Life Is Good

Life is Good t-shirts have become ubiquitous. The comfortable cotton tees show a stick figure with a smiling face performing some leisure activity, like skiing, golfing, or reading a book in a comfortable chair. But what percentage of a person’s life is spent on leisure? Would life really be good if the only time it was fun was on vacation? A good life is one that is good on most days; even days when all you do is work, come home, and have dinner with your family.

A good life ended recently when Gil Brenes, the beloved father of our spinal cord injury program, died. There is an article on page 4 related to his passing. What the article does not say is what a good life Gil had, and why. The answer is Gil loved his work and his family, and at times it was hard to differentiate the two. Gil’s patients and co-workers became his extended family.

Life was good when Gil was working, and it was good when he went home. In both locations he was surrounded by people who loved him. Gil worked the day before he had the heart attack that took his life. I can’t imagine him wanting it any other way. Gil’s Life is Good t-shirt might show him traveling, which he loved to do. But what I think of on his shirt is a picture of him with his doctor’s bag, a patient, and a colleague, maybe a resident or nurse. He would have a great big smile.

Sincerely,
Michael Boninger, MD
Director, UPMC Rehabilitation Institute
Professor and Chairman, Department of Physical Medicine and Rehabilitation
University of Pittsburgh School of Medicine

Affiliated with the University of Pittsburgh School of Medicine, UPMC is ranked among the nation’s top 10 hospitals by U.S. News & World Report.
Every year AAP members gather to exchange ideas, attend educational programs, and celebrate breakthroughs and exemplary work in rehabilitation research and clinical care. This year’s meeting was in March in New Orleans, and featured Michael Boninger, MD, president of AAP and Gwendolyn Sowa, MD, PhD, who gave the DeLisa lecture.

Dr. Boninger’s presidential address, “Top Spin,” was a positive and informative presentation reviewing past accomplishments of the AAP, present realities impacting academic phyisiatry, and the strong future possibilities for a field that values teamwork and patient outcomes, and an organization that promotes education and research. He also delivered an overview of the Spinal Cord Injury (SCI) Model System, addressing assistive technology and mobility in the SCI population. As principal investigator of the University of Pittsburgh Model Center for SCI program, Dr. Boninger is involved in a number of research protocols impacting individuals with SCI.

Gwendolyn Sowa, MD, PhD, delivered the distinguished DeLisa lecture. Dr. Sowa’s presentation, “Using Biology to Define Optimal Treatments for Low Back Pain: Opportunities for Physiatrists,” highlighted the biochemical effects of low back pain and how biologics interface with rehabilitation. Her lecture emphasized the unique opportunities for physiatrists in designing individualized treatment plans through the judicious use of biologics and their application in regenerative rehabilitation. As co-director of the Ferguson Laboratory for Orthopaedic and Spine Research at UPMC, her research analyzes the effects of motion and exercise on inflammatory pathways. She is the primary investigator in several clinical trials evaluating exercise and motion in treating low back pain, and the resulting changes in pain and inflammation.

Amy Houtrow, MD, MPH, PhD, received the AAP Young Academicians Award recognizing her contributions in the areas of teaching, research, and administration. Dr. Houtrow is an associate professor and director of Pediatric Rehabilitation Medicine (PRM) in the University of Pittsburgh Department of Physical Medicine and Rehabilitation. At the AAP Presidential Plenary Session, Dr. Houtrow presented “Trends in Childhood Disability in the United States,” for which she also received the Pursuit Award from the Hooland-Bloorview Kids Rehabilitation Hospital in Toronto, Canada. The purpose of the study was to evaluate trends and assess changes in childhood disability over the past decade. Please see the article, “Study Shows Children With Disabilities Increasing,” in this newsletter for more information. Dr. Houtrow joins previous Young Academician honorees from UPMC, including Dr. Michael Boninger (1998), Dr. Amy K. Wagner (2005), Dr. Gwendolyn Sowa (2007), and Dr. Brad Dicianno (2011).

Second-year resident Prakash Jayabalan, MD, PhD, won the Electrode Store Best Paper in the Resident category. Dr. Jayabalan’s research centered on the identity and subsequent prevalence of urinary biomarkers that might contribute to monitoring the effects of rehabilitation regimens prescribed for knee osteoarthritis.

Prakash Jayabalan, MD, PhD, presenting his Electrode Store Paper.
New Electrodiagnostic Lab at UPMC Presbyterian

UPMC Presbyterian opened a new electrodiagnostic laboratory (EMG) with state-of-the-art facilities, including five EMG rooms with brand-new equipment, such as quantitative EMG packages, plus an autonomic lab and ultrasound imaging tools.

According to lab co-director Michael C. Munin, MD, “Neuromuscular ultrasound is used in many applications. For patients with challenging anatomy and where exact muscle localization is required for an accurate diagnosis, we are using ultrasound guidance for needle placement. We feel that ultrasound can improve patient safety for chest wall needling to the serratus anterior and diaphragm. We also are evaluating, for example, focal mononeuropathies such as posterior interosseous neuropathy and ulnar neuropathy at the elbow in a way that complements the EMG examination.”

The lab is jointly run by the Department of Physical Medicine and Rehabilitation and the Department of Neurology, and treats about 2,000 patients per year. A dedicated waiting room and consultation reading room were added as part of the renovation.

“These new areas improve patient comfort and expedite the check-in process. The new reading area has a library, three computers, and a large whiteboard to facilitate teaching with our residents,” says Dr. Munin.

The EMG facility at UPMC Presbyterian has obtained Laboratory Accreditation from the American Association of Neuromuscular & Electrodiagnostic Medicine (AANEM). AANEM established accreditation criteria for electrodiagnostic (EDX) laboratories to ensure patients receive quality medical care in a safe environment. Accreditation offers patients, referral sources, and payers a credible measure to differentiate the laboratory’s quality of care. The accreditation standards evaluate the diagnostic services and clinical operations essential to providing quality patient care, which include:

- Clinical staff qualifications and continuing education
- Physical facilities
- EDX equipment
- Protocols for performing EDX studies
- Patient reports
- Policies for ensuring the health and safety of every patient

National Survey Shows Children With Disabilities Increasing

Analysis of parent responses from the National Health Interview Survey from the years 2001-2002 and 2009-2010 shows childhood disability grew by more than 16 percent over 10 years. Questions about limitations and the conditions to which they were attributable were asked, and data were broken down into three groups: physical disabilities, neurodevelopmental or mental health conditions, and other.

Researchers found 6 million children had a disability in 2009-2010, an increase of 1 million from the 2001-2002 survey. Children living in poverty had the highest rates of disability. However, the increase in neurodevelopmental disabilities was higher in children from households with higher incomes.

According to Dr. Amy Houtrow, lead author of the study and director of Pediatric Rehabilitation Medicine at the University of Pittsburgh and UPMC, “The survey did not break out autism, but we suspect that some of the increase in neurodevelopmental disabilities is due to the rising incidence or recognition of autism spectrum disorders.”

Dr. Houtrow adds that more research is needed to evaluate the data to better understand the trends behind the growth in disability.
The Third Annual Symposium on Regenerative Rehabilitation Will Take Place April 10-11, 2014 in San Francisco, California

Gilbert Brenes, MD
(Sept. 21, 1934 – July 2, 2013)

Dr. Gil Brenes was a physician and gentleman of great skill and kindness. His passion and priority were his patients, whom he served tirelessly and with grace. He will be missed by his colleagues, residents, patients, and all who came into contact with him.

Although he was always soft-spoken and quiet, his legacy will reverberate in many individuals for years to come.

To keep Dr. Brenes in our memory and hearts, the University of Pittsburgh Department of Physical Medicine and Rehabilitation has established the Brenes Lecture. This endowed lectureship will be awarded annually at the Rehabilitation Institute Research Day in recognition of a physician’s contribution to clinical research in the field of rehabilitation medicine. As a faculty member in the Department of Physical Medicine and Rehabilitation at the University of Pittsburgh, Dr. Brenes never failed to attend lectures that brought students and faculty together to advance learning and research in the rehabilitation sciences.

Dr. Brenes led the UPMC Mercy Department of Physical Medicine and was involved in clinical studies and research to advance the care and treatment of people with spinal cord injuries and disease. He served as lead physician for the WHEEL division athletes at the Pittsburgh Marathon, and was a board member of the HOPE Network, a nonprofit organization that promotes community integration of individuals through recreational programs.

To contribute to the Brenes Lecture Fund, checks should be made out to “The University of Pittsburgh Department of PM&R Brenes Fund.”

The University of Pittsburgh Department of PM&R Brenes Fund
Medical and Health Sciences Foundation
3600 Forbes Ave. at Meyran, Suite 8084
Pittsburgh, PA 15213
Attn: Samuel McCrimmon

This photo was taken at a “spinal family” reunion. Dr. Brenes is in the center, colleagues make up the next circle, patients form the star, and their families and friends are the outer circle.

A triathlon was dedicated to Dr. Brenes. This photo was taken at the finish line; he is in the center, his wife and SCI nurse, Diane, is to his right.

More information about the symposium will be available in the near future at the McGowan Institute for Regenerative Medicine website at www.mirm.pitt.edu, or contact Katy Wharton at 412-624-5293 or whartonkm@upmc.edu.
Wheelchair Breakdowns Dramatically Impact Quality of Life in SCI

The Human Engineering Research Laboratories (HERL)* and the University of Pittsburgh Model System for Spinal Cord Injury (UPMC-SCI)** have been conducting research for more than 10 years in the areas of wheelchair use and design, propulsion and seating biomechanics, and upper-extremity injuries. Often HERL research supplements new clinical research protocols conducted by UPMC-SCI, and vice versa. One such case was the recently published analysis of the impact of wheelchair breakdowns.


Data were collected between June 2006 and February 2011 from 723 people with SCI who use a wheelchair more than 40 hours a week; six SCI Model System centers participated in the study. Subjects answered questions on demographics, wheelchair use, and occupation status. They also were asked about the number of wheelchair breakdowns in the previous six months and if there were related consequences. More than half of those surveyed (53 percent) reported a repair in the previous six months, an 8% increase over historical data. With the increase in breakdowns, an increase in adverse consequences also was observed.

Power wheelchair users reported a higher instance of wheelchair breakdowns, as well as adverse consequences, such as missed appointments or being stranded. Advanced seating functionality did not impact the number of repairs; however, it was linked to greater incidence of adverse consequences.

Minorities experienced a higher number of consequences and were less likely to have a backup wheelchair than were white participants. White participants reported higher household incomes and were more likely to have private/prepaid insurance.

Three particular areas in which further study may reduce future wheelchair breakdowns were identified by HERL and UPMC-SCI researchers:

- First, manufacturing and wheelchair design should be analyzed to identify reasons for product failure. HERL houses one of the most complete wheelchair testing facilities in the country. The facility is able to perform most of the internationally recognized standard testing on both manual and powered wheelchairs. A broad spectrum of destructive and nondestructive testing is available, and it is expected that through comparative testing, improved wheelchair/component designs will become apparent.

- Second, wheelchair users should be educated in both the proper operation of a wheelchair and routine wheelchair maintenance. In response to a National Institute of Disability and Rehabilitation Research call for proposals, UPMC-SCI investigators developed the multisite Collaboration On Mobility Training (COMIT) project. The heart of COMIT is a randomized controlled trial of two training interventions: the Wheelchair Skills Program (WSP) and the Wheelchair Maintenance Training program (WMTP). The WSP was developed at Dalhousie University in Nova Scotia, Canada, using existing wheelchair literature and the principles of motor skill learning. The WMTP is being developed from the COMIT project in collaboration with the World Health Organization. The WMTP instructs wheelchair users and their caregivers on various preventive maintenance procedures, such as replacing seat cushions, checking tires for wear, and lubricating casters.

- Finally, policymakers should review current manufacturing standards to improve wheelchair quality. Not only do HERL researchers contribute to design and construction of wheelchair testing, they are also represented on numerous committees charged with expanding and revising standards as new materials and designs are incorporated in the manufacturing of assistive devices.

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* The Human Engineering Research Laboratories (HERL), is a collaboration between the University of Pittsburgh Departments of Rehabilitation Science and Technology and the Department of Physical Medicine and Rehabilitation, the VA Pittsburgh Healthcare System, and UPMC. HERL is dedicated to wheelchair and mobility research, specifically by improving the mobility and function of people with disabilities through advanced engineering in clinical research and medical rehabilitation.

** The University of Pittsburgh Model Center for Spinal Cord Injury is one of 14 nationally recognized centers of excellence that provide comprehensive services to individuals with spinal cord injury. The centers are national leaders in SCI-related care and research and are funded by the Department of Education/National Institute on Disability and Rehabilitation Research (NIDRR).
Highlights of State-of-the-Art Research Published by the UPMC Department of PM&R

High-Performance Neuroprosthetic Control by an Individual With Tetraplegia

Paralysis or amputation of an arm results in the loss of the ability to orient the hand and grasp, manipulate, and carry objects — functions that are essential for activities of daily living.

In a University of Pittsburgh clinical trial, researchers tested whether an individual with tetraplegia could rapidly achieve neurologic control of a high-performance prosthetic limb using the brain-machine interface of intracortical microelectrodes implanted in the motor cortex. The researchers have received several awards for this work, which has been featured in print and video media.

Motor Recovery After Spinal Cord Injury Enhanced by Strengthening Corticospinal Transmission
Bunday KL, Perez MA. *Current Biology*. 2012, Dec; 22(24): 2355-2361

The corticospinal tract is an important target for motor recovery after spinal cord injury (SCI). SCI were conducted using noninvasive techniques. The goal of this research is to enhance voluntary movement after spinal cord injury by targeting synaptic connections in the spinal cord.

Persistent Hypogonadism Influences Estradiol Synthesis, Cognition, and Outcome in Males After Severe TBI

Acute hypogonadotropic hypogonadism (AHH) occurs frequently after TBI, as does chronic hypogonadotropic hypogonadism. However, AHH and persistent hypogonadotropic hypogonadism (PHH) after TBI are not well studied. The objective of this study was to characterize longitudinal hormone profiles and the impact of AHH and PHH on outcomes after brain injury.

Academic Psychiatry: Vignettes of Rewarding Careers

Physical medicine and rehabilitation (PM&R) is a specialty that aims to optimize function and quality of life in patients with a variety of medical conditions by using a wide spectrum of treatment and rehabilitation strategies.

Dr. Boninger, Dr. Houtrow, and Dr. Sowa from the University of Pittsburgh join co-authors in discussing what attracted them to a PM&R research career, how it has impacted their practice of medicine, and why it continues to fascinate them.

OTHER DEPARTMENT NEWS

Anthony Kline, PhD, tenured associate professor, was elected a fellow of the International Behavioral and Neuroscience Society for his contributions in the field of behavioral neuroscience and to the society. He accepted the honor at the society’s annual meeting held in Malahide, Ireland, in June 2013.

Dr. Kline’s research involves motor and cognitive recovery after TBI using environmental enrichment scenarios as well as neuropharmacologic agents and antioxidants.