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Delivering Transformation: Reducing Maternal Mortality Through Systemic Change

ReachMD Announcer:
Welcome to Advances in Care on ReachMD. This medical industry feature is titled “Delivering Transformation: Reducing Maternal Mortality Through Systemic Change.” These podcasts are a production of NewYork-Presbyterian with doctors from Columbia & Weill Cornell Medicine.

Here are your guests, maternal fetal medicine specialist Dr. Dena Goffman and health and science journalist, Catherine Price.

Catherine Price:
The news around maternal fetal care in the U.S. has been bleak over the past ten to fifteen years. In spite of media attention and numerous initiatives, the rates of maternal morbidity and mortality are still on the rise. These dire stats played an important role in shaping Dr. Dena Goffman’s career in Obstetrics. When she was starting out, Dr. Goffman’s supervisor offered to buy her a life-sized mannequin that could simulate delivering a human baby. She couldn't have known then the outsized impact it would have on her work or on NewYork-Presbyterian. But it turned out that this simulator was more than a training tool - it had the potential to reimagine the entire system responsible for maternal care, making labor and delivery safer.

I'm Catherine Price and this is Advances in Care.

In this episode, I talked to Dr. Goffman, the Vice Chair for Quality and Patient Safety and the Associate Chief Quality Officer for Obstetrics for the NewYork-Presbyterian health system. She has cultivated a passion for improving maternal care and it's driven her to lead a massive hospital-wide effort at New York Presbyterian reimagining the standards for maternal and fetal safety, including through life-saving, anti-hemorrhage tools and the use of simulations to strengthen healthcare workers skills.

Dr. Goffman, thanks for joining me today.

Dr. Dena Goffman:
Thank you, nice to meet you.

Catherine Price:
Well, I wanted to start by asking you how you got into obstetrics to begin with. What really drew you to that field?

Dr. Dena Goffman:
As a college student, when I was trying to figure out if I wanted to go into medicine to begin with, I volunteered at a local hospital. I was initially handing out newspapers and filling water pitchers, and I felt like that wasn't necessarily helping me to figure out, so I went back to the office and asked if there was any opportunity to engage more closely with patients, and said that they were actually in the process of developing a doula program.

A doula is someone who typically has had children and supports patients, birthing patients during the childbirth experience. But they asked if I might be interested or willing to sort of try that role and help fill some gaps as they were building the program. So, I said, sure.

Catherine Price:
So, what was that experience like?

Dr. Goffman:
I haven't told very many people this, but one of the first deliveries I saw, I was queasy. I was nauseous. I had to sit down in the room. Then I had to go out of the room to the nutrition area and sort of like, sit by myself. And I sort of left that day saying, I can't be a doctor.

There's no way I can do this. Talked to some friends and family like, go again, go next time and try it again.

And then I said, maybe I'll be a pediatrician, maybe I'll do internal medicine. And then as soon as I did my first day of my obstetrics and gynecology rotation, I said, you know, who am I kidding? This is what I want to do. So, it just became very clear, very quickly.

Catherine Price:
I mean once you figured out that obstetrics was the right choice for you personally, then how did you get interested in improving the whole maternal fetal care system? Like, I'm wondering, was there an experience you had earlier in your career that got you interested in going beyond just caring for individual patients?

Dr. Dena Goffman:
Yeah, as a fellow in maternal fetal medicine, a portion of your time is dedicated to doing research. And at the time, it was quite common to look towards working in a laboratory, doing research with mice or rats or placentas, and as my leadership and fellowship continued to sort of meet with me to help coach me towards what my research would be about, I kept saying, you know, I've done that type of work before and I really don't love it.

I'm passionate about managing emergencies on labor and delivery. I'm passionate about taking care of really sick, potentially high-risk situations and pregnancies. So, I think initially they weren't sure what to do with that or with me. But I think they heard me and after a couple of conversations, the department chair actually called me one day and said, have you heard of something called simulation? And I said, No. And he said to me, "Well, go think about it and see if you can read about it and then let me know if I buy you a doll, will you do something meaningful with it?"

Catherine Price:
I love that as a question.

Dr. Dena Goffman:
I mean, it was a great question. And so, I built my maternal fetal medicine fellowship research around trying to expand knowledge related to how we can use simulation in obstetrics.

Catherine Price:
So, what did you learn can be done with a simulator?

Dr. Dena Goffman:
So, it can be anything from a surgical simulator for laparoscopy in the GYN world to some simulations like a shoulder dystocia where people are learning and practicing those maneuvers, like technical tasks, on a certain type of simulator to doing a full-blown shoulder dystocia drill with the team members and the emergency button and all of those things.

Catherine Price:
What else do you use it for besides shoulder dystocia?

Dr. Dena Goffman:
Besides shoulder dystocia, we can simulate postpartum hemorrhage, so I love doing that. And then the last thing you can do is a full body, like a very high-tech full body simulator that can bleed and deliver a baby and has blinking eyes and has breath sounds if you listen to the chest and have pulses if you palpate their wrist or their neck, these simulators are quite advanced.

Catherine Price:
So, I know you do simulations with attendings. Have you ever had someone who wasn't sure about them and then participated in one and came to see how powerful they are as a training tool?

Dr. Dena Goffman:
Early on when we did this, we recorded the sessions. So anytime you do a simulation, the simulation is important, but probably the most important part is the debrief that happens after the simulation.

So, this amazing obstetrician said something during the shoulder dystocia delivery in the heat of the moment, while we were recording, this experienced attending asked for fundal pressure. And when we started debriefing, she said, there's no way I said that. I know you don't give fundal pressure.

I said, you know, again, it's a simulation. Maybe it was a stressful experience. You've never done this before. But would you like to see that portion of the delivery? And so, we zoomed in on that portion of the clip and actually had it on video. And she was astounded. She said, I can't believe that came out of my mouth. What if that happened in a real situation?

In emergencies, I need to be careful with my words, I need to be intentional with what I say. I think those are pearls that you get to take away are sort of showing someone and having them sort of realize the value and have a takeaway like that.

Catherine Price:
Wow. Yeah, that must have been something that stood out in her mind, too.

Dr. Dena Goffman:
Definitely. I think once you start doing simulations, and seeing things like that, it's a communication challenge. And then you start saying, well, let's do some simulations on labor and delivery to see if the phones work the way we think they work, and the beds work the way we think they work.

You start to uncover all of these sort of team based challenges or systems issues that things aren't functioning the way you think they're functioning. And then once you start to see those, for me, it was like, oh, we could fix that and we should work on this.

Catherine Price:
Okay. And so, you started by working on the simulations, but then from there, how did you come to focus on improving the systems around maternal fetal care?

Dr. Dena Goffman:
So for me, it was a very organic process of getting more involved in quality and patient safety efforts at the institution, which then led to, you know, I stayed there after my fellowship, I stayed on faculty. I continued to practice and work on quality. And then an opportunity arose at New York Presbyterian for an associate chief quality officer role for the Women and Children's Hospital at Columbia. And that's when I came back. I've been back since 2016.

Once I was at New York Presbyterian, I started to just collaborate with teams at the different campuses as things arose, an opportunity related to an event, an opportunity to standardize a guideline, an opportunity to work on a project together that we could do everywhere instead of just one place.

You know, as a system, we do about 25, 000 deliveries a year, which has a huge potential to impact if we can make systems improvements and implement evidence-based best practices and really do that. At all eight places where we deliver babies, and take care of birthing people and families, that's the potential to make, just such an impact for the patients and the teams that I was able to sort of slowly, and gradually get people to recognize the potential value of creating a role where we really do this kind of work, together across the system.

Catherine Price:
Can you tell me a bit more about the patient safety goals that you have for obstetrics at New York Presbyterian, how that came to be, and what makes that unusual?

Dr. Dena Goffman:
I think most hospitals do have sort of lists of annual patient safety goals and, you know, the ones that I've seen, they're all really important topics. Mortality, CLABSI, which is a central line associated bloodstream infection, or CAUTI, a catheter associated urinary tract infection.

These are all things that are important in the population of patients that are hospitalized. What I would say is all of those three examples that I just gave are almost never relevant to the obstetric patient population. So, it sort of came to my attention that like across the hospitals, people were working really hard on these goals and coming together and doing important performance improvement work, but it almost always excluded or didn't make sense for the OB teams.

And so, I sort of raised that to the attention of the leadership at the time and said, you know, what would you think about us building an OB specific goal that we could all work on together the way we're working on CLABSI and CAUTI and mortality. And they were totally supportive.

Catherine Price:
Can you think of any examples of a goal that was set that then led to a change in practice?

Dr. Dena Goffman:
Yes! Every year we've had a goal that led to change in practice. One is that we built a severe maternal morbidity review process. So, there are triggers that are put forth by the Joint Commission saying that if you look at cases where a patient gets four or more units of blood transfusion or goes to an intensive care unit. If you look at all of those cases, you likely will look at the majority of your patients who have or experience a severe maternal morbidity.

And again, that's thought to be if maternal mortality is the tip of the iceberg, there are many, many more patients that have a severe maternal morbidity, and those are really important. To understand what's driving them, understand if they're preventable and if potentially they are preventable, what should we be doing differently?

So, we built a process where each of the eight campuses reviews those cases locally, using a common form, common standards, common process. And if they identify potential preventability, that case gets raised to an enterprise wide. So, a system wide meeting. We review those cases together. We talk about opportunities.

And then at the end of the year, we take all of those cases that we've reviewed where there is a preventability component and we say, what were the common causes? And we want to think about what we may have been able to do better.

Catherine Price:
I mean, that makes a lot of sense. And it also seems like it would be related to the work that you do with the perinatal practice council which I know operates across all of NewYork-Presbyterian. So, can you tell me a bit more about that?

Dr. Dena Goffman:
So, it is a committee or council that is composed of membership from all eight campuses. It's multidisciplinary. So, we have obstetricians, midwives, OB nurses, anesthesiologists. There really is a broad representation including all of the disciplines that are important for obstetric care.

This body really has agreed that this will be our standard at New York Presbyterian. This is our guideline. How do we manage obstetric hemorrhage? How do we manage maternal hypertension? How do we manage maternal sepsis? And again, the list goes on and on and it goes from things that seem less complicated, but are really important.

How do we manage the medication oxytocin? It is so common. We use it in so many patients admitted for a birth admission , and how you use oxytocin matters. And that we're not all doing it differently, actually probably matters more than the way we chose to manage it, right? There's not one right answer, but if a nurse on a unit has to manage it five different ways because you have five different attendings who have five different preferences. It really can be bad. It's a high-risk medication and there, there is no reason that we have to have people have five different preferences. We can come up with a standard. And then your nurses know how to do it. Your pharmacy knows how to mix it. It comes up in a in a standardized bag with a standardized label. And then it's programmed in the pump, so it's given the correct way. So, I think this perinatal practice committee is quite active.

Catherine Price:
And so surely this exists at all hospitals. How unusual is this?

Dr. Dena Goffman:
It's unusual. This is probably one of the most frequent emails or phone calls I get is, you know, I heard you have this manual. Well, can you share it? Can you share the policies? Can you share the guidelines? Could you at least show us your table of contents? Because we're intrigued. So, I think it's pretty unique. I hope we get to a point that all hospitals, all health systems have a shared mental model across any place that they deliver babies and that they do have an agreed upon evidence-based guideline to help do the right thing.

Catherine Price:
I mean, it certainly makes sense from a patient perspective to have that.

Dr. Dena Goffman:
Yeah.

Catherine Price:
So, I also wanted to talk to you about your clinical work because I understand that you were very interested in hemorrhages.

Dr. Dena Goffman:
Yeah. So, if I had to pick a clinical area of interest from very early on in my career, it's obstetric hemorrhage. You know, if you think about all the things we talked about, some of them are relatively rare. Of these like OB emergencies, hemorrhage is not rare. It is probably 6 percent of birthing patients. If you're an obstetrician, you will see a hemorrhage.

I think one of the things that has always been pretty apparent to me is we haven't had a lot of innovation in our world, right? Like you would think if you have this problem that's relatively common in our patient population and the rates are going up over time. Our patients are sicker. They're bleeding more, not less. So, to me, this is a topic that is ripe for improvement.

So in terms of hemorrhage we have traditionally had medications, and if those medications didn't work, we have the opportunity to put a balloon in to tamponade the bleeding. So that's sort of like your non-surgical intervention. And then if that didn't work, you're going to an

operating room and doing surgical things leading up to and including potentially a hysterectomy, which is a huge deal.

And if there are things that we could be doing to avoid that, we certainly want to be doing those.

Catherine Price:
Right.

Dr. Dena Goffman:
I don't remember exactly when I first heard of it, but I read a very short case series in one of our major journals about a novel device. So this new device uses low level vacuum. It's a loop that goes in the uterus. It has little pores on the inside of the loop, so small little pores. And then it has like a soft silicone sheath that covers it, so nothing else gets sucked into the pores.

And then it has a seal. It's a balloon that goes at the outside of the cervix. You blow it up with some fluid. So, you've got this, like, almost like a teardrop shaped device that's sitting in the uterus. You have the cervical seal at the outside of the cervix.

Catherine Price:
I see, to create some way to vacuum.

Dr. Dena Goffman:
Exactly. Then, it doesn't have to be airtight, but it literally creates, once you attach it to your wall suction, which you have in every labor room, every operating room, and turn on a low-level vacuum.

It basically uses low level vacuum and promotes the uterus doing what we want it to do anyway, which is to contract down. So, a lot of us who've worked at the device a fair bit now think of it as like a mechanical uterotonic. So doing the same thing that the medications are doing but doing it through a device.

Catherine Price:
And presumably with a lower risk of side effects.

Dr. Dena Goffman:
Lower risk of side effects, so this device had been not in the U.S. And we were approached at Columbia about whether we would be interested in being a site for the pivotal trial. So that would be the earliest clinical trial to assess safety and efficacy to then go to the FDA to say we think this device should be approved for use.

So, we were one of the U. S. Sites that participated. I got to use the device for the first time during that trial period, I was one of the investigators, got to use it on labor and delivery, and it was pretty impressive. You know, I think my thought when I read about it and then when I used it was like, wow, I wish I had thought of this. It's brilliant. It like does what you want the uterus to do. It helps promote it. And I think the things, the takeaways from the study was highly effective; the success in terms of effectiveness in that first trial was 94%.

Catherine Price:
And how did that compare with the balloon system?

Dr. Dena Goffman:
It's not a head-to-head comparison, but there are meta-analyses on the balloon that report like in the 84-85%.

Catherine Price:
Oh, wow. So really a big improvement.

Dr. Dena Goffman:
So, from those first hundred and seven cases the device did go on to become FDA approved.

And so, you know, my next thought was, well, how are we going to capture what happens when you just have device in the hands of users? So, we got 16 sites across the U. S. to sort of participate in this post market trial.

Catherine Price:
Huh, so what did you find?

Dr. Dena Goffman:
I guess a couple of things. I would say we had 800 patients, so many, many more than had ever been published on before.

Second thing I would say about this trial is that we had a fair number of patients that had cesarean and that was not the case in those first 107 cases. They were primarily vaginal births, handful of cesareans, but not big numbers.

That was a question mark. We didn't have data to really know how this would work after a cesarean, and so, I thought that was important.

Catherine Price:
Gotcha. So, what were the outcomes of the trial?

Dr. Dena Goffman:
Really, the outcomes that we looked at were similar, like efficacy and safety. And I think the results corroborated what we had found in that small trial, but for me, that becomes even more impressive because it's with just much broader use, like higher blood loss, different types of people, different types of training. So, the success was 92.5% in the vaginal birth group and 83.7% in the cesarean group. Similarly, very low, adverse event profile. It continued to work quickly. So, the vast majority of patients, within five minutes, it's like your bleeding was controlled.

Catherine Price:
Is that faster than previous methods?

Dr. Dena Goffman:
Yeah, it's very fast. The amount of time that it needs to stay in place is much shorter than what we typically used to do with those balloon tamponade devices. So with those, we tended to leave them in 12 to 24 hours, and that's pretty commonplace across the country. Which is, for a patient, not insignificant.

The mean indwelling time for this device is much shorter. So like three hours for vaginal birth, four and a half hours for a cesarean, and then those patients that you turn off the suction, you watch and make sure the bleeding doesn't start again for 30 minutes, and if everything is good you take it out, and they sort of get to go on with their postpartum journey in a much more usual fashion, which I think has huge benefits for patients and families.

Catherine Price:
Okay. Yeah.

So, tell me about your role. Cause it's one thing to help get this device to be FDA cleared and approved, but like, what was your role in getting this to actually be adopted into practice in New-York Presbyterian?

Dr. Dena Goffman:
Yeah. So, certainly once I used it and members of my team used it, we became big believers. I think that the potential challenge with bringing in a new device is that it was more expensive than the existing device. And so, we did a little bit of modeling with the different cost centers. We were able to sort of show it in a way that if we could prevent progression to serious hemorrhage, that the cost would be offset by use of the device. We were fortunate to be given permission to bring it in. And the adoption has just been a lot of fun to watch. You see, sort of gradually over time, if you look at the numbers, just increased Jada utilization, decreased balloon utilization.

Catherine Price:
I mean that's great to see that the positive outcomes justified the decision to adopt the device. And it makes me think a lot of what you said reflects what seems like a personality trait where you see things big picture and then you want to improve them systematically. I'm wondering, is that always how you approach things?

Dr. Dena Goffman:
For me those days when I get to wake up in the morning, put on my jeans, come in and put scrubs on and like be a physician on the floor, I love it. I love taking care of patients. I love teaching the residents and working with the fellows and interacting with the nurses. So for me, that reminds me of the why, like that I'm doing all of the rest of the work that I'm doing, but it also gives me this real opportunity to see the practice, see things in action.

I think most people listening, I'm sure, you included have seen the news, maternal morbidity and mortality, in the U. S. are on the rise. This is despite lots of attention over the last 10 to 15 years, lots of statewide and national efforts that have been undertaken to try to combat the problem. But despite those efforts, the numbers aren't going in the direction that they need to be going in, and I think it's multifactorial. I don't think it's all something that hospital system standardization can improve single handedly, but I think we need to be doing our part.

I think there are larger issues that I feel are largely beyond the scope of my current role, but I think they're important. Insurance status, you know, access, racism and discrimination, structural racism, bias. Like there's a lot of things that are leading to the crisis. And I think some of these we can take on, within our space but certainly we still have opportunity until we are doing, patient care, optimally, where we're treating postpartum hemorrhage, where we're treating, hypertensive emergency where we're recognizing and treating sepsis in a

seamless way, all of these things, until we're really doing everything in our power to do those optimally and, and holding ourselves accountable to those, then I think we have more work to do and we should keep doing it simultaneous with the other work.

Catherine Price:
Right. It seems like also what you're saying is that there's some stuff that's so big that it's, you know, how is one person going to tackle that? But if there's a situation in which it's a system problem, where it's a lack of communication, or there's some kind of preventable error, that's kind of almost like the low hanging fruit in terms of helping to bring those numbers down.

Dr. Dena Goffman:
You know, in obstetrics, from my perspective, I certainly am biased. I like to think about obstetrics. These are patients and families coming to the hospital for what should be a relatively normal, positive experience in general. There certainly are exceptions. Our patients aren't sick. They're not coming to the hospital because they're sick. They're coming to the hospital to have a baby.

It should be a positive, exciting time. So for me, when things don't go as well as they could in those situations, it's even harder.

Catherine Price:
Well, thank you so much for making the time to speak with me today. I really enjoyed this.

Dr. Dena Goffman:
Thank you. It was a lot of fun. Nice to meet you.

Catherine Price:
Huge thanks to Dr. Dena Goffman for helping me understand some of the challenges physicians face in obstetrics and explaining the work she's doing to improve maternal fetal care at NewYork-Presbyterian.

I'm Catherine Price. Advances in Care is a production of NewYork-Presbyterian Hospital. As a reminder, the views shared on this podcast solely reflect the expertise and experience of our guests. To find out more amazing stories about the pioneering physicians at New York Presbyterian, go to NYP-dot-org-slash-advances.

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