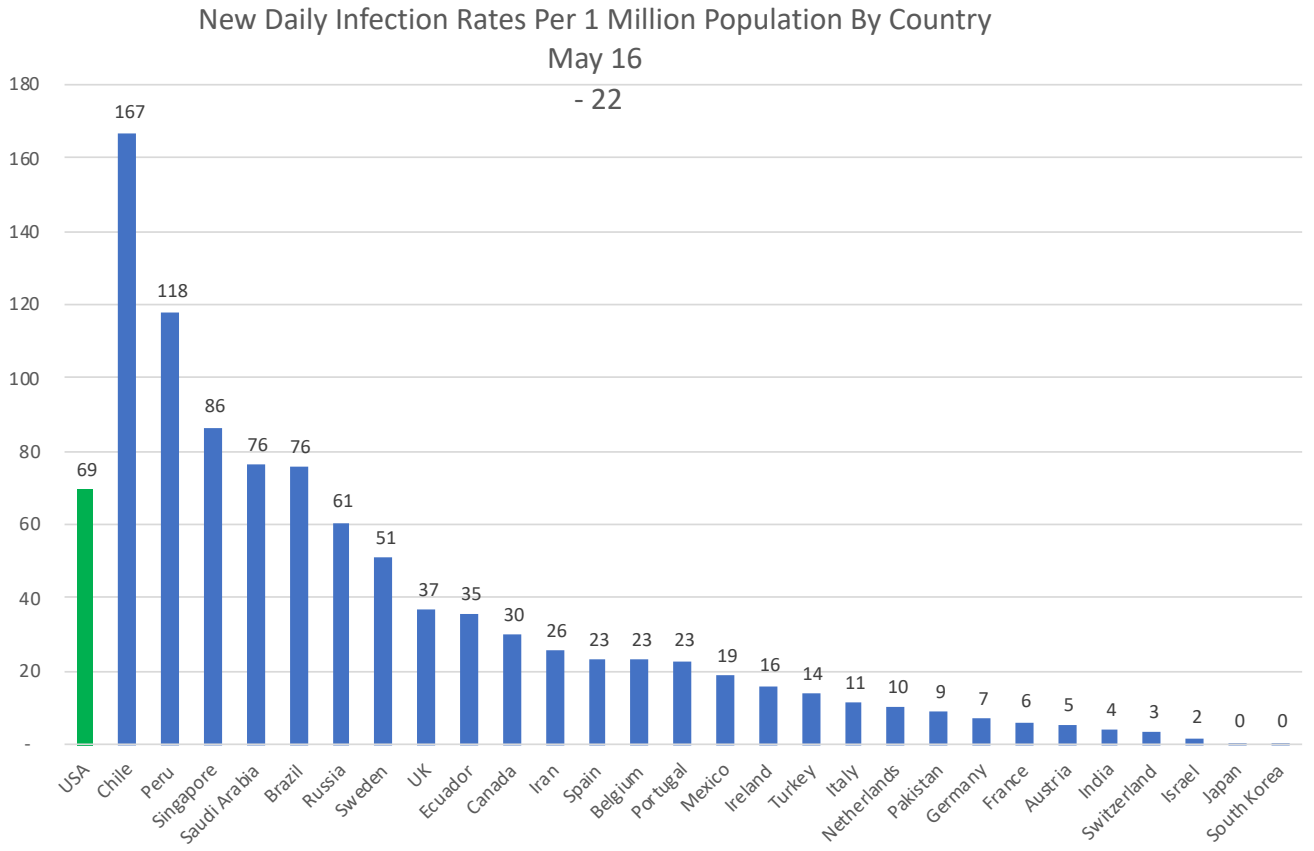
New daily infection rates are declining in most of the hardest-hit countries. Singapore is high but, declining.

Even in countries with newly-emerging virus-spread - Brazil, India, Mexico and Saudi Arabia - infection rates appear relatively low. Chile and Peru are the exceptions.



UNITED STATES & STATE-BY-STATE INFORMATION

Health Industry Advisor, llc

State-by-State

Comparative Statistics

"Strategic Guidance in an Era of Unprecedented Change"

As of May 24

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	14,478	(25)	2,952.8	(26)	551	(25)	3.8%	(31)	112.4	(26)	3.2%	(7)	858	(37)	78.9	(18)
Alaska	408	(51)	557.7	(49)	10	(51)	2.5%	(43)	13.7	(50)	0.4%	(48)	1,729	(10)	2.3	(49)
Arizona	16,339	(23)	2,244.8	(35)	800	(20)	4.9%	(19)	109.9	(27)	2.3%	(14)	626	(46)	47.1	(34)
Arkansas	5,922	(39)	1,962.3	(38)	116	(40)	2.0%	(46)	38.4	(45)	3.8%	(3)	1,108	(30)	55.1	(29)
California	94,486	(4)	2,391.3	(33)	3,790	(7)	4.0%	(30)	95.9	(29)	2.4%	(11)	1,256	(22)	51.4	(31)
Colorado	24,174	(17)	4,197.8	(19)	1,332	(16)	5.5%	(12)	231.3	(14)	1.5%	(36)	608	(47)	55.5	(28)
Connecticut	40,468	(12)	11,350.6	(6)	3,693	(8)	9.1%	(2)	1,035.8	(3)	1.0%	(43)	1,744	(9)	122.2	(9)
Delaware	8,809	(32)	9,046.3	(7)	326	(33)	3.7%	(34)	334.8	(12)	1.9%	(28)	1,615	(11)	167.1	(5)
District Of Columbia	8,110	(35)	11,491.3	(5)	432	(29)	5.3%	(13)	612.1	(5)	1.8%	(30)	3,130	(1)	199.8	(1)
Florida	50,867	(9)	2,368.4	(34)	2,237	(11)	4.4%	(24)	104.2	(28)	1.6%	(33)	1,460	(15)	35.1	(39)
Georgia	42,902	(11)	4,040.7	(20)	1,827	(14)	4.3%	(28)	172.1	(16)	2.0%	(23)	1,760	(8)	70.0	(20)
Hawaii	643	(49)	454.1	(50)	17	(48)	2.6%	(41)	12.0	(51)	0.1%	(51)	797	(39)	0.3	(51)
Idaho	2,626	(43)	1,465.3	(45)	79	(42)	3.0%	(39)	44.1	(43)	1.2%	(40)	377	(49)	16.5	(46)
Illinois	110,304	(3)	8,704.7	(8)	4,856	(6)	4.4%	(23)	383.2	(10)	2.4%	(12)	1,871	(6)	181.7	(3)
Indiana	31,376	(16)	4,660.6	(16)	1,976	(13)	6.3%	(8)	293.5	(13)	1.8%	(29)	924	(34)	76.3	(19)
Iowa	17,252	(22)	5,468.0	(14)	454	(27)	2.6%	(42)	143.9	(21)	2.4%	(13)	1,246	(23)	117.8	(10)
Kansas	9,085	(31)	3,118.4	(24)	207	(37)	2.3%	(44)	71.1	(37)	1.7%	(31)	728	(43)	55.6	(27)
Kentucky	8,571	(33)	1,918.4	(41)	391	(31)	4.6%	(22)	87.5	(31)	1.2%	(38)	1,284	(21)	28.2	(40)
Louisiana	37,169	(13)	7,995.4	(9)	2,690	(9)	7.2%	(4)	578.6	(6)	1.2%	(39)	1,563	(12)	84.1	(16)
Maine	2,055	(45)	1,528.8	(43)	78	(43)	3.8%	(32)	58.0	(39)	3.4%	(5)	1,459	(16)	39.1	(36)
Maryland	46,313	(10)	7,660.5	(10)	2,277	(10)	4.9%	(18)	376.6	(11)	2.2%	(21)	1,074	(31)	177.4	(4)
Massachusetts	92,675	(5)	13,335.5	(3)	6,372	(3)	6.9%	(7)	916.9	(4)	1.1%	(41)	1,471	(14)	137.0	(6)
Michigan	54,679	(8)	5,475.1	(13)	5,228	(4)	9.6%	(1)	523.5	(8)	0.9%	(45)	776	(40)	50.6	(32)
Minnesota	20,573	(20)	3,647.9	(21)	878	(19)	4.3%	(27)	155.7	(18)	3.9%	(2)	1,200	(27)	124.2	(8)
Mississippi	13,252	(27)	4,452.7	(17)	625	(23)	4.7%	(20)	210.0	(15)	2.5%	(9)	1,189	(29)	93.9	(14)
Missouri	12,267	(28)	1,998.7	(37)	690	(22)	5.6%	(11)	112.4	(25)	1.5%	(35)	(126)	(51)	28.2	(41)
Montana	479	(50)	448.2	(51)	16	(49)	3.3%	(36)	15.0	(49)	0.3%	(49)	868	(36)	1.5	(50)
Nebraska	12,134	(29)	6,272.7	(11)	150	(38)	1.2%	(49)	77.5	(35)	2.3%	(16)	1,297	(20)	131.9	(7)
Nevada	7,770	(36)	2,522.6	(32)	394	(30)	5.1%	(16)	127.9	(24)	2.0%	(25)	1,375	(18)	42.3	(35)
New Hampshire	4,149	(41)	3,051.4	(25)	209	(36)	5.0%	(17)	153.7	(19)	2.2%	(19)	1,554	(13)	58.1	(25)
New Jersey	155,384	(2)	17,493.9	(2)	11,139	(2)	7.2%	(6)	1,254.1	(2)	0.6%	(46)	1,870	(7)	115.6	(11)
New Mexico	6,943	(37)	3,311.2	(22)	317	(34)	4.6%	(21)	151.2	(20)	2.3%	(15)	2,762	(2)	68.5	(21)
New York	371,193	(1)	19,081.0	(1)	29,231	(1)	7.9%	(3)	1,502.6	(1)	0.5%	(47)	2,103	(4)	83.3	(17)
North Carolina	23,364	(18)	2,227.7	(36)	784	(21)	3.4%	(35)	74.8	(36)	3.3%	(6)	1,195	(28)	64.1	(24)
North Dakota	2,418	(44)	3,173.0	(23)	53	(46)	2.2%	(45)	69.5	(38)	3.9%	(1)	1,925	(5)	97.1	(13)
Ohio	31,973	(15)	2,735.3	(28)	1,976	(13)	6.2%	(9)	169.0	(17)	2.0%	(24)	734	(41)	49.4	(33)
Oklahoma	6,037	(38)	1,525.7	(44)	311	(35)	5.2%	(15)	78.6	(34)	1.9%	(26)	1,354	(19)	26.2	(42)
Oregon	3,927	(42)	931.1	(48)	148	(39)	3.8%	(33)	35.1	(46)	1.1%	(42)	604	(48)	10.3	(47)
Pennsylvania	71,681	(6)	5,599.2	(12)	5,165	(5)	7.2%	(5)	403.5	(9)	1.2%	(37)	705	(44)	65.4	(23)
Rhode Island	14,065	(26)	13,276.9	(4)	608	(24)	4.3%	(25)	573.9	(7)	1.7%	(32)	2,717	(3)	187.6	(2)
South Carolina	10,096	(30)	1,960.9	(39)	435	(28)	4.3%	(26)	84.5	(33)	2.2%	(20)	1,210	(25)	35.5	(38)
South Dakota	4,563	(40)	5,157.9	(15)	50	(47)	1.1%	(51)	56.5	(40)	2.2%	(17)	1,025	(33)	93.0	(15)
Tennessee	20,145	(21)	2,948.1	(27)	336	(32)	1.7%	(47)	49.2	(42)	1.9%	(27)	1,219	(24)	57.6	(26)
Texas	56,166	(7)	1,937.0	(40)	1,535	(15)	2.7%	(40)	52.9	(41)	2.1%	(22)	347	(50)	36.9	(37)
Utah	8,392	(34)	2,617.6	(31)	97	(41)	1.2%	(50)	30.3	(47)	2.2%	(18)	1,055	(32)	51.4	(30)
Vermont	956	(47)	1,532.1	(42)	54	(45)	5.6%	(10)	86.5	(32)	0.3%	(50)	1,444	(17)	3.7	(48)
Virginia	36,244	(14)	4,246.3	(18)	1,171	(17)	3.2%	(38)	137.2	(23)	2.4%	(10)	899	(35)	98.0	(12)
Washington	20,595	(19)	2,704.6	(29)	1,086	(18)	5.3%	(14)	142.6	(22)	1.0%	(44)	662	(45)	24.6	(43)
West Virginia	1,771	(46)	991.0	(47)	72	(44)	4.1%	(29)	40.3	(44)	3.2%	(8)	816	(38)	22.5	(44)
Wisconsin	15,277	(24)	2,623.8	(30)	510	(26)	3.3%	(37)	87.6	(30)	3.5%	(4)	1,209	(26)	67.1	(22)
Wyoming	838	(48)	1,447.9	(46)	12	(50)	1.4%	(48)	20.7	(48)	1.5%	(34)	728	(42)	20.7	(45)
United States	1,686,436		5,094.9		99,300		5.9%		300.0		1.4%		1,149		68.5	

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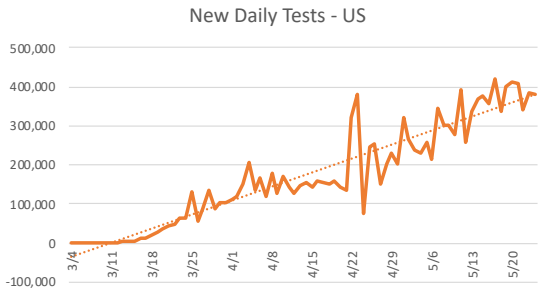
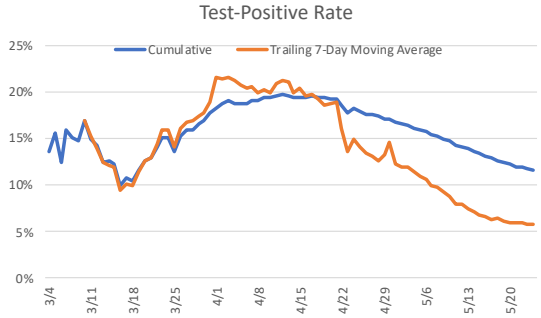
United States

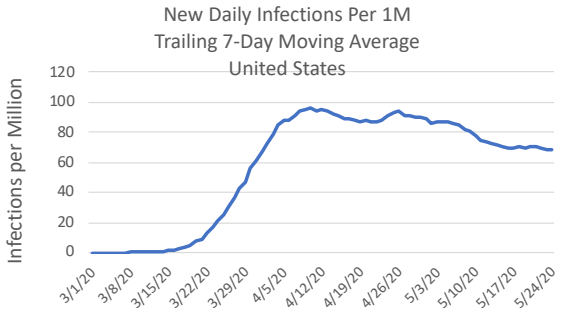
Overall Statistics

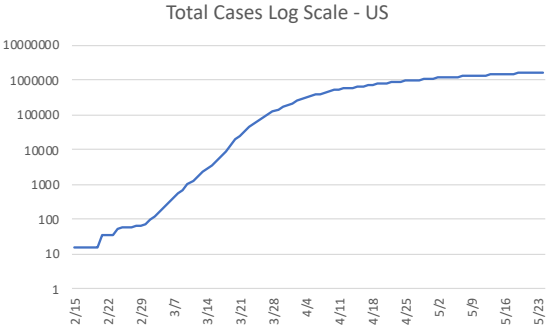
"Strategic Guidance in an Era of Unprecedented Change"

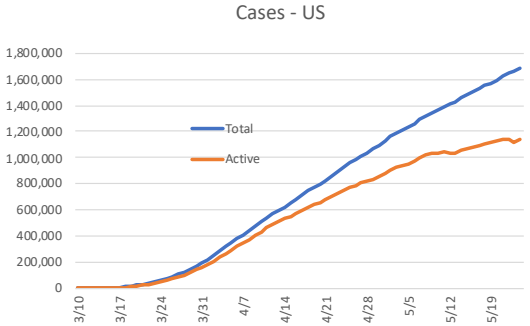
With significantly increased testing, the US is now meeting the WHO standard of <10% test-positives. This suggests that asymptomatic cases are being captured and that we have a better view of true infection rates.
Further, new daily infections continue to decline; the death rate seems to have stabilized.

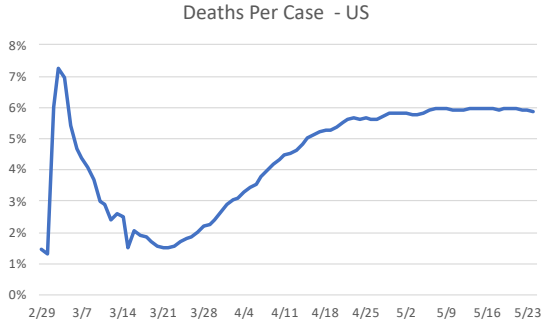












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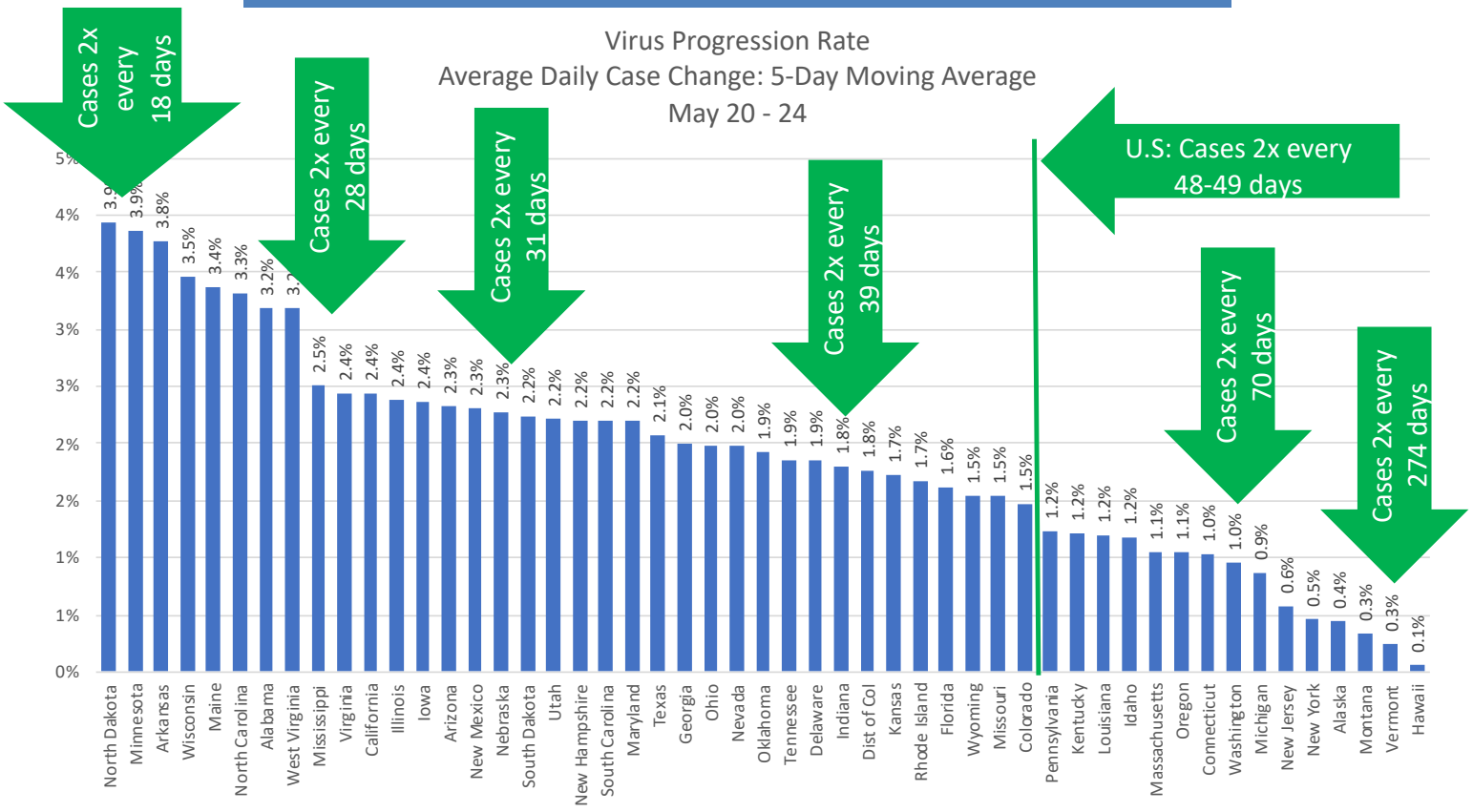
State-by-State

Average Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

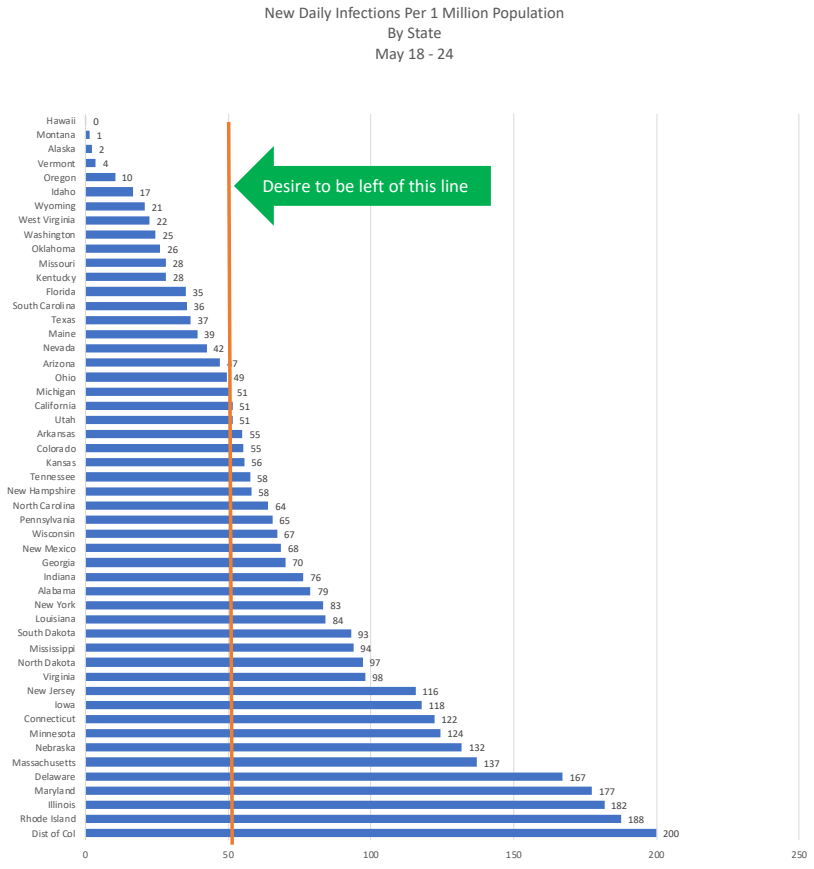
Just 1 month ago, cases in every state were doubling every 1 – 3 weeks.
Now, they would take from 18 days to 3 years to double

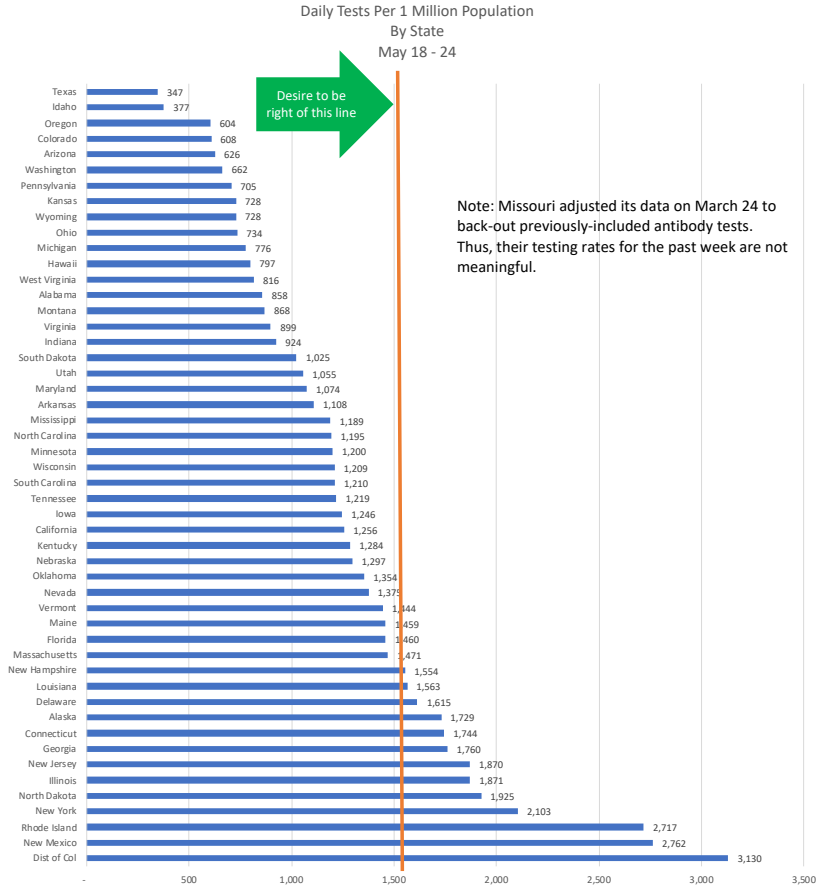


State-by-State

New Daily Infections & Tests Per Capita

"Strategic Guidance in an Era of Unprecedented Change"



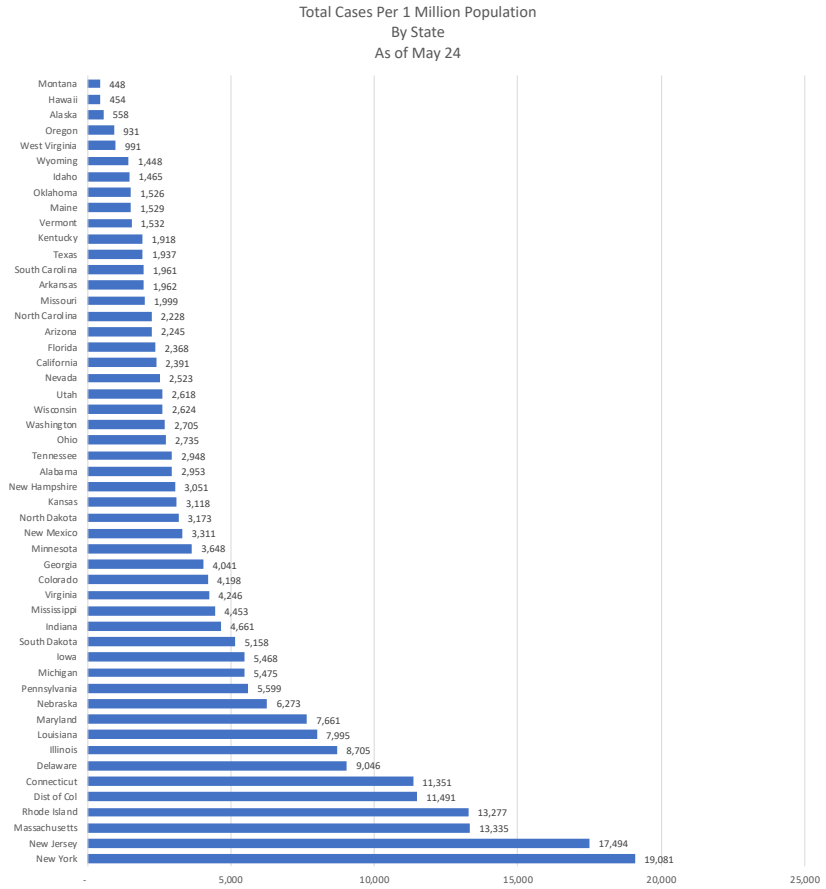


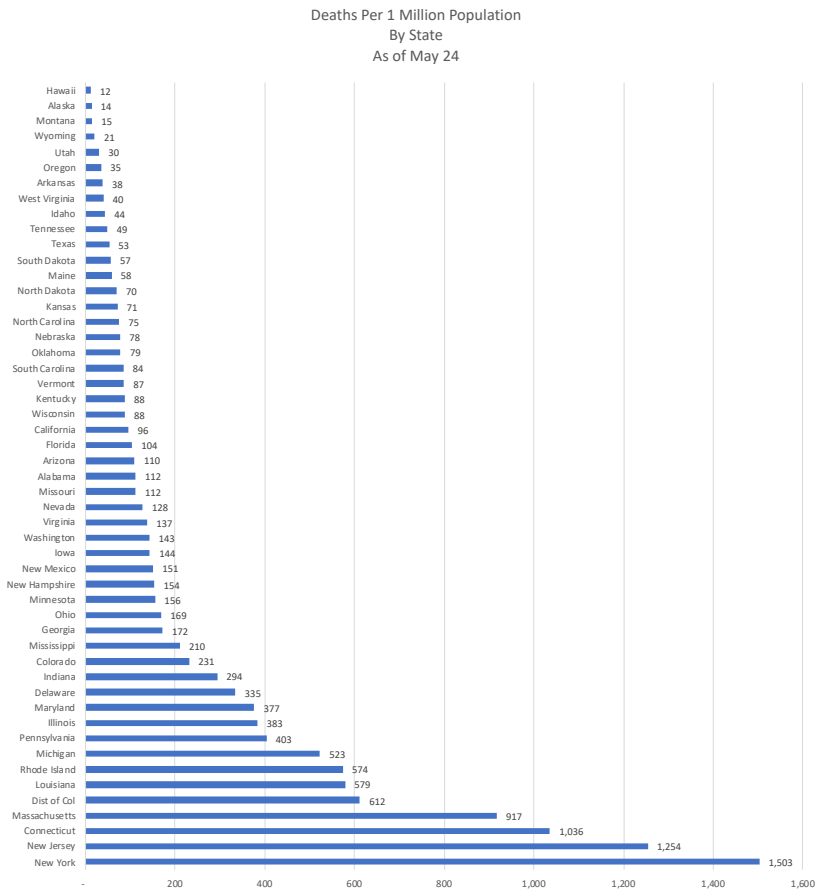
Note: Missouri adjusted its data on March 24 to back-out previously-included antibody tests. Thus, their testing rates for the past week are not meaningful.

State-by-State

Cases & Deaths Per Capita

"Strategic Guidance in an Era of Unprecedented Change"



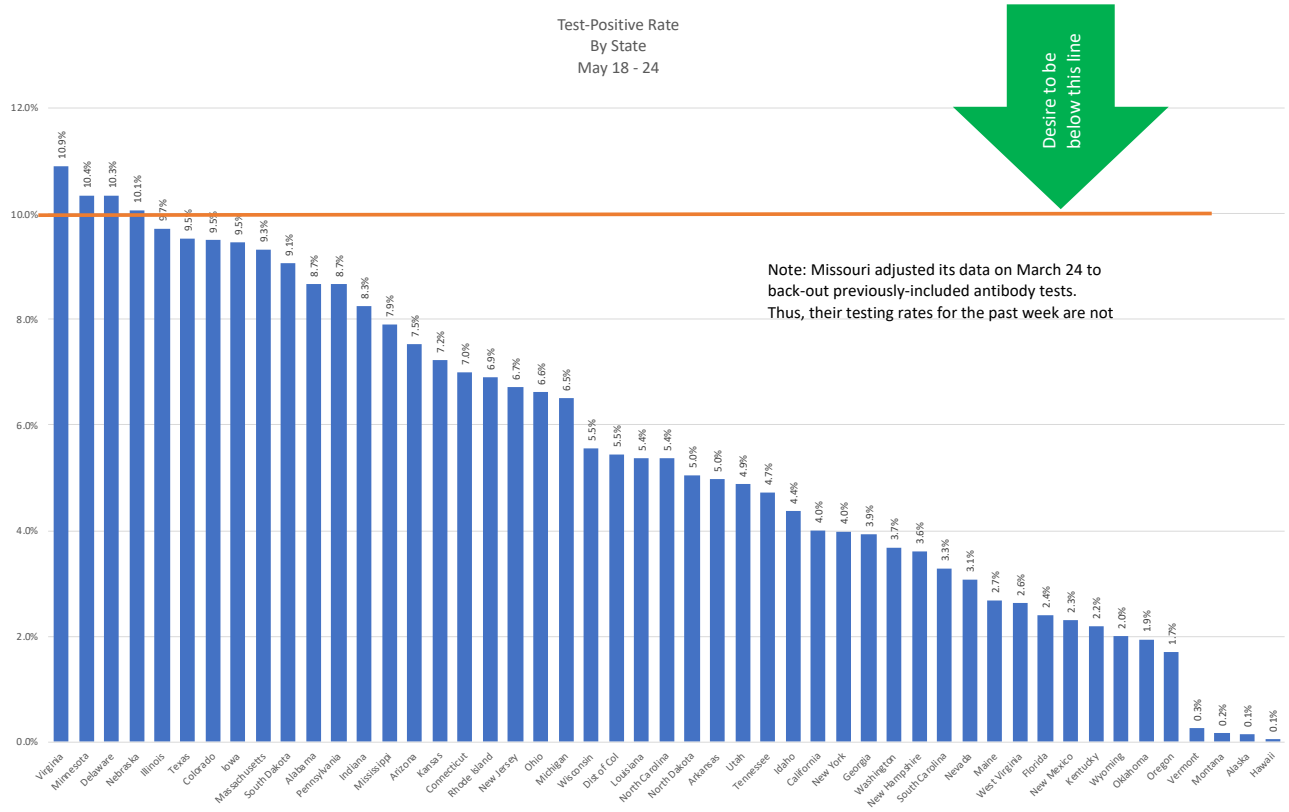


State-by-State

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. All except 3 states met this guideline for the past week (these 3 are close).



STATE-BY-STATE READINESS FOR RELAXING RESTRICTIONS

Readiness For Relaxing Restrictions

We recently modified the tests/capita metric in two ways: first, we changed to tests/capita past 2 weeks (v. cumulative); second, we adopted the Harvard based study of susceptible-infected-recovered model (SEIR) identification of a goal of 2.7% of population tested per week; and, a minimum of 1520 tests per 1 million population. This will serve as a more challenging standard.

- We recently introduced a scorecard to provide a snapshot of each state's readiness for relaxing restrictions on businesses and individuals.
- To portray readiness we have incorporated the following measures into to the scorecard, (along with the rationale for the scoring within each measure):
  - Tests/Capita – last 14 days; indicates testing robustness; grading quintiles based on Harvard study using susceptible-infected-recovered model (SEIR) 2.7% of population tested per week, 1%, 0.7%, 0.35%, all others
    - Direction – whether test volume increased/stayed level, or decreased the past 2 weeks v. prior two weeks
  - Test-Positive Rate – indicates whether testing is identifying sufficient numbers of non-infected persons; grading based on comparison to best reported in the world (South Korea, Australia, New Zealand), next group of countries (Canada, Germany, Denmark), then, next 3 levels set to differentiate among states
    - Direction – whether test positive rate increased/stayed level, or past 2 weeks v. prior two weeks
  - New Infections / 1 Million – indicates how quickly the virus is spreading; grading based on: rate proposed by IHME for ending social distancing, top ten, top 20, top 25 among the countries we track, then all others
    - Direction – whether new infection per capita rate increased/stayed level, or past 2 weeks v. prior two weeks
  - Influenza-Like Illness – Using CDC-reported data, indicates whether the state's visits for influenza the past week were above or below CDC baseline for the state's region
    - Direction – whether the % visits for influenza the last 3 weeks increased or decreased the past 3 weeks v. the prior 3 weeks
  - Hospital Resources – using IHME projections, whether the state is pre- or post- peak projected hospital resource needs due to the virus; and the 5 of peak resources projected to be needed today. Grading based on current need at <45% of peak, 45-60%, 60-75%, 75-85%, and all others.
- On the following pages, we portray state-by-state readiness on various dates.
- **These scorecards are for informational purposes only. The measures and grading used are not based on any scientific standard and should not be considered a substitute for public health considerations or other clinical or economic judgement. States may elect to move faster or slower than the scorecard might otherwise indicate.**

Readiness For Relaxing Restrictions

Highlights:

- Progress has been made in several states, on both testing volumes and test-positive rates
  - Most states are still testing far below the minimum 152 daily tests per 1 million population cited in a recent NY Times article; and the higher standard of 2.7% of the population tested weekly (386 daily per 1 million, as suggested by a recent Kaiser Family Foundation article. Both articles referenced Harvard researchers as the source of these metrics
  - Test-positive rates in many states, however, are below or close to the 10% threshold suggested by Dr. Maria Van Kerkhove of the World Health Organization, as indicative of sufficient testing to have reasonable visibility to true infection rates
- As we have progressed past the peak flu season in many states, that "constraint" on re-opening is diminishing
- With the relaxing of restrictions in many states, the Institute for Health Metrics and Evaluation's (IHME) projections of these states' hospital resources needs have increased significantly in the past week. Note: these metrics consider hospital resource needs, however, they do not consider capacity

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State-By-State

Relative "Readiness" For Relaxing Restrictions

"Strategic Guidance in an Era of Unprecedented Change"

Change over past week

May 24

State	Tests / Capita		Test-Positive Rate		New Infections / 1 Million		Influenza-Like Illness		Hospital Resources
	#	Direction	#	Direction	#	Direction	Baseline	Direction	
Alabama		✓		✓		✗	✓	✓	
Alaska		✓		✓		✓	✓	✓	
Arizona		✓		✓		✗	✓	✓	
Arkansas		✓		✓		✗	✓	✗	
California		✓		✓		✗	✓	✓	
Colorado		✓		✓		✓	✓	✓	
Connecticut		✓		✓		✓	✓	✓	
Delaware		✓		✓		✓	✓	✓	
District Of Co		✓		✓		✓	✗	✓	
Florida		✓		✓		✗	✗	!	
Georgia		✓		✓		✓	✓	✓	
Hawaii		✓		✓		✓	✓	✓	
Idaho		✓		✓		✗	✗	✗	
Illinois		✓		✓		✓	✓	✓	
Indiana		✓		✓		✓	✓	✓	
Iowa		✓		✓		✓	✓	✓	
Kansas		✓		✓		✓	✓	✓	
Kentucky		✓		✓		✓	✓	✓	
Louisiana		✓		✓		✓	✓	✓	
Maine		✓		✗		✗	✓	✓	
Maryland		✓		✗		✓	✗	✓	
Massachuset		✓		✓		✓	✓	✓	
Michigan		✓		✓		✓	✓	✓	
Minnesota		✓		✗		✗	✗	✓	
Mississippi		✓		✓		✓	✓	✓	
Missouri		✓		✓		✓	✓	✓	
Montana		✓		✓		✗	✓	✓	
Nebraska		✓		✓		✓	✓	✓	
Nevada		✓		✓		✗	✓	✓	
New Hampsh		✓		✓		✓	✓	✓	
New Jersey		✓		✓		✓	✓	✓	
New Mexico		✓		✓		✓	✓	✓	
New York		✓		✓		✓	✓	✓	
North Carolin		✓		✓		✗	✓	✓	
North Dakota		✓		✓		✗	✓	✓	
Ohio		✓		✓		✓	✓	✓	
Oklahoma		✓		✓		✗	✓	✓	
Oregon		✓		✓		✓	✓	✓	
Pennsylvania		✓		✓		✓	✓	✓	
Rhode Island		✓		✓		✗	✓	✓	
South Carolin		✓		✓		✗	✓	✓	
South Dakota		✓		✓		✓	✓	✗	
Tennessee		✓		✓		✓	✓	✓	
Texas		✓		✓		✗	✓	✓	
Utah		✓		✓		✓	✓	✓	
Vermont		✓		✓		✓	✓	✗	
Virginia		✓		✓		✗	✓	✓	
Washington		✓		✓		✓	✓	✓	
West Virginia		✓		✓		✗	✓	✓	
Wisconsin		✓		✓		✗	✗	✗	
Wyoming		✓		✓		✓	✓	✓	

May 17

State	Tests / Capita		Test-Positive Rate		New Infections / 1 Million		Influenza-Like Illness		Hospital Resources
	#	Direction	#	Direction	#	Direction	Baseline	Direction	
Alabama		✓		✓		✗	✓	✓	
Alaska		✓		✓		✓	✓	✓	
Arizona		✓		✓		✗	✓	✓	
Arkansas		✓		✓		✓	✓	✓	
California		✓		✓		✗	✓	✓	
Colorado		✓		✓		✓	✓	✓	
Connecticut		✓		✓		✓	✗	✓	
Delaware		✓		✓		✓	✓	✗	
District Of Columbia		✓		✓		✓	✓	✓	
Florida		✓		✓		✓	✗	!	
Georgia		✓		✓		✓	✓	✓	
Hawaii		✓		✓		✓	✓	✓	
Idaho		✓		✓		✓	✓	✓	
Illinois		✓		✓		✗	✓	✓	
Indiana		✓		✓		✓	✓	✓	
Iowa		✓		✗		✓	✓	✗	
Kansas		✓		✗		✓	✓	✓	
Kentucky		✓		✓		✗	✗	✗	
Louisiana		✓		✓		✓	✗	✓	
Maine		✓		✗		✗	✓	✓	
Maryland		✓		✗		✗	✓	✓	
Massachusetts		✓		✓		✗	✓	✓	
Michigan		✓		✓		✓	✓	✓	
Minnesota		✓		✗		✗	✓	✗	
Mississippi		✓		✗		✗	✓	✓	
Missouri		✓		✓		✓	✓	✓	
Montana		✓		✓		✓	✓	✓	
Nebraska		✓		✗		✗	✓	✓	
Nevada		✓		✓		✓	✓	✓	
New Hampshire		✓		✓		✓	✓	✓	
New Jersey		✓		✓		✓	✓	✓	
New Mexico		✓		✓		✓	✗	✓	
New York		✓		✓		✓	✓	✓	
North Carolina		✓		✓		✓	✓	✓	
North Dakota		✓		✓		✗	✓	✓	
Ohio		✓		✓		✓	✓	✗	
Oklahoma		✓		✓		✓	✓	✓	
Oregon		✓		✓		✗	✓	✓	
Pennsylvania		✓		✓		✓	✓	✓	
Rhode Island		✓		✓		✗	✓	✗	
South Carolina		✓		✓		✓	✓	✓	
South Dakota		✓		✗		✗	✓	✓	
Tennessee		✓		✓		✓	✓	✓	
Texas		✓		✓		✗	✓	✓	
Utah		✓		✓		✓	✓	✓	
Vermont		✓		✓		✓	✓	✓	
Virginia		✓		✗		✗	✗	✓	
Washington		✓		✓		✓	✓	✓	
West Virginia		✓		✓		✓	✗	✗	
Wisconsin		✓		✓		✗	✗	✓	
Wyoming		✓		✗		✗	✗	✗	

Legend and sources provided on 2nd following page

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State-By-State

Relative "Readiness" For Relaxing Restrictions

"Strategic Guidance in an Era of Unprecedented Change"

Progress over past 4 weeks

May 24

State	Tests / Capita		Test-Positive Rate		New Infections / 1 Million		Influenza-Like Illness		Hospital Resources
	#	Direction	#	Direction	#	Direction	Baseline	Direction	
Alabama		✓		✓		✗	✓	✓	
Alaska		✓		✓		✓	✓	✓	
Arizona		✓		✓		✗	✓	✓	
Arkansas		✓		✓		✗	✓	✗	
California		✓		✓		✗	✓	✓	
Colorado		✓		✓		✓	✓	✓	
Connecticut		✓		✓		✓	✓	✓	
Delaware		✓		✓		✓	✓	✓	
District Of Co		✓		✓		✓	✗	✓	
Florida		✓		✓		✗	✗	!	
Georgia		✓		✓		✓	✓	✓	
Hawaii		✓		✓		✓	✓	✓	
Idaho		✓		✓		✗	✗	✗	
Illinois		✓		✓		✓	✓	✓	
Indiana		✓		✓		✓	✓	✓	
Iowa		✓		✓		✓	✓	✓	
Kansas		✓		✓		✓	✓	✓	
Kentucky		✓		✓		✓	✓	✓	
Louisiana		✓		✓		✗	✓	✓	
Maine		✓		✗		✗	✓	✓	
Maryland		✓		✗		✓	✗	✓	
Massachuset		✓		✓		✓	✓	✓	
Michigan		✓		✓		✓	✓	✓	
Minnesota		✓		✗		✗	✗	✓	
Mississippi		✓		✓		✓	✓	✓	
Missouri		✓		✓		✓	✓	✓	
Montana		✓		✓		✗	✓	✓	
Nebraska		✓		✓		✓	✓	✓	
Nevada		✓		✓		✗	✓	✓	
New Hampsh		✓		✓		✓	✓	✓	
New Jersey		✓		✓		✓	✓	✓	
New Mexico		✓		✓		✓	✓	✓	
New York		✓		✓		✓	✓	✓	
North Carolin		✓		✓		✗	✓	✓	
North Dakota		✓		✓		✗	✓	✓	
Ohio		✓		✓		✓	✓	✓	
Oklahoma		✓		✓		✗	✓	✓	
Oregon		✓		✓		✓	✓	✓	
Pennsylvania		✓		✓		✓	✓	✓	
Rhode Island		✓		✓		✓	✓	✓	
South Carolin		✓		✓		✗	✓	✓	
South Dakota		✓		✓		✓	✓	✗	
Tennessee		✓		✓		✓	✓	✓	
Texas		✓		✓		✗	✓	✓	
Utah		✓		✓		✓	✓	✓	
Vermont		✓		✓		✓	✓	✗	
Virginia		✓		✓		✗	✓	✓	
Washington		✓		✓		✓	✓	✓	
West Virginia		✓		✓		✗	✓	✓	
Wisconsin		✓		✓		✗	✗	✗	
Wyoming		✓		✓		✓	✓	✓	

April 26

State	Tests / Capita		Test-Positive Rate		New Infections / 1 Million		Influenza-Like Illness		Hospital Resources
	#	Direction	#	Direction	#	Direction	Baseline	Direction	
Alabama		✓		✓		✗	✓	✓	
Alaska		✓		✓		✗	✓	✗	
Arizona		✓		✓		✗	✓	✓	
Arkansas		✓		✓		✗	✓	✓	
California		✓		✓		✗	✓	✓	
Colorado		✓		✓		✗	✓	✓	
Connecticut		✓		✗		✗	✗	✓	
Delaware		✓		✗		✗	✓	✓	
District Of Columbia		✓		✓		✗	✗	✓	
Florida		✓		✓		✓	!	✗	
Georgia		✓		✓		✗	✗	✓	
Hawaii		✓		✓		✓	✓	✓	
Idaho		✓		✗		✓	✗	✓	
Illinois		✓		✓		✗	✗	✓	
Indiana		✓		✗		✗	✓	✓	
Iowa		✓		✗		✗	✓	✓	
Kansas		✓		✗		✗	✗	✓	
Kentucky		✓		✓		✗	✓	✓	
Louisiana		✓		✗		✗	✗	✓	
Maine		✓		✗		✗	✓	✓	
Maryland		✓		✓		✗	✗	✓	
Massachusetts		✓		✓		✗	✗	✓	
Michigan		✓		✓		✓	✓	✓	
Minnesota		✓		✗		✗	✓	✓	
Mississippi		✓		✓		✗	✓	✓	
Missouri		✓		✓		✓	✓	✓	
Montana		✓		✓		✓	✓	✓	
Nebraska		✓		✗		✗	✗	✓	
Nevada		✓		✗		✓	✓	✓	
New Hampshire		✓		✓		✗	✓	✓	
New Jersey		✓		✓		✓	✗	✓	
New Mexico		✓		✓		✓	✓	✓	
New York		✓		✓		✓	✓	✓	
North Carolina		✓		✓		✓	✓	✓	
North Dakota		✓		✓		✓	✓	✓	
Ohio		✓		✓		✓	✓	✓	
Oklahoma		✓		✓		✓	✓	✓	
Oregon		✓		✓		✓	✗	✓	
Pennsylvania		✓		✓		✗	✗	✓	
Rhode Island		✓		✓		✓	✓	✓	
South Carolina		✓		✓		✓	✗	✓	
South Dakota		✓		✓		✓	✓	✓	
Tennessee		✓		✓		✓	✓	✓	
Texas		✓		✓		✓	✓	✓	
Utah		✓		✓		✓	✓	✓	
Vermont		✓		✓		✓	✗	✓	
Virginia		✓		✓		✓	✗	✓	
Washington		✓		✓		✓	✓	✓	
West Virginia		✓		✓		✓	✓	✓	
Wisconsin		✓		✓		✗	✗	✓	
Wyoming		✓		✓		✗	✓	✓	

Legend and sources provided on following page

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State-By-State

Relative "Readiness" For Relaxing Restrictions

"Strategic Guidance in an Era of Unprecedented Change"

Legend:

	Tests per Capita	Direction	Test-Positive Rate	Direction	New Daliy Infection Rate	Direction	Baseline	Direction	Hospital Resources
	per 1M				per 1M				
Time period	Average last 2 weeks	last 14 days v prior 2 weeks	last 7 days	last 14 days v prior 2 weeks	last 7 days	last 14 days v prior 2 weeks	CDC Baseline by region	last 14 days v prior 2 weeks	As of 4/26
	>3,850		<=2%		<10				<45% of Peak
	1520 - 3,850		2-10%		10-50				45-60% of Peak
	1,501 - 3,850		10-14%		50-100				60-75% of Peak
	501 - 1,500		14-18%		100-150				75-85% of peak
	<750		>18%		>150				>85% of Peak or Pre-Peak
✓		Up		Down		Down by 40%	Below Baseline	Down	
!						Down by 10%		N/A	
✗		Down		Up		Down <10% or Up	Above Baseline	Up	

Sources:

Influenza guidelines and data from Centers fo Disease Control (https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html), accessed April 30 - May 24, 2020

Test data from Covid Tracking Project (https://covidtracking.com/), accessed March 21-May 25, 2020

Hospital resource Need projections from Institure for Health Metrics and Evaluation (), accessed April 30- May 24, 2020

Infection rate data from worldometer.info, accessed March 21-May 25, 2020

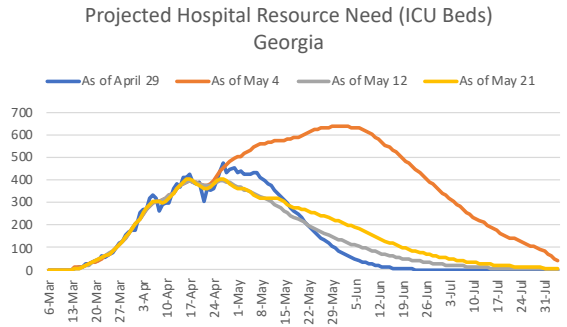
Health Industry Advisor, llc

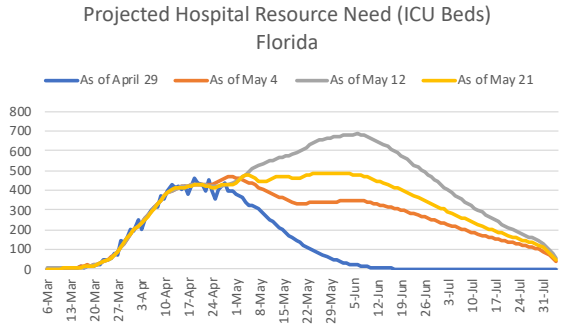
Impact of Relaxing Social Distancing

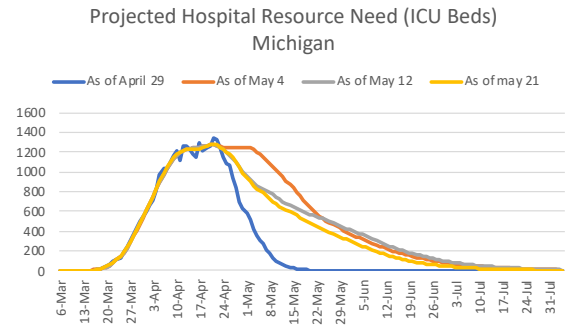
IHME's Hospital Resource Need Projections Are Sensitive to Relaxing Restrictions

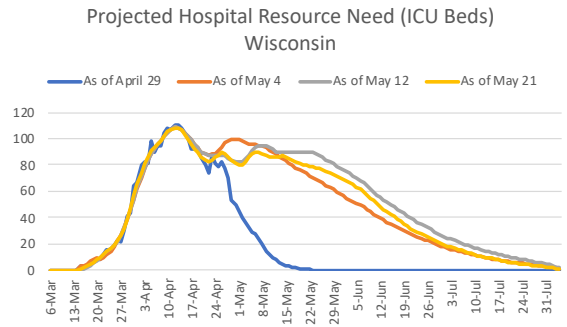
"Strategic Guidance in an Era of Unprecedented Change"

The Institute for Health Metrics and Evaluation (IHME) regularly updates projections of hospital resource needs. Comparing their projections from April 29, May 2, 12 and 21 indicates how much relaxing restrictions factors into these projections. Consider how much the projections changed in May:









Note: ICU beds were selected as representative of the three metrics that IHME uses: total beds, ICU beds and ventilators. HIA does not vouch for the accuracy of these projections; in our limited experience, they seem to over-state actual needs.

MONITORING THE IMPACT OF RELAXING RESTRICTIONS

State-By-State

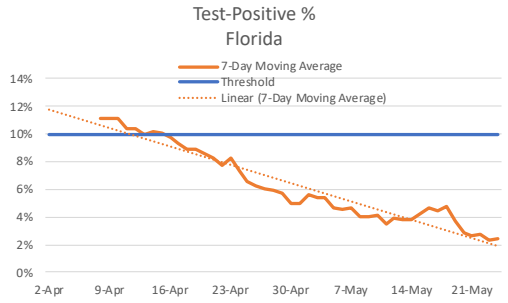
Impact of Relaxing Restrictions

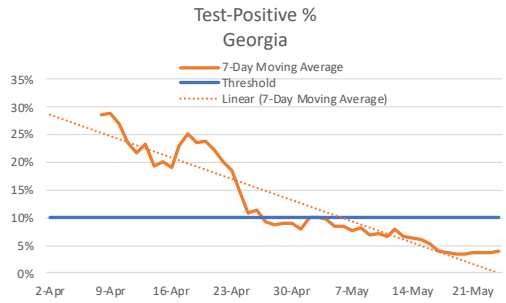
"Strategic Guidance in an Era of Unprecedented Change"

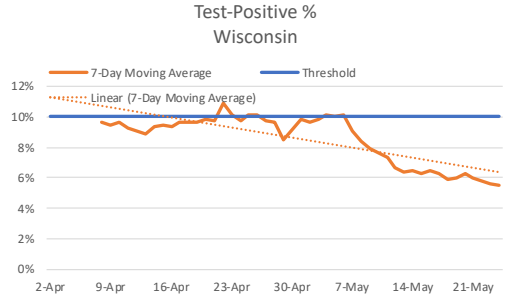
With several states re-opening, we are monitoring testing and infection rates to determine if, when and how much impact relaxation has on renewed spread of the virus. Here, we focus on Florida, Georgia and Wisconsin

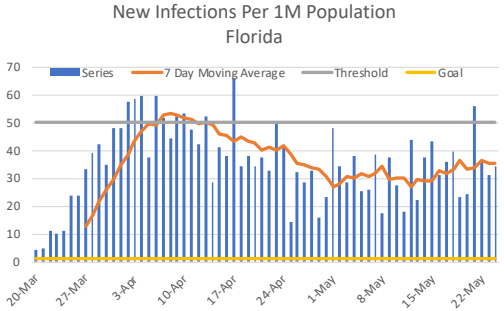
Wisconsin's infection rate has been increasing since the Governor's executive orders were ruled unconstitutional. Its testing rate also increased significantly during this time . Thus, it is unclear how much of the case increase is due to increased testing v. increased infection.

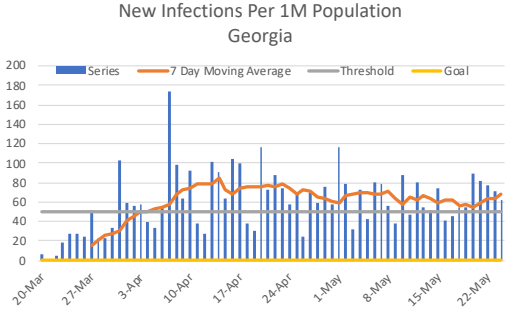
Test-positive and new infection rates in all three states remain relatively low.

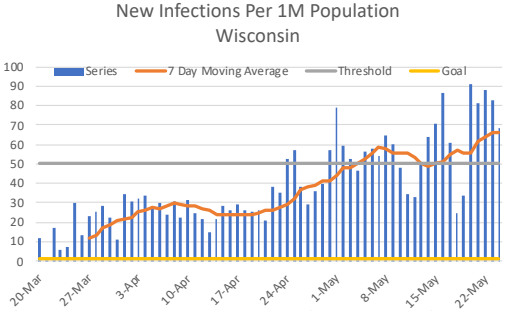












VIRUS PROGRESSION: ROADMAP TO RECOVERY

Virus Progression

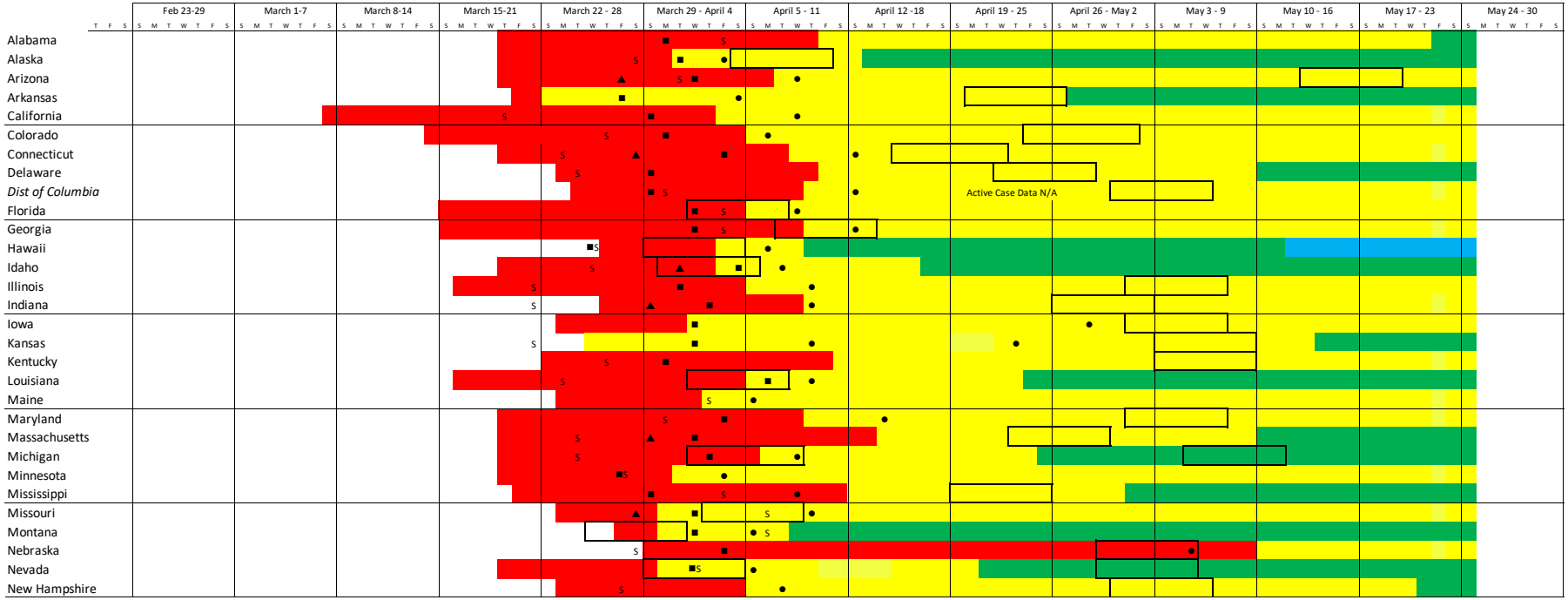
The graphic on the following two pages illustrates when the state first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses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

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

State-by-State

Virus Progression – *1 of 2*

"Strategic Guidance in an Era of Unprecedented Change"



Legend on following page

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State-by-State

Virus Progression – *2 of 2*

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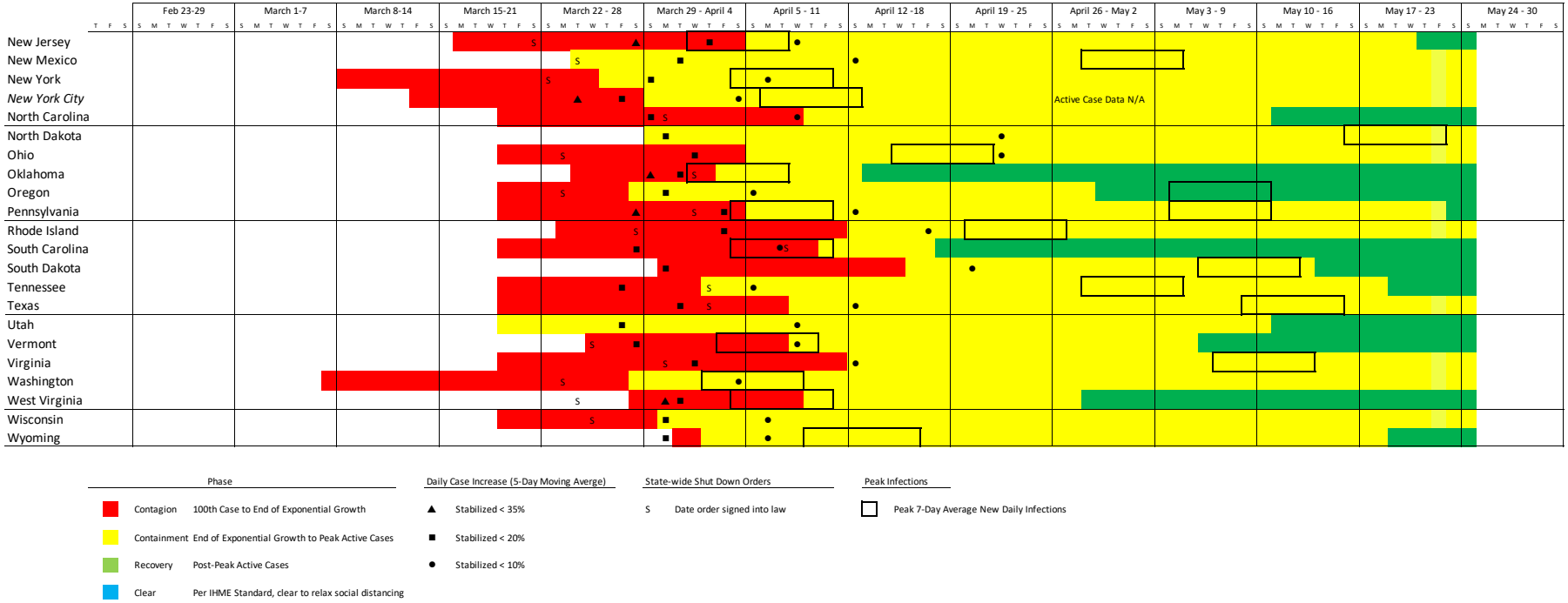
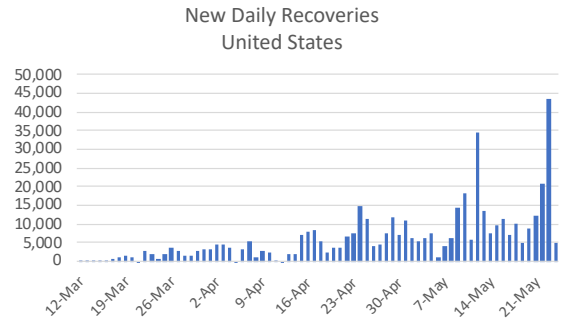


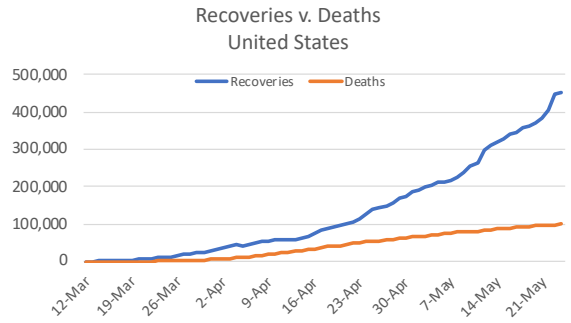
UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING

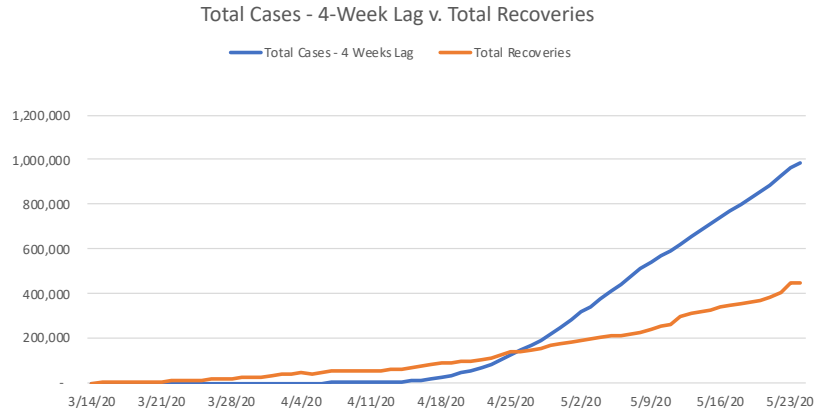
United States

Recoveries

"Strategic Guidance in an Era of Unprecedented Change"







Recoveries

Reporting of Recoveries Seems to Be Lagging

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 ~340-440k

State	Recoveries	Expected Recoveries Low	Expected Recoveries High
Alabama	7,951	5,134	5,776
Alaska	358	273	307
Arizona	70	5,221	5,873
Arkansas	4,148	2,401	2,701
California	17,258	34,833	39,187
Colorado	1,491	10,753	12,097
Connecticut	6,622	20,215	22,742
Delaware	4,296	3,227	3,631
District Of Columbia	1,080	3,073	3,457
Florida	7,638	25,222	28,375
Georgia	697	18,785	21,133
Hawaii	591	485	545
Idaho	1,379	1,518	1,707
Illinois	3,353	35,122	39,513
Indiana	1,954	12,010	13,511
Iowa	9,318	4,381	4,928
Kansas	3,818	2,539	2,857
Kentucky	3,102	3,259	3,667
Louisiana	26,249	21,418	24,096
Maine	1,263	812	914
Maryland	3,283	14,865	16,723
Massachusetts	32,549	43,950	49,444
Michigan	33,168	30,222	34,000
Minnesota	14,115	2,882	3,242
Mississippi	7,681	4,729	5,320
Missouri	3,017	5,623	6,326

State	Recoveries	Expected Recoveries Low	Expected Recoveries High
Montana	441	358	403
Nebraska	349	2,422	2,725
Nevada	5,039	3,682	4,142
New Hampshire	2,204	1,491	1,678
New Jersey	12,962	87,230	98,134
New Mexico	2,464	2,181	2,453
New York	64,082	235,193	264,592
North Carolina	11,637	7,195	8,095
North Dakota	1,496	694	780
Ohio	5,738	12,770	14,367
Oklahoma	4,688	2,602	2,928
Oregon	1,894	1,849	2,080
Pennsylvania	40,628	34,166	38,437
Rhode Island	1,084	5,951	6,695
South Carolina	6,043	4,392	4,941
South Dakota	3,371	1,770	1,991
Tennessee	12,745	7,734	8,700
Texas	32,493	19,985	22,483
Utah	5,081	3,298	3,711
Vermont	839	681	766
Virginia	5,102	10,376	11,673
Washington	5,414	10,817	12,169
West Virginia	1,110	835	940
Wisconsin	8,349	4,729	5,320
Wyoming	575	402	452
	-	-	-
United States	451,702	789,728	888,444

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

STATE TEST, INFECTION AND CASE TRENDS

Test, New Daily Infection and Active Case Trends

On Mondays, Wednesday and Fridays we provide graphics relevant to judging how far a state (or the District of Columbia) has progressed against the virus. Seventeen states (or, sixteen and D.C.) are presented at a time. Today, we provide:

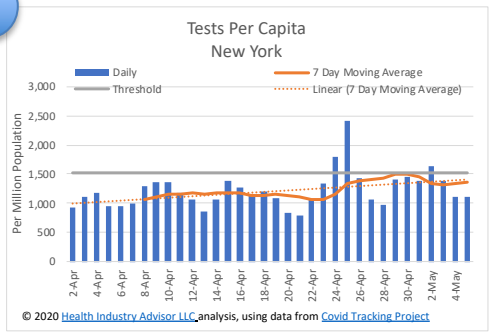
- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia
- Florida
- Georgia
- Hawaii
- Idaho
- Illinois
- Indiana
- Iowa
- Kansas

Test, New Daily Infection and Active Case Trends

How to "read" these charts:

- Chart 1 – Desire to see tests per capita:
  - Above the threshold
  - Increasing or stable
- Chart 2 - Desire to see Test-Positive %:
  - Below the threshold
  - Declining or stable
- Chart 3 - Desire to see New Infections Per Capita:
  - Below the threshold
  - Declining or stable
- Chart 4 - Desire to see Active Cases:
  - Declining

1



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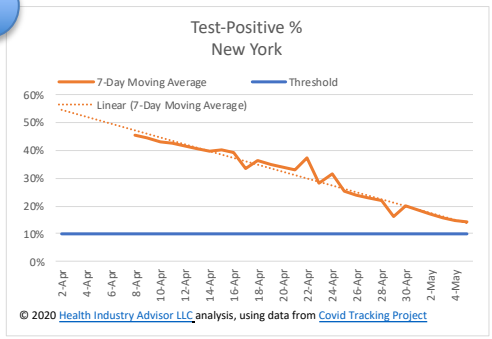

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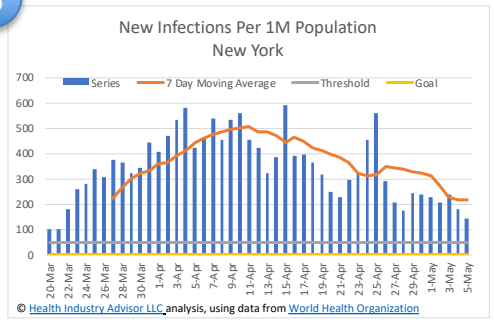

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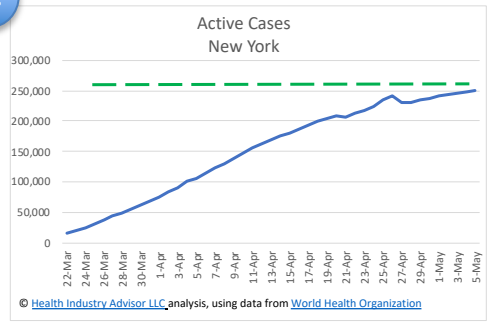
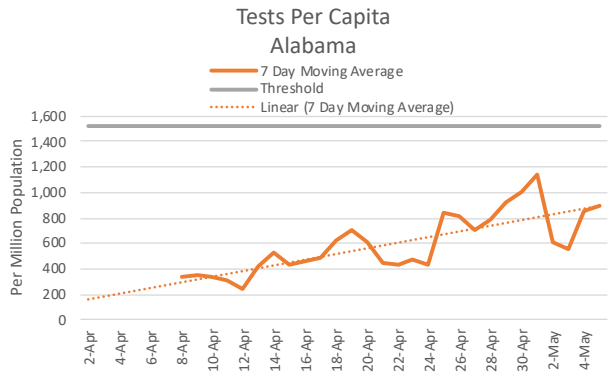
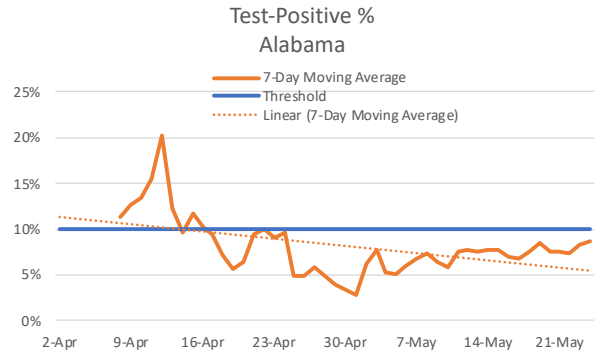
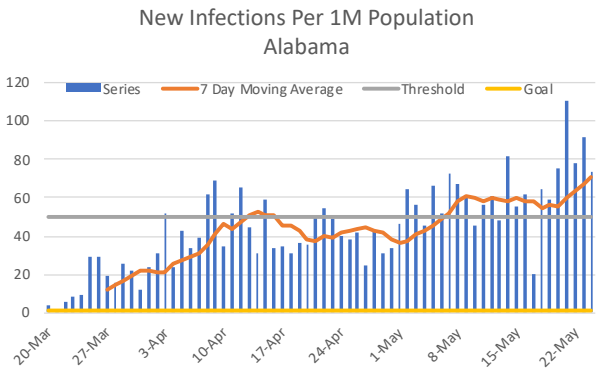
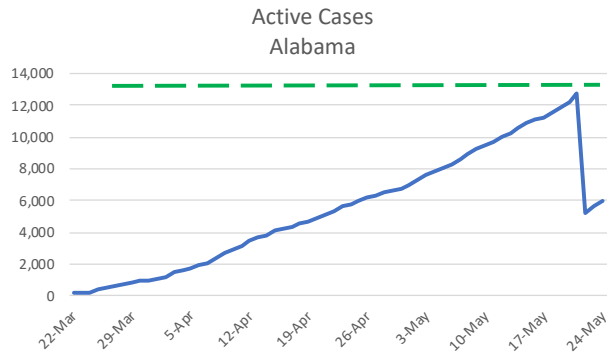


Test, New Daily Infection and Active Case Trends

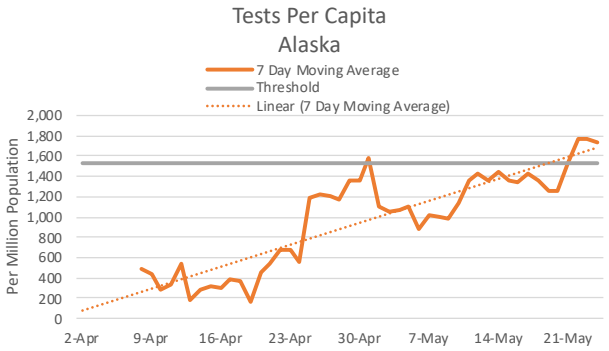


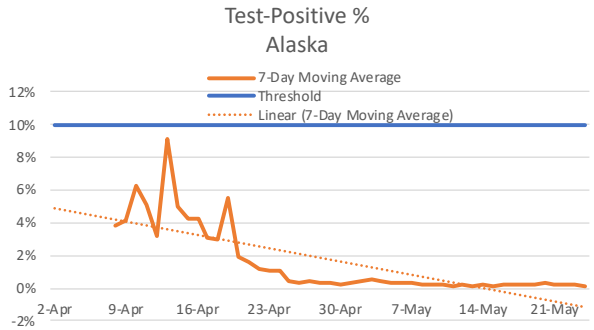


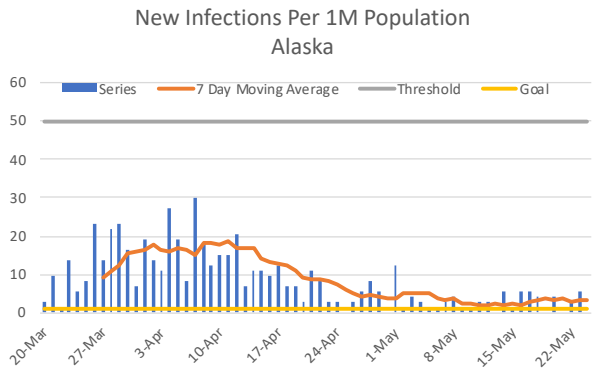


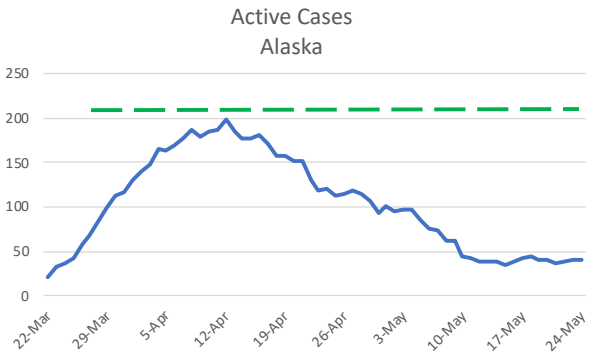


Test, New Daily Infection and Active Case Trends





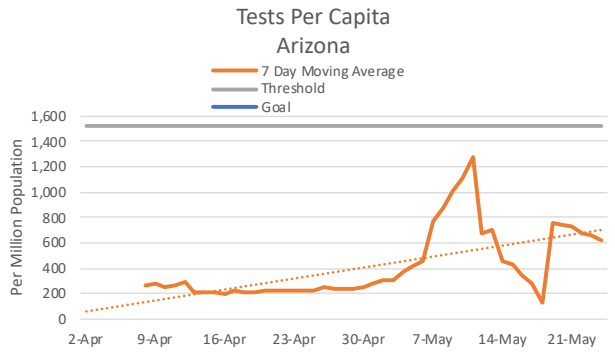


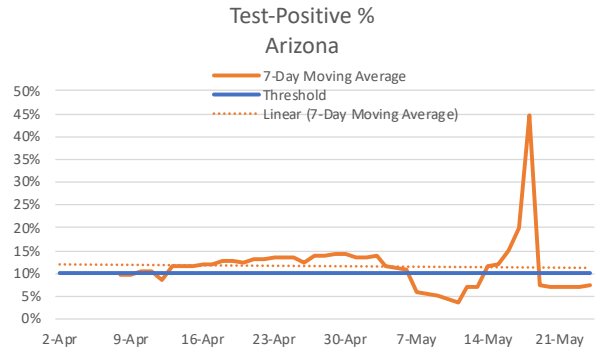


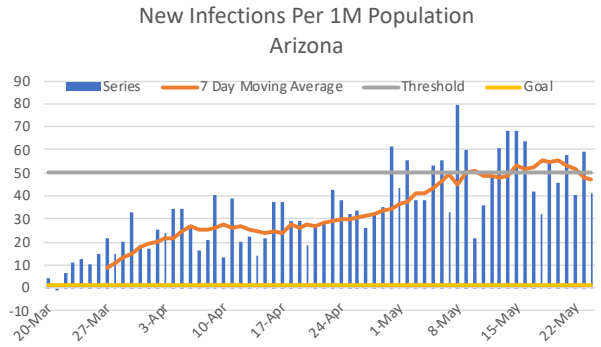
State-by-State

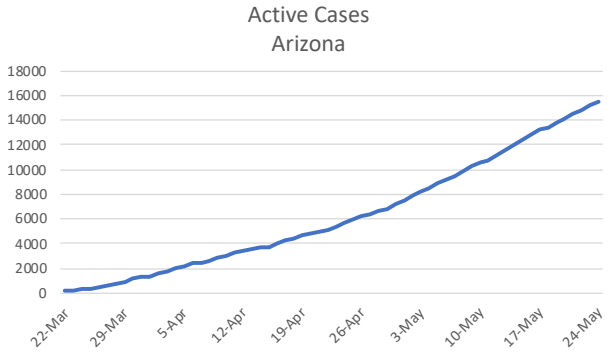
Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"









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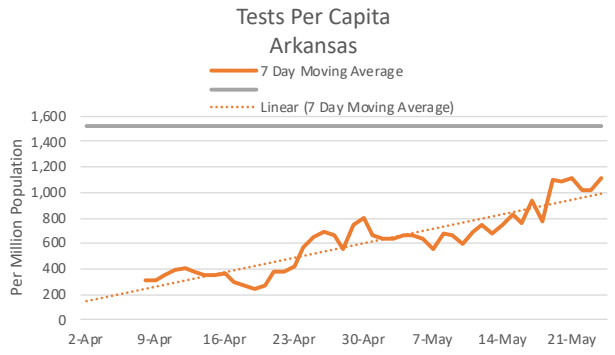

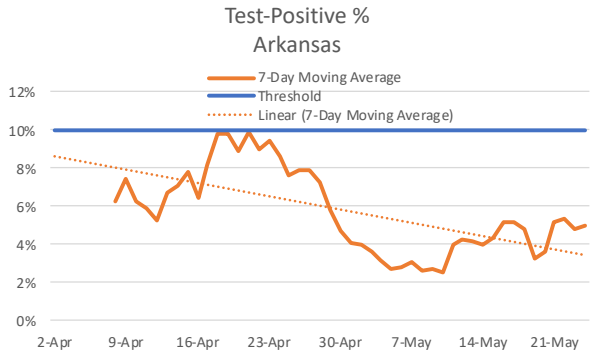

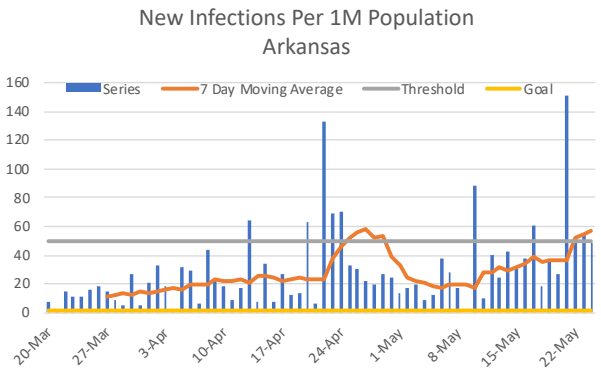

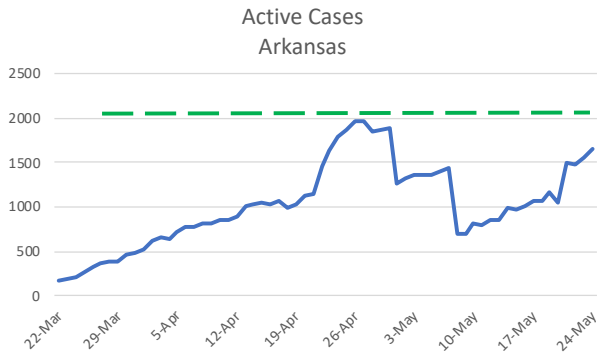

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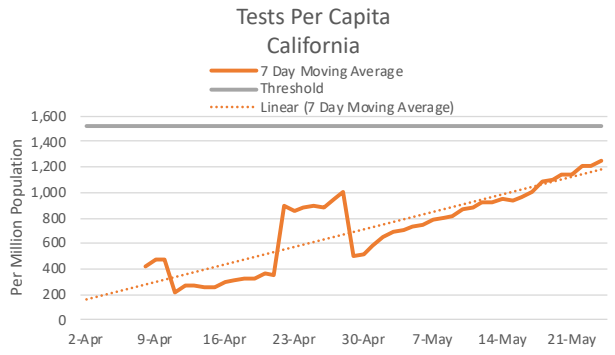

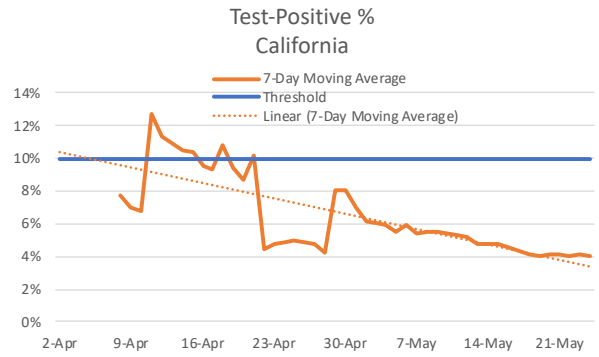

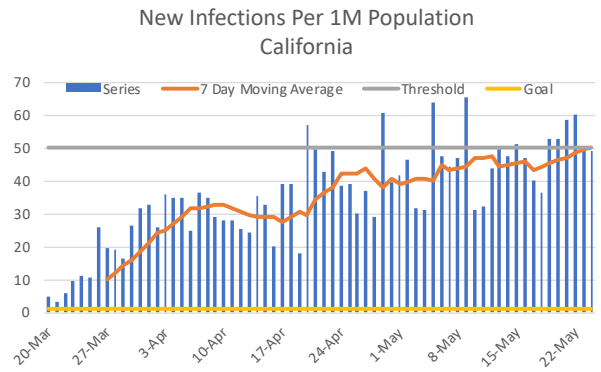

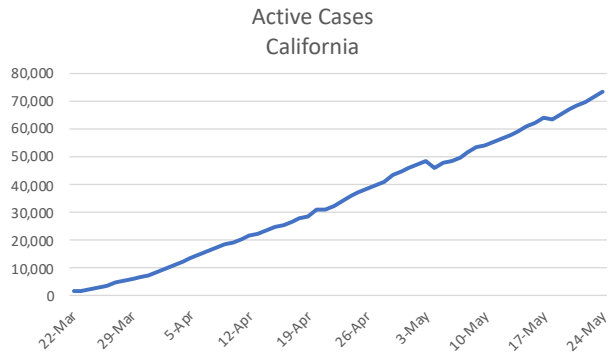

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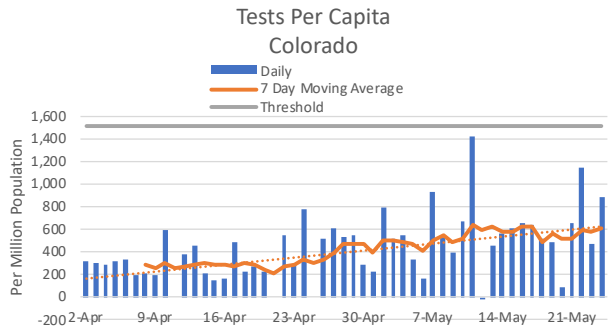

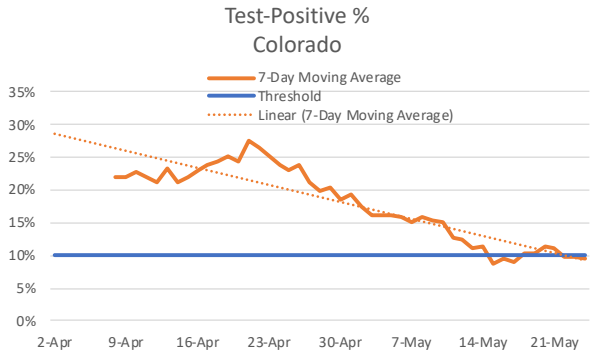

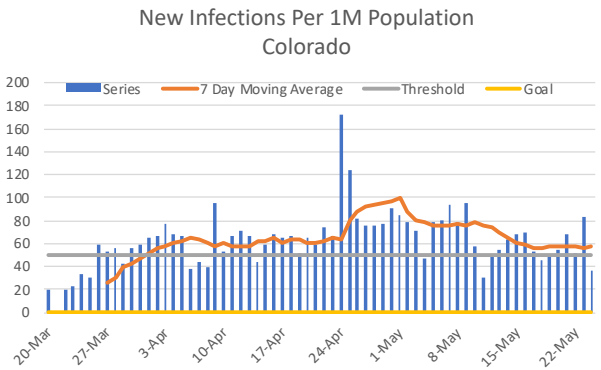

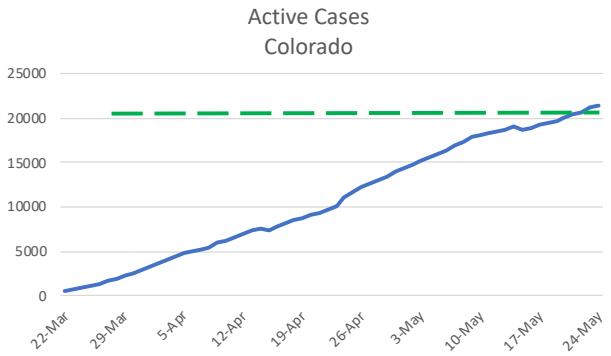

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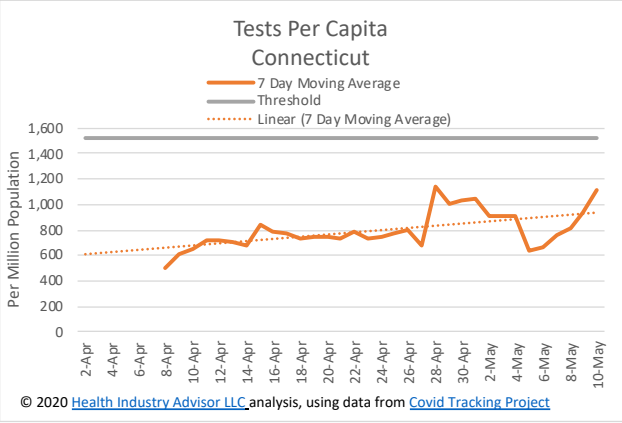

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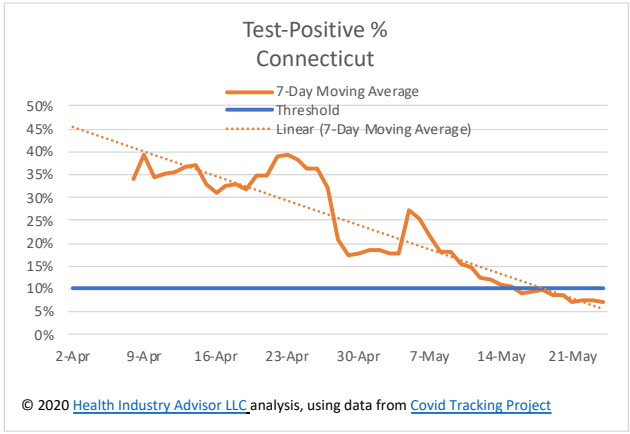

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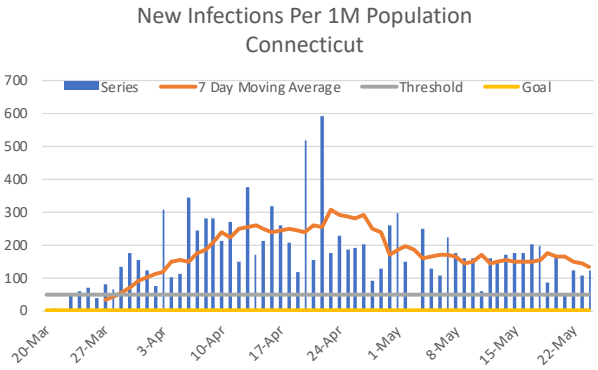

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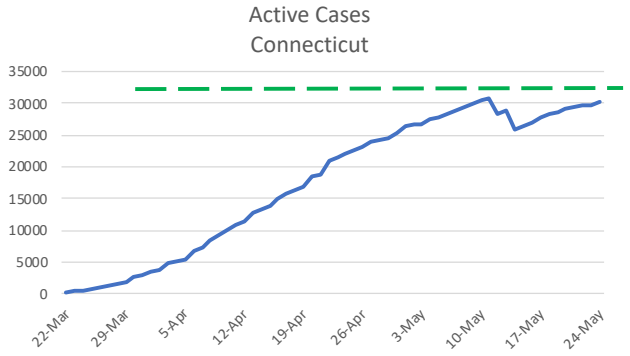

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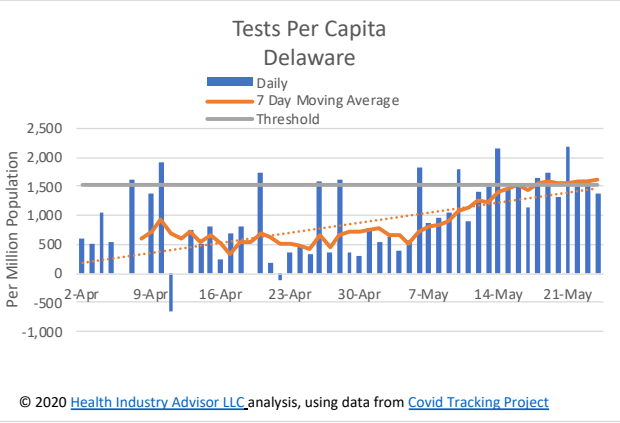

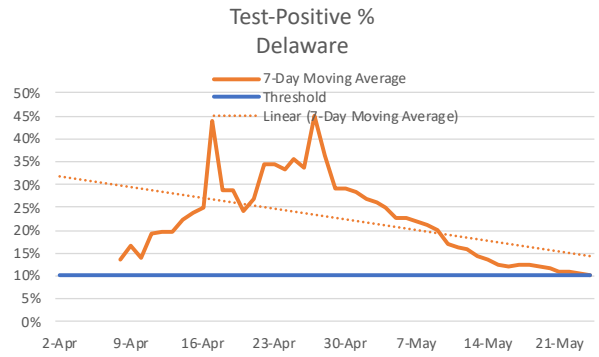

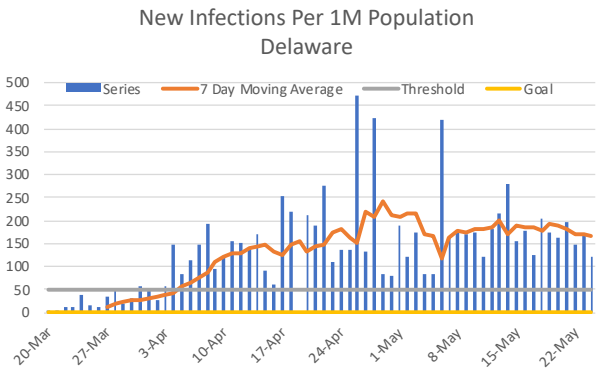

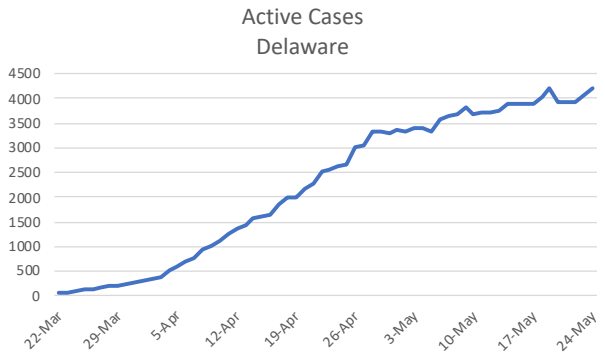

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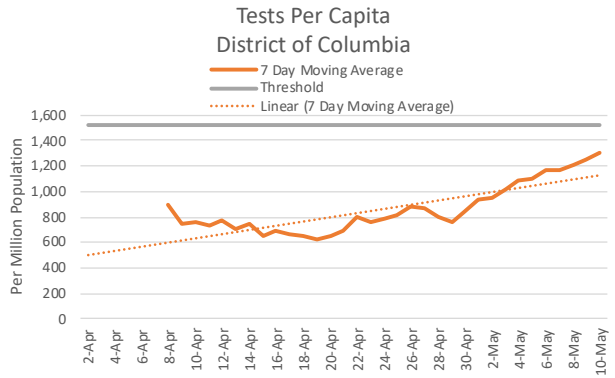

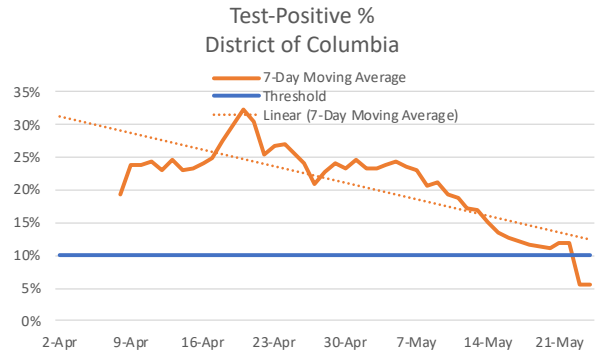

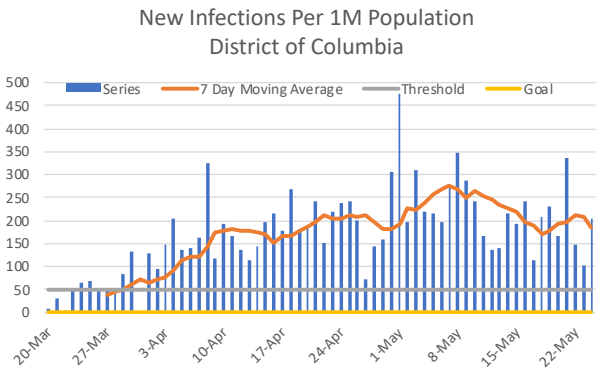

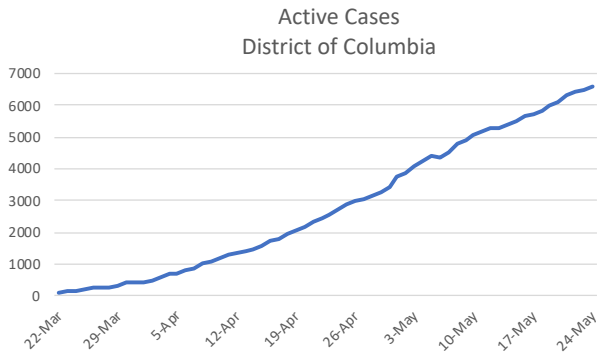

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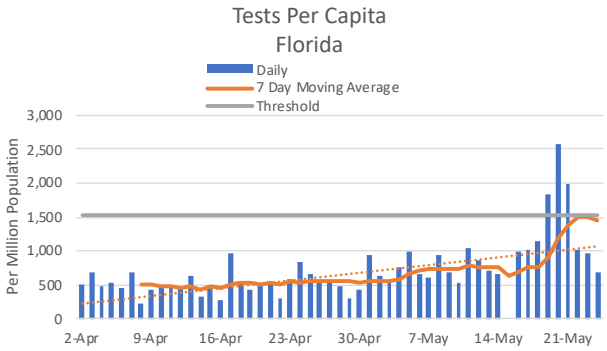

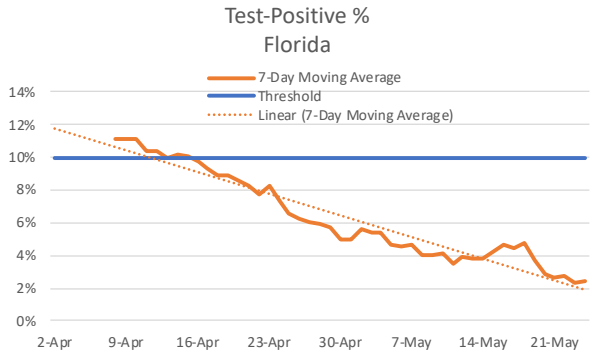

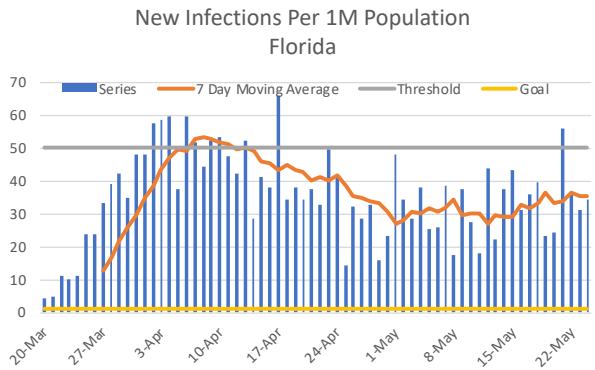

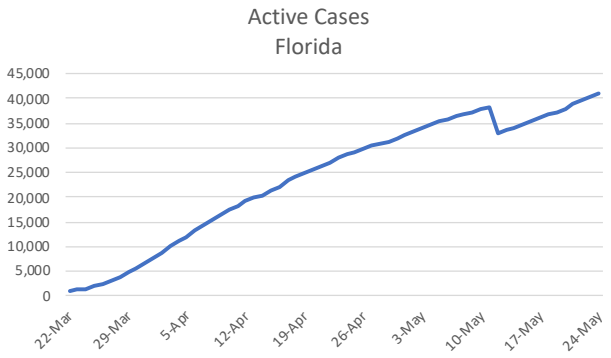

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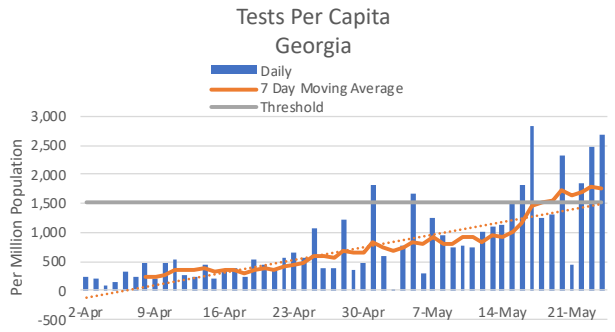

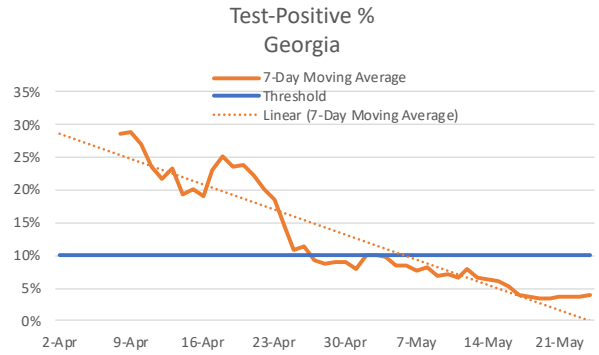

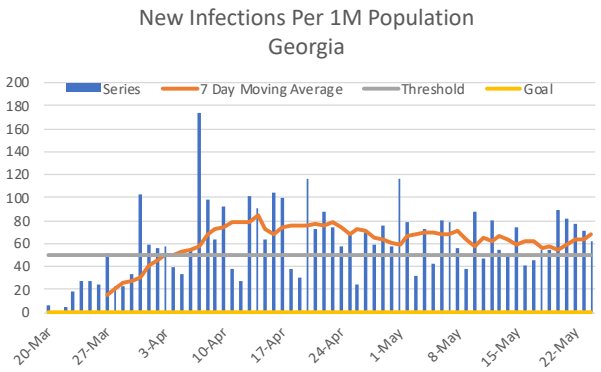

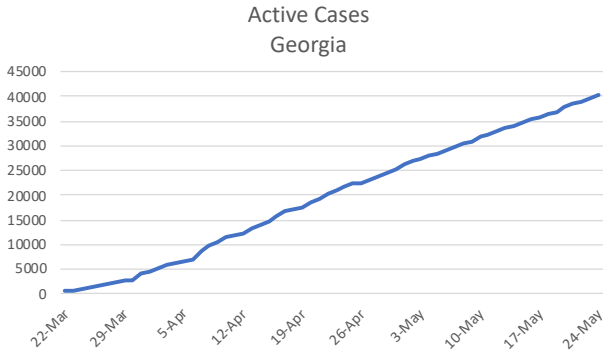

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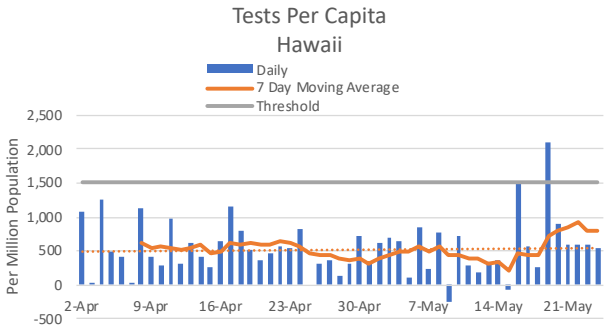

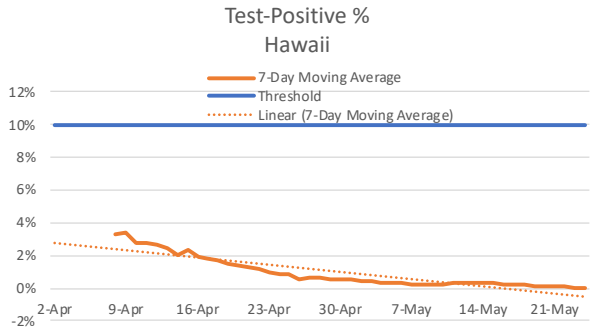

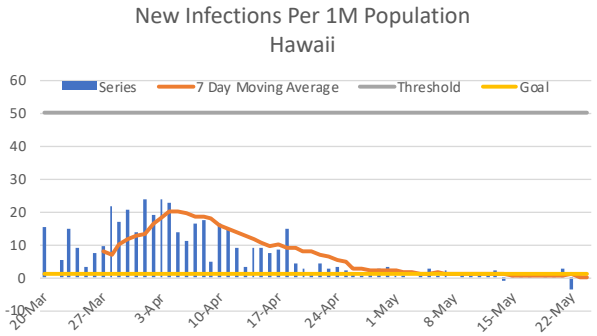

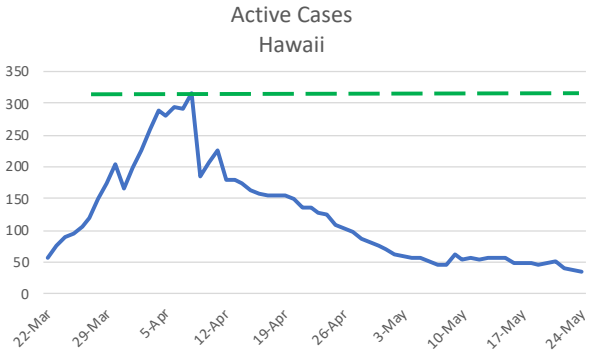

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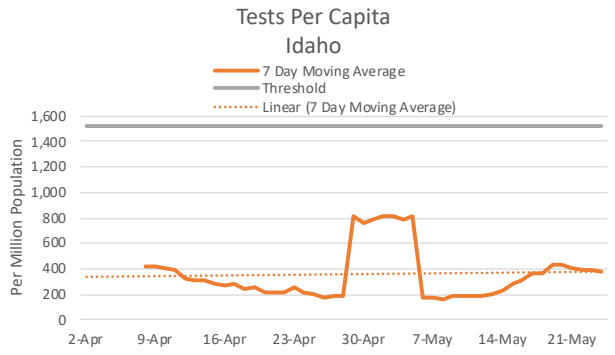

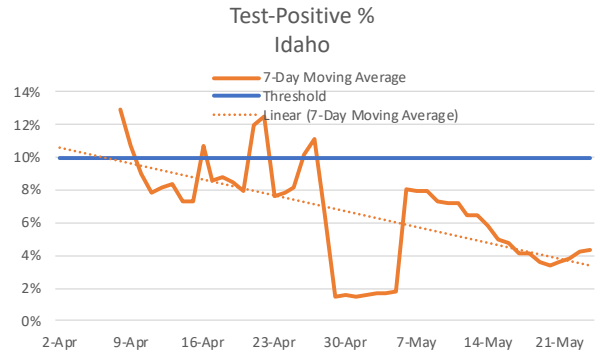

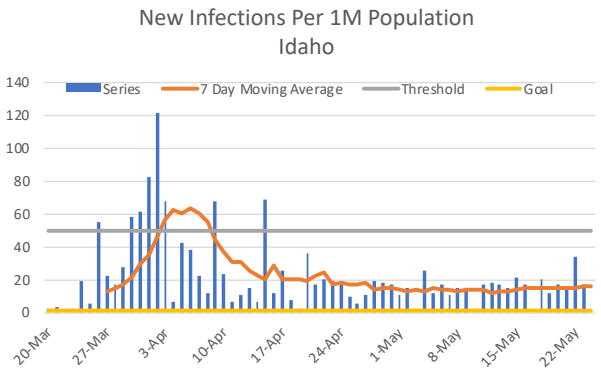

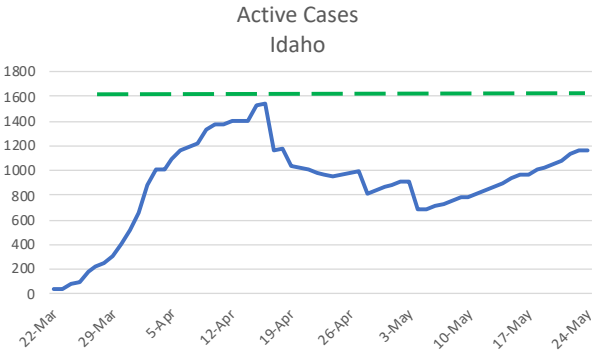

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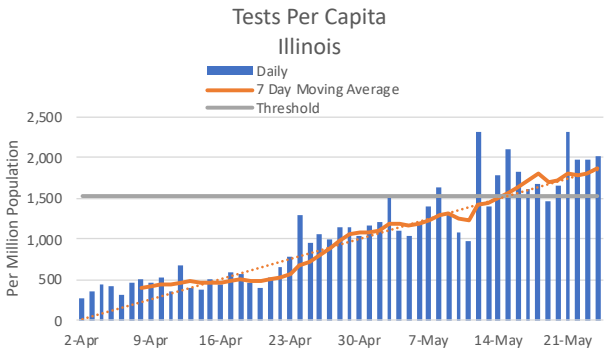

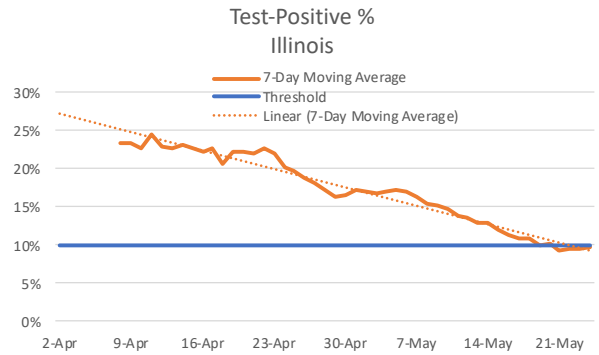

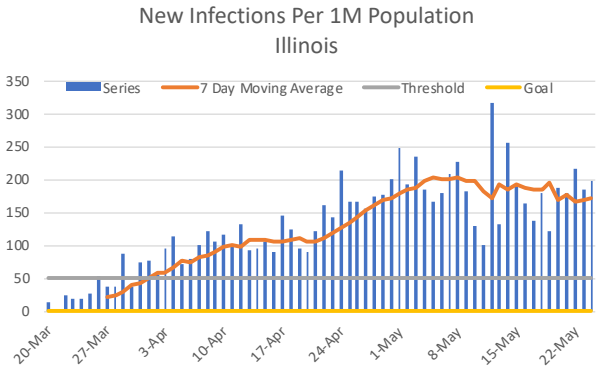

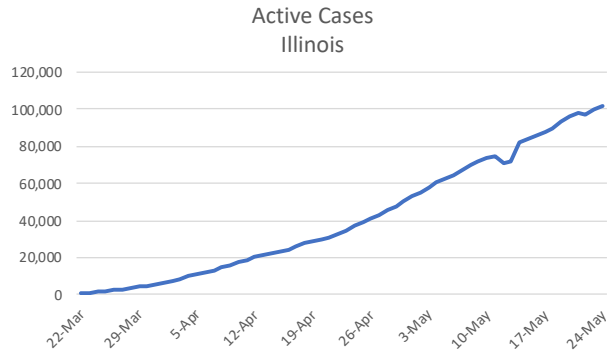

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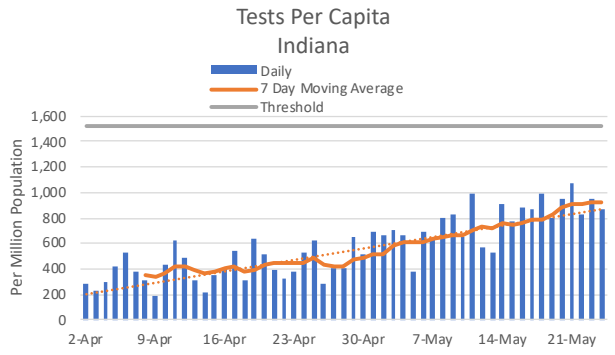

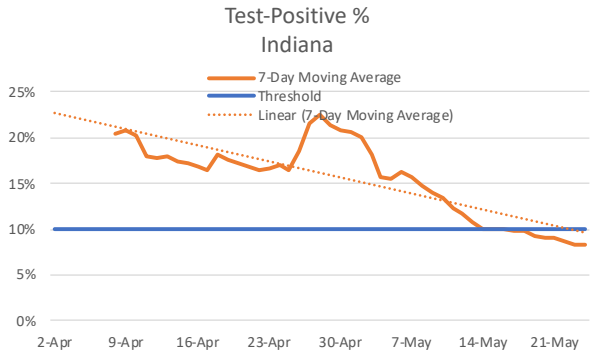

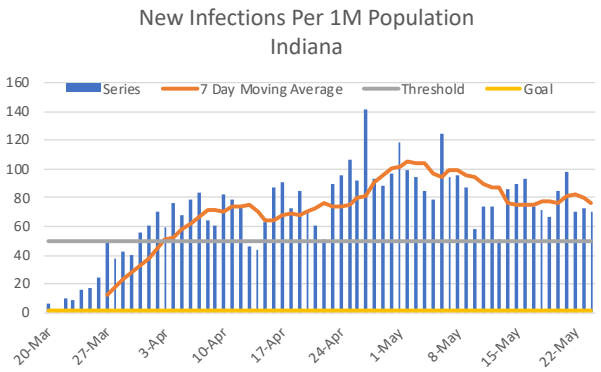

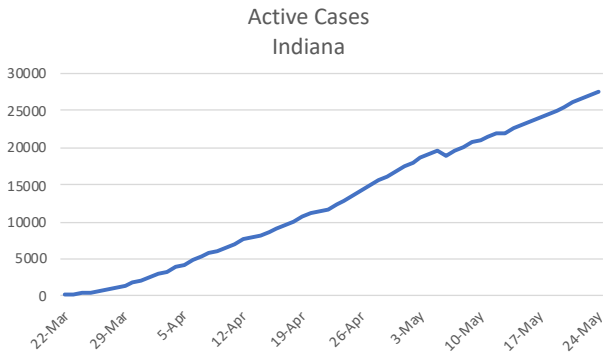

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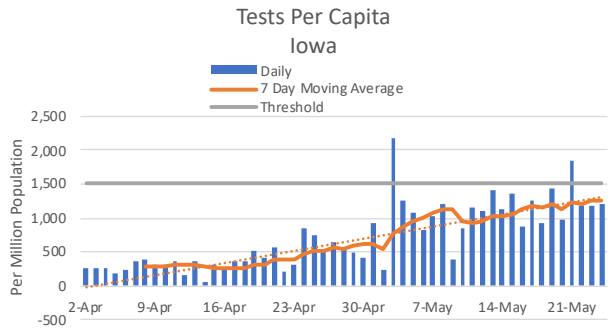

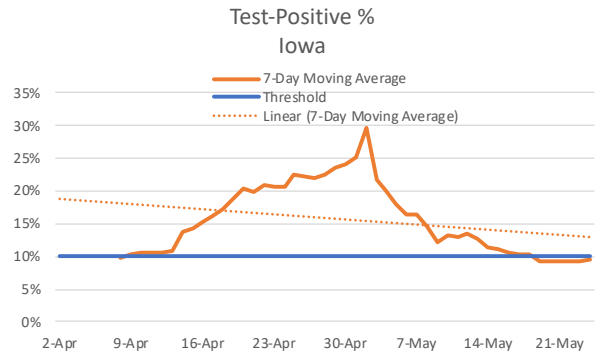

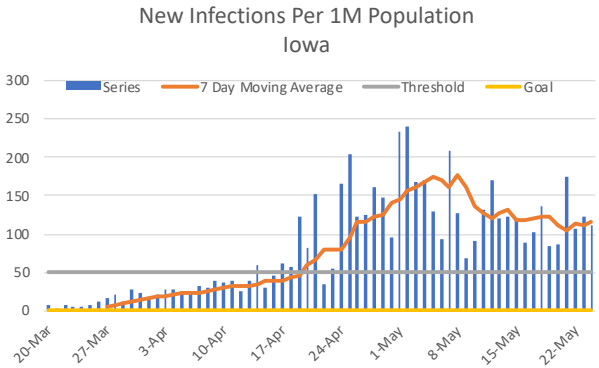

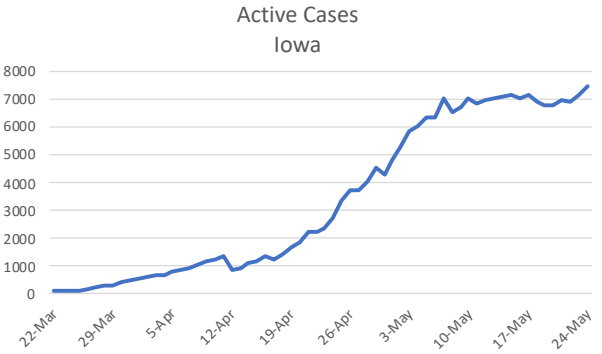

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