

Melanie Cole, MS (Host): Welcome to the podcast series from the specialists at Penn Medicine. I'm Melanie Cole and we're here today to highlight the Women's Health Center for Clinical Innovation. Joining me is Dr. Anuja Dokras. She's a specialist in Reproductive Endocrinology and Infertility and the Executive Director of the Women's Health Center for Clinical Innovation in the Department of OB-GYN at Penn Medicine.

Dr. Dokras, thank you so much for joining us today. Can you tell us a little bit about what inspired the creation of the Women's Health Center for Clinical Innovation, or WHCCI, in 2021? How did you have the idea to put this center together?

Dr. Anuja Dokras: Thanks, Melanie. I became interested in the entire healthcare innovation space when I participated in an accelerator program called Fast Track to Fertility. And that was really the first time when I was exposed to the unique skill sets that are used one develops like a new idea, a new method, or a device.

And so, when we founded the Women's Health Center for Clinical Innovation in November of 2021, the specific purpose was to identify novel, new, end-to-end, seamless and efficient solutions. And we wanted these solutions to improve patient care, but also to decrease provider burnout. And within our department, innovation has been sort of part of our fabric. And so, with this early success that we had had within our department, piloting some of these programs, we felt we had a great momentum and I wanted to formalize that into a center which could be sort of a core facility, and be specific for women's health, and that makes us sort of the first in the country.

And so with all of that encouragement, we decided that we would have a center that would constantly try to redesign and reimagine the way we're delivering care for our patients. This could be by using digital health resources, using newer models of care delivery, and even AI.

Host: Dr. Dokras, thank you so much. Tell us about the Fast Track to Fertility, including the APP model and text messaging platform. So interesting now.

Dr. Anuja Dokras: As I mentioned, that was my introduction to healthcare innovation. So infertility, the prevalence is very high. And couples or individual patients who are trying to build their family do face significant barriers in access in care. These could be financial barriers. These could be related to the complexity of the infertility workup, the infertility treatment to name a few.

So when we became interested in this space, we tried to identify the pain points in the fertility journey. And we identified that even the very initial step, like the diagnostic workup, was a significant barrier.

So in the Fast Track to Fertility Program, we have now focused on this very early part of the fertility journey. And we have identified two main opportunities to make change. The first thing that we identified, as we were mapping the patient journey-- So, we conducted our contextual inquiry. We identified the problem areas. Then, we actually mapped the journey of a patient and we found two opportunities for change. One is that

patients were taking more than one to two months to get an appointment with us. And so, we had an access issue.

And second, once they came for that new patient appointment, it still took them another one to two months to complete just the diagnostic workup. This is because we are treating two people. Secondly, the diagnostic test in a female partner may be menstrual cycle-dependent. And so, they have to wait for the next period to even start completing some of this. As a result, it was taking three to four months before a patient or a couple started any fertility treatments. So, we proposed a very radical and transformative model of care, which we call fast track to fertility.

And in this, we said we would offer a new patient visit on telehealth with an APP within the first week that a patient called us. This was really innovative. We were sort of one of the first groups in that space in Penn Medicine and we trained our APPs to participate in these new patient visits, complete the intake, and order all the relevant diagnostic tests. The result was we were able to shorten the time when the patient was trying to reach us and improved access by getting that new patient visit scheduled in as short a time as possible.

Instead of waiting for weeks or months for that initial comprehensive visit with your physician, we can move the front door and begin the patient's journey with Penn Medicine much sooner with an alternate clinician, such as a nurse practitioner.

And then, the second part of Fast Track to infertility was patients were taking so long to complete the diagnostic workup. So to address that, we developed an algorithm-based conversational, but bidirectional AI model. And the idea here was that we wanted to send patient reminders about the next steps in their infertility workup. We also wanted to give them information about the workup. And then, over time, we began to send educational materials, links to videos, and built up a whole bank of frequently asked questions.

So we were able to reduce that time to complete workup. So 60 to 90 days came down to just 25 days. And the accuracy of this texting platform, because it's sort of semi-automated and AI-based, it's very high, it's over 90%, and there are very few clinical escalations at that time.

In addition to shortening that time from a patient perspective, it also allowed patients to go to their next appointment with their doctor now. With all the testing done the patient is able to have a very detailed discussion about the next steps. And from our perspective the clinical time which is spent communicating with patients, answering questions, helping them finish their workup, was decreased because now it's all automated through the text messaging.

So, it really has been a win-win from a patient perspective, a provider perspective, as well as the clinical staff. And we are really excited about this program.

Host: All pregnancies, Dr. Dokras, have minor complications and discomforts, but some can be quite complex. In this light, can you tell us about preparing for pregnancy, group care, and other prenatal innovations that you've introduced at WHCCI?

Dr. Anuja Dokras: We have developed a program called Preparing for Pregnancy, or P4P, and it's based a little bit on another program called Centering, the group care program during pregnancy where pregnant patients talk about what their concerns the Centering Program has shown great benefit in decreasing some of the complications related to pregnancy like preterm delivery or C section rates.

So when we learned about this program, we decided, why don't we offer something like this before they are pregnant so they are more knowledgeable going into their pregnancy? There's very little time during a new patient visit or a return visit for a provider, to go over the breadth of topics that are of concern to our patients. They have questions about nutrition, what supplements should I use, what will happen to my mental health during pregnancy, why am I not getting pregnant, what are the financial resources.

So, the infertile patient population is where we can start this whole educational process much earlier. And they're also a high risk group because of their advanced age. They have a higher prevalence of complications such as hypertension, diabetes, obesity, and that's how we started this P4P or a virtual preconception care program.-We have designed eight sessions, each offering a safe space for patients to discuss a focus topic. And currently, we're conducting a randomized control trial. This is being funded through Blue Cross Blue Shield or IBX, you really need to do rigorous studies to show that in a large scale, this is going to make an impact. We have randomized more than two-thirds of the subjects now for this clinical trial. We are already starting to see some early differences in their anxiety, depression scores. We're finding more referrals for nutrition and mental health consults. And I'm really hoping that these interventions prior to pregnancy are going to then lead to a much safer and a healthier pregnancy.

Host: Dr. Dokras, what becomes apparent in reviewing the WHCCI project's webpage is that commitment to women outside of the mainstream of the maternal experience, the women with pregnancy of unknown location, or facing challenges due to social determinants of health. Can you expand on some of the innovations that you've introduced in the Obstetrics space specifically?

Dr. Anuja Dokras: When we started our initial foray into the innovation space, we were highly focused in the Obstetrics space. The one program I do want to mention is our flagship program, HeartSafe Motherhood. This is a program where our investigators use remote blood pressure monitoring with a texting platform to decrease the risk of postpartum hypertension, by identifying high risk patients sooner and intervening sooner, because now they're not waiting for a six-week postpartum visit. They are in constant communication with their patient from the day that they are discharged after their delivery. So, it's been an amazing program. Not only have they been able to show an improvement in hypertension-related outcomes, but also degrees in disparities in care related to hypertensive diseases of pregnancy.

HeartSafe Motherhood has received several streams of funding. They have also received several awards. One of their most recent recognition was from the American Heart Association and they have scaled outside Penn Medicine. So, it's a program that's used with the hospital systems in the city of Philadelphia, as well as in a number of hospital systems nationally.

HeartSafe Motherhood is reaching out and connecting with patients once they deliver, but our THEA Program, T-H-E-A. THEA, has changed the model of care delivery during the prenatal period.

Firstly, they're using virtual prenatal visits, thereby improving access and engagement with the patients. Second, they offer educational information, a whole bank of frequently asked questions in that prenatal period. And then thirdly, tying up with blood pressure monitoring, they are engaging in weekly remote blood pressure monitoring starting in the second trimester. So as a result of that, in their pilot program, 60 percent of elevated blood pressures were first diagnosed using the home cuff. That's really the beauty of this connected healthcare. As we all know, hypertensive diseases of pregnancy contribute significantly to maternal morbidity and mortality. So, these programs have been extremely impactful.

And then, going through that breadth of pregnancy, right? So first trimester, then we have THEA for second trimester; postpartum, we have HeartSafe Motherhood. And we have another program in the postpartum period called Healing at Home. And this program allows the moms to be discharged home sooner. It allows for screening for postpartum depression to occur remotely and to identify it early. We don't have to wait for the patients to come back for their postpartum visit. So now, there's a focus not just in Obstetrics, but beyond. We have information about some of the common questions about breastfeeding and care of the neonate, such that the patient gets this information on their phone, sitting at home and not having to look up things on social media or send a message to the provider and wait for a response. This happens in a very timely manner, and it's automated through the platform, so very quickly.

Host: Dr. Dokras, as we get ready to wrap up here, another of the elements apparent at the WHCCI is an effort to embrace the lifespan of a woman in gynecology and obstetrics. Can you tell us about the variety of programs and resources the center offers to aid providers, that span woman's healthcare and gynecology, postoperative and preventative care. And I'd like you to end with how other providers would refer somebody and get in touch with the Women's Health Center for Clinical Innovation.

Dr. Anuja Dokras: We do, as you said, have a number of programs in the gynecology space with the idea that we want to improve frontline care across the lifespan. A couple of programs to mention in that gynecology space and for patients as they go through menopause and beyond, one of them is Together Care. This is a program that offers connected healthcare in patients who've gone through surgery. So, it could be cancer surgery, it could be surgery for fibroids, a hysterectomy. With this program, we risk stratify patients into high and low risk, and then in a proactive manner using a bi-directional texting Together Care will engage with our offer them guidance in that

postoperative period, also help with utilization of home health services if needed. And we have scaled this, from the cancer services, Oncology to General Gynecology and shown a reduction in the number of ER visits and readmission. And this has happened because now our nurses are able to identify patients that need to be brought in for evaluation much sooner than if the patients waited at home without any guidance.

Another program in that same sort of Gynecology space I would like to mention is a fairly transformative program that we are calling C3P3, which is Centralized Cervical Cancer Prevention Program at Penn. In addition we got two awards from the Center for Healthcare Transformation and Innovation at Penn Medicine. So, this partnership between the department and Penn Medicine is going to allow us to simplify the complexities of cervical cancer screening, so the Pap smear screening, and make that much more efficient for our patients. So as you know, 70-80% of Pap smears are normal. We want to automate these normal results so that we can develop a new dedicated model for tracking patients **who** have the abnormal path. So, we're using AI to deliver the abnormal results which are most crucial in a timely manner, schedule the subsequent procedures like a colposcopy or a LEEP in a timely manner with the ultimate goal that we can find patients at either very, very early stages of pre-cancer or cancer.

And then, as part of the C3P3 program, the other component is prevention, right? So we have a wonderful vaccine, the HPV vaccine, which should really be utilized in a way such that we can decrease that risk of cervical cancer. Although the goal is 80% for vaccination, it's surprising that in our state, in Pennsylvania, we don't even meet this goal. And so, really for us at Penn Medicine as leaders in this field, we recognize that the HPV vaccination program should really be part of our entire C3P3 initiative, and we have included that, and really developed some new algorithms, smart phrases within our PENN chart and workflows. And I think collectively, we are really excited that we are going to be able to scale this program, not just within OB-GYN, but onto Family Medicine, Internal Medicine, and make a much broader impact.

So, let me sort of conclude with thank you for giving us this opportunity to talk about WHCCI. I would encourage you to check our website, which is pennteam.org/whcci. In addition, we have WHCCI's seminar series once a month. We invite external speakers. Please feel free to contact me directly. If there are certain unmet clinical needs in your work space that you would like to discuss about how we might have approached similar situations, or if you wish to collaborate on any projects, or discuss novel ideas, we welcome that, because those who are on the front line are the ones who really are in the best position to identify processes, services that need to be changed. So, thank you so much once again for giving me this opportunity to share all the amazing work that our providers, staff, and trainees are doing at WHCCI.

Host: Thank you so much, Dr. Dokras. What a comprehensive, amazing program. Thank you again for sharing all of that information with us. And to refer your patient to Dr. Dokras at Penn Medicine, please call our 24/7 provider-only line at 877-937-PENN, or you can submit your referral via our secure online referral form by visiting our website

at pennmedicine.org/referyourpatient. That concludes this episode from the specialists at Penn Medicine. I'm Melanie Cole. Thanks so much for joining us today