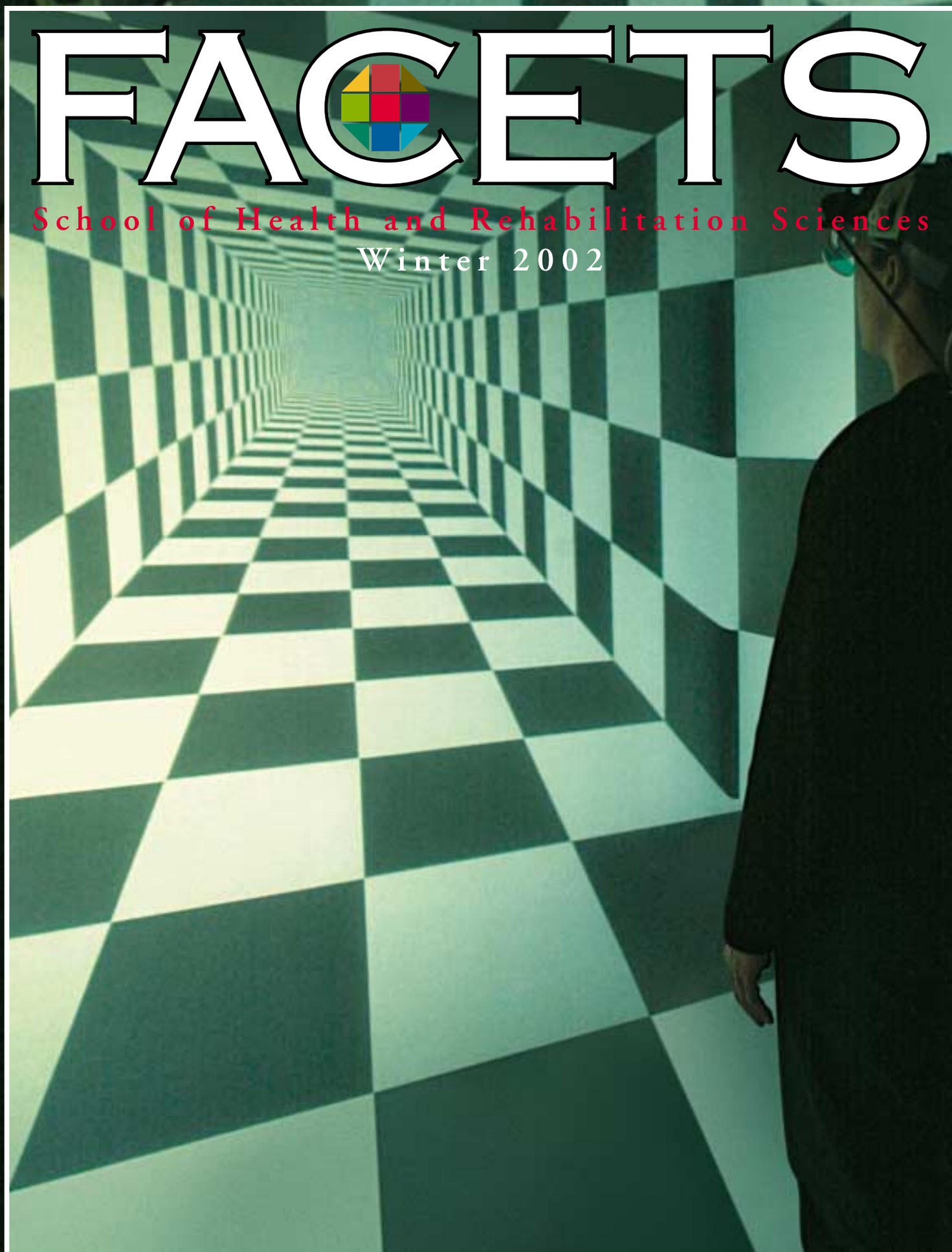
FACETS

School of Health and Rehabilitation Sciences

Winter 2002



University of Pittsburgh

CLIFF'S NOTES
A VERY GOOD YEAR

Each January, I prepare an annual "State of the School" address for presentation to the faculty and staff of SHRS. This typically has been one of the major highlights for me. Even though I approach this event with a high level of optimism and enthusiasm, I find that I am always surprised (and heartened) by the accomplishments of our faculty, staff, and students. I am particularly pleased to share some recent accomplishments with you.

Our research portfolio is perhaps the most easily quantified measure of performance. Research funding has continued to grow as faculty have embraced new areas of investigation. Our annualized peer-reviewed research funding increased by $1.3 million per year from FY2000 to FY2001. With nearly half of FY2002 remaining, our research funding has already increased by $1.7 million per year.

The importance of increased funding, of course, is its proportionality to intellectual contribution. This has indeed been the case as our faculty members have made important contributions of both fundamental and applied knowledge in our respective academic and professional areas of responsibility. This vigorous increase in research and acquisition of knowledge, as you might expect, has been accompanied by appropriate dissemination in publications and development of intellectual property. It is particularly pleasing to note the second $4.5 million award to our Rehabilitation Engineering Research Center (RERC). This Center of Excellence will conduct research and development to improve safety for transport of people in wheelchairs. Dr. Gina Bertocci is the Principal Investigator and Director, and Dr. Douglas Hobson is Co-Director.

It also gives me great pleasure to again assure you of the rigor and excellence of our programs. We have learned that our recent graduates have experienced 100 percent success on certification examinations. This comes as no surprise, however, as all of our programs have longstanding records of excellence in performance on board examinations. This appears to be unique among local and state institutions. Such performance serves all members of our community.

I also want to note that progress in biomedical science and technology has attained sufficient momentum so that it is a near certainty that in the next decade, there will be clinical realization of tissue and organ regeneration. Nowhere is there more promising and aggressive work and discovery in this area than here at the University of Pittsburgh. The leading edge of this enterprise is the newly created McGowan Institute for Regenerative Medicine (MIRM). MIRM has been reformulated from the former McGowan Center for Artificial Organ Development. The development of artificial organs has been expanded to include regeneration and hybrid systems. Success in these ventures assures an expanded and evolving role for rehabilitation and significant implications for people with disabilities. It should come as no surprise that several of the active research faculty at SHRS have sought and received appointments with MIRM, where they are collaborating with colleagues from other disciplines to determine the appropriate roles for rehabilitation in the nascent area of regenerative medicine.

We believe that we are focused appropriately and diversely over a range of intellectual and academic issues. Even so, we ardently solicit your advice and welcome both agreement and critical comment. What do you believe to be the issues of the day? How can we better serve our community and professions? What do you think? Let us hear from you.

With kindest regards,

Clifford E. Brubaker

ACCESS

Dr. Kate Seelman

Kate Seelman

In January of this year, the university hosted a conference entitled, "Eliminating Racial and Ethnic Health Disparities: The Impact of Discrimination on Health Status." Sponsored by the Center for Minority Health in the Graduate School of Public Health, the conference identified people with disabilities and women as "special populations." The conference served as a reminder of the value of a civil rights approach to address the healthcare needs of disadvantaged people.

Statistics show that African-Americans have a far greater likelihood than whites of having a disability, especially African-Americans between the ages of 25-64. African-Americans also are more likely to be severely disabled, and people with severe disabilities are three times more likely to be poor than people without disabilities.

Statistics are not the sole basis for describing some of the commonalities shared by African-Americans and people with disabilities. Both groups often favor a civil rights approach to healthcare. The disability rights movement and the Americans with Disabilities Act of 1990 have been deeply influenced by the civil rights movement and the Civil Rights Act of 1964.

For health practitioners as well as clients, a civil rights approach in tandem with a professional approach to research and service delivery can be a powerful antidote to discrimination and a support for best practices. The civil rights approach targets social components of disability. The health practitioner approach, often determined by the specific requirements of health professions, such as physical or occupational therapy, focuses on medical and functional factors. If, for example, an examining table cannot be moved up and down, thus preventing the client from transferring to the table, the health professional may be unable to deliver the best services because the client cannot be properly examined. The civil rights approach identifies the inaccessible examining table as discriminatory.

People with disabilities, like many minority groups, have been perceived as different. In a recent study of the meaning of disability by the University of California at San Francisco, people with disabilities emphasized that their definition of themselves involved "doing things differently." Study participants often felt the need to conduct their activities in a different manner than typically done because of a lack of fit between their needs and the way that the physical and social worlds are constructed. For example, activities are sometimes accomplished with a personal attendant or assistive technology. Their physical and social worlds are perceived as unforgiving and unable to accommodate differences. As a result, problems arose socially, physically, and psychologically.

Today, some argue that the nation's health service delivery system is structured with little tolerance for differences. The Disability Law Project, which has an office in Pittsburgh, reports cases involving barriers to access to medically necessary physical and behavioral healthcare, especially for those enrolled in the Pennsylvania Medical Assistance Program. Many of these cases involve children with serious emotional disorders who need behavioral health rehabilitation. Other cases involve payment for medically necessary wheelchairs, dental services, and home health services. The Disability Law Project also continues to work on issues related to accessible information, such as

the need for sign language interpreters when people who are deaf require medical care.

Financial disadvantage, discrimination based on race and ethnicity, and severely limited physical access and access to information are barriers to adequate medical care. From a series of focus groups held at various locations around the U.S., people with mobility impairments, including cerebral palsy, arthritis, spinal cord injury, and multiple sclerosis, reported various barriers they face in receiving primary and specialty services under managed care. They named three common problems: physical access to doctors' offices and equipment; establishing a trusting relationship with a physician; and lack of payment for durable medical equipment, medications, and rehabilitation services.

Each disability group also faced barriers specific to the nature of the disability. This report concluded with the observation that the worst situation occurred when managed care, disability, minority status, and poverty intersect. This conclusion corresponds with the orientation of the recent conference on health disparities and discrimination referenced earlier. Both point to the central theme of this column – that civil rights strategies as well as cutting-edge knowledge of the health sciences, quality practices, and well-honed skills will be useful in addressing the needs of disabled people. Health professionals must be able to provide accessible treatment, and clients have a right to it.

A Community Of Neighbors

The University of Pittsburgh has been described as a "community of neighbors." And like good neighbors everywhere, our faculty, staff, and students lend a hand whenever and wherever it's needed. In each issue of FACETS, we'll celebrate their good work.

If you ask Dr. Ray Burdett, Associate Professor, Department of Physical Therapy, what he does with the Three Rivers Rowing Association adaptive rowing program, his answer is a modest, "Oh, I just carry the equipment down to the docks."

But if you pose the same question to Roberta "Bert" White-Melvin, the association's Special Programs Director, she paints a far different picture. "He evaluates new athletes entering the programs, brainstorms ideas with the coaching staff, and develops assistive devices that increase the disabled athlete's mobility. He drives a launch so disabled rowers or kayakers can safely venture out of the channel and around the island. And," she adds, almost as an afterthought, "he has been known to win a race or two."

During the 2001 Head of the Ohio, Burdett and Jim Costello, a physically challenged rower, set a new course record in the Adaptive Double with a time of 22:42.3. When asked about the feat, Burdett responds in typical self-effacing fashion. "You need to pick your partner really well, and I did."

The adaptive rowing program, which operates out of the boathouse on Washington's Landing, has year-round activities for physically-challenged, visually-impaired, and mentally-challenged athletes. Burdett has been volunteering with the organization for over three years and recently recruited a colleague, Mary Ellen Buning, to join him. Several of his students also have volunteered.

Says White-Melvin, "We are constantly sending them challenges, and they have yet to be unable to figure out a way to help someone to row."

Ray Burdett conducts an evaluation on Jill Constantin, a Fox Chapel student with cerebral palsy who just joined the adaptive rowing program. The erg, the indoor rowing machine on which she is sitting, provides a platform for Burdett to assess her mobility issues. He later will consult with the coaching staff and suggest assistive devices that will increase her stroke and slide on the erg, which later transfers to power in the shell.

But while Burdett acknowledges that the program puts his teaching experience and expertise in kinesiology and biomechanics to good use, this was not his motivation for volunteering. "I believe that everyone should be involved to some extent in a community activity that is outside of their professional and family responsibilities. It helps to increase one's sense of contributing to and belonging to the greater community."

White-Melvin puts it in simpler terms. "Ray is really a great guy."

For more information on Special Programs and volunteer opportunities, visit the TRRA website, **www.threeriversrowing.org,** or call Roberta "Bert" White-Melvin, Special Programs Director, at 412-231-8772.

What's New with you?

It's easy to share your good news about a new job, a promotion, or an honor or award. Simply e-mail the information to Karen Khan at **ktkhan@shrs.pitt.edu** and we'll include it in the "Yearbook" section as space allows.

FACETS

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The University of Pittsburgh is an affirmative action, equal opportunity institution.

University of Pittsburgh

New Professional Doctorate Degree in Audiology

Beginning in the Fall semester, the Department of Communication Science and Disorders will offer a professional doctorate in the area of Audiology (AuD). Completion of the degree will require four years of full-time study beyond the undergraduate degree. The current two-year master's degree will continue to be awarded within the program.

The new degree is a response to advances in the practice and the breadth of knowledge associated with the profession. According to Dr. Catherine Palmer, Associate Professor, the scope of practice has expanded substantially since the 1960s, when the American Speech-Language-Hearing Association (ASHA) began requiring a master's degree for entry into the practice. "In today's healthcare environment, entry-level audiologists must be ready to practice independently upon graduation," she explains. "This requires an increase in both academic and clinical training." ASHA has mandated the professional doctorate as the entry-level degree by the year 2012.

Palmer says that approximately 85 percent of all adult hearing losses are not medically treatable. "It is the audiologist who does the testing to define the hearing ability and the source of the impairment, as well as providing assistance through communication strategies, environmental manipulation, and technology.

"Communication is essential at every age, " she continues. "We work with everyone from newborn infants to senior citizens."

The Department of Communication Science and Disorders has one of the largest Ph.D. programs in the United States. In 2000, the Audiology program was ranked 25th in the country by *U.S. News & World Report*.

For more information, contact Catherine Palmer at palmercv@msx.upmc.edu.

It all comes down to money.

Money provides us with the framework to create opportunities that would not otherwise exist. Money enables us to give financial aid to deserving students. Money underwrites innovative programs. Money supports faculty research. Money allows us to secure the latest technology for instructional development.

Your support plays a vital role in our continuing efforts to provide an outstanding academic experience for our students.

There are several ways you can support SHRS – ways that will benefit you as well as the university. An Outright Gift using cash or stock, for instance, is the most direct method, and has an immediate impact because it can be used to meet current needs. Tax benefits depend on the assets used to make the gift. With a Planned Gift, you can support the school and, at the same time, realize significant personal financial benefits, including:

- Lower estate taxes
- No capital gains taxes on appreciated property
- Increased spendable income
- Immediate tax deductions

Assets used to create a Planned Gift can include cash, real estate, retirement plans, mutual funds, securities, and tangible personal property. Using appreciated assets – those that have increased in value since they were acquired – brings additional tax advantages to you. There are several ways to structure a Planned Gift, such as a charitable remainder trust, a charitable gift annuity, life insurance, a pooled income fund, or a bequest.

If you would like more information on the financial benefits of making a Planned Gift, or would like to discuss making an Outright Gift, please call me at 412-383-6548 or e-mail me at **ktkhan@shrs.pitt.edu**.

Karen Khan
Director of Development

Deb Josbeno, Adjunct Assistant Professor, Department of Physical Therapy, carries the Olympic Torch as it passes through Pittsburgh. "My patients and colleagues nominated me - much to my surprise!" says Josbeno. "Being able to represent the Olympic Spirit and everything it stands for was even more awesome than I could have ever imagined. This was definitely a highlight of my life and career."

CAT

CENTER FOR ASSISTIVE TECHNOLOGY HONORED

The Center for Assistive Technology (CAT), a joint program of the University of Pittsburgh School of Health and Rehabilitation Sciences and UPMC Health System, recently received the Assistive Technology Achievement Award for 2001 from Temple University's Institute on Disabilities.

The award was presented in recognition of the CAT's excellence in providing innovative and consumer-responsive services to persons with disabilities who are seeking access to assistive technology. The CAT's mission is to enhance the ability of people with disabilities to fulfill life goals through the coordination and provision of appropriate services.

The CAT provides services to people with disabilities throughout Western Pennsylvania through a network of healthcare professionals, including occupational therapists, physical therapists, speech-language pathologists, audiologists, rehabilitation engineers, physicians, case managers, and rehabilitation technology suppliers.

Under the direction of Dr. Michael Boninger, Medical and Executive Director, and Mark Schmeler, Clinical Director, the CAT is a leader in training students and fostering research in assistive technology and rehabilitation science, as well as the design and fabrication of customized assistive devices for people who have special needs. In addition to providing patients with superb care, the CAT's researchers are conducting studies on a variety of subjects, including reduction of pressure ulcers among wheelchair users, telerehabilitation (the use of telephone-based video and data systems) for wheelchair assessment, and development of new wheelchair technologies.

For more information, contact Michael Boninger at **mkboninger@pitt.edu** or Mark Schmeler at **schmelermr@msx.upmc.edu**.

Tick-Talk

If you're meeting with Associate Dean Dr. Kate Seelman and she begins fiddling with her watch, you shouldn't assume that she is subtly signaling for the conversation to come to an end. It's just as likely that she's adjusting the volume on her hearing aid.

Seelman is one of the first wearers of a revolutionary remote control for high-end hearing aids that has the look and feel of a traditional wristwatch. And it even tells time.

Besides the obvious advantage of having the remote control strapped to your wrist (the dream of couch potatoes everywhere), the watch remote has features unavailable on earlier hand-held models. Rather than settings for just quiet and noisy situations, the watch remote has a microphone function that allows the wearer to adjust the volume based on the environment. For example, if the wearer is in an urban situation and needs to hear general traffic noise, the "omni" function can be set and the wearer can hear sounds from all directions. But at a restaurant, the "directional" function can be set and the wearer will hear only the sound directly in front. All sound from the side and back is blocked.

Hearing aid wearers have a particular problem when using the telephone. But thanks to a telecoil that picks up sound electromagnetically, the watch remote eliminates the annoying squeals common with most hearing aids. Seelman found this feature particularly useful on a recent trip to China. Where normally she has difficulty deciphering accents over the phone, with the telephone setting, Seelman was able to easily understand her hosts.

Seelman is testing another feature here at home. Lectures delivered in auditorium-like settings often become garbled as the sound resonates throughout the room. But by using a remote microphone that is placed on the podium and adjusting the watch remote to the "FM" setting, the sound is broadcast directly to the hearing aid.

Dr. Catherine Palmer, Associate Professor, Department of Communication Science and Disorders, introduced the remote watch to Seelman about six months ago. Seelman was impressed with the design. "The assistive technology on the watch is transparent," she marvels. The two have

been perfecting adjustments ever since, leading Seelman to laud Palmer as having "endless patience and impressive technical expertise."

Palmer thought the watch remote would be ideal for Seelman, whom she describes as a "discriminating listener." Palmer says that while hearing aid technology is becoming more automatic, listeners like Seelman, who find themselves in a variety of settings, prefer manually controlling the sound. The remote watch allows them to do so unobtrusively. And the price tag for the watch – available in both sport and classic models – is no more than a high-end digital hearing aid.

For more information, contact Catherine Palmer at **palmercv@msx.upmc.edu.**

Dr. Nancy Baker, Assistant Professor, Occupational Therapy, presented an educational session entitled "Ergonomics in Dental Hygiene" to first and second-year dental hygiene students.

Denise Chisholm, Assistant Professor, Department of Occupational Therapy, **Cathy Dolhi**, and **Jodi Schreiber**, presented a workshop, "Putting Occupation Where It Belongs . . . In Therapy!," sponsored by Lakeview Seminars, Inc. Chisholm and **Gail Clakeley**, Instructor, made a presentation at the Associated Occupational Therapists, Inc. annual meeting titled "Make Every Word Count!"

Dr. Rory Cooper, Professor and Chair, Department of Rehabilitation Science and Technology, delivered a presentation, "Rehabilitation Technology on the Move," at the Pennsylvania Association of Rehabilitation Facilities meeting in State College, PA.

Dr. Margo Holm, Professor, Department of Occupational Therapy, doctoral students **Tamara Mills** and **Beth Skidmore**, and recent graduate **Linda Coniglio,** presented a workshop, "Evidence-Based Practice for Fieldwork and Academic Educators" at Howard University, Washington, DC.

Dr. Joan Rogers, Professor and Chair, **Dr. Margo Holm**, Professor, and **Dr. Lynette Chandler**, Associate Professor, Department of Occupational Therapy, presented a paper on changes in osteoarthritis-related disability at the 2001 Annual Scientific Meeting of the Association of Rheumatology Health Professionals, held in San Francisco, CA. The team also presented a paper on disability in functional mobility tasks at the 54th annual conference of the Gerontological Society of America, held in Chicago, IL.

Dr. Katherine Verdolini, Associate Professor, Department of Communication Science and Disorders, was invited to present a seminar on Lessac-based Resonant Voice Therapy Training at Educational Resources, Inc., Waltham, MA. She also participated in two seminars at the American Speech-Language-Hearing Association Convention, in New Orleans, LA. The topics were "Mind-Body Medicine: Applications to Speech Pathology Practice" and "Effective Voice Research: Experience Counts."

To the Rescue!

Dr.

What a difference 30 years make. Today, an emergency call to 911 results in an almost instantaneous dispatch of police and paramedic personnel. Help arrives in minutes. But prior to 1970, most emergencies were handled either by police and firefighters with no medical training, or if you were lucky, by a nurse who happened to live in the neighborhood. The family sedan or station wagon often doubled as an ambulance.

Emergency medicine as we know it today has been shaped in large part by the pioneering work of Dr. Ronald D. Stewart, an Adjunct Professor in the Department of Emergency Medicine. Stewart, a native of Nova Scotia, began his medical career as a family practitioner in a remote part of that province. But a program at Los Angeles – USC Medical Center lured him to the California coast in 1970. "I had an interest in acute care medicine," Stewart explains. "Not just in emergency medicine, but in medicine that reached outside the doors of the hospital. USC had the only such program in the world."

Stewart says he was at the right place at the right time. "I arrived at a time of great potential and I bathed myself in it. Whole new worlds were opening up."

At the time, USC was piloting a program to train firefighters to perform cardiopulmonary resuscitation. "I attached myself to the idea that lay people could be taught medical procedures as well, if not better, than physicians," he recalls. "At the time, this was somewhat heretical."

Stewart said that he and his team "fought great battles" with the medical establishment over the premise, including some within his own specialty.

Dr. Ron Stewart (left) with Dr. Peter Safar

"They did not see it as part of the spectrum of emergency medicine."

Stewart, on the other hand, had a broader definition. "I viewed prevention as part of emergency medicine. I viewed out-of-hospital care as part of emergency medicine. I viewed evaluation of the safety of homes as part of emergency medicine."

Because the efficacy of their premise couldn't be proven, Stewart says they couched the program in research terms, even though he admits "it was 'smoke and mirrors' research some of the time."

But while time has proven the validity of Stewart's views, broad acceptance was driven by a most unlikely source – network television – and the obsession of one man, Robert A. Cinader. Stewart remembers Cinader as the quintessential Hollywood producer. "Cigar chomping, overweight, red-faced, hypertensive." Cinader was obsessed with firefighting, and it was during one of his visits to a fire station that he encountered the pilot project. Cinader was fascinated. "In his mind, he saw these firemen being trained to fire off electrical gadgets called defibrillators and put needles into people in ditches."

"This," Cinader said, "is good television."

At the time, Cinader's friend, *Dragnet*-creator Jack Webb, was looking for a replacement for *Adam-12*, a series that was waning in the ratings. The pilot project seemed the perfect solution. In 1972, *Emergency!* hit the airways. Stewart served as one of the technical advisors, creating story lines with the writers and checking the scripts to "make sure they weren't outrageously off the wall." Many were.

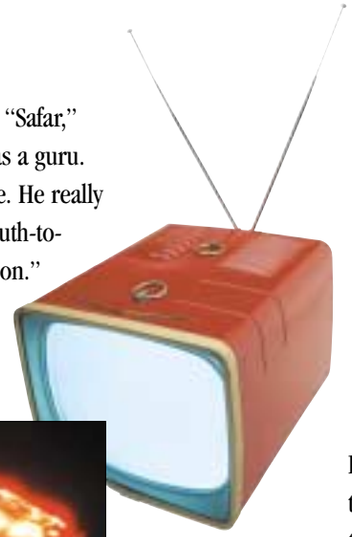
The show was a hit, remaining on the air for nine years. "Suddenly people all over the country thought this was the standard," Stewart explains. "In reality, we were just looking at how to do this stuff."

Ron Stewart

Stewart said Cinader used the show as a pulpit. "Whether it was automated defibrillation or more funding, he'd work it into the script." The bottom line, Stewart says, is that everyone in America "was convinced there was a paramedic on every corner who could save you from cardiac arrest."

Stewart says he was surprised by the power of the medium. "I never recognized it before," he admits. "And it taught me a lesson. Communication is the key to a lot of medicine. This is something we never learned to do as physicians, which is to our detriment. Bob Cinader didn't know a lot about medicine, but he knew a lot about how to communicate."

In 1977, after eight years directing the Los Angeles paramedic system, Stewart began to toy with the idea of replicating his work in a smaller community. A chance encounter with a husband and wife team of volunteer ambulance drivers at a conference in State College led to conversations and ultimately, a job offer at the University of Pittsburgh. Stewart says he initially dismissed the idea of moving to what he perceived as smoky Pittsburgh; that is, until he received a telephone call from Dr. Peter Safar, now Distinguished Professor of Resuscitation at the university. "Safar," Stewart says, "was a guru. A mentor of mine. He really rediscovered mouth-to-mouth reventilation."



Stewart says he couldn't say "no." He arrived in Pittsburgh in the middle of November and three weeks later became part of Pittsburgh legend. An ironworker dismantling the Brady Street Bridge became trapped at the top of the span, his leg wedged between two pieces of collapsing steel. Beneath a cold, steady drizzle, Stewart and his team climbed the girders in a valiant attempt to rescue the worker, their every move captured by photographers and television cameras. It was only after an on-site amputation that the victim was freed.

Stewart spent 10 years in Pittsburgh, a period he describes as "my years of growth." During his tenure, he helped establish both the Department of Emergency Medicine and the Center for Emergency Medicine, an institute for research and education in the then-fledgling specialty.

But in 1987, Stewart said that he recognized that it was time for him to go. "I had hired all these people who were more competent then I was, which I think is the secret to success in academic life. Hire people who are better than you. Then you have to aspire to reach their level." Stewart says he left Pittsburgh knowing that his work was in good hands.

He returned to Canada, where he continued his work in emergency medicine. In 1993, he had what he describes as a "mid-life crisis," and decided to go into politics. He was elected to the provincial parliament, and later was appointed Minister of Health in the province, a post he held for four years.

Stewart is an elder statesman of emergency medicine. He shares his 30 years of wisdom with students here in Pittsburgh as well as in his native Canada, where he is a professor in the Emergency Medicine program at Dalhousie University in Halifax. And he continues to challenge the profession to do more.

"We have a broader mandate than patching up people. We have a core of practitioners that did not exist 30 years ago who have more to offer the health system than we previously recognized. Why can't they move into prevention and wellness? We need to ask what is the most efficient and effective way to get services out to the community."

Stewart recognizes that change will not come easily. But as a person who has spent his career in the forefront of change, he is sure of one thing. Change is inevitable.

YEARBOOK

'70s

Don Shields – FAS '76, is enjoying his retirement conceiving cartoons and captions for *The New Yorker* magazine, writing poetry, and submitting photography to the *Dubuque Telegraph Herald.*

Noma Anderson – CSD '79, was recently named Professor and Director of the Florida International University School of Health, Miami, FL.

Our Alumni Speak

How has your degree from SHRS made an impact on your life? We welcome your comments and will share them with our readers as space allows. E-mail Karen Khan at **ktkhan@shrs.pitt.edu**.

'80s

Gary Burns – HIM '85, is Principal of Medical Asset Management, Inc., in Atlanta, GA.

'90s

Richard Boada – CSD '91, earned a Ph.D. in psychology from the University of Colorado, Denver, in November 2001.

Lance Danko – HIM '92, is the corporate health information consultant with the UHS-Pruitt Corporation in Toccoa, GA.

Gary Joyce – CLS '92, is the Director of Laboratory and Diagnostic Services, Outer Banks Hospital, Nags Head, NC.

Joe Murray – PT '92, started a private practice outpatient facility, G.E.M. Therapeutic, in Wilkes-Barre, PA.

Colleen White – OT '92, received the Award of Recognition from the Pennsylvania Occupational Therapy Association for her administrative expertise at its annual conference in Wilkes-Barre, PA in October 2001.

Dr. Gail Pashek – CSD '95, has received a three-year grant from EISAI/Pfizer Pharmaceuticals for a study titled "Cognitive-Communicative Effects of Donepezil Hydrocholoride in Aphasia." Pashek also was named to the editorial board of the *Journal of Communication Disorders*, and has been named 'Developing Scholar' in the Medical University of South Carolina's College of Health Professionals.

Marsha McGogney – OT '96, co-authored an article titled "The Challenge of Sensory Integration Dysfunction: Sensory Integration Strategies for PTs" in the November 2001 issue of *Advance*. McGogney is also photographing children with disabilities for an upcoming publication from Prentice-Hall.

Pamela Toto – OT '96, received the Master Clinician Award from the Pennsylvania Occupational Therapy Association for her expertise in geriatric occupational therapy at the annual conference held in Wilkes-Barre, PA in October 2001.

Rebecca Harmon – HIM '98, an adjunct instructor and business analyst for VHA Pennsylvania, received VHA's 2001 "Exceeding Excellence Award." This is a national award that recognizes employees who exhibit superior teamwork, strong leadership, and interpersonal skills.

Bridget Lackner – HIM '98, is a consultant at First Consulting Group in Pittsburgh, PA.

Margaret Lehman Blake – CSD '99, received the ASHA Foundation New Investigator's Award for $5,000 for a study entitled, "Inferencing in Adults With and Without Right Hemisphere Brain Damage Examined through Thinking Out Loud Protocols." Dr. Blake has also been selected as Associate Editor for the Clinical Aphasia Conference publication, and has been selected for this year's conference committee.

'00s

Stephanie Hackett – HIM '00, is a systems planning analyst at Magee-Women's Hospital in Pittsburgh, PA.

Jennifer Stivers – HIM '00, was the recipient of the Western Pennsylvania Health Information Management Association's Student Project Award for her project entitled, "Jehovah Witnesses and Blood Transfusions."

"Physical therapy is back!"

So declares Thomas W. Zaucha, a 1975 graduate of SHRS and currently vice president and founding partner of Benchmark Medical, Inc.

Zaucha's resume is a microcosm of the evolution of the physical therapy profession. As he describes it, "I lived history."

Armed with a bachelor's degree in physical education from Slippery Rock University, Zaucha moved east, earning a physical therapy degree in 1968 from the University of Pennsylvania. In the late '60s, Zaucha says physical therapy "was a technical rather than a professional field. Jobs were pretty much limited to hospitals, rehab centers, and children's agencies like United Cerebral Palsy."

Following graduation, Zaucha joined Indiana Hospital as Director of Physical Therapy, and while there, earned a master's degree from the University of Pittsburgh in what is now Health Information Management. Six years later, he took a similar position with Hamot Medical Center in Erie. In 1978, he became Director of Rehabilitation Services at Conemaugh Memorial Hospital. A year later, he succumbed to the entrepreneurial urge and founded Keystone Rehabilitation Systems.

Zaucha says the '80s and '90s were boom times for the physical therapy industry. "Reimbursement was fantastic. Salaries were high. The industry was fueled by finances and an ability to demonstrate a profit."

He chuckles, "It didn't take a real smart physical therapist to be successful."

A History of Success

Tom Zaucha

There's nothing laughable about Zaucha's success. He grew Keystone into a $28 million enterprise and in 1995, sold the company to publicly held Northstar Health Services. For five years, he served as its President and CEO. In 2000, Northstar was sold to a group of private investors. The resulting company, Benchmark Medical, Inc., is now an $80 million business, with 190 physical therapy centers between Connecticut and Colorado. Zaucha manages 120 of the facilities in Pennsylvania and Ohio. Through a recent acquisition of Prosthetic & Orthotic Solutions International, Benchmark has expanded its musculoskeletal rehabilitation business to include state-of-the-industry prosthetic and orthotic services. Zaucha says the company has aggressive growth plans, with a public offering slated for 2003.

According to Zaucha, today's physical therapists are far more well-rounded than he was when he entered the field in the late 1960s. "In the old days, you needed to be a good physical therapist and take care of patients. Today," he continues, "that's not good enough. You need to have marketing and administrative skills, understand finances, and be able to manage people."

> ***" Demand is high . . . most Pitt grads are not waiting around for a job."***

But he says universities – and particularly SHRS – are doing a good job of preparing students for the realities of today's market. "The school is one of the oldest, and nationally-recognized as one of the best. They're training physical therapists to be generalists. They're teaching management and marketing concepts. They're preparing them to be good managers as well as good clinicians."

And according to Zaucha, the market is ready for them. " Demand is high," he says, adding, "most Pitt grads are not waiting around for a job."

Zaucha acknowledges that this was not the case as recently as the late 1990s. "There was a lull in the action in '97 and '98 because of reimbursement. The supply was greater than the demand." But he says the industry "retooled" itself. "The people that survived have successfully organized their businesses and continue to be profitable and growing. Physical therapy has made it through the onset of the managed care era. The profession is back."

Still, there are challenges ahead. "We need to maintain quality care while delivering a reasonable profit," explains Zaucha. "There needs to be a balance between clinical services and the business aspects of physical therapy." Zaucha admits that declining reimbursements and escalating salaries have forced the delegation of more duties to physical therapy assistants. However, Zaucha says that most physical therapists "are working longer days and seeing more patients than five to 10 years ago."

"Nonetheless, this is pretty good considering where the healthcare business has gone," he adds.

Given his success, it's not surprising that Zaucha encourages students to follow in his footsteps. "A young person coming out of school can make a strong living," he contends. "They can be employees or self-employed. They can change careers by changing specialties or changing locations – moving from a hospital to an outpatient center or a rehab facility."

To summarize the opportunities in one word, Zaucha says "wonderful."

New and Noteworthy

CLASS NOTES

Fabrisia Ambrosio, a graduate student in the Department of Rehabilitation Science and Technology, was the winner of a travel scholarship, "Outstanding Paper Award," for the VA's Rehabilitation Research & Development, 3rd annual conference, to be held in Arlington, VA.

Doctoral student **Sharon Gwinn** and her preceptor, **Dr. Joan Rogers**, were honored at a luncheon given by the Research and Education Foundation of the American College of Rheumatology for their work on health disparities.

Dr. Rory Cooper, Professor and Chair, Department of Rehabilitation Science and Technology, is lead investigator on a grant from Rehabilitation Research and Development to evaluate a robotic walker for vision-impaired elderly, which is being tested by the VA. Cooper and **Dr. Michael Boninger**, Medical and Executive Director of the Center for Assistive Technology, are co-principal investigators in a study entitled, "Collaboration of Upper Limb Pain in Spinal Cord Injury." The four-year, $349,998 grant was awarded by the U.S. Department of Education.

Cooper and his wife, Rosemary, will serve as the honorary chairpersons of the 16th annual Easter Seals Cotillion.

Cooper has also been named a member of the Editorial Board of the *Journal of Spinal Cord Medicine*.

Dr. Anthony Delitto, Associate Professor and Chair, Department of Physical Therapy, received the Carlin-Michels Award for Outstanding Achievement from the PA Chapter, American Physical Therapy Association.

Dr. James (Jay) Irrgang, Assistant Professor, Department of Physical Therapy, received the Outstanding Clinical Educator Award from the Sports Physical Therapy section of the American Physical Therapy Association. Irrgang also received an award from the American Society of Shoulder and Elbow Therapists in recognition of his contributions to the organization.

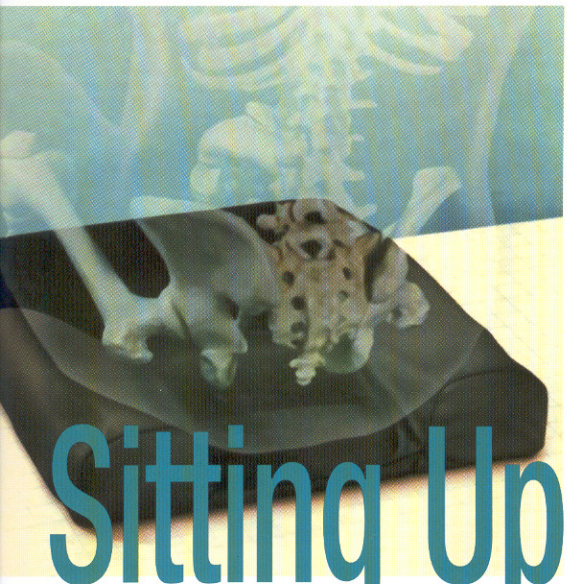
Dr. Catherine Palmer has received tenure and has be promoted to an Associate Professor in the Department of Communication Science and Disorders.

Dr. Joan Rogers, Professor and Chair, Department of Occupational Therapy, was appointed to a three-year term the editorial board of *OTJR: Occupational, Participation and Health.*

Dr. Kate Seelman, Associate Dean for Government and International Relations and Professor, Department of Rehabilitation Science and Technology, has been invited by World Bank to serve as a consultant for its project in Vietn on primary education for disadvantaged children, which includes disabled children, ethnic minorities and street children. Seelman was also the recipient of a December 3 Domestic Leadership Award, given by the U.S. Internationa Council on Disabilities.

Dr. Jessie VanSwearingen, Assistant Professor, Department of Physical Therapy, received the 2001 Alum Award from the University of Delaware, Department of Physical Therapy.

Correction from Fall issue: **Dr. Connie Tompkins**, Professor, Department of Communication Science and Disorders, has received the 2000 American Speech-Langua Hearing Association Editor Award, which is given to the manuscript published in the *Journal of Speech, Language, and Hearing Research* that is judged by a panel of distinguished scientists to represent the best contribution of the year.



Sitting Up and Taking Notice

New Wheelchair Seat Cushion Standards Put Performance on a Higher Level

It has been said that where you stand on an issue often depends on where you sit. And in the case of more than 1.7 million non-institutionalized Americans who use wheelchairs – and another 600,000 people who reside in nursing homes and depend on wheelchairs as their exclusive means of mobility – the issue of appropriate, comfortable seat cushions is one of prime importance. More than just a standard pillow, wheelchair seat cushions play a key role in enabling individuals to use their wheelchairs effectively. When used and fitted properly, seat cushions reduce pain, improve seating position and function, and help to reduce the likelihood of skin breakdown. However, when cushions do not fit or perform properly, they often can do more harm than good.

David Brienza

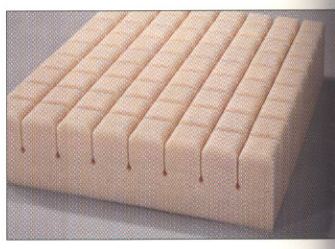
The University of Pittsburgh's School of Health and Rehabilitation Sciences, along with an international team of researchers, has provided much of the leadership in a collaborative effort to complete draft voluntary standards that will lead to advancements in wheelchair seating. The standards are being developed jointly by the International Organization for Standardization (ISO) and the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) Standards Organization. The RESNA Standards Organization is accredited by the American National Standards Institute (ANSI).

The standards will not only define ways to test wheelchair seating products, but also will provide standardized reporting guidelines. They are currently undergoing an extensive consensus-building process, after which the final approved standards will be published first by ISO (scheduled for final voting March 2003) and later, possibly in modified form, by ANSI/RESNA. "The purpose of the standards is not to rank the products from best to worst, but to define test methods to measure relevant performance characteristics," states Patricia Karg, Research Instructor, Department of Rehabilitation Science and Technology, and Chair of one of the RESNA working groups. "The standards will provide objective information to allow consistent comparison of seating products and more informed product selection."

This collaborative effort has been going on for three years and is an outgrowth of the university's work in the area of wheelchair standards that began in 1992. Voluntary wheelchair standards were developed by RESNA, published as ANSI standards, and later adopted in modified form by ISO. Since the standards are voluntary, their implementation is market-driven and manufacturers could choose to follow them or not. However, once the wheelchair standards were published, the Veteran's Administration required that all VA-purchased wheelchairs meet the ISO standards. This has generated significant work for Dr. Rory Cooper, Professor and Chair, Department of Rehabilitation Science and Technology, who currently directs the Human Energy Research Lab (HERL) at the VA Pittsburgh Healthcare System, where standards testing is conducted on wheelchairs.

Standards to Support the End User

"After working on wheelchair standards for several years, it was a natural progression to start evaluating seating support surfaces," says Dr. David Brienza, Associate Professor, Department of Rehabilitation Science and Technology, Director of the Soft Tissue Mechanics Laboratory, and one of the lead researchers involved in the part of the seating standards addressing seat cushions. "Researchers believe that establishing such standards – even voluntary ones – will improve the overall quality of wheelchair seating products by offering a guide for manufacturers to follow. In addition, the standards will help physicians, therapists, and consumers choose the wheelchair seating system that best fits their needs."



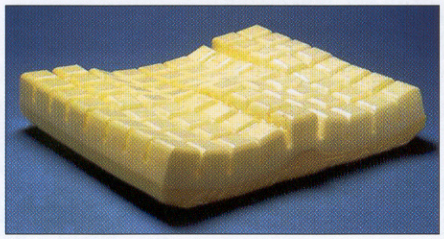
Making a good match between the end-user and the product is not an easy undertaking. "With hundreds of products on the market, the process of making the right choice becomes complicated. Currently, making an informed

decision is virtually impossible because of inconsistencies in product descriptions and in the way cushion performance is reported," remarks Dr. Mary Jo Geyer, Visiting Assistant Professor, Department of Rehabilitation Science and Technology. "For years, clinicians worldwide have been clamoring for some standardized way of describing, testing, and reporting the performance of the wide range of products that are on the market. Our challenge is how to make that all happen."

Mary Jo Geyer

An Interesting Twist

While a great deal of work has gone into the development of standards, compliance is still voluntary on the part of manufacturers. However, the development team anticipates that most manufacturers will adhere to the new specifications, just as they did with the voluntary wheelchair standards. "Consumer awareness drives the market which, in turn, drives the manufacturers to test their products," says Geyer. "Acceptance is generally consumer-driven."



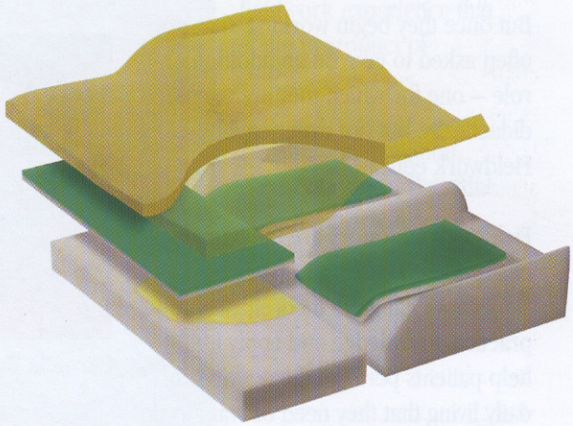
In this regard, the story of the wheelchair seat cushion standard has taken an unexpected twist. While ANSI/RESNA and ISO have not yet adopted the standards, federal government officials have been carefully watching the efforts of the standards researchers. Impressed with the output from the effort, they have incorporated part of the voluntary standards generated by the ANSI/RESNA - ISO collaboration into the new Medicare seat cushion coding/reimbursement draft policy.

If adopted in its present form, the new policy will drive the implementation of the seat cushion standard, since meeting the coverage criteria requires testing according to the standard.

Patricia Karg

The draft cushion coding policy was released for public comment in December 2001. The new draft coding/reimbursement policy coverage criteria require that all cushions be equipped with product labels. It also establishes minimum physical performance standards for cushion technology and may require independent, third-party testing or testing by certified labs. Tests to be conducted include loaded performance, fatigue testing, evaluation of the waterproof and vapor permeation qualities of cushion covers, and flame resistance. The new draft policy also requires warranty protection to shield consumers from replacement costs that arise when products don't stand up to normal wear.

Brienza and his research group in the Soft Tissue Mechanics Lab are hoping to establish a test lab to support their ongoing work in wheelchair cushion research. They also are seeking to provide independent testing laboratory services to cushion manufacturers – much the way HERL has done for wheelchair manufacturers. In addition, they are expanding their interests in the general support surface arena as another standards development process has been initiated for full support surfaces. That project, championed by the National Pressure Ulcer Advisory Panel, will result in uniform terminology, test methods, and reporting requirements for beds, mattresses, and mattress replacements. "Just using consistent terminology rather than manufacturing jargon will empower support surface users and help match the correct product to the person's needs," states Brienza. The process of developing test methods and reporting standards for all types of support surfaces is similar.



These researchers, with expertise shared by relatively few worldwide, are striving to get the job done. Standards are key to empowering and protecting the consumer, and their work on support surface standards will help manufacturers make good products and ensure a better quality of life for millions of end-users in the years to come.

For more information, contact Mary Jo Geyer at **mgeyer@pitt.edu.**

Cushion photos courtesy of Span-America, Inc.

Practitioner *Plus*

Helping Occupational Therapists Become Better Fieldwork Educators

In most entry-level occupational therapy programs, students are trained to be practitioners. Both in the classroom and during the six months of fieldwork required for accreditation by the Accreditation Council for Occupational Therapy (ACOT), the students learn to assess the functional abilities and disabilities of their patients and to plan an intervention program.

But once they begin working, they are often asked to take on an additional role – one for which they are prepared didactically, but not experientially: Fieldwork educators.


Carmela Battaglia

Fieldwork educators are the backbone of experiential learning. They help students to integrate theoretical and practical knowledge and apply it to help patients perform the activities of daily living that they need or want to do.

But according to Colleen White, one problem is that many of the fieldwork educators were students themselves in the not-too-distant past. "Typically, they are relatively new on the job. Many of them haven't worked long enough to develop the necessary supervisory skills." White is Regional Director of Contract Services and Coordinator, Clinical Education, at the Centers for Rehab Services as well as a Clinical Instructor, Department of Occupational Therapy.

Carmela Battaglia, Assistant Professor and Fieldwork Coordinator, Department of Occupational Therapy, acknowledges that while there is some classroom preparation for the field educator role, "there is little opportunity prior to graduation for students to practice the required skills, such as organizing learning experiences and supervising performance."

The two agree that in recent years, the role of the fieldwork educator has become more complex. "Just like healthcare, there is greater specialization within the profession. The technology has become more sophisticated. Caseloads have gotten larger, and practitioners are held to higher standards of accountability," says White.

Battaglia admits that student expectations also are higher. "Entry level professional education is moving from the undergraduate to the graduate level. The students are more mature and their expectations for the fieldwork experience have risen."

Recognizing the need to help the practitioners transition into the role of fieldwork educators, Battaglia and White teamed up to create "Practitioner Plus." The program is being implemented within the UPMC Health System.

A Unique Model

Beyond the academic-fieldwork partnership, which is unique in itself, Battaglia says the program breaks new ground by providing a model that allows participants to acquire and integrate the skill sets required by the dual roles. "They learn how to execute mentoring and supervisory skills as well as their clinical skills."

And White says that because the program is offered across the UPMC Healthcare system, a peer-reference group has emerged. "This facilitates communication regarding mentoring and supervisory strategies," she explains. "The group can develop and share clinical education resources, joint problem-solve, and brainstorm new approaches based on their individual experiences."

Intelligence Gathering

In designing the program, the duo did their homework. "We conducted a literature review of fieldwork and clinical education, not just in occupational therapy, but in other healthcare professions as well," explains Battaglia.

What they found did not surprise them. "It was clear that changes in the clinical environment required new training methods and models," says Battaglia.

Adds White, "It also was evident from the literature that there was a need for a standard method for evaluating the clinical competency of students. There needed to be a way to reconcile the fieldwork educators' perceptions of student performance with the students' expectations of the mentoring relationship."


Colleen White

But perhaps most instrumental in developing the program content was feedback from the fieldwork educators and students.

"The fieldwork educators told us they needed strategies to model and evaluate the students'

professional behavior," says White. "They needed strategies for dealing with students with different learning styles. And they wanted more efficient orientation and training procedures."

Battaglia says that from the student perspective, the need could be summarized in one word – consistency. "They wanted greater consistency in orientation and training across all the various fieldwork sites provided by the Centers for Rehab Services."

A Foundation for Success

Implementation began in March 2000, and after almost two years, the pair is pleased with the results. "We now have a structured orientation procedure that clarifies the roles and expectations of both the fieldwork educator and the student," White explains. "This provides a consistent foundation for the fieldwork experience."

A student orientation manual was created that outlines roles, expectations, and assignments as well as provides essential information such as mandatory institutional policies and emergency procedures.

Across the various fieldwork education sites, student behavioral objectives and assignments were developed to facilitate a more uniform student experience and to provide a simple method for evaluating clinical competency.

Finally, the fieldwork educators themselves were trained on how to handle the unique challenges posed by their students. Experienced mentors were provided to help them identify problems early on and to help facilitate a reasonable resolution to the concern.

Battaglia and White point to two examples that illustrate the success of the program.

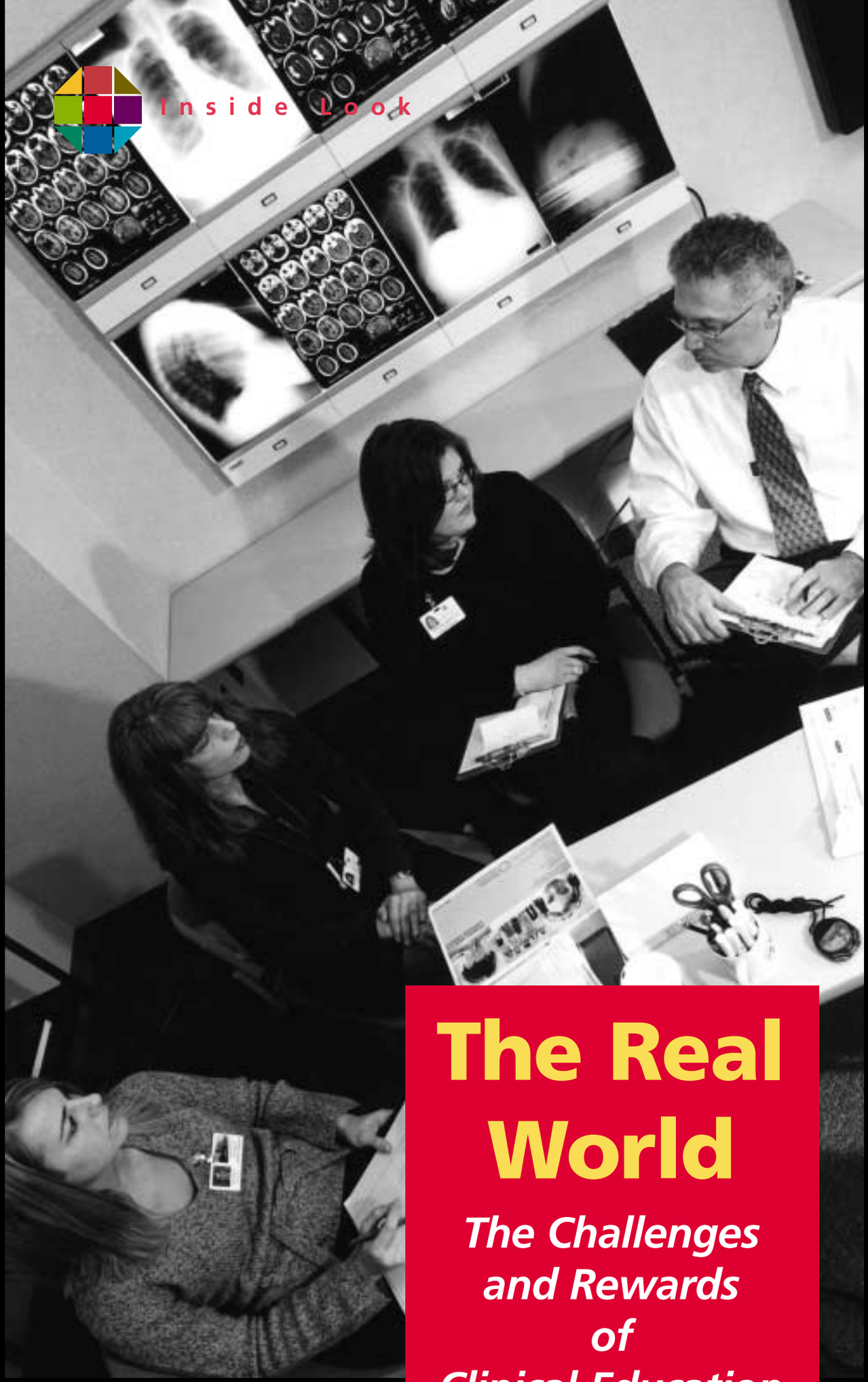
"One student was feeling particularly anxious about treating critically ill patients in the ICU - intensive care unit," relates Battaglia. "The fieldwork educator consulted his mentor and the two brainstormed strategies on how to handle the situation. They decided to expose the student to the ICU gradually by focusing on only one patient. Working with her fieldwork educator, the student prepared an evaluation and treatment plan. Then she was encouraged to plan treatment sessions a day in advance and share her recommendations with her fieldwork educator. Following the session, the two discussed the outcome of the session, and the student chronicled her experiences. By the end of one week, the anxiety had dissipated."

> ***"They learn how to execute mentoring and supervisory skills as well as their clinical skills."***

White tells the story of a fieldwork educator who was frustrated by her student's inability to complete documentation accurately and in a timely manner. "She consulted her materials from an earlier training session that suggested methods for improving students' documentation skills. She helped the student develop an outline of the pertinent details that were to be included in the documentation of the treatment, and then she and the student separately documented the treatment sessions. Afterwards, they'd compare notes to assure the accuracy of the student's documentation. The methodology was successful and the student's performance improved.

Word about the program is spreading. The two have made presentations at meetings of both the Pennsylvania Occupational Therapy Association and the American Occupational Therapy Association. There is potential that the model could be adopted by other academic institutions. And because well over 20 other academic institutions across the country contract with the Centers for Rehab Services, their students are already benefiting from the improved fieldwork experience that is the byproduct of Practitioners Plus.

For more information, contact Carmela Battaglia at **carm@pitt.edu** or Colleen White at **whitecf@msx.upmc.edu**.



Inside Look

The Real World

The Challenges and Rewards of Clinical Education

They've sat through hundreds of hours of lectures. They've pored through dozens of textbooks. Now comes the time to put that knowledge to work. To move from the didactic to the clinical. In each issue of FACETS, we will follow first and second year students as they get their first taste of being a professional.

The Real World

The Challenges and Rewards of Clinical Education

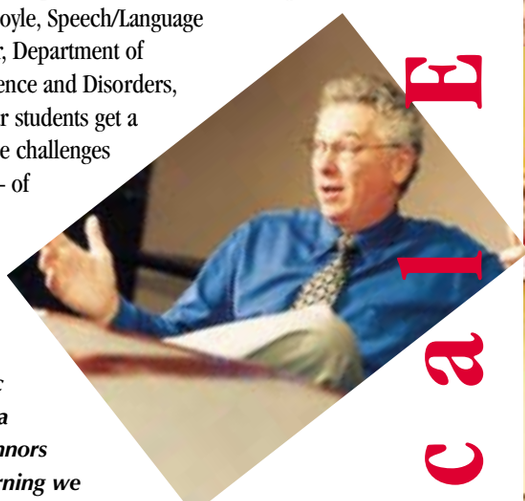
Clinical Education

The American Speech-Language-Hearing Association (ASHA) stipulates that master's level students in speech/language pathology or audiology must perform a minimum of 350 hours of direct patient contact, along with time in assessment and intervention with patients of varying ages, with different types of communication disorders, and differing severity levels. While many universities offer this clinical experience at on-campus facilities, SHRS has taken a more unique direction, one that offers its students an opportunity to go immediately into "the real world" and face a broader, richer set of challenges.

Dr. Cheryl Messick, Director of Clinical Education, Department of Communication Science and Disorders, oversees clinical training and coordinates the placement of speech/language pathology students at more than 100 clinical sites ranging from large hospitals to community clinics. Messick says the sites accept the students as a professional courtesy. "We all know that managed healthcare has tightened every healthcare professional's schedule, so that courtesy is especially appreciated. We simply could not operate a program without the remarkable donation of time and energies we get every day from the professionals at these locations."

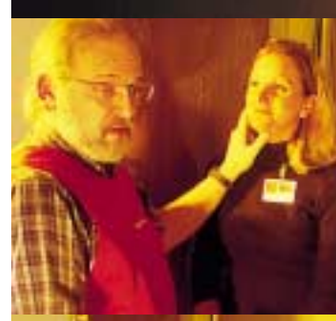
Cheryl Messick

A notable example is UPMC Passavant. Under the guidance of William Connors, Speech/Language Pathologist and Director of Passavant's Speech Voice and Swallowing Center, and James Coyle, Speech/Language Pathology Instructor, Department of Communication Science and Disorders, first and second year students get a first-hand look at the challenges – and the rewards – of their profession.



"We run our clinic in teams, just like a business," says Connors (right). "Each morning we discuss all of the patients under our care at that time. We deliberately design the interaction to make it very powerful, creative, and challenging. We believe that's the best way to make our students more willing to take chances. We use a team orientation because we want them to build on their natural intellectual inquisitiveness."

On the previous page, second year student Nicole Whalen (left) joins Connors and speech/language pathologists Linda Edwards and Meghan Bartlett, as they review patient plans.



First year students learn Basic Clinical Competencies under the tutelage of Jim Coyle. "Twenty years ago, it took two years to earn a master's degree in this field. Today it takes the same amount of time, but the amount of knowledge required is several times greater."

Here, Coyle uses role playing to show first year students Stacie Kanai (top right) and Jennifer Bowers the proper way to conduct a physical examination on a patient with dysphasia – difficulty in swallowing. Later, under the observation of Coyle, the students will conduct examinations on Passavant patients.

"We feel that what sets us apart is how we bring the classroom into the clinic," says Coyle. "In fact, many students come here because of the level of clinical experience we can offer them."

Nicole Whalen performs "paper and pencil work" with Ted, who had a stroke several years ago. Interestingly, many students are initially attracted to speech therapy because of a desire to work with children, but as they are exposed to the problems adults face, they may shift their focus. "The adult patients can provide a greater intellectual challenge," says Whalen.

Patients at the center will work with several students and speech/language pathologists. There is no "ownership." Students learn skills with one patient, and then are expected to apply them quickly to another. "They get real world experience right away," Connors explains.

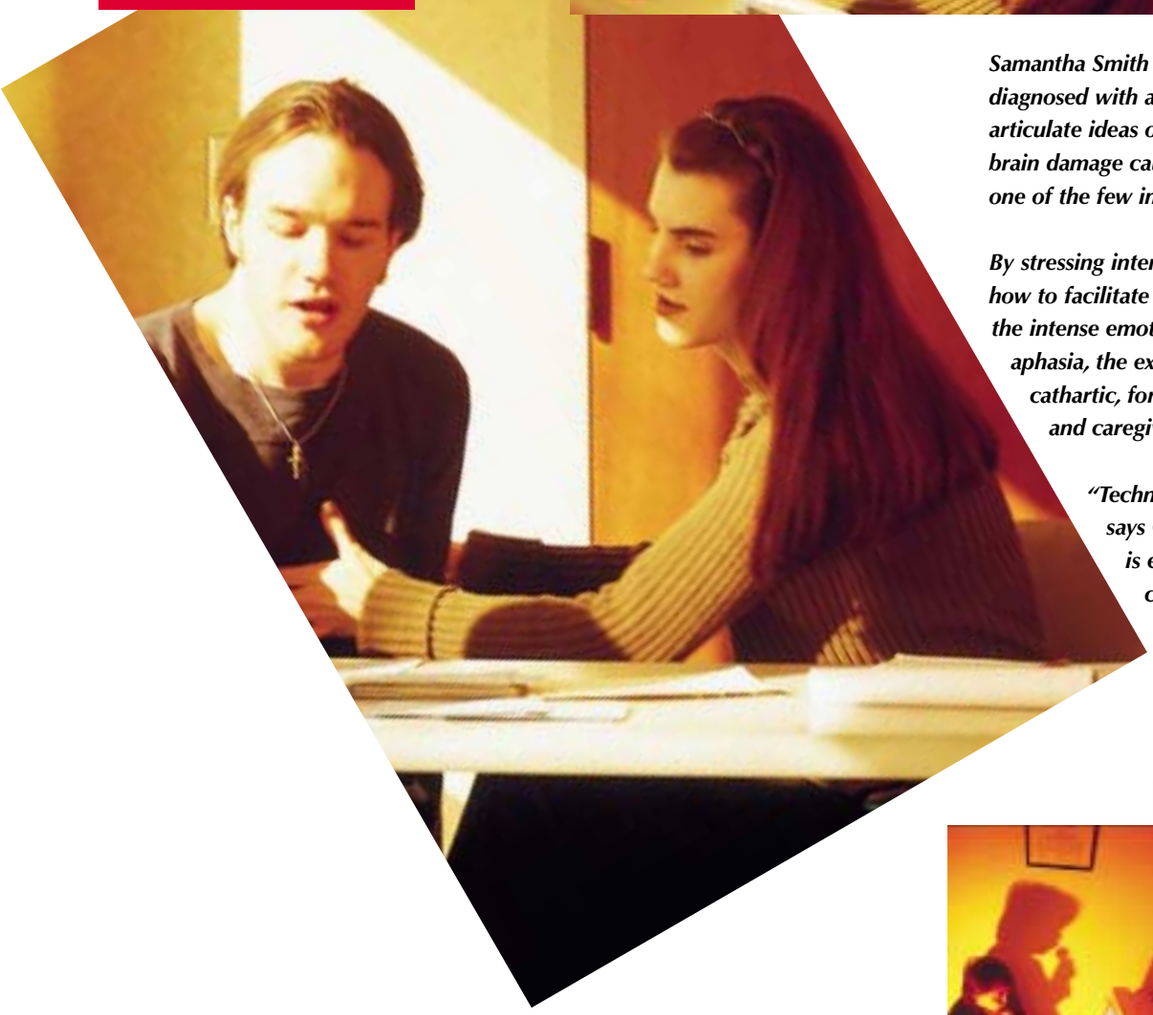
The students appreciate that SHRS can offer options in many different slots for clinical training experience. "We get to go everywhere," says Whalen. "We see people with real problems. We're learning by doing, not by 'practicing.' "

That real-world experience includes everything from patient work to paperwork, to dealing with insurance companies, fellow workers, and physicians. "Best of all," says Whalen, "The real clinical experience helps you decide the best career path for you. You can't make the right choice just from classwork."

The Real World

The Challenges and Rewards of Clinical Education

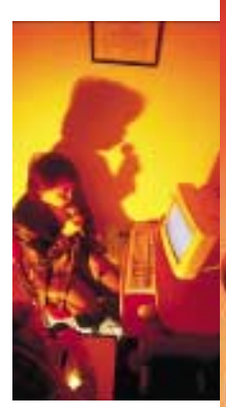
While each patient has a primary speech/language pathologist who works with him or her on any given day, the team uses the concept of "Pickup doable charting." That means that any member of the team, student or professional, can pick up the patient's chart and do the therapy.



Here, second year student Samantha Smith works with Jared, who has been diagnosed with aphasia, a partial or total inability to articulate ideas or comprehend language that results from brain damage caused by injury or disease. The center is one of the few in the nation that focuses on this condition.

By stressing interactivity, the staff helps the students learn how to facilitate aphasia treatment sessions. Because of the intense emotional distress that often accompanies aphasia, the experience is often energizing, even cathartic, for the students as well as the patients and caregivers.

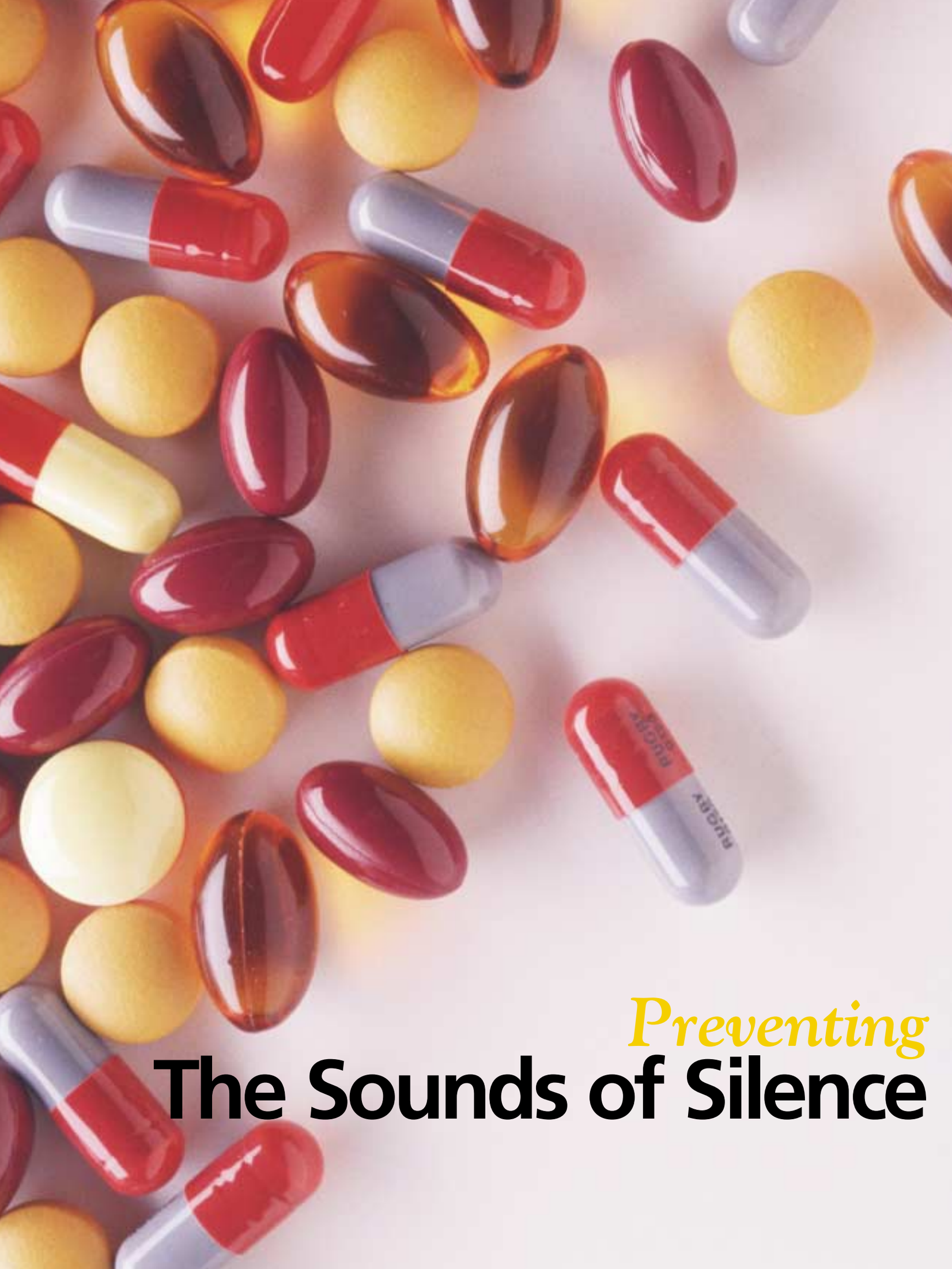
"Techniques are a big part of what we teach," says Connors. "But so are strategies and so is empathy. Understanding the emotional conflicts of a person who cannot communicate is vital to becoming a successful therapist."



The term "communication science" applies to a broad range of human needs. In addition to people who have had strokes or disabling diseases, the therapies that Connors and his staff offer reach into special areas. "Singers and vocal athletes often develop some sort of problem," he says, "and we can usually help." One example is Ling, shown here working with Nicole Whalen. Ling, a nurse assistant at UPMC Passavant, came to the United States from mainland China four years ago, where she was a registered nurse. To reduce her strong accent, which keeps her from being easily understood, Ling is shown using a special computer program that visually demonstrates the accuracy of her pronunciation.

Connors makes it a point to stay in touch with alumni who have worked with him and his staff at the center. In fact, two University of Pittsburgh graduates are now employees of the department: Meghan Bartlett (shown here working with Matthew) and Danielle Hawkins. Connors' former students praise his willingness to work hard to discover their own individual strengths and weaknesses, to maximize the one and improve on the other. With the current students, Meghan serves as an informal mentor as well as fellow team member. She is an excellent example of how one moves from student to professional.

A big part of working with patients, especially the younger ones, is personal interaction. Here, Meghan is not only teaching Matthew specific skills, but she is questioning him about his family and his life, to encourage him to use language more naturally. This interaction led to a special moment in Matthew's therapy on the very day these photos were taken. During his conversation with Meghan, with his mother looking on, Matthew said "John." It was the first time anyone had ever heard him correctly speak his brother's name.



Preventing The Sounds of Silence

Bedside Ototoxicity Testing Helps Reduce Hearing Loss Caused by Therapeutic Drugs

There's no question that modern pharmaceuticals have dramatically improved the lives of countless patients. Broad-spectrum drugs such as antibiotics and anti-neoplastics continue to help lessen the severity and duration of diseases and allow patients to return to healthy and fulfilling lives faster than ever before. But in some cases, these wonder drugs can create ototoxic reactions that may silently rob patients of their hearing and balance. Ototoxic reactions occur within the inner ear without presenting any early, readily-identifiable symptoms. Most often, outer hair cells within the inner ear are quietly compromised by the toxic side effects of therapeutic drugs. Once these delicate cells have been poisoned, the inner hair cells are much less sensitive and fail to adequately activate the auditory nerve. As more cells are affected, hearing loss becomes more profound as the inner hair cells themselves become poisoned. Ototoxicity also preys on the structures within the inner ear that govern vestibular function or balance. When the balance structures inside the inner ear are compromised by toxins, equilibrium soon begins to suffer.

Unfortunately, by the time the patient or his physician recognizes a hearing loss or a balance problem, the damage done by the reaction has become permanent. This could have a dramatic effect on the patient's quality of life, and can create severe social and economic problems over the long term – particularly if the patient is a young child.

Detecting the Damage Drugs Can Do

As new and reformulated drugs are used to treat everything from simple bacterial infections to advanced cancers, the likelihood of ototoxic reactions grows. Until recently, determining the presence and severity of ototoxicity required transporting critically ill patients to the audiology lab for a series of uncomfortable, expensive, and time-consuming evaluations. To streamline the detection of ototoxicity, and to keep up with the accelerated pace of today's increasingly complex treatment environment, researchers in the Departments of Communication Science and Disorders and Otolaryngology have developed an innovative testing system to bring reliable, cost-effective screening directly to the patient's bedside.

"There has always been a real and urgent need for effective bedside ototoxicity testing," explains Dr. John Durrant, Professor, Department of Communication Science and Disorders. "The roadblock has consistently been that the technology needed to detect it was too cumbersome and difficult to use outside of the clinical setting. We've overcome that hurdle, and are now focused on developing more effective testing devices that can help us detect and arrest ototoxicity before it does its damage." Funded through a federal grant and fueled by a technology transfer initiative between an equipment manufacturer, Intelligent Hearing Systems, and the university, a new system is being developed by a team drawn from various disciplines, including Dr. Joseph Furman, Professor of Otolaryngology and Neurology, School of Medicine, and Dr. Catherine Palmer, Associate Professor, Department of Communication Science and Disorders. It subsequently will be evaluated in a wide range of clinical and control subjects.

John Durrant

continued on page 45

Preventing The Sounds of Silence

continued from page 25

Thorough Testing Through Technology

Designed to put ototoxicity testing capabilities in the hands of front-line caregivers, the new system will be built around an innovative computer platform that is effective in both field and clinical settings. Interfaced to a portable laptop computer through a Universal Serial Bus (USB), the semi-automated device is composed of interface boxes, a light bar, a lightweight helmet, translucent goggles outfitted with rate transducers and miniature infrared cameras, earphones, and tiny microphones. It is designed to be completely portable, and can be operated in the presence of background light and noise typically found in hospital rooms.

To evaluate the hearing system, a single ear-probe is inserted into the patient's ear canal. The system then automatically analyzes conventional and high frequency distortion-product otoacoustic emissions (DPOAE), a sort of echo from the inner ear. The system also permits the examiner to perform audiometric evaluation using conventional and high-frequency pure tones. It also can be used to conduct vestibular system evaluations through head-only rotation testing (HORT). To perform the evaluation, the clinician positions the goggles over the patient's eyes, connects the electrodes to the rate sensors, and slides the helmet over the patient's head. To conduct a HORT session, the clinician grasps knobs protruding from the helmet and gently moves the patient's head from side to side. While the patient is being maneuvered, data is collected through the sensors and is automatically captured and catalogued by the system. To ensure thorough and complete evaluation, on-board audio-visual instructions will be developed to guide the clinician through the entire testing process. The integrated help system will deliver on-the-spot user assistance if questions should arise.

A more basic prototype was developed in earlier work to demonstrate the viability of the concept. "This system was a first. Prior to its development, integrated audio-vestibular test devices – and more specifically, bedside applications – were nonexistent," says Durrant. "Our research, both here at the School of Health and Rehabilitation Sciences and in the UPMC Health System, has demonstrated that it is possible to create a system that can perform comprehensive audio and vestibular testing at the bedside. It also proves that such a system can be affordable, easy to operate, and most importantly, be effective in detection before the problem becomes a significant handicap."

Beyond the Bedside

According to Durrant, the current system is only the beginning of integrated bedside audio-vestibular evaluation. "We have documented the performance of our existing system and the results are quite good. But we have much more work to do in our next phase of development. Our team is continuing to refine the functionality of the existing configuration, and is looking for ways to improve overall diagnostic function – particularly in the high-frequency ranges. We also are evaluating infrared video capabilities that would monitor eye movements and eliminate the need for electrodes from the vestibular portion of the testing process, as in the current (prototype) device. In addition, we can readily augment the battery of tests housed within the system to provide more complete evaluation capabilities. These efforts will ultimately make the system more turnkey, and could expand its application to other auditory and vestibular testing and research applications."

For more information, contact John Durrant at **jddurrant@pitt.edu.**

"This system was a first.

Prior to its development, integrated audio-vestibular test devices – and more specifically, bedside applications – were nonexistent."

Get SMART

Emergency Medicine Makes Access to CME Credits Easier

For emergency medicine professionals, education never stops. New lifesaving techniques continue to enhance the ability to stabilize and treat patients in the field. Breakthrough pharmaceuticals are changing the course of treatments and helping to improve outcomes. And advances in technology are sharpening the accuracy of everything from patient monitoring to resource management. To stay on the cutting edge of care, paramedics, EMTs, emergency and critical care nurses – and even EMS physicians – need to stay abreast of the latest developments in their particular fields. And, more importantly, to maintain their state and federal certifications, they must continue to accumulate Continuing Medical Education (CME) credits on an annual basis.

Finding the time to do all of this, however, can be a great challenge. As the pace of healthcare continues to accelerate, there seems to be less and less time to commit to ongoing coursework. And with resources stretched thinner than ever before, few organizations can afford to have their key players tied up in classes for long periods of time. Fortunately, the Center for Emergency Medicine has continued with its tradition of providing a cost-effective and convenient solution.

On February 1, the center, in cooperation with Stat MedEvac, sponsored "Medicine/EMS: The Tools & the Talent," a day-long series of educational activities dedicated to presenting the latest information and discussing the current trends in emergency medicine. Co-chaired by Dr. Paul Paris, Chief Medical Officer at the Center for Emergency Medicine, Dave Lindell, the center's Continuing Education Coordinator, and Deb Lenart, center Administrator, the meeting was held at the Sheraton Hotel Station Square in Pittsburgh, PA and was attended by more than 350 emergency medicine professionals drawn primarily from the tri-state area. More than just a day of educational updates, the meeting provided excellent opportunities for attendees to share knowledge with other professionals in their fields. It also allowed them to earn needed CME credits from the Emergency Medical Services Institute (EMSI) and the American Association of Critical Care Nurses (AACCN).

Let the Learning Begin

The day began with three morning sessions dedicated respectively to burn trauma, documentation, and strategic medical intelligence. After a brief lunch, where attendees were encouraged to mix, mingle, and discuss current issues, attention was directed to three specialized course tracks focused on advanced life support, basic life support, and emergency/critical care nursing. Faculty, drawn from the University of Pittsburgh, regional law firms, and a number of the region's leading healthcare providers, donated their time and talents to create the twelve presentations that formed the core of the event. Corporate sponsors underwrote the cost of lunch and refreshments, and an assortment of exhibitors showcased a wide range of equipment and support services.

"We recognize it can be difficult for emergency medicine professionals to find the time to

attend continuing education sessions," comments Lenart. "However, to retain certification and to continue career growth, it's critical to get the CME credits. We put this program together as a way to provide meaningful educational opportunities to the emergency medicine community. We also look at it as our way of giving back to the people who support both the center and our students. It really is an event where everyone walks away with something valuable."

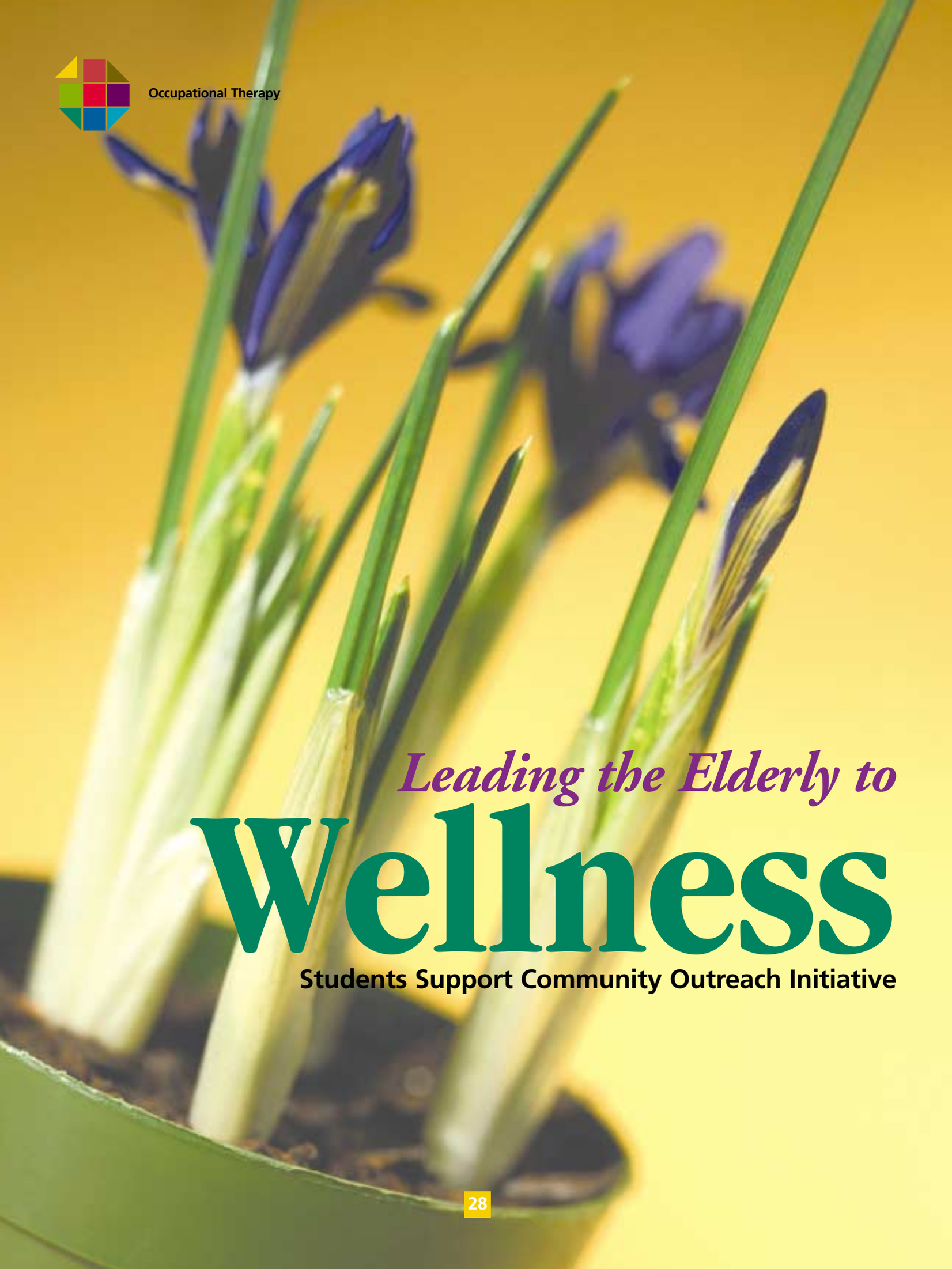
Professionals Helping Professionals

"Much of the meeting's success comes directly from the diversity of the faculty," remarks Lindell. "For the most part, they come from the seven local hospitals that support the center, and are eager to participate in any way they can. In fact, in the eight years we have been presenting this program, we've had a number of faculty members volunteer repeatedly for participation."

Minimal cost is another contributor to the meeting's popularity. "The registration fee for the program was only $40," observes Lenart. "Dollar for dollar, you just can't find a more economical way to obtain CME credits. Further, because we obtained a block of rooms at the hotel, we made it possible for attendees to spend the night in Pittsburgh for only $129. Since many people attended the meetings with colleagues and split the lodging costs, the program's total cost to participants was – in many cases – less than $100."

Plans are already under way for next year's meeting. "Each year, we see that the need for this program continues to grow," says Lenart. "We're also noticing that attendees are coming from points farther and farther away from Pittsburgh – places like Harrisburg, Philadelphia, and New York. We're committed to elevating the quality and the quantity of CME offerings every time we do this. And although this year was an obvious success, next year will be even better."

For more information on continuing education programs through the Center for Emergency Medicine, visit their Website at **www.centerem.com**.



Leading the Elderly to Wellness

Students Support Community Outreach Initiative

In the last decade, the focus of community healthcare has shifted from medical treatment to prevention and wellness. While this shift is particularly evident in the wide range of services readily available to younger populations, it is less apparent for the well-elderly. Unlike their younger counterparts, the over-65 population often faces a gap between services that are appropriate and those that are available.

Wellness is not confined to the young. Chronic conditions such as diabetes and arthritis do not need to result in a loss of independence. Many healthcare professionals are recognizing that if vigilant monitoring and health maintenance activities start to be viewed as a normal part of a life-long continuum of care, wellness and independence can be prolonged. Not only will this improve the quality of life for our growing elderly population, there can be significant cost savings, since the use of traditional institutional healthcare resources will be deferred.

The challenge is how to close "the service gap."

UPMC Braddock, through the Braddock Community Partnership, is evaluating one possible solution. Its outreach staff is providing free, on-site health and wellness services at two subsidized high-rises in Blawnox and Wilkinsburg. The residents in the two facilities are typical of many of the elderly in the community. They face transportation barriers, issues of trust, and lack awareness of health threats and their management. The principal investigator on the project is Dr. Wesley M. Rohrer, Assistant Professor, Graduate School of Public Health at the University of Pittsburgh. Rohrer not only wants to know if the residents will access and use the on-site healthcare services, but to what extent these services contribute to selected goals of Healthy People 2010 – improvement in measurable outcomes of health status, patient satisfaction, quality of life, and cost effectiveness.

The outreach team includes a nurse who is at each site twice a week providing medical assessments, intervention, referral, and education; a social worker, who visits the high-rises once a week to assist with access, community, and insurance issues; and, master's level students from the Department of Occupational Therapy who lead weekly activity sessions. Denise Chisholm, Assistant Professor, Department of Occupational Therapy, supervises the students. Chisholm explains that the students are ideal candidates to lead activities with the well-elderly population. "They have training in group development and process, activity analysis, and knowledge about the aging process. And," she adds, "the students involved in the project have great leadership and interpersonal skills."

Establishing a Baseline

While the weekly activity sessions represent established protocols for an elderly population, a key ingredient is involving the residents in the activity selection process. Last summer, Chisholm participated in health fairs at the high-rises to determine the residents' needs and interests. Focus groups also were conducted during the development phase of the project.

Denise Chisholm

A modified activity questionnaire was used to establish a baseline of how each resident assessed his or her level of independence. "We wanted to know their perceptions of how they are performing everyday activities," Chisholm explains. "We wanted to know if they had difficulty with daily tasks such as reading a newspaper, walking, getting in and out of bed, dressing or undressing, preparing or cooking a hot meal, or visiting with family and friends. Performance of these activities reflects the elderly individuals' level of independence."

Resident input concerning activity choice, results of the modified activity questionnaire, observation of resident performance during the activity sessions, and established protocols all contributed to the design of the activity program.

Treatment Protocols

According to Chisholm, the protocols for the activity sessions were patterned after intervention programs from national studies of the well-elderly. The one-and-a-half hour sessions focus on skill areas, such as gross and fine motor skills, self-expression, cognition, safety, problem solving, and health and wellness.

An activity session might start with movement (gross motor), such as stretching to music, interactive exercises, and dancing. "We generally use common, everyday objects and talk about how they can incorporate the exercises into their daily routine," Chisholm explains. "Exercise doesn't have to be getting up and walking five miles." Because many of the residents have some degree of arthritis, hand (fine motor) exercises also are incorporated.

The activity sessions take a variety of forms. "There might be a game activity," she says, "that would address cognitive skills in addition to fine motor skills. It could be music bingo, board games, or a team game involving past and current events. We also use craft activities or horticulture." All of the activities address self-expression and interpersonal skills. Some of the activities span several sessions. "We've painted and decorated ceramic pots during one session

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Leading the Elderly to

Wellness

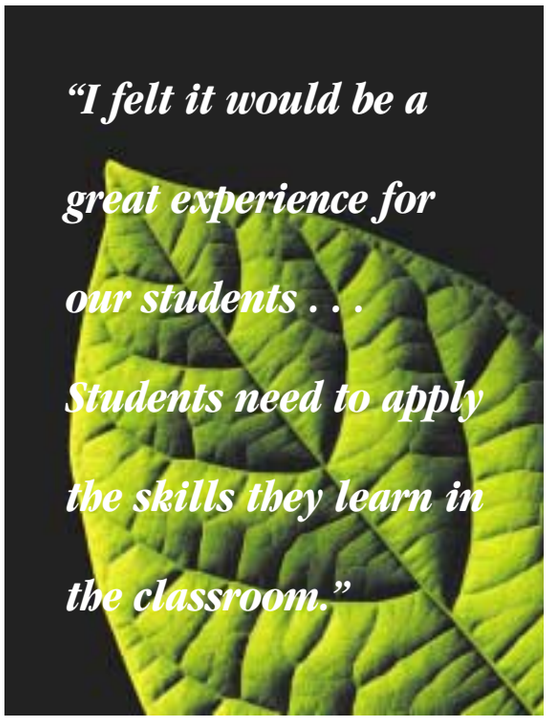
continued from page 29

and then planted flowers in them during the session the following week." At each session, residents are given suggestions on how they could adapt the activities to their daily lives in order to increase their independence.

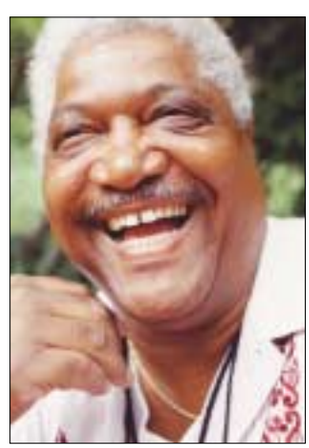
Although the focus was the same, activities differed between the two sites. One reason was differences in the characteristics of the two high-rises. While the majority of the residents at both sites are low-income, widowed women, the Blawnox facility is over twice as large – approximately 90 units versus just over 40 units in Wilkinsburg – and has a well - established activities calendar. "It was hard to find a convenient time," says Chisholm. "They already had regular activities such as bingo. Saturday was shopping day for many of the residents." The Wilkinsburg facility, on the other hand, had no organized activities.

But the differences also can be attributed to the residents themselves. "A lot is self-initiated by the group members," Chisholm notes. "We're including their needs in our groups." As an example, she points to an elderly man who was having difficulty writing. "While the group doesn't focus on writing, he signs his name every time he attends a session and we make sure the activities address fine motor skills and are adapted to encourage skill development in writing."

An average of 10 participants attend each week, and since the start of the program in September of last year, approximately 30 percent of the residents at each site have attended at least once. Attendance is strictly voluntary. "We do not have attendance requirements, such as a resident can't join the session after it starts or you have to stay for the entire hour-and-a-half," says Chisholm. "If residents just want to come in and watch, that's okay, too. Our goal is to increase the residents' involvement, and if you impose a lot of constraints on them initially, that may be the reason that they choose not to attend."



Chisholm says they've seen a steady increase in the number of residents attending the activity sessions, which she attributes to positive word of mouth. "And once they've participated, they tend to come back," she adds.



Early Success

Chisholm says, "Our hope is that residents will report increased activity levels plus increased satisfaction with the quality of their lives and that the services provided by the outreach team have contributed to these outcomes. We hope that the research is a victim of its own success. If the project is working, and it appears to be, funding may be available for ongoing services."

Chisholm says she did not include her students in the project simply for the research. "I felt it would be a great experience for our students," she says. "Students need to apply the skills they learn in the classroom setting and the outreach project provides an opportunity for 'real-life' application. Also, I thought that our students had skills to offer to the residents and that they would be valuable as group leaders."

Chisholm says the students got to know the residents "very, very well." So well, in fact, that one of the students admits that she's having difficulty transitioning new students into her group leadership role now that the semester has ended. "I'm really going to miss them," says Amanda Kane. She says that she went into the project expecting to lead a therapy group. Instead, "they were therapy for me."

Kane sees the residents as "just people who wanted to get together. It was a time for them to socialize." And she says she understands now that "in therapy, you have to direct your activities toward what people want. Your goals for treatment should be the same as theirs."

For more information, contact Denise Chisholm at **dchishol@pitt.edu.**

Putting Damaged Knees Back in Joint

Movement-Enrichment May Be Key in Knee Osteoarthritis Treatment

The ability to stand up and walk across a room is something most people take for granted. But for those with knee osteoarthritis, this seemingly routine activity can be a painful journey.

Morning stiffness in the knee, pain during knee motion, and a feeling that one's knee is slipping or about to give way are telltale signs of knee osteoarthritis. It evolves over many years and develops due to knee joint wear and tear, resulting in damaged cartilage or bone structure. This degenerative condition prevents the joint from supporting the knee properly, which can cause physically active people to become sedentary and lead less-healthy lifestyles.

Dr. G. Kelley Fitzgerald, Assistant Professor, Department of Physical Therapy, has worked closely with knee osteoarthritis patients and has developed some new ideas about how the condition should be treated. Over the past 20 years, exercise therapy has been the treatment of choice for knee osteoarthritis. Regimens consist of range-of-motion exercises for the knee; low-impact aerobics such as walking and riding a stationary bike; and, muscular strengthening around the knee and lower

continued on next page

Putting Damaged Knees Back in Joint

continued from page 31

portion of the leg. Exercise therapy has proven helpful to people with knee osteoarthritis, but it's far from a panacea. Many graduates of exercise-therapy programs are still not able to participate in athletic activities they once enjoyed. People in this category often experience an osteoarthritic snowball effect – their knee joints become progressively worse due to lack of high-level movement.

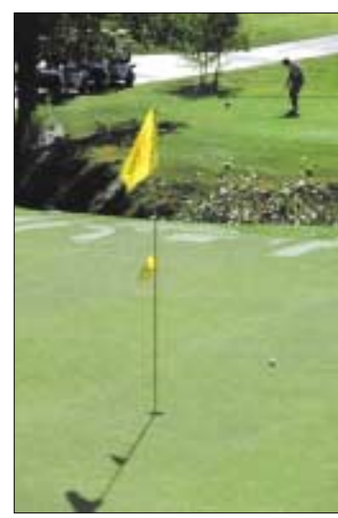
What's more, Fitzgerald and his colleagues in the Department of Physical Therapy observed that almost 50 percent of patients who have knee osteoarthritis complain of knee instability. These patients continue to feel a slipping sensation in their knees, as if they are about to give way, when doing everyday activities such as getting up from a chair or walking up stairs. This suggested to Fitzgerald that exercise therapy alone is not the answer. Supplemental therapy is necessary.

Kelley Fitzgerald

As a doctoral student at the University of Delaware, Fitzgerald worked with athletes who sustained knee injuries. Some of these athletes had ACL injuries and were in jeopardy of not being able to play again until after having surgery. Fitzgerald developed a movement-enrichment program consisting of a series of agility and perturbation-training exercises to promote improved knee stability during functional activity. The idea was to help these athletes develop compensatory skills by exposing their knees to potentially destabilizing situations.

The agility component of these training exercises consisted of running and stopping routines, cutting drills, and quick changes in direction. The perturbation exercises required patients to stand on tilt and roller boards with one leg, moving forward, backward, and side-to-side while the physical therapist tried to perturb, or throw off, their balance. Patients not only strengthened their knees, they learned to compensate for different levels of applied stress. The movement-enrichment program proved so successful, many of the athletes with ACL injuries were able to resume playing and put off surgery until the end of the season.

Fitzgerald hypothesized that a modified version of the movement-enrichment program that proved so successful with young, athletic people could be used with knee osteoarthritis patients. He concluded that because knee osteoarthritis patients tend to be older and less athletic than college football players, the training program needed to be less rigorous, for example – walking rather than running.



These toned-down exercises consist of low-impact side-to-side movements; carioca, a series of front and backward crossover steps; pylon drills in which patients walk to a pylon, stop, and walk backwards; walking drills that emphasize random changes in direction; and, perturbation training where patients try to balance themselves on tilt and roller boards with both legs.

On the Right Track – Case Studies

Fitzgerald worked closely with Tara Ridge, a staff therapist at the UPMC Center for Sports Medicine and a doctoral student in the Rehabilitation Science program, to incorporate the movement enrichment program into the care plans for her patients with knee osteoarthritis at the center. Two success stories lead Fitzgerald to believe his movement-enrichment program is a key addition to exercise therapy in knee osteoarthritis treatment.

A 73-year-old female patient of Ridge's was an avid golfer and tennis player. She had suffered from knee osteoarthritis for a couple of years, but was able to control it by taking medication and refraining from athletics when her knee pain flared up. Finally, her condition got the best of her when her knees began to feel as if they were giving way during normal, everyday activities like walking and getting up from a chair. She was forced to quit playing golf and tennis, at which point she came to Ridge for help. Ridge and Fitzgerald collaborated on designing a movement enrichment program to meet the patient's needs.

The woman went through 12 treatment sessions over the course of six weeks, each session lasting 45 minutes to an hour. With each session her knees gradually improved, and after six weeks her knee strength and sense of confidence were restored. By continuing the exercises independently, she has come full circle. Her knees no longer feel like they're giving way during normal, everyday activities, she has begun walking three miles every day, and has returned to the golf fairways without any problems. Playing tennis still causes her some pain – not surprising given the amount of impact knee joints sustain on a tennis court – but she has resumed playing on a regular basis.

"I believe she would have gotten better with a traditional treatment regimen, but she probably wouldn't have been able to return to recreational activities without the movement-enrichment program," says Fitzgerald.

Another success story Fitzgerald cites is that of a 69-year-old male patient with a passion for hiking. It initially appeared the patient's next hike would be into a hospital operating room for total knee-replacement surgery – the worst case scenario for people with knee osteoarthritis. He experienced slipping and giving-way sensations in his knees, coupled with severe pain. Before submitting to a surgeon's scalpel, however, the man made a series of visits to Ridge. After a six-week treatment program, he decided to put his much-improved knees to the test by hiking in the Swiss Alps, a trip that was only a pipedream a couple of months earlier. His alpine sojourn turned out so well, and his knees improved so dramatically, that his knee-replacement surgery was no longer deemed necessary.

Fitzgerald is applying to the National Institutes of Health (NIH) for a grant enabling him to conduct randomized trials to determine if adding agility and perturbation techniques improves the overall effectiveness of exercise therapy. He believes helping knee osteoarthritis patients return to an active lifestyle improves their quality of life, which is especially important for our steadily aging society. Above and beyond everything else, Fitzgerald believes the key ingredient to success is remaining active after treatment.

"If we make it possible for them to remain active and participate in higher-level recreational activities, there's a good chance of delaying disability or even preventing it altogether."

For more information, contact Kelley Fitzgerald at **kfitzger@pitt.edu.**

Virtual Reality

The Next Step in Rehab for People with Balance Disorders

Losing one's balance and falling is so commonplace that it's almost hard to believe it is a serious health problem. But for the elderly, a fall can be fatal. And for others, poor balance and the constant fear of falling can lead to a life of social isolation and debilitation. Falling carries with it societal expense, too. Because of the rapid aging of the population, hip fractures alone result in several billion dollars in medical costs every year.

Falling can be caused by everything from a simple momentary lack of concentration to a serious deficiency in the way the brain, ears, eyes, and body work together to maintain balance.

Sue Whitney

It's this very complexity that makes it exceptionally difficult to help people prevent falls. Some people fall because they have what are defined as vestibular disorders. Yet it is hard to work with these people because what causes them to fall – vestibular "confusion" due to sensory input that is too complex – is nearly impossible to duplicate in the laboratory. On top of that, there are a plethora of factors that can have an impact; some known, some unknown, some interlocking. So it's very challenging to test people to see what kinds of events and actions lead to falls. And, of course, it's very difficult to develop ways to offer them treatment in a therapeutic setting that replicates the situations that lead to the vestibular symptoms.

That's why researchers at the University of Pittsburgh are leading an effort that uses virtual reality (VR) to address these problems. Dr. Sue Whitney and Dr. Patrick Sparto of the Departments of Physical Therapy and Otolaryngology are working with specialists in the fields of bioengineering, physical therapy, neurology, and clinical psychology, as well as VR experts from the Georgia Institute of Technology. Other valuable members of their team include Dr. Mark Redfern and Dr. Joseph Furman. Working with grants from the National Institutes of Health (NIH), they have developed a testing booth that lets them simulate and manipulate many different variables to determine what affects people's balance negatively, why they fall, and how they compensate for a previous injury to keep themselves from falling.

Patrick Sparto

Inside the Booth

According to Whitney, it was imperative that the test booth and the experience be very safe. "That was our first priority," Whitney explains. "We had to create a test environment where people knew they were both physically safe and psychologically secure." To prevent falls, the test subject stands in the test booth securely fastened into a harness.

"Our facility is more properly called the BNAVE," explains Sparto. "That stands for 'Balance Nave Automatic Virtual Environment.' "

When you're inside the booth, you literally feel like you're standing inside a box. Projected on three walls (left, center, and right) and the floor is an abstract geometric image, similar to a checkerboard pattern. The image takes up all of your horizontal field of view and most of the vertical. Equipped with a headpiece and goggles, you're asked to look straight ahead and stand as steady as you can. The headpiece shows the researchers exactly where on the projected image you are looking. Both the patterns you see and the overall sensation remind one of a box, hence the nickname "Box World."

The image can be adjusted for width, length, brightness, complexity, and speed with which it moves "past" the subject. The speed of movement is a vital component of the experience. As Whitney explains, "Testing by

others to date has shown that motion past the retina is a powerful signal that can induce adaptation of visual responses."

The motion is called "retinal slip." Retinal slip is an error signal that the brain tries to minimize. This can ultimately cause the balance system to improve. How? How much? When? "That's exactly what we're trying to figure out," says Whitney.

In addition, during exposure to changes in the visual environment, the patient can be monitored closely for the entire gamut of physical and psychological responses. The researchers can watch their blood pressure, heart rate, and muscle tension. "You can look into their faces and see how they're responding," Whitney says. "We ask, 'How do you feel?' 'How hard is this for you?' Are you getting sick?' "

Virtual reality is already being used in medical research in some amazing ways. Systems not unlike the BNAVE have been used to help people who suffer from fear of heights or fear of flying. People who have had a stroke, head trauma, or spinal cord injury also have been helped with VR. A research team has worked with Vietnam veterans suffering from Post-Traumatic Stress Disorders, using a "Virtual Vietnam."

"The truly exciting thing from a therapeutic point of view," Whitney goes on to explain, "is that we can make fine adjustments to the program – discrete levels, quantifiable changes – on the spot. Whereas a typical physical therapy process might involve increasing the exercises' complexity in broad steps, we can do it in real time, making everything more difficult in the 'here and now' to see how the patient responds. Because they are safe and secure, we can push the envelope, but do it incrementally. We can manipulate shapes, sizes, colors, and the intensity of the light. We can make the floor move."

What We're Learning

"There are two levels to our initial research here," Sparto explains. "First is what we call the 'basic science.' The second is an effort to address the pre-clinical issues, so we can move to the next dimension – actual rehabilitation."

The "basic science" level consists of efforts to determine how different visual environments influence people's balance. These efforts have already begun, both with healthy subjects and with people who have had surgery on one ear and have found it affected their balance.

The complexity of the process of maintaining balance increases the difficulty of studying why people fall. It is the interaction between three different information generators that tells your brain where you are.

First, your vestibular system lets you know where your body is in space, with shifts in the fluid of your inner ear telling you how gravity is affecting you. Are you leaning or standing straight? Are you spinning or standing still? Next, vision provides further information. Third, sensors in your joints and muscles help you find out the position of your body. Is your arm straight or bent? Are you leaning forward or back?

Says Sparto, "We know that it is possible to improve the balance of people who have had ear injuries or strokes. Although we don't understand how, we know that certain kinds of eye exercises can, in effect,

continued on page 46

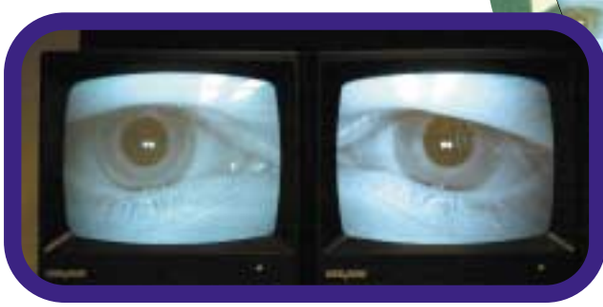
Vestibular Disorders
A Statistical Overview

- **More than one out of five working adults reports dizziness.**
- **One out of every three elderly persons reports dizziness.**
- **Twenty percent of older adults living in the community have dizziness that impairs their daily lives and requires medical attention.**
- **The death rate in the elderly due to falls is 12 times greater than for all other ages combined.**
- **Current trends indicate that hip fractures in the elderly will soon exceed one half million per year.**

Virtual Reality

continued from page 35

"re-calibrate" the ear to decrease dizziness. But it takes weeks or even months. The power of VR-based rehab would be to test many possibilities safely and very quickly. Simply being able to rapidly rule out problems that aren't there could greatly shorten the time between diagnosis and full recovery."

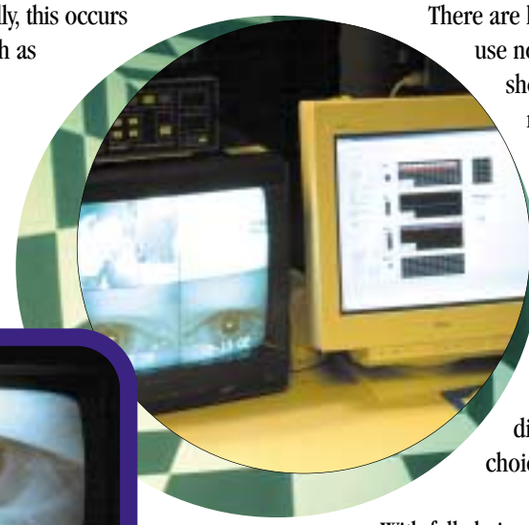


There are a host of issues that must be addressed before any clinical work can begin; such as what types of visual scenes and motions can be tolerated; what types of head and eye movements can be performed accurately while watching the visual environment; what are the best measures of a patient's response; what is the optimal length of time for a treatment session; are there potential side effects of this treatment and if so, what are they; are there age-specific issues; and, what should the therapist be doing in terms of control and interaction during the session.

The Exciting Future

Getting the patient back to work, to gainful employment and a full life, is a very important goal in the treatment of vestibular disorders. It is a vexing irony that the patient who suffers from these disorders may be too ill to perform many of the most basic functions of life, yet he or she "looks fine." Most employers, and even usually sympathetic family members, don't understand the suffering involved. And like many physical dysfunctions, vestibular disorders carry a psychological and emotional price as well. People who are afraid of dizziness and falling may become afraid even to move. They don't know if, or when, they are likely to have a dizzy spell that could lead to a fall. The fear of falling itself becomes incapacitating. The results can be devastating to a happy life. And as always, the elderly are the most susceptible.

Many people with vestibular disorders complain of what has been called "space and motion discomfort." Patients describe this as a feeling that occurs when there is a lot going on around them. Typically, this occurs in environments such as large grocery stores and "big box" retail outlets. The layout of such stores – aisles with boxes stacked on either side – is visually not unlike "Box World."



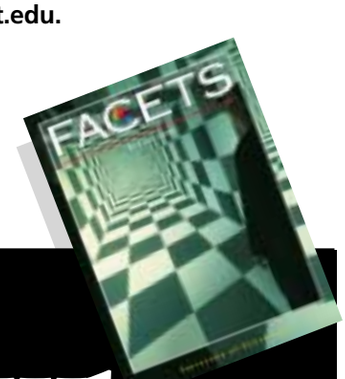
This fact led the University of Pittsburgh researchers to begin the next phase of their efforts: actual rehabilitation in a new VR environment they've dubbed, "Grocery World." In this VR setting, patients will interact with a complex visual environment that looks like a grocery store – even down to the reflection of the overhead lights on the floor. Naturally, the variables of the environment will be much greater than "Box World." In addition to movement through the image, the size and complexity of the scene, even its brightness, will have to be adjustable. It will be necessary to "shift" the scene up, down, left, and right. The height of the focus of vision will have to be variable as well. A wider palette of colors will be required.

"Grocery World" will build on the therapeutic efforts of "Box World," moving the patient from an abstract setting to a very real-looking one. Patients can be instructed to locate a particular box of cereal on a shelf. How long they take, other physical parameters, and the psychological impact will be noted and quantified.

In the future, the information learned from the BNAVE settings may be incorporated in a head-mounted display, which will make its use more available to a wider number of patients. There are head-mounted units in use now, but studies have shown they often cause nausea and other discomforts. By working from the downsized BNAVE booth, researchers will more easily be able to determine which elements of the program can lead to distress, and make choices to minimize them.

With falls being a major health concern, especially for the elderly, studying balance and vestibular disorders is vital. However, the success of some techniques in balance rehabilitation has only more clearly pointed out the very deficits of those techniques, particularly in quantifying the therapy and deciding when to advance a patient's regimen. Virtual Reality has demonstrated it can help people with some other disorders. Now it's time to see how much it can keep people upright – and happy.

For more information, contact Sue Whitney at **whitney@pitt.edu** or Patrick Sparto at **psparto@pitt.edu.**



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Independence

The INDEPENDENCE™ IBOT™ 3000 Mobility System Redefines Accessibility

Accessibility will never be the same for wheelchair users. Not after the INDEPENDENCE™ IBOT™ 3000 Mobility System hits the market.

Territories that were once inaccessible – a sandy beach, a rocky trail, a forest glen – will become part of the landscape. The second floor restaurant taken off the menu because of its steep staircase will become part of the dining scene. Neck-craning conversations with standing colleagues will become eye-to-eye encounters.

The INDEPENDENCE™ IBOT™ 3000 Mobility System represents a leap forward in assistive technology not seen since the electric wheelchair. And for the 1.7 million Americans who use wheelchairs, it clearly has the power to shift paradigms.

The INDEPENDENCE™ IBOT™ 3000 Mobility System is an advanced wheelchair system that provides users with two mobility options – two-wheel or four-wheel drive. But two-wheel drive might not be what you think. With the help of a gyroscope, users can elevate on two wheels and glide around at standing eye level, maintaining perfect balance. Its all-terrain four-wheel drive option allows users to travel over uneven surfaces including sand and gravel. And perhaps most impressive, users can climb curbs and ascend stairs.

The INDEPENDENCE™ IBOT™ 3000 Mobility System is unlike any wheelchair that has come before it. Rather than four wheels, it has six. Four wheels are in the rear of the vehicle and are arranged in a cluster. While they are attached to one hub, each set of wheels operates on an independent axle.

"The cluster configuration is the key to its versatility," says Dr. Rory Cooper, Professor and Chair, Department of Rehabilitation Science and Technology. "I think this one physical feature differentiates the INDEPENDENCE™ IBOT™ 3000 Mobility System from an ordinary electric wheelchair."

To ascend a staircase, the clusters turn in a clockwise fashion, ascending one step at a time. All that is required of its user is a lean to prompt the INDEPENDENCE™ IBOT™ 3000 Mobility System onward and upward. It adjusts to keep its passenger in a horizontal position at all times.

An Evolutionary Design

The development of the INDEPENDENCE™ IBOT™ 3000 Mobility System is as unique as its design.

It is the brainchild of renowned inventor Dean Kamen. His high tech engineering company, DEKA, developed the first prototype in 1994, which was code-named "Fred." ("Ginger" is Kamen's other headline-making invention, the names inspired by the legendary Hollywood dance team of Fred Astaire and Ginger Rogers.)

Day

In 1995, Cooper became involved when DEKA and corporate backer, Johnson & Johnson, were looking for input on the project. "Dean was extremely enthusiastic about the potential of the project," remembers Cooper. "But, I've got to admit, at first I was a little skeptical. When I initially saw the prototype, it could balance and climb stairs. The only problem was that it was in no condition to be used by someone with a disability. It was tethered to a computer and had wires hanging out of its back. My contribution was to help make it functional."

Rory Cooper

Cooper said that one problem was DEKA's relative inexperience with rehabilitation engineering.

"The DEKA engineers knew medical product device development, but had a limited knowledge of people with disabilities," notes Cooper. "At the time, I flew to New Hampshire frequently to explain to them how the seating and controls had to work, what features to incorporate, and how to work out basic transportation issues."

Cooper remembers that period as the most intense of the project. "It felt like a doctoral dissertation defense every time I went up there," Cooper admits. For two years the team worked on the project. Recalls Cooper, "I had written a book in 1995 on rehabilitation engineering, so over a two-year period, we pored through the book, working out algorithms and solving problems with steering."

By 1998, most of the major design issues had been rectified. The team shifted its focus to readying the INDEPENDENCE™ IBOT™ 3000 Mobility System for residential use.

"After three rough years, we moved into the phase of the project where we had to develop a safety and efficacy plan. This involved engineering and reliability testing – basically, examining key elements related to safety and function," explain Cooper. "Then, it was ready for clinical trials. This is where the University of Pittsburgh became more actively involved. Expert wheelchair users began to test it in less structured environments, and then unimpaired users."

After years of work, the IBOT™ is nearly at the finish line. "At this point, the clinical trials are ongoing, and if all goes well, Independence Technology, a Johnson & Johnson company, will be able to submit the data to the FDA in 2002," says Cooper.

The Final Hurdle

Perhaps more challenging than building the IBOT™ will be introducing it successfully into the mainstream.

At an estimated retail cost of $25,000 to $30,000, the IBOT's™ one liability may be its price tag. The unemployment rate for people with disabilities hovers around 80 percent. Most have an annual income of less than $15,000 a year.

However, Cooper believes that Independence Technology and DEKA do not realistically expect people with disabilities to buy an IBOT™ outright. They're banking on insurance companies to pick up a portion of the tab. "I see the IBOT™ pushing the envelope not only for existing technology, but also for existing reimbursement practices," explains Cooper. "With about $150 million already invested in development, it's a calculated risk that Independence Technology is willing to take."

He acknowledges that the change will not come without a fight.

"The payor community has never really recognized the value of assistive technology. They've always under-reimbursed," contends Cooper. "It's been due to societal bias or lack of scientific support, but that's changing. It continues to surprise me how much insurance providers pay for heart surgery and organ transplant and how little they'll pay for assistive technology."

Cooper says that Independence Technology has had extensive meetings with third party payors and recognizes that collaborating with insurance companies will be a key to success. "But," he notes, "the battle will be won by consumer organizations. They're the ones who will ultimately exact change."

Whether the battle is lost or won, the playing field will never be the same. The INDEPENDENCE™ IBOT™ 3000 Mobility System will soon change the way people with disabilities, and the world, view accessibility.

For more information, contact Rory Cooper at **rcooper@pitt.edu**.

The Study of Safety

New Center to Focus on Wheelchair Transportation Safety

Automobile safety belts were mandated in 1964, and in the almost 40 years since then, the federal government and automobile manufacturers have invested countless hours and hundreds of millions of dollars researching and improving passenger restraint systems. However, during the same time, very little has been done to improve passenger safety for people who use a wheelchair as their primary seat during travel in motor vehicles.

According to Dr. Gina Bertocci, Assistant Professor, Department of Rehabilitation Science and Technology, this has had a significant impact on the quality of life of wheelchair users. "The lack of safe and accessible transportation for wheelchair users affects their access to work, education, and recreation in a very real way, " contends Bertocci. "Traveling safely is something that most of us take for granted, but wheelchair users do not have the benefit of these same safety measures. Consequently, they are at a higher risk of injury every time they board a motor vehicle."

A new, five-year $4.5 million grant from the U.S. Department of Education's National Institute for Disability and Rehabilitation Research (NIDRR) will begin to level the playing field. This grant will be used exclusively to study motor vehicle transportation safety for wheelchair users who remain seated in their wheelchair while traveling in a vehicle. Researchers will study transportation in automobiles, vans, minivans, and buses.

The grant will pair researchers from the Department of Rehabilitation Science and Technology with their peers at the University of Michigan's Transportation Research Institute (UMTRI) to establish the new Rehabilitation Engineering Research Center on Wheelchair Transportation Safety (RERCoWTS). Bertocci will serve as the RERCoWTS Director, with Dr. Douglas Hobson (University of Pittsburgh) and Dr. Lawrence Schneider (UMTRI) serving as co-directors. Researchers will utilize cutting-edge computer simulation models and a sled impact crash test facility to study injury risk associated with using a wheelchair as a motor vehicle seat.

The grant is the second of its kind to be awarded to the Department of Rehabilitation Science and Technology. The first grant, also for $4.5 million, is focused on research on improving wheeled mobility and seating.

"Our goal is to improve the level of safety and independence for those using their wheelchair as a motor vehicle seat," says Bertocci. "We plan to address issues related to both wheelchair securement and occupant restraint while in the vehicle."

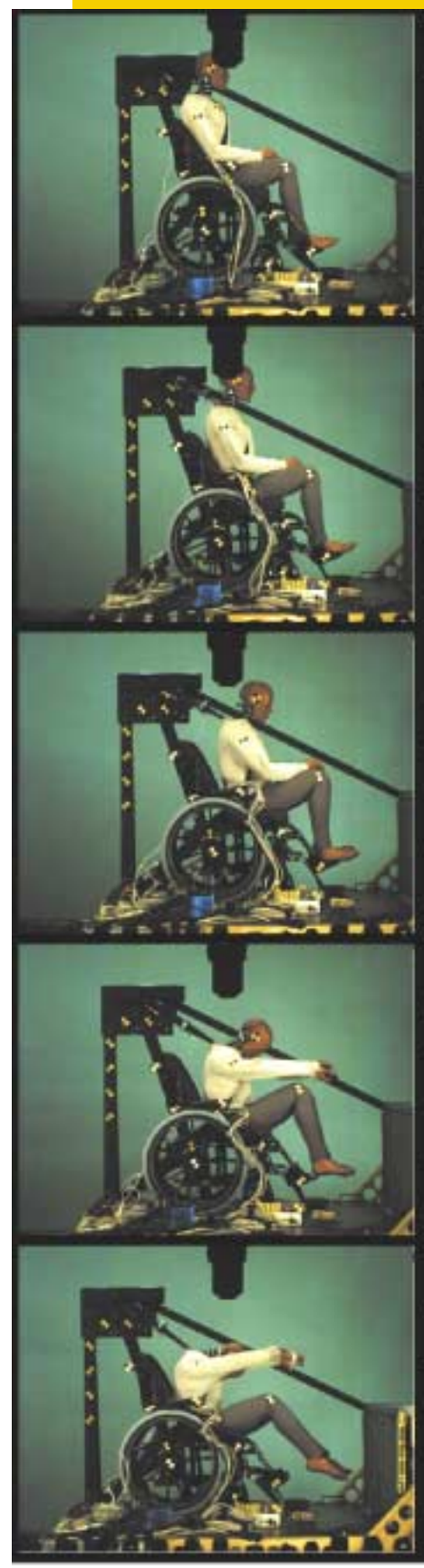
Attacking Apathy

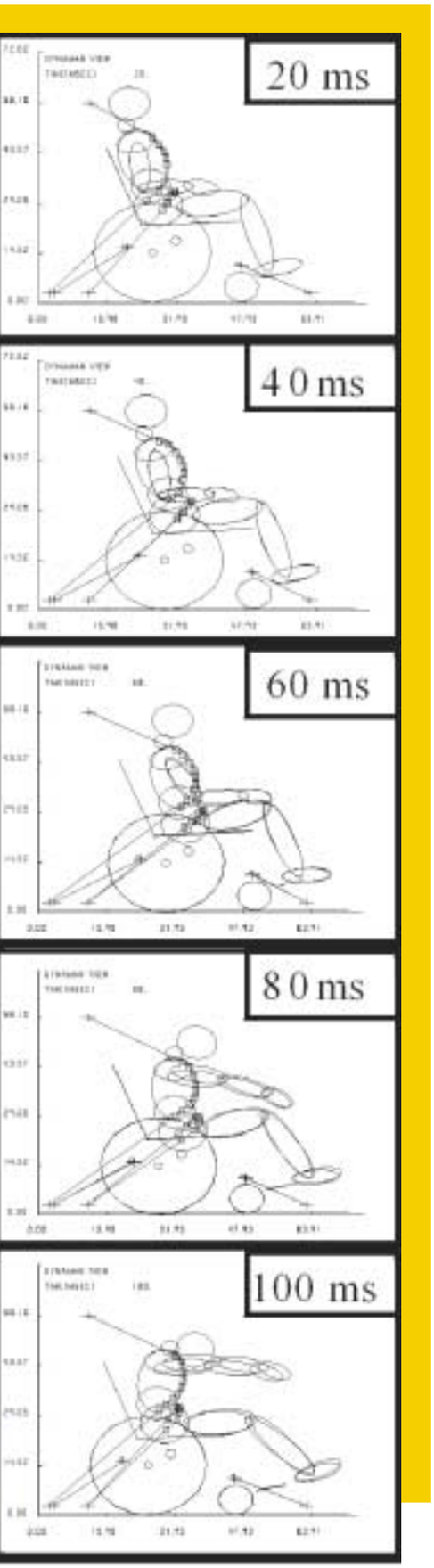
"One of the biggest issues for wheelchair users is their lack of independence in transportation. In order to travel using public transportation, they have to rely on someone else to safely secure them," explains Bertocci. She points to bus travel as an example.

"Bus travel is a problem area when it comes to wheelchair transportation independence and safety," says Bertocci. "Once wheelchair users board the bus, they have to secure their wheelchair and restrain themselves. Most public transportation employs tiedown securement straps, which are safe, but cumbersome. In order to be secured, wheelchair users need the bus driver's assistance. The process takes at least five minutes, leading to bus schedule delays that inconvenience other passengers."

Bertocci says that as a result of the cumbersome process, many wheelchair users simply ignore the securement and restraint systems that are in place. Others simply dismiss public transportation altogether. "The data that we have suggests that around 82 percent of wheelchair users have difficulty using public transportation."

Says Bertocci, "We need to address these problems now. It is unacceptable that people can't be free to go where they choose because the safety mechanisms are too challenging to use. With the help of this grant, we'll be able to begin addressing these problems, opening new doors of opportunity for wheelchair users."





Steps Toward Safety

To learn more about current wheelchair transportation conditions, devices, and standards, the center will conduct 16 inter-related projects over the course of the grant, focusing on six NIDRR priorities.

The first priority is to investigate and report on accidents where wheelchairs were used as motor vehicle seats. "We're planning to conduct in-depth investigations of accidents involving wheelchair users," explains Bertocci. "Without documentation of the number of injuries and the trauma suffered, we really have no way of knowing how severe the problem is or what the most common injuries are. This will really shed light on real-world problems." The center also will conduct a nationwide transportation safety survey as well as investigate the frequency, severity, and nature of bus accidents in this phase of the study.

"The next priority," says Bertocci, "is investigating the effect of side and rear collisions." Included will be kinematics and biomechanics as they relate to wheelchair-seated occupants. "The crash test facility and our computer simulations will help us to study these types of impacts," she explains, noting, "This is one area where our partners at the University of Michigan will be a huge asset to the center."


Gina Bertocci

Next, the center will develop and evaluate universal securement interfaces for wheelchairs and scooters. "Our goal is to develop docking technologies that will allow wheelchair users to safely and independently secure their wheelchairs once inside motor vehicles," she explains. "Docking technologies will potentially replace the more cumbersome tiedown securement systems that are currently in use." Research will be conducted to test docking devices in low and high G-impact environments.

Says Bertocci, "Led by Dr. Hobson, we've already developed a prototype docking device that can be operated independently by wheelchair users. It should make public transportation travel safer and more convenient than ever before."

"Another priority is the testing of wheelchair seating systems," notes Bertocci. "Seating systems are key to protecting the occupant in a crash. We need to determine how crashworthy currently used seats are. We will also develop usage guidelines and design criteria for seats, postural supports, and peripheral devices as part of this study."

The fifth priority for the center is to investigate and develop integrated occupant restraint systems for wheelchair users. "These restraint systems must be independent of the vehicle and easy for wheelchair-seated occupants to operate," explains Bertocci. "Once we've developed guidelines and criteria for the restraints, we will also develop working prototypes to be evaluated by wheelchair users."

"Finally," she says, "we will continue our efforts in the development of national and international performance standards. Drs. Hobson and Schneider have been pioneers in the area of standards development." According to Bertocci, standards are key to bringing research to industry and converting research to useful consumer products. "The development of standards could be one of the most challenging priorities. Obtaining international consensus is painstaking work.

"The standards that exist," says Bertocci, "are focused on two separate areas. One group of standards focuses on securement methods and occupant restraints. These standards have been in place for about five years, and there are wheelchair securement manufacturers who have successfully tested their products to 20-G frontal impact crash conditions. The other group of standards is newer and focuses on wheelchairs that can be used as a motor vehicle seat. There has been encouraging progress in this area. There are actually wheelchairs on the market designed with motor vehicle travel in mind."

While the scale of the study is vast, the center will collaborate with a number of transportation agencies and school districts from across the country, including: the Port Authority of Allegheny County, Pennsylvania; Alameda-Contra Costa Transit District of Oakland, California; Hampton Roads Transit in Virginia; the Iowa State Department of Education; the Chicago Public Schools; and the Washentaw Intermediate School District in Ann Arbor, Michigan.

"Wheelchair users have yet to be adequately integrated into society, and have not been adequately accommodated in transportation systems," says Bertocci. "Safe and independent transportation is key to achieving one's potential, and hopefully this grant will provide a foundation to empower wheelchair users. I believe that attaining safe and independent transportation will bring wheelchair users one step closer to equality in society."

For more information, contact Gina Bertocci at **ginaber@pitt.edu.**

All In Good Taste

Having a Healthy Diet and Eating It, Too.

Let's face it. We no longer live in a "from scratch" world. For many families, homemade cookies come in slice-and-bake rolls, gravy from a jar, and fresh-baked bread from the grocer's freezer. Convenience products allow working families to enjoy home cooking in short order – and that's only when dinner doesn't come out of the microwave or arrive at the front door in a paper bag.

On the other hand, traditional foods remain an important part of life, especially on holidays and special occasions. Family recipes are still handed down, and ethnic dishes are a vital link to the past. Some can't start a new year without pork and sauerkraut. Others wouldn't dream of a birthday dinner without dad's favorite beef stew.

Judy Dodd

With some taking the low road and others the high road to gastronomic fulfillment, what a challenge it would be to create a universal roadmap for healthy eating. It's a challenge that Judy Dodd, Adjunct Assistant Professor, and Diane Helsel, Instructor, Sports Medicine and Nutrition, are about to undertake. Luckily, they have one of the American Heart Association's (AHA) original consumer education programs as their stepping-off point.

The AHA created "Culinary Hearts Kitchen" some 30 years ago. University of Pittsburgh professor Barbara Deskins was an advisor and contributor to the program, and she continued to make revisions to its curriculum until her death in the mid-1980s. The program has been dormant since then.

"Culinary Hearts is not something we can take out, dust off, and trot out to the community," says Dodd. "Even though the basic nutrition guidelines haven't changed in decades, the food supply has. So has the consumer."

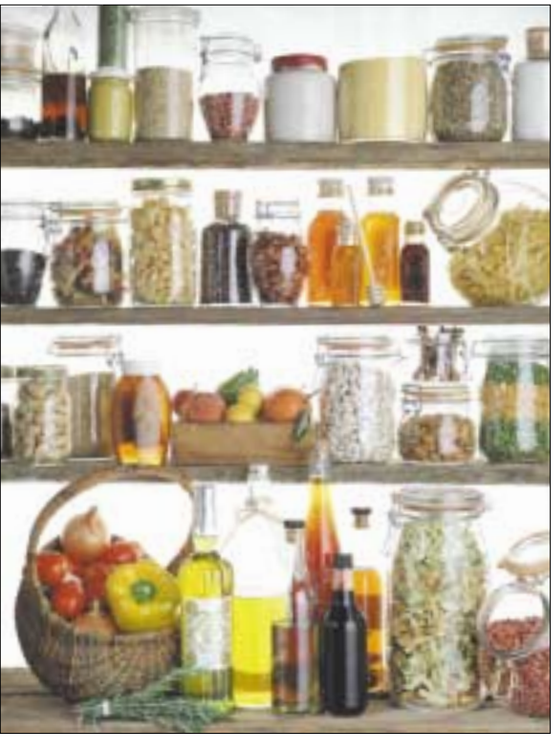
Sweetbreads or Sweet Bread?

In order to be a practical tool for today's cook, Culinary Hearts Kitchen needs what Dodd calls a "major make-over." It has to integrate microwave, crock-pot, and steamer cooking techniques plus a host of new and healthier products that hit the market in the last 20 years – like spray oils, fat-free dairy products, and low-sodium broths. Most important, it needs to be realistic, accessible, convenient, affordable, and culturally sensitive. "It's a matter of making the science-based, tried and true nutrition guidelines fit with 21st century food and lifestyle habits," says Dodd.

Diane Helsel

For example, old "heart healthy" guidelines contain advice like "avoid sweetbreads." This delicacy is actually the cow's thymus gland, but to anyone under 40, it's commonly mistaken for a favorite bakery item. Another classic example of the changing vernacular of the kitchen – for many young people, gravy is a condiment that comes out of a jar. Making it from scratch might involve a packet of powder mixed with water or broth. "For most students in my introductory Food Science classes, cornstarch is a new and mysterious substance," says Helsel. "And these are students planning for a career in food and nutrition."

Even the term "heart healthy" is outdated. "We're going to present a holistic approach to healthy eating – for the heart, for stroke and cancer prevention, for diabetes management, for weight control, and for general good health," says Dodd.



Taking it to the Streets

Like any nutrition program based on AHA guidelines, the new project is about teaching people to reduce the total fat and sodium in their diet and to increase foods that are higher in fiber, like whole grains, fruits and vegetables. "But," says Dodd, "we envision rolling this program out in three phases, each of which extends us a bit further into the community and into contemporary lifestyles than any existing program I know of."

The first phase will be to recreate the consumer component, including a "teaser" or stand-alone presentation with a small food demo, then a series of community education modules that will talk about the basics of healthy eating, explain how to read today's food labels, and demonstrate how to use this information to make informed choices about ingredients and portions. Each module will include a cooking component that illustrates how almost any recipe can be altered so that it's healthier but still a crowd-pleaser.

The second phase will be focused on training the trainer. "We expect that at first, dietitians and other allied health professionals will use this tool to help people learn about healthy eating. But ultimately, anyone who knows something about nutrition and the kitchen could be trained to share this information," says Dodd. "We are designing a community-friendly program for community leaders who want to work with their own civic groups, volunteer organizations, senior communities, or PTAs – virtually any group of adults will find it relevant and useful."

To complete the program, Dodd and Helsel want to create a brand new set of guidelines for helping people make healthy food decisions in the real world. "How nice it would be to go to a covered dish supper, a church picnic, or a street fair and find foods that fit a healthy lifestyle," says Helsel. "At home, we can show people how to take a traditional holiday meal like pork and sauerkraut, reduce the fat and sodium, and keep it tasting a lot like grandma used to make."

"It's a matter of making the science-based, tried and true nutrition guidelines fit with 21st century food and lifestyle habits."

Dodd offers one word of caution that will be included in the new guidelines. "You can't hide replacement ingredients from your unsuspecting friends and family. Brownies made with prunes – a popular recipe among the nutritionally enlightened – might set off a gastrointestinal problem. And there are serious milk and legume allergies that might be triggered by a dish that substitutes yogurt for oil or soy (a legume) for milk."

Although the AHA will provide funding for the training component, the consumer education materials will be locally focused and funded. "This will really be an all new program – we don't even have a name for it yet," notes Helsel. "But we envision this as a pilot program with practical applications anywhere and everywhere."

From One Generation to the Next

Helsel, Dodd, and their undergraduate nutrition students will begin testing the program later this spring with a senior citizen group. "They give us a unique opportunity to reach a highly motivated senior adult population who may, in turn, influence the lifetime eating habits of their grandchildren," says Dodd.

"There is an important multi-generational component," adds Helsel. "If we can help today's parents learn to use what they've got and still eat healthy, then perhaps we've put the next generation on the right track."

"This simply won't work if we go out there and tell people they can't eat what they know and love," says Dodd. She insists that for most people, there is room in a healthy diet for all foods, "even pepperoni pizza . . . I just want to see people choosing the right kind of pepperoni, eating one slice, and supplementing the meal with better choices!"

For more information, contact Judy Dodd at **jdodd@pitt.edu** or Diane Helsel at **dih1@pitt.edu.**

Game Time

Sports Medicine Graduate Students Go Public

John Abt, a first-year doctoral student, treats a Carrick High School athlete.

It's not often that high schools and university graduate programs collaborate. But judging from the success of the partnership between the graduate program in Sports Medicine and the Pittsburgh Public Schools, it could become a trend.

Since 1990, the entities have partnered in an unprecedented program that matches graduate students from the Sports Medicine master's degree program with high schools in the city of Pittsburgh.

"We're all very proud of the success of the program," says Dr. Scott Lephart, Associate Professor and Chair, Sports Medicine and Nutrition. "This is clearly the only one of its kind in the state of Pennsylvania. And when it comes to comprehensive athletic training services for an entire city school district, it's the only one in the country."

Each year, seven graduate students are awarded scholarships to serve as certified athletic trainers for the 10 high schools in the district. Five of the graduate assistants report directly to two schools each, while the remaining two coordinate activities and perform administrative duties at the UPMC Center for Sports Medicine.

Scott Lephart

Top-notch Training

The program is unique, but not for its collaborative spirit alone. Its graduate students are the true standouts.

"What makes this program one-of-a-kind are the students," explains Lephart. "Our master's degree program can only be entered after students have done two things: completed an undergraduate program in Athletic Training and received certification as an athletic trainer. These criteria make them ideally suited to be athletic trainers in the schools."

John Abt, a first-year doctoral student, is one of those athletic trainers. Abt started in the program in 1999 and was assigned to work with Carrick and Brashear High Schools. So strong was his connection to the players, coaches, and administration that Abt remained after completing his master's degree in 2001.

"I've enjoyed the experience immensely," says Abt. "It's far different than any college setting. You really have to work towards nurturing good relationships with the coaches and student athletes. And because the students are minors, you even have to get to know their parents. It's helped my people skills as well as my clinical skills."

Kevin Conley

Pat Schlenner, Girls Athletic Director, Carrick High School, cannot praise Abt's professionalism and expertise enough. "John's just been tremendous. The time he spends with our athletes building relationships is amazing. He's really gone above and beyond the call of duty."

Graduate assistants are required to split time between the two high schools to which they are assigned. They also attend class. "These athletic trainers are students first," says Schlenner. "They split time between two schools and still remain extremely conscientious. It's certainly not an easy schedule, but John handles it brilliantly."

Schlenner points out that when Carrick High School was in the process of creating an athletic training room to house Abt and his successors, the graduate assistant took the initiative. "John asked to be involved. He offered his insight into how it should be set up and how it should be run. I was really impressed with his level of commitment."

Manning the Sidelines

Vernon Phillips, Acting Director, Interscholastic Athletics, Pittsburgh Public Schools, says that the graduate students are fixtures on the sidelines of sporting events around the city. "They've really been dedicated to the program and its students. They're at football games on

continued on next page

Game Time

continued from page 43

the Southside, basketball games, wrestling matches – you name it. They have been a welcome addition to the city's athletic program. I feel they've helped raise the bar in a way that would have been difficult for us to do alone."

Kevin Conley, Program Director and Instructor in the Athletic Training Education program, points out that the students also make good financial sense. "Without our graduate students, these schools would have to add athletic trainers to their full-time staff, which would be cost prohibitive. This would add somewhere in the neighborhood of $30,000 to $40,000 per school – figures too high to fit in their athletic budgets."

Lephart agrees. "The relationship works because the university establishes contracts with the city schools and our students work through the medical center to provide all of the services. Essentially, it doesn't cost the city schools anything to participate."

The graduate assistants also benefit. "The beauty of it for the students is that it provides them with the chance to use the credentials that they've earned out in the community while getting their graduate education paid for," explains Conley. Participants receive tuition reimbursement and a stipend. "The value, between what they get paid and their tuition stipend, is tremendous," adds Lephart.

"The situation is a win-win for all of the parties involved," he continues. "Our graduate students are financially supported and gain invaluable work experience. The schools get quality healthcare at a premium cost. And student athletes have peace of mind and access to doctors if they don't have health insurance."

The Real Winners

While all involved clearly benefit from the collaboration, the biggest winners are the student athletes.

Says Conley, "Pittsburgh's public schools are composed of a group of student athletes widely underrepresented when it comes to healthcare services. Many of these kids don't have family physicians. And unfortunately, in a lot of cases, they don't even have insurance."

On top of the quality athletic training, the program offers access to physicians at the state-of-the-art UPMC Center for Sports Medicine.

"During my time in the program, I've treated 15 or 20 injuries that have required serious medical attention and hundreds more that were minor injuries," recalls Abt. "In several cases, the students needed to go to the center and I never had any problems."

Explains Conley, "Our doctors provide a Saturday clinic that athletes can attend free of charge. If an examination suggests any serious injury has occurred, the graduate assistant goes with the athlete to the center."

"Another nice aspect of the program," adds Conley, "is that it provides referrals for students to see UPMC doctors if their injuries require examination by an orthopaedic surgeon or primary care physician."

Vernon Phillips says the visits are covered by a special insurance policy paid for by the city athletic department to cover any visits that the athletes need.

"After all, the student athletes are the core of this program. And it is our aim that their health and well-being always remain the utmost priority."

For more information, contact Scott Lephart at **lephart@pitt.edu** or Kevin Conley at **kconley@pitt.edu**.