

Modeling to mitigate COVID-19

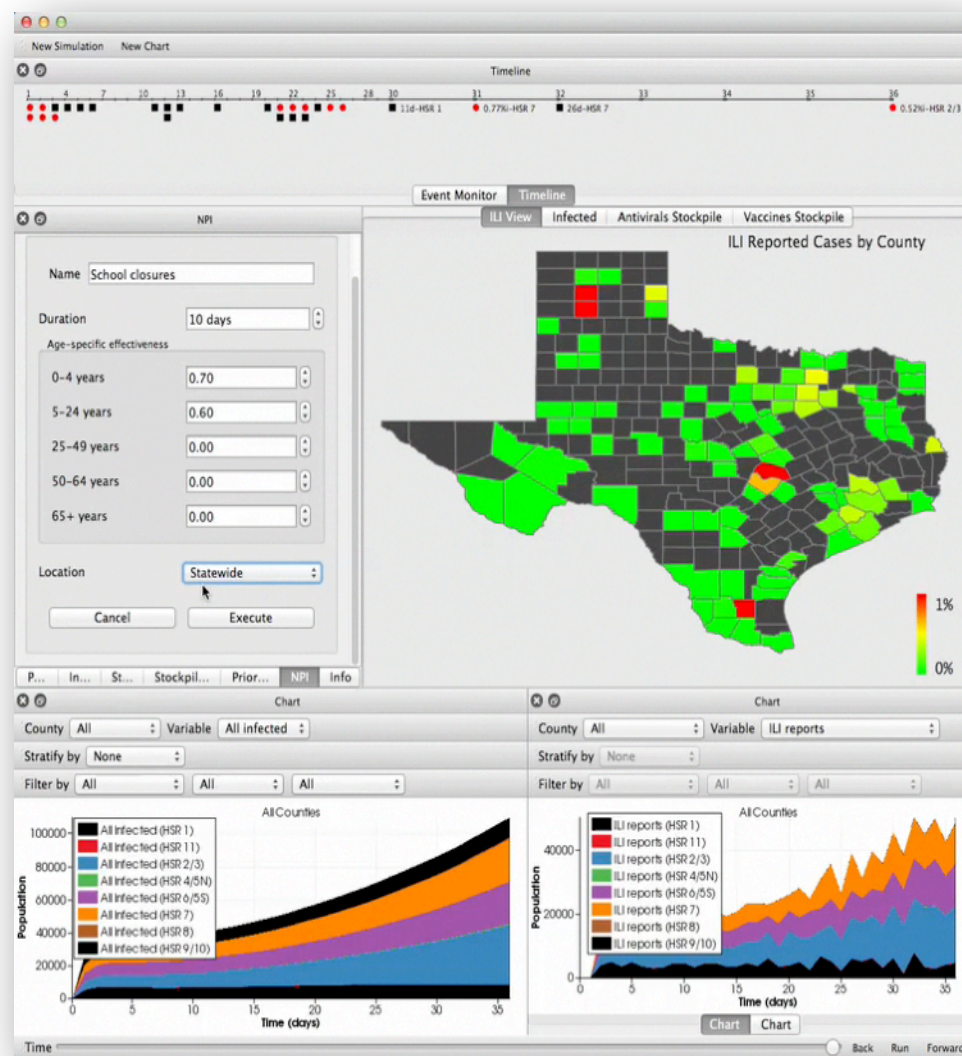
Lauren Ancel Meyers

May 14, 2020

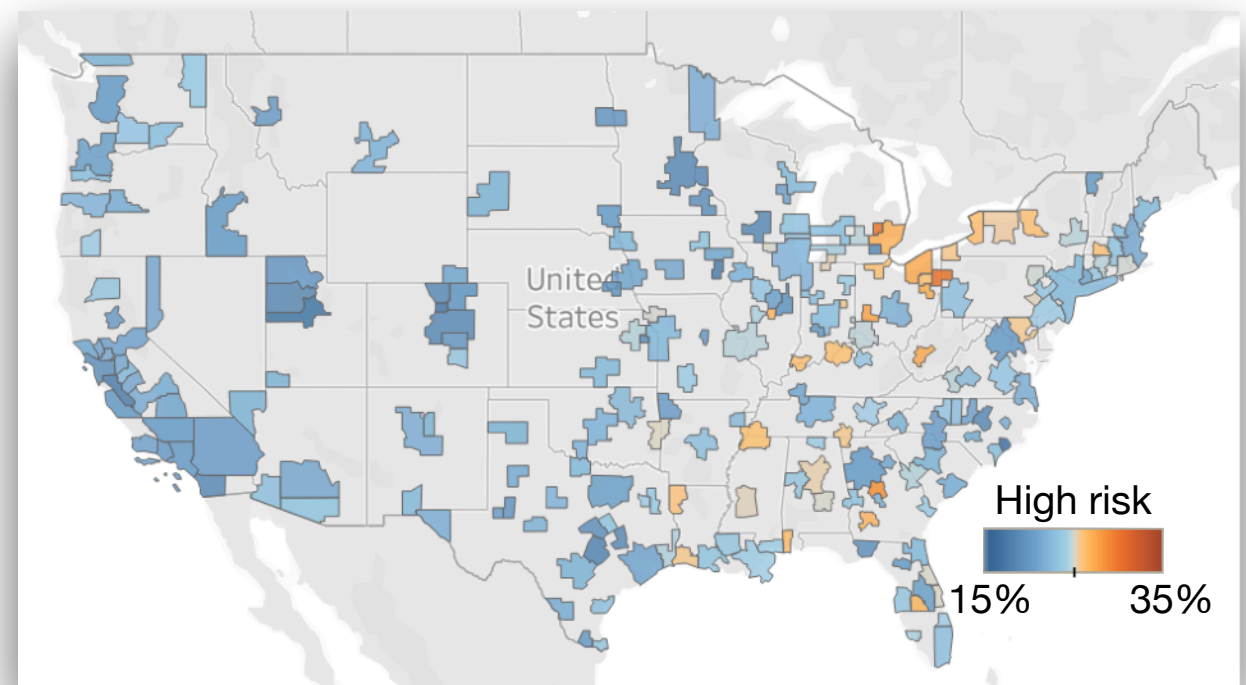


Decision support

Pandemic Exercise Tool (2013)



CDC FluCode - Pandemic Model (2020)



Public outreach

Monday, April 6, 2020

ENGLISH ESPAÑOL 中文

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75°F
77° 68°
Austin, TX

Hospitals Face Severe Shortages as U.S. Toll Nears 10,000

As confirmed cases in the U.S. surged past the combined numbers in Italy and Spain, signs that the virus was peaking in some places helped lift stocks.

Staff and patients are put at risk by the lack of available protective gear, a Health and Human Services watchdog report said.

Japan was set to declare a state of emergency as new cases rapidly increased in Tokyo and other large cities. Here's the latest.

Live 4m ago 508 comments

How Coronavirus Attacks the Body

5:27 HD

Delays and Shortages Exacerbate Testing Gaps in the U.S.

A lack of supplies and delayed results are causing problems for many hospitals, even as new and faster tests come onto the market.

17m ago

A New Covid-19 Crisis: Domestic Abuse Rises Worldwide

Movement restrictions may be making violence in homes more frequent, more severe and more dangerous.

1h ago

The Times is providing free access on the coronavirus crisis. Start here for a guide to all our coverage.

4m ago

U.S. Cases Markets Photos Video

New York Updates: Deaths Remain Flat, but Crisis Is Still Dire, Cuomo Says

Gov. Andrew Cuomo said that 599 people had died in the state — about the same as the 594 deaths reported the previous day.

Live 17m ago 28 comments

Business Updates: Markets Rally as Wall Street Thinks Positively

Investors were cheered by numbers showing that the pace of the virus's spread was slowing in some places in Europe.

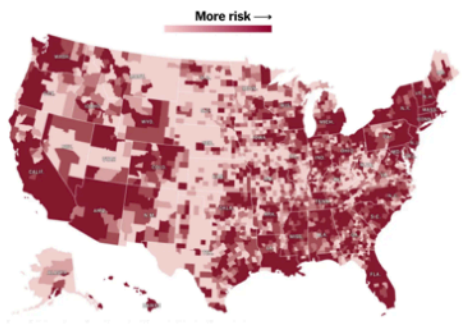
Live 45m ago 129 comments

Free access: Full coronavirus coverage | The best mask fabric | Guidance on breastfeeding | How to help the helpers

Does My County Have an Epidemic? Estimates Show Hidden Transmission

Even counties that have few reported cases probably already have sustained, undetected outbreaks, a study has found.

3h ago



Acting Navy Secretary Slams Fired Captain as 'Stupid'

Thomas B. Modly's address to the crew of a coronavirus-stricken aircraft carrier was described by one sailor as "whiny, upset, irritated, condescending."

12m ago

The Open Road Calls, but the Authorities Say 'Stop'

The U.S. Constitution ensures the "right to travel," but state and local officials are increasingly telling drivers to stay home.

31m ago

Opinion

Lockdown Can't Last Forever. Here's How to Lift It.

Gabriel Leung

We need to hit and release the brakes on physical distancing, again and again, until we safely get to immunity.

9h ago 257 comments

Has Anyone Found Trump's Soul? Anyone?

Frank Bruni

He's not rising to the challenge of the coronavirus pandemic. He's shriveling into nothingness.

Don't Freak Out About Quarantine Screen Time

Andrew Przybylski and Pete Etchells

Join Jennifer Senior to chat about Trump's personality in a time of crisis

In Las Vegas, the Coronavirus Odds Are Not in Our Favor

Brittany Bronson

'I Have Been Wearing This Surgical Mask for Two Days'

Sanya Dosani

Via Cisco Webex
Austin, Texas
1:35 PM CT

CORONAVIRUS PANDEMIC

GLOBALLY

TOTAL CASES
2,766,611

DEATHS
194,456

IN THE UNITED STATES

TOTAL CASES
883,826

DEATHS
50,373

SOURCE: JOHNS HOPKINS UNIVERSITY

CNN

2:35 PM ET
NEWSROOM

Professor Lauren Ancel Meyers | Dept. of Integrative Biology, Univ. of Texas at Austin

2:58 21K views

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CORONAVIRUS IN CENTRAL TEXAS

Travis County confirmed COVID-19 cases up to 484

Austin health officials reported Sunday that 24 more people in Travis County have tested positive for COVID-19 since Saturday.

Apr 5, 2020 at 6:05 PM

+ Coronavirus in Texas: What we know, latest updates
+ FAQ: What are the rules during a 'shelter in place'?
+ Complete coverage: Texas prepares for coronavirus

Adult Coed Soccer Leagues - Better Refs and Facilities

atxna.com/Leagues/Soccer

CORONAVIRUS

A coronavirus vaccine is being developed in record time. But don't expect that technology.

Posted at 8:16 AM

Brexit Zoo tiger becomes first of its kind to test positive for coronavirus, officials say

Posted at 8:01 AM

If you're traveling between states, here's where you'll have to self-quarantine

Posted at 7:51 AM

Matthew McConaughey plays virtual bingo with Round Rock senior living facility

Coronavirus creeping undetected through Texas and U.S.

For the 102 Texas counties that, as of Sunday, have not yet reported a confirmed case of COVID-19, there exists a 9% chance that an outbreak of the disease is already underway, according to an analysis of the disease's...

Apr 4 at 7:05 PM

How to get help in Austin with food, healthcare, distance coronavirus...

Apr 5 at 6:49 PM

Texas tabs Mississippis State's Vic Schofer to coach its women's...

Apr 5 at 2:57 PM

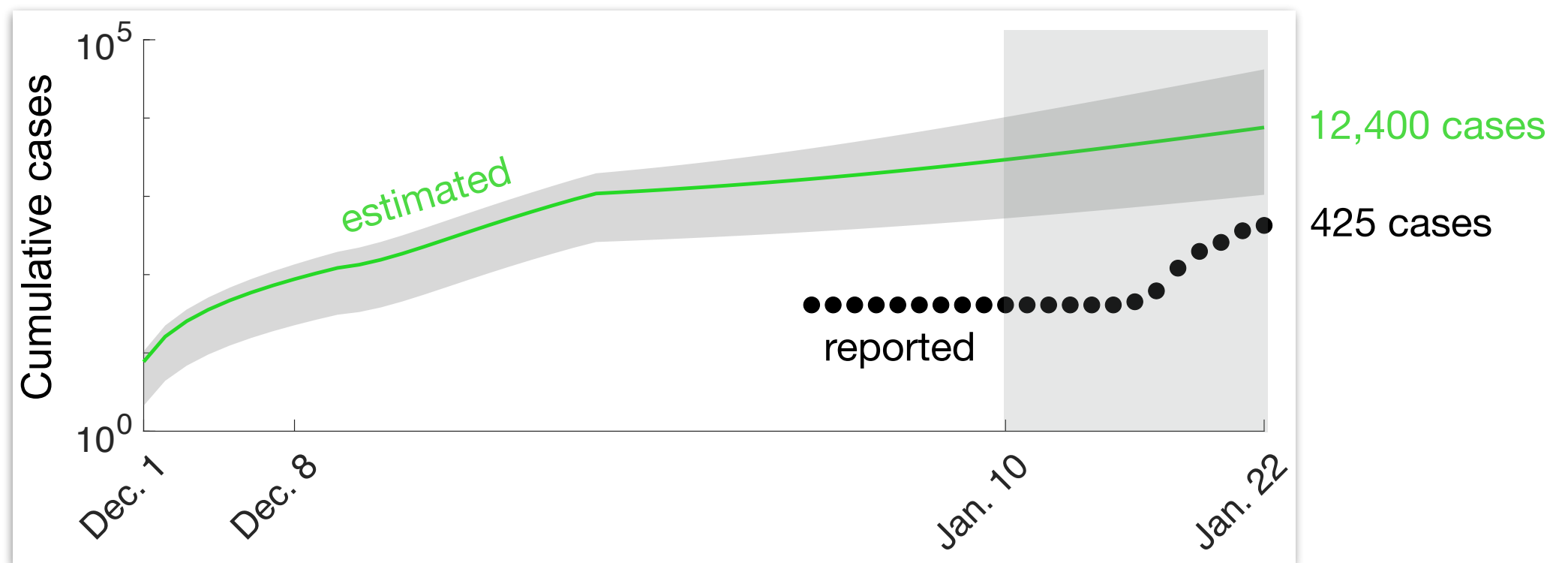
Coronavirus in Texas: 22 more deaths reported statewide; total cases climb...

Apr 5 at 1:10 PM

Austin health officials recommend everyone wear face masks in public

Apr 5 at 6:49 PM

1. Spreads far and fast



Du et al. (2020) Risk for Transportation of 2019 Novel Coronavirus Disease from Wuhan to Other Cities in China. *Emerging Infectious Diseases*

2. Forecasting deaths

The University of Texas COVID-19 Modeling Consortium

COVID-19 Mortality Projections for US States and Metropolitan Areas

These graphs show both the reported and projected number of COVID-19 deaths per day across the US and for individual states and metropolitan areas. For each US state, we use local data from mobile-phone GPS traces to quantify the changing impact of social-distancing measures on "flattening the curve."

For more information, please visit our [model FAQ](#).

IMPORTANT NOTE: On 07 May 2020 the New York Times' made substantial changes in how it reports COVID-19 deaths, with a large effect on data New York state in particular. We are working our way through the implications of these changes for our model. In the meantime, we are using data from Johns Hopkins University, which includes both probable and confirmed deaths, to inform our projections.

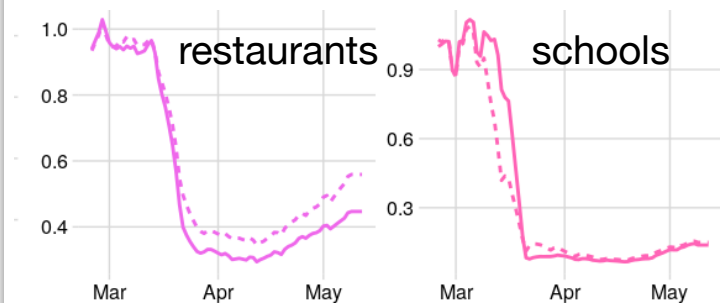
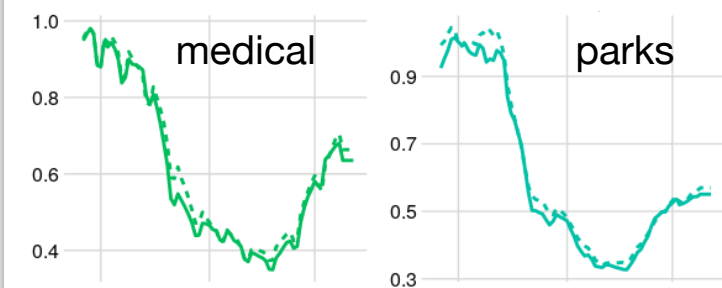
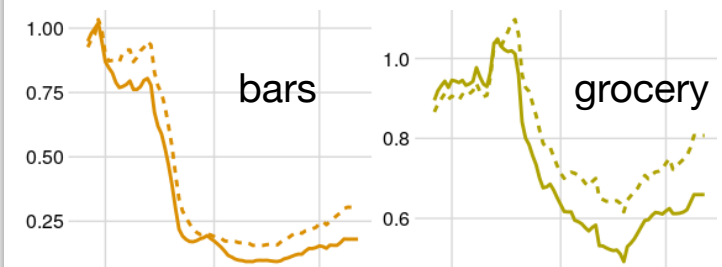
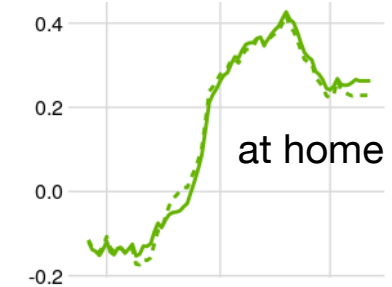
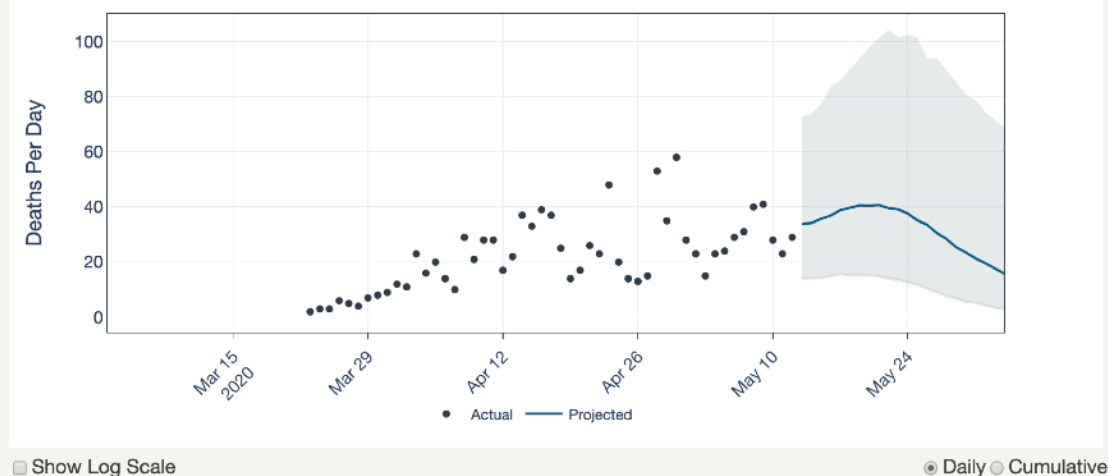
Select State: Select Metro Area:

24% probability that the peak has already passed

57% probability that peak will pass within one week

93% probability that peak will pass within two weeks

Deaths Per Day for Texas



Ensemble forecasting

COVID-19 Forecasts

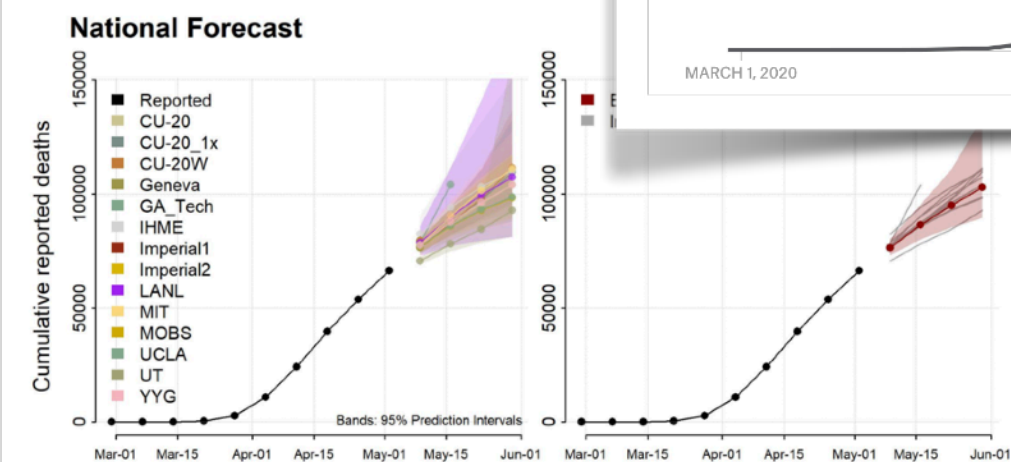
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Updated May 6, 2020

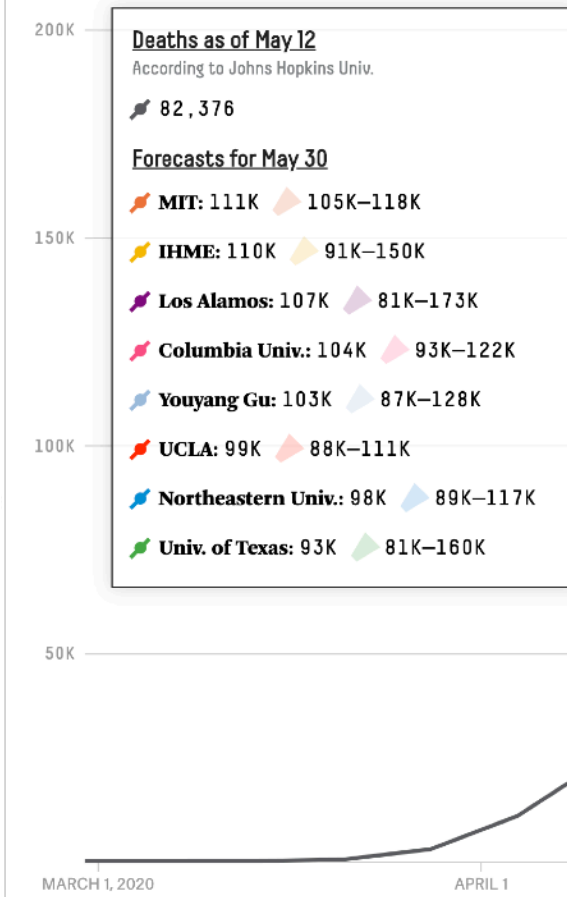
Interpretation of Cumulative Death Forecasts

- National-level forecasts now include fourteen individual forecasts, and all indicate an increase in deaths in the coming weeks. Predicted rates of increase differ among forecasts, depending on assumptions about the strength and coverage of social distancing behaviors.
- State-level ensemble forecasts (only shown for states and territories with at least two forecasts) indicate that some states may have limited additional deaths in the coming weeks, while substantial increases may occur in others.

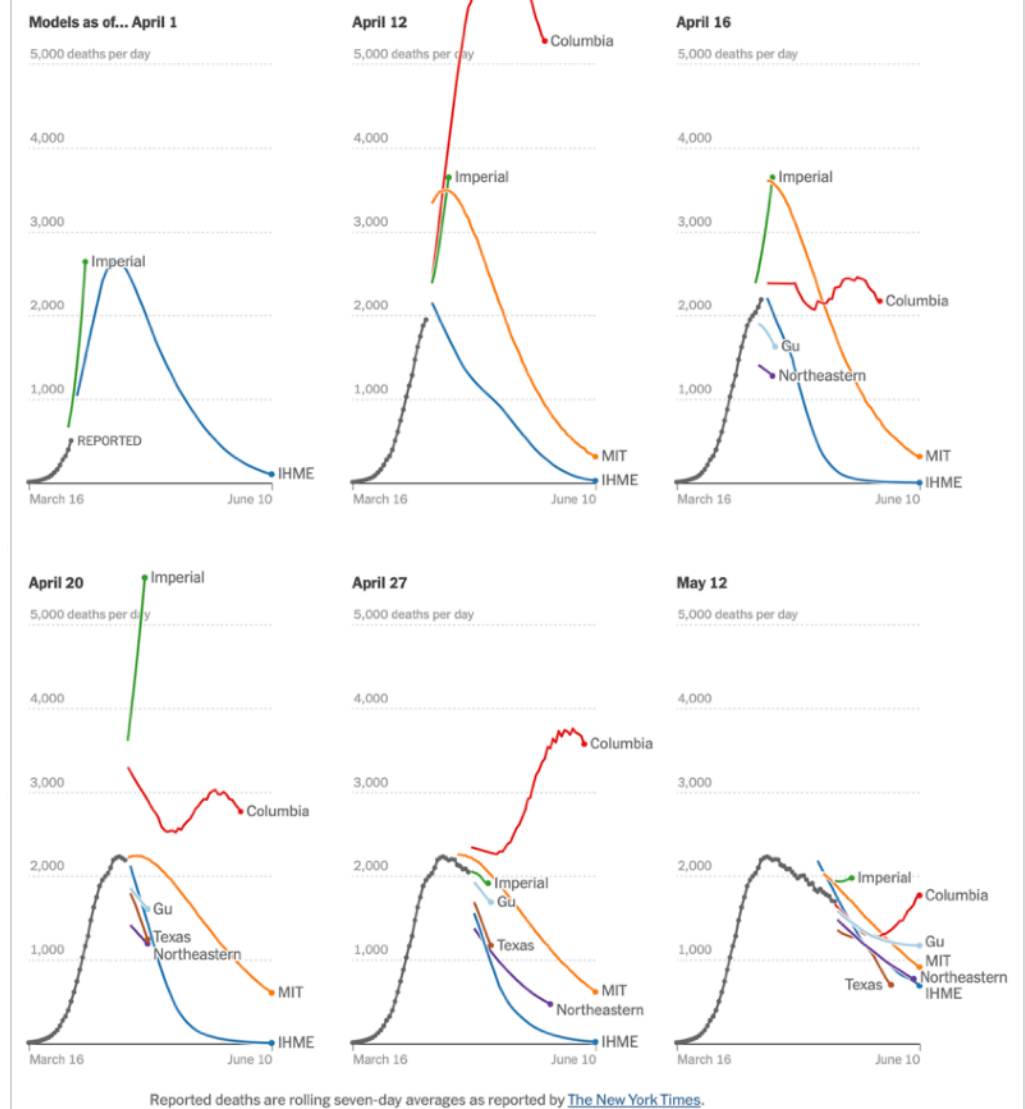
National Forecast



FiveThirtyEight

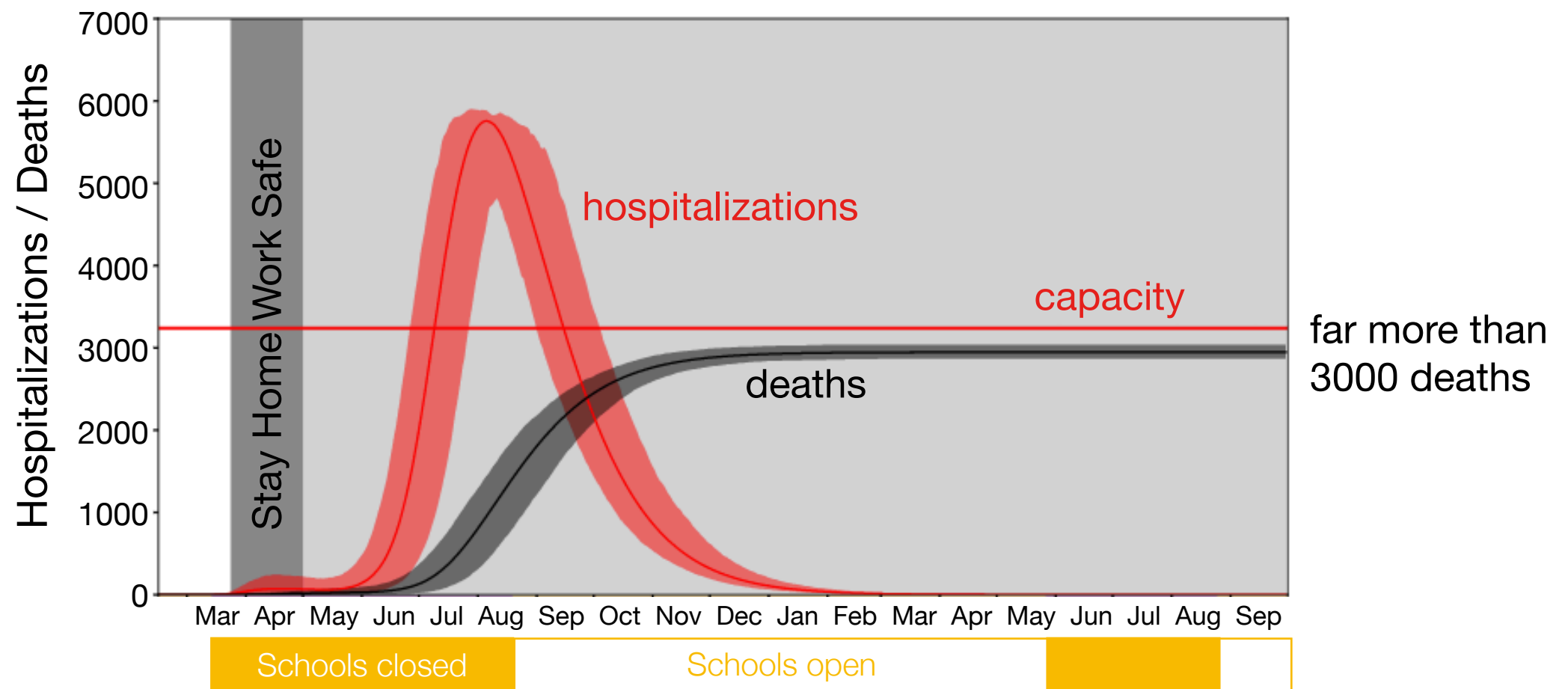


How the different projections of U.S. deaths have changed over time



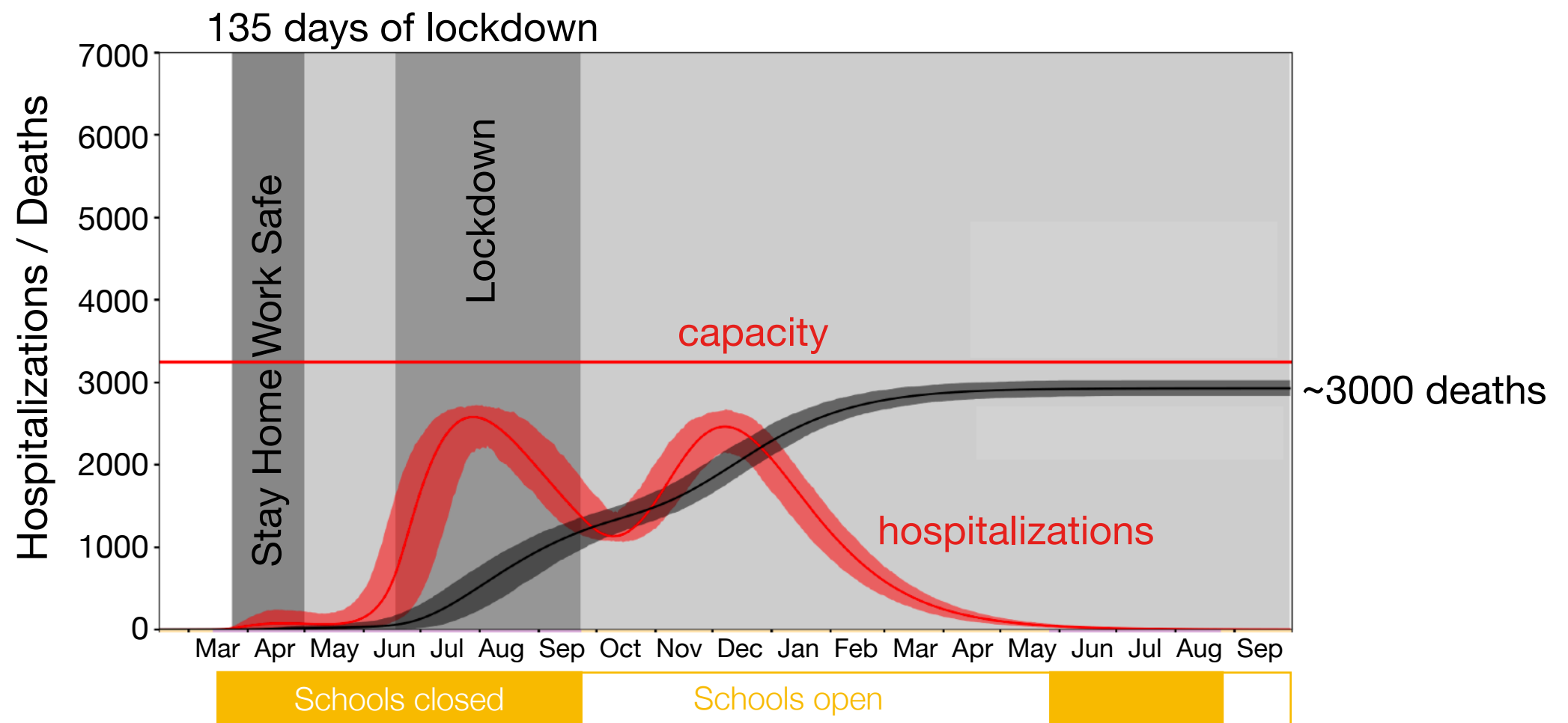
3. What might happen?

If policies are relaxed and transmission rebounds to half of baseline ...

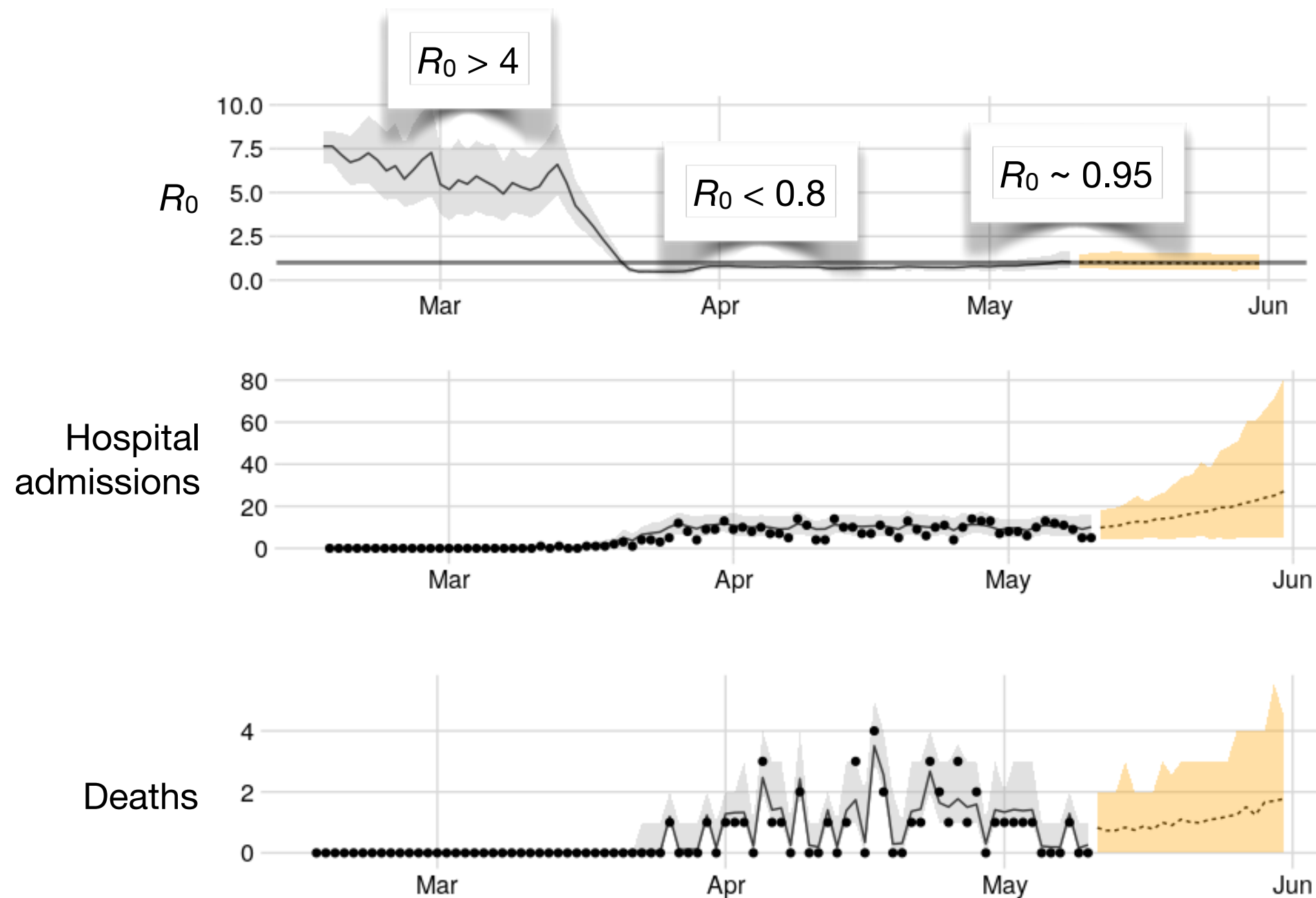


Data-driven trigger

What is the shortest lockdown required to prevent an overwhelming surge?



Track and trigger



Funding and team

US Centers for Disease Control and Prevention
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