

THE INSTITUTE FOR REHABILITATION AND RESEARCH

TIRR JOURNAL

Fall 2024

SIX ATHLETES WITH LINKS TO
TIRR MEMORIAL HERMANN
SHINE IN PARIS
2024 PARALYMPIC GAMES

TIRR MEMORIAL HERMANN
EARNS TOP RECOGNITION IN
U.S. NEWS & WORLD REPORT
“BEST HOSPITALS” LIST

TIRR MEMORIAL HERMANN
OFFERS GROUNDBREAKING
TREATMENT FOR SPASTICITY

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Fabian Romo, Paralympic athlete and former member, TIRR Memorial Hermann Junior Houston Hotwheels.

Going for Gold: Athletes with Links to TIRR Memorial Hermann Shine in Paris

Six athletes connected with TIRR Memorial Hermann qualified for the 2024 Paralympics, held this summer in Paris.

The group—shooter Jazmin “Jaz” Almlie, triathlete Mark Barr, basketball player Kaitlyn Eaton, swimmer Ahalya Lettenberger, basketball player Fabian Romo and para-athletics track competitor Chelsea Stein—competed in their respective sports during the event from Aug. 23 through Sept. 9, following the Olympics, which also took place in Paris.

“That they qualified for the Paralympics, and consistently compete at the highest level of their respective sports, highlights the strength and resilience of these athletes,” says Gerard E. Francisco, MD, chief medical officer of TIRR Memorial Hermann. “Over the years, several Paralympians have entrusted us with their care, and they have gone on to achieve such great things athletically.”

Almlie, Barr, Eaton, Lettenberger, Romo and Stein are all experienced athletes on the Paralympic stage.

Almlie is a long-time member of

the TIRR Memorial Hermann Texans Wheelchair Rugby Team and is affiliated with the USA Shooting Team. The Paris Games marked her third Paralympics in shooting, since her first in 2016.

Barr, who lives in Houston, was competing in his fourth Paralympics. He qualified as a para-swimmer in 2004 and 2008 and as a para-triathlete in 2016 and 2024. This year, Barr took home a bronze medal in his class in para-triathlon.

The California native’s relationship

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with TIRR Memorial Hermann began in 2013 when he started his career as a nurse at Ben Taub Hospital, which, like TIRR Memorial Hermann, is located in the Texas Medical Center in Houston. Since then, Barr has served as a mentor to patients at TIRR Memorial Hermann as part of the system's golf team for Brothers in Arms, which provides diversity scholarships for student athletes.

Eaton, a Houston native, represented Team USA in women's wheelchair basketball in both the 2020 and 2024 Paralympics, winning a bronze and a silver medal, respectively, with her teammates.

Born with sacral agenesis and missing a sacrum, which affects her lower limbs, Eaton began playing wheelchair basketball as a high school sophomore in 2010 and was also a member of the TIRR Memorial Hermann Junior Houston Hotwheels from 2010 to 2012.

"Being able to see any sport at all and knowing it's available to me really started with the TIRR Memorial Hermann Adapted Sports and Recreation program," Eaton says. That program is led by Peggy Turner, the system's athletics community liaison and adapted sports and recreation coordinator.

Eaton, in turn, credits the sport not only with bringing her to the international stage, but also with helping her to get an education. She earned a Master of Social Work from the University of Illinois Urbana-Champaign in 2021.

"Only so many people get to compete at this level," she says of being a part of Team USA at the Paralympics. "It's an honor."



Illinois native Lettenberger, who was born with arthrogryposis amyoplasia, a musculoskeletal disorder that affects her lower limbs, has been volunteering as a swimming instructor with TIRR Memorial Hermann's Adapted Sports and Recreation program and mentoring athletes since she arrived in Houston to attend college in 2019. She has always been an athlete and began swimming at age 11 to help manage chronic hip pain caused by bilateral hip dysplasia. She got involved with para-swimming a year later, and she now competes at the NCAA Division I level at Rice University.

Paris marked Lettenberger's second Paralympics. She won silver in the 200-meter individual medley during Tokyo 2020 and in her class finished fifth in the 400-meter freestyle and sixth in the 100-meter breaststroke in France.

Romo, a Houston native and former member of the TIRR Memorial Hermann Junior Houston Hotwheels, participated in his first Paralympics in

Paris, suiting up for Team USA, which won gold at this year's games. A gold medal winner with the Team USA men's wheelchair basketball team in the 2023 World Championships, he plays professional wheelchair basketball in Spain after leading the University of Texas-Arlington to a national championship in the sport in 2017. Romo had his left leg amputated at age 4 due to a birth defect.

Finally, Houston native Stein also competed in her first Paralympics in Paris, after taking up para-athletics in high school. A former patient at TIRR Memorial Hermann and current student at the University of Arizona, Stein raced in several para-athletic events this summer: the women's 100, 400 and 800 meters, finishing seventh, eighth and seventh in her class, respectively. Turner describes her as a "mentor" to athletes in the TIRR Memorial Hermann Adapted Sports program, sharing with them her experiences of being a competitor at the college level.

"The Adapted Sports and Recreation program at TIRR Memorial Hermann

gives these athletes an opportunity they don't get anywhere else, and that is to play sports at a competitive level," Turner says. "But they did all the work. They took that opportunity and went on to compete at the highest level. Their achievements serve as an inspiration for all of our adapted sports athletes and really all of the patients at TIRR Memorial Hermann, that they can go on and do anything they want in life."

Turner attended her ninth Paralympic Games (she worked with Team USA at the 1992 and 1996

Paralympic Games) in Paris and followed the athletes associated with TIRR Memorial Hermann. She was joined by Marcie Kern, a spinal cord injury physical therapist with Memorial Hermann Health System and a volunteer with the Adapted Sports and Recreation program.

As thrilling as their accomplishments were in Paris, the fact that the six are committed to mentoring fellow athletes at home is even more important, Turner notes.

"Historically, young people with disabilities who want to participate

in sports have not had these mentors, so that these Paralympians want to give back in this way is so vital," she explains. "But it's who they are. It's in their hearts. They know what it's like to feel excluded and don't want others to feel that way."

Rhonda Abbott, senior vice president and CEO of TIRR Memorial Hermann, adds, "I had the opportunity to watch these athletes participate in qualifying, and it really gives them a platform to share with people of the world that people with disabilities can do anything." ■

Mark Barr—from Practitioner to Paralympian

When champion swimmer Mark Barr was diagnosed with bone cancer as a teenager, no one would have blamed him for putting sports on the back burner, particularly after losing his right leg to the disease in 2000.

Instead, the multisport athlete used competition and training as a catalyst for rehabilitation. Since then, the former TIRR Memorial Hermann patient, who has gone on to become a nurse, has reached the highest level in sport, competing as a para-swimmer in the 2004 and 2008 Paralympic Games and in the para-triathlon at the 2016 and 2024 Paralympic Games.

In fact, the 2024 Paralympic Games, in Paris, marked yet another comeback for Barr, who tore the meniscus in his left leg while fishing in Galveston and missed the rescheduled 2020 competition, held in 2021 in Tokyo. "It was the best therapy I could ask for," Barr says of para-swimming and sports in general, per the *Houston Chronicle*. "Once you're in the water, it's the most freeing and liberating thing... everyone's the same in the water."

However, not every Paralympian is the same as Barr when it comes to athletic achievement. In Athens in 2004, he finished fourth in his class in the 400-meter freestyle and 100-meter butterfly, and four years later, he placed sixth in his class in the 100-meter freestyle

relay and seventh in his class in the 100-meter medley relay in Beijing.

He switched to para-triathlon in 2010, a sport that was added to the Paralympic Games in 2016 in Rio, and finished fourth in the competition that year, just off the medal podium. This year, Barr won bronze in the para-triathlon sprint race in Paris, which included a 750-meter swim in the Seine River and a 20-kilometer bike ride along the Champs-Élysées.

Para-triathlon "went from being a hobby to a way to go back to the Paralympics," he says.

But Barr's inspiring story transcends the athletic arena. After earning a bachelor's degree in nutrition science at California Polytechnic State University in 2009 and a second bachelor's degree at Drexel University's College of Nursing and Health Professions in 2011, he came to Ben Taub Hospital in Houston in 2012 for the nursing internship program.

He stayed with Ben Taub for the next seven and a half years, becoming a nurse in the Trauma Surgical ICU and eventually a charge nurse.

"He helps other athletes, other patients, just see what's possible," notes Peggy Turner, the athletics community liaison and adapted sports and recreation coordinator at TIRR Memorial Hermann. ■



TIRR Memorial Hermann Earns Top Recognition in *U.S. News & World Report* “Best Hospitals” List

Once again, TIRR Memorial Hermann ranks No. 2 among rehabilitation hospitals in the United States, according to the *U.S. News & World Report* “Best Children’s “Best Hospitals” rankings for 2024-2025, which were published in July. No been included in the prestigious rankings since the report’s inception in 1989.

“We are incredibly honored that TIRR Memorial Hermann is again recognized by physicians and *U.S. News & World Report* as the No. 2 rehabilitation hospital nationally and as the best rehabilitation hospital in Texas,” says Rhonda Abbott, senior vice president and CEO of TIRR Memorial Hermann. “That we scored particularly well on metrics that directly assess patient care highlights that we continue to put our patients, and their care, first. That said, as a learning health care organization, we will always continue to strive to get better and take steps to further enhance what we provide our patients and their families, while also serving as ambassadors for advocacy for people with disabilities within and beyond health care.”

In addition to TIRR Memorial Hermann, several other Memorial Hermann campuses and Service Lines ranked highly in the 2024-2025 report:

- Memorial Hermann-Texas Medical Center (TMC) ranked as the No. 3 hospital in the Houston metro area and the No. 5 hospital in Texas. It also ranked as No. 41 nationally in orthopedics. (This ranking consists jointly of Memorial Hermann-Texas Medical Center, Memorial Hermann | Rockets Orthopedic Hospital, Memorial Hermann Cypress Hospital and Children’s Memorial Hermann Hospital.)
- Children’s Memorial Hermann Hospital ranked as the No. 5 Best Children’s Hospital in Texas and ranked nationally in the following pediatric specialties: cardiology and heart surgery; gastroenterology and GI surgery, neurology and neurosurgery; and urology.
- Memorial Hermann Greater Heights Hospital ranked as the No. 4 hospital in the Houston metro area and No. 6 hospital in Texas.
- Memorial Hermann Memorial City Medical Center ranked as the No. 7 hospital in the Houston metro area and No. 18 hospital in Texas.

U.S. News & World Report evaluated nearly 5,000 hospitals across 15 specialties and 20 procedures and conditions, and only 11% of those hospitals earned a “Best Hospitals” ranking. Hospitals awarded a “Best” designation excelled at factors such as clinical outcomes, level of nursing care and patient experience. The “Best Hospitals by Specialty” rankings methodology and “Procedures & Conditions” ratings methodology measure patient outcomes using data from millions of records provided by the Centers for Medicare & Medicaid Services.



This year, among other methodology refinements, *U.S. News & World Report* incorporated new data on care provided to patients with Medicare Advantage insurance and on care provided to outpatients—nearly doubling the number of patients included in its annual data analysis. The Procedures & Conditions ratings are based entirely on objective quality measures.

“Our rise up this ranking would not be possible without the dedicated physicians and team members who are passionate about what we do every day and the patients and families who trust us with their care,” Abbott notes. “We plan to continue championing inclusion and redefining rehabilitation as well as affecting change in the domains of clinical care, education, research and advocacy as we innovate improvements in quality care for all of our patients in their rehabilitation journey.”

“Ranking No. 2 on the ‘Best Hospitals’ list elevates the entire system,” adds Gerard E. Francisco, MD, chief medical officer of TIRR Memorial Hermann. “The other hospitals in the top tier are incredible places, and it’s an honor to be among them. It speaks to the quality of rehabilitation medicine in the United States, and TIRR Memorial Hermann is a part of that.” ■



Neuro Residency and Fellowship Programs Prepare Future Physical and Occupational Therapists

“The goal of these programs is to enhance the knowledge of our physical and occupational therapists of neurologic therapy and rehabilitation medicine services while they are actually immersed in clinical care and research.”

-Victoria M. Zegarrundo, PT, DPT

The Physical Therapy (PT) Neurologic Residency and Occupational Therapy (OT) Neurologic Fellowship programs at TIRR Memorial Hermann have produced some of the leading practitioners in these vital specialties in the United States, with graduates placed both within the Memorial Hermann and at other top rehabilitation medicine hospitals nationally.

Since its inception in 2009, the PT neuro residency program has graduated 29 professionals. It is one of only 79 accredited PT neuro residency programs in the United States, and one of only six in Texas. The OT neuro fellowship program started in 2020 and has graduated

eight professionals to date. It’s one of only 10 such programs accredited nationally and the only one in Texas.

Each program accepts two applicants annually, and both are one year in duration, running from July to July.

“The goal of these programs is to enhance the knowledge of our physical and occupational therapists of neurologic therapy and rehabilitation medicine services while they are actually immersed in clinical care and research,” explains Victoria M. Zegarrundo, PT, DPT, the director of clinical and professional development at TIRR Memorial Hermann. “The program has been developed based

on TIRR Memorial Hermann's four pillars, which are excellence in clinical care, advocacy, research and education."

In keeping with that mission, residents and fellows receive specialized mentorship from leading professionals in their respective fields who are "senior-level therapists and experts in their fields and have a passion for mentoring," according to Dr. Zegarrundo. Residents and fellows also attend courses designed to "advance their clinical reasoning skills," she adds.

According to Dr. Zegarrundo, what makes the TIRR Memorial Hermann program unique is that residents and fellows experience the full continuum of care. All begin the program by spending two and a half months in the system's neuro trauma acute care unit, splitting the time between adult

and pediatric patients. Next, they gain valuable experience in inpatient care, spending three months each with TIRR Memorial Hermann's brain injury team and the system's spinal cord injury team. Finally, they engage in outpatient rehabilitation for four months at TIRR Memorial Hermann's Kirby Glen Center and the system's Challenge program for community reintegration.

"Through our program, they have the opportunity to follow patients and understand their treatment journey," explains Dr. Zegarrundo, who is just completing her first year in her current role. "We believe that, ultimately, this will make them better clinicians after they graduate."

Another unique aspect of the programs is that residents and fellows get to participate in—and, in

some cases, lead—groundbreaking research projects in their respective fields. They also coordinate "journal clubs" and in-service training sessions to review the latest evidence-based approaches.

"Patients are evaluated by the residents and fellows as well as the mentors in the program," Dr. Zegarrundo says. "The residents and fellows will discuss cases with their mentors and ask, 'What can we be doing differently or better, based on the research evidence?' The programs really elevate the work of all the professionals involved."

With that in mind, Dr. Zegarrundo hopes to expand both programs in the coming years to grow the number of residencies and fellowships and bolster the research initiatives. In addition to Dr. Zegarrundo, the programs are led by Laura Martin, PT, DPT, the residency director for the neurologic PT program, and Kathryn Nedley, OTD, OTR, ATP, the fellowship director for the neurologic OT program.

"We're a nationally ranked hospital, and we love to see that we're promoting best practices across the United States," she explains. "It's gratifying to see how much we are affecting PT and OT education, not only in the local community, but nationally." ■

For more information, contact NeuroOT@memorialhermann.org.



Emerging Procedure Helps Quadruple Amputee Return to the Life He Relishes



A multidisciplinary team is using a surgical procedure called osseointegration to provide people with limb loss like Louisiana native Wayne Moorehead with a new lease on life. The procedure creates a direct skeletal and functional connection between living bone and the surface of a load-bearing artificial implant.

“Osseointegration drastically improves quality of life for bilateral transfemoral amputees, allowing for a quick and comfortable way to take

the prosthesis on and off,” explains Vinay Vanodia, MD, director of the Amputee and Limb Loss Rehabilitation program at TIRR Memorial Hermann.

For Moorehead, attachment and removal of prosthetics became a significant challenge due to his upper extremity amputations and the need for constant socket adjustments. A longtime truck driver, he enjoyed audiobooks and the solace of the road.

However, in 2018, his journey took

an unexpected turn, as he was admitted to the hospital in July of that year due to a severe strep infection that had colonized on his heart, causing a blood infection. Moorehead’s body responded by limiting blood flow to his arms and legs. He had both his arms and legs amputated two months later, with the latter being bilateral transfemoral amputations, meaning that his legs were amputated above the knees.

After these procedures, Moorehead came to TIRR Memorial Hermann for three weeks of inpatient rehabilitation. On the day of his discharge, with bandages still on his arms and legs, the first thing he did was attend the Skills for Life workshop, a program that occurs every three years and provides educational content for patients with upper-extremity (and other) amputations. Visit enhancingskills-forlife.org for more information.

“People with hands are the minority,” Moorehead says.

At Skills for Life, Moorehead found direction and met lifelong friends, and he was determined to learn and move on to the next phase of his journey.

“Wayne puts 110% into everything,” Dr. Vanodia notes.

In addition to learning how to manage day-to-day activities, Moorehead worked with physical therapist Kristin Reeves, the program manager of Limb Loss Services at

TIRR Memorial Hermann, on basic mobility exercises. Activities such as bed mobility and transfers were vital, she says.

“Wayne needed to develop a new normal,” Reeves adds.

Balancing and strengthening came next with the help of an inflatable prosthesis called a pneumatic post-amputation mobility aid. Moorehead also worked with Reeves on his posture, range of motion, core strength and more.

Finally, it was time to relearn how to walk, and the process of learning how to use prosthetics was long and difficult, he says. As a bilateral transfemoral amputee, Moorehead had difficulty with the prosthetic sockets that attached the prostheses to his body. Sweat from walking would cause the sockets to rotate and loosen. It then took about 45 minutes for him to put the prostheses back on.

Moorehead decided to try osseointegration, a surgical technique that eliminates the need for sockets. In January 2022, he underwent the first of two surgeries: a hollow metal tube was inserted into his femur bone; the tube is designed to integrate with the bone. Three months later, surgeons inserted an abutment that was screwed into the tube and sticks out of the skin. Each limb was reshaped during this procedure so that the prosthetic could attach onto the abutment efficiently.

Because the prosthetic is attached to the femur bone, patients can feel vibrations from the ground, allowing them to detect changes in elevation and texture as they walk. This improves comfort, safety and walking ability.

After osseointegration, Moorehead now walks 90% of the time. (He recently made his first road trip without bringing his wheelchair.) In addition, he has been driving again for nearly five years, using hand controls that are connected to the vehicle’s accelerator and brake pedals.

In fact, Moorehead regularly drives to Houston from his home in Louisiana to speak with patients at TIRR Memorial Hermann about how to “adjust to their new reality.” His valuable work in patient education also consists of walking clinics, support groups and even a speech at a national conference, according to Dr. Vanodia.

With the osseointegration implants, Moorehead is able to use shorter prosthetics called “stubbies” when at home, engaging body-powered hooks to complete daily tasks. Soon, he will have a new pair of myoelectric hands, which he cleverly dubs his “dress hands,” meaning they are not to be worn while he is landscaping, laying edging and planting foliage for his wife, which are some of his favorite hobbies.

Moorehead’s family is very important to him; he helps in other ways such as picking up his grandchildren from school.

It has been a long journey, but Moorehead has persevered through it all and become independent in all his activities, according to Reeves and Dr. Vanodia. He is a firm believer in the importance of educating others about the new-found freedom that osseointegration has provided him.

“Anytime you need me, I’m there,” Moorehead says. “All you have to do is ask. I’ll be there.” ■

“Osseointegration drastically improves quality of life for bilateral transfemoral amputees, allowing for a quick and comfortable way to take the prosthesis on and off.”

-Vinay Vanodia, MD

TIRR Memorial Hermann Offers Groundbreaking Treatment for Spasticity

Sheng Li, MD, PhD, a renowned physical medicine and rehabilitation (PM&R) specialist at TIRR Memorial Hermann, is performing a groundbreaking procedure known as cryoneurolysis to treat spasticity. Board certified in PM&R and brain injury medicine, Dr. Li is the director of the NeuroRecovery Research Center and the stroke rehabilitation and recovery research at TIRR Memorial Hermann.

Spasticity is an often-painful complication associated with central nervous system disorders that can cause muscles in any part of the body to involuntarily contract and become stiff, which can lead to jerky or exaggerated movements. It is frequently a complication of cerebral palsy, multiple sclerosis, stroke, brain and spinal cord injuries, and amyotrophic lateral sclerosis (also known as Lou Gehrig's disease). According to Dr. Li, serious cases of spasticity can dramatically affect a person's quality of life and ability to do common everyday tasks, such as dressing, eating, walking, showering and getting into or out of bed.

Dr. Li was the first physician in the United States to use cryoneurolysis to provide patients with relief from spasticity. The noninvasive procedure involves inserting a needlelike probe containing highly pressurized nitrous oxide gas chilled to -90 degrees Celsius into the skin and placing it on the nerve that is causing the condition. The extreme cold forms a tiny ice ball on the tip of the probe that freezes and temporarily damages the targeted nerve without affecting the surrounding tissue. This stops the nerve from sending signals to the brain that trigger the muscle spasms and pain. The procedure takes about 30 minutes to complete.

"Cryoneurolysis is the first advancement in treating spasticity in years," Dr. Li says. "It enables tight muscles to relax, which increases range of motion and eases pain."



The procedure offers many advantages over conventional treatments, including:

- Oral medications
- Botulinum toxin injections
- Phenol neurolysis
- Surgery

“Unlike these treatments, cryoneurolysis doesn’t involve taking drugs or injecting neurotoxins into the body, both of which can have negative side effects,” Dr. Li notes. “And it isn’t as invasive as surgery.”

Although results vary, the vast majority of cryoneurolysis patients experience significant immediate relief, while some of the other options take days or even weeks to take full effect.

“The benefits of cryoneurolysis usually last five to 10 months, depending on the individual and severity of their spasticity. That’s several months longer than the alternatives,” Dr. Li notes.

As the damaged nerve slowly regenerates, the condition typically returns, but research indicates the symptoms are often not as severe. Another benefit is that Dr. Li and his team have successfully repeated the procedure for a number of patients, with successful outcomes—in some cases multiple times.

Edward Castaneda, a licensed vocational nurse who assists Dr. Li, praises the latter’s advanced expertise in cryoneurolysis. “It’s amazing to watch the skill with which Dr. Li performs the procedure and see the profound difference it makes for patients, many of whom come to us with acute symptoms and experience near total relief,” Castaneda emphasizes. “I’ve had patients tell me cryoneurolysis has literally given them back their life.”

“It’s gratifying to help those dealing with spasticity achieve excellent results and be able to resume some, if not all, of their activities of daily living,” Dr. Li adds. ■

Message from the Chief Executive Officer



Rhonda Abbott, PT, FACHE

This issue of the *TIRR Journal* focuses on the theme of **resilience**, and our patients are living embodiments of the term. As one of the largest rehabilitation hospitals in the country, we see patients with the most complex diagnoses and injuries come through our doors. Yet it is through their strength and courage, as well as our staff’s continued pursuit of excellence in care, that we see so many of these

patients go on to live happy, healthy, productive lives following their time here.

And, in truth, the relationship between TIRR Memorial Hermann and its patients never really ends. Our goal is to always be there for our patients and their caregivers, wherever life takes them—whether that’s the Paralympics in Paris, as you’ll read in this issue, or as active members of their local communities.

As an example of our ongoing commitment to our patients, we worked with our community partners to help those affected by Hurricane Beryl and the damage caused by the storm. Practically everyone in the Houston area was impacted by the storm in some way, and our patients were no exception. Whenever possible, we worked to be there for our patients and their caregivers, offering everything from the ability to power ventilators and charge electric wheelchairs to simply being there to answer questions and offer support. Our Independent Living and Resource Utilization team at TIRR Memorial Hermann has published a Disaster Preparedness Guide for people with disabilities. Serving as a resource through the unknown scenarios we may face, in Houston and beyond, this fully accessible guide can be found at ilru.org/projects/disability911/preparing-for-disaster. This is just one more way we contribute to caring for all.

Resilience is about meeting challenges head-on, and here at TIRR Memorial Hermann, we’re all about taking on new challenges, whether it’s identifying new solutions for patient care or building upon the services we already have available to keep people in our communities safe, so that we can achieve even better outcomes.

Together, through our strength, we can achieve great things. ■

Rhonda Abbott, PT, FTPTA

Senior Vice President and Chief Executive Officer
TIRR Memorial Hermann

Developing Tools to Address Social Determinants of Health for Underserved People with Traumatic Brain Injury

Social determinants of health—economic and environmental conditions that impact people’s health, daily lives and quality of life—can result in serious disadvantages for many individuals, particularly those from underserved racial and ethnic groups.

These challenges are often amplified for people living with traumatic brain injury (TBI).

To address these social and cultural barriers that can impact health and participation, Angelle Sander, PhD, director and senior scientist of the Brain Injury Research Center at TIRR Memorial Hermann, and her colleagues are hard at work on programs aimed at combating the impact of social determinants of health on those with TBI. The efforts grew out of discussions that took place during the 2024 Moody Galveston Conference, an event organized by the Moody Foundation, a philanthropic organization that works to empower Texans and strengthen their communities and was conducted in partnership with the National Association of State Head Injury Administrators (NASHIA).

“We decided to help clinicians to better understand these factors that can impact people’s health and also help them to learn how to address these barriers in their daily practice,” Dr. Sander says.

The five social determinants of health identified as priority areas in the Office of Disease Prevention and Health Promotion Healthy People 2023 program¹ are:

- Economic stability
- Education access and quality
- Health care access and quality
- Neighborhood and built environment
- Social and community context

“Each of these factors can cause either an advantage or disadvantage in people’s health across their lifetimes,” Dr. Sander says.



Looking specifically at social determinants of health in relation to outcomes following brain injury, the group began to develop two initiatives.

The first, a “Social Determinants of Health and Brain Injury” fact sheet, is targeted to health care professionals who provide care for patients with TBI. The sheet focuses on concisely educating these individuals on social determinants of health—what they are and how they may affect the individuals they treat.

“Physicians don’t have a lot of time, so we want to raise their awareness of the importance of these social determinants of health and give them tips on how they can address them efficiently in their clinical practice,” Dr. Sander notes.

The second initiative under development is a six-episode podcast series. “The purpose of the podcast is to bring together clinicians and people with lived experience of brain injury and/or their care partners and have a conversation around these social determinants of health and how they impact people’s lives and recovery from brain injury,” Dr. Sander explains.

Scientific Research Must Return Focus to Causality

Scientific research needs to refocus on causality in order to sidestep traps that may ultimately compromise findings.

Such is the framework put forth by Farhaan S. Vahidy, PhD, MBBS, associate vice president of research and the chief scientific officer at TIRR Memorial Hermann. Dr. Vahidy shared his thoughts on the subject during a recent talk at the National Institutes for Health/National Institute of Neurological Disorders and Stroke (NINDS) National T32 Workshop, which was held June 26-28, 2024, in Omaha, Neb.

T32 grants, which are awarded by NINDS, are given to institutions that demonstrate excellence in providing mentorship, guidance and training across different domains of neurologic diseases and stroke. As such, the audience for the presentation consisted of principal investigators and project directors who have received T32 grants, and trainees

who are being funded through the program.

“It was important to talk to this audience about causality in relationship to the rigor and reproducibility that is fundamental to experimental design, collection of data, statistical analyses and logical reasoning when we are doing research,” Dr. Vahidy says. “Research is integral to the mission of TIRR Memorial Hermann, where research goals are represented by the acronym R.I.S.E.—research, innovation, service and policy, and education and training. Conducting research, pushing the boundaries of innovation, servicing community and developing and training the scientists of tomorrow all go hand in hand. What we are doing today has a legacy to be carried forward. Therefore, being very methodical and deliberate in empowering tomorrow’s researchers is critical.”

Dr. Vahidy’s message to those

engaged in the next generation of scientific research is clear: Lack of focus and clouding of goals can threaten success, which may mean research outputs and publications fail to advance the medical field.

“At the end of the day, we strive to elevate the conditions of human existence,” Dr. Vahidy notes. “The adage ‘association is not causation’ is ubiquitous in the scientific community.”

As result, there is a belief among some researchers that “if you have certain weaknesses in your design or limitations in the way you conducted your research, you can always state such limitations and move on,” he adds.

Currently, according to Dr. Vahidy, the “association is not causation” adage gets leaned on too frequently.

“If we knowingly or unknowingly deviate from principles of rigor and reproducibility because we have given ourselves the leverage of not

continues on page 16

Following an introductory episode, each segment will focus on an individual social determinant of health, providing collaborative discussion and recommendations for addressing them to optimize outcomes for individuals with brain injury.

As both projects are completed during the coming months, Dr. Sander looks forward to the help they will provide to individuals with brain injury and their families, as well as the education they will give to

health care professionals trying to comprehend the significant challenges these individuals face.

“When working with underserved populations, we learned quickly that catastrophic events such as TBI often weren’t the worst thing that had happened to these individuals,” Dr. Sander says. “This really provides an eye-opening perspective that we, as health care professionals, aren’t always experts on what is more important for people’s quality of life. We need to listen and have

a cultural humility that allows us to understand that we don’t have all the answers and to learn from people to better understand how to address their care holistically.” ■

Reference

¹ U.S. Department of Health and Human Services. *Healthy People 2030. Social determinants of health.* <https://health.gov/healthypeople/priority-areas/social-determinants-health>

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addressing causation, [the result] is information in the world of scientific literature that does not really move science forward.”

Many factors can contribute to this challenge, including the need to conduct research in order to justify additional funding for a program.

“That is important,” Dr. Vahidy explains. “But it’s not the primary purpose of why we do the things we do. We need to be relentless in our pursuit of causality.”

As an example, Dr. Vahidy cites the work of Sir Austin Bradford Hill, who is famous for his seminal study linking cigarette smoking with lung cancer. In 1965, Dr. Hill proposed nine viewpoints intended to establish epidemiological evidence of a causal relationship between a presumed cause and an observed effect. These nine viewpoints—strength, consistency, specificity, temporality, biological gradient, plausibility, coherence, experiment, and analogy—provided the scientific community with a framework for evaluating epidemiologic evidence to determine if causation can be deduced.

Conversely, according to Dr. Vahidy, many scientific studies published today focus on p-values, an often-insufficient criterion for determining causality. This behavior led the American Statistical Association to issue a statement in 2016 aimed at steering research into a “post $p < 0.05$ era.”¹

In some cases, “a p-value of less than 0.05 has become the sole criterion for claiming that we have discovered something meaningful,” Dr. Vahidy says.

Addressing this issue, as well as focusing on quantitative reasoning in order to understand study design, biases and validation of measurements, is essential to frame future research and ensure that as many scientific inquiries as possible will meaningfully improve the state of human existence.

“Every research enterprise has a mission to train the scientists and investigators of tomorrow,” Dr. Vahidy explains. “It’s incumbent on us to do this right and to do it responsibly.” ■

Reference

¹American Statistical Association. *Statement on Statistical Significance and P-Values.* <https://www.amstat.org/asa/files/pdfs/p-valuestatement.pdf>

NEWS

TIRR Memorial Hermann Welcomes Facility Dog Annie to Care Team



TIRR Memorial Hermann is thrilled to welcome Annie! A Golden Retriever, Annie is trained to respond to as many as 45 cues that are “very task-specific that can be used to accentuate what’s already happening in therapy” for patients, according to Tara H. Haas, MS, OTR, the facility dog program coordinator at TIRR Memorial Hermann.

“Her skills can be directly translated to the work we do with our patients here,” Haas adds.

Annie comes to TIRR Memorial Hermann from Canine Companions, a leading national provider of specially bred, raised and trained service and facility dogs, founded in 1975. She’s also certified through Assistance Dogs International, which evaluates service dogs for temperament.

“Canine Companions is really the industry standard for service and facility dogs,” Haas explains. “They have an incredible ability to match the perfect dog with the situations and settings they will be working in and the role they’ll be playing.”

Typically, a facility dog is a specially trained dog that partners with a facilitator or handler working in the hospital

to achieve specific goals. Facility dogs undergo two years of training for more than 40 tasks, and are bred, raised and trained to be calm, reliable and affectionate animals.

Research suggests that facility dogs¹:

- Reduce stress and anxiety
- Ease perception of pain
- Decrease feelings of fear
- Lower heart rate and blood pressure
- Improve mood and morale
- Build trust and communication

At TIRR Memorial Hermann, Annie's role will be to:

- Motivate patients as they engage in therapy and rehabilitation
- "Normalize" treatments and time spent in the hospital
- Help celebrate reaching rehab goals
- Distract during procedures or episodes of pain, such as injections
- Be present during difficult conversations to provide comfort to patients and families
- Enhance patient interactions
- Provide a sense of unconditional love and acceptance.

During her off-hours, Annie lives with Haas and her family, which includes two children and another Golden Retriever. At TIRR Memorial Hermann, she is with Haas all day as she makes her rounds. Haas will work on a rotating schedule so that all TIRR Memorial Hermann staff and patients will have access to Annie.

For her handler role, Haas participated in an intensive training program and certification process through Canine Companions to be specifically matched with Annie and assess her ability to manage a facility dog in a hospital setting.

"It's so good for a person's soul to spend time with a dog," Haas notes. "About 70% of Annie's role will be patient support, but the other 30% will be helping our amazing providers, all of whom work in a stressful setting and assist patients with complex disorders. Even though she's just started with us here, Annie is the perfect dog for TIRR Memorial Hermann." ■

Reference

¹Rodriguez KE, Bibbo J, O'Haire ME. Perspectives on facility dogs from pediatric hospital personnel: a qualitative content analysis of patient, family, and staff outcomes. *Complement Ther Clin Pract.* 2022; 46:101534.



About 70% of Annie's role will be patient support, but the other 30% will be helping our amazing providers, all of whom work in a stressful setting and assist patients with complex disorders.

Nurse Phong Lam Emphasizes Dedicated Care, Patient Support in Rehabilitation

Phong Lam is a dedicated nurse with more than a decade of experience offering steadfast support to patients and their families as they navigate the challenging journey of rehabilitation. With a focus on traumatic and acquired brain injuries as well as stroke, Lam's unwavering commitment to patient care shines through his compassionate approach, making a lasting impact on patient recovery. Lam began his career as a nurse in 2012, specializing in pediatrics. Over the years, he has primarily worked in rehabilitation while also gaining experience in home health care, with a continued focus on pediatric patients.

His passion for rehabilitation nursing was ignited during his time at Shriners Hospital for Children in Houston. For the last eight years, Lam has dedicated himself to the demanding yet rewarding world of rehabilitation nursing.

His interest in joining TIRR Memorial

Hermann stemmed from a recommendation by a friend, an occupational therapist, and was solidified when Deanna Bennett, a clinical manager at TIRR Memorial Hermann, reached out to him. Since 2021, Lam has been an integral part of the team at TIRR Memorial Hermann.

"He exudes the culture and values we hold at Memorial Hermann," Bennett says. "He's genuinely compassionate towards his patients, their families, as well as his co-workers."

At TIRR Memorial Hermann, Lam cares for a diverse range of patients ranging in age from as young as 6 months to those in their 90s. In addition to patients with brain injuries and stroke, he also provides nursing care to adult and pediatric patients with motor vehicle accident injuries, disorders of consciousness and spinal cord injuries, tailoring his care to the needs of each individual.

Part of the comprehensive nursing

care Lam provides to his patients includes administering medications and ensuring they receive adequate nutrition with their feedings, whether through an oral diet or a percutaneous endoscopic gastrostomy tube. He is also responsible for performing clinical tasks such as blood drawing, managing IVs and carrying out thorough assessments while also providing nursing care as needed, including wound care, tracheostomy management and ventilator needs. In addition, Lam educates and trains patients and their families on how to manage their care following discharge.

"He is a key member of the trans-disciplinary team that plays a big part in helping develop the plan of care for patients," Bennett says. "He is a very hands-on, engaged employee who comes with a lot of pediatric experience. He truly gives 100% of himself."

Lam's approach to patient care

Message from the Chief Medical Officer



Gerard E. Francisco, MD

Patients at TIRR Memorial Hermann are living examples of resilience, the theme of this issue of the *TIRR Journal*.

Certainly, our patients learn a lot from the providers on their care team—from treatments to ways to manage day-to-day life with a disability.

However, it truly is a two-way street. The staff here at TIRR Memorial Hermann learn about resilience from our patients and their caregivers each and every day. When we see our patients believe that no challenge is insurmountable, it motivates us even more to develop new treatment approaches and management techniques, with the goal of improving their care and quality of life.

When someone is affected by a brain injury, for example, they and their caregivers need to adapt. Similarly, as providers, we often need to adapt as well: Not everything we do is going to work for patients; we may have to try multiple approaches to find what works.

Rehabilitation medicine is not as proscriptive as other specialties: In order to do our jobs



extends beyond routine tasks. “While there is a daily routine to follow, every day brings new challenges and opportunities to connect with patients and their families on a personal level,” he says.

The breadth of his work at TIRR Memorial Hermann has allowed Lam to expand his skills beyond pediatrics. Initially, he found it challenging to care for adults, but he now recognizes that the real challenge lies in managing the combination of care that extends to the patient’s family. “One of the most difficult parts of caring for rehab patients is that you’re not just taking care of the patient, but you are also caring for their family and navigating different family dynamics,” Lam explains.

Despite these challenges, Lam finds deep fulfillment in witnessing the love and support families provide for their loved ones. “Seeing patients recover and watching how their

families care for them as they work towards their goal is rewarding,” he says. “It’s also inspiring to see how these patients and their families get to know other patients and their families and build a community together, caring and supporting each other.”

Lam recounts the story of an inspiring patient who motivated him with her determination to recover after a stroke. “She approached her recovery with a positive mindset, making that stride each and every day and taking it one day at a time,” he recalls. “Her resilience and commitment to return to her regular life, despite the difficult road ahead, was truly motivational.”

Outside of his professional responsibilities, Lam remains deeply committed to serving others and actively participates in volunteer

work with his church and other organizations.

“He’s just a really kind, compassionate, truly genuine person,” Bennett explains. “He loves what he does, and he puts his whole heart into it.”

As Lam reflects on his career and experiences, he highlights the essence of nursing and rehabilitation. “Health care and nursing can be challenging, but it is through these difficulties that we grow in character and compassion,” he notes. “The journey may be tough, but the results can be quite beautiful, as it changes us and helps us grow in love and understanding.” ■

well, providers in this field need to constantly ask themselves, “What is the experience of my patients and their caregivers? How can we ensure that what I do will influence them in a positive way?”

We also need to listen to our patients and their caregivers, to develop treatments that work best for their individual needs.

Our ability to do that—to respond to our patients’ needs and find optimal solutions for them—is what sets TIRR Memorial Hermann apart from other rehabilitation medicine facilities.

It is also why TIRR Memorial Hermann was recently recognized by U.S. News & World Report as the No. 2 rehabilitation hospital in the country.

We’re proud of that achievement, but we don’t plan to rest on our laurels. We will continue to strive to offer the best care anywhere.

Our patients are always doing the best they can. So should we. ■

Gerard E. Francisco, MD

Chief Medical Officer, TIRR Memorial Hermann



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About TIRR Memorial Hermann

TIRR Memorial Hermann, located in Houston, TX, a leader in rehabilitation, does more than provide therapy. We provide rehabilitation beyond the health care setting for children and adults with a disabling injury or illness, and change lives by helping people regain the skills and confidence they need to reintegrate into the community and continue living full and meaningful lives. Our highly trained rehabilitation teams see the potential in every person they work with and develop that potential to the fullest through customized goal setting and treatment planning.

We work to maximize independence, restore function and improve the quality of life for our patients.

We have opportunities for outstanding rehabilitation professionals. If you are interested in joining our team at one of *U.S. News & World Report's* leading rehabilitation hospitals, view all available opportunities at memorialhermann.org, tirr.memorialhermann.org or ilru.org.

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To achieve these goals, we put the individual patient and their family at the center of the rehabilitation team and provide them with the information and skills they need to transition successfully to community settings.

TIRR Memorial Hermann is the best rehabilitation hospital in Texas and among the best in the nation, according to the *U.S. News & World Report's* Best Hospital rankings for 2024-2025. The rehabilitation hospital's ranking marks its 34th consecutive year among the magazine's Best Hospital rankings.

To make referrals or schedule an appointment, call 800.44REHAB (800.447.3422) toll-free or 713.797.5942, or fax 713.797.5988.

