HeartBEATS from Lifelong Learning™

Reproductive Health Counseling for Women with High-Risk Heart Disease

Malamo Countouris:
Hi, everyone. I'm excited to welcome you to the American Heart Association Heartbeat session on reproductive health counseling for women with high-risk heart disease. I'm Malamo Countouris, a cardiologist at the University of Pittsburgh Medical Center. I specialize in women's heart disease and cardio-obstetrics, and I direct our postpartum hypertension program. I'm pleased to welcome with me here today Dr. Alison Stuebe and Dr. Sarah Verbiest. I will have them introduce themselves.

Alison Stuebe:
Hi, I'm Alison Stuebe. I'm a maternal fetal medicine physician at UNC Chapel Hill, and I also have an appointment in the Gilling School of Global Public Health in maternal and child health.

Sarah Verbiest:
Hello. I'm Sarah Verbiest, and I am a professor at the University of North Carolina School of Social Work, where I also direct the Jordan Institute for Families. I also am an adjunct faculty member in the OB-GYN and pediatrics department in the School of Medicine, where I direct the Collaborative for Maternal and Infant Health.

Malamo Countouris:
Thank you so much. We will move on with our presentation. Here are our disclosures. And I wanted to give a quick disclaimer. The views and opinions in this presentation are that of the speakers and for educational purposes only. Content should not be considered as the official policy of the American Heart Association or the American Stroke Association. This presentation is sponsored by Merck through Merck for Mothers.

We have a number of learning objectives today that I just wanted to start with off the bat so that we can set the framework for our discussion. First, we hope to explain how the life course and reproductive justice frameworks inform reproductive health counseling for adolescents and women with high-risk cardiac disease. We hope to identify key gaps in reproductive healthcare for patients with congenital or acquired heart disease, including unmet counseling needs and patient-reported barriers. We will analyze how social drivers of health and system-level factors influence reproductive outcomes for women with cardiac disease across the reproductive lifespan. We'll apply the PATH framework for

sharing decision-making principles to conduct patient-centered reproductive and contraceptive counseling tailored to cardiac risk. And lastly, we will integrate cardiac risk stratification tools and multidisciplinary collaboration into a coordinated care plan that supports patient reproductive goals both safely and equitably.

I'd like to transition now to Dr. Verbiest to talk with us about the life course approach.

Sarah Verbiest:
Thank you. So let's talk a little bit about what is the life course approach and why is it important. The life course approach looks at each phase of life and thinks about how each influences the next. When we're thinking in the context of heart disease and birth outcomes, we know that generations are connected at the point of preconception and pregnancy, the generations meaning the mother's mother, the mother herself, and the future baby. Something that's really important to keep in mind whenever we talk about a life course approach is that it's never too late to increase protective factors and to reduce the risks so we can improve wellbeing at any point in the life course. And finally, women deserve to be seen, heard, believed, and centered at all phases of their lives.

So this is a visual that is one way to help us think about life course. This in particular helps us understand how disparities can emerge between groups. In this particular slide, we are focusing on two groups, white and African American, but in many, many different applications, we can see how disparities might emerge. For example, this could also be people that live in urban areas compared to people that live in rural areas. What this helps us illustrate though is that there are different points in time as we go across our life where development is particularly sensitive. For example, we know that during the preconception period and the early pregnancy period, there's a lot that is happening in early development that is very easily influenced by the environment. If we go along the life course and we look towards early retirement, we also know that the supports that people have as they go through another major shift in their life really matter. And so, there are many different sensitive periods of time across all of our life courses.

As we go across our life courses, there are things in our lives that can protect us and can help us successfully through those changes, and there are also risk factors that can make it difficult for us to be able to fully actualize the best health possible, and you can see that in this visual. And so, our goal is that we want to support all of the protective factors that we can and reduce risk factors so that everyone can achieve the highest quality of life possible across their lifespan. To look at this a little different, this is another visual that some of you may resonate with a little bit better than the other one. As you can see again with this one, we see that there are biomedical influences that impact how a person's health manifests, how they feel over their life course.

But we also have these contextual and environmental factors that also play a very important role in their health and wellbeing. And as we look at ways to, again, close disparities and help everyone achieve the best health possible, that means that we have to

look at the general health environment, reproductive health environment, behavioral health environment, transportation, social support, and other of those really important social determinants of health. And again, we want to do all that we can to reduce the constraints and create pathways towards opportunities. With that, I am going to move our conversation to talk about reproductive healthcare for women specifically with cardiac disease.

Malamo Countouris:
And this is a really important topic, and it's one that I think is underappreciated, especially in cardiology clinics. I'm going to share with you some data that shows some of the gaps in reproductive healthcare among patients with cardiac disease, and these are from self-reported surveys of patients with congenital heart disease in particular. But you can see here that a high proportion of our patients in adolescents and young adults report menstrual dysfunction. 83% of our congenital heart disease patients say that they have some amount of menstrual dysfunction. So it's really prevalent, really common, and it's not typically something that we think to ask about, but can be really important, especially if we have patients on blood thinners or antiplatelet agents that may impact and be sort of exacerbating some of this menstrual dysfunction.

When we think about contraception, women with congenital heart disease, only 50% report that they've ever discussed contraception with their cardiologist. So there's a real need here for cardiologists to essentially come on board and be initiating some of these conversations with their patients who are of reproductive age. And then, this is a real, I think, opportunity for us to improve what we're already doing in terms of counseling. Less than 50% of congenital heart disease patients say that they receive counseling before their first sexual encounter. So if we are initiating counseling, it's happening honestly too late. So this is a plug for those of us who care for adolescents or people in young adulthood, that we should be initiating this conversation as early as possible.

Another plug for that is that, actually, more than 45% of patients with congenital heart disease have unplanned pregnancies. I think we tend to think of patients really planning of when they want to start expanding their family and that this is a very purposeful sort of process, and in reality, that's not true. Most of our patients are going to be having pregnancies that are unplanned. And so, initiating this conversation as early as possible has a lot of benefit. Our patients, particularly those with congenital heart disease, but those in general with cardiac and other chronic health conditions, really have concerns about their reproductive health and how this may impact their quality of life.

In particular, patients have concerns about their availability to raise children. So will they be alive as their children are aging? This is a real concern. And how their severity of their condition, the medications that they're on could impact their childbearing and fertility and the impact of their condition and ability to care for their children to have the energy to have the physical ability. And then, thirdly, there's concern of patients that they won't have the motivation, and again, ability to have children. So if you are a cardiology provider in

particular, but maybe anyone listening to this Heartbeat, you may be wondering, well, how do I even initiate this conversation? This is never something that I thought I would be having with my cardiology patients, and we're posing here a couple of questions to help you get the conversation started.

So things that you can ask your patients. How much are you concerned that your life may be shortened if you decide to get pregnant? Are you concerned that if you were to have a child, you might not be around to raise them? How much do you think your condition would affect your ability to raise children? And might you not be able to keep up with them physically, is that something that worries you? Do you feel like you need to rush into pregnancy because of your condition and the impact that it could have on your future health? How much do you think your medications might be making it difficult for you to carry a pregnancy or to give birth? Also, how much do you worry about how your pregnancy would affect your health, and how might this affect your decision to ultimately have a child? How do your medications interact with a pregnancy? Do those need to be tweaked or titrated before you get pregnant? How much do you think that having your condition makes you less motivated to have children?

These are all questions, there may not be one right fit for every patient, but these are all potential questions that you can use to start a conversation with your patients.

Sarah Verbiest:
So thinking about working within a reproductive justice lens, I think it's important to define what we mean by reproductive justice. Reproductive justice is defined as the human right to bodily autonomy, to have children, not have children, and to parent children in safe and sustainable communities, while also ensuring equitable care, resources, and social conditions across the full reproductive life course, including menstruation, pregnancy, postpartum, and menopause.

You may be familiar with the first part of that definition and less familiar with the expanded framing. This expanded framing has been supported by scholarship that identifies menstruation and menopause as important elements of reproductive justice that have been historically neglected due to menstrual taboos. Additionally, reproductive justice advocates emphasize that reproductive health is a lifelong journey that continues after the childbearing years, and that menopause must be included because of significant inequities in symptom severity, provider bias, and lack of research investment, and these issues disproportionately affect Black women and gender-expansive people. So SisterSong has continued to expand this definition, which is really exciting and aligns very well with the life course approach that I mentioned earlier, and is, I think, particularly relevant when we think about cardiac health, where we know that how we are supported as children and young adults is important. We know that outcomes of pregnancy can signal increased risk as we age.

So building on that framework, I am excited to share a little bit with you that we have learned in having deep conversations with women who are of reproductive age, having conversations about reproductive health, and who are also living with one or more chronic conditions. So the visual that you see in front of you was something that was designed with them over a series of conversations that highlights some things that have emerged for them when they think about the type of care and support they are or are not getting when it comes to their reproductive health. And what we learned is that many women with chronic conditions, including heart conditions, are dissatisfied with their reproductive healthcare. Some themes that emerged from our research included a lack of trust in healthcare providers and institutions. We know it can be intimidating perhaps to bring up conversations about reproductive health, but when you don't bring them up, that has a way of raising their concerns and reducing their trust in their provider and the healthcare system. They also report that their providers lack information and knowledge about how to guide them with their chronic conditions in thinking about becoming pregnant and their pregnancies and postpartum. They found uncoordinated care. They found that they need to do significant self-advocacy, as they may be bounced between obstetric providers, primary care providers, and specialist providers, who may not necessarily be on the same page or having the same conversations.

They encountered quite a bit of provider bias, and in part, an issue that arose was around fat phobia and weight. Many of them reported that their BMI seemed to always lead a conversation with the answer from providers that all you need to do is just go lose weight. So this felt very dismissive and also ignored a whole host of symptoms and issues that they were facing that were related to weight. So that's just one example of the way that the provider bias emerged. They also found bias based on age and you couldn't be a right age, you were either too young to worry about it or too old and you shouldn't have waited so long to bring up this conversation, for example. And they also talked about significant mental strain that emerged for them in terms of trying to cope with this lack of quality care, trying to get answers for themselves, and having a lot of feelings about whether their providers even were open to supporting them in conversations about potentially becoming parents.

So while it might feel a little intimidating to lean into these conversations, starting these conversations, providing space for conversations where you may not have all the answers is actually an important step in building trust with your patients. So what can we do to address these many concerns and to provide better care? Well, there are multiple things that we can do, and much of what we need to do focuses on systems. So some strategies that emerged from women with this lived experience is a need for comprehensive care clinics or other kinds of models of quality care where there's interdisciplinary care and where all of the providers are working together to support, based on what they know, the best possible outcomes and healthcare plans for each individual person. Care coordination, or care quarterbacks, as they mentioned, could be really useful for your patients as they navigate these important conversations and services.

They talked about the need for improved educational materials for patients, some that were offering some hope, helping them not feel alone and giving them specific strategies. We can also improve training for our clinicians about how to build trust with women and how to provide quality, equitable care, and also how to think about a person comprehensively. They are more than just their chronic condition. They are more than just a GYN patient. They are a complete person that should be asked about their reproductive goals and should be supported in reaching those reproductive goals. They also suggest that we have patient-centered measures for change, and that we are sure to address issues related to miscarriage, infertility, and loss. It's important to be inclusive also around chronic condition type, and to remember that often, people may be managing more than one chronic condition.

So with that, I'd like to turn it over to Dr. Stuebe to continue the conversation.

Alison Stuebe:
Thanks so much, Sarah. And I think that I'm hoping to bring some of the recommendations that Sarah described down to more concrete things that hopefully can work in your next clinical encounter. So I wanted to start just by framing women's heart health across the lifespan a little bit more specifically. And this is adapted from a paper in Circulation Research that outlined the things we need to think about in adolescence, young adulthood, late adulthood, and older age, and the sort of top piece of this is the same for everybody. We need to think about healthy lifestyle promotion, exercise, healthy weight, with attention to fat phobia and fat bias, infective endocarditis prevention, substance use, and mental health. Those are things that occur and we need to think about across the lifespan.

But some things are a little bit more specific. So in adolescence, folks are often transitioning from a pediatric clinic to an adult clinic, and a lot can get lost in that translation. And I think that's a time in life where people are sometimes not coloring in the lines and doing everything they're supposed to do. When I think back to choices I made when I was 18, 19, or 20, they weren't always great. And if you have a chronic health condition and you're not making really careful, great choices, that can have different kind of consequences than it can be if you aren't dealing with a chronic health condition. So I think giving grace to folks in this time period, and also recognizing that they are potentially moving from their parents booking their appointments to managing their own care, and how do we support people to stay safe in that transition?

We touched on menstrual dysfunction being very common among folks with heart disease, and that's a major quality of life issue. If someone is having heavy bleeding every four weeks that takes them out of social activities, that's a big deal, and so we need to be attending to that. And then, sexuality, contraception are also really important issues to consider. As we get into young adulthood, we're still making that transition. We're thinking about family planning and contraception and preconception counseling. So if someone is thinking about pregnancy, what are the things we want to make sure are in place for that?

And then, really talking about what is the risk of their particular condition with pregnancy if that's something they're interested in. And there's going to be another Heartbeat that dives deep into the preconception counseling for patients. But we need to at least be familiar with these issues and be able to give some people some concrete information. Is this a lesion that is going to make it catastrophically dangerous to be pregnant or a lesion that's going to require a couple of extra appointments? And patients might have gone to Dr. Google or might not have gone anywhere and have made assumptions, and so we need to find out what they know, and then help counsel them accordingly.

As we get into late adulthood, we think about disease surveillance for acquired heart disease and prevention and surveillance, as well as cancer risk. And then, we need to think about menopause and late morbidity and survival with congenital heart disease. So we really need to think about not only who is the patient in front of me, but where is she in her journey across the lifespan so that we can tailor our care accordingly. So now, I want to talk a little bit about a patient-centered approach to reproductive health. And when I first started doing OB-GYN, I was sort of given a checky box list, and when you're the resident or the med student who's rounding on the postpartum patients, your job is to say, "What's your birth control method?" That's one of the things we have to find out. Basically, if you're in OB-GYN, anytime you see a patient, your question is, "What's your birth control method?" And what I didn't appreciate is that that can feel some kind of way to a lot of our patients. And so, we really need to be thoughtful about how we bring up these topics. And similarly, even when screening for social determinants of health, we can really marginalize patients by making assumptions about what they might need, or by screening some people and not others. And so, we really want to think about who is the patient in front of me, and how can I be curious and open-minded and approach her to find out how I can be helpful to her? So when we think about person-centered care and social determinants of health, there's been a tremendous push for screening for social determinants of health, and it's become a quality measure, it's recommended, it's required.

But one of the things about screening is that it's really not great to screen people for a social need if we can't do anything about it or use that information to tailor our care. So the American College of Preventative Medicine specifically recommends screening for health-related social needs and referral only when there are developed pathways and resources to address the identified social needs. So I think we need to be careful, if we ask people about housing and they say, "I'm going to be evicted," and we say, "Wow, that's too bad, wish I could help," that's going to not feel great to them. And so, it's incumbent upon us to know who we're going to refer them to or how we're going to connect them with resources if we ask these questions.

It's also really important to lead with resources, because what we've learned in research at UNC is that a lot of patients are cautious about sharing their health-related social needs, especially in the context of pregnancy, where if a patient says, "I'm sleeping in my car with my two-year-old and we call for help," that might result in the two-year-old being taken to

foster care because a car isn't a safe place for a two-year-old to stay. And so, that mother may not want to tell us about her health-related social needs for fear of what we're going to do with that information.

So we can lead with resources. For our patients with Medicaid, most Managed Care Medicaid plans have a whole suite of value-added benefits that they offer to their patients, things like gas mileage payments for driving to appointments. That's money in their pocket that otherwise is going to be in Medicaid's pocket. And we can tell her, "I see you have Medicaid and you got here. We can help you get some resources for that," without asking her, "Would you like some money?" Or, "Is gas expensive?" We know gas is expensive and we know that people could use more cash to do things other than pay for gas to get to a doctor's appointment.

We can also embed community health workers and clinics as part of care teams, provide social support, and connect patients with resources. Community health workers are an amazing resource and have been shown in multiple studies to reduce care costs because they do connect people with resources and to really be very good at making those kinds of connections. And then, on a slightly broader scale, we can think about establishing medical-legal partnerships to provide legal remedies for health-related social needs. So if a patient says she's worried about getting evicted and we have a medical-legal partnership, we can connect her with an attorney who can do something about that. So I think it's really important to think strategically about how we can build supports for health-related social needs to complement and to make the screening that we're doing more valuable.
So now, I want to move on and think about how we can approach issues around reproductive life planning. And I want to share with you information from the PATH framework, and this is a framework I actually was introduced to by Dr. Verbiest, that looks at how to really be client-centered in talking about reproductive health. So as I mentioned, when I started practicing OB-GYN, "So what's your birth control method?" was the question that we asked. But that question presumes that the person doesn't want to get pregnant. And in a society where certain groups have been discouraged from getting pregnant in more or less coercive ways throughout our history, saying, "What's your birth control method," can feel not great.

So what the PATH method says is to just say, "Do you think you might want to have children at some point, or more children at some point?" And if they say no, then we ask, "How important is it to you to prevent pregnancy until then?" If it's very important, we want to talk about a really effective contraceptive method. If they're like, "Well, it would be fine if I got pregnant," then a less reliable method or no method might be right for them. If they do want to get pregnant, then we want to ask when. And if they say right now, and you've just seen them and their ejection fraction is 15% and they're on five different cardiac medications, you might say, "Maybe now is not the best time." But we're finding out what her agenda is and her interests are and wishes, and then we're tailoring counseling accordingly.

So what I did is to take the PATH model and kind of superimpose how this might work in the context of a patient with congenital heart disease. So the first thing is to ask questions, "What have you heard about your cardiac condition and having children?" Maybe they've heard that having mild aortic stenosis means they can never have children and they're going to die, and it would be nice to disabuse them of that. Maybe they've heard that pulmonary hypertension's not a big deal and they're going to be fine in pregnancy. Also not accurate. And then, when they tell us what they've heard, we can say, "Yes, this part is right, and actually, this other thing is the case." We want to start by affirming their knowledge.

So the second step of counseling is to affirm, "It sounds like you're worried about how pregnancy would affect your heart health. Lots of my patients have questions about this." So to recognize that this is normal and appropriate and we want to engage with conversation. And then, we counsel. So, "Yes, pregnancy can affect your cardiac condition. Do you want to talk more about that today?" And maybe she doesn't want to talk about that more today, and that's fine. So we want to ask her for permission to engage in that conversation. And then, follow with, "Do you think you might want to have children or more children at some point?" And then, we're kind of back to the PATH questions about when and how much they want to avoid pregnancy or not.

And so, moving on from this concept, if they want to get pregnant soon, then we might want to probe a little bit more. "What questions do you have about your heart condition and pregnancy?" And if they have a high-risk condition, "I'd like you to meet with maternal fetal medicine or other care team members to help prepare you for a healthy pregnancy." And if she doesn't want to get pregnant right now, "Would you like to talk about birth control options?" And importantly, there's some birth control options that are constrained if people have a significant cardiac condition, so it's important for cardiologists to be aware of those things and be able to offer at least a little bit of counseling, and I'm going to walk through that in a couple of slides.

So that's sort of an adaptation of the PATH approach, and it really starts with, "What do you know about this condition and pregnancy, and what is your desire for childbearing at this time so that we can tailor our counseling accordingly?" I think one thing that I have anecdotally seen enough times to want to share it with everyone is the patient who has a high-risk condition and is told, quote, "You can't get pregnant." And the patient hears, "I can have sex and I can't get pregnant so I don't need to use birth control," as opposed to, "It would be very bad if I got pregnant." And so, please, please, when using the word can't, do not use the word can't in that context. The counseling needs to be, "We are concerned that getting pregnant would be very risky for you," or, "We would recommend you not get pregnant," not, "You can't get pregnant," because it's really not fun when someone is 12 weeks and says, "Well, my cardiologist told me, 'You can't get pregnant.'" And I'm like, "Ah, that's not what I meant." So please use those words carefully and check for understanding. And I think framing this again in reproductive justice, this is from an ACOG committee statement on patient-centered contraceptive counseling, and the really key piece here is

shared decision-making. It's very important that we not try to convince the patient what we think their contraceptive method should be, but we ask them about their goals, and acknowledge historical and ongoing reproductive mistreatment of people of color and other marginalized individuals, recognize how our own bias may enter into that conversation, and really prioritize the patient's values, preferences, and lived experience. So just a shout-out to good care, which is centering the patient in front of us and not applying a recipe of how to care for patients.

This approach is similarly modeled in a paper in the Journal of American College of Cardiology, which looked at how patient values and preferences, information and recommendations, and shared decision-making can come together to determine the best option for contraception in women with cardiovascular conditions. And it's important that a patient may have a higher risk condition and may still want to have a child, and even if we don't think it's a good idea, that is ultimately her decision, and we have to be able to support her in that, because the other thing that anecdotally I've encountered, particularly in the context of a patient who has conceived and has a high-risk condition, is that providers tell her, "You're going to die if you don't terminate this pregnancy." And so, she just disengages from care. And the worst possible thing is for a patient with a really high-risk condition to feel so bullied by her providers that she doesn't get care at all, and those can end with really tragic consequences. So I think it's really important that we make clear what we know, and then honor the patient's experience.

So when we think about counseling patients about different contraceptive options, one of the key pieces is how effective is that method. And so, this is a chart from the Centers for Disease Control and Prevention showing the most effective, less than one pregnancy per hundred women in a year, are the contraceptive implant or the IUD, as well as female and male sterilization. So the most reliable way to prevent a pregnancy is with one of these methods. And the advantage of the implant or the IUD is that those are statistically as effective as sterilization, but are reversible. So if a patient wants to defer childbearing for five years and then has that device removed, she can get pregnant as though she had not been on contraception.

Less effective are methods like the birth control pill. The birth control pill has a 9% annual failure rate, and as one reproductive family planning expert said, "I wouldn't buy a car that had a 9% rate of breaking down in a year." So contraceptive pills are not super reliable, and neither is a contraceptive patch, the ring, or the diaphragm, those all have a sort of 8% to 10% failure rate. And then, even less reliable are methods like male condoms and female condoms, withdrawal, and the contraceptive sponge, so that's like a 20% failure rate. Now, this is with typical use, and some people are able to use condoms successfully. So if someone has had regular intercourse for 10 years using condoms without getting pregnant, we shouldn't be like, "That never works," because it has worked for her. But in typical use, the failure rate is about 20%.

When we think about cardiac conditions, the CDC publishes guidelines on the safety of various contraceptive methods in the context of different conditions, and the key here is that a one is no contraindication, no restrictions. A two is advantages generally outweigh the theoretical or proven risks. A three is theoretical or proven risks usually outweigh the advantages, and a four is unacceptable health risk. So for the entire left side of this page, here we're talking about DVT, history of high blood pressure in pregnancy and hypertension. Copper IUD, levonorgestrel IUD, or an implant is a one or a two. For Depo-Provera, which is an injectable contraceptive, there are some threes for DVT history and for severe hypertension. Progestin-only pills are acceptable, except in the context of severe hypertension. And then, combined hormonal contraception really is where it gets to be a little bit controversial.

So given the 9% failure rate with combined hormonal contraceptives and the contraindications for a number of cardiac conditions, that probably shouldn't be on your list of first-choice items when you're counseling your patients. When we consider multiple risk factors for atherosclerotic cardiovascular disease, again, Depo, progestin-only pills, and combined hormonal contraception start to be in the not-such-a-great-idea category. For history of stroke or current history of ischemic heart disease, all of the hormonal methods get to be a little bit controversial, whereas the copper IUD has no hormones in it, so that is never a problem. And then, as you see for valvular heart disease and peripartum cardiomyopathy, the combined hormonal contraceptives are kind of problematic.
So I think if you want to take away one thing, it is implants and IUDs of the hormonal methods or the prescription methods are considerably safer in various cardiac conditions than Depo or pills. Condoms also work, but, of course, they do require adherence on a regular basis. And I will somewhat tongue-in-cheek counsel my postpartum patients that if they're going to use condoms for contraception, they have to own the condoms and they have to know where they are in their house, because the five minutes that the baby's asleep and they and their partner are interested in having intercourse, they do not want to spend four of those minutes trying to find the condoms. And people laugh. I don't know if they actually buy the condoms. But I think it's important to get really concrete with people about, "Okay, if this is your method, you need to have a method to using it to make sure that it is adhered to."

So without further ado, I'm going to pass it over to Dr. Countouris to take us through the end of the presentation.

Malamo Countouris:
Thank you so much for that overview, Dr. Stuebe. And I think it's important to remember too that getting pregnant and the hormones that come with pregnancy are so much higher risk than any of our contraception methods, that it really is about shared decision-making and finding the best fit for the patient and making sure that our contraceptive counseling matches their reproductive health goals.

So in this final portion, I want to talk a little bit about the interprofessional and sort of collaborative nature of reproductive health for our cardiac patients. And as cardiology providers, I think we are an important part of this reproductive health conversation, but we're not the only people. You're not in it alone, and I think it's really a multidisciplinary field and requires us to collaborate with interprofessionals to really achieve best practices in reproductive healthcare for our patients.

So oftentimes, this is involving a conversation with a patient's primary care provider or their family practice provider. For our really high-risk patients, sometimes we want to involve high-risk family planning or gynecologists specifically. And I think, again, sort of a critical concept here is that the providers should be communicating with each other. So the patients shouldn't feel like they're the ones that have to be the go-between. We should know how to reach out to family planning providers in our system, gynecologists in our system, how to reach a patient's primary care provider. We do that all the time, and I think it needs to be sort of reinforced that this needs to happen in reproductive health topics as well. I wanted to also say that it's okay if you don't know the right answer to something. If a patient asks you, "Is this contraception safe for me with my cardiac condition?" It's okay to say, "I don't know. Why don't I loop in your gynecologist so that we can get their weigh-in too and we get you access to the care that you need?"

When should we be introducing some of these topics? And I think really, the answer is at menarche at the latest almost. So when somebody is starting their menstruation, starting their periods, that's when you want to be initiating some of the conversation, both about contraception and what options there are, and also about pregnancy intentions and family planning for this patient for the future, keeping in mind that we often initiate these conversations too late after someone has already initiated sexual intercourse. And so, we want to be starting this as early as possible.

This is usually then when someone is in the realm of pediatric cardiology or adolescent gynecology, but it may be when patients are sort of transitioning in young adulthood into the adult congenital heart disease space or to adult cardiologists. Many times, it will be that first time that you're sort of meeting a patient, especially if they're transitioning care, that may be the most natural time to start the conversation. But probably it needs to happen also at every visit because things will change. Maybe at first, it's about contraception. And then, in a few years, we're talking more about someone being more serious about wanting to have children and pregnancy planning. And so, this really is sort of highlighting the life course approach, where it starts very early and goes through menopause, and it probably should be at least a touchpoint at every visit, even if it's not an extensive conversation.

All right. So I want to leave you with a couple of key learning points, and I hope we've shown you today that the life course approach really encompasses the reproductive health of women across the lifespan. It intersects with reproductive justice, and impacts cardiovascular disease and pregnancy as well. Patient-centered care plan helps address

the concerns that adolescent and young adults have with regards to cardiovascular disease and how that impacts their reproductive health. And then, a comprehensive care plan involves multiple healthcare providers, and it's really necessary to involve that multidisciplinary team to support cardiovascular disease patients throughout their entire reproductive life course. Thank you for joining us today.