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IN THIS ISSUE

3 MESSAGE FROM THE CMO

FEATURES

- 1 Life After Cancer: TIRR Memorial Hermann Offers Rehabilitation and Wellness Programs for Survivors
- 4 Improving Gait Performance in Individuals with Spinal Cord Injuries: An Intervention Using Robotic Exoskeletons
- 5 Meena Outlaw Has Wheels
- 7 Improving Access for All: A Work in Progress
- 8 Profiles in Caring: Nuray Yozbatiran, P.T., Ph.D.
- 10 Barry Oakes Makes a Comeback
- 11 Residents' Quality Improvement Projects Aim to Improve Care
- 12 A New Whole-body DEXA Scanner Advances Imaging Technology at TIRR Memorial Hermann
- 13 TIRR Memorial Hermann Welcomes a Physician Researcher and Two Brain Injury Fellows
- 14 ACCOLADES
- 14 IN PRINT
- 15 ON THE PODIUM
- 15 POSTER PRESENTATIONS
- 16 MESSAGE FROM THE CEO

Life After Cancer: TIRR Memorial Hermann Offers Rehabilitation and Wellness Programs for Survivors

Last year, the National Cancer Institute counted 13.7 million cancer survivors in the United States, or 4 percent of the population. By 2022, that number is expected to increase to almost 18 million. While most survivors report that they were informed and supported during their illness, once treatment stopped, they were left with quality-of-life issues and unanswered questions about life after cancer.

TIRR Memorial Hermann aims to change that in Houston by extending its cancer rehabilitation programs throughout the community and adding survivorship wellness programs at key locations. "We've been providing rehabilitative care for patients with cancer for several years now," says **Jacob Joseph, M.D.**, clinical chief of Specialty Rehabilitation Programs at TIRR Memorial Hermann and an assistant professor of physical medicine and rehabilitation at UTHealth Medical School. "Many people return to normal life after cancer treatment but a growing number, as a result of their diagnoses, are learning to cope with a decline in function related either to the disease or to the effects of chemotherapy and radiation therapy, which have complications of their own. We see a lot of people who are excited to be alive after their cancer



P. Jacob Joseph, M.D.

treatment, but then they discover they're living with issues that affect their quality of life. These patients have led us to make a concerted effort to address survivorship issues in greater depth."

Among Dr. Joseph's former inpatients is Austin, Texas, resident Susan Craven, who had a sudden onset of weakness in November 2012 while visiting friends in Houston. Diagnosed with glioblastoma multiforme, Craven underwent surgery at Mischer Neuroscience Institute at Memorial Hermann-Texas Medical Center. Following the tumor resection she was admitted to TIRR Memorial Hermann for 10 days of conditioning before beginning radiation therapy. After finishing her six-week course of radiation, she was readmitted to TIRR Memorial Hermann in January 2013 for post-treatment therapy before returning home to Austin.

Craven, an active 72-year-old who had served as director of several nonprofits in Texas before retiring in January, had considered a second career as a consultant. "I don't think I have the energy to start up a new business now," she says. "I'm a people person so it's really hard to adjust to not working. But I'm moving

Life After Cancer continues on page 2

Life After Cancer continued from page 1

ahead with my life. Rehab at TIRR Memorial Hermann was a great experience. I really appreciated how Dr. Joseph and the therapists focused on caring for the whole person through the cancer experience.”

That same holistic approach is available at several locations across the Memorial Hermann Health System. In May 2013, all seven Memorial Hermann Cancer Centers were accredited and recognized as an Integrated Network Cancer Program by the American College of Surgeons Commission on Cancer (CoC). Additionally, the CoC has placed greater emphasis on survivorship care, which includes cancer rehabilitation. As a result, both inpatient and outpatient cancer rehabilitation and community wellness programs have become critical pieces of the cancer continuum of care.

At TIRR Memorial Hermann, survivors can find the full continuum of rehabilitation care – inpatient, outpatient and community-based wellness and support – with evidence-based, patient-centered care and education to promote health and wellness by supporting each person in an enriched community environment.

“Because our patients are important stakeholders in our rehabilitation and wellness programs, we started gathering their opinions in a discussion group of seven cancer survivors,” says **Anna de Joya, P.T., D.Sc., N.C.S.**, specialty programs manager. “None of our discussion group members had participated in any kind of rehabilitation or community wellness program. They felt like that was the missing link in improving quality of life. We plan to keep them involved through a continuing discussion group that will help us expand our knowledge of the needs of individuals with cancer.”

Fifty-six-year-old John Pence from Clearwater, Fla., was diagnosed with inoperable glioblastoma multiforme on June 1, 2013, after an MRI revealed five

lesions on the left side of his brain, located very deep and close to the basal ganglia and thalamus. He came to TIRR Memorial Hermann Adult Outpatient Rehabilitation at Kirby Glen by referral from his oncologist at The University of Texas MD Anderson Cancer Center, where his brother-in-law, an oculoplastic surgeon, consults.

“We feel very lucky to have had that connection,” says Pence’s sister Liza Urso, a Dallas resident. “We arrived in Houston on June 12. After confirming the diagnosis and inoperability of the tumors, John’s oncologist referred him to Kirby Glen for conditioning during chemotherapy and radiation therapy. The staff members at Kirby Glen were incredibly professional, knowledgeable and hard driving, but they all have such compassion and great big hearts. They really reach for the stars. When John started therapy, his physical therapist told him he’d be getting on the treadmill. I couldn’t even imagine it because he was unable to walk. But by the end of the day he had walked 15 minutes on the treadmill. When he saw he could do that, it made him feel so good about himself and so hopeful.”

“Everything changed for us so quickly that it’s been a shock, a challenge and a very rapid adjustment for me and my family,” Pence says. “I have five boys, from age 19 down to my youngest son, who was born in January of this year. I’ve got a lot to be thankful for and a lot to do yet.”

Wellness is an important element through all phases of cancer survivorship. TIRR Memorial Hermann launched its Cancer Wellness Program in July 2013 at TIRR Memorial Hermann Outpatient Rehabilitation at Memorial City. The program offers a fitness center where participants can access various fitness and strength-training equipment, and personal training for a customized exercise program with monitoring and education.

“Our goals are to facilitate participation in exercise, promote lifelong health and wellness and improve the quality of life of individuals affected by cancer,” De Joya says. “There’s very strong

Because our patients are important stakeholders in our rehabilitation and wellness programs, we started gathering their opinions in a discussion group of seven cancer survivors,” says Anna de Joya, P.T., D.Sc., N.C.S., specialty programs manager. “None of our discussion group members had participated in any kind of rehabilitation or community wellness program. They felt like that was the missing link in improving quality of life.”

evidence that survivors at every stage of survivorship, beginning with diagnosis, benefit by being engaged in exercise. It helps with fatigue, pain, weakness, distress and sleep deprivation, all of which can be side effects of treatment. The less you move, the more these symptoms affect you. Exercise improves activity limitations and participation restrictions. Patients with cancer tell us that they weren’t aware of the benefits until they gave themselves the push they needed to start an exercise program. We envision every cancer survivor experiencing health and meaningful life roles at every phase of their journey.”

At TIRR Memorial Hermann, survivors can find the full continuum of rehabilitation care – inpatient, outpatient and community-based wellness and support – with evidence-based, patient-centered care and education to promote health and wellness by supporting each person in an enriched community environment.

De Joya, Dr. Joseph, oncologist Atisha Manhas, M.D., and Memorial Hermann System Cancer Services Advance Practice Nurse Amy Deutsch, D.N.P., R.N., C.N.S., A.O.C.N.S., are planning to document their findings on survivorship wellness through a research study. Says De Joya, “We think it’s important to provide evidence-based care and contribute to the literature, both to support the benefits of our program and to share the knowledge we gain.” ♦

FEATURED IN THIS ISSUE

Jess Arcure, M.D.

Chief Resident for Quality Improvement and Research

James Shuo-Hsiu Chang, P.T., Ph.D.

Research Scientist, Department of PM&R, UTHealth Medical School

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Attending Physician, Spinal Cord Injury and Specialty Rehabilitation Programs

Anna de Joya, P.T., D.Sc., N.C.S.

Specialty Programs Manager

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Professor of Rehabilitation, Baylor College of Medicine

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Attending Physician

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Research Scientist and Assistant Professor, Department of PM&R, UTHealth Medical School

MESSAGE FROM THE CMO

Nearly a decade ago, the World Health Organization recognized the word “disabilities” as an umbrella term for impairments, activity limitations and participation restrictions. They defined disability as “the interaction between the features of a person’s body and features of the society in which he or she lives,” a point of view that incorporates the importance of interventions that remove environmental and social barriers. Disability is not just an individual challenge; it’s a societal challenge.

In this issue, Edward Elms, M.D., is the lead author of an article about what we as a society have accomplished since the passing of the Americans with Disabilities Act 23 years ago, and what remains to be done to break down barriers to access. I believe it’s time to rethink our use of the word disability and begin to think in terms of access for all.



Gerard E. Francisco, M.D., CMO

impairments, activity limitations and participation restrictions. They defined disability as “the interaction between the features of a person’s body and features of the society in which he or she lives,”

On December 3, 2013, TIRR Memorial Hermann will join other organizations around the world in observing the United Nations’ International Day of Persons with Disabilities. This year’s theme is “Break barriers, open doors: for an inclusive society for all.” According to UN estimates, 15 percent of the world’s population faces physical, social, economic and attitudinal barriers that exclude them from participating as equal members of society.

At TIRR Memorial Hermann, we look forward to a time when we’ll no longer need a special day to remind us of the lives of people with disabilities, when people with activity limitations and participation restrictions will no longer be viewed as a special population but as neighbors, co-workers and community members – just one of us.

Gerard E. Francisco, M.D.

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We have opportunities for outstanding rehabilitation professionals. If you are interested in joining our team at U.S. News & World Report’s No. 3 rehabilitation hospital, contact Monica Kinnard, recruitment consultant, at 713.797.7281 or Monica.Kinnard@memorialhermann.org. All available opportunities can be viewed at memorialhermann.org.

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Improving Gait Performance in Individuals with Spinal Cord Injuries: An Intervention Using Robotic Exoskeletons

By James Shuo-Hsiu Chang, PT., Ph.D.

As of 2010, an estimated 265,000 persons in the United States were living with a spinal cord injury (SCI), and approximately 12,000 new cases occur each year. Of those injured, more than 60 percent presented with incomplete spinal lesions, according to the National Spinal Cord Injury Statistical Center in Birmingham, Ala. While individuals with incomplete lesions may regain some ability to walk over ground during therapy, ambulation in the community and home may be limited or even impossible, contributing to a sedentary lifestyle and secondary medical problems that include diabetes, obesity, osteoporosis/osteopenia and urinary, pulmonary and cardiovascular disease.^{1, 2-4} In light of these facts, it is not surprising that recovery of walking ability is an important predictor of quality of life after spinal cord injury.

Traditional physical therapy for the recovery of walking after SCI relies heavily on the use of compensatory techniques utilizing lower-extremity orthoses and assistive devices to support paralyzed limbs. Stretching, strengthening, balance, standing, functional mobility and over-ground gait training have long been the gold standard for incomplete SCI. Utilization of activity-dependent, task-specific training has been shown to help promote recovery of function. However, while conventional therapy is a relatively low-cost intervention, maintaining optimal gait kinematics and speed, optimizing joint loading and providing accurate sensory cues to promote spinal and cortical neuroplasticity is challenging and labor intensive over ground.⁵ Because of these challenges, the conventional approach does not



Left to right, James Shuo-Hsiu Chang, Ph.D., Marcie Kern, P.T., Damien Maya (the patient), Chris White, P.T., Marie Beirne, P.T., Matthew Davis, M.D.

offer an ideal environment in which the nervous system can remodel itself to regain the lower-extremity function needed for walking.

The emerging integration of robotic technology into rehabilitation, particularly robotic exoskeletons that use the patient's movement to control externally powered gait, provides therapists with more options to help patients increase health and participation in life after SCI. In this pilot study, *Improving Gait Performance in Individuals with Spinal Cord Injuries: An Intervention Using Robotic Exoskeletons*, we aim to determine the effectiveness of robotic exoskeleton training compared to conventional physical therapy on gait speed, endurance and quality. We hypothesize that participants in the robotic exoskeleton group will demonstrate improved walking

performance compared to those in the conventional physical therapy group.

Eight adults with chronic motor incomplete SCI will be randomly assigned to either robotic exoskeleton or conventional physical therapy groups. Subjects enrolled in the robotic group will receive three weeks of robotic exoskeleton intervention; subjects in the conventional group will receive three weeks of conventional physical therapy with emphasis on gait training.

The population for the two-year study will include eight male and female subjects in the Houston area, age 18 years or older, who have a confirmed diagnosis – six months post injury – of chronic motor incomplete spinal cord injury classified by the American Spinal Injury Association Impairment Scale (AIS) grades C or D, above the lumbar level (T12

and above). Participants will be identified from outpatients at the TIRR Memorial Hermann Outpatient Medical Clinic.

To be selected for the two-year study, which began in October, participants must have the ability to stand independently for two minutes with or without an assistive device and with or without orthoses distal to the knee. They must also be able to transition from sitting to standing unassisted with or without the use of an assistive device and/or bracing. For more information or to refer a patient, please contact **Marcie Kern, P.T.**, at 713.799.5051. ♦

Dr. Chang, a research scientist in the department of Physical Medicine and Rehabilitation at UTHealth Medical School, is co-investigator of Improving

Gait Performance in Individuals with Spinal Cord Injuries: An Intervention Using Robotic Exoskeletons. Matthew Davis, M.D., who is principal investigator, is an attending physician in TIRR Memorial Hermann's Spinal Cord Injury and Specialty Rehabilitation programs. The research study won TIRR Memorial Hermann's Pilot Project Competition, which funds researchers to conduct preliminary studies that will lead to applications for larger federal or foundation grants for projects to be conducted at the hospital.

¹ Bauman WA, Spungen AM. Coronary heart disease in individuals with spinal cord injury: Assessment of risk factors. *Spinal Cord*. Jul 2008;46(7):466-476.

² Gater DR Jr. Obesity after spinal cord injury. *Physical Medicine and Rehabil-*

itation Clinics of North America. May 2007;18(2):333-351, vii.

³ Clasey JL, Janowiak AL, Gater DR Jr. Relationship between regional bone density measurements and the time since injury in adults with spinal cord injuries. *Archives of Physical Medicine and Rehabilitation*. Jan 2004;85(1):59-64.

⁴ Charlifue S, Jha A, Lammertse D. Aging with spinal cord injury. *Physical Medicine and Rehabilitation Clinics of North America*. May 2010;21(2):383-402.

⁵ Behrman AL, Bowden MG, Nair PM. Neuroplasticity after spinal cord injury and training: An emerging paradigm shift in rehabilitation and walking recovery. *Physical Therapy*. Oct 2006; 86(10):1406-1425.

Meena Outlaw Has Wheels

In 2011, Meena Outlaw, author of the *Mattie Has Wheels* series, celebrated the normal birth of her third child despite paralysis from an incomplete spinal cord injury (SCI) she suffered 11 years earlier. She attributes the accomplishment in large part to **Hunter Hammill, M.D.**, an attending physician at TIRR Memorial Hermann Outpatient Medical Clinic, who has been helping SCI patients deliver babies for more than 25 years.

Pregnancy was not on Outlaw's radar screen. By the time she learned she was expecting, she was close to finishing her first trimester. "I was sick during most of our vacation at the end of 2010, and when we returned to Houston, it finally dawned on me to see a doctor because I hadn't been that sick in a long time," she recalls. "Then one day while driving the kids to school, I realized I hadn't had a menstrual period in a while. I have a memory issue related to my spinal cord injury that makes it difficult to pinpoint specific dates, so I called my husband and asked him if he thought I might be pregnant. I wouldn't say he dropped the phone, but it went extremely quiet on his end."



Left to right, Meena Outlaw, Jamie Outlaw, Jasmine Paul-Choudhuri, Miles Paul-Choudhuri and David Outlaw.

Outlaw was injured on January 23, 2000, after she stepped onto the balcony of her newly built home and was locked out. Concerned about her three-week-old

son, Miles, and three-year-old daughter, Jasmine, she attempted to climb down from the balcony. When she fell, she **Meena Outlaw** continues on page 6

shattered two vertebrae: T12 and L1. After a weeklong acute-care hospitalization, she was transferred to TIRR Memorial Hermann.

“My first day there was very frightening for me, because I understood for the first time that I was headed down a different path,” Outlaw says. “I grew up familiar with disability – two of my mother’s friends were in wheelchairs. I thought they transferred me to TIRR Memorial Hermann so I could learn to walk again but instead, they were teaching me to be functional in a wheelchair. I knew it was the start of a journey of learning the new me, so I gritted my teeth and moved forward. I was three weeks postpartum when the accident occurred. My kids were my motivation to get better and get home.”

When she discovered she was pregnant in 2010, she saw an OB/GYN who referred her to a high-risk maternal-fetal medicine specialist. “I went into the exam room thinking that being pregnant was a good thing and left thinking it was a bad thing,” says Outlaw, who was 41 at the time. “Of course, my husband, David, was just floored. When we married in 2006, he didn’t expect to have children with me and raised the two from my previous marriage as his own. Suddenly, we had the prospect of having a child together.”

When she called her urologist, John Bertini, M.D., at the TIRR Memorial Hermann Outpatient Medical Clinic to check on a medication she was taking, his nurse referred her to Dr. Hammill. “When we met, it was like night and day,” she remembers. “The first thing he asked me was, ‘What have you heard about pregnancy and spinal cord injury?’ I went down my list of mostly cons. I was high risk. I couldn’t have the baby normally and would have to have a C-section. He told me to rid myself of all those thoughts and start thinking about having a baby. I left calm and relaxed, with the conviction that I could do it.”

“Spinal cord injury patients are often told that they shouldn’t have children for numerous reasons – because of the complications of their lives, because they won’t be able to care for the child,

because they’ll have to have a C-section when they deliver, which is not the case unless they have a contracted pelvis,” Dr. Hammill says. “They get an epidural to avoid hypertensive dysreflexia. They usually don’t have the capability to push so when we reach that point in the delivery, we use mid-level forceps, which are safe when properly used.”

When it came time to deliver, Outlaw, who has fragments of pelvic sensation, wanted to try to push her son out. “Just as Dr. Hammill said he was going to use the forceps, I asked him to let me try. With the first push he moved 4 centimeters. With the second push he came out. It was the greatest moment of my life. I’m paralyzed, and I could actually push my own baby out. We went from not being able to have the baby to having a C-section to a normal vaginal birth. My God, that’s amazing! I would never have been able to get that far without Dr. Hammill.” James Om Prakash Outlaw was born on June 29, 2011, a month early. He spent three days in neonatal intensive care.

Dr. Hammill stresses the importance of having the right equipment to perform well-woman and pregnancy exams, including specially designed tables and stirrups, and lifts for transfers. “The cord-injury patients I see are sexually active,” he says. “Many have amenorrhea but if they are ovulating, they can get pregnant. All the normal things happen. They need Pap smears and care during menopause. I help them lead normal lives.”

Over the years, he has noticed a special bond between adult children and mothers in wheelchairs. “Many patients with cord injuries are told that they won’t be able to carry a baby full term, or that they shouldn’t have children because they won’t be able to take care of them. Like the other things they deal with day to day, they learn to be innovative and adaptive. We have to monitor the pregnancy carefully to avoid preterm labor, but like Meena, most of my patients deliver vaginally. All people have the right to live life to the fullest and for some that includes the joy of having and raising children.”

Outlaw sees that special connection in Jamie, who is now 2½. “It’s a sixth sense,” she says. “Jamie instinctively knew I couldn’t get up, so he would move himself toward me. When he weighed 5 pounds or even 15 pounds, I could pick him up and put him on my lap. Now, at 35 pounds I can’t, so he’s learned that he can crawl up on my lap. I can’t hug him the same way David can, so with us it’s all about eye contact. Sometimes we look at each other and it’s like an invisible hug. He also started using me as his walker and pushing me. I don’t like to be pushed but there we were, going around the house with him pushing me and that’s how he got strong enough to walk.”

A busy mom during the day, Outlaw writes books for children and young adults at night. In addition to *Mattie Has Wheels*, the story of an 8-year-old girl in a wheelchair, she has published *A Moment in Time*, a short biography of her life after the accident. Two more books will be out in January 2014 – *Mattie Has Wheels: Traveling on a Plane*, and *Clouds*, a young adult love story about a girl in a wheelchair, which Outlaw plans to develop into a series. In addition, she and Dr. Hammill are collaborating on a guidebook to pregnancy for women with disabilities.

“By the time I’ve seen most patients, they’ve already survived a lot,” Dr. Hammill says. “I will admit that SCI patients are a lot of work, but whenever I think about retiring or leaving TIRR Memorial Hermann, I go back and see patients like Meena who inspire me to go on. She’s a great woman, and her life is dramatic and good.”

Outlaw typifies the fortitude of his patients, who go on with their lives despite their injuries. “Meena is a very strong person,” he says. “My cord-injury patients are some of the most interesting people I see, with the best auras. Most are told they can’t get pregnant or if they are pregnant they should abort. Then they see me and I say, ‘Yes, let’s have a baby.’” ♦

Improving Access for All: A Work in Progress

By Edward Elms, M.D., Lex Frieden, L.L.D., and Karen Kephart, M.B.A.

According to U.S. Census Bureau estimates, approximately 57 million Americans are living with disabilities, based on a broad definition of disability.¹ More than 37 million baby boomers, or 60 percent, will manage more than one chronic condition by 2030, according to the American Hospital Association.²

Last July, we celebrated the 23rd anniversary of the Americans with Disabilities Act (ADA). The most comprehensive policy statement ever made in American law about how the nation should address individuals with disabilities, the ADA is built on the principles of equal opportunity, full participation, independent living and economic self-sufficiency. As a civil rights law, the act was designed to counter myths and stereotypes about people with disabilities, with an emphasis on empowerment and individual rights. It aimed to remove the barriers that isolate people with disabilities by providing telecommunications relay services to help people with hearing and speech impairments communicate better with others; by installing ramps, elevators and accessible parking spaces to make buildings more welcoming to all visitors; by providing equal access to government programs and activities; and by requiring reasonable accommodation in employment settings to help ensure that people with disabilities can compete in the workplace. While most civil rights laws prohibit discrimination and provide mechanisms for enforcement, the ADA went a step further, requiring covered entities to provide “the accommodations, within reason, that people with disabilities need in order to participate and benefit from goods and services offered to the general public.”

How far have we advanced toward accomplishing these objectives? While the sweeping cultural change that

accompanied the act since 1990 has removed many barriers to independent living, people with disabilities still do not experience equal participation in society. A 2007 White House report on the progress of the New Freedom Initiative, former President George W. Bush’s plan to tear down barriers to full integration into American life, cited three areas for improvement: educational attainment, employment and incorporation into the economic and social mainstream of American life.³ A conference presentation made by Rosaly Correa-de-Araujo, M.D., Ph.D., at the National Leadership Summit on Eliminating Ethnic Disparities in Health, noted inequalities in healthcare for women with disabilities.⁴

When the New Freedom Initiative report was released, one in five adults with disabilities had not graduated from high school, compared to less than one in 10 adults without disabilities. Americans with disabilities were poorer and more likely to be unemployed than those without disabilities. In 1997, more than 33 percent of adults with disabilities lived in a household with an annual income of less than \$15,000, compared to only 12 percent of those without disabilities.³ Unemployment rates for working-age adults with disabilities have hovered at the 70 percent level for at least the past 15 years, while rates are significantly lower for working-age adults without disabilities.³

Many Americans with disabilities remain outside the economic and social mainstream of American life. As reported by the White House in 2007, 71 percent of people without disabilities owned homes, while fewer than 10 percent of those with disabilities did. Computer usage and Internet access for people with disabilities is half that of people without disabilities. People with disabilities vote at a rate that is 20 percent below voters without disabilities. In local areas, disability issues seldom surface in election campaigns, and inaccessible polling places often

discourage citizens with disabilities from voting.

Dr. Correa-de-Araujo’s report focused specifically on women with disabilities, many of whom reported that they lacked gynecologic cancer screening in the past five years. Sixty-nine percent of adult women with a disability had Pap smears compared to 77 percent of women without disability. Fifty percent of women with a disability aged 50 years had breast exams and mammograms versus 56 percent of women without disability. Women with disabilities also reported that providers failed to mention or inquire about diet, exercise, pain, sleep and changes in functional status.

Has access improved? In the last 23 years we have seen improvement in public accommodation, access to public transportation and education, employment and independent living, but there is still more to do to ensure that people with disabilities enjoy the same rights as all Americans. The Independent Living Research Utilization program at TIRR Memorial Hermann, founded in 1977, has a long history of providing research, education and consultation in the areas of independent living, the ADA, home and community-based services and health issues for people with disabilities.

Among the programs ILRU sponsors is an annual continuing education event with the International Interior Design Association on the importance of universal design, a worldwide movement based on the concept that all products, environments and communications should be designed to consider the needs of the broadest possible array of users. The movement is also known around the world as design for all, inclusive design and lifespan design.

Universal design is a way of thinking about design based on the following principles⁵:

- Flexibility of use: Does the design accommodate a broad range of

Improving Access continues on page 8

individual preferences and abilities?

- Simple intuitive use: Can the design be understood regardless of a user's experience, knowledge, language skills or current concentration level?
- Perceptible information: Does the design communicate necessary information to the user effectively regardless of his or her sensory abilities?
- Equitable use: Does the design avoid stigmatizing or disadvantaging any group of users?
- Tolerance for error: Does the design minimize hazards and the adverse consequences of accidental or unintended actions?
- Low physical effort: Can the design be used efficiently and comfortably with minimal fatigue?
- Size/space for approach and use: Is appropriate size and space provided for approach, reach, manipulation and use, regardless of the user's body size, posture or mobility?

To help eliminate medical disparities, TIRR Memorial Hermann has established an Outpatient Medical Clinic designed to meet the needs of individuals with disabilities who require initial or continuing care by a physician. The clinic is redefining the outpatient rehabilitation care model by providing a patient-centered medical home for people with disabilities. Thirty-three specialty medical clinics include brain

injury, stroke, spasticity management, neurosurgery, neurology, neuropsychology, psychiatry, urology, gynecology, cardiology, gastroenterology, cognitive behavioral therapy and more, in addition to pharmacist-run wellness clinics for anti-coagulation, diabetes and hypertension.

Through the ILRU program and other initiatives, TIRR Memorial Hermann is working to engage users and consumers in meaningful and open dialogue, recruiting people with disabilities for service on boards and advisory committees and encouraging respect for the fact that people with disabilities are responsible for making decisions that affect their own lives.

The ADA will become increasingly important as our population ages and the need for long-term care and support services increases. Today, we're seeing a greater movement to provide services that allow people to live independently and remain in their own homes. That shift benefits everyone and moves us closer to our bottom line of equal access and treatment. ♦

¹ United States Census Bureau (July 2012). Nearly 1 in 5 People Have a Disability in the U.S. *Report Released to Coincide with 22nd Anniversary of the ADA.*

² American Hospital Association; First Consulting Group (2007). *When I'm 64: How Boomers Will Change Health Care.* Chicago: *American Hospital Association*; 23 p.

³ White House News, Freedom Initiative Executive Summary (2007). *The President's New Freedom Initiative for People with Disabilities: The 2007 Progress Report.*

⁴ Correa-de-Araujo R (2006). Conference Presentation: Catalyzing Quality Improvements in Health Care Services for Women of Color with Disability. *National Leadership Summit on Eliminating Racial and Ethnic Disparities in Health: Pre-Conference Addressing the Healthcare and Wellness Needs of Women of Color with Disabilities.*

⁵ The Center for Universal Design (1997). *The principles of universal design, Version 2.0.* Raleigh: *North Carolina State University.*

Dr. Elms is a postdoctoral fellow in the School of Biomedical Informatics at The University of Texas Health Science Center at Houston and a researcher in the Independent Living Research Utilization (ILRU) program at TIRR Memorial Hermann. Lex Frieden is director of the ILRU program, professor of biomedical informatics and professor of rehabilitation at UTHealth Medical School and professor of rehabilitation at Baylor College of Medicine. Karen Kephart is a medical writer with a special interest in disability awareness and ethics. For more information on ILRU programs, visit ilru.org.

Profiles in Caring: Nuray Yozbatiran, P.T., Ph.D.

Her early education in Turkey as a physical therapist set **Nuray Yozbatiran, P.T., Ph.D.**, on a career path that ultimately led to TIRR Memorial Hermann and UTHealth Medical School, where she is studying the use of neuromodulation and robotic techniques to help neurologically impaired patients – specifically those recovering from spinal cord injury and stroke – regain arm and hand function.

Dr. Yozbatiran graduated in 1991

from Hacattepe University in Ankara, the top-ranking medical and physical therapy school in Turkey. She saw her first patients – one with a spinal cord injury and another with facial paralysis – during an internship in the summer of her second year. “Watching my supervisors work with them and listening to the patients talk about how much they had improved was so amazing to me. It remains one of the most vivid memories

of my professional career – sharing in their excitement as they took small steps to regain function.”

After receiving her master's in physical therapy at Dokuz Eylül University in Izmir, Turkey, she accepted a position as lecturer in the university's School of Physical Therapy and Rehabilitation and began work on her doctoral degree, which she completed in 2000. “We had great responsibilities as students – teaching,



Nuray Yozbatiran, P.T., Ph.D., with spinal cord injury patient, Ronald Bledsoe, testing the MAHI Exo-II

doing research and providing clinical care,” she recalls. “It was very demanding but extremely rewarding. You see the immediate impact you have on each patient’s condition. That great sense of reward remains my motivation today.”

In 2003, at a meeting of the World Federation for Neurorehabilitation in Venice, Italy, Dr. Yozbatiran met Leonardo G. Cohen, M.D., senior investigator at the National Institutes of Health, who became her inspirational mentor. The two had long discussions about the mechanisms of neuroplasticity. In June 2003, in pursuit of her interest in novel treatment options in recovery from stroke and spinal cord injury (SCI), Dr. Yozbatiran applied and was accepted as a postdoctoral fellow in the department of Neurology at the University of California, Irvine.

In Irvine, she worked on two projects under the direction of Steven Cramer, M.D., a pioneer in neurorehabilitation: assessing the safety of high-frequency repetitive transcranial magnetic stimulation¹ and later, investigating the feasibility of leg muscle strength devices and balance devices for tele-assessment of patients with spinal cord injury.²

In 2007, she accepted a position in Houston working with Andrew Papanicolaou, Ph.D., former director of the Magnetoencephalography (MEG) Laboratory at

UTHealth Medical School. After six months, she decided her “heart was in neurorehabilitation” and was accepted as a postdoctoral fellow in the school’s department of Physical Medicine and Rehabilitation (PM&R). After completion of her fellowship in 2009, she joined the department as a research scientist and instructor. In August 2013, she was promoted to assistant professor.

During her fellowship at UTHealth Medical School she worked with TIRR Memorial Hermann neuropsychologist **Corwin Boake, Ph.D.**, an associate professor in the department of PM&R, on a small clinical trial evaluating the augmentation of constraint-induced movement therapy with robotic training for upper-extremity function after stroke.³ The research, which was funded by Mission Connect, a program of TIRR Foundation, introduced her to **Marcia O’Malley, Ph.D.**, director of the Mechatronics and Haptic Interfaces (MAHI) Lab at Rice University and director of rehabilitation engineering at TIRR Memorial Hermann, and **Gerard Francisco, M.D.**, chief medical officer at TIRR Memorial Hermann and chair of the department of PM&R at UTHealth Medical School. Today, the three make up the core team for research on the use of robotics for upper-extremity (UE) rehabilitation.

With support from Mission Connect, the research team was soon testing the MAHI Exo II, a robotic exoskeleton developed in Dr. O’Malley’s laboratory, for UE rehabilitation following SCI. “Robotic training of the upper extremity had been extensively studied in the recovery of motor function after stroke, but no data had been published in persons with spinal cord injury, including those with incomplete tetraplegia,” Dr. Yozbatiran says. “We were one of the first groups with an interest in using robotics for upper-extremity rehab in SCI.” The results of their research were presented at the Institute of Electrical and Electronics Engineers (IEEE) International Conference on Rehabilitation Robotics in 2011⁴ and published as a case report in the *Journal of Rehabilitation Medicine* in 2012.⁵

Today, Dr. Yozbatiran is principal investigator of a clinical trial studying the effects of transcranial direct current stimulation (tDCS) with robotic-assisted training on arm and hand function in adult participants with incomplete spinal cord injury. “When patients undergo therapy, we expect to see positive changes as a result of their treatment program,” she says. “In this study, we’re determining if we can augment the recovery of function by adding central stimulation to the therapy. The efficacy of tDCS has been studied in stroke patients, and researchers have reported that noninvasive brain stimulation adds to overall recovery. We’re hoping to find similar improvements in arm and hand function in participants with incomplete SCI.” Co-investigators of the study, which is funded by Mission Connect, are Dr. Francisco, Dr. O’Malley and **Matthew Davis, M.D.**, of TIRR Memorial Hermann, and Felipe Fregni, M.D., Ph.D., of Spaulding Hospital and Harvard Medical School.

“We’re at an early stage in our research with a long way to go,” Dr. Yozbatiran says. “But our preliminary results are very promising. As a researcher in the field of neurorehabilitation, I’m particularly interested in the development and application of new and more effective

Profiles in Caring continues on page 10

treatment techniques on motor recovery of arm and hand functions in stroke and spinal cord injury patients. After completion of the pilot clinical trial, we'll be seeking funding for a randomized, controlled clinical trial on a larger population of spinal cord injury patients to determine whether we can replicate our results. We'll also run comparative studies of robotic-assisted therapy versus other types of repetitive therapy." In addition, they're collaborating with researchers at the Neuroimaging Lab at The Methodist Hospital to visualize changes in plasticity in the brain and spine using fMRI, and using other neurophysiological and electrophysiological measurements to gain more knowledge about the mechanisms of recovery.

Dr. Yozbatiran is happy to be working in the new TIRR Memorial Hermann Research Center, which for the first time in the history of the hospital has brought researchers from many programs together

under one roof. "There's tremendous potential for the advancement of research at a center where physicians, engineers, neuroscientists, therapists, neuropsychologists and behavioral neurologists interact closely on a daily basis," she says. "It's a dynamic environment with the potential for even more collaboration for the benefit of patients at our institution and others." ♦

¹ Yozbatiran N, Alonso-Alonso M, See J, Demirtas-Tatlidede A, Luu D, Motiwala RR, Pascual-Leone A, Cramer SC. Safety and behavioral effects of high-frequency repetitive transcranial magnetic stimulation in stroke. *Stroke* 2009 Jan; 40(1):309-12.

² Yozbatiran N, Harness E, Le V, Luu D, Lopes CV, Cramer SC. A tele-assessment system for monitoring treatment effects in subjects with spinal cord injury. *Journal of Telemedicine and Telecare* 2010 ; 16(3):152-7.

³ Yozbatiran N, O'Malley MK, Boake C,

Fisher SR, Reistetter TA, Francisco GE. Augmentation of constraint-induced movement therapy with robotic training for upper-extremity function after stroke. Poster Grand Rounds presentation at the Association of American Physiatrists Annual Meeting, April 2010, Bonita Springs, Fla.

⁴ Yozbatiran N, Berliner J, Boake C, O'Malley MK, Kadivar Z, Francisco GE. Robotic training and clinical assessment of forearm and wrist movements after incomplete spinal cord injury: A case study. *IEEE International Conference on Rehabilitation Robotics 2011;2011:5975425*. doi: 10.1109/ICORR.2011.5975425.

⁵ Yozbatiran N, Berliner J, O'Malley MK, Pehlivan AU, Kadivar Z, Boake C, Francisco GE. Robotic training and clinical assessment of upper-extremity movements after spinal cord injury: A single case report. *Journal of Rehabilitation Medicine*, 2012 Feb;44(2):186-8.

Barry Oakes Makes a Comeback

On Sept. 18, 2010, 49-year-old Barry Oakes collapsed in his home while walking to the bathroom in the middle of the night. Awakened by a pounding on the wall, his wife, Nicole Oakes, called 911. An EMS team rushed him to Christus St. Catherine Hospital in Katy, Texas, where doctors diagnosed a massive ischemic stroke and administered tPA.

Oakes quickly regained his speech and was transported by air ambulance to St. Luke's Episcopal Hospital in the Texas Medical Center for observation. "I met him in intensive care with a change of clothes and sneakers, assuming the worst was over," his wife recalls. "But by the time I arrived, his speech had begun to slur again." The stroke left him with a large basilar artery thrombosis in the brainstem, which is associated with a very poor prognosis.

Oakes was in surgery for three hours.

He spent over a week in intensive care battling pneumonia while his care team worked to reduce swelling in his brain. "Barry could move his head and feet a little, blink his eyes and squeeze my hand

every so often," Nicole Oakes says. "He was in and out of consciousness and on a ventilator. The doctors told me we had a long road ahead and advised me not to expect too much. They could tell Barry was a fighter and encouraged me to be patient. Ultimately, they said the first three months would be critical in determining the prospects for and extent



Nicole and Barry Oakes along with their twins, Stella and Maddie

of his recovery.”

A week after the stroke, she learned she was pregnant. Assuming her husband would be unable to return to his management position at ConocoPhillips, she pursued short- and long-term disability under his health plan.

Although Oakes could barely move, his cognitive ability was unimpaired. Once he could hold a marker, he communicated using a white board. In October, he transitioned from St. Luke’s to a local long-term care facility, where he worked with physical, occupational and speech therapists several hours daily. In the evenings, he and his wife continued the work together.

“Our goal was always to get to TIRR Memorial Hermann,” Nicole Oakes says. “We were unfamiliar with the hospital, but family, friends and doctors at St. Luke’s described it as the place where miracles happen.” Oakes was admitted to the rehabilitation hospital on Nov. 2, 2010, under the care of attending physiatrist **Luz Tastard, M.D.**

“My biggest challenge at the beginning

was not being able to swallow,” Oakes recalls. “I laid in bed watching TV commercials about sodas and couldn’t wait to have one.” By the time he went home on Dec. 4, 2010, he was drinking thick liquids and eating chopped food.

He remembers his first day at TIRR Memorial Hermann. “They start by asking you what your goals are. I’m a very goal-oriented person, so this approach worked well for me. We had moved into a new home just two weeks before my stroke. One of my goals was to be able to walk upstairs to the media room. So on my first day of physical therapy, my therapist said, ‘Okay, let’s go climb some stairs.’” With assistance, he climbed 10 steps, and never looked back.

Oakes left the hospital with a wheelchair and a walker, but he never again used the wheelchair. “It’s amazing how positive and intense the staff was about helping him improve,” Nicole Oakes says. “We’re forever indebted to the dedication of the staff at TIRR Memorial Hermann. You very quickly get the

feeling that you’re part of a big family.”

In June 2011, Oakes returned to work fulltime at ConocoPhillips, where he manages the United States refinery supply. Today, he leads conference calls and travels at least once a month for business. In his free time, he works out at the gym, jogs, plays golf and spends time with his wife, his two sons, Sean and Ryan, and his new twin daughters, Stella and Maddie, who were born on May 12, 2011. In March 2012, he finished the Memorial Hermann Sugar Land Hospital half marathon.

In April 2012 he underwent the first of three ablations to repair the atrial fibrillation, diagnosed in his late 20s, which physicians believed caused his stroke. “I would like to thank my therapists for their tireless dedication to pushing me to new heights – a day at a time,” he says. “My life and goals changed after the stroke, but with the help I received at TIRR Memorial Hermann and the support of my family, I’ve achieved more than anyone ever dreamed possible.” ♦

Residents’ Quality Improvement Projects Aim to Improve Care

Five teams of residents at TIRR Memorial Hermann are engaged in quality improvement projects that will benefit patients by streamlining processes for greater efficiency and improving the quality of care.

Under the leadership of chief resident for quality improvement and research **Jess Arcure, M.D.**, 32 residents at the Baylor/UTHealth Alliance for Physical Medicine and Rehabilitation have implemented change, tracked results and learned to work together in teams. “Our goal is to teach residents how to perform a quality assessment project within the scope of their practice in ways that improve patient care,” says Dr. Arcure. “Each group selected a process they felt needed to be added or improved upon in the hospital setting. One of the great things about the project is having

the opportunity to work closely with hospital staff we do not normally interact with consistently. The staff members provided us with feedback and direction to refine our interventions and improve outcomes. Working on these assignments also expands our point of view by giving us a better understanding of how a hospital operates. TIRR Memorial Hermann has been very helpful in providing us with the tools we need to complete our quality improvement projects.”

The residents learned the basics of quality and efficiency improvement in classes taught by Christopher Garrison, M.D., program director of the physical medicine and rehabilitation residency at The University of Texas Southwestern Medical Center’s Austin Programs, who has an interest in using quality assessment to improve patient care and outcomes.

Through the program, residents learn how to use teamwork to accomplish goals, how to accomplish and sustain performance improvement within an institution and how to become advocates for improvement.

The residents made an oral presentation of their methodology and results in March 2013 and hosted an open-house poster presentation at TIRR Memorial Hermann in July 2013. Projects presented in March include: Improving the Timeliness of Completion of Discharge Prescriptions (Sheng Li, M.D., Ph.D., Christopher Falco, M.D., Michael McGehee, M.D., Angelica Soberon, M.D., Matthew Roh, M.D., McCassey Smith, M.D., Amy Cao, M.D., and George Kannankeril, M.D.); Quality Improvement: Improving Post-void

Quality Improvement continues on page 12

Quality Improvement continued from page 11

Residual Documentation (Jess Arcure, M.D., James Dailey, M.D., Jason Chen, D.O., Avram Bram-Mostyn, D.O., Miles Kilroy, M.D., and Margaret Oni, M.D.);

Under the leadership of chief resident for quality improvement and research Jess Arcure, M.D., 32 residents at the Baylor/UTHealth Alliance for Physical Medicine and Rehabilitation have implemented change, tracked results and learned to work together in teams.

Reducing the Number of Interruptions to Patient Care (Miguel Escalon, M.D., James Lewis, M.D., Jorge Perez-Lopez, M.D., Charles DeMesa, D.O., Viola Hysa, M.D., Isabel Chan, M.D., and Ajai Sambasivan, M.D.); Protecting Resident Lecture Time: A Quality Improvement Project (Omer Munshi, M.D., Sara Goel, D.O., Mary Beth Russell, D.O., Monika Patel, M.D., Natasha Warnick, D.O., and Brian James, M.D.); and Improving Resident Sign-out with a Secure Online System (Rachel Zeider, M.D., Benjamin Mega, M.D., Sunny Dhah, D.O., Marie Frando, M.D., and Ekta Gupta, M.D.).

The residents made an oral presentation of their methodology and results in March 2013 and hosted an open-house poster presentation at TIRR Memorial Hermann in July 2013.

The 2013-2014 academic year, which began in July, marks the third year of the residents' quality improvement program. Projects under way this academic year will continue to focus on patient care in the setting of inpatient rehabilitation. ♦

A New Whole-body DEXA Scanner Advances Imaging Technology at TIRR Memorial Hermann

TIRR Memorial Hermann Diagnostic Imaging has added a new whole-body DEXA scanner to its diagnostic technology capabilities for patients recovering from a traumatic event or living with participation limitations. The Hologic® Discovery A DEXA scanner is the most advanced bone density machine in the Texas Medical Center.

TIRR Memorial Hermann's Diagnostic Imaging department is one of only a few centers in Houston with the capability to scan pediatric patients using whole-body DEXA, thanks to special software.

"The scanner allows us to assess a patient's true fracture risk before beginning therapy," says **Austen Holton, R.T.(R.)(C.T.)**, diagnostic imaging manager. "We're using it specifically to measure skeletal strength in the tibial plateau area of the legs in people who would like to enter a standing therapy program. People in wheelchairs tend to lose bone mineral mass faster than the general population, and that risk is compounded

for postmenopausal women. If you use a wheelchair, a DEXA scan should be done annually."

TIRR Memorial Hermann's Diagnostic Imaging department is one of only a few centers in Houston with the capability to scan pediatric patients using whole-body DEXA, thanks to special software. Capabilities of the Discovery A DEXA include whole-body bone mineral density with sub-region analysis; vertebral fracture assessment; measurement of body mass index by assessing adipose tissue in the android/gynoid region and calculating visceral fat around organs; measurement of lean and fat mass and evaluation of muscle growth over time; calculation of FRAX score to identify patients at high risk of experiencing fractures within a 10-year period; and analysis of bone density around prosthetics through prosthetic hip removal software that evaluates the density of the bone around the prosthesis. The table has a weight limit of 450 pounds.

Holton says future plans include using the data collected by the DEXA scanner to modify therapy intensity for patients over time. TIRR Memorial Hermann

Future plans include using the data collected by the DEXA scanner to modify therapy intensity for patients over time. TIRR Memorial Hermann also plans to launch a research project that will support evidence-based practice in assessing patients' fracture risk before entering a standing program.

also plans to launch a research project that will support evidence-based practice in assessing patients' fracture risk before entering a standing program. In addition, researchers at the hospital are seeking grant funding to evaluate status post whole-body stimulation in multiple sclerosis patients.

Bone density scanning is available to outpatients Monday through Friday from 8 a.m. to 5 p.m., and from 10 a.m. to 4 p.m. on Saturday and Sunday. To refer a patient, please call 713.797.5929. Patients may self-refer with an order from their healthcare provider. Online scheduling is available at tirr.memorial-hermann.org through the ScheduleNow application. ♦

TIRR Memorial Hermann Welcomes a Physician Researcher and Two Brain Injury Fellows

A physician researcher and two brain injury fellows have joined the staff of TIRR Memorial Hermann and the Baylor/UTHealth Alliance for Physical Medicine and Rehabilitation.

Sheng Li, M.D., Ph.D., joins TIRR Memorial Hermann as director of the Neurorehabilitation Research Lab and attending physician, with a concurrent appointment as associate professor in the department of Physical Medicine and Rehabilitation (PM&R) at UTHealth Medical School. Prior to assuming his new position, Dr. Li was a research assistant professor in the department of PM&R and conducted studies in the UTHealth PM&R Motor Recovery Laboratory at TIRR Memorial Hermann, supported by a National Institutes of Health (NIH) R01 grant and R24 subcontract he brought to the medical school. The grant allowed him to have protected time for research during his PM&R residency training on UTHealth's Clinical Investigator Pathway.

An accomplished researcher, Dr. Li has made numerous invited presentations and coauthored peer-reviewed articles published in the *Journal of Neurophysiology*, *Journal of Neuroscience*, *Motor Control*, *Neurorehabilitation*, *Muscle Nerve*, *Journal of Rehabilitation Medicine*, *Topics in Stroke Rehabilitation*, *Clinical Neurophysiology*, *Experimental Brain Research* and *Journal of Pain Research*, among others, and was invited by the *Journal of Visualized Experiments* to publish a video article on his work with a new electrical stimulation protocol called breathing-controlled electrical stimulation (BreEStim). He served as principal investigator on the NIH R01 grant and on grants from other funding agencies and organizations. His current research focuses on pathophysiology and management of spasticity and neuro-pathic pain management with BreEStim.

After receiving his medical degree

at Beijing Medical University in Beijing, China, Dr. Li earned a master's in exercise science at the University of Toledo, Ohio, and a doctorate in kinesiology at Pennsylvania State University in University Park. He completed a postdoctoral fellowship in neurorehabilitation at the Rehabilitation Institute of Chicago/Northwestern University in Chicago. Prior to beginning his residency training at TIRR Memorial Hermann and UTHealth Medical School, he was an assistant professor in physical therapy at the University of Montana in Missoula.

Dr. Li is currently a regular member of the Motor Function, Speech and Rehabilitation study section at NIH. He has been a guest reviewer for numerous professional journals and a grant reviewer for the National Institute on Disability and Rehabilitation Research, among others. He is a member of the Society for Neuroscience, International Society of Motor Control, American Association of Physical Medicine and Rehabilitation and Association of Academic Physiatrists.

In July, **Margaret B. Oni, M.D.**, and **Christopher Falco, M.D.**, began one-year fellowships in brain injury medicine at TIRR Memorial Hermann and the Baylor/UTHealth Alliance for Physical Medicine and Rehabilitation.

Dr. Oni received her medical degree at Baylor College of Medicine, followed by a clinical internship in internal medicine at the University of Chicago Medical Center and residency in PM&R at Baylor College of Medicine. She was the 2013 recipient of the Oliver R. Smith Outstanding Resident Award given by the Baylor/UTHealth Alliance for PM&R and the 2011 first-place recipient of the William H. Donovan, M.D., Award for Critical Review of the Literature.

She is the co-author of articles published in the *American Journal of Physical Medicine and Rehabilitation*,

Sheng Li, M.D., Ph.D., joins TIRR Memorial Hermann as director of the Neurorehabilitation Research Lab and attending physician. In July, Margaret B. Oni, M.D., and Christopher Falco, M.D., began one-year fellowships in brain injury medicine at TIRR Memorial Hermann and the Baylor/UTHealth Alliance for Physical Medicine and Rehabilitation.

Journal of Neurotrauma and the *Journal of Child Neurology*. Her clinical and research interests include brain injury, spasticity management, diagnostic and injection-guided ultrasound and international health.

Dr. Oni is a member of the American Academy of Physical Medicine and Rehabilitation and the Texas Medical Association.

Dr. Falco received his medical degree at UTHealth Medical School and completed an internal medicine internship at the University of Louisville, Kentucky, and a residency in PM&R at the Baylor/UT Houston Alliance.

He has given presentations on post-traumatic amnesia, rehabilitation outcomes of stroke patients treated with tPA, and hyaluronic acid injection for the treatment of glenohumeral osteoarthritis, among others. His clinical and research interests include behavioral disorders following brain injury and chemodeneration procedures for the treatment of spasticity.

Dr. Falco was the 2009 recipient of the Lewis A. Leavitt Award presented by UTHealth Medical School to the outstanding medical student pursuing a career in the field of PM&R. He holds memberships in the American Academy of Physical Medicine and Rehabilitation, the American Medical Association and the Texas Medical Association. He hopes to pursue an academic career in brain injury medicine upon completion of his fellowship. ♦

ACCOLADES

Nneka Ifejika, M.D., assistant professor of neurology at UTHealth Medical School, has been selected for the inaugural class of the American Academy of Physical Medicine and Rehabilitation's Academy Leadership Program. Dr. Ifejika is one of just 10 academy members selected from a national pool to participate in the two-year program, which is designed to identify and train early-career physical medicine and rehabilitation physicians to assume future leadership positions. A member of the Stroke Team at UTHealth Medical School, she has served as director of the UTHealth Neurorehabilitation Program since 2007.

Danielle Melton, M.D., was elected chair of the Scientific and Medical Advisory Board of the Amputee Coalition.



Kerry Davis, R.N., C.R.R.N., C.B.I.S., clinical manager of the brain injury and stroke unit, and **Lisa Thomas, M.S., C.N.S., R.N., C.R.R.N., A.P.R.N.**, manager of nursing education, were named 2013 Excellence in Nursing Bronze Medalists by the Good Samaritan Foundation. They were recognized among nursing's "best and brightest" at the foundation's annual awards luncheon held in September at the Omni Hotel in Houston. Nominated by their peers and selected by a distinguished committee of nursing leaders, award winners demonstrate a passion for the nursing profession and exemplify excellence in teaching, mentoring, leadership and service.

TIRR Memorial Hermann is one of 17 hospitals selected by ASHP Advantage, a division of the American Society of Health-System Pharmacists, to participate in the national Mentored Adult Immunization Impact Program. Led by **Susan Loughlin, Pharm.D., B.C.P.S.**, clinical pharmacist, TIRR Memorial Hermann assembled a team of

healthcare professionals committed to improving immunization rates of adult hospitalized patients. Participating sites were selected through a competitive application process. ♦

IN PRINT

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ON THE PODIUM

jasin P, Jennings J. Seating Considerations for Bowel, Bladder and Bathing Management After SCI. Educational session presented at the 29th International Seating Symposium, Nashville, Tennessee, March 2013.

Kern M, Ardolino L, Behrman A. A New Outcome Measure for Spinal Cord Injury Based on Pre-injury Function, Not Compensation: Neuromuscular Recovery

Scale. Presentation at the American Spinal Injury Association 40th Annual Meeting, Chicago, Illinois, May 2013.

Morrow M, Marroquin A, Lim H, Miller K. Introductory Talk about Music and the Brain and Music Therapy in America. Presentation at TIRR Memorial Hermann and Sam Houston State University, March 2013.

Morrow M. Neurologic Music Therapy Sensorimotor Training. Université Paul Valéry, Montpellier, France, March 2013.

Taylor HB, Robinson-Whelen S, Hughes RB, Wenzel L, Nosek MA. Examining the MHI-5 as a Depression Screening Measure. Invited presentation to the American Congress of Rehabilitation Medicine 90th Annual Conference, Orlando, Florida, November 2013.

Taylor HB, Robinson-Whelen S, Hughes RB, Wenzel L, Nosek MA. Depression and Depression Treatment of Women with Spinal Cord Injury: Are We Doing Enough? Invited presentation at the American Spinal Injury Association 40th Annual Meeting, Chicago, Illinois, May 2013.

Weber M. Ethics of Dysphagia Management. Presentation at the Texas Speech-Language-Hearing Association, Dallas, Texas, March 2013.

Weber M, Kelley K. One Model for Establishing Dysphagia Competency in Inpatient Rehabilitation. Presentation at the Texas Speech-Language-Hearing Association, Dallas, Texas, March 2013. ♦

POSTER PRESENTATIONS

Bierne M, Kern M, White C. Can a Person with SCI Learn to Independently Walk with a Robotic Exoskeleton in 12 Hours? and Developing an Exoskeleton Training Protocol. Presented at the American Spinal Injury Association Annual Meeting, Chicago, Illinois, May 2013.

Henry E, Bosquez A. Community Dining: An OT/PT Approach to Inpatient Spinal Cord Injury Rehabilitation. Presented at the American Spinal Injury Association annual meeting, Chicago,

Illinois, May 2013.

Henry E, Johnston C. Challenging Your Patient to Play Softball: An Innovative Therapeutic Intervention in Acute Spinal Cord Injury. Presented at the American Spinal Injury Association Annual Meeting, Chicago, Illinois, May 2013. ♦

About TIRR Memorial Hermann

TIRR Memorial Hermann is a 119-bed nonprofit rehabilitation hospital, a network of outpatient therapy clinics, a rehabilitation medical home and a network of inpatient rehabilitation units. Founded in 1959, the Texas Medical Center facility has been named one of America's Best Hospitals by *U.S. News & World Report* for 24 consecutive years. Rehabilitation teams at the hospital provide services for individuals with spinal cord injuries, brain injuries, strokes, amputations and neurodegenerative diseases.

TIRR Memorial Hermann is creating a comprehensive, integrated rehabilitation network beyond the Texas Medical Center, in outlying communities where people live and work. TIRR Memorial Hermann Outpatient Rehabilitation at Memorial City, TIRR Memorial Hermann Outpatient Rehabilitation at Northwest and TIRR Memorial Hermann Outpatient Rehabilitation at The Woodlands further extend services that have been offered at TIRR Memorial Hermann Adult and Pediatric Outpatient Rehabilitation at Kirby Glen since the southwest Houston facility opened in 2001.

TIRR Memorial Hermann is one of 12 hospitals in the not-for-profit Memorial Hermann Health System. Memorial Hermann is known for world-class clinical expertise, patient-centered care, leading-edge technology and innovation. The system, with its exceptional medical staff and more than 20,000 employees, serves Southeast Texas and the Greater Houston community.



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M MESSAGE FROM THE CEO



Carl E. Josehart, CEO

TIRR Memorial Hermann patients have exemplary outcomes: more than 75 percent of our admitted patients are discharged back to their communities. Through research and our academic partnerships with Baylor College of Medicine and UTHealth Medical School, we routinely discover and apply new knowledge to help patients on their journey to recovery. Clinical excellence and discovery are just two of the three pillars on which our hospital is built. We have an equally strong commitment to training current and future rehabilitation professionals.

Last summer, TIRR Memorial Hermann was accredited as a continuing competency provider for education by three organi-

zations - the Texas Physical Therapy Association, American Occupational Therapy Association and American Speech-Language-Hearing Association. We are the first healthcare system in Texas to be awarded a physical therapy provider designation and the first healthcare system in the country to be awarded provider designation in all three disciplines.

Hundreds of observers, student interns and residents come to us for training each year. By the end of calendar year 2013, more than 100 observers will have spent structured time with educational teams. We provide internship opportunities to more than 80 students from 70 colleges and universities in 35 states, and from a university in Montpellier, France. Residents at the Baylor/UTHealth Alliance for Physical Medicine and Rehabilitation learn about quality and patient safety as they hone their clinical skills; we also provide training opportunities for residents

in other specialties who want to expand their knowledge of rehabilitation. In collaboration with Texas Woman's University and The University of Texas Medical Branch at Galveston, our post-professional Neurologic Physical Therapy Residency Program includes a broad range of clinical and didactic experiences across the lifespan and continuum of care.

"Education is not the filling of a pail but the lighting of a fire," wrote the poet W. B. Yeats. In healthcare, learning never stops. Recognizing that, we give our students meaningful experiences that spark the desire to add to existing knowledge, find ways to improve clinical care and continue learning.

Carl E. Josehart
*Chief Executive Officer
TIRR Memorial Hermann
System Executive for Rehabilitation
Services
Memorial Hermann Health System*