Tom Rufer (00:04):

A big thank you to our staff and providers that have joined us during this session to address some of the questions and themes that have come up during our survey of staff members around the COVID-19 pandemic. So around our zoom table today, we have Dr. Josh Overgaard, Dr. Erin Peterson, Dr. Dusty Sperr, Renae Lien, who is our enterprise pharmacy director, Sarah Brunn, who is our infection prevention coordinator, and Brittany Nelson, who is our employee health nurse. They're going to be providing us with some insights, some answers, some information around a variety of topics and questions that are floating around. So, among those survey respondents who answered no, or unsure about getting the vaccination as soon as it's available to them, these are some of the top reasons are it looks like we've got four top reasons that we'll go through them one at a time, and again, feel free to jump in at any time. So the first the first reason that that people are giving is that they don't trust the speed. They don't trust how rapidly the vaccine was developed. Does anyone have any comments to make on that?

Renae Lien (01:13):

Probably the biggest reason that they were able to make this vaccine or make these vaccines so quickly was funding. All of the manufacturers making it, they were given money to get started. Usually they will not, they have a process of three steps or phases that they have to do through research. And the first one is, is looking at just trying to figure out what dose, what they're going to test and move forward. Second one, they add more patients, so then you're looking at hundreds of patients and you're looking at safety, some efficacy, but really looking at each patient and seeing what it's doing. And then they get to the big trials. Whereas thousands of people they're looking at how effective the vaccine is and, and what impact it is having on those people. Usually in the process, they don't start actually mass producing the vaccines until all of that is done, whereas this time as soon as they got the go ahead, they started manufacturing. So they've been manufacturing the vaccines during the study process and the actual studies have had as many people in them as regular studies. They've just been really condensed time-wise, but they're still looking at the same amount of people as they would.

Dr. Peterson (02:46):

I think another really important feature about why these came out so quickly is that while the vaccines are new and there haven't been a lot of vaccines used in clinical practice that were developed using MRNA technology, the technology itself isn't new, it's been studied and researched for 10 years, give or take, and essentially they just need to feed it the code. They just need to feed the vaccine process the information to make the specific vaccine for Coronavirus. But the technology of how to do that was already in existence and has already been studied for close to a decade. So very shortly after the first Corona virus cases identified and the information was released in China, they actually had the genetic code of the virus figured out really quickly. So way back in the early parts of the pandemic, they already had the RNA sequence or the genetic sequence for this virus, and then they could insert just little pieces of that sequence into the vaccine production process to make this specific MRNA (Messenger RNA) vaccines that we're talking about using now. So that allowed for a really quick production process, traditional vaccines that we've used in the past have been made through a production process that takes months and years even just to make the vaccine, whereas this MRNA vaccine process is very quick to make once it had a code that you want to insert into that messenger RNA.

Brittany Nelson (04:25):

Although they were developed quickly, the same safety processes were in place. So that didn't change. So although we did develop it rapidly, the same protocols were followed and all the safety processes were still in place.

Tom Rufer:

People are concerned that there's not enough information about the effectiveness of the vaccine. How would you respond to that?

Sarah Brunn:

Even though it was done very quickly, there's still that piece of effectiveness that needs to be met for this vaccine to be approved. So there is evidence of effectiveness, even though we don't have a long timeframe, we do have enough data to show that it is effective.

Dr. Overgaard (05:06):

And we know that it works for at least months, which, we've got a good volume of data on tens of thousands of people now, too, which, I don't remember if that came up on the last question, but you know, this vaccine has been trialed. These vaccines have been trialed on tens of thousands of people they've received so far, and they've got data on them for a followup of a few month period of time. And it's at least effective for that period and very effective, 95%. If it pans out, it will be one of our most effective vaccines, which doesn't surprise me considering the method that they're using. I mean, they're using a method that is very specific and very targeted and just based on the science, we would expect it to be very effective and we would expect it to be very safe, and I think that that's panning out. Do we know, will our immunity carry for another year? We can't know that. And part of that, part of the unpredictability to that really it doesn't have as much to do with the vaccine is it does with how the coronavirus is going to be, will it be a virus that shows that it can mutate at a rate in the right places, in its code, that it can evade the vaccine or evade our immune systems, or not. And that's something that we just, we find out with time. But I think that really, if we look at where we're at in this, in the course of this pandemic and thinking about these next two to three months are likely to be those months that matter the most, or maybe, you know, up until the summertime, we're thinking that we're, we're going to be maybe battling this on and off. Really, even if we can get people vaccinated and get six months of good immunity that might get us a long way and I think could save lots and lots of lives. So I think that the information we have now should be reassuring at least on the intermediate term for the effectiveness of it. And, and it wouldn't surprise me to find out that it's longer term than that.

Tom Rufer (07:12):

Okay, thank you very much. And the next next concern is is that some people have concerns about significant adverse reactions. What side effects have been reported, what can be expected both as far as initial and in the long-term?

Dr Peterson (07:32):

I'll take this first stab, and then maybe Renee will want to speak to this more as a pharmacy director, but it's very common after any vaccine. And this vaccine is no different. It's very common after any vaccine to have some mild symptoms that are from your own immune system, as it ramps up and starts to produce the antibodies, that's what we want to happen. We want our immune system to recognize the vaccination to start to form the antibodies. So when the real virus comes around, our immune system is ready to kick in and fight it off so we don't get infected. When our immune system is making antibodies that causes us to feel perhaps a little chilled, maybe have a low grade fever, maybe feel a little achy, a little fatigue, that those sorts of things, and that can last for 24, 48 hours or so. That was seen pretty commonly with this vaccination, especially with the second dose. And also whenever you get a vaccination, it's pretty common just for the muscle itself to feel a little sore and achy from the insult of the vaccine and the response happening in there. But that's, you know, that's pretty par for the course of the vaccination. That's not really special with this, with this vaccine in terms of more serious side effects. There, there were very few. My understanding is when they looked at the 30,000 give or take patients who received the active viral vaccinations from either Pfizer or Moderna and to compare them to the patients who received the placebo arm, there was not more serious reactions in the vaccine group than there was in the group that essentially got saltwater injected. So, that's really reassuring. Most vaccine side effects happen in the first six to eight weeks after vaccination. And we have data that goes past that to show that this is really just as safe essentially as the placebo arm for those more severe things.

Dr. Overgaard (09:34):

There were a couple of folks in the UK that had pretty severe allergic reactions, and we are aware of that and we've kind of got our eye on it. It's worth noting that that's a couple out of quite a lot of people that have had the vaccine now. And in those cases too, it's worth noting that these people had a history of severe allergic reaction to other vaccines, as I understand it, or a lot of other things. And so right now it's suggested that we, that we be aware of that, and that we've talked to folks if they've got a history of severe allergies to be aware of that, and to consider that and the decision to use it and how to monitor thereafter. But I will say that we should expect this to be a very uncommon thing. And we would, I think we should think to look for it really only in those folks that have a ton of allergies, you know, and probably not just “my seasonal allergies that are really bad every year”, but really reactions to a lot of different medications or things of that nature are really what we would worry about. I think it's worth being aware of, and I'm glad we know about it. I think the likelihood that that is going to affect any one of us is very small and especially small knowing now what to look out for.

Renae Lein (10:49):

As we vaccinate employees, we will be following the Minnesota Department of Health’s recommendations for that monitoring. So people who have had history of severe reactions will be monitored a little bit more, a little longer for half an hour, rather than 15 minutes as is the usual monitoring period.

Tom Rufer (11:14):

What would you say to someone that says that they would like to wait for a few months and see what happens with the first wave of people that received the vaccine?

Dr. Overgaard (11:34):

I think that if we were going to wait two months from now, I think we'll know more than we do now. I, it would surprise me if it's substantial or if it meaningfully changes what we think about the vaccine. And I think that's precious time wasted. Again, we're in the middle of it right now, and the time that we need to be able to kind of clamp down on things and get this infection rate under control is now. So there's a diminishing return to delaying in my opinion, in terms of controlling the surge. So I'm never going to be someone that suggests that I should be able to tell somebody else what to do with their body, and I think this is a decision that we all have to make for ourselves. But I think that if I step back and look at this objectively, I think that it will probably really not add meaningful information to that choice aside from maybe reassurance and I think has a potential, if that were a widespread practice, I think it really is just going to limit our ability to control the spread.

Dr. Peterson (12:45):

It's really important to recognize that the Coronavirus has a lot of risk associated with it. If you become ill with coronavirus, there's a significant chance of dying. There's a significant chance of having as of yet to be truly understood, potential long-term consequences to our lungs or our heart, to our immune systems. Those are real risks. And what we've been seeing in the last weeks and months is that the Coronavirus prevalence in the nation and our country has just been skyrocketing. So when we get a vaccination, we want it to be safe. We want it to be effective. We want it to have a very low risk associated with it, but we also have to balance with it, the benefits we're going to get from reducing the risk of the coronavirus itself. Everybody's going to look at that risk benefit analysis in their own way, but if I was a betting person, I would definitely put my chips on the Coronavirus being unmitigated being the much higher risk to my personal health and to my community's health than this vaccine.

Tom Rufer (14:05):

Any further thoughts on addressing some of those common reasons that people are maybe hesitating to receive the vaccine? If not we'll move on to another question. Why will getting a vaccine be beneficial, or better than being infected and then having a 90 day immunity period. Dr. Peterson had touched on that a little bit, does anyone want to expand on that?

Renae Lien:

That 90 day period really is not a “for sure” length of time. In fact, some of the people that have been watched after they have been infected with coronavirus have had as little as 40 days, (before vulnerability to re-infection), some have had up to months, it just depends on each person's immune system and how severely they had the disease, there's many variables involved. So there is no “for sure” 90 days, that's just a reference that is being used.

Sarah Brunn:

I think we also have to remember that there are really significant risks associated with getting infected with COVID-19, you know, just because you're a healthy individual doesn't mean that your body is going to fight this illness off. We've seen significant illness and death in people who are young and healthy, and we would really love to prevent that from occurring. So being so unpredictable with getting the illness and not knowing how well your immune system is going to respond and how much antibody

production you're going to have from a natural illness, it really is safer for you to get the vaccine than it is for you to get sick with this illness.

Josh Overgaard (15:57):

Yeah, we could really, I mean, we could, if we were to look back and imagine a much less safe vaccine, we could make this one much less safe and it would still valid and still be in our favor for young and healthy people. But the rate at which things happen with the vaccine are really low. And I think sometimes we started looking at like death rates and things like that among young people. And they are really low, but I mean, we've had folks come through our facility here that were younger than me who had really big time life altering complications from their COVID. I mean, we know that people can form blood clots with this, which can give you things like heart attacks and strokes and, and pulmonary embolism in the lung, and these are big deals, these are potentially mortal things, and we've seen folks with those things come through our building and it's devastating. And so I don't think it's fair to say, "well, I'm young, I'll have mild disease, this doesn't pertain to me", because I don't know that it's worth the risk. In fact, I think if we were playing the odds and really understanding the numbers, we could objectively say it's not worth the risk. Now there are other values that come into that decision that are important. And I think, you know, most people, for example, they would prefer to have something bad happen because of not taking action rather than taking action, for example. I think a lot of us feel that way, like, "I got an adverse reaction from a shot, I'd feel worse about that", than if they did nothing and got sick. I would caution against that a little bit, because I think really that it's not wrong to think that way, but it plays the odds against us. I mean, then our odds are doing worse. And I think most of us would agree that with these kinds of decisions, let's try to use objective facts. Let's try to use things that make sense, instead of kind of shooting from the hip or going with our gut on this. And I, and I really do think that the odds are very far in our favor, getting vaccinated for this one, even as a young healthy person.

Dr. Peterson (18:15):

Even if your argument against getting the vaccine was primarily lack of concern for your own personal health risk from getting the coronavirus, I don't live in a bubble. Josh doesn't live in a bubble. If I were to get Coronavirus, and I did just fine and I didn't have any long-term consequences, but one of my patients, or one of my neighbors, or my mom were to contract that disease from me, their outcome might be much different. And so, we don't live in a bubble. Our actions or lack of actions affect the people around us. And so getting the vaccine is a safe and effective way that we can not only protect ourselves, but protect our loved ones who may maybe even more at risk of a bad outcome, should they get coronavirus, than we are.

Tom Rufer (19:10):

Thank you very much for those thoughts. So let's say that someone has already had COVID. Should that person wait until everyone else who needs the vaccine can get it or everyone else that is high risk? What's your advice on that?

Renae Lien (19:28):

That's where that 90 days does come in. And that's been the recommendation from some of the vaccination regulatory bodies, that you should get the vaccine. As I said before, the amount of immunity that you have from having coronavirus is variable. However, they are saying that these might not be the people that line up for the first round. So some of those that are first-line and have not had it, it comes down to the prioritization of who's getting it in what order. So they are being recommended to still get the vaccine, but it's maybe not as urgent.

Dr. Overgaard (20:26):

I think this one too, it just comes down to playing odds. And I think we have enough unknown about what the state of our natural immunity is going to be in the duration that it's fair to get. If I were standing next to one of my colleagues in line and I've had Coronavirus and they hadn't, and there was one shot left, I'd give it to them, you know, I mean that's kind of a no-brainer. But, at the same time, I agree with the idea that we should probably try to get it anyway. I don't know that I would be super hard on somebody that said, "I've had it (Coronavirus) and I'm not getting it (the vaccine) now", I would maybe understand why they would want to make that decision. But I think again, with the uncertainty out there, the odds are probably still in our favor of going ahead and getting it and knowing more definitively about our level of protection.

Tom Rufer:

One thing that that we hear as an argument against taking the illness more seriously, is that "the survival rate is very high". So why would someone want to get a vaccine for something with such a high survival rate?

Dr. Sperr (21:42):

I think similar to what we've mentioned before, it's not all about survival, there are significant other health complications that can happen from infection both personally, but also, if you have it, you're more likely to spread it to other people. So just protecting yourself and protecting those around you.

Tom Rufer:

Yes, it's very important for people to keep in mind that it's not necessarily doing this for just themselves, but it's for those surrounding them.

Dr Overgaard:

Find somebody that wants to have an unexpected 10 days where they've got to stay home and can't do anything. Even if you're not going to get real ill, it can still upset your life. I'm just dreading the time somebody in my house gets a fever and I've got to sit at home for a while.

Dr. Peterson (22:36):

You know, we've been focusing on the health impacts of coronavirus, but obviously there's huge social implications, economic implications of what this coronavirus pandemic has done to our towns and our country. The quickest way for us to get back to "normal life" with businesses being open and schools being open and sports occurring and concerts and birthday parties, is for people to not be at risk for

contracting coronavirus and ultimately overwhelming our healthcare systems. So if we can get people vaccinated, a good, big proportion of the population vaccinated, that's really our ticket back to normalcy. So even if you're not thinking about the vaccination in terms of your own personal health, that's another thing you could be looking at, the public service of contributing to the solution here, getting this coronavirus pandemic behind us.

Tom Rufer (23:43):

What about if you have allergies to other immunizations or medications? We touched on that a little bit earlier, is that a reason to avoid getting the vaccine?

Dr. Overgaard (23:59):

If the reactions to previous vaccines are mild, probably not at all. Those don't necessarily have any tendency to go together, and the mild kind of reactions that we're talking about are usually short lived and of relatively little consequence. Again, I would say that if you're somebody that has a history of severe allergies to things, especially medications or vaccines, it might be worth talking to your doctor about, before you get it, because those are the instances. Again, the risk is still exceedingly low, but those are the instances where we'd want to have a little extra caution at least before going ahead.

Dr. Peterson (24:43):

And in my understanding and reading the guidance that's out there, is when they're talking about severe allergies, they're talking about life-threatening severe reaction. So anaphylaxis, which is a very specific medical occurrence. We're not talking about getting a little nauseated or having some diarrhea after having gotten a vaccine in the past or taking a medication in the past, we're talking something that, potentially had it not been treated, it could have led to the loss of life. So throat closing, heart-stopping anaphylaxis or severe allergic reactions, not just adverse side effects from past medication or vaccine exposure.

Sarah Brunn:

Also, each specific ingredient to the vaccine is available on the EUA (Emergency Use Authorization), which is easy to find online. So if you've ever had a severe reaction, you can look at the ingredients list and know specifically, "Hey, I know I'm allergic to this thing, I probably shouldn't get that".

Brittany Nelson:

The EUA replaces the vaccine information sheet, just for those that are wondering. That is available right now, because it's an Emergency Use Authorization. There is no vaccine information sheet available.

Tom Rufer:

How about organ transplant patients? Is there any information about whether or not the vaccine is safe and/or recommended for organ transplant patients?

Dr. Overgaard (26:19):

As yet, I haven't seen anything that suggests that people that have a compromised immune system or an organ transplant can't get vaccinated. And in fact, they're encouraged to do so. Those folks have to exercise some caution with vaccines because if they get a live vaccine, which in a normal person wouldn't really have any effect on their immune systems working well, sometimes that can lead to real infection. Again, this vaccine is not a virus. It was never a part of a virus, it's not killed or slowed down or any of those things. It's a manufactured piece of a thing that goes in the virus and has no effect or ability to actually cause infection. So for those people, you know, we have every reason to think that this is safe.

Dr. Peterson (27:08):

So when you're looking at the social media posts and things about the vaccine safety, sometimes you'll see somebody post, “this has not been shown to be safe for people who are immunocompromised” or “this is not safe for pregnant women” or “this is not safe for children”, and that's not correct. So what it comes down to is the studies that have been performed to date, did not specifically enroll pregnant women, children, or people with severely immunocompromised states. There's no evidence to suggest that there will be a problem in those groups of people. They just haven't specifically studied the vaccine in those groups of people. So the guidance that you're going to get from your physician, if you fall into those categories, it's going to be one of weighing the risks and the benefits and your own personal values, and your own personal comfort levels, against the unknown to decide what's best for you individually. I as a physician, do not expect that we're going to find that there's a problem for immunocompromised people that get this vaccine or for pregnant/lactating women to get the vaccine or for our kids. I cannot point you to data that proves it's safe yet because that data is still being collected.

Tom Rufer (28:31):

So if I interpret correctly, it's not a live virus, there's no deactivated virus in it, that is not the case. That's a very good point to touch on. I appreciate that. Getting into the science of it a little bit more, what does MRNA mean? And is this something that alters someone’s DNA?

Renae Lien (28:54):

MRNA stands for Messenger RNA. And we have tons of it in our body, our bodies use it naturally and it acts as a recipe for proteins. So what they did is took the gene sequence of part of the Coronavirus, the spike protein that you see in pictures. And they mapped it out and then they made the recipe for it. And so what's in the vaccine is kind of a recipe, so that we can mimic that spike protein which does not harm us, but so we can make it, and then our system will recognize it and will see it as foreign. This does not cross into the nucleus of a cell. The real DNA, the brain of our cells, is the nucleus. And this does not pass into the nucleus.

Dr. Overgaard (30:04):

Nor would it really have any means of being incorporated into our DNA if it did. Like Renae alluded to every cell in your body is making is cranking out tons of RNA right now. That's what they do. That's how our bodies figure out how to make proteins. And so this RNA gets them into our cells. Your cell figures out where it belongs. It's like, “oh, this is RNA, this is MRNA. I need to make a protein out of it”, and

shuttles it over to the machine that does that. It snips off some protein, and then it degrades the RNA. So it doesn't even really hang out in our bodies, all that long, just long enough to make the protein. And so really from that standpoint, again, we have no reason to suspect that this is going to cause any trouble in and of itself, because this is something that our body does every small fraction of a second.

Dr. Peterson (30:57):

In theory, it should be safer than getting exposure to that protein via a live attenuated virus vaccine, or actual infection from Coronavirus. If you're getting infected with coronavirus, or if you use a more traditional vaccine that's created with a virus, that's just kind of been weakened, you get exposed to that type of protein in this case, that's the whole point, so that your immune system can do the spike protein and make an antibody to it. And the antibody is what helps with our protection or immunity in the long run, but using the MRNA, we kind of skipped the line and we don't have to be exposed to the whole entire virus which could cause infection, in fact, we only have to be exposed to the spike protein in isolation, which has no function if it's not attached to the side of a virus. It's like a primer. It primes our body to learn what that protein looks like so it can make the antibodies, so we never have to even experience exposure to the virus.

Tom Rufer (32:03):

So there are rumors going around aplenty, one of which is that a major side effect is infertility. Is that true?

Renae Lien (32:16):

I guess I have difficulty seeing how. It doesn't cross the DNA. So just as any other protein or any other MRNA, like Josh said, it is in all our cells and it doesn't cross into the nucleus, so it's not going to affect our reproductive cells and replication in any way. I have a difficult time seeing how that is possible.

Sarah Brunn:

Part of the rumor that's on social media is that there's a small amino acid chain that is similar to what's in the MRNA for this vaccine. But the experts that have looked at it have said that it's such a small chain that is similar, that it really doesn't bear any resemblance to that type of spike protein that would attach to the placenta and could potentially create problems. And so basically from expert opinion, there is no way that this vaccine itself could cause infertility. And then additionally, it basically creates an immune response that's the same as if you were infected with this illness, so what we would see is that if you had been infected with coronavirus, there would be high rates of miscarriage or pregnancy, significant pregnancy complications, or inability to get pregnant currently with people who have had previous infections with COVID-19. And we have not seen that at all. There are pregnancy complications, but it's not related to what the internet is telling us is the problem with the vaccine. So there's not any evidence at all that this will cause infertility.

Dr. Peterson (34:14):

To pick up from what Sarah said, Coronavirus itself is associated potentially with some pregnancy complications, but it is not known or has that been shown in any way to be mediated by the spike protein or the MRNA that encodes for the spike protein. So by preventing Coronavirus infections,

theoretically, this vaccine should actually improve pregnancy outcomes or fertility issues that would otherwise have been caused by Coronavirus in patients who experienced that to these. So at this point, there is no evidence to suggest that the vaccine in any way causes infertility. I'm sure more studies potentially would be done if there was any concern that had arisen, but at this point there are no scientifically identified concerns that physicians and pharmacists are really watching or worried about. It's more something that's circulating around on the internet that's not really based in science or the reality of the situation.

Tom Rufer (35:28):

And speaking of things that are going around on social media, as well as perhaps other places, there is a rumor going that the vaccine contains aborted fetal parts, is this true? Also, we touched on it earlier, but where would one go to find out as much information as possible about the vaccine?

Renae Lien (35:51):

Well, as Brittany and Sarah did allude to, the actual ingredients of the vaccine, everything that is in there is on the emergency use authorization form. But basically it can be broken down to the actual MRNA that's doing what we need it to do. And then you have lipids or fats, and these can be, these are manufactured lipids and fats that surround the MRNA to protect it until it gets to where it needs to be, there are salts that are also already in our bodies, and sugar. So all of the ingredients, if you were to look at them, are all manufactured, and it’s very clear on what they are.

Dr. Peterson:

The process by which this vaccine, the MRNA vaccines that we're talking about, the Pfizer and the sson-to-be-approved or recently-approved Moderna vaccine, that process does not involve the use of harvested fetal tissue or stem cells from fetal tissue or aborted fetus tissue in any way, so that is a misconception or an untruth that is circulating on the internet.

Dr. Overgaard:

In terms of where to find stuff, on the Lake Region Healthcare website, the COVID-19 information piece is actually really good. Katie's done a nice job of organizing that and assembling information and she's gotten input from all kinds of folks. I think it's good, It's worth a look if you haven't looked at it yet. I, a lot of times, if I'm looking for something new that might not be on Lake Region site, I'll just go to www.cdc.gov. They've got information for healthcare workers, they've got information for the general public too. And I think it translates pretty well. So those are the sources that I go to.

Tom Rufer:

Well, unfortunately we need to transition away from the topic of social media rumors. One question that comes up is so will we need to get this shot annually, like the flu shot? Do we know how long this vaccination is effective?

Brittany Nelson:

since they just started the trials in July of 2020, there just isn't enough information that we have right now. With that information from July, so far, it's looking good, but we just don't know.

Dr. Peterson (38:53):

Time will tell. You do need two shots right away, the first dose, and then 21 days later, the second dose with the Pfizer vaccine. That's considered your initial vaccination. Time will tell if this is something that needs to be boostered, if this is something like a tetanus shot, where at 10 years down the road, we all have to come in and get another shot or this turns out to be something more like a seasonal vaccination. Time will tell, but you do need that first dose and 21 days later, you need the second dose to get that 90%+ effectiveness right off the get go. And at least we'll be covered for three to six months, if not more from that initial dosing alone.

Tom Rufer (39:36):

I guess the question that pops into my mind is how exactly will they determine the answer to the first question? Is there a way to measure the amount of the antibodies in our system to determine whether or not it's going to be effective? Do we just wait and see if folks that have been vaccinated get sick after a period of time? Without getting too far into the weeds, how is that done?

Sarah Brunn:

Basically, clinical trials aren't done. We still have clinical trials that are ongoing and data that's still being collected, and that will continue to happen for a long period of time, dozens more months of data that will be collected. So we'll see if people get sick again. And if they do, they'll look at the potential for a booster.

Dr. Peterson (40:22):

The answer to your question is yes to both of your scenarios. They will measure antibody levels and things like that in study participants and in the general population, but that's only a piece to the to the immunity picture. Our protection against viral illnesses is not 100% based on the amount of circulating antibodies we have. Our system is really complex. We actually have cells whose whole job is just to remember little pieces of genetic information or protein information. So if the antibodies go away down the road, those memory cells or those helper cells can produce the antibodies again. So even if our antibody levels wane, we may still have really good protection against this virus for a long time. And so we also rely a lot on observational data, and that's how we know that people who got a polio vaccine one time don't need to get it again because it's been in existence for 50 or 60 years. And that's how we know that you need to get tetanus boosters more often than once in your life to have protection. So a lot of it is going to be just observing what happens and using that to determine how often we recommend getting additional doses of vaccine, if ever.

Tom Rufer:

What percentage of people need to get the vaccine to obtain herd immunity in our community or state and across the country?

Dr. Overgaard:

I guess that if your goal is complete eradication of the disease, we would need upwards of 90% of people to have immunity either through infection or vaccine or both to get there. So that's going to be tough, any amount though, approaching that number is going to be beneficial in terms of lowering the amount of circulating infection in the community.

Dr. Peterson:

Most of the published best guesses would say that for this particular virus, the Coronavirus, before we were using social distancing and before we were using vaccinations to try to prevent spread, based on how infectious it was, they can calculate what they think the herd immunity number is that would essentially level off the virus and have that are not trickle down without any other intervention. And so I believe that the estimated at the get go was somewhere around 70% of the population would have to have coronavirus and then recover. And therefore be immune, if that's what happened, or a combination of around 70% of the population would have to be immune from the vaccines that they received and, or the recovery from the virus. And like Josh says, that's not to snuff the virus out and have it not exist, but that's to have the virus essentially kind of maintain a low level, as opposed to how currently, you see these terrible, scary graphs about how each week is twice as bad as the week before, to get that to flatten out and actually start going down on its own without having to wear masks and goggles and social distancing and all those sorts of things, it's been estimated that around 70% of the population would need to have immunity. These vaccines are around 90% effective. You can do the math to kind of prorate that plus whatever percentage of our population has already had grown a virus. There's probably enough people who are going to elect not to get the vaccine, that everybody on the fence is going to have to do their part, to get the vaccine in order to get to that threshold.

Sarah Brunn:

Another thing that you maybe want to think about too, if you're on the fence, is the more people that get the vaccine, the sooner we get back to that sense of normalcy. So some of the models that I looked at said for us to hit this without the vaccine, it probably would be about 55 months to get to that point where it's starting to get under control and we can get rid of masks and social distancing and all of those things. 55 months is a really long time. That's a lot more Christmases that are not going to be the same. And so the more people that we can have vaccinated early on, the sooner we can get it under control and get back to some sense of normalcy.

Tom Rufer:

There's another way that it affects healthcare consumers. How much does the vaccine cost? Who's going to pay for the vaccine? COVID clinic visits, COVID hospitalizations is the patient billed? Is the government paying for that? How does that all work?

Renae Lien (45:32):

Our current supplies for the healthcare workers and for the other phase 1A personnel such as nursing home residents, is being provided by the government. So the Minnesota Department of Health is handling our supply and it is coming free of charge to us. So nobody is being charged for this vaccine. As it proceeds, I don't know what policy will bring. The different manufacturers have indicated that it would be provided at reasonable cost in the future. I don't know what that'll be. I do know that there's already

payment sources set up through some of them, for example, Medicare has already made the right coding for charging. But at this point there's no charging for that. We are not charging for it now, when it gets to the public it's going to depend on our sources.

Tom Rufer:

As far as COVID clinic visits, COVID hospitalizations, et cetera, would that be handled? Obviously everyone's situation is a little bit different, but is it handled in the way that any other clinic visit or hospitalization would be handled for the most part?

Dr. Overgaard:

When it comes to billing and insurance and the like, those are treated essentially the same. It's just like another clinic visit or hospitalization.

Tom Rufer:

Regarding vaccine availability, when can the elderly and their caregivers expect to be able to receive the vaccine? And then do we have an idea of when members of the general public are going to be able to receive it?

Renae Lien:

We truly don't. That's constantly changing even the supply that's being sent out for healthcare workers phase 1A, phase 1B, even those we find out week to week what we're getting, so it’s really difficult to tell when we will be to that point. There have been predictions and a third vaccine supposedly to come to the market sometime in January. Thre are so many factors involved, but until we have it in hand, it's really hard to tell.

Dr. Peterson (48:19):

Each state to some degree gets to make their prioritization list unique to the needs of that state. There is some guidance that's been offered from the CDC or the federal government. It’s tiered such that the first round of vaccinations pretty much across our whole country is going to healthcare workers, starting with those who are the most likely to actually interact with COVID patients or with patients who are extremely high risk, like with very low immune systems, and to workers and residents of nursing homes. And so the first few weeks worth of vaccine shipments are pretty much going to be taken up by those prioritized patients. And then the next year is probably going to start going by age. And so they've, they've suggested that maybe age 75+ and some additional essential work categories such as teachers and firefighters will be in something like a Tier 1B, and then maybe going out to the next the end of tier one would probably be going down to that 65 plus range, and maybe people with underlying health conditions. Then once you get into tier two and tier three, then we're probably talking more like springtime. I think most of the estimates I've seen would say that for people under the age of 65,

without an underlying health condition who aren't in what's deemed an “essential role” in society by their job category, those people probably are going to be looking for vaccinations in the spring and even early summer. We hope that it's faster than that. And anything can happen, especially as additional vaccines are being introduced to our arsenal of options. If you're a younger, healthy person, without an underlying condition who doesn't have what has been categorized as one of the essential roles in healthcare or teaching, things like that, I wouldn't plan on being to get the vaccine until the spring or early summer. And if you get it sooner, you’ll just be pleasantly surprised.

Tom Rufer (50:37):

Speaking of multiple vaccines, what's the difference between different vaccines? Is there a difference? Should someone wait until a certain vaccine comes out because there might be a better one?

Renae Lien (51:00):

Well, it comes down to the technology used to create the vaccines. The first two coming out are the MRNA type, the messenger RNA. As Dr. Peterson mentioned, it's the fastest way to make vaccines. And it's a newer technology. Like she said, the technology's been around, but to make it into a vaccine and actually use it as the vaccine, it is newer, but it's very quick. Now when we start getting into the traditional way that they've made vaccines, which is actually using parts of bacterial cells to create or mimic the same things that MRNA is mimicking. So it comes down to the different technology that's being used. Whether any is better than the other, has yet to be seen. Now with 95% and 94% efficacy for these first two MRNA vaccines, that's unheard of. They weren't even hoping that they would be that effective. So going on to, I believe the AstraZeneca vaccine, which is an adenovirus vaccine, I think they're looking at 70%ish depending on the dose, some of it came back 70 to 90%. So the more variables you introduce, you know, the more things that complicate it. So at this point we don't know a winner. Most of them are two doses. There is one that's supposed to come out in the spring that is only one dose. But yet, if you're familiar with vaccines, there's a lot of vaccines that are two doses especially the first time around. So the first dose kind of introduces it to the system and the second dose really makes the body work at it to get rid of it. So whether that is better than a single dose, who knows. We'll see.

Tom Rufer:

Thank you, I appreciate that. So folks are probably wondering, “when will I know when it's my turn to get the vaccine?” Do we do we have an idea of how that's going to be communicated to the general public?

Dr. Peterson (53:45):

That’s definitely the question. I suspect that there will be announcements on the radio and the TV and the newspaper from public health department saying, “if you're over age 75, come to XYZ location, it’s your turn”.

Renae Lien (54:22):

We've been working with these health agencies, I think they've been so focused on, “let's get it out to who needs it the most right now”, that they're still just starting those conversations.

Dr. Overgaard (54:36):

We're into tier one now, and it's really just running as fast as we can to keep up.

Sarah Brunn (54:47):

So internally there are conversations and planning that's happening for how we will communicate when it gets to that point. They're working on some potential communication that might go out through the portals. And then like Erin said, on radio and some of that, but it just, hasn't all been determined yet.

Dr. Peterson (55:10):

I think we have several weeks, if not months to perfect that. So by the time it is available for the general population, I'm confident we'll have come up with a way that everybody knows that it's available to them.

Tom Rufer (55:35):

So for the last of my prepared questions, if we're still going to have to wear masks and and remain physically distanced after getting the vaccine, why bother?

Dr. Peterson (55:54):

Well, again, masks and social distancing will at sometime disappear, once enough people have become immune to the virus through vaccination or through having had the virus and recovered themselves. And we don't know exactly when that's going to be, but it will become pretty clear as we're looking at those disease curves that we're going to see them, instead of going steep way up we're to see them start to kind of round off, and then we're going to see them start to come down. And instead of going back up all the time, they're going to keep going down. And then eventually they may level off at some low level, but it will be pretty clear to epidemiologists that they're looking at a virus that is now under control and not endemic and pandemic in our communities and around the globe. And so when that happens, then they'll start to experiment essentially with opening things back up and having people closer together and less and less people will naturally be wearing masks. It'll be a bit of an experiment to see if it's okay, and if it's not okay, we'll start to see numbers start going up again. But the sooner that everybody possible is vaccinated and immune, the sooner we should be getting to a point where we don't need to wear masks and socially distance, and whether that's July of this summer, or earlier in the spring, that would be wonderful, but I'm probably too hopeful. Whether it's this spring or summer, or it ends up being two years down the road, a lot of it depends on if people actually get these vaccines and do their part to contribute to the immunity and the protection of our towns and our cities.

Tom Rufer (57:42):

Does anyone have anything that they want to reemphasize? Any closing thoughts, anything that we didn't cover that you think should be?

Renae Lien (57:54):

I guess one of the biggest messages is to really try to get the facts. We've been trying to be objective, recognizing that there's different opinions on things, but if something sounds far out, and way, way out there, Facebook isn't the best source of information on things like vaccines and healthcare. So please, if there's questions look to the Lake Region Healthcare site, or the CDC or the Minnesota Department of Health to get some reputable facts for information.

Tom Rufer (58:42):

Unless anyone else has any closing comments that would conclude our session, and let me, on behalf of our community, and perhaps humanity, thank you all for the countless hours that you've spent on battling this pandemic and the fantastic job that's been done by you and all of your colleagues, there's a lot of appreciation coming from our community, so thank you for what you do. We appreciate it very much. And if we if, if folks still have questions about COVID-19, again, as was mentioned, the Lake Region Healthcare website, www.lrhc.org, is a great source of information, as well as the Centers for Disease Control website, www.cdc.gov. Thank you all, and enjoy the rest of your day.