

Transcript | Answers Now: Am I Really Protected?

Michele Nadeem-Baker: Welcome to Patient Power's *Answers Now*. And today, Esther Schorr and I will be discussing, am I really protected, regarding COVID-19 immunity. It's on the minds of patients, their caregivers, survivors, blood cancer patients in general, [CLL](#) patients, all of us. And we wanted to talk through all of this, and I want to introduce, by the way, I'm sorry, my co-host here, Esther Schorr.

Esther Schorr: No problem.

Michele Nadeem-Baker: Welcome, Esther.

Esther Schorr: Thank you, Michele, thank you. I've been here before with you, that's okay.

Michele Nadeem-Baker: So I know it's getting to be a regular thing every month. And so, I'm a CLL patient, Esther is a [care partner](#) to a CLL patient, and this is for all of us out there in the family, huh?

Esther Schorr: Yeah, it really is an incredibly concerning topic, Michele, both for patients as you say, and for care partners. The feeling is, the rest of the world, not quickly, but fairly rapidly is going back to what looks like some semblance of normalcy and we're all looking around going, "Okay, so what are we supposed to do now?" And so, I don't know about you, I know for Andrew and I, and in talking to other patients, it creates even more [anxiety](#), sometimes a bit equal to what it was like during the pandemic.

Michele Nadeem-Baker: With patients, a lot of what I'm hearing is it's almost like we're back at the beginning when no one really knows what to do, everyone looks at you oddly if you have on a mask, and patients are starting to feel that way, like, "Oh my gosh, what do I do? Is it safe to do something or not? Do I have immunity or not?" And-

Esther Schorr: Well, I think we are in a better place. I think through the conversation today with our two experts that I guess we'll meet in a few minutes here, I think we're going to find out we're not back where we started, there's just still a bunch of unanswered questions. So anyway, I know you've got something we wanted to share.

Michele Nadeem-Baker: So before we get into this live show, we have a fantastic short clip we wanted to share with everyone and it's from Dr. Larry Saltzman, the executive research director at the Leukemia & Lymphoma Society and he's also a CLL survivor. We also have in that clip, Dr. Lee Greenberger, PhD, chief scientific officer at the Leukemia & Lymphoma Society, and they are doing some cutting-edge studies regarding of if we do have immunity, what it looks like. A lot of us have been participating in their research by the blood tests that I know that I've gotten, many of you out there have gotten it or have signed up and are waiting to get your tests. And this is a great way to enter our topic. Let's roll that video, please.

Dr. Greenberger: In a nutshell, what we're finding and is actually echoed by published reports now, there are certain patients who wind up not making [antibodies](#). So certainly, for CLL patients, and this was published by the Israelis about a week or two ago, many of those CLL patients are not responding to the vaccinations. The ability to produce antibodies is only part of the equation in terms of protecting against COVID infections. The T cells will also participate in protection as well, and therefore, even if you're CR negative, it's possible your T cells responded, and you will be protected from infections in the future.

Dr. Saltzman: So, we are going to launch a T cell study probably within the next two weeks, if all goes well with all the contracts, and we will be inviting blood cancer patients who've shown no B cell response. We will pair them with like blood cancer patients who did show a response, so we have two arms of the study, if you will. And we'll be drawing blood that will be a research test that will look at the specific T cell response related to the [COVID vaccines](#). And this is going to be done on a genetic basis, so it's basically taking a DNA or an RNA thumbprint, if you will, of the spike protein and then look at the response of the T cells to that protein. The test is not commercially available. There are no commercially available T cell tests, so for people thinking that they're going to ask their doctor for a T cell test, it's really not available. They're only in research labs.

And because of that, when we invite people to the study, different than what we're doing with the antibodies, we will not be able to let a patient know their specific result. We will be reporting the results based on groups of, say, blood cancer disease types or treatment types. So maybe we'll report on CLL patients as a group, maybe we'll report on patients who are taking rituximab (Rituxan) or obinutuzumab (Gazyva), which I can't say, or ibrutinib (Imbruvica) and the like, so we'll report it that way. And the results will not be as fast, I just want to set expectations that from the time of blood draw to the time of the results actually will take six to eight weeks, so this is not a quick process to run through. It's very sophisticated.

Esther Schorr: Wow. So, Michele, we're going to have a lot to talk about with the experts. So, any quick comment, Michele, about what we saw, or we think we're good to just ask questions of the experts?

Michele Nadeem-Baker: There's just so much more to learn, and thankfully, there's research being done to learn about it.

Esther Schorr: Right. So, let's see, let's dig in here. I'd like to introduce our two wonderful experts. First is Dr. Alessandra Ferrajoli, there you are. And Dr. Ferrajoli is a professor of medicine at the department of leukemia at the University of Texas MD Anderson Cancer Center. Welcome, Dr. Ferrajoli, to our program. It's good to see you. And we also have Dr. Barrientos, who is an associate professor at Karches Center for Oncology Research at the Feinstein Institutes for Medical Research. That was a mouthful. It's very good to see both of you.

Michele Nadeem-Baker: So let's talk a little bit more about what we're going to be talking about. This, we call the COVID disinformation section. So, we wanted to start off today's show

tackling a question we have been getting so many questions, inquiries, about and there's a lot of information flying around social media these days and it can be hard to get context and clarity in these trying times. I mean, you've seen it Esther, I've seen it and then all of the CLL groups for that matter on social media.

So we start with several email questions from our audience, thank you so much for sending them. Here's an example, "Has there been any research into the long-term effects of the mRNA COVID vaccine on blood cancer patients?" Now, messenger RNA is a new method of treatment and the DNA of the CLL patient is already deteriorating, so it intentionally seems like the wrong thing to do especially when it reacts directly with DNA, but I would love to hear your take on this, Dr. Ferrajoli.

Dr. Ferrajoli: So basically, there is no research done on vaccine in patients with [blood cancer](#) based on the early trials because one of the conditions to participate to the early trial of vaccine was that you should not add a relevant comorbid condition or immunosuppression. Said that, there may have been occasional patients that had a CLL that was undiagnosed that were included in the trial, but this information is not available. The initial data are on healthy volunteers, that by definition excludes our group of patients. Now, mRNA vaccine is through that they are immune because it's the first time that we use them for the COVID-19, but we got there very fast because they had already been developed for a similar virus that is the third virus. It just happened that that outbreak was very short lived, and we did not need to use those vaccines, but the technology was there, and the groundwork had been done, that's why we developed them in record time.

And I personally was first in line to take the vaccine, I took it the second day it was available at MD Anderson. I also have every single [family member](#) of mine vaccinated because I do not have any concern that they are going to make permanent genetic changes to our DNA. The reason is they work only on the immune cells, they don't work on the cells that are the stem cells for our body. So, I think this is the same, they're safe for patients with CLL because the technology that makes them is not a genetic modifying technology, it's a technology that optimizes the way the viral antigens are presented to our immune system and our immune system then generates a response.

Esther Schorr: Oh okay. So, Dr. Barrientos, any additional thoughts about that? That's encouraging.

Dr. Barrientos: No. I feel the same way, very strongly, have convinced many of my friends that were a little bit hesitant at the beginning just because there were initial reports that some of the vaccines may have complications, but the rate of complication is so minimal compared to the actual infection. And there are some patients that I have with the informal CLL diagnoses that's still a year after having beaten the infection, they're still having complications or sequelae from COVID infection that has nothing to do with the lungs. I have some patients that have developed intermittent fever, showing intermittent recurring infection, some people have ongoing fatigue that they've never had. So, for me, it is very important that everyone in my family, I have family

members that have even put their own children into clinical trials to see if they can be vaccinated before they get authorization by the FDA to get it. That's how strongly we feel, my family, based on what we have seen. It has been very, very difficult for us with our patients in CLL and informal or hematological malignancies because the outcomes can be really devastating.

Esther Schorr: So what I took away from that, Michele, is the concern about there being some huge, systemic change, genetic change that's going to happen if you get this vaccine is unfounded. That it really works specifically to have an [immune response](#) to this virus. So that's what I got out of that.

Michele Nadeem-Baker: I'm hearing it does not change your DNA.

Esther Schorr: Right, right. Okay.

Dr. Ferrajoli: And it doesn't insert any chips.

Esther Schorr: Oh right, right. That was a concern especially me for my husband because his chip does not need to change at the moment, I like him just the way he is. So yes, thank you for that.

So okay. So, let's flip this question a little bit on its side and say okay, let's say this is a safe vaccine, so let's make that assumption, but the other thing that I'm seeing on social media is that people are saying, well, there are alternatives to the vaccine. Rather than take a chance on something that we don't know the longitudinal data on, well, if we take lots of vitamin D or we, I don't know, that there's a bunch of those things out there. Is there anything outside of the vaccine that there's any data that says it's effective against COVID? Dr. Ferrajoli, let's start with you.

Dr. Ferrajoli: Not to my knowledge and definitely not for patients with the CLL. Again, there is a little bit of data that show that possibly vitamin D deficiency being an important hormone, actually vitamin D is a hormone rather than a vitamin, could help fighting infectious viral infections, but there is not a very strong data saying that, by taking vitamin D, you're protected from COVID. Definitely, there is absolutely no data that hydroxychloroquine (Plaquenil) or dexamethasone (Decadron) or any of the things that we hypothesize early on as having activity does have activity. There is actually a very stern warning against using both agents as either a prevention or as a treatment. They interact with many of the medication that we use for CLL and they have mild side effects. So not to my knowledge, the only avenue is [vaccination](#).

Esther Schorr: Mm-hmm (affirmative). Dr. Barrientos?

Dr. Barrientos: Yeah. So of course, we know from the data from people that are immunocompetent that the best outcomes can be seen on patients that are younger and usually female, that do not have medical comorbidities like diabetes or overweight, that have a better level of vitamin D. But it doesn't mean that that will protect you because unfortunately, even

young kids can get COVID, it's like a one in 3,000 chance of developing this multi-system inflammatory response, and these are children that have never had any issues. My niece who is in her nephrology fellowship, she doesn't mean that she has put many children in dialysis from the complications from the disease. So, there's really nothing unfortunately that we can do other than protect ourselves, and how do we protect ourselves? By doing social isolation and distancing that is at least six feet away. In my family, we are still not traveling, we haven't taken a plane unless it's a life-or-death matter, the risks outweigh the benefits. And I don't have CLL, but just based on what I have seen and how frustrating these things can be, I think we just need to protect ourselves.

And we were all tested here, we had one of the highest instances of [COVID](#) infections in the nation in New York City and we still had very low rates of physicians that contracted the disease and it happened when they were not wearing PPEs. Not by being exposed to the patients, rather it was when they took the PPEs to eat a pizza with their coworker. And so, it's important to know that it's your personal choices that can help you survive through this because we will get over this, it's common. You can see the rates coming down, it's just a little bit longer to be safe for all of us because once we have an outbreak, then it comes back again just like in Taiwan that they are announcing that even though they had 250 days of no COVID infections, now they have an outbreak. So, we don't want to go back to those days.

Esther Schorr: Not if we can help it, for sure. For sure. Michele.

Michele Nadeem-Baker: So what I'm hearing here, doctors, the takeaway is, get the vaccine, not only you but your families. Dr. Barrientos, you were sharing about one of your [patients](#), could you share that with everyone here that would help even add more information into a real-life situation?

Dr. Barrientos: So this is real and it's very heartbreaking for me because it's someone that was working here at Northwell at my institution. He was vaccinated early on because as somebody that works in a health system, we had access to vaccines right away and so was his wife. But the children that are in their 20s, they chose not to be vaccinated even though it was available to them because they had concerns. And unfortunately, during one of the interactions with his own child, he contracted the disease because unbeknownst to the child, he ended up having COVID. And so, he developed COVID, we immediately treated him with monoclonal antibodies, and so, he did not develop the lung complications but unfortunately, he developed many of the other complications that can be associated with COVID. He developed multiple brain hemorrhages, he required multiple surgeries. And then he developed clots in the lower extremities. So, when you're bleeding and clotting at the same time, there's very little that we can do and unfortunately, eventually his disease is coming back. So, there's really not much else that we can offer to him and that could've been prevented if at least minimized the risk.

So that's why it's so important. And I tell all my patients this story because they need to tell and convince their own children because many of them are in their early 20s, they just don't think that they need it because they think that nothing is going to happen to them, but it's the family

members that can suffer, it's the grandma, or the patient with CLL or the patient that is undergoing chemotherapy that is at risk, just like we do for a disease like measles when you have other people that are protecting you because there are children that are undergoing leukemia therapy, they cannot get the protection on their own. And that's why you see all these moms requesting that the other moms vaccinate their children with the MMR vaccine so that we can protect everyone else. It's like using the mask.

Dr. Ferrajoli and I have been vaccinated since December of last year, but we are still wearing a mask because it helps protect those patients that could not get the vaccine or got the vaccine and do not get any protection, and it just helps everyone else while we [wear a mask](#). We are not doing it not only for us, it's to protect you and patients that cannot mount a good immune response.

Esther Schorr: Yeah. It's so important for everyone to hear that, and I know for me, I have been considering doing things for the family that I haven't seen in so long. Thank you so much for sharing that with us and with the audience today.

Dr. Ferrajoli: Yeah. I just want to circle what the doc said, what Dr. Barrientos said. This is a question that I answer daily, what can I do? And so, my answer is very stern, and I say, you can interact with everyone that has been vaccinated. If any of your friend or family member is not being vaccinated, you can only see them outdoor, and it can be distanced. But for a patient with [CLL](#), I think they should have the rule that no one that is not vaccinated enters their house because we all have had exerted the same experience, unneeded infections because not vaccinated people that were asymptomatic went and visited a patient with CLL.

Esther Schorr: And what you just said, Dr. Ferrajoli, are you saying, so not in the house, not in your house or not in someone else's home if everyone isn't vaccinated. But what about CLL patients, blood cancer patients, seeing people outside distanced if they were not vaccinated? Is that okay or is that something you would suggest avoiding as well?

Dr. Ferrajoli: No. I think outdoors with the mask, keeping the distance, using good hands hygiene, your risk becomes very, very low, so I consider that acceptable.

Esther Schorr: Okay. And indoors if everyone is vaccinated, if you don't know, there are practices, going into work without a mask, is that safe to be with those people who are vaccinated even though they're not wearing masks at work and in other situations in life?

Dr. Ferrajoli: So assuming they are normal individuals with the normal immune system, the rate of transmission by vaccinated individuals to others is very, very low. Again, we don't know for certain, but studies have shown that it is a very small percentage, and that the amount of virus that vaccinated people can carry is low too. So not only you have a very low chance of self-carrying, but it seems like that if you carried, you carried at low level, so less likely to be able to transmit it. Again, we want to wait for confirmation, but this is what I can say with the current available data.

Esther Schorr: Okay, great. So, Dr. Barrientos, so we hear a talk about booster shot for the vaccine if this would help us, and we have from Samuel in our audience that's related to that, and he was asking, first of all, if people who have CLL were included in the clinical trials of the various vaccines, Pfizer, Moderna, Johnson & Johnson, to produce COVID vaccines? And then, are there any updates or are there any trials and booster shots for people? And will they be the same vaccine or a different one for people who have been vaccinated?

Dr. Barrientos: So the number of patients that participated in the original phase three trials for both the Moderna and the Pfizer drugs, they were minimal for patients with CLL. In one of them, I believe it was three, so very, very small number of patients and the data that were given in aggregate, so we don't know the outcomes of those particular patients. That's the reason why for example, Pfizer is opening up a clinical trial, not only in the US, but also globally for patients that are older too where they have an immunocompromised system, and they're going to be vaccinating anyone with an immunocompromised condition, for example, patients with CLL, patients with agammaglobulinemia anemia, patients on chemotherapy, to determine what happens with these patients. Now from the data that we have from the Israeli data, we only get a sense of how the immune response is happening to patients with CLL. We know that patients have a better response in immunity if they're female, if they're not on active therapy, if they're younger and if they have a normal immunoglobulin level.

Now, within the patients that respond, there's also a lower level of immunity, for example, when you test the titers in some patients with a [CLL diagnosis](#), the titers may be lower than the patients with an immunocompetence system where the titer bursts through the roof. What does it mean? We are still not really sure and that's why there are several studies that are now going to address this question, "How do these T cells work?" And one of the issues that I have seen for example is, one of my patients with CLL, she did produce the antibodies and I tested it that same day. The next day, I gave her rituximab and I tested it again within 24 hours and there were no antibodies. But it's not that she doesn't have them, it's just that they are not detected because the rituximab probably took them away. But she probably has memory cells that eventually when rituximab is no longer working or active in the body of the patient, it will probably mount an immune response so the antibodies will be produced.

And I've seen that also with some patients that actually contracted COVID early on last year where I've been following them and the antibody titers may have dropped over time, and then I checked them again six months later and I see that the titers are higher again. Particularly one of the patients it happened in December around Christmas when he was seeing more people. So, because of this, we really don't know if we will need a booster because there is a chance that your memory cells will be able to mount an immune response if you were to be exposed again to the disease. So, I don't know at this moment that we are convinced that we will need a booster, even in the resetting of patients that are exposed to the COVID variant or later on. We know from the phase one trial in patients that have immunocompetent disease that over time, the antibody titers go down particularly in the elderly compared to younger patients. But does that mean anything if they were to be exposed? We still don't know, and we will need some

more time to figure this out, so just bear with us and be patient because we are all trying to figure out so that we can educate our patients the best way.

Esther Schorr: Okay.

Dr. Ferrajoli: Yeah. I'm not aware of a trial offering additional boost injection. However, just to reassure the community, there was a recent paper published in *Nature* by the Washington University group that really defined very well how the response to COVID occurs in normal individual. And the test shows some of the things that Dr. Barrientos was saying, it has shown that it is a T cell mediator canonical B cell response. It has shown that the titers of the antibody are higher, they decrease and that they increase later on, and it has shown that the cells that make the antibody are the ones that go through the germinal center and then they reside in the bone marrow as dormant plasma cells. And they come into the front only when the infection is there, very similar to what we see for the response to employ and say that this is a similar virus to [COVID](#). So, I think again, to enforce the community that we are learning as we fly this plane, we are ascending the plane as we fly it.

So, we now know what happens to the normal people. So hopefully within a few months, maybe nine months, maybe 12 months, we will know what happens to the CLL and other blood cancer and other immunosuppressed people. But again, we are getting there. The wealth of knowledge is growing.

Dr. Barrientos: Yes. I wanted to add something to your comment about that study. I also read it and I really was thankful for the participants of the study because they allowed the investigators to do a bone marrow virus testing. They also tested the prevalence of plasma cells, and I was like, "God bless them." Because it really helps us learn and understand so again, we are all encouraging you to participate on any of the clinical trials so that we can all learn, and we can educate our community.

Esther Schorr: This is a wealth of information, and it's a very complex subject. And really what we're talking about is, what is immunity to this virus really mean? And is it just the B cells and does it have to do with the T cells? And what else is going on in the background? So, I want to ask an overall question is, I know that there are a number of people including Michele, including my husband Andrew and a number of other people that participated in this large Leukemia & Lymphoma Society study and they got numbers. "I got no antibodies." Or "I got 250 antibodies," whatever that number was. Do we even know what that number means relative to how safe am I, how not safe am I?

Dr. Ferrajoli: Not really.

Esther Schorr: Okay.

Dr. Ferrajoli: I would say that if you have a titer that is similar to the one of the normal individuals, maybe you have a hint that yes you do have some protection.

Esther Schorr: Do we know what that normal range is? Not to interrupt you.

Dr. Ferrajoli: It depends on the laboratory.

Esther Schorr: Oh okay.

Dr. Ferrajoli: So it really depends on which laboratory and which antibody test you're doing. There are several, not only the Leukemia & Lymphoma Society trial, but there are also several large reference laboratories, I don't want to advertise them, so I don't want to say their names, but they do offer several types of antibody testing. I would say that for the people that have a low or undetectable antibody titer, those are the ones where we really don't know what it means.

Esther Schorr: So we just have to be patient and to figure that out too, right, Dr. Barrientos?

Dr. Barrientos: Yeah. I only wanted to add on that there's usually two commercially available studies, one is the antibody spike protein antibody, which is the one that we want to know, it's to see if there were titers produced from the exposure to the vaccination. And then there's an anti-nucleocapsid antibody. A nucleocapsid, that will only be positive if you actually had the natural infection and not from the vaccine.

Esther Schorr: Okay.

Dr. Ferrajoli: Yeah. And there are investigational studies, studies that does not approve for clinical care, that are the most sophisticated one they were presented in our introduction. And they are looking at the response of the T cells and looking at to neutralize the antibodies. But those studies are not commercially available, so cannot be ordered by your doctor.

Dr. Barrientos: This T cell immunity is very important, we think, and hypothesize it because we still don't understand how come COVID has been so hard on Western Europe and also in America, whereas in a continent like Africa where they may have lack of access to medical care, the disease has not been as bad. Some people used to think that maybe there's some prior exposure they may have had to another type of Coronavirus that maybe created some T cell immunity that now when they're exposed to COVID, it's actually helping them fight off the infection before it's very severe. We just don't understand why is there a discrepancy that the disease has affected multiple areas but some more than others.

Dr. Ferrajoli: It's really complex. It also can depend on your blood type, on your HLA antigens, it's really such a fascinating parcel.

Esther Schorr: So there is someone in our audience, Susan, who asked a very good question that's related to all of this. So, can we see Susan's question please?

Susan (Audience Member): I'm [watch and wait](#), and fully vaccinated. Is it safe to be in a room with other vaccinated people? Should we be masked? Can we be unmasked? When will [immunocompromised](#) people realistically be able to interact freely in society?

Esther Schorr: Well, I think some of that was already answered, right? We've talked about that, but I think just an add-on to that question, and I think Michele, you were going to ask a little bit about that. What's the next thing that might help our immune system, right?

Michele Nadeem-Baker: Exactly. So, all of this information is wonderful that you're sharing with us and it's really helpful, but patients still want to know so, "Okay. What next?" And there are things out there that you hear about like we were saying, the booster shots, monoclonal antibodies that are being studied, if you get monthly IVIG. There are always conversations going around, "Will that help me fight off COVID?" Or "Will that help boost my vaccine?" Dr. Barrientos, would you like to start us off on what can realistically be expected from any of these?

Dr. Barrientos: For example, IVIG is something that has been thought about because some of our patients are already receiving it. The issue is the IVIG that is commercially available right now, most likely will not have antibodies against COVID. There have been studies on convalescent plasma, and it hasn't shown a dramatic improvement in survivors. So, from my perspective, if you were to catch COVID, or be exposed to COVID or have a documented COVID infection, I would recommend immediately contacting your doctor to get access to the monoclonal antibodies that had been available by the FDA under emergency use authorization like from [Regeneron](#) and from Eli Lilly because it can decrease the chances of severe COVID. And I have seen on my patients that got it, some of them didn't even have any symptoms. So, I do feel that that would be the only early intervention that I can see. We even had this question about patients that are admitted with COVID and had CLL early on before the monoclonal antibodies were available, whether IVIG would be helpful.

The problem is that anything that we give to the patient may cause other complications. It can cause fevers, infusion reactions, chemo insufficiency and so many other things. So unless the patient was on [IVIG](#), or required IVIG or had been fighting a co-existing bacterial infection, it was not a recommendation to start it off right away as well just because it won't help with the COVID, it will help with other infections but not with COVID. So besides that, there's really just waiting. I wouldn't start IVIG prophylactically on a patient that doesn't need it because the most important way to prevent it is by minimizing the risk. My family were not immunocompromised or still not flying unless it's a life-or-death event, and my kid wants to go to Disney World because it's open now but we're not doing it this year, we're still going to wait another year. It is just too uncertain era that we are living in, and until we have a little bit more safety, but I mean in terms where the levels are really, really low, we really try to avoid any potential exposure even though we're all vaccinated and we're all immunocompetent.

Dr. Ferrajoli: I agree. I mean trying to answer some of the question, are more vaccinated people, should we wear a mask or not? I think that depends on the size of the room, on the ventilation of the room, on the age of the people that are present in the room with you and on what is the prevalence in the place, in the original area where those people are coming from. So, you really need to try to calculate what is your risk factor. If it's not affecting your interaction, I personally think that the mask is always best to have it for a patient with CLL but of course, not

with your husband or with your children that you live with 24/7, that is not realistic.

On the other side, when other interventions, I know those are old possibilities, receiving the infusion of the antibody from time to time, receiving IVIGs. I totally second Dr. Barrientos for IVIGs, there is no evidence to support it because those were material that is collected by general population, it is stored. So, it's really unlikely to have a significant titer of antibody against COVID. And receiving even infusion of the antibody from time to time may come with risks. So, the important thing is trust our society, our community because once we reach every community, once everyone that can is vaccinated, then the virus is going to stop going around. And when the virus is going to stop going around, our risk to contract it is going to become almost zero, the emergence of variants is going to stop. The only way we can contract this virus is by keep on passing it to each other, and by passing to each other, we allow the development of other variants. So, we really need to do a grassroots type of, how can I say? Policy where we really ask anyone that loves us as patients with CLL, please, please take the vaccine, please, please use the precaution so that you don't get the disease and we all get out of this tunnel. I think the light is there.

Esther Schorr: That's encouraging, and what I'm hearing in all of this is, we're all going to have to be patient patients and patient caregivers. And yeah, and we have to be thinking about society in general. And yes, there's going to be risk, there's going to be some level of risk in all of this until there are more answers, so better to air on the side of being careful. So, I just want to explore one other scenario that we hope never happens, but it might. Let's say the worst happens, knock on wood, and somebody was CLL or, of course, someone else who's immunocompromised gets sick, comes down with COVID, is there a solidified treatment plan now after a year of fighting this virus that can feel some set of confidence that there are treatments available now to at least reduce the impact of getting sick, because at the beginning, there was nothing?

Dr. Barrientos: What we are seeing, definitely is that the mortality rates have gone dramatically down after we've found out that hydro steroids can help prevent severe complications from the COVID infection. And also, with the access to the monoclonal antibodies, that can also help patients fight off the infection early on. The goal here is to survive, so immediately if you're at risk and you learn that you have it, just contact your doctor because we might have access to getting you prioritized for the monoclonal antibody infusion, that would be my recommendation. And other than that, there are ongoing trials about the effects of anti-covalence or antiplatelet agents for patients, because as we know some patients may develop clotting events, but at the same time, COVID can cause bleeding, so it will be on a [clinical trial](#) basis. As of right now, we don't have a true understanding of why there are so many vasculitis related to the COVID infection.

But I do think that we have advanced the technology so much more. We used to aim for really high levels of oxygenation, now we understand that the patients can be at the lower levels, and also the positioning of the patients, it's better to be laying on your belly for better oxygenation. So, we have learned so much more in the last year. At our practice, if a patient gets a diagnosis,

we don't even admit them to the hospital, most of the time they can be treated at home. We send a nurse to them, we do telehealth visits, we know how to triage them so that they don't [get] even sicker in the hospital. Of course, in the hospital, there are patients with other infections, and you can touch those infections.

So, things have changed a lot, chances of a good outcome are much improved from where we were a year ago and I think that will continue to happen over the next couple of months as the rates of COVID are going down. Like Dr. Ferrajoli said, the viral load also seems to play a role, like if you have a little bit of an exposure, it seems to develop lesser side effects from the infection rather than people that are exposed to very, very sick patients actively. So, I do think that we are in a better position than we were before.

Esther Schorr: Oh that's good to hear. Yep.

Dr. Ferrajoli: Yeah, I totally agree. I mean at our center, we have developed very, very precise protocols. We tell all our patients to come to our emergency room, we triage them. The ones that have mild cases but they're at risk of [progression](#) like the patients with CLL, we give them the monoclonal antibody as our patient, I have given it to several of my patients with very good results. The ones that are admitted depending on the level of severity of the COVID, they're cared in our center by a specialized team, and we have a pool of them, we actually, as consultant. And then according to the time from the initial infection, the severity of the symptom, they're treated with dexamethasone, remdesivir (Veklury), there is convalescent plasma, there is a possibility of using the anti-IVIG-6 daclizumab (Zinbryta). We have investigational treatment such as stem cells, or CTL infusion, or other higher level or [CAR T](#).

So there is a lot, I mean we are in a completely different situation than we were just a year ago. For example, I just saw in clinic a patient that presented to our center with CLL and treated with the white count of 900,000, and that patient survived it and came to see me yesterday in the clinic. So, something that at a very, very beginning of this journey would've been considered impossible.

Esther Schorr: Yeah. That's encouraging.

Michele Nadeem-Baker: Very. It gives hope in case someone were to catch, as you said, knock on wood, it doesn't happen with COVID. Dr. Barrientos let's say one of our audience members or their family member suspects the CLL patient has symptoms of COVID, they're starting to feel ill. But what are the symptoms we should be looking for? And are there any red flags that we need to pay attention to? And you have to be treated pretty immediately, right?

Dr. Barrientos: The symptoms are varied in CLL patients as in patients without the diagnosis of CLL, you can [have] patients that have classical symptoms like their nausea, or you don't have the smell or the sense of taste. But in some other patients, you really don't have many symptoms. I had a patient of mine with a CLL diagnosis who had been previously in a hospital twice in the ICU with severe bacterial infections and intuited for this, who contracted COVID,

and the symptoms was only one day of fever, and he couldn't taste for one day, and that was it. And this back in the days in March when there were no steroids, nothing and he is totally fine. And then I had fallen patients that are treatment naïve, young, and healthy who have caught COVID. And they [had] multiple symptoms that are still lingering a year later like the lack of taste or smell. So, there's no one size fits all for our patients. I do believe that if you test positive, you should trust the test even though there is a chance that it's a false negative.

I had one of my patients that... In New York, before you come to infusion center because there's a risk for contagion, you have to be tested for COVID. So, one of my patients with CLL was tested and we found out incidentally that he tested positive. He was in shock; he was convinced that this was a false positive which could've been the case. But because we were, at some point going to do a CAT scan of his chest, we offered him the monoclonal antibodies and he's like, "Listen, I'm young. I'm in shape. I have no symptoms. I think it was a false positive. I decline the monoclonal antibodies." And I was, "Okay." He's an adult, he can make his decisions. Two months later, we do a CAT scan of the chest as a follow-up for some other condition, and he had new granularis of positive which are typical for a [COVID](#) infection, and he was very upset with himself, he was like, "Maybe if I had taken the monoclonal antibodies, I could've prevented this. And how long are they going to last?"

And honestly, none of us has the answer, we don't know even if the monoclonal antibodies could've prevented this, but I would encourage patients that if they do have a positive test, even though they don't have symptoms, to still consider getting the monoclonal antibodies to prevent any of the potential complications. Even if you don't have lung symptoms, you can still develop some of the vasculitis or we are seeing diverticulitis. We are seeing a lot of other things that can happen from the COVID infection that aren't related to the lungs. So that would be my point on this.

Esther Schorr: Okay. As you can imagine, we've got loads of questions, you've answered many but there's even more. So, I think Michele, I'm going to start off with one of the questions that has come in. Some grandparents are lucky enough to be taking care of their grandkids here and there or visiting them. But a lot of those grandkids have not been vaccinated and there's a whole history of, "We didn't think that that was high priority for a number of medical reasons." So, what does somebody with CLL do if they're a caregiver for very young children who have not yet been vaccinated, what do they do with the information we now have?

Dr. Ferrajoli: Again, they will be taking some risk because especially if those young children go to daycare, then the possibility that they would have COVID... For them, it's only a little bit of a runny nose, or maybe a touch of diarrhea or something so minimal that is really not out of the norm, it's a possibility and they can transmit the COVID to their grandparents. So, I know it's very hard but again, there's going to be a choice, they need to talk to their family, they need to really analyze the situation very carefully and decide what is the amount of risk that they're willing to take, and if there are alternative arrangements that can be made at least transiently. I know it's very hard, and I'm not saying they shouldn't see their grandkids but maybe they can supervise them when they're in the backyard of their own house, but not having them stay for an

extended amount of time indoor. And I'm sorry, I wish I could give a different answer, and I know maybe Dr. Barrientos has some other suggestions, but that's all I can say.

Dr. Barrientos: Yeah. It is hard unfortunately, but like I said, it's all a matter of risk and what risk are you willing to take. There's nothing that is a 100% and the good news is that the risk is going lower and lower, but at this point, it's just hard for us to say, "Oh, go ahead, and hug and kiss them," because they might have it. Chances of it are really low but I have had patients that caught from their children.

Dr. Ferrajoli: Now we can add a little more, we say if you're a new CLL, watch and wait with very normal blood count, you're a young person, you have no other comorbidity conditions, you are not a diabetic, you're not obese, you're not a smoker with COPDs, then it's one risk. But if you're older, you have comorbidity, you're receiving treatment with monoclonal antibodies, and let's say you have had CAR T last month or you have had, I'm just making example, or you had a diabetic, then it's really few that contract the infection you're at higher risk of severe complications.

Esther Schorr: We're running out of time, I can't believe we have so many questions we have to ask but this is going to have to be our final question, doctors. Let's start with Dr. Barrientos on this, what about breakthrough cases we keep hearing about? People have been vaccinated yet they're still getting COVID, and the risk of that to CLL patients? How much should CLL patients be worried about such things?

Dr. Barrientos: So the CDC just put out information from January of this year until now, and it reported about 10,000 cases of outbreaks even though in vaccinated cases, and they think that it might be an underestimate. But taking it into consideration that there has been over a 100 million people vaccinated in the country, 10,000 is really nothing considering that in the [clinical trials](#) it was about 95% efficacy. So, what we are seeing here is similar to what we saw in Israel that the rate of infections, there is an outbreak risk clearly, but it's even less than what we saw on the clinical trial reports. So, I think that it's extremely minimal, but even if you were to catch it, if you're vaccinated and immunocompetent, the majority of patients do not require to go to the hospital and have minimal symptoms. So, I'm very encouraged by that, even though there are outbreaks, nothing is a 100% effective, but the numbers that are being reported are so minimal that it's just unbelievable how well these vaccines work.

Michele Nadeem-Baker: Dr. Ferrajoli, would you like add -

Dr. Ferrajoli: Yeah. I would like to circle... I mean in the normal individuals, the rate of COVID infection in vaccinated people is again, I don't know, it's less than 1% as such of contracting a new infection. There are occasion patients that have contracted an infection, and it's usually after having the COVID infection, a second infection. And that is usually after six months from the first infection. So, for at least the six months after your infection, you're protected if you're a normal individual. And again, those cases are individual or in most case a report level of situation. Now we have had COVID cases in people that either have not yet completed their full immunization and in patients with CLL that have received the vaccine, again, supporting the fact

that the patients with CLL may not mount a complete response. Again, those cases have been pure, we've had one of my colleagues had an asymptomatic case after the first dose of the vaccine, but before the second dose of the vaccine. The patient with CLL that I described before had actually had vaccination, but again, this was a patient with very active disease at the time of vaccination, therefore, the vaccination did not protect this patient.

Esther Schorr: Dr. Ferrajoli and Dr. Barrientos, so many questions, many answers, probably not enough answers for the people who are listening but it's very clear that the two of you plus all of your clinical associates and researchers are working very hard to get more answers. So just on behalf of Michele and I, and all of the [Patient Power](#) and Remedy Health people, want to thank you for being here, and I know there will be more opportunities to ask and get answers to questions. For those of you listening, we have more [webinars](#) coming up in the coming months, so look out for those in our e-newsletters.

Michele Nadeem-Baker: Yes. As a matter of fact, I just see that there's so much research, we just have to be a little bit, a little bit... who knows how much, a bit more patient as patients. So, thank you doctors.

Dr. Ferrajoli: Thank you everyone.

Esther Schorr: Thank you.

Dr. Ferrajoli: It's always fun to be on this show.

Dr. Barrientos: Yes.

Esther Schorr: Thank you both. And what do we say at the end of all of these wonderful sessions?

Michele Nadeem-Baker: Let's do it together. Remember-

Esther Schorr: Okay.

Group: Knowledge can be the best medicine of all.