Q&A: Returning to School After a Bone Marrow Transplant

As schools reopen for in-person learning, what should bone marrow transplant recipients do?

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As schools across the country grapple with what a safe reopening looks like, many families are also struggling to weigh the risk of virus exposure at school with the benefits of being in the classroom.

While research in the general population points toward relatively low risks from in-person learning, the risk/benefit balance can look different for families of kids with compromised immune systems — such as those recovering from bone marrow transplants — compared to other families.

Each year, around 3,000 children in the U.S. receive bone marrow or blood stem cell transplants, in which their diseased blood and immune systems are suppressed or destroyed and then replaced with new blood-forming stem cells. As those new cells rebuild the immune system from scratch, these children are severely immune-compromised. Even a cold can kill. So schools — and their notorious germiness — can pose serious risks.

We spoke with two experts at Fred Hutchinson Cancer Research Center about what parents of these kids should think about as they weigh their options for school this spring.

Dr. Neel Bhatt cares for children and young patients during and after bone marrow transplant and studies ways to improve their quality of life. In her patient care and research, Dr. Alpana Waghmare focuses on treating and preventing infectious diseases in immuno-compromised groups, including children who've undergone transplant.

Their top messages:

"We're encouraging whoever is eligible among the family members to vaccinate when there's vaccine available to them. That's the best way to protect pediatric transplant recipients right now," Waghmare said.

Bhatt added: "If families are considering in-person schooling, they should definitely reach out to their primary bone marrow transplant team and think through all the pros and cons of returning, and make a shared decision based upon that."

We've edited this transcript lightly for conciseness and clarity.

Even in non-coronavirus times, it's standard to keep kids out of school for some time after transplant. Can you talk a little about that?

Bhatt: We typically ask patients to stay out of school for at least six to 12 months after transplant because they're at risk for infection, especially as they are recovering their immune system and are on immune suppression. Patients are often being treated for graft-vs.-host disease, which can also put them at higher risk of infection. *[In graft-vs.-host disease, transplanted immune cells attack the patient's healthy cells.]*

In normal times, how do parents and doctors make the decision to send the kid back to school after transplant?

Bhatt: It's a very variable practice across the U.S. We are trying to understand the variation in return-to-school practices across different transplant centers in the U.S. with a survey project we started before COVID. We found that some centers have a standard operating protocol that they follow to decide when kids should go back. And for some other programs, the decisions are made on a case-by-case basis.

Usually transplant centers look at whether a patient is on immune-suppression, and/or has any evidence of graft-vs.-host disease. The other parameters are their CD4 counts, and T-cell proliferation to specific antigens. *[These refer to how well specific white blood cells are recovering in number and in disease-fighting activity.]* They also see if the children have started receiving their vaccinations. In addition, centers often look at patients' physical readiness for going back to school.

Waghmare: I would add that even in non-COVID times, I think there is some consideration about circulating respiratory viruses, particularly flu and RSV, in making those decisions about when the right time is to go back to school.

For me, one of the small comforts of this pandemic is that little kids are at relatively lower risk of serious illness from COVID-19. What do we know about the risk from COVID-19 for kids who've undergone transplant? And are they more at risk than they would be from other circulating respiratory viruses?

Waghmare: It's true that children tend to have more mild or asymptomatic disease the younger they are, excluding newborns, so that generally we don't see the high levels of severe disease, which is great. I think the challenge is still really understanding what happens in a transplant recipient. The cases even reported to the national database are fairly low — Neel can speak to this — and the outcomes that are reported from COVID-19 in children who've undergone transplant don't seem to be as severe as in the adults. That being said, this is also in the context of most kids being out of school in most of the country. So it's a little hard to know how widespread school reopenings are going to affect these numbers. Based on what we know from other respiratory viruses, I think that there is fair enough reason to be cautious with bone marrow transplant recipients. We don't know if that mild disease that we see in most

kids with coronavirus infection is going to directly translate to transplant recipients.

Bhatt: As Alpana mentioned, we recently published the largest study so far looking at the outcomes of stem cell transplant recipients with COVID, using the CIBMTR data — the Center for International Blood and Marrow Transplant Research. There were 318 total transplant recipients reported in this data set; however, there were less than 30 pediatric recipients in the data set. So it's really difficult to make meaningful conclusions about the risk of pediatric transplant recipients at this time. And we definitely need more data to understand the risk better.

What are some of the concerns and questions you've heard about this from your patients' families?

Bhatt: Returning to in-person school is definitely an important milestone for any of our patients, who are usually out of school for so long. It's important for their quality of life and their self-esteem. So that's why both patients and parents do care about in-person schooling during this time and have several questions about returning to school.

The ones that I have heard are basically, when can they go back? And not only from the child's perspective — like, where they are in the post-transplant course — but also from a community transmission perspective, is it safe enough to go back to school? And the other questions are about whether the patient's siblings can go back to school — they're worried that it could put the transplant recipient at a higher risk of catching COVID from the sibling. I've also heard questions about vaccination and antibody testing.

Waghmare: One of the questions that people are asking us infectious disease doctors about is vaccine efficacy in transplant recipients, where there are a lot of unknowns. For the current vaccines we have, the lowest age range for vaccination is 16, but there are several ongoing studies of different products in the lower age groups. None of these, as far as I know, will be enrolling immunocompromised children, so all of the data on immunogenicity *[the ability of the vaccine to stimulate an anti-coronavirus immune response]* will be outside of our population.

As you counsel families about this, what are some of the considerations that you're talking about with them?

Bhatt: The survey that we did about returning to school, in normal times without COVID, also included a brief survey about how physicians across the U.S. are recommending patients go back to school during the COVID pandemic. What we heard was that almost 70% of physicians recommend that patients not go back to in-person school until they are 12 months post-transplant and/or off immune-suppression drugs. So that is what I would also recommend: Don't send patients who are early post-transplant and are on immune suppression. And the decision also needs to be made on a case-by-case basis, if anybody has any other comorbidities. So, for example, from the literature we know that patients with cardiopulmonary comorbidities *[heart/lung diseases]* are at higher risk of developing more severe COVID. So it all depends on how high the patient is at risk, for deciding whether or not they should go back to in-person school.

Other considerations, in terms of safely going back to school, are obviously making sure that the school has adequate provisions about physical distancing, universal masking, hand hygiene, and also strict policies for symptom assessment and staying at home. So these are some of the things I am recommending to my patients.

Currently the return-to-school guidelines we have are from the CDC and from the American Academy of Pediatrics, which are not transplant-specific. They are helpful in terms of guiding schools to ensure appropriate safety measures, but it's difficult to extrapolate information from them for our population.

Would community vaccination rates factor into your counseling on return-to-school?

Waghmare: Yes, I think community vaccination rates would be a consideration, in addition to community incidence.

What research questions are the two of you pursuing on this issue right now?

Waghmare: Our group at Seattle Children's is part of a couple national registries. Certainly we contribute to CIBMTR, and there's also a registry out of St. Jude's which we've contributed all of our cases to. A couple of our faculty here are more involved in the analysis of that data. More data is really key at this point in pediatrics, so we'll be able to really look at what those outcomes are.

Bhatt: What I'm working on is trying to show a positive side of this COVID pandemic, by understanding how this remote schooling has been helpful for patients who are immunocompromised, such as patients who are undergoing cancer therapy, who are typically not allowed to go back to school. Because of this hybrid or remote learning opportunity that is available, I wonder if that has led to better quality of life for them. By showing that, I hope to advocate for this remote, synchronous learning opportunity to be offered even after the COVID pandemic — and help our patients engage more in their schooling and stay connected with their peers.

Waghmare: I would like to just mention a couple of things that we're doing from an advocacy standpoint. I am part of the American Society for Transplantation and Cellular Therapy's Infectious Disease Special Interest Group, and we've been putting out guidance for both adult and pediatric transplant recipients with COVID. Recently we've put together FAQs about vaccine recommendations. These are mostly geared toward adults, because that's who the vaccines are available to. But we're hoping that as we get more of the safety data established in children we'll be able to make pediatric recommendations as well.

And part of that platform is also encouraging higher priority for transplant recipients on the vaccine tier list. We've been encouraging federal and state-level officials to put transplant recipients on the priority list — and again, once we get pediatrics data, this would be applicable to kids. But we are also advocating for household contacts of transplant recipients to receive vaccines and be prioritized for vaccine.

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