

## COVID-19 Dashboard

Issue # 64 Monday, June 1, 2020



## Day's Highlights

"Strategic Guidance in an Era of Unprecedented Change"

Measure	Desired Change	Yesterday in the U.S.
Number of Tests	Increase	>464,000 tests per day on the weekend
Test-Positivity Rate	Decline	5.1% test-positive on weekend; 5.4% for past 7 days
Number of Cases	Plateau	New Cases down 5.1% week-over-week
Deaths % of Total Cases	Decline	5.8%
Number of Deaths / 1M Population	Plateau	320.8
Recoveries : Death	Increase	5.65

- Test volume in the U.S. increased again, with Saturday and Sunday representing the highest two days testing since the virus began to spread. With an average of ~464,000 tests each day, the test-positive rate was only 5.1%
- New York City recorded its 200,000th case, however, it only saw 654 new cases yesterday
- India surpassed both France and Germany in total cases and is now 7th in the world; Peru surpassed Turkey and is now 10th; Mexico surpassed China and is now 15th. Other Latin American countries: Brazil is 3rd; Peru, 10th; Chile, 13th; Ecuador, 24th; Columbia, 31st; and Argentina, 43rd
- Illinois reported >45,000 recoveries yesterday alone; with these, the U.S. was able to post an overall decline in active cases day-over-day. Total recoveries in the U.S are now ~600,000; worldwide recoveries are 2.9 million

- Maryland is experiencing the highest rate of new infections per capita (153 per million per day, for the past week),
   Nebraska is 2nd (145), Virginia is 3rd (140), Rhode Island is 4th (112) and Minnesota and Mississippi are next
   (108). Virginia and Mississippi are the most concerning of these, as their rates are still increasing. Alabama's rate also is high (100) and is still increasing
- Twelve states have daily infection rates of 30 or less: Alaska, Hawaii, Idaho, Maine, Missouri, Montana, North Dakota, Oklahoma, Oregon, Vermont, West Virginia and Wyoming
- The death rate in the U.S. remains stable, at 5.8%. While
  having the most cases and deaths in the world, the U.S
  ranks 11th in cases per capita and 12th in deaths per capita



### **COUNTRY-BY-COUNTRY INFORMATION**



#### Country-By-Country

### **Countries Included**

"Strategic Guidance in an Era of Unprecedented Change"

- In Mid-March, we began tracking the twenty countries with the most coronavirus cases; in mid-April, we expanded it to the thirty countries with the most cases
- Since that time, 18 countries have moved ahead of South Korea in total cases
- We continue to track the 30 countries, which still account for 87.5% of the 6.3 million total cases worldwide; additionally, we now have visibility to all 215 countries that have at least 1 coronavirus case
- Case and death information is sourced from the worldometers.info, the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University and the New York Times, each of which are accessed daily; analysis by Health Industry Advisor LLC



#### Country-by-Country

## **Comparative Statistics**

"Strategic Guidance in an Era of Unprecedented Change"

As of May 31

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	1,837,170	(1)	5,550	(3)	106,195	(1)	5.8%	(13)	320.8	(9)	1.3%	(12)	53,417	(10)	65.1	(5)
Austria	16,731	(29)	1,858	(23)	668	(26)	4.0%	(20)	74.2	(19)	0.2%	(27)	49,825	(11)	3.6	(26)
Belgium	58,381	(19)	5,037	(6)	9,467	(8)	16.2%	(1)	816.8	(1)	0.3%	(22)	74,791	(3)	15.9	(15)
Brazil	514,849	(2)	2,422	(17)	29,314	(4)	5.7%	(14)	137.9	(14)	5.6%	(1)	4,378	(25)	101.6	(3)
Canada	90,947	(14)	2,410	(18)	7,295	(11)	8.0%	(10)	193.3	(11)	1.0%	(13)	44,169	(14)	23.6	(13)
Chile	99,688	(13)	5,215	(4)	1,054	(24)	1.1%	(28)	55.1	(20)	5.0%	(2)	30,490	(16)	228.6	(1)
China	83,001	(17)	58	(30)	4,634	(15)	5.6%	(15)	3.2	(30)	0.0%	(30)	0	N/A	0.0	(30)
Ecuador	39,098	(21)	2,216	(19)	3,358	(19)	8.6%	(9)	190.3	(12)	0.9%	(15)	6,664	(24)	19.0	(14)
France	188,882	(8)	2,894	(13)	28,802	(5)	15.2%	(2)	441.3	(5)	0.7%	(17)	21,217	(20)	13.8	(16)
Germany	183,494	(9)	2,190	(20)	8,605	(9)	4.7%	(18)	102.7	(16)	0.2%	(24)	47,193	(12)	5.4	(24)
India	190,609	(7)	138	(28)	5,408	(13)	2.8%	(21)	3.9	(29)	4.8%	(4)	2,710	(26)	5.4	(25)
Iran	151,466	(12)	1,803	(24)	7,797	(10)	5.1%	(17)	92.8	(17)	1.7%	(10)	11,155	(23)	26.8	(10)
Ireland	24,990	(26)	5,061	(5)	1,652	(21)	6.6%	(11)	334.5	(8)	0.2%	(28)	66,043	(5)	10.2	(19)
Israel	17,071	(27)	1,972	(21)	285	(28)	1.7%	(26)	32.9	(22)	0.4%	(21)	61,804	(8)	5.8	(23)
Italy	232,997	(6)	3,854	(9)	33,415	(3)	14.3%	(3)	552.7	(4)	0.2%	(26)	64,144	(6)	7.4	(22)
Japan	16,851	(28)	133	(29)	891	(25)	5.3%	(16)	7.0	(25)	0.3%	(23)	2,296	(28)	0.3	(29)
Mexico	87,512	(15)	679	(25)	9,779	(7)	11.2%	(7)	75.8	(18)	4.2%	(5)	2,104	(29)	24.0	(12)
Netherlands	46,442	(20)	2,710	(14)	5,956	(12)	12.8%	(5)	347.6	(7)	0.4%	(20)	20,380	(21)	10.1	(20)
Pakistan	69,496	(18)	315	(26)	1,483	(22)	2.1%	(25)	6.7	(26)	3.8%	(6)	2,481	(27)	9.6	(21)
Peru	164,476	(10)	4,989	(7)	4,506	(17)	2.7%	(23)	136.7	(15)	4.9%	(3)	32,153	(15)	192.9	(2)
Portugal	32,500	(24)	3,187	(12)	1,410	(23)	4.3%	(19)	138.3	(13)	0.9%	(14)	78,031	(2)	26.3	(11)
Russia	405,843	(3)	2,707	(15)	4,693	(14)	1.2%	(27)	31.3	(23)	2.3%	(7)	72,933	(4)	58.5	(6)
Saudi Arabia	85,261	(16)	2,449	(16)	503	(27)	0.6%	(29)	14.4	(24)	2.1%	(8)	17,767	(22)	52.1	(8)
Singapore	34,884	(23)	5,963	(2)	23	(30)	0.1%	(30)	3.9	(28)	1.5%	(11)	23,666	(18)	79.8	(4)
South Korea	11,468	(30)	224	(27)	270	(29)	2.4%	(24)	5.3	(27)	0.4%	(19)	57,246	(9)	0.8	(28)
Spain	286,509	(4)	6,128	(1)	27,127	(6)	9.5%	(8)	580.2	(2)	0.2%	(25)	86,921	(1)	11.2	(18)
Sweden	37,542	(22)	3,717	(10)	4,395	(18)	11.7%	(6)	435.2	(6)	1.7%	(9)	23,657	(19)	57.8	(7)
Switzerland	30,862	(25)	3,604	(11)	1,920	(20)	6.2%	(12)	224.2	(10)	0.1%	(29)	45,979	(13)	2.1	(27)
Turkey	163,942	(11)	1,944	(22)	4,540	(16)	2.8%	(22)	53.8	(21)	0.6%	(18)	24,201	(17)	12.1	(17)
UK	274,762	(5)	4,047	(8)	38,489	(2)	14.0%	(4)	567.0	(3)	0.7%	(16)	63,158	(7)	32.0	(9)

Note: China does not report test volumes

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



## **VIRUS PROGRESSION BY COUNTRY**

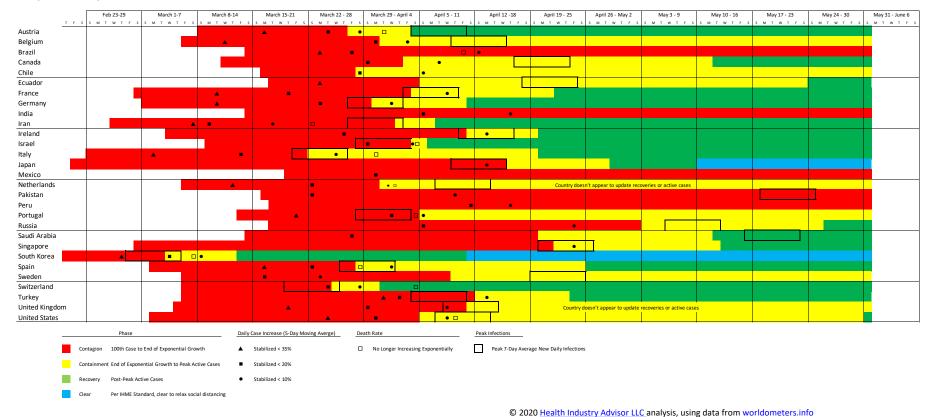


#### Country-by-Country

## 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.





#### Country-By-Country

## Listing of Countries By Total Cases

"Strategic Guidance in an Era of Unprecedented Change"

#### Countries making large upward movements are highlighted

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

- Afghanistan
- Argentina
- Bangladesh
- Belarus
- Columbia
- Denmark
- Dominican Republic
- Indonesia
- Kuwait
- Poland
- Oatar
- Panama
- Philippines
- · Romania
- South Africa
- UAE
- Ukraine

The original 30 still account for 87.5% of all cases worldwide.

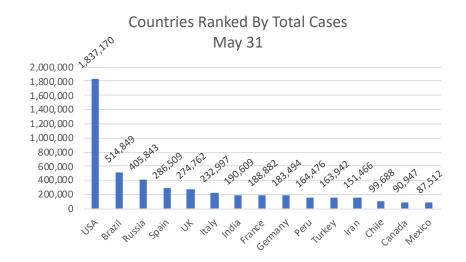
			Total Cases			
ank	Country	31-May	Rank Country	6-May	Rank Country	27-Apr
1 U	SA	1,837,170	1 USA	1,263,092	1 USA	1,010,3
2 B	razil	514,849	2 Spain	253,682	2 Spain	229,4
3 R	ussia	405,843	3 Italy	214,457	3 Italy	199,4
4 S <sub>1</sub>	pain	286,509	4 UK	201,101	4 France	165,8
5 U	K	274,762	5 France	174,191	5 Germany	158,7
6 It	aly	232,997	6 Germany	168,162	6 UK	157,1
7 In	ndia	190,609	7 Russia	165,929	7 Turkey	112,2
8 Fr	rance	188,882	8 Turkey	131,744	8 Iran	91,4
9 G	ermany	183,494	9 Brazil	126,611	9 Russia	87,1
10 Pe	eru	164,476	10 Iran	101,650	10 China	82,8
11 To	urkey	163,942	11 China	82,883	11 Brazil	66,5
12 Ir	an	151,466	12 Canada	63,496	12 Canada	48,5
13 Cl	hile	99,688	13 Peru	54,817	13 Belgium	46,6
14 Ca	anada	90,947	14 India	52,987	14 Netherlands	38,2
15 M	1exico	87,512	15 Belgium	50,781	15 India	29,4
16 Sa	audi Arabia	85,261	16 Netherlands	41,319	16 Switzerland	29,1
17 Cl	hina	83,001	17 Saudi Arabia	31,938	17 Peru	28,6
18 Pa	akistan	69,496	18 Switzerland	30,060	18 Portugal	24,0
19 B	elgium	58,381	19 Ecuador	29,420	19 Ecuador	23,2
22 N	etherlands	46,442	20 Portugal	26,182	20 Ireland	19,6
24 E	cuador	39,098	21 Mexico	26,025	21 Sweden	18,9
25 Sv	weden	37,542	22 Sweden	23,918	22 Saudi Arabia	18,8
26 Si	ingapore	34,884	23 Pakistan	23,214	23 Israel	15,5
29 Pc	ortugal	32,500	24 Chile	23,048	24 Austria	15,2
30 Sv	witzerland	30,862	25 Ireland	22,248	25 Mexico	14,6
34 Ir	eland	24,990	26 Singapore	20,198	26 Singapore	14,4
41 Is	rael	17,071	29 Israel	16,310	27 Pakistan	13,9
42 Ja	apan	16,851	31 Austria	15,684	28 Chile	13,8
	ustria	16,731	32 Japan	15,253	29 Japan	13,6
48 S.	. Korea	11,468	38 S. Korea	10,806	35 South Korea	10,7
0	thers	781,525	Others	356,176	Others	263,9
W	/orld	6,259,249		3,817,382	World	3,062,5
3(	O countries' share	87.5%		90.7%		91.4%

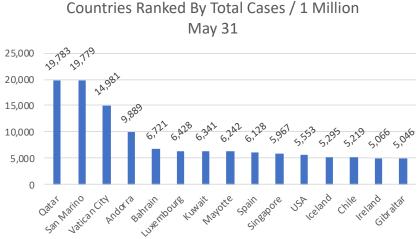


#### Country-by-Country

## Cases & Cases Per Capita

"Strategic Guidance in an Era of Unprecedented Change"



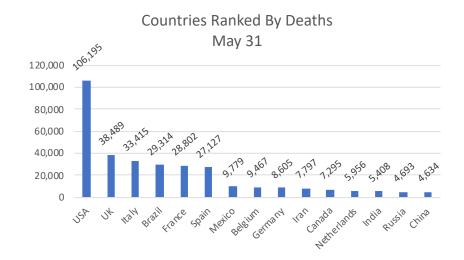




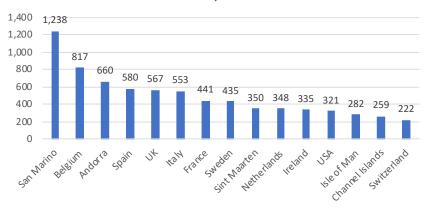
#### Country-by-Country

## Deaths Per Cases & Per Capita

"Strategic Guidance in an Era of Unprecedented Change"









## UNITED STATES & STATE-BY-STATE INFORMATION



## **Comparative Statistics**

"Strategic Guidance in an Era of Unprecedented Change"

As of May 31

17,903 460	Rank	Population	Rank2	Deaths	Rank3										Rank8
						Death Rate	Rank4	Population	Rank5	Average Case Growth Rate	Rank6	Population Past 7 days		1M Population (5- Day M.A.)	
	(25)	3,651.3	(23)	631	(25)	3.5%	(34)	128.7	(25)	2.7%	(5)	925	(37)	99.8	(12
	(51)	628.8	(49)	10	(51)	2.2%	(45)	13.7	(50)	2.3%	(13)	1,599	(9)	10.2	(48
19,936 7.253	(38)	2,738.9	(35)	906	(21)	4.5%	(22)	124.5	(27)	3.5%	(1)	816 991	(42)	70.6	(17
,		2,403.4			(40)	1.8%	(46)	44.1		3.3%	(3)		()		
															(21
															(18
-, -,															(11
.,		, ,													(3)
															(26
															(51
															(44
															(20
															(36
-,-															(36
															(14
															(41
															(43
															(13
															(34
															(34
															(8
															(42
															(50
															(2
															(35
-,															(28
															(10
															(29
															(22
															(16
															(40
															(32
,															(45
-,															(47
		,													(30
															(5
															(31
															(19
,		-,													(25
															(33
9.797	(32)	,		, , , , ,						2.6%		868		62.6	(24
981	(47)	1,572.1	(45)	55		5.6%		88.1	(34)	0.3%		1.232	(23)	5.7	(49
															(43
															(39
2.010	(46)					3.7%		42.0		1.6%		953		19.1	(43
,															(15
903	(48)	-, -,		16		1.8%		27.6		1.2%		1,076	(30)	16.0	(46
303		2,000.2	1/	10	(-3)	23070	1.77	27.0	1.01	2.2/0	1-"	2,370	(-3)	10.0	
	981 44,607 22,471 2,010 18,403	26,378 (18) 42,201 (13) 9,498 (34) 8,801 (35) 55,163 (9) 47,063 (11) 652 (69) 47,063 (13) 10,260 (3) 34,574 (16) 19,552 (23) 9,274 (33) 39,920 (14) 2,325 (45) 52,778 (10) 96,965 (5) 57,379 (8) 24,850 (19) 15,501 (26) 14,101 (28) 8,593 (36) 4,514 (41) 15,604 (39) 15,501 (39) 15,501 (39) 15,501 (39) 15,501 (39) 15,501 (39) 15,501 (39) 15,501 (39) 15,501 (39) 15,501 (39) 14,101 (28) 8,593 (36) 4,551 (41) 15,764 (2) 7,689 (37) 379,902 (1) 28,784 (17) 2,577 (44) 35,553 (15) 6,506 (39) 4,243 (42) 4,243 (42) 7,6222 (6) 14,928 (27) 11,861 (30) 4,993 (40) 23,006 (20) 64,899 (7) 9,797 (32) 981 (47) 4,46,67 (12) 22,471 (21) 2,006 (48)	26,378 (18) 4,580.5  42,201 (13) 11,836.6  9,488 (34) 9,753.3  8,801 (35) 12,470.4  56,163 (9) 2,614.9  47,063 (11) 4,422.6  652 (49) 460.5  2,839 (43) 1,584.2  120,260 (3) 9,400.3  34,574 (16) 5,135.6  19,552 (23) 6,197.0  9,827 (31) 3,373.1  19,552 (23) 6,197.0  9,827 (31) 3,373.1  2,172.0  39,220 (14) 8,587.2  2,325 (45) 1,726.6  52,778 (10) 8,729.9  96,565 (5) 13,952.8  57,3797 (8) 5,767.3  24,850 (19) 4,406.3  15,501 (26) 5,208.4  13,767 (29) 2,195.7  515 (50) 481.9  14,101 (28) 7,289.6  4,651 (41) 3,420.6  8,593 (36) 2,788.8  4,651 (41) 3,420.6  161,764 (2) 18,212.2  7,689 (37) 3,667.0  379,002 (11) 15,287.7  28,784 (17) 2,744.4  2,277 (44) 3,381.6  5,556 (39) 1,644.2  4,243 (42) 1,006.0  7,622 (6) 5,953.9  14,928 (27) 1,005.9  14,928 (27) 1,006.0  7,622 (6) 5,953.9  14,928 (27) 1,006.0  2,306 (20) 3,366.8  4,469 (12) 2,305.7  9,797 (32) 3,655.9  981 (47) 1,572.1  18,403 (24) 3,160.7  903 (48) 1,560.2	26,378 (18) 4,580.5 (19) 42,201 (13) 11,836.6 (6) 9,498 (34) 9,753.9 (7) 8,801 (35) 12,470.4 (5) 55,163 (9) 2,514.9 (36) 47,063 (11) 4,432.6 (20) 652 (49) 460.5 (51) 2,839 (43) 1,584.2 (44) 120,260 (3) 9,490.3 (8) 34,574 (15) 5,135.6 (18) 139,552 (23) 6,197.0 (12) 9,277 (31) 3,373.1 (26) 9,277 (31) 3,373.1 (26) 9,277 (31) 8,272.9 (41) 339,920 (14) 8,587.2 (10) 2,235 (45) 1,729.6 (42) 52,778 (10) 8,729.9 (9) 96,965 (5) 13,952.8 (4) 57,379 (8) 5,747.3 (14) 24,850 (19) 4,406.3 (21) 15,501 (26) 5,008.4 (17) 13,476 (29) 2,195.7 (40) 15,15 (50) 481.9 (50) 14,101 (28) 7,289.6 (31) 14,101 (28) 7,289.6 (31) 14,101 (28) 7,289.8 (33) 4,651 (41) 3,420.6 (24) 15,601 (41) 3,420.6 (24) 15,601 (41) 3,420.6 (24) 15,601 (42) 13,521.2 (2) 7,689 (37) 3,667.0 (22) 379,902 (11) 19,528.7 (13) 14,298 (27) 14,409.1 (33) 1,644.2 (43) 1,428 (27) 14,091.5 (33) 1,644.2 (43) 1,428 (27) 14,091.5 (33) 1,1861 (30) 2,335.9 (33) 1,1861 (30) 2,335.9 (33) 1,1861 (30) 2,337.3 (38) 4,993 (40) 5,644.0 (15) 2,306 (48) 1,560.2 (46)	26,378 (18) 4,5805 (19) 1,445 42,201 (13) 11,8366 (6) 3,944 9,988 (34) 9,7539 (7) 366 8,801 (35) 12,4704 (5) 466 55,163 (9) 2,6149 (36) 2,452 47,063 (11) 4,432.6 (20) 2,053 652 (49) 4605 (51) 17 2,839 (43) 1,5842 (44) 82 120,260 (3) 9,4903 (8) 5,390 34,574 (16) 5,135.6 (18) 2,134 19,552 (23) 6,197.0 (12) 535 9,827 (31) 3,373.1 (26) 217 9,704 (33) 2,172.0 (41) 431 39,920 (14) 8,587.2 (10) 2,791 2,235 (45) 1,129.6 (42) 89 55,2778 (10) 8,729.9 (9) 2,552 96,965 (5) 13,952.8 (4) 6,846 57,397 (8) 5,747.3 (14) 5,941 24,850 (19) 4,406.3 (21) 1,050 15,501 (26) 5,08.4 (17) 734 13,476 (29) 2,195.7 (40) 785 515 (50) 4819 (50) 17 14,101 (28) 7,289.6 (11) 170 8,593 (36) 2,789.8 (33) 421 4,651 (41) 3,420.6 (24) 245 16,764 (21) 18,7212 (22) 11,711 7,689 (37) 3,667.0 (22) 356 14,993 (40) 5,544.0 (30) 3,3	26,378 (18) 4,580.5 (19) 1,445 (16) 42,201 (13) 11,836.6 (6) 3,944 (8) 9,948 (34) 9,753.9 (7) 366 (32) 8,801 (35) 12,470.4 (5) 466 (29) 56,163 (9) 2,614.9 (36) 2,452 (11) 47,063 (11) 4,432.6 (20) 2,053 (14) 652 (49) 460.5 (51) 17 (49) 2,839 (43) 1,584.2 (44) 82 (43) 120,260 (3) 9,490.3 (8) 5,390 (6) 34,574 (16) 5,135.6 (18) 2,134 (13) 19,552 (23) 6,197.0 (12) 535 (27) 9,827 (31) 3,373.1 (26) 217 (37) 9,704 (33) 2,172.0 (41) 431 (30) 39,202 (14) 8,587.2 (10) 2,791 (9) 2,275 (45) 1,729.6 (42) 89 (42) 52,278 (45) 1,729.6 (42) 89 (42) 52,778 (10) 8,729.9 (9) 2,532 (10) 96,565 (5) 13,952.8 (4) 6,846 (3) 57,397 (8) 5,747.3 (14) 5,491 (5) 13,747 (26) 5,208.4 (17) 734 (23) 13,747 (26) 5,208.4 (17) 734 (23) 13,747 (26) 5,208.4 (17) 734 (23) 13,747 (29) 2,195.7 (40) 785 (22) 13,13,76 (29) 2,195.7 (40) 785 (22) 13,13,76 (29) 2,195.7 (40) 785 (22) 13,14,76 (29) 2,195.7 (40) 785 (22) 13,14,76 (29) 2,195.7 (40) 785 (22) 13,14,76 (29) 2,195.7 (40) 785 (22) 14,1,101 (28) 7,289.6 (11) 170 (38) 8,593 (36) 2,789.8 (33) 421 (31) 4,651 (41) 3,420.6 (24) 245 (36) 14,1,201 (28) 7,289.6 (11) 170 (38) 8,593 (36) 2,789.8 (33) 421 (31) 14,1,201 (28) 7,289.6 (11) 170 (38) 8,593 (36) 2,789.8 (33) 421 (31) 14,202 (11) 1,506 (14) 3,406. (24) 245 (36) 3,55,553 (15) 3,041.6 (30) 2,165.7 (11) 2,918 (11) 14,1,201 (28) 7,289.6 (11) 170 (38) 8,593 (36) 2,789.8 (33) 421 (31) 4,551 (41) 3,406.6 (24) 245 (36) 3,55,553 (15) 3,041.6 (30) 2,162.1 (17) 734 (23) 3,55,553 (15) 3,041.6 (30) 2,162.1 (17) 2,274.4 (34) 3,34 (35) 4,23,744 (47) 2,744.4 (34) 3,34 (35) 4,24,34 (47) 2,744.4 (34) 3,34 (35) 4,24,34 (47) 2,744.4 (34) 3,34 (35) 4,24,34 (47) 2,744.4 (34) 3,34 (35) 4,24,34 (47) 2,744.4 (34) 3,35 (39) 4,21 (41) 3,406.6 (48) 153 (39) 4,651 (44) 3,340.6 (24) 245 (36) 4,993 (40) 5,544.0 (15) 62 (46) 4,423 (44) 3,366.8 (27) 3,464 (33) 3,47 (28) 4,993 (40) 5,544.0 (15) 62 (45) 4,436 (49) 1,552.6 (16) 1,375 (17) 2,2471 (21) 2,295.9 (31) 1,126 (18) 9,03 (48) 1,560.2 (46) 116 (50)	26,378 (13) 4,580.5 (19) 1,445 (16) 5.5% 42,201 (13) 11,836.6 (6) 3,944 (8) 9.3% 9,488 (34) 9,753.9 (7) 366 (32) 3.9% 8,801 (35) 12,470.4 (5) 466 (29) 5.3% 656.13 (9) 2,614.9 (36) 2,452 (11) 4.4% 652 (49) 460.5 (51) 17 (49) 2.5% 656.13 (11) 4,42.6 (20) 2,053 (14) 4.4% 652 (49) 460.5 (51) 17 (49) 2.5% 612.2 (20) 12,053 (14) 4.4% 652 (49) 460.5 (51) 17 (49) 2.5% 612.2 (49) 460.5 (51) 17 (49) 2.5% 612.2 (49) 12,050 (3) 9,490.3 (8) 5,390 (6) 4.5% 612.2 (49) 12,050 (3) 9,490.3 (8) 5,390 (6) 4.5% 612.2 (49) 12,052 (41) 12,052 (41) 13,552 (23) 6,197.0 (12) 535 (27) 2.7% 9,827 (31) 3,373.1 (26) 217 (37) 2.2% 9,827 (31) 3,373.1 (26) 217 (37) 2.2% 9,90.4 (33) 2.172 0 (41) 431 (30) 4.4% 939.920 (14) 8,587.2 (10) 2,791 (9) 7.0% 2,355 (45) 1.725.6 (42) 89 (42) 3.8% 95,965 (5) 13,952.8 (4) 6,846 (3) 7.1% 9,563 (19) 4,406.3 (21) 1,050 (19) 4.2% 15,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,501 (26) 5,208.4 (17) 734 (23) 4.7% (15) 5,509 (30) 2,295 (40) 3.3% (14) 3.3% (1	26,378 (18) 4,580.5 (19) 1,445 (16) 5,55% (12) 42,201 (13) 1,1836.6 (6) 3,944 (8) 9,3% (2) 9,488 (34) 9,753.9 (7) 366 (32) 3,9% (29) 8,801 (35) 12,470.4 (5) 466 (29) 5,3% (13) 56,163 (9) 2,614.9 (36) 2,452 (11) 4,4% (25) 47,063 (11) 4,432.6 (20) 2,053 (14) 4,4% (26) 652 (49) 460.5 (51) 17 (49) 2,6% (41) 2,839 (43) 1,584.2 (44) 82 (43) 2,9% (39) 120,260 (3) 9,490.3 (8) 5,390 (6) 4,5% (23) 34,574 (16) 5,135.6 (18) 2,134 (13) 6,2% (8) 19,552 (23) 6,197.0 (12) 5,535 (27) 2,7% (40) 9,827 (31) 3,373.1 (26) 217 (37) 2,2% (44) 9,90.2 (44) 4,82 (44) 4,82 (44) 4,82 (44) 4,82 (44) 4,82 (45) 4,29% (39) 19,200 (14) 4,588.2 (10) 2,791 (9) 7,0% (7) 2,325 (45) 1,723.6 (42) 89 (42) 3,8% (30) 5,900 (14) 4,8% (23) 3,272 (14) 4,858.7 (10) 2,791 (9) 7,0% (7) 2,325 (45) 1,723.6 (42) 89 (42) 3,8% (30) 9,665 (5) 13,952.8 (4) 6,846 (3) 7,1% (6) 5,7397 (8) 5,747.3 (14) 5,841 (5) 5,135.6 (18) 7,136 (6) 3,71% (6) 5,7397 (8) 5,747.3 (14) 5,841 (5) 5,135.6 (18) 7,136 (6) 4,5% (27) 1,737 (28) 4,860 (19) 4,406.3 (21) 1,050 (19) 4,2% (27) 1,550 (19) 4,406.3 (21) 1,050 (19) 4,2% (27) 1,550 (19) 4,406.3 (21) 1,050 (19) 4,2% (27) 1,550 (19) 4,406.3 (21) 1,050 (19) 4,2% (27) 1,550 (16) 5,208.4 (17) 734 (23) 4,7% (20) 5,13,40 (19) 4,406.3 (21) 1,050 (19) 4,2% (27) 1,550 (28) 5,2737 (14) 3,20.6 (24) 2,455 (10) 4,49 (20) 3,3% (35) 1,4,101 (28) 7,289.6 (11) 1,70 (38) 1,2% (50) 1,3,40 (10) 1,2%	26,378 (18) 4,8805 (19) 1,445 (16) 5,5% (12) 2509 42,201 (13) 11,836.6 (6) 3,944 (8) 9,3% (2) 1,106.2 9,498 (34) 9,753.9 (7) 366 (32) 3,9% (2) 3,75.9 8,801 (35) 12,470.4 (5) 466 (29) 5,3% (13) 660.3 \$5,163 (9) 2,614.9 (36) 2,452 (11) 4,4% (25) 114.2 47,063 (11) 4,425.6 (20) 2,053 (14) 4,4% (26) 193.4 652 (49) 460.5 (51) 17 (49) 2,66 (41) 12.0 2,839 (43) 1,842.2 (44) 82 (43) 2,5% (39) 45.8 120,260 (3) 9,490.3 (8) 5,300 (6) 4,5% (23) 425.4 120,260 (3) 9,490.3 (8) 5,300 (6) 4,5% (23) 425.4 34,574 (16) 5,135.6 (18) 2,134 (13) 6,2% (8) 317.0 19,552 (23) 6,197.0 (12) 535 (27) 2,7% (40) 169.6 9,827 (31) 3,373.1 (26) 227 (37) 2,2% (40) 169.6 3,9,277 (31) 3,373.1 (26) 227 (37) 2,2% (40) 169.6 3,9,200 (14) 8,887.2 (10) 2,791 (9) 7,0% (7) 600.4 2,325 (45) 1,725.6 (42) 89 (42) 3,3% (30) 66.2 5,2,78 (10) 8,729.9 (9) 2,532 (10) 4,8% (19) 418.8 9,505.5 (15) 13,952.8 (47) 6,866 (3) 7,13% (6) 985.1 5,7,397 (8) 5,747.3 (14) 5,491 (5) 9,66% (1) 5,98.5 15,501 (26) 5,208.4 (17) 7,34 (23) 42.6 (23) 42.6 (23) 42.6 (23) 42.6 (23) 43.6	26.378	25.378   (18)	26,178   18    4,580.5   19    1,445   16    5.5%   12    250.9   14    1,4%   (28)	25,278   188	42,078   148	26,78  (38)

© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project and worldometers.info



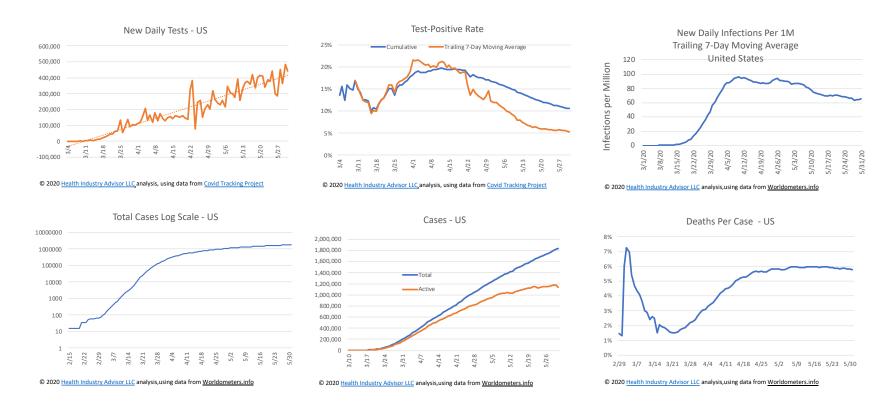
#### **United States**

### **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.

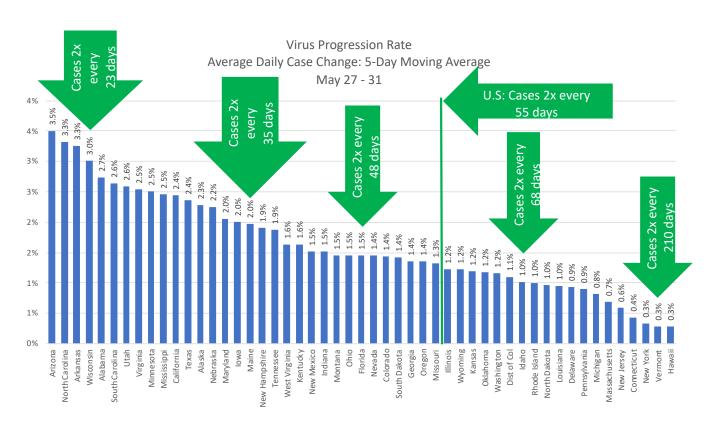




## Average Daily Case Growth

"Strategic Guidance in an Era of Unprecedented Change"

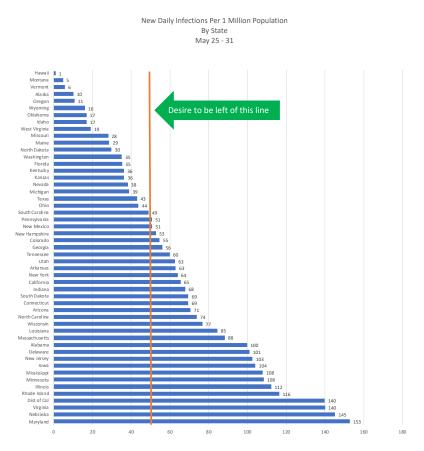
Just 1 month ago, cases in every state were doubling every 1-3 weeks. Now, they would take from 20 days nearly a year to double

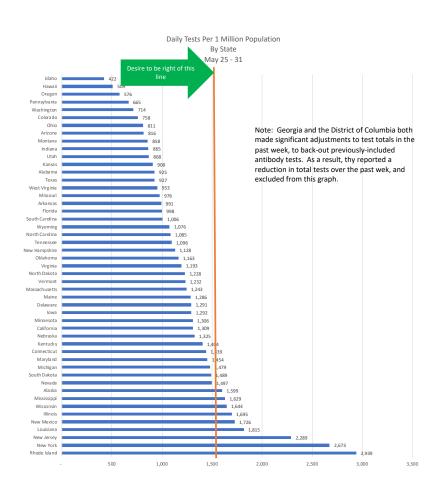




## New Daily Infections & Tests Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

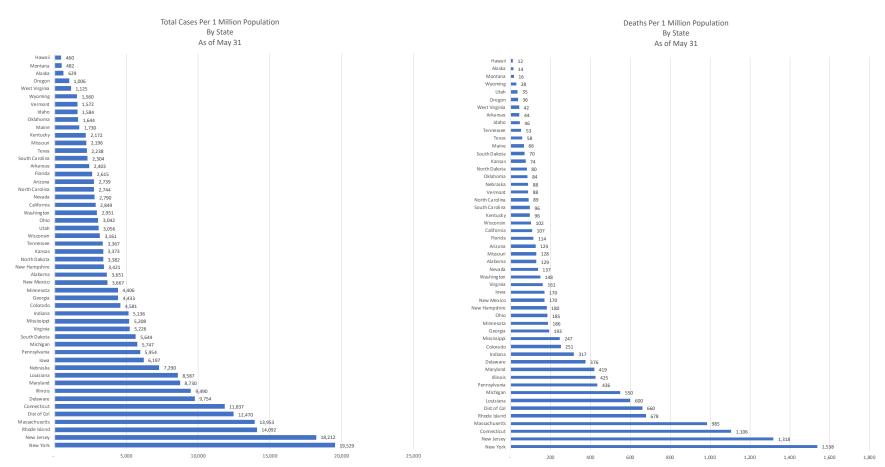






## Cases & Deaths Per Capita

"Strategic Guidance in an Era of Unprecedented Change"

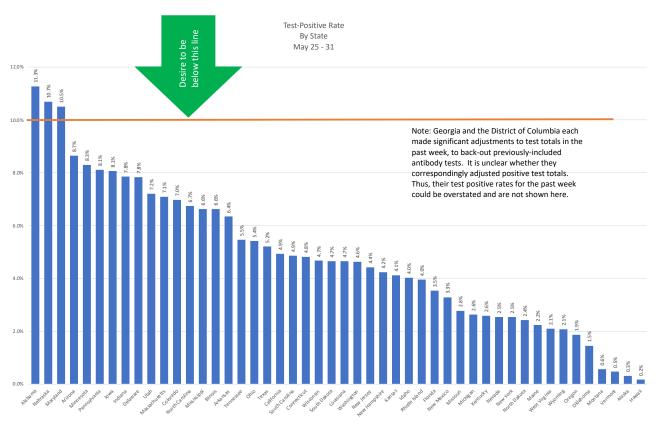




#### Which States Are Performing Sufficient Tests?

"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 4 states met this guideline for the past week.





## STATE-BY-STATE READINESS FOR RELAXING RESTRICTIONS



## **Readiness For Relaxing Restrictions**

"Strategic Guidance in an Era of Unprecedented Change"

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**

"Strategic Guidance in an Era of Unprecedented Change"

#### Highlights:

- Progress has been made in several states, on both testing volumes and testpositive 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 <u>World Health Organization</u>, 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 <u>Institute for Health Metrics</u> and <u>Evaluation's (IHME) projections</u> 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



## Relative "Readiness" For Relaxing Restrictions

"Strategic Guidance in an Era of Unprecedented Change"

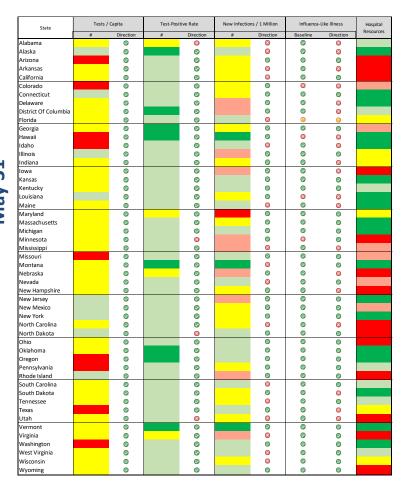
#### Change over past week

Alabama

Washington

West Virginia

Wisconsin



**(3)** 

New Infections / 1 Million

Legend and sources provided on 2<sup>nd</sup> following page

**(2)** 

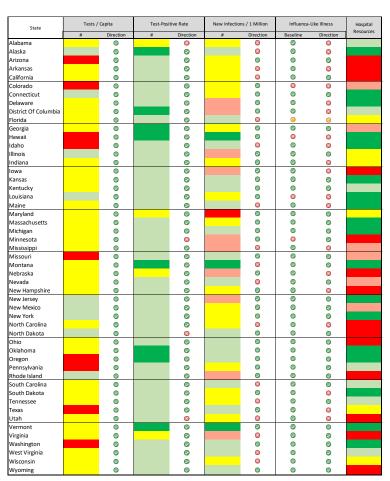
Hospital

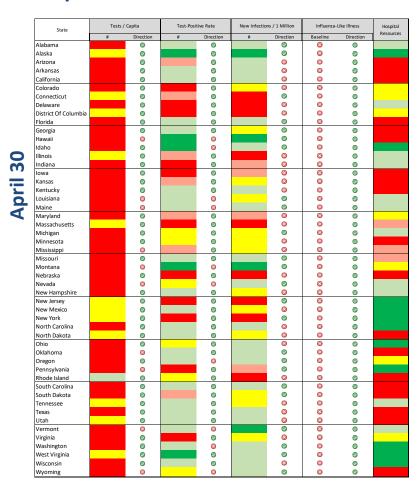


## Relative "Readiness" For Relaxing Restrictions

"Strategic Guidance in an Era of Unprecedented Change"

#### Progress over past month





Legend and sources provided on following page



## 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
Time period	per Average last 2 weeks	1M last 14 days v prior 2 weeks	last 7 days	last 14 days v prior 2 weeks	per last 7 days	1M 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	
X		Down		Up		Down <10% or Up	Above Baseline	Up	

© 2020 Health Industry Advisor LLC. All rights reserved.

#### Sources

 $Influenza\ guidelines\ and\ data\ from\ Centers\ fo\ Disease\ Control\ (\underline{https://gis.cdc.gov/grasp/fluview/fluportaldashboard.html})},\ accessed\ April\ 30-May\ 31,\ 2020-May\ 31,\ 2020-May\ 31,\ 2020-May\ 32,\ 20$ 

 $Test\ data\ from\ Covid\ Tracking\ Project\ \underline{(https://covidtracking.com/)}, accessed\ March\ 21-June\ 1,\ 2020$ 

 $Hospital\ resource\ Need\ projections\ from\ Institute\ for\ Health\ Metrics\ and\ Evaluation\ (),\ accessed\ April\ 30-May\ 31,\ 2020$ 

Infection rate data from worldometer.info, accessed March 21-June 1, 2020

#### Articles of interest:

"What does doing enough coronavirus testing look like? Here's a number to watch", Patrick Cain, msn.com, (https://www.msn.com/en-ca/news/canada/what-does-doing-enough-coronavirus-testing-look-like-heres-a-number-to-watch/ar-BB138Hf4?li=AAggXBV), accessed April 24, 2020

"A New Statistic Reveals Why America's COVID-19 Numbers Are Flat", Robinson Meyer and Alexis C. Madrigal, April 16, 2020, The Atlantic, accessed April 24, 2020

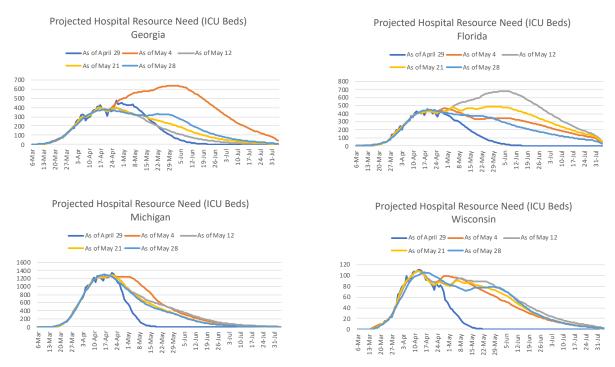


#### Impact of Relaxing Social Distancing

## 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 <u>projections of hospital resource</u> needs. Comparing their projections from April 29, May 2, 12, 21 and indicates how much relaxing restrictions factors into these projections.



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.



## VIRUS PROGRESSION: ROADMAP TO RECOVERY



## Virus Progression

"Strategic Guidance in an Era of Unprecedented Change"

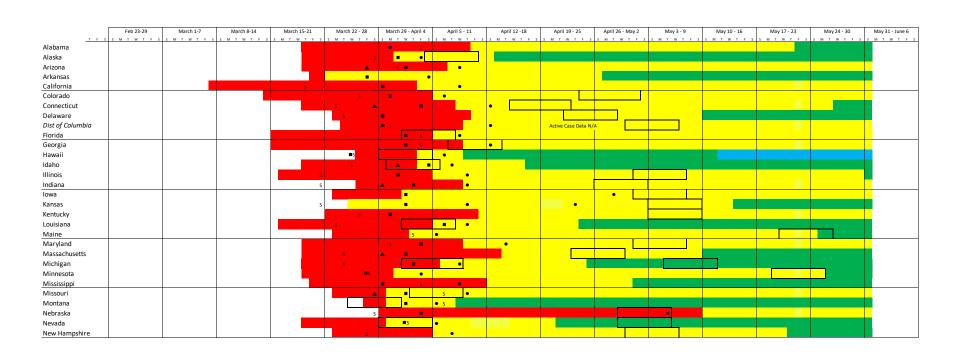
The graphic on the following two pages illustrates when the state first recorded 100 total cases (start of the "contagion" phase); when growth stopped following an exponential pattern (start of the "containment" phase); and, when peak total cases were recorded (start of the "recovery" phase). It uses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

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



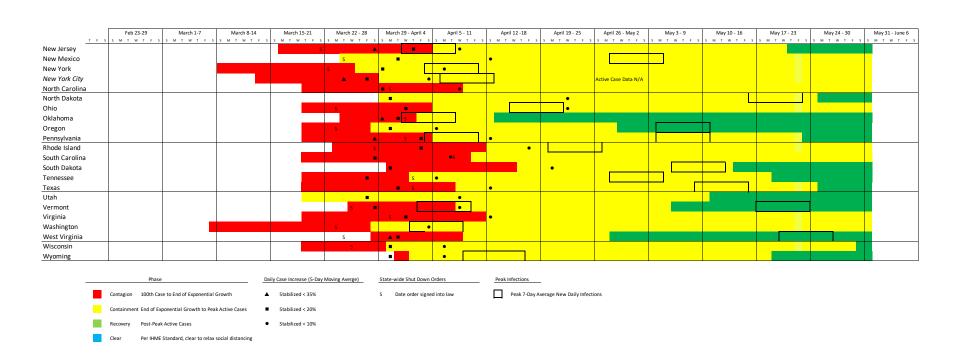
## Virus Progression – 1 of 2

"Strategic Guidance in an Era of Unprecedented Change"



Legend on following page







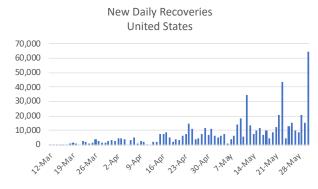
# UNDER-REPORTED RECOVERIES? POSSIBLE LAG IN STATE REPORTING



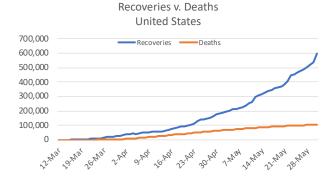
#### **United States**

### Recoveries

"Strategic Guidance in an Era of Unprecedented Change"

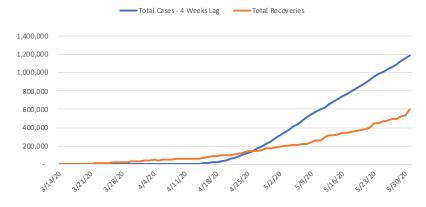


© 2020 Health Industry Advisor LLC analysis, using data from Worldometers.info



© 2020 Health Industry Advisor LLC analysis, using data from Worldometers.info

Total Cases - 4-Week Lag v. Total Recoveries





#### Recoveries

### Reporting of Recoveries Seems to Be Lagging

"Strategic Guidance in an Era of Unprecedented Change"

#### Which states seem to be lagging in reporting?

At this point, we should be expecting far more recoveries in the U.S.

Comparing the reported recoveries to Total Cases 4 weeks ago\*, this shortfall is ~350-470k

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

State	Recoveries	Expected R	ecoveries	State	Recoveries	Expected
State	Recoveries	Low	High	State	Recoveries	Low
labama	9,355	6,310	7,099	Montana	456	364
Alaska	368	294	331	Nebraska	592	4,527
Arizona	70	6,912	7,776	Nevada	6,316	4,341
Arkansas	5,275	2,745	3,088	New Hampshire	2,948	2,014
California	23,768	43,887	49,373	New Jersey	17,646	101,950
Colorado	2,072	13,308	14,972	New Mexico	2,853	3,080
Connecticut	7,511	23,430	26,358	New York	66,603	259,106
Delaware	5,266	4,166	4,687	North Carolina	14,954	9,394
District Of Columbia	1,116	4,013	4,514	North Dakota	1,959	953
lorida	9,248	28,862	32,470	Ohio	6,036	15,933
Georgia	697	22,937	25,804	Oklahoma	5,438	3,178
Hawaii	608	496	558	Oregon	1,894	2,144
daho	2,248	1,649	1,855	Pennsylvania	48,190	41,638
linois	61,985	49,199	55,349	Rhode Island	1,252	7,582
ndiana	2,778	15,946	17,940	South Carolina	6,043	5,301
owa	11,165	7,335	8,252	South Dakota	3,837	2,105
Kansas	4,379	3,917	4,406	Tennessee	15,193	10,542
Kentucky	3,231	4,104	4,617	Texas	42,423	25,594
ouisiana	28,700	23,472	26,406	Utah	6,137	4,140
Maine	1,552	948	1,067	Vermont	873	718
Maryland	3,764	20,370	22,916	Virginia	5,868	14,937
Massachusetts	46,354	54,470	61,278	Washington	6,194	12,621
∕lichigan	38,099	35,003	39,379	West Virginia	1,303	956
Minnesota	18,695	5,330	5,997	Wisconsin	11,646	6,371
Mississippi	9,401	6,040	6,795	Wyoming	658	469
Missouri	3,185	6,747	7,591			
				United States	599,867	950,498

Low = 80% of Total Cases 4 week ago High = 90% of Total Cases 4 week ago States seemingly up-to-date with reporting recoveries
 States only reporting ~ 1/2 expected recoveries
 States well-behind in reporting recoveries

<sup>©2020</sup> Health Industry Advisor LLC All rights reserved.

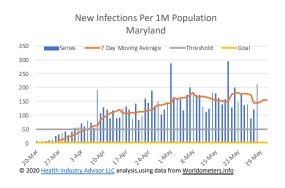


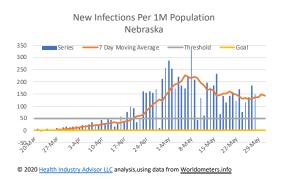
# STATES WITH THE HIGHEST NEW DAILY INFECTION RATES

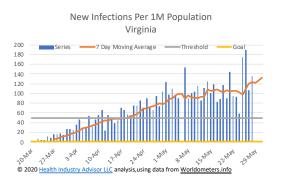


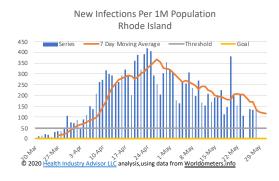
# State-By-State States With the Highest Current New Daily Infection Rates

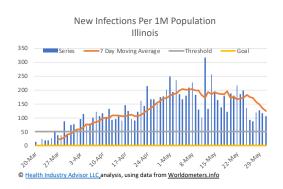
"Strategic Guidance in an Era of Unprecedented Change"

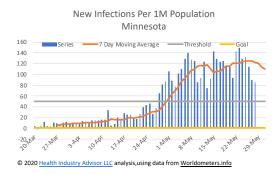














## STATE TEST, INFECTION AND CASE TRENDS



#### Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"

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
- lowa
- Kansas

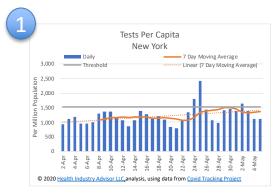


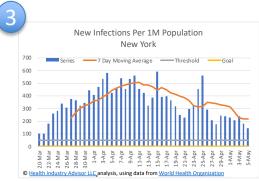
### Test, New Daily Infection and Active Case Trends

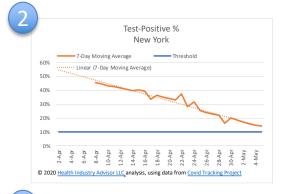
"Strategic Guidance in an Era of Unprecedented Change"

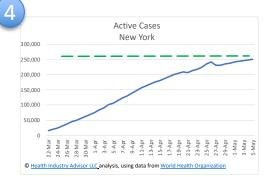
#### How to "read" these charts:

- 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





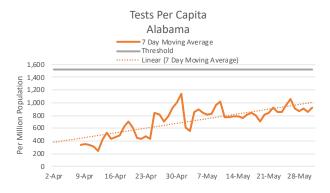




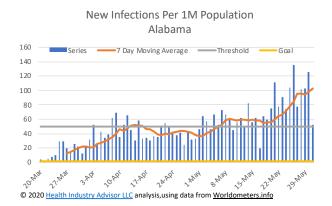


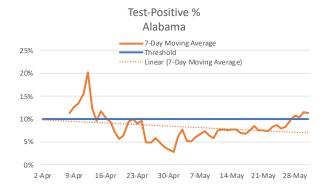
# Test, New Daily Infection and Active Case Trends

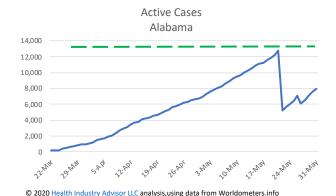
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project







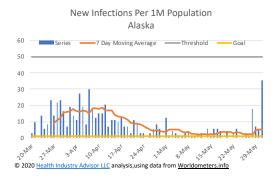


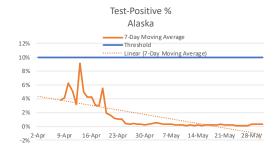
# Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"









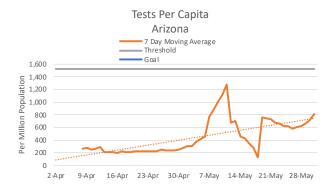
© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



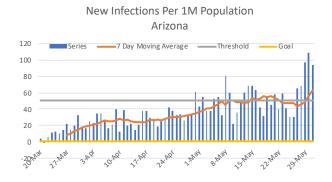


# Test, New Daily Infection and Active Case Trends

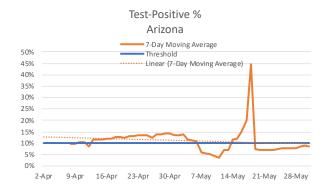
"Strategic Guidance in an Era of Unprecedented Change"



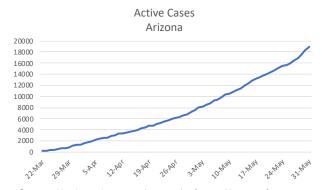
© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



© 2020 Health Industry Advisor LLC analysis, using data from Worldometers.info



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project

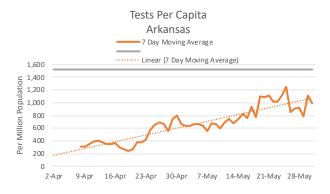


© 2020 Health Industry Advisor LLC analysis, using data from Worldometers.info

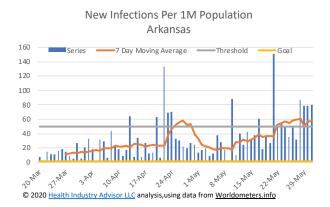


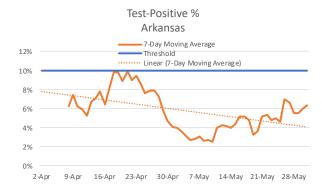
# Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project





© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project

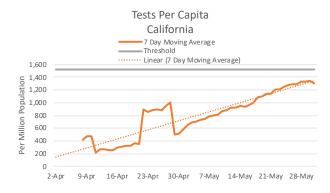


© Health Industry Advisor LLC analysis, using data from Worldometers.info

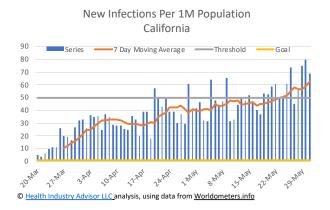


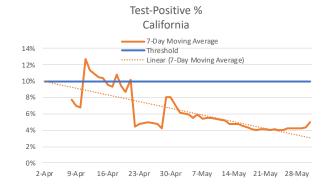
## Test, New Daily Infection and Active Case Trends

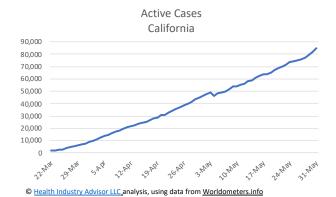
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



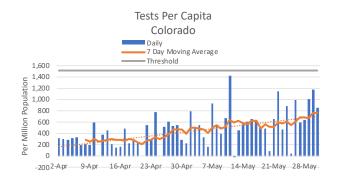




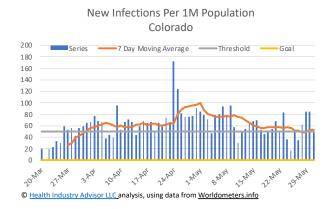


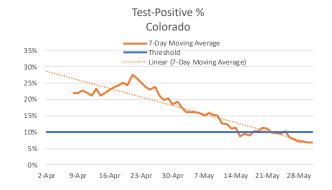
## Test, New Daily Infection and Active Case Trends

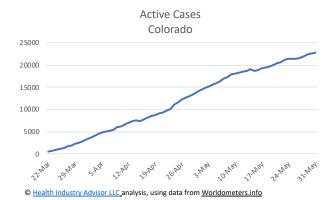
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



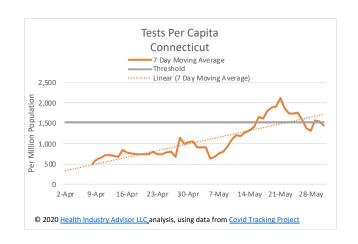


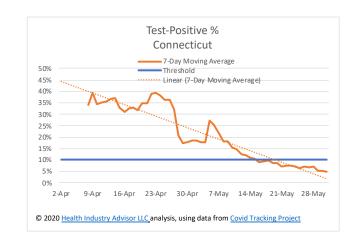


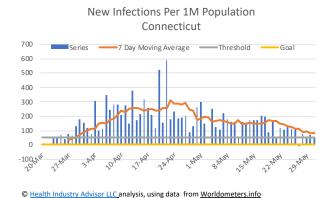


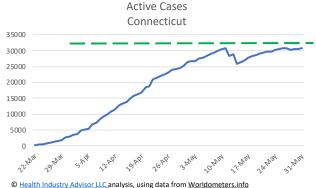
## Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"





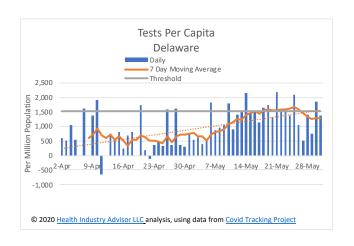


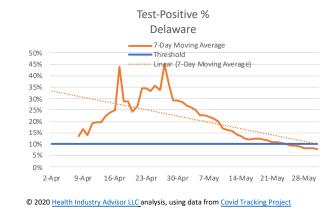


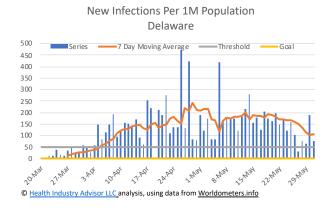


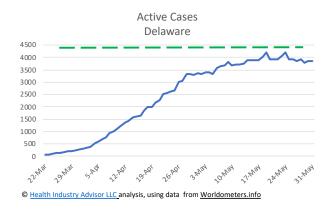
# Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"





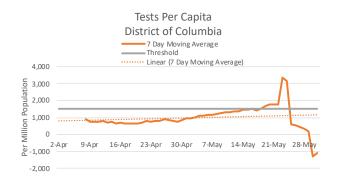




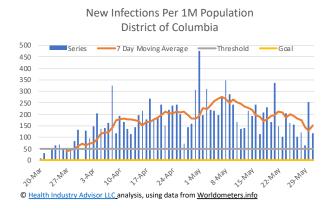


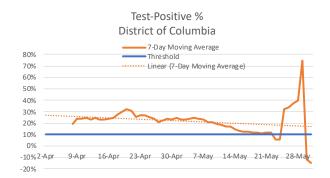
## Test, New Daily Infection and Active Case Trends

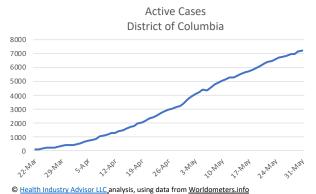
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



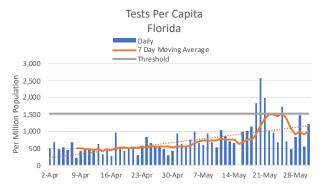




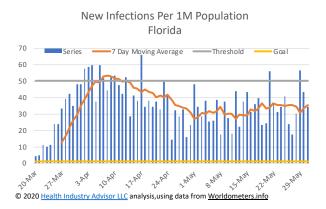


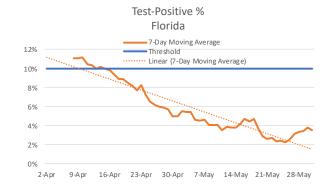
## Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"

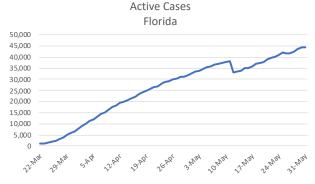


© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project





© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



© 2020 Health Industry Advisor LLC analysis, using data from Worldometers.info

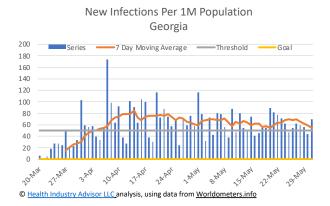


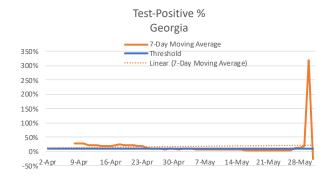
## Test, New Daily Infection and Active Case Trends

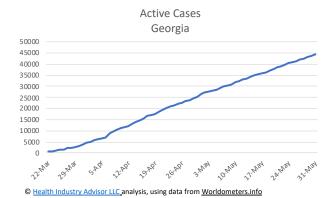
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



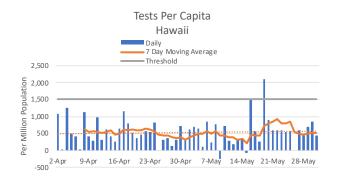




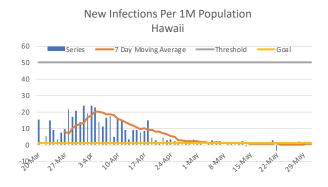


## Test, New Daily Infection and Active Case Trends

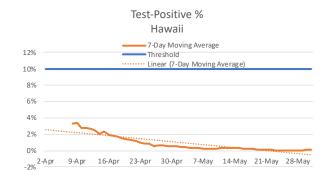
"Strategic Guidance in an Era of Unprecedented Change"



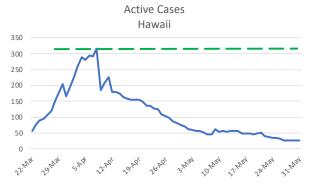
© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



© Health Industry Advisor LLC analysis, using data from Worldometers.info



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project

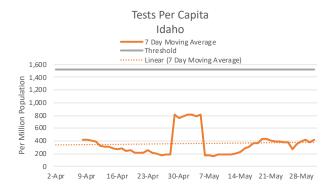


© Health Industry Advisor LLC analysis, using data from Worldometers.info

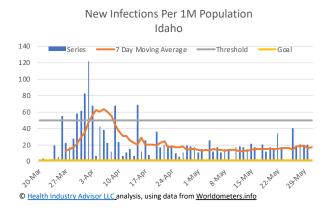


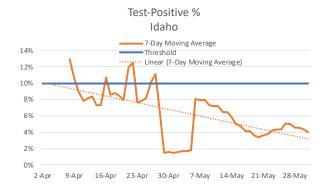
## Test, New Daily Infection and Active Case Trends

"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



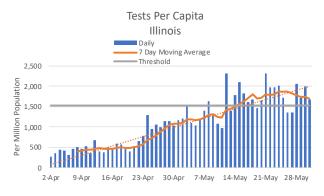




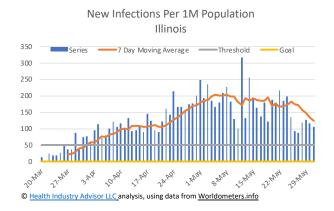


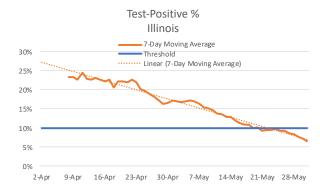
# Test, New Daily Infection and Active Case Trends

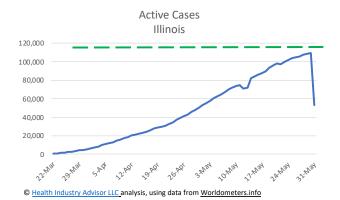
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



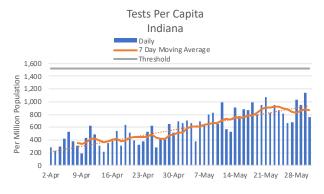




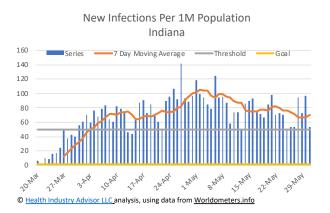


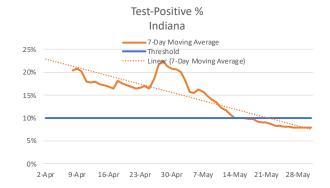
# State-by-State Test, New Daily Infection and Active Case Trends

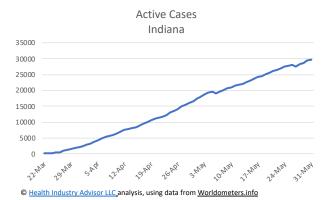
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



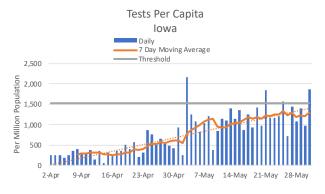




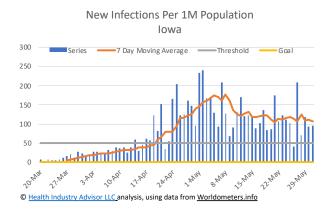


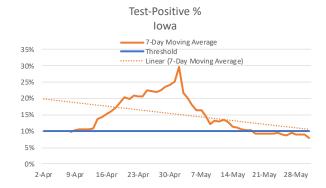
# Test, New Daily Infection and Active Case Trends

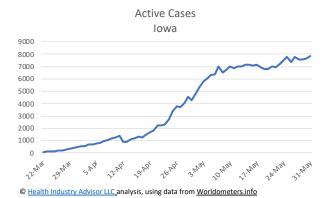
"Strategic Guidance in an Era of Unprecedented Change"



© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project



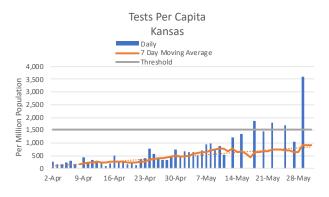




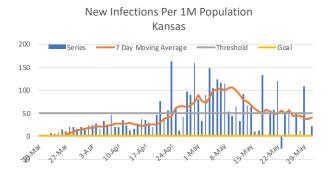


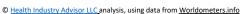
# Test, New Daily Infection and Active Case Trends

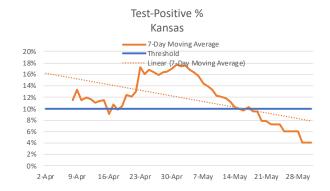
"Strategic Guidance in an Era of Unprecedented Change"



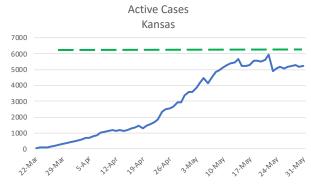
© 2020 Health Industry Advisor LLC analysis, using data from Covid Tracking Project







© 2020 <u>Health Industry Advisor LLC</u> analysis, using data from <u>Covid Tracking Project</u>



© Health Industry Advisor LLC analysis, using data from Worldometers.info