

The Epidemiology of SARS CoV-2 (COVID-19)

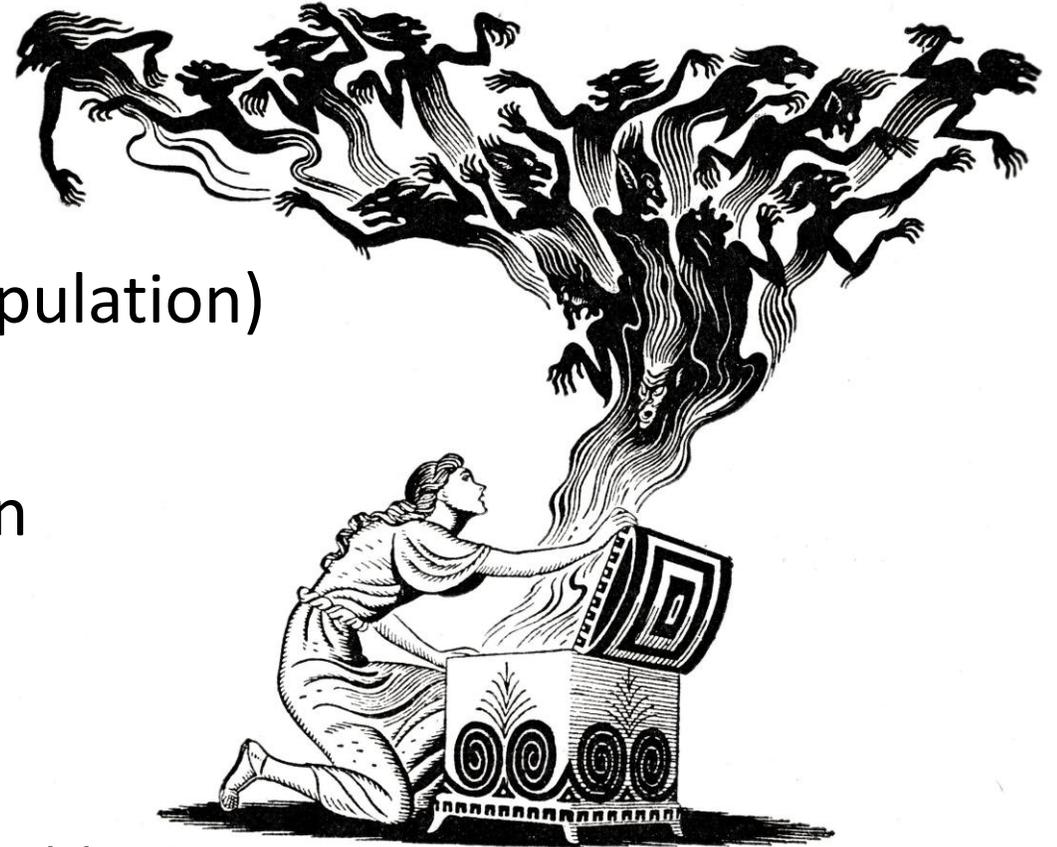
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Defining a Pandemic

- Novel pathogen (no immunity in the population)
- Increased morbidity and mortality
- Sustained person to person transmission
- Resulting in:
 - Expanded public health response
 - Social and economic disruption
 - Increased pressure on public health and healthcare communities
- More than 40 disease have emerged or re-emerged that have affected the human population since the 1970



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What is a Coronavirus?

- Coronaviruses are named for the crown-like spikes on their surface.
- Human coronaviruses were first identified in the mid-1960s.
- Coronaviruses cause diseases in animals and humans. Including: camels, cats, and bats, and people.
- In humans, the viruses can cause mild respiratory infections, like the common cold, but can lead to serious illnesses, like pneumonia.
- Other human coronaviruses
 - MERS-CoV (the beta coronavirus that causes Middle East Respiratory Syndrome)
 - SARS-CoV (the beta coronavirus that causes severe acute respiratory syndrome)
 - SARS-CoV-2 (the novel coronavirus that causes coronavirus disease 2019)

Pneumonia of unknown cause – China



5 January 2020

- On 31 December 2019, the WHO China Country Office was informed of cases of pneumonia of unknown etiology detected in Wuhan City, Hubei Province of China.
- By 3 January 2020, a total of 44 patients, 11 are severely ill, with pneumonia have been reported to WHO by the national authorities in China.
- Some patients were operating dealers or vendors in the Huanan Seafood market.
- Based on the preliminary information no evidence of significant human-to-human transmission and no health care worker infections reported.

Pandemic Threshold?



- **22 January 2020 WHO**

China issued a statement saying that there was evidence of human-to-human transmission in Wuhan but more investigation was needed to understand the full extent of transmission.

- Meeting the pandemic threshold?



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Arrival in the U.S.- January 21, 2020

- A Washington state resident becomes the first person in the United States with [a confirmed case](#) of the 2019 novel coronavirus, having returned from Wuhan on January 15
- Washington state reported the first death in the U.S. from the new coronavirus on **February 29th**
- **March 11 — WHO Declares COVID-19 a Pandemic**
- In declaring COVID-19 a pandemic, director general of WHO, said at a briefing in Geneva the agency is “***deeply concerned by the alarming levels of spread and severity***” of the outbreak. Also expressing concern about “***the alarming levels of inaction.***”



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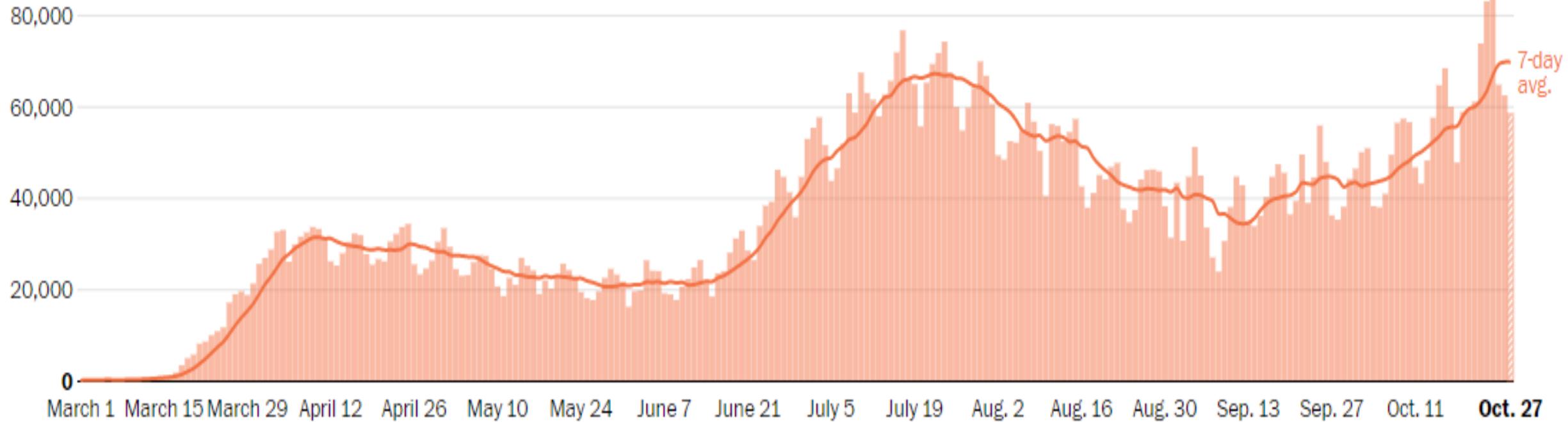
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U.S. Cases

At least 8,725,589 have been reported since Feb. 29.

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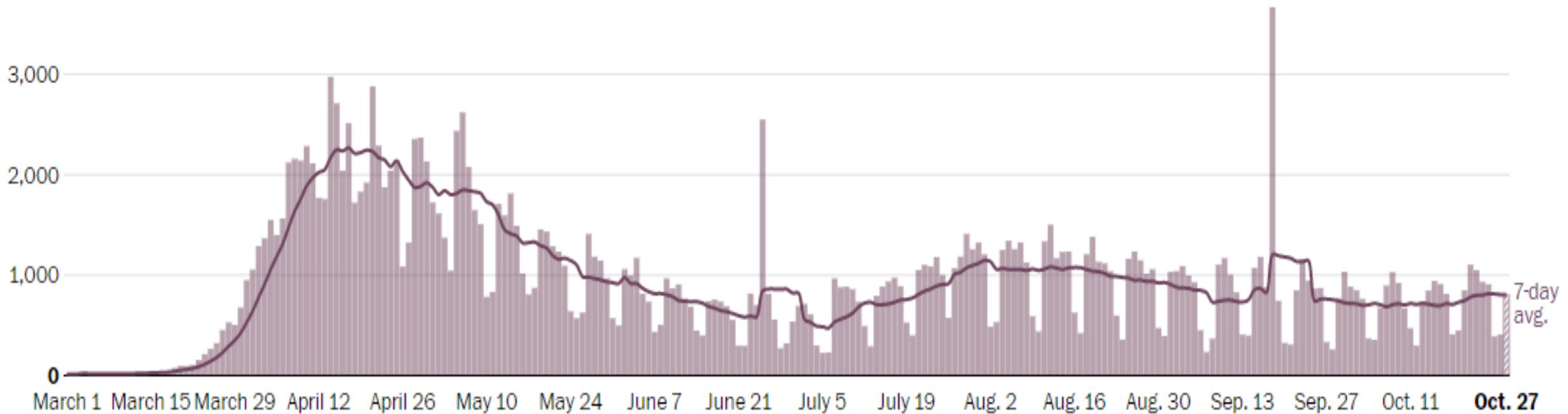
All U.S.



U.S. Deaths

At least 225,904 have been reported since Feb. 29.

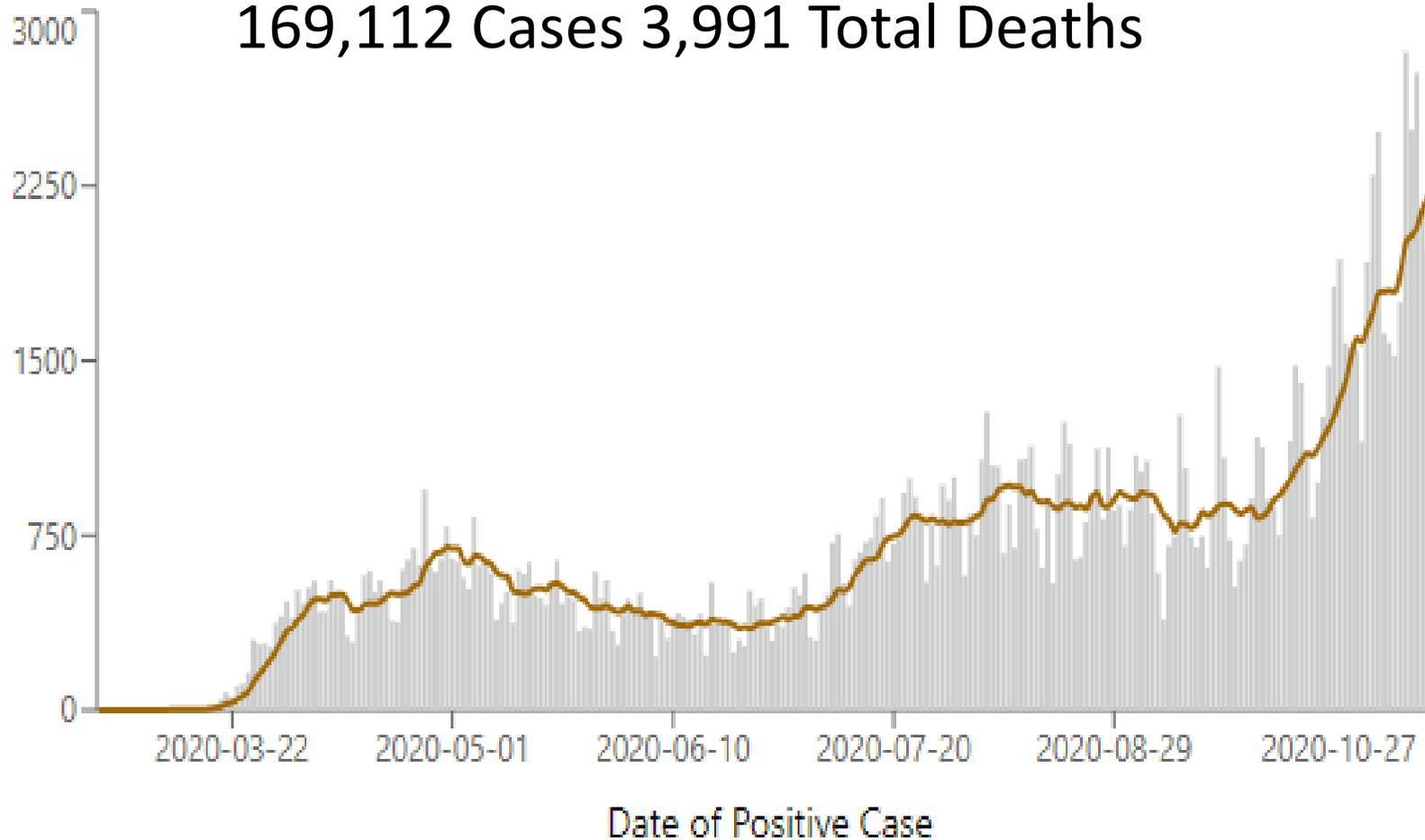
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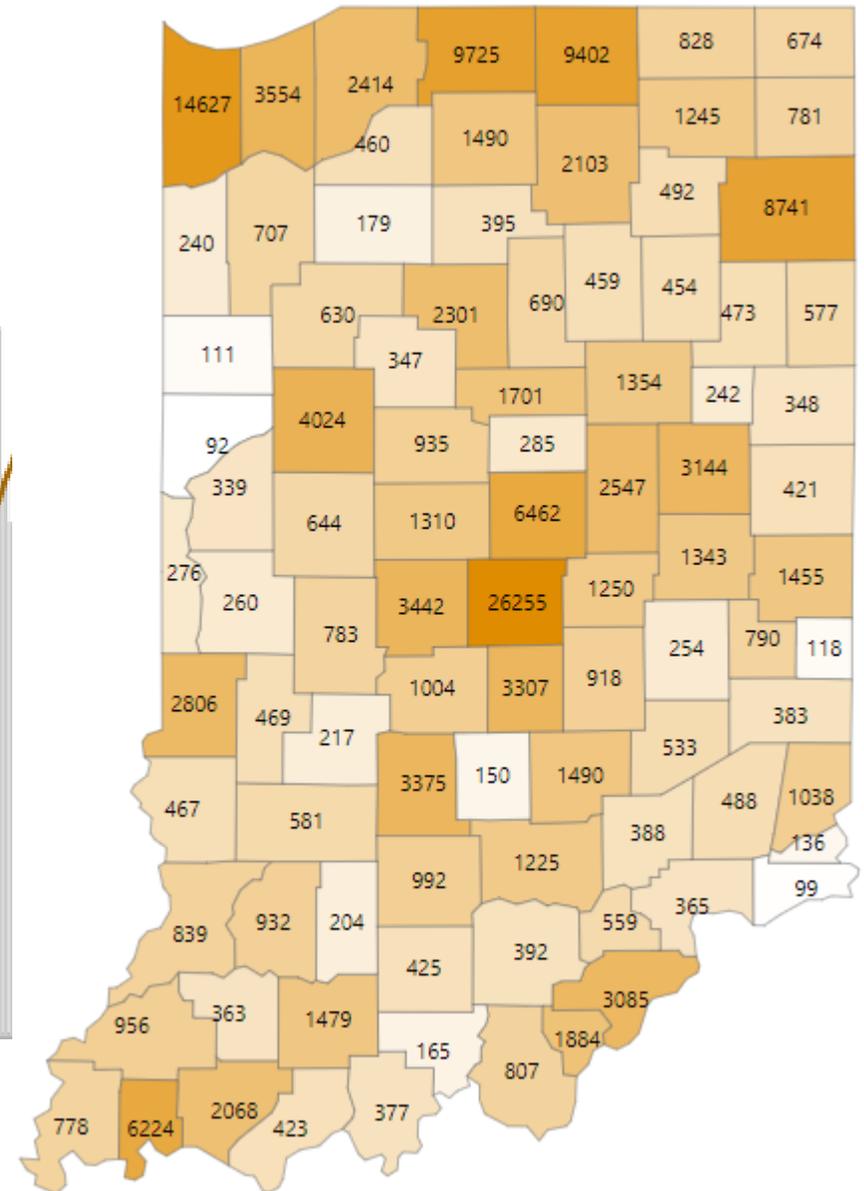
Note: As of Sept. 18, the Post has altered its methodology for reporting deaths in New York State, shifting to the confirmed death counts for Bronx, Kings, New York, Queen's, and

Indiana Specific numbers

169,112 Cases 3,991 Total Deaths



Positive Cases by Day — 7-Day Moving Avg (Positive Cases) — Newly Reported Positive Cases



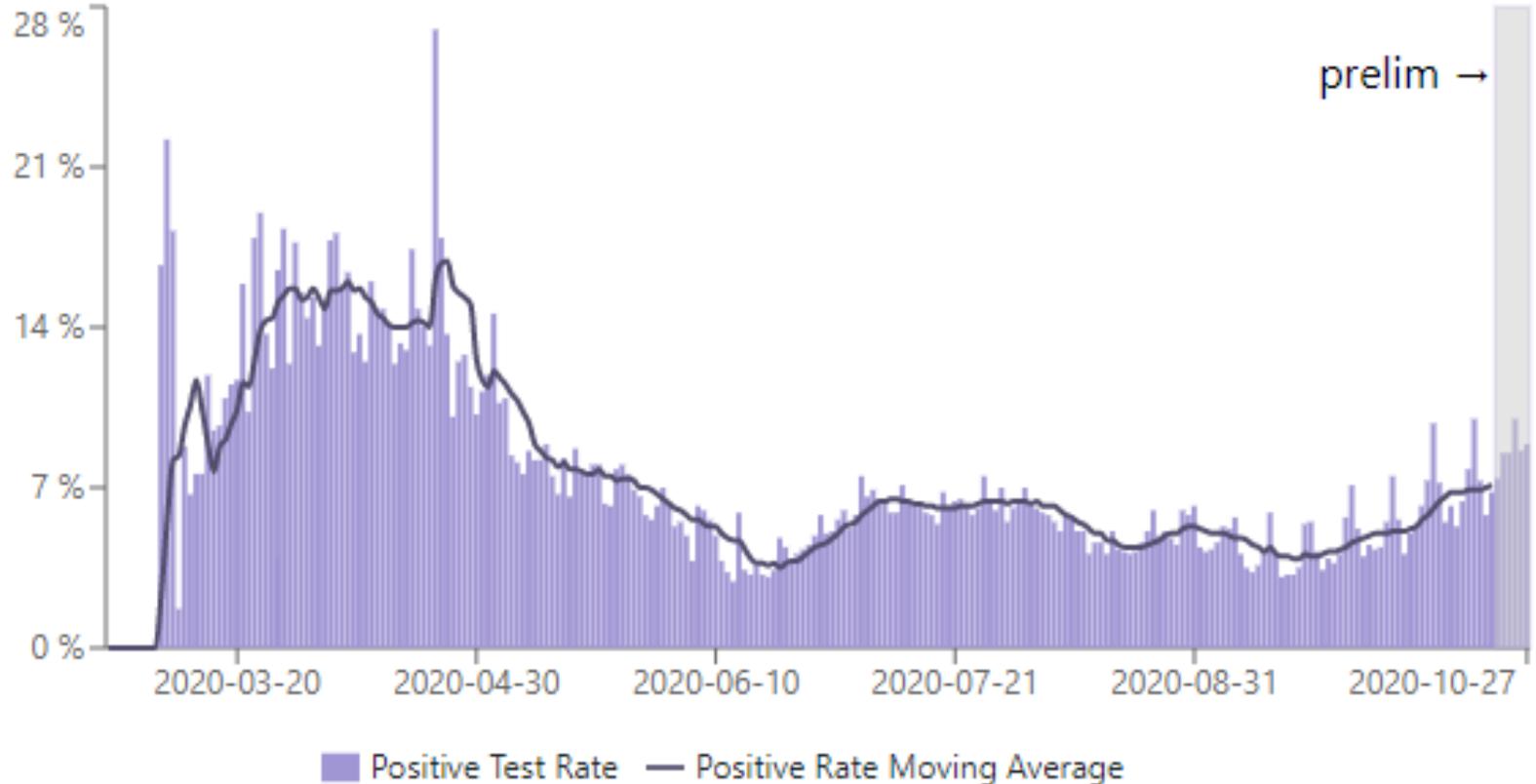
Positivity

Statewide Daily Positive Test Rate i

All Tests

Individuals

[What does prelim mean?](#)



The Importance of Positivity.

The number of positives/the number of tests *100 = Positivity Rate



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Influenza Season and COVID-19

- Serious concerns about overlapping infectious events.
- Influenza and Covid-19 co-infections are possible
- Those with co-morbid conditions, especially any lung deficiency, are at greatest risk for severe outcomes

- The Good News:
 - We have a influenza vaccine!
 - Reduce the noise around Covid-19
 - Public health precautions for Covid-19 work for influenza as well
 - Wear a mask, stay physically distant (including sheltering in place), and wash your hands frequently



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Protecting yourself

- In the absence of a vaccine
- In the absence of a treatment

- Wear a mask properly
- Maintain physical distancing
- Good hand hygiene
- Get your Flu Shot (*you can't get the flu from the flu shot*)



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Covid-19 Vaccine Clinical Trials

- The World Health Organization recognizes that, as of June 22, there are [over 140 vaccines](#) in various stages of development.
- Of those >140 vaccines, [13 are now in human clinical trials](#). They are testing to explore their safety, efficacy and correct dosage in **humans**.

Only upon completion of such phases can a vaccine be considered as suitable for approval by authorities such as the [Food and Drug Administration \(FDA\)](#) or the [Europeans Medicine Agency \(EMA\)](#).



Questions

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