

# Mayo Clinic Q & A - Dr. Asma Chattha - Fertility preservatio...

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## SUMMARY KEYWORDS

fertility preservation, mayo clinic, tissue, fertility, patients, procedure, testicle, cancer treatment, childhood cancer, treatment, families, storage, store, typically, egg, treatment regimen, chemotherapy, children, question, banks

## SPEAKERS

Dr. Asma Chattha, DeeDee Stiepan, Narrator

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- N** Narrator 00:01  
Coming up on Mayo Clinic Q&A, a cancer diagnosis is upsetting at any age, but especially so when that patient is a child. Some treatments may affect future fertility of the child. Today we'll discuss the risk of infertility due to cancer treatment and what families can do to ensure fertility preservation.
- D** Dr. Asma Chattha 00:20  
The fertility preservation program, particularly the pediatric fertility preservation program, we hope brings a lot of optimism for the future for these children. They're obviously fighting an uphill battle. It's a very difficult time in their lives. But barring none, I've always found the conversation surrounding fertility preservation a source of hope for families.
- D** DeeDee Stiepan 00:38  
Welcome, everyone to Mayo Clinic Q&A. I'm DeeDee Stiepan sitting in for Dr. Halena Gazelka. Thanks to research and treatment advances in the last few decades, the majority of children diagnosed with cancer now live on to pursue full adult lives. To ensure that those children will one day have the option to become parents, families must consider the risk of infertility when making decisions about cancer treatment. In recognition of International Childhood Cancer Day, here to discuss fertility preservation is Dr. Asma Chattha, division chair of pediatric gynecology at Mayo Clinic. Welcome to the program, Dr. Chattha.
- D** Dr. Asma Chattha 01:14  
Thank you, DeeDee. Thanks for having me.

D DeeDee Stiepan 01:16

Of course. So, what cancer treatments in children could lead to infertility?

D Dr. Asma Chattha 01:22

That's a great question. There are several, and the determination is made by obviously the treating provider, the oncologist. Typically we consider anything that has alkylating agents, and there are, you know, many names, but one that most families would be familiar with is cyclophosphamide. So, regimens of chemotherapy that contain cyclophosphamide, that's a very common one that can impact fertility down the road and also ends up being a very commonly used agent in childhood cancer treatment. So, while it's very good at doing its job at treating the cancer, it can have significant fertility potential in the future. Other important treatment regimens to think of when we're considering reduced fertility potential in children down the road are radiation treatments. They're also very important to keep in mind, and the two main areas where we think about radiation impacting fertility is if the radiation is focused on the brain, which is where the puberty signals come from, and then also the pelvis, which is where ovaries would reside in a girl and also the testicle area for boys.

D DeeDee Stiepan 02:25

So, what are the types of questions that patients and their families should be asking their care providers in order to ensure that fertility preservation is considered?

D Dr. Asma Chattha 02:35

Great question. Ideally, the provider should be bringing up a lot of this conversation when they're discussing their treatment regimen. As the treatment regimen is solidified, and the adverse effects are reviewed, fertility potential, if it is going to be impacted by the chemotherapy or radiation treatment outlined, is brought forth by the oncologist. If not, it is completely appropriate for all patients and families of children undergoing cancer treatment to ask the question upfront if their particular treatment regimen would impact fertility in the future. Because as you said, many, many of these children, over 80%, are going to live full adult lives. And so, fertility is going to become a very important quality of life indicator for them in the future.

D DeeDee Stiepan 03:19

Absolutely. So, let's talk about options. Could you go over what options patients have for fertility preservation?

D Dr. Asma Chattha 03:27

So, that's a very nuanced question. It really depends on several factors. The age of the patient as well as their pubertal stage is likely the most important, and then also equally important is the treatment regimen being considered. Typically we'll consider all of the treatment regimens that include the cyclophosphamide medication I talked about, other similar medications, strong radiation treatments to brain or pelvis. Those treatment regimens are often associated with a moderate to high risk of impacting fertility. So, in those conditions, we would offer fertility preservation to everyone, but the option that we offer would really be variable based on the age and pubertal stage. So, the younger you are, unfortunately, the fewer options you have to preserve fertility. And then the older you are, the more options you have. Briefly, if you're an older male who has gone through puberty, it is relatively simple to store semen samples, and two or three of those samples are stored before the initiation of any chemotherapy or radiation therapy. If you are an older female who has gone through puberty and has started having periods, you are also able to store eggs. However, it is a slightly involved process and can require a delay of treatment, either chemotherapy or radiation, by two to three weeks. So, this is where the patient, and their family, us the fertility preservation physicians or counselors, and then the oncologist. We have to have a dialogue. We have to talk about is it feasible for this older female to delay her treatment by two to three weeks so she can undergo hormone treatments and then be able to store eggs? Fortunately, in the last decade, Mayo Clinic included several academic centers around the world and within the United States have gotten together to form protocols where we can offer other forms of fertility preservation to some of these females who cannot delay their treatment by two to three weeks and also the younger females who have not yet had a period, and so they can't possibly undergo hormone treatment and store eggs. And that's where the Mayo Clinic childhood or pediatric fertility preservation protocol comes in. Up and running since 2016, we've now served well over 120 patients where the younger children who are not able to store semen or egg samples are able to store tissue pieces from the testicle in a male and from an ovary in the female. So, even though they are slightly more invasive procedures, they have also now been thought to be and are strongly now becoming appropriate, reliable fertility preservation techniques.

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DeeDee Stiepan 06:07

Very good. And fertility preservation, is this something that's available anywhere where patients might be getting cancer treatment? Or is this something where they would need to go to a specialized facility for that?

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Dr. Asma Chattha 06:19

Great question again. So, if it is one of the standard techniques that we talked about that have been around for several decades, such as semen storage in a male who is older, who has gone through puberty, so we're talking about maybe a 16, 17, 18-year-old child. They can certainly have access to fertility preservation very easily wherever they're getting their cancer treatment. However, when we look at egg storage, and then obviously the more protocolized tissue storage protocols, they're typically found in larger academic centers. Egg storage may be present wherever they are receiving their cancer treatment, but usually for testicle tissue storage and ovary tissue storage, again, for those young children who have not gone through puberty, you do have to travel to a specialty center such as Mayo Clinic. There are other centers throughout the United States, but not that many. So, what we do to make the process easier is we try to have children travel just for this procedure and then be able to immediately return to their treating facility where the rest of their cancer treatment can begin.

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DeeDee Stiepan 07:21

Are there any additional health risks or side-effects involved with the fertility preservation process?

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Dr. Asma Chattha 07:28

So, typically not. Thankfully, the fertility preservation methods have been studied and researched and experimented with for several years. And we have now perfected this art to the point where even for invasive procedures where an ovary is being stored and ovary tissue is being removed. So, as you can imagine, that's an invasive abdominal procedure, the ability to begin chemotherapy and treatment right after this procedure is always present. So, typically people will start the treatment within 24 to 48 hours, we do not have difficulties with infection, pain, bleeding. It's a similar outcome for testicular tissue cryopreservation or storage, and then semen and egg storage as well. So, fairly well tolerated procedures, they're monitored very well if they're going through egg storage, because that does require a longer period of hormone treatments. So, they may have slightly more side-effects associated with that. But generally, all of these fertility preservation methods are very well tolerated. I would like to add that other fertility preservation methods that are talked about less often, but are equally important is if radiation is going to be aimed at the pelvis, we do try to remove or move the ovaries out of the field of radiation called ovarian transposition. We try to shield the testicles if radiation is going to be aimed in that direction as well. So, these are also definite methods of fertility preservation as well.

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DeeDee Stiepan 08:51

What about the cost of fertility preservation? Is this something that typically would be covered by health insurance?

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Dr. Asma Chattha 09:00

Great question again. So, when we started in 2015-2016, we definitely had to fight an uphill battle, because it wasn't as widely available, and a lot of institutions weren't as familiar with these options as well. As this has become more and more offered widely in ovarian tissue cryopreservation as of 2019, so almost two and a half years ago now, has become clinically offered, insurance has been covering it more frequently. We do try to keep costs low, and also the anesthesia risks to our patients. And we try to combine as many procedures within one setting so that if we are going to go ahead and store tissue from ovary or testicle, we do it at the same time as another clinically indicated procedure such as a biopsy or a central line placement. So, we're very cognizant of the cost and try to keep them as low as possible. I like to pride ourselves in knowing that almost everyone so far who has needed fertility preservation, we have found a way to help them find that coverage.

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DeeDee Stiepan 09:58

So, let's fast forward, when a childhood cancer survivor is now ready to start a family, how do they go about getting access to the tissues that are preserved through the fertility preservation?

D Dr. Asma Chattha 10:11

Yes. So, there are banks, fertility preservation banks, that are nationally based, and the Midwest uses a certain bank where all of our ovarian tissue and egg storage samples are stored long-term. For testicle tissue storage, it's right here at Mayo Clinic. But wherever they're having these techniques, or these procedures, be performed, the banks are very familiar with transporting that tissue safely to wherever that child or now adult ends up in life. And so, that's a very streamlined process where that tissue can be sent to the treating facility that they're at as an adult, and then the tissue is typically transplanted back into the body to produce hormones and hopefully reproductive cells.

D DeeDee Stiepan 10:51

Is there anything else that patients need to know about that process? And additionally, what do they need to know about the costs and health insurance coverage related to that process?

D Dr. Asma Chattha 11:02

That's a good question. So, the storage ends up being patient responsibility. And so, the important thing for patients and families to know is that they stay in very close contact with the storage facility, be it Mayo Clinic or our third party contractors, and other places use other banks. They stay in close contact with them every six months to 12 months where they are getting invoices, they have to stay current on their payments, the payments are about \$250 a year. So, it's just over \$20 a month. And typically the storage cost does not end up being prohibitive for families. It's really the initial procedure that's more expensive. And so, we do need to work on the health insurance coverage aspect of it. But it's important for families to stay in touch with the bank that they're storing their tissue at, make sure that if they move, they're updating their address, and then finally, whenever they're ready to use the tissue, the treating facility can be in touch with the bank directly and have the tissue be transported safely to them.

D DeeDee Stiepan 11:56

This is all really great information. Dr. Chattha, is there anything else that you think is important for patients to know or anything else you wanted to add?

D Dr. Asma Chattha 12:04

You know, I'd like to add that the fertility preservation program, particularly the pediatric fertility preservation program, we hope brings a lot of optimism for the future for these children. They're obviously fighting an uphill battle. It's a very difficult time in their lives, but

barring none, I've always found the conversation surrounding fertility preservation, a source of hope for families. And so, if anyone finds themselves in this situation, bring up fertility preservation. It's possible it wasn't brought up because the chemotherapy or radiation treatment you're receiving is not high risk enough. But certainly the more you learn about this, bring up the question, ask your providers about it. And I think it's a great way to reduce long-term morbidity or long-term loss of quality of function for these childhood cancer survivors.

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DeeDee Stiepan 12:49

Absolutely. Well said. Well, our thanks to Dr. Asma Chattha, chair of pediatric gynecology at Mayo Clinic for being with us today to discuss fertility preservation for children with cancer. Thank you so much, doctor.

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Dr. Asma Chattha 13:02

Thank you.

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Narrator 13:04

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