Town of New Castle, NH
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COVID Update March 5, 2021

This week has decidedly better COVID 19 news. Please feel free to pick and choose what you read.

1. Vaccine Phase Update:
A) The Biden administration has promised enough vaccines to be available by the end of May 2021 to vaccinate all eligible adults.

B) From WMUR, teachers and anyone age 50 or older (phases 2A and 2B) will be able to begin getting vaccinated for COVID-19 this month. Here is what it looks like for Phase 2A, which includes K-12 teachers, child care workers and school staff:

Beginning March 12, regional public health networks (2A) will work with school officials to organize clinics for specific schools or districts, populations referred to as "closed pods."

On March 17, teachers, child care workers and school staff members who are not in those closed pods can begin registering with the state's online scheduling system to get appointments at the state-run vaccination sites. The appointments will begin March 22.

Phase 2B (any NH resident age 50 or older start) individuals can start signing up on the state's scheduling website on March 22. Vaccination appointments will begin March 25.

The beginning of the new phases does not mean the end of the earlier ones. There still may be people in Phase 1B getting their first or only shots later in March or April. Governor Sununu said people in Phase 1B with appointments in April who want to be moved up can call 211 to get an earlier appointment. Some of those folks will be part of the state's first mass vaccination effort this weekend at New Hampshire Motor Speedway. The state will distribute almost 12,000 doses of the new Johnson & Johnson vaccine to people with appointments (i.e. don't just show up without an appointment).

2. Johnson & Johnson's one-shot vaccine was approved by the Food and Drug Administration last weekend. This gives Americans access to a third shot. The company is expected to deliver nearly four million vaccine doses by the end of this week, another 16 million by the end of the month, and 100 million doses by the end of June.

The vaccine supplies from Pfizer and Moderna are also set to increase considerably this month. Pfizer said that it would be able to ship 13 million doses per week by the middle of this month,

up from around 5 million at the beginning of February. Moderna said that it expected to double its shipments to more than 10 million doses by the end of the month.

Together, that means the U.S. will have enough doses on hand by the end of this month to vaccinate about 130 million Americans, or roughly half of all eligible adults, and 40 percent of the total population.

For more detail on the Johnson & Johnson (J&J) vaccine, see below.

The Johnson & Johnson (J&J) vaccine offers new hope for reaching the light at the end of the long coronavirus tunnel, as it provides a handful of various advantages. Not only will the single dose regimen allow for more efficient inoculation, its ability to be refrigerated at normal temperatures for months will make it easier for community and rural doctors offices to carry the shot. It is also based on a technology that has been used before.

Although the J&J vaccine is not quite as effective as Moderna's and Pfizer's in the initial weeks, it eventually has similarly favorable outcomes when it comes to hospitalization and death. With respect to its efficacy, data from Phase 3 clinical trials released in early February suggested that the J&J vaccine was 72 percent effective at preventing moderate and severe disease 28 days after the shot in the US. More promising was the 85 percent global prevention of *severe* disease at day 28, and the fact that there were *no severe cases* at day 49. With its EUA request, J&J submitted more safety and efficacy data. In addition to the aforementioned figures, we now know that the shot was found to be around 66 percent effective (across the globe) at day 14 and 28, which suggests that just two weeks after the shot, it is already doing its job. Other encouraging news included the fact that **after 28 days, the vaccine was 100% effective at preventing hospitalization or death.** For anyone wondering if the J&J vaccine is "as good" as the Pfizer and Moderna options, both of those vaccines were not even considered to be fully effective until 7 or 14 days after that, as they require a booster at 3 or 4 weeks.

Furthermore, the J&J safety profile was quite good. Similar to its competitors, the primary side effects noted after the shot were injection site pain (49 percent), fatigue (38 percent), myalgias (33 percent), headaches (29 percent), nausea (14 percent) and fever (9 percent). While the Pfizer vaccine quickly developed a reputation for causing hypersensitivity reactions such as anaphylaxis (albeit, exceedingly rarely), it seems J&J has avoided this, with only one documented case of hypersensitivity (which was *not* classified as anaphylaxis).

A note on pregnancy. While no pregnant women were included in the trials, eight women did get pregnant after enrolling (four each in the placebo and vaccine groups), which doesn't provide sufficient data to draw conclusions. However, a study performed in rats in which pregnant females were injected with a double dose of vaccine showed no adverse events.

With SARS-CoV-2 variants replicating rapidly, now is the time to build herd immunity across the globe, and the Johnson & Johnson vaccine provides a third tool in the US to make this a reality.

3. A Business Partnership:

Further boosting supplies, Merck will help manufacture the new coronavirus J&J vaccine. The unusual deal between the competitors could substantially increase the supply of the new vaccine.

Under the deal, Merck will dedicate two of its facilities to the production of the J&J vaccine. One facility will make the vaccine itself, while the other will work on the final manufacturing phase, including putting doses in vials and packaging them for shipping.

Officials hope that by the end of the year, the arrangement will double the capacity of what J&J could manufacture on its own.

4. The Caution:
We are beginning to see the light at the end of the long pandemic tunnel, but that could be thwarted if we reopen too soon or quickly. With the J&J vaccine becoming the third vaccine against SARS-CoV-2 now approved for emergency use in the United States and nearly one in five adults having already received at least one dose of a vaccine, state and local policymakers are beginning to reverse restrictions on social gatherings and local businesses in hopes of easing economic struggles.

Public health officials, however, remain concerned about these steps to return to life as normal could give the virus a chance to spread again. If Americans interpret these policy changes as a signal that our collective guard can finally be let down we can quickly and easily lose the ground we have gained. Although reported cases and deaths have sharply declined since the holiday spike in January, numbers remain grim overall. Additionally, officials are concerned about several new variants of the virus which maymake the vaccines and our current treatments less effective.

5. For the scientists on the island:

Theoretical effects of vaccines on chronic covid-19 syndromes: a preliminary analysis.

Scientists are beginning to study the impacts of vaccines on individuals with chronic symptoms stemming from covid-19. There are many terms being used to describe lasting effects of SARS-CoV-2 infection; “long covid” and “long haulers” are currently in use to describe the condition and those it affect, though the terminology will likely evolve. While data is currently lacking, and information remains mostly anecdotal, some have suggested that vaccinations may improve some of the symptoms of long covid.

But first, let’s assess our early understanding of this syndrome, with the caveat that these theories are preliminary and likely to change as more information becomes available, in some cases drastically. There are currently three theoretical mechanisms thought to be responsible for a variety of ongoing symptoms reported those with longer-term symptoms.

1. Persistent viral reservoir. This theory implies that the virus is setting up shop somewhere in the body and evading detection.

2. Viral fragments or remnants of RNA and protein remain in parts of the body, driving inflammation. Some call this a “viral ghost,” though a “skeleton” might be a better term.

3. An autoimmune response induced by the infection. In other words, our body's own immune system creates an overly aggressive response that results in persistent symptoms.

Studies have thus far demonstrated that viral particles and viral RNA can been found in non-respiratory tissues during acute infection. Infectious particles have not been recovered after the acute phase though, making the 'reservoir" theory less likely. But significant post covid-19 inflammation and diverse autoantibodies (evidence of autoimmune response) have been demonstrated in some patients as well.

If the first theory were true, vaccine-induced responses might be able to eliminate the reservoir. If the second were true, vaccine-induced immunity may be able to eliminate the "viral ghosts" if those remnants were associated with the spike protein that the vaccines are designed to mimic. If the third were true, vaccines might have the potential to divert autoimmune cells away from their usual locale.

Of course, some or all of the above could be true. People with long covid may have varying degrees of some of these mechanisms simultaneously, making the condition a *heterogeneous* disease. Of course, other yet-untheorized mechanisms may be contributing.

Indeed another possible way in which vaccines might alleviate long covid symptoms is via stimulation of innate immune responses (i.e. baseline immunity that responds to a variety of infections). If this is the case, the beneficial impact of vaccines would *not* be long lasting.

To determine which theory or theories are primarily responsible for vaccine-mediated improvement in long covid, a trial comparing various vaccine mechanisms would be useful. Ideally, such a trial would use mRNA-based vaccines that target SARS-CoV-2 specifically while others would have nonspecific targets. While we are still learning about acute and chronic covid-19 symptoms, our ability to target studies and interventions is improving. If vaccines help people with longer-term symptoms recover, we may learn something very important about not just covid-19, but the chronic effects of many other conditions as well.—*Akiko Iwasaki, PhD, Brief 19*

Major NIH-funded trial of convalescent plasma in covid-19 outpatients stopped early due to futility.

In another blow to convalescent plasma, the "Convalescent Plasma in Outpatient with COVID-19," or "C3PO" trial has stopped recruiting new patients and has been halted early. During a planned interim review of the data, statisticians associated with the study deemed the efforts futile. It did not decrease death or the need for hospitalization.

Please remain vigilant and continue your efforts and community mitigation practices (social distancing, masks, etc).

Yours in Health,

Kathy Hollister, MD
Deputy Health Officer
Email: healthofficer@newcastlenh.org