

MWSP EP 18 – Dr. Philippe Friedlich: Pediatric Surgery, Neonatal Therapeutic Hypothermia, Pre-Mature Births, and CHLA

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Speaker 1: From CurtCo Media.

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Bill Curtis: More strange days. COVID again on the rise. So many important procedures and medical needs are still being allowed to fester because people are afraid to go to their doctor, let alone a hospital. So this pandemic is claiming lives from people who don't even catch the disease. One specialty that can't wait for COVID to be in our rear view mirror is neonatology, the care necessary for some of the smallest of us to survive catastrophic challenges. We have a special guest today from a hospital that is leading the country in the quest to place the odds in the newborns' favor. Welcome to "Medicine, We're Still Practicing." I'm Bill Curtis. Of course, first, my friend and cohost, Dr. Steven Taback. He's the quadruple board-certified doctor of internal medicine, pulmonary disease, critical care and neuro-critical care. These days, he continues to fight on the front lines of the COVID battle in California, for which we are eternally grateful. Steve, how you doing?

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Steven Taback: I'm well. Thank you. It's good to be here, Bill.

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Bill Curtis: I'm sure you've heard of Children's Hospital of Los Angeles, known as CHLA. U. S. News and World Report has consistently ranked CHLA in the top five nationally and the number one pediatric hospital in California for 30 years running. This remarkable nonprofit children's care hospital is nationally known for neonatal research and care that is funded entirely by generous philanthropists.

Dr. Philippe Friedlich is Chief of Neonatology at Children's Hospital. He is also co-director of the Fetal and Neonatal Institute, and he is professor of Clinical Pediatrics and Surgery at the renowned Keck School of Medicine at USC, where he's published over 150 abstracts, peer review articles and book chapters. Dr. Friedlich is a rock star in one of the world's most complicated, pressure-filled and delicate specialties that include newborn respiratory failures, newborn pulmonary hypertension, even surgery on unborn babies. Can you imagine? Welcome, Dr. Philippe Friedlich. It is an honor to have you here tonight.

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Philippe Friedlich: Thank you for having me.

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Bill Curtis: So doctor, can you just bring our listeners up to speed on CHLA and your mission there?

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Philippe Friedlich: Children's Hospital of Los Angeles' mission is to care for sick children. No matter what their background, their cultural background or insurance they have, we are a place to care for families and children and babies when there's no other place that could care for them.

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Bill Curtis: Are we talking about one of the few medical specialties that truly couldn't wait for COVID to pause?

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Philippe Friedlich: That's a great question. Fortunately, for many children, COVID has not been as impactful. There are some babies and children that are sick, but by far, unless we compare it to adults, we are fairly lucky so far.

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Bill Curtis: So we're not going to spend the whole show on COVID because frankly, I think people want to know much more about your specialty, but maybe you could tell us a little about what kind of a regimen has CHLA developed uniquely for this pandemic, and what are some of the special things that you do at your hospital to manage this?

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Philippe Friedlich: A lot of it has to do with making sure that we can screen families and staff when they arrive at the hospital and make sure that the environment for caring for those children, regardless of the reason why they're in the hospital, is optimal. And so the hospital has spent significant resources to ensure that we screen families and visitors and parents when they arrive.

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Bill Curtis: Psychologically, how do you get your clientele to feel safe under these circumstances?

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Philippe Friedlich: That has been a (inaudible) challenge. As you can imagine, a lot of families are scared to even go close to a hospital. So certainly our data suggesting that we can provide a safest environment to bring sick children and care for them, but it is a concern, so now we can see that visits to the emergency room are significantly down.

Obviously a lot of the outpatients clinic, I've had to restructure their environment. But I think that honest conversations with family and trying to make sure that vulnerable children still can get the care they need so they don't have complications from their disorders and diseases, or we try to do our best to get the message across.

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Steven Taback: In your infected pregnant women, what percentage of the infection will affect the neonates?

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Philippe Friedlich: Well, it depends how you define "affect the neonates" that we have not seen certainly in our area any children or neonates infected with the virus. There's very few reports in the world around that. What we do see though, is mother who gets sick with the COVID-19 illness and systemic inflammatory response, and then for maternal reason, the baby has to be delivered early.

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Steven Taback: So more of a high-risk delivery, as opposed to a neonatal issue, per se.

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Philippe Friedlich: Right. And so premature babies that are born because the mother is sick is something that we see. They're not sick with COVID, but they have all the risks of complications from the prematurity.

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Bill Curtis: You use the term "premature," and for our listeners, we think we know what that means, but can you define it` at what level does it become a problem? And I also understand that your hospital very often doesn't get the babies until there's a problem. You just suddenly get a call that there's a need.

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Philippe Friedlich: That's correct. Prematurity is defined in general in any pregnancy that does not reach 38 weeks, but obviously there are gradation of prematurity. And in this country, we have made remarkable advances in the support of premature infants. Right now, we care routinely for babies at the limited viability, and that's around 23 weeks of gestation. So before 28 weeks, it's fair to say that those babies are at the highest risk of complications, and after 28 weeks, the outcomes in this country are really, really good.

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Bill Curtis: What kind of complications do you deal with when it's actually 10 weeks too early?

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Philippe Friedlich: There are lots of complications that those babies can be subjected to. There are complications involving the brain, so these babies' brains are very fragile, and they can have significant damages to their brain. But all the organs are very fragile. The good news is that most babies do quite well and can recover. What we worry the most is obviously the organs that once damaged, don't recover, such as the brain or the eyes. But by far, with the technology that we have in this country, most babies do quite well.

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Bill Curtis: I watched one of your videos where you were talking about brain issues and that you have a procedure whereby you cool brains inside an MRI. Can you describe that a bit?

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Philippe Friedlich: Yeah. What you're referring to is therapy called "select hypothermia." So it's a technique that is used for larger baby. So those are not premature babies, but those are babies who have had complication in the last stage of labor, when the mom is in labor, and have a sudden lack of oxygen or blood flow. And so this is very similar to the techniques that are used in adults when they have strokes to try to minimize the brain injury. And so in newborns, for the last now 10 years, we have used this technique to cool the baby's brain for around three days in the hope that we can minimize the injury that is involved with a lack of oxygen or blood flow during the last stage of labor. The idea is to get the brain temperature in a selective range. And you mentioned MRI before. We were a pioneer in developing techniques where we actually can measure the brain temperature of babies doing cooling with MRI technology.

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Steven Taback: What is your end point? For us, in post-cardiac arrest, it's 24 hours at the target temperature. What's the protocol for a brain-injured or a hypoxic infant?

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Philippe Friedlich: Yeah. So for babies that suffer from HIE, or hypoxic-ischemic encephalopathy, we cool them for 72 hours if they can tolerate that length of time.

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Bill Curtis: My goodness. I also understand that premature babies have all kinds of pulmonary issues, including, in one of your videos, you actually said they forget to breathe when they're sub 34 weeks. But I was told that you have an expertise there at the hospital where you incorporate the use of an ECMO machine for certain babies. Can you describe that?

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Philippe Friedlich: Yeah. So ECMO stands for " extracorporeal membrane oxygenation."

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Bill Curtis: Easy for you to say.

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Philippe Friedlich: It's a technique that actually is used in adult and in pediatrics and in neonates. It actually was used since the mid-seventies and eighties, and in California was actually some of the first sites. And since 1997, we actually have used the technique at CHLA. It's a technique that is used in larger baby. You have to be at least two kilos and at least 34 weeks of gestation at birth to be able to be enrolled in the programs. It's used for babies who have significant and severe respiratory or cardiac insufficiency,

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Bill Curtis: For the layman's term, is it you're actually oxygenating the blood?

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Philippe Friedlich: Yeah. We take over both the heart and the lungs and wait for their recovery while the machine is doing the work for the baby. It's a very similar machine that adults use, for example, for heart-lung bypass surgery.

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Bill Curtis: And Steve, I think you mentioned in the past that you guys, that Provenance have been known to use ECMO when necessary for COVID patients.

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Steven Taback: We do. I think we've used ECMO once for COVID, but we've used ECMO quite a bit during the influenza pandemic. And we've had great results during influenza because the lung heals very well, even after 60 days. We had good results with one COVID patient at St. Joe's as well, but it

is used frequently for COVID worldwide. And we've had a fairly robust-- for a private community hospital, that is-- we've had a fairly robust ECMO program for the past several years.

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Bill Curtis: Doctor, we're going to be asking you about a number of the issues that you're dealing with at CHLA, but I wonder if we could talk about one in particular that I found fascinating in some of the videos that you have produced, where they're actually unborn babies, where you've had to perform something you called "keyhole surgery repairs," as in spinal bifida repair, for a developing fetus. Sounds pretty scary.

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Philippe Friedlich: Yeah. I'm very lucky to be part of a new institute that brings together all the subspecialty, including fetal surgery. And at CHLA and at USC, we have Dr. Ramen Chmait, who's a fetal surgeon, and he's the one actually that performed the surgery. Dr. Chmait is internationally recognized and has the expertise to really, with minimal techniques, to approach the fetus through the mom's abdomen, place cameras and instruments, and now can actually repair those neural tube defects, so the spinal cord defects, early on, so that we can protect the spinal cord from being exposed to the amniotic fluid. There's a lot of evidence that it is that exposure in utero over time that can really scar and injure the spinal cord and cause scar tissues, and the idea is we can cover the defect, then the longterm outcomes will be better. And in fact, there's quite a bit of an evidence that the longterm outcomes such as the ability to walk independently, bladder function and things like that are better.

It obviously comes at significant risk. Obviously you have to do the surgery and place the mother under anesthesia while she's pregnant. You have to enter the uterus with cameras, and that can sometimes cause preterm labor. So it is not a technique that is yet completely proven, and we are part of multi-center trials to show hopefully that we can demonstrate its usefulness and its safety of such procedures.

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Steven Taback: Takes a very courageous staff, and also a very courageous mother to undergo that kind of testing.

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Bill Curtis: So what are some of the other focuses where you find yourselves with some pretty remarkable challenges, and

CHLA and you and your fellow doctors have attacked the problem, and you feel there have been significant advancements in the recent years?

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Philippe Friedlich: There are many, and I'm glad you asked the questions. You know, I think that nearly 20 years ago, we established the fetal-neonatal institute, and that was one of the first in the country that was establishing a comprehensive team to care for not only the mother, her pregnancy, care for the fetus and also plan that postnatal care. There are very few centers in the country that can do it and do it well. There are a few examples that I could name, for example, our ability now to really diagnose very specifically what is the specific problem in a fetus. Our cardiologists and fetal cardiologists now can enter and repair some of the baby's heart valve around 20 to 25 weeks of gestation. So our team at CHLA has done that. And to me, that's amazing when you think that a baby's heart is probably smaller than the nail of my little finger, and they are able to place a catheter and open a valve.

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Bill Curtis: Is that done with the DaVinci robot, or that's actually done by hand?

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Philippe Friedlich: No, again, they use technique where they enter the fetal circulation through the umbilical vein and vessels. And they are able to guide this wire into the baby's heart, just like adults undergo now noninvasive techniques for heart repair. So I think that that is something that is pushing the envelope, but daily, we actually now are able to get to the specific diagnosis before a baby's born so that we can prepare both the family, the site of delivery, and be present to avoid all the complication that those infants used to be exposed to, and then bring them to CHLA so that our surgeons and our subspecialists can do the right thing at the right time and then avoid a series of complications that were unavoidable in the past. And now these children can live life without the sequela of their disorder.

And that's something that is so satisfying and that's changed so rapidly. I've been in the field 20 years now. And in those 20 years, every five years, I see huge change in those outcomes.

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Steven Taback: But on a personal note, I remember back in medical school, when you're trying to figure out, "What is

going to be my specialty of choice?" And I have found that most of my colleagues were making a choice based on deduction, and they knew exactly which fields they did not want to go into. And it's certainly for me, it had anything to do with children because treating children terrify the heck out of me. The idea of possibly doing harm is always bad, but to a child is something that I couldn't even conceive of. What got you interested in the field of neonatology? What made you make that decision to go completely opposite direction that I went?

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Philippe Friedlich: It's a question that I often get asked, and I think many physicians, it was the relationship. I had not thought of neonatology as the career, was late even to pediatrics. I thought I was going to be a surgeon. And then for reason that I cannot even explain, I one day got the opportunity to meet Dr. Robert deLemos, who was the Chief of Neonatology at USC. And he just had finished a series of years developing high-frequency ventilation. He was one of the forefathers, and this is the kind of relationship that in a couple of days, I knew that's what I wanted to do for the rest of my life. So I've been very blessed with many relationships during my training and since then, and one of the reasons that I've never left CHLA since the early days of my internship.

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Bill Curtis: In past episodes, Dr. Steve and I have talked to people about robotic mechanized doctors, and in your specialty, I can't imagine the training and expertise and very soul that must go into communicating with the parents, just managing that relationship. It's certainly something that a robot's never going to be able to do. How did you learn to do that well, or is there such a thing?

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Philippe Friedlich: Yeah, I think that you're posing a really difficult question to ask. I think there are some people that naturally are more empathetic than others, and certainly that helps. For others, hopefully, they can learn some of those skills.

It does help, I think, to have your own family. When I think about how I used to address parents when I didn't have that experience, they don't keep you that necessarily in medical school, you're a little bit more in tune to how difficult it is to worry about your child, even if it's a simple fever or cough, to a parent, whether it's the unknown and that constant worry. And so when you're exposed to that, I think that you become a better doctor, and this is a



field where you have to be really in tune with the family. It's amazing, in fact, that as much as we have improved our medicine or our techniques and our technology, there is one fact that still to this day just astonished me, is that the best predictors, longterm neurodevelopmental outcome in premature infant, is actually maternal involvement in education.

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Steven Taback: Wow.

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Philippe Friedlich: And so to be able to bring the family early on at the bedside so that we can really optimize the bonding is something that cannot be dismissed. I've witnessed some events that the medicine cannot explain. So I think we need to be a little bit humble and make sure that we communicate with families so that they understand that their role at the bedside is just as important as everything else.

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Steven Taback: Outside of medicine, would you then advocate that the mother stay at home during the early formative years for the child? We live in a society of two working parents. You think that that has a negative impact?

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Philippe Friedlich: I think that the involvement of the mother or the extent of the family around the child is they are important. If you look at and compare other countries and their social environment, I think it's fair to say that I am not sure that in this country, we have the best model. So I do believe that a child should have a social environment that is robust, that is interactive with family members.

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Bill Curtis: We're going to talk about that in just a minute. We'll be right back with Dr. Philippe Friedlich and Dr. Steven Taback.

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Speaker 2: A moment of your time. A new podcast from CurtCo Media.

00:19:30

Speaker 3: Currently 21 years old, and today, I'm going to read a poem for you...

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Speaker 4: It felt like magic extended from her fingertips

down to the base of my spine.

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Speaker 5: Well, you have to take care of yourself, because the world needs you and your work.

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Speaker 6: Trust me, every do-gooder that asked about me was ready to spit on my dreams.

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Speaker 7: ... fingers were facing...

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Speaker 8: You feel like your purpose and your worth is really being questioned.

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Speaker 9: It couldn't me from playing the piano.

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Speaker 10: She buys walkie talkies, wonders to whom she should give the second device.

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Speaker 11: Pets don't love humans. We never did. We never will. We just find ones that are...

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Speaker 12: The beauty of rock climbing is that you can only focus on what's right in front of you.

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Speaker 13: And so our American life begins.

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Speaker 2: We may need to stay apart, but let's create together. Available on all podcast platforms. Submit your piece at [curtco.com/amomentofyourtime](http://curtco.com/amomentofyourtime).

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Bill Curtis: We're back with Dr. Philippe Friedlich from CHLA and Dr. Steven Taback. So before the break, doctor, you were talking about witnessing some maternal effect, especially in cases where there were babies at risk, that you said medicine could not explain. Can you be more specific?

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Philippe Friedlich: Yeah. I think that despite all the medical intervention, then the medical discoveries that have helped

tremendously in the survival of our most fragile infant, there are still an aspect of bonding maternal or even paternal involvement that has shown to improve outcomes of babies, especially in our intensive care units. A mother's voice, the mother's touch, is really, really important, and what we see in the intensive care arena is that obviously, one of the first reaction from the family is to get very scared and to withdraw from sometimes coming at the bedside, talking to their child or touching their child. And it's been shown that mothers who speak to their premature infant in the ICU, sing or talk to them, have better outcomes, even if you control for all other variables.

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Bill Curtis: Is there any positive impact that daddies have, or is that just all about earning college tuition for sometime later?

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Philippe Friedlich: No, the father is also very important. In the care, we encourage fathers to bond with their child as well. As a matter of fact, you may have heard of the term "kangaroo care," and that's when we really encourage families to actually have skin-to-skin time with their baby. And so it is very powerful when we see a father that is also doing that kind of bonding.

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Bill Curtis: So is it still practiced that after birth, babies are taken to a very brightly lit room where they're watched in plastic bassinets and eventually get back in their mother's hands, but is that still practiced?

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Philippe Friedlich: We try very hard to actually bond the baby with their mother at the time of delivery, even if they are premature, or even if they have significant other conditions, because we believe that that first few minutes with the mom can change many things, both social bonding, but has been shown also that even the microbiome of those infants can be altered. Having said that, we have sometimes to weigh the consequence of, and sometimes have to, take the baby away fairly quickly.

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Steven Taback: Anything in the cutting edge over at CHLA in terms of brain development that may be going on other than just the nurturing bond of a mother and baby?

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Philippe Friedlich: Yes, there are, for example, different approach to manipulate the survival of neurons. We are using now some medications that are called anti-apoptotic drugs. For example, erythropoietin is now given to some high-risk newborn to try to minimize brain damage.

So there are things that we are certainly studying and evaluating in terms of optimizing the chance of babies having normal outcomes for a long time. We didn't know, for example, how much oxygen was necessary for better outcome. And you probably have heard that actually premature infants are kept in a lower oxygen range than older children. And that has changed a lot of their outcomes and decreased the number of babies who have blindness as sequela from their disorders.

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Steven Taback: Are neonates more responsive to stem cell therapy?

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Philippe Friedlich: I'm glad you asked. It's an area that really is uncharted, yet there are some centers in the country that are looking at the feasibility of stem cell research in premature infants and in older children. USC is, for example, looking at cardiac stem cells. Our urologists are doing tissue engineering with stem cells. It's, I think, going to be probably big time in the next decade, but not yet.

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Bill Curtis: What percentage of babies these days are born prematurely?

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Philippe Friedlich: Too many, that's for sure, especially in this country when you compare with other countries that there are of similar economic ability. One of the things that we say, around 10% of babies are born prematurely, so if you believe that there are 4 million babies born every year in this country, that's 400,000.

Now, the good news is that most of those babies are the big premies, and they do pretty well. Having said that, there's been a big push in California, in this country by agencies, such as the Association of Gynecology and Obstetrics and the American Academy of Pediatrics, to really mandate hospitals and physicians to publish, for example, their C-section rates. And the impetus for that is really to try to minimize any birth before 39 weeks. Sometimes, parents and family, or even physicians would plan a delivery just before 39 weeks. And although those babies do quite well, they

don't do as well as a full-term, 39-week baby. If you compare, for example, 38-week, just one week shy of being 39, those babies don't do as well later on in school and things like that. So there has been a big push to minimize what we can prevent. So we can't prevent early birth on the basis of just scheduling a C-section because of family intervention, and that is going to have a significant effect. We still are not good enough to prevent those very preterm births, but preventing unnecessary preterm births is going to have a great impact in this country.

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Bill Curtis: Do you get advance knowledge that you're about to get a client? Does the delivery team know that a baby is about to be born with severe challenges and that they're going to have to transfer the baby to you? Can you describe that whole moment, as well as how do you transfer a baby that's in that kind of shape over to you guys?

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Philippe Friedlich: So most of the time, we obviously get advance notice, and if we know of a prenatal condition, then we have an entire team that is dedicated to, to facilitate the transport. But as soon as the baby is stabilized in the community hospital, or one of our partnership hospitals, depending on the distance, we have at CHLA two helicopters that are ready on a moment's notice, and actually, we are very proud that we can dispatch a team in less than 30 minutes anywhere. We have a special transport team with specialized physicians, nurses, respiratory therapists, that can go on a moment's notice to pick up any child, whether it's a 18-year-old or a newborn.

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Bill Curtis: Is this like a big plastic bubble that has all kinds of functionality to it and support systems? Tell me a little about that transfer. It sounds scary.

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Philippe Friedlich: No, our transport team have special beds. For newborn, there are special transport (inaudible) that has the entire panoply of equipment because we have to mimic the intensive care unit in that transport. We can transport with special medications. And so it's really a team that does an amazing job under very difficult circumstances, because you can imagine the helicopter, although it's a pretty big helicopter, the space is constrained. But if you have ever seen our helicopter, what I love is that on the belly of the helicopter, there's a big yellow sign, says "Baby on board," that I always feel really good when I see that.

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Steven Taback: I have a dangerous question to ask you. Kind of diverting completely to a different level, neonatologists and the team that you deal with, do you think that that changes or influences one's perspective on being pro-life slash pro-choice? Does it have any impact, or do you think that's a total separate issue relative to a woman's choice?

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Philippe Friedlich: As healthcare providers and physicians especially in that arena or where we cross the care of both the mom, the fetus and the newborn, we have to remember that the fetus really cannot talk to us. It's an individual that ethically does not have his own voice. And so regardless of your political or ethical views on the matter, I think the best approach is to try to respect the parental wishes. We spend a lot of time and are not gifted to have people like ethicists and psychologists because the reality is that it is the parents that are going to have to live for a long time, if not for the rest of their life, with their children, and for us to be making decision because of our belief, I don't think is necessarily the best approach. I think the best approach is to try to do the best we can to try to educate families about the things that we know, to make them aware of the things that we don't know, and for them to make the decision about possibility of terminating pregnancy or not.

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Bill Curtis: Let's talk a little bit about pregnant moms and some of the things that you have found more recently that might affect the outcome, the likelihood of a healthy baby. And I realize that this is not directly your specialty, but I know that you've seen the ramifications of the wrong moves, and there's so many wives tales. Everybody knows that pregnant mothers should not be excessively drinking or drinking at all, too much coffee, no drugs. That goes without saying, but what about exercise? Do you believe in a certain amount of rest necessary? What are some advice we can give to the moms that are listening?

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Philippe Friedlich: Yeah, I would certainly tell them to listen to the obstetricians. I think it makes sense that minimizing stress, and there are stresses that are probably not good for a pregnant mother, and optimizing healthy lifestyle. So I do believe that exercise or meditation or wellness is very important for the mom and her baby.

Having said that, I think we're in a country that places a

lot of emphasis on working and how to support the economy of having a family. And I think that when you see other countries where there are a big emphasis in trying to get also some rest for the pregnant mother and minimize the stress of the fetus, I think that it makes sense. So I do think that we should look at optimizing better lifestyle for most women. I think in this country, there are large gap in healthcare, in the opportunity to have access to care, and obviously we are probably the country has the best resources to get the best healthcare for some, but not to all. And I think that unfortunately, we could do better.

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Steven Taback: Do you think that autism is a neonatal issue? When I was growing up in America, every once in a while, we would see a child, one of our classmates that obviously was on the spectrum. It was maybe one per class. And now it seems so pervasive. Is this a developmental issue? Do you have any thoughts of theories about where this is coming from? Why is it so prevalent, and is it in your realm, or is it more even before your realm and the genetic side of things?

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Philippe Friedlich: Yeah, I think the spectrum of causation for autism, I believe there's a genetic basis for many. I believe that there is also environmental overlay, probably even starting in utero. We know, for example, that pollution mothers are exposed to impact the brain of babies. Actually, USC is doing a fascinating study looking at pregnant women and where they are living and traveling to. And so there is no question that we may be able to diagnose or classify autism maybe differently than the past. But I do think that our environment in our society has also exposed more children to the effect of developing different brain disorders, including autism.

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Steven Taback: So very clearly, your perspective, do vaccinations have anything to do with the causation of autism?

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Philippe Friedlich: No, absolutely not.

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Steven Taback: If there was some way on this show to keep saying that several times so that the general public would hear it and process it, that would be wonderful. But I appreciate your very clear and succinct answer.

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Bill Curtis: Doctor, if you could pick one advancement that CHLA has made in your specialty over the last decade, is there something that you're particularly proud of that you can tell us about here?

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Philippe Friedlich: There are a few in my field. I think that the ability to care for babies with very fragile lungs has been very rewarding. We often care for babies that are referred to us because their lungs are very injured from their disease, and our ability to be expert at managing those special ventilators has been tremendous.

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Bill Curtis: There's actually a kind of a ventilator that is so subtle and careful that it can handle the fragility of a newborn lung?

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Philippe Friedlich: Yeah. It's obviously the machine, but it's much more than that. It's really the approach, the rationale to use a specific modality. We have very specific breathing machines that can deliver very, very small volumes to protect the lungs at a very fast rate. And so the good news is that the lungs has a tremendous ability to heal. We are born only with a fraction of our alveoli, or the air cells. And if we can protect them from further injury, we know that the lung will grow back, so to speak. And so there are many children who are in a dire situation as newborn, and with those special techniques, we can now really allow them to have normal lives. And that has been certainly a tremendous feeling of success.

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Bill Curtis: It's a truly amazing statement about our society and nice in these days that we're living in that you can have a bright side like this. And I know that I have spent a good part of my life enamored with my friend, Dr. Steve, because of the dedication that he brings to his science and his art. Dr. Friedlich, I am absolutely honored to have spent the last hour or so with you inspired. And I think that what you do in your hospital is really a bright side for us. And thank you very much for joining us here today.

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Steven Taback: I echo that sentiment as well, really. Thank you for being here. It's been truly a pleasure.



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Philippe Friedlich: It was my pleasure. Thank you so much.

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Bill Curtis: Well, that's it for us today. Thank you, Dr. Philippe Friedlich and Dr. Steven Taback. Doctor, how can people follow you if they want to keep track of your activities and breakthroughs?

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Philippe Friedlich: I would say CHLA has a great website, and anyone that wants to support our cause to deliver better care and better outcomes, I would just engage them to support CHLA.

00:35:03

Bill Curtis: "Medicine, We're Still Practicing" is produced and edited by A. J. Mosley Sound Design and Sweetening by Michael Kennedy. Music is composed and performed by Celeste and Eric Dick. If you found this as informative as I did, please forward the link to your friends, and don't forget to subscribe. Thanks for joining us. We'll see you next week.

00:35:36

Speaker 1: From CurtCo Media: media for your mind.