

Measure	Desired Change	Yesterday in the U.S.
No. of Tests	Increase	Up 10.4% (Cumulative)
Positive Test Rate	Decline	Up to 18.2% (from 17.7%)
No. of Cases	Plateau	Up 14.0%, Rate is still declining over time
% of Deaths Per Case	Decline	Up to 2.4% (v. 2.1%)
No. of Deaths / 1M Pop.	Plateau	Up to 15.4 (from 12.2)
Recoveries : Deaths	Increase (>1:1)	Down slightly to 1.74 (from 1.79)

Yesterday's Highlights:

- Nearly 110,000 tests were performed in the U.S. on Wednesday, with 23.3% testing positive. This testing volume is the second highest of any day since the virus started. The positive testing rate continues to increase, suggesting that the U.S. is still catching up on testing potential cases. Still, the positive test rate seems low, given that presumably only highly-suspicious cases are being tested. (Note: a report in the Wall Street Journal's on-line edition this morning suggests that as many as 1-in-3 negative results may be incorrect. The sample size is too limited, however, to say these false negatives are indeed that significant.)

Because testing isn't as broad-based as it needs to be, it is likely that actual cases are under-reported – perhaps, significantly. At the same time, it is quite possible that the undercounted cases would be skewed toward mild or asymptomatic cases. Assuming this is true, recovery rates will be under-stated and death rates will be over-stated.

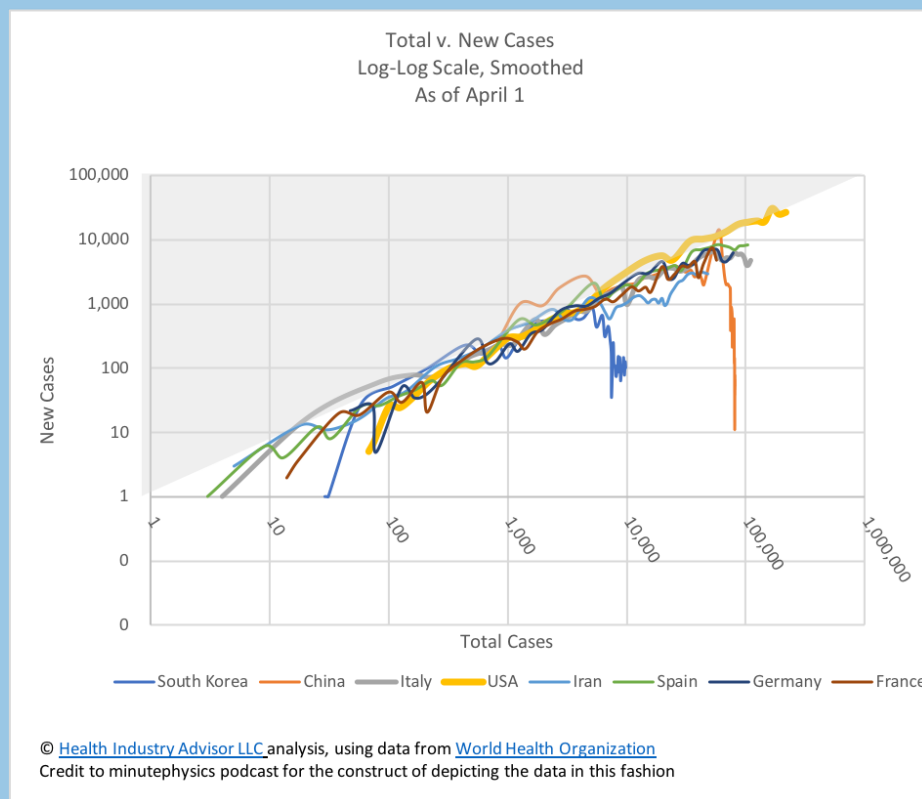
- As of yesterday, cases in the U.S. are now about 2x or greater any other country. Perspective, however, is important – the U.S. also has a large population. The number of cases per 1M population ("concentration") in the U.S. remains lower than countries such as Spain, Italy, Germany and France. The U.S. has just over a 1/3 of Italy's concentration and less than 1/3 of Spain's.
- Following the expected pattern for an exponentially-growing virus, the pace of growth in cases continues to fall in most states and for the U. S.. Cases in the U.S. are now at about every 5 days; as recently as 11 days ago, cases were doubling every 2 days. Arkansas' cases are now doubling in 8+ days; Washington's in 7+; and Alabama, Minnesota, Oregon and Vermont's, 6+ days. New York, the U.S. epicenter, has seen its rate lessen to the point where it is doubling about every 6 days.
- This slowing in the pace of case growth is also seen outside the U.S.. Growth in cases, on a 5-day moving average basis, in Spain, the Netherlands, Germany, Iran and Italy are each below 10%, with Italy's now at 5%. Italy's rate only 4 days ago was 15.5%.
- A small bright spot in the U.S. – the number of active cases fell yesterday in Minnesota and the District of Columbia.

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 April 1, 2020

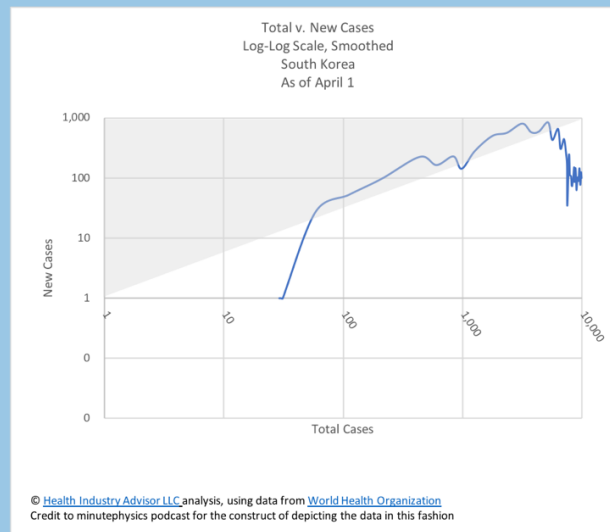
This graphic bears repeating – it's what we need to observe in order to know when the virus enters containment phase.

During its contagion phase, a virus like COVID-19 grows exponentially, as shown on the graphic below. Once the virus-spread begins to be contained, a noticeable downward trend emerges - see China and South Korea's experience.

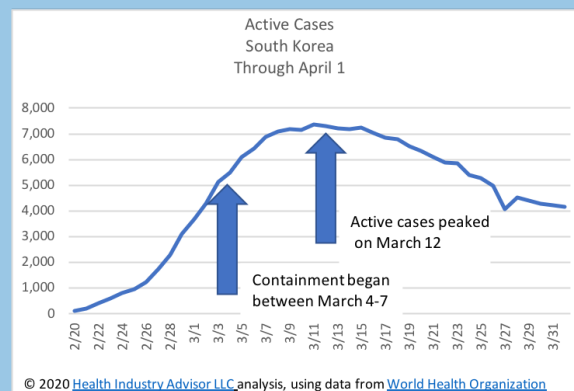
China's downward trend, or the beginning of containment, occurred on about February 8; peak active cases occurred there on February 17. South Korea's downward trend began on or about March 4-7; peak active cases occurred March 15.



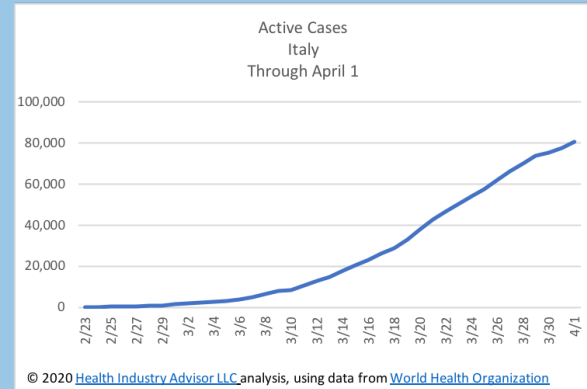
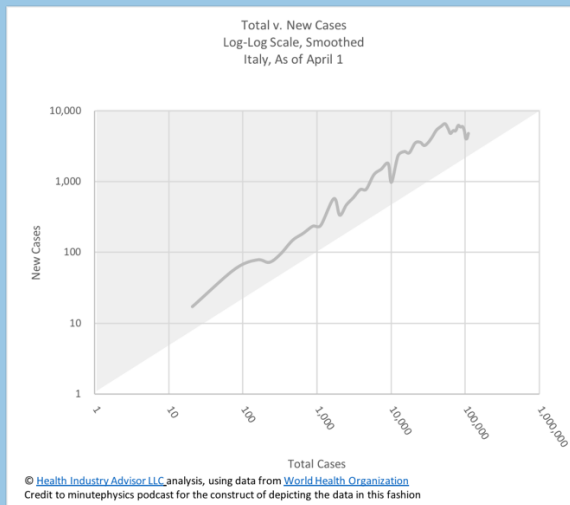
Let's observe South Korea's experience more closely. Here is the previous graph, with only South Korea depicted. The beginning of its containment phase is easily discerned by the shift from the exponential growth line to a clear downward trend:



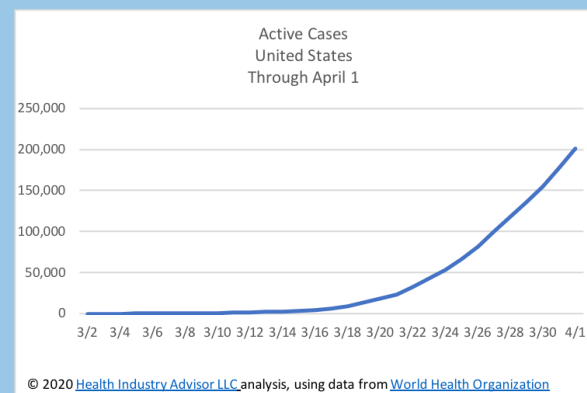
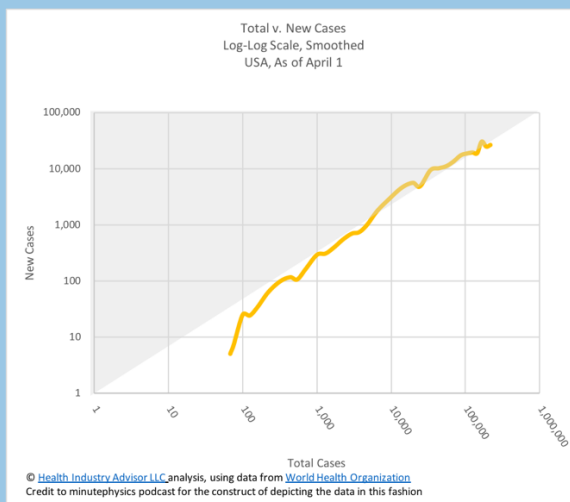
Now, observe South Korea's active cases by day. The "containment" phase" – defined as when cases no longer grew exponentially – occurred around March 4-7. Peak active cases then followed on March 12:



Here are the same graphs for Italy, which is showing hints that its cases are falling off the exponential growth trend (turning downward)



And, for the U.S. (still on the exponential growth trend)



As expected with an exponentially-growing virus, average daily growth rates diminish over time. Arkansas' cases are now doubling in 8+ days; Washington's in 7+; and Alabama, Michigan, Oregon and Vermont's, 6+ days. New York, the U.S. epicenter, has seen its rate down to doubling about every 6 days.

