

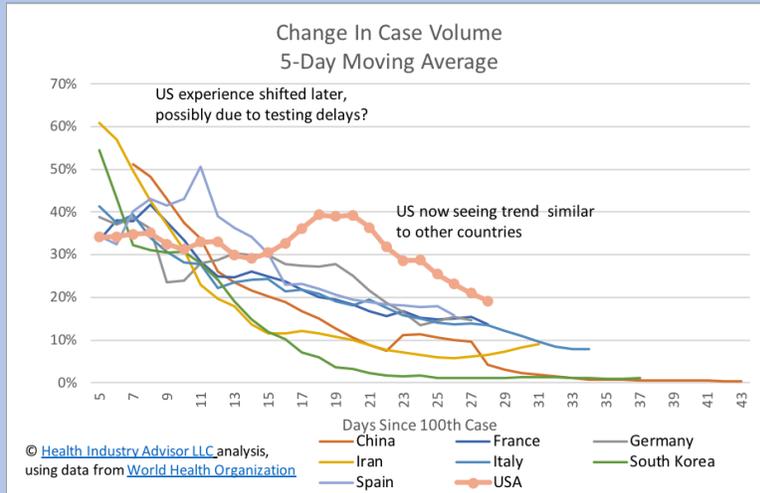
Measure	Desired Change	Yesterday in the U.S.
No. of Tests	Increase	Up 12.3% (Cumulative)
Positive Test Rate	Decline	Up to 17.0% (from 16.6%)
No. of Cases	Plateau	Up 15.0%, But Rate is Slowing
% of Deaths Per Case	Decline	Up to 1.9% (v. 1.7%)
No. of Deaths / 1M Pop.	Plateau	Up to 9.5 (from 7.5)
Recoveries : Deaths	Increase (>1:1)	Down slightly 1.74 (from 1.8)

Yesterday's Highlights:

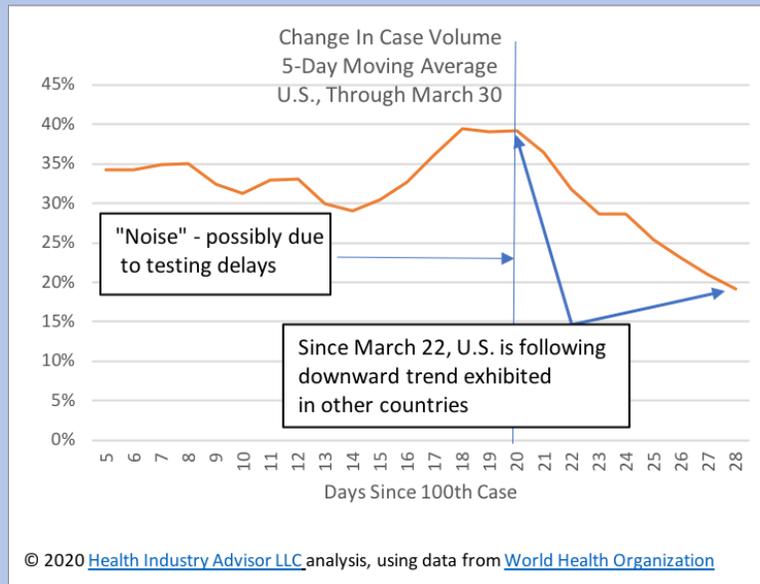
- Starting today with testing in the U.S.: Nearly 100,000 tests were performed on Monday, as the U.S. continues to make testing more widely available. Total tests to-date are nearly 1M. The cumulative positive test rate increased for the second straight day, suggesting that the U.S. is still paying catch-up in testing of suspected cases. On the other hand, given that presumably highly-suspect cases are the focus of testing, the low positive test rate of 17% seems somewhat encouraging
- New York continues to be of most concern in the U.S., although the virus is spreading across the country: Last Wednesday, New York accounted for 48.1% of all cases in the U.S.; yesterday, this was 41.0%. Further, while the total cases count in New York continues to grow daily, the “bright spot” is that, as of last Friday, cases in New York were doubling every 3 days; as of yesterday, these are doubling every 5 days.

Larger states where cases are doubling at a rate of about every 3 days are: Connecticut, Maryland, Massachusetts and Pennsylvania
- California, Florida, Louisiana and Michigan are receiving a great deal of concern. These states have significant populations in large metro areas that seem to have the potential of becoming localized “hot spots”
- The U.S. overall continues to experience declining rates of increases in daily cases – this is expected of processes that are undergoing exponential growth, and has been the pattern of every other country we are tracking. The expected trend, however, did not become evident in the U.S. until March 22. Now that the rate is failing, cases are doubling every 4 days in the U.S., versus every 3 days on March 27 and every 2 days on March 20
- Italy, Iran and now, Spain, are showing hints that new cases: total cases are failing off the exponential growth trend line. Its still early to call this turn, however, and we will continue to monitor it
- A great deal of media attention was given yesterday to a Presidential projection that the death rate in the U.S. could peak by mid-April. We are tracking that, using the relationship between total deaths and new deaths. As of yesterday, this still shows a pattern consistent with exponential growth trend. At the point where we observe see this relationship fall of its exponential trend, the death rate should reach its peak
- The U.S. continues to report the most cases and the highest rate of increase in cases, of the countries we are tracking. On the other hand, case concentration (cases per 1M population) and death rates in the U.S. are comparatively not as severe

Information provided as a courtesy, based on data from the above-named sources. HIA has no responsibility for the accuracy and updating of any data. Sources: worldometers.info; covidtracking.com
 Graphics depict data as of March 30, 2020

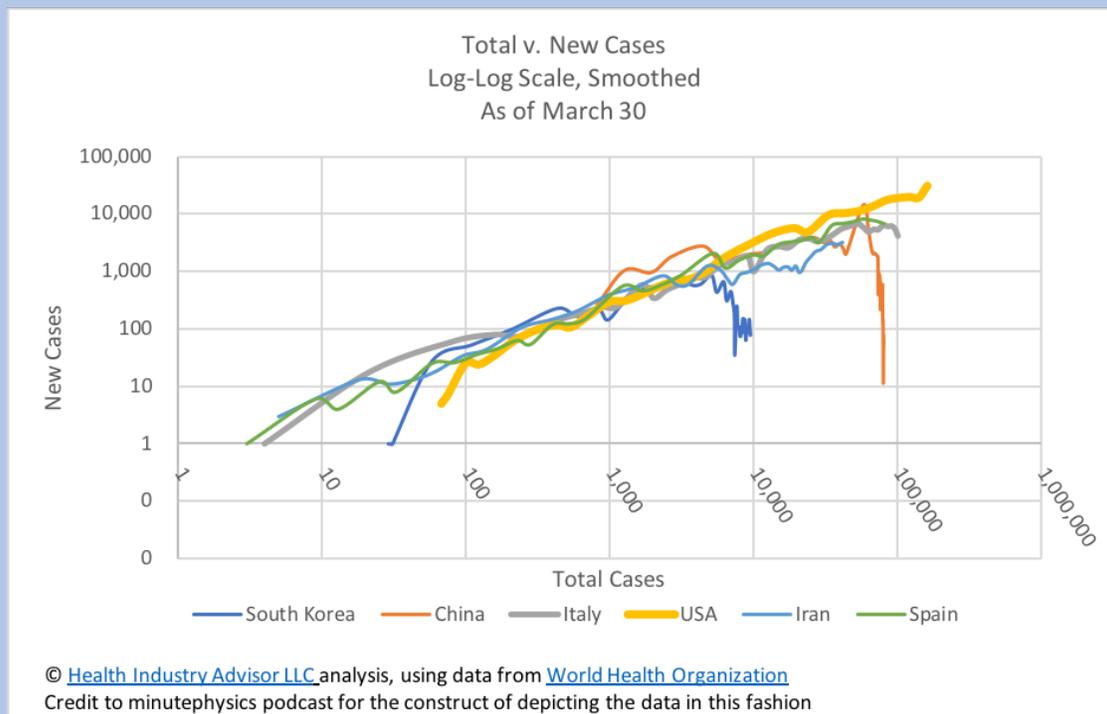


Many countries exhibit a consistent time-based pattern for daily changes in cases. This pattern didn't emerge in the U.S., however, until March 22:

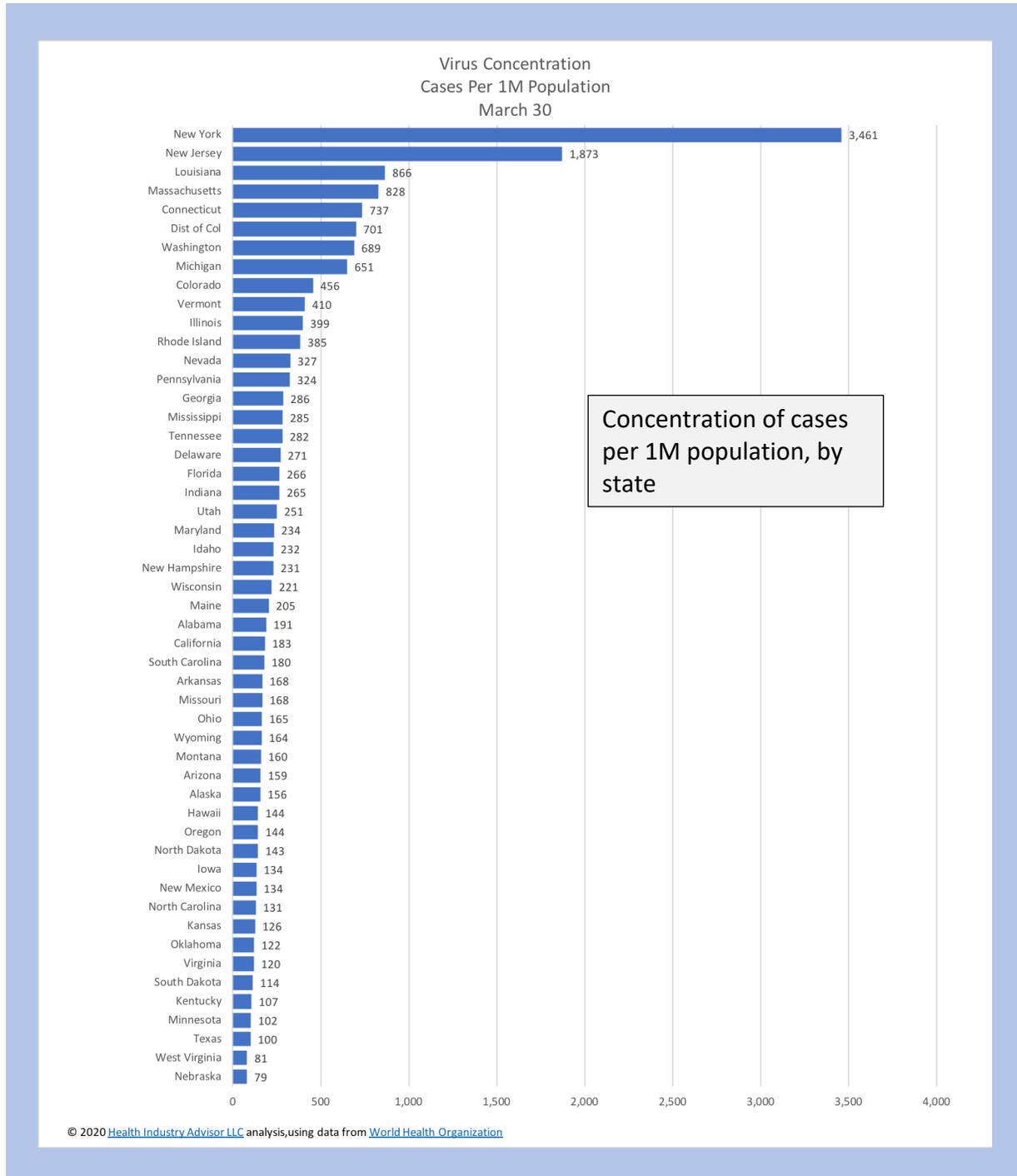


How to show an exponentially-growing process . . . and, when exponential growth ceases.

Note the striking similarity and linear nature in the data for every country – at least up to a point for China and South Korea. Indeed this is a characteristic of a process experiencing exponential growth; its only when the plot line falls off its linear trend - as it did for China and South Korea - that we know contagious growth is waning.



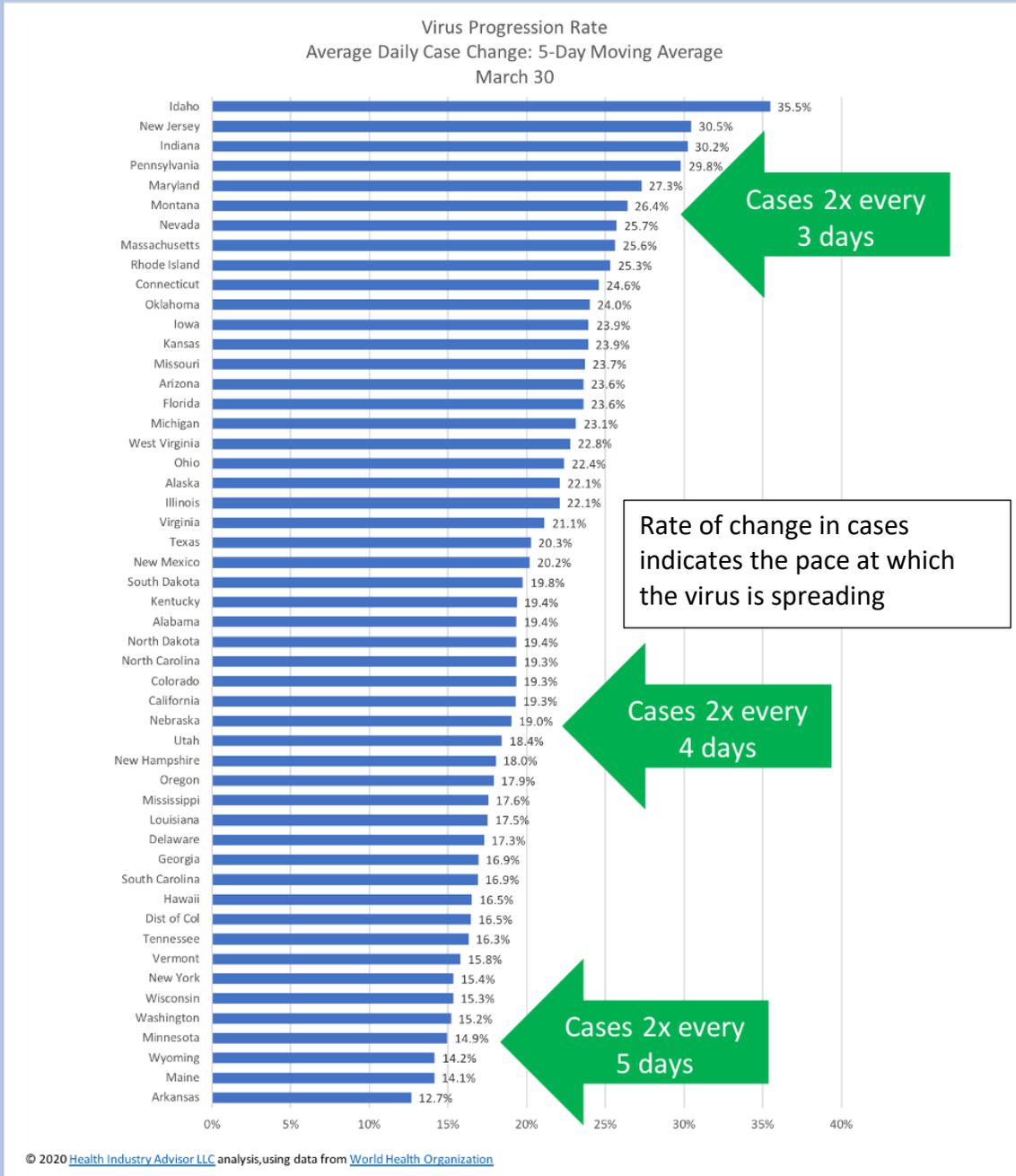
Though its premature to call, Iran, Italy and Spain’s data are showing hints of failing off the exponential trend line.

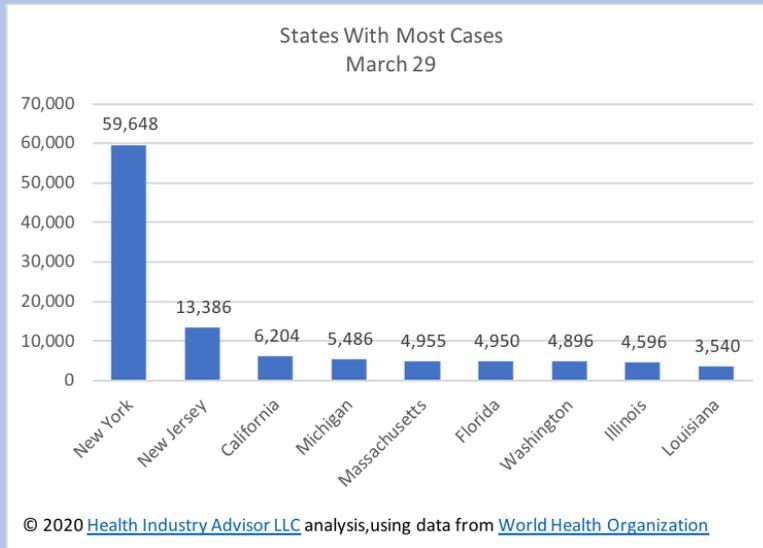


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This visual shows the rate at which cases are increasing in every U.S. state.





A sign of slowing infections:

Seven states have experienced 4 of more consecutive days with declining case growth rates:

