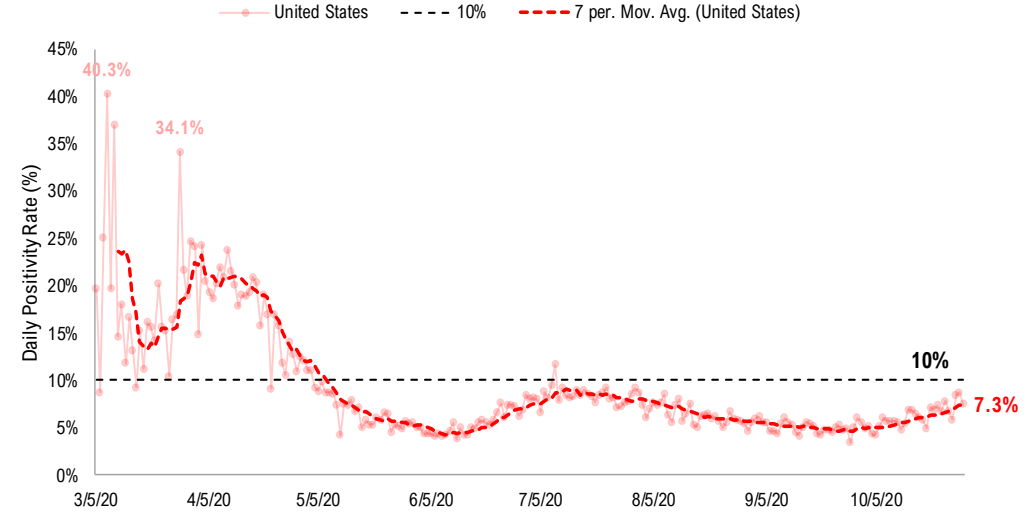
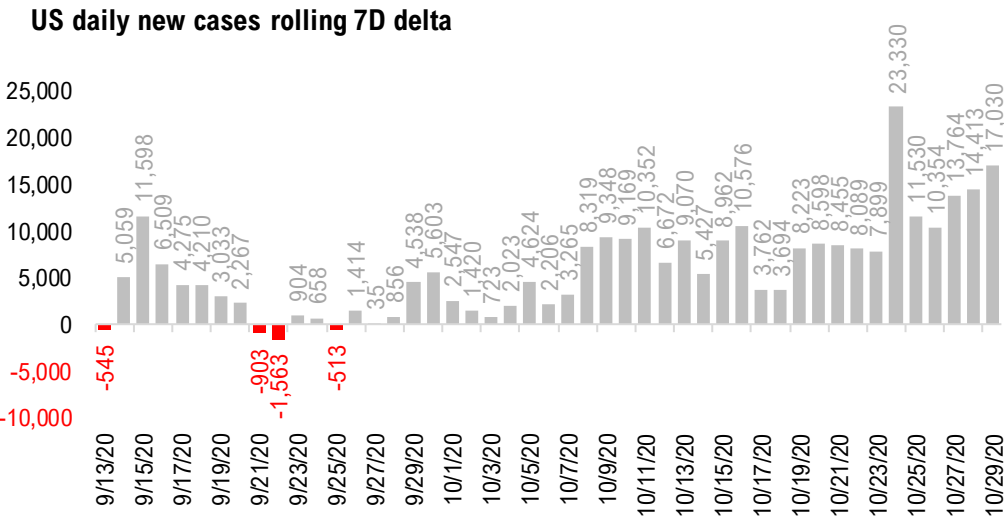
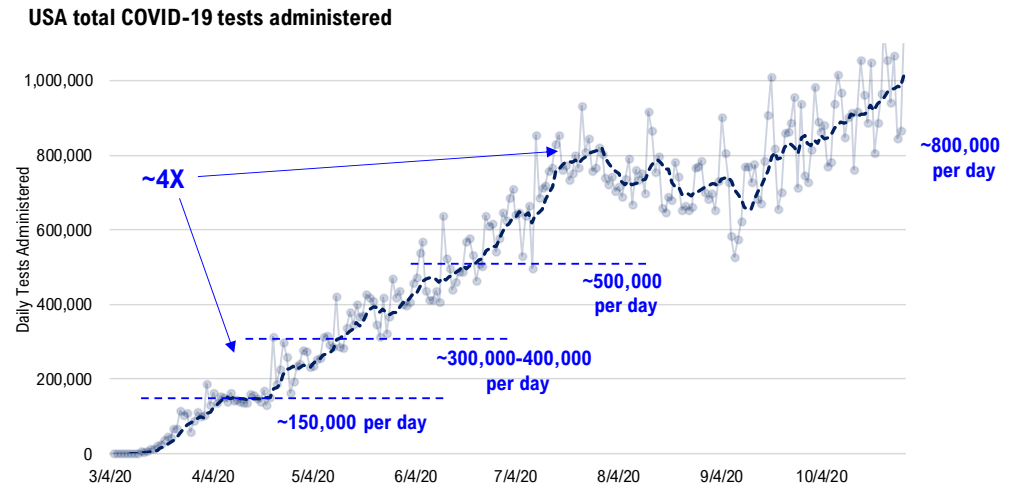
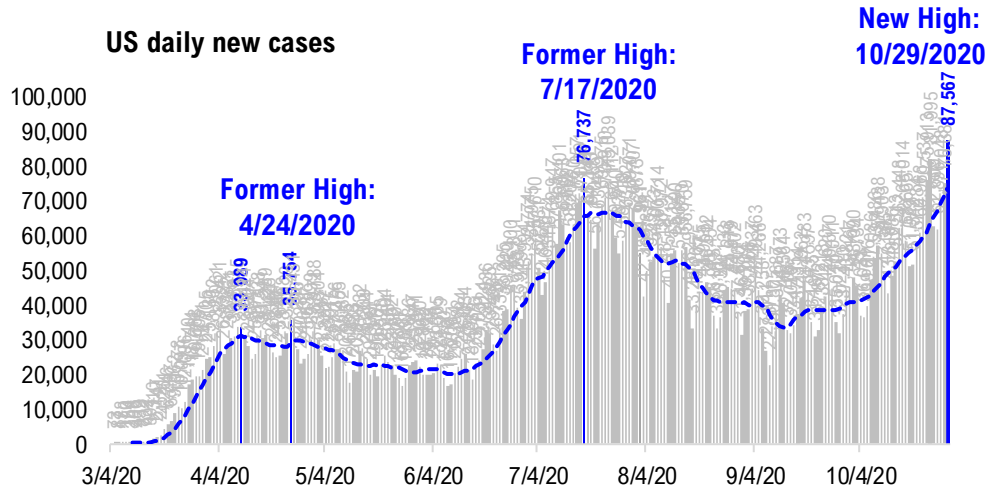


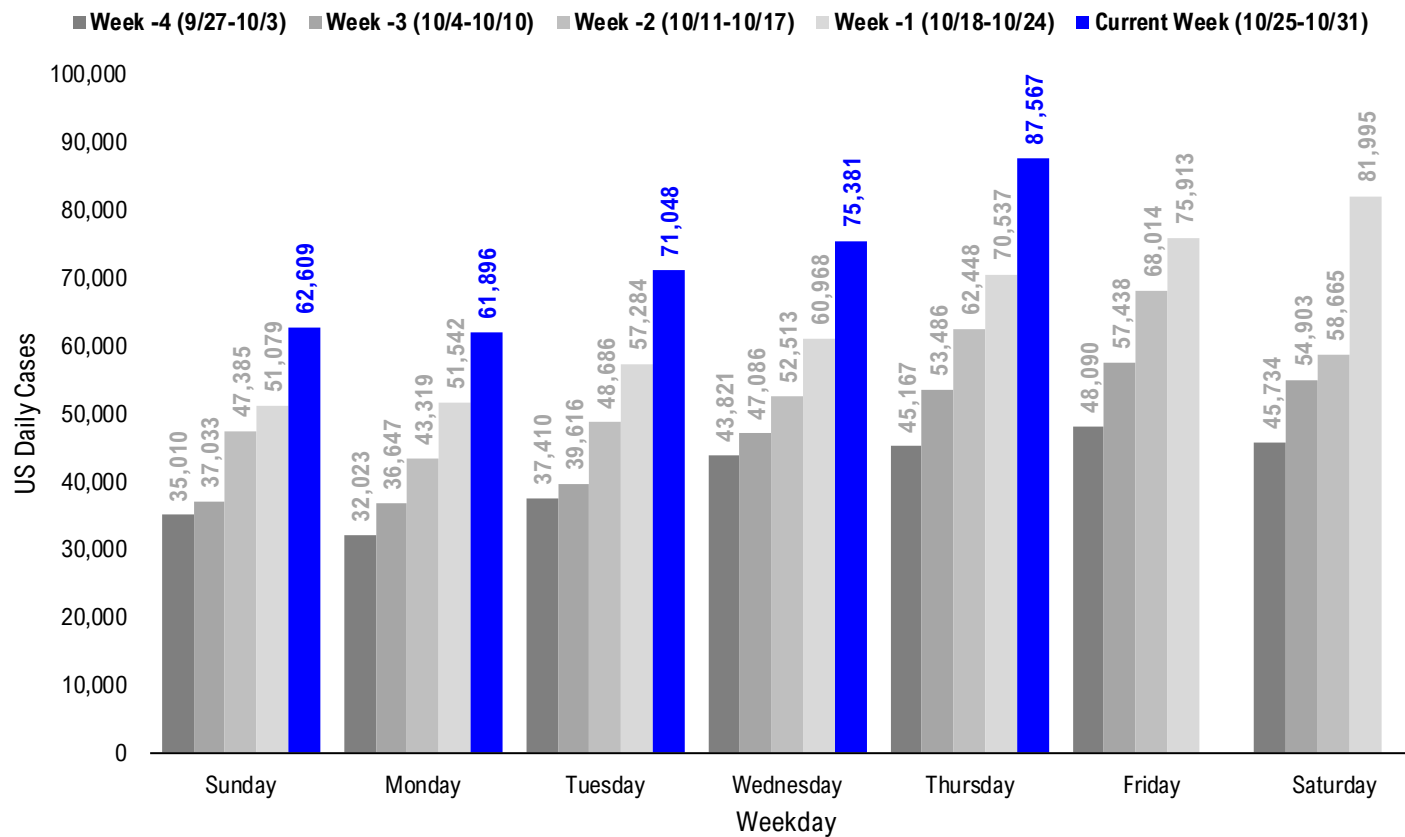
FSInsight Daily COVID-19 Chartbook



#1: USA COVID-19 Situation at a Glance...



#2: USA COVID-19 Daily Cases Weekday Seasonality (Past 4 Weeks) ...



#3: USA State COVID-19 Situation at a Glance...

	Sorted Daily Cases		Daily Cases (3D avg) per 1mm residents				Hospitalization			
	% US Pop	% US GDP	7D		Since Peak		7D Net Hospitalization	7D Net Hospitalization / 7D New Cases		
			10/29	Delta	10/29	Delta		# Days	% Decline in Daily Cases	
United States	100%	100%	87.567	+17.030	238	+46	0	0%	5.086	1.0%

	Sorted Daily Cases		Daily Cases (3D avg) per 1mm residents				Hospitalization			
	% US Pop	% US GDP	7D		Since Peak		7D Net Hospitalization	7D Net Hospitalization / 7D New Cases		
			10/29	Delta	10/29	Delta		# Days	% Decline in Daily Cases	
United States	100%	100%	87.567	+17.030	238	+46	0	0%	5.086	1.0%

States:

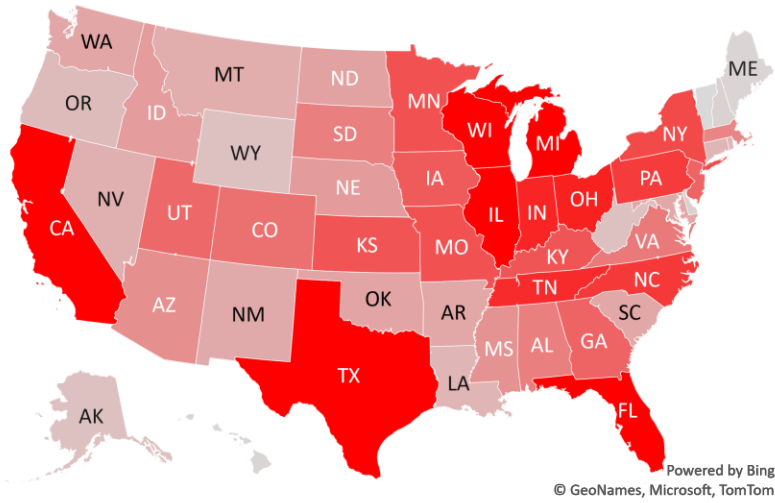
1 Texas	8.7%	8.8%	6,430	+513	215	+33	104	-48%	656	1.7%
2 Illinois	3.8%	4.2%	6,363	+1,421	433	+91	0	0%	567	1.6%
3 Wisconsin	1.8%	1.6%	4,870	+1,457	798	+100	0	0%	251	0.9%
4 Florida	6.5%	5.0%	4,198	-1,360	196	+19	108	-67%	273	1.0%
5 California	11.9%	14.6%	4,191	+1,251	100	+17	97	-66%	32	0.1%
6 Michigan	3.0%	2.6%	3,675	+1,802	311	+142	1	-2%	150	0.8%
7 Indiana	2.0%	1.8%	3,618	+768	403	+102	0	0%	218	1.2%
8 Ohio	3.5%	3.3%	3,590	+1,165	248	+54	0	0%	243	1.3%
9 Missouri	1.8%	1.5%	3,061	+1,207	362	+111	19	-17%	138	0.9%
10 North Carolina	3.2%	2.7%	2,885	+485	231	+46	5	-5%	-24	(0.1%)
11 Minnesota	1.7%	1.8%	2,867	+1,306	410	+191	0	0%	283	2.0%
12 Tennessee	2.1%	1.8%	2,660	+614	342	+57	4	-28%	105	0.6%
13 New York	5.9%	8.1%	2,499	+871	112	+29	202	-79%	99	0.8%
14 Pennsylvania	3.9%	3.8%	2,202	+139	187	+56	0	0%	187	1.3%
15 Iowa	1.0%	0.9%	1,940	+505	484	+155	0	0%	75	0.8%
16 Utah	1.0%	0.9%	1,837	+294	474	+59	4	-15%	20	0.2%
17 Georgia	3.2%	2.9%	1,823	+38	156	+23	96	-61%	78	0.7%
18 Kentucky	1.3%	1.0%	1,811	+508	406	+103	0	0%	169	1.7%
19 Colorado	1.7%	1.8%	1,806	+433	273	+50	3	-18%	189	1.6%
20 New Jersey	2.7%	3.0%	1,550	+388	183	+63	207	-59%	220	2.2%
21 Alabama	1.5%	1.1%	1,443	+53	260	+17	96	-39%	149	1.6%
22 Virginia	2.6%	2.6%	1,429	+97	153	+25	81	-7%	-27	(0.3%)
23 Massachusetts	2.1%	2.8%	1,346	+297	183	+51	187	-64%	40	0.5%
24 Connecticut	1.1%	1.3%	1,319	+817	219	+93	190	-48%	89	1.8%
25 Arizona	2.2%	1.7%	1,315	+321	161	+23	119	-73%	26	0.3%
26 North Dakota	0.2%	0.3%	1,223	+336	1264	+207	0	0%	11	0.2%
27 Nebraska	0.6%	0.6%	1,169	+270	474	+88	12	-13%	83	1.3%
28 New Mexico	0.6%	0.5%	1,078	+416	368	+39	4	-7%	110	2.0%

States:

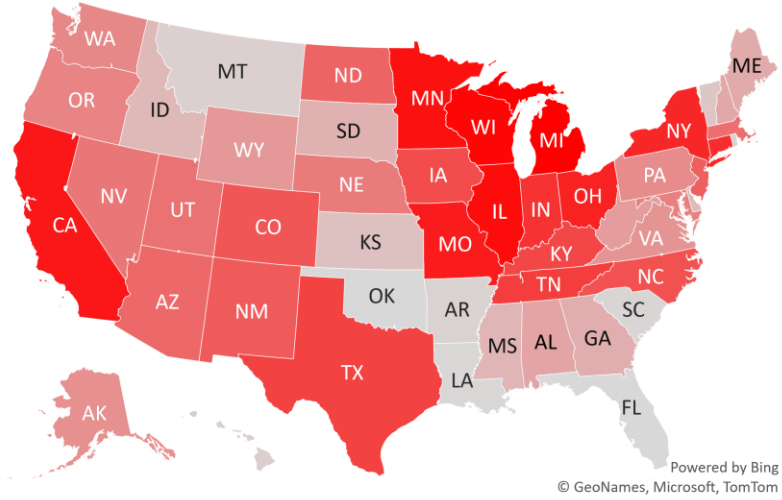
29 Nevada	0.9%	0.8%	1,075	+286	257	+40	103	-41%	74	1.3%
30 Oklahoma	1.2%	1.0%	1,041	-587	235	-136	5	-42%	-36	(0.5%)
31 South Dakota	0.3%	0.3%	1,000	+27	1228	+406	0	0%	58	0.8%
32 South Carolina	1.6%	1.1%	978	-215	171	-21	89	-68%	34	0.5%
33 Mississippi	0.9%	0.6%	970	+12	316	+38	91	-39%	4	0.1%
34 Maryland	1.8%	2.0%	962	+219	140	+40	161	-33%	44	0.8%
35 Idaho	0.5%	0.4%	961	+11	505	-20	5	-11%	93	1.5%
36 Montana	0.3%	0.2%	887	-41	734	+32	5	-3%	20	0.4%
37 Arkansas	0.9%	0.6%	837	-56	241	-36	6	-25%	44	0.8%
38 Washington	2.3%	2.7%	814	+163	90	+8	14	-35%	16	0.3%
39 Puerto Rico	1.0%	0.5%	752	+665	113	+43	4	-44%	30	0.9%
40 Oregon	1.3%	1.2%	565	+198	107	+27	0	0%	41	1.4%
41 West Virginia	0.5%	0.4%	402	+79	231	+89	0	0%	50	2.1%
42 Louisiana	1.4%	1.3%	392	-383	128	-30	100	-78%	14	0.4%
43 Rhode Island	0.3%	0.3%	368	-103	405	+13	6	-12%	-1	(0.0%)
44 Wyoming	0.2%	0.2%	361	+90	593	+128	1	-7%	28	1.2%
45 Alaska	0.2%	0.3%	359	+127	499	+201	2	-13%	48	1.8%
46 Delaware	0.3%	0.4%	161	+8	132	+18	184	-61%	-11	(1.1%)
47 New Hampshire	0.4%	0.4%	127	+50	91	+30	180	-1%	12	1.6%
48 District of Columbi	0.2%	0.7%	101	+62	124	+57	179	-62%	7	1.3%
49 Guam	0.0%	0.0%	83	-5	428	-175	63	-34%	7	1.4%
50 Maine	0.4%	0.3%	80	+43	53	+28	0	0%	8	2.0%
51 Hawaii	0.4%	0.5%	77	-25	48	-16	61	-77%	-14	(2.1%)
52 Vermont	0.2%	0.2%	16	-1	30	+8	207	-67%	3	2.0%
53 U.S. Virgin Islands	0.0%	0.0%	0	-6	16	-9	69	-96%	0	0.0%
54 Northern Mariana	0.0%	0.0%	0	+0	0	-12	11	-100%	0	0.0%
55 Kansas	0.9%	0.8%	0	+0	214	+44	1	-53%	103	1.8%
56 American Samoa	0.0%	0.0%	0	+0	0	+0	0	0%	0	

#4: USA COVID-19 Heat Map...

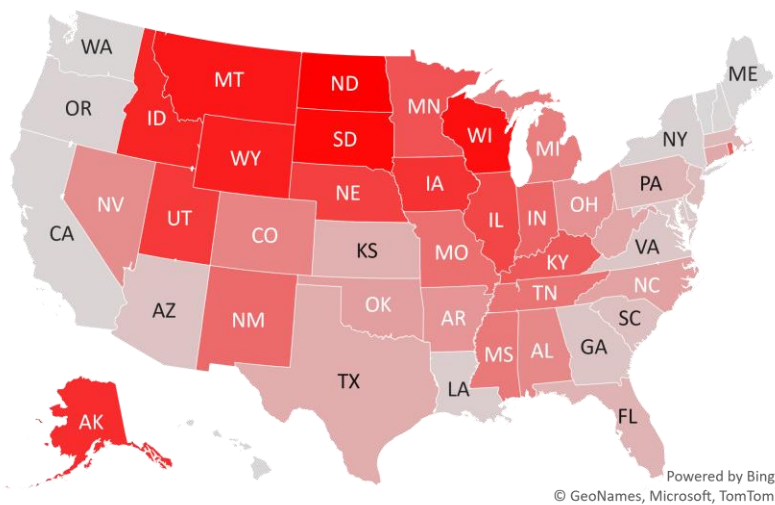
Daily Case Increases



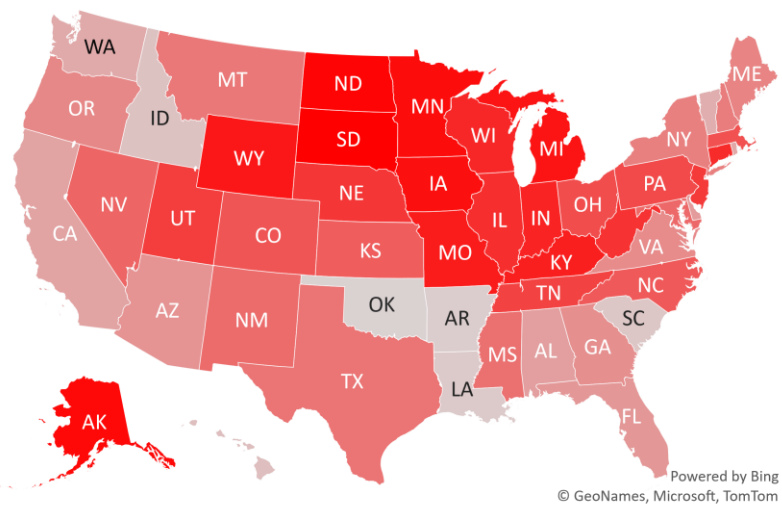
7D Delta in Daily New Cases



Daily Case Increases per 1mm Resident (3D Avg)



7D Delta in Daily New Cases per 1mm (3D Avg)



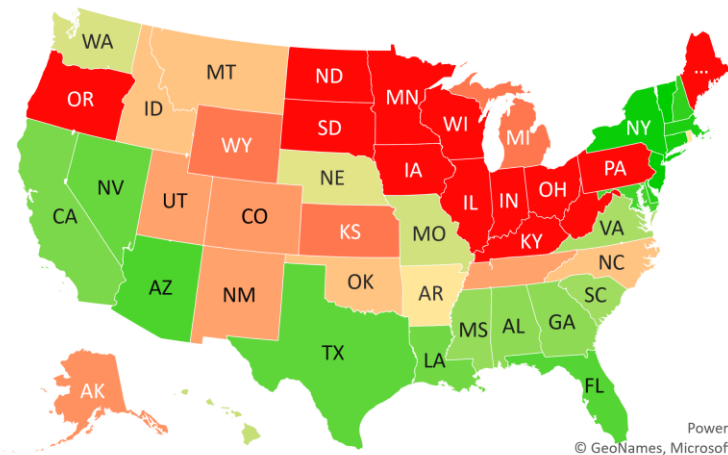
#5: # of Days since Daily Case Peaked by States...

Days since Daily Cases (3D Avg) Peak (as of 10/29)

	Sorted			
	Peak Date	10/29/20	% off the Peak	% US Pop
United States	10/29/20	0	0%	100%
States:				
Vermont	4/5/20	207	-67%	0.2%
New Jersey	4/5/20	207	-59%	2.7%
New York	4/10/20	202	-79%	5.9%
Connecticut	4/22/20	190	-48%	1.1%
Massachusetts	4/25/20	187	-64%	2.1%
Delaware	4/28/20	184	-61%	0.3%
New Hampshire	5/2/20	180	-1%	0.4%
District of Columbia	5/3/20	179	-62%	0.2%
Maryland	5/21/20	161	-33%	1.8%
Arizona	7/2/20	119	-73%	2.2%
Florida	7/13/20	108	-67%	6.5%
Texas	7/17/20	104	-48%	8.7%
Nevada	7/18/20	103	-41%	0.9%
Louisiana	7/21/20	100	-78%	1.4%
California	7/24/20	97	-66%	11.9%
Georgia	7/25/20	96	-61%	3.2%
Alabama	7/25/20	96	-39%	1.5%
Mississippi	7/30/20	91	-39%	0.9%
South Carolina	8/1/20	89	-68%	1.6%
Virginia	8/9/20	81	-7%	2.6%
U.S. Virgin Islands	8/21/20	69	-96%	0.0%
Guam	8/27/20	63	-34%	0.0%
Hawaii	8/29/20	61	-77%	0.4%
Missouri	10/10/20	19	-17%	1.8%
Washington	10/15/20	14	-35%	2.3%
Nebraska	10/17/20	12	-13%	0.6%
Northern Mariana Island	10/18/20	11	-100%	0.0%
Rhode Island	10/23/20	6	-12%	0.3%

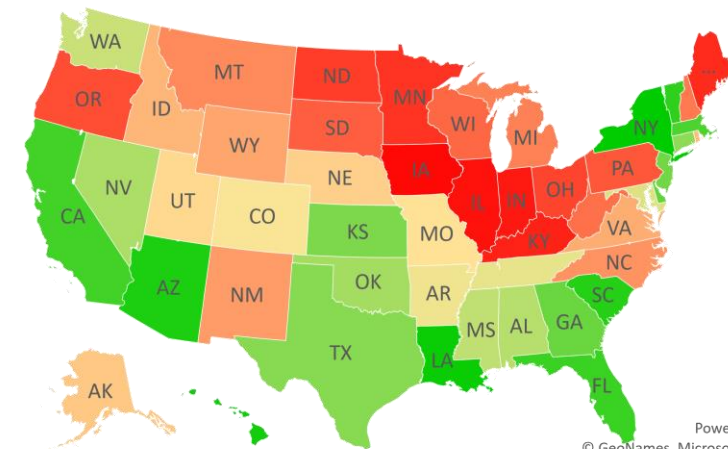
	Sorted			
	Peak Date	10/29/20	% off the Peak	% US Pop
United States	10/29/20	0	0%	100%
States:				
Arkansas	10/23/20	6	-25%	0.9%
Oklahoma	10/24/20	5	-42%	1.2%
North Carolina	10/24/20	5	-5%	3.2%
Montana	10/24/20	5	-3%	0.3%
Idaho	10/24/20	5	-11%	0.5%
Utah	10/25/20	4	-15%	1.0%
Tennessee	10/25/20	4	-28%	2.1%
Puerto Rico	10/25/20	4	-44%	1.0%
New Mexico	10/25/20	4	-7%	0.6%
Colorado	10/26/20	3	-18%	1.7%
Alaska	10/27/20	2	-13%	0.2%
Wyoming	10/28/20	1	-7%	0.2%
Michigan	10/28/20	1	-2%	3.0%
Kansas	10/28/20	1	-53%	0.9%
West Virginia	10/29/20	0	0%	0.5%
Wisconsin	10/29/20	0	0%	1.8%
South Dakota	10/29/20	0	0%	0.3%
Pennsylvania	10/29/20	0	0%	3.9%
Oregon	10/29/20	0	0%	1.3%
Ohio	10/29/20	0	0%	3.5%
North Dakota	10/29/20	0	0%	0.2%
Minnesota	10/29/20	0	0%	1.7%
Maine	10/29/20	0	0%	0.4%
Kentucky	10/29/20	0	0%	1.3%
Indiana	10/29/20	0	0%	2.0%
Illinois	10/29/20	0	0%	3.8%
Iowa	10/29/20	0	0%	1.0%

Days since Daily Case Peak: **Longer = Good**



Powered by Bing
© GeoNames, Microsoft, TomTom

Daily Cases % off the Peak: **Larger Decline = Good**



Powered by Bing
© GeoNames, Microsoft, TomTom

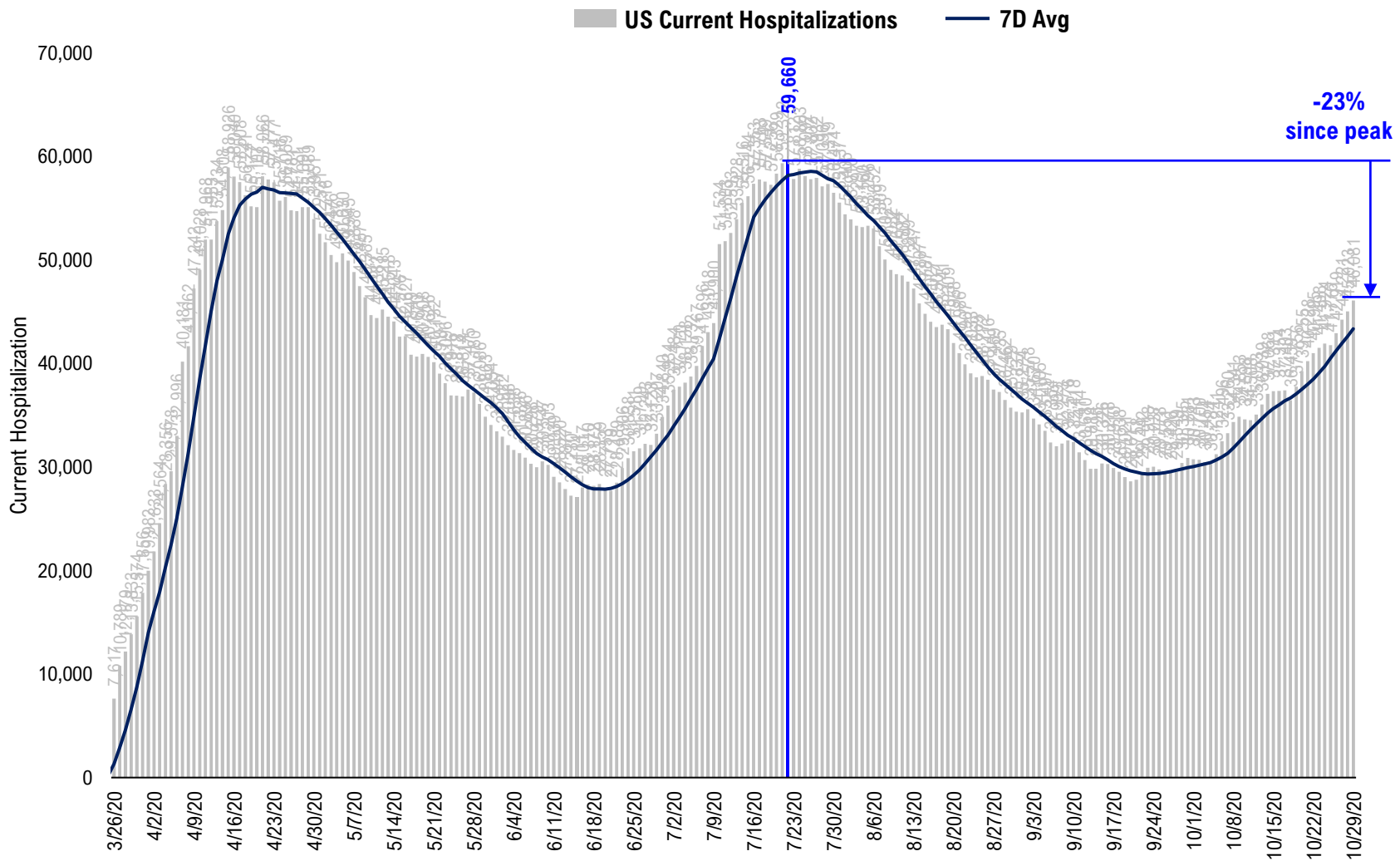
#6: US New Cases by States... (sorted by today's new cases)

	Sorted				
	7D Ago	Last 3-day Trend			
	10/22/20	10/27/20	10/28/20	10/29/20	vs 7D ago
United States	70,537	71,048	75,381	87,567	+17,030
States:					
Texas	5,917	7,055	5,175	6,430	
Illinois	4,942	4,000	6,110	6,363	<--higher
Wisconsin	3,413	5,262	3,815	4,870	<--higher
Florida	5,558	4,298	4,115	4,198	
California	2,940	3,188	4,515	4,191	<--higher
Michigan	1,873	2,367	3,271	3,675	<--higher
Indiana	2,850	1,983	2,548	3,618	<--higher
Ohio	2,425	2,509	2,607	3,590	<--higher
Missouri	1,854	1,695	1,915	3,061	<--higher
North Carolina	2,400	2,141	2,253	2,885	<--higher
Minnesota	1,561	2,164	1,908	2,867	<--higher
Tennessee	2,046	1,908	2,446	2,660	<--higher
New York	1,628	1,991	2,031	2,499	<--higher
Pennsylvania	2,063	2,751	2,228	2,202	
Iowa	1,435	857	1,781	1,940	<--higher
Utah	1,543	1,145	1,575	1,837	
Georgia	1,785	1,491	1,653	1,823	
Kentucky	1,303	1,771	1,857	1,811	<--higher
Colorado	1,373	1,433	1,475	1,806	<--higher
New Jersey	1,162	1,647	1,666	1,550	<--higher
Alabama	1,390	1,115	1,269	1,443	
Virginia	1,332	1,134	1,345	1,429	
Massachusetts	1,049	1,260	1,181	1,346	<--higher
Connecticut	502	538	490	1,319	<--higher
Arizona	994	1,158	1,043	1,315	<--higher
North Dakota	887	889	777	1,223	<--higher
Nebraska	899	702	877	1,169	<--higher
New Mexico	662	583	657	1,078	<--higher

	Sorted				
	7D Ago	Last 3-day Trend			
	10/22/20	10/27/20	10/28/20	10/29/20	vs 7D ago
United States	70,537	71,048	75,381	87,567	+17,030
States:					
Nevada	789	730	571	1,075	<--higher
Oklahoma	1,628	1,010	743	1,041	
South Dakota	973	989	1,270	1,000	
South Carolina	1,193	947	713	978	
Mississippi	958	854	1,000	970	
Maryland	743	897	684	962	<--higher
Idaho	950	882	862	961	
Montana	928	845	620	887	
Arkansas	893	651	690	837	
Washington	651	527	716	814	<--higher
Puerto Rico	87	263	66	752	<--higher
Oregon	367	372	420	565	<--higher
West Virginia	323	483	358	402	<--higher
Louisiana	775	885	503	392	
Rhode Island	471	421	499	368	
Wyoming	271	329	340	361	<--higher
Alaska	232	382	355	359	<--higher
Delaware	153	81	143	161	
New Hampshire	77	134	110	127	<--higher
District of Columbia	39	94	67	101	<--higher
Guam	88	82	48	83	
Maine	37	57	76	80	<--higher
Hawaii	102	65	62	77	
Vermont	17	30	11	16	
U.S. Virgin Islands	6	3	2	0	
Northern Mariana Islands	0	0	0	0	
Kansas	0	0	1,869	0	
American Samoa	0	0	0	0	

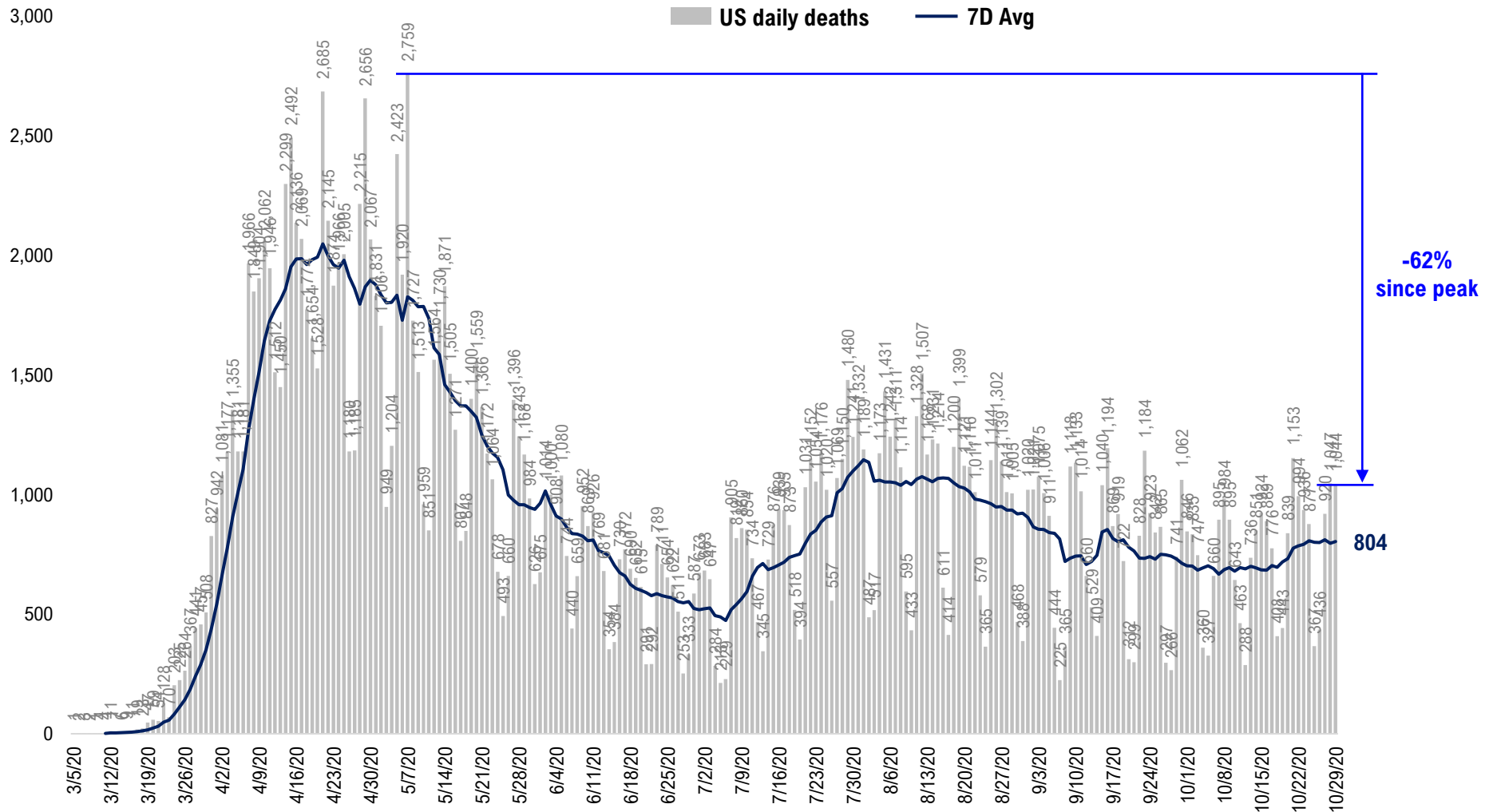
#7: US Daily Hospitalizations...

US Net Hospitalizations (aggregate of 50 states + Washington, D.C.)



#8: US Daily New Fatalities...

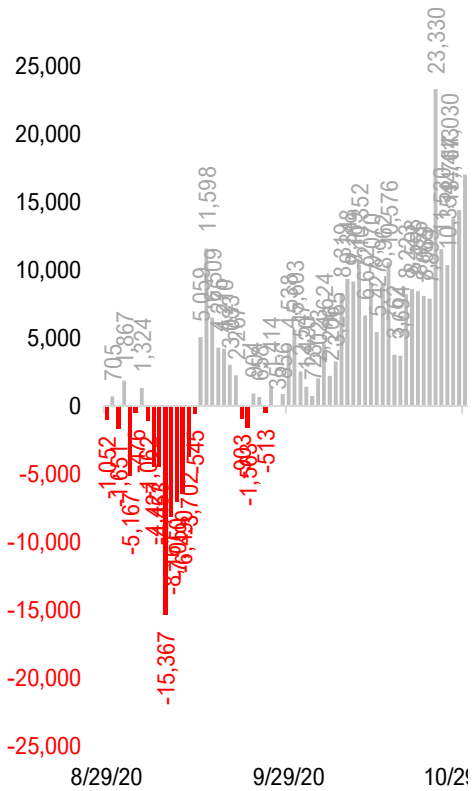
US daily COVID-19 Fatalities



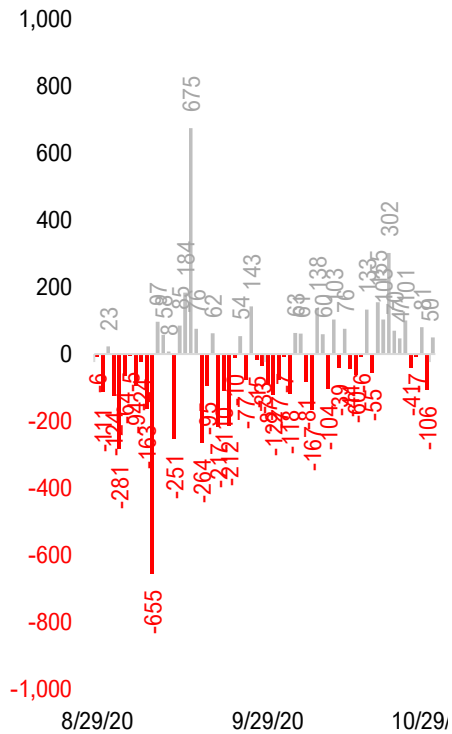
Source: Fundstrat, COVID-19 Tracking Project, State Department of Health

#9: Rolling 7-Day Change in the Key Metrics... (Past 8 Weeks)

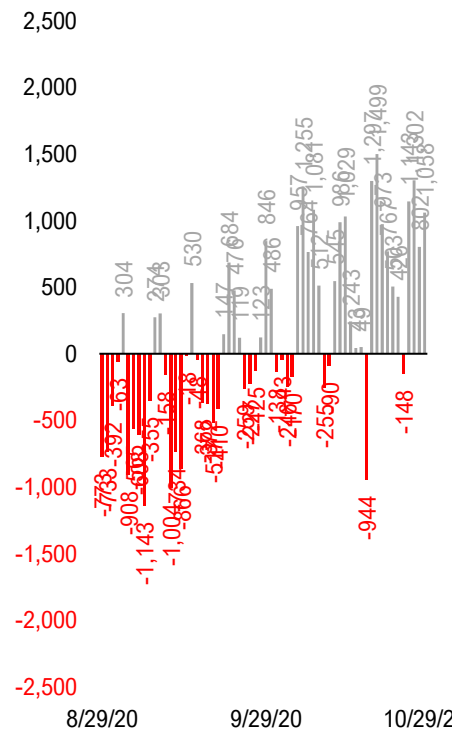
Daily New Cases
(8/10-8/23 ex-CA; 9/4-9/5 ex-IL)



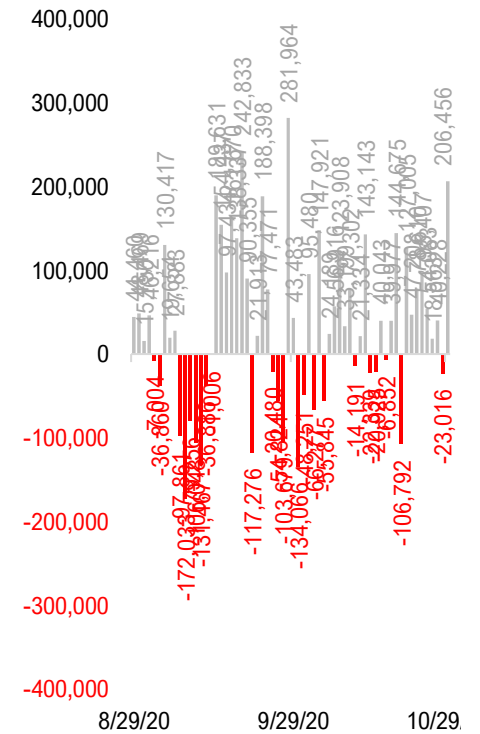
Daily Deaths



Daily Net Hospitalization
(Red = more discharge than admission)

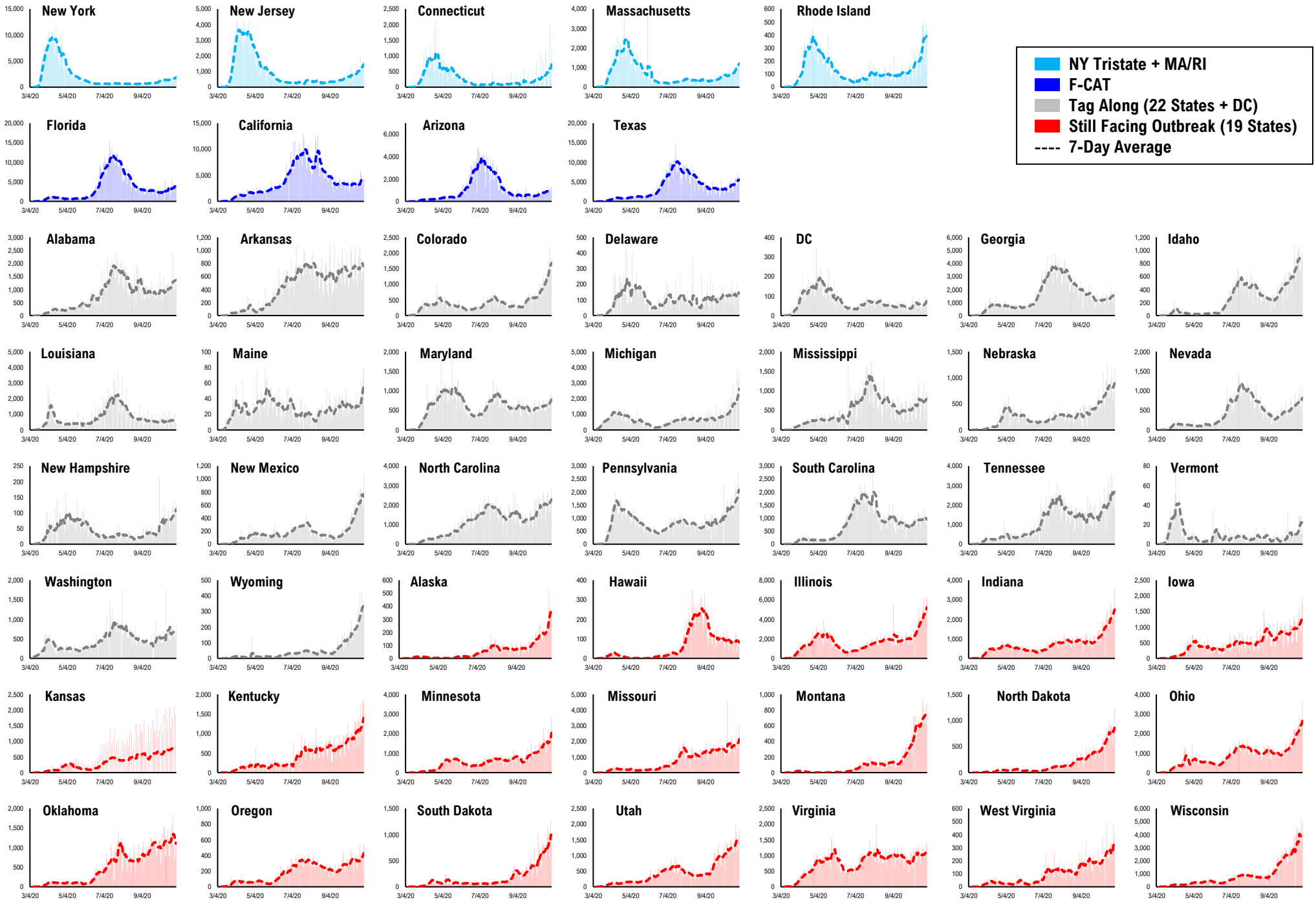


Daily Tests

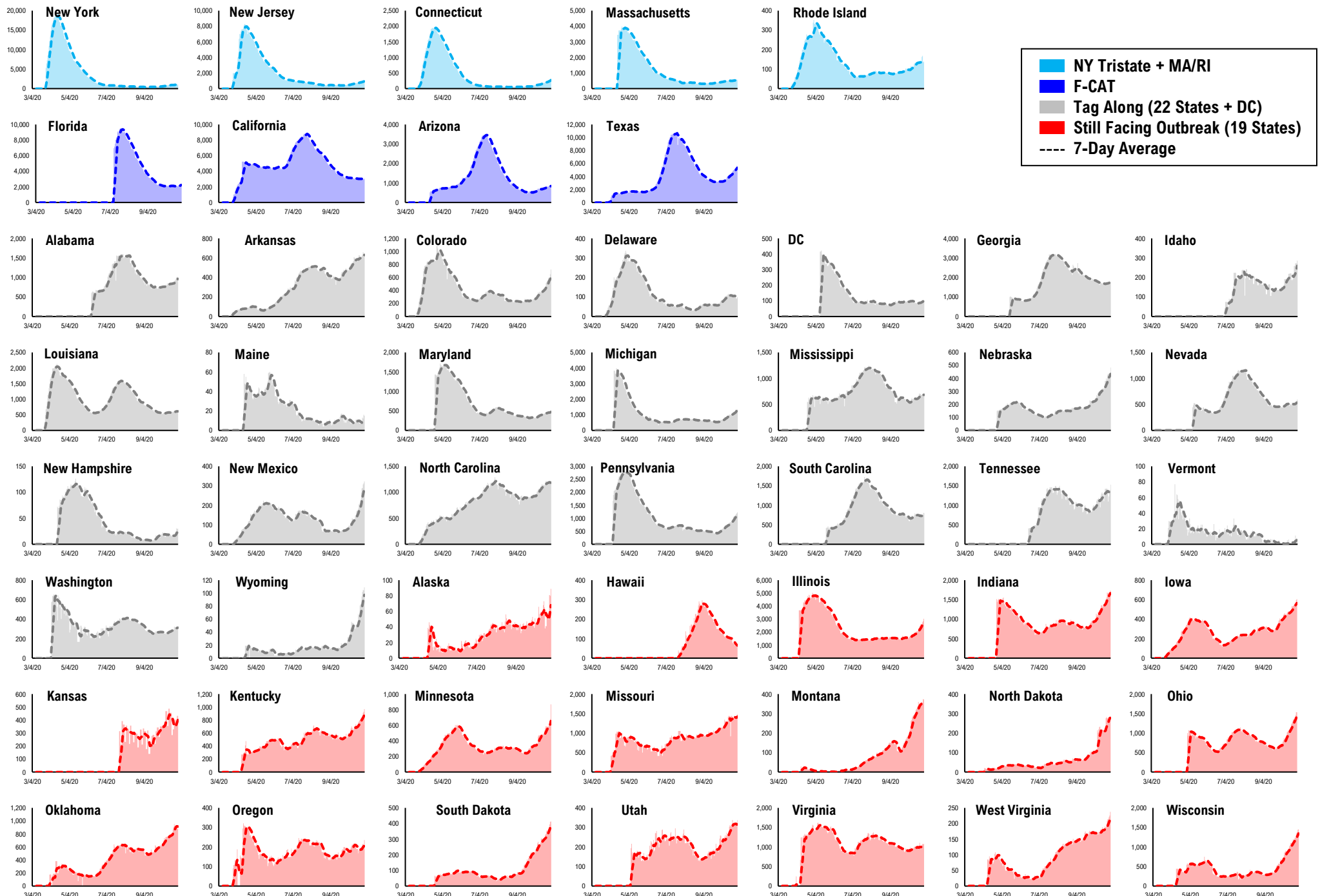


* Ignored California between 8/10 and 8/23, due to its data glitch caused 300,000-case backlog
Source: Fundstrat, COVID-19 Tracking Project, State Department of Health

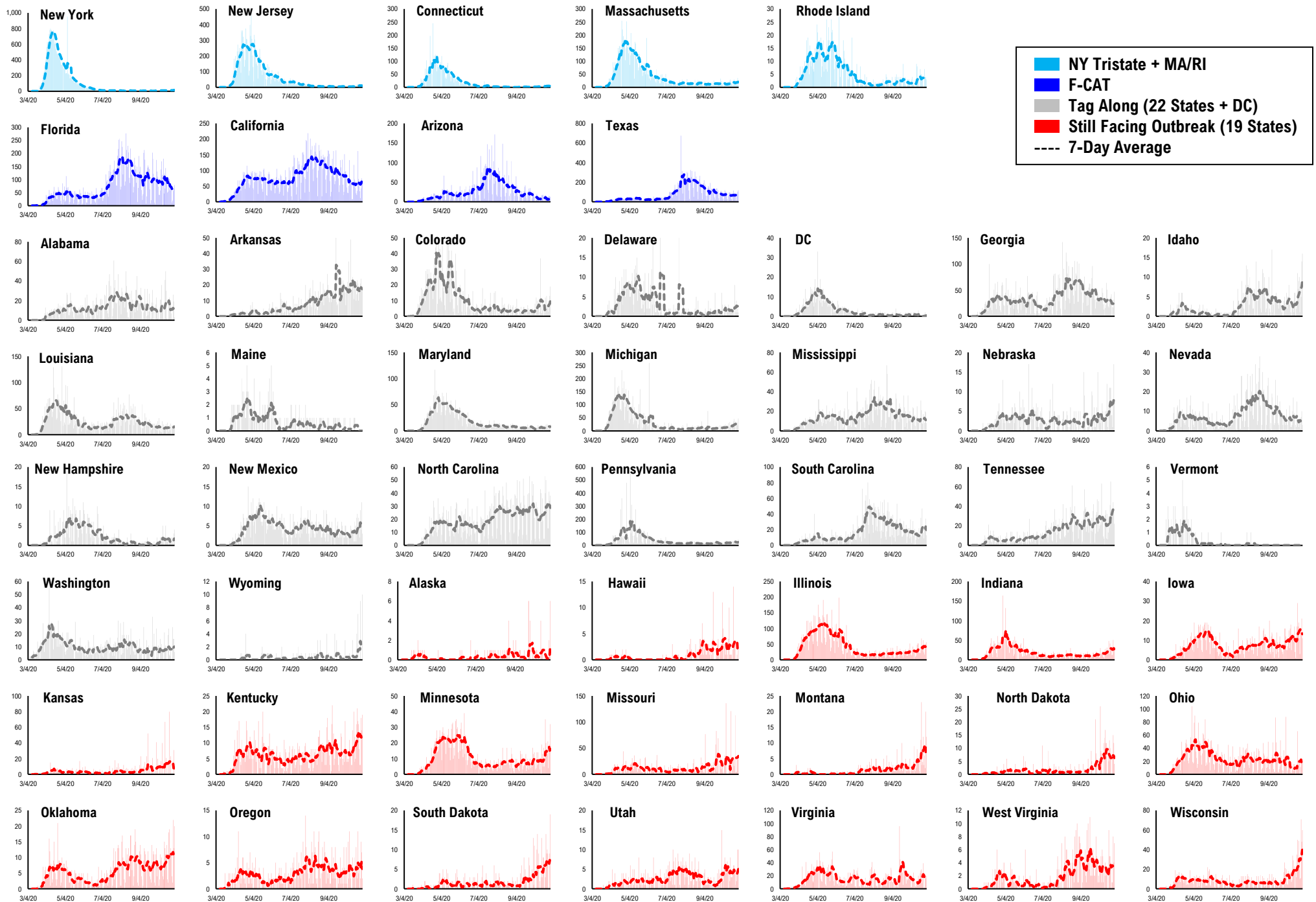
#10: Daily New Cases by States...



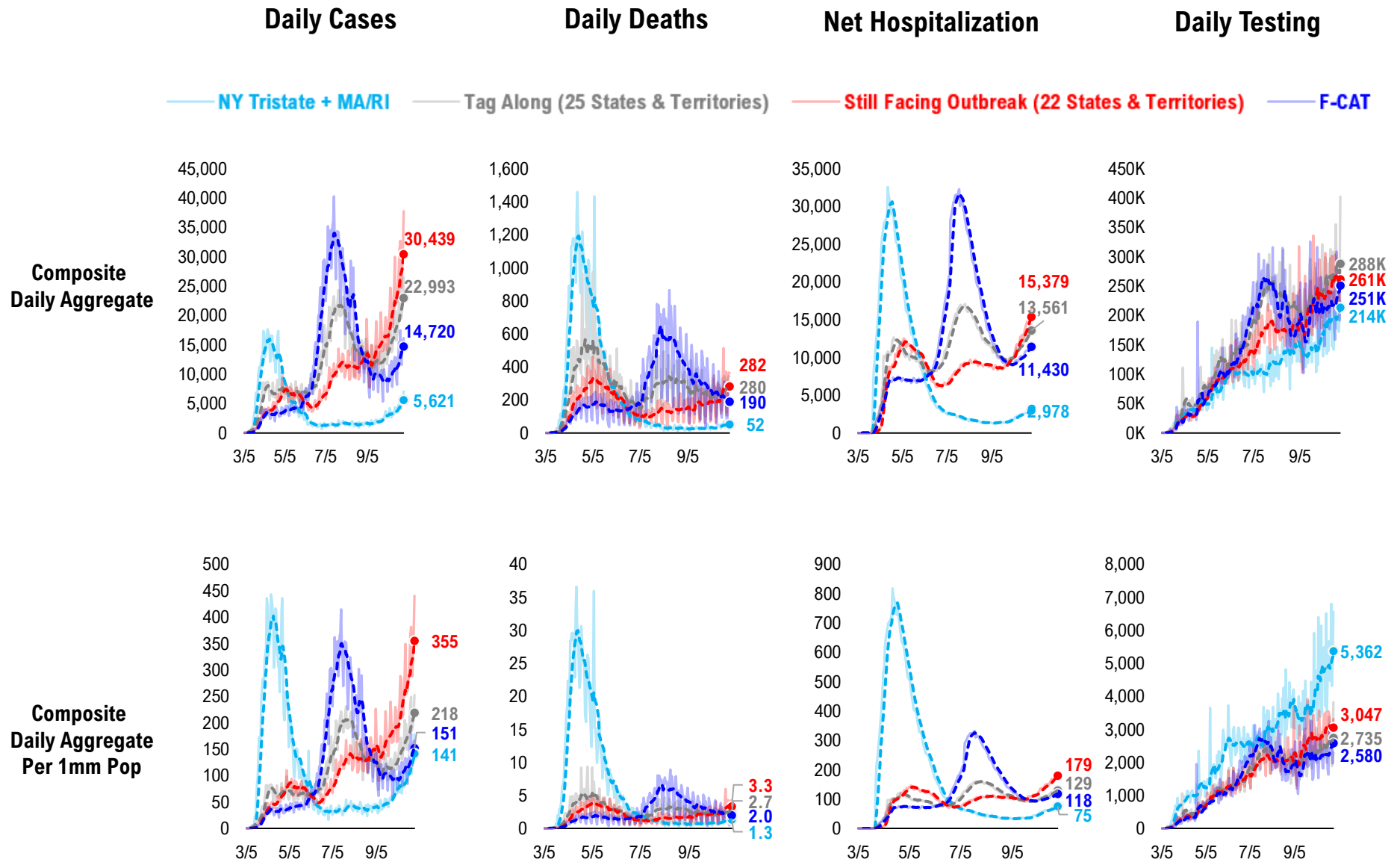
#11: Current Hospitalizations by States...



#12: Daily New Deaths by States...

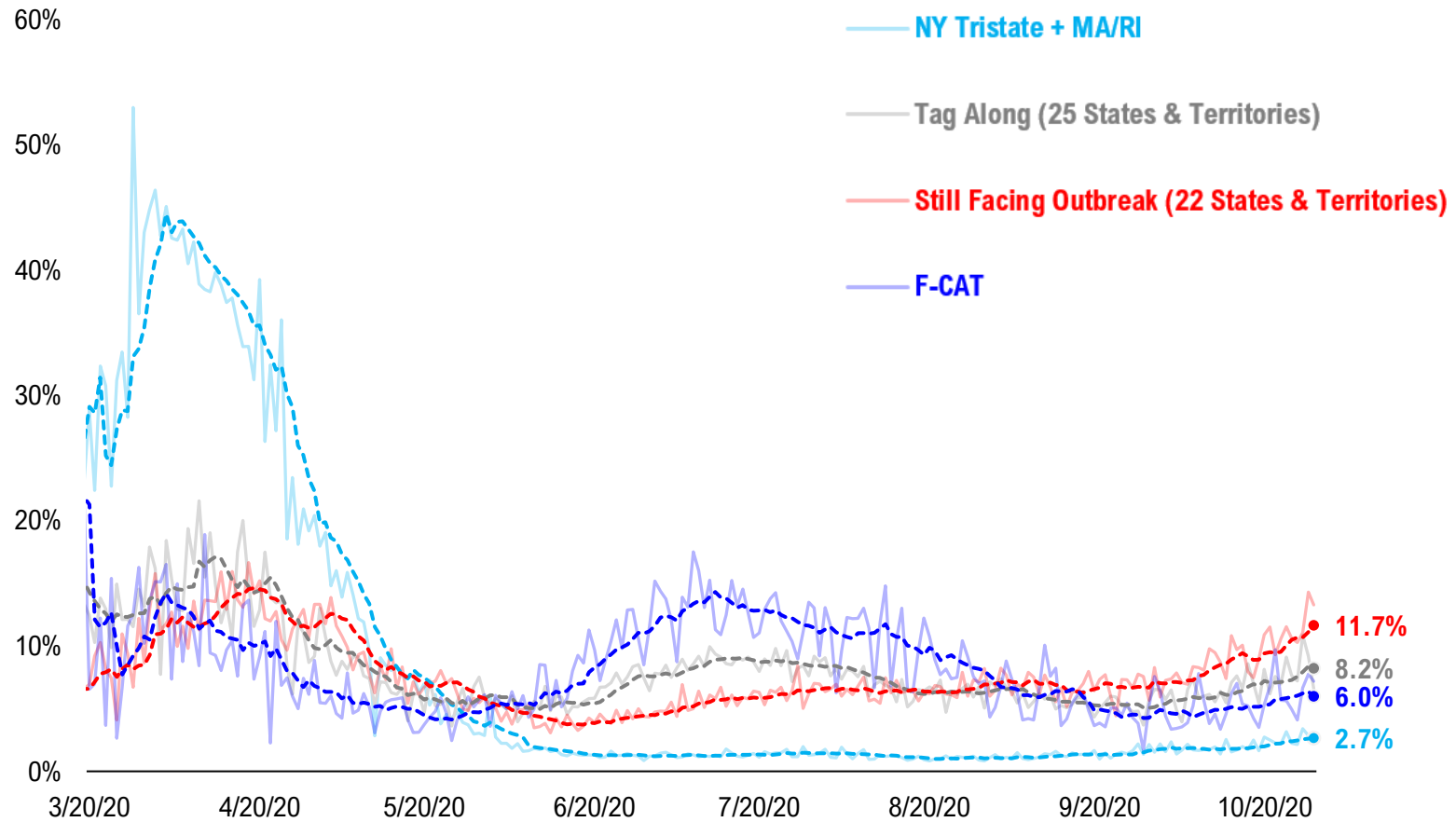


#13: State COVID-19 situation by Tier...

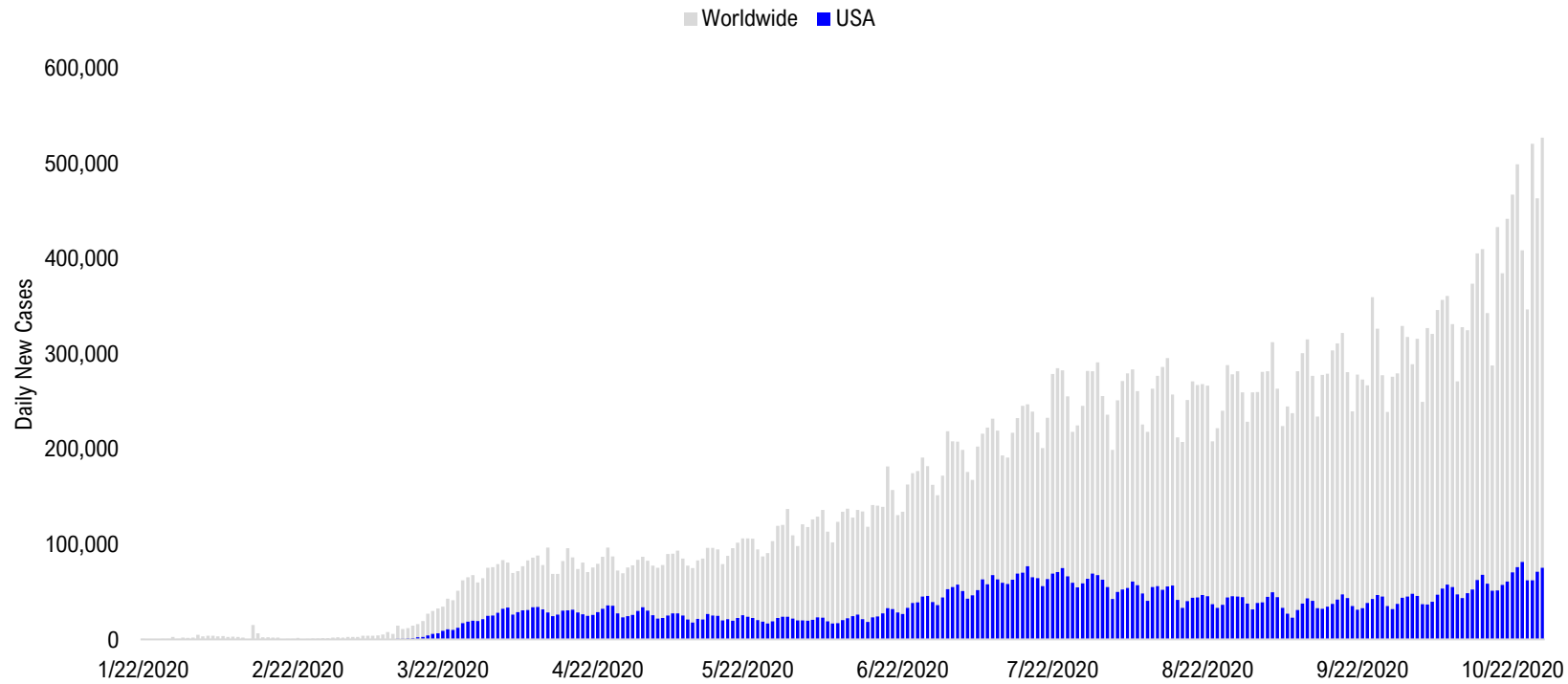


#14: State COVID-19 Daily Positivity Rate by Tier...

Composite Daily Positivity Rate



#15: Global COVID-19 Situation at a Glance...



6/12/2020	6/26/2020	7/10/2020	7/24/2020	8/7/2020	8/21/2020	9/4/2020	9/18/2020	10/2/2020	10/16/2020	10/28/2020
Latin America 51,123	Latin America 68,227	Latin America 73,176	Latin America 97,008	Latin America 97,310	Latin America 85,471	Latin America 88,295	Pakistan + India + Bangladesh 98,115	Pakistan + India + Bangladesh 84,614	Europe 156,633	Europe 282,995
US + Canada 22,798	US + Canada 41,092	US + Canada 63,055	US + Canada 72,289	Pakistan + India + Bangladesh 63,674	Pakistan + India + Bangladesh 72,740	Pakistan + India + Bangladesh 87,400	Latin America 76,730	Europe 77,734	Latin America 67,985	US + Canada 72,651
Pakistan + India + Bangladesh 18,309	Pakistan + India + Bangladesh 24,668	Pakistan + India + Bangladesh 32,386	Pakistan + India + Bangladesh 52,184	US + Canada 56,201	US + Canada 45,159	US + Canada 44,962	Europe 57,930	Latin America 61,017	Pakistan + India + Bangladesh 66,697	Latin America 60,403
Europe 18,149	Europe 17,889	Africa 17,127	Africa 20,063	Europe 23,878	Europe 32,466	Europe 40,116	US + Canada 43,204	US + Canada 47,714	US + Canada 63,432	Pakistan + India + Bangladesh 45,671
Africa 7,322	Africa 11,684	Europe 16,204	Europe 18,765	Africa 14,390	Africa 10,566	Asia ex- India+Pakistan 8,720	Asia ex- India+Pakistan 10,763	Asia ex- India+Pakistan 11,417	Asia ex- India+Pakistan 13,578	Asia ex- India+Pakistan 11,330
Asia ex- India+Pakistan 3,064	Asia ex- India+Pakistan 3,866	Asia ex- India+Pakistan 7,373	Asia ex- India+Pakistan 8,636	Asia ex- India+Pakistan 10,424	Asia ex- India+Pakistan 10,047	Africa 8,318	Africa 7,997	Africa 8,146	Africa 10,428	Africa 10,420

Disclosures

This research is for the clients of FS Insight only. For important disclosures and rating histories regarding sectors or companies that are the subject of this report, please contact your sales representative or FS Insight at 150 East 52nd Street, New York, NY, 10022 USA.

Analyst Certification (Reg AC)

Thomas J. Lee, the research analyst denoted by an “AC” on the cover of this report, hereby certifies that all of the views expressed in this report accurately reflect his personal views, which have not been influenced by considerations of the firm’s business or client relationships.

Neither I, nor a member of my household is an officer, director, or advisory board member of the issuer(s) or has another significant affiliation with the issuer(s) that is/are the subject of this research report. There is a possibility that we will from time to time have long or short positions in, and buy or sell, the securities or derivatives, if any, referred to in this research

Conflicts of Interest

This research contains the views, opinions and recommendations of FS Insight . As of the time of writing and publication of this presentation, FS Insight does not know of, or have reason to know of any material conflicts of interest at the time of the publication of this presentation. The Company has no contractual relationship, nor have we received any compensation from any of the companies listed in this research report.

Analyst Industry/Sector Views

Positive (+): The analyst expects the performance of his industry/sector coverage universe over the next 6-18 months to be attractive vs. the relevant broad market benchmark, being the S&P 500 for North America.

Neutral (N): The analyst expects the performance of his or her industry/sector coverage universe over the next 6-18 months to be in line with the relevant broad market benchmark, being the S&P 500 for North America.

Negative (-): The analyst expects his or her industry coverage universe over the next 6-18 months to underperform vs. the relevant broad market benchmark, being the S&P 500 for North America.

General Disclosures

FS Insight is an independent research company and is not a registered investment advisor and is not acting as a broker dealer under any federal or state securities laws. FS Insight is a member of IRC Securities’ Research Prime Services Platform. IRC Securities is a FINRA registered broker-dealer that is focused on supporting the independent research industry. Certain personnel of FS Insight (i.e. Research Analysts) are registered representatives of IRC Securities, a FINRA member firm registered as a broker-dealer with the Securities and Exchange Commission and certain state securities regulators. As registered representatives and independent contractors of IRC Securities, such personnel may receive commissions paid to or shared with IRC Securities for transactions placed by FS Insight clients directly with IRC Securities or with securities firms that may share commissions with IRC Securities in accordance with applicable SEC and FINRA requirements. IRC Securities does not distribute the research of FS Insight , which is available to select institutional clients that have engaged FS Insight .

As registered representatives of IRC Securities our analysts must follow IRC Securities’ Written Supervisory Procedures. Notable compliance policies include (1) prohibition of insider trading or the facilitation thereof, (2) maintaining client confidentiality, (3) archival of electronic communications, and (4) appropriate use of electronic communications, amongst other compliance related policies.

FS Insight does not have the same conflicts that traditional sell-side research organizations have because FS Insight (1) does not conduct any investment banking activities, (2) does not manage any investment funds, and (3) our clients are only institutional investors.

This research is for the clients of FS Insight only. Additional information is available upon request. Information has been obtained from sources believed to be reliable but FS Insight does not warrant its completeness or accuracy except with respect to any disclosures relative to FS Insight and the analyst’s involvement (if any) with any of the subject companies of the research. All pricing is as of the market close for the securities discussed, unless otherwise stated. Opinions and estimates constitute our judgment as of the date of this material and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, risk tolerance, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies. The recipient of this report must make its own independent decision regarding any securities or financial instruments mentioned herein. Except in circumstances where FS Insight expressly agrees otherwise in writing, FS Insight is not acting as a municipal advisor and the opinions or views contained herein are not intended to be, and do not constitute, advice, including within the meaning of Section 15B of the Securities Exchange Act of 1934. All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client website, FS Insight .com. Not all research content is redistributed to our clients or made available to third-party aggregators or the media. Please contact your sales representative if you would like to receive any of our research publications.

Copyright 2020 FS Insight LLC. All rights reserved. No part of this material may be reprinted, sold or redistributed without the prior written consent of FS Insight LLC.