COVID-19 and Cancer:

Two Years into This Pandemic,

What We Know Today and

What You Need to Know to Protect Your Health

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Elana Silber: We're so glad to welcome you to our latest cancer and COVID medical update. My name is Elana Silber, and I am the CEO of Sharsheret and it's really good to actually see some of you tonight. Tonight, We have the honor to learn from Doctors Arthur Reingold and Catherine Pesce.

We're really grateful for everyone coming on tonight. Our speakers and our generous sponsors, the Siegmund and Edith Blumenthal Foundation and Merck. It is with their support that we are able to provide this series of webinars throughout the pandemic and beyond. So before we begin just a few housekeeping rules, this webinar will be recorded and posted on Sharsheret's website, but your names and faces will not appear in the recording. If you want to stay private, you can put your video on off and anything you want to correspond with us. You can put into the chat into the chat. Again, if you can keep yourselves on mute, that would be great, and put your questions into the chat.

If for some reason your question is not answered during the call, we will be sure to get you an answer within a few days. We also recommend that you put your screen on speaker view. This way, you can see the doctors as they present more closely, and you can find that option on the upper right hand corner of your screen. As we move into the webinar itself, I want to remind you that Sharsheret is a not-for- profit cancer support and education organization. We are not a medical organization, so the information that you received tonight is not medical advice, and we do not perform any medical procedures. It's a conversation that's a springboard for you to take these questions to your healthcare professionals. So if you have any questions you can put them in, we will have them answered tonight. Anything beyond that, you should take to your doctors.

So now I want to introduce tonight's speakers. Dr. Arthur Reingold is division head of epidemiology at the University of California Berkeley School of Public Health. Professor Reingold has worked for more than 40 years on the prevention and control of infectious diseases both at the national level, including eight years at the CDC, as well as with numerous low-income countries around the world. Dr. Pesce is the chief of division of surgical oncology and program director of the breast surgical oncology fellowship at NorthShore University Health System and University of Chicago School of Medicine. She's on the NorthShore High Risk Breast Team as a breast specialist. So thank you both for joining us. We will begin our presentations with Dr. Reingold, so I'm going to turn the floor over to you. Thank you.

Dr. Arthur Rein...: So thanks very much for inviting me. I'm happy to have a return appearance for Sharsheret. I'm just going to make a few opening comments because I think probably the best use of our time would be more of a Q&A and discussion rather than speechifying, which professors are very capable of doing. But at the

risk of telling you all things you know, and I assume this is a pretty well educated group of people, we're pretty much at almost exactly two years into a global pandemic of SARS CoV-2 infections, or COVID-19 with millions of deaths around the world; hundreds of thousands here in the United States, large numbers of people hospitalized and made ill, others with long term consequences of their COVID illness, sometimes called long COVID, which remains to be defined better.

So clearly this has gotten our attention over the past two years and people who perhaps 18 months ago thought we'd be over with this quickly, by were not correct in that assumption. Some of you may want me to make predictions about the future, and I'm going to quote someone who some of you may be old enough to have heard of, a guy named Yogi Berra. Yogi Berra, if you don't know, was a New York Yankees baseball player, and he's had a habit of saying some rather odd things, but almost always had an element of truth to them. One of the things he said was, "It's hard to make predictions particularly about the future." Of course, we're only really interested in predictions about the future, but he was right, they are hard to make. So if I make predictions or others make them, they might be right or they might be wrong, number one.

Number two, I think we can count ourselves lucky to live in an age when vaccines could be made as quickly as they were distributed as quickly as they were and made available, at least in wealthy countries like ours to the vast majority of people who want them. Tragically, there are many people who don't want them, and I'm more than happy to talk about the vaccines and their profiles, their safety, what we know about all of that. But if we didn't have those vaccines, if we would have lived in the 1950s when it took Jonah Salk a good deal longer than that to come up with polio vaccine, we would almost certainly be in a much worse situation today than we are. So we have vaccines that are quite safe and highly effective. We have some good treatments, including some options for people who are immunosuppressed.

I'm going to let Dr Pesce talk more about the clinical things because, well, I got my MD from the University of Chicago on the South Side of Chicago. I don't practice clinical medicine, and you wouldn't want me for your doctor these many years later. But we have some injectable antibodies that can keep immunosuppressed people safe for at least six months. We have treatments. We have vaccines. We know a lot more about how masks work and how well they work and what type of masks work and how to keep people safe. That's all the good news. As you all noticed, however, the virus continues to evolve different variants as viruses tend to do. We're now pretty much entirely being infected with something called the Omicron variant, which turns out to be more transmissible, but on average, to make people less sick than the Delta variant or other variants that came before.

One of the consequences of that is that it's much easier to get infected whether you wanted to or not. It's harder to protect yourself against infection except

through vaccination and masking and social distancing, which may not work quite as well for the Omicron variant. But because it is spread so quickly, a growing part of our population now has some level of immunity that plus vaccination, and so many of us are returning to a variety of circumstances where we might not have been comfortable six months ago or a year ago. So my university will be going back to in-person instruction starting next Monday, and we can talk about things like schools and universities and shopping and other exposures you might be interested in talking about.

But, I think in general, in wealthy countries the situation has vastly improved in some really important respects. For those who work or have relatives or family or friends in low-income countries around the world as I do, the situation in many of those countries is not nearly as positive because they don't have access to the vaccines, or a lot of the modalities I've been talking about. People do worry about the justice of mal-distribution, things like medications and vaccines. We can certainly talk about that issue as well. So I'm going to stop speechifying at this point. I'll just let those be some introductory remarks to help guide what I understand are already quite a few questions. [crosstalk 00:09:28]

Dr. Arthur Rein...: That's the maximum volume in my computer so I can yell, but, but that's about the best I can do. So the clinical question some of you may have, I'm largely going to leave to Dr. Pesce, as I said. But between the two of us, I hope we can provide you with answers to lots of really good questions, so I'm happy to be with you and look forward to interacting.

Elana Silber: Thank you, Dr. Reingold. I appreciate that. We're going to move the floor over to Dr. Pesce and then we'll address all the questions and answers. So thank you, Dr. Pesce, the floors yours.

Dr. Pesce: Hi, there. Thanks so much. Thank you for inviting me to speak today. Yes, I am a very clinical person. I've been a surgical oncologist, which means I am a surgeon. I'm a breast cancer surgeon. I'm not a medical oncologist, so I'm not a physician who administers, let's say chemotherapy, but I work very intricately in my job with oncologists, so I know a lot about it and I hope I can answer your questions today. I wanted to focus my introductory comments on how COVID has affected my life and my ability to care for breast cancer patients. When the world shut down in March of 2020, we shut down as well. We weren't able to do surgery for patients. We shut down mammograms. We weren't even screening mammograms for a good six to eight week weeks, and it felt wrong.

It made us very uneasy. I had patients who were newly diagnosed that I had to cancel their surgeries and they looked at me like I was crazy like, "How could I do this to them?" I said, "I don't know. I don't know what to who tell you. We didn't ... " there was so many unknowns. Luckily, for a lot of our ER positive breast cancer patients, we were able to put them on hormonal therapy indefinitely with the idea of, "I don't know when I'll be able to do your surgery." But the good news was eventually we opened up within about six to eight

weeks. I was able to do surgeries and we actually didn't find that most women had progressed in disease. Most women did great, and there's been a lot of studies published then talking about COVID's effect on delay of treatment.

There hasn't been too much significant effects in that way from most of the studies truly due to hormonal therapy. So My one takeaway point is since then, we've learned a lot and we also have figured out ways in hospitals to try and not shut down, for women to continue to get mammograms. Even let's say, if we have another surge, we're getting over this recent peak, and at my hospital, we did find a way to continue doing screening mammograms and to continue operating on cancer patients. I was thankful that we have learned a lot in these last two years and that we were able to continue providing patient care.

I get a lot of questions about first it came out when the vaccine first became available and you had to meet certain criteria in order to get the vaccine, and one of those was proving that you were an immunocompromised patient. So a lot of patients felt that because they had a history of breast cancer, that they should be at the top of the list in order to get the vaccine. Luckily, now we are in a place where the vaccine is readily available, available and people don't want it, unfortunately. But so I get a lot of questions of, "How at risk am I for COVID because I had breast cancer." The truth is, unless you are undergoing active treatment with chemotherapy, we do not believe you are at increased risk. So patients who, let's say, had cancer a year ago and underwent chemotherapy, we do not deem them more at risk for developing COVID than non-breast cancer patients.

Same thing, let's say patients who are undergoing radiation, radiation for breast cancer is not known to decrease your immune response in any way and so therefore, we do not view you as somebody who's at increased risk of COVID. I'm sure we'll get lots of questions about that today as well, so we can delve into that a little deeper. Then, another thing that has come up quite a bit in my practice in that I treat women who are newly diagnosed with breast cancer. So many of my women luckily, do get the vaccine and one thing that we see quite a bit that the vaccine is doing is it causes what's called axillary lymphadenopathy, so that means swollen lymph nodes in the armpit and that can complicate the findings on your mammogram. So the analogy I give is very commonly when you have strep throat the lymph nodes in your throat and neck enlarge, same thing happens in your armpit.

When you get a vaccine in your arm, your lymph nodes in your armpit swell, and when you get a mammogram, it's going to be noted. Unfortunately, sometimes swollen lymph nodes also can be a sign of cancer, and so our radiologists are sometimes in this predicament of trying to decipher, "Is this just a reactive lymph node to the vaccine, or could this be cancer?" So we have different of protocols in place to follow these lymph nodes, do ultrasounds and repeat ultrasounds, let's say, three months later. But in general, a practice that has changed is that if you are getting the vaccine or the booster to hold off on

getting your mammogram for a good six weeks, if you can, four to six weeks, and that's something that has definitely changed since COVID started in my practice. I think that's the biggest ways my job has changed since March of 2020, but I am looking forward to delving deeper into questions that you have in regards to COVID and breast cancer.

Elana Silber: Okay. Thank you. So the questions are pouring in, and so I'm going to start with just some of them and hopefully that will answer a few of them trying to put them all together, but really thank you, everyone, for putting in your or questions. We want to keep them as general as possible, so that they're helpful for the general group. So one question that came in, and I think maybe probably for Dr. Reingold, she asks, "I've read that we should expose ourselves to, to build up immunity against a more dangerous variant. Is that fat or fiction?"

Dr. Arthur Rein...: Well, currently that's fiction. Some of you may be old enough to remember what we're called chicken pox parties. Dr. Pesce is probably too young to remember those, but-

Dr. Pesce: No, I'm not.

Dr. Arthur Rein...: ... before we had a chicken vaccine, some parents would say, "Chicken pox is benign. It's more convenient if my kid gets it this month than next month. I know a kid with chicken pox let's get everybody together and intentionally expose our kids to chicken pox." Before there was a chicken pox vaccine, there was at least some logic to that argument. Once there was a vaccine, I would say the logic for that disappeared completely. People used to sometimes more recently have an even crazier idea of having measles parties, despite having a measles vaccine. So the quick answer is no, we don't want you intentionally exposing yourself or your children to this virus; we want you to get vaccinated. Vaccines are quite good at this point at producing immunity, much more safely than exposing yourself to the virus does. So I would discourage anyone from going to a COVID-19 party.

Elana Silber: Okay. Thank you. The other question is, "If you've gotten Omicron once, can you get it again?"

Dr. Arthur Rein...: So that's one of those questions where we're still collecting information. Omicron has only really been circulating for a month or so, and even if the immunity is short-lived from an infection, it probably lasts at least a couple of months. So we really can't know the answer to that question yet. Invite me back in six months, and I might know the answer to that question, but certainly, the evidence is that, for example, if you've had Delta, can you get infected with Omicron? Yes. If a new variant develops a few months from now, will Omicron protect you against infection with that new variant? We don't know. So there's still a lot to be learned by people who do my kind of work.

Elana Silber: Can the average person find out which variant they have when they find out that they test positive?

Dr. Arthur Rein...: Well, if they're living in the United States, 99.95% of all COVID 19 cases now are caused by Omicron. So if you've had COVID recently, it's a pretty good bet it's Omicron.

Elana Silber: Thank you, Dr. Reingold. Dr. Pesce, this might be for you, "Is it recommended for those who are in active treatment for metastatic breast cancer to get the mono antibodies as well as vaccine and boosters from a precautionary perspective?"

Dr. Pesce: Yes. To my knowledge, even if you're undergoing active treatment, they are recommending vaccines and/or boosters. We are huge proponents of it. We think if you have the opportunity, we want you to try and get it, and we work around schedules in order for you to receive them.

Elana Silber: But also the mono antibody, they're asking that too? Okay.

Dr. Pesce: Yes, absolutely.

Elana Silber: "Are you considered immunocompromised if you're taking PARP inhibitors?"

Dr. Pesce: Yes, you are. So if you're a PARP inhibitor, this is a type of medication that's given mostly to breast cancer patients who have the BRCA mutation, BRCA 1 or 2. Yes, it's considered a form of active treatment and so, yes

Elana Silber: Speaking of active treatment, if someone's on Ibrance which is considered mild, are they in the same category as people who are on other chemotherapy?

Dr. Pesce: So it's a different medication. Chemotherapy agents are not targeted therapy, and so they're considered more of an immunosuppressant, but the monoclonal antibodies as well do affect your immune system, but just as you said in a more mild way. We do consider you more at risk, but less so than when you're undergoing chemotherapy.

Elana Silber: Dr. Reingold, the antibody tests that people can take, does that really determine your immunity level? So if you just finished cancer treatment, I don't know, a week ago is testing your antibodies, are you still considered immuno-compromised? How would you answer that?

Dr. Arthur Rein...: So before I answer that, can I just go back and expand a little bit on what Dr Pesce was saying before?

Elana Silber: Yes, you can. Yes. I love that.

Dr. Arthur Rein...: Because if the question was about giving monoclonal antibodies to people as either treatment or prevention, those are two different questions. So giving it as an early treatment after exposure, the monoclonal antibodies that were originally thought to be effective for that don't seem to be working very well against the Omicron variant. But if you're talking about the injection, the intramuscular injection that can give you antibodies for six months, what we call passive immunity, there is an AstraZeneca product that can be administered, and particularly in immunosuppressed, people who may not respond well to the vaccines can provide about at least 80% protection against COVID, so that's different than the antibody treatment. It's early treatment that's another form of prevention.

Just one other quick point is if you're treated with something like that, then the likelihood is if you then got vaccinated during that next six months, you might not respond to the vaccine just because of all those antibodies we just gave you and is circulating, so the kind of question you'd want to talk to your healthcare provider about. Now, going back to your question about, Can I get a blood test and learn to I'm immune or not?" I've been an expert in many lawsuits where people are suing my university for acquiring COVID vaccination and claiming that they should be able to get an antibody test, and if it's positive, they don't need to be vaccinated.

So I can tell you that the U.S Food and Drug Administration has not approved any of those tests for saying your immune. So under at least FDA approval mechanisms, the belief is that there are a very large number of antibody tests that you might get, and we really don't know how well they predict your level of immunity. So we're not accepting those as evidence of protection, but I know many people who think we should be, I just don't happen to agree with them, if that helps.

Elana Silber: Yeah. Thank you. The other question that people are going back to the workplace, you mentioned that testing goes back and things are happening. There are two groups, women who are living with metastatic cancer, actually three groups, some that are currently in treatment, some who are living with metastatic breast cancer, and those who are cancer survivors. Are there specific guidelines on returning to the workplace? Some places are allowing people who are unvaccinated. Some people are not requiring masks. What is the safest way for them to return to the office, these classes? I guess Dr. Pesce we'll start with you.

Dr. Arthur Rein...: Dr. Pesce, what do you tell your patients?

Dr. Pesce: So I live in Chicago where there's a mask mandate and I'm a believer in it. My kids wear masks at school. I wear a mask every day at work. I don't think I'll ever not wear a mask again at work, so I'm a believer through these last two years that masks work. I think Dr Reingold can speak more to that. In terms of the safety, I think if you are fully vaccinated and boosted and you are wearing a

mask that is truly all you can do, and that's how we conduct ourselves at work every day. I feel safe doing so. I'll let Dr. Reingold, I'll pass that off to him, but that's how I live my day-to-day life at work.

Dr. Arthur Rein...: So I applaud that and I pretty much follow the same policy myself. I do think, for example, my university, when we're talking about bringing students, faculty, and staff back to the campus, we acknowledged that there are some individuals either because of severe immunosuppression or other life home circumstances where maybe they need an extra level or want an extra level of protection, and they might opt for a different approach to life for the foreseeable future, and we try and make accommodations based on medical status and things like that.

So I'm not sure there's a one-size-fits- all for everybody, particularly if we're talking about women who are currently undergoing chemotherapy for breast cancer. So I think it's a complicated discussion. I agree with Dr. Pesce that an appropriate mask, not some of the more dashing ones, but a good mask and vaccination are our best tools, but there may still be people who want to protect themselves, even in their families even more and limit their activities in ways that you or I might not feel the need to do. Just to say all of that may be changing over the coming months, because the epidemiologic circumstances really are evolving pretty quickly.

Elana Silber: There are questions about this concept of long COVID. Is that worse for people who are cancer survivors or going through treatment? Are they seeing that? Is there any research on that, studies on that? Are they experiencing for all cancer survivors and people going through treatments?

Dr. Arthur Rein...: Well, I'm be curious to hear what Dr. Pesce has to say. I'm involved in a big study with Kaiser Permanente. One of the advantages of Kaiser Permanente is it's like doing their studies in Denmark. Everybody is in the computer and all the data you could want are in a computer, and you can follow people for long periods of time and get every indicator you want. I think the answer is we just don't know yet, right?

Dr. Pesce: I would agree. I think long haulers, long COVID patients is something that I look forward to the documentary someday when we really do know a lot more, because this is, unfortunately, how science works. It takes time to really learn these things. I've been asked, excuse me, from family members that know long haulers and are looking for care. I've reached out to learn more about these long haul clinics that are available. And I can tell you there's three or four of them in the Chicago land area who really are taking on these patients because we're really looking at them long term in order to really know what's the future there? There's a suggestion that perhaps, cancer patients are at more risk, cancer in general, not just breast cancer, for having long haul disease. But again, it's very preliminary data.

Elana Silber: Thanks. The word that is there, the buzzword, I guess, is immunocompromised, and we're getting questions here and there. I think everyone wants to know, "Are they considered immunocompromised?" So there's a question in that came in, "If you're on Herceptin, is that considered immunosuppressed?" "If you're on aromatase inhibitors?" Because that's what they're saying in the paper, right? If your immunocompromised, this is dangerous for those who are elderly and those who are immunocompromised. So many of us on the call tonight are struggling with, What is that definition?" Because even to the point where someone, let's say, got their vaccine during, as someone here calls it their chemo holiday, and then they go in and have more chemo.

Are they then messing up their immunity by now compromising their immunity? So if you could talk a little bit about how do we defining immunocompromised as many ways as you can, and how is it contradicting the chemotherapy because we're talking over long term months. So you may not have had the vaccine before your first treatment and then you're having it then, so it's just very confusing for everyone. If you could talk about that a little bit, either both of you, whoever wants to grab it first can start.

Dr. Pesce: Well, I think the one thing that we all do agree on is if you're undergoing active chemotherapy, you are considered immunocompromised. Everything else, I think, there's a lot of unclear advice out there. When we first developed the vaccine, the advice and guidance I got from our medical oncologist was that just being on Herceptin only, being on hormonal therapy, that is not considered a time when you are immunocompromised; it's when you're undergoing active chemotherapy. I think from the moment you finish chemotherapy, it takes a while for it to be out of your system, and that can take up to a few months. So I think until that time, we do consider you at risk. But for patients who are on hormonal therapy for five years, I definitely would not consider you immunocompromised during that time.

Dr. Arthur Rein...: So if I might just weigh in to point out that most people, at least by my age, and don't just have one underlying illness or cause of potentially increased risks in COVID, many people have multiple conditions that might put them at increased risk. So even if you're not yet on chemo for your breast cancer, if you are morbidly obese or have severe diabetes or a host of other conditions, you might still be at increased risk of getting really sick, hospitalized and worse from COVID. So I think individual patients and their providers need to look beyond just the question of, "Are you on chemo at the moment?" In terms of judging your risk.

Elana Silber: We talked about going to the workplace and you all mentioned deciding for yourself lifestyle and what you can do and what you should participate in. But a lot of people are traveling now, and they want to know about traveling on an airplane. Assuming you're vaccinated and boosted, again, cancer survivor, maybe finished chemo, I know you just said what's it's a few months or so, you're still immunocompromised starting some medications. Should they be

avoiding plane travel? Is there a difference? I remember at the beginning hearing, "Well they circulate the air, so it's okay, and everyone is masked, so you're safer on a plane then when you go to places where people aren't masked. So, you guys are the experts. What are you thinking if people can travel on a plane?

Dr. Arthur Rein...: Well, the statement you're safe on a plane assumes that everybody on the plane is a rational sane human being [crosstalk 00:33:12] [inaudible 00:33:12] as see in the news with some regularity. But believing that issue aside, let me preface my answer by telling you that among my colleagues, I'm considered a little on the risk taking side and some of them are more risk averse than I am, and know at least as much as I do, so I do fly. Now, I haven't gone to a professional meeting in two years except via Zoom, but I do fly to see my grandchildren.

Elana Silber: Okay. There's a question about, I guess Dr. Reingold, mixing and matching different brands for your vaccines and your boosting. Recommended? Unrecommended? Doesn't make a difference. What do you think?

Dr. Arthur Rein...: So at a minimum, it's fine and it might even be better than fine. The reality is, and I'm on the committee that advises governors out here in the Western states about the COVID vaccines. The evidence is that you should get the vaccine that you can get, that getting a heterologous boost, as my friend, Dr. Fauci would say, in fact, if anything potentially better. So if you got a dose of Johnson&Johnson getting your booster of Moderna or Pfizer or the other way around, it might even be better than sticking to the same brand for all of your doses. But it's certainly not worse and there's certainly no safety concerns.

Elana Silber: We've had questions about a fourth shot. Everyone says you're fully vaccinated if you've gotten two shots and a booster. But we know that the booster has been around now for a while, so should cancer patients be going for the fourth shot or everyone in general should be thinking about, are they recommending how long, and then certainly for immunocompromised people? What is the suggestion?

Dr. Arthur Rein...: So I understand Sharsheret has a few Jewish members and staff, so I would point out that Israel has recently decided to routinely recommend a fourth dose to a rather large part of the population. They seem to think it's a good idea, although the data they have are really quite limited in that regard. So I know people who would argue certainly at this point that afford those would be a perfectly reasonable thing to do. It's not clear whether we're prepared to make that a policy decision for the country, and if so, for which patient populations? But for individual patients whose healthcare providers may think that they may have been immunosuppressed at the time they got their first doses or whatever, we know absolutely no harm associated with getting a fourth dose, and it might be helpful. I don't know, Dr. Pesce? [crosstalk 00:36:17]

Elana Silber: When would they be getting that fourth dose? So is it six months after the third? Is it three weeks?

Dr. Arthur Rein...: Sure, why not?

Elana Silber: But shorter, I know you don't know. You don't know. It's okay. We're getting used to that.

Dr. Arthur Rein...: People who are in good health, not taking a humorous approach would make up a number like four months or five months or six months, but the reality is there really aren't data to make that decision out at the moment. The evidence is that the vaccine induced immunity does begin to wane after four to six months, so that might be the right time, but-

Elana Silber: Can actually getting COVID, can it cause cancer to spread more quickly? Does it have that reaction?

Dr. Arthur Rein...: Dr. Pesce?

Dr. Pesce: Yeah, that would be news to me. I have not heard that at all. I think I probably have some anecdotal evidence so far in my practice, and I don't believe that to be the case.

Elana Silber: We're also seeing in the media the recommendation to get your flu shot and get your vaccine, to do it at the same time. What about the pneumonia shot? Should that not be taken when you get a COVID 19 booster? Is there a certain amount of time you should be waiting before you take that shot?

Dr. Arthur Rein...: I don't if I got my flu shot and my right arm and my COVID booster in my left arm or the other way around, but I got them the same day at CVS from the same healthcare provider within moments of each other. We think that's a perfectly good idea.

Elana Silber: And pneumonia shot?

Dr. Arthur Rein...: That too.

Elana Silber: So no issue. Okay.

Dr. Arthur Rein...: Not unless you got three arms, there shouldn't be any problem.

Dr. Pesce: I know. You might want to take a little break for your arm's sake, but it's probably safe to do it.

Elana Silber: Okay. I know isn't your field, Dr. Pesce, but is someone who has rheumatoid arthritis, you listed diabetes and other diseases, would rheumatoid arthritis make you immunocompromised?

Dr. Pesce: So certain rheumatoid arthritis patients are on medications that could consider themselves immunocompromised. Again, it's a very individualized question that I think you should specifically speak to your rheumatologist about if they would categorize you that?

Elana Silber: Okay. Asking about insurance, "Is insurance being affected if you're vaccinated or not?" Do you know about that? Or you had COVID, like people at the insurance companies are asking, do we know anything about that?

Dr. Pesce: I don't think so. I don't think they could do that because I think everyone knows somebody who's had it by now, and so I think it's going to become so widespread I don't think insurance issues are going to be [crosstalk 00:39:17]

Dr. Arthur Rein...: What do you mean, like your health insurance company canceling your insurance and you had COVID? Is that the question? Maybe I misunderstood the question.

Elana Silber: Yeah. I'm not really sure.

Dr. Pesce: Oh, life insurance. So is it a preexisting condition? No, it's a viral illness that an episode that you had, so it's not going to be something that was permanently listed in your chart as a chronic illness. It shouldn't have that effect.

Elana Silber: OK. I'm getting a bunch of questions in now. So there's, again, a question about a lot of people on this call are planning their Passover plans now. "Before COVID they went to hotels. Is there any circumstance under which that could be workable if Omicron lessons and one was fully boosted and vaccinated in the fall, would they be safe to go to a Passover Hotel Program?"

Dr. Arthur Rein...: Well, before COVID, I used to go to my brother's garage in Skokie. I'm not kidding. Exactly what will be safe to do at pace, I'm not sure in terms of the hotels and whatever. I hope we're in a better place than we are now, and that that'll be a reasonable thing to do, but Yogi Berra.

Elana Silber: Right. Someone's asking if you can revisit the question about PARP inhibitors and being immunocompromised. If we can just go back to that again and clarify. "So if you're on PARP inhibitors, are you immunocompromised?

Dr. Pesce: So usually if you're on a PARP in inhibitor, that means you're undergoing active chemotherapy as well for breast cancer when you and someone who has the BRCA mutation. So I would view that question as if you're undergoing chemotherapy, then yes, I would consider you that you are immunocompromised.

Elana Silber: Okay. I think we really covered a lot of what people are asking, and then, can you just go back again to radiation versus chemotherapy? "Someone who has radiation, are they at greater risk? Are they considered immunocompromised?"

Dr. Pesce: So luckily, radiation and breast cancer does not affect your immune system. So when I meet a patient and I'm talking to them about planned radiation, I talk to them about how they feel well during radiation. It does not make you sick. The reason is because the breasts are outside the body. So all the radiation is outside the body, it does not go internally and it doesn't affect your heart. It doesn't affect your lungs, and because of that, women usually do quite well during radiation. So similarly, I would not see it as impacting your immune system.

Elana Silber: Okay. We're going back to another question that we discussed a little bit before. Is there evidence that the vaccine is effective if you received it while you're on chemotherapy?

Dr. Pesce: So Dr. Reingold might be able to address this as well, but we do recommend getting the vaccine even on patients who are undergoing chemotherapy. Now, whether or not they are mounting an immune response to the vaccine, I think is uncertain. Some patients, it seems that they are, other patients, not so much. So it's a little unclear, but we are still promoting the vaccine during chemotherapy treatments.

Dr. Arthur Rein...: So I would say that the working assumption would be that those given while you on active chemotherapy was not effective, or had very low efficacy and the increased reasonableness of having additional doses when you're not on chemo.

Elana Silber: Okay, we're going back to the fourth vaccine. Dr. Reingold. "You said that the booster wanes in about four to six months, should people go out and get a fourth at their local pharmacy now, even if it's not recommended, if we think that after four to six months it's efficacy is weaning or it's [crosstalk 00:43:47]

Dr. Arthur Rein...: So the way things work in the United States, if you show up at CVS or Walgreens and say, "I want another dose," they're going to give it to you. The hope is they'll put that in the vaccine registry in the state where that's half and somebody might eventually figure out you had a fourth dose. Whether this involves verification or not, I'm not sure because I haven't gone and tried to get a dose I wasn't "entitled" to. But so I think it's pretty easy to get a fourth dose, but currently, unless you want to go to Israel, I don't think we have that recommendation. So if you went and said, "I'd like a fourth dose," they might say, "Sorry, but we don't do that.

Dr. Pesce: I was just going to add, I did some of my residency at Hopkins and they have a very strong transplant division. I think the strongest evidence for a fourth shot right now is in transplant patients. That's been well studied and published. It has not been as well studied in other patient populations. So that's not to say it's not going to happen in the near future, but I just don't think it's quite policy yet, but just as you said, my dad asks me and he could probably go to CVS and get one. I don't think it's regulated to that extent, but it hasn't been recommended yet.

Dr. Arthur Rein...: I would, again, just say, first of all, there really is no safety concern that we know of, number one. Number two, your tax dollars is already bought and paid for the vaccine, and there's lot sitting around in refrigerators waiting for arms, so you could take that point of view.

Elana Silber: So we've talked a lot about vaccines and preventing COVID. We touched a little bit about people who are diagnosed with COVID. So the question is, "So if you are immunocompromised and you are diagnosed with COVID, does that increase your risk for serious illness, or even death, just from what the expectation could be?"

Dr. Arthur Rein...: Yes. I can sometimes give a one-word answer. I think [crosstalk 00:45:58] pretty clear that if you get COVID then you have underlying conditions like leukemia. Or advanced bone marrow suppression or whatever it is, you have a greater risk of ending up in the intensive care unit or dying, yes.

Elana Silber: Right. So back to the question, "If you received your vaccine when you were on chemo, how long should you wait to get the next vaccine?" So if it's not going to be effective when you're on chemo, how long should you wait to get it?

Dr. Pesce: I don't know that I know that answer. I would reach out to your medical oncologist and see what they're recommending.

Elana Silber: Mm-hmm (affirmative). Okay. There's a question that just came in that there's been research showing that vaccines are affecting women's menstrual cycles. So first of all, if you could say if that's actually based in any science and are there any negative impacts to women with ovarian cancer? Any reason you would suggest that women with ovarian cancer should not get a vaccine?

Dr. Arthur Rein...: So, let me be really clear. This is one of the things I do know something about, that the data are quite clear that that unless you have had a severe life threatening, allergic reaction to a prior dose of the same vaccine or something that's in that vaccine, we don't know of any real medical contraindications to getting COVID vaccines. So whether it's ovarian cancer, whether it's breast cancer, whether it's anything, none of those are contraindications. Pregnancy is not a contraindication. Breastfeeding is not a contraindication. Now, there are many people who would disagree with me, but I can tell you that that's what the evidence says.

Elana Silber: Okay. I think we are going to wrap it up. I really wanted to thank Dr. Reingold and Dr. Pesce for your time. Look, this is a complicated issue. The science is evolving. Experts like you are spending night and day helping women, so we just want to say, and families, thank you so much. Thank you for giving your time to Sharsheret, and we're going to ask everyone who's on the call tonight to please fill out an evaluation. The survey is going to go into the chat box now, and thank you everyone for using the chat, so active. It was great. We really need these evaluations. They inform us on future programming and Dr. Reingold is a

second-time visitor. We want to bring back Dr. Pesce and we want to hear from you if that's what you're looking for. We'd love for you to stay connected, follow us on social media. We are on Facebook, Instagram, LinkedIn. We are on Twitter. We want you to stay involved. A lot of our information is put up on social media.

I really want to thank tonight's sponsors, they really make this possible, Merck and the Siegmund and Edith Blumenthal Memorial Fund. Please remember that Sharsheret is really here for you and your family. Anyone who's at risk for breast cancer, ovarian cancer, living with cancer, maybe a cancer survivor, Sharsheret provides emotional support, mental health counseling, financial subsidies for non-medical services and lifesaving education, educational webinars like we're having tonight; in-person events when it's safe to do so and really everything to help you navigate the cancer experience before, during, and after cancer. Everything at Sharsheret is free. Everything is confidential, private. We're here for you. When you reach out to Sharsheret, you're the only one there, we focus on you. Our number is 866-474-2774. You can also email us at clinicalstaffatsharsheret.org. We have a team of social workers, mental health counselors, a genetic counselor who are eager and waiting to speak to you. You are a priority. Stay well. Stay in touch, and we hope to see you on an upcoming event in the coming weeks. Thank you very much for joining us to tonight. Good night.

Dr. Arthur Rein...: Thank you.

Dr. Pesce: Thank you very much.

Elana Silber: Thank you.

About Sharsheret

Sharsheret, Hebrew for “chain”, is a national non-profit organization, improves the lives of Jewish women and families living with or at increased genetic risk for breast or ovarian cancer through personalized support and saves lives through educational outreach.

With four offices (California, Florida, Illinois, and New Jersey), Sharsheret serves 150,000 women, families, health care professionals, community leaders, and students, in all 50 states. Sharsheret creates a safe community for women facing breast cancer and ovarian cancer and their families at every stage of life and at every stage of cancer - from before diagnosis, during treatment and into the survivorship years. While our expertise is focused on young women and Jewish families, more than 15% of those we serve are not Jewish. All Sharsheret programs serve all women and men.

As a premier organization for psychosocial support, Sharsheret's Executive Director chairs the Federal Advisory Committee on Breast Cancer in Young Women, Sharsheret works closely with the Centers for Disease Control and Prevention (CDC), and participates in psychosocial research studies and evaluations with major cancer centers, including Georgetown University Lombardi Comprehensive Cancer Center. Sharsheret is accredited by the Better Business Bureau and has earned a 4-star rating from Charity Navigator for four consecutive years.

Sharsheret offers the following national programs:

The Link Program

- Peer Support Network, connecting women newly diagnosed or at high risk of developing breast cancer one-on-one with others who share similar diagnoses and experiences
- Embrace™, supporting women living with advanced breast cancer • Genetics for Life®, addressing hereditary breast and ovarian cancer
- Thriving Again®, providing individualized support, education, and survivorship plans for young breast cancer survivors • Busy Box®, for young parents facing breast cancer
- Best Face Forward®, addressing the cosmetic side effects of treatment
- Family Focus®, providing resources and support for caregivers and family members
- Ovarian Cancer Program, tailored resources and support for young Jewish women and families facing ovarian cancer • Sharsheret Supports™, developing local support groups and programs

Education and Outreach Programs

- Health Care Symposia, on issues unique to younger women facing breast cancer
- Sharsheret on Campus, outreach and education to students on campus
- Sharsheret Educational Resource Booklet Series, culturally-relevant publications for Jewish women and their families and healthcare Professionals

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