

COVID-19 Vaccine and Vaccination Update

What Is Known about the Current Vaccines & What Is Not:

So, with two vaccines, Pfizer-BioNTech & Moderna, approved for use in Canada and the US (under EUA in the US), and being administered for more than 6 weeks, more data & info are being gathered, studied, and released to everyone. This is helpful, because instead of the 15,000 to 20,000 getting either of the two vaccines (half of the total number, since ½ in each trial, got a placebo), now more than a million have done so. These include those who are older, from different races & ethnic groups, and/or with divergent medical histories, compared to those in the trials. As this data is compiled, it will fill in the gaps and, after a few more months, we'll know whether it not only protects almost all from serious illness and death, but if it also protects from getting COVID at all and, therefore, prevent spread it to others. We'll also learn if it protects from the COVID Variants, partially, fully, or not at all.

Another question that needs an answer, is whether it is effective for all groups equally, or if the elderly or others with less responsive immune systems, or having other pre-existing conditions, need more vaccine. We already know that Flu vaccine strength needs to be significantly increased, or an adjuvant added, to be as protective as it is when someone is younger. We also need to learn what effect it has on pregnant women, those with cancer, other serious immunological diseases, post solid organ, bone marrow or stem cell transplants, or other complex medical issues like chronic heart failure, serious kidney disease including dialysis patients, etc.

The vaccines were not tested on anyone under 16, and one was only for 18 years and above. They all need to be tested on younger kids before that group can be vaccinated safely. They are part of the population that also needs to be part of the herd. Vaccine companies have already begun the trials for this group. Stay tuned for news on that as it comes.

Don't Give Up after Immunization -- Keep Doing What You're Doing:

One thing that is known right now, is that **even those that have been fully immunized (2 shots at the prescribed interval and then a 1–2-week period after the last shot), MUST still wear appropriate PPE for the situation** and avoid those behaviors that are high risk for serious illness, if infected. This applies whether at work as a First Responder or another Healthcare Worker, at another essential job, are in school, playing in a park, picking up food at a market or restaurant, etc. In a few months we'll know if it's safe to let our guard down.

Don't stop being safe too soon – it's not worth the risk. Particularly since the COVID-19 Variants that have been identified, four of which are now in the US, and at least two in Canada, suggest they are much more transmissible from person to person, may be more virulent, likely decrease the vaccine effectiveness to some point (depending on the variant). At least one may make testing and treatments less effective, or of no help at all,

or even be able to evade antibodies from previous COVID infection. So, it's even more important to protect yourself and others.

Side Effects, Allergic Reactions, Adverse Effects & Death:

First things first. When there is mass vaccination going on to prevent illnesses & death, especially when many of the first tier are elderly, it is expected that there will be medical issues, at or around the time of the vaccination, that may not have anything to do with the vaccination. The same things that occur without vaccinations going on, will occur during them. There will be auto accidents, falls, heart attacks, strokes, new onset (or recognition) of illnesses like cancers, auto-immune diseases, dementia, mental health disorders, etc. Don't get me wrong, **each adverse "event", including death, must be carefully and systematically looked into deeply.** Yes, the 84-year-old does need an autopsy, on the government's dime, to make sure that it had nothing to do with the vaccine. There have already been deaths that occurred around the time of vaccination and, in at least in two cases I know of, within hours on the same day. They are being investigated and I do believe, if there is a relationship to the vaccine, we will be alerted. This is a brand-new vaccine platform (mRNA). which looks like it works really well (94-95% efficacy is awesome) but we don't know if there are any surprise downsides. No, it can't affect your DNA – there is no mixing of the genetic material. But, one thing that is being watched for is the reaction of the vaccine with antibodies that may already exist because of already having COVID infection, even if you weren't aware of it, or if you received convalescent plasma (made from plasma donations of those that had the virus and recovered), or the synthetic mono- or polyclonal antibodies that have also been given as treatments during hospitalizations. Now, the synthetic cocktails are being given in the out-patient setting and it looks like it works even better. That is why the US recommendation is to wait until 90 days after recovering from COVID or having any of the antibody treatments to get a COVID vaccination. Still, since no one is being tested before the vaccination, some will likely get the vaccination within that 90 days or may even have an asymptomatic infection while they are getting the shot. Could that be causing some of the adverse or presumed allergic reactions that are being seen shortly after the vaccination? It could be a hyperimmune response, from already existing antibodies in a person, that go to war quickly (mount a protective immune response) that goes into overdrive. It could be a true allergic response or an antibody response on steroids. Again, that is being looked into when it occurs, both by local physicians and public health, by the vaccine manufacturer, and by the CDC and the NIH: National Institute of Allergy and Infectious Diseases (NIH: NAID), where Dr. Fauci is the Director.

Statically, there have been and will continue to be true allergic reactions. In fact, anyone can be allergic to anything, even the first time exposed. But, in both mRNA vaccines currently being given, there is a known allergen that some people have reactions to known as PEG or polyethylene glycol. It's actually found in quite a few items, including many of the preps for some types of GI procedures. Talk to your PCP if you have any questions about this, or any other ingredient in the vaccine. After the first group of

allergic reactions, both for those known to have allergies and those that did not, changes were made to the recommendations that suggested that anyone who has had previous allergic reactions to other vaccines, check with their doctor, and consider consulting with an allergist or immunologist, before getting the vaccine. The same recommendation was made for those that had anaphylactic reactions to other injectable medications. The monitoring period of time for these individuals was extended from 15 to 30 minutes, and many physicians suggested that those with a history of anaphylaxis (not just hives or nausea), receive their vaccine in a hospital or adjacent to a full emergency dept. If one does have a serious allergic reaction with the first injection, they should not get the second. Discussion about trying a different COVID vaccine platform (not mRNA) could be discussed with your PCP and specialists.

It is important to note, that there have been apparent serious allergic reactions, including anaphylaxis, in multiple individuals on the same day, in the same place. Two groups that I know of, include HCWs in a small hospital in Alaska with the Pfizer-BioNTech vaccine and one group in California with the Moderna vaccine. Vaccination with the same lot of Moderna was halted while it was being investigated. Since these types of reactions are rare, even happening singly, it begs the question of whether there might have been production, storage or handling problems. This could include being exposed to temperatures outside of those recommended, it could have been drawn up without proper dilution (indicated for one of them), from not assuring an adequate mix in the vial before drawing the dose into the syringe, or something else totally. It may even turn out to be just unlikely odds that did occur. It could also be a combination of true allergies and an anxiety reaction after seeing someone need resuscitation. Again, it's all being investigated.

Last, but not least, are the side effects. I actually don't like the term. A side effect is something that occurs that is not normal, but happens when you take a medication. During the drug trial, and afterwards, reports of side effects are kept track of and can be found in the drug monographs, complete with the percentages of reporting. So, a side effect is when someone gets a stomach ache when taking erythromycin. It happens to a lot of people. That's why it says to take it with food. Or, when corticosteroids cause puffiness. It's often almost expected.

So, with the COVID vaccine, or any vaccine, for that matter, when a sore arm, muscle aches, headache, fever, fatigue, etc. occur, many have labeled them as side effects. Except, I don't think they are. They are likely signs that your immune system is responding appropriately, is on the job, and developing an antibody response to the invading protein, which is a stand-in for the virus. The people I know who have had the shot and are healthcare workers (so they know how the immune system works) are disappointed when they don't have any of those signs, because they're afraid they aren't developing an immunity to COVID. Hopefully, their body is just mounting that immune response subtly. Many have not had any obvious response at all; some have had some site soreness and fatigue, a few have had high fevers, muscle or joint aches, more common after the 2nd shot than the first. But anyone who had any signs of response (aka side effects), said they were gone in 12-36 hours, like turning a light switch off.

There was one group of effects that were noted by almost everyone. There was even a scientific paper written about how often they occurred. That set of "side effects" included relief, hope, happiness, and/or joy and nobody was complaining about them or wanted them to go away.

Vaccination Herd Immunity Levels:

Initially, it was suggested that there would be enough herd immunity when about 70% of the country was vaccinated with any of the vaccines that work. Now, with the new COVID Virus Variants, that number has been increased to 85-90%, including by Dr. Fauci. That means most of the people who can be vaccinated, must be vaccinated, because there are always going to be some who, medically, just can't receive the vaccine, or in whom the vaccine doesn't convey immunity. That means we need to make sure that every person knows how important being vaccinated is. And, sooner rather than later, to avoid a mutation in the virus that leads to the vaccine et al not working. Moderna has already announced that they are working on a booster to better match the UK, South African, and Brazilian variants, but let's not wait for the next one.

More Vaccines to Come (Hopefully) or Not:

In the next 1-2 weeks, the independent vaccine committee should release the results of the two vaccine trials Johnson & Johnson were running and, if good results, J&J will submit for an EUA in February. One of those trials required only one dose of vaccine so that would mean more vaccine to go around, and their platform is one that has been used for vaccines for years, so there would likely be no surprises. The other manufacturer that should be reporting soon is Novavax. They expected their Phase 3 trials to be completed in the 1st quarter of 2021. They will follow the same process as Pfizer and Moderna did. The other one that should have been reporting soon is Astra-Zeneca but they ran into several different and significant issues, and how soon they might report any data is questionable. Merck has removed its two vaccine candidates from trials, citing too little immune response in both of them. They are continuing promising work on medical treatments for COVID. More info on other COVID Vaccine trials that are ongoing, including the type of vaccine platform used, expected time estimates, etc., can be found listed on the Resources & Links page with this post.

Resources & Links:

As usual, there is a list of Resources & Links to provide background information, research studies, medical and "regular" news articles, and the occasional video, included with this post, for both the US and Canada. I have included the regular media articles because, so often, they are more fun to read than the dry science, but also because they provide links to the original research or to other supporting or countering articles.