

# Neuberger Berman Equity Research Team

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## COVID-19 Update: Vaccine Distribution, Administration, Logistics & Mutant SARS-CoV2 Strains

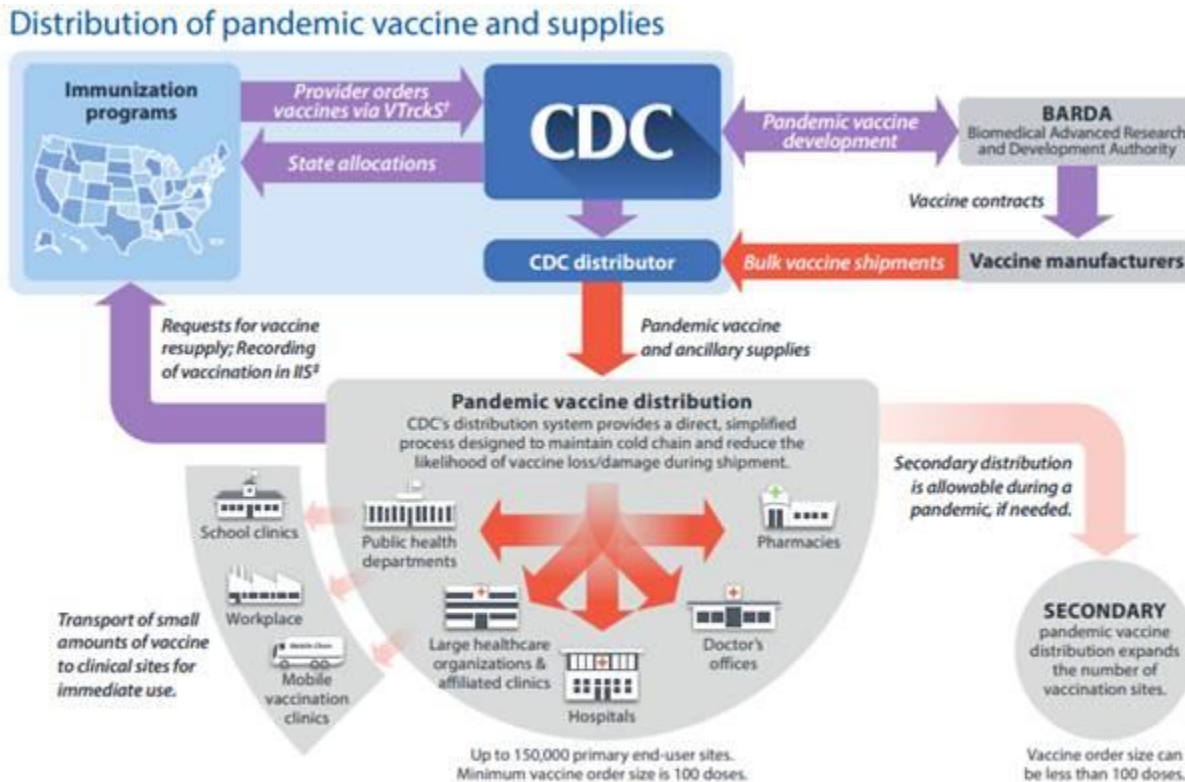
*Assessing the U.S. vaccine rollout.*

For our first COVID-19 note of 2021, we thought it would be helpful to focus on the vaccine rollout and anything that may deter our ability to put this pandemic in the rearview mirror by this fall, rather than highlighting what we already know are and will likely continue to be astounding new case numbers, hospitalizations, positivity rates, etc., as the full impact from the reported ~18 million+ or so who traveled from Dec. 18 through year-end is fully reflected in the numbers. At this time, our view is that stabilization may occur in February should case counts slow and vaccine distribution and administration begin to hit their stride globally, exceeding the Operation Warp Speed goal of 48 million U.S. doses distributed and administered by Valentine’s Day 2021.

### Where are we on vaccine distribution and administration?

The Pfizer/BioNTech mRNA vaccine is distributed directly through FedEx/UPS to sites of administration within states, based on federal allocation in collaboration with governors. This is in contrast to Moderna’s mRNA1273 vaccine, which is distributed by McKesson as part of Operation Warp Speed, again with federal allocation in collaboration with governors.

This flow chart can be used as a visual aid in understanding U.S. distribution:



Source: Centers for Disease Control and Prevention, Interim Pandemic Distribution Plan, April 20, 2020

\* <https://www.cdc.gov/vaccines/hcp/admin/storage/index.html>

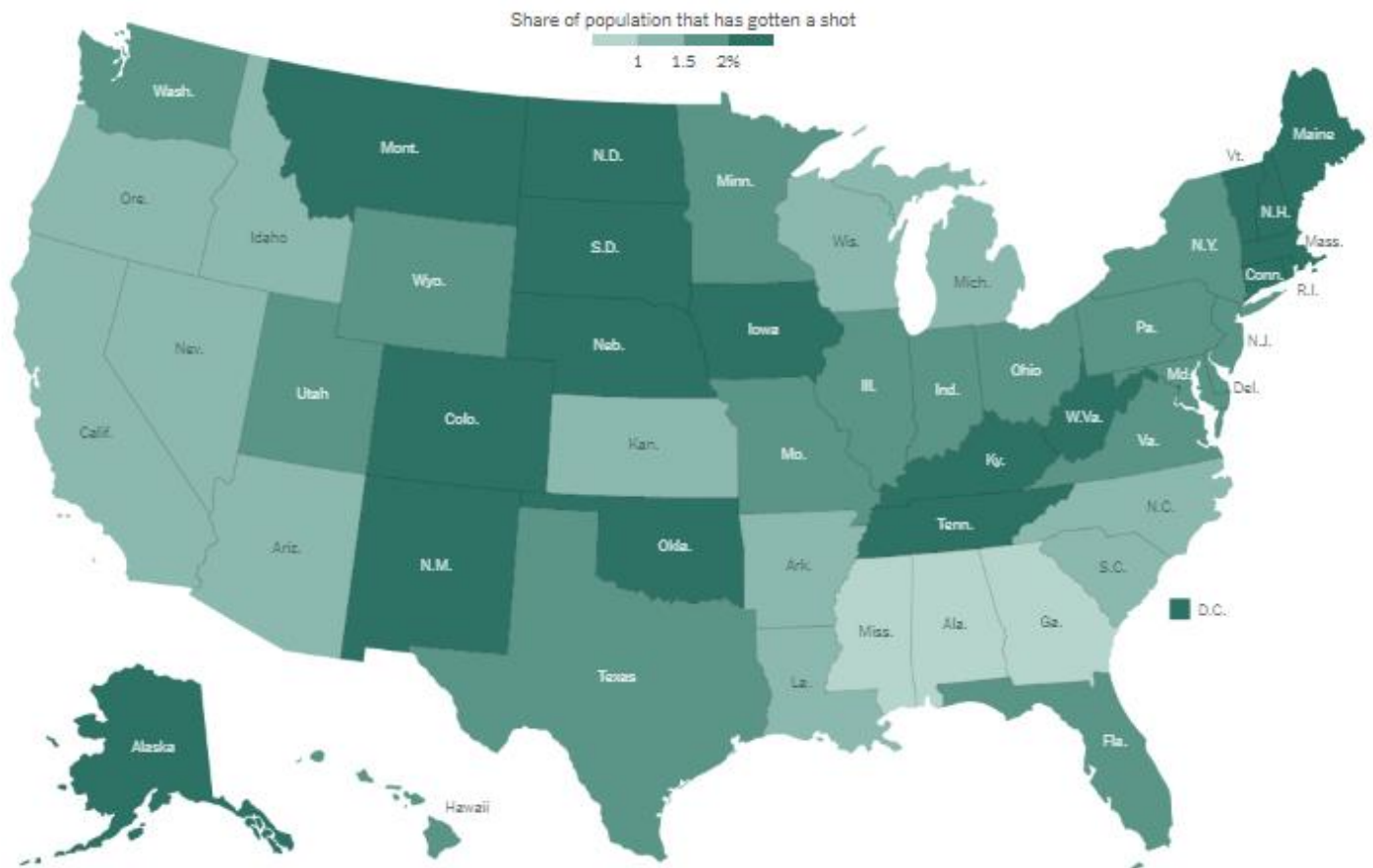
† The Vaccine Tracking System (VTrcks) is CDC’s management and ordering systems for publicly-funded vaccines.

‡ Immunization Information System (IIS)

**As of January 7, 21.4 million doses have reportedly been distributed in the U.S. and ~6 million have been administered; 1.9% of the U.K. population has been vaccinated, according to practico.co.uk.**

- >10% of the U.S. doses have been received by nursing home/long term care residents, although close to 3 million doses have been delivered.
- To this end, both Walgreens and CVS have stated that they should complete COVID-19 vaccine administration to all seniors in long-term care residences and healthcare workers at these facilities by January 25, 2021.
- Despite what some are calling a “botched” deployment of vaccines in the U.S., a week’s delay in the ~20 million dose goal by the end of 2020 is not terrible, in our view.
- Supportive of a more encouraging distribution outlook are the daily vaccine administration numbers, which have surpassed 500,000 per day, far below President-elect Biden’s goal of 1 million per day but appear to be heading in the right direction.

## U.S. Vaccine Distribution



Source: *The New York Times*, Centers for Disease Control and Prevention, January 7, 2021.

In our last note of 2020, we projected ~50 million to 75 million individuals in the U.S. could be vaccinated by the end of April. Given the recent ramp-up in daily vaccinations of ~600,000 per day (although we are not sure if this is a new range or a “positive blip”), we are confident in the low end of this range (>53 million if 600,000/day is maintained), with upside hinging on how January plays out. (Six million dosed to date since launch, with over half in the first week of January, is a solid start, in our view.) Still, if we are to reach ~50% of the U.S. vaccine eligible population minus the ~20% anti-vaxxers (~250 million – 260 million considering 16 years and older would be the denominator) by end of July as per Operation Warp Speed goals, daily vaccinations would have to ramp to at least 700,000 per day in order to achieve those goals. Regarding supply, the U.S. has secured 400 million doses to date with an option to increase that by ~700 million based on agreements struck with Pfizer/BioNTech and Moderna alone.

**What about the two new strains of SARS-CoV2—the U.K. strain B.1.1.7 and the South African strain VUI-202012/01—both of which have reportedly higher transmissibility, although fortunately equal potency, with respect to COVID-19 severity?**

Our biggest concern regarding getting the pandemic under control has been risk of viral mutation within the Spike protein, with changes to the RNA viral genome that could render current vaccines no longer efficacious. We have taken some comfort in the slower mutation rate of SARS-CoV2 but have been carefully monitoring the CDC sequence database for variants. By now, most of us are aware of the U.K. and South African variants as well as an outbreak in the Danish mink heard back in June.

**B1.1.1.7 Lineage in the U.S. as of Jan 7, 2021, including 52 cases based on sampling (highlighted in dark blue)**



Source: *The New York Times*, January 7, 2021

On January 8, we received encouraging news on the U.K./South African SARS-CoV2 variants with data from the BNT-163b2 vaccine phase III study (published online preprint on bioRxiv) suggesting that patients vaccinated with the Pfizer/BioNTech vaccine had neutralizing antibodies that recognized a key variant N501Y that is present in both U.K./South African strains, with neutralization capabilities equivalent to that of wild-type (unmutated) virus. Additionally, commentary out of Moderna suggests the mRNA1273 vaccine also maintains efficacy against these new strains, although we await data in this regard.

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For more information on COVID-19, please refer to the Center for Disease Control and Prevention at [cdc.gov](https://www.cdc.gov).

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