

Dr. Larson: I think we're doing a better job as practitioners of really listening to patients and their families with the ultimate goal of providing increased quality care and higher quality of life

Scott Webb (Host): The Lurie Children's Division of Orthopedic Surgery and Sports Medicine cares for more than 41,000 children each year. They provide a range of services for children with bone, joint, muscle, ligament, tendon, and nerve disorders, and offer the only Pediatric Bone Health Program in Illinois. And joining me today to tell us about the division, her approach to care and what she loves most about her patients and families, is Dr. Jill Larson. She's a Physician and Surgeon in Lurie Children's Division of Orthopedic Surgery and Sports Medicine. This is Precision Perspectives on Children's Surgery, the podcast from Lurie Children's Hospital. I'm Scott Webb. So Dr. Larson, thanks so much for your time today. Can't wait to get to know you and hear more about you, your specialty, philosophy of care and so on.

And as we get rolling here, what is your specialty? And how'd you get into it?

Jill Larson, MD (Guest): I am a Pediatric Orthopedic Surgeon at Lurie Children's Hospital in Chicago, Illinois, and I specialize in complex care patients. So, those patients include children with cerebral palsy, spinal bifida, or other syndromes. And I treat them from head to toe. So, upper extremity deformities, spinal deformities, concerns as well, as lower extremity deformity.

I actually got my start at Northwestern at Children's Memorial Hospital where I was a trainee. And then a medical student and then was a resident as well. I did my fellowship at Boston Children's Hospital and then came back as an attending here.

Host: Well, It's certainly an impressive vitae or a resume and I'm sure it's just very rewarding work and can't wait to hear all about it today. And I think the natural follow-up is, what your philosophy of care when it comes to dealing with patients, families and so on?

Dr. Larson: So, I really believe in a holistic, multi-disciplinary aspect of care. These are complex patients who have more than just a diagnosis or orthopedic condition. They have a family and they have a support network and they have a social structure that I think definitely impacts their life on a daily basis. And then ultimately impacts their diagnosis, their conditions, their surgical intervention and their ultimate quality of life. So, I really see myself as a member of a larger team. And my ultimate goal is to be a patient and dedicated and understanding physician. But I'm also driven to be an excellent technical orthopedic surgeon.

Host: Yeah. And along those lines and it's always so great to hear just that philosophy of care. And I love hearing about the holistic approach. So, when you think about developing a treatment plan for a patient, right, what's that process like? Take us through that.

Dr. Larson: Yeah. Yeah. So, it depends on what the diagnosis or deformity is, but for example, children who have complex spine deformities or a scoliosis, often are seen and evaluated by their pediatrician first. Sometimes a physical medicine and rehabilitation specialist. Sometimes it's their pulmonary care providers. Or other physician who initially picks up on their scoliosis or curvature of the spine before they get referred to me. And then myself, as part of a big team, which includes bone health specialists, neurologists, again, physiatrists, physical therapists, GI specialists, and others, evaluate the patient for readiness for surgical intervention.

And this usually happens 12 to 18 months before we even consider surgery. And our goals are to maximize their health, make them as strong as they possibly can be for surgery. So, if we're specifically talking about the spine, I want to make sure that their bone health is strong. So they get evaluated for that. I want to make sure their nutrition is appropriate. So they're often seen by a nutritionist or even a GI specialist. They're also evaluated for their overall nutrition with labs as well as their blood status. And then as we get closer and closer to surgery, we're narrowing down on other things that I can minimize in terms of risk, whether it's blood loss or infection or other associated medical comorbidities, such as pulmonary issues or constipation, et cetera.

Host: Yeah, it sounds really comprehensive and just a great multidisciplinary team that you've got there at Lurie Children's. Tell us about working with the neuromuscular patient population and what special considerations there might be.

Dr. Larson: So when we think about especially patients with cerebral palsy, these are often patients who are non-ambulatory before surgery. And of course they're going to be non-ambulatory after surgery, but that doesn't mean that they're not functional or provide an important contribution to our society. And so when I start thinking about surgical intervention, my goals before surgery are to improve their quality of life and ultimately hopefully improve their functionality. And so in children that are non-ambulatory with cerebral palsy, we're really focusing on seating and positioning in their wheelchair, as well as comfort and then access for care and their care providers to make sure that there's not too much burden on their caregivers.

So the indications for surgery for a patient with cerebral palsy would be a patient who's in pain, who's having difficulty with sitting balance, someone who has a skin irritation or sores, someone who doesn't tolerate a brace. And then ultimately the goals of surgery I consider to be successful if the patient has improved sitting posture in a chair after surgery, if the caregiver burden is improved with transfers or daily hygiene, if they feel more upright and therefore can have better socialization with the world around them. And this has been proven in the literature when children with cerebral palsy fill out surveys via CP Child, that the most important kind of factor in evaluating whether a surgery is successful is whether the children have an improved quality of life. And that has borne out to be the case in children with cerebral palsy.

Host: Yeah, I see what you mean. And so then how do you plan for a procedure when it comes to a surgical correction? Let's say for a complex spine, hip or foot diagnosis.

Dr. Larson: Every child is different and it first starts with of course, just a clinical evaluation, and an understanding of the underlying issues and a good physical exam. And then we obtain radiographs and sometimes even advanced imaging, whether that's a CT or MRI. For patients that are specifically undergoing spine surgery, we do a series of radiographs demonstrating the flexibility of the curve and also a traction view to see how much correction we can get in the operating room.

And then, the procedure itself for specifically a spine surgery, we have a Complex Spine Protocol that we follow. So here at Lurie Children's Hospital we have a dual surgeon technique that we use. Surgery itself is eight to 10 hours. Children stay in the hospital for five to seven days and at least one night overnight in our intensive care unit for close monitoring. And then we see them on an outpatient basis at routine intervals, including three weeks and six weeks, at which time often we're initiating physical therapy to help regain their strength after surgery.

Host: Yeah, it's just great hearing about this. I have a couple of kids myself, so I'm always fascinated, the inner workings at hospitals and surgery on children. And just great to hear that you know, really checking in with them, staying with them, seeing them through PT and all of that. And wondering if your approach is different in the OR than others? And if so, in what ways, and basically, is there a reason why you feel like your approach may be different than others?

Dr. Larson: Well I think that we here at Lurie Children's Hospital really value quality and safety, and that's a personal goal of mine. I feel like striving for excellence means having high quality and in this particular arena, it means

reducing risks as much as possible. This is a very complex patient population and the risks of surgery are high. And so I see my role as much as I possibly can to be a risk mitigator. I can't take away all of the risks of surgery, but I think what we've done really well is protocolized our pre-op evaluation, our interoperative course and our post-operative follow-up to try and minimize as many complications as possible.

And I think that one thing that sets us apart from other places is that we do an appropriate volume of these cases every year. Not too few, but not too many, but just the right number so that we really can provide outstanding care to each patient and make sure that they get really great result.

Host: Yeah. And obviously all parents with children, that's all we want. We want that quality of life. We want great results. And I loved hearing about your approach, and I know that you helped to develop a Complex Spine Protocol, and I'd love to hear more about that. Who's it for? Why is it a great initiative and so on.

Dr. Larson: So the Complex Spine Protocol first was designed to identify those patients that are at highest risk that undergo spine surgery. And so through a combination of literature review as well as kind of expert opinion, we developed a algorithm for the patients that would fall under this protocol. And in general, they're patients with cerebral palsy that are non-ambulatory or patients with cerebral palsy that are ambulatory that have medical co-morbidities and that's well demonstrated in the literature. It also includes patients with spinal bifida that have associated risk comorbidities, as well as other non-verbal or non-ambulatory patients that have other syndromic conditions with associated scoliosis.

And so they go through a pre-op workup, including starting 12 to 18 months prior to surgery where they get a bone health workup. They also, again see the nutritionist and we evaluate their weight and then closer to surgery, they are doing a dental evaluation and often seeing specialists, including GI specialist, pulmonary specialist, cardiac specialist if needed and then a month prior to surgery when we do our preoperative discussion and evaluation, we monitor for infection. So, we do swabbing of each patient to look for colonized MRSA which is methicillin-resistant staphylococcus aureus. And if they're positive, then we dose them with appropriate antibiotics for prophylaxis. We also do often a colorectal consult to minimize the risk of constipation after surgery, as well as identify any other potential risks that we can reduce. And then we have a protocolized plan post-operatively. All patients go to the intensive care unit for a close monitoring for at least one night. And then manage medications in a protocolized fashion, again with close monitoring and feedback for families.

Host: Well, I'm sure the families appreciate that. And it just sounds like patients, children are in such good hands. And I know that you're a proponent of the safe uses of innovative technology in the care of pediatric patients, such as a spinal navigation, intra-operative 3D imaging. So what does all that mean exactly Doctor and who does it benefit and how?

Dr. Larson: That's a great question. I've been trained in an age before technology, as well as trained during the initiation of technology and now practice in an era where technology is standardized across the board. And so I've been able to practice in each one of these kinds of genres. And I definitely feel that where we are right now is the safest for patients. And I think when appropriate technology is used in certain indications, it can be very valuable. One thing you mentioned was spinal navigation and the use of 3D intraoperative imaging. And I think that has significant advantages in complex spine and scoliosis specifically, in the arena of reducing operating room time, which then often translates to reducing blood loss in surgery, as well as decrease the risk of neurologic issues regarding implant placement. So, I think there's a lot of benefit to using this technology in the right patient population, which I do think is beneficial in many of our complex spine patients.

Host: I think we covered a little bit earlier, but I want to hear more about your training that you've done, that makes you an expert, which you are in both the hip and spine and foot deformity areas.

Dr. Larson: Yeah, I originally trained both medical school and residency at Northwestern where I was privileged to have some rotations at the then Children's Memorial Hospital, now Lurie Children's Hospital and was taught by outstanding mentors, including Luciano Diaz, Denita Sorupe, and John Grayhack.

And now I'm fortunate to be partners with them. And they set me on the course and interest in pediatric orthopedic surgery and then furthered my training at Harvard Boston Children's Hospital, where I had outstanding mentors in the realm of neuromuscular conditions, both spine, hip and lower extremity deformity.

And it was a great opportunity to expand my education and knowledge and bring back new ideas and concepts here to Chicago and Lurie Children's Hospital. And that was one of the impetuses for starting the Complex Spine Program and bringing some new innovation to Lurie Children's Hospital.

Host: Yeah, definitely. And I, established, you are an expert, in so many areas

really, but I'm sure there are times when you need to turn to someone, you need to speak with someone. Who and where, when you do need to ask someone a question are we talking about some of your mentors that you now partner with, where does an expert like yourself go when you have questions about a case or a patient?

Dr. Larson: Really fortunate to have partners here at Lurie Children's Hospital who are also experts in the same arena and provide expert opinions and support. Also within the Chicagoland area, the Shriner's Hospital has outstanding physicians, but I often turn to some of my mentors at Boston Children's Hospital to review cases, ideas, or new innovative research thoughts. And then of course we have our national organizations. I'm very active in the Pediatric Orthopedic Society of North America also known as POSNA. I'm part of their Neuromuscular Quality Subcommittee, where we're looking at how we treat this neuromuscular patient population, how do we improve quality initiatives to make our outcomes even better and make our patients have safer surgeries.

Host: Yeah. I love hearing that. And I'm sure listeners do as well. When we hear the doctors and scientists and clinicians talking to each other and reviewing cases and making sure that everybody's on the same page and we're you know, doing all the right things for as many patients as possible. It just brings a smile to my face as I'm sure it does listeners and you and I have established here today that things have changed a lot. So, maybe take us back 10, 20 years ago, what things were like, and then really tell us what you're excited about. What does the future hold?

Dr. Larson: So I think 10 or 20 years ago we all practiced a lot more in silos as independent providers and we are becoming much more collaborative and as medicine in general, becomes more broad and there's more knowledge to gain. We each become a little bit more experts in our silos and need to connect and communicate with one another to share our expertise. And I think through technology and innovation, we've been able to do that. And I think really what's changed the practice certainly a pediatric orthopedic surgery is being more collaborative, having a more multi-disciplinary approach to the care of these really complex kids. Creating centers of excellence, where families know that they can come to one center and see five or six providers that are experts in each one of their own niches, but together work as a team to provide this kind of comprehensive care to these really complex patients. And I think this will only continue in the future with these kind of centers of excellence, where you may need to travel a little bit farther. But then you see all experts on a particular diagnosis or condition in one place and kind of get this really outstanding comprehensive care. I think technology will continue to innovate. And in the realm of orthopedic surgery, I think it will be technology that helps increase

safety. Whether that's operating room time. Whether that's technologies to decrease blood loss, whether that's technologies to decrease infection rates, whether that's instrumentation that becomes less invasive and more streamlined.

I think that there's great research out there that continues. And ultimately I think in the research realm, what we're striving for is improved patient reported outcomes. So in the kind of quality and patient outcomes arena, we're really looking to hear the voice of the patient. It's no longer does the x-ray look better, but is the patient's quality of life better.

And we're developing new and better tools to assess that, whether it's serving patients are surveys of providers and care family members. I think we're doing a better job as practitioners of really listening to patients and their families with the ultimate goal of providing increased quality care and higher quality of life.

Host: Well, it's amazing work and been so great today to learn more about you, your approach to care, how all of this benefits patients, really fascinating thank you so much, Doctor, and you stay well.

Dr. Larson: It's been an honor. Thank you so much, Scott.

Host: Learn more about Lurie Children's Pediatric Orthopedic Specialists, including how to make an appointment at Luriechildrens.org/orthopedics.

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Host:

This is Precision Perspectives on Children's Surgery, the podcast from Lurie Children's Hospital. I'm Scott Webb. Stay well.