



Event ID: 3141601

Event Title: Screenings, Immunizations, Tests, and other Appointments to Remember to Schedule Before, During & After a Bone Marrow/Stem Cell Treatment

Date: October 16, 2024

Audio Duration: 01:00:08

Executives:

Jennifer Gillette- Staff Social Worker at National Bone Marrow Transplant LINK

Rupin Shah, MD- Adult Bone Marrow & Cellular Therapy Program at Corewell Health West

Angela Keith- Cancer Survivor

Operator:

Thank you for standing by. My name is John, and I'll be your conference operator for today. At this time, I would like to welcome everyone to the Screenings, Immunizations, Tests and other Appointments to Remember to Schedule Before, During & After a Bone Marrow/ Stem Cell Treatment.

All lines have been placed on mute to prevent any background noise. After the speaker's remarks, there will be a question-and-answer session. If you would like to ask a question during this time, simply press star followed by the number one on your telephone keypad. If you would like to withdraw your question, please press star one again. Thank you.

I would now like to turn the call over to Jennifer Gillette. Please go ahead.

Jennifer Gillette:

Thank you, John. Yes, my name is Jennifer Gillette and I'm the Staff Social Worker at the National Bone Marrow Transplant LINK. I'd like to welcome you to our Lunch & Learn with the LINK. This month's program will focus on Screenings, Immunizations, Tests, and other Appointments to Remember to Schedule Before, During & After a Bone Marrow/Stem Cell Transplant Treatment.

A special thanks to our generous sponsors, the Leukemia & Lymphoma Society, Johnson & Johnson, and Incyte. We also like to thank our esteemed LINK partners because we could not do what we do without you.

A brief outline for how things will go today. One, we'll have a basic introduction for just a few minutes about the National Bone Marrow Transplant LINK for those who may not be familiar with us, then we will hear from Dr. Rupin Shah of the Adult Bone Marrow & Cellular Therapy Program at Corewell Health West. And then, we'll hear from our survivor speaker, Angela Keith. At that, after those two presentations, we will open the floor for questions and comments.



So, for those who may not be familiar with the LINK, our mission is dedicated to helping individuals and their families from diagnosis through survivorship. We provide resources, support, and education. Some of the resources we provide to help families navigate their transplant journey are our Lunch & Learn programs like you're on today, they can be on things such as survivorship, CAR T-cell therapy, GVHD, or disease-specific information, and we have those monthly.

We have our Marrow Masters' podcasts, we have currently about over 30,000 downloads and you can listen to those on Simplecast or iTunes or wherever you listen to your podcast. We have a webinar each year. We just finished one on Survivorship, and we'll have one on GVHD in December. We have our Coffee Klatch program periodically, a Zoom-based program where you can talk to other survivors on a variety of topics. We have our peer support program where you can talk to patients, caregivers, and survivors. We have our celebrate "Second Birthday" program where you are honored on your second birthday, your transplant day, and you get a little card in the mail. We also have our Survivors Drive Book Club, which is an interactive program that's done several times a year via Zoom on survival-related books. We have a contact-packed Facebook page with daily inspiration and relevant tips for survivors. We have our books, referrals, emotional support, and we also have a great web page with all of our previously recorded programs. So, if there's anything you're looking for specifically, you can type it in the search bar and get all the programs we had pre-recorded on it. So, feel free to check out any of those programs or reach out to us directly if you need some more assistance.

Before we begin today's program, I'd like to just review a couple housekeeping items. One, we ask that you please try to be concise with your questions so that we may answer as many as possible today. Lines will be muted after the first question, but if you have additional questions, you can always get back in the question line and ask them. Also know that the information provided in this program is meant to stimulate conversation with your own healthcare provider and is not meant to replace your individualized medical plan.

So that being said, now on to the educational part of our program. Dr. Rupin Shah is an MD who is board-certified, a physician specializing in internal medicine and hematology. Dr. Shah earned his medical degree from Grant Medical College and Sir JJ Group of Hospitals in Mumbai, India. He completed his internal medicine residency at Icahn School of Medicine at Mount Sinai in New York and his hematology-oncology fellowship at Allegheny Health System in Pittsburgh with an additional year of fellowship training in adult blood and marrow transplant at Mayo Clinic in Rochester, Minnesota. His clinical interests include hematological malignancies, cellular therapies including transplants and CAR T-cell therapy. Thank you so much for being with us today, Dr. Shah.



Rupin Shah:

Yes. Thank you so much for having me. I'm happy to have this conversation and discuss some important information with our listeners.

I'll go ahead and get started then. So, as we discussed, the sort of topic of conversation today is basically immunizations and other long-term follow-up care that is required after transplant. I will process with some information over here about transplants in general. As you know, overall process of transplant and cellular therapy improves, so does the accessibility to the procedure and the supportive care improves so does the survival of patients through the first couple of months to years that are really challenging, and a larger and larger percentage of patients do transition to this long-term survival group as time goes on.

So, it's very important that we pay very careful attention to health in this patient population, and it requires a lot of input from multiple medical specialties including your transplant as well as healthy physician, the patient everybody together to achieve the best possible outcome over here. An interesting statistic, some of you might be aware already, but is that after transplants, typically the first two years are the most challenging, and then if you make it past the first two years, then long-term survival chances are pretty high in that situation. And that is where long-term follow-up care becomes very, very important.

Significant incidents of chronic conditions, hospitalizations are significantly higher in this patient population as compared to the general population. So, immediately after the transplant, I feel like everybody that goes to your transplant isn't just in survival mode getting from the chemotherapy, the [indiscernible], the low blood counts recovering from that, getting back some of their strength, worried about disease coming back. So, once we get past that transitioning to more long-term care, it's a very delicate process, but careful attention needs to be paid to it.

I kind of tried to walkthrough systems that we need to address or key pay attention to after transplant in the long-term follow-up clinic sort of was that kind of top to bottom in a way that it makes sense a little bit. So, first, talking about like your ocular health or oral health and then dental health. When I start through, some of these systems, you will know sort of a general theme over here is that all of these complications sort of arise from a combination of factors and the unifying scene for all of them on the line is some of the chemotherapy agents that you've got part of your conditioning therapy or treating your malignant disorder. If you've had radiation or not, and then if you've had a allogeneic stem cell transplant, then the Graft versus Host Disease or immunosuppressive medication is. These factors together significantly increased the risk of complications in general.



Specific to ocular, oral, and dental health, so we know that radiation and chemotherapy increases your risk of cataracts significantly, and so it is very important that at least one year after your transplant that you or failure have you sort of at least an ophthalmic assessment with the specialist. And if you have any symptoms at any point, any dry eyes, any pain with around your eyes or any changes in vision, then of course you need to see them sooner than that. Again, one year, at least post-transplant and then they're on, at least on an annual basis but we need to see them sooner if there are clinical issues that need to be addressed. That is in terms of just the eyes. Oral health, dental health again, patients that have had an allogeneic stem cell transplant or have Graft vs Host Disease significant risk of complications from an oral and dental standpoint. So, you need to at least see a dentist six months after your transplant at the end of one year after transplant, and then thereafter, at least on an annual basis. What's important situation is to look at any you know, if you have any lesions and ulcers that are not healing, you need to bring it to the attention of the provider so that it can be addressed and looked at.

Next, sort of big system to talk about is cardiovascular and metabolic health. Cardiovascular disease is significant morbidity, and mortality comes from cardiovascular disease just in the general population. And what we know is that in the transplant population, this risk of cardiovascular disease is about four times higher because of the radiation chemotherapy and the medications that you've received through your treatments. There are medications, certain chemotherapy agents and radiation which has direct toxicity on the heart itself. And then there are other factors, steroid use, some of the immunosuppressive medications that affect other risk factors that contribute indirectly to cardiovascular health, such as increase your risk of diabetes, increase your risk of high blood pressure, increase your risk of high cholesterol. Some of the studies that have been done in this population tell us that the median age for having a cardiovascular event in the general population is about 67. But then in the transplant or cellular therapy space, it is about almost a decade and a half earlier. So, 53 is the needed age for a cardiovascular event. So, very important for us to pay close attention to all of these factors. What we can do to improve cardiovascular outcomes in patients that have had a transplant? Well, all we can do is sort of focus on the risk factors and have aggressive screening for all of those things. So, blood pressure, that should be looked at that essentially at the visit that you have with any sort of providers, and if your blood pressure is elevated then need management. Same goes for diabetes, at least with your primary care physician in the first year after your transplant, you should have that assessed at least a couple of times and then after or at least on an annual basis if you don't have any other risk factors that are contributing to it at that point. Lipid panel cholesterol numbers need to be looked at again, at least on an annual basis and managed if the numbers are elevated.



I talked about how some of the chemotherapy agents and radiation have direct cardiac toxicity and so in these patients, we recommend that you get an echocardiogram as clinically indicated, or at least annually after your transplant and thereafter, if you have any shortness of breath or any symptoms that are not really explained by your blood work and everything else we'll consider getting your echocardiogram after discussing with your physician.

Next is some sort of we'll talk about is pulmonary health. I briefly touched upon how more patients are able to access healthcare in terms of getting to transplants and cellular therapy as the supportive measures improved, so less infectious complications but we see more chronic long-term late-onset complications. Pulmonary system is one of your lungs are one of those systems that do get affected by other transplant patients with Graft vs Host Disease or if you had radiation or certain chemotherapy agents and we see some fibrosis and some other conditions that can come up later in the course after a transplant. The issue with anything that is related to the lungs is sometimes the symptom onset can be divided very slow to arise, and very nonspecific, just some maybe cost, maybe some shortness of breath, maybe some progressive fatigue that's not really hard to put a finger on sometimes. So, we recommend that you get at least lung function tests three months after your transplant. And then at the end of one year after your transplant and continue it for at least five years after transplant in order to make sure that we are not seeing any subtle changes with lung function. In patients that have had Graft vs Host Disease, very important to be a little more involved with lung function testing with recommendations for doing lung function tests as soon as every six months, three to six months until you're completely off in immunosuppressive medications for your Graft vs Host Disease. An important time over here is vaccinations, and I'll talk about vaccinations that are later in the presentation, but some of the infections that vaccines prevent are actually respiratory pulmonary infections. And so that's sort of an easy step you can take to prevent issues because if you get recurrent respiratory viral infections can cause fibrosis in patients and so they are very important to get your vaccinations on time after a transplant or cellular therapy.

Moving on from the kidneys, the guts, and the liver sort of talk about all of it together. Fairly common to see some degree of renal dysfunctional kidney dysfunction in patients or survivors after transplant or cellular therapy. Some of it is again related to the chemotherapy or radiation or it might be because of some of the immunosuppressive medications patients need to be put on. All again, we can do over here is look at the blood work on a regular basis, which you likely will be getting through your oncologist or your transplant physician, and then screening for other risk factors such as your blood pressure and such. If the kidney numbers are elevated, then referral to a nephrologist is important to help manage anything else that we can do to mitigate further complications.



For the guts, I think the biggest issues are radiation and Chronic Graft vs Host Disease, again, screening for this involves basically getting liver function tests at regular intervals and if you have a history of any infectious issues that are pertinent to the liver, such as hepatitis B, C infections then they can always get reactivated after a transplant because of the compromise in the community, and so we need to look at those numbers as well.

Iron overload is also something that's common in transplantation and overload is because of the quantum of transfusions that you require through your cancer diagnosis. If you have chemotherapy drug transfusions used to keep your hemoglobin up and then through the transplant also if you had low blood counts, especially low hemoglobin, require blood transfusions, all of that blood has iron in it that tends to get deposited into tissues causing complications. Fairly easy thing to check to screen for iron overload is again a blood test, a screening marker, and if that marker is elevated then chelation therapy or removing some of that iron is recommended. We do that through phlebotomies or certain other medications to help reduce this iron burden in the body and prevent basically complications further down the road.

Sort of the next big system is to talk about is endocrine dysfunction. A lot of different hormonal systems get affected by transplant chemotherapy. Thyroid gland dysfunction is something that is commonly seen in survivors of transplants. The most common way it presents is hypothyroidism, which can have very vague symptoms that might be again non-specific hard to kind of been done since fatigue, loss of interest, sometimes in doing things, hair loss, weight gain, those sort of things can happen. Again, fairly easy to screen for it with some routine blood tests and then to treat it its numbers are actually low. In some patients that receive radiation to the neck region where your thyroid gland is actually the side then they at increased risk of thyroid cancer also during the lifetime, there are some recommendations to actually get ultrasound of the thyroid gland. If you have radiation to that specific spot, at least five years after the radiation has been done and then to complete, continue to monitor that every three to five years with simple ultrasound.

Big other component of hormonal dysfunction is loss of hormones that are associated with fertility and reproductive health, both in men and women, this can be get affected by the chemotherapy radiation, just the cells in women the location and how they are affected by radiation, they're more sensitive to the chemotherapy and radiation and so fertility and loss of hormone production are very closely linked together in women. So, cleaning for this would be looking at hormones that are involved in this at least again on an annual basis and then if you are in the right age group where you will potentially benefit from replacement, then that should be considered. But that's a more nuanced discussion with transplant physicians, our private physician, and then likely an endocrinologist as well.



Something that's important. Well, all of this is, but something that's very common overall to see in terms of dysfunction after transplant and color therapy is bone health. So, low bone mineral density above 65 to 75% of transplant survivors have low mineral bone mineral density, so prevalence is pretty high, a variety of factors contribute to it - age, sex, steroid use, hormonal, physical activity. All of those contribute to this prevalence of low bone mineral density. And then there are certain conditions that have more common association with vascular necrosis or fractures. So, to screen for bone mineral health, we recommend the DEXA scan, that should be done at least one year after the transplant and then needs to be repeated on an annual one or every two years based on what your numbers look like from your initial scan. If you are at risk of osteoporotic fractures, then you should be on medication, or at least be considered for bisphosphonates or other medications that can help prevent further bone loss, and then calcium and vitamin B levels also need to be optimized. Physical activity and other hormone replacements might also help overall with lose, preventing further loss of bone health in inpatient after transplant.

After Bone health, I've kind of briefly touch upon the mythologic health or just your skin screening. So again, pretty common for patients after transplant cell therapy to have increased risk of skin cancers. Again, the cognitive issues over here, radiation chemotherapy and then the immunosuppressive medications, even some of the antifungal medications that we use in patients to prevent fungal infections during periods when you are on your illness suppression or have very low counts can contribute to increased risk of skin cancer. So, recommendation is that you at least see a dermatologist to get comprehensive skin exam on an annual basis and then pay close attention to any lesions or any spots that are growing unusual color on your skin as much as you can, and then preventive tests you can take to mitigate some of the risk is using sunscreen, avoiding UV exposure, patch straps, long sleeves, those sort of things. A big factor to talk about is sort of secondary malignancies. I know you've been through, you've been through teletherapy, you've been through transplants in order to potentially treat the malignant condition and then you're faced with this prospect of having to deal with the secondary malignancy because of unfortunately, the toxic nature of the treatments that you received to put the first cancer in the mission. And so, transplant survivors about four to 11x higher risk of development of secondary malignancies depending on a couple of different factors, and so it's extremely important for all patients, the population in general and all patients that have had transplants to get screening exams for other cancers at regular intervals and to stay on top of it.

They're kind of grouped into two different categories. One is blood cancer that can occur after a transplant or cellular therapy. It's more common after an oncologist transplant to have a secondary blood cancer. It's less common after an allergenic stem cell transplant, but it's possible. The cancers that commonly see other solid tumors that



we commonly see after the transplant, oral cancers, so important to see the dentists and pay attention to any lesions that are not healing or ulcers in the mouth.

Screening for cervical cancer in women, you should follow the general protocol with your Pap smears and vaccinations. Again, the HPV and all of that. Annual mammograms extremely important in women. Typically, the recommendation is to start eight years after any sort of radiation therapy. The youngest that you should be starting it at age 14. So, at 40 years basically and beyond, if you've had any sort of radiation therapy, you should be getting your annual mammogram. Again, in younger patients, you can wait for eight years after their radiation before starting annual mammogram. Colonoscopy is again very important. This is all in addition to whatever age-appropriate screening you should you qualify for. But like if you had radiation to the colon or the abdominal pelvis region, then you should be getting or even radiation part of your conditioning chemotherapy. You should be getting a colonoscopy at least five years after the radiation is done and then continuing based on what risk factors they see when they rubric colonoscopy.

Vaccinations very important. I think that is something that every transplant program will, the transplant physician they will touch upon this stuff with you. Just an interesting statistic is that vaccine preventable infection, are three times more common in transplant survivors than they are in patients that are going chemotherapy for other cancers, three times more common. With 30 times more common in transplant survivors as compared to the general population. So, just the quantum burden of infection in transplant survivors because of the dysfunction and their immunity is significant, and so whatever we can do to prevent infections and complications, we should be and vaccinations are an important part of that. Three to six months after an autologous stem cell transplant or CAR T-cell therapy, you can potentially start to vaccinate for some of the stadium vaccination series and then other transplants allow transplants are typically way after you're off your immunosuppressive medications and there are some other nuances that have to be looked at, but this is something that should be, we should pay careful attention to overall.

And then, the last sort of thing that I'll talk about is psychosocial health. I think that's very important. There's no unfortunately standardized approach to assessing decline in psychosocial health for patients that have undergone a transplant. There are a couple of different ways to go about it. That we know that anxiety, depression or post-traumatic stress disorder, more common in patients that have had a transplant. You should lean on resources that are available to you, through your community, through your transplant transition, through your primary care physician in order to help address those issues, because it plays an important role in quality of life overall. If you've gone through a transplant, you want to make sure that is to achieve a good long-term quality of life and then paying attention to all of these things which can seem burdensome is



important because it helps us ensure that you can, they live a long and sort of fulfilling life while we get through this.

And with that, I'll sort of end my presentation and hand it back to John. Thank you.

Jennifer Gillette:

Thank you so much, Dr. Shah, so much great information. We really appreciate you being here. And yes, now I would like to introduce our next speaker. Angela Keith found out in September of 2019, she was diagnosed with appendix cancer. At a six month follow up in June of 2021, she received the news through her medical portal that she either had leukemia or lymphoma. After much effort on her part, she eventually found out she had Stage 4 Mantle Cell Lymphoma. She has now been in remission for almost three years, and during this time she had to quit her job, due to the lack of concentration and fatigue, but she now volunteers at a homeless shelter as a receptionist and she helps her son and daughter and really anyone who needs assistance. She stays very busy every day, but she also needs to still make a list of what she has to do so that she can complete her daily goals. Angela, thank you so much for being with us.

Angela Keith:

Thank you very much, Jennifer. Thank you, Doctor Shah. Well, one of the things that I found that after the CAR-T transplants, my first two weeks were really just a breeze for me. I had no problem with my memory or walking or speech. And I was released from the hospital and the first thing I did, anyone who knew me, I ran to the nearest nail salon and had my nails done. Well, I ended up right back into the hospital 27 hours later. It was not a pretty sight. I had trouble with my memory, I had slurred speech. I had a foggy brain. I couldn't walk and I had trouble concentrating all the way through. So, what I had to do is I had to build up my strength and I still to this day have trouble with my memory. Well, one of the things is I use my calendar. I always used my calendar before I had CAR-T, and I had to use it now faithfully. So, now I take and write down my tasks on a daily basis. One thing I found out is at age 60 I did not expect to be retiring and having to stay at home. That was the worst thing for me because I expected to work for a long time and all of the people that I associated with were working, and I went into a deep depression just like Doctor Shah said. Well, one thing is God gave me the ability of keeping track of all of my appointments. I kept track of my immunization, my annual checkups, my mammograms, my PET scans, but I was still bored. I had my eye exams. Well, what I did is I realized that this all sounded like it was really nothing for me to do. But they really did mean that as a cancer survivor, I had to do all of this information.

So, I started at the very front of my calendar, and at the front of my calendar, I wrote down all of my immunizations by category and then I would put a date by it. On another side of my calendar, I listed all of my medications by doctor along with the dosage and the strengths. I found that every time I went to the doctor, which I had many appointments, I was able to hand them my calendar and they were amazed that it was



so organized. Well, it was only organized because I had it written down by dates and I was able to tell him when did I had COVID or when did I had the flu, when did I have my immunization records. They say, when did you have your mammogram? When was your last PET scan? When was your last blood work? One thing I found was that just like Doctor Shah was saying, I have to go every two weeks regardless to have my blood work done. They have to check and make sure that my blood work is not too low in my hemoglobin, not too high in my platelets, not too low in my IgG because I get too tired. Well, one thing is God gave me the ability of being able to volunteer at this place with my church and I get to help the needy no matter what, so I get to look forward to it as I go through here.

I can't be a survivor without all of these shots that I have to have. I faithfully keep my appointments every three months for my cancer checkups. I contact infectious disease to make sure that I have all of my immunizations up to date. I have no spleen, so I have to be extra cautious. I make sure that I have my colonoscopies or endoscopes done. And when I have to have a transfusion, I have that done. I visit my cardiologist, and I visit my urologist. So, I guess the best thing that I can tell you is to make sure that you follow through and you visit these doctors on a timely basis and on schedule. And if you don't, make sure you follow up with your dental appointment because they're very important. I call it the chemo teeth. What else can you say? That's what happens after you've had chemo. After a while, your teeth don't look as white as they used to. I don't know what else to tell you as a survivor. But it does seem lonely. But the only thing is we all have to stick together. And my doctor has told me that at the time I was one of the fastest-growing aggressive mantle cell lymphoma survivors. I didn't want to be known as the fastest one. I just want to survive just like everybody else.

Thank you, Jennifer. Back to you.

Jennifer Gillette:

Thank you so much, Angela. You know I have one question for you. I love what you said, and I can hear some of the things that have helped you. It sounds like your volunteer work has been a great thing for you. It sounds like being organized. I also hear you referencing that and having faith. I have to ask you for some of those people out there that are dealing with some depression themselves. What are...is there anything else you would recommend that helped you work through some of those emotions post-transplants?

Angela Keith:

One of the things that I found out is if you cannot afford to go to a doctor or anything, your church offers counseling. And that's what I have done. I go to our church therapist. And I talked to him every week, but I also joined a Bible study. I've joined Bible groups. You have to be with other people to help get out of this depression. Because depression will eat you alive, if not, you don't know where you're going. That's what I found.



Jennifer Gillette: I think that's some great advice and I know it's hard with depression because a lot of times people don't feel like doing those things, but the very things you don't feel like doing sometimes are the things that help them up. So I really appreciate you sharing that.

John, can you let our callers know how they can ask some questions today? And thank you again Angela for everything.

Angela Keith: You're welcome.

Operator: Absolutely. Ladies and gentlemen, we will now begin our question-and-answer session. If you are dialed in and would like to ask a question, please press star followed by the number one on your telephone keypad. If you would like to withdraw your question, please press star one again. Our first question comes from Patti. Please go ahead. Your line is open.

Patti: Oh, hello. Yes, thank you, Doctor Shah and Angela for sharing your story. My specific question relates to the types of immunizations that are required post-bone marrow transplant.

Rupin Shah: I'll take that one. So post-transplants, you essentially need to get vaccinated for everything that you had as a child. That's what I tell all of my patients. The timing as to when you can start your vaccination series depends on the kind of transplant that you have and then other certain specific clinical situations pertaining to your specific case, but essentially everything that you've ever had, all those vaccinations need to be repeated.

Jennifer Gillette: Doctor Shah. It was also...Oops, I'm sorry.

Operator: Please, go ahead.

Jennifer Gillette: Doctor Shah, there was also some questions regarding the COVID vaccine this year. When do you recommend transplant patients or CAR-T patients? Your thoughts on COVID vaccine?

Rupin Shah: Yeah, that's a great question. So COVID vaccine and the flu vaccination, so traditionally, we talk about waiting at least three to six months after your oncologist consultants plan to begin your vaccination series. And then in allogeneic stem cell transplants once you're off your immunosuppressive medications starting the vaccination series at that point. But given that COVID and sort of flu are seasonal infections, the thought process [indiscernible] is that as early as three months after any kind of transplant or cellular therapy. If you're getting into the flu season, you should still just go ahead and get the flu and COVID vaccines because some protection is still better than nothing, even though you might not have response. So three months



typically after transplant or cellular therapy, we would recommend that you get flu and COVID. It's appropriate, yeah.

Jennifer Gillette: Thank you, doctor. John, is there more calls in the queue?

Operator: Yes. The next question is from Janine. Please go ahead.

Janine: Is my line open?

Jennifer Gillette: Yes, it is. Welcome.

Janine: Okay. I'm sorry. So, coming from the perspective of a patient's six-month post-allogeneic transplant for ALL, is it...what would you recommend for getting immunizations and timing the large amount of immunizations that are required. Specifically, I'm asking, would you recommend breaking up immunizations, getting pneumonia and shingles at one time, and then have a B [indiscernible] another time, or is it okay for a new immature immune system to receive all these vaccines at the same time?

Rupin Shah: Great question. So we don't, I mean, you would sort of follow the same schedule as you would do as a child at least in terms of staggering some of these immunizations. There's no contraindication per se, okay, which you cannot get with. That's just in the context of the transplant and that's kind of how you feel and how you react to it. It's okay for you to stagger them and then at regular intervals you'll need, if some of the vaccination series are zero, one and three months or zero, one and six months. So you'd have to follow the same schedule and they might fall along different timelines because of that. Six months after an allogeneic stem cell transplant again, might have to wait till your off immunosuppression if you want and things like that. So some other nuance and context over there.

Jennifer Gillette: Thank you. Is there anyone else John?

Operator: There are no further questions at the queue.

Jennifer Gillette: Okay. Well, I'm going to ask some of our pre-submitted questions and John, feel free to let me know if we start getting more questions in the queue. Again, if you hit star one you can ask the question to the doctor or Angela, but for a couple of the questions that have been pre-submitted, there's one on here asking that this person has a really sensitive mouth with GVHD and they're wondering if there's anything they can do to make their dentist visits more comfortable.

Rupin Shah: Yeah. I had sort of question to answer in terms of what you can specifically do in that situation. There are certain numbing medications, just topical stuff that you can potentially use or I'm sure you can discuss with your dentist if you're having any



procedures or things like that just using topical, again, numbing gels or things like that before you get any of those things. With cleanings and other things, I'm sure it's just if you're getting the whole mouth getting cleaned and you're just very sensitive from that. I don't think there's an easy fix where you can kind of numb the whole area as such. But I'm sure maybe some topical agents might be helpful.

Jennifer Gillette: Okay, great. As well as another dental question here. If someone does have GVHD is there a preference for root canals or extractions? Or is that more of an individual basis?

Rupin Shah: Yeah, that's again, that is an individualized basis sort of response. But if the dentist is recommending that you need an extraction or you need a root canal done, then I would follow that advice. With regards to the ability to do the procedure depends on your blood counts where you are with your immunosuppression and so your dentist will have to work with your transplant physician in you to make a decision as to what timing and what is likely most effective for your particular situation.

Jennifer Gillette: Thank you. Well, that actually leads to another question. That's a really good one. It says here I've been informed by my gastroenterologist that due to my age I no longer require colonoscopies. However, my BMT personnel tell me I should be doing it every year. If my gastro guy does not necessarily, how do I figure out who to follow? What are your thoughts on that when you're getting conflicting information?

Rupin Shah: Yeah, I think that's a great question. That's an issue that can come up potentially. There are certain recommendations that come out of that are applicable to the general population where we say that, okay, if you're beyond a certain age, you don't necessarily need screening because screening is effective at prolonging life at that where there's value for it. And so I think again, might be helpful for your gastroenterologist and your transplant physician to just have a quick conversation about this issue so that if there's some information that's being missed with regards to radiation or anything that you've had in particular that does pose an increased risk or what they think you're doing in terms of your overall course of your transplant. So I think that might be a quick conversation, at least from both providers, and then coming to a consensus as to what then is best for you.

Jennifer Gillette: Thank you so much. John, anyone on the line yet?

Operator: Yes, we have Miss Marilyn on the line. Please go ahead.

Marilyn: Yeah. Hi. I have a couple of questions. One on the colonoscopy, I'm not due for one. I had a bone marrow transplant two years ago, but I'm not due for a colonoscopy till like late next year and I missed what was said about how often you're supposed to have them and when you're supposed to start them after the transplant.



Rupin Shah: Yeah, sure. So specifically, if you've had any sort of radiation therapy, the part of your conditioning chemotherapy for your transplant or anything of that sort or for your cancer treatment, if you've had radiation then five years from the radiation we should start screening colonoscopy. So, let's say you had it at age 40, then at 45 you would get your first colonoscopy, if you're at 30, then at 35 you would have your first colonoscopy. But the latest stage that we recommend that you have, like, let's say you had it at 48, then we would recommend that you get a colonoscopy at 50 because at 50 and beyond, you should still be getting colonoscopies. The risk of basically, how frequently you need colonoscopies, that sort of depends on what they see at your initial visit. So, if you've not had radiation treatment, that doesn't necessarily change the cadence of your colonoscopy. If you've already had one and you're due next year, I think you should be fine to go there.

Jennifer Gillette: Thank you. Anymore, John?

Operator: Yes, we have Miss Sandy. Please go ahead.

Sandy: Yes, good afternoon, everyone. Excellent presentation. And I have a question just like the last caller asked. I had my bone marrow stem transplant two years ago in November of 2022 and I am 77 years old and in pretty good health. Thank the Lord, I'm not complaining. Doing okay with my chemo injections every two weeks, but I have a question on colonoscopy too. I haven't had one, I guess about 20 years. Now I'm 77. I really don't feel a need to have a colonoscopy at this time in my life. I'm going through with the mammogram in December, okay, and I'm going to back up to VCU next month for my second-year bone biopsy and all that. Now, my scheduling, I've scheduled my flu shot and my COVID shot for this coming Friday. Is that too soon to have that done now prior to me going back up to my Cancer Center next in November to have the biopsy or not? So, I guess I asked a number of questions in one, huh?

Rupin Shah: Yeah. Just in terms of your colonoscopy. So, I think you know at 77, as you just said, you don't really feel like doing a colonoscopy. You've not had it in a while. Again, recommendations are individualized. It gets a little gray zone in that age group. But there are you can talk to your primary care physician about or, you said you're in great health. So, if you are, then I would consider screening. You could consider with alternative tests other than a colonoscopy. And you could talk to your primary care physician about that specifically. And sorry I didn't quite get your other questions about vaccines, whether you can get them quite yet or not, at least the flu and the COVID shot. Is that what you were saying? If you've had it in 2022, I'm sure you're okay to go ahead and get your flu and COVID vaccines, if that's what you were asking.

Jennifer Gillette: She might be muted. Yeah, I think she was wondering if she needed to leave some time between the vaccine and when she had her follow up.



- Rupin Shah:** No, I think she should be okay.
- Jennifer Gillette:** Thank you. Okay, John, is there anyone else on the call?
- Operator:** There are no further questions at this time.
- Jennifer Gillette:** Okay, well I have another couple pre-submitted, and we'll see if anyone else gets back on the line. One person wrote in, for BOS patients post-transplant, what are key specific lifestyle or preventative measures that are recommended to prevent further lung damage?
- Rupin Shah:** From a lifestyle perspective, again, important thing in that situation is vaccinations. That kind of talk about that there are respiratory infections that are vaccine-preventable part of your schedule. And so if you get recurrent viral infections that cause more fibrosis or more issues and worsen lung function then we want to avoid that as best as possible. Other thing that you can do, IVIG if you require it or not based on the numbers that you share or you have with your transplant physician. Again, that's a very specific conversation to have. And then lifestyle, I mean, the best you can do is try to still stay active in physical activity and try to continue to at least maintain or maybe if you are well controlled and improve on your cardiovascular sort of health fitness that will prevent some of that further loss. Of course, the basic lifestyle stuff that we talk about with all cancer patients in general is that no smoking and other things that can potentially worsen or exacerbate these conditions.
- Jennifer Gillette:** Okay. Thank you. Another person writes, does being sick with colds, flu, or viruses a lot prevent or present any additional risks to lymphoma recurrence or secondary cancers?
- Rupin Shah:** Not just from the common cold and things like that, there's no specific association with increased risk of recurrence of disease per se to know for that and sorry, what was the other part of the question?
- Jennifer Gillette:** They were just wondering if it increases recurrence or secondary cancers if someone gets sick a lot after having a transplant.
- Rupin Shah:** No, again, it's just I think it's like your immunity might be just taking longer to build back up. But no specific risk of recurrence or increased risk of recurrence or secondary cancers, just if you're getting a take a lot from viral infections. We do see again I think I talked about this a couple of times, but basically, if you're having recurrent viral infections, it can cause pulmonary damage that can sort of be cumulative. And so whatever you want to try to do to mitigate that the current viral infection is something, especially like IVIG infusions and again vaccination could that might be important for you.



Jennifer Gillette: Right. Thank you, Doctor. John, anyone else on the call?

Operator: No questions at the queue at this time.

Jennifer Gillette: Okay.

Operator: Apologies. Miss Marilyn has a follow up question. Please go ahead.

Marilyn: Yeah. So to be clear on this radiation and colonoscopy and my other question is mammogram. If you have one day of full body radiation, did you say you're supposed to wait five years to have a colonoscopy even though I'm due for one next year? And also, I missed the years that you mentioned for a mammogram, how long you're supposed to wait for a mammogram? So if you could confirm that, I'd get it.

Rupin Shah: Yeah, sure. No, I think are not doing a great job of explaining myself. So the colonoscopy, the general recommendations for doing a colonoscopy in the general population is that you start at age 45 or 50 and you go from there. And based on the colonoscopy, this is just noncancer general population.

Marilyn: Yeah.

Rupin Shah: In somebody that is younger, less than 50 years of age, we recommend that you get a colonoscopy. Let's say if you had radiation at age 40 for your transplant, then you should at 45, even though you don't qualify under the general loss. This is also the recommendation. You should have a colonoscopy at 45. If you've already passed the age of 50, then you should follow your schedule and you should get the colonoscopy when you're due. Same goes for mammograms. You know, in the younger patient population, we don't typically like if somebody just off doesn't have a cancer diagnosis, you don't recommend mammograms at age 30. But if you've had radiation at age 22, then you should be getting a mammogram, starting at age 30, even though you don't necessarily needed if you were not a cancer patient till age 40 or 45 or whatever. So I think that the age limit coming down with radiation is different as compared to the general population, but if you're past that age where it's recommended for the general population anyways, then you should be following your schedule. And how frequently? Again, determined by what they find on both of those like if there's something they want to follow on your mammogram and they might ask you to just repeat it even in three or six months if there's something new. And then on an annual basis, such as stage table or the colonoscopy, if they see something and they say that, okay, you need one another next year, then you got to follow that schedule.

Jennifer Gillette: Thank you, Doctor Shah. Anyone else in the queue, John?

Operator: Yes, it seems we have one more. Miss Leora, please go ahead.



- Leora:** Yes, I think I was just diagnosed with [indiscernible] AH amyloidosis, and I was supposed to start my immunizations after my stem cell transplant in February, but I had got this bruising issue where my skin is all bruised. Should I still go ahead and get my immunizations according to the schedule or wait until after I start my chemo treatment again?
- Rupin Shah:** Yeah, that's a great question. That will really depend on what sort of key therapy you are going to undergo. So it will be a risk-benefits discussion with your oncologists and your transplant physicians, specifically pertinent to your situation.
- Jennifer Gillette:** Thank you so much. I know we are at the top of the hour, and I just want to thank both of our speakers for all the wonderful information and for being here with us today. I want to thank our sponsors and our LINK partners. Again, the Leukemia and Lymphoma Society, Johnson and Johnson, and Incyte. As well as we wanted to let everyone know that a survey will be coming out. Please feel free to fill that out and let us know what kind of programs you're interested in or how we can improve our services. As well as I want to let everyone know, next month we're going to be having Lunch & Learn that is to honor National Marrow Awareness Month. We're going to honor the donors as well as learning about more ways we can save lives and do drives and things like that. So we hope you can join us next month, that will be on the 20th. As well as you can keep up to date on any of our programs by going on to nbmtlink.org or going on our Facebook page and get all the information you need there. But I just want to thank everyone again today. I hope we helped you as you are taking care of yourself and your survivorship, and if we can be of further service, please reach out. Have a great day.
- Operator** This concludes today's conference call. Thank you for your participation. You may now disconnect.