

The positive news (*amid the difficult news*) to begin with today is a surge in testing yesterday to >200,000 tests, with a large drop in the % positive in these new tests (*% Positive down 6%, to 16% overall*). Greater testing means more new cases, but despite this testing growth, the rate of **new case growth declined to a seven day low of 5%** (*see charts below*). We all fear wide spread testing will uncover countless unreported cases (*more on this below*), and new cases did grow with new testing yesterday, but we saw a drop (*not increase*) in the % positive and a drop in new case growth. We have a lot of media hype today on Case and Mortality growth. As we reflect on all of this on a Sunday, we again hope to balance this here with what is actually happening. **The passage of time under quarantine will resolve ALL cases, reported and unreported**, and we are seeing this happen with a large recovered case volume yesterday.

Total Positive – Unreported Cases

We have provided a link to Healthdata.org in recent days. This is a group funded by Bill & Melinda Gates, who gathered a group of mathematicians, statisticians, epidemiologists to take all the available data and build models to forecast peak hospitalization capacity needs for states to plan with. This is a solid model based on known data, and the hard facts we have (*Hospitalization Rates/Totals, Mortality Rates/Totals*) in the US and other countries. This is likely the model (*or similar model*) that is driving the current estimate of a “peak” in hospitalization and mortality on April 16.

What We Know: We do have a good understanding of Hospitalization Rates and **solid data on Hospitalization totals to date**. To give some understanding of the **Total Universe of Cases** in the US (*reported and unreported*) we can use these **facts** and this very credible statistical model to size the Total Case Universe (**Total Case Universe x Hospitalization Rate = Hospitalized Cases**). This provides a view of the total spread in the US at the peak, both reported/tested and unreported/untested.

What This Tells US: Using this model and the hard facts of Hospitalization Totals and Rates we can estimate that:

Upperbound on Total Universe of US Cases = 6x Reported/Tested, or ~1.8 Million Total Cases

Lowerbound on Total Universe of US Cases = 3x Reported/Tested, or ~900,000 Total Cases

Note: *There is clearly a lot of emotion, anxiety and fear around the outbreak and the scale of it, when it will end. Some of us have large concerns/fears (and clearly all the media hype doesn't help) that there are potentially tens of millions in the US that are infected, many potentially untested and asymptomatic. Often our worst fears are not rational or based on fact. We hope this helps (and it helps us). But all fact or speculation aside, the passage of time, and right now in the next 5 days, all of the cases that we do and don't know about, will resolve/recover if we remain vigilant! (for those that want to dig in, the model basis and math is attached)*

Recovered/Resolved Cases: Yesterday **we had 8,358 recovered/resolved cases or 24% of all new cases** (~34,000). This number will rise daily this week as we reach and past the peak of new case growth 14 days ago. Some of these cases will resolve in mortality and this also rose yesterday to a new high (1,331)

Here are yesterdays #'s:

Headlines:

- Testing volumes rose again yesterday to ~200,000 tests, a large part of this increase was California and resolution of pending cases as well as new testing
 - *Testing expanded in: Louisiana, North Carolina, Texas, Rhode Island, Nevada, Illinois, Virginia, Delaware, Utah, Arizona*
 - *Louisiana had a 20% increase in new cases yesterday, but doubled testing volume yesterday as well*
 - *Pending tests declined materially as California resolved a large backlog of pending tests. Positive outcomes on these tests were 2%*
- The net daily growth in cases declined yesterday to a 7 day low of 5% as the **Curve Flattens** this week. (see Log Chart below)
- **Total Active Cases** are now being significantly impacted by recovered cases. **Recovered cases totaled ~8,000 yesterday**
- Hospitals across the US are now reporting detail on all COVID-19 Cases, including; *Current vs Total Hospitalized, discharged/recovered, ICU Bed counts, Ventilated Cases*
 - *Total hospitalized cases yesterday was 22,158 vs reported cumulative of 38,615 total hospitalized cases to date*
 - *New York current hospitalized cases grew by ~1,000 yesterday to 15,905*
- **Daily US new case growth rates declined yesterday to a 7 day low of 5%**, despite higher test volumes, **Total Active Case growth also declined across the US by 2% to 11%**.
- **New US Cases Growth – Total US new case growth fell to 12% yesterday continuing a 10 day decline in new case growth.**
- **Mortality: increased yesterday to 2.7% yesterday, up from 2.5% the day prior.** (Note: this is not a “true” mortality rate, but total daily mortality/Total Positive Cases – expect this to rise in coming days).
- **Positive Test rates declined yesterday 6% to 16%, on significantly higher test volumes (a good sign).**
- For detail on Hot Spot Mapping go to: <https://www.scientificamerican.com/article/map-reveals-hidden-u-s-hotspots-of-coronavirus-infection/> (thanks Lisa!)
- The US fell off exponential virus growth curves 15 days ago as we have been reporting (charts below) and new case growth rates are now below 10% across the US. Good interactive mapping of the total curve can be found at: <http://91-divoc.com/pages/covid-visualization/> (thanks Brad!)

Testing:

- Testing yesterday of 205,745, represents new testing capacity of +30,000 as new higher speed test units were more fully deployed and resolution of “Pending” tests (California).
 - Largest Testing Increases were: *Louisiana, North Carolina, Texas, Rhode Island, Nevada, Illinois, Virginia, Delaware, Utah, Arizona*

- Positive Test outcomes declined 6% to 16% on higher test volumes.
- We have conducted ~1,706,323 tests across the US to date.

New/Active Cases

- **Total US new active case growth was 11%, down 2% from prior day on rising recovered/resolved case volumes,**
 - **New York active case growth was flat at ~10%,**
 - **Top 10 States active growth was down 1% to 14%**
 - **all remaining States growth was down 2% to 10%**
- Total Active Cases was 283,324 yesterday and grew 11% yesterday, Daily Resolved/Recovered Cases was up ~2,000 cases to 8,359 yesterday

Hospitalization

- Total positive cases in hospital beds across the US yesterday was up ~3,000 to 22,158 current cases.
- **Total US Hospital beds are ~925,000, Total US ICU Beds is ~100,000**
- **New York current hospitalized cases yesterday was 15,905, up ~1,000 from prior day –**
- **New York total bed capacity is ~53,000, ICU bed capacity is ~3,000**

Recovery/Mortality

- Daily US Mortality rose to 1,331 or 2.7%. Deaths totaled 8,452 across the US to date. Expect this to continue to grow as hospitalizations reach a peak in the coming week.
- **Note: True Mortality Rates are difficult to measure during an outbreak, only after can it be accurately calculated. We use Total Daily Mortality divided by Total Positive Cases as a consistent measure. To be more accurate, today's mortality is related to new cases 10 to 15 days ago, this means true mortality rates are much higher than we show in this daily metric, likely they are double, or ~5%**