

COVID-19 Dashboard

Issue # 47
Friday, May 8, 2020

Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	~350,000 tests on Thursday; averaged 268,000 daily last week v. 172,000 prior week
Test-Positivity Rate	Decline	8.8% on Thursday; 10.0% for the week; cumulative down to 15.4%
Number of Cases	Plateau	Total Cases up 2.3% on Thursday
Deaths % of Total Cases	Decline	Up to 6.0%
Number of Deaths / 1M Population	Plateau	Up to 232.4
Recoveries : Death	Increase	2.8

Rationale for changes: Death rate has moved up from 5.6-5.8% range; recoveries seemed to be significantly undercounted

- The U.S. reported ~350,000 new tests on Thursday; the test-positive rate was 8.8%. For the week, tests averages 268,000 per day, with a 10% test-positive rate. Note: the World Health Organization suggests a 10% rate or lower as a guide to assess whether testing is sufficient to identify true infection rates. On the other hand, Harvard researchers suggest a minimum of 152 daily tests per 100,000 population; the U.S rate last week was only 88. Only 3 states – Massachusetts, North Dakota and Rhode Island are testing at or above the 152 rate.
- Recoveries seem to be significantly underreported (we typically observe states reporting recoveries only periodically). As a result, this also overstates active cases and masks when states have “flattened the curve”. We estimate the recoveries are undercounted by ~140,000 - 160,000.
- Tennessee and Vermont seem to have moved past peak active cases; while Minnesota and Missouri reported new peak in active cases. Again, these active case counts are suspect due to lags in states’ reporting of recoveries. Sweden – a focal point for their strategy of not imposing tight restrictions – seems to have moved past its peak in active cases
- The death rate has increased recently up to 6.0% of cases. Still, this rate, as well as deaths per capita, remain in the mid-range of the countries we are tracking
- Twenty-three states reported 50 or fewer new infections per day during the past week (see chart on page 27); 7 states however, reported ~200 or more.
- As new infections decline in Austria, Israel, Japan and South Korea, these countries are falling out of the top 30 in total cases. Bangladesh, Belarus, Indonesia, Poland, Qatar, Romania and Ukraine are moving ahead of some or all of these countries

COUNTRY-BY-COUNTRY INFORMATION

Country-by-Country Comparative Statistics

“Strategic Guidance in an Era of Unprecedented Change”

As of May 7

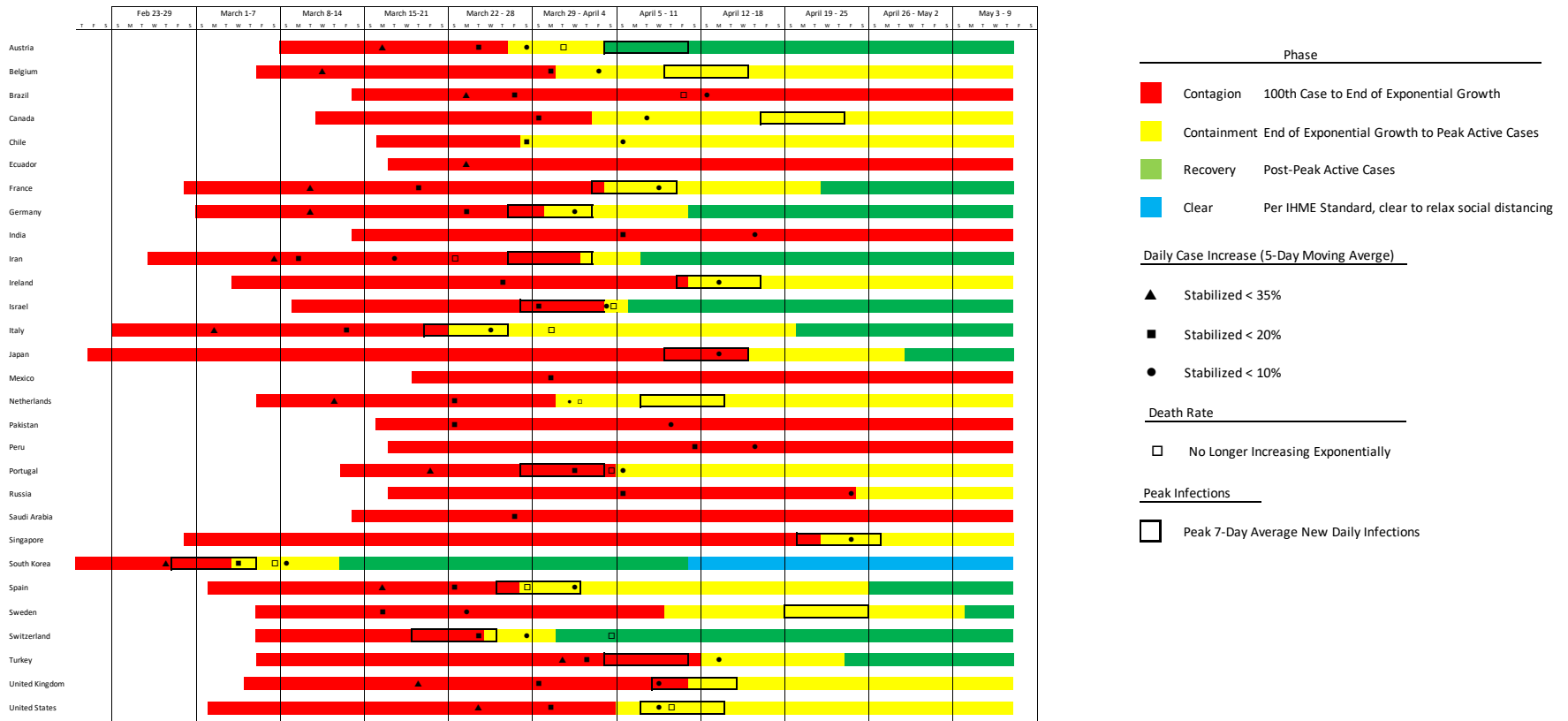
Country	Total Cases	Rank	Cases per 1M Population	Rank	Deaths	Rank	Death Rate	Rank	Deaths per 1 Million Population	Rank	5-day Moving Average Case Growth Rate	Rank	Tests per 1M Population	Rank	New Daily Infections Per 1M Population (5-Day M.A.)	Rank
USA	1,292,623	(1)	3,905	(4)	76,928	(1)	6.0%	(14)	232.4	(9)	2.2%	(13)	25,068	(13)	85.3	(3)
Austria	15,752	(28)	1,749	(16)	609	(23)	3.9%	(19)	67.6	(16)	0.2%	(25)	32,450	(10)	4.8	(26)
Belgium	51,420	(15)	4,437	(3)	8,415	(7)	16.4%	(1)	726.1	(1)	0.8%	(20)	42,566	(4)	35.8	(13)
Brazil	135,693	(8)	638	(24)	9,188	(6)	6.8%	(10)	43.2	(18)	7.0%	(3)	1,597	(25)	33.8	(14)
Canada	64,922	(12)	1,720	(17)	4,408	(12)	6.8%	(9)	116.8	(11)	2.7%	(10)	26,636	(12)	44.2	(11)
Chile	24,581	(24)	1,286	(20)	285	(26)	1.2%	(27)	14.9	(22)	6.0%	(5)	12,776	(20)	64.0	(6)
China	82,885	(11)	58	(29)	4,633	(11)	5.6%	(15)	3.2	(28)	0.0%	(29)	0	(30)	0.0	(30)
Ecuador	30,298	(18)	1,717	(18)	1,654	(18)	5.5%	(16)	93.7	(13)	-1.7%	(30)	4,717	(24)	43.4	(12)
France	174,791	(6)	2,678	(9)	25,987	(5)	14.9%	(2)	398.1	(5)	0.7%	(22)	21,213	(15)	16.7	(19)
Germany	169,430	(7)	2,022	(13)	7,392	(8)	4.4%	(17)	88.2	(14)	0.5%	(24)	32,891	(9)	10.9	(21)
India	56,351	(14)	41	(30)	1,889	(16)	3.4%	(21)	1.4	(30)	6.7%	(4)	984	(28)	2.2	(27)
Iran	103,135	(10)	1,228	(21)	6,486	(9)	6.3%	(11)	77.2	(15)	1.3%	(15)	6,485	(23)	14.4	(20)
Ireland	22,385	(25)	4,533	(2)	1,403	(21)	6.3%	(12)	284.1	(8)	0.9%	(17)	43,493	(3)	51.3	(8)
Israel	16,381	(27)	1,893	(14)	240	(28)	1.5%	(26)	27.7	(20)	0.2%	(26)	49,963	(1)	7.2	(24)
Italy	215,858	(3)	3,570	(6)	29,958	(3)	13.9%	(4)	495.5	(3)	0.6%	(23)	39,385	(6)	24.6	(15)
Japan	15,477	(29)	122	(27)	577	(25)	3.7%	(20)	4.6	(26)	0.9%	(19)	1,502	(26)	1.6	(28)
Mexico	27,634	(20)	214	(25)	2,704	(15)	9.8%	(8)	21.0	(21)	5.6%	(6)	820	(29)	10.9	(22)
Netherlands	41,774	(16)	2,438	(12)	5,288	(10)	12.7%	(5)	308.6	(6)	0.8%	(21)	14,570	(18)	20.5	(18)
Pakistan	24,644	(22)	112	(28)	585	(24)	2.4%	(24)	2.6	(29)	5.6%	(8)	1,108	(27)	5.3	(25)
Peru	58,526	(13)	1,775	(15)	1,627	(19)	2.8%	(22)	49.3	(17)	7.3%	(2)	13,588	(19)	93.4	(2)
Portugal	26,715	(21)	2,620	(10)	1,105	(22)	4.1%	(18)	108.4	(12)	1.2%	(16)	47,655	(2)	23.4	(16)
Russia	177,160	(5)	1,182	(22)	1,625	(20)	0.9%	(28)	10.8	(23)	7.4%	(1)	32,913	(8)	67.3	(5)
Saudi Arabia	33,731	(17)	969	(23)	219	(29)	0.6%	(29)	6.3	(24)	5.6%	(7)	12,666	(21)	45.0	(10)
Singapore	20,939	(26)	3,579	(5)	20	(30)	0.1%	(30)	3.4	(27)	3.7%	(9)	11,653	(22)	116.5	(1)
South Korea	10,810	(30)	211	(26)	256	(27)	2.4%	(25)	5.0	(25)	0.1%	(28)	30,016	(11)	0.1	(29)
Spain	256,855	(2)	5,494	(1)	26,070	(4)	10.1%	(7)	557.6	(2)	0.9%	(18)	41,332	(5)	52.6	(7)
Sweden	24,623	(23)	2,438	(11)	3,040	(14)	12.3%	(6)	301.0	(7)	2.2%	(12)	14,704	(17)	49.9	(9)
Switzerland	30,126	(19)	3,518	(7)	1,810	(17)	6.0%	(13)	211.3	(10)	0.2%	(27)	33,550	(7)	9.0	(23)
Turkey	133,721	(9)	1,586	(19)	3,641	(13)	2.7%	(23)	43.2	(19)	1.5%	(14)	15,000	(16)	22.9	(17)
UK	206,715	(4)	3,045	(8)	30,615	(2)	14.8%	(3)	451.0	(4)	2.6%	(11)	22,605	(14)	74.6	(4)

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Country-by-Country Virus Progression

"Strategic Guidance in an Era of Unprecedented Change"

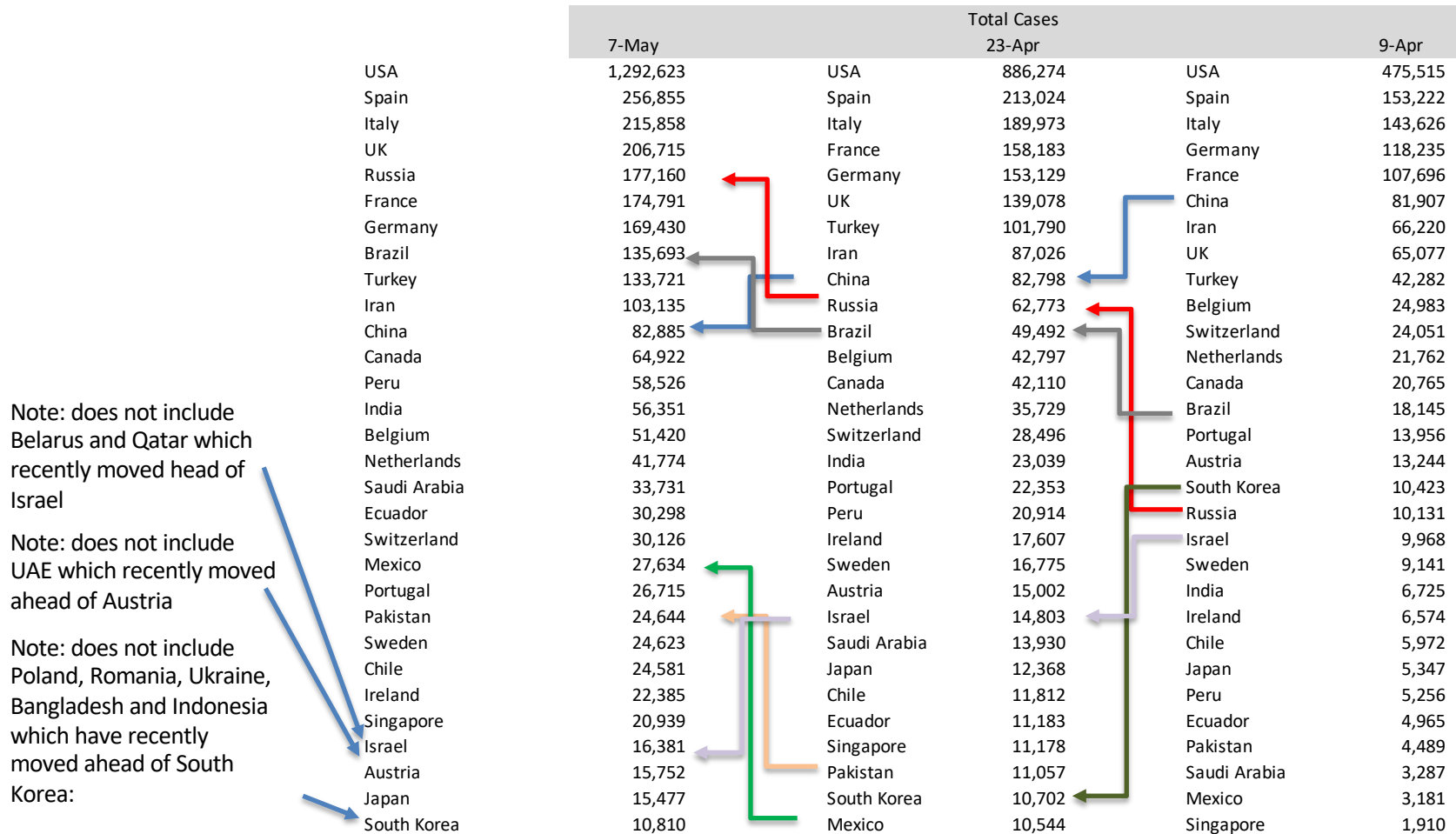
This graphic illustrates when the country first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses symbols to indicate when 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

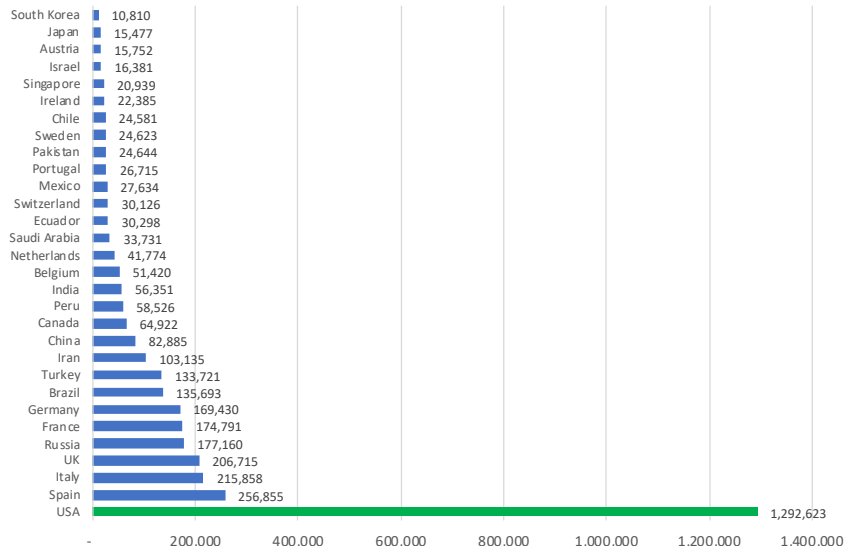
"Strategic Guidance in an Era of Unprecedented Change"



Country-by-Country Cases & Cases Per Capita

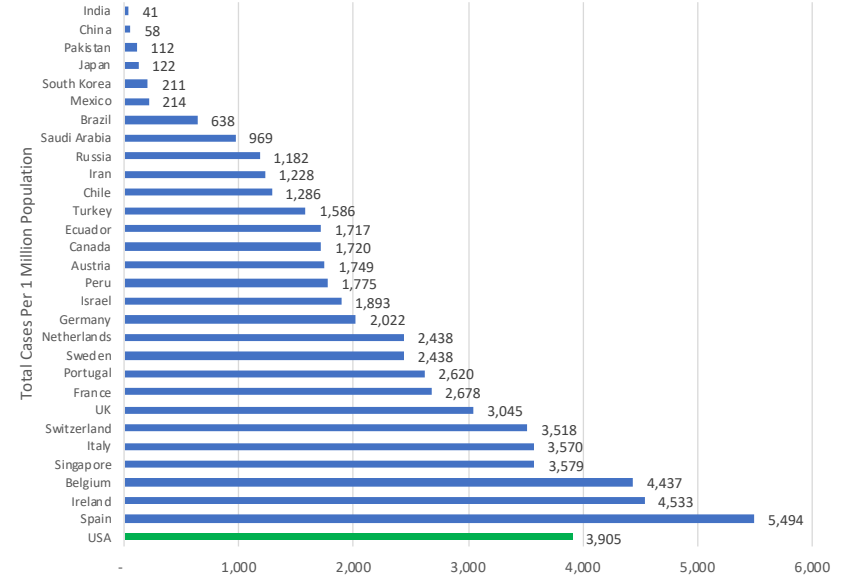
"Strategic Guidance in an Era of Unprecedented Change"

Total Cases By Country
May 7



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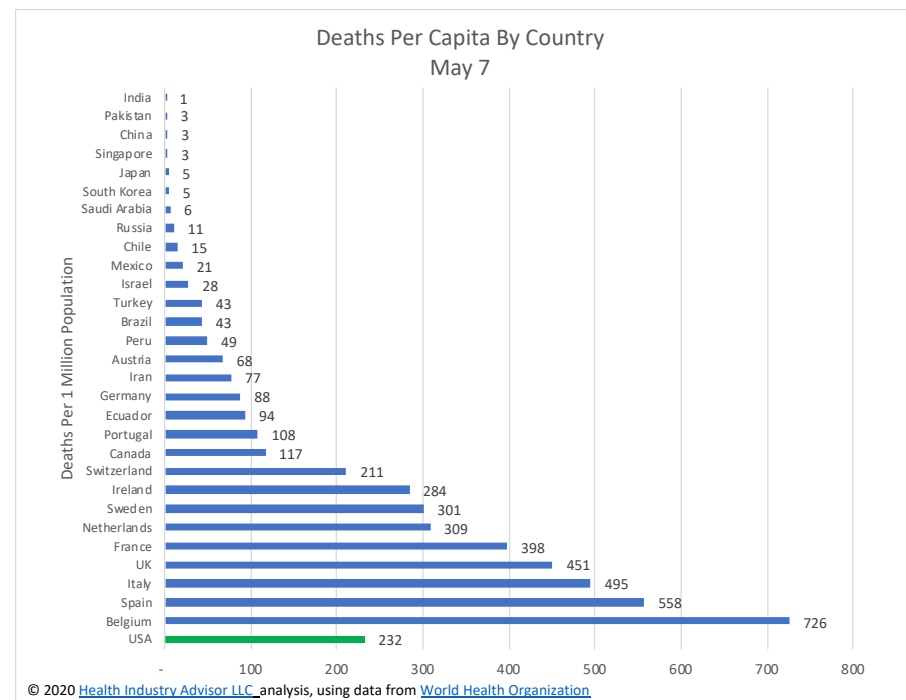
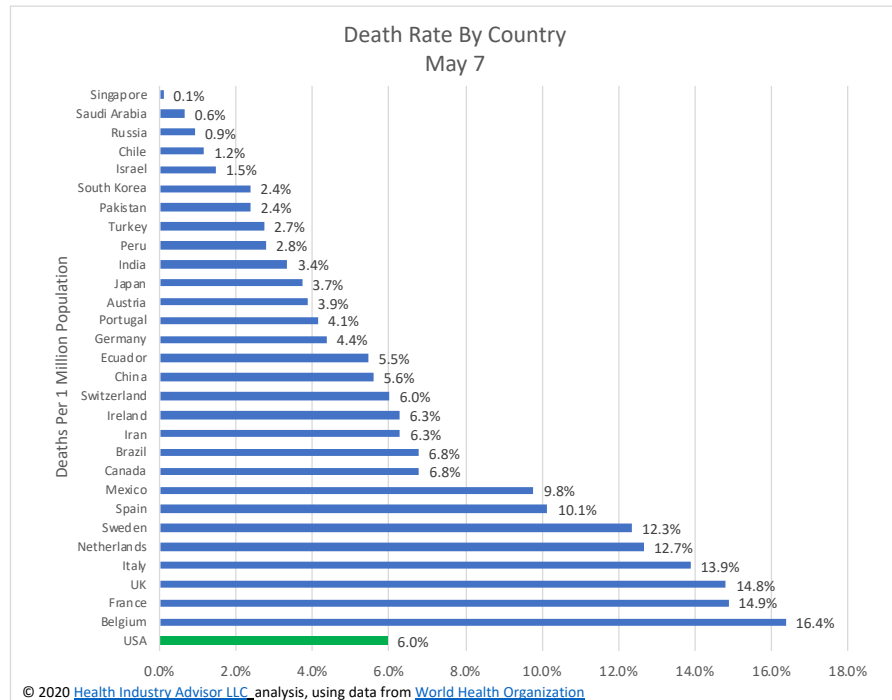
Cases Per Capita By Country
May 7



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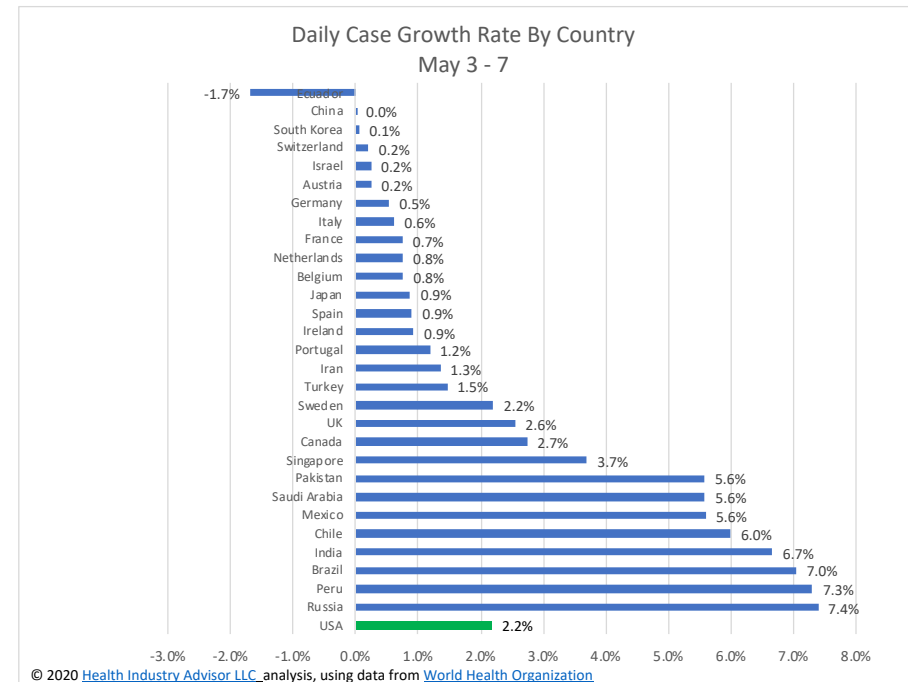
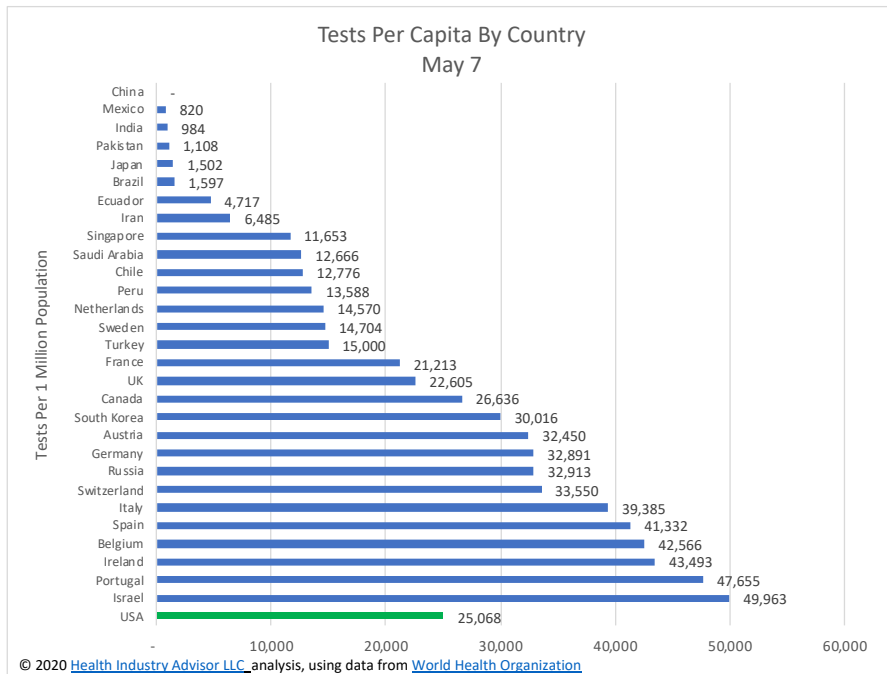
Deaths Per Cases & Per Capita

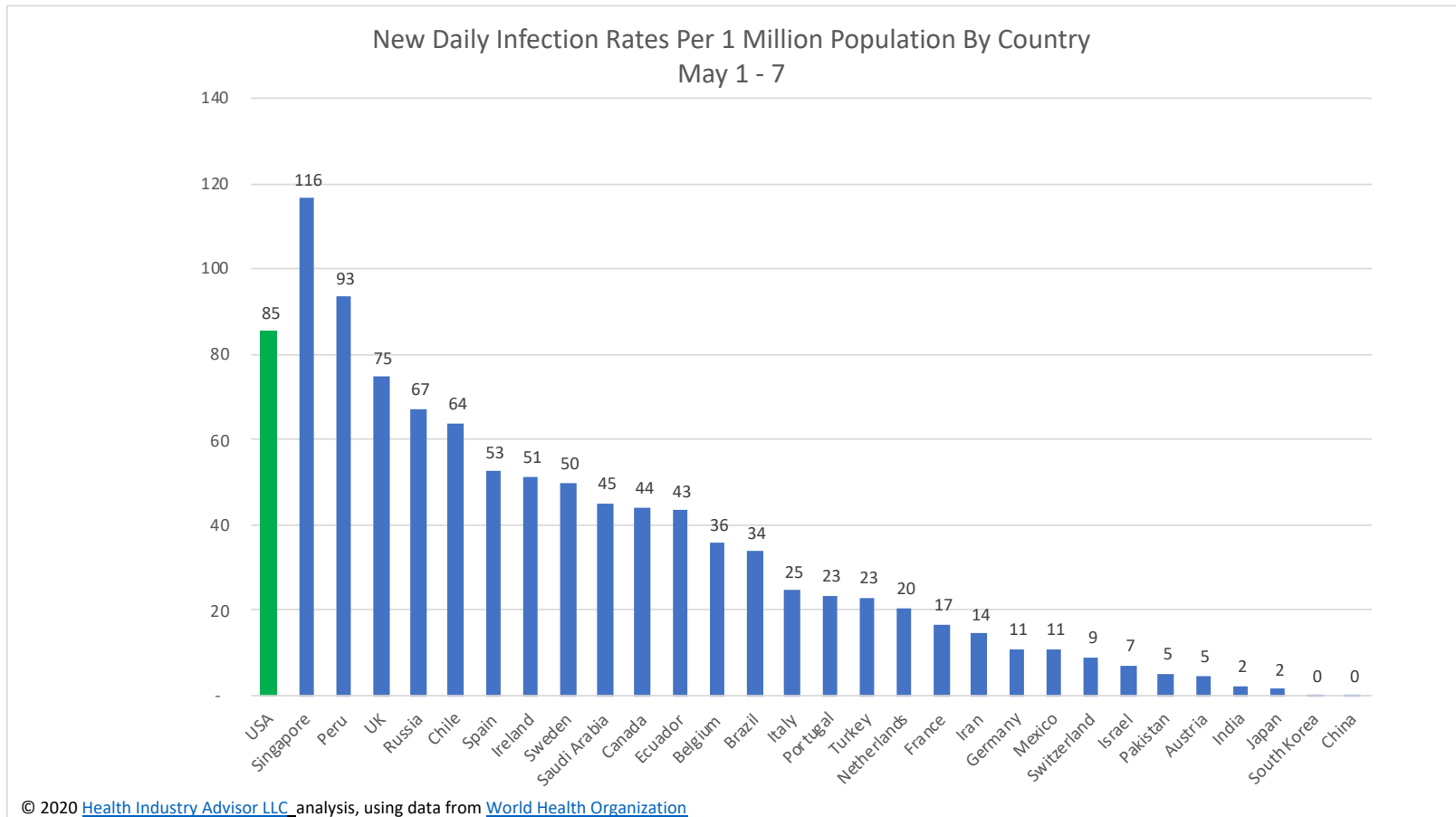
"Strategic Guidance in an Era of Unprecedented Change"



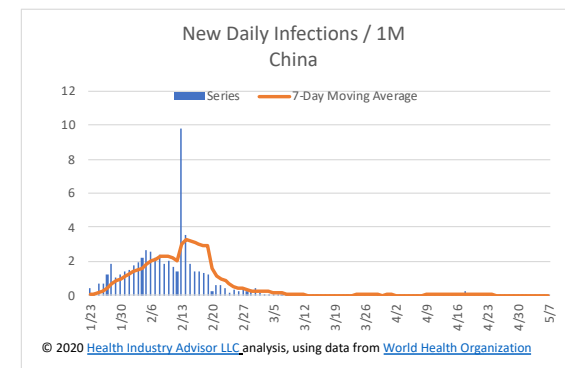
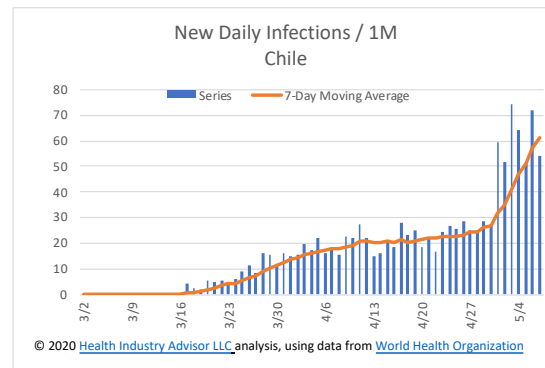
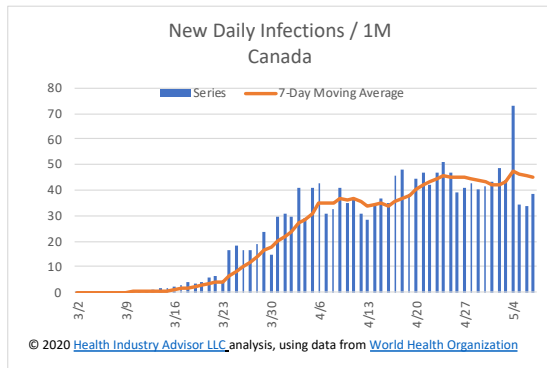
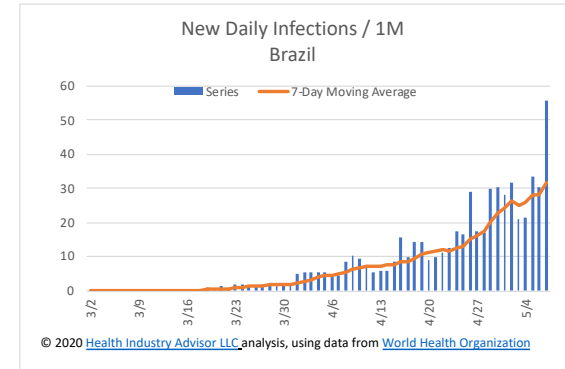
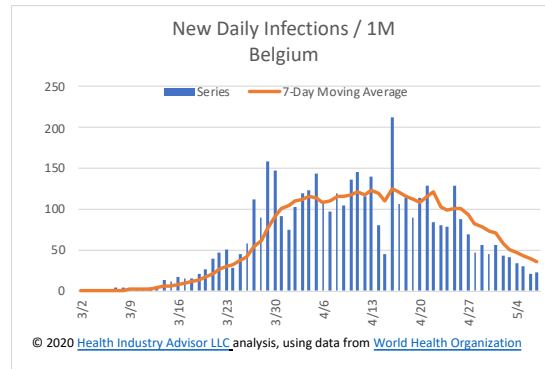
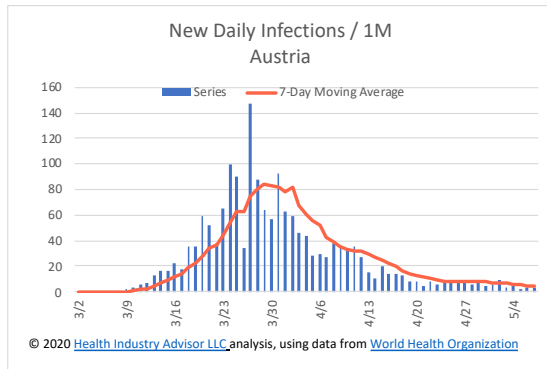
Country-by-Country Tests Per Capita & Case Growth Rate

"Strategic Guidance in an Era of Unprecedented Change"

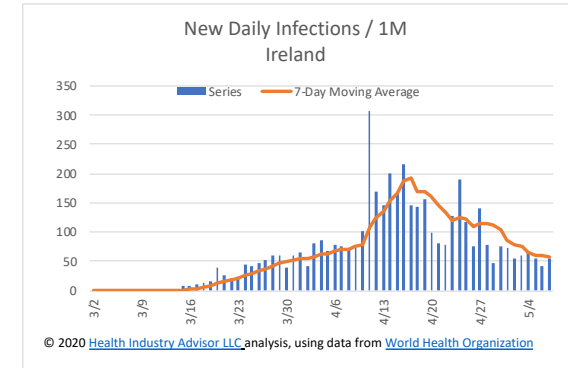
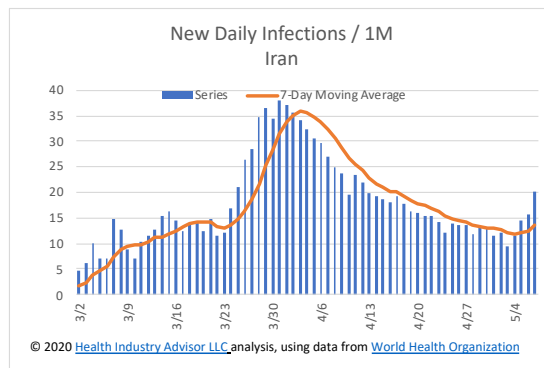
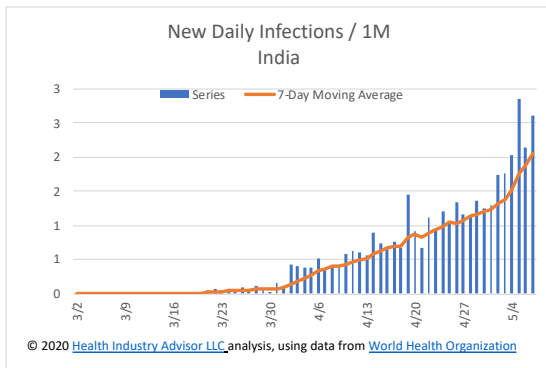
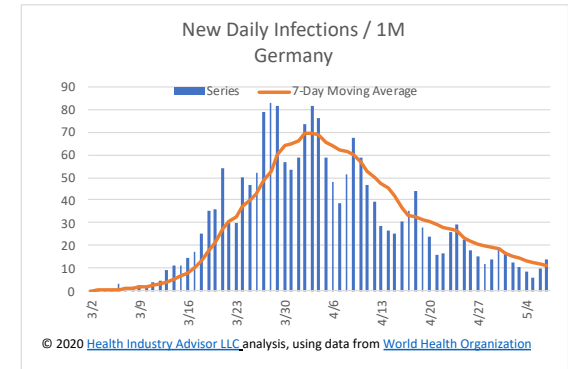
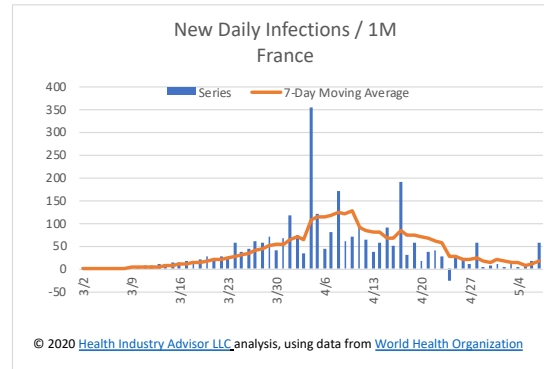
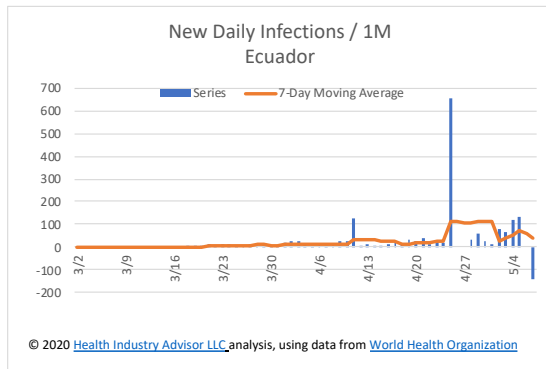




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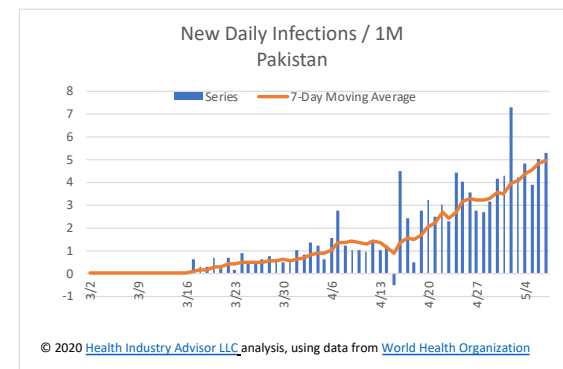
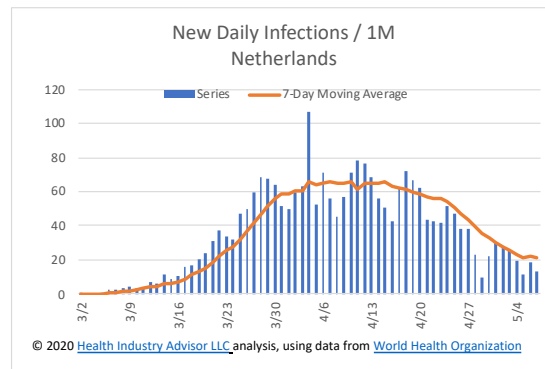
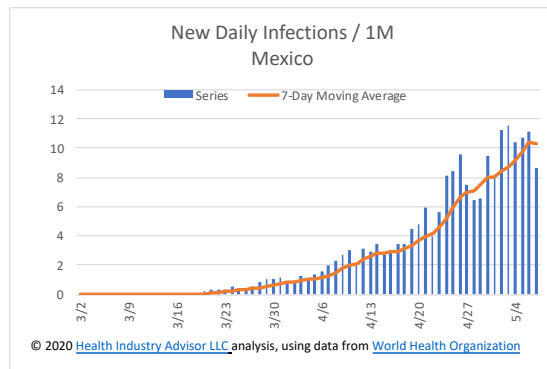
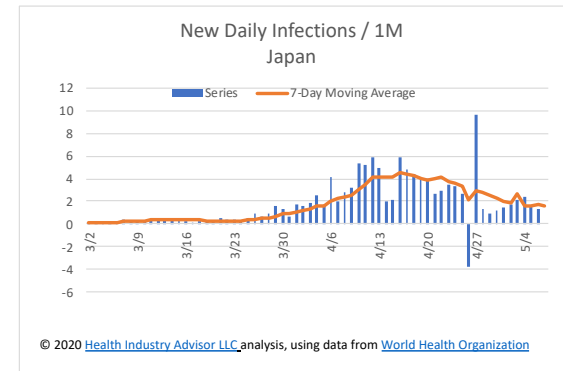
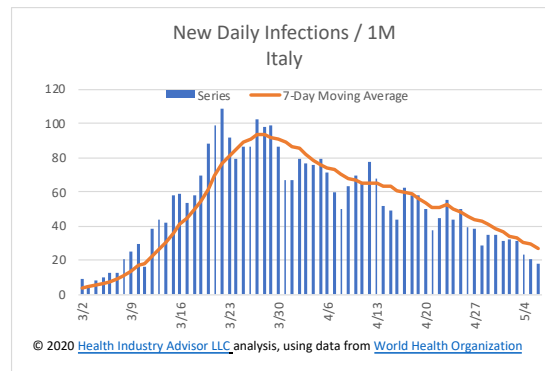
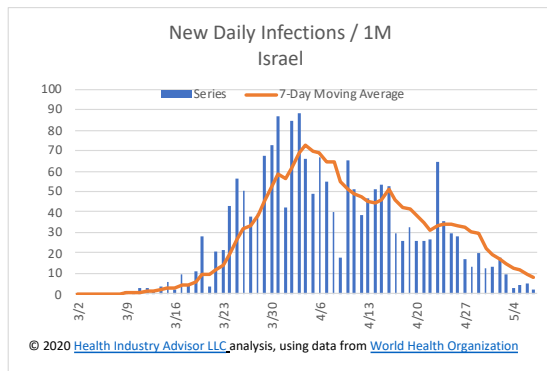


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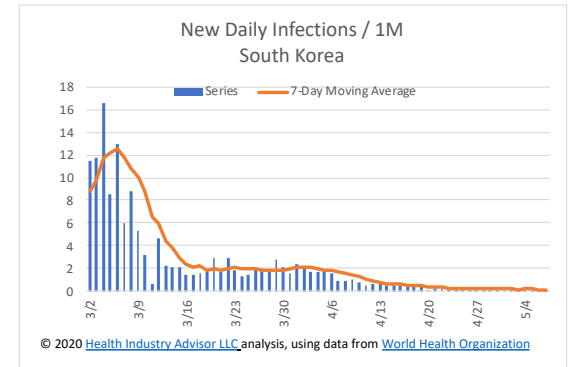
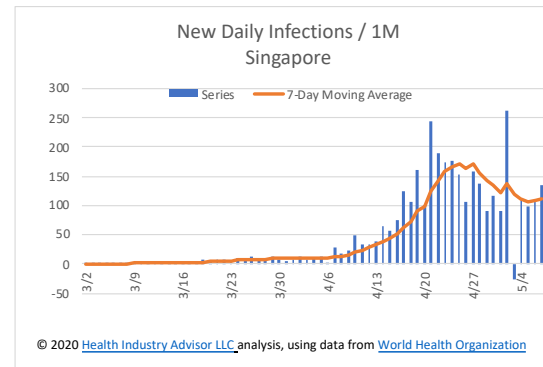
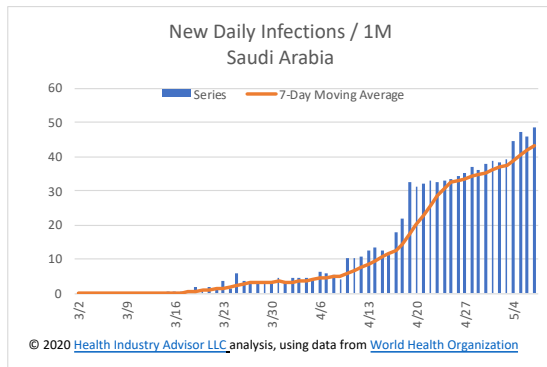
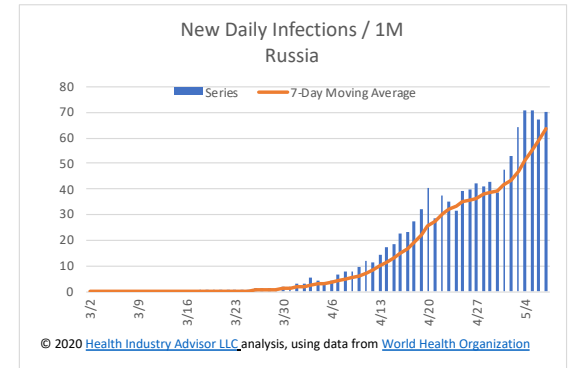
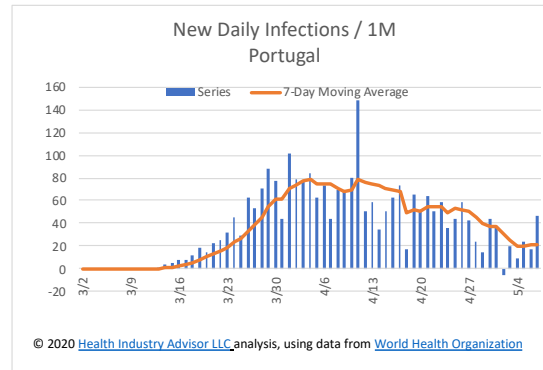
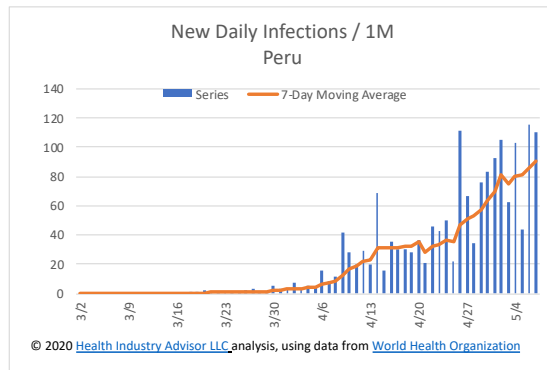
New Daily Infection Rate Time Series

"Strategic Guidance in an Era of Unprecedented Change"

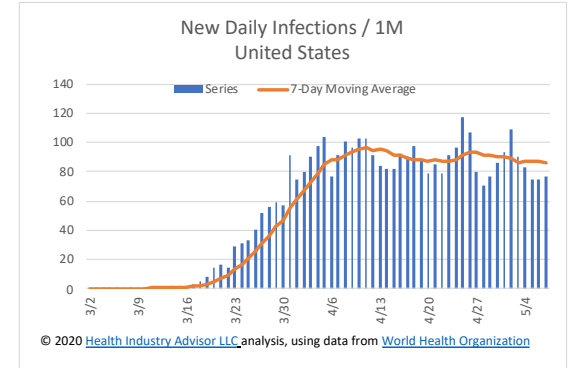
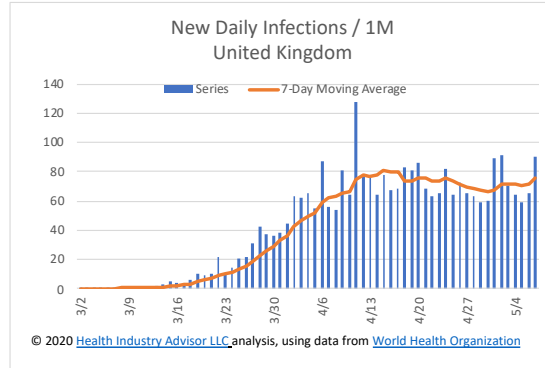
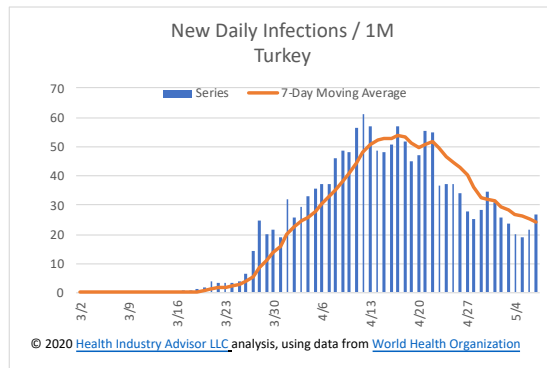
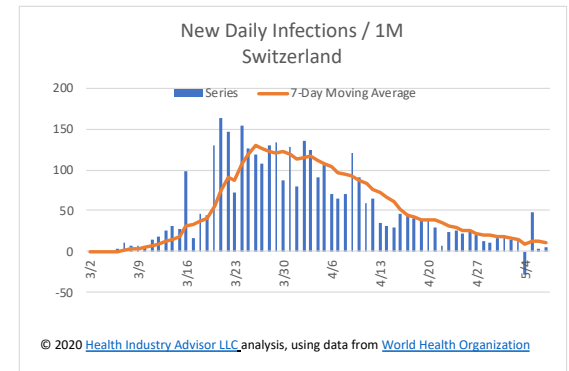
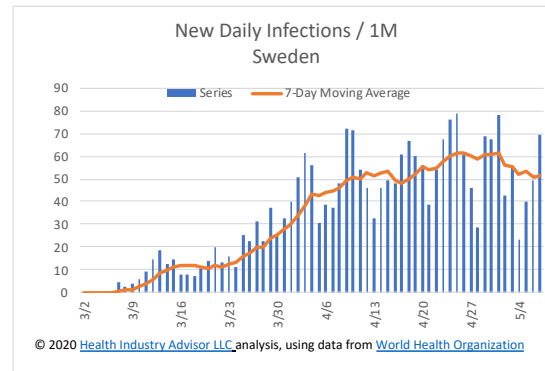
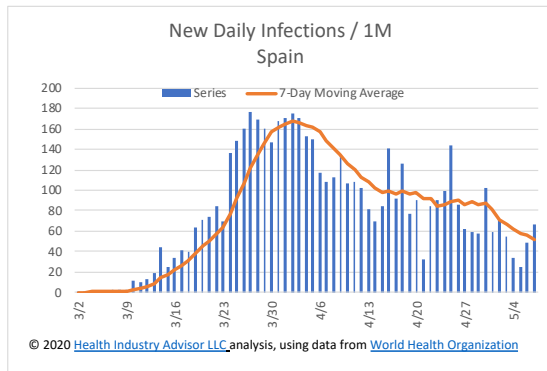


New Daily Infection Rate Time Series

"Strategic Guidance in an Era of Unprecedented Change"



"Strategic Guidance in an Era of Unprecedented Change"



UNITED STATES & STATE-BY-STATE INFORMATION

Readiness For Relaxing Restrictions

“Strategic Guidance in an Era of Unprecedented Change”

We 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.**

May 7

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									

April 30

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									
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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

May 7

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									
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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									

April 15

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

"Strategic Guidance in an Era of Unprecedented Change"

Legend:

Time period	Tests per Capita		Test-Positive Rate		New Daily Infection Rate		Baseline		Hospital Resources
	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	
	>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	

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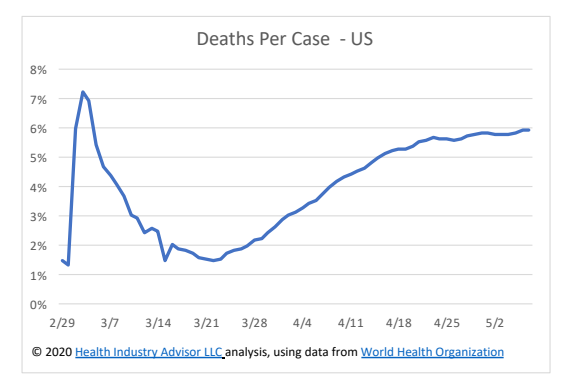
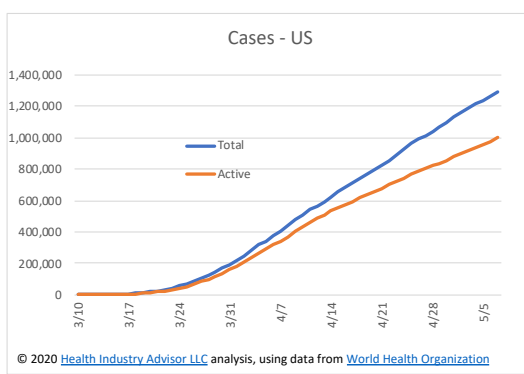
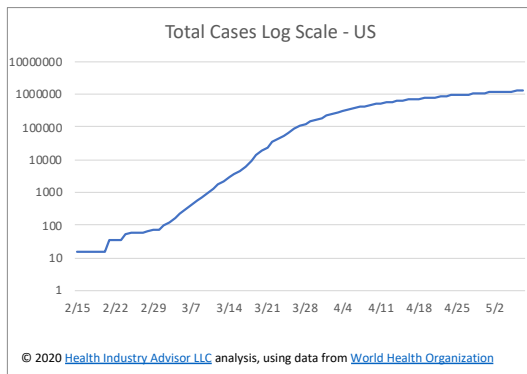
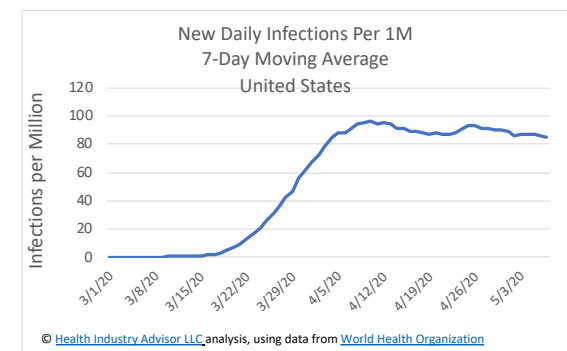
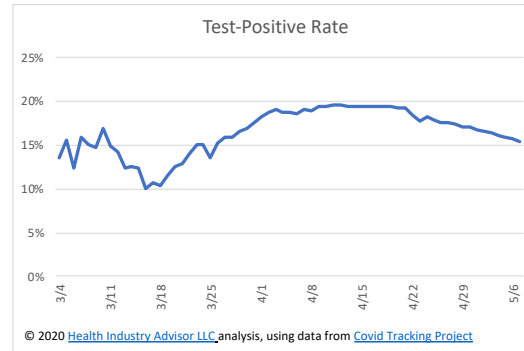
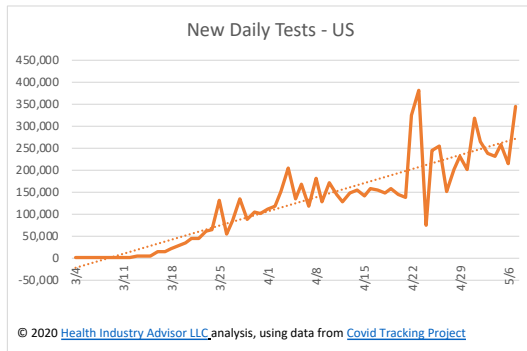
Sources:

Influenza guidelines and data from Centers for Disease Control (<https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html>), accessed April 30, 2020

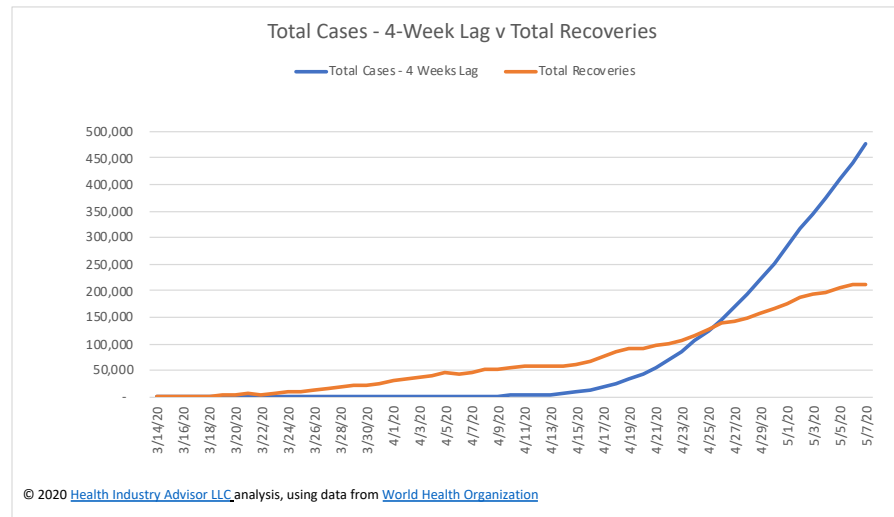
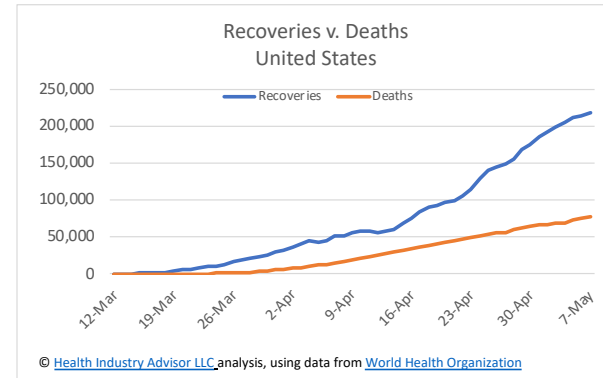
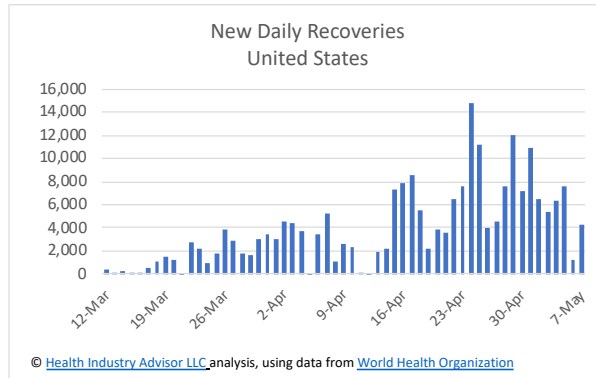
Test data from Covid Tracking Project (<https://covidtracking.com/>), accessed March 21-May 2, 2020

Hospital resource Need projections from Institute for Health Metrics and Evaluation (), accessed April 30, 2020

Infection rate data from World Health Organization (worldometer.info), accessed March 21-May 2, 2020



"Strategic Guidance in an Era of Unprecedented Change"



State-by-State Comparative Statistics

"Strategic Guidance in an Era of Unprecedented Change"

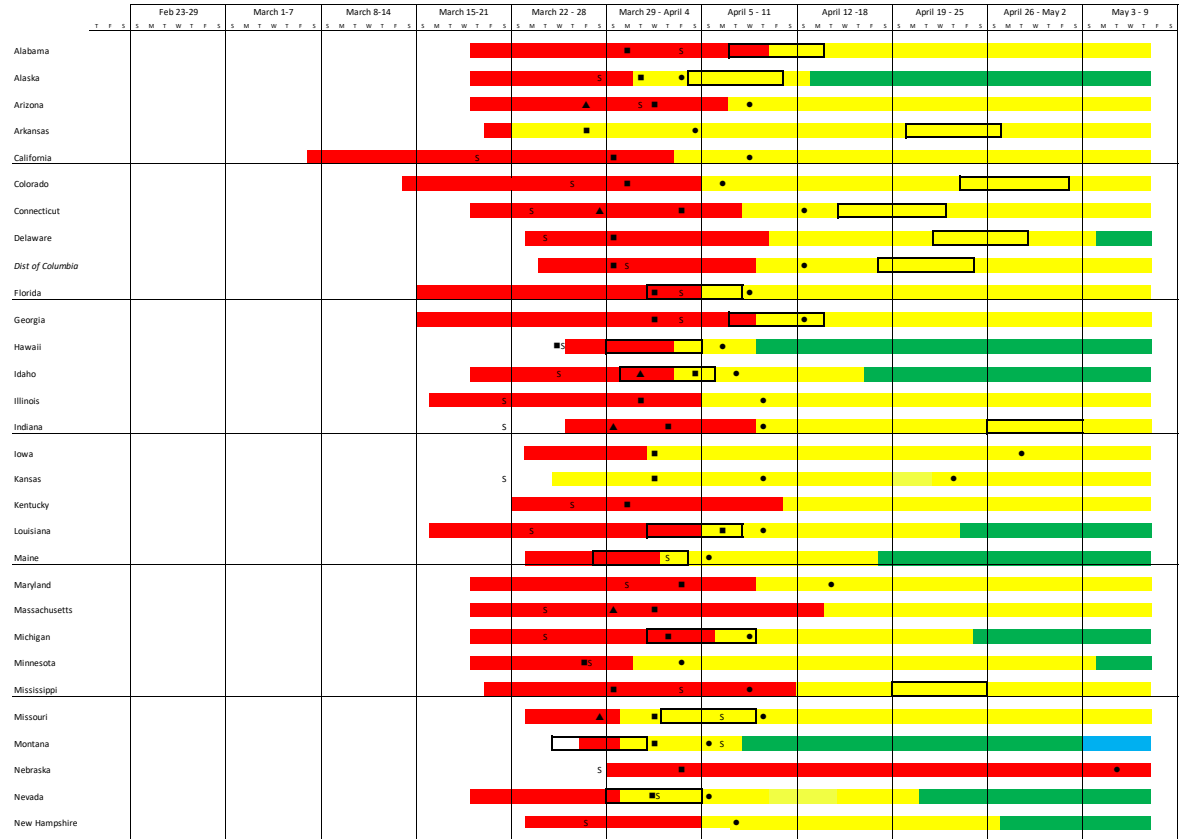
State	Total Cases	Rank	Cases per 1M Population	Rank	Deaths	Rank	Death Rate	Rank	Deaths per 1 Million Population	Rank	5-day Moving Average Case Growth Rate	Rank	Tests per 1M Population Past 7 days	Rank	New Daily Cases Per 1M Population (5-Day M.A.)	Rank
Alabama	9,046	(27)	1,844.9	(28)	369	(26)	4.1%	(27)	75.3	(25)	3.5%	(13)	815	(19)	57.6	(27)
Alaska	374	(51)	511.2	(49)	10	(50)	2.7%	(42)	13.7	(49)	0.5%	(49)	1,020	(13)	3.7	(49)
Arizona	9,945	(23)	1,366.3	(39)	450	(21)	4.5%	(22)	61.8	(33)	3.5%	(12)	771	(24)	45.1	(33)
Arkansas	3,694	(39)	1,224.1	(42)	88	(40)	2.4%	(44)	29.2	(44)	1.8%	(37)	550	(40)	19.6	(43)
California	62,250	(5)	1,575.5	(34)	2,535	(8)	4.1%	(28)	64.2	(32)	3.0%	(21)	787	(22)	43.8	(34)
Colorado	18,371	(17)	3,190.1	(17)	944	(16)	5.1%	(14)	163.9	(14)	2.5%	(28)	503	(44)	76.6	(19)
Connecticut	31,784	(10)	8,914.9	(5)	2,797	(7)	8.8%	(2)	784.5	(3)	1.6%	(43)	763	(25)	163.6	(11)
Delaware	5,939	(33)	6,099.0	(8)	202	(34)	3.4%	(38)	207.4	(13)	3.3%	(14)	808	(21)	176.8	(10)
District Of Columbia	5,654	(36)	8,011.3	(6)	285	(30)	5.0%	(17)	403.8	(7)	3.3%	(15)	1,169	(9)	269.4	(1)
Florida	38,828	(8)	1,807.8	(29)	1,600	(10)	4.1%	(26)	74.5	(26)	1.8%	(39)	735	(26)	34.2	(39)
Georgia	31,580	(11)	2,974.4	(18)	1,348	(13)	4.3%	(25)	127.0	(16)	2.2%	(31)	918	(16)	71.5	(23)
Hawaii	629	(49)	444.2	(50)	17	(48)	2.7%	(41)	12.0	(51)	0.3%	(50)	494	(46)	1.1	(50)
Idaho	2,178	(43)	1,215.4	(43)	67	(41)	3.1%	(39)	37.4	(40)	1.1%	(45)	175	(51)	13.0	(47)
Illinois	70,873	(4)	5,593.0	(9)	3,111	(6)	4.4%	(24)	245.5	(11)	3.9%	(7)	1,231	(7)	202.4	(6)
Indiana	22,503	(14)	3,342.6	(15)	1,414	(12)	6.3%	(7)	210.0	(12)	3.1%	(20)	632	(37)	99.1	(14)
Iowa	11,059	(21)	3,505.2	(14)	231	(33)	2.1%	(46)	73.2	(27)	5.1%	(4)	1,076	(11)	177.2	(9)
Kansas	6,332	(31)	2,173.5	(22)	165	(36)	2.6%	(43)	56.6	(35)	6.4%	(2)	647	(33)	99.5	(13)
Kentucky	6,128	(32)	1,371.6	(38)	294	(28)	4.8%	(18)	65.8	(29)	4.7%	(5)	784	(23)	45.4	(32)
Louisiana	30,652	(12)	6,593.5	(7)	2,208	(9)	7.2%	(4)	475.0	(5)	1.0%	(47)	1,213	(8)	81.5	(18)
Maine	1,330	(45)	989.4	(46)	62	(42)	4.7%	(20)	46.1	(38)	2.9%	(22)	296	(50)	25.0	(42)
Maryland	29,374	(13)	4,858.7	(10)	1,503	(11)	5.1%	(15)	248.6	(10)	3.7%	(10)	809	(20)	180.3	(8)
Massachusetts	73,721	(3)	10,608.1	(3)	4,552	(3)	6.2%	(8)	655.0	(4)	2.2%	(33)	1,562	(3)	236.7	(4)
Michigan	45,646	(7)	4,570.6	(11)	4,343	(4)	9.5%	(1)	434.9	(6)	1.1%	(46)	955	(14)	61.0	(25)
Minnesota	9,365	(25)	1,660.6	(32)	508	(20)	5.4%	(12)	90.1	(21)	8.5%	(1)	688	(32)	107.1	(12)
Mississippi	8,686	(28)	2,918.5	(19)	396	(23)	4.6%	(21)	133.1	(15)	3.1%	(19)	693	(30)	89.8	(16)
Missouri	9,482	(24)	1,544.9	(35)	448	(22)	4.7%	(19)	73.0	(28)	2.6%	(25)	534	(41)	39.9	(35)
Montana	457	(50)	427.6	(51)	16	(49)	3.5%	(37)	15.0	(48)	0.1%	(51)	846	(18)	0.5	(51)
Nebraska	7,190	(29)	3,716.9	(13)	90	(39)	1.3%	(48)	46.5	(37)	6.2%	(3)	918	(15)	214.8	(5)
Nevada	5,766	(34)	1,872.0	(27)	293	(29)	5.1%	(16)	95.1	(19)	1.7%	(42)	435	(49)	35.6	(38)
New Hampshire	2,843	(42)	2,090.9	(24)	114	(38)	4.0%	(31)	83.8	(23)	3.2%	(17)	723	(27)	73.2	(22)
New Jersey	135,106	(2)	15,210.9	(2)	8,834	(2)	6.5%	(5)	994.6	(2)	1.8%	(41)	720	(28)	264.6	(2)
New Mexico	4,493	(37)	2,142.8	(23)	172	(35)	3.8%	(33)	82.0	(24)	3.8%	(8)	1,403	(5)	73.7	(20)
New York	337,421	(1)	17,344.9	(1)	26,365	(1)	7.8%	(3)	1,355.3	(1)	1.1%	(44)	1,390	(6)	195.2	(7)
North Carolina	13,518	(20)	1,288.9	(40)	513	(19)	3.8%	(34)	48.9	(36)	3.1%	(18)	590	(38)	37.6	(37)
North Dakota	1,371	(44)	1,799.1	(30)	31	(47)	2.3%	(45)	40.7	(39)	3.5%	(11)	2,513	(1)	57.0	(28)
Ohio	22,134	(15)	1,893.6	(26)	1,274	(14)	5.8%	(11)	109.0	(18)	2.7%	(24)	515	(43)	50.2	(29)
Oklahoma	4,330	(38)	1,094.3	(45)	260	(31)	6.0%	(9)	65.7	(30)	2.4%	(29)	847	(17)	25.7	(41)
Oregon	2,989	(40)	708.7	(48)	121	(37)	4.0%	(30)	28.7	(45)	2.6%	(26)	489	(47)	16.2	(45)
Pennsylvania	56,002	(6)	4,374.5	(12)	3,592	(5)	6.4%	(6)	280.6	(9)	1.9%	(35)	462	(48)	89.3	(17)
Rhode Island	10,530	(22)	9,940.0	(4)	388	(24)	3.7%	(35)	366.3	(8)	2.5%	(27)	2,509	(2)	257.4	(3)
South Carolina	7,142	(30)	1,387.1	(37)	316	(27)	4.4%	(23)	61.4	(34)	1.9%	(34)	582	(39)	29.1	(40)
South Dakota	2,905	(41)	3,283.8	(16)	31	(47)	1.1%	(50)	35.0	(42)	2.3%	(30)	498	(45)	73.6	(21)
Tennessee	14,096	(19)	2,062.9	(25)	239	(32)	1.7%	(47)	35.0	(43)	2.2%	(32)	1,417	(4)	70.3	(24)
Texas	36,550	(9)	1,260.5	(41)	1,029	(15)	2.8%	(40)	35.5	(41)	3.3%	(16)	692	(31)	39.9	(36)
Utah	5,724	(35)	1,785.4	(31)	61	(43)	1.1%	(51)	19.0	(47)	2.8%	(23)	1,160	(10)	46.9	(31)
Vermont	916	(47)	1,468.0	(36)	53	(44)	5.8%	(10)	84.9	(22)	0.7%	(48)	641	(34)	11.4	(48)
Virginia	21,570	(16)	2,527.1	(20)	769	(18)	3.6%	(36)	90.1	(20)	4.0%	(6)	530	(42)	95.8	(15)
Washington	16,943	(18)	2,225.0	(21)	904	(17)	5.3%	(13)	118.7	(17)	1.8%	(40)	694	(29)	40.1	(30)
West Virginia	1,297	(46)	725.7	(47)	51	(45)	3.9%	(32)	28.5	(46)	1.8%	(38)	1,038	(12)	13.7	(46)
Wisconsin	9,215	(26)	1,582.7	(33)	374	(25)	4.1%	(29)	64.2	(31)	3.8%	(9)	638	(36)	57.9	(26)
Wyoming	635	(48)	1,097.2	(44)	7	(51)	1.1%	(49)	12.1	(50)	1.9%	(36)	639	(35)	18.8	(44)
United States	1,292,623		3,905.2		76,928		6.0%		232.4		2.2%		811		85.3	

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State-by-State Virus Progression – 1 of 2

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



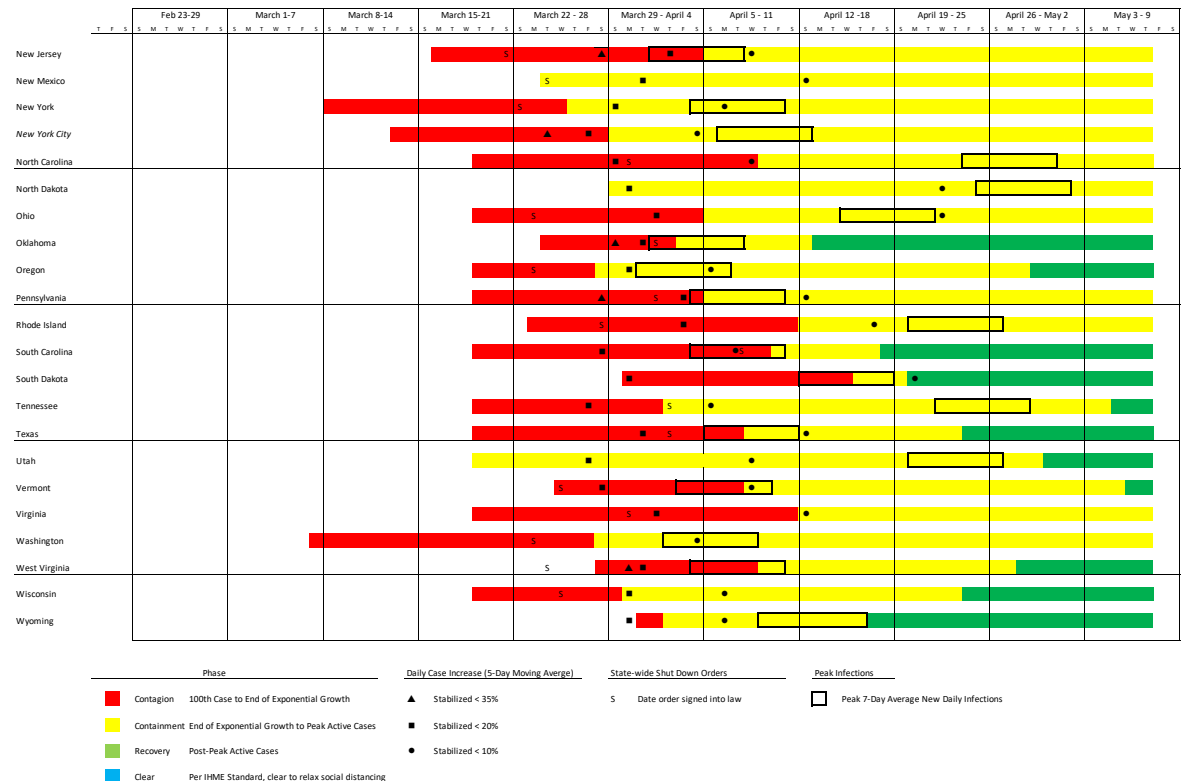
Legend on following page

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State-by-State Virus Progression – 2 of 2

“Strategic Guidance in an Era of Unprecedented Change”

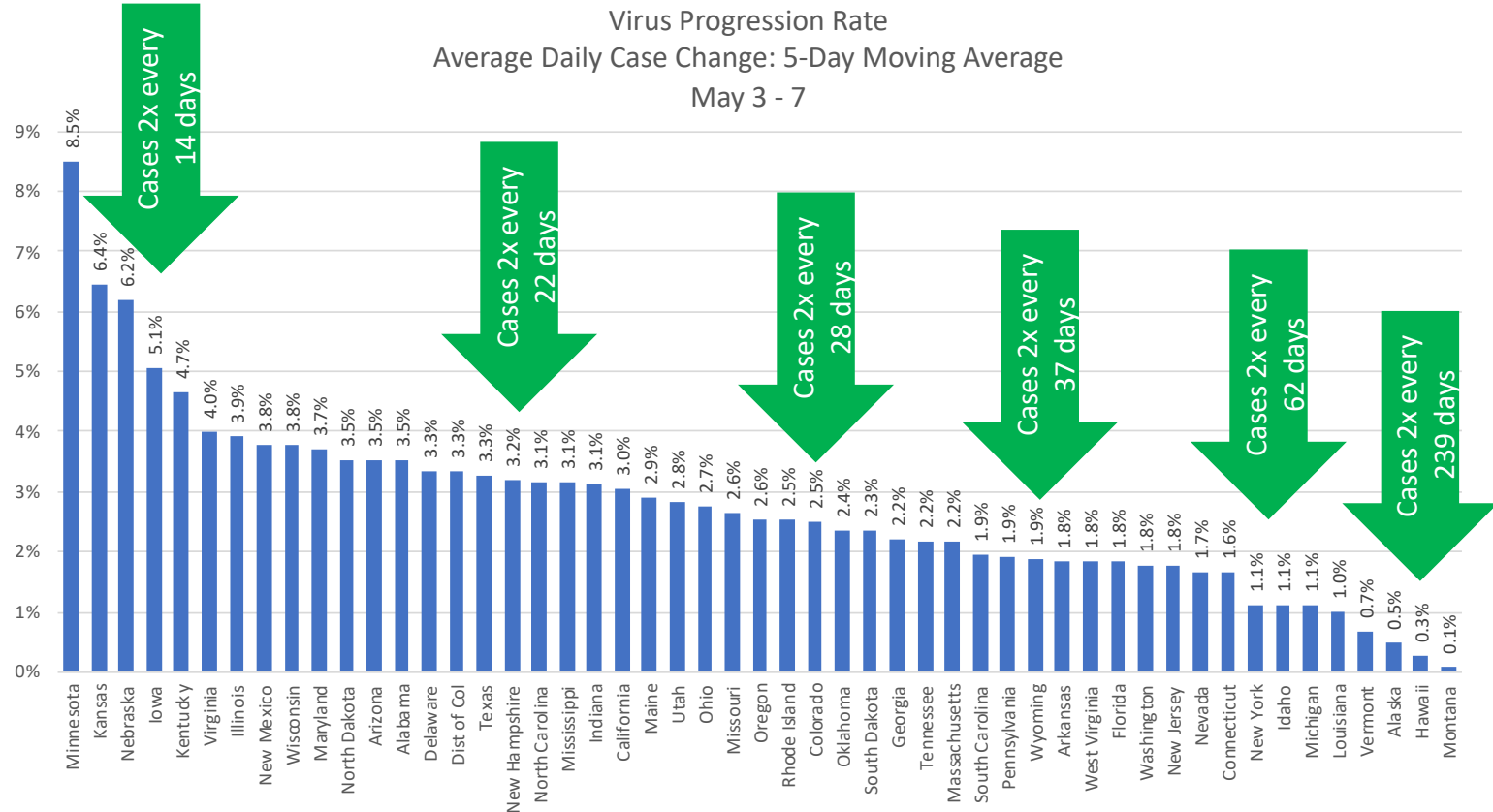
This graphic illustrates when the country first recorded 100 total cases (start of the “contagion” phase); when growth stopped following an exponential pattern (start of the “containment” phase); and, when peak total cases were recorded (start of the “recovery” phase). It uses symbols to indicate when average daily case growth rates fell (and were sustained) below certain benchmarks, as well as when deaths stopped growing exponentially. A state is not shaded green until active cases appear to have peaked.



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Average Daily Case Growth

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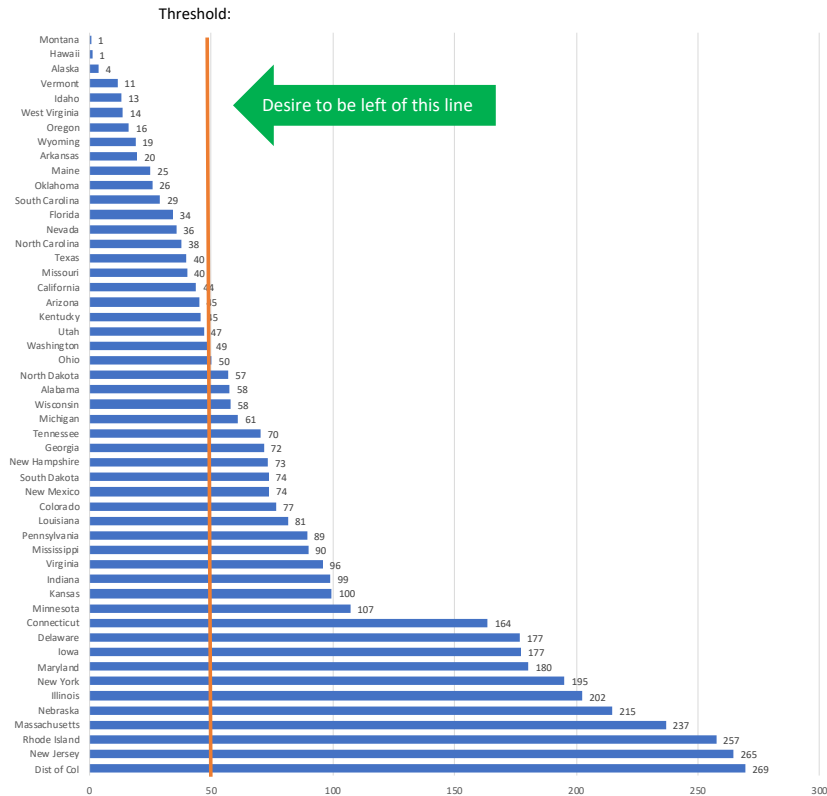


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State-by-State New Daily Infections & Tests Per Capita

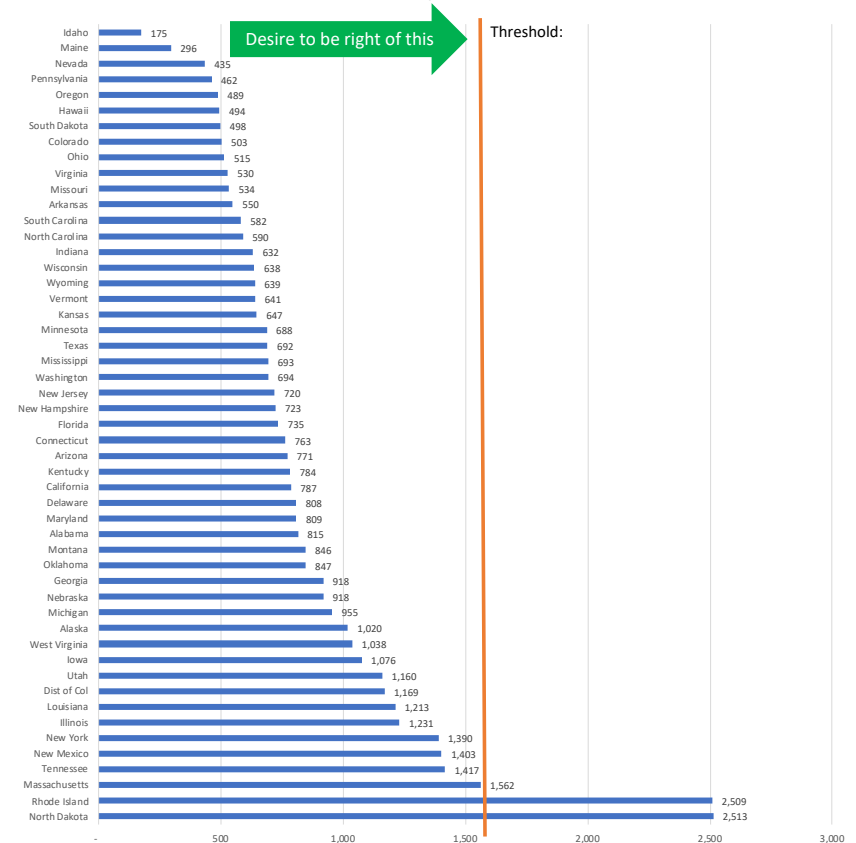
"Strategic Guidance in an Era of Unprecedented Change"

New Daily Infections Per 1 Million Population
By State
May 1 - 7



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Daily Tests Per 1 Million Population
By State
May 1 - 7

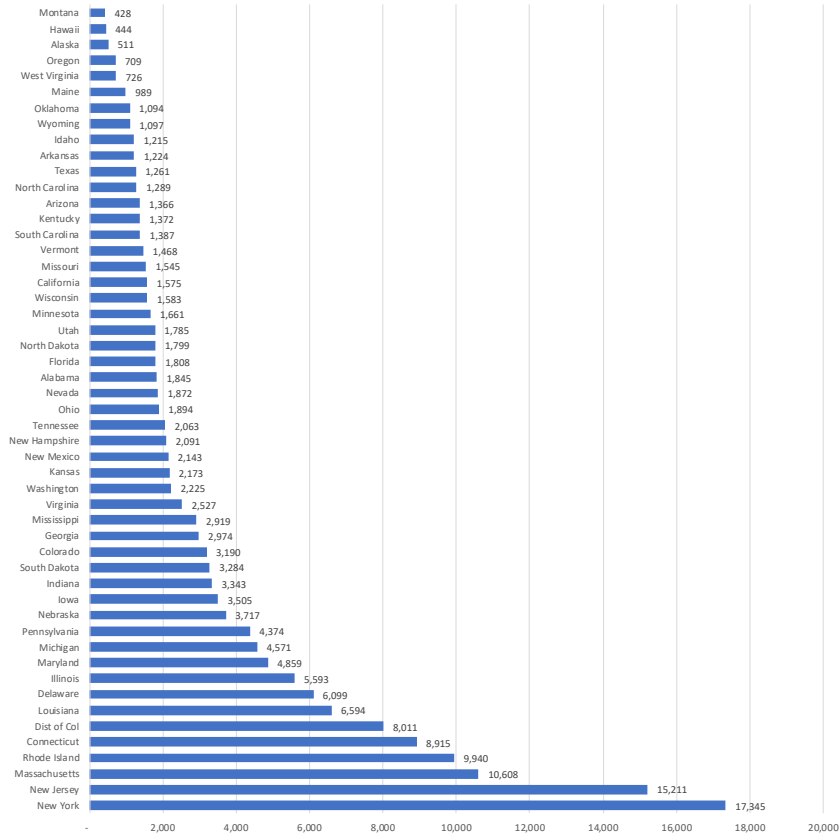


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State-by-State Cases & Deaths Per Capita

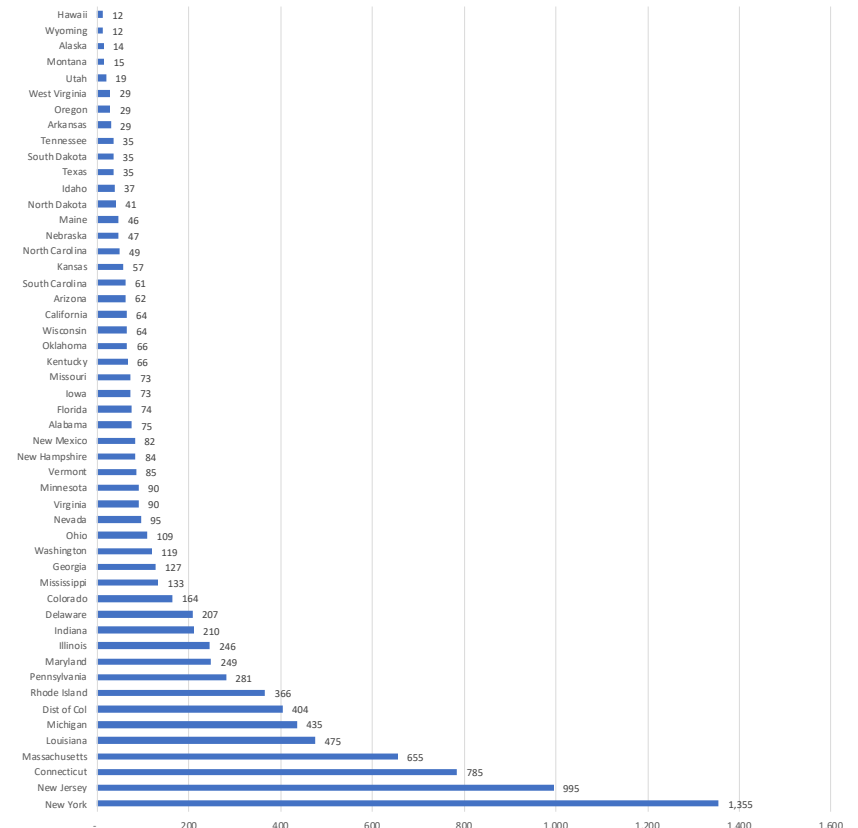
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Total Cases Per 1 Million Population
By State
As of May 7



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Deaths Per 1 Million Population
By State
As of May 7



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"Strategic Guidance in an Era of Unprecedented Change"

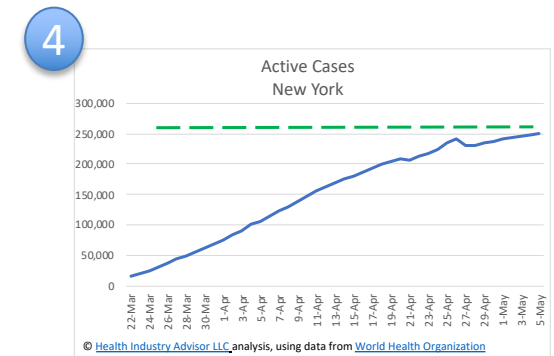
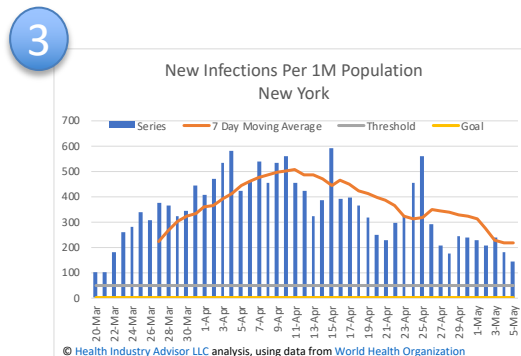
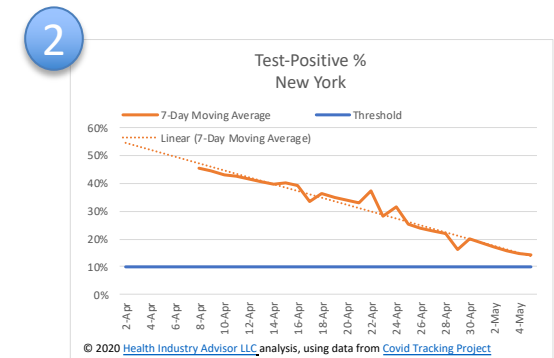
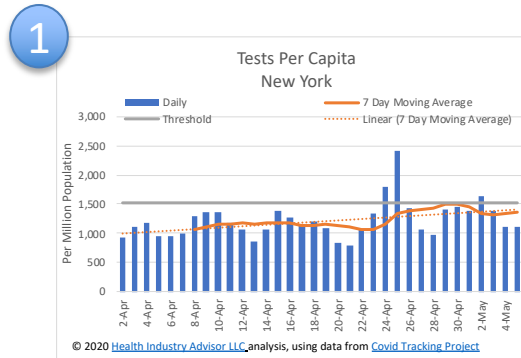
Graphics relevant to judging how far a state has progressed against the virus are provided on the following pages for:

- 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

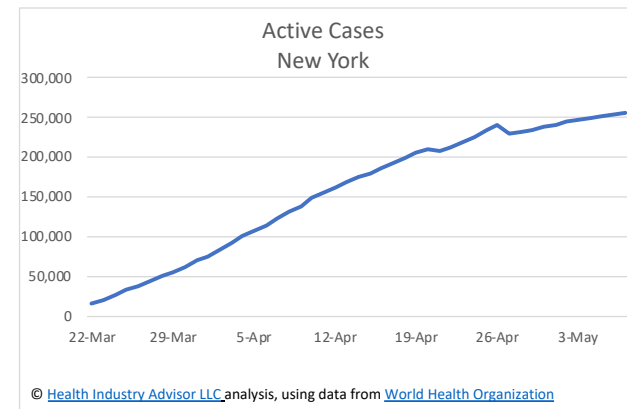
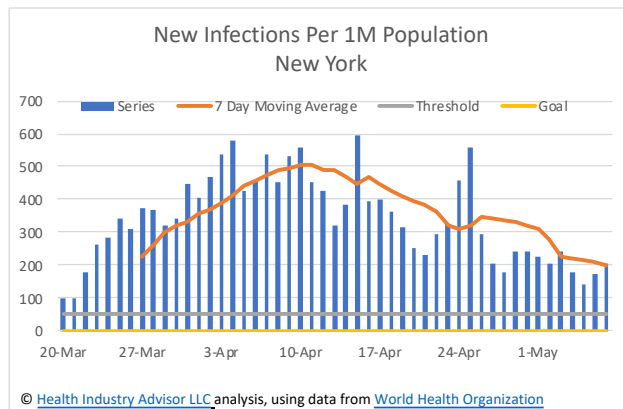
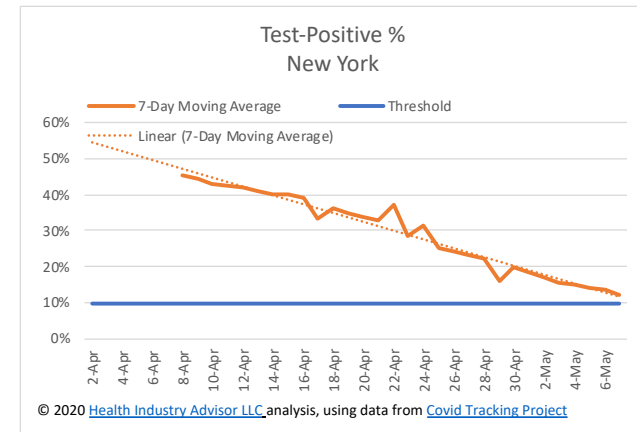
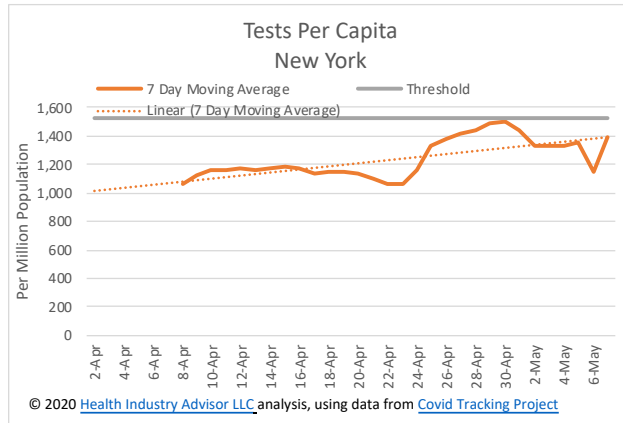
"Strategic Guidance in an Era of Unprecedented Change"

How to "read" these charts:

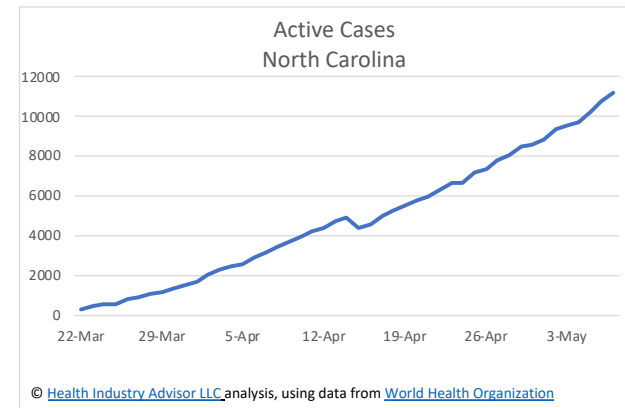
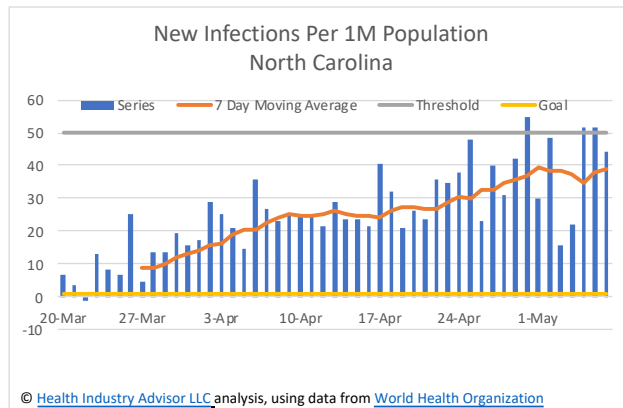
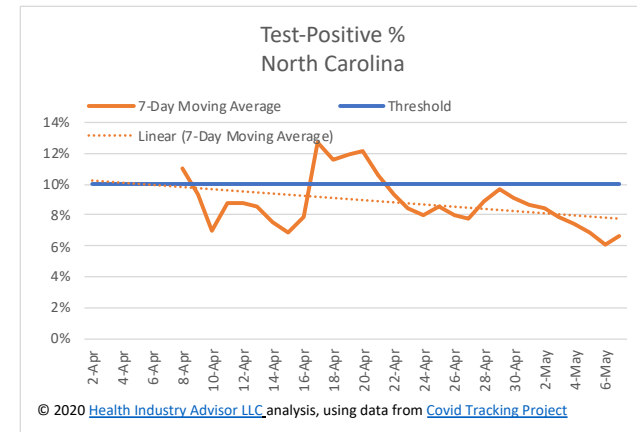
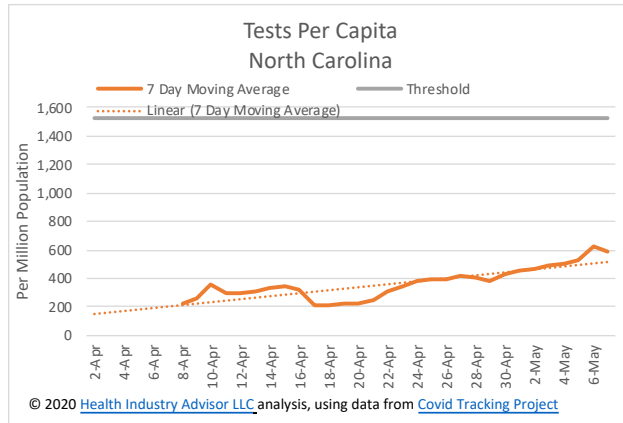
- Chart 1 – Desire to see tests per capita:
 - Above the threshold
 - Increasing or stable
- Chart 2 - Desire to see Test-Positive %:
 - Below the threshold
 - Declining or stable
- Chart 3 - Desire to see New Infections Per Capita:
 - Below the threshold
 - Declining or stable
- Chart 4 - Desire to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



"Strategic Guidance in an Era of Unprecedented Change"

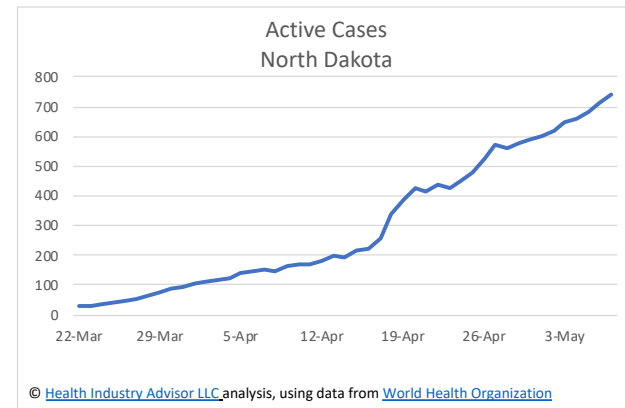
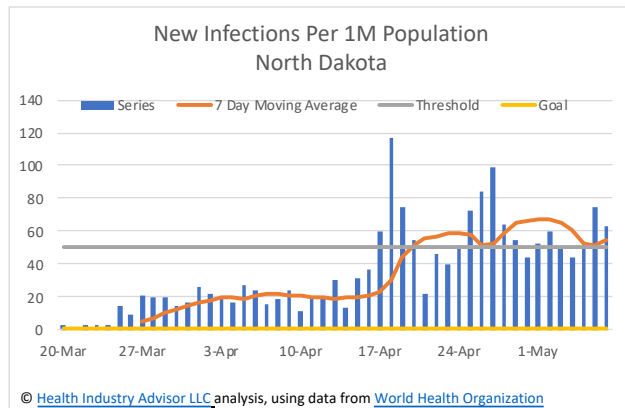
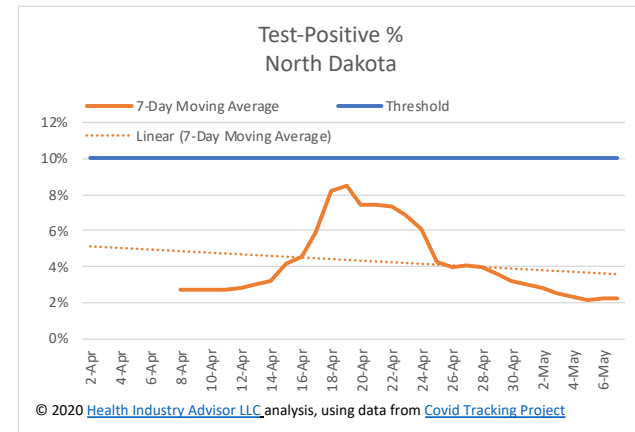
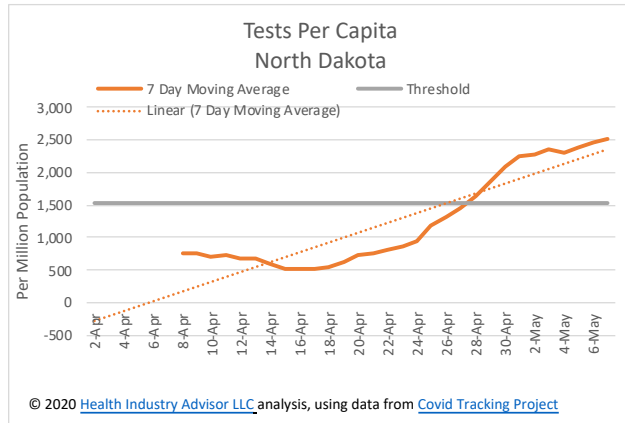


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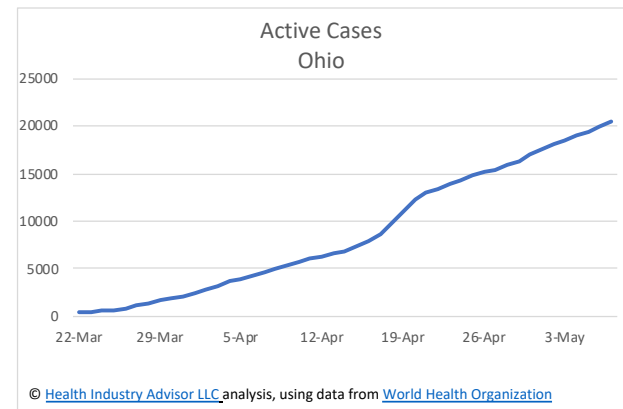
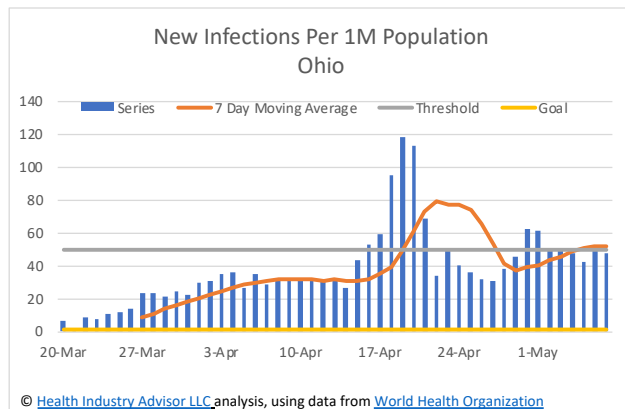
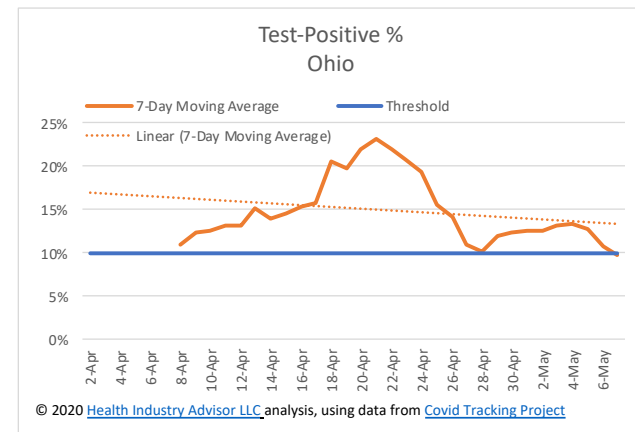
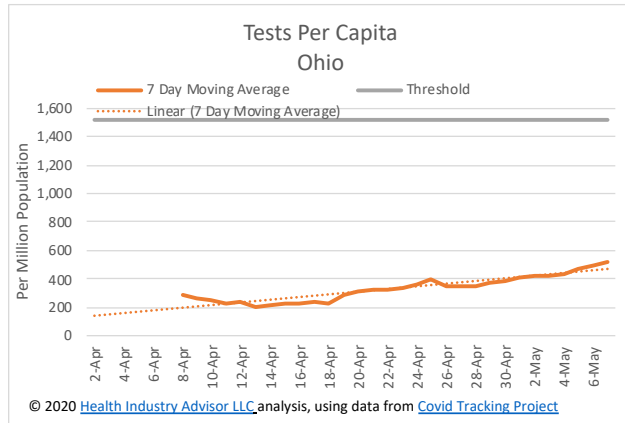


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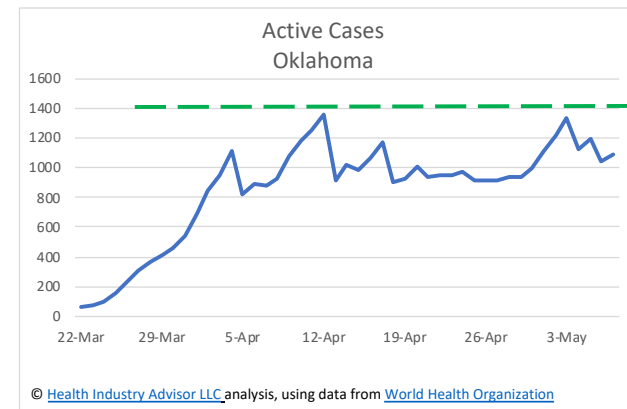
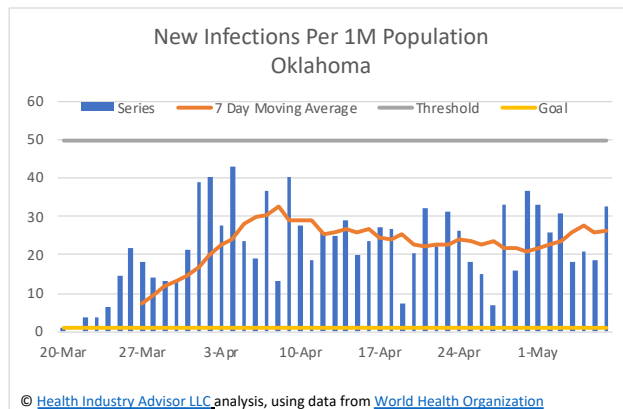
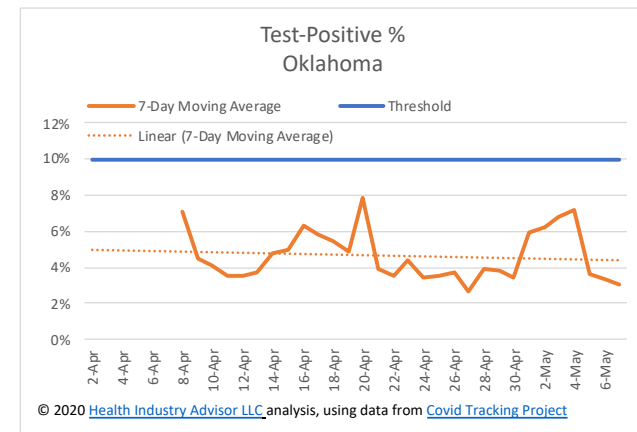
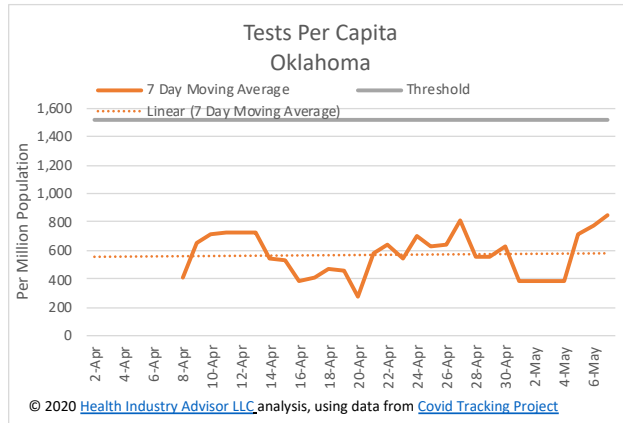
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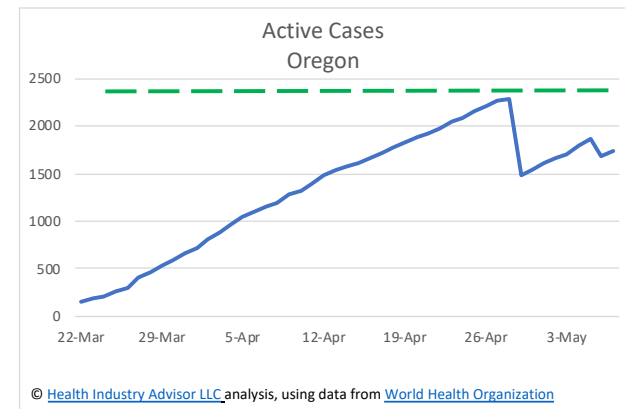
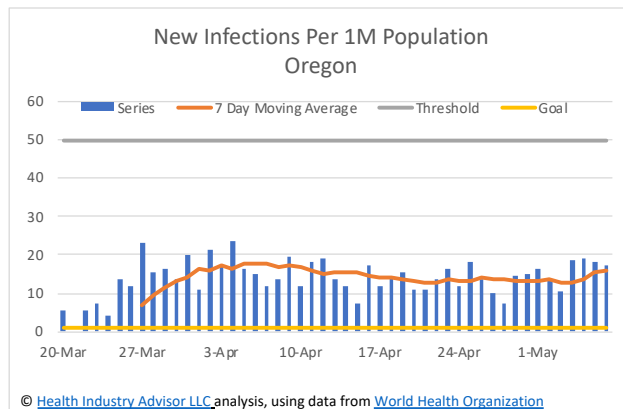
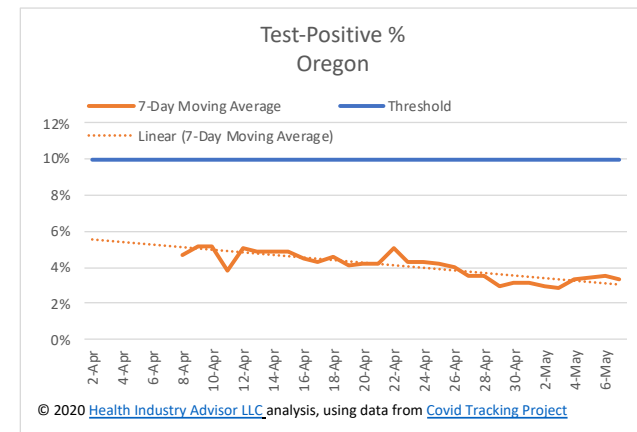
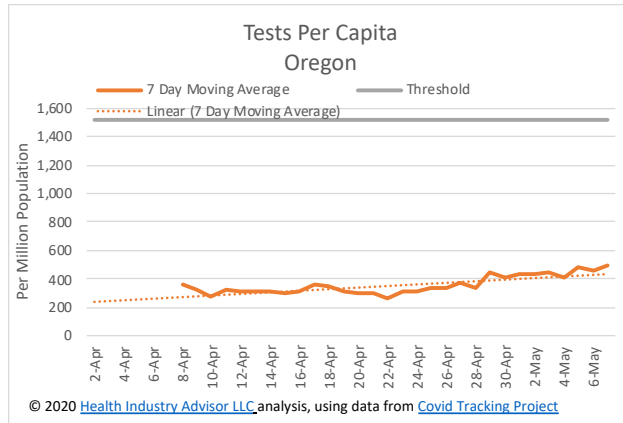
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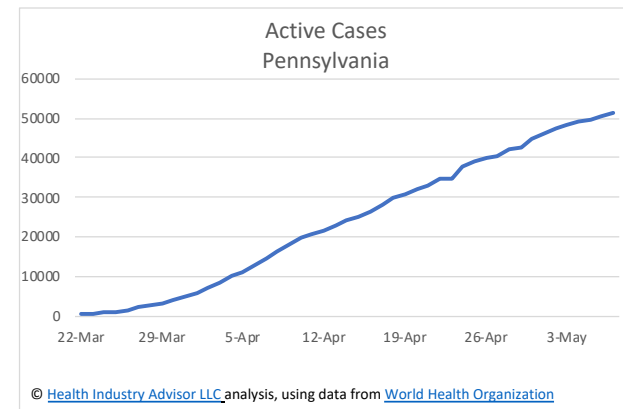
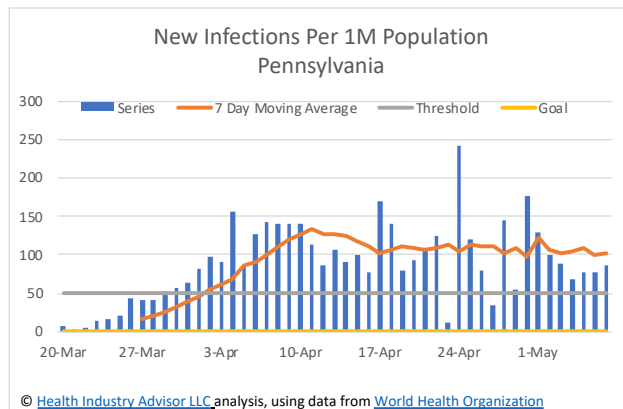
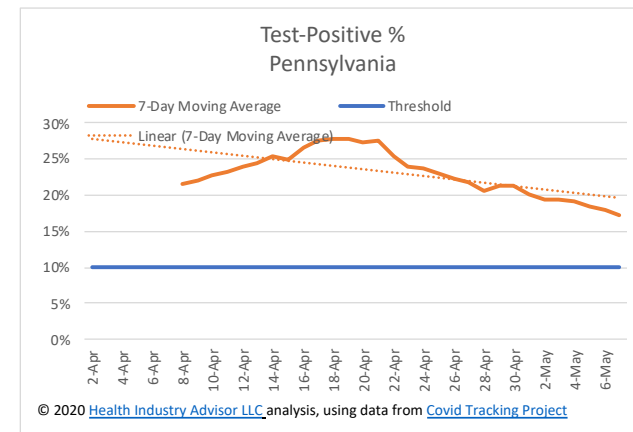
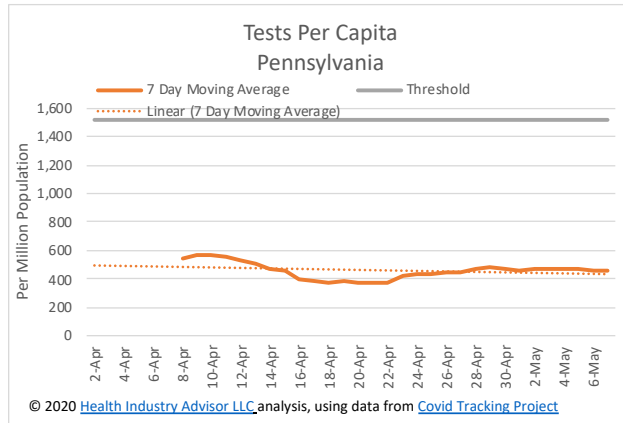
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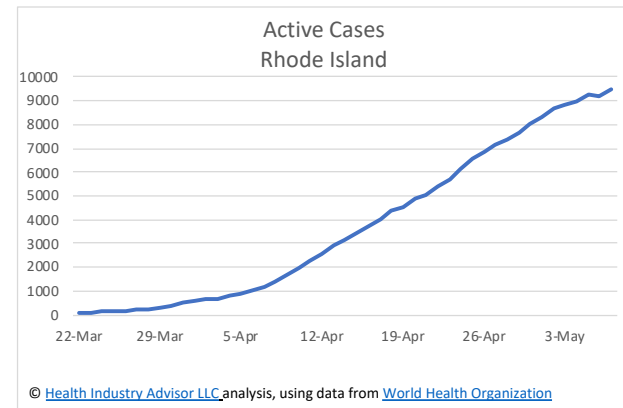
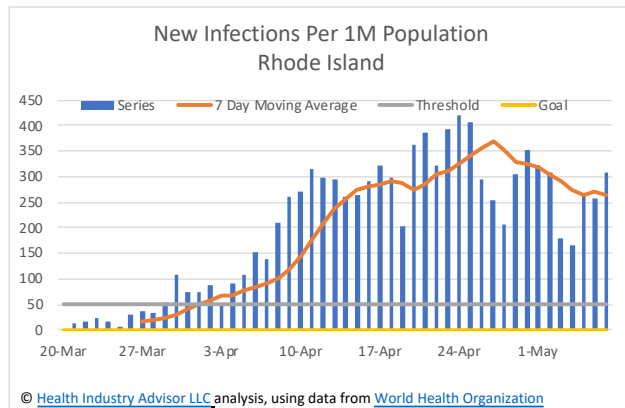
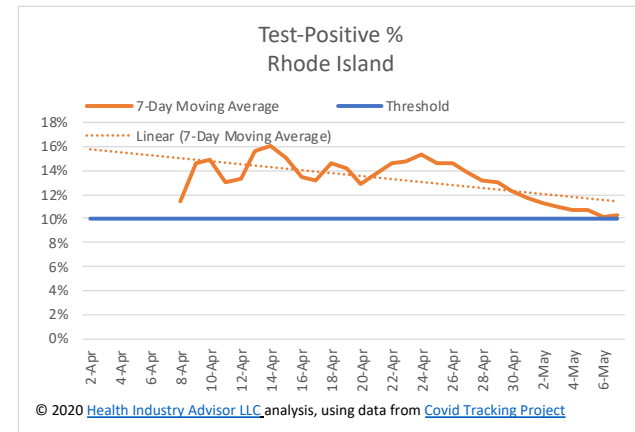
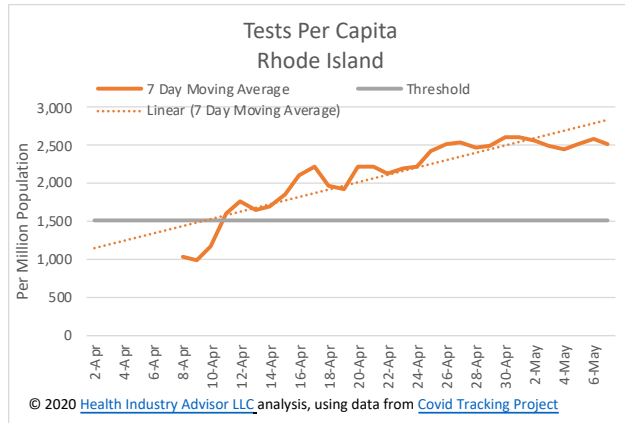
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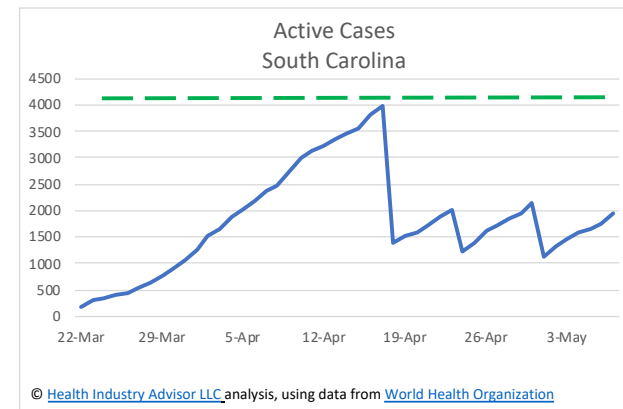
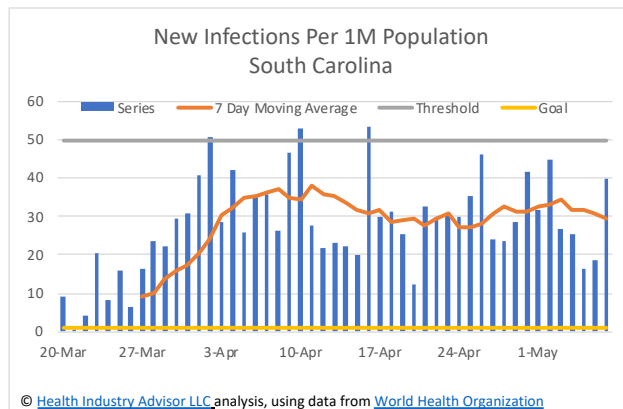
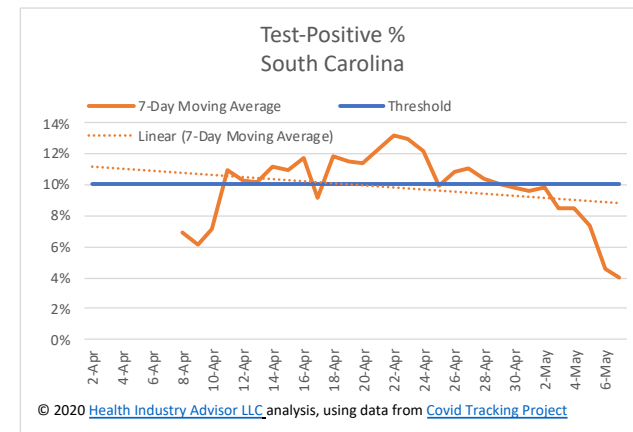
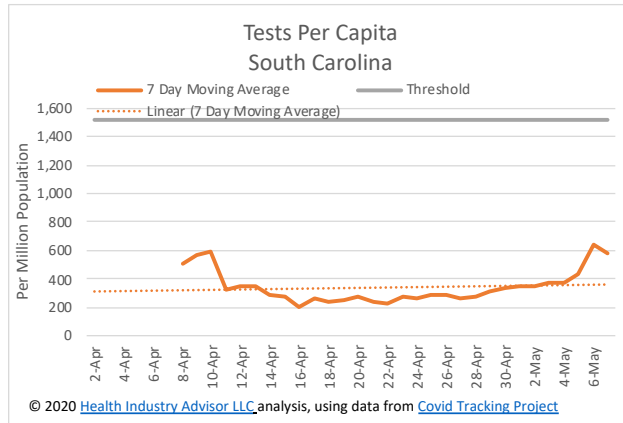
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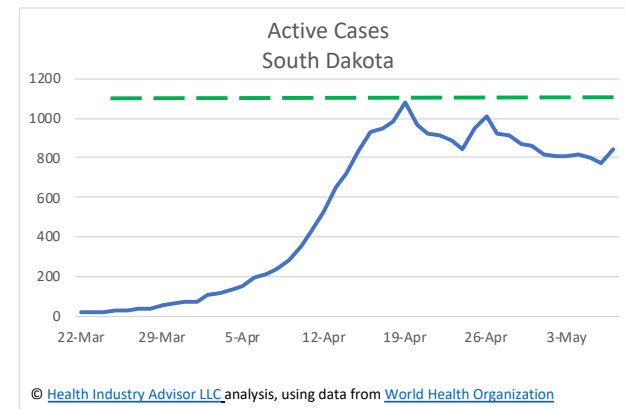
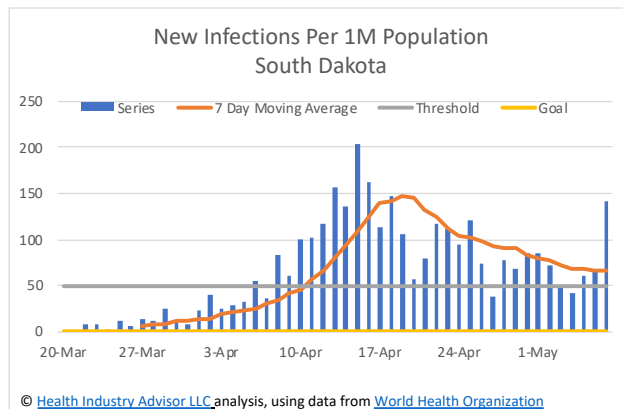
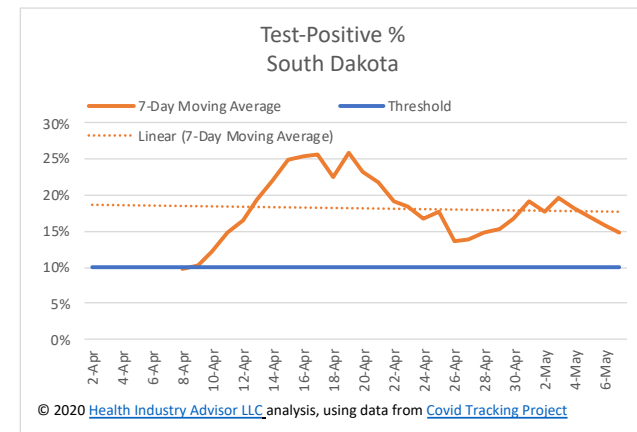
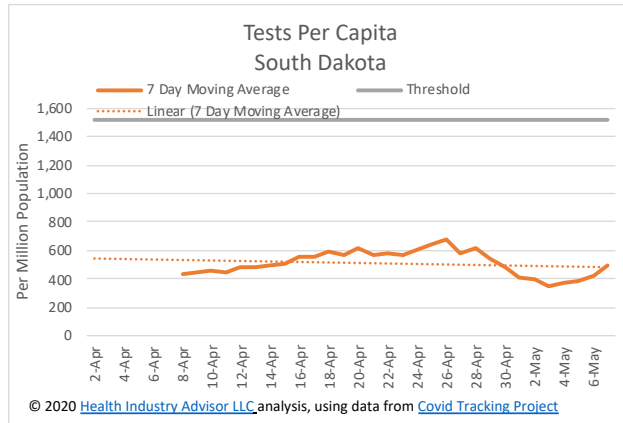


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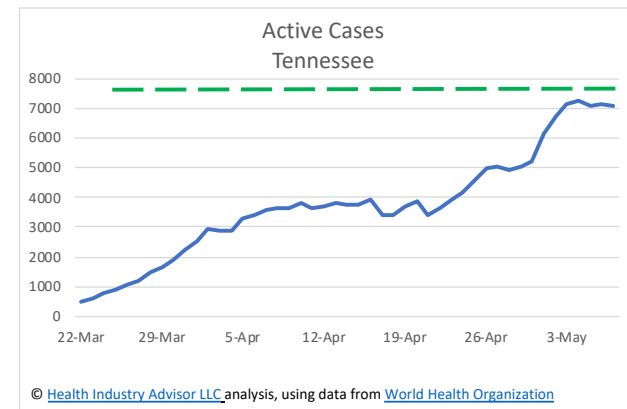
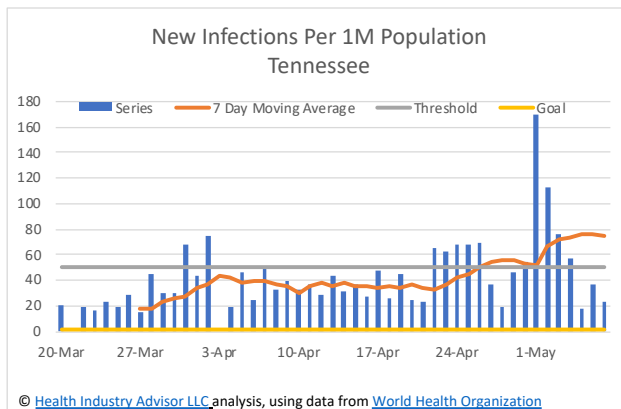
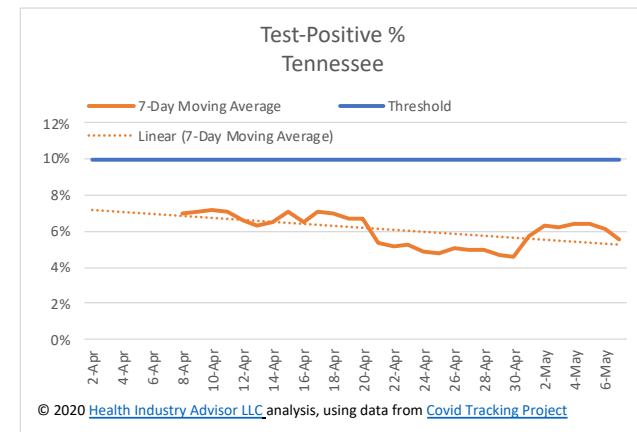
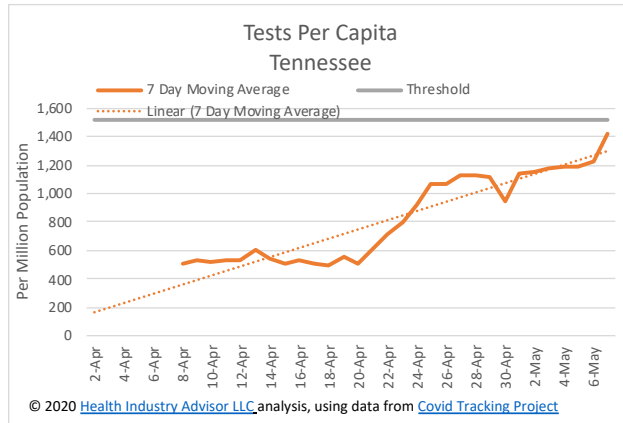


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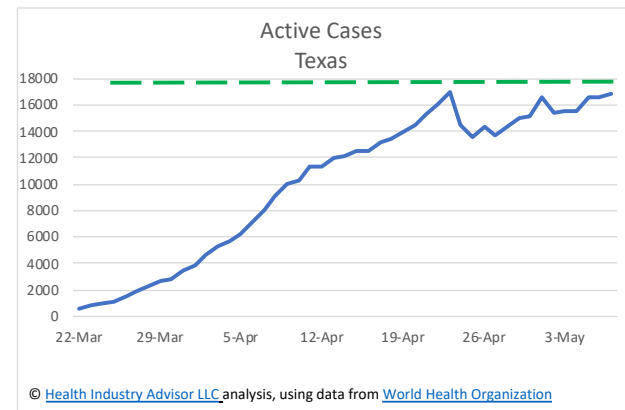
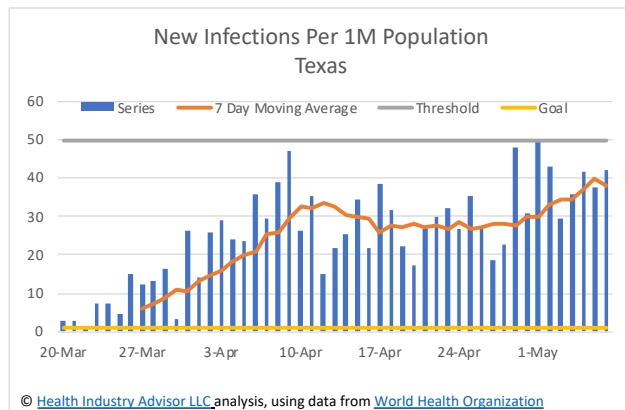
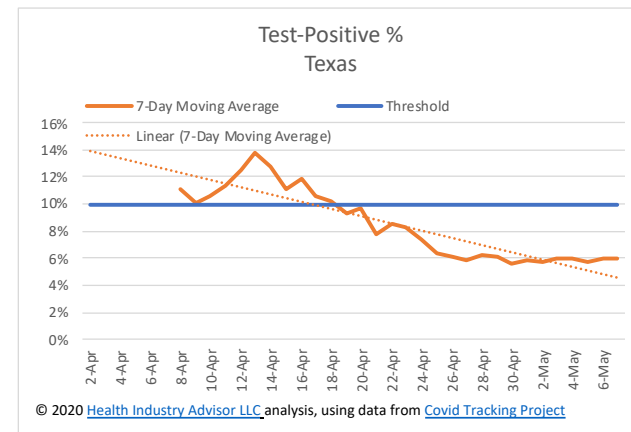
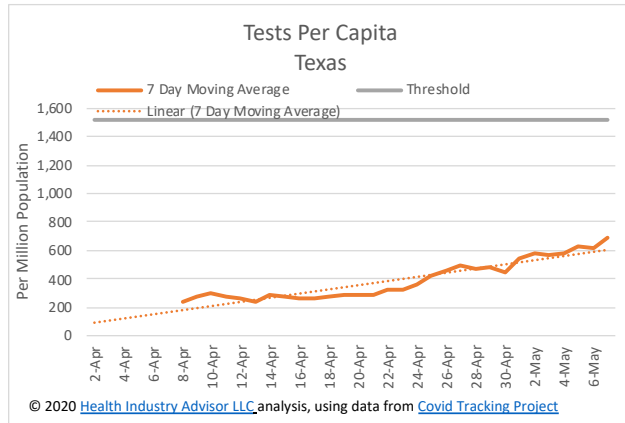
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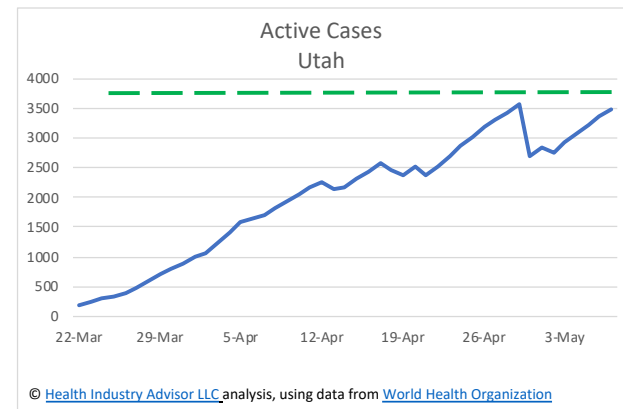
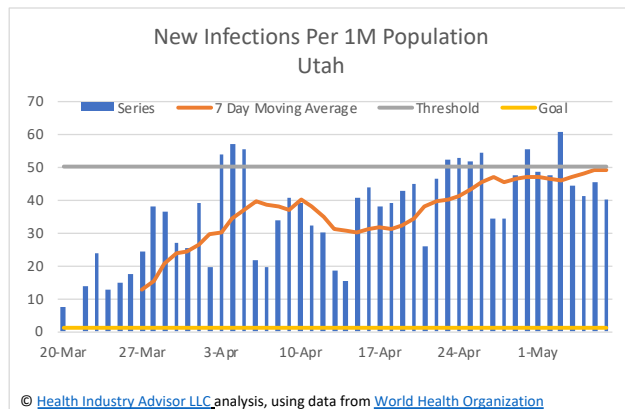
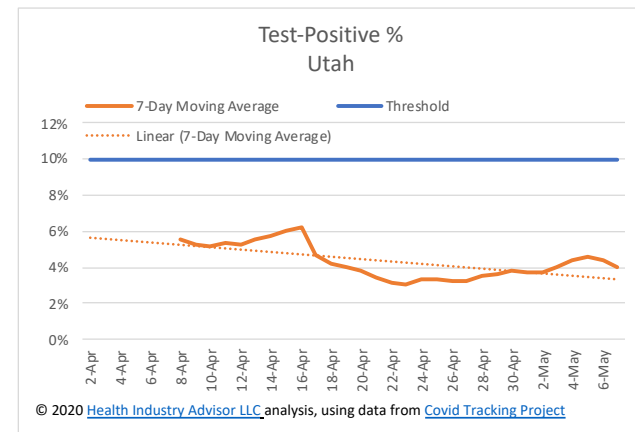
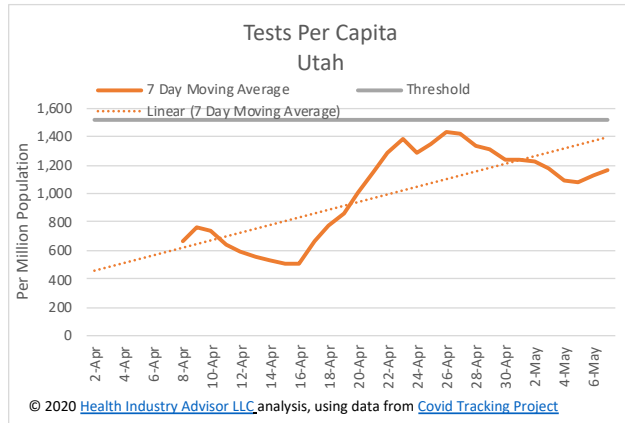
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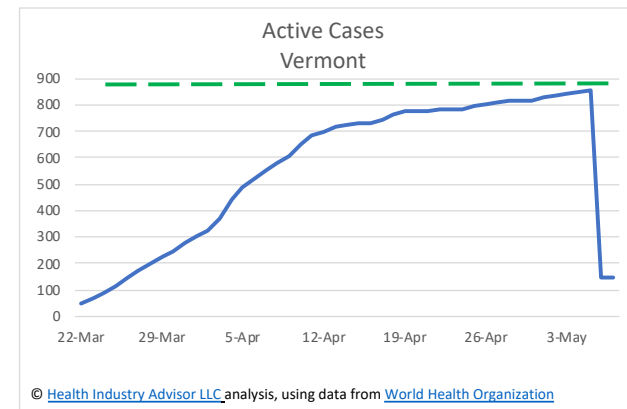
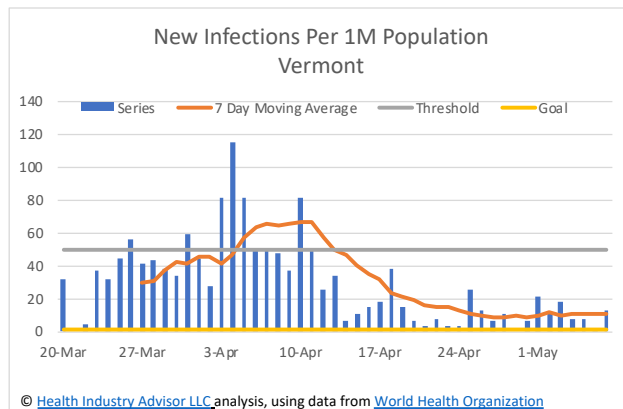
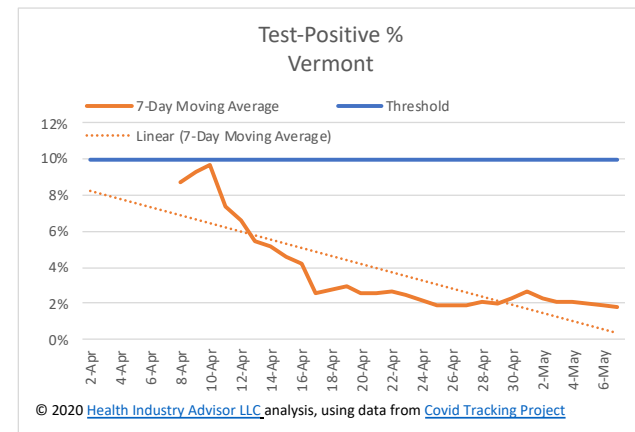
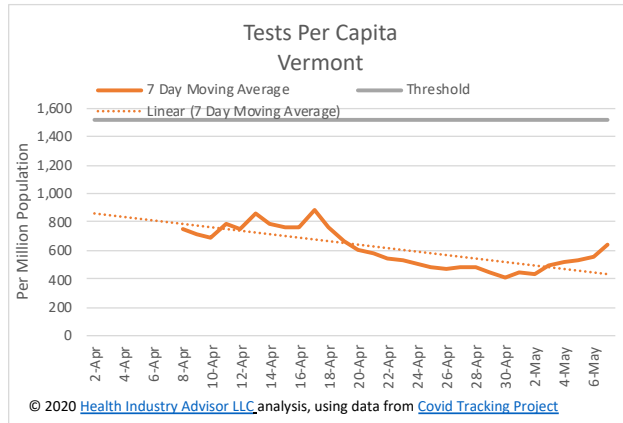
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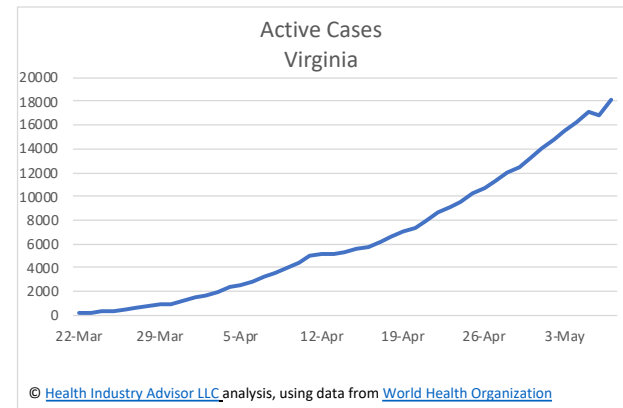
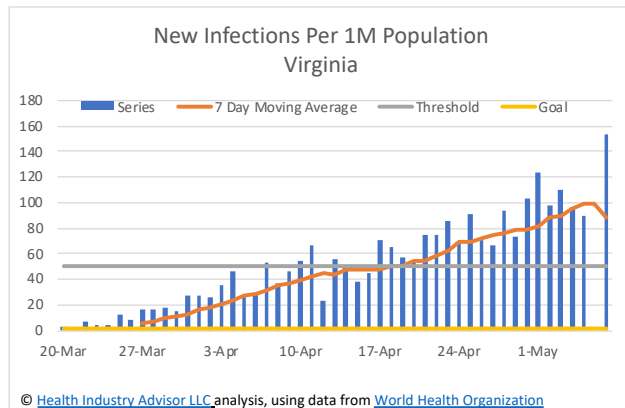
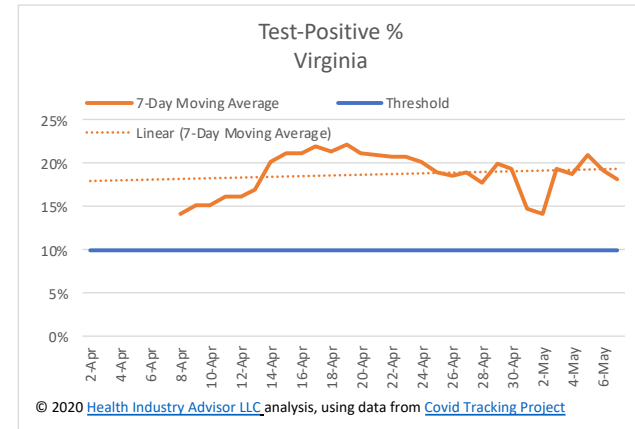
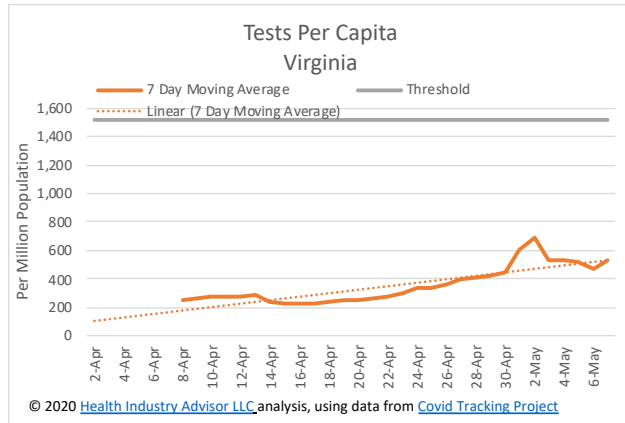
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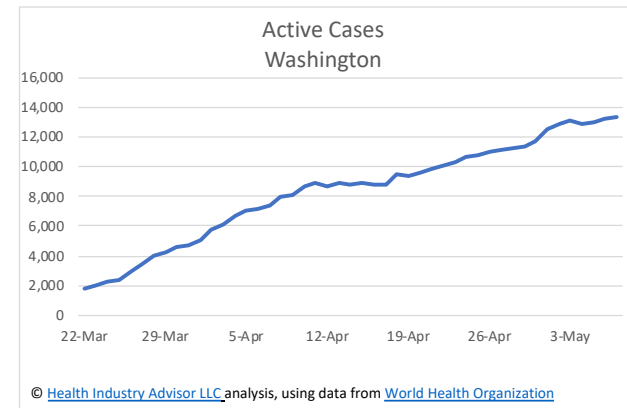
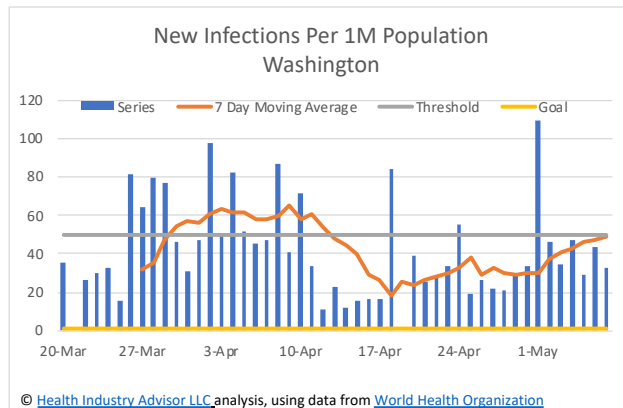
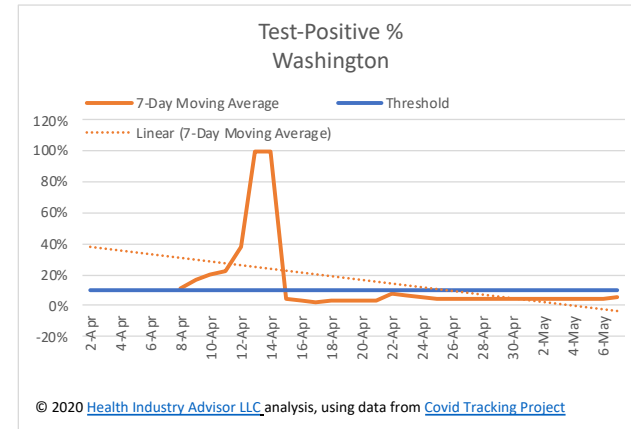
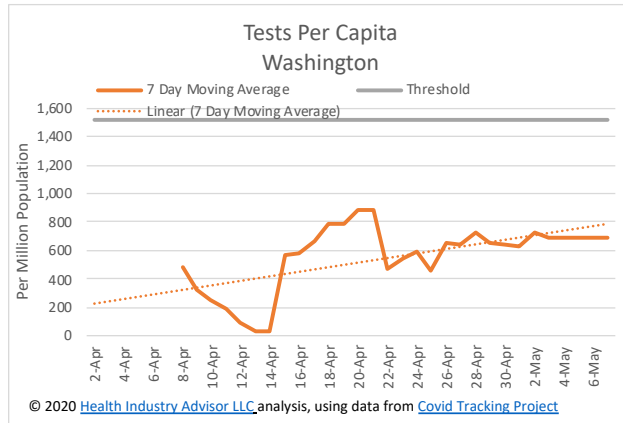


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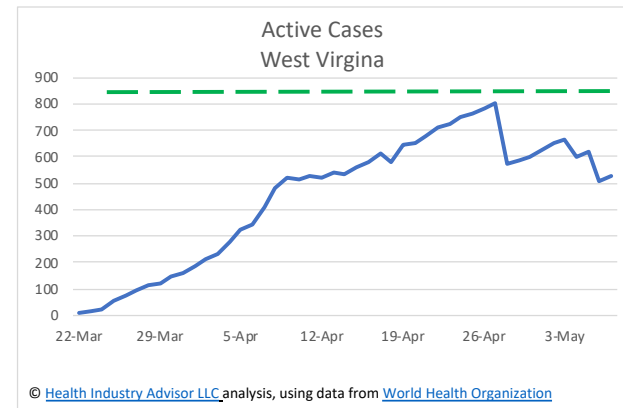
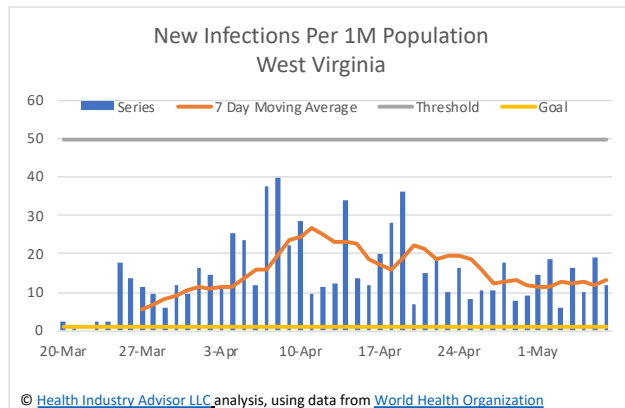
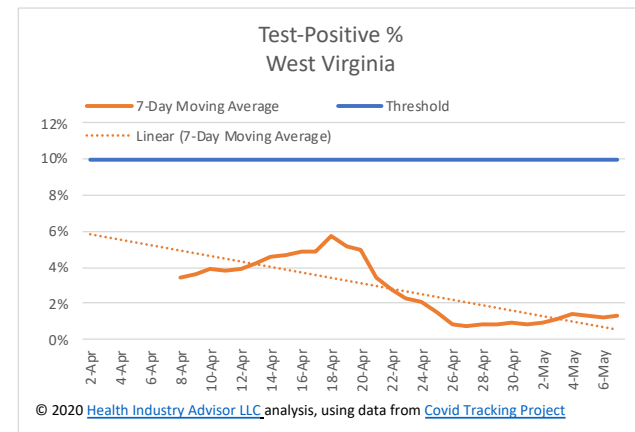
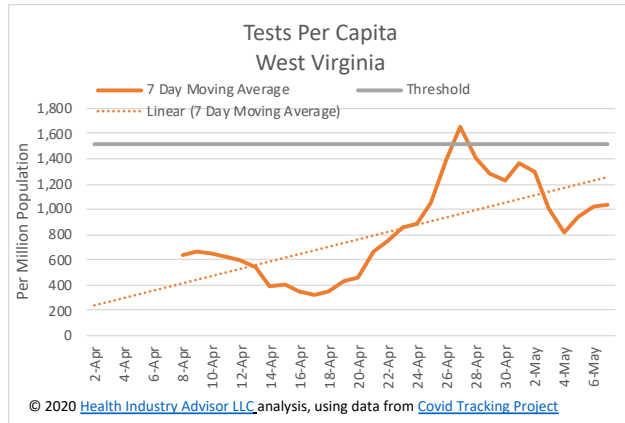
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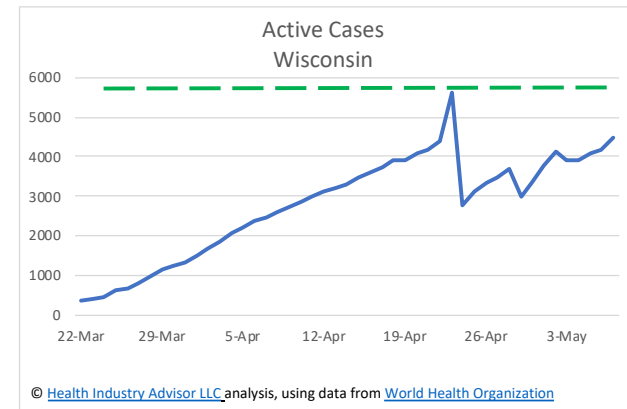
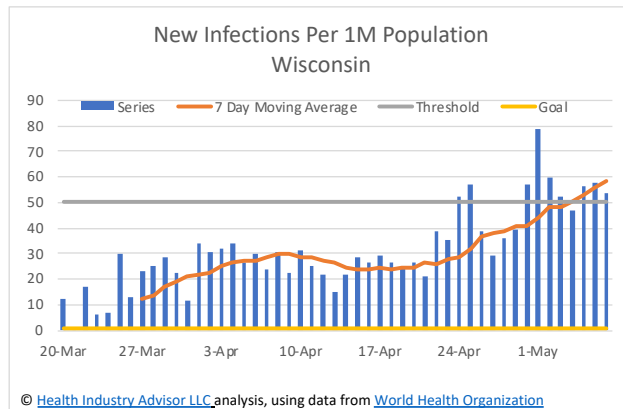
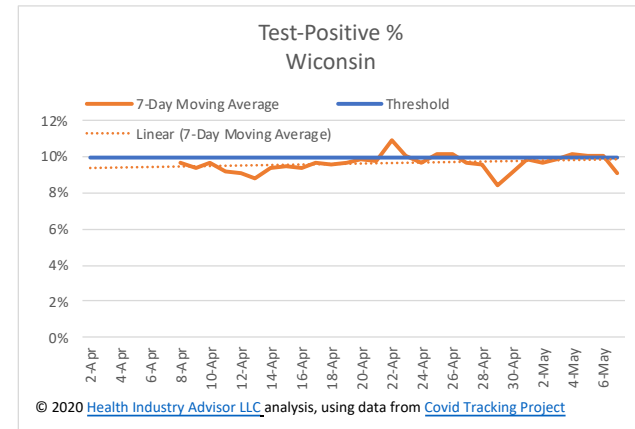
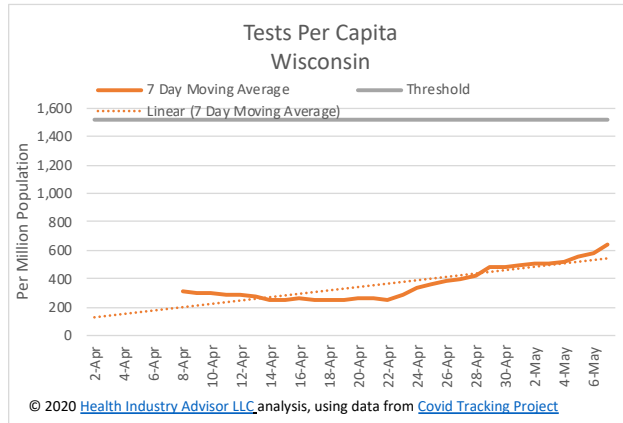
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