



Annual Review 2017



## Mission:

Guided by God's purpose and a commitment to exemplary care, we empower each mind, body and spirit to reach its fullest potential.



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Amy J. Wilson, MD

## A message from Amy Wilson, MD, medical director

We have big news to share with you with the start of the new year!

As of Feb. 1, 2018, we officially rebranded to our new name: Baylor Scott & White Institute for Rehabilitation. This change signifies to our patients, referral sources and communities we serve the strong bond with Baylor Scott & White Health, which serves millions of patients in North and Central Texas. While we are changing our name, we remain committed to providing the pre-eminent rehabilitative care, which has driven our reputation for almost 40 years.

As part of our rebranding efforts, I hope you will explore our new website: [BSWRehab.com](http://BSWRehab.com). Built with our patients in mind, this website is mobile-friendly, with robust interactive and educational offerings. Leading-edge clinical and research updates will be featured here regularly.

And finally, I would like to highlight the phenomenal body of work coming from our research department, under the leadership of Simon Driver, PhD, director of rehabilitation research. We are delighted to announce that Baylor Scott & White Institute for Rehabilitation was recently designated a Model System of care for patients with traumatic brain injury by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR). Our federal funding portfolio has increased by 189 percent in the past three years with grants and contracts secured from

federal agencies including not only NIDILRR but also the Centers for Disease Control and Prevention (CDC) and Patient-Centered Outcomes Research Institute (PCORI). Our success with obtaining external funding supports our mission to maximize patient outcomes and be recognized as an international leader in rehabilitation research.

I hope that you find this publication an informative way to familiarize yourself with our clinical rehabilitation and research accomplishments.

Renamed. Renewed.  
Renowned.

## New Focus on Cancer Rehabilitation

The number of people living longer with a cancer diagnosis continues to increase. An estimate by the Centers for Disease Control suggests that 2 out of 3 patients are living at least five years or longer after cancer diagnosis. This trend, as well as increased attention on the concept known as “cancer survivorship,” places more responsibility on providers of rehabilitation services to meet the unique needs of this population over time.

### CANCER SURVIVORSHIP

Baylor Scott & White Health responded to the need to address survivorship care of the cancer patient by launching a new program – **Onward: The Survivorship Journey** ([www.nadallas.com/DAL/November-2017/Onward-The-Survivorship-Journey](http://www.nadallas.com/DAL/November-2017/Onward-The-Survivorship-Journey)) – in November 2017. This program works in parallel with traditional cancer treatment, including surgery, chemotherapy or radiation therapy, yet recognizes that survivorship starts at cancer diagnosis and patients fare better when care includes programming directed at concepts such as function, fitness, symptom management, psychological health, spiritual needs, education and nutrition. Baylor Scott & White Rehab is a collaborator in this endeavor, providing the specialized rehabilitation and fitness resources for the program.

### CANCER REHABILITATION AS A SPECIALTY

The rehabilitation community has long recognized that cancer patients often have unique impairments during or after their treatment, including pain, decreased range of motion, trouble swallowing, speech problems, peripheral neuropathy and diminished physical function. In recent years, cancer rehabilitation has developed into its own field and now recognizes that uniquely trained specialists are required to deliver focused and effective care for this patient population.

### AN INNOVATIVE APPROACH TO CANCER REHABILITATION

In response, Baylor Scott & White Rehab has partnered with ReVital Cancer Rehabilitation, a division of Select Medical. The ReVital program already has a proven track record with Select Medical’s inpatient rehabilitation hospitals and outpatient therapy centers across the United States. Oncology therapy offerings include physical therapy, occupational therapy, speech-language pathology, lymphedema therapy and neuropsychology. Carrying the ReVital Cancer Rehabilitation seal demonstrates a commitment to providing unparalleled high-quality inpatient and outpatient rehabilitation services that span the entire continuum of the cancer experience.

*“Our goal is to help cancer survivors increase their functioning and, subsequently, their quality of life.”*

– Stacye Mayo, MOT, OT/L, CLT-LANA, senior director of clinical operations at ReVital

As part of the program, Baylor Scott & White Rehab facilities undergo extensive evaluations to ensure each location is equipped to address the complex needs of cancer patients. The therapists complete ReVital-designed training to ensure they have the oncology-specific competencies and knowledge to safely and effectively provide rehabilitation services to cancer patients.

Further, partnering with medical and surgical oncologists is key to cancer patients having access to rehabilitation services that will benefit them. ReVital has trained oncology therapy providers in effective communication strategies with oncologists. Stacye Mayo, MOT, OT/L, CLT-LANA, senior director of clinical operations at ReVital, explains, “There can be a disconnect between the rehabilitation care patients get after cancer treatment compared to other injuries or illnesses. A mastectomy patient may be less likely to get a referral to rehabilitation care than someone with a stroke. Our goal is to help cancer survivors increase their functioning and, subsequently, their quality of life.”

## Cancer Rehabilitation in 2018

Baylor Scott & White Rehab is looking forward to enhanced cancer rehabilitation services at all locations. Additionally, a new comprehensive outpatient therapy location is anticipated by mid-2018 in Baylor Scott & White Sammons Cancer Center on the campus of Baylor University Medical Center, part of Baylor Scott & White Health. This 5,000-square-foot location will be entirely oncology focused, uniting oncology therapies and physical medicine and rehabilitation physicians in the same physical space. "Our goal is to ensure we're delivering the optimal oncology care to get the best outcomes and that we're providing the best oncology training for therapists to continually develop and update their skills," Mayo says.





## Neuro Transitional Rehabilitation Center to Open in Dallas

Center offers specialized post-acute rehabilitation for traumatic brain injury, spinal cord injury or stroke patients.

**DALLAS (Dec. 7, 2017)** – Baylor Scott & White Rehab recently began construction of a nine-bed transitional rehabilitation facility, Baylor Scott & White Neuro Transitional Rehabilitation Center. The center is expected to open this summer.

The center's clinical team will provide care in a residential setting for people with traumatic brain injury (TBI), spinal cord injury (SCI), stroke or other neurological disease. Many of these patients require continued medical coordination, specialized therapies and supervision before safely reintegrating home under the care of a family member or caregiver.

"We created this program because of the need within our community to provide continued care within our system for our patients," said Jane Boutte, transitional program manager, Baylor Scott & White Rehab. "We performed a year-long study to look at the needs of patients discharging from our facilities. We found that many patients discharging from our hospital and elsewhere in the community don't qualify for inpatient rehabilitation but still need additional therapy to live

safely at home. Patients who come to us for their rehabilitation care can enter Baylor Scott & White Rehab as an acute care patient and have access to all of our services in inpatient rehab, outpatient therapy, home healthcare and now neuro transitional rehabilitation."

The facility will contain nine suites with access to a specially designed kitchen where patients can practice meal planning, shopping and preparation within their abilities. Patients will participate in five to six hours of intensive rehabilitation therapy five days a week and then will return to the facility to transfer their therapy goals into the residential rehabilitation setting, preparing for their transition home or to the next step in their care. The ultimate goal of the Neuro Transitional Rehabilitation Center is to provide patients with the structure, guidance and supervision needed to help with activities of day-to-day living that will support their safe return home and to work or school.

"It's a fully integrated program," explained Randi Dubiel, DO, medical director of traumatic brain injury services, Baylor Scott & White Rehab. "Our hospital treats patients with complex injuries who deal with great physical, cognitive and behavioral impairments. Patients eventually become medically stable but have ongoing issues that make returning home a challenge. This facility will help give patients the skills they need to successfully transition back into their homes, communities and lives."

*“We plan to follow patients throughout their recovery, knowing that injuries such as TBI and SCI can come with lifelong challenges that require a healthcare system that wants to support them and is able to meet their needs.”*

– Jane Boutte, transitional program manager, Baylor Scott & White Rehab

The Neuro Transitional Rehabilitation Center will provide a multidisciplinary team, including a licensed nurse to serve as residential manager; a registered nurse who will perform community evaluations of patients; a case manager; rehabilitation assistants; a chaplain; and a dietitian. The center will have a dedicated medical director and physical medicine and rehabilitation (PM&R) physician following the patient through his or her transitional course and life.

The location of the facility on the campus of Baylor University Medical Center makes it convenient for patients to receive the medical coordination often required as part of their conditions. The facility also will offer a van for transportation to help patients participate in structured activities throughout the community.

The Baylor Scott & White Neuro Transitional Rehabilitation Center will continue to support patients after they leave the facility. “We plan to follow patients throughout their recovery, knowing that injuries such as TBI and SCI can come with lifelong challenges that require a healthcare system that wants to support them and is able to meet their needs,” Boutte said. “We hope to follow up with patients at 30 and 90 days, at one year and annually for several years afterward, so that we have the data from a research perspective to see their outcomes over the long term. Our hope is that this facility will become a model of care that can be spread throughout North Texas.”

Baylor Scott & White Rehab is part of the North Texas TBI Model System, a collaborative effort with The University of Texas Southwestern Medical Center. It is one of 16 rehabilitation centers recognized nationally as a TBI Model System of care, providing comprehensive care to those surviving moderate to severe TBI. The addition of the new Neuro Transitional Rehabilitation Center will make Baylor Scott & White Rehab the first among these other centers to provide this level of care to its patients.

## About Baylor Scott & White Health

Formed from the 2013 merger between Baylor Health Care System and Scott & White Healthcare, the system referred to as Baylor Scott & White Health is the largest not-for-profit healthcare system in the state of Texas. With total assets of \$10.8 billion\* and serving a population larger than the state of Georgia, Baylor Scott & White Health has the vision and resources to provide its patients continued quality care while creating a model system for a dramatically changing healthcare environment. The system now includes 48 hospitals, more than 1,000 access points, 5,500 active physicians, and 44,000 employees, plus the Scott & White Health Plan, Baylor Scott & White Research Institute and Baylor Scott & White Quality Alliance — a network of clinical providers and facilities focused on improving quality, managing the health of patient populations, and reducing the overall cost of care. For more information visit: **BSWHealth.com**

## Assessing Feeding Challenges in the Neonatal Intensive Care Unit

Premature infants are vulnerable to a variety of issues, including feeding problems, such as aspiration, dysphagia and apnea. One method to assess a patient for dysphagia is a videofluoroscopic swallowing study (VFSS). However, this technique has many drawbacks for infants, including radiation exposure, use of barium, positioning difficulties and cost.

"Feeding is a significant milestone for infants," notes Jenny Reynolds, MS, CCC-SLP, neonatal speech pathologist at Baylor Scott & White Rehab.

"Infants in the NICU who are born premature can have feeding difficulties, which causes significant stress on the family. The previous method for assessment of feeding in the NICU was not family- or patient-centered. Our team at the Baylor University Medical Center NICU adapted an alternative comprehensive procedure for assessing swallowing in the NICU that can empower families to competently and confidently feed their baby."

### RESEARCH CHANGING PARADIGM OF ASSESSMENT AND TREATMENT

Recognizing the challenges of assessing feeding problems in infants, the neonatal therapy team of speech pathologists and occupational therapists at the Blanche Swanzey Lange Neonatal Intensive Care Unit at Baylor University Medical Center pioneered an innovative method to evaluate



swallowing in the NICU population.<sup>1</sup> Fiberoptic endoscopic evaluation of swallowing (FEES) had previously been utilized and studied in adult and older pediatric patient populations, but the team at the Lange Unit—including Jenny Reynolds, MS, CCC-SLP, CLC, CNT; Sandra Carroll, OTR, CLC, CNT; and Chrysty Sturdivant, OTR, CLC, CNT—was the first to conduct a study of infants in the NICU using FEES. The study demonstrated that FEES is a safe alternative to VFSS in infants. The study also provided additional evidence that the procedure is both safe and reliable in assessing laryngeal penetration and tracheal aspiration in NICU infants.<sup>2</sup>

### **ADVANTAGES OF FIBEROPTIC ENDOSCOPIC EVALUATION OF SWALLOWING TECHNIQUE IN INFANTS**

FEES involves passing a flexible endoscope transnasally into the pharynx to assess anatomy, movement/sensation of structures, swallow function and response to therapeutic interventions. The FEES procedure offers many advantages over VFSS: it enables a clinician to conduct the swallowing study at the bedside without having to transport the infant to the radiology department, it can assess both breastfeeding and bottle feeding while VFSS only assesses bottle feeding, it enables clinicians to observe the entire duration of a 20- to 30-minute feeding rather than the three-minute window allowed by VFSS, and it is less expensive than VFSS. Overall, FEES allows infants to feed in a more natural way, while still gaining the diagnostic information that is needed by the clinician.

### **CENTER OF EXCELLENCE FOR INFANT FEEDING**

The success of the neonatal therapy team's research has resulted in the team securing external funding to create a center of excellence for infant feeding that will support research, technology and education. This education will include a Neonatal and Infant FEES Course, training packages for clinicians to come to Baylor University Medical Center to train in infant feeding and FEES, and parent

***“We hope that we’re changing clinical practice by encouraging clinicians to see the evidence that FEES is a safe and effective procedure in infants.”***

— Jenny Reynolds, MS CCC-SLP, neonatal speech pathologist at

Baylor Scott & White Rehab

education/support classes on feeding. This niche research team continues to gather data on FEES and breastfeeding, clinical applications of FEES, and comparative data related to reliability of FEES and VFSS.

### **WORLD-CLASS TRAINING AND COLLABORATION**

Demand to translate infant FEES into practice and thus, standard of care, has been high. The center of excellence is providing advanced training for clinicians on infant FEES and mentorship for clinicians who are seeking to adopt the technique at their institutions. In addition, team members are collaborating with clinicians and researchers from around the world to spread the success of the procedure and its potential to lead to more patient-centered care for infants and their families. One such collaborator is Nikki Mills, ENT, from Starship Children's Hospital, who traveled from New Zealand to Baylor University Medical Center in October 2017 to learn about the team's work (*see photo on Page 8*).

“We hope that we’re changing clinical practice by encouraging clinicians to see the evidence that FEES is a safe and effective procedure in infants,” Reynolds says.

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## ST&R Facility

Baylor Scott & White Sports Therapy & Research (ST&R) at The Star in Frisco, Texas, will be a comprehensive sports performance and healthcare facility with a focus on injury prevention and research for athletes of all ages and levels of play. The 300,000-square-foot, nine-story facility is located on the 91-acre campus of The Star, the Dallas Cowboys World Corporate Headquarters and Training Facility. The collaboration between Baylor Scott & White Health and the Dallas Cowboys will soon allow athletes of all levels the same access to physicians, researchers and sports performance experts as professional athletes.

## ADVANCED RESOURCES

The ST&R will utilize innovative methods and tools to improve treatment outcomes. This includes the pioneering technology Fusionetics, an evidence-based platform designed to help optimize athletic performance, reduce injuries and decrease recovery time. Gatorade Sports Science Institute will reside on campus and will conduct research on optimal hydration of athletes. Blue Star Imaging, working in collaboration with GE, will offer advanced MRIs for clinical and research protocols related to sports concussions. Baylor Scott & White Rehab will be a partner, offering physical therapy and occupational therapy tailored for postoperative cases, musculoskeletal injuries and rehabilitation for injured athletes. Additional features of the facility include an ambulatory surgery center, a full-service pharmacy, a sport-performance space including a 50-yard turf football field and a regulation-size National Basketball Association (NBA) court, as well as several floors of clinical office space housing orthopedic surgeons, physical medicine and rehabilitation physicians and primary care physicians. Alternative approaches will be offered, including acupuncture, sports psychology, and sports nutritionists.

## SPORTS CONCUSSION CENTER

Baylor Scott & White Sports Concussion Center will offer a distinctive experience in the assessment and treatment of sport-related concussion. Our experts understand that every concussion is unique and that each individual patient requires a tailored plan for recovery. The Sports Concussion Center will include a multidisciplinary team of neuropsychologists, physicians, vestibular and sports physical therapists, and athletic trainers, who will work together to provide comprehensive concussion care and safe return-to-play (RTP) protocols. Evaluations will include a multimodal assessment approach, including neurocognitive testing, vestibular/ocular-motor screening and physical exertion when appropriate. This team approach will allow for seamless integration of assessment results, enabling athletes to have a clear understanding of their treatment plan. Individualized plans will include behavioral strategies to support recovery, recommendations for academic or work accommodations, and specific guidelines for optimizing both return-to-learn and RTP progressions.

## COLLABORATION WITH SCHOOL DISTRICT AND STUDENT ATHLETES

One unique aspect of the new facility is the collaboration between Baylor Scott & White Health, the Dallas Cowboys and the Frisco Independent School District (FISD). This first-of-its kind collaboration allows FISD students to access Baylor Scott & White Health clinicians and sports performance programs, while training, and in some cases playing football games, in the same facility as the Dallas Cowboys. The Sports Concussion Center is working collaboratively with FISD to establish strong concussion protocols with a promise to provide concussion care for all FISD students, regardless of ability to afford medical care. This collaboration will allow for further innovation and development of injury prevention programs across sports.



*“While our overarching goal is to be a center of excellence for athletes of all ages and all levels and to become a medical destination for those seeking a premier healthcare experience, my personal goal is to become a model for concussion care not only in North Texas, but on a national level.”*

– Erin Reynolds, PsyD, clinical neuropsychologist and clinical director of the Sports Concussion Center at The ST&R

## BEYOND NORTH TEXAS

In addition to providing care for student athletes at FISD, the facility is expected to become an international destination for advanced healthcare. Erin Reynolds, PsyD, clinical neuropsychologist and clinical director of the Sports Concussion Center at The ST&R, says, “The ST&R will be a comprehensive outpatient facility dedicated to treating, training and supporting athletes at all levels. Our team of concussion experts will offer specialized services with a streamlined patient

experience, with all services offered under one roof. While our overarching goal is to be a center of excellence for athletes of all ages and all levels and to become a medical destination for those seeking a premier healthcare experience, my personal goal is to become a model for concussion care not only in North Texas, but on a national level.”

The ST&R complex is scheduled for completion in March 2018.

# Group Lifestyle Balance-Adapted for Individuals with Impaired Mobility (GLB-AIM)

## NATIONAL PROBLEM OF OBESITY AND MOBILITY IMPAIRMENT

Substantial attention has focused on rising U.S. obesity rates, which was labeled an epidemic more than three decades ago. Obesity increases the risk for numerous chronic health conditions, such as high blood pressure, high cholesterol, diabetes and arthritis, and the U.S. spends \$147 billion dollars annually on obesity-related medical expenses.<sup>1</sup> People living with disabilities experience significantly higher obesity rates than the general population and are therefore particularly vulnerable to obesity-related problems. Among those with disabilities, people with mobility impairment, like spinal cord injury (SCI), multiple sclerosis, spina bifida, amputation and other forms of impairment, face among the highest obesity rates.<sup>2</sup> The combined effects of mobility impairment and obesity-related chronic conditions can further restrict individuals' function and independence, and clinicians and public health experts have emphasized the need for novel ways to support weight loss and improve health outcomes in this population.

## INNOVATIVE WEIGHT LOSS PROGRAM FOR PATIENTS WITH MOBILITY IMPAIRMENT

The research team at Baylor Scott & White Rehab, led by Katherine Froehlich-Grobe, PhD, associate director of research, is among those leading national efforts to design an effective weight loss program that specifically addresses the needs of people living with mobility impairment as they make lifestyle changes to support weight loss. With funding from the Centers for Disease Control and Prevention, the team has partnered with investigators at the University of Pittsburgh in adapting the evidence-based Diabetes Prevention Program Group Lifestyle Balance® (DPP GLB) to address the issues of people with mobility impairment.

DPP GLB adaptations were made with guidance from a national advisory group, which included people with disabilities and healthcare providers.

Primary adaptations to the DPP GLB program included:

- Adding a new session on adaptive cooking
- Rewriting the physical activity session to focus on activities appropriate for wheelchair users
- Revamping the session on the health benefits of standing to target moving more
- Adding disability-specific examples throughout
- Ensuring the text included disability-friendly language (e.g., substituting terms such as "go" or "move" for "walk")

*"Weight loss is hard for anybody. We're excited that people with mobility impairment who face more barriers to losing weight lost a significant amount of weight over the year, which averaged on par with the general population for weight loss."*

— Katherine Froehlich-Grobe, PhD, associate director of research at Baylor Scott & White Rehab

## RANDOMIZED CONTROLLED TRIAL OF THE WEIGHT LOSS PROGRAM

The research team conducted a randomized controlled trial to investigate the feasibility and effectiveness of the new Group Lifestyle Balance-Adapted for Individuals with Impaired Mobility (GLB-AIM) program over 12 months with a sample of 67 individuals with mobility impairment, including 32 people with SCI. The 23 GLB-AIM sessions were delivered through monthly in-person and teleconference calls. Over the initial 13 "core" sessions, participants shared their diet and activity logs with lifestyle coaches, who provided positive reinforcement, feedback and problem-solving techniques. The control group was on a



“wait list,” meaning people randomized to the group were offered the opportunity to participate in the GLB-AIM program after the initial group completed six months.

The team completed data collection in early 2017 and completed analyses this summer. The study results demonstrate the program is both feasible to deliver to a mobility impaired sample and yielded significant weight loss ( $3.3+10.1$  kg,  $p = 0.027$ ) over 12 months by the 73 percent of those who remained in the study. Papers describing the GLB-AIM program and results will appear in print in 2018.

Self-monitoring of food intake was low in the first group, averaging only 44 percent over the initial 13 core weeks. Analyses of weight data showed there was a significant interaction between groups over time ( $p = 0.045$ ). The intervention group lost weight (average of 1.66 kg, or 1.5 percent of their start weight), while the control group essentially maintained their weight. Due to the first group’s low

self-monitoring, the research team provided instructions to the second group to use an app to record daily food intake. Attendance was similar for both groups, but self-monitoring of food intake was higher with an average rate of 76 percent among the second group, most of whom used the app. Participants experienced significant weight loss, which averaged 3.3 kg over the year. Nearly three-fourths (73 percent) of the participants remained in the study over the year.

“Weight loss is hard for anybody,” Dr. Grobe says. “We’re excited that people with mobility impairment who face more barriers to losing weight lost a significant amount of weight over the year, which averaged on par with the general population for weight loss.”

### PROJECT WORKOUT ON WHEELS INTERNET INTERVENTION

Americans are generally not as active as what various authorities recommend for health, which is 150 minutes of moderate-intensity activity each week plus strength training two to three times a week. Americans living with disabling conditions like SCI, who face greater barriers to exercise, are significantly less active than other Americans<sup>2</sup> and are therefore disproportionately susceptible to health problems associated with inactivity.

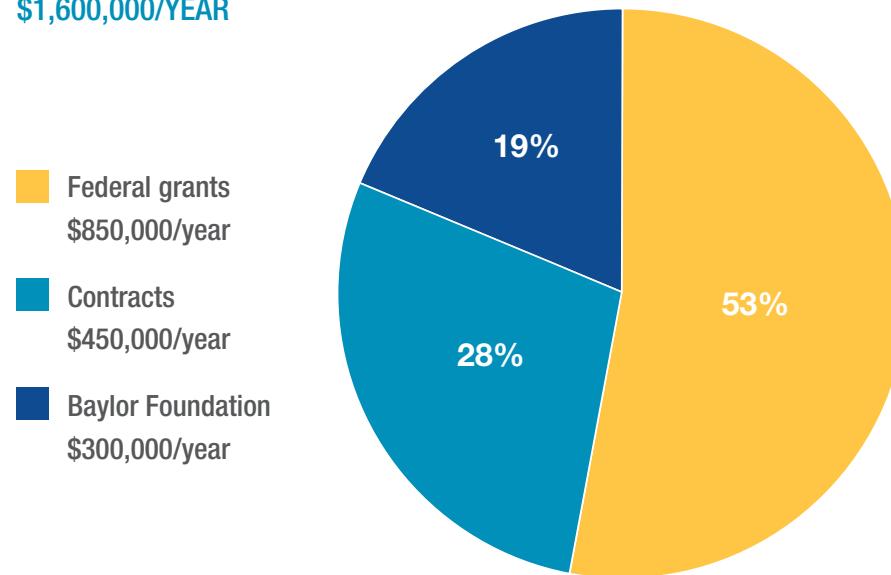
Innovative work by the research team at Baylor Scott & White Rehab attempts to change these trends by using technology to connect people living with SCI with information, resources, and support to begin an exercise program. Project Workout on Wheels Internet Intervention (WOWii), funded by the National Institute of Disability, Independent Living, and Rehabilitation Research, examines the usefulness and effectiveness of an online format for helping people with SCI get more exercise.

### COMMUNITY-BASED PARTICIPATORY APPROACH

The study followed a community-based participatory approach to obtain feedback from individuals living with SCI about the layout, content and functionality of a new website to promote regular exercise. This feedback (continued on Page 18)

## Research Facts and Figures

### BIR RESEARCH FUNDING PORTFOLIO \$1,600,000/YEAR



4 federal grants  
(3 NIDILRR; 1 CDC)

2 contracts  
(PCORI)

45 published manuscripts  
in 2016-2017

105% increase  
from 2014-2015

189% increase in  
federal funds since 2014

### PM&R RESIDENT PHYSICIAN RESEARCH

The PM&R resident physicians continue to be actively engaged in innovative research projects, and in 2017, the three graduates presented their respective work at national conferences, including the Association of Academic Physiatrists and the American Congress of Rehabilitation Medicine. Each resident physician's research project has been submitted for publication.

Sheena Bhuva, MD, compared outcomes for liver transplant patients with high Model for End-Stage Liver Disease (MELD) scores who discharged to acute inpatient rehabilitation versus home. Data was extracted from 262 liver transplant patients, of which 194 (74 percent) discharged home and 68 (26 percent) transferred to inpatient rehabilitation. Patients admitted to acute inpatient rehabilitation had significantly higher MELD scores and higher ICU lengths of stay. Despite this, there was no significant difference in one-year survival between groups, emphasizing the critical role inpatient rehabilitation plays for severely disabled transplant patients. Dr. Bhuva is currently a Fellow in Interventional Spine and Musculoskeletal Medicine at Desert Spine and Sports Physicians in Phoenix.

Jason Miller, DO, investigated the relationship between sleep and pain in 39 TBI patients during inpatient rehabilitation. Patients wore accelerometers for 10 days to record sleep data, and pain and medication information were extracted from the medical record. Notably, and contrary to hypotheses, no correlation was found between hours of sleep, pain or medication. Dr. Miller is practicing inpatient rehabilitation at Baylor Scott & White Medical Center – Grapevine.

Benecia Williams, DO, examined the prevalence of Vitamin D deficiency among individuals with TBI during inpatient rehabilitation. Her results indicated that 226 of 369 (62 percent) TBI patients were below the normal range for vitamin D suggesting that vitamin D levels should be routinely screened and supplemented during inpatient rehabilitation. Dr. Williams is a Fellow in Sports Medicine/Interventional Spine at JPS Health in Fort Worth, Texas.



## THERAPY RESIDENCY PROGRAMS

In 2017, Baylor Scott & White Rehab directed four accredited physical therapy residency programs: women's health, neurological, orthopedic and sports. Its acute care program is in the candidacy stage and has accepted its first resident, and its oncology program is in the developmental stage. The collective programs have enrolled seven residents.

Valerie Bobb, PT, DPT, WCS, ATC, clinical manager of the Baylor Scott & White Rehab Women's Health Residency Program, says she is proud of how Baylor Scott & White Rehab has embraced and helped to grow the residency programs over the past seven years. "To think that seven years ago, we started our first residency program and now we have four, and two in the making—it shows that from the top down, we as an organization are supportive of education for our employees and understand that an educated employee will lead to an engaged patient."

## RESIDENCY PROGRAM MANAGERS

Women's Health – Valerie Bobb

Sports – Jared Gillespie

Neuro – Merri Leigh Johnson

Acute Care – Emelia Exum

Ortho – Brian Bertsch

Oncology – Jessica Bertram

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## Traumatic Brain Injury Research

North Texas Traumatic Brain Injury Model System – Funded by the National Institute of Disability, Independent Living, and Rehabilitation Research (NIDILRR)

As a national leader in the understanding and treatment of traumatic brain injury (TBI), Baylor Scott & White Rehab has since 2002 been one of 16 centers nationwide designated as a Model System of care for patients with TBI. The TBI Model Systems program is competitively funded by the National Institute on Disability, Independent Living, and Rehabilitation Research (NIDILRR), which awards grants to institutions that it regards as national leaders in medical research and patient care, and that provide the highest level of comprehensive specialty services from the point of injury through eventual re-entry into full community life. Grants are awarded in five-year cycles, and Baylor Scott & White Rehab was recently refunded as a TBI Model System for 2017-2022.

### COMPARATIVE EFFECTIVENESS RESEARCH TO MEASURE VARIATIONS IN PATIENT OUTCOMES

For the 2012-2017 funding cycle, investigators led by Shahid Shafi, MD, MPH, conducted the first comparative effectiveness research (CER) in an inpatient rehabilitation setting to measure variations in patient treatments and outcomes

across TBI Model System centers and develop a set of evidence-based best practice recommendations for rehabilitation of TBI patients. “The purpose of CER is to synthesize information to help stakeholders, such as patients, clinicians and policymakers, make informed decisions to improve their health,” Dr. Shafi explains. Results of this published work<sup>1-3</sup> revealed substantial variations across TBI Model System centers in clinical practices and some variation in patient outcomes, which do not appear to be driven by functional status differences of patients. This groundbreaking study was one of the first to demonstrate the need to minimize unnecessary variation in clinical practices in rehabilitation of TBI patients while meeting individual patient needs.

### NOVEL WEIGHT LOSS INTERVENTION FOR PEOPLE WITH TRAUMATIC BRAIN INJURY

For the 2017-2022 funding cycle, investigators led by Simon Driver, PhD, director of rehabilitation research, and Ginger Murchison, chair for TBI research for Baylor Scott & White Rehab, are examining the efficacy of an evidence-based weight-loss intervention for individuals after TBI. Weight gain is common among people with TBI, with 70 percent of Baylor Scott & White Rehab TBI patients overweight/obese 10 years post injury. As Dr. Driver explains, “Weight gain greatly increases an individual’s risk of chronic diseases, such as diabetes, metabolic syndrome, and pulmonary and heart disease. Notably, approaches to weight loss are lacking, yet necessary, due to the unique physiological and cognitive needs of persons with TBI.”

To address this important issue, investigators will assess the efficacy of the Diabetes and Prevention Program Group Lifestyle Balance (GLB) intervention, which is a 12-month, evidence-based weight-loss program that has been used extensively in the general population but has never before been used in people with TBI. Dr. Driver modified the program with a group of stakeholders, including investigators from the University of Pittsburgh, to meet the needs of people with TBI. Pilot results in 20 individuals with TBI demonstrated that participation resulted in 5 percent weight loss ( $10.2 \pm 13$ lbs).

For its next innovation, the study team will integrate a mobile app into the GLB-TBI to support weight loss and boost motivation. “We’re very excited about integrating the mobile technology into the program as participants in the pilot study wanted reminders and support over the 12-month program,” Dr. Driver says.

### **IMPROVING TRANSITION FROM ACUTE TO POST-ACUTE CARE FOLLOWING TRAUMATIC BRAIN INJURY – FUNDED BY THE PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE**

Many patients with TBI encounter challenges during the transition from inpatient rehabilitation to outpatient care, and little is known about specific ways to address these challenges and improve care for these patients. Dr. Driver and Randi Dubiel, DO, at Baylor Scott & White Rehab are part of a five-year, national study aimed at improving post-acute care for patients after TBI. The study, a collaborative project among five other TBI Model System sites, is funded by a \$12.7 million award from the Patient-Centered Outcomes Research Institute (PCORI), an independent nonprofit organization that funds research to provide patients and clinicians with the evidence-based information needed to make better-informed healthcare decisions. The patients will be randomized to one of two groups: standardized discharge care, which includes advice and referral sources; and standardized discharge care with a care manager, who will assess for unmet needs and assist with coordination of care via telephone over six months. The project team will compare functioning and quality of life at three, six, nine and 12 months in these two groups.

“Poor outcomes after a TBI are caused, in part, by the challenges of transitioning from inpatient rehabilitation to outpatient care, leaving many survivors with unmet healthcare needs,” said Dr. Driver. The results of the study are expected to fill an important gap in the evidence for ways to improve care for patients with TBI.

### **COMPARISON OF SLEEP APNEA ASSESSMENT STRATEGIES TO MAXIMIZE TBI REHABILITATION PARTICIPATION AND OUTCOME (C-SAS) - FUNDED BY THE PATIENT-CENTERED OUTCOMES RESEARCH INSTITUTE**

Although many patients with TBI have sleep apnea, the problem often goes undiagnosed, underscoring the need for innovative methods to screen for and diagnose sleep apnea. Marie Dahdah, PhD, at Baylor Scott & White Rehab is serving as site Principal Investigator for a three-year, multi-center, PCORI-funded study aimed at comparing existing sleep apnea screening and diagnostic tools in TBI patients undergoing inpatient rehabilitation. The goal of the study is to determine whether a more accessible diagnostic test (level 3 polysomnography; PSG) is sufficient to diagnose sleep apnea compared to the traditional, less accessible method (level 1 PSG). If the level 3 PSG is found to be comparable, patients with TBI will have access to earlier sleep apnea diagnosis and treatment.

As part of this collaborative project among six inpatient rehabilitation facilities, patients will complete screening assessments and wear an Actiwatch to determine habitual sleep. If a patient is sleeping at least two hours on two consecutive nights and is not agitated (Agitated Behavior Score < 21), the patient will be scheduled for overnight PSG. A registered polysomnographic technologist will conduct the overnight sleep study at bedside on the inpatient floor. The lead site will score the overnight PSG to determine whether a sleep apnea diagnosis is appropriate, and if sleep apnea is diagnosed, a referral will be sent to the Baylor Scott & White Sleep Clinic.

“Sleep apnea is a critical issue for the TBI population. They have a higher prevalence than the general population, but sleep apnea goes largely undiagnosed. Given that sleep is essential for recovery post-TBI and disordered sleep may play a role in slowing functional recovery and prolonging rehabilitation, early detection of sleep apnea is critical,” says Dr. Dahdah.

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(continued from Page 13) guided the team as it worked with web designers to implement their suggestions and redesign the site. A small four-week pilot was conducted with 10 SCI participants to test the site's functionality and content, and participants' engagement with the website and program.

### RANDOMIZED CONTROLLED TRIAL OF WORKOUT ON WHEELS INTERNET INTERVENTION

After making additional changes to refine the website further, the research team is now conducting a randomized controlled trial with up to 140 individuals with SCI. Participants are being enrolled through January 2019 to participate in the 16-week program and will be assessed over another two months. The WOWii study is open to enroll participants with SCI from across the nation. Those who opt to participate receive a "starter package" of low-cost exercise equipment they can keep, access to the WOWii site, and an activity tracker and heart rate monitor for tracking their exercise. Participants complete online surveys three times over their six-month involvement, and those from the North Texas area also visit the lab to have a fitness test before beginning the program and afterward to measure whether their increased exercise is improving their fitness.

Initial pilot results from this study have demonstrated an average attendance at the four WOWii sessions of 82.5 percent. Participants have averaged 85 percent completion of the four online activities and have increased their time spent in vigorous physical activity over the four weeks from 21 to 59 minutes per week.

"The study is ongoing but initial pilot results demonstrate that this is a platform that people can access and gain benefit from," Dr. Grobe says. Overall, the WOWii study is beginning to shed important light on the effectiveness of this new online program for helping people with SCI to become more physically active and potentially improve their health and quality of life.

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**Check out our new mobile-friendly website and read about our latest research advances. [BSWRehab.com](http://BSWRehab.com)**



A screenshot of a computer monitor displaying the website for Baylor Scott &amp; White Institute for Rehabilitation. The website has a blue header with the institution's logo and navigation links for "About Us", "Locations", "Levels of Care", "Research and Education", and social media icons. The main banner features a large brick building with trees and the text "Renewed. Renowned. Renamed." Below this, a sub-headline reads "Baylor Institute for Rehabilitation is now Baylor Scott &amp; White Institute for Rehabilitation." Three blue callout boxes on the left side of the banner provide information about "Inpatient Hospitals" (with a hospital icon), "Outpatient Clinics" (with a heart rate monitor icon), and "Home Health" (with a house icon). The bottom of the banner contains a section titled "About Baylor Scott &amp; White Rehabilitation" with a sub-note about being one of the largest rehabilitation systems in Texas and drawing patients from around the world.





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