

COVID-19 Chartbook

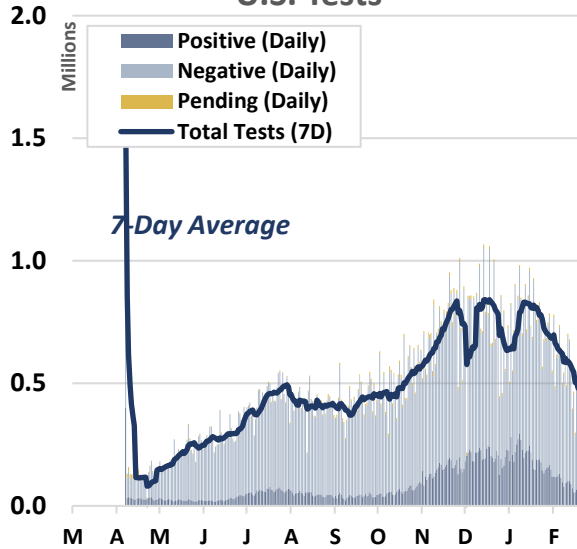
Craig Dismuke
Chief Economist
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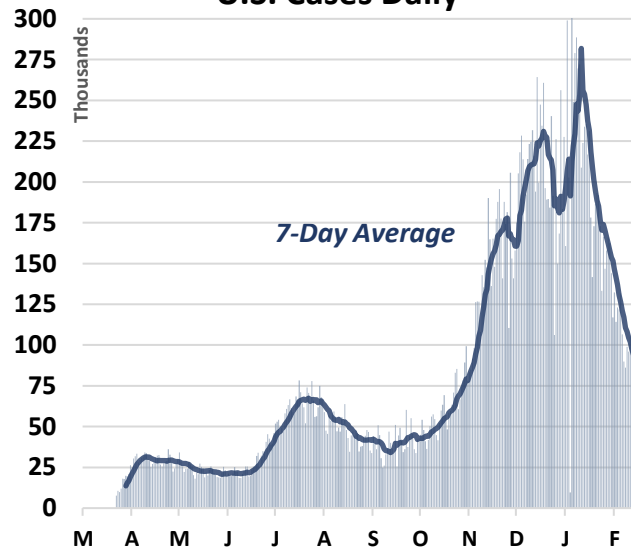
U.S. COVID SITUATION

CURRENT DISPOSITION OF CASES

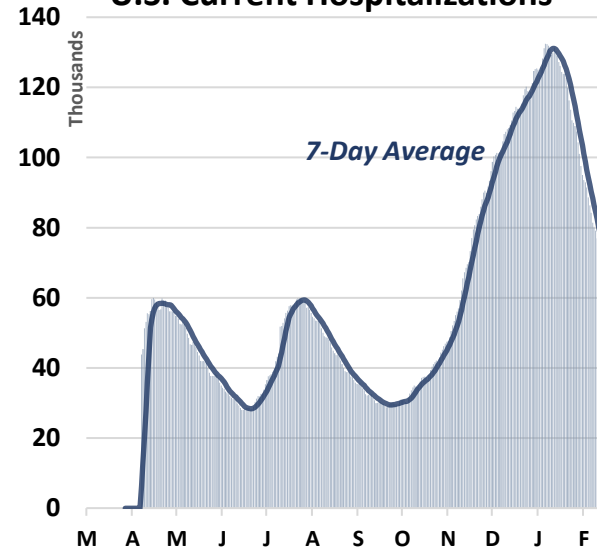
U.S. Tests



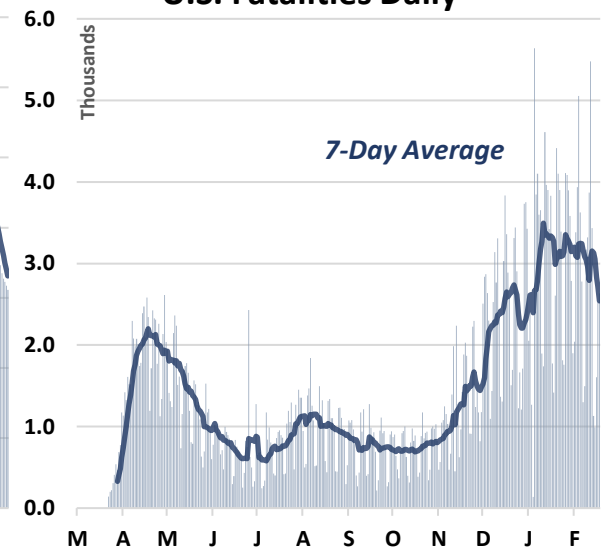
U.S. Cases Daily



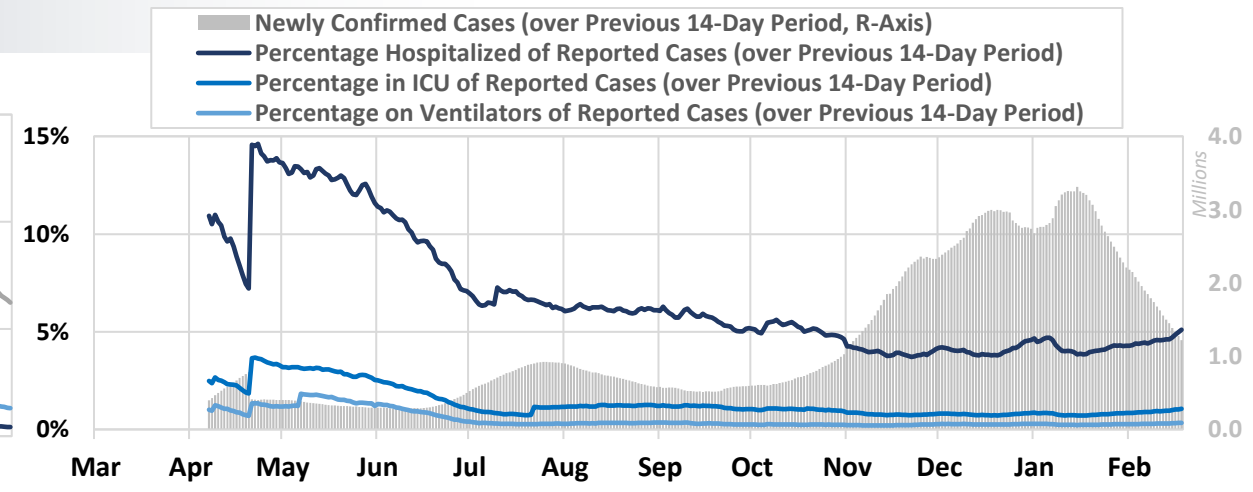
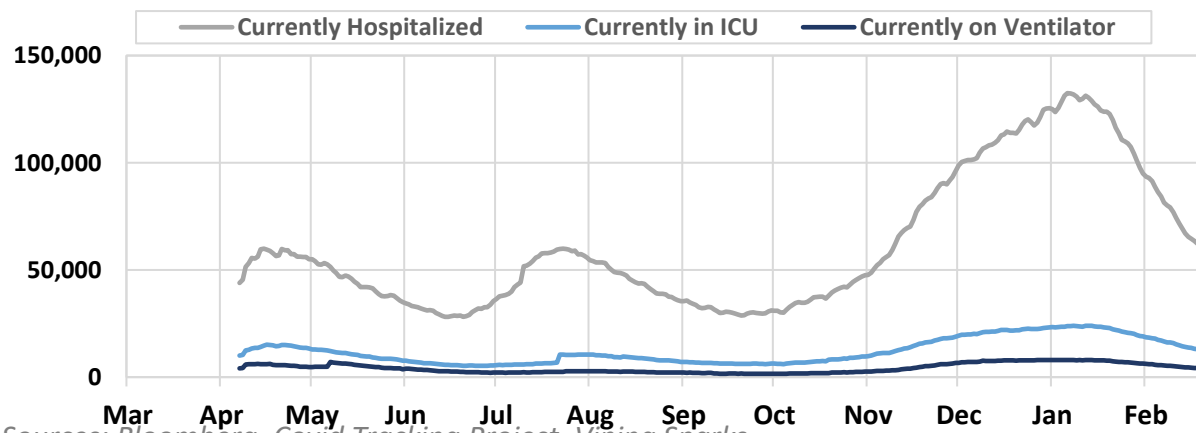
U.S. Current Hospitalizations



U.S. Fatalities Daily

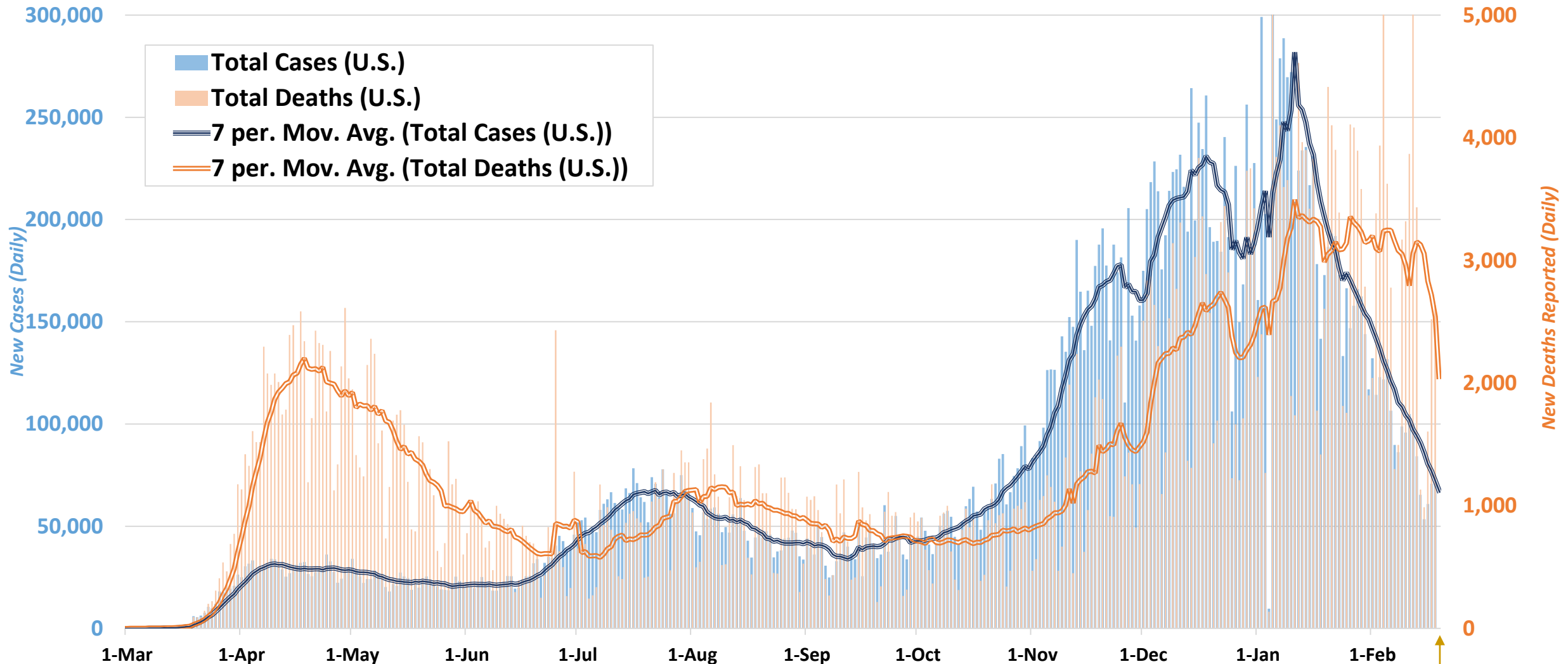


Medical Disposition of Cases



COVID-19 DAILY GROWTH U.S.

DAILY INCREASE IN NUMBER OF CASES AND DAILY GROWTH RATE IN U.S.

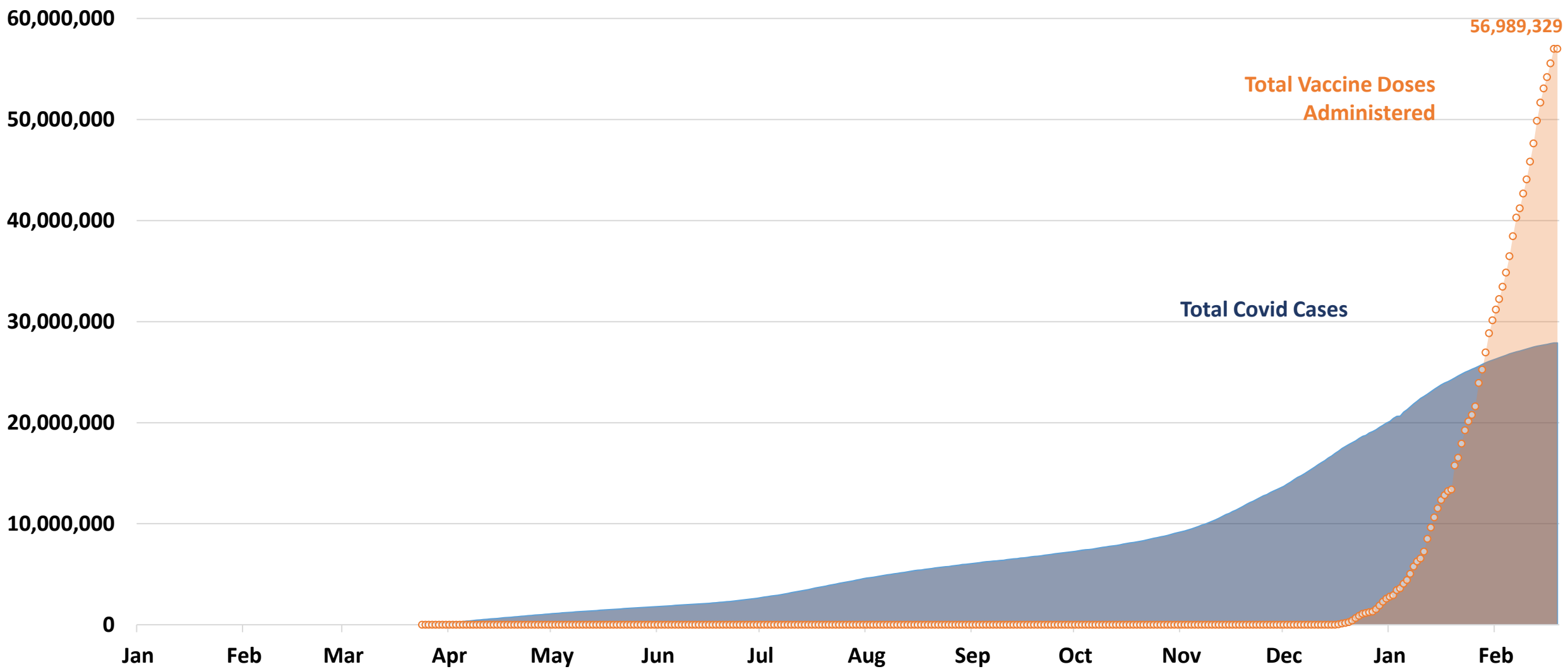


Sources: Bloomberg, Vining Sparks

Today's Figures Are Incomplete

CASES AND VACCINATIONS

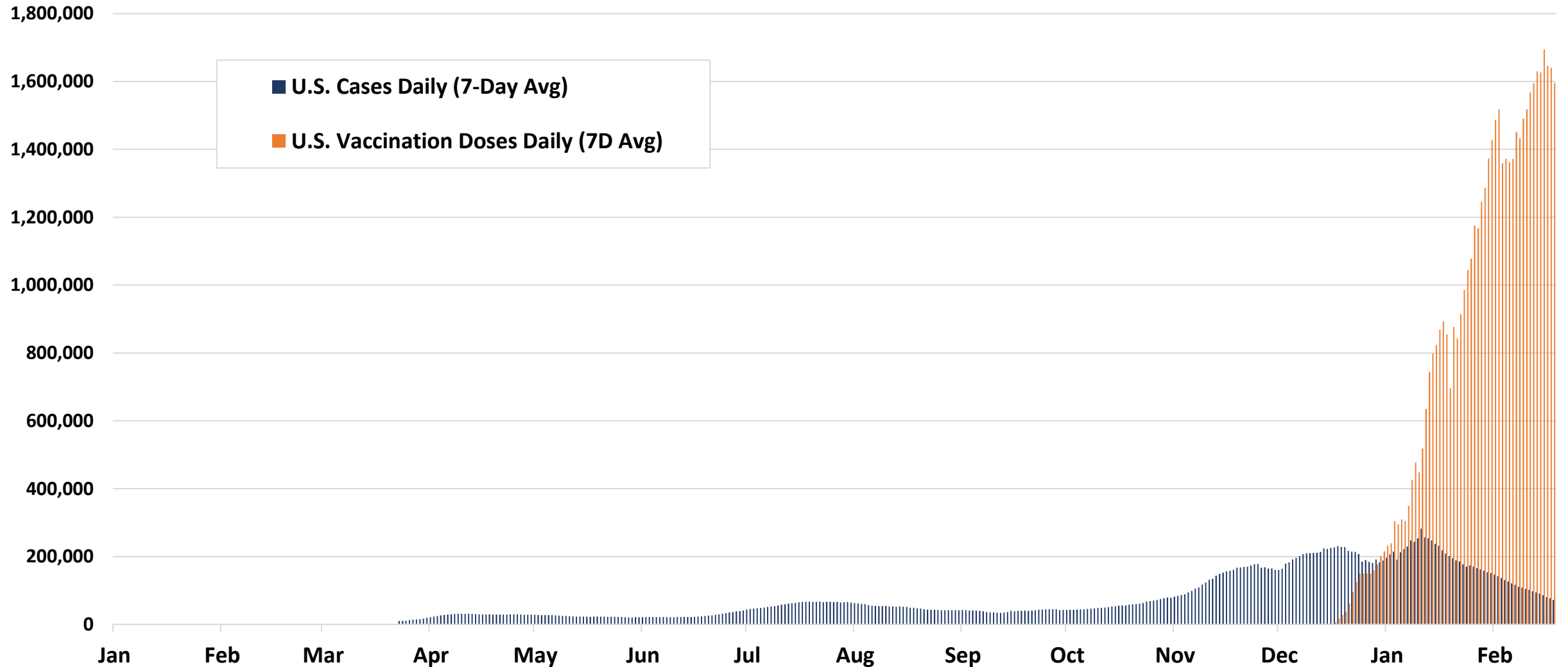
U.S. CASES AND VACCINATIONS TOTAL



Sources: Bloomberg, Vining Sparks

CASES AND VACCINATIONS

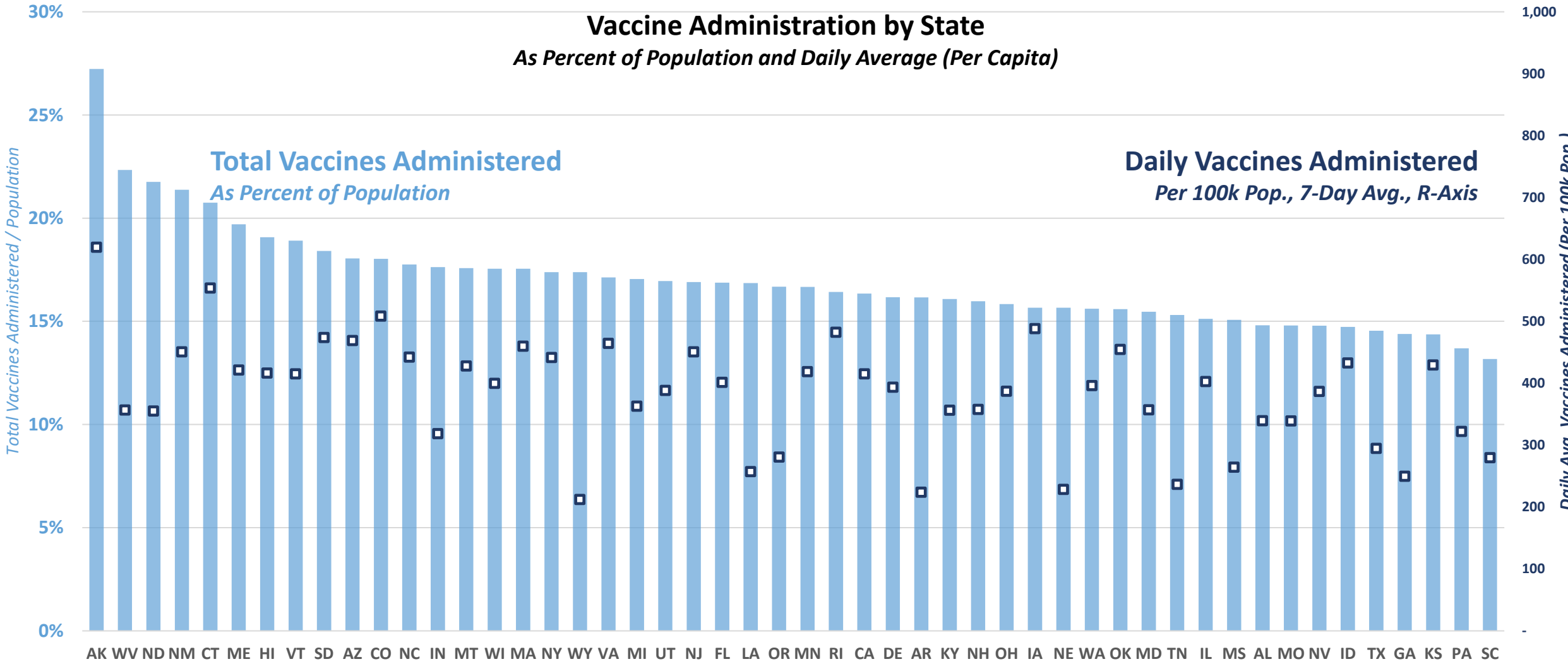
U.S. CASES AND VACCINATIONS DAILY (7-DAY AVERAGE)



Sources: Johns Hopkins CSSE Data, Vining Sparks

VIRUS CONTAINMENT

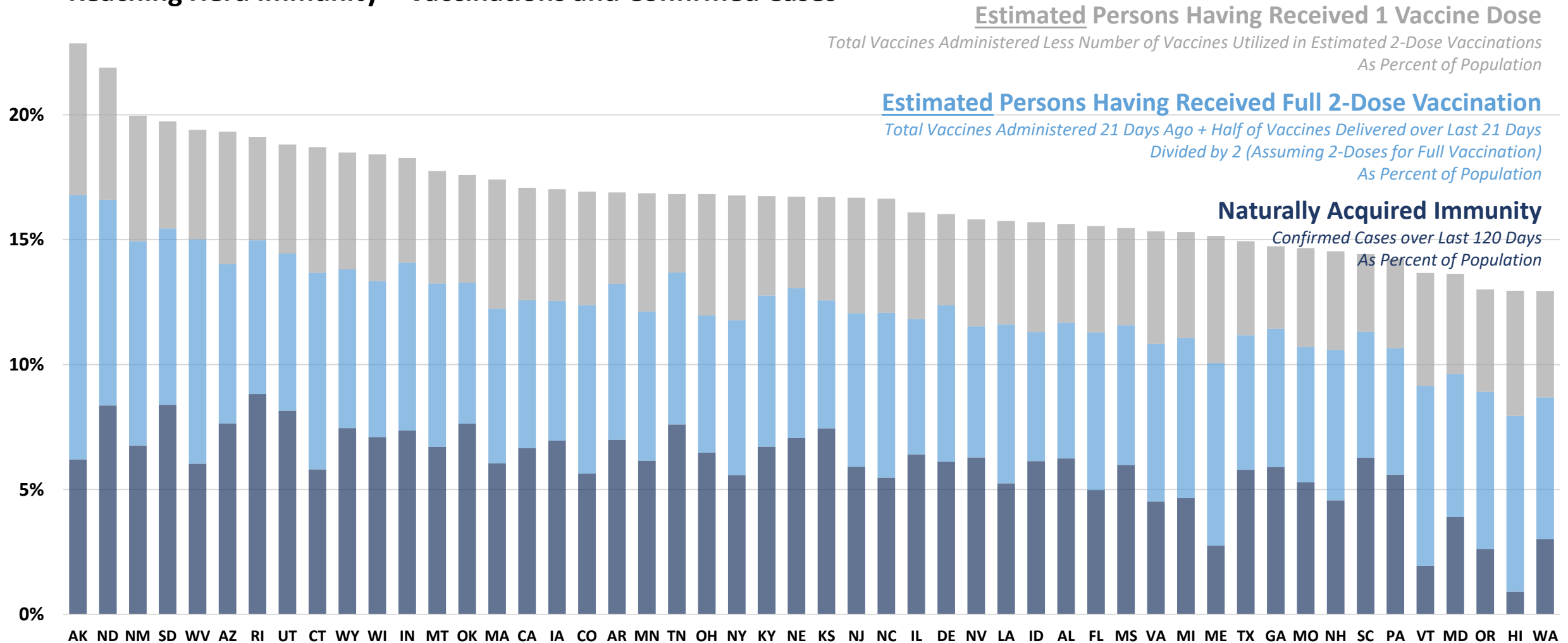
FIRST AND FOREMOST, VIRUS MUST BE CONTAINED SO THAT STIMULUS EFFORTS CAN BE EFFECTIVE



Sources: Johns Hopkins CSSE Data, Vining Sparks (Does not reflect differentiation between first and second doses, only considers total doses administered)

ACHIEVING HERD IMMUNITY

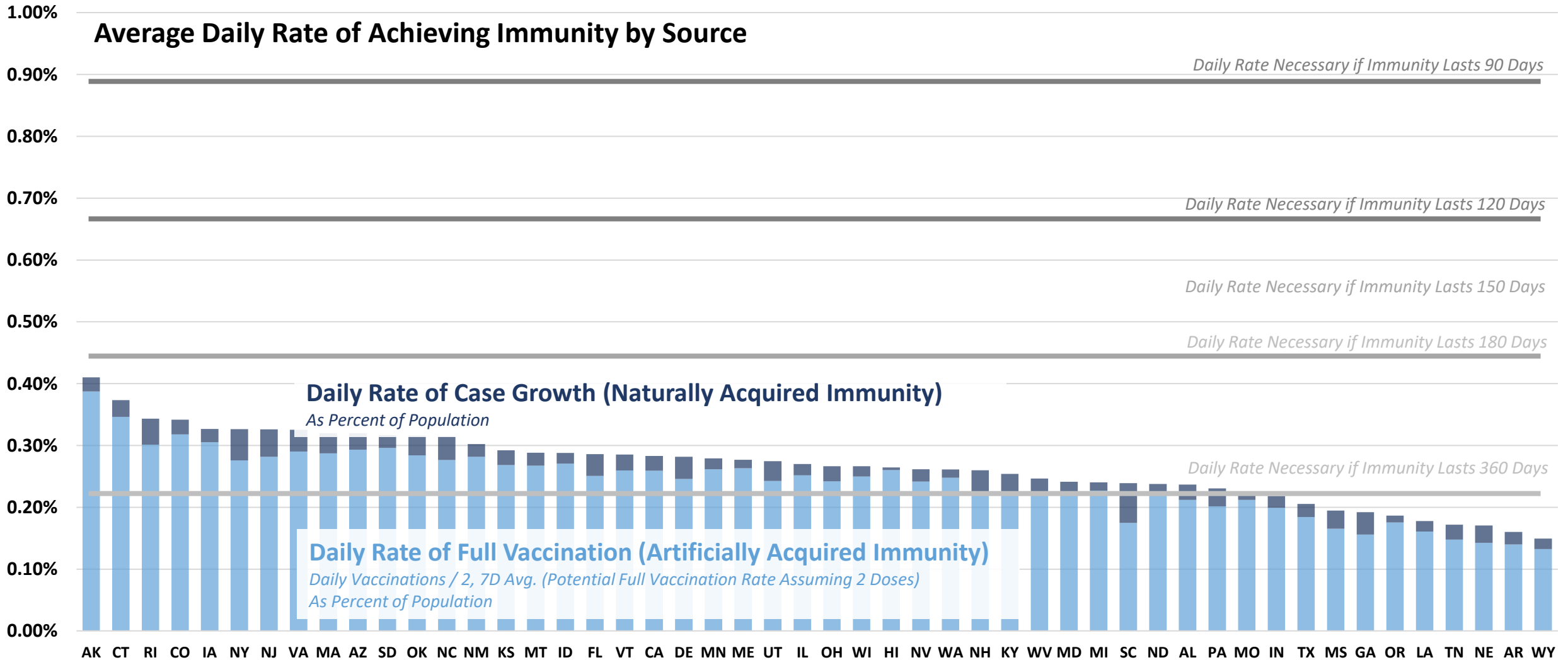
Reaching Herd Immunity – Vaccinations and Confirmed Cases



Sources: Johns Hopkins CSSE Data, Vining Sparks (Estimations based assumptions derived from CDC and other research data)

ACHIEVING HERD IMMUNITY VINING SPARKS

ASSUMING HERD IMMUNITY ACHIEVED AT 80% OF POPULATION, VACCINATIONS WILL NEED TO ACCELERATE



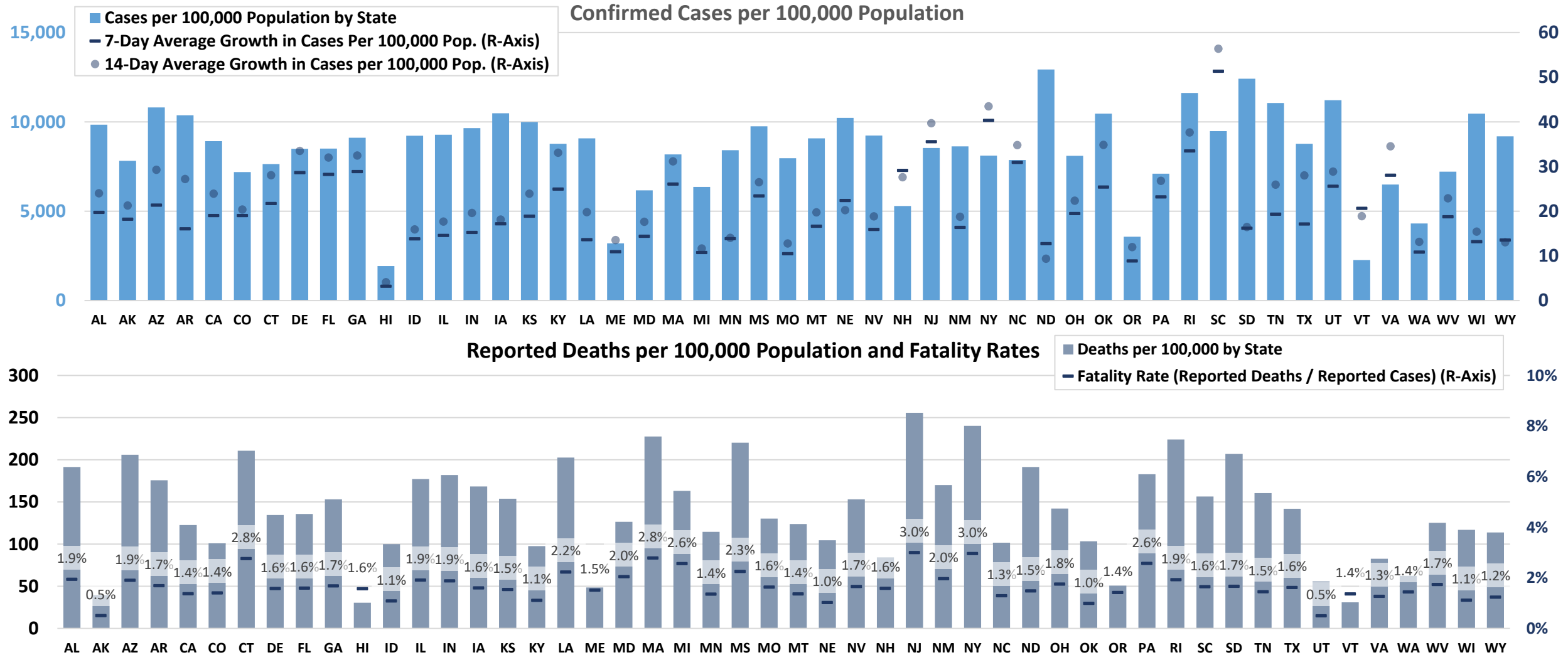
Sources: Johns Hopkins CSSE Data, Vining Sparks

U.S. STATE-LEVEL DATA

	Confirmed Cases									Hospitalizations			Deaths Reported							Confirmed Cases			Hospitalizations			Deaths Reported																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
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Sources: Bloomberg (Reported with one-day lag due to slower reporting states), Hospitalizations from Covid Tracking Project Data, Vining Sparks

U.S. STATE-LEVEL COVID DATA

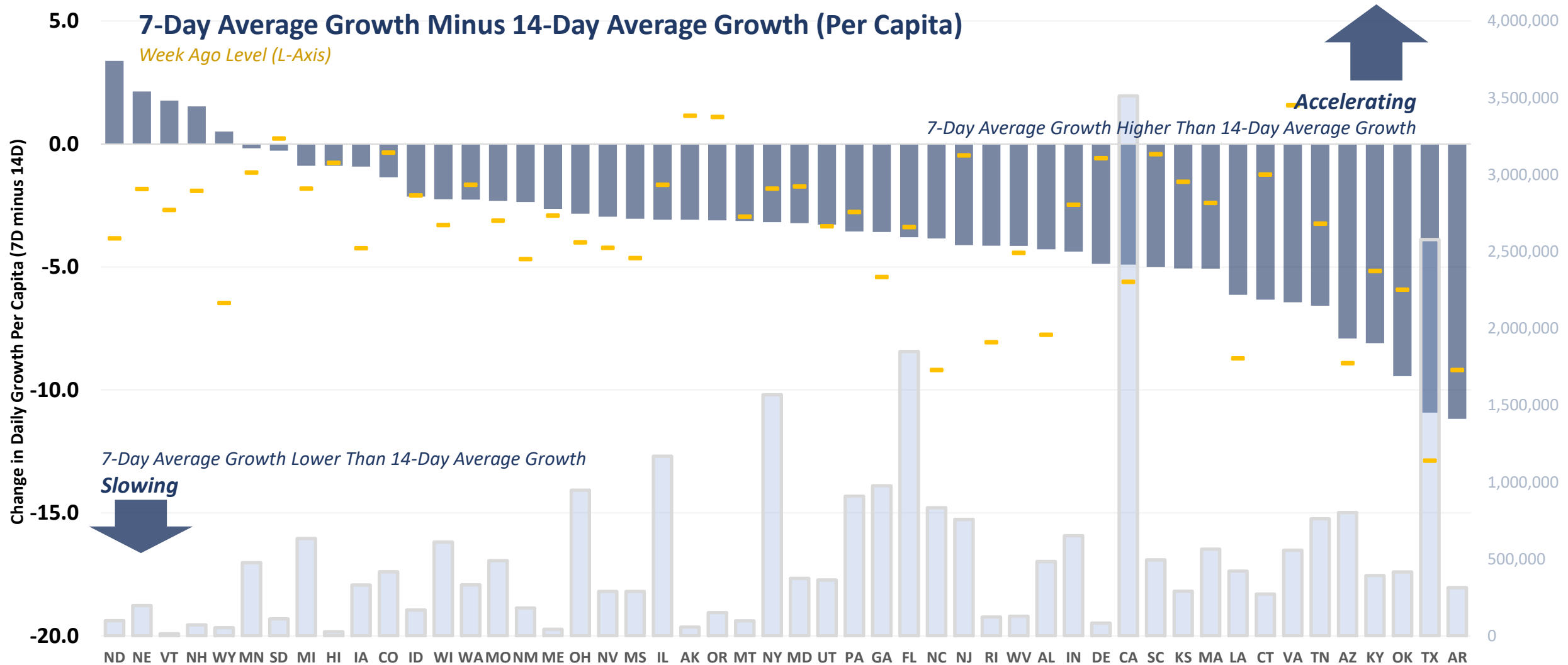


Sources: Johns Hopkins CSSE Data, Bloomberg, Vining Sparks

U.S. STATE-LEVEL DATA

VINING  SPARKS

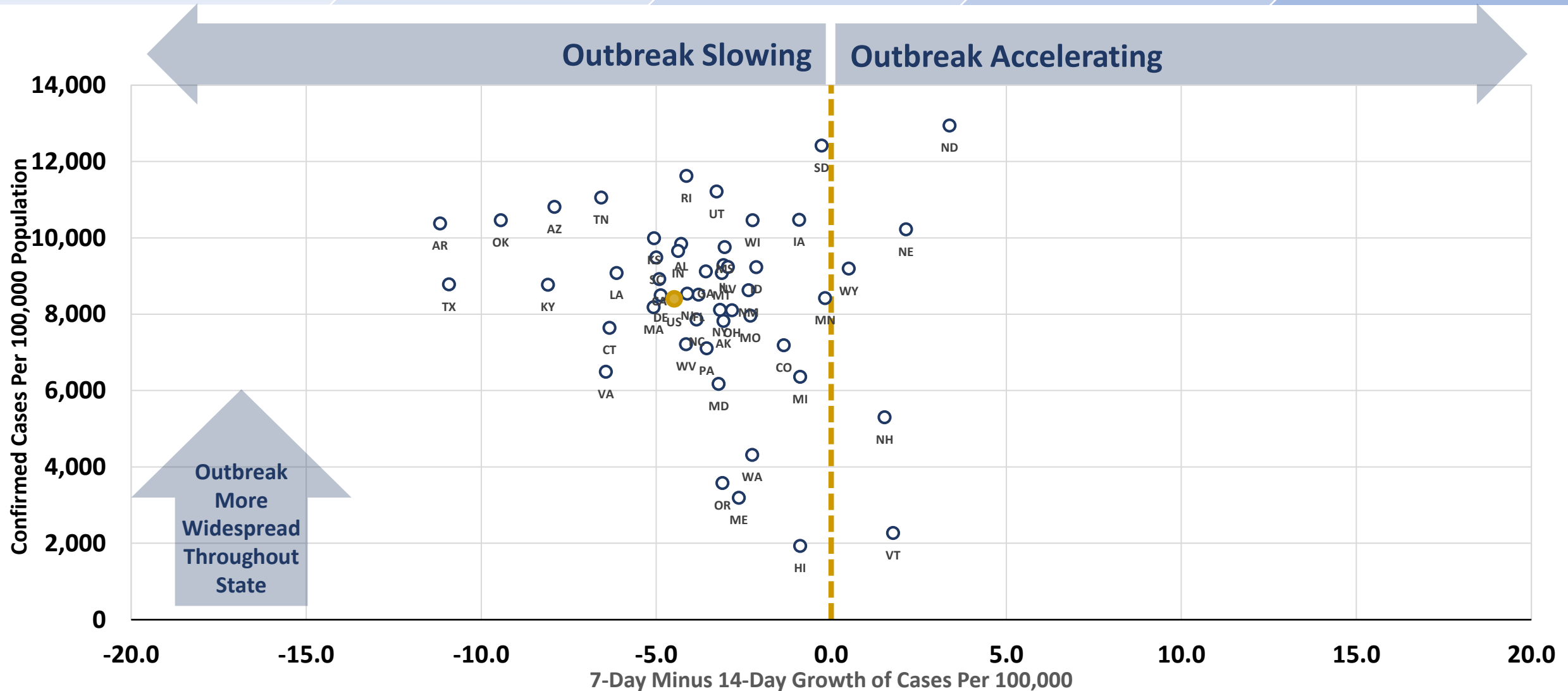
7-DAY VERSUS 14-DAY GROWTH RATES PER CAPITA: IS OUTBREAK SPREADING OR SLOWING IN EACH STATE



Sources: Bloomberg, Vining Sparks; Darkest bars represent 7-day averages within 3% of peak 7-day growth rate

U.S. STATE-LEVEL DATA

BREADTH AND RATE OF SPREAD



GROWTH RATES BY STATE

QUINTILE 1: RANKED BY SLOWEST RATES OF GROWTH (7D AVERAGE) VERSUS PEAK GROWTH (7D AVERAGE)

Daily Growth (7-Day Average, Scaled by State Outbreak Levels)

◆ Statewide Lockdown Implemented (Varying Degrees of Lockdowns by State)

◆ Easing of Lockdowns (Varying Degrees of Easing by State)

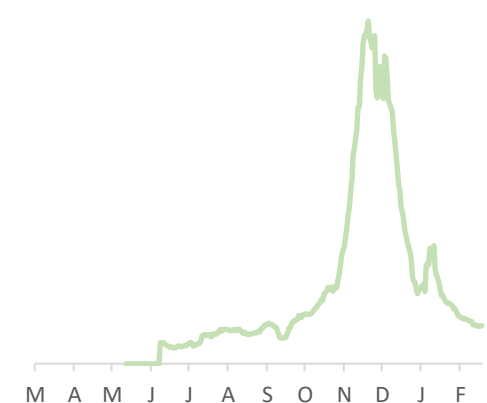
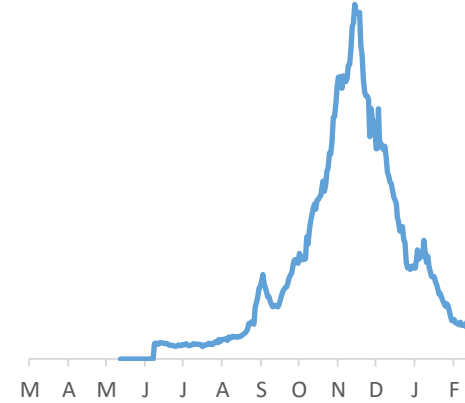
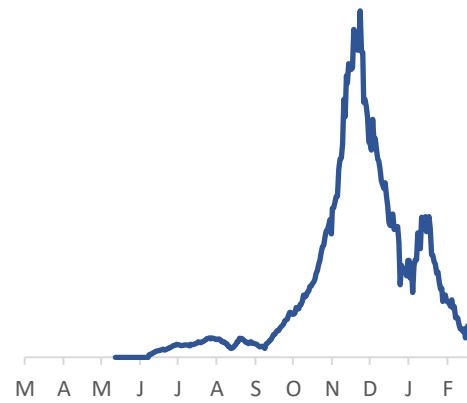
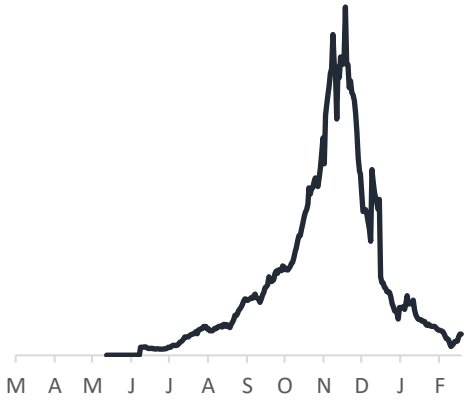
— ND (Peak on 11/18/2020)

— WY (Peak on 11/23/2020)

— SD (Peak on 11/14/2020)

— WI (Peak on 11/18/2020)

— MN (Peak on 11/20/2020)



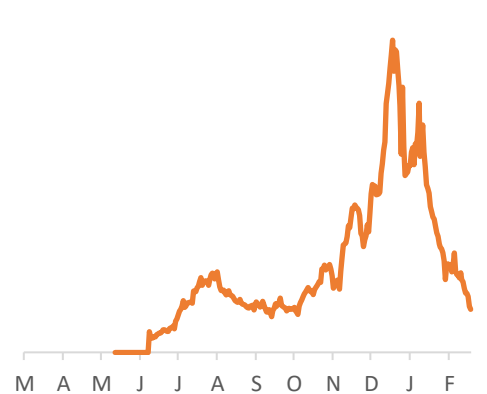
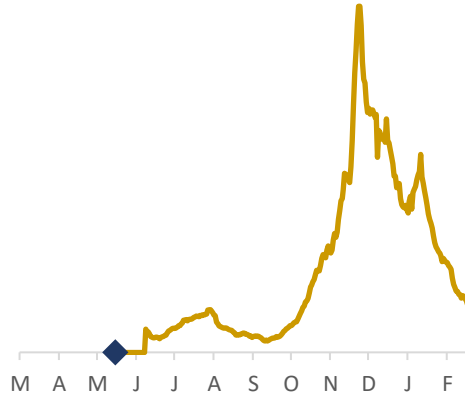
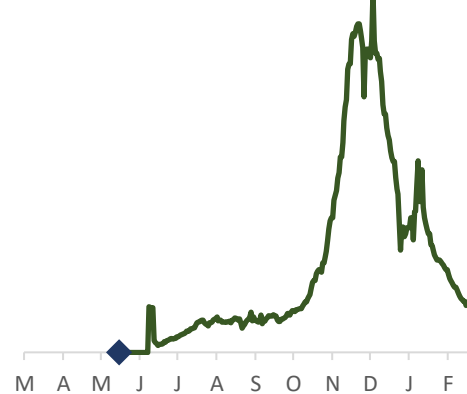
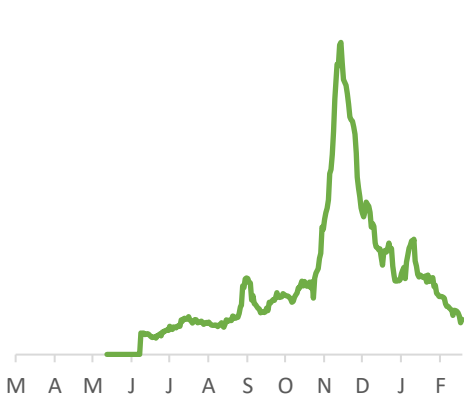
— IA (Peak on 11/14/2020)

— MI (Peak on 12/3/2020)

— NM (Peak on 11/23/2020)

— MO (Peak on 11/18/2020)

— TN (Peak on 12/18/2020)



Sources: Bloomberg, Vining Sparks

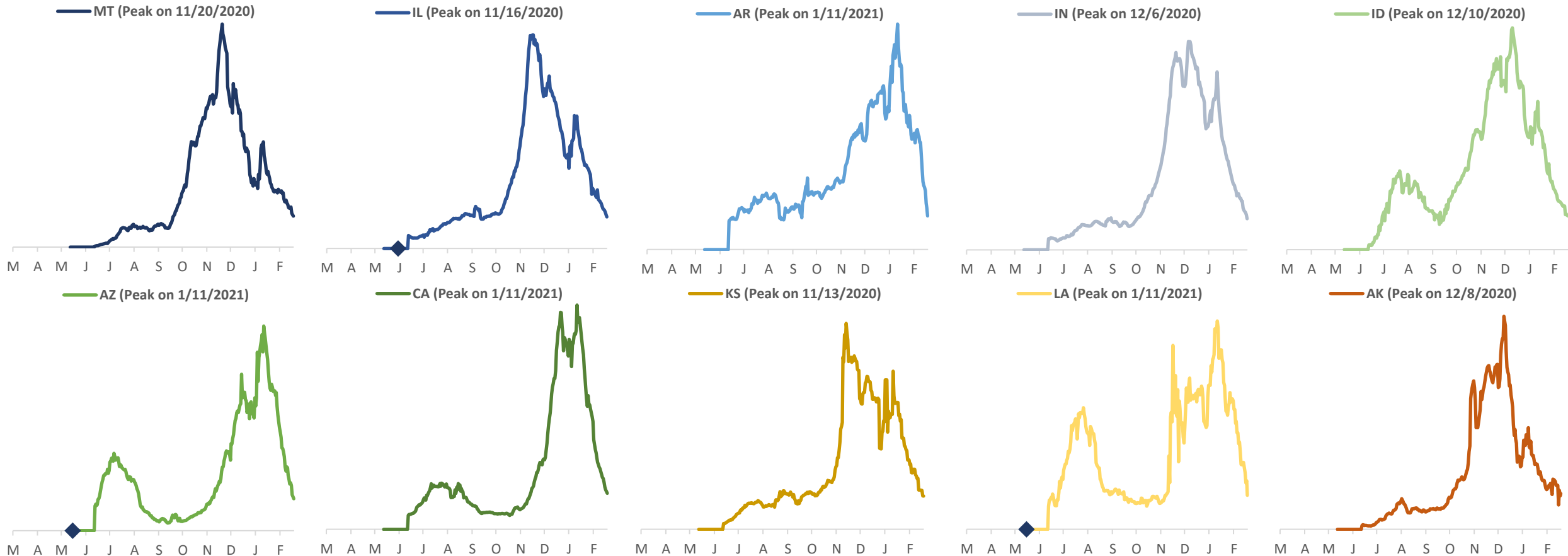
GROWTH RATES BY STATE

QUINTILE 2: RANKED BY SLOWEST RATES OF GROWTH (7D AVERAGE) VERSUS PEAK GROWTH (7D AVERAGE)

Daily Growth (7-Day Average, Scaled by State Outbreak Levels)

◆ Statewide Lockdown Implemented (Varying Degrees of Lockdowns by State)

◆ Easing of Lockdowns (Varying Degrees of Easing by State)



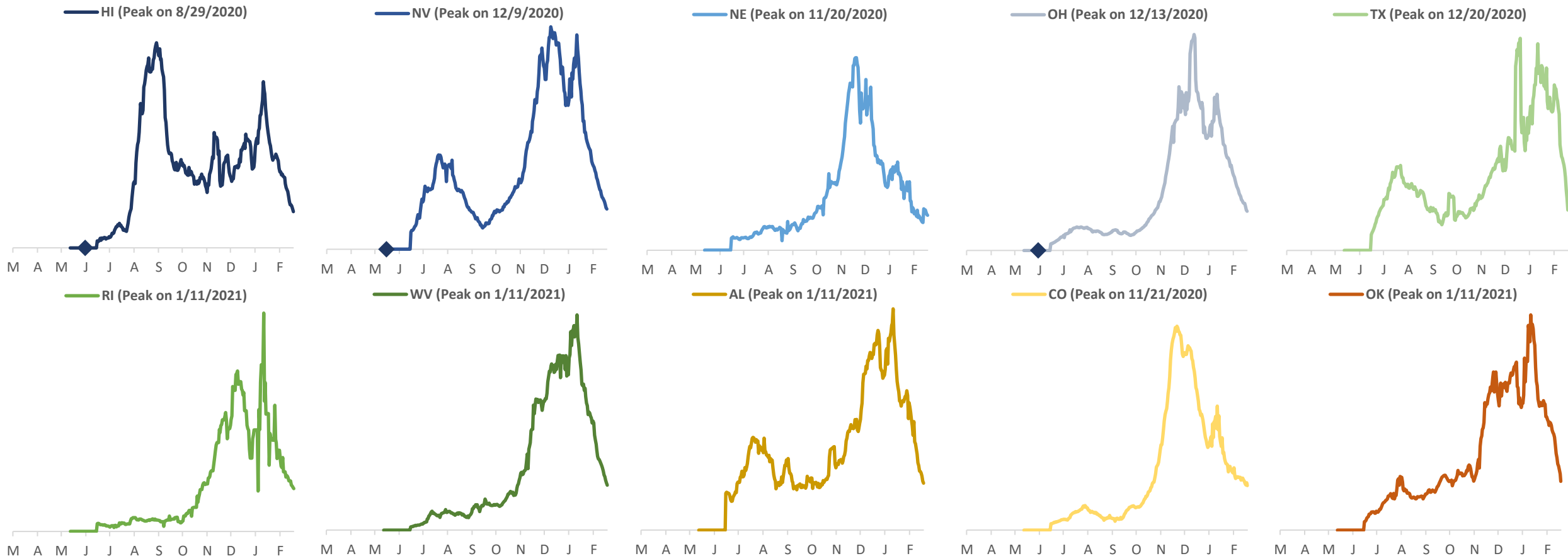
GROWTH RATES BY STATE

QUINTILE 3: RANKED BY SLOWEST RATES OF GROWTH (7D AVERAGE) VERSUS PEAK GROWTH (7D AVERAGE)

Daily Growth (7-Day Average, Scaled by State Outbreak Levels)

◆ Statewide Lockdown Implemented (Varying Degrees of Lockdowns by State)

◆ Easing of Lockdowns (Varying Degrees of Easing by State)



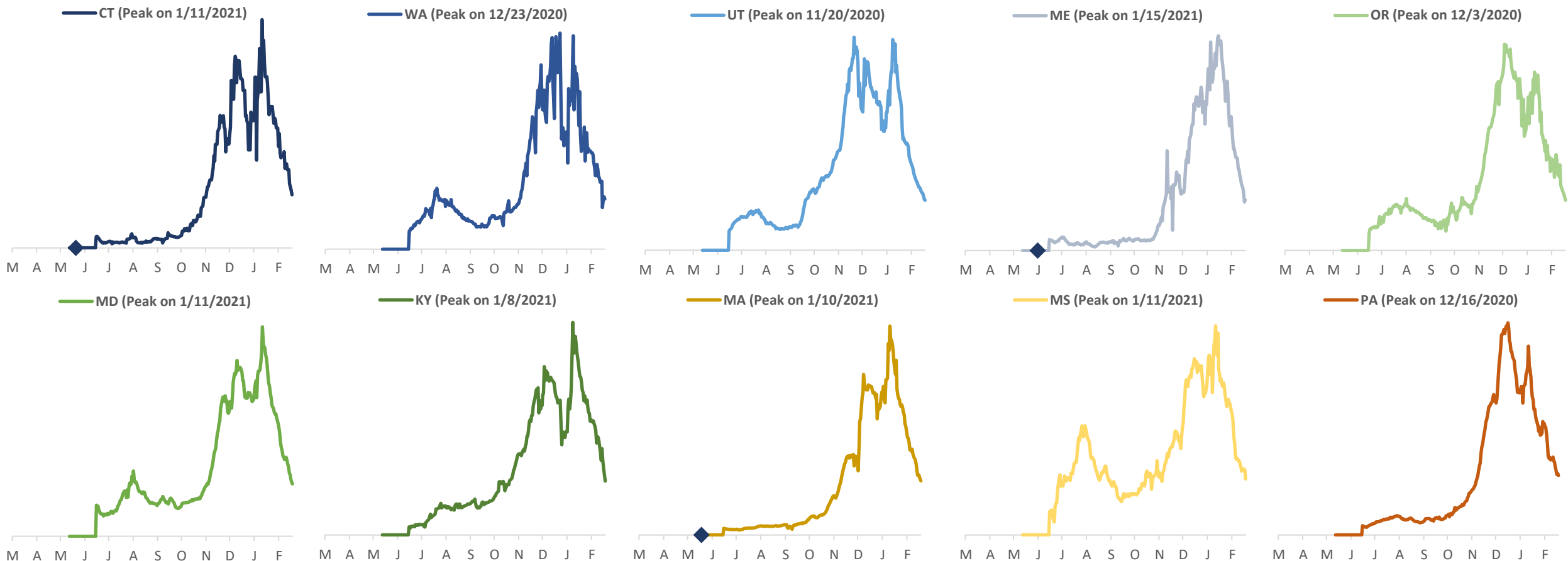
GROWTH RATES BY STATE

QUINTILE 4: RANKED BY SLOWEST RATES OF GROWTH (7D AVERAGE) VERSUS PEAK GROWTH (7D AVERAGE)

Daily Growth (7-Day Average, Scaled by State Outbreak Levels)

◆ Statewide Lockdown Implemented (Varying Degrees of Lockdowns by State)

◆ Easing of Lockdowns (Varying Degrees of Easing by State)



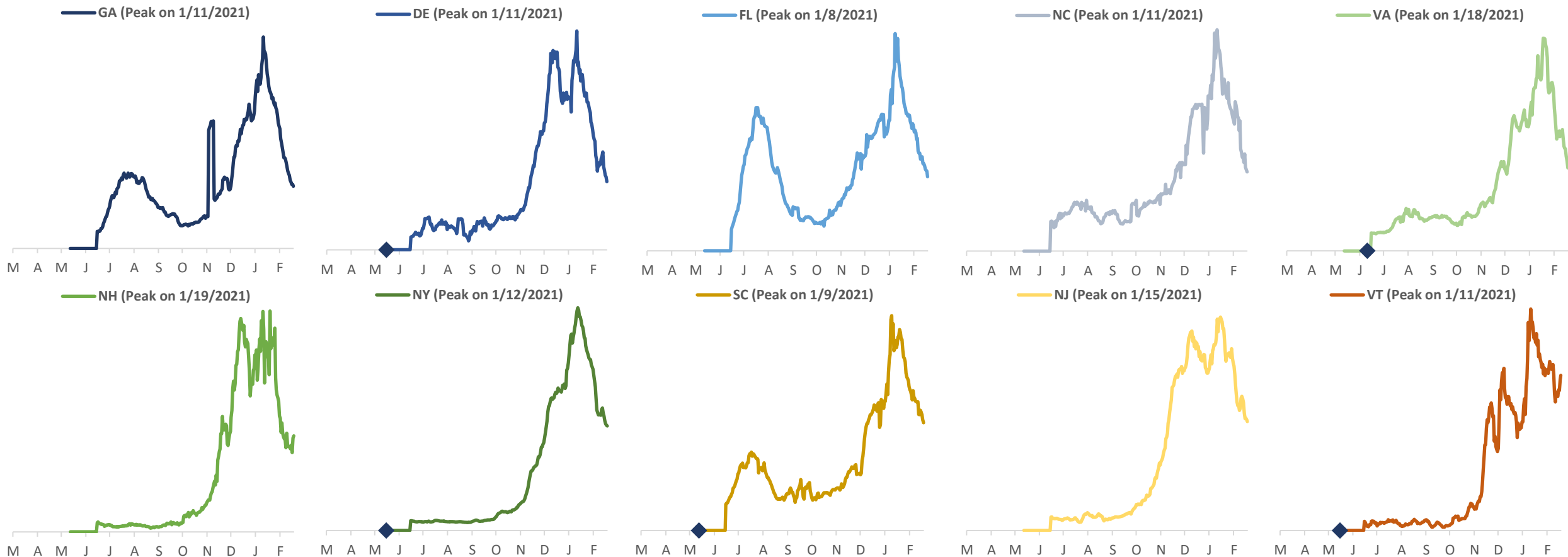
GROWTH RATES BY STATE

QUINTILE 5: RANKED BY SLOWEST RATES OF GROWTH (7D AVERAGE) VERSUS PEAK GROWTH (7D AVERAGE)

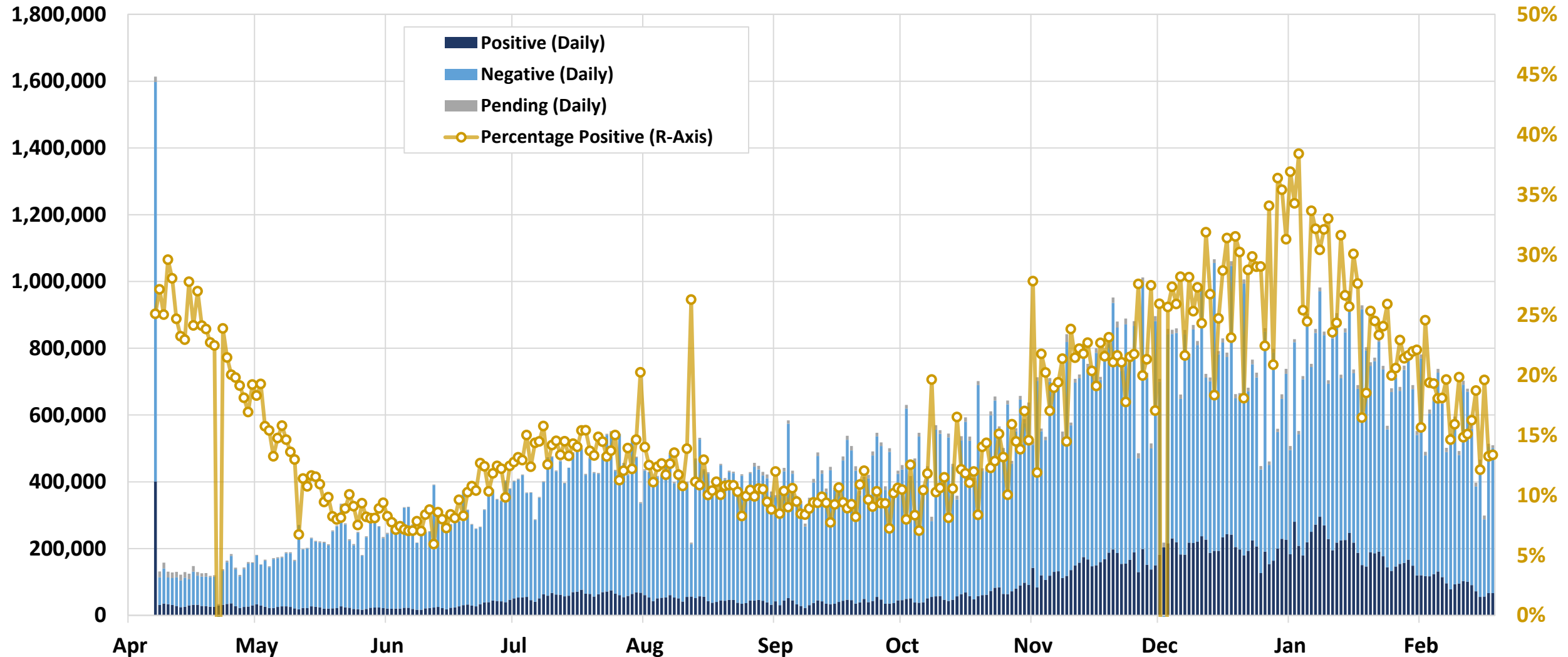
Daily Growth (7-Day Average, Scaled by State Outbreak Levels)

◆ Statewide Lockdown Implemented (Varying Degrees of Lockdowns by State)

◆ Easing of Lockdowns (Varying Degrees of Easing by State)

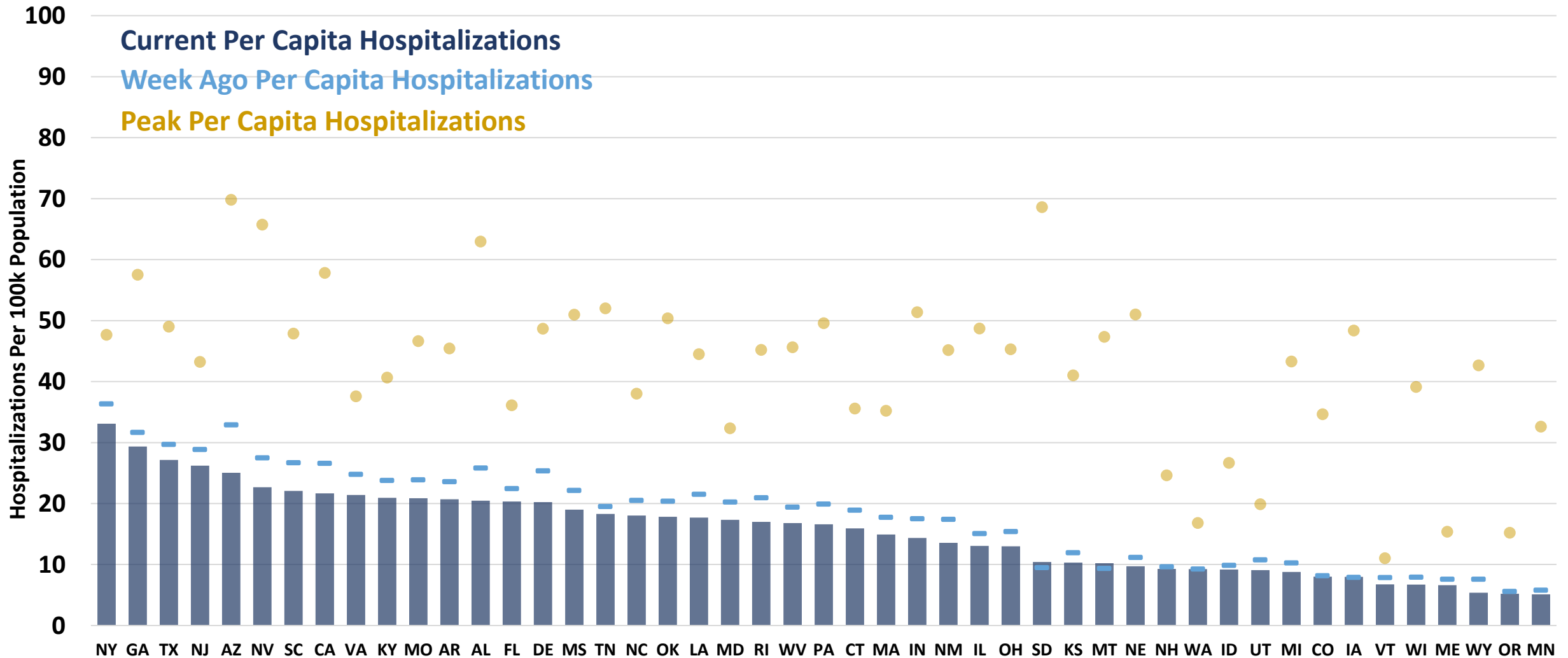


U.S. TESTING AND RESULTS



Sources: Covid Tracking Project (as Reported by State and Local Agencies), Vining Sparks

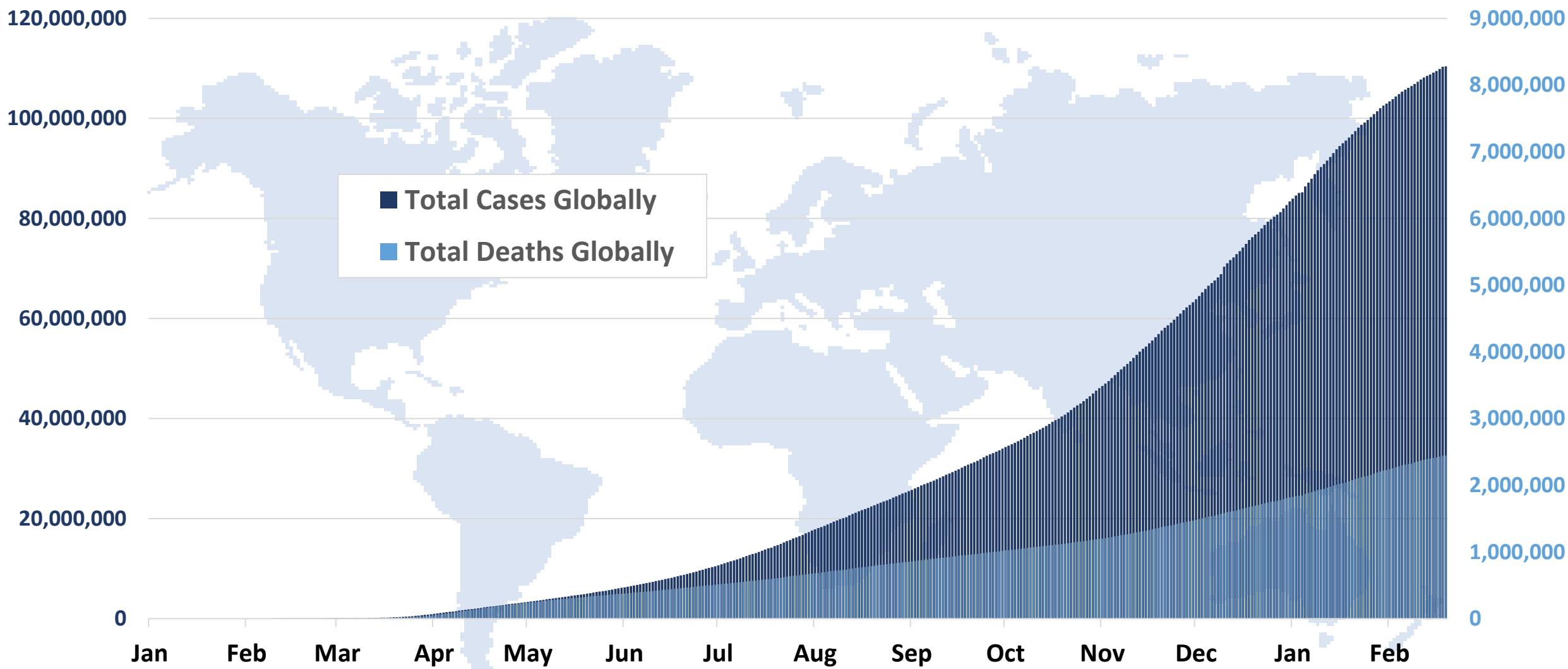
HOSPITALIZATIONS BY STATE



Sources: Covid Tracking Project, Bloomberg, Vining Sparks (FL, HI, KS Not Reporting Hospitalizations)

COVID-19 CASES AND DEATHS

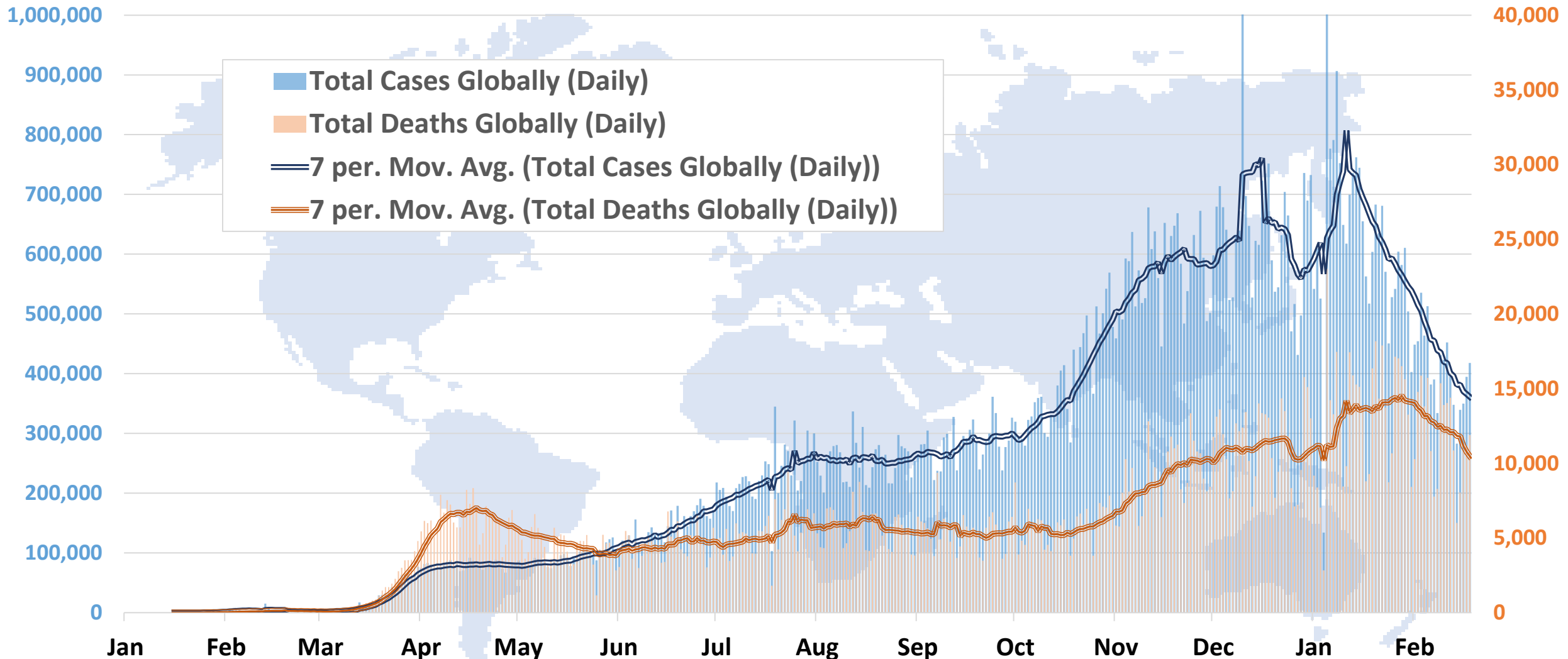
REPORTED NUMBER OF CASES AND DEATHS GLOBALLY



Sources: Bloomberg, Vining Sparks

COVID-19 DAILY GROWTH

DAILY INCREASE IN NUMBER OF CASES AND DEATHS GLOBALLY



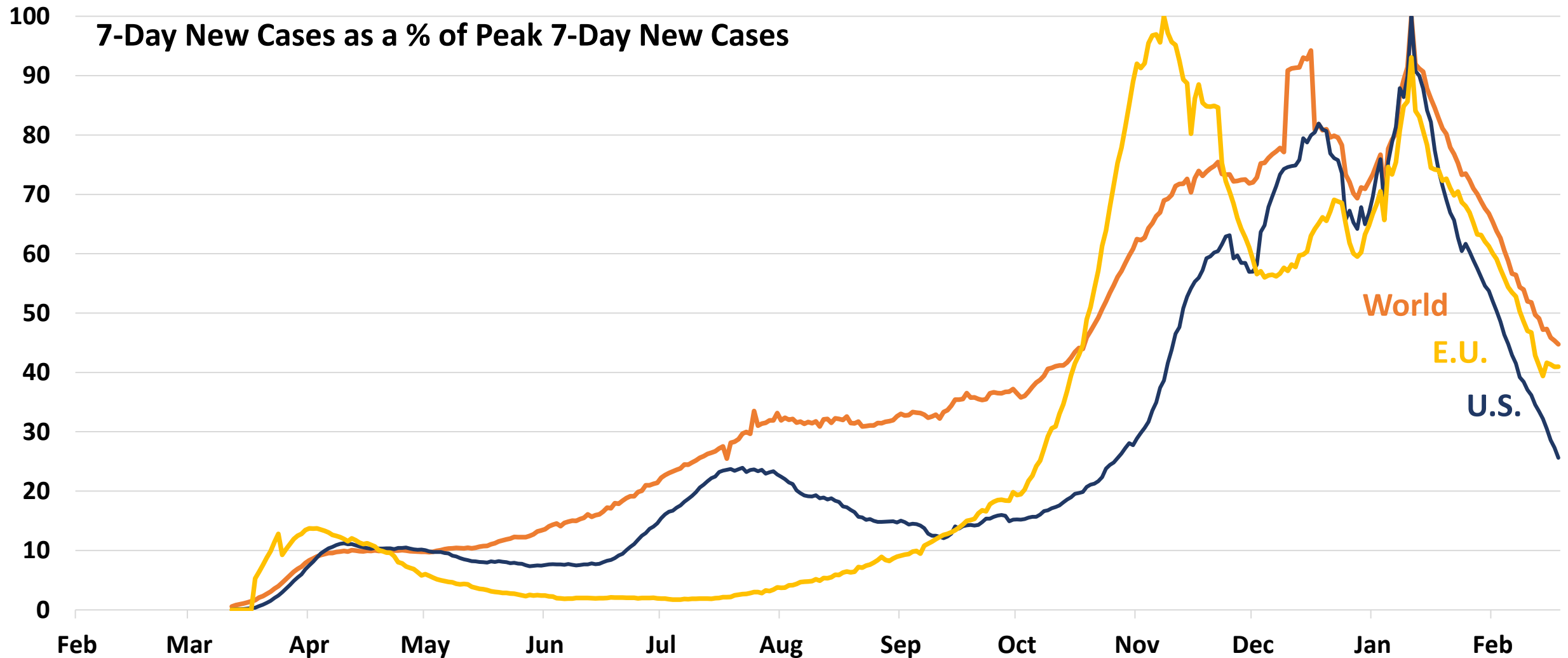
SITUATION BY COUNTRY

	Confirmed Cases				Deaths Reported				Case Fatality Rate
	Total	New	7D Average	Peak 7D Growth	Total	New	7D Average	Peak 7D Growth	
Total	110,416,763	417,995	361,067	806,936	2,443,847	11,892	10,463	14,524	2.2%
U.S.	27,896,955	71,130	72,188	281,871	493,120	2,635	2,542	3,496	1.8%
India	10,963,394	26,074	11,827	93,199	156,111	198	95	1,168	1.4%
Brazil	10,030,626	51,879	45,245	56,838	243,457	1,367	1,037	1,216	2.4%
Britain	4,095,187	12,095	12,116	66,405	119,614	455	552	1,253	2.9%
Russia	4,092,649	13,243	13,768	28,501	81,048	469	453	555	2.0%
France	3,596,156	22,518	18,599	53,741	83,542	271	370	975	2.3%
Spain	3,121,687	14,515	11,462	37,011	66,704	388	355	866	2.1%
Italy	2,765,412	13,755	11,716	35,073	94,887	347	308	814	3.4%
Turkey	2,616,600	7,241	7,453	145,044	27,821	83	91	255	1.1%
Germany	2,376,246	9,845	7,283	27,379	67,249	818	432	998	2.8%
Columbia	2,212,525	4,824	4,698	18,012	58,334	200	193	392	2.6%
Argentina	2,046,795	7,671	5,493	15,051	50,857	241	140	789	2.5%
Mexico	2,022,662	9,099	7,728	19,511	178,108	1,047	982	1,539	8.8%
Poland	1,623,218	9,074	6,255	25,611	41,823	274	201	505	2.6%
Iran	1,558,159	8,066	7,670	13,630	59,341	80	73	473	3.8%
South Africa	1,498,766	2,327	1,981	20,842	48,708	230	189	659	3.2%
Ukraine	1,340,054	6,441	4,360	14,270	26,320	174	123	236	2.0%
Indonesia	1,263,299	9,039	8,671	12,865	34,152	181	227	309	2.7%
Peru	1,261,804	7,408	6,948	8,552	44,489	252	207	747	3.5%
Czechoslovakia	1,134,957	10,930	8,329	12,955	18,913	143	138	210	1.7%
Netherlands	1,057,116	4,572	3,666	11,804	15,211	73	61	154	1.4%
Canada	842,590	3,435	2,951	9,627	21,509	70	60	186	2.6%
Portugal	792,829	1,944	2,066	12,891	15,754	105	124	291	2.0%
Chile	788,142	3,828	3,405	10,310	19,798	139	77	241	2.5%

	Confirmed Cases				Deaths Reported				Case Fatality Rate
	Total	New	7D Average	Peak 7D Growth	Total	New	7D Average	Peak 7D Growth	
Belgium	746,302	2,420	1,886	19,373	21,821	28	39	333	2.9%
Israel	743,814	3,305	3,875	8,412	5,521	36	32	65	0.7%
Iraq	657,453	3,896	2,935	4,505	13,220	16	11	106	2.0%
Sweden	631,166	4,920	3,206	7,442	12,649	29	33	138	2.0%
Pakistan	568,506	1,245	1,163	6,635	12,527	39	44	123	2.2%
Phillipines	557,058	1,739	1,697	4,477	11,829	96	29	107	2.1%
Switzerland	547,775	1,219	1,040	8,237	9,880	27	21	103	1.8%
Bangladesh	542,674	391	391	3,810	8,337	15	12	45	1.5%
Morocco	480,056	477	414	5,206	8,524	7	12	80	1.8%
Austria	441,659	1,967	1,529	7,464	8,348	22	25	129	1.9%
Serbia	429,048	2,561	1,872	7,278	4,292	15	16	59	1.0%
Japan	422,718	1,518	1,327	6,453	7,361	76	71	118	1.7%
Hungary	397,116	2,853	1,735	5,685	14,145	104	84	176	3.6%
Saudi Arabia	374,029	327	330	4,418	6,450	5	4	53	1.7%
U.A.E.	365,017	3,294	3,173	3,755	1,093	18	14	14	0.3%
Lebanon	348,810	2,730	2,522	4,801	4,206	54	49	116	1.2%
Slovakia	287,752	2,555	1,992	3,260	6,350	103	92	98	2.2%
Malaysia	277,811	2,712	2,841	4,754	1,043	25	13	18	0.4%
Belarus	275,322	1,386	1,444	1,922	1,894	9	9	10	0.7%
Ecuador	269,860	1,641	1,092	2,038	15,444	50	39	597	5.7%
Georgia	267,701	365	451	4,474	3,406	9	11	46	1.3%
Croatia	239,254	365	308	3,648	5,407	24	19	79	2.3%
Bulgaria	234,428	1,086	912	3,733	9,786	42	32	140	4.2%
Azerbaijan	232,829	145	141	4,174	3,193	3	3	42	1.4%
Dom. Republic	232,780	1,043	867	1,741	3,007	17	15	24	1.3%

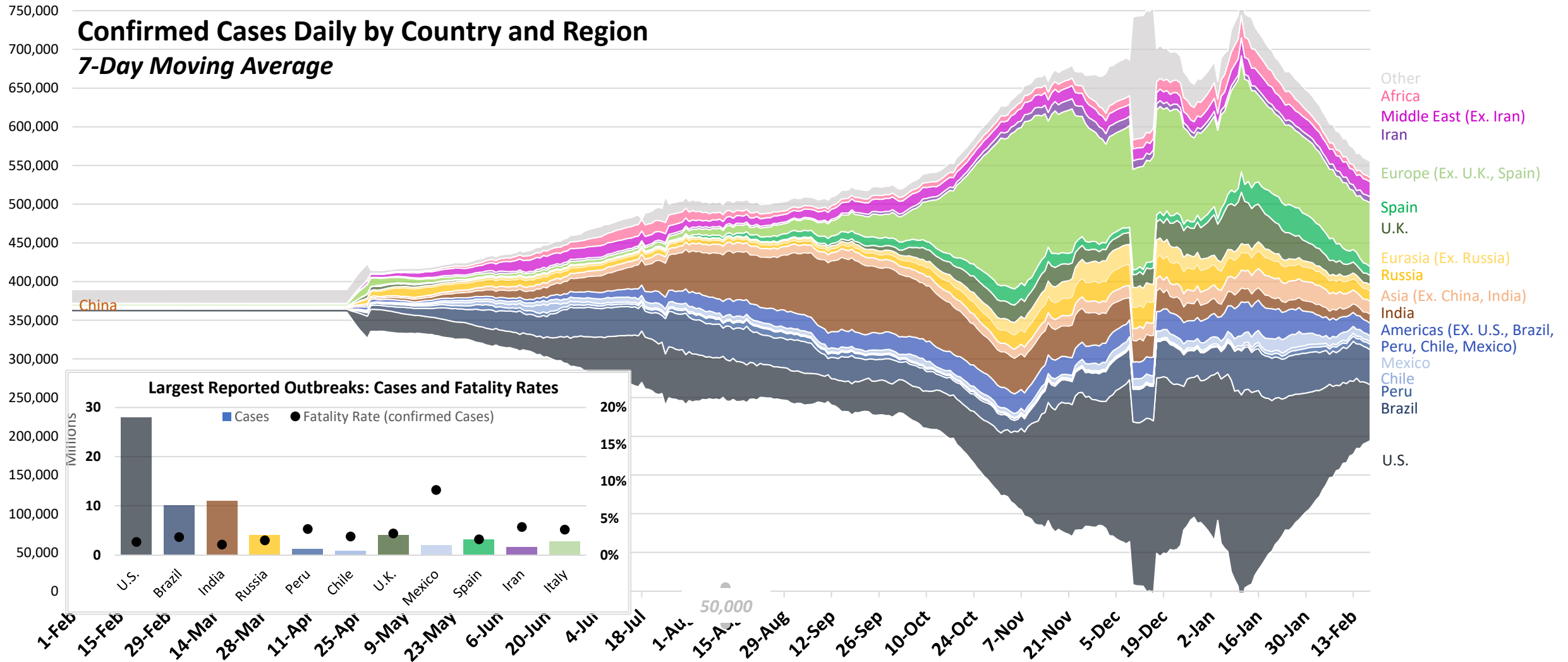
GLOBAL COVID SITUATION

CASES RE-ACCELERATE AND BACK-TO-BACK HOLIDAY DIPS; NEW VARIANT TO BLAME?



GLOBAL OUTBREAK

COVID OUTBREAK HAS BEEN, IS, AND WILL CONTINUE TO BE DOMINANT THEME IN ECONOMIC DISCUSSIONS

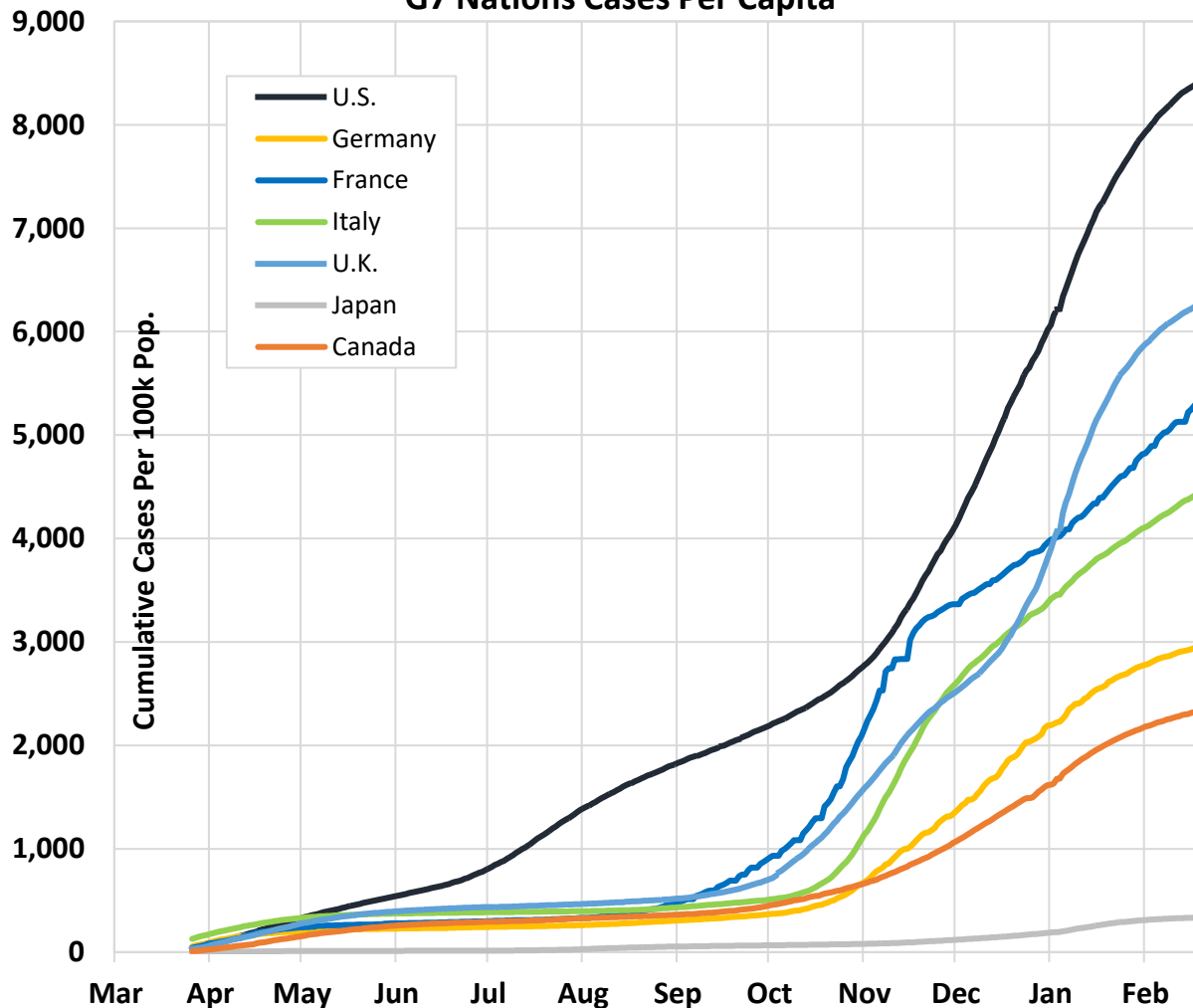


Sources: Bloomberg, Vining Sparks (*Other includes countries not listed in top 100 outbreaks)

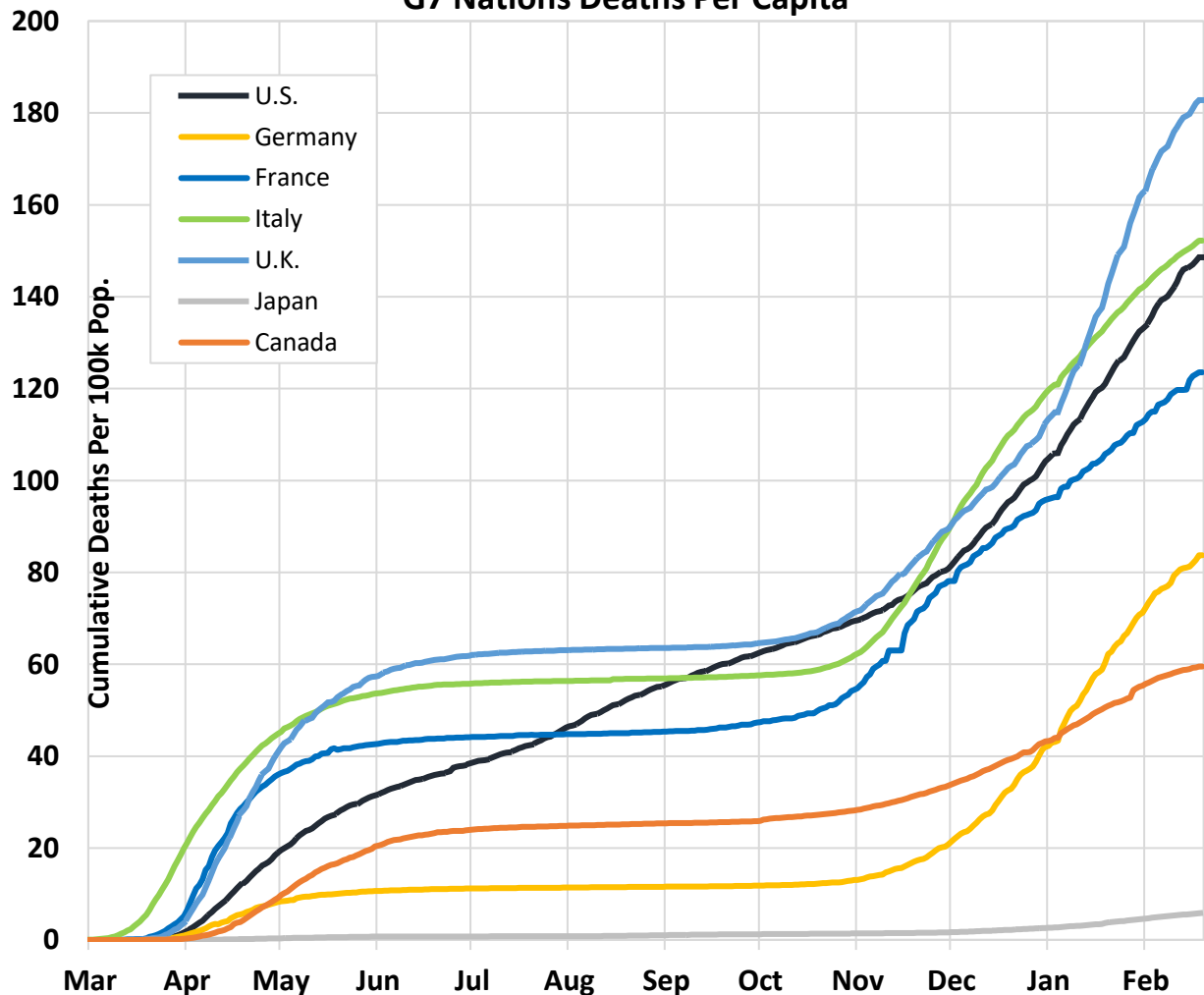
G7 CASES AND DEATHS

CUMULATIVE CASES AND DEATHS BY G7 NATION PER 100K POPULATION

G7 Nations Cases Per Capita



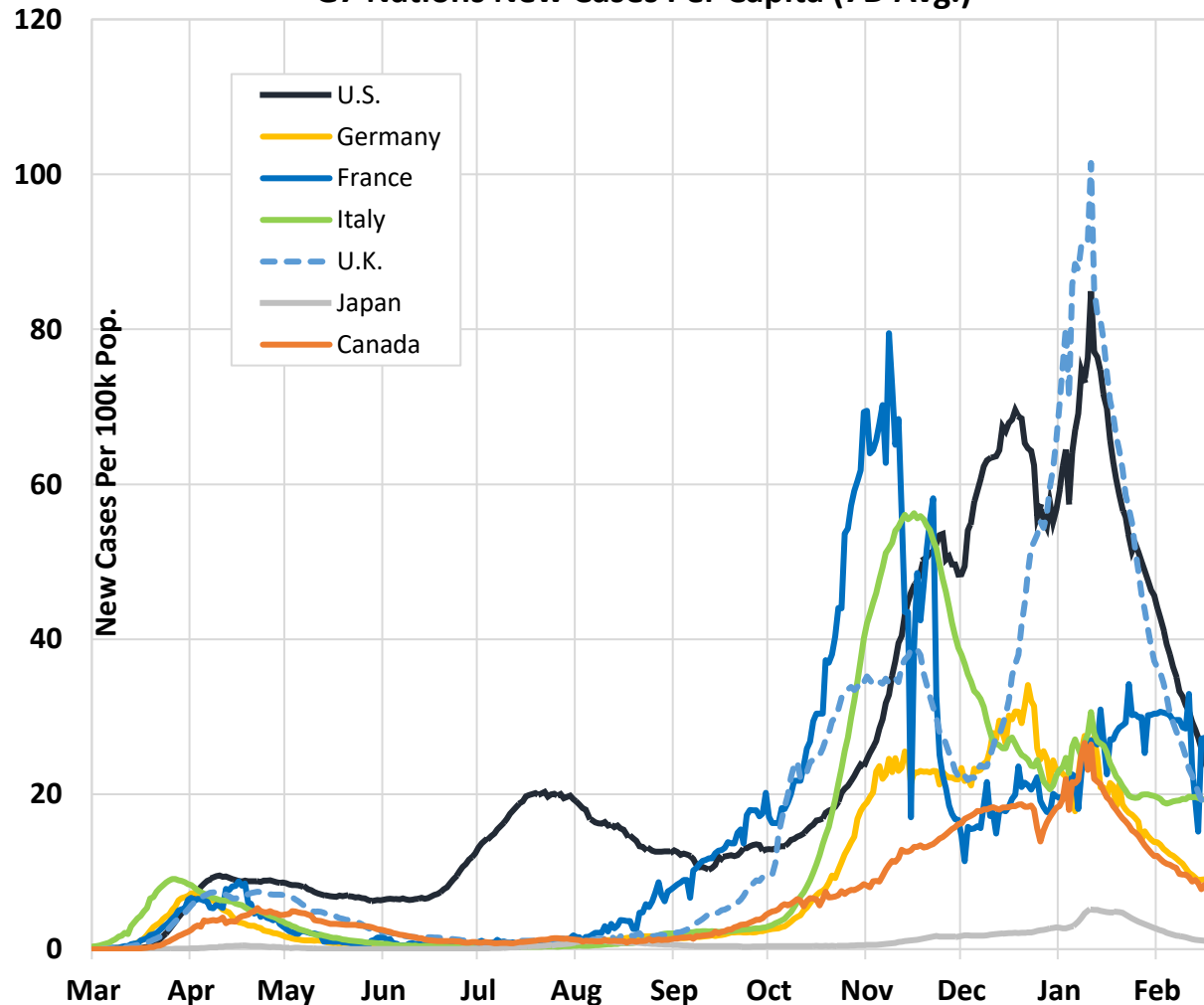
G7 Nations Deaths Per Capita



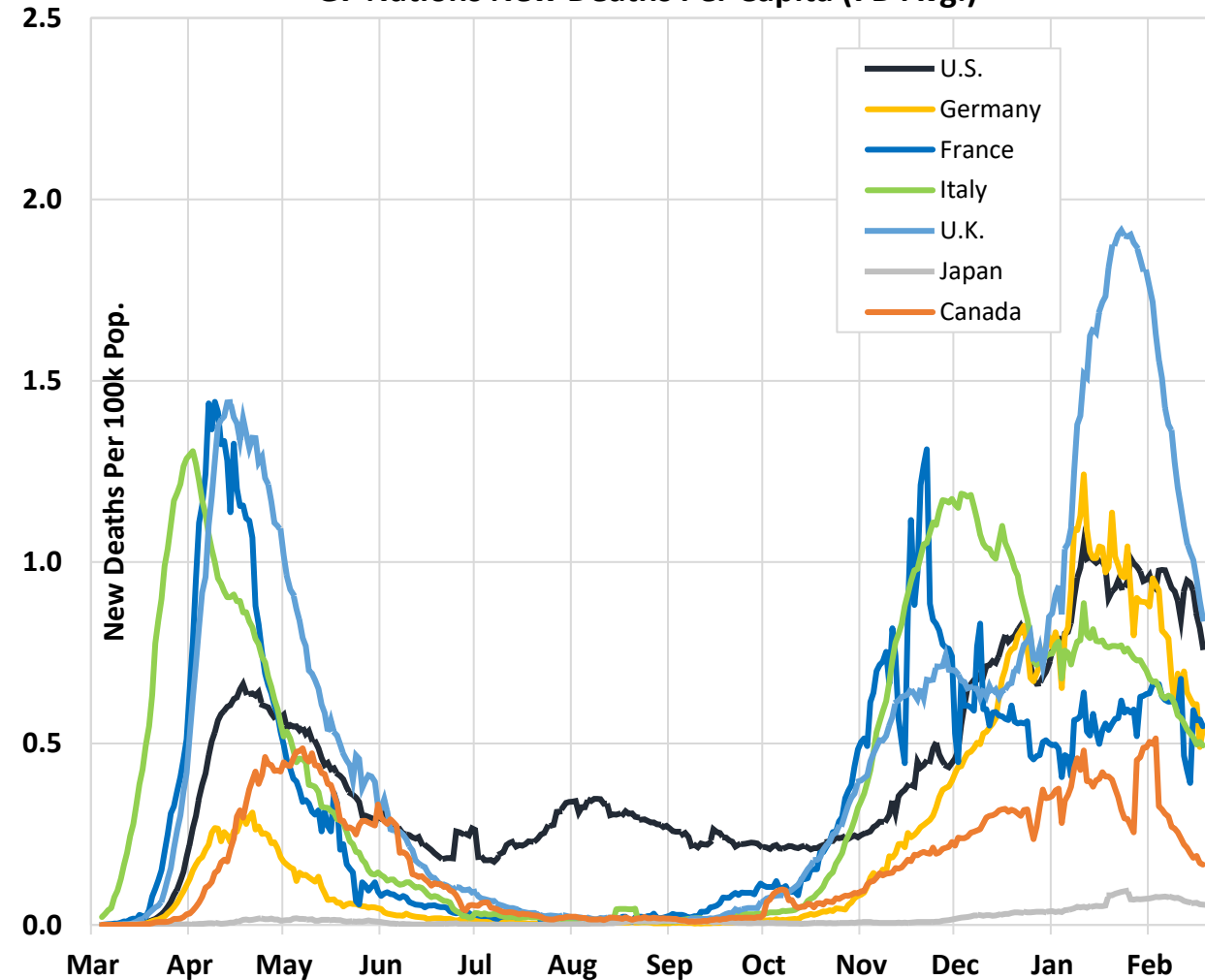
G7 NEW CASES AND DEATHS

NEW CASES AND DEATHS (7-DAY AVERAGE) BY G7 NATION PER 100K POPULATION

G7 Nations New Cases Per Capita (7D Avg.)



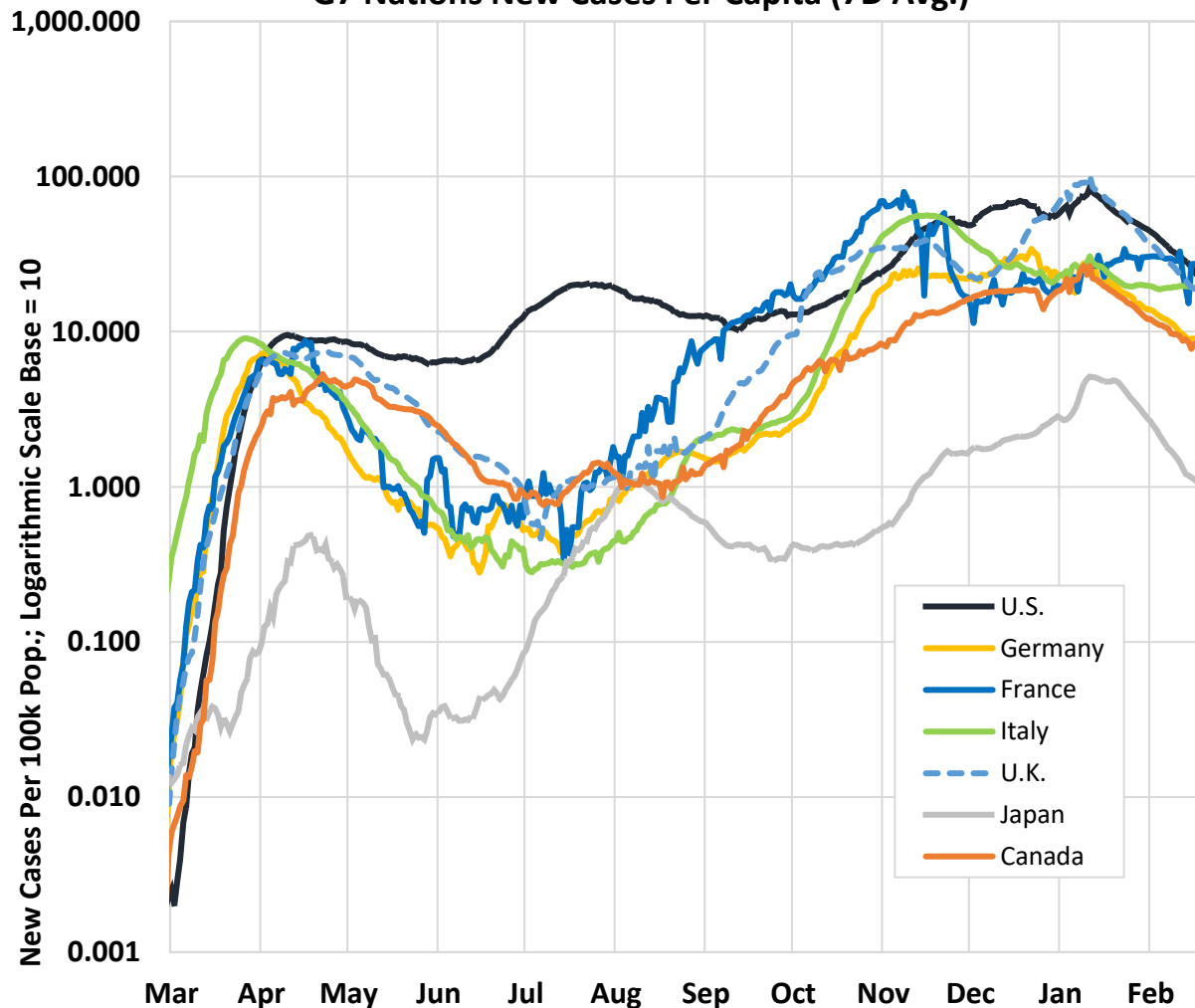
G7 Nations New Deaths Per Capita (7D Avg.)



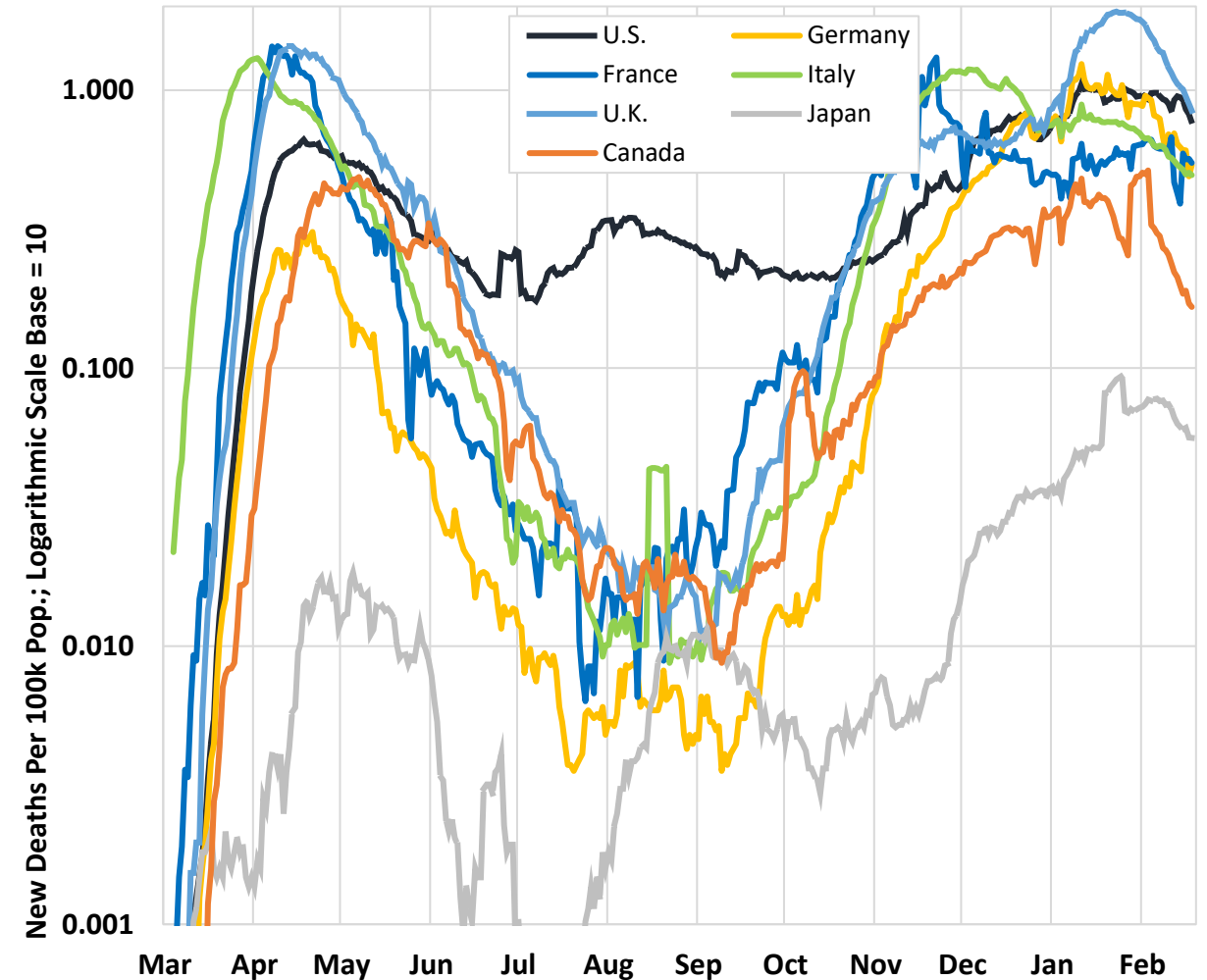
G7 NEW CASES AND DEATHS

NEW CASES AND DEATHS (7-DAY AVERAGE) BY G7 NATION PER 100K POPULATION

G7 Nations New Cases Per Capita (7D Avg.)

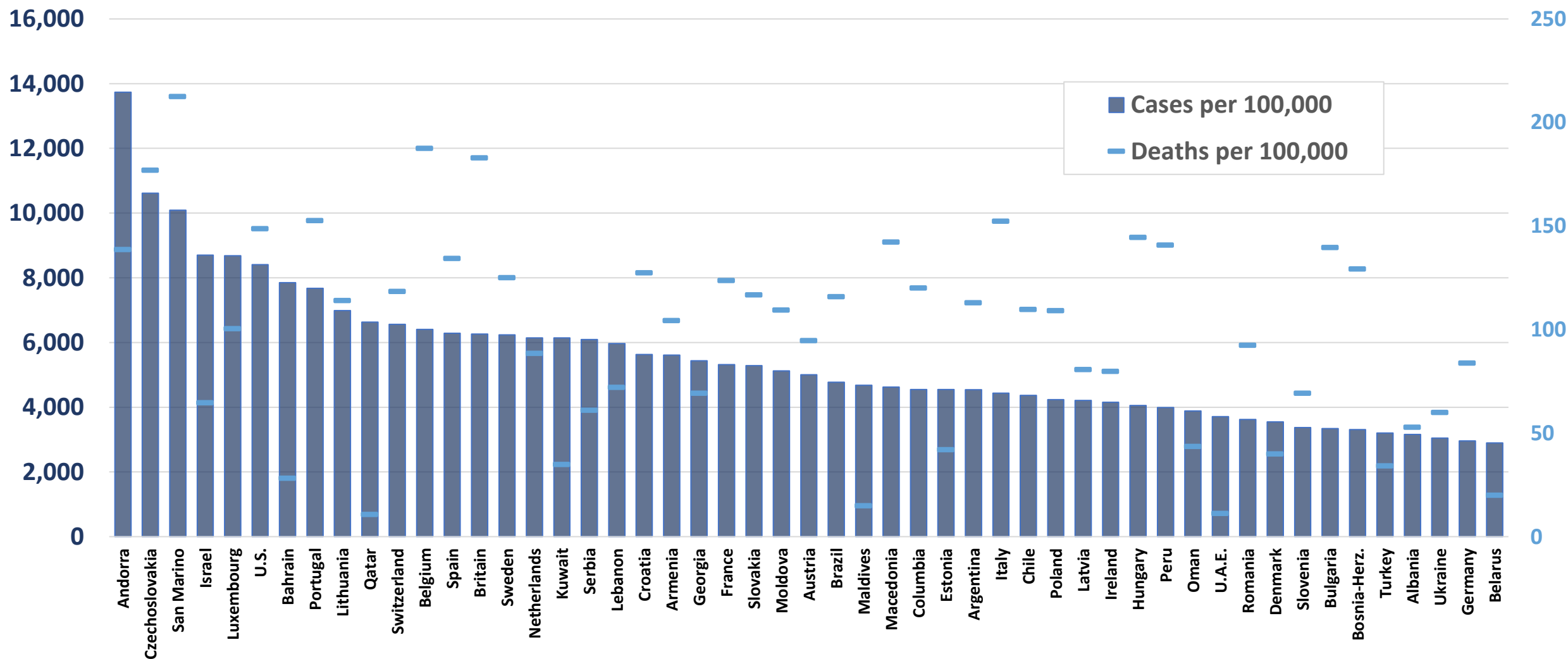


G7 Nations New Deaths Per Capita (7D Avg.)



SITUATION BY COUNTRY

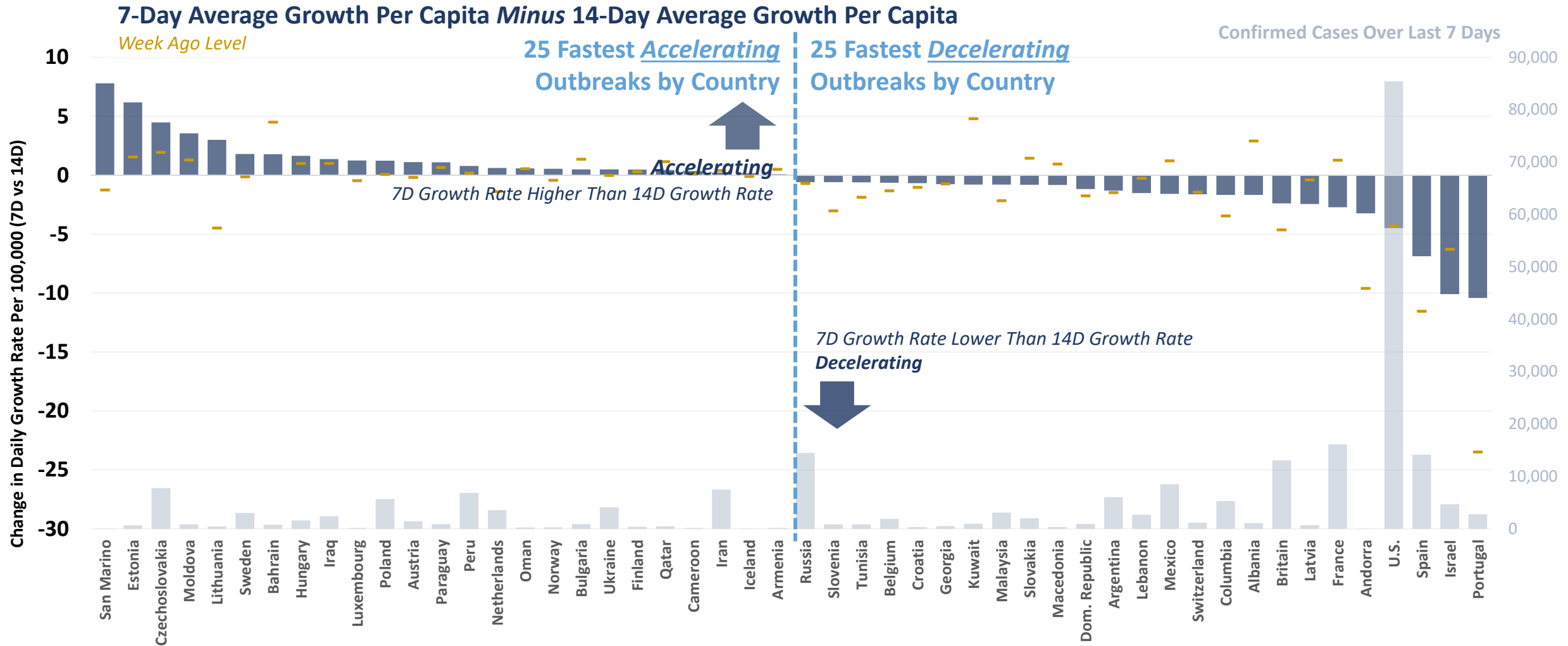
NUMBER OF CONFIRMED CASES AND REPORTED DEATHS PER 100,000 POPULATION



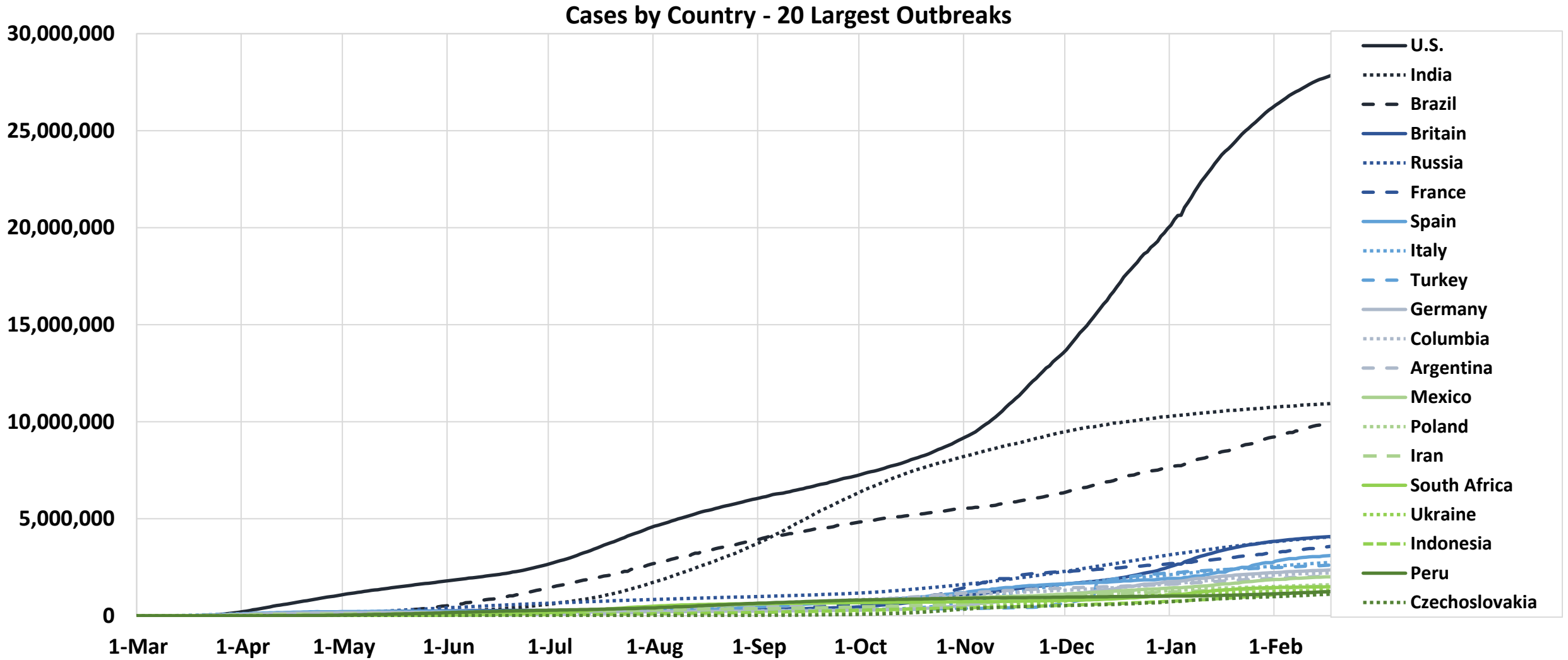
Sources: Bloomberg, Census Bureau, Vining Sparks

RATE OF PER CAPITA GROWTH

COUNTRIES BY CURRENT GROWTH RATE (7D AVG) VERSUS LONGER RUN GROWTH RATE (14D AVG)



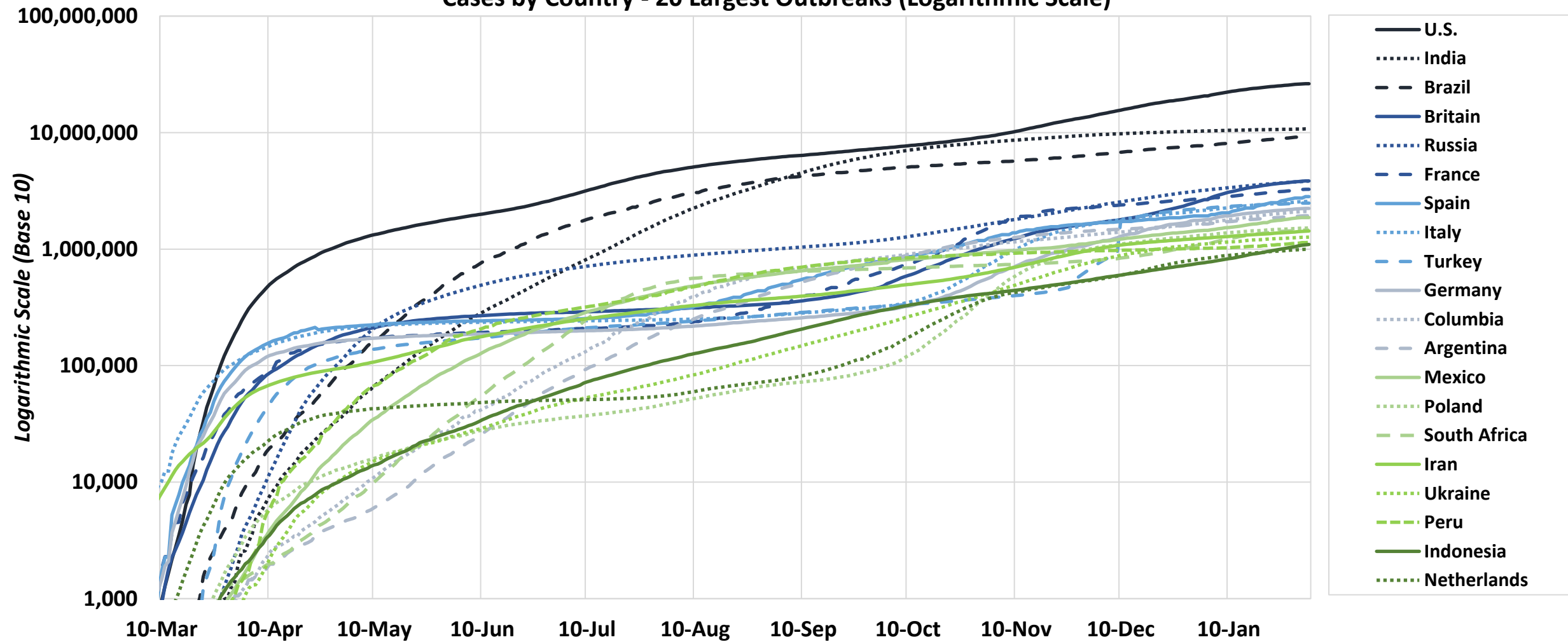
CASE GROWTH BY COUNTRY



Sources: Bloomberg, Vining Sparks

CASE GROWTH BY COUNTRY

Cases by Country - 20 Largest Outbreaks (Logarithmic Scale)



Sources: Bloomberg, Vining Sparks

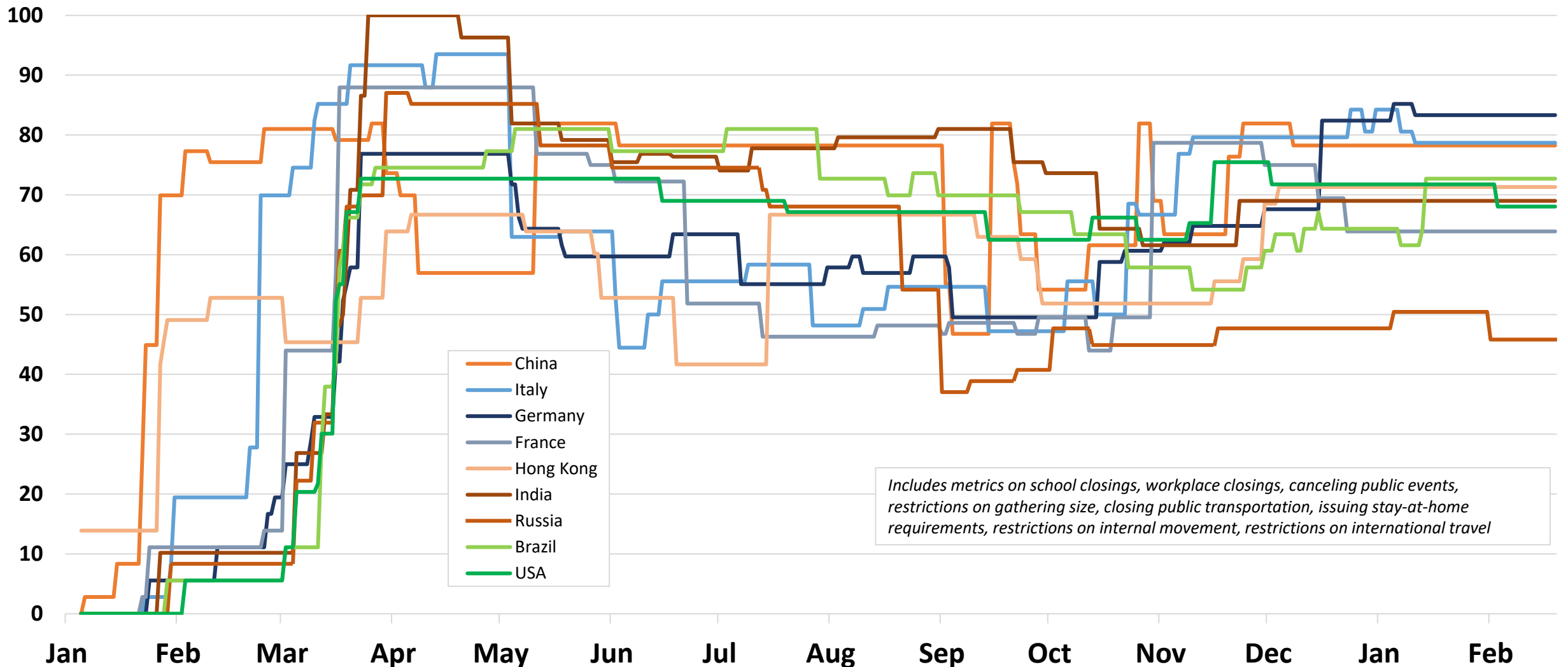
GOVERNMENT STRINGENCY

VINING



SPARKS

OXFORD STRINGENCY INDEX – QUANTIFYING STRINGENCY OF GOVERNMENT RESPONSES

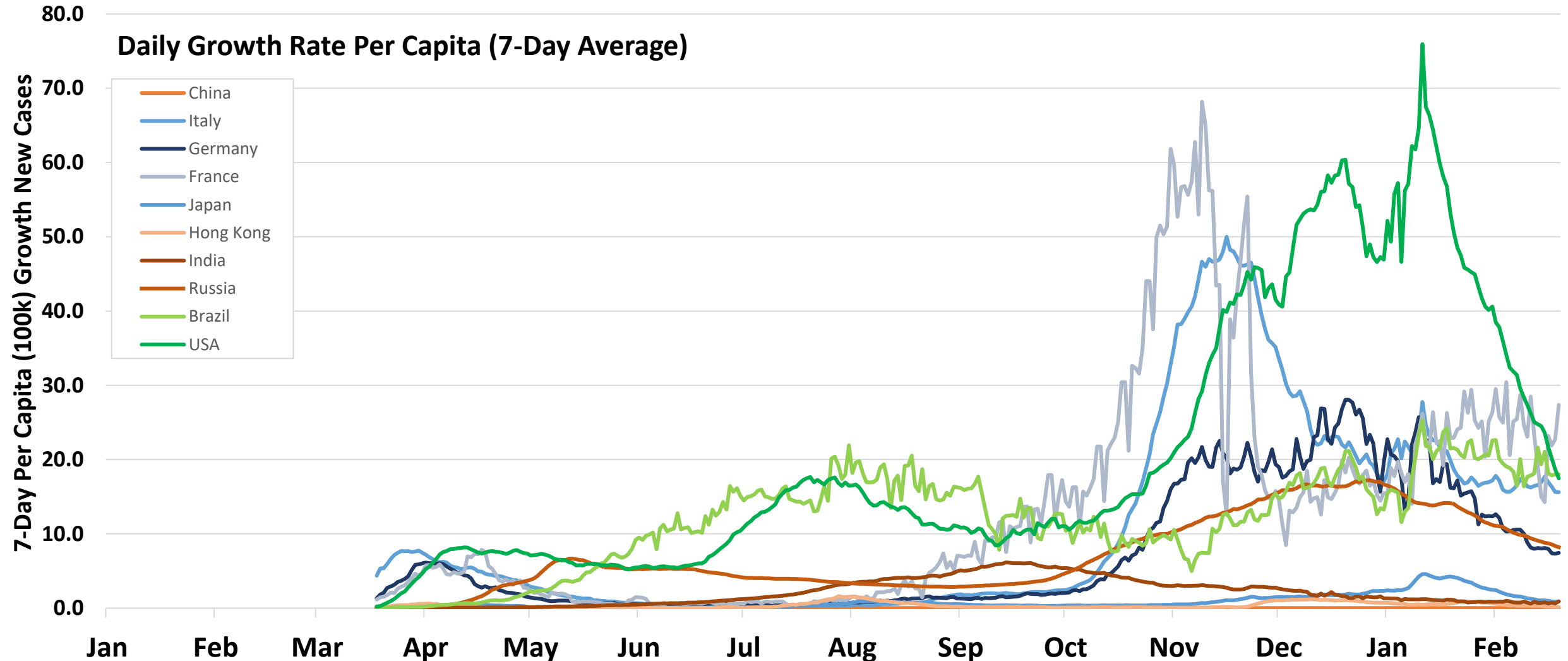


Includes metrics on school closings, workplace closings, canceling public events, restrictions on gathering size, closing public transportation, issuing stay-at-home requirements, restrictions on internal movement, restrictions on international travel

Sources: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, Vining Sparks

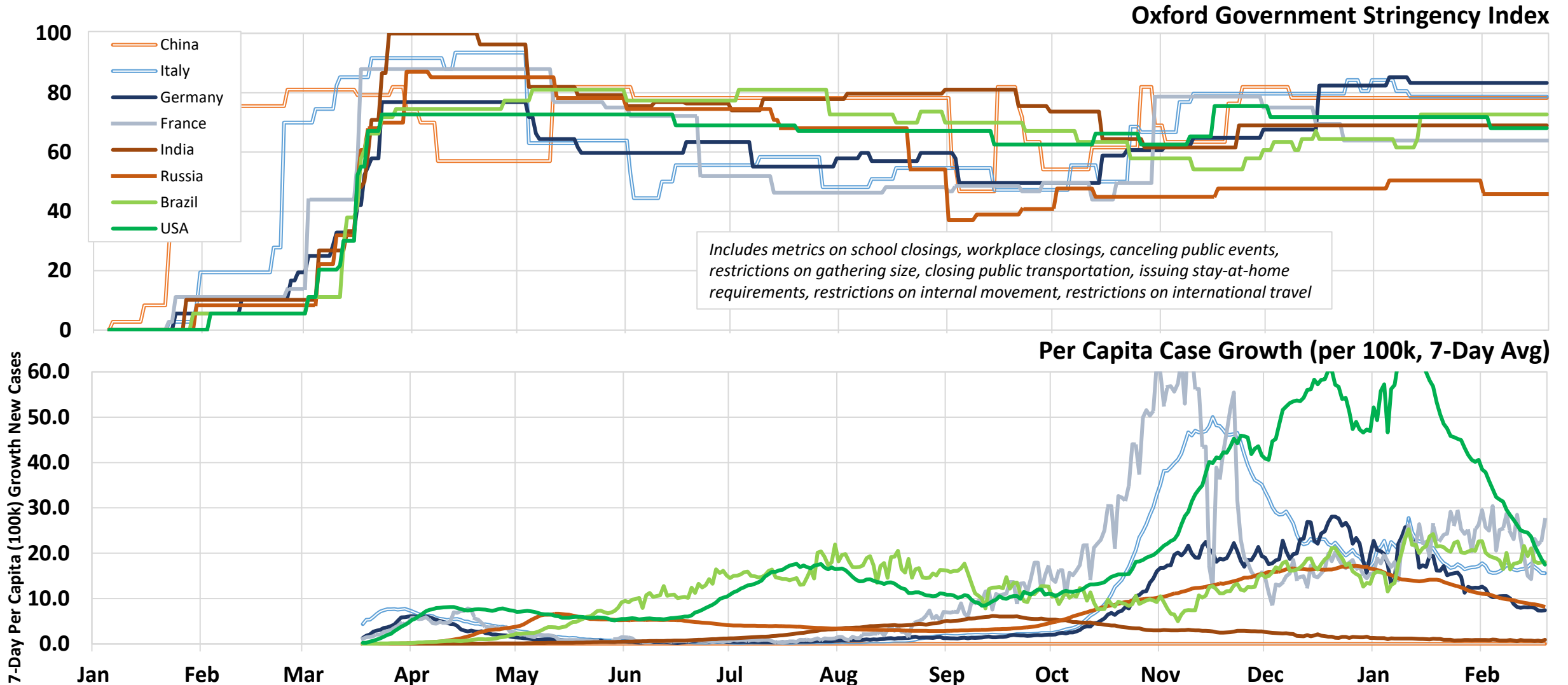
PER CAPITA GROWTH (7-DAY)

Daily Growth Rate Per Capita (7-Day Average)



GOVERNMENT STRINGENCY

OXFORD STRINGENCY INDEX – QUANTIFYING STRINGENCY OF GOVERNMENT RESPONSES

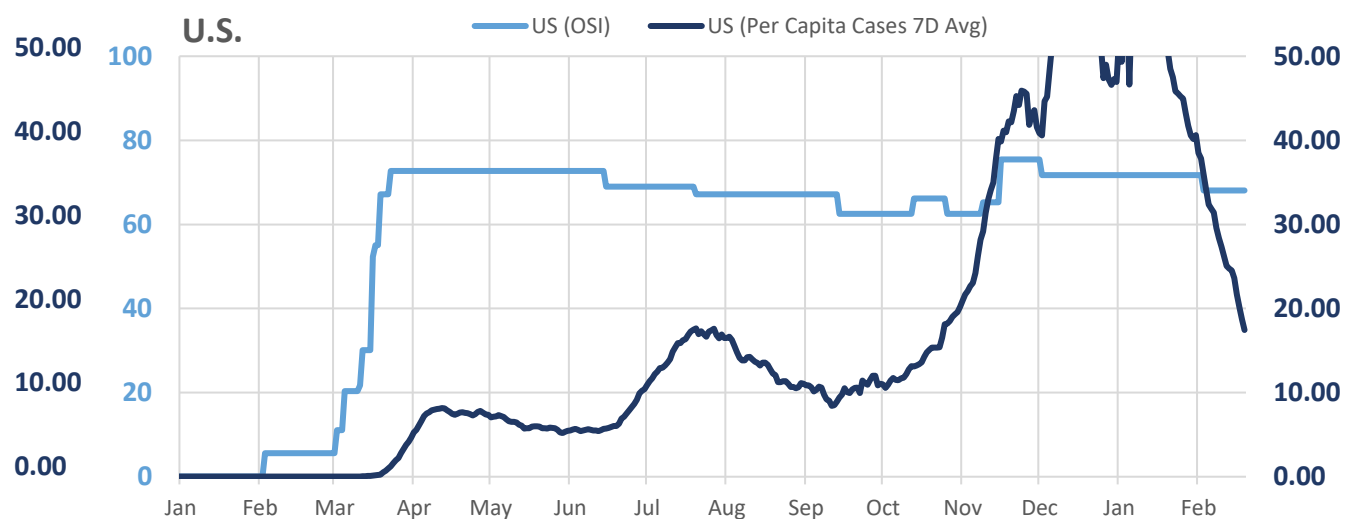
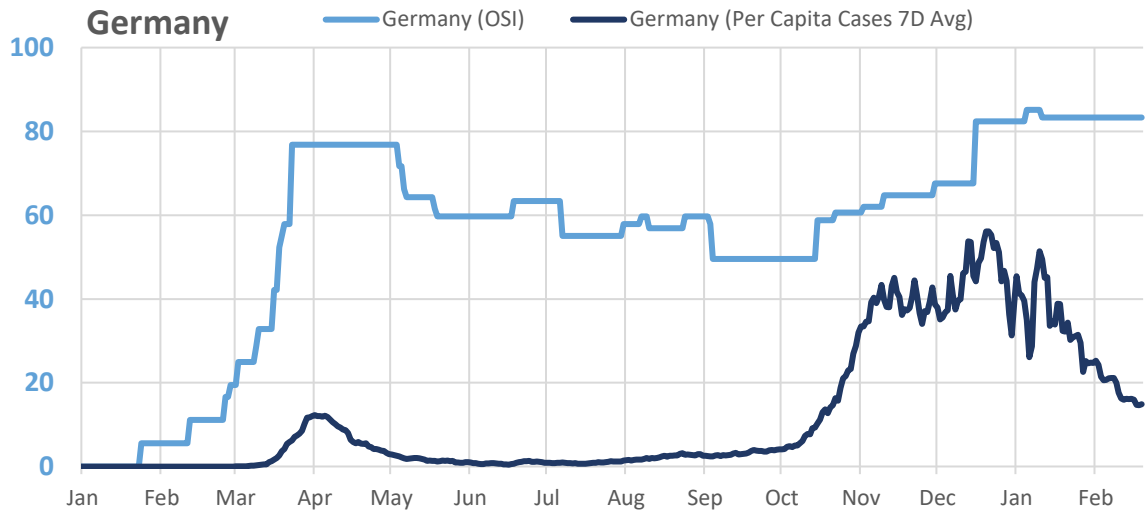
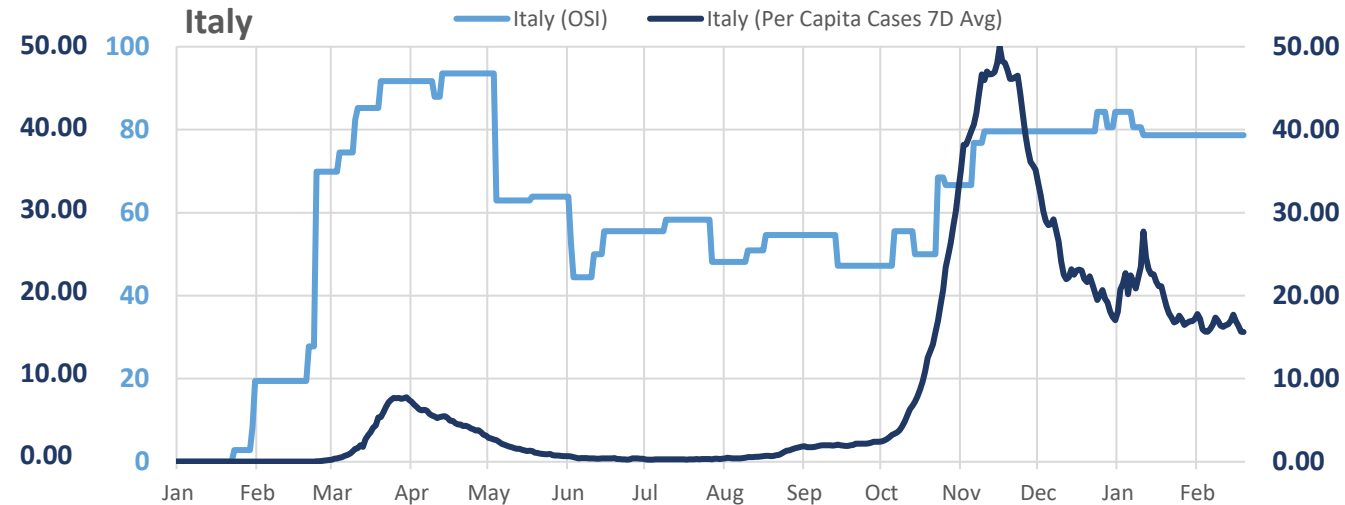
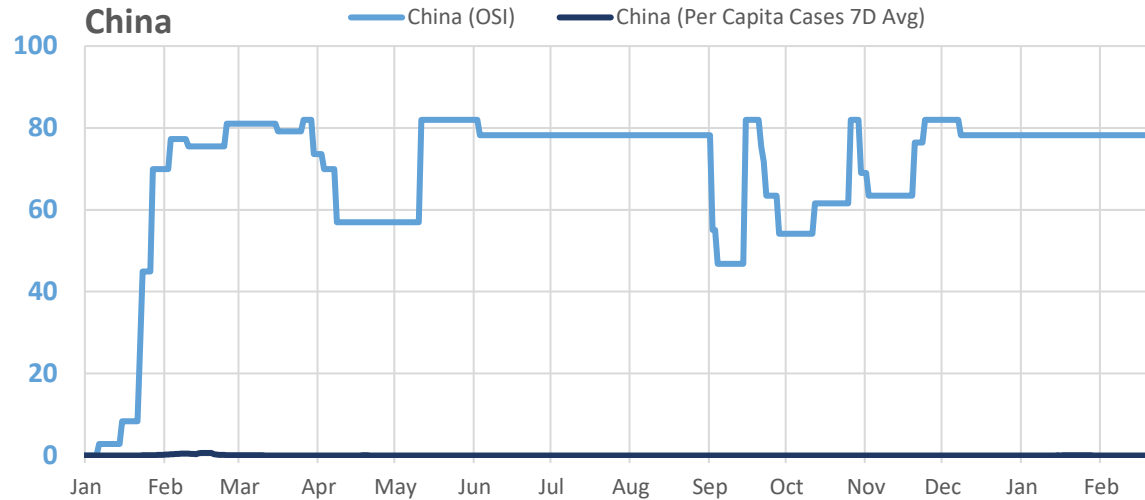


Sources: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, Vining Sparks

GOVERNMENT STRINGENCY



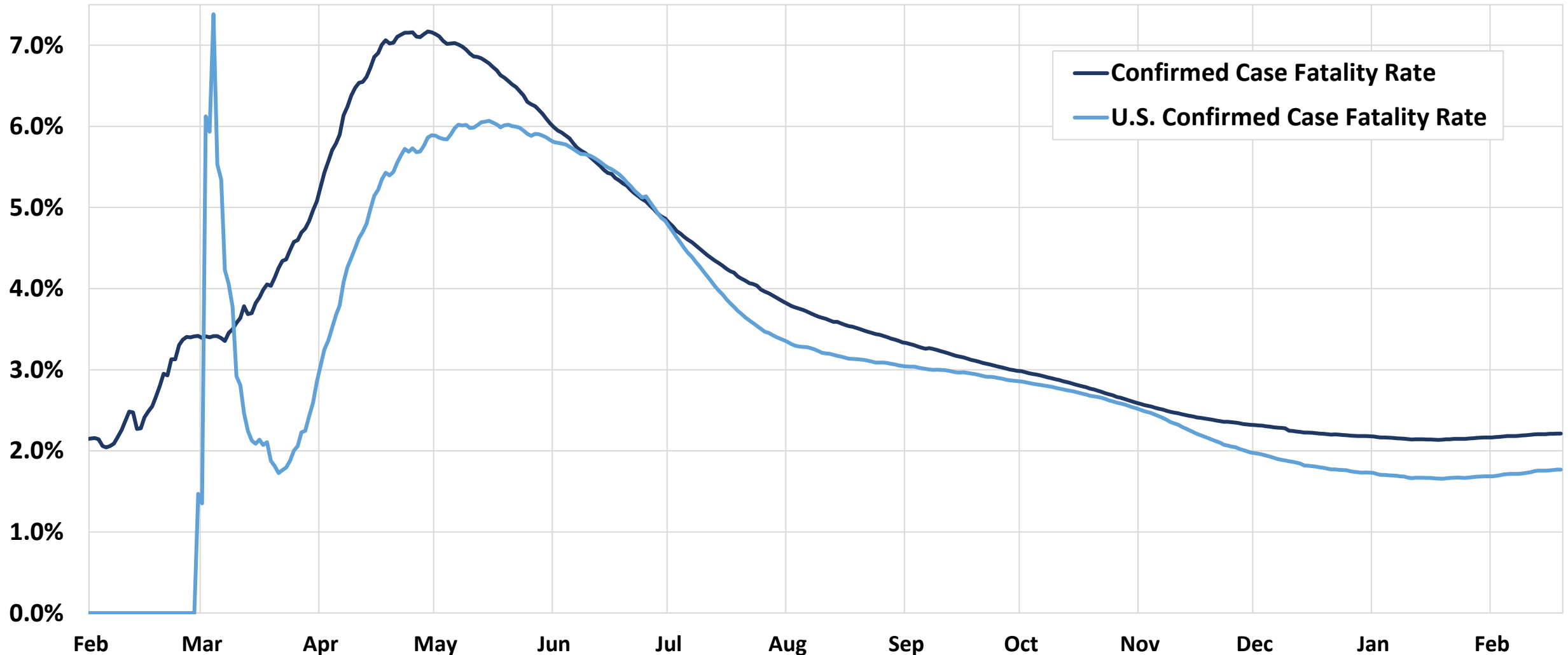
OXFORD STRINGENCY INDEX – QUANTIFYING STRINGENCY OF GOVERNMENT RESPONSES VS CASE GROWTH



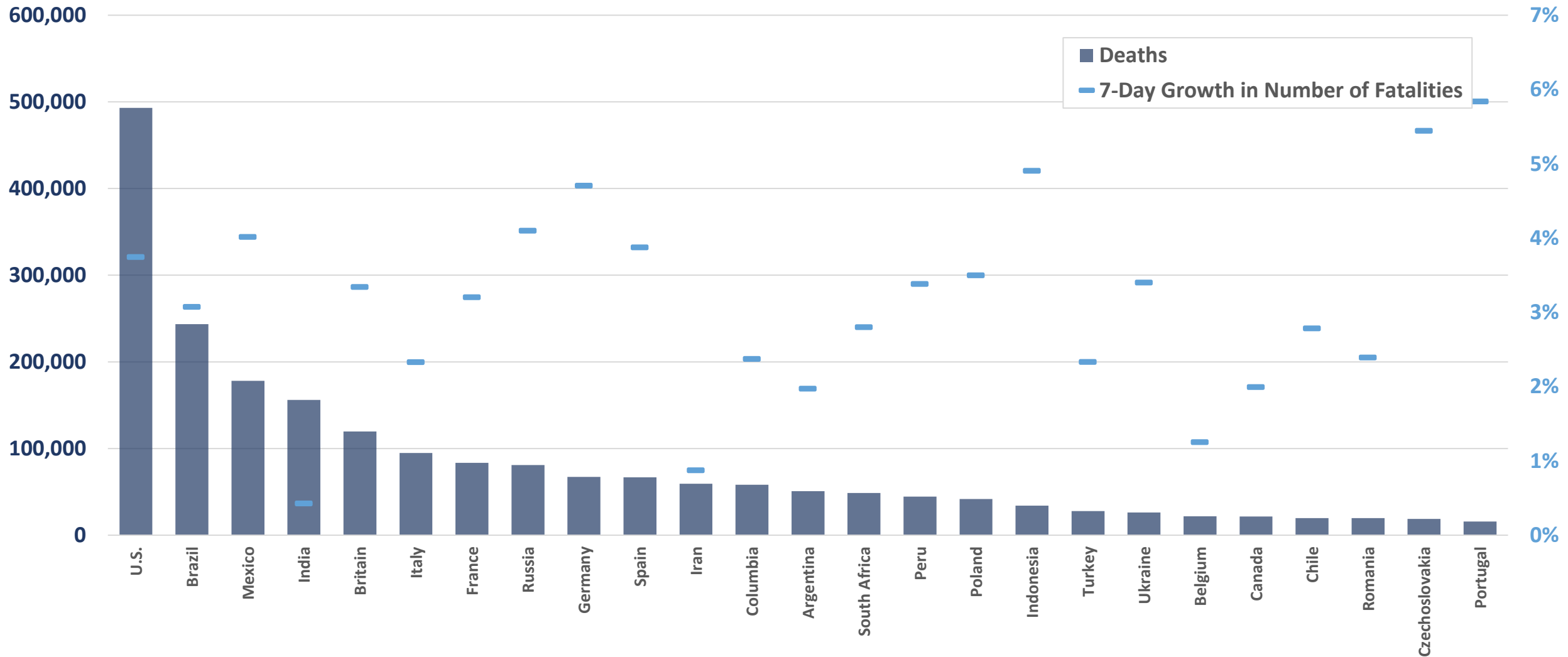
Sources: Oxford COVID-19 Government Response Tracker, Blavatnik School of Government, Vining Sparks

CASE FATALITY RATE

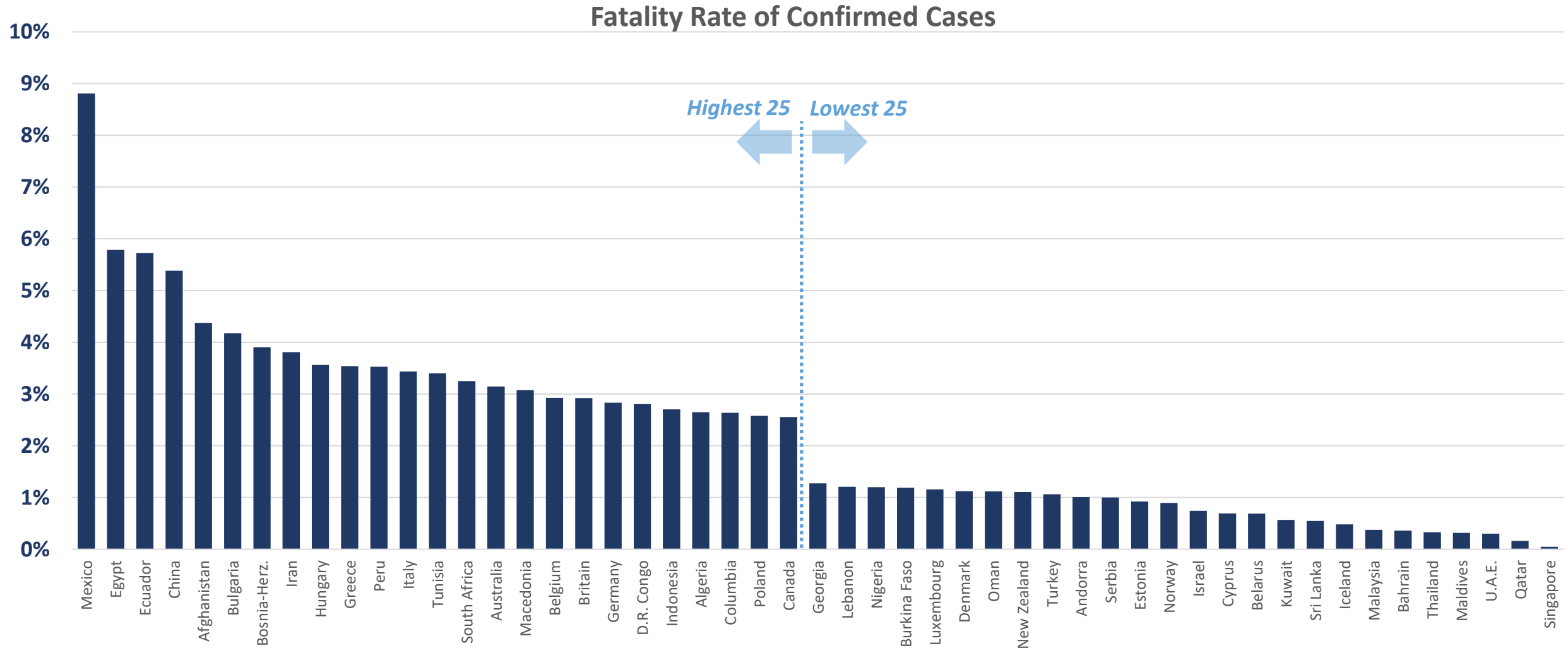
CASE FATALITY RATE OF COVID-19 HAS BEGUN TO DECLINE AS TESTING HAS INCREASED



FATALITIES BY COUNTRY



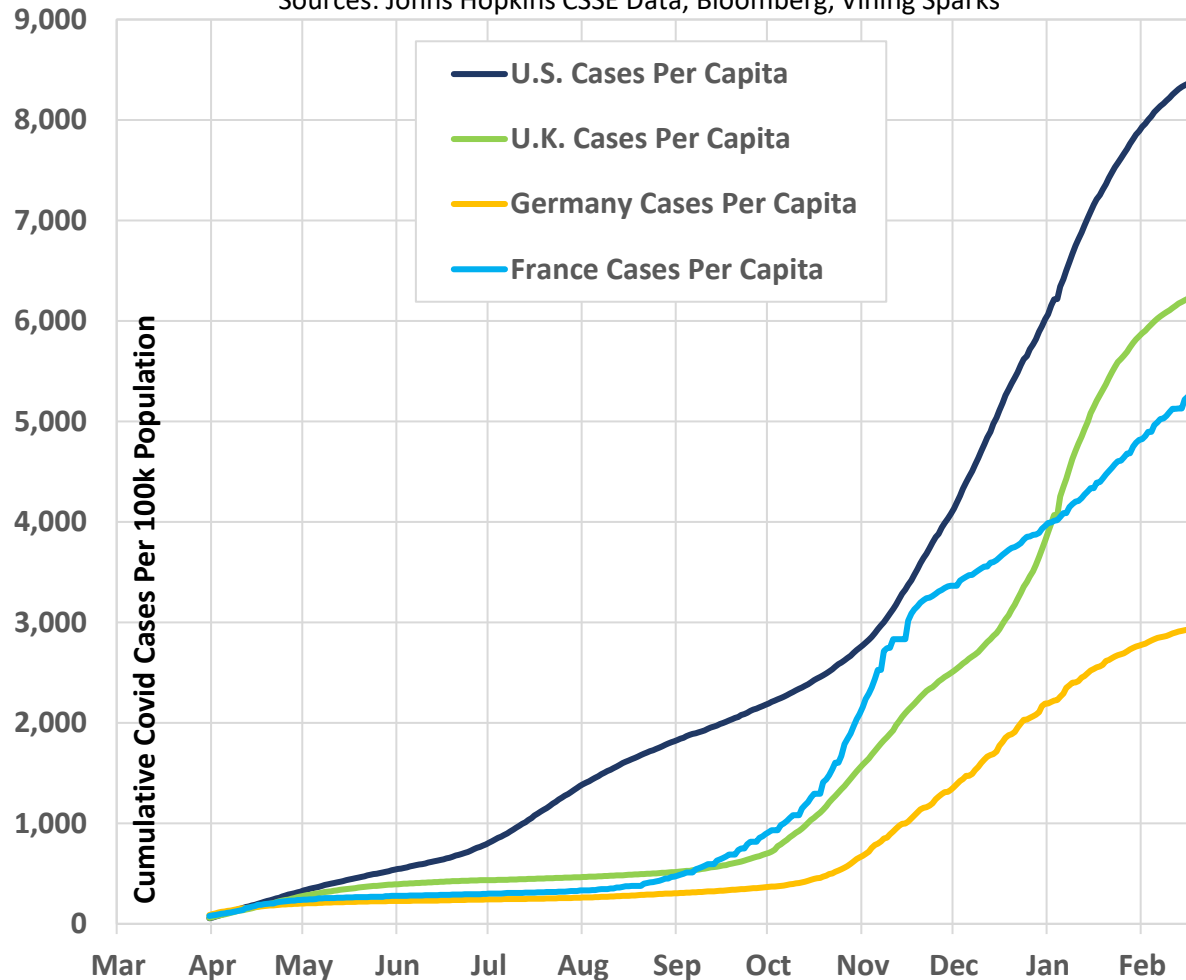
FATALITY RATES BY COUNTRY



PER CAPITA CASES AND FATALITIES VINING SPARKS

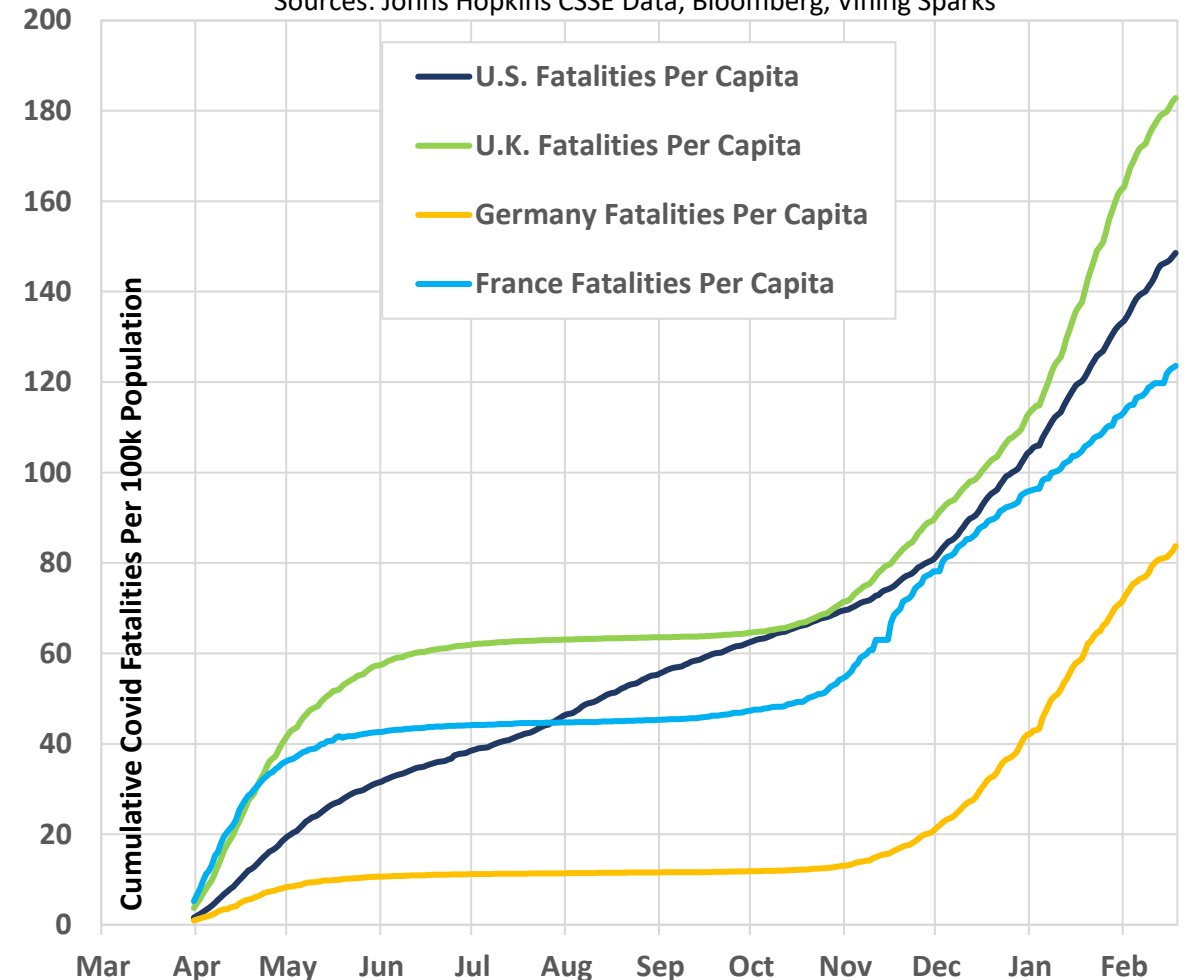
Per Capita Cases (Per 100k Population)

Sources: Johns Hopkins CSSE Data, Bloomberg, Vining Sparks



Per Capita Fatalities (Per 100k Population)

Sources: Johns Hopkins CSSE Data, Bloomberg, Vining Sparks



¹According to guidance from the N.H.C. dated February 6, China will begin classifying coronavirus results into four categories: “suspected cases,” “clinically diagnosed cases,” “positive tests,” and “confirmed cases.” Only patients who test positive for the virus AND who have symptoms will be included in the count of “confirmed cases.” If someone tests positive but shows no symptoms, they will be classified in the “positive tests” category and excluded from the “confirmed cases” count going forward. [Link to N.H.C. Statement](#)

² The N.H.C. begins reporting “clinically diagnosed cases,” those which test positive but without the confirmation of a nucleic acid test, as “confirmed cases.”

Johns Hopkins CSSE data used beginning March 18 due to lagged reporting from C.D.C. and W.H.O.

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