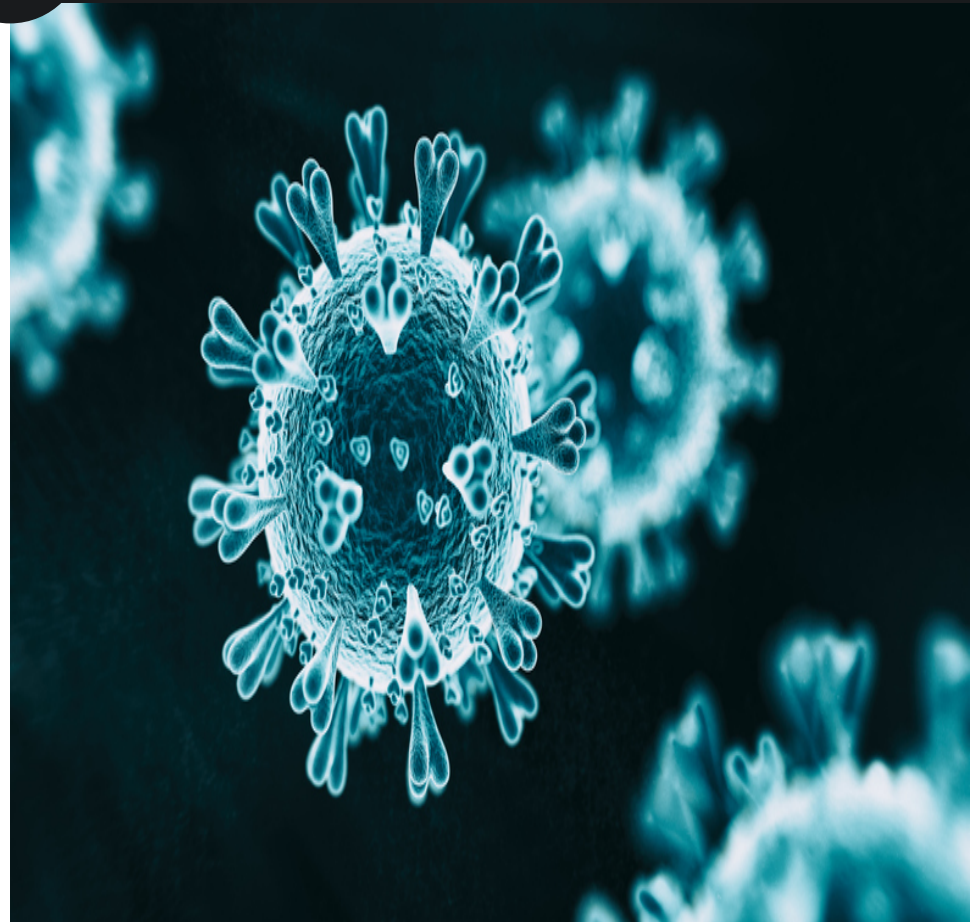




COVID-19: MAY 7 UPDATE

May 7, 2020



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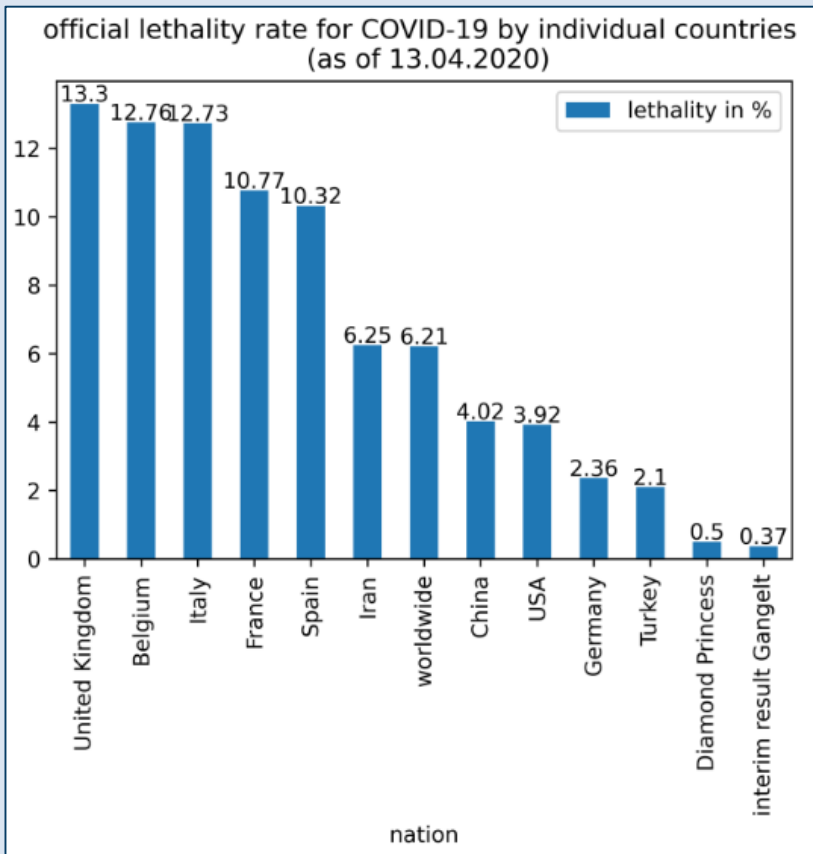
OUTLINE

- Overall Observations
- C19 Case and Death Count Update, by Country
- Latest IHME & (Unofficial) CDC Projections for United States
- Vast Majority of Americans Support Stay-at-Home Orders
- C19 Around the World: Cause and Effect
- Was SARS-CoV-2 Made in a Lab? (Question Revisited)

OVERALL OBSERVATIONS

- Mixed news on U.S. case & death trends:
 - U.S. daily new cases declining—amid rising test counts and falling positive %.
 - But highly skewed by NY fall... while rest of US show cases rising.
 - U.S. daily deaths still high; totals projected by Wash U. & POTUS are rising.
- Oddly, states continue to open with President's blessing yet against White House guidelines—and in the face of President's own higher death projections.
- Anti-hypertension drugs: New study reveals ACE Inhibitors (like lisinopril) or ARBs (like losartan) do not make you more prone to C19 infection. Don't stop taking them!
- Do cigarettes actually protect you against C19?
 - French survey shows only 5% of c19 cases are smokers (v. 25% for population); other metastudies come to similar (though less dramatic) findings.
 - Nicotines role in either blocking or promoting ACE2 receptors may be critical.
- More on “true” case and death rates. Let's update our look at population infection numbers.

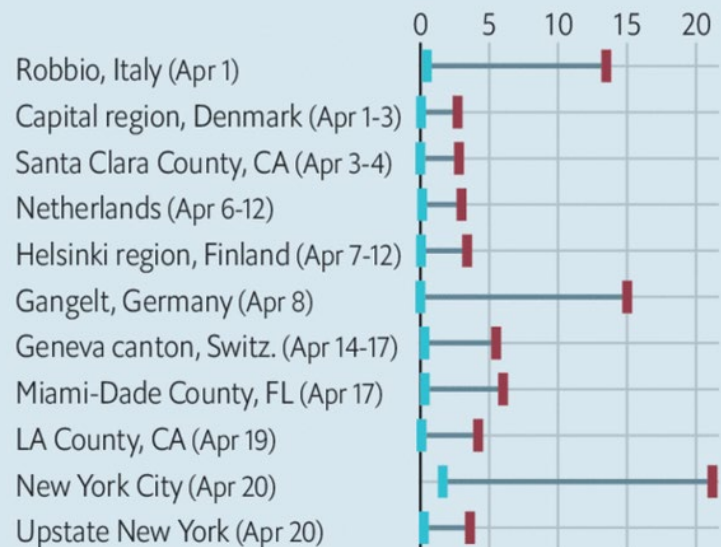
LOOKING FOR “TRUE” CASE & DEATH RATE



Circumstances alter cases

Covid-19, % of population infected implied by:

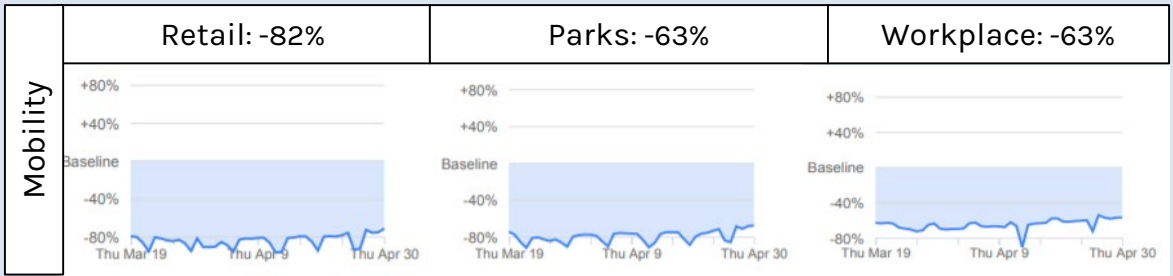
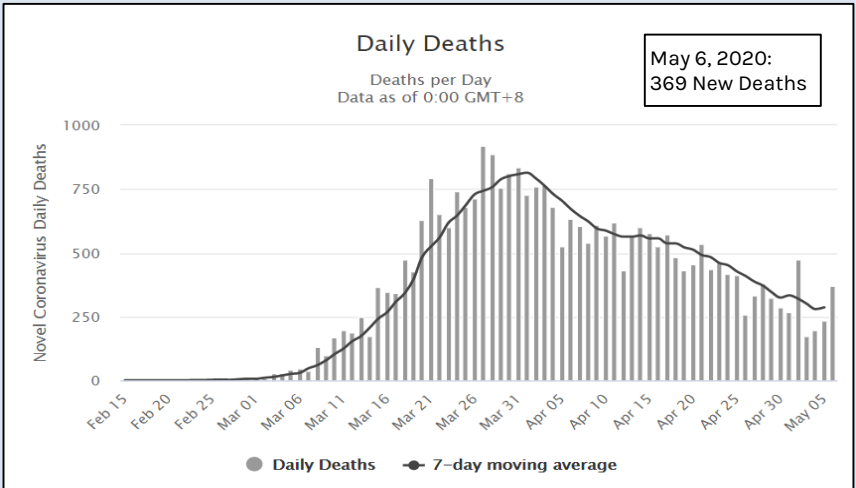
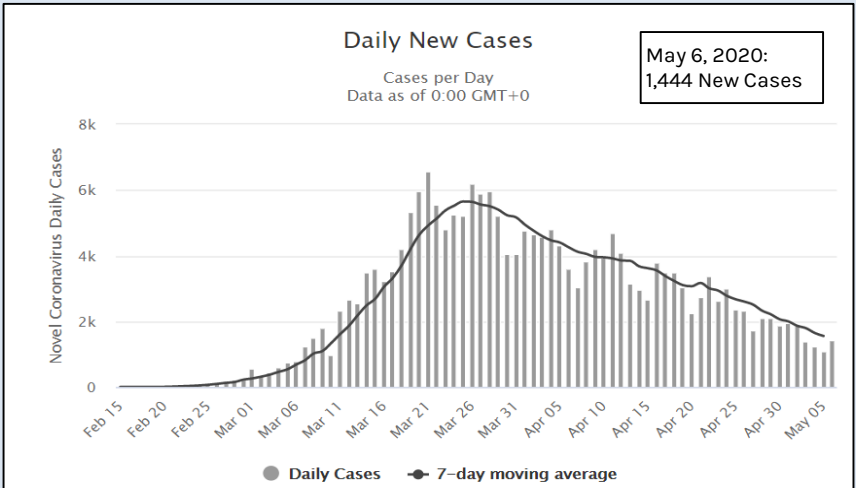
Official case count Serology survey*



Sources: Academic studies; press reports; national statistics; *New York Times*; *The Economist* *Approximate dates

THE SITUATION IN... ITALY

COVID-19 Daily Cases/Deaths and Mobility, Updated May 7, 2020

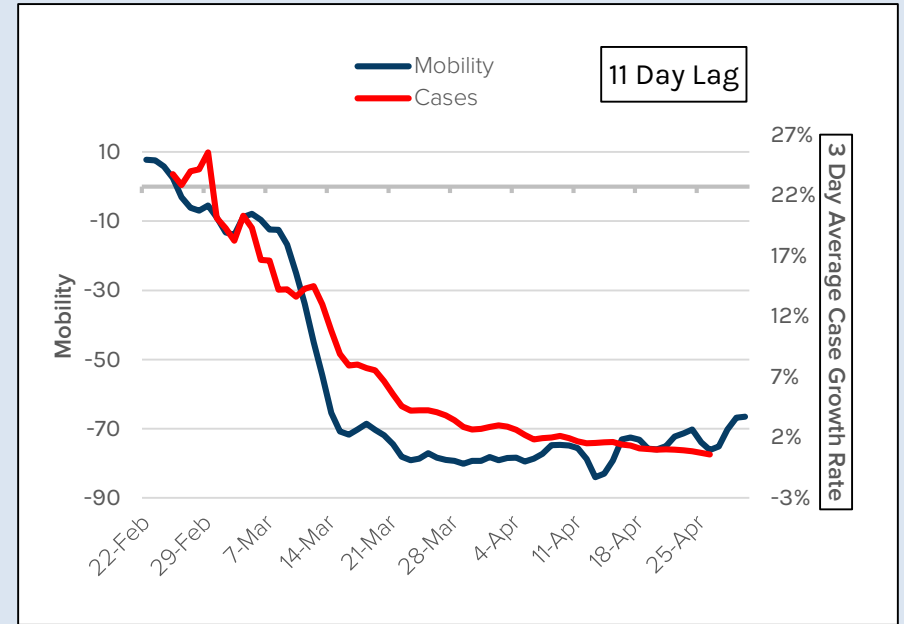
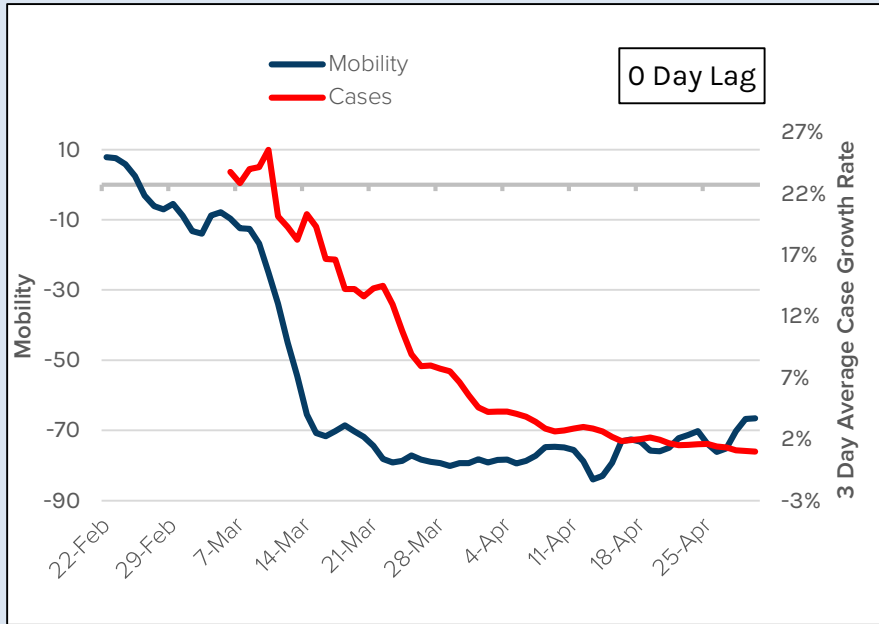


Source: Worldometers, from assorted official sources; Google Mobility Report (2020)

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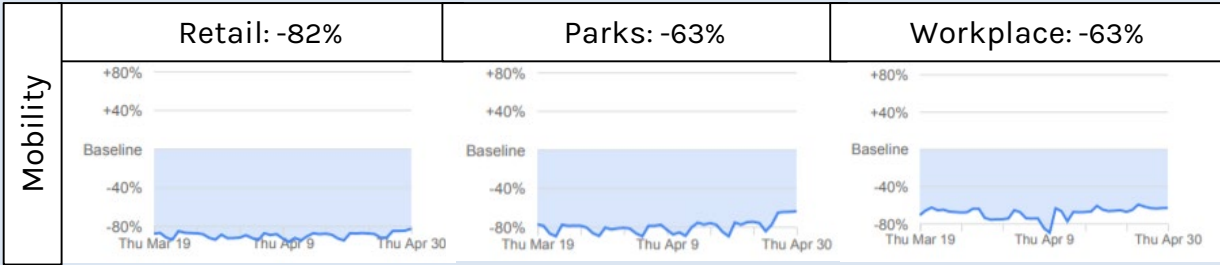
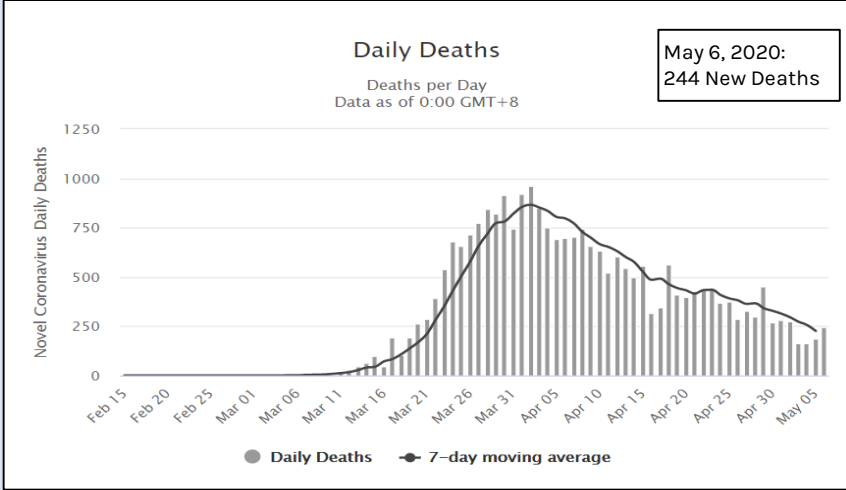
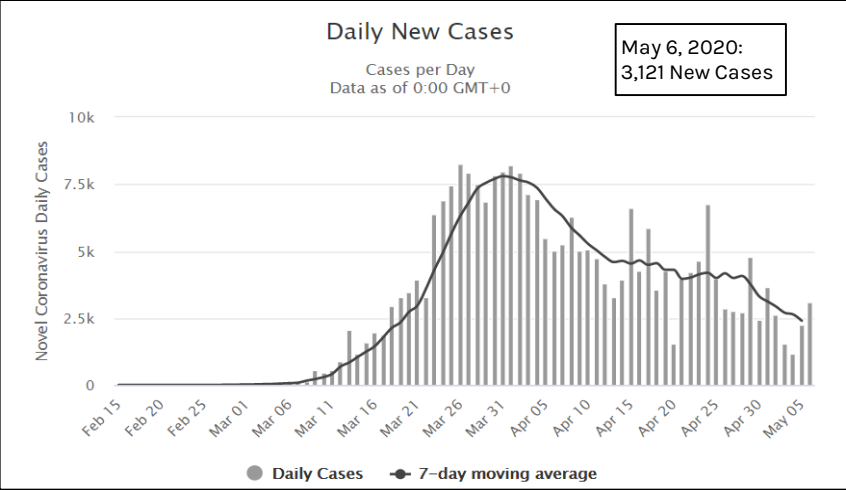
ITALY: 9 DAY LAG

Italy Google Mobility Data Versus 3 Day Average Case Growth Rate, Starting at 4,600 Cases.



THE SITUATION IN... SPAIN

COVID-19 Daily Cases/Deaths and Mobility, Updated May 7, 2020

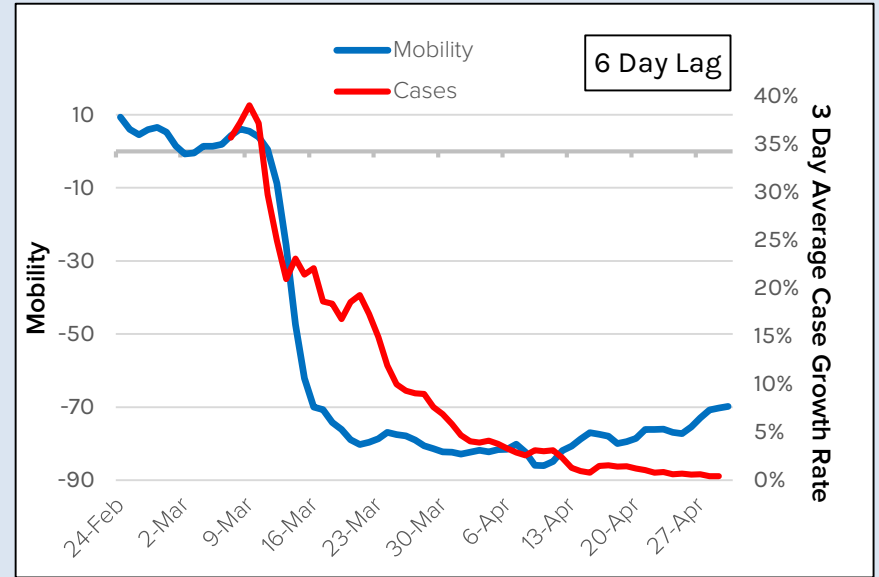
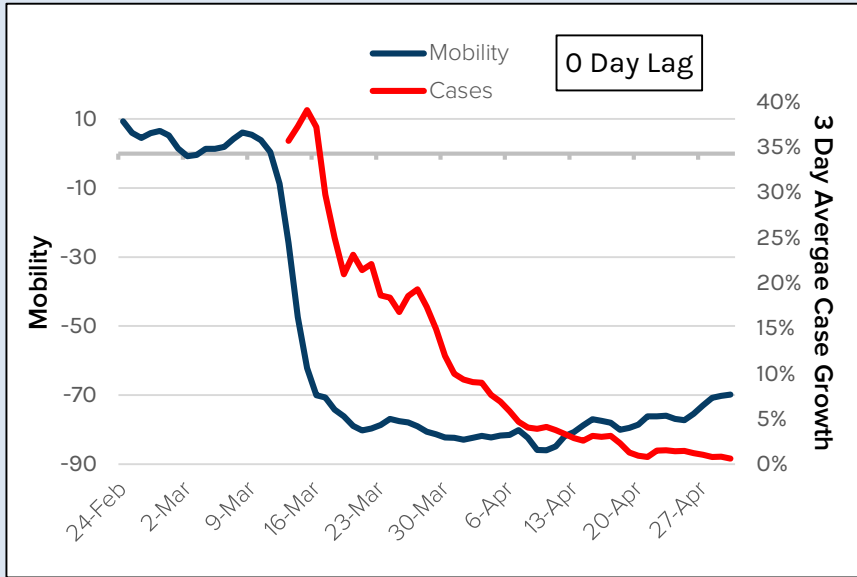


Source: Worldometers, from assorted official sources; Google Mobility Report (2020)

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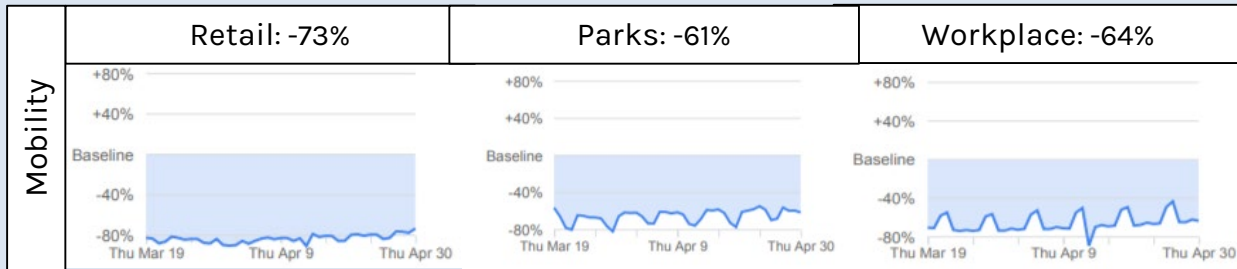
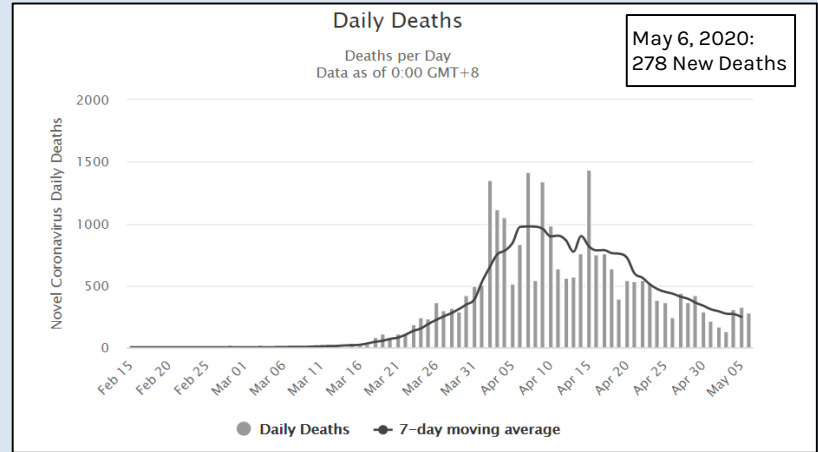
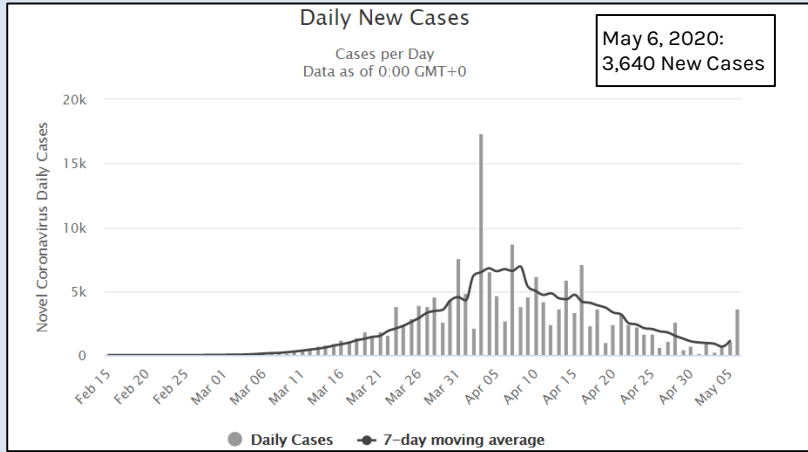
SPAIN: 6 DAY LAG

Spain Google Mobility Data Versus 3 Day Average Case Growth Rate, Starting at 3,000 Cases.



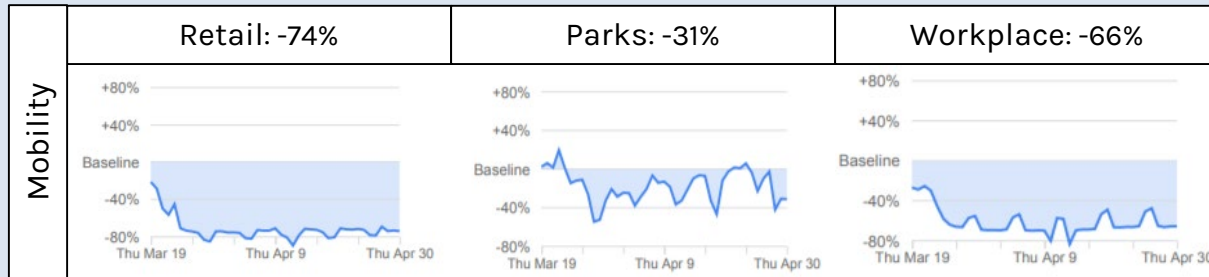
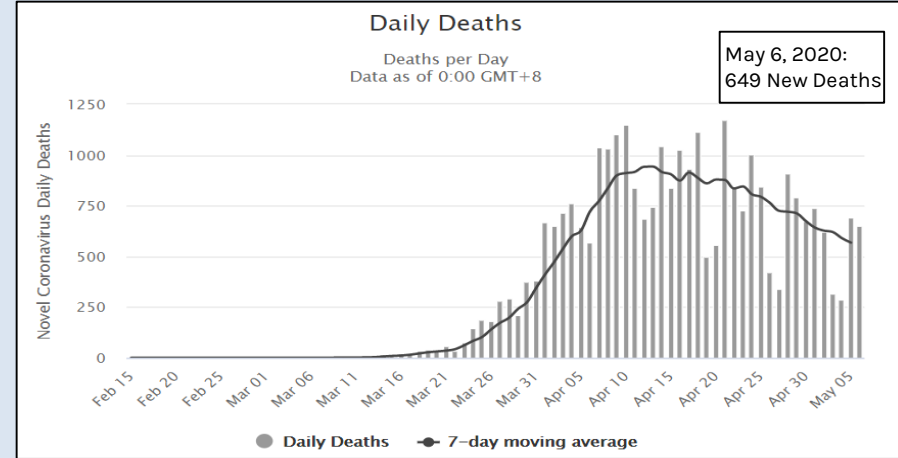
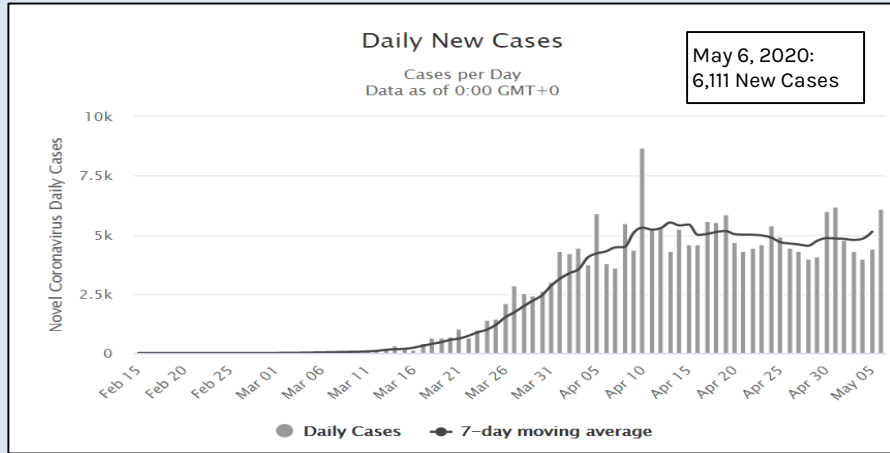
THE SITUATION IN... FRANCE

COVID-19 Daily Cases/Deaths and Mobility, Updated May 7, 2020



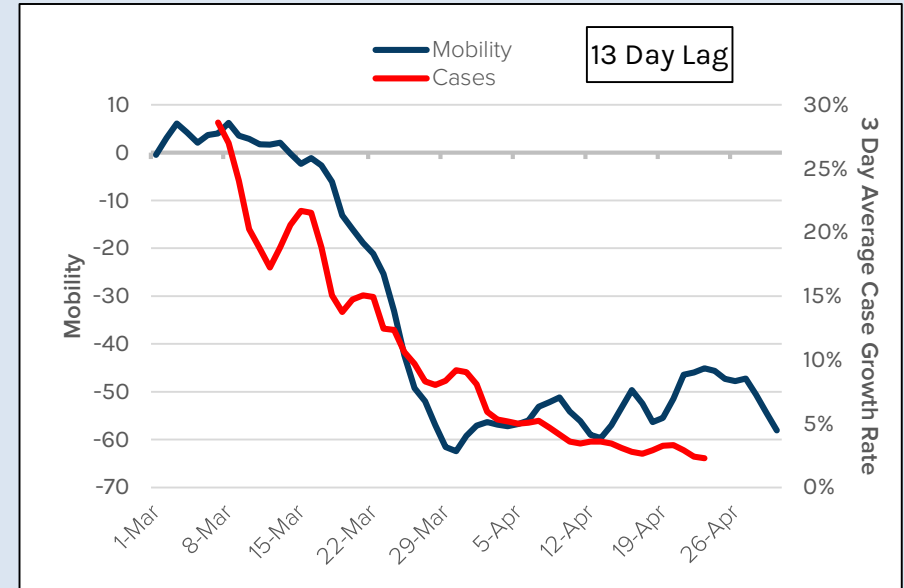
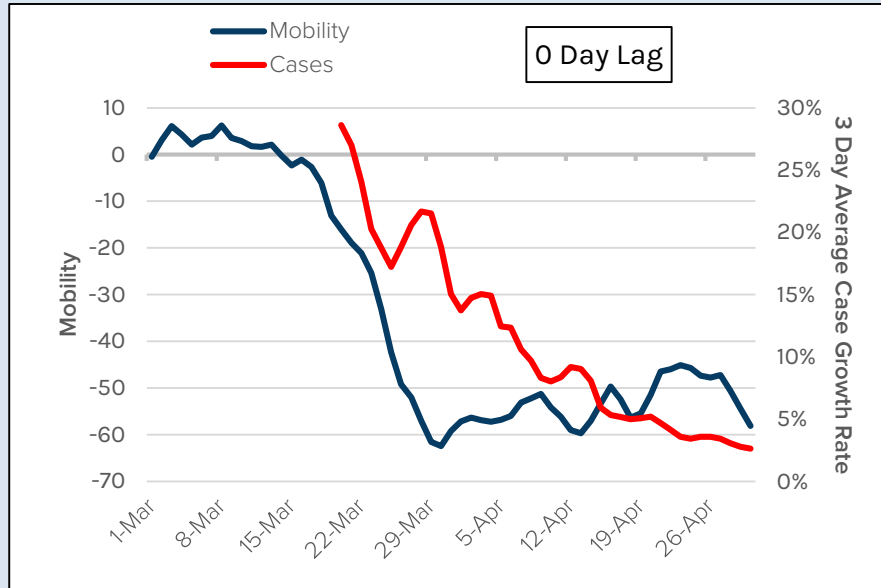
THE SITUATION IN... UK

COVID-19 Daily Cases/Deaths and Mobility, Updated May 7, 2020



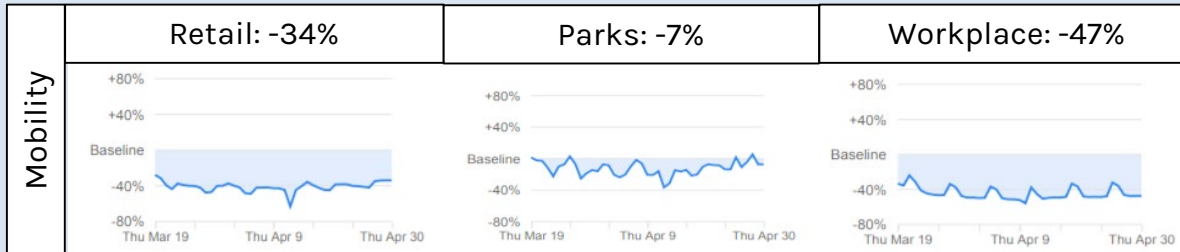
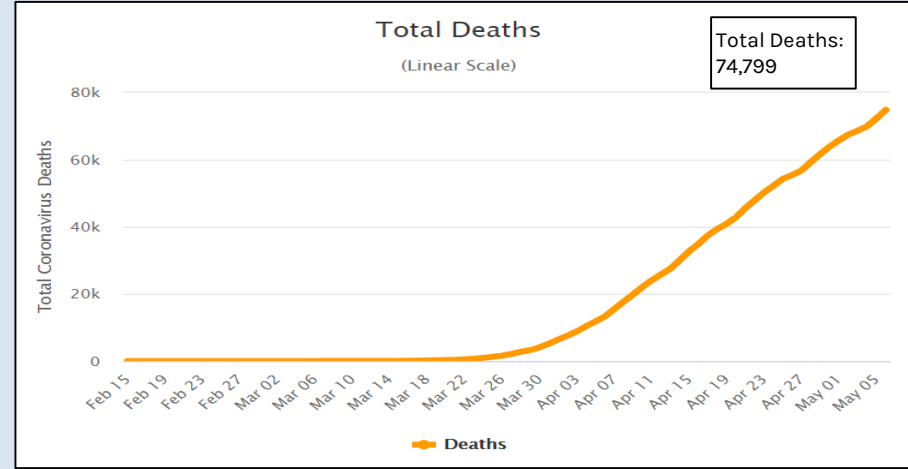
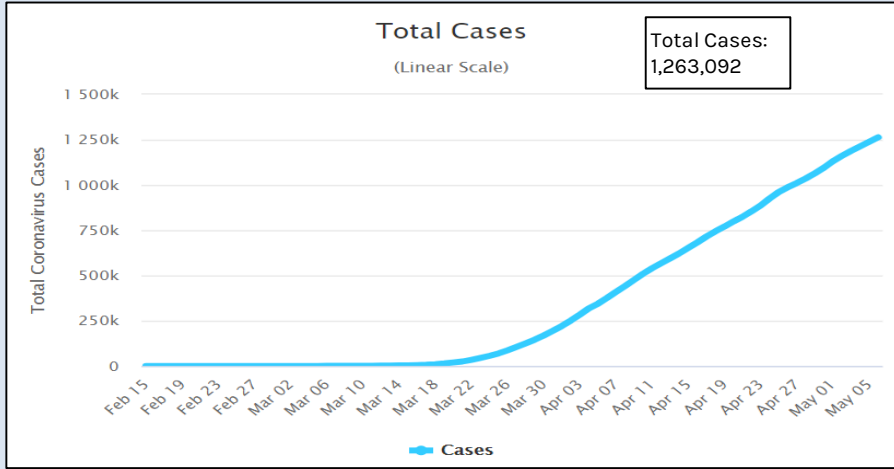
UK: 13 DAY LAG

UK Google Mobility Data Versus 3 Day Average Case Growth Rate, Starting at 3,200 Cases.



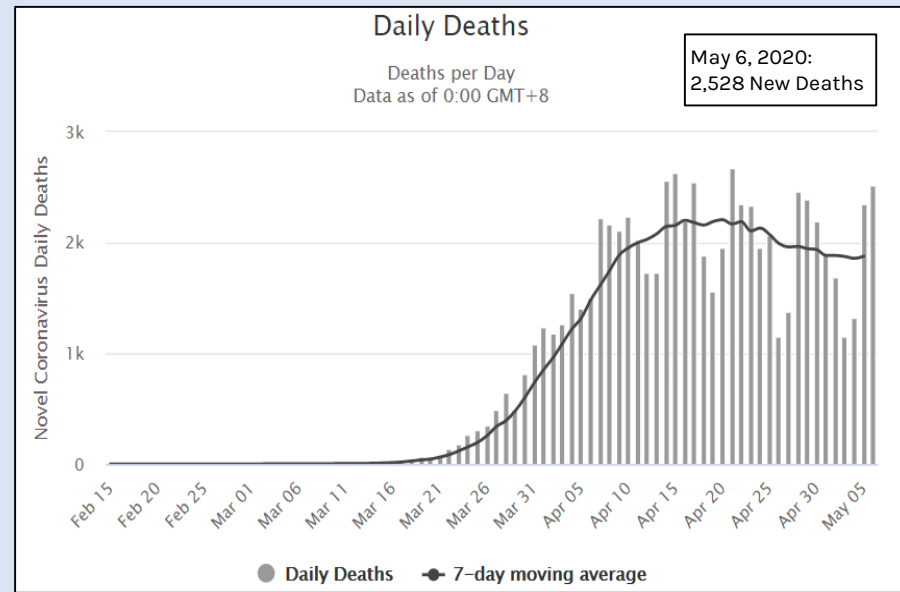
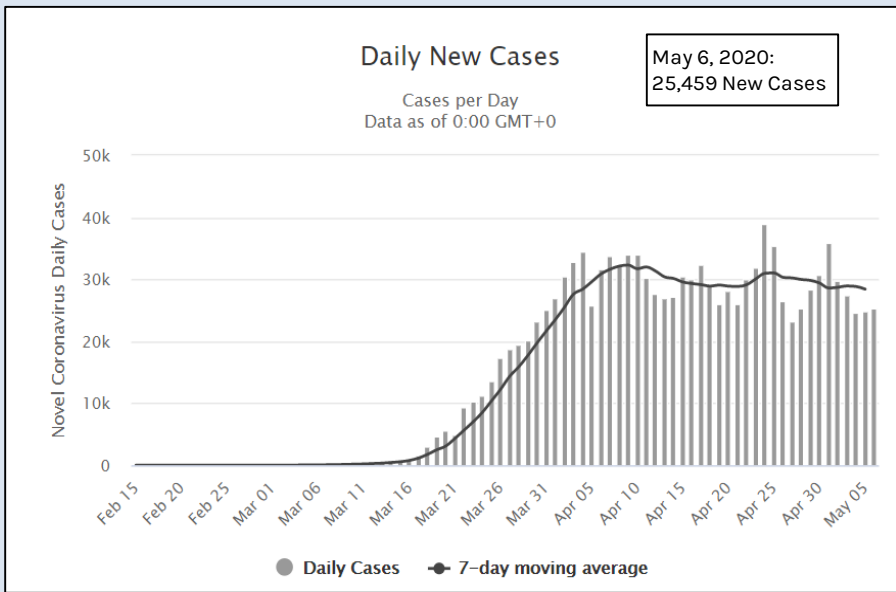
THE SITUATION IN... USA

COVID-19 Total Cases/Deaths and Mobility in USA, Updated May 7, 2020



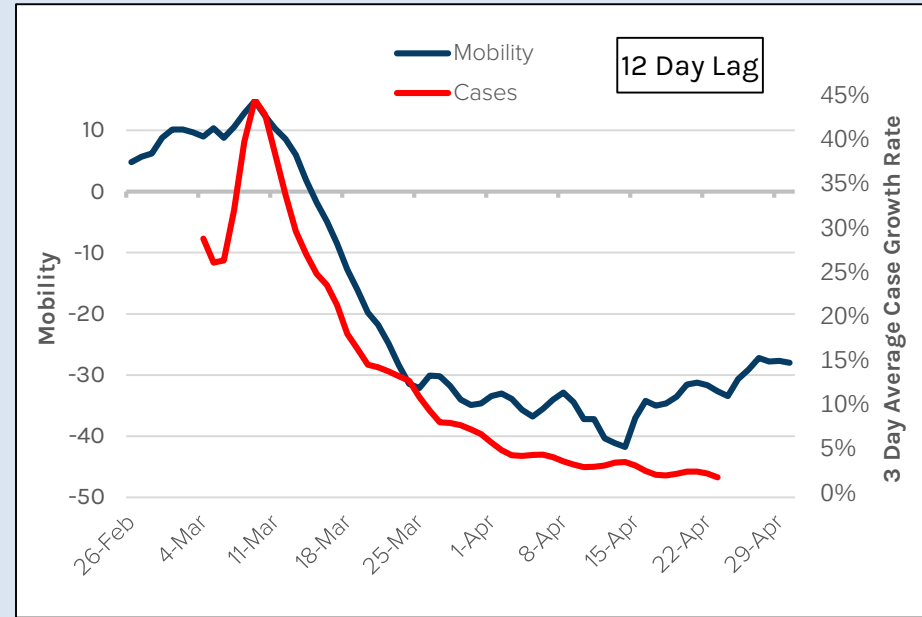
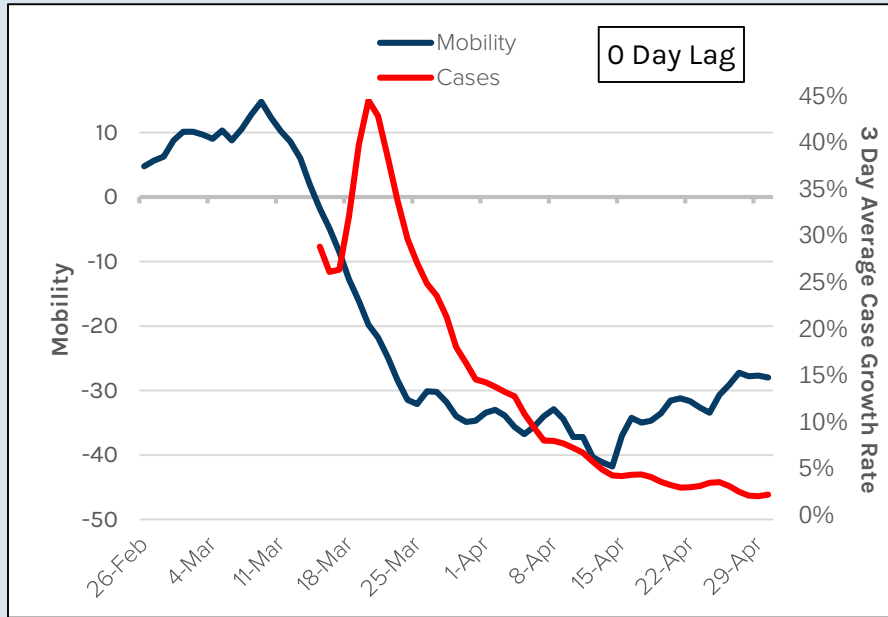
THE SITUATION IN... USA

COVID-19 Daily Cases and Deaths in USA Updated May 7, 2020



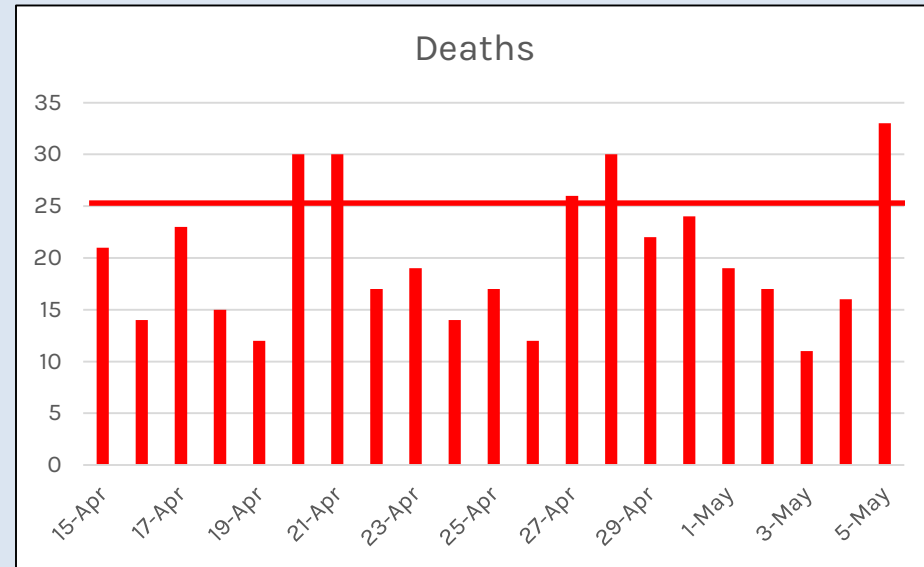
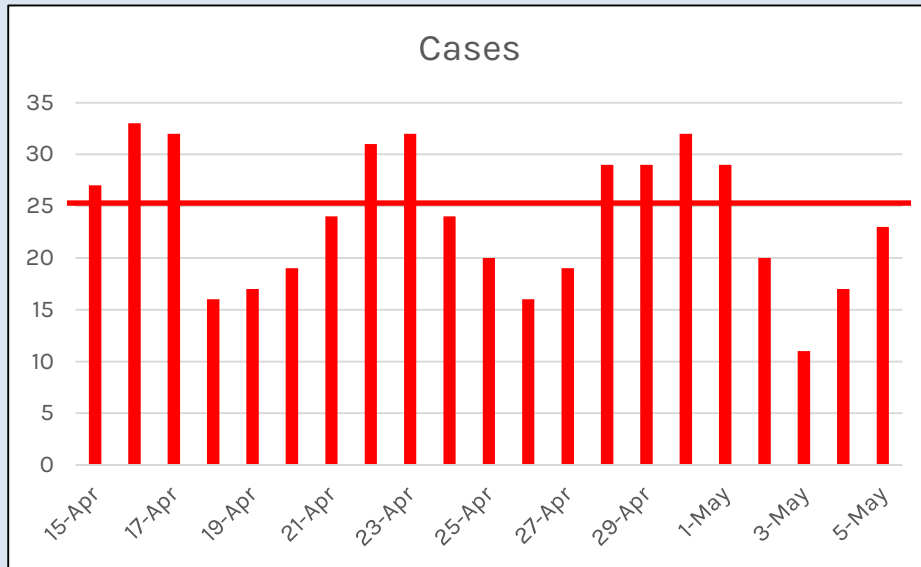
US: 10 DAY LAG

US Google Mobility Data Versus 3 Day Average Case Growth Rate, Starting at 3,500 Cases.



STATE DIFFUSION INDEX IN CASES & DEATHS

Number of US States Whose Case and Death Count Was Larger or Equal Than Previous Day.

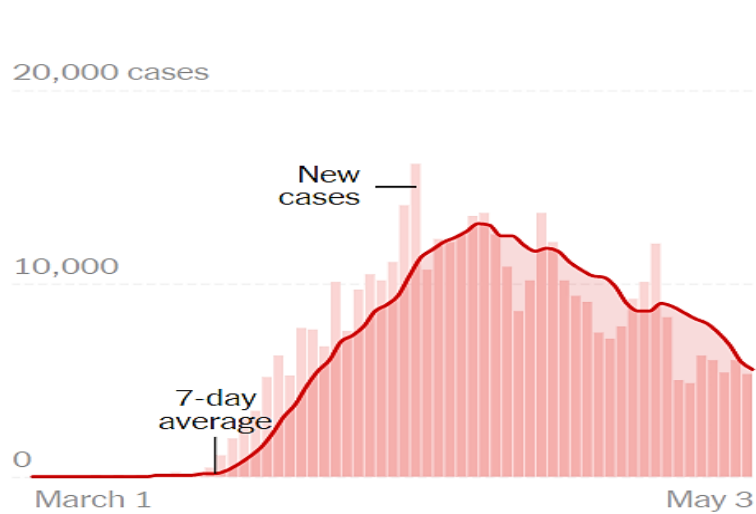


NYC VS THE REST

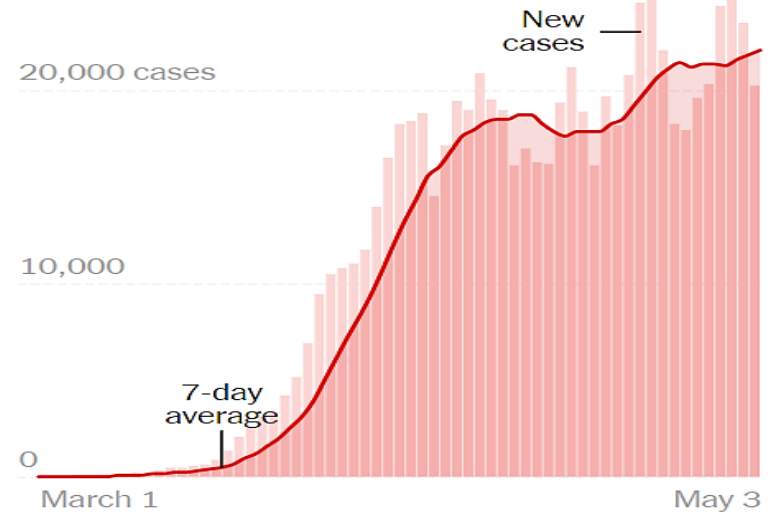
New Reported Cases by Day

As the New York metro area has seen a recent decline in new cases, the number of cases in the rest of the United States has steadily increased.

New York metro area



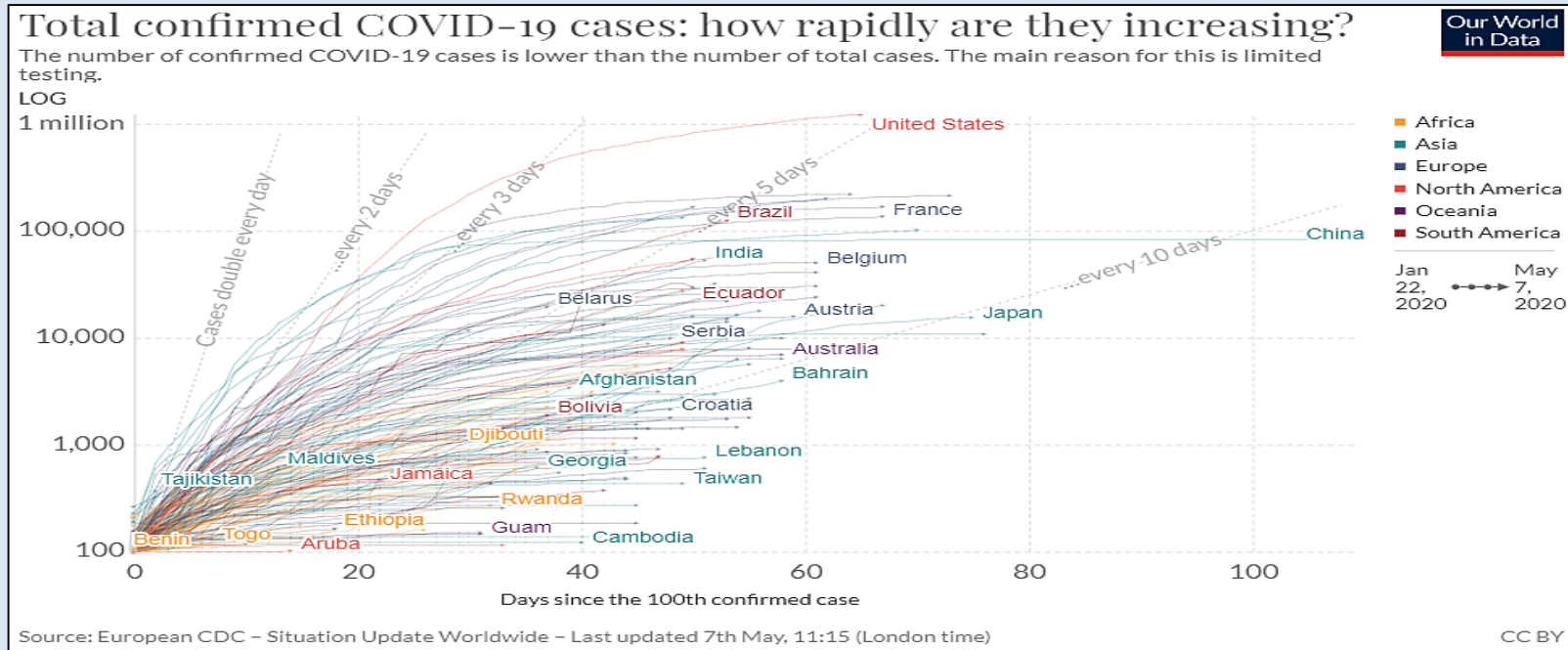
Rest of the United States



Source: [New York Times database](#) of reports from state and local health agencies and hospitals. - The New York City metropolitan area is defined by the U.S. Census Bureau and includes nearby cities and suburbs in Westchester, Long Island and northern New Jersey.

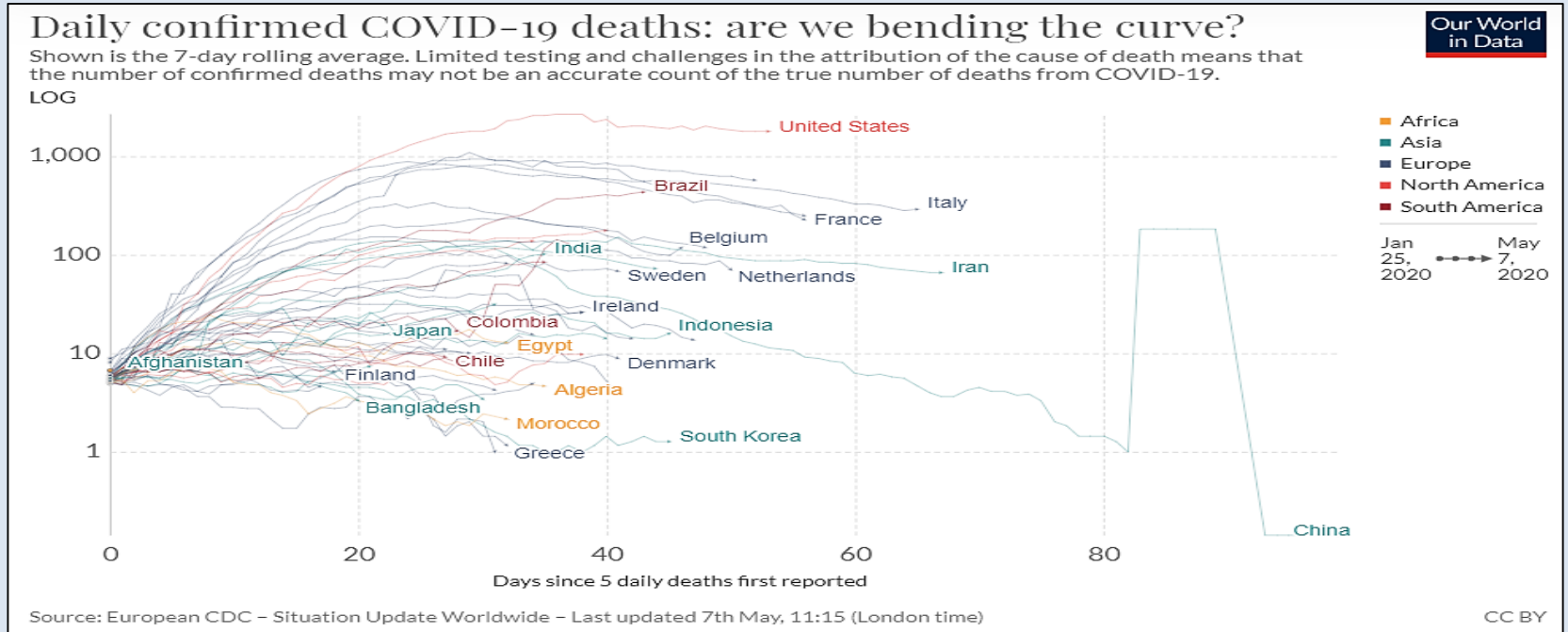
U.S. STAYS ABOVE THE REST

Daily COVID-19 Cases, Since 100 Confirmed Cases. Updated May 7, 2020.



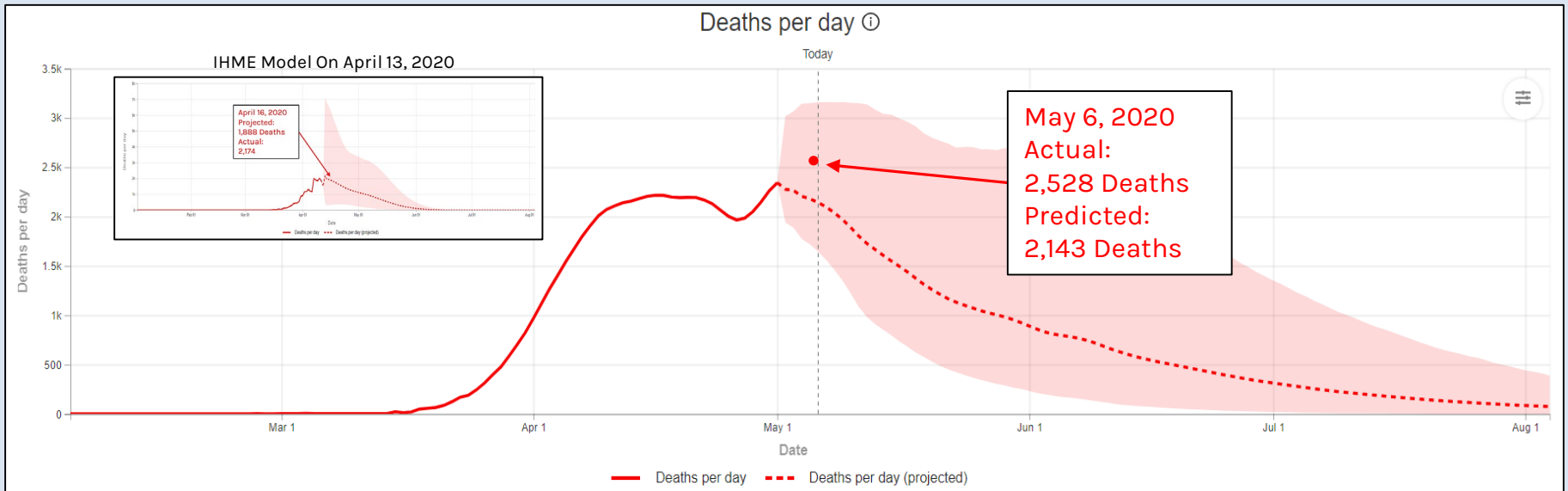
U.S. STAYS ABOVE THE REST

Daily COVID-19 Deaths, Seven Day Rolling Average. Updated May 7, 2020.



THE PEAK IS OVER?

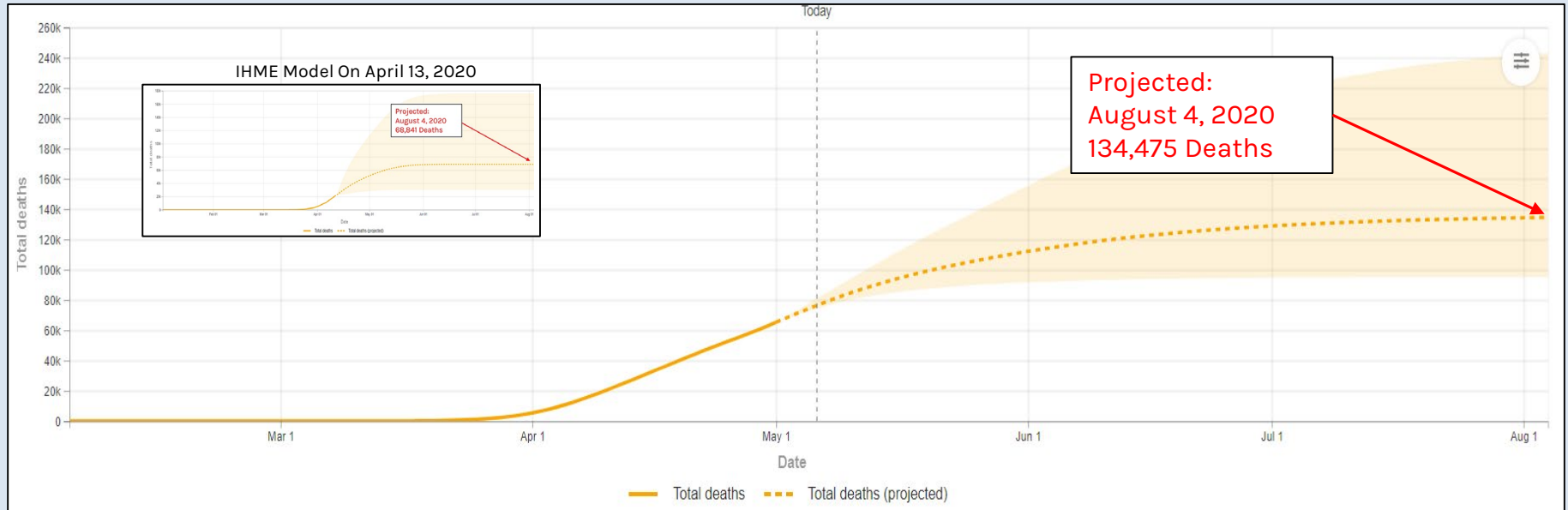
Projection of Daily COVID-19 Deaths, Last Updated May 7, 2020.



~~“Current social distancing assumed until infections minimized and containment implemented.”~~

THE PEAK IS OVER?

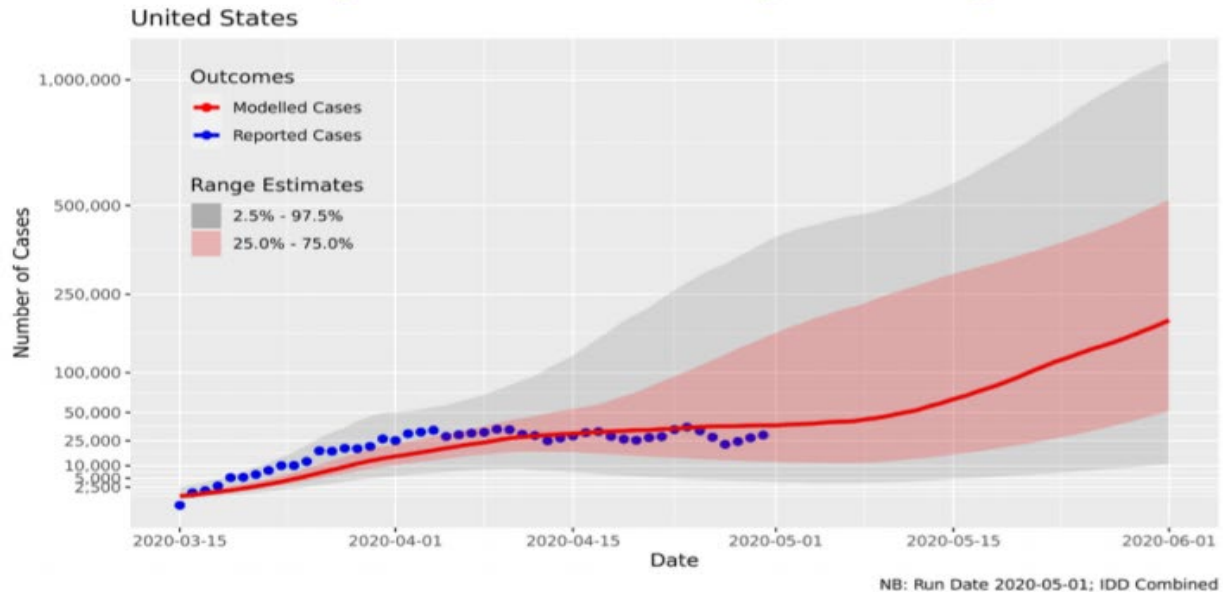
Projection of Total COVID-19 Deaths, Last Update May 7, 2020.



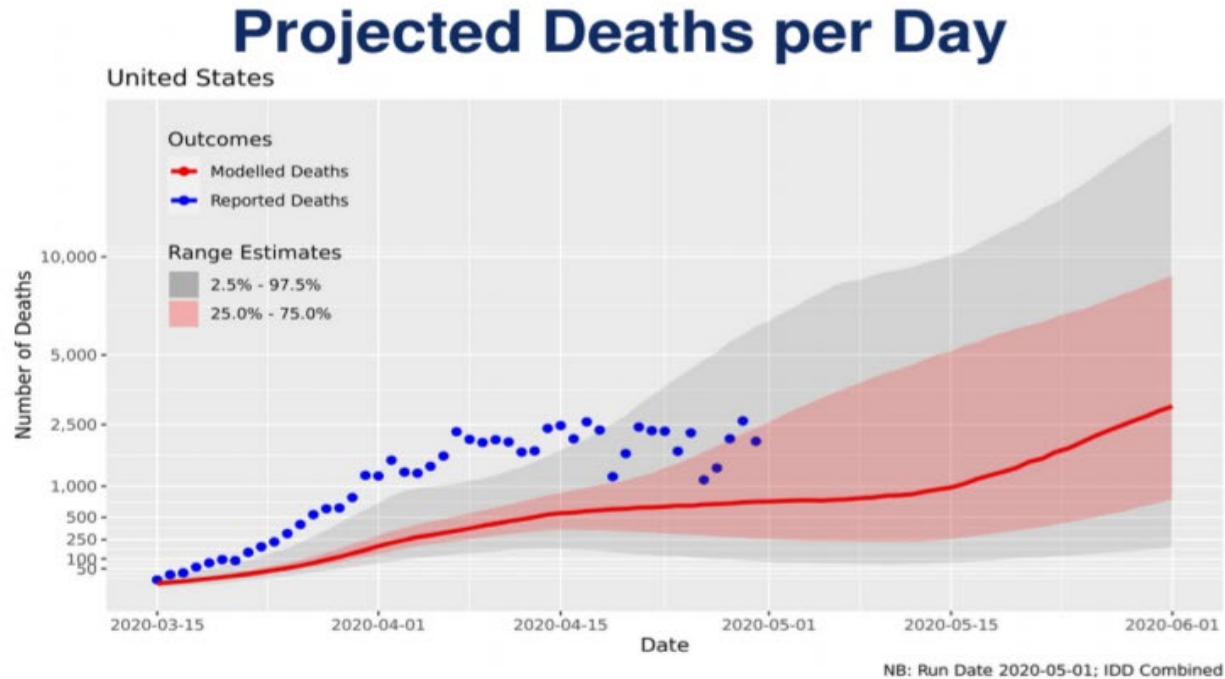
“Current social distancing assumed until infections minimized and containment implemented.”

LEAKED CDC DOCUMENTS

Projected Cases per Day



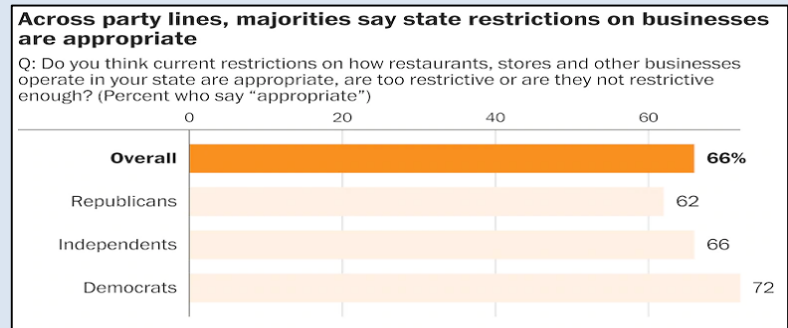
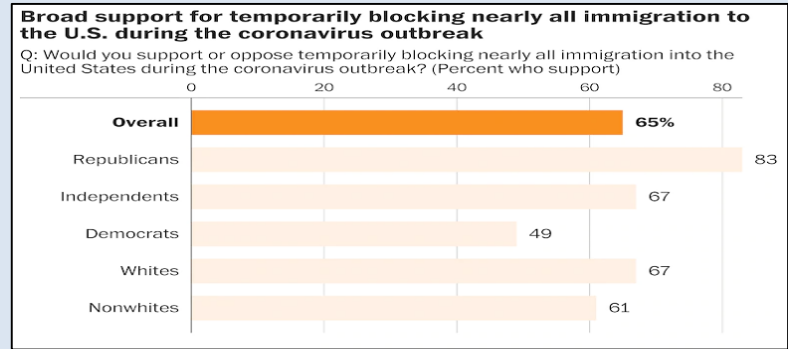
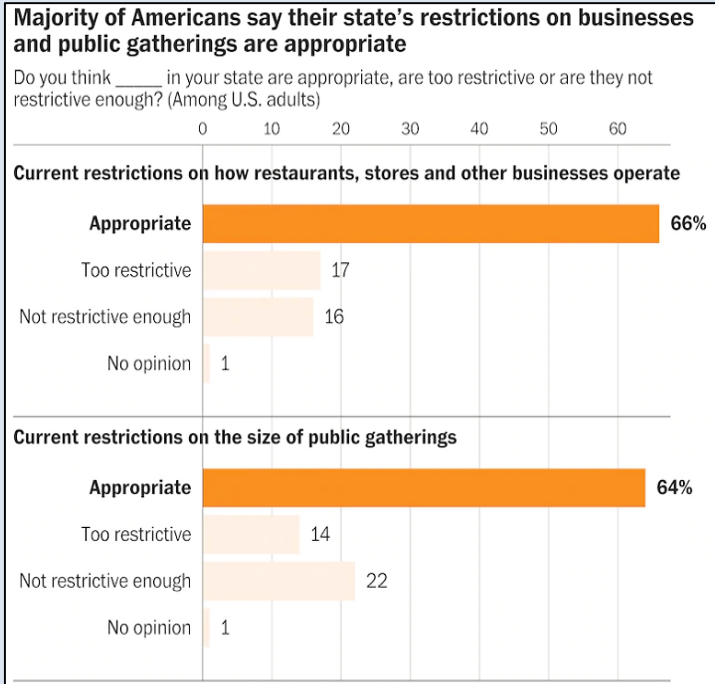
LEAKED CDC DOCUMENTS



COVID-19 Response • Data & Analytics Task Force
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BROAD AGREEMENT ON STAY-AT-HOME

Washington Post/University of Maryland Public Opinion Polls on COVID19 Policy, April 21-26.



BROAD AGREEMENT ON STAY AT-HOME

Kaiser Family and AP Public Opinion Polls on COVID Policy, April 15-20 and April 16-20.

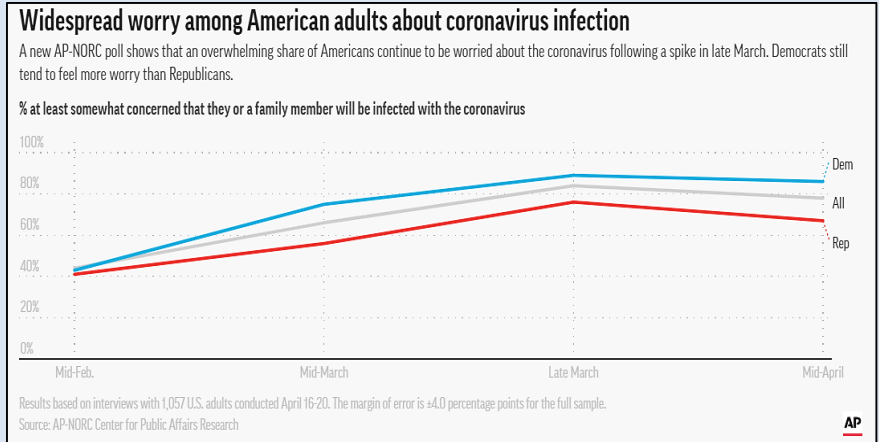
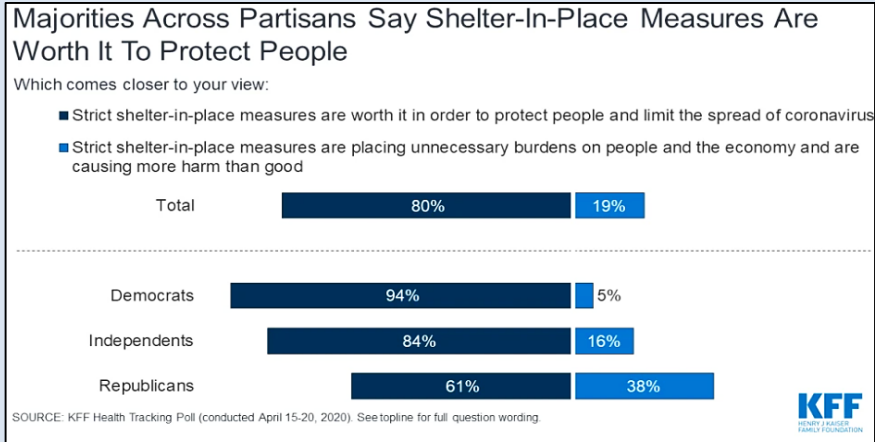


Table 1: Majorities Across Partisans Living In Republican-Led State Support Strict Shelter-in-place Measures

Which comes closest to your view?	Living in a state with a Republican Governor			
	Total	Democrats	Independents	Republicans
Strict shelter-in-place measures are worth it in order to protect people and limit the spread of coronavirus	79%	96%	83%	63%
Strict shelter-in-place measures are placing unnecessary burdens on people and the economy and are causing more harm than good	20	4	16	36

C19 AROUND THE WORLD: CAUSE & EFFECT

WHAT DRIVES GREATER DAMAGE FROM COVID-19	SMALL EFFECT	MEDIUM EFFECT	LARGE EFFECT	EXAMPLES	COUNTER EXAMPLES
Higher Age Distribution		X	X	Western Europe, <i>Africa</i> , <i>South Asia</i>	<i>Japan</i> , <i>Ecuador</i>
Pre-Existing Conditions	X	X		US, <i>South & East Asia</i>	Central & Eastern Europe
Colder/Dryer Climate	X			Western Europe, Russia, <i>Australia</i> , <i>Argentina</i>	<i>Japan</i> , <i>Brazil</i> , <i>Ecuador</i>
Touchier Culture		X		Southern Europe, Iran, S. Korea, <i>Japan</i> , <i>India</i>	Arab Mideast
Earlier/Stricter Policy			X	East Asia, New Zealand, <i>Russia</i> , <i>Brazil</i> , <i>Sweden</i>	<i>Japan</i> , <i>Cambodia</i>
More Urbanization	X	X		Higher Case Rates in Cities Almost Everywhere	Lower Rates in LDC Cities
Lower GDP per Capita	X			Turkey, Iran, Ecuador, <i>Taiwan</i> , <i>Singapore</i>	Many positive exceptions
More Tourism	X	X		US, Western Europe, <i>Cambodia</i> , <i>Venezuela</i>	Iran, Russia, <i>Greece</i>
Less Pandemic Experience		X		US, Europe, <i>East Asia</i> , <i>Australia</i> , <i>Africa</i>	<i>Austria</i> , <i>Iceland</i>
More Unlucky		X		???	???

WAS SARS-COV-2 MADE IN A LAB?

The infectiousness of C19 over related CVs (like SARS-CoV-2) has been 10X enhanced by the addition, in the protein spike, of a special stretch of 4 amino acids coded in the RNA by 12 base pairs. It is called a “furin cleavage site.”

Could this enhancement have occurred naturally? Perhaps. But we do not know the ancestor for this natural mutation.

We do, however, know that C19 closely resembles other “SARS”-like viruses except for this furin site.

And we do know unrelated CVs (like the Pangolin CoV) which does possess the furin site.

Question: ***Could C19 (SARS-CoV19) be a man-made chimera—that is, a lab-produced fabrication that combined the two?***

THE EVIDENCE IS CIRCUMSTANTIAL, but KEEP THE FOLLOWING IN MIND:

- The biotech to slice and assemble viral chimeras in the lab absolutely exists. (In fact, scientists can already assemble related CVs.)
- The two most closely related CVs (RaTG13 and Pangolin CoV) were already isolated and written up by Shi Zhengli and her Wuhan scientific team.
- Wuhan has been pursuing published “gain of function” research on CVs that require chimeras since at least 2007.
- Shi, in print, has explicitly expressed interest in “gain of function” research on furin-cleavable protein spikes in the receptor-binding motif (RBM)... precisely what makes C19 so infectious!
- Unusually, C19 is not only highly transmissible among humans, but also among a wide variety of unrelated mammals (dogs, cats, ferrets, minks, et al.).

WAS SARS-COV-2 MADE IN A LAB?

This is an ordinary mutation:

CAA ACT AAT TCA CGT AGT GTT
CAA ACT AAT TCA CGT AGT GT**G**

This in an insertion:

CAA ACT AAT TCA CGT AGT GTT
CAA ACT AAT TCA **CCT CGG CGG GCA** CGT AGT GTT

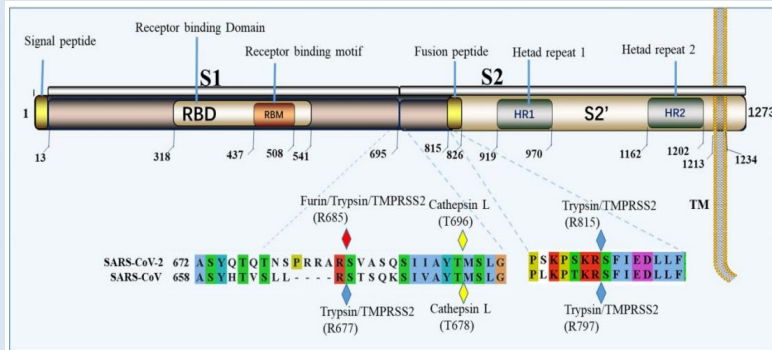
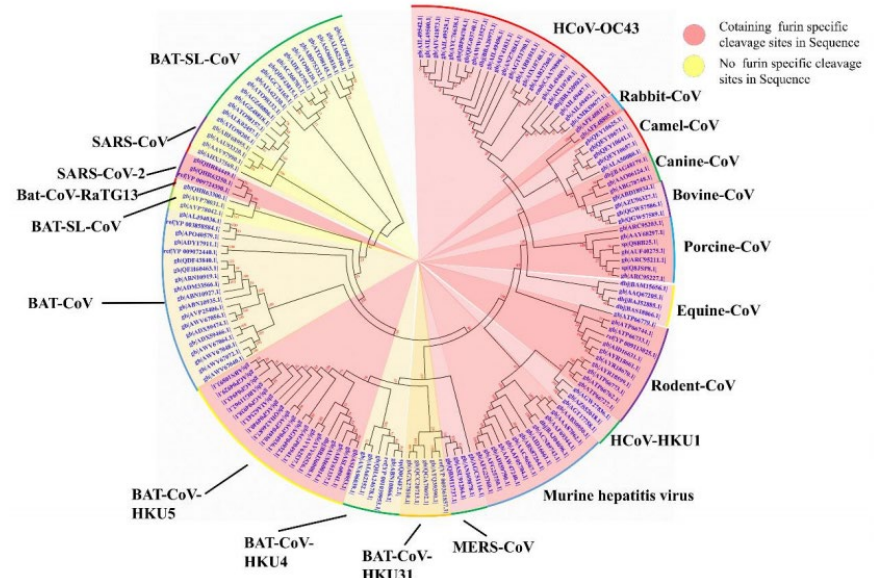


Figure 2. Sequence analysis of Spike protein in SARS-CoV-2. It contains an N-terminal signal peptide, S1 and S2. S1 contains a Receptor binding Domain (RBD) with a Receptor binding motif (RBM) and a Fusion peptide. S2 contains two Heptad repeats (HR1 and HR2) and a Tail Membrane (TM) domain. Key residues are highlighted: R685 (Furin/Trypsin/TMPRSS2), T696 (Cathepsin L), R797 (Trypsin/TMPRSS2), and R677 (Trypsin/TMPRSS2). A comparison of SARS-CoV-2 and SARS-CoV sequences is shown at the bottom.



For further reading:

Yuri Deigin, "Lab-Made? SARS-CoV-2 Genealogy Through the Lens of Gain-of-Function Research" (April 22, 2020)

Canon WU et al., "Furin, a potential therapeutic target for COVID-19" (February, 2020)

SO, WAS THIS A RANDOM “CHIMERA” EVENT?

