



A P O L L O N

COVID-19 Model
Real Time Situational Update



EXECUTIVE SUMMARY AS OF TODAY

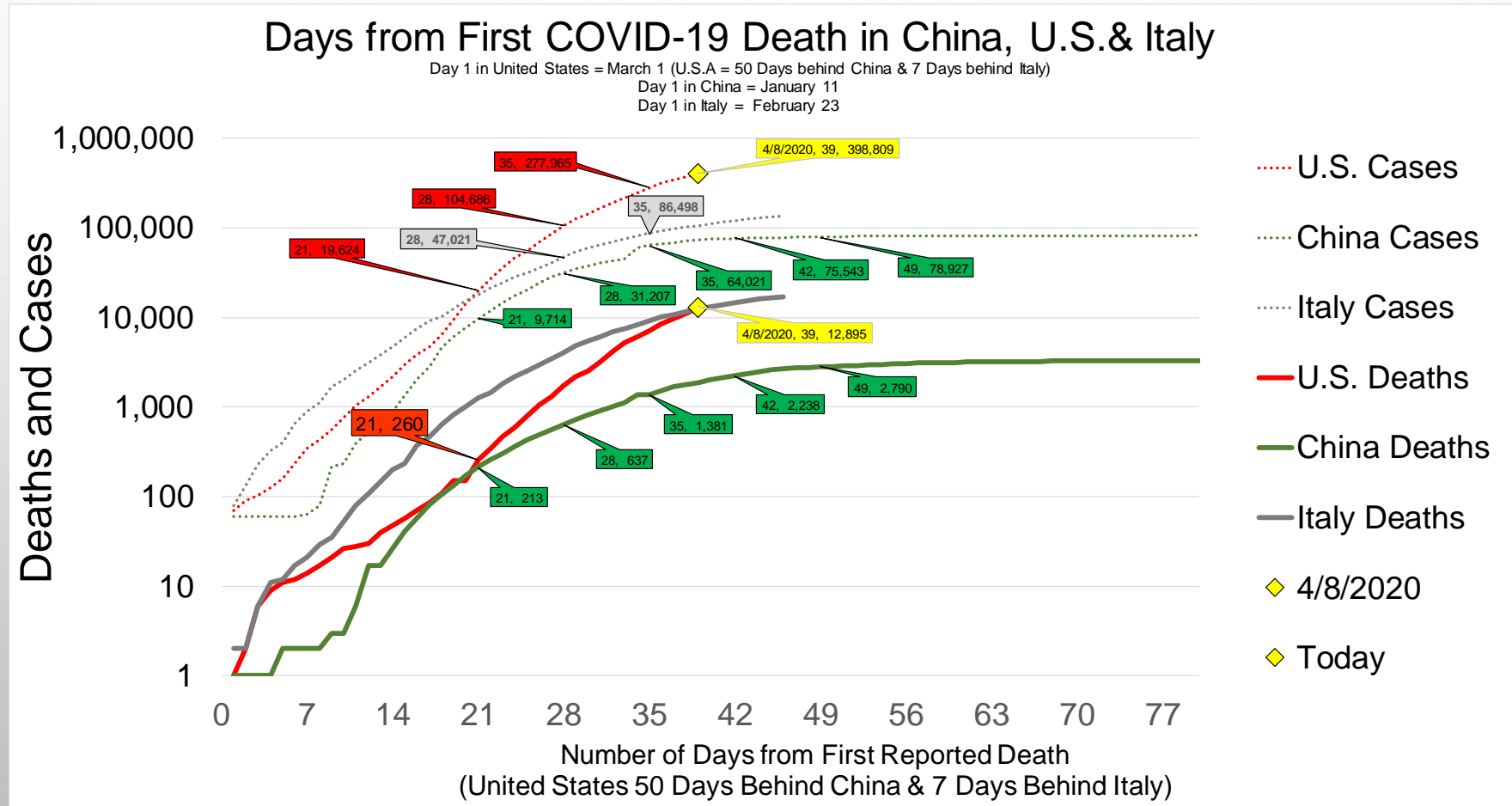
1. Financial Market and Economic Modeling Has Become Virus Modeling

- While we share your same basic human concerns, our role as your trusted advisor is to provide this information in the context of economic and financial matters. Please know that what could pass for good news in terms of beginning to alleviate (extraordinarily high) economic and financial uncertainty will not always correlate with good news on a basic human-level. *Human suffering cannot and should never be measured with percentages or on graphs.*
- Markets cannot stabilize and economies cannot begin to heal until several steps occur.
- The first important step towards stabilization is empirical evidence that COVID-19 particularly in the United States (for U.S. Based investors), while perhaps seeming to get worse in the headlines (**and this week will likely be the worst yet**) will stabilize enough that we can see beyond today into the next phase of this battle that involves more precise weapons than the blunt instrument of “sheltering in place.”

2. Explanation of Exhibits in this Situational Update

- The COVID-19 data shown real-time (in the United States) is often overlaid on top of Chinese data (on 50 and 56 day lags) and Italy (on a 7 Day lag).
- There are more datasets we will look at, but this baseline gives us a reasonable look at various paths we could follow over the next weeks and months.
- In recent days, we have begun to incorporate more analysis on individual U.S. State data to provide clues about where the conversation may be moving.
- Such analysis includes individual state infection rates versus population density and average daily temperature to gain a better understanding of this enemy.

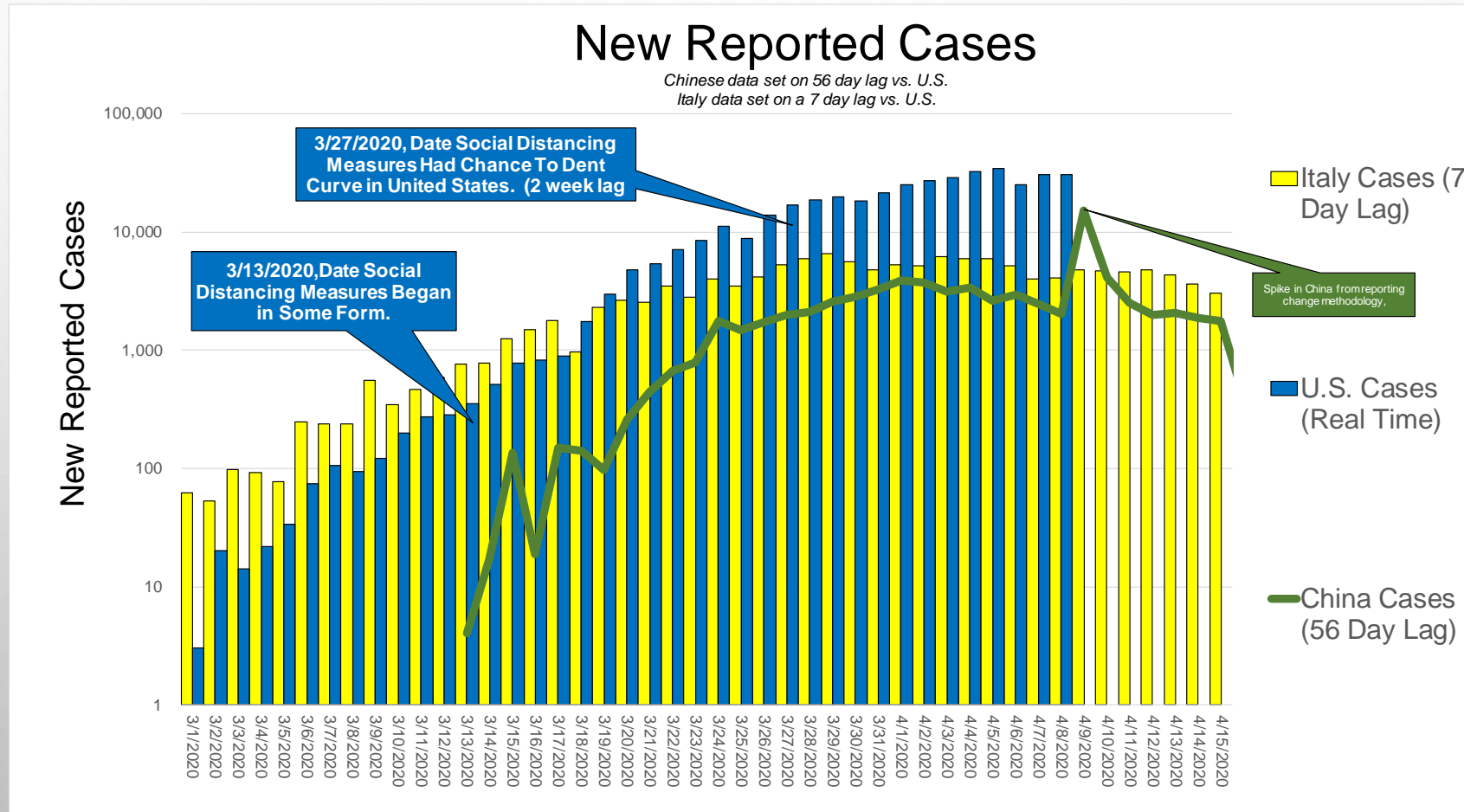
CURRENT CASE AND MORTALITY UPDATE AS OF TODAY



Sources: Data from prior day's end is the "European CDC – Latest Situation Update Worldwide." Data for U.S. State and intraday measures is <https://www.worldometers.info/coronavirus>.

COVID-19 NEW REPORTED CASES AS OF TODAY

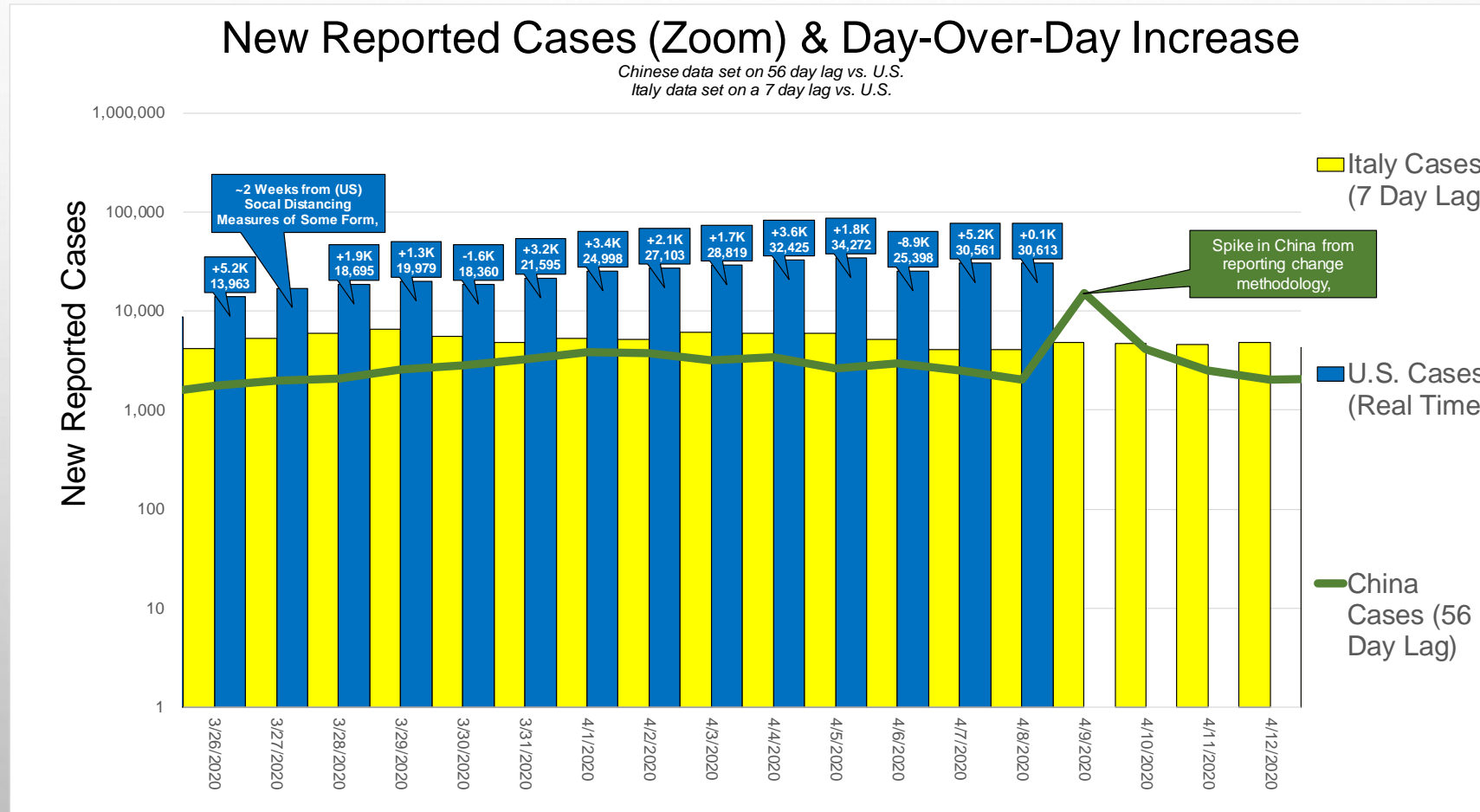
- Curve is bending
- Generally following expectations



Sources: Data from prior day's end is the "European CDC – Latest Situation Update Worldwide." Data for U.S. State and intraday measures is <https://www.worldometers.info/coronavirus>.

COVID-19 NEW REPORTED CASES AS OF TODAY (ZOOM)

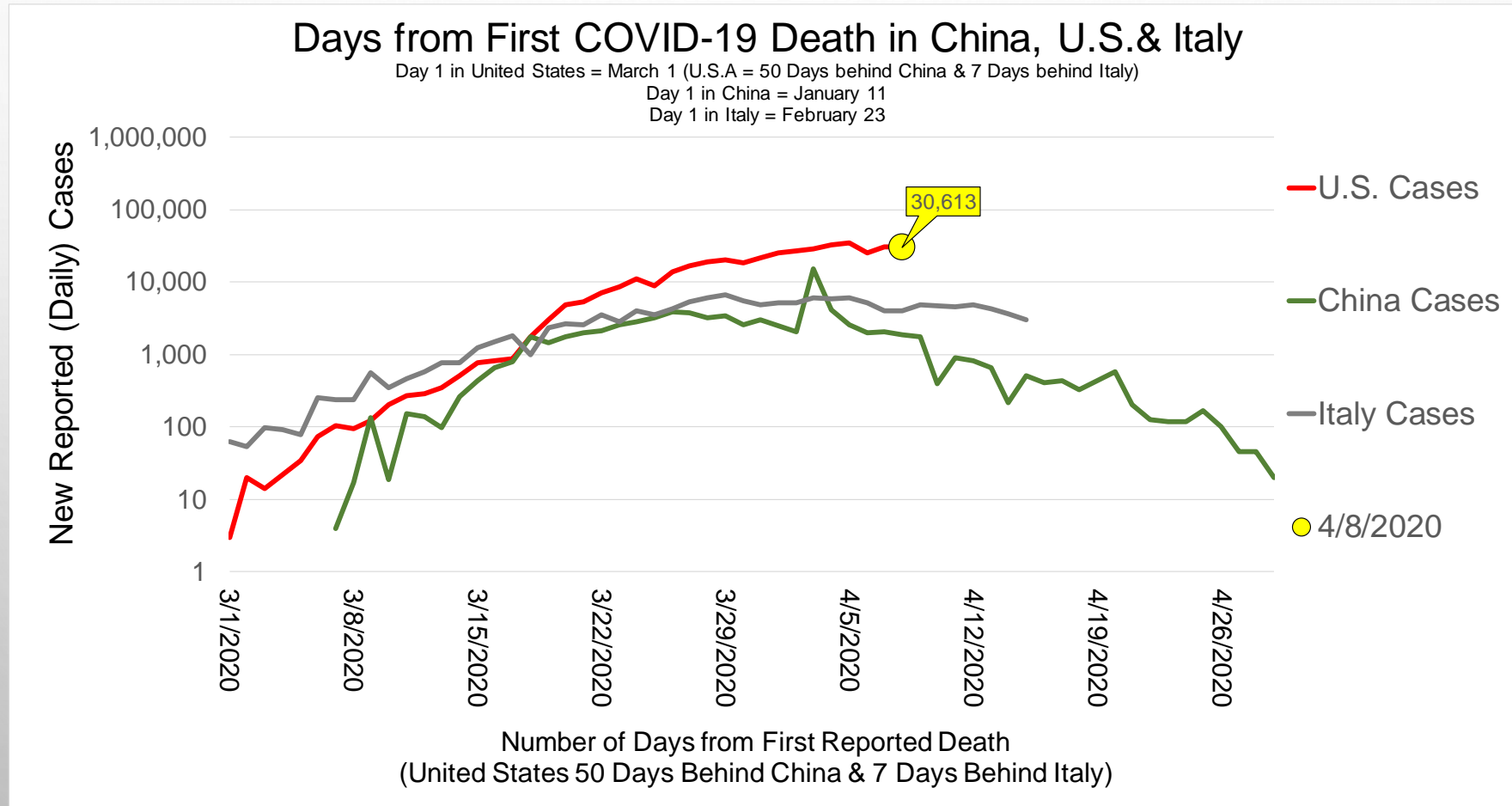
- Curve is bending
- While +0.1K today vs yesterday, the last three day trend is very welcome



Sources: Data from prior day's end is the "European CDC – Latest Situation Update Worldwide." Data for U.S. State and intraday measures is <https://www.worldometers.info/coronavirus>.

NEW CASE UPDATE AS OF TODAY – FLATTEN AND THEN BEND THOSE CURVES!

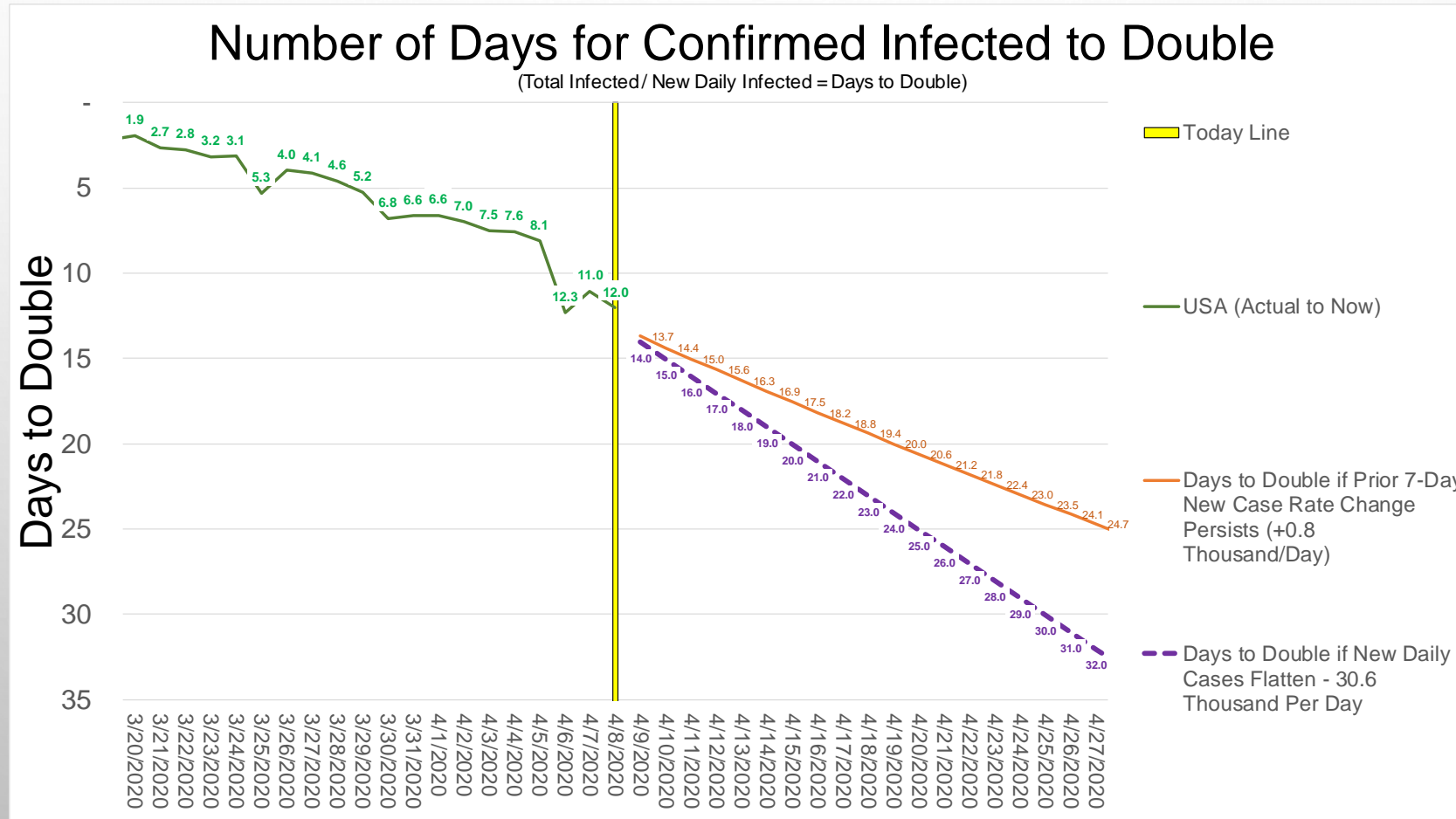
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DAYS FOR CASES TO DOUBLE AS OF TODAY - ACCELERATE DOWNWARD SLOPES

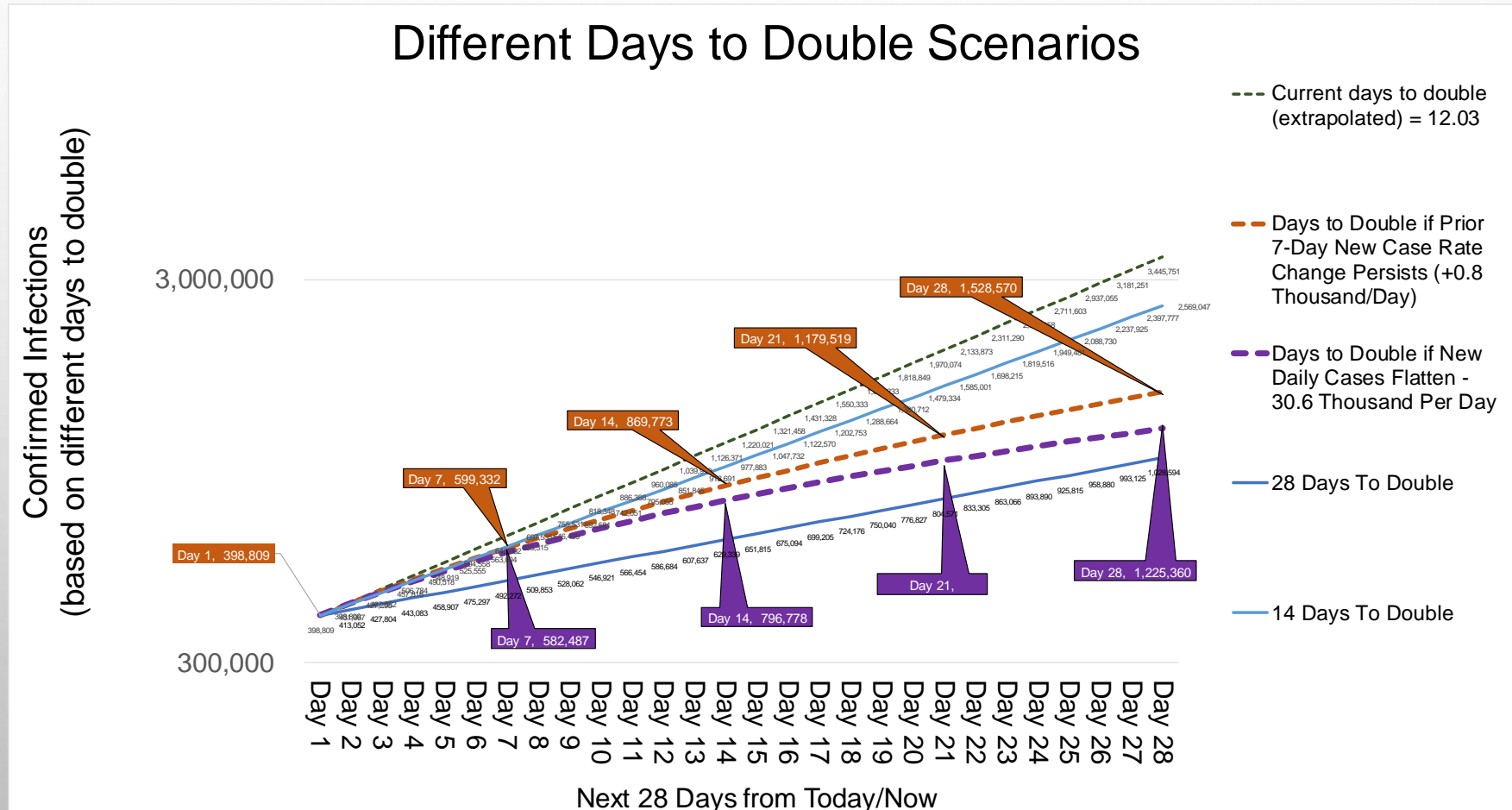
- The last three days have been a welcome acceleration in the right direction
- The last three days has taken us from 8.1 to 12.0 days to double, and that's fantastic



Sources: Data from prior day's end is the "European CDC – Latest Situation Update Worldwide." Data for U.S. State and intraday measures is <https://www.worldometers.info/coronavirus>.

28 DAY FORECASTS AS OF TODAY - WHY CUTTING DAYS TO DOUBLE IS SO CRITICAL

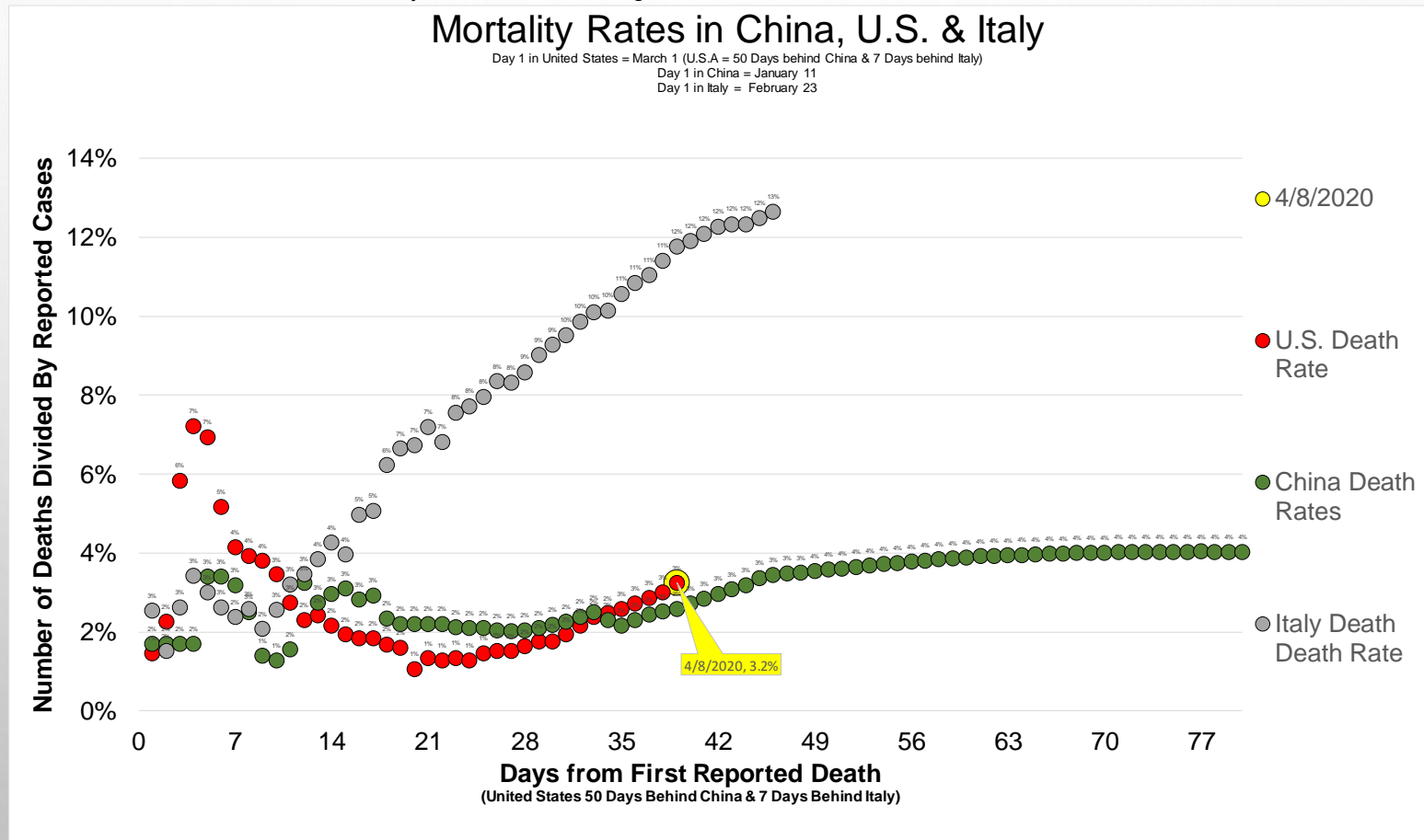
- Worst case scenarios looking less and less daunting every day
- We can see clear daylight over this dark horizon now



Sources: Data from prior day's end is the "European CDC – Latest Situation Update Worldwide." Data for U.S. State and intraday measures is <https://www.worldometers.info/coronavirus>.

COVID-19 MORTALITY AS OF TODAY

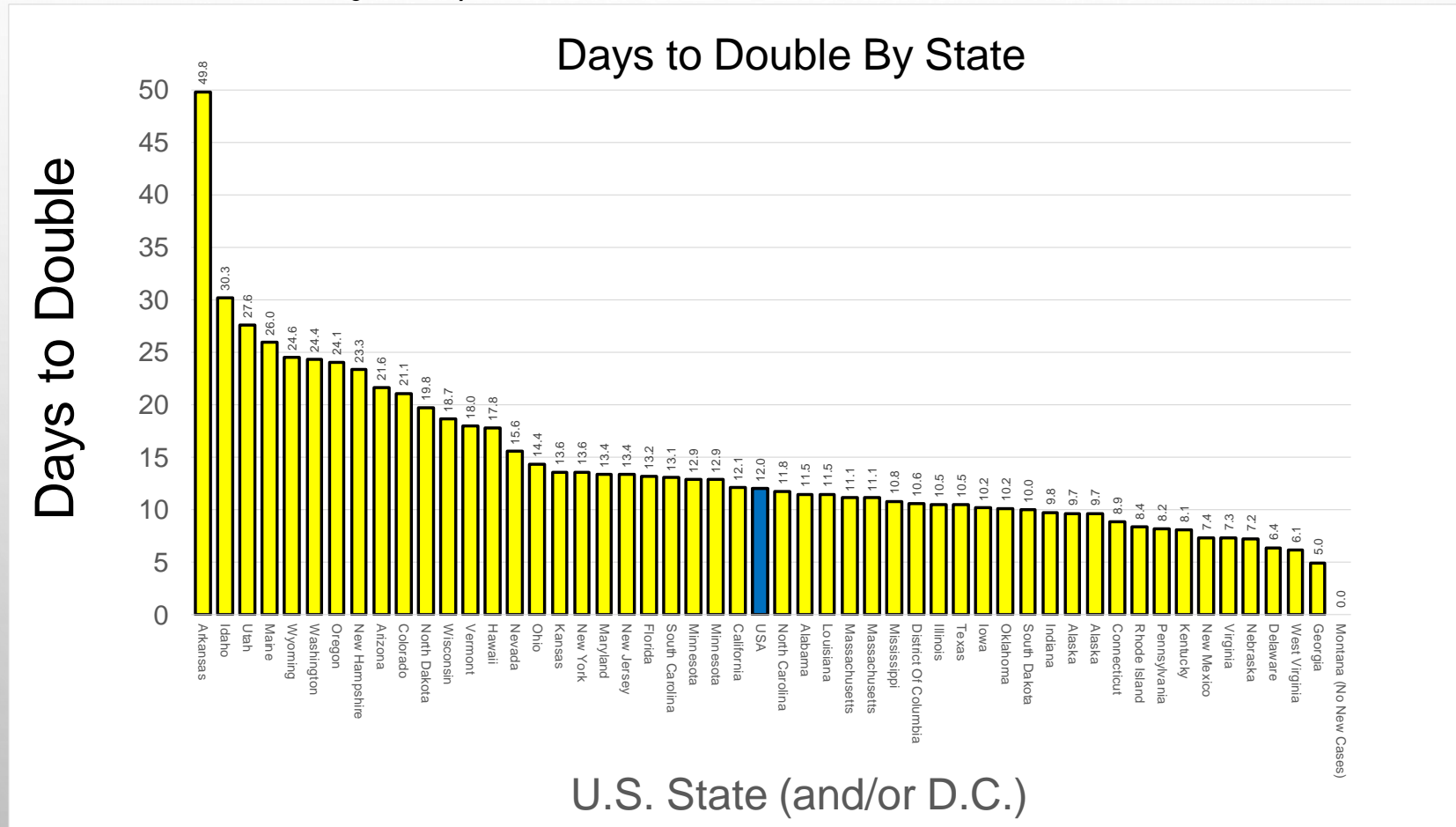
- Want to stay near China trend and not bend towards Italy
- This week and perhaps early next week will put immense stress on healthcare systems
- Our path (i.e., China path or Italy path) will depend on healthcare system capacity
- Even best case has mortality rates continuing to increase for foreseeable future



Sources: Data from prior day's end is the "European CDC – Latest Situation Update Worldwide." Data for U.S. State and intraday measures is <https://www.worldometers.info/coronavirus>.

COVID-19 STATE TOTAL CASES & DAYS TO DOUBLE

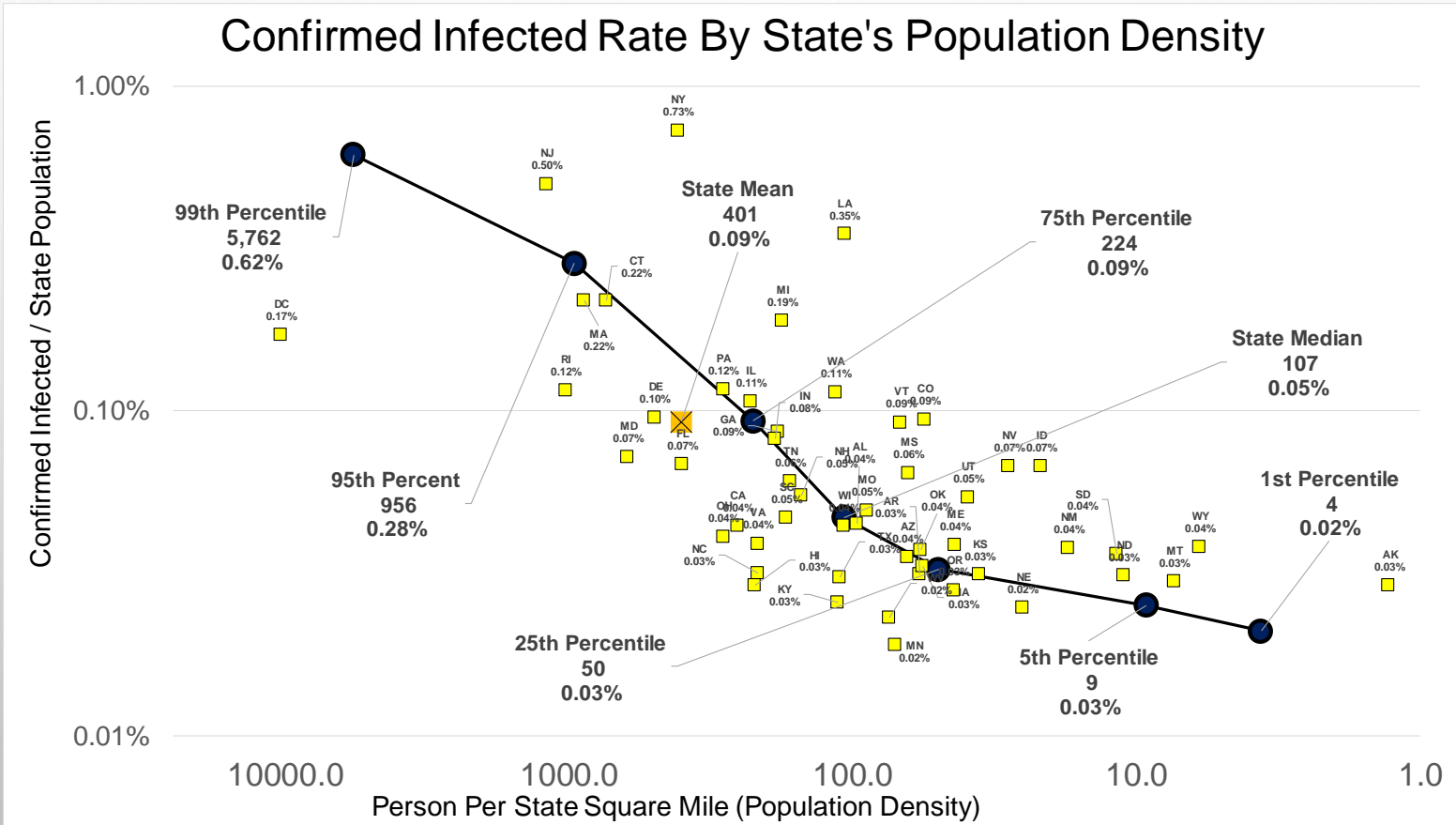
- Every state has its own curve
- Look very different across state borders
- States to the left are generally those who are closer to the end of their wave



Sources: Data for U.S. States is from <https://www.worldometers.info/coronavirus>.

STATE CONFIRMED INFECTIONS VS POPULATION DENSITY

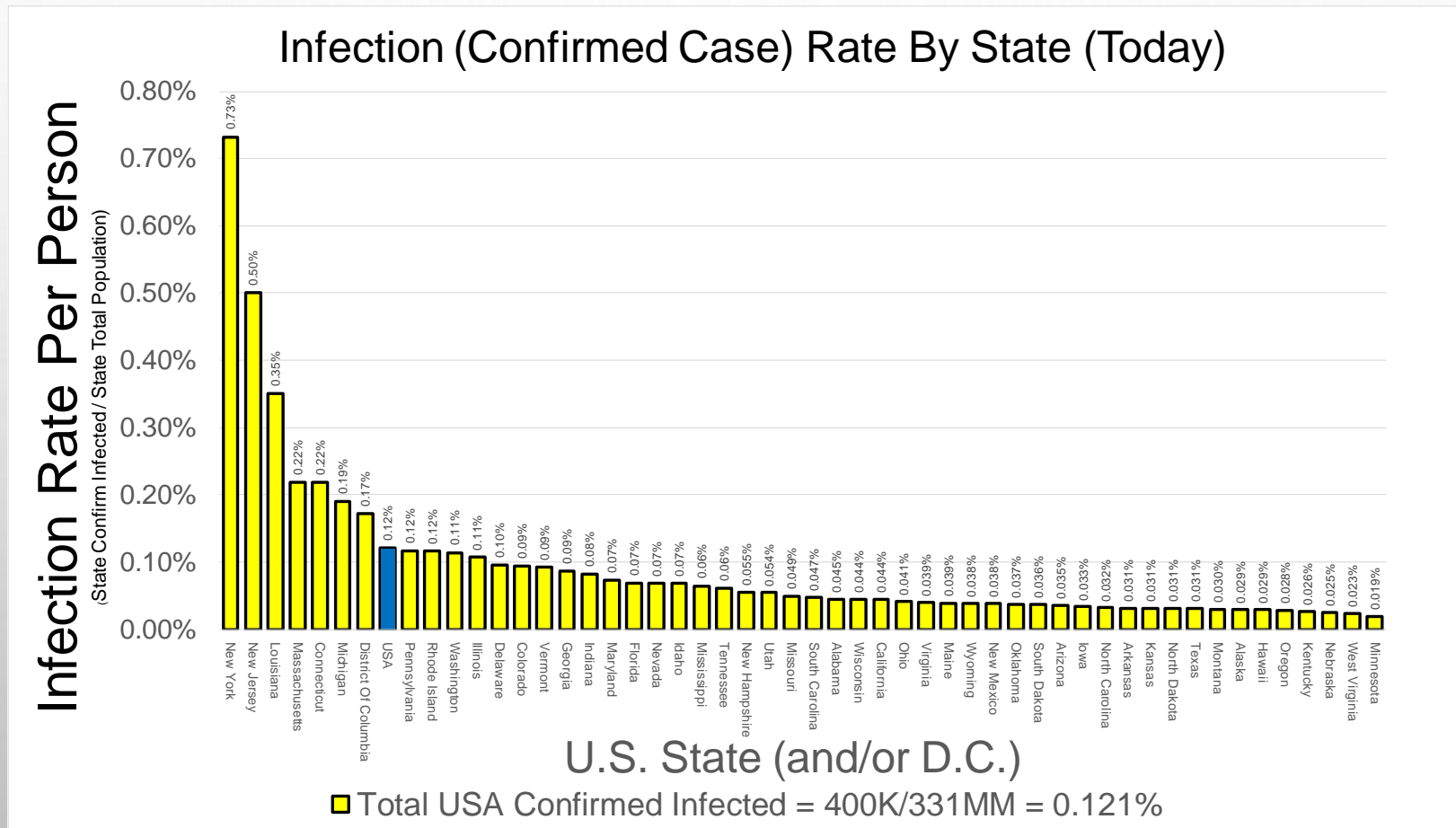
- State rates tied to population density. Some states more naturally socially distanced than others.
- Will continue to look at other factors (climate variation by state)
- Such state-by-state analysis will be useful for when we're over the horizon and what next after 100% shelter in place ends.



Sources: Data for U.S. States is from <https://www.worldometers.info/coronavirus>.

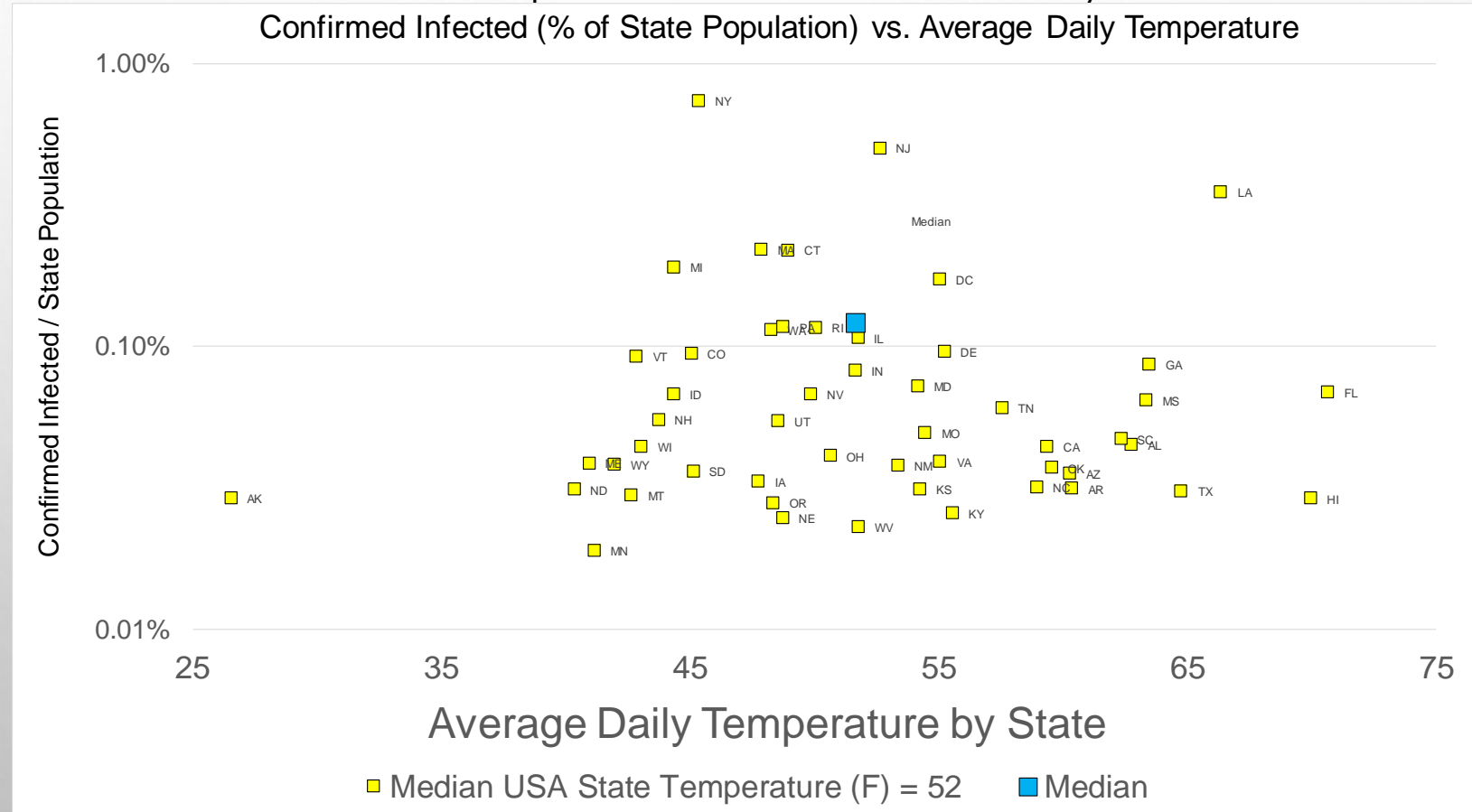
CONFIRMED INFECTIONS / POPULATION BY STATE

- NY & NJ are driving the nation (nearly half of U.S. cases). Both are dense and cold.
- Of 7 states (or DC) above 0.111% (national) infection rate, Louisiana is only warm and not dense state.



CONFIRMED INFECTIONS RATES VS TEMPERATURE

- Each state's infection rate versus daily state average temperatures.
- There are some population-dense states (e.g., FL) with low rates, but they're all warm.
- Louisiana is only warm state outlier and could be tied to unique factors (Mardi Gras on 2/25)
- Bodes well as speculation that virus' transmission rate falling in the fast arriving Spring could be similar to the Flu and further accelerate the path back to some semblance of normalcy



Sources: Data for U.S. States is from <https://www.worldometers.info/coronavirus>.



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