Everything Matters In
Patient Care

Therapeutic Interventions
The Division of Clinical Therapies at Nationwide Children's Hospital works together as One Team to provide Best Outcomes for our patients.
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Pictured left: More than 450 employees make up the Division of Clinical Therapies across seven specialties.
Greetings. By the time you are reading this, we will have successfully opened our new Big Lots Behavioral Health Pavilion. We know that one in five children is living with mental illness. Back in 2015, Nationwide Children’s Hospital Board of Directors recognized the growing Pediatric Behavioral Health Crisis creating a compelling vision for improving access to high quality, evidenced based pediatric behavioral health care and research. In doing so, they also committed to providing those services in an environment that was innovative and designed to meet the unique needs of our pediatric patients and families.

In August 2016, Big Lots announced a transformational $50 million gift to lead the way in addressing this extraordinary need, by constructing America’s largest center dedicated exclusively to child and adolescent behavioral health. Our new nine story, 386,000 square foot hospital features integrated inpatient and outpatient services as well as a Psychiatric Crisis Department. Our nursing and organizational strategic plans align with this vision to break stigmas, improve access, provide evidenced based care and research for this vulnerable population.

At the center of our Professional Practice Model is our patients and families; they drive everything we do and every decision we make. This model powers our Journey to Best Outcomes by providing an environment, support and structures to best meet their needs. This is seen in both the physical design of the Behavioral Health Pavilion as well as the therapeutic care model provided by the physicians and staff of the Behavioral Health teams.

This has also been an unprecedented time in our efforts around COVID-19, coming right on the heels of the opening of our new Behavioral Health Pavilion. So many people have contributed to the successes in caring for our patients, families and staff. From lab teams that early in the pandemic implemented in-house testing, to our Incident Command teams and ED and Urgent Care teams that quickly operationalized our drive-through testing stations, to our tireless epidemiology teams that have worked countless hours to manage our COVID-19 operations, and the thousands and thousands of our associates, at the bedside as well as in non-direct care areas that have made a difference. You are all heroes without capes!

I also want to take a moment to introduce myself to those of you I haven’t met yet! I came to Nationwide Children’s Hospital in 2012 as the Neonatal Service Line Administrator. My career started as a NICU nurse, which included operational leadership of primarily Women and Infant Service Lines. I also spent some time in adult general medical, surgical and oncology nursing for a wide breadth of experience as a nurse. I first decided to start down the nursing career path because of my love of science, my curiosity about medicine, my awe of biology and physiology of the human body. I look forward to meeting each of you to better understand you, your department’s role in caring for our patients and families. I am so humbled and honored to be part of an organization that lives its values, and is guided by our mission, to work alongside each of you as we seek to break stigmas and transform the care for our patients and families.

Lee Ann Wallace
RN, MBA, NEA-BC
Senior Vice President, Patient Care Services, Chief Nursing Officer

The Professional Practice Model

A Welcome From Our New CNO
One Team, Common Goal: Knowledge Translation and Evidence-Based Practice in Clinical Therapies

Ursula M. Findlen, PhD, Director of Audiology Research
Mitchell C. Selhorst, DPT, Director of Sports and Orthopedic Therapy Research
With more than 450 employees, the Division of Clinical Therapies is one of the largest divisions at Nationwide Children's Hospital and spans seven specialties: Audiology, Massage Therapy, Occupational Therapy, Physical Therapy, Speech Language Pathology, Sports and Orthopedic Therapies and Therapeutic Recreation. Despite the diversity of clinical services and expertise represented across the division, the Clinical Therapies team has had a unified vision for research and evidence-based practice (EBP) since its inception in 2006. The knowledge translation program within the division has evolved over the past 14 years but the goal has remained constant: To produce new knowledge and support the use of evidence to guide patient care. This endeavor is at the base of what Clinical Therapies does to help children reach their best outcomes.

Initially, two positions were created as part of the knowledge translation program, including a research coordinator and an EBP coordinator. The research coordinator is charged with engaging clinicians in the production of new knowledge by facilitating research question formulation, study design, study execution and dissemination of clinical research. The EBP coordinator keeps clinicians at the forefront of clinical practice by working to integrate new research knowledge into daily care. The EBP coordinator acts as a knowledge broker by developing formal knowledge translation processes, providing education and staff support, and supporting the development of clinical guidelines for implementation in clinics within Nationwide Children's but also at the local, regional and national levels.

Despite significant success of this program in its early years, implementation was not without its challenges and barriers. The limitations of only having one research and one EBP coordinator for all Clinical Therapies became clear as growth occurred rapidly. The need for increased time and resources, support from leadership to facilitate staff involvement and increasing staff knowledge about the program in general also grew. Several strategies were implemented to counteract the growing pains of the program including increased time for coordinators, increased staff education, a requirement of engagement in the program as a part of job expectations and facilitating a culture change to emphasize the importance of knowledge translation and EBP. Ultimately due to the growth of the program and the division as a whole, one coordinator for each of the areas of concentration blossomed to multiple research coordinators and EBP coordinators to support each of the seven specialties in clinical therapies. The research and EBP coordinator team now includes six clinician researchers and 10 clinicians all working towards a common goal of knowledge translation. The team facilitates new knowledge production and EBP across the seven specialties in both outpatient clinics and inpatient programs. Additionally, the team collaborates with departments throughout Nationwide Children's, other local institutions and facilities and academic institutions across the United States.

The research and EBP program of today still reflects the initial purpose of the program started in 2006 but the program is executed in several different ways that have evolved over time. From a clinical research standpoint, research coordinators are charged with engaging staff in the clinical research process, but also seeking out external funding sources and collaborators to propel the research program to new levels. Two-pronged approach has resulted in numerous clinical research studies and quality improvement endeavors that impact clinical practice within, and outside of, Nationwide Children's.
The popular Seven Steps of Evidence-Based Practice from Melnyk and Fineout-Overholt are initiated by cultivating a spirit of inquiry, which can be considered the EBP correlate of Nationwide Children’s standard of encouraging a questioning attitude. The EBP arm of the program uses a variety of channels to create a spirit of inquiry which results in clinical practice guidelines and pathways used by Nationwide Children’s clinicians and providers across the United States alike. Journal clubs and grand rounds sessions successfully educate staff in the latest practice standards by highlighting the newest published research and inviting content experts in each of the specialties to impart their knowledge.

The clinical topics covered result in a Clinical Outcome Group, a voluntary team of Clinical Therapies staff members who have identified a clinical problem in need of investigation and consensus building to guide clinical practice. Clinical Outcome Groups meet regularly to thoroughly investigate the clinical question at hand, often including a formal literature search, critical appraisal of studies relevant to the clinical topic and formulation of a consensus statement regarding how to proceed. Measurable outcomes of these groups often include a new or updated clinical protocol to guide clinical decision making or a clinical pathway to guide families through navigating their child’s care. New research questions and quality improvement endeavors are often the by-product of the Clinical Outcome Groups, and as such, the research and EBP arms of the program work together to fuel the forward evolution of the program (Figure 1).

Thanks to the evolution of this program and the dedication of our staff, our research and EBP program has grown significantly over the last 14 years. Within the past year alone our staff has authored 34 publications in peer-reviewed journals and presented 39 posters and 65 oral presentations at state, national and international academic and professional meetings. These articles, abstracts and presentations are not from the coordinators alone but represent a major change in culture of the Clinical Therapies division where staff work together to progress research and integrate EBP into practice.

The articles in this issue will include just some of the accomplishments of the Division of Clinical Therapies through the Research and EBP programs. All seven departments are included. The specific areas highlighted are the WeeMove program, bilingual speech therapy, sports and orthopedic therapy, dosing of therapy throughout the division, the Hearing Program, therapeutic recreation, occupational therapy and massage therapy.

Collectively, these articles are just a few examples of how the Division of Clinical Therapies makes meaningful contributions to Nationwide Children’s and the vision of meeting best outcomes for kids everywhere.
Technology Licensing: What Do You Need for a Patent?

Andrew M. Corris, PharmD, JD, Senior Licensing Associate
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Patents are a form of protection offered by the government for useful ideas. Without that protection, inventors may want to keep new ideas secret where society cannot benefit from them. For society’s benefit, the Constitution offers a way for inventors to apply for patents to get the benefit of new ideas while letting society know about them sooner.

While there are several forms of patents, the most common form is a utility patent. Utility patents cover any new or improved product, process or machine. For example, if an inventor creates the first bicycle, she may apply for a utility patent to cover:

1. The physical form of the bicycle and specific necessary parts,
2. The method of using bicycles for transporting people or goods, and
3. The industrial process of creating a bicycle.

She would make the application to a government agency in charge of reviewing and awarding patents called the United States Patent and Trademark Office (USPTO). After applying, a USPTO examiner would review the patent to see that the invention is novel, nonobvious, and useful.

Novelty requires that no one has described or performed the invention before you. The examiner will perform a prior art search, or review old publications and patent applications, to see if there are any previous mentions of the invention. Nonobviousness, one of the requirements for obtaining a patent, asks whether someone who is familiar with the field would have thought of the invention already. Nonobviousness is typically the hardest requirement to fulfill. Finally, the examiner will determine if the invention is useful if the invention works for some purpose.

The patent examiner will assess the patent claim by claim. Claims are a numbered list of the subject matter covered by the patent. Claims tell the inventor and others how much the patent covers just like a real estate deed might list the boundaries of the property. Claims are written in a very technical manner, so it requires a patent attorney to write and interpret them.

If the patent examiner finds a problem with the patent request, the patent is rejected with an explanation and the inventor can usually reapply after making changes and paying a fee. Once all the above requirements are fulfilled, the patent examiner will allow the patent. The owner of the patent can use their rights to keep others from using their invention or to sell the rights to other people.

Utility patents last for 20 years after the date of the original application, but sometimes longer if there are USPTO delays. Every so often the owner of the patent pays fees to maintain the patent. Anyone can use the invention after 20 years or if the owner abandons the application first. Ultimately however, the public will know about the invention as soon as the application is published, which is usually 18 months after the application. For that reason, if someone is working toward a similar invention, their efforts will not be duplicated and they can focus their efforts elsewhere.
How Massage Therapy Provides Patient Support

Deborah Zerkle, LMT, CA, CIMT, CPMT, Licensed Massage Therapist, Certified Aromatherapist

The Nationwide Children's Hospital Massage Therapy Program began in 2001. At that time, there was only one massage therapist that focused on providing care to patients with Cystic Fibrosis. The team has experienced a profound growth since that time. Presently the program has 14 Licensed Massage Therapists that provide services to all the inpatient units, three outpatient clinics and in the home therapy services.

How Massage Therapy supports patients

Massage therapy has many health benefits. It can assist the body in switching from the sympathetic nervous system response (“fight or flight”) which is often seen with heightened anxiety and pain, to the parasympathetic response (rest and digest). As a result, this may ease postsurgical pain and help with overall body relaxation. This can contribute to a reduction in both anxiety and stress, as well as possibly shorten the patient’s length of stay.

A true gauge of the effectiveness of massage therapy can be seen in the patient’s response to such interventions. Patients may fall asleep from a foot massage after a painful and restless night or relax during a shoulder massage after a procedure that increased their anxiety level.

The massage therapist can also serve as a supportive role when patients are to participate in other therapies, such as physical therapy or occupational therapy. By decreasing muscle tension and anxiety, the patient may be a more active participant in these therapies, which in turn may speed healing and increase functioning.

How the team will move forward

As our team expands the services offered to patients, we continue to examine and utilize evidence-based research and clinical knowledge to best serve our patient populations. This allows our team to obtain quality patient outcomes. Our team is currently engaged in grant funded research, writing clinical case studies and presenting posters at national conferences to enhance professional knowledge.

Our Massage Therapy Team is unique in that Nationwide Children’s is one of relatively few pediatric hospitals to have a fully employed massage therapy staff. Our goal is to continue to expand professional knowledge that we can share with other pediatric hospitals to positively impact overall patient care outcomes.
When our son Logan was born, we were told in the hospital that he was “referred” on his newborn hearing screening. This was the hospital’s way of telling us that he did not pass his hearing test and that his hearing needed further evaluation. Since our family had no history of hearing loss, we were doubtful that Logan actually had trouble with his hearing, but we dutifully scheduled an appointment for testing at Nationwide Children’s Hospital.

The instructions for our first appointment with an audiologist were overwhelming. Logan needed to be asleep for the testing, an auditory brainstem response test, to be accurate. We were instructed to try and sleep deprive him so that he would sleep soundly throughout the testing. How do you keep a six-week-old baby awake?

Though we struggled, Logan fell soundly asleep and I watched cautiously as the audiologist hooked wire upon wire up to my baby son’s small head. We sat in silence for what seemed like a very long time, until the audiologist uttered words that would change the course of our journey:

“I am going to go ahead and call this a profound hearing loss. Your baby is deaf.” I packed my sleeping six week old into his car seat, took a pamphlet and left. My husband and I glanced at each other on the way home from our appointment – unsure of what to say to one another.

“I can’t believe Logan is still sleeping.” Charlie whispered to me.

“Why are we whispering?” I whispered back. “He can’t hear us.” We laughed. Humor was always our go-to coping mechanism in uncomfortable situations.
A few weeks later, we met with our Hearing Program team. At Nationwide Children’s, when a baby is identified as deaf, as Logan was, you are referred to a multidisciplinary team – The Hearing Program. This team consists of an ENT physician, a speech language pathologist, an audiologist and a social worker. This team is uniquely suited to meet the needs of families who are new to the program. Each person presented different information and there were a lot of choices to make in the beginning. Ultimately, the team decided together that Logan would be an excellent candidate for cochlear implants.

On October 24, 2014, at age ten months, Logan got his “ears.” A few weeks later, on November 10, the audiologist activated them and Logan heard the world for the very first time. What most people may not know is that cochlear implants, especially in the beginning, are not a miracle cure. They require extensive and frequent programming and adjustments, and years of a special kind of speech therapy, auditory verbal therapy.

Initially, we were at the hospital very frequently. We had weekly, then bi-weekly, then monthly appointments with the audiology team. In addition to programming Logan’s equipment, our audiologist, Jori, helped teach me how to use the equipment at home. Jori was incredible. In addition to changing batteries, microphone covers, taking equipment apart and trouble-shooting, together we tackled the very real reality of trying to keep Logan’s ears on his head and out of his mouth.

After Logan’s implants were activated, we started auditory verbal therapy (AVT) with Shana. AVT is a special kind of speech therapy specifically designed to help deaf children learn to listen and talk. More so than teaching Logan, Shana taught me how to implement AVT therapies in our home every day and gave me confidence in myself to help Logan. After all, as his primary caregiver, I was also his primary language model. Shana also taught me how to be an advocate for Logan. Surprisingly, not many medical providers in other specialties are familiar with cochlear implants or deaf children, despite the relatively high incidence of hearing loss. Shana gave me the confidence to educate providers on the unique needs of kids with hearing loss and cochlear implants.

Shana and Jori also helped tremendously because they worked collaboratively to co-treat Logan. When Logan had an issue with speech, Shana could tell Jori what sound Logan was struggling with, and Jori could then specifically target that speech frequency in our programming sessions – a strategy we still use today with our audiologist, Michelle. Let me tell you – watching your baby all of the sudden say a “b” sound after a few computer clicks is nothing short of magical.

From the beginning, Nationwide Children’s not only supported Logan’s hearing journey by providing the best technology and state of the art audiology and speech services – but almost more importantly, they cared for our whole family. Shana let me know that our older daughter could go to the Sibling Clubhouse at the hospital during our weekly speech appointments. Further, the Hearing Program has an annual picnic

**From the beginning, Nationwide Children’s not only supported Logan’s hearing journey by providing the best technology and state of the art audiology and speech services – but almost more importantly, they cared for our whole family.**

Today, Logan is five years old and enrolled in mainstream kindergarten. His speech tests higher than his typically hearing peers – his vocabulary is at the age equivalency of a typically hearing ten year old. We have graduated from speech therapy and only see our audiologist twice a year. The Hearing Program has become our second family and we are forever grateful for their innovative and family-centered approach to Logan’s care.
Dose Matters: Dosing Considerations & Current Models of Care for Clinical Therapies & Audiology

Rachel Bican, PT, DPT and Kelly Tanner, PhD, OTR/L, BCP
When providers prescribe medication to treat a child, they always specify the dose of medication as well as when and how often it should be administered.

For children with developmental delays or deficits and those recovering from an illness or injury, services like occupational therapy, physical therapy, speech and language pathology, massage therapy, therapeutic recreation, and audiology are often part of their treatment plan. Physicians prescribe these services just like medicine, and just like with medicine, we need to know the right dose to give to children.

Dose of therapy can be described using the FITT principle: frequency (how often the intervention occurs), intensity (how hard the child is working), timing (when the intervention is delivered) and type (what activities the child participates in). In the Clinical Therapies Division at Nationwide Children's Hospital, we work to manipulate these variables to provide the best care possible to patients and their families. Across Clinical Therapies, we sometimes refer to dose as models of care. The model of care we provide varies by discipline, and within each discipline based on the individual needs of our patients.

We utilize best evidence, clinical expertise and patient and family input to determine the best model of care for each individual. Using the family-centered care framework, the patient and family's needs and goals are always at the center of this decision. The family is integrated as a crucial team member in decision making when deciding which model of care would be best for them. We also consider factors such as age, diagnosis, prognosis and social support when facilitating a discussion about an appropriate model of care with the patient and their family. A combination of all these factors help us to decide which dose, or model of care, is the best fit!

In the Division of Clinical Therapies and Audiology, there are many different models of care that we offer. These models of care differ depending on the setting (inpatient, outpatient and homecare therapies) as well as across disciplines (occupational therapy, physical therapy, etc.).

In the Audiology department, visits are spaced at regular intervals following current best practice protocols. For example, we follow the 1-3-6 Care Model. In this pathway, patients who fail their newborn hearing screening at their birth hospital are seen for diagnostic follow up by three months of age. If a hearing loss is detected, both amplification and enrollment into early intervention services are recommended within one month of diagnosis. Speech language pathology is recommended immediately, but expected to be implemented by six months of age. Children who are fit with amplification have follow up visits scheduled every six months to monitor hearing levels and device functions and settings.

In our Sports and Orthopedic Therapies team, patients' care plans are individualized based on their functional goals in order to return them to sport or play in the most efficient timeframe, while maintaining focus on long term injury prevention. Our department is also leading the way with research studying how we can improve outcomes in fewer visits to reduce the cost burden to patients and families. In turn, this helps kids return to doing what they love more quickly and safely, setting them up for long term success and exercise participation.

In our Speech Language Pathology department, models of care are based on patients' individualized communication needs. For example, a child who uses augmentative and alternative communication (AAC) may be seen weekly and then transition to group or consultative models of care as they acquire the skills needed to use their communication strategies effectively and efficiently.

[Continued]
We utilize best evidence, clinical expertise and patient and family input to determine the best model of care for each individual. Using the family-centered care framework, the patient and family’s needs and goals are always at the center of this decision.

Identification of optimal dosing for pediatric therapies is currently a priority of the rehabilitation field. Specifically, recent research has shown that for many patient populations, a quick burst of intensive therapy may be more effective than a lower dose of therapy spread over a long time period. This model of care is thought to mimic natural learning of a skill — the skill is learned, then the individual has an opportunity to practice the skill in their own environment, such as at home, in school or on the field. In the Division of Clinical Therapies and Audiology, we provide some of the most cutting-edge evidence-based therapies. In addition to updating our current clinical programs to ensure they are aligned with the latest research, we also collaborate with researchers to create new knowledge in this area. This takes place in several ways:

1. Implementing current clinical practice guidelines
2. Testing the effectiveness of clinical programs we already have using rigorous quality improvement methodologies
3. Participation in prospective trials that specifically manipulate the dosage of therapies.
These intensive programs are designed follow current best practice standards.

**Constraint-Induced and Movement Therapy (CIMT) and Bilateral Intensive Therapy (BIT):**
This outpatient occupational therapy program provides intensive therapy to children with hemiparesis ages six months to 18 years. We offer several different versions of this therapy depending on the child’s age and developmental level, as well as the family’s goals and priorities. We regularly evaluate our program based on the latest evidence as new research on these programs continues to emerge.

**Intensive Feeding Program:** As part of the Comprehensive Pediatric Feeding Program, eligible patients can receive intensive feeding therapy when they have tried traditional outpatient therapies and have not made expected progress. Services are provided by an interdisciplinary team including Complex Care physicians and nurse practitioners, occupational therapists, speech language pathologists, psychologists, nutritionists, social workers and nurses in addition to others. Patients eat three meals a day, five days per week, for six-eight weeks at the program, initially fed by providers and then by parents and other caregivers in order to take on an active role in therapy as their children progress.
2. Testing effectiveness of clinical programs through QI:

These innovative clinical programs are being implemented using quality improvement methodology to track outcomes.

**Transplant Energize Me Patient Outcome** (TEMPO): This multi-disciplinary, quality improvement project established a novel, standard of care for patients admitted for hematopoietic cell transplant at Nationwide Children's. TEMPO incorporates goal-directed, intensive physical therapy, occupational therapy, massage therapy, therapeutic recreation, and speech and language pathology. The project aims include maintaining and/or improving functional mobility, functional strength and endurance while reducing resource utilization as measured by length of stay, duration of total parenteral nutrition and patient controlled analgesia, and number of infections and readmissions by 100 days following transplant. WeeMove: This inpatient quality improvement initiative provides daily physical and occupational therapy for children in the pediatric intensive care unit and cardiothoracic intensive care unit, from birth to 21 years old. This program helps improve functional mobility for our patients and reduce health care utilization.

When it comes to pediatric therapies and audiology services, one size does not fit all. New research, some of which created at Nationwide Children’s, continues to emerge that guides our program development.
Several of our clinical programs have become prospective trials of effectiveness through partnerships with The Ohio State University. In these programs, we are intentionally giving different doses of therapies to children and then measuring their outcomes.

**Daily and Weekly Rehabilitation Delivery for Young Children with Cerebral Palsy (DRIVE):** This outpatient physical therapy randomized controlled trial, Principal Investigator: Jill C. Heathcock, PT, MPT, PhD, provides therapy for children with moderate-to-severe cerebral palsy ages six months to two years old. The children enrolled into this study are randomized into three different models of care (low frequency, moderate frequency, and high frequency) with the same total dose of 40 hours of intervention delivered. This study will seek to determine the optimal frequency of physical therapy for this population.

**High Intense periodic vs. Every week Therapy in Children with Cerebral Palsy (ACHIEVE):** This outpatient physical therapy randomized controlled trial, Principal Investigator: Jill C. Heathcock, PT, MPT, PhD, provides therapy for children with cerebral palsy ages three to eight years old. The children enrolled into this study are randomized into two different models of care (low frequency and high frequency) with the same total dose of 40 hours of intervention delivered. Similar to DRIVE, this study will determine the optimal frequency of physical therapy for this population.

By participating in such trials, we continue to move the field of pediatric rehabilitation forward while also providing the highest quality care to our patients.

When it comes to pediatric therapies and audiology services, one size does not fit all. New research, some of which created at Nationwide Children’s, continues to emerge that guides our program development. In the future, we envision providing personalized rehabilitation by modeling dosage of therapies to each child and their family. In addition, we will integrate our dosing models across the care continuum to provide a seamless experience for all families.
Therapeutic Recreation and Occupational Therapy
Helping Children and Families Reach their Full Potential through their Behavioral Health Journey

Valerie Mould Lazzara, MA, CTRS, Therapeutic Recreation Specialist, Inpatient Therapeutic Recreation EBP Coordinator
Inpatient Clinical Therapies

Elizabeth K. Schmidt, PhD, OTR/L, Outpatient Occupational Therapy EBP Coordinator
As a national leader in childhood behavioral health, Nationwide Children’s Hospital is pushing the field forward using an interdisciplinary approach. Clinical therapies, including Occupational Therapy (OT) and Therapeutic Recreation (TR), increase awareness and reduce stigma around mental health while helping children and their families reach their full potential. As part of a larger treatment team including psychiatry, developmental behavioral pediatrics and many others, OT and TR offer specific skills to address the challenges seen. OT focuses on promoting function and independence in daily living activities. TR utilizes recreation and leisure interventions to promote outcomes for their patients. OT and TR may treat patients with depression, anxiety, suicidal thoughts, aggressive behavior, intellectual or developmental disabilities, psychosis and/or homicidal ideation in the Youth Crisis Stabilization Unit (YCSU), inpatient and outpatient settings.

Many patients presenting with a psychiatric concern will be admitted to the YCSU. Clinical therapies on this unit consist primarily of TR services with the ability to include OT on an individual basis. During the typical short length of stay providers of crisis management with a high focus on cognitive behavior therapy, leisure as part of a healthy lifestyle and stress management. Interventions utilized include self-expression, cognitive/social games, gross motor outlets, discussion of leisure education and community re-entry. Family education and involvement is an essential aspect of the services provided.

The inpatient psychiatric unit offers treatment including OT and TR for patients needing a longer duration of care. Utilizing both a group and individual setting, OT primarily provides interventions targeting self-regulation and coping, communication, self-esteem, time management, family education, life skills and self-care. Under the same treatment model, TR primarily utilizes interventions related to leisure education, family education, social skills and relationship building, community resource training, communication, self-esteem and healthy outlets for leisure engagement. Clinical therapies can treat patients together as well as with other members of the treatment team to meet the individual goals established for the patient.

As a patient completes their treatment in the YCSU or inpatient programs, outpatient clinical therapy may be an appropriate referral. Similar to some of the goals of therapy sessions at the inpatient level, individual outpatient treatments may address self-esteem, social skills, coping and community reintegration. Outpatient sessions of OT and TR primarily utilize interventions related to leisure education and community re-entry. This unique opportunity for therapists to understand how a patient is functioning at home and whether specific strategies are working for the child, while offering a chance to further refine those skills or utilize different strategies if something is not found to be effective at home or in the community. An OT session may focus on recognition of emotions, identifying self-regulation strategies such as helping children get their bodies into a “just right” space, and implementation of identified strategies. TR specifically utilizes self-discovery and leisure education to help children develop healthy coping skills such as physical activity and art. For example, a TR session may provide education on the importance of physical activity, how the child can be active in their home and community, and how these types of activities can be used as coping skills while promoting physical and mental health as well as growth and development.

Equally important to the individual child, family mental health and wellness can also be addressed through OT and TR individual sessions. For example, a therapist recently described a session that helped a parent identify strategies to reduce their anxiety during a family game activity while addressing the child’s executive functioning, ability to follow directions and social skills associated with playing a board game. Many OTs are also incorporating Every Moment Counts activities into their individual sessions. Every Moment Counts is an initiative that offers various strategies and activities to help promote positive mental health among children, such as using Calm Moment Cards or creating a “worry monster” for children to feed their worries.

In outpatient group sessions clinical therapies may facilitate groups that focus on breathing, mindfulness and self-regulation. The Alert Program® and Zones of Regulation® program are intended to provide simple strategies to improve self-regulation for individuals. Some additional groups we offer include those focusing on social skills, yoga and management of eating disorders.

Behavioral Health at Nationwide Children’s is a growing service line that offers treatment for a variety of mental health conditions. OT and TR play a unique role in promoting healthy outcomes among children receiving behavioral health services throughout the continuum of their health journey. With the opening of the Behavioral Health Pavilion, clinical therapy services will continue to impact the future of behavioral health.
WeeMove: Early Mobilization in the Intensive Care Unit

Erin Gates, PT, DPT and Lauren Justice, MOT, CLC, OTR/L

Due to these changes, children are experiencing a more rapid return to baseline level of function.

WeeMove was developed at Nationwide Children’s Hospital as a program in the Intensive Care Unit (ICU) to keep children active early in their hospital stay. The previous standard of care always included bedrest. However, with extended time in the bed and immobility, research has shown an increased risk of delirium, ICU acquired weakness and prolonged respiratory support. Impacts of an ICU stay may also persist long after discharge. Recent studies show evidence that some children are showing physical limitations and diminished quality of life up to three years after the ICU stay.

To combat the acute and potential long term impacts of a pediatric ICU stay, a team of physical and occupational therapists partner with respiratory therapists, bedside nurses, physicians, and child life to provide early mobility. During twice a day treatment sessions, children are able to work on strength and endurance through play and engagement in activities of daily living. Even with all the lines and tubes that come with an ICU stay, medically appropriate children are getting to play mats, parents are holding their children, and patients are even walking around the unit!
Through early mobility and activity, caregivers start to see their child once again – smiling, giggling and playing with their favorite toys. They can hold their child to comfort them and the parents experience decreased disruptions in their role as a caregiver. Within the goal-directed therapy session, we encourage the child to be a child and the parent to be a parent, allowing the family some autonomy in what feels like an out-of-control environment.

Additional benefits of WeeMove have included a change in culture to support age-appropriate non-pharmacological pain and agitation management strategies for prevention of pediatric delirium; reduction of ICU length of stay; and reduction of hours intubated. Due to these changes, children are experiencing a more rapid return to baseline level of function. Furthermore, therapist guided activities to promote strength and endurance have not resulted in adverse events or accidental loss of lines.

Most notably, WeeMove has promoted increased caregiver interaction and bonding between the child and family within the ICU setting. The positive feedback and comments received best describes the patient outcomes “Despite this being the most stressful time for their family, I was happy to see Harper be Harper, awake, getting out of bed and playing with therapies.” “We are so proud to see Axel up and moving. He has gone through so much but nothing can hold him down! Not even a ventilator!”

**Within the goal-directed therapy session, we encourage the child to be a child and the parent to be a parent, allowing family some autonomy in what feels like an out-of-control environment.**
The United States is a diverse linguistic nation. By 2030, it is estimated that 40% of children in the U.S. will be bilingual, meaning that they will be able to speak and understand more than one language. Bilingualism is a normal developmental process and does not cause communication delays; conversely, reducing language input to only English will not resolve existing delays. The majority of bilingual children will develop their home language and English on a timeline that is similar, yet unique, to monolingual peers.

However, both monolingual and bilingual children are equally at risk for an underlying language impairment, also known as specific language impairment or language delay. Language impairment is a common pediatric communication disorder affecting approximately 5 to 10% of children and can negatively affect social, academic and professional outcomes. The cause of language impairment is thought to have a strong genetic component, and it is present in the absence of any overt developmental, cognitive or hearing disorder diagnosis (e.g., Autism Spectrum Disorder, Down Syndrome). In general, children with language impairment talk later, have smaller vocabularies and use fewer complex sentences.

Common features of language impairment in bilingual children include: a slower rate of language learning compared to typically developing bilingual peers, limited vocabulary across both languages, poor intelligibility in both languages and weaknesses in working memory and attention.

If a bilingual child is diagnosed with language impairment, treatment should ideally be provided by a licensed and certified bilingual speech-language pathologist (SLP) who has near-native fluency in the child’s languages and training in bilingual language disorders. If not available, a trained monolingual English-speaking SLP can work in coordination with an interpreter. The overall goal of intervention is to use specific language tasks, contexts and cueing levels to help the child improve total communicative abilities. Within the Department of Speech Pathology at Nationwide Children’s Hospital, there are currently six bilingual SLPs available to provide evaluation and treatment in Spanish and English. In addition, all Nationwide Children’s monolingual SLPs are engaged in ongoing training regarding the assessment and treatment of bilingual children.

The first important element of treatment is supporting the home language, which should be valued and incorporated into intervention as much as possible. Often the child’s caregivers do not speak English, therefore it is important that the child maintain the home language to preserve linguistic, cultural and social connections to all family members. Additionally, research suggests that growth in one language can generalize to the other language and improve the efficacy of treatment. SLPs at Nationwide Children’s support children’s home languages by encouraging parents to use whichever language(s) they feel most natural using with their child and incorporating home language goals into the therapy plan, either via a bilingual SLP or an interpreter. Following evidence-based practice protocols, Nationwide Children’s embraces a family-centered treatment model where SLPs demonstrate to parents how therapy activities can be adapted to the home language to enhance progress and generalization of skills.
The second feature of treatment is the intervention design. Both the bilingual and cross-linguistic approach have been shown to help bilingual children improve communication skills. In the bilingual approach, the SLP targets linguistic features that are shared across languages (e.g., plural “-s” in English and Spanish; one cat, two cats, un gato, dos gatos). For a Spanish-English speaking child with language impairment who makes plural errors, SLPs at Nationwide Children’s can design activities that target the “-s” via words in both languages.

In contrast, Spanish grammar requires gender (el -masculine, la -feminine) whereas English does not. Helping that same child improve his overall grammar use would require a cross-linguistic approach where different linguistic features that are unique to each language are targeted separately and in separate languages. Children often benefit from both approaches as treatment progresses.

Finally, treatment success depends on a community of providers. Since bilingualism exists on a spectrum and families may not have access to a bilingual SLP, other clinicians and professionals play important roles. For example, while a bilingual SLP may deliver treatment in both languages, they may also consult with the child’s other therapists (e.g., monolingual school SLP) to divide language use across contexts. Similarly, trained monolingual English SLPs can provide effective intervention by using bilingual SLP colleagues as ongoing consultants. All models are utilized at Nationwide Children’s to ensure that each child’s total language skills are considered and valued as they progress toward their communication goals.

In conclusion, bilingual children with language impairment are extremely heterogeneous. A solid research base shows that intervention is effective when SLPs provide family-centered care that facilitates learning within and across languages. Due to the misconceptions about bilingualism that often circulate within the community, it is important that all medical team members support diverse linguistic backgrounds and provide evidence-based information to families who are seeking guidance for the treatment of bilingual language impairment.
Advancing the Care for Adolescents with Lumbar Stress Fractures

Mitchell Selhorst, PT, DPT, OCS and Christine Mansfield, PT, DPT, OCS, ATC

Imagine your teenage child complains of low back pain while playing sports. At first you shrug it off thinking it will soon get better, but it doesn’t. Finally after weeks of your child having pain you bring them to the physician. The physician examines their back, and orders X-rays, which are inconclusive. You are told that your child needs an MRI, which reveals a spondylolysis, a fracture in their lumbar vertebra. The physician tells your child that they cannot participate in sports for up to six months to allow this injury to heal. After multiple appointments and diagnostic imaging you are relieved to finally know the cause of your child’s pain, but feel guilty for not bringing them to the doctor sooner. Your child, however, is extremely frustrated about having to sit out of their sport, a major part of their life, for the next six months.

At Nationwide Children’s Hospital, our research aims to improve the patient experience by changing the way we diagnose and treat young athletes with spondylolysis.
More than half of adolescent athletes experience low back pain, and the incidence is increasing. Spondylolysis, a bone stress injury of the lumbar vertebra, is the most common identifiable cause of low back pain in this population. Almost a third of all young athletes reporting low back pain have a spondylolysis. Although this injury is common, it is difficult to diagnose and frequently requires advanced imaging. Once identified, athletes are encouraged to rest from sports for four to six months to allow this bone stress injury to heal. If these recommendations are followed most young athletes successfully return to normal physical activity.

Recommendations for the diagnosis and treatment of spondylolysis in young athletes are not based on strong scientific evidence. Much of the treatment is based on expert opinion and historical practice patterns. Therefore, there are marked variations in the management of this condition. Due to the lack of substantial clinical research to guide treatment, our research has shown that young athletes with spondylolysis experience suboptimal long-term clinical outcomes. Based on these findings, Nationwide Children's sports medicine physicians, physical therapists and radiologists have teamed up to improve the management of this condition.

Our research has focused on improving the diagnosis and the care of spondylolysis in young athletes. Recently, we have identified several patient characteristics that can help rule out spondylolysis. These identified characteristics have the potential to reduce the need for advanced imaging by up to 23%. If validated, this diagnostic criteria could help reduce the cost of care and decrease exposure to radiation. However, additional research is necessary to validate these findings.

Traditionally, spondylolysis management requires up to six months of rest from rigorous physical activity, including sports, which is extremely frustrating for many young athletes. Our research has focused on decreasing the time to return to normal physical activities without sacrificing clinical outcomes. We have found that when rehabilitation is initiated sooner (as soon as six weeks after diagnosis) athletes are able to return to activities after an average of four months. Recently, we have challenged the standard recommendations to a greater extent by initiating physical therapy immediately after diagnosis (within a week). Preliminary findings demonstrate athletes are able to safely return to sports on average in two and a half months.

Our research is improving the care of young athletes with spondylolysis. There is still much work that needs to be done, but Nationwide Children's is helping to lead the way to better outcomes for this patient population.
The Power of Gratitude in Health Care
A Culture of Appreciation Matters.

By Kimberly Cromwell, M.Ed., Director of Organizational Development

More than half of U.S. physicians struggle with burnout ranging from exhaustion, cynicism, a callous attitude toward others and diminished ability to be effective in jobs and relationships. Similarly, nurses and other health care practitioners also face burnout and depression which not only harm their health, but also impact the quality of care provided to patients according to research conducted by the Greater Good Science Center at UC Berkeley. As burnout continues to permeate in the profession, and as we all deal with stress during the COVID-19 pandemic, some health care systems have turned a new remedy: fostering a culture of gratitude.

WHAT IS GRATITUDE?
We experience gratitude when we see the goodness in our lives - the things we take for granted. This goodness may be due to the actions of others. When we’re grateful, we recognize the intention and effort that went into these actions and the benefit they gave us. When physicians, nurses and clinicians are “at their best,” it facilitates stronger relationships and trust that leads to open communication and better outcomes. It can impact the care our patients and families receive.

What’s in it for you?

1) Improves sleep, mood and optimism
2) Reduces cortisol, blood pressure and substance abuse
3) Motivates connectedness, humility and positive changes
4) Builds resilience to stress within health care providers
5) Increases motivation to exercise leading to better cardiovascular health
6) Achieves more in our personal and professional lives
7) Increases overall happiness and life satisfaction

Studies have shown there is a direct correlation between gratefulness and our mental and physical health.

1) Productivity can increase by as much as 31%
2) People are more than two and a half times more likely to stay late
3) People are more than twice as likely to help someone
4) People are more than three times as likely to go above and beyond their job description.
5) People are more than five times as likely to recommend a friend to apply for a job at their hospital.
As we enter a new decade, take time to reflect. Are you at your best? Are changes needed to help you reach your full potential? Consider incorporating gratitude into your daily practice. As we continue our Journey to Best Outcomes, ask yourself, what can I do to cultivate a culture of appreciation?

1) **Gratitude starts with you.** Ask yourself, do I see the positive things around me or am I too focused on the negative?

2) **Reduce stigma.** Some say, “Why should I thank someone for doing their job?” Being grateful is not a weakness, nor should it be viewed that way.

3) **Commit to self-care.** Choose to invest in yourself, first. Explore the Wellness Program at Nationwide Children’s Hospital.

4) **Hardwire gratitude.** Make gratitude a regular practice. Be authentic. Create reminders that keep it top of mind like wearing a rubber band around your wrist or scheduling a calendar reminder.

5) **Foster gratitude year-round.** Facilitate appreciation all year long instead of during certain times of the year such as the holidays or key anniversaries.

6) **Caregiving with Intention.** When caring for patients and families, slow down, allow yourself to be present and to connect with them. Be intentional with every interaction.

7) **Go for a walk.** Try to notice as many things around you that are positive. If outside, embrace nature and appreciate your surroundings.

8) **Incorporate gratitude into shift change.** During shift change, invite nurses to share one to three things they were grateful for that day/night.

9) **Gratitude Wall.** Create a Gratitude Tree on your unit bulletin board. Invite staff to write gratitude on a paper leaf, butterfly or apple.

10) **Invite parent speakers.** Tap into Nationwide Children’s Family as Faculty program and invite parents to staff meetings to share their perspective and what they are grateful for.

11) **Pay it Forward.** Consider ways to help your co-worker. For instance, re-stock the room, relieve someone so they can take a break, or wipe of the keyboard and keep working areas clean.

12) **Use the Mood Elevator.** On tough days, turn to the mood elevator and notice gratitude is at the top. Use this as the express button and think about something you are grateful for. Shift your perspective so that you can get back to providing your best care.

13) **Utilize the You Matter Program.** Tap into Nationwide Children’s You Matter program. Talk with a coach or seek resources to help you build resilience.

14) **Explore the Employee Assistance Program.** Utilize the Matrix program that provides eight free visits per year.

**CALL TO ACTION**

As we enter a new decade, take time to reflect. Are you at your best? Are changes needed to help you reach your full potential? Consider incorporating gratitude into your daily practice. As we continue our Journey to Best Outcomes, ask yourself, what can I do to cultivate a culture of appreciation?
Daisy Award

Sophia Pierce, RN

The quarterly Nationwide Children's Hospital Daisy Award was presented to Sophia Pierce, RN of the Emergency Department. The Daisy Award is given in appreciation of the important difference our nurses make in the lives of our patients and families at Nationwide Children's.

Sophia received the Daisy Award because of her dedicated care to a patient with child protection issues. Says Sophia's nominator: “[T]he patient was to be discharged to an outside facility in which the patient was fearful of her safety. Sophia went above and beyond for this patient, escalating care to social work and PEEC, when she was concerned that the patient was being discharged to an unsafe environment. … She made sure to speak to the patient directly on the phone asking important questions to understand the patients concerns and fears. The patient ultimately came back to the ED and her relief and gratitude was evident. She was then admitted in order to have the time to plan for a safer discharge. Sophia significantly made a difference in the life of the patient and their family and demonstrated extraordinary care through development of mutual trust, respect and emotional support.”

To learn more about our Daisy winners, and read their full nomination, visit NationwideChildrens.org/Daisy-Award