FACETS

School of Health and Rehabilitation Sciences

Spring / Summer 2002

University of Pittsburgh

FACETS

School of Health and Rehabilitation Sciences — Spring/Summer 2002 — Contents

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About the covers:

Front: The wheelchair-mounted Raptor arm allows users to reach out, grab, and maneuver a variety of objects. Story on page 42.

Back: Reconstruction aides – predecessors of today's occupational therapists and physical therapists – helped rehabilitate WWI vets using devices like a bicycle jigsaw to increase strength and endurance. Photo courtesy of the Archives of the American Occupational Therapy Association, Inc.

CLIFF'S NOTES
THE CLASS OF 2002

I would like to tell you about the Class of 2002. Like their predecessors, they are bright, enthusiastic, eager, and exceedingly well-prepared as health and rehabilitation professionals.

I trust that I need not belabor the fact that the delivery of care and services in the health and rehabilitation professions has become increasingly complex and more demanding. All who are engaged in these noble pursuits have seen an evolution of responsibility and accountability with increased expectations. I shall also note, however, that this persistent evolutionary trend has resulted in an increasingly stimulating intellectual environment. The continuation of these trends seems certain.

I am pleased to tell you that the graduates of the class of 2002 are the most well-trained and prepared class ever. It is good that they are! If they are to compete successfully in today's market and in our contemporary world, they must know more and be more skilled than their predecessors at the same stage of their careers. This continuing need for a higher state of readiness presents a challenge to each succeeding generation of graduates in the health and rehabilitation professions. It poses an equal responsibility and challenge to our faculty to keep us ahead of these expanding demands through innovation in method, advances in knowledge, and with intensity and passion of effort. It is interesting and instructive to also view this phenomenon from the perspective of alumni. We all must continue to grow and evolve professionally.

Each year I conclude the SHRS Recognition Ceremony with a charge to graduates to go forth and perform in a manner that will enhance their respective professions and elevate the esteem of our school and the University of Pittsburgh. Our collective reputations rest upon three distinct pillars. One of these is the highly visible performances and accomplishments of our scholarly community that serve to advance the state of knowledge in our respective professions. A second essential area of endeavor is the translation and incorporation of knowledge to elevate education and practices. I take considerable delight in assuring you that we are appropriately and substantially engaged in our several areas of responsibility. The third and perhaps the most enduring pillar that sustains and elevates the reputation of our school is the continued, stellar professional performance of our graduates. There are over 5,700 SHRS alumni. Each has blazed some part of the trail for those who have followed.

There is a clear and necessary synergism between our current students and the alumni of SHRS. With the increasing sophistication and readiness of each succeeding class of graduates in the health and rehabilitation sciences and professions, the degrees and professional credentials of all who preceded them are also enhanced. Conversely, the accomplishments of our many alumni who have so clearly distinguished themselves professionally over such a long period predisposes a very competitive marketplace to clearly favor our new graduates.

I also would like to speak briefly of one other important segment of our community. As Dean, I have the privilege of representing our school in many gratifying circumstances, some of which I have shared with you on previous occasions. I can think of no more pleasant and satisfying event than the discussions I have each year with parents and family members of our graduates. This has always seemed the most logical and natural conclusion for our annual Recognition Day ceremony. It is appropriate to remember this group in any discussion of our students and alumni. They, too, are an essential part of our academic community.

I shall ask each of you to convey my best wishes and appreciation to your family and friends who supported you in your education here at Pitt.

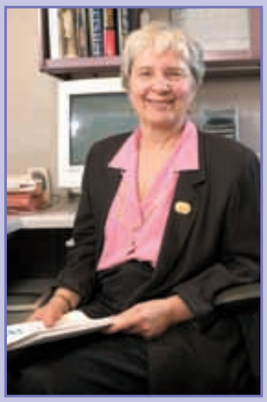
With kindest regards,

Clifford E. Brubaker

ACCESS

Dr. Kate Seelman

In the past two issues of FACETS, I've focused my attention on health care policy as it relates to the field of rehabilitation. Starting this issue, ACCESS will take a closer look at the trends and policy-related issues that impact the education of rehabilitation professionals. To kick off the series, I've invited Dr. Anthony Delitto, Associate Professor and Chair, Department of Physical Therapy, to discuss the impact that recent changes in Medicare reimbursement are having on the training of physical therapists.



Kate Seelman

For as long as most of us can remember, the capstone of physical therapy education was the clinical experience. It was here that you got your hands dirty. You put the classroom experience to work, learning firsthand what it meant to be a physical therapist. You collected patient histories, reviewed the findings with your supervisor, discussed alternative treatments, settled on a protocol, implemented, adjusted, and implemented again. While supervisors may have been out of sight at times, they were never out of mind. They were always available for advice, counsel, and much appreciated professional second-guessing. It was a system that worked.

The students were exposed to patients across a broad spectrum of ages and disabilities, and patients received the undivided attention of a soon-to-be licensed student practitioner as well as the oversight of seasoned physical therapists. The physical therapy education system here in the United States was the envy of the world. Our classrooms were filled with students from around the globe.

Then, about three years ago, a crisis swept the health care industry. Accusations of Medicare fraud were leveled against hospitals and health care providers nationwide. The most blatant faced criminal charges. Other cases were settled quietly, with providers in some cases repaying millions of dollars in Medicare-reimbursed funds. Congress called for sweeping changes in the reimbursement process – changes that fundamentally altered how health care was delivered. Physical therapy education was caught up in the undertow.

The Health Care Financing Administration (HCFA), now known as the Centers for Medicare and Medicaid Services, mandated that all Medicare reimbursed medical care – both inpatient (Part A) and outpatient (Part B) – had to be delivered by a licensed health care professional. Reimbursable care could no longer be provided by students, with indirect oversight by a licensed professional. The law required one-on-one, line-of-sight supervision.

The mandate had little effect on medical school training. Medical residents are licensed. And aides and assistants were allowed to provide reimbursed care in an inpatient setting. But it was not until recently, when the regulations were relaxed, that the minutes of care provided by students in an inpatient setting were classified as reimbursable.

There has been no such shift for Medicare Part B. While some experts agree that the new regulations could be open to interpretation, providers, petrified at the prospect of an allegation of fraud, are unwilling to bend the line-of-sight rule.

Where clinical placements once viewed student internships as mutually beneficial arrangements with schools of physical therapy, today there is little incentive for clinics to take on the burden of an unlicensed student beyond professional courtesy. And students, who relied on rich and varied clinical experiences to enhance their didactic education, are left with fewer clinical education opportunities.

Anthony Delitto

The elderly and some people with disabilities – populations that receive services funded by Medicare Part B – are also victims of the change. Not only do they have a diminished pool of capable service providers; in the future, physical therapists will not have had the same depth of experience providing treatment to these populations.

This is not to say that the quality of education has been compromised. Clinical experiences are still available in inpatient settings. Private payors have yet to adopt the line-of-sight supervision Part B guidelines. Students are still providing services to a wide range of patients under the guidance of licensed professionals. But the implications are clear, not just for physical therapy, but also for speech-language pathology and occupational therapy. If the United States is to retain its competitive edge in the education of rehabilitation professionals, we must either innovate or adapt. We must either find new ways to offer our students clinical experiences with the full range of patient populations, or we must adapt our system to mirror the medical education model.

We'd like to hear your reaction to this column. E-mail your comments to Karen Khan at **ktkhan@shrs.pitt.edu**. They will be printed as space allows.

Health Care Heroes

Dr. Clifford Brubaker, Dean, School of Health and Rehabilitation Sciences, and Dr. Michael Boninger, Medical and Executive Director, Center for Assistive Technology, have been named 2002 Health Care Heroes by the *Pittsburgh Business Times*.

Brubaker was honored with the prestigious Lifetime Achievement Award. He was recognized for his three decades of work creating and refining a multidisciplinary educational and research model to address the full spectrum of rehabilitation. His work is now setting the standard for rehabilitation training programs around the globe.

Boninger won the Health Care Innovation and Research Award. Under Boninger's direction, the Center for Assistive Technology has become the world's premier clinic providing technology for people with disabilities.

This is the sixth year that the *Pittsburgh Business Times* has sponsored the awards competition. Finalists were selected by an independent panel of health care professionals.

Dr. C. Scott Harrison (MED '63), left, shown with Dean Cliff Brubaker. Founder of CURE International, a non-profit organization dedicated to helping children with disabilities in developing countries, Harrison returned to campus to receive the 2002 Legacy Laureate award, an honor given to distinguished alumni of the university.

FACETS

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University of Pittsburgh

What's New?

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.

Karen Khan

It was 1920 when Angela and Pietro Cricco left their small town about 60 miles north of Rome for a new life in America. Pietro's older brother, who lived in Pittsburgh, thought the change in climate would improve his brother's health. But after only three years in the United States, Pietro died, just two weeks before his daughter, Pearl, was born.

Angela married another immigrant from their hometown, Pietro Bellacima, a stone cutter who later became a cement worker, and finally, an employee of the City of Pittsburgh.

Angela insisted that Pearl be allowed to fulfill her dream and go to college, not an easy task during the last years of the Depression. Money was tight, and her family scrimped and saved to finance her education. They grew and canned their own fruit and vegetables – especially cherries. "Lots of cherries," she remembers. By making every penny count, Pearl was able to graduate from Citizen General Hospital's School of Nursing as a Registered Nurse.

While at the hospital, Pearl befriended a secretary who had had polio and had been a patient at the D.T. Watson Home for Crippled Children. Hearing her story inspired Pearl, and in 1942, she applied to the D.T. Watson program in physical therapy. Pearl's stepfather gave her cash to pay her tuition. Knowing that the money could not be replaced if she lost it, thus ending her education at Watson, a terrified Pearl clutched her purse to her chest on the long bus ride from her parents' home to school at the beginning of each term.

Mrs. Pearl Cricco Mann had a long and satisfying career as a physical therapist. She retired in 1975.

I had the pleasure of meeting Mrs. Mann on a recent trip to Florida, and was touched as she recounted her Watson days and the difficulties her family endured so she could follow her dreams. "You know," she said, "to this day, I can't stand cherries."

As a thank you for the sacrifice others made on her behalf, Mrs. Mann endowed a scholarship in physical therapy that bears her name. The fruits of her labor are now helping to ease the financial burden on the family of one of our students.

If you would like more information on how you can create an endowed scholarship, please call me at 412-383-6548 or e-mail me at **ktkhan@shrs.pitt.edu**

Karen Khan
Director of Development

Stephen David Algood
Rory A. Cooper and Dion Johnson Student Paper Award, recognizes a student from Rehabilitation Science and Technology who has written an outstanding research paper.

Stephen David Algood and Alicia Koontz
Winners of the 2001 RESNA-Whitaker Foundation Student Scientific Paper competition.

Crystal Anderson and Wendy Kulp
Anne Pascasio Scholarship Fund, to entry-level SHRS students for outstanding academic achievement.

REWARDS

Leanne Borrelli
Pennsylvania Health Information Management Association Scholarship, for outstanding academic performance.

Kathryn Butcher, Crystal Crosby, Cara Golish, Keri Hawranko, Mindee Heidrich, Amanda Kane, and **Jessica Lipsett**
Pi Theta Epsilon, for superior scholarship among students enrolled in professional entry-level programs at accredited occupational therapy programs.

Stacey Doleno
Patricia Leahy Memorial Scholarship, to an entry-level Physical Therapy student in the final year of study with outstanding academic achievement.

Karen Frost
National Arthritis Foundation, Doctoral Dissertation Award for Health Professionals.

Meaghan Huffield
Lisa Levy Memorial Award, for outstanding achievement by a graduate student in Communication Science and Disorders.

Irah King
D.T. Watson Alumni Scholarship, to an entry-level Physical Therapy student in the final year of study with academic merit.

Kristie Kovacyk
American Speech-Language-Hearing Foundation Mentoring in Higher Education Award, for outstanding research achievement.

Anne Marie Lambros and **Valerie Lindsay**
Dorothy Bradley Brown Endowed Scholarship Fund, for outstanding final-year Physical Therapy students.

Valerie Lindsay
Pearl Mann Scholarship Fund in Physical Therapy, to an entry-level Physical Therapy student in the final year of study with outstanding academic achievement.

Sonya Maskrey
The Herbert G. Feldman Charitable Foundation Scholarship, awarded to a Physical Therapy student in junior or senior year.

Melissa Nascone Ruscetta
Pennsylvania Lions Hearing Research Foundation, Inc. Award, for hearing research.

Jennifer Stivers
Western Pennsylvania Health Information Management Association Student Project Award, for outstanding achievement on written project entitled, "Jehovah's Witnesses and Blood Transfusions."

CLASS ACTS

Doug Carpenter, Yan-Ying Ju, Jennifer Stumpf, and **Heather Worthy** were awarded the Freddie H. Fu Scholarship in Athletic Training.

Tepanta Fossett, doctoral candidate, Department of Communication Science and Disorders, has been named an Outstanding Student by the Southwestern Pennsylvania Speech – Language – Hearing Association.

Julia Harhai, Department of Communication Science and Disorders, has been chosen by the National Student Speech Language Hearing Association (NSSLHA) to receive Member Honors for outstanding leadership and achievement.

Occupational therapy doctoral students, **Denise Chisholm**, **Tamara Mills**, and **Elizabeth Skidmore** and master's students **Erica Kopcha** and **Amy Kurowski** were awarded the Jewish Healthcare Foundation/ Coro Center Fellowship for Civic Leadership Pittsburgh Health Sciences Fellowship.

Students in the Department of Rehabilitation Science and Technology took five of six top honors in the 2002 RESNA-Whitaker Foundation Student Scientific Papers competition.

The winners were **Andrew Kwarciak,** "Effectiveness of Rear Suspension in Reducing Shock Exposure to Manual Wheelchair Users During Curb Descents;" **Sean Reeves,** "Determining the Effectiveness of the Gamecycle as an Exercise Device;" **Fabrisia Ambrosio,** "Wheelchair Propulsion Biomechanics in Patients with Multiple Sclerosis;" **Yusheng Yang,** "Trunk Movement Adaptations During Wheelchair Propulsions at Two Speeds and Load Conditions;" and **Michael Dvorznak**, "Comparison of Hybrid III ATD and Wheelchair User at Select Speeds." Each student received a $1,000 cash prize, which was presented at the 25th Annual RESNA Conference in Minneapolis, MN. Since 1994, SHRS students have won more of these awards than students from any other university.

New Graduate Program

Rehabilitation Counseling

As with many health-related professions, the demand for highly qualified rehabilitation counselors is growing. Currently, there are roughly 13,500 certified rehabilitation counselors trained to meet the vocational, psychosocial, and independent living needs of the estimated 49 million people with disabilities nationwide. The problem is compounded by recent amendments to the Rehabilitation Act of 1973 that mandates that all services for people with disabilities be provided by qualified rehabilitation professionals, which in the case of the rehabilitation counselor, is one who has attained a graduate degree. The current rehabilitation counseling workforce is largely comprised of professionals who entered the field prior to the more stringent requirements being enacted.


Michael McCue

But according to Dr. Michael McCue, Associate Professor, Department of Rehabilitation Science and Technology, the new graduate program in Rehabilitation Counseling promises to fill the void. "Students pursuing the rehabilitation counseling track have scores of employment opportunities within the rehab field," he explains.

The program allows students to meet eligibility criteria for national certification in rehabilitation counseling (Certified Rehabilitation Counselor) as well as state licensure requirements for Licensed Professional Counseling.

McCue says that the demand for certified rehabilitation counselors who have earned federally mandated master's degrees couldn't be stronger. "In the Pennsylvania public program alone, there are roughly 450 rehab counselors. Well under half of these professionals have achieved the federally mandated education requirements. A percentage of these professionals will return to school to earn a degree, but many won't. This leaves the potential for hundreds of job openings."

But employment opportunities don't stop there. Settings range from community-based rehab clinics to worker's compensation and insurance agencies, from transition responsibilities in secondary schools to support roles in independent living facilities. Reiterates McCue, "Whether it's the public or the private sector, the opportunities for certified rehabilitation counselors are abundant."

Broad Range of Expertise

Rehabilitation counseling may sound like a recently conceived field. However, rehabilitation counseling has been around for over 80 years, as long as the first publicly funded rehabilitation programs in the country.

Notes McCue, "Rehabilitation counselor roles and responsibilities differ from other helping professions like social workers and occupational therapists. Their competencies include the medical and psychological aspects of disability, clinical assessment and interventions skills, assistive technology, and applying such competencies to the work, school, and independent living environments. Rehabilitation counselors use their broad-based training to improve their clients' lives in a practical way. It is a more holistic profession than many people think."

Rehabilitation counselors work collaboratively with individuals with disabilities to understand their existing problems and barriers, then help facilitate the effective use of personal, clinical, and environmental resources for assimilation into a social setting, a community, or a career.

"Specifically," says McCue, "Rehabilitation counselors must be able to assess the impact of a disability on a client's life. Together with the client, the counselor helps to set goals – goals that very often touch every aspect of the client's life. Finally, the rehabilitation counselor must coordinate the array of services needed to enable the client to reach their goals while improving their quality of life."

The Holistic Approach

The program's coursework offers a comprehensive, well-rounded educational experience. Students have a heavy clinical course load – 21 credits. Says McCue, "This includes courses in counseling, clinical assessment, and in the medical and psychosocial aspects of disability."

Adds McCue, "Additionally, students take nine to 12 credits in assistive technology. This aspect of the program really sets it in a league of its own. Our department has such a unique expertise in this area that it offers our students a leg up on the competition."

The curriculum also includes courses on rehabilitation research, history and foundations of rehabilitation counseling, case management, vocational and career development, work adjustment and job placement, rehabilitation science, and disability studies.

In addition to the necessary coursework, students must have two practicum experiences, including one in job placement. Students do not graduate until they have had first-hand experience in assisting persons with disabilities land a job. The second practicum is in assistive technology, assuring that graduates of the program have worked in a setting where assistive technology is the principal focus of service delivery. Notes McCue, "We want students leaving with a vast knowledge about the practice of rehabilitation counseling, as well as the experience of putting that knowledge to use."

Students also must complete a 500-hour internship in rehabilitation counseling. "We have a number of rehabilitation agencies and facilities that are eager to participate with the program's students," says McCue. "Many of the internship opportunities, such as those with the public rehabilitation program (Pennsylvania's Office of Vocational Rehabilitation), can lead to future employment."

Graduates of the two-year program must complete at least 60 credit hours and are awarded a Master of Science Degree in Health and Rehabilitation Science with a concentration in Rehabilitation Counseling.

For more information on the Rehabilitation Counseling program, contact Michael McCue at mmccue@pitt.edu

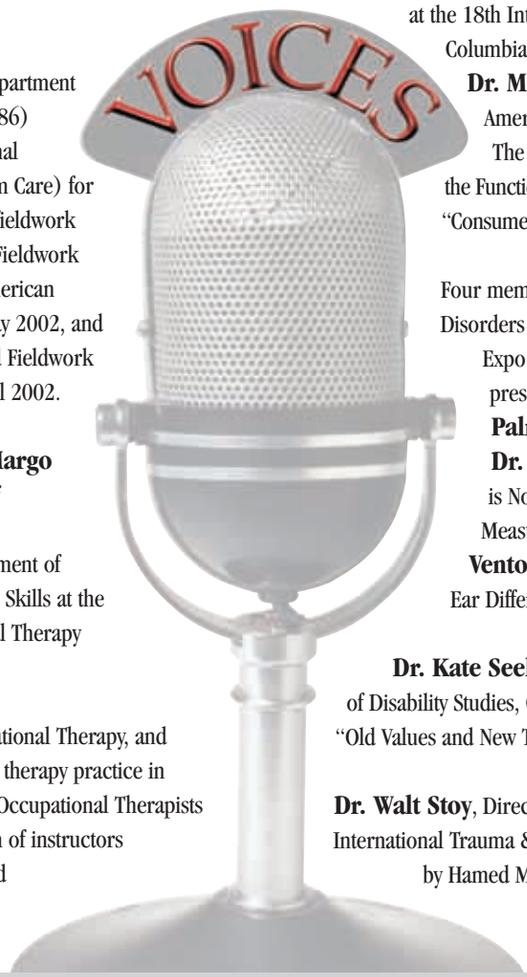
Faculty News

Dr. Nancy Baker, Assistant Professor, Department of Occupational Therapy, presented a workshop entitled "Using the Evidence to Guide Occupational Therapy Interventions" at the 2002 Annual Conference of the American Occupational Therapy Association, Miami Beach, FL.

Dr. Carmela M. Battaglia, Assistant Professor, Department of Occupational Therapy, and **Colleen White**, (MS '86) Clinical Instructor (Occupational Therapy) and Regional Director of Contract Services (Hospitals and Long Term Care) for the Centers for Rehab Services, presented a paper on fieldwork education entitled "Meeting the Educational Needs of Fieldwork Supervisors" at the 2002 Annual Conference of the American Occupational Therapy Association in Miami Beach, May 2002, and for the 5th Annual Seminar for Clinical Instructors and Fieldwork Supervisors, Mount Aloysius College, Cresson, PA, April 2002.

Denise Chisholm, Assistant Professor, and **Drs. Margo Holm** and **Joan Rogers**, Professors, Department of Occupational Therapy, presented a paper on disability assessment in older adults based on the Global Assessment of Function and the Performance Assessment of Self-Care Skills at the 2002 Annual Conference of the American Occupational Therapy Association, Miami Beach, FL.

Dr. Margo Holm, Professor, Department of Occupational Therapy, and colleagues presented a paper comparing occupational therapy practice in World Federation countries, at the World Congress of Occupational Therapists in Stockholm, Sweden, April 2002. She also led a team of instructors comprised of research associates, **Tamara Mills** and **Elizabeth Skidmore,** and alumna **Linda Coniglio** (MS, 2001) in workshop presentations on evidenced-based practice at Howard University (November 2001) and the University of New Mexico (March 2002).



Tamara Mills, research associate, Department of Occupational Therapy, presented a paper in collaboration with SHRS colleagues **Dr. Margo Holm, Mark Schmeler, Elaine Trefler, Dr. Shirley Fitzgerald, Dr. Michael Boninger, Dr. Mary Ellen Buning,** and **Nigel Shapcott** at the 18th International Seating Symposium in Vancouver, British Columbia. She also made two presentations, in collaboration with **Dr. Margo Holm**, at the 2002 Annual Conference of the American Occupational Therapy Association, Miami Beach. The topics were "Reliability Testing and Cross-Validation of the Functional Evaluation in a Wheelchair (FEW) Instrument" and "Consumer Response to Universal Design in Housing."

Four members of the Department of Communication Science and Disorders presented papers at the 14th Annual Convention and Expo of the American Academy of Audiology in April. Making presentations were **Elaine Mormer** and **Dr. Catherine Palmer**, "Reliability of Hearing Aid Expectation Responses;" **Dr. Catherine Palmer**, "When Traditional Amplification is Not the Answer;" **Sheila Pratt**, "Auditory Rehabilitation: Measuring Outcome and Quality of Life;" and **Dr. Barbara Vento**, "Developmental Changes in DPOAEs: Right vs. Left Ear Differences."

Dr. Kate Seelman was a keynote speaker for the Society of Disability Studies, Oakland, CA, June 2002, in a session entitled "Old Values and New Technology."

Dr. Walt Stoy, Director, Emergency Medicine, was a presenter at the Qatar International Trauma & Emergency Medical Conference, which was sponsored by Hamed Medical Corporation.

In Memoriam

Dr. Thomas J. O'Connor

Dr. Tom O'Connor, who earned his Ph.D. in Rehabilitation Science and Technology at SHRS last spring, died in Houston, Texas, in March of this year. He was an Assistant Professor at Texas Technical University in Lubbock and also worked with Dr. Arthur Sherwood at the Houston VA Rehabilitation Research and Development Service. He was the author of six peer-reviewed scientific journal publications.

O'Connor began his studies at the University of Pittsburgh in 1993, when Dr. Rory Copper joined the faculty. He had worked on his master's degree with Cooper at California State University in Sacramento. From 1995 until earning his doctorate, he was a student at the Human Engineering Research Labs (HERL).

His dissertation research project was on GAMEWheels™, a device that allows wheelchair users to play video games by propelling their wheelchairs on a roller system, encouraging exercise and improving cardio-vascular fitness among people with disabilities.

O'Connor developed a close rapport with the people who participated in the GAMEWheels™ study as well as the participants of many other HERL projects. As a person with a disability, he had a unique understanding of both the research and the people who participated in it. Known for his fun loving personality, he was a close friend to many students, faculty, and staff and was well-liked by the employees at the VA Pittsburgh Healthcare System.

A memorial scholarship has been established in his name. To make a contribution, contact Karen Khan, Director of Development, at 412-383-6548 or via e-mail at **ktkhan@shrs.pitt.edu**

Article written by Christine Heiner

CAPTE Accredits DPT

The new professional doctoral degree program in Physical Therapy (DPT) has received full accreditation by the Commission on Accreditation in Physical Therapy Education (CAPTE).

According to Dr. Anthony Delitto, Assistant Professor and Chair, Department of Physical Therapy, the program was created in response to the demand for better prepared entry-level physical therapists. "The DPT is more consistent with the intensity and scope of the curriculum."

The final year of the program is a full-time internship. During this time, students track their patients using minimal data sets comprised of standardized measures of quality of life impairments. Students then summarize treatments and outcomes and compare their performance to benchmarks obtained by practicing physical therapists.

"Assessing clinical performance and comparing it to best-practice solutions allows students to reflect on their clinical decisions and helps guide professional development activities in a lifelong effort toward continuous quality improvement," explains Delitto. "It also enables faculty to directly compare students to practicing physical therapists of varying experience and credentialed expertise. Ultimately, this will let SHRS precisely gauge where on the patient outcome-based continuum students perform throughout their tenure."

For more information on the DPT program, contact Shameem Gangjee at shameem@shrs.pitt.edu

Calendar of Events

July

July 12-14: "How to *Not* Treat the Neck." Richard E. Erhard, DC, PT and Michael G. Timko, MS, PT, OMT, Room 6045, Forbes Tower.

September

September 28: Continuing Education Workshop – "Complex Regional Pain Syndrome." Presenter: Rogers J. Allen, Ph.D., PT. Sponsored by the Department of Occupational Therapy.

November

November 1-2: Continuing Education Workshop – "Ergonomic Assessment and Risk Prevention." Presenter: Nancy Baker, ScD, OTR/L. Sponsored by the Department of Occupational Therapy.

November 2: Host site for the Mayo Clinic 13th Annual Audiology Videoconference. 10:00 am – 4:30 pm. Call Tim Lucas at 412-383-6542 to register.

November 12: Eighth Annual Endowed Scully Visiting Lecture Program. Speaker: Shirley Sahrmann, Ph.D., PT, FAPTA. Reception at 6:30 pm followed by lecture at 7:00 pm in the William Pitt Union Ballroom.

New and Noteworthy

Kevin Conley, Program Director and Instructor in the Athletic Training Education Program, has been elected to the Board of Directors of Special Olympics of Allegheny County.

Dr. John Durrant, Professor, and **Dr. Catherine Palmer**, Associate Professor, Department of Communication Science and Disorders, were recognized by *The Hearing Journal* in its annual "Best of Audiology Literature" issue. Durrant was the Guest Editor of an edition of *Seminars in Hearing* that was mentioned in the Best Special Issues under the "Best of 2001 Diagnostic Audiology" and the Best Special Issues under the "Best of 2001 Hearing Science." Palmer's recent publication related to telephone use is mentioned in the "Best of 2001 Hearing Aids" and the "Best of 2001 Rehabilitative Audiology." An edition of *Seminars in Hearing* in which she was Editor-in- Chief was named "Best Special Issue for 2001." Ph.D. student **O'Neil Guthrie** was mentioned for his otoacoustic emissions work with musicians under "Best of 2001 Hearing Science," and recent Ph.D. graduate **George Lindley** was mentioned in "Best of 2001 Hearing Aids."

Dr. Scott Lephart, Associate Professor and Chair, Sports Medicine and Nutrition, has been selected as the 2002 recipient of the NATA Foundation's William G. Clancy, Jr., MD, Medal for Distinguished Athletic Training Research. The award presentation was made during the 53rd NATA Annual Meeting and Clinical Symposia in Dallas, TX, in June.

Dr. Joan Rogers, Professor and Chair, Department of Occupational Therapy, was elected to the Governing Board of the Arthritis Foundation, Western Pennsylvania Chapter, and participated in the development of the Pennsylvania Arthritis Action Plan. She also consulted with Janssen ElderCare on long-term care and The Hong Kong Polytechnic University on academic promotion.

Dr. Kate Seelman, Associate Dean for Government and International Relations and Professor, Rehabilitation Science and Technology, received the 2002 Isabelle and Leonard H. Goldenson Technology Award from the United Cerebral Palsy (UCP) Research and Education Foundation. The presentation was made during the 2002 annual meeting of the United Cerebral Palsy Associations.

Dr. J. Scott Yaruss, Assistant Professor, Department of Communication Science and Disorders, has been selected to receive the 2002 SHRS Dean's Distinguished Teaching Award.

In making the announcement, Dean Cliff Brubaker recognized Yaruss as a "master teacher." Brubaker described Yaruss as sharing many attributes of the prior SHRS teaching award recipients, including "confident and dynamic classroom management; exceptional content mastery; innovative use of active learning strategies, such as classroom-based competitions; nationally recognized pre-eminence as a teacher in his specialty area; and an international web-based presence."

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 celebrate their good work.

Some people are just born to be volunteers. And judging from her resumé of community involvement, Louise Tkach, secretary for the Department of Rehabilitation Science and Technology, just might be one of them.

At any given time, she is volunteering with no fewer than seven area nonprofits. The list reads like a Who's Who of local and national philanthropies. She donates her time to the Central Blood Bank, the Greater Pittsburgh Area Community Food Bank, the R.O.C.K. (Reaching Out to Cancer Kids) Camp, the United Way of Allegheny County, the Scouting for Food Campaign, and both the University of Pittsburgh Staff Association Council and its volunteer pool.

Why so many? "I just can't say 'no'," Tkach admits.

It's this selfless quality that may be her most valuable contribution. As Cheryl Andres, Volunteer Coordinator, Greater Pittsburgh Area Community Food Bank says, "It seems to rub off on others."

In all but one of her volunteer groups, Tkach works as a recruiter. Whether by phone or by happenstance, she has recruited dozens of fellow volunteers over the years. "When people see the joy I get out of supporting a worthy cause," she explains, "they just can't help but want to volunteer, too."

Andres agrees. "Her commitment to helping the hungry is contagious. She convinces people to come and help with little more than the enthusiasm in her voice. Her efforts have helped grow our volunteer pool, allowing us to help feed more people in need." Steve Zupcic, Assistant Director, University of Pittsburgh Community Relations, seconds these appreciative comments. "Louise's commitment and personality are two qualities that we'd love to find in any of our volunteers. For the last 10 years, she's been a tremendous ambassador for Pitt as well as for SHRS."

But Tkach responds humbly to this praise. She sees community involvement more as a duty than a sacrifice. "Working with and helping people from different backgrounds and doing good for those who are less fortunate puts life into perspective. My work in the community makes me appreciate the beauty of life, which, to me, is priceless. The community offers us all so much. I see volunteerism as just a small way of giving back."

Says Jerry Lowe, Director of the R.O.C.K. Camp, "Louise is just one of those rare good Samaritans. She's come several weekends in the summer for 17 years. Sometimes she blesses us with her counseling skills, other times, her cooking. But just having her has been a blessing in itself."

But Tkach doesn't limit her helping hand to community-based commitments. She customarily brings her kindness and generosity to work. She describes just one new friend she's met after lending a helping hand. "A few years ago, I met a graduate student who was quadriplegic. I overheard that several students who had offered to help him eat lunch had to back out at the last minute, and so I thought I'd fill in. From that day on, we've shared lunch together. It's experiences like that that make life so special."

For information on any volunteer opportunities described above, contact Louise Tkach at 412-383-6596 or **ltkach@pitt.edu**

Fellow Alumni . . .

When did you join the SHRS family?

If you're a physical therapy graduate, it could have been in the 1940s, when the physical therapy program was affiliated with D.T. Watson. If sports medicine is your field, it probably has been less than a year.

But whether it was six months or 60 years ago, your professional career took root in a program or department that is now part of the School of Health and Rehabilitation Sciences. And as the president of the Alumni Society, I'm asking you to step forward and help your school grow and prosper.

Some of you can take a bold step. Provide financial support. Create a student scholarship. Others can make a more modest but nonetheless important contribution. Refer a talented student. Hire a recent graduate. Serve as a mentor, guest lecturer, or clinical instructor.

And all of you can become active members of the Alumni Society. It's easy. Just visit the web site – www.shrs.pitt.edu – or contact me directly. Then, watch for announcements of Alumni Society activities in upcoming issues of FACETS.

You are part of the proud history of SHRS. On behalf of my fellow members of the Alumni Society, I encourage you to take an active role in helping to shape its future.

Paul Rockar

Paul Rockar
MS/PT '81
President
SHRS Alumni Society
rockarp@msx.upmc.edu

Combined Efforts

Buz and Kathy Swanik have a lot in common.

They received their master's degrees and Ph.D.s in Sports Medicine at the University of Pittsburgh, were married soon after, and now combine their efforts developing one of the country's newer Sports Medicine programs at Temple University.

Following completion of their Ph.D.s, the two parted company, but only professionally, and only for a short period of time. Kathy became Program Director and Assistant Professor in Athletic Training at the University of Pittsburgh, while Buz commuted to West Virginia University, where he was graduate Program Director of the Athletic Training program and Assistant Professor. In a unique but timely occurrence a year later, Temple University was searching for two faculty members in Sports Medicine/Athletic Training and extended the Swanik team an opportunity to administrate the academic and research initiative in Philadelphia.

Developing Sports Medicine

In their very short tenure at Temple University, the Swaniks have developed and refined one of the most comprehensive academic Sports Medicine programs in the country, which includes academic degree programs at the bachelor's, master's, and Ph.D. level as well as a state-of-the-art Sports Medicine Research Laboratory. Kathy provides leadership to the undergraduate athletic training program that annually enrolls 25 students. She also has clinical internships in athletic training throughout the greater Philadelphia area, taking advantage of the large number of certified athletic trainers in the region.

Buz provides leadership to the graduate initiative, which currently includes 20 master's and five full-time Ph.D. students in Sports Medicine/Athletic Training. In an aggressive effort to make the program more attractive to students, Buz has secured extramural funding exceeding $160,000 annually. These funds are used to support the graduate students, who contribute to both the clinical and research efforts of the Temple University Sports Medicine program. In addition to the oversight of the graduate Sports Medicine Program, Buz also serves the university as the coordinator and professor of the University Core Science Anatomy and Physiology curriculum, which enrolls 500 students a year.

Sports Medicine Research

Since their arrival, the Swaniks have made a significant impact on the sports medicine research scene at Temple. They converted a 5,000 sq. ft. storage space to a contemporary biomechanics research laboratory that is fully equipped with high-speed 3-D motion analysis, EMG, force plates, and isokinetic dynamometry instrumentation. In a very short period of time, the two have set forth an exciting research agenda that was designed while they were doctoral students at the University of Pittsburgh. It includes studying timely issues such as risk factors related to female athlete ACL injuries and restoration of functional shoulder stability in overhead athletes. As a result of their research focus and mentorship of their graduate students, the laboratory has already obtained four competitive research grants, will present 12 research abstracts at professional sports medicine association meetings this year, and has three projects that are finalists for student research awards in the National Athletic Trainers' Association. In the past year, they have published four peer-reviewed papers and have eight papers currently under consideration for publication. Their work is not only recognized nationally, but internationally. Buz has been invited to speak on his research in Hong Kong and Italy this past year. The couple also has found time to author or co-author three textbook chapters.

YEARBOOK

'90s

Kristie Spencer – CSD '92, has been hired as an Assistant Professor at University of Washington, effective in the fall.

Jay Cloutier – PT '93, a Lieutenant Colonel in the Air Force, is a Certified Sports Clinical Specialist as well as a Certified Athletic Trainer.

Anne Robertucci – HIM '93, HIS '01, is Director of HIM and Privacy Officer at Magee-Women's Hospital, Pittsburgh, PA.

Jamie Protho – HRP '98, received the 2002 Prentke-Romich Communication Technology Employment Award from the United Cerebral Palsy Association of America.

'00s

Cathy Dolhi – OT '00, was elected a Fellow of the American Occupational Therapy Association at its recent annual conference in Miami Beach, FL.

In Memorium

Elizabeth Wood Bickel – 1947 SHRP
Nancy A. Curran – 1961 SHRP

The mezzo Soprano

Dr. Kittie Verdolini's Journey from Songstress to Speech Pathology Standout

By her best estimate, Dr. Kittie Verdolini, Associate Professor, Department of Communication Science and Disorders, was three when her dreams of operatic glory were born. While sitting on the floor of her family's Boston home, she began banging some pot covers together and mimicking Beverly Sills. Remembers Verdolini, "It's funny. Even though I was only a little girl, I knew, then and there, that I wanted to be a singer."

And sing she did, in everything from church choirs to high school theatre productions. In 1971, she was admitted to Indiana University as a voice major. The future looked bright.

But not for long. Early in her freshman year, Verdolini developed nodules on her vocal folds. "The condition usually develops from singing too loudly, too often, too high, with high-impact stress, or some combination thereof," explains Verdolini. "In my case, the nodules were formed from singing in a very high range. At the time, I liked to think I could sing soprano, but it was actually out of my natural range. In retrospect, that was the root cause of the problem."

Shaken by the diagnosis, the young singer took a leave of absence from the university and moved to New York City, home to voice therapists who commonly treated the condition. The therapy worked, but recovery was slow and tentative. Her dreams of stardom were shattered.

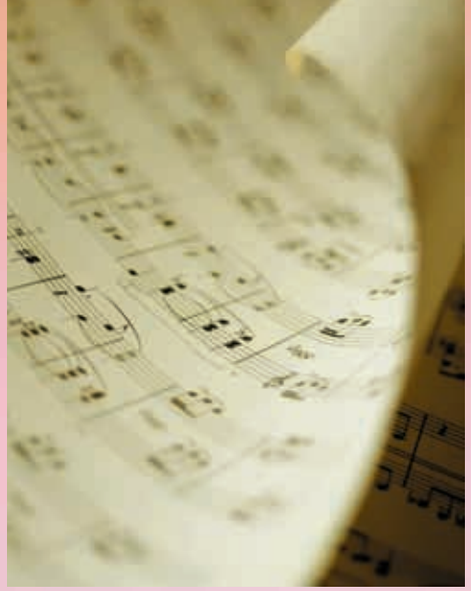
She changed her major to Italian, the language of opera, and as a junior, traveled to Bologna, Italy, for a year of study abroad. One year turned to six. She studied Italian literature and musicology at the University of Ferrara. And she once again began to perform.

"Throughout my stay in Italy I sang on a daily basis, juggling my schoolwork with my stage work," recalls Verdolini, "Then, out of the blue, I came down with bronchitis. My performance responsibilities forced me to all but scream through three solo concerts in a row, and that about did it for my voice. It was really the straw that broke the camel's back."

What resulted was a recurrence of the nodules, coupled with mild hemorrhaging of the larynx. Says Verdolini, "I couldn't sing at all. Not even a phrase. And it lasted for months."

She continues, "I knew that I'd have to do something drastic if I wanted my voice back. It simply wasn't realistic to go to New York for a month every time I was having voice problems."

Her solution was to return to Indiana University, with its top-notch music and fledgling voice therapy programs, and start working on a master's degree in Speech Pathology with a specialization in the voice. If no one else could solve the problem, she would.



She earned her master's degree, then made plans to continue her studies at the University of Iowa under Dr. Ingo Titze, a renowned vocal physicist. "Dr. Titze is an amazing mathematician and vocal physicist," says Verdolini. "But, more important, he is a singer. I wasn't very mathematically inclined at the time, but somehow I could understand the formulas and principles as they applied to the voice."

But a tragic accident changed her life. Her husband, an Italian surgeon, was struck and killed by a passing motorist while walking home after their car had broken down. She left Iowa, putting her academic career on hold.

She returned to Italy. There, her husband's mentor, Dr. Pasquale Laudadio, a microsurgeon who specialized in the ear, agreed to perform vocal fold surgery on her. "The results were just amazing," exclaims Verdolini. "I finally had the voice I'd lost as a teenager."

Fresh from her surgery and ready to resume her academic career, she returned to the United States and began working on her doctorate at Washington University in St. Louis. "But," she says, "rather than going back to learn and research the biomechanics of voice, I chose to learn how to teach people with voice and speech disorders how to overcome their problems. As a clinician, it had become clear to me that the challenge in voice therapy wasn't solely the biomechanics of voice. The real challenge for people was in learning. We can have perfect models of biomechanics, but if we can't teach people the correct voice behaviors, then these models are useless."

While in St. Louis, Verdolini crossed paths with Dr. Robert Bastian, who, after hearing of her condition and the successful outcome of her surgery, began performing it himself on other singers. Bastian is now remembered as one of the first pioneers of voice disorder microsurgery. Explains Verdolini, "Bastian touched off a new wave of surgery on the larynx and vocal folds. I think it had a lot to do with the natural advance of medicine. But, as he later told me, it also had to do with my own successful outcome."

During this period she also resumed performing as a singer. While an adjunct professor of singing at the University of Missouri – St. Louis, Verdolini moonlighted as a soloist, auditioning for area orchestras and oratorios. Remembers Verdolini, "It was a fabulous voice teacher, Mark Madsen, who taught me more than I could ever have imagined. My voice was better than ever. Where I had formerly been a very good mediocre singer, I had turned into a low-level excellent classical singer."

A year before finishing her doctoral degree, Verdolini was offered an Assistant Professorship at the University of Iowa in Speech Pathology. There, together with Dr. Titze, she would establish the first Vocology Program in the country. "Students received specialized training in voice at the same time as they received basic training in the broader scope of the profession, including child phonology and language problems, dysarthria and aphasia and fluency," she explains.

Having co-established the first-of-its-kind program, the hard-working Verdolini became a hot commodity. She was offered a position as Director of Speech Pathology at three of the seven Harvard Medical School affiliate hospitals. Recalls Verdolini, "I wasn't elated to be moving again, but the clinical experience in a metropolitan area the size of Boston was the deal sealer."

An added bonus, she says, was the opportunity to develop administrative skills. "I simply couldn't refuse." She was also offered an academic appointment at Harvard.

The position was challenging but fascinating. She learned to navigate complicated bureaucracies and manage the politics inherent with a high-end Harvard post. She secured a grant from the National Institute of Health and conducted extensive speech pathology research. But eventually, she longed for an academic setting again. " I've been a student and scholar for so long, the university setting has just come to be where I feel most comfortable," she says.

Several phone calls later, the School of Health and Rehabilitation Sciences welcomed her aboard. "I felt like I was coming home."

Verdolini has been at SHRS for almost two years, and she continues to sing its praises. "I have the best of both worlds – an excellent academic atmosphere and some of the best health care systems in the world." And after a journey that has taken her from Boston to the Big Apple to Bologna, she concludes, "I couldn't be more satisfied with what I've found."

For more information, contact Kittie Verdolini at **kittie@csd.pitt.edu**

From Bench *to Bedside*

A Pediatric Specialist and Researcher Expands Learning Opportunities for Physical Therapy Students

Before she earned her undergraduate degree from the University of Pittsburgh and launched a career in pediatric physical therapy, Dr. Kathleen Kelly knew she wanted to work with children. "In fact, my professional goal has always been to work with children with brain injuries," says Kelly. Her career began at Children's Hospital of Pittsburgh, then led her to Philadelphia for several years, where she obtained an M.S. in P.T. from Hahnemann University and practiced at Children's Hospital of Philadelphia. In 1997, Kelly joined the faculty of the University of Pittsburgh as a full-time Assistant Professor in the Department of Physical Therapy. At that time, she was also working on her Ph.D. in Rehabilitation Science, but with an emphasis on neurobiology.

"As a PT student, I was very interested in neuroscience," she says. "Graduate courses in motor learning and development made me want to expand my foundation of knowledge about how the brain works." So Kelly chose a doctoral program with an emphasis in systems neuroscience, which included seven years of basic research. "And now I'm in transition. Although I've never stopped treating patients in my PT practice, my plan now is to integrate my basic science background into a clinically-related research agenda. My faculty position allows me to bring my pediatric specialty to the students in my department."

As with adults, pediatric physical therapy deals with both critical care and chronic illness. "In the context of one or two courses, I can't teach my students how to treat every single pediatric problem in patients from birth to age 21. What I can teach them is how to make good decisions based on general knowledge – to think like true scientists," says Kelly.

One of the strengths of having a full-time pediatric faculty member in the Department of Physical Therapy is that Kelly is participating in decisions about curriculum and fieldwork. She teaches two courses in the general curriculum plus an elective. "It gives students a brush of the subject, but I think it's important exposure to the field," says Kelly. "I also work with Lynn Fitzgerald, who is our coordinator of clinical education and also a pediatric physical therapist. Together, we make sure there are opportunities for fieldwork in a number of pediatric environments."

Kelly also cites the department's good fortune to have Meg Stanger as a part-time faculty member. Stanger is the Director of Physical Therapy and Occupational Therapy at both Children's Hospital of Pittsburgh and The Children's Institute.

Kelly points out the critical differences between physical therapy for adults and children, beginning with the fact that in kids, the musculoskeletal system is still growing and changing. And with an immature system comes immature behaviors. "Children have very different learning needs. While an adult patient is self-motivated – to return to work, to overcome pain – I need to get children to do the work of therapy in a way that makes sense to them," she says.

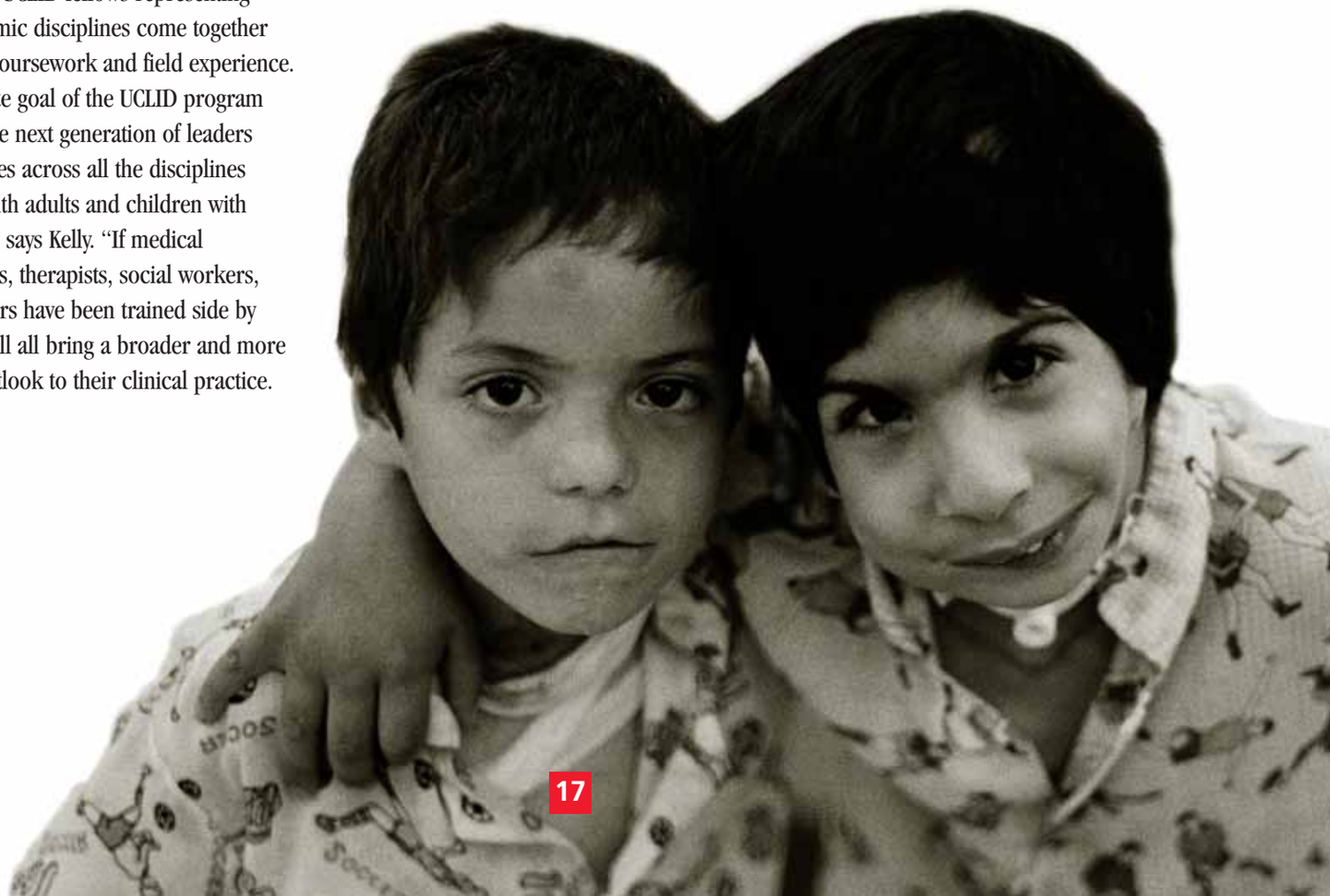
Pediatric physical therapy patients may have cerebral palsy or other developmental disabilities, so they naturally work with many other professionals. Kelly is one of the core faculty members and part of a training grant

at the UCLID Center (University Community Leaders and Individuals with Disabilities). UCLID is a coordinated effort of professionals from a variety of departments in the Schools of Dentistry, Education, Health and Rehabilitation Sciences, Medicine, Public Health, and Social Work. It was created to train leaders in the field of developmental disabilities. UCLID fellows representing these academic disciplines come together for shared coursework and field experience. "The ultimate goal of the UCLID program is to train the next generation of leaders and advocates across all the disciplines that work with adults and children with disabilities," says Kelly. "If medical professionals, therapists, social workers, and educators have been trained side by side, they will all bring a broader and more inclusive outlook to their clinical practice.

"I think it's very important to both my teaching and research roles that I still have an active clinical practice," says Kelly, who maintains her practice at Children's Hospital. "My goal in getting my Ph.D. was to be able to bridge the gap between research and clinical care – between bench and bedside."

Kelly looks forward to harnessing the resources of both the university and Children's Hospital in her roles as professor, clinician, and researcher. And the university looks forward to harnessing her unique expertise to train the pediatric physical therapists of tomorrow.

For more information, contact Kathleen Kelly at **kellyk2@msx.upmc.edu**



Dialogue

A conversation with Dr. Margaret Giannini

Dr. Margaret J. Giannini, Principal Deputy Assistant Secretary for Aging, Department of Health & Human Services, was this year's SHRS commencement speaker. During the Carter Administration, she served as the first director of the National Institute of Disability and Rehabilitation Research. Here, she shares her thoughts about her career and the challenges confronting an aging population.

Q: When you became a medical doctor, the hurdles for women were extremely high. How did you overcome the obstacles?

A: *I had this annoying thing inside of me that said, 'Be an idealist.' It was very difficult. I finished medical school at age 23. I got in early, and then the war condensed the degree program to three years.*

Women doctors then had a difficult time. I believed that excellence ultimately prevails. Just be the best. You've got to be professional all of the time, and eventually things worked out over time.

Q: What stimulated your interest in working with people who have disabilities?

A: *I was a pediatric oncologist. Many of those situations result in disabilities. A group of parents of children with disabilities came to me to ask if I would treat their children. The other doctors in the clinics really discounted them. I told them that I wasn't trained specifically to do that, but that I'd be happy to treat their children one day a week.*

I could see the problem more in-depth as I went along. It was the attitude of the other physicians that was the real difficulty.

The medical school (the Medical School of New York) put me in the basement next to the burner. It was ridiculous. There was no research for those with multiple disabilities. It was an institution or home for these children. There was no school for them. And, the situation destroyed many families.

Then, in 1949 and 1950, NARC (National Association for Retarded Children) began to organize. People began to advocate for the rights of individuals with disabilities. I was there, and I wanted to help.

Q: How and why did you move from disability to aging?

A: *I became a gerontologist the old-fashioned way. I did it myself. Aging was the focal point of many of the things that I directed.*

It (the graying of America) is a major problem. The 85-year-old and up is the fastest growing population in the nation right now. The highest percentage of those people are women who have never had a husband and children. Fifty thousand people are 100 years or older in the U.S. That's a large number, and it's likely to continue growing.

It's a big challenge. Our budget is $1.3 million for the nation. While that seems like a lot, it's not really a lot of money for what we have to do.

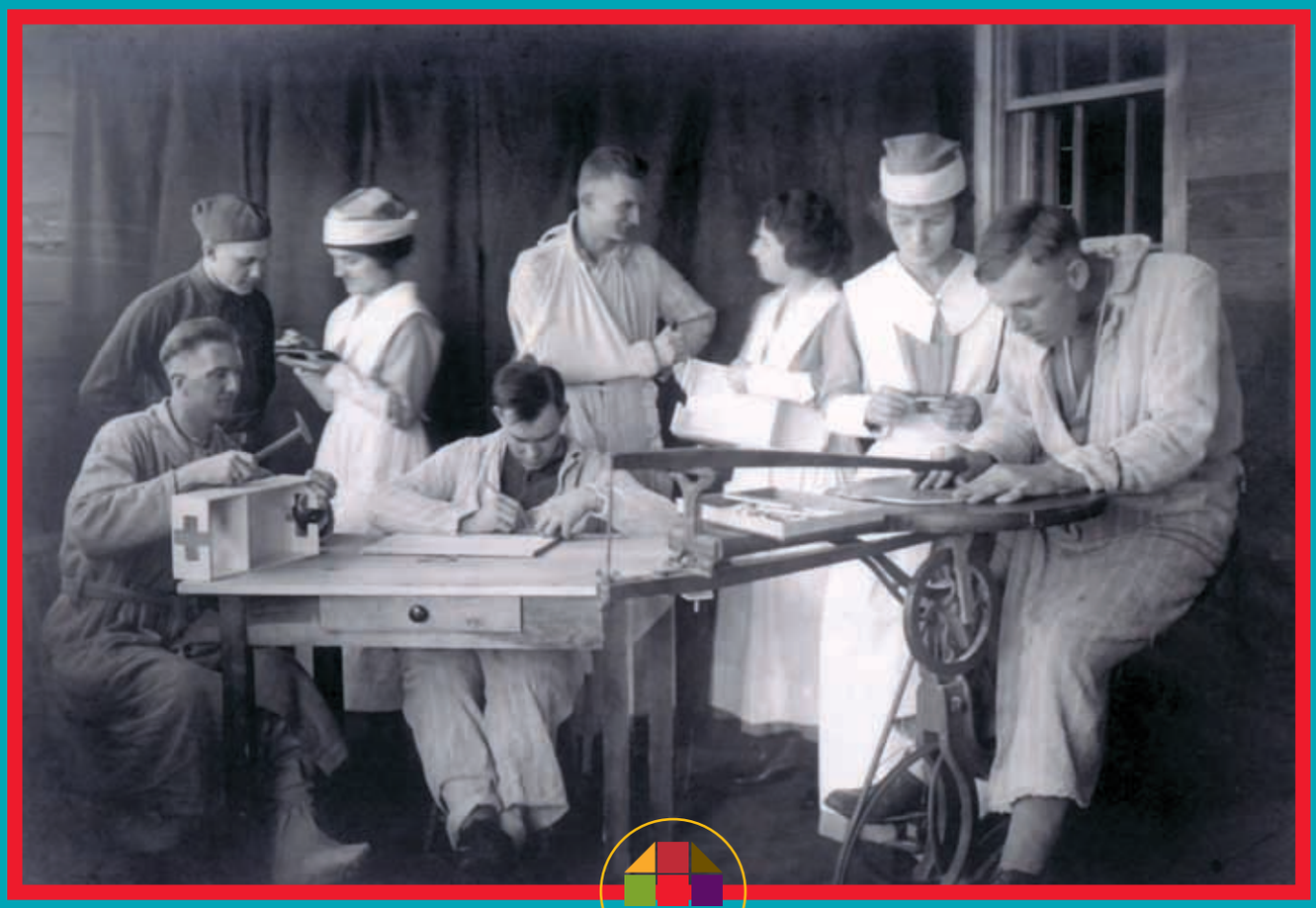
Q: How do you allocate these monies to produce the biggest return?

A: *In the final analysis, everything we do affects the community. Our three priorities are the integration of all community services, prevention and health promotion, and national family caregiving.*

Caregiving is a major issue. The extended family doesn't exist anymore unless you make it happen. Less and less, families are the primary caregivers.

Q: How does what you're doing now relate to what you did when you were working within the disability community?

A: *In some ways, it's worse now, because they (older people) aren't as vocal as people with disabilities. Like people with disabilities, they are often ignored for what they can offer. This erodes their self-image and then their self-determination.*



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Talk

New State Law Mandates Universal Screening of Infants for Hearing Loss

In 1993, the National Institutes of Health (NIH) recommended universal newborn hearing screening by the age of three months, and also stated that otoacoustic emission might be the technology that makes this concept possible. These recommendations were based on the belief that hearing loss occurs in between one and six infants per 1,000. Until now, the average age for detecting hearing loss was two-and-a-half, when a baby should be starting to talk. Furthermore, new research indicates that early identification and treatment of hearing loss will improve outcomes.

This national movement toward universal screening of infants took hold in Pennsylvania last November with the passage of Act 89, which mandates that all infants born in the Commonwealth be screened for hearing loss within their first 30 days of life.

An Easy, Practical Test

Prior to passage of Act 89, very few hospitals in Pennsylvania had the equipment and personnel needed to perform otoacoustic emissions tests. Hearing screening tests have always been done on premature and high-risk infants, as well as on other infants whose parents may suspect hearing loss because of family history. The discovery of the otoacoustic emissions test was a major breakthrough because it was the first non-invasive method for measuring cochlear function. A probe is inserted into the ear that makes a sound. The ear actually responds with its own sound, allowing measurement of hearing. Under ideal circumstances, the test runs two to three minutes, while the baby is asleep. It requires relatively simple training and is significantly less expensive than its predecessors.

"For the past four years, I've been taking students with me when I do testing in the NICU (Neonatal Intensive Care Unit) at Magee-Women's Hospital," says Dr. Barbara Vento, Clinical Assistant Professor, Department of Communication Science and Disorders. "We knew that universal infant screening was a question of 'when' not 'if,' so I wanted my students to have some exposure to the otoacoustic emissions test and the entire screening process."

A Reliable Test

The actual percentage of hearing loss in newborns is still debated, but it is clearly much more prevalent than other conditions universally screened for, such as PKU, a blood test every newborn receives. The otoacoustic emissions test identifies profound hearing loss as well as mild to moderate loss, which may bring the statistics up to five or six per 1,000 births. The Centers for Disease Control suggests that a highly successful universal screening program will keep its false positives under four percent, and Vento agrees that that is a realistic expectation as hospital staffs become trained in the methodology. Experience will help them learn the nuances of the test – when to adjust the probe or wait until the infant is quieter.

BABY Talk

Vento has conducted research on auditory development, which may lead to a further reduction in false positives. "We know that in animals, the ability to process frequency is not fully developed at birth. So now we're looking into frequency development in newborns as compared to pre-term babies and young adults," she says. "If we can adjust the parameters of the otoacoustic emissions tests, we may be able to make a difference in its accuracy – there's more work to do, but the concept holds promise."

"There has been some natural concern about the costs associated with secondary testing required to ensure accuracy, and there was also concern about causing parents needless concern with false positives," says Diane Sabo, Assistant Professor, Department of Communication Science and Disorders and Clinical Director of Audiology at Children's Hospital of Pittsburgh. "On a more basic level, there was actually a question in some people's minds about the real benefit of early intervention. Empirical evidence demonstrates that it does make a difference, but it was not until recently that data have emerged to support the benefit of early intervention."

Early Detection Means Early Intervention

Until now, partial hearing loss in children was usually not detected until age two-and-a-half to three, when language skills were noticeably lagging behind. "At this point, we had lost two to three years of speech learning – you can't learn speech unless you can hear it," says Vento. "Now we can test every infant by three months, provide intervention as early as six months, and by two-and-a-half, we will have children communicating at or near age level."

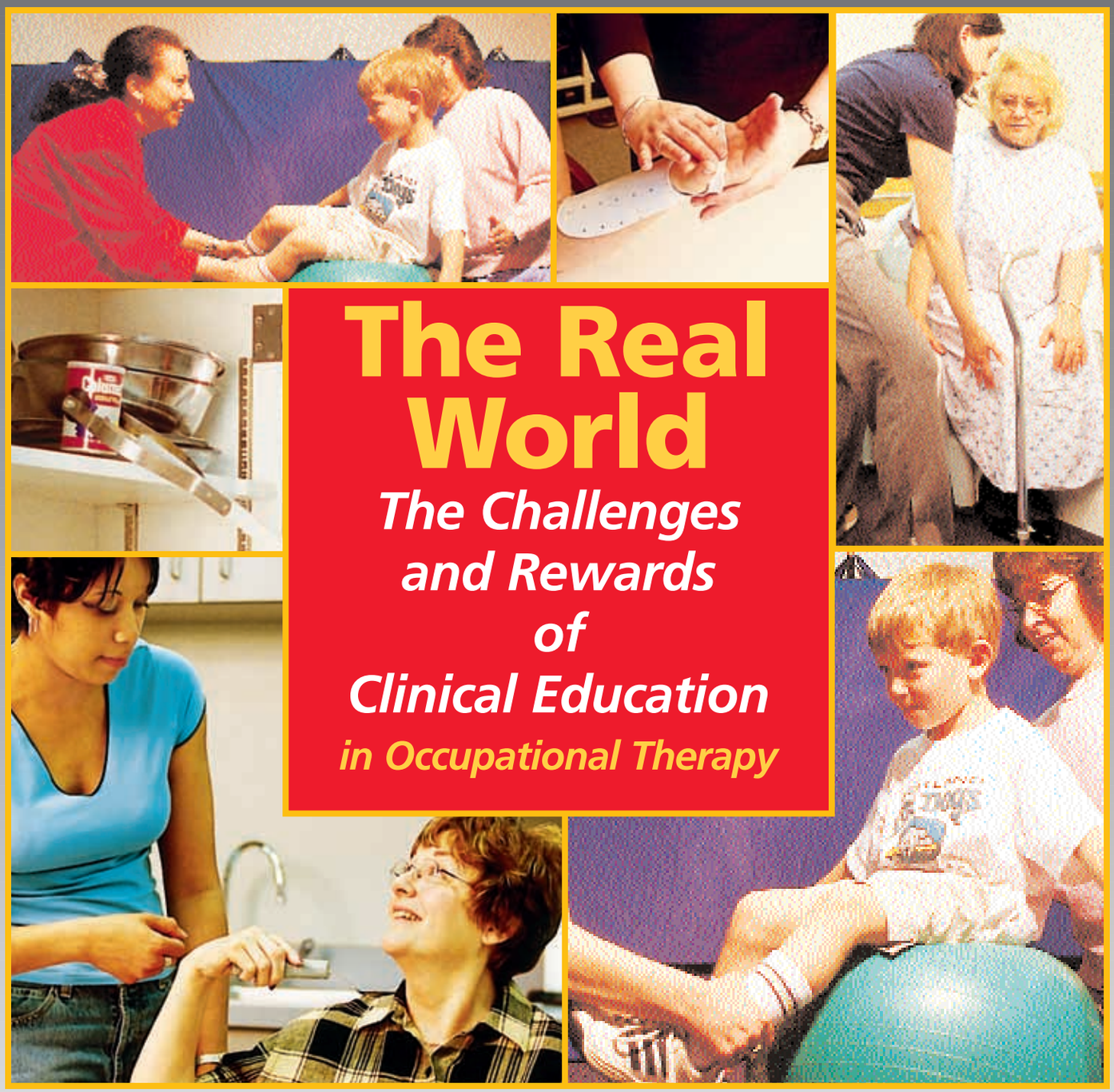
Barbara Vento

Early intervention programs might include auditory stimulation through hearing aids – which audiologists can place on infants as young as three months – as well as through language stimulation services from deaf educators or speech pathologists. And by identifying children with hearing loss and getting them into services by six months of age, other options are also opened up earlier, including cochlear implants, which can now be done as early as 12 months.

By mid-summer, most hospitals in Pennsylvania will be ready to implement universal infant screening for hearing loss. Sabo plans to hire students from the Department of Communication Science and Disorders to implement some of these screenings. "The students have the necessary background and view it as a hands-on opportunity to learn about newborn hearing screening," she says.

With 7,000 babies born every year at Magee-Women's Hospital alone, this important work holds great opportunity for the professional and great promise for helping children develop strong communication skills and get a strong start in life.

For more information, contact Barbara Vento at **barbv@pitt.edu**



The Real World

The Challenges and Rewards of Clinical Education in Occupational Therapy

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 follow first and second year students as they get their first taste of being a professional.

The Accreditation Council for Occupational Therapy Education (ACOTE) establishes accreditation guidelines for academic programs educating entry-level occupational therapists.

Dr. Carmela Battaglia, Director of Entry-Level Education and Fieldwork Coordinator, Department of Occupational Therapy, explains, "Accreditation requires that a student participate in fieldwork at two levels. The Level I fieldwork coincides with OT coursework. It is both observational and participatory, allowing students to begin to develop their clinical reasoning skills while observing how disability interferes with functional performance. It is also an opportunity to develop their clinical skills with "hands-on" treatment of clients. Level I fieldwork assignments involve five- to six-hour commitments per week during the academic year.

Although she is just off-camera, Junior Jaime Calabrese's instructor is close at hand as Jamie helps Louise learn to use her cane and the hand rails to lower herself onto a bathtub seat. Typically, Level I fieldwork gives students their first opportunity to observe and employ the clinical assessment and treatment skills they are learning in the classroom.

During the first year of their two-year academic program, many OT students are assigned to geriatric day treatment programs.

The Real World

"Level II fieldwork begins following successful completion of all academic coursework. Students are assigned to fieldwork sites on a full-time basis and become engaged in all aspects of client care. Its goal is to develop competent, entry-level occupational therapists – ready for professional employment in the field," adds Battaglia. "Level II fieldwork requires supervision by a certified occupational therapist with at least one year of clinical experience."

As Level I fieldwork continues during the second year, Battaglia finds opportunities for students to work with both adults and children.

Here, Marianne Faber looks on as Battaglia engages Danny in a balancing exercise. Observation is an important first step as students put classroom learning into action.

"The kind of interaction you need to have with a child is implicitly different than with a client with dementia or with a work-related injury who needs rehabilitation to make physical modifications and get back on the job," notes Battaglia.

"It's probably the most significant part of the education process so far, to watch Dr. Battaglia at work – she's actually doing the tasks that I've learned on an academic level – assessing Danny's skills, providing therapeutic activities while she interacts with him, making him feel comfortable and getting the information she needs to document his condition and his progress," observes Marianne.

"I'll be better prepared to do the hands-on work when it's my turn in front of a client."

Rushine Chin, a junior, and Mark Paoletti, a first-year MOT student, are eager to leave the classroom for this hands-on opportunity to work with a client with arthritis who is learning to use adaptive equipment to enhance her life skills.

For the very first time, students learn to test for range-of-motion and strength, help clients use walkers, prosthetics or other tools, and participate in the assessment and documentation process.

Some of the other settings available to students doing Level II occupational therapy fieldwork include acute care settings like UPMC Presbyterian Hospital, where students work with clients who have sustained trauma or require an organ transplant, or UPMC Montefiore Hospital, where they more frequently work with clients with orthopaedic conditions such as knee and hip replacements. Other options include pain management clinics, home care providers, and school-based practices.

Stacie Steffy, a senior, spent her second Level II fieldwork assignment at a private hand clinic, supervised by University of Pittsburgh alumna Kelly Coleman, a hand therapist. Stacie mirrors Kelly's schedule – good preparation for the "real world." She also participates in team conferences, scheduling of clients, and other administrative functions.

"I'm always glad to have a student assigned to the clinic," says Kelly. "We get them immersed in the work, and by the time they've completed 12 weeks, they are pretty far up the learning curve." Here, Stacie splints a client's hand under Kelly's watchful eye.

Level II fieldwork constitutes 24 weeks of full-time clinical education for which students receive their final course credit requirements. Battaglia usually identifies two 12-week assignments for her students, following ACOTE's requirement that students be exposed to "a variety of clients across the life span and in a variety of settings."

"I try not only to expose students to clients of different ages, but also to different practice settings such as mental health facilities, rehabilitation centers, acute care hospitals, pediatrics, or an out-patient setting," says Battaglia. "Most of all, I try to match individual needs wherever possible – some students really want to work in pediatrics, others to focus on hand therapy. Still others want to work in home health."

From January to June, Battaglia has anywhere from 27 to 40 students involved in full-time fieldwork. Upon completion, they are ready to be entry-level therapists – and in some fortuitous cases, fieldwork assignments evolve into employment.

The splint will allow the client more freedom of movement than a cast, but still partially immobilizes and protects an injured or post-surgical hand. Once the splint is removed, more vigorous hand therapy provides the "fine-tuning" needed to return the client to normal functioning.

The mezzo Soprano

Dr. Kittie Verdolini's Journey from Songstress to Speech Pathology Standout

By her best estimate, Dr. Kittie Verdolini, Associate Professor, Department of Communication Science and Disorders, was three when her dreams of operatic glory were born. While sitting on the floor of her family's Boston home, she began banging some pot covers together and mimicking Beverly Sills. Remembers Verdolini, "It's funny. Even though I was only a little girl, I knew, then and there, that I wanted to be a singer."

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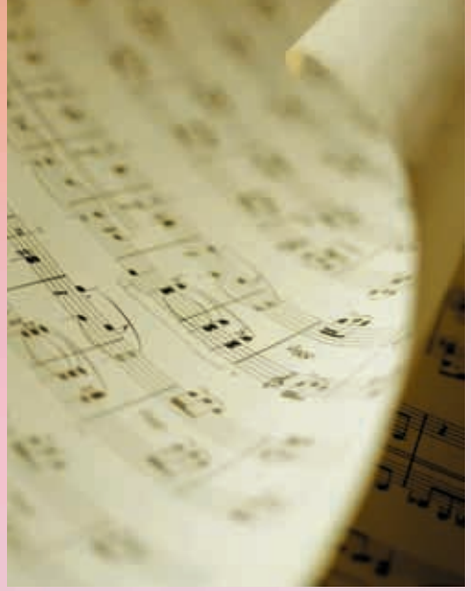
She changed her major to Italian, the language of opera, and as a junior, traveled to Bologna, Italy, for a year of study abroad. One year turned to six. She studied Italian literature and musicology at the University of Ferrara. And she once again began to perform.

"Throughout my stay in Italy I sang on a daily basis, juggling my schoolwork with my stage work," recalls Verdolini, "Then, out of the blue, I came down with bronchitis. My performance responsibilities forced me to all but scream through three solo concerts in a row, and that about did it for my voice. It was really the straw that broke the camel's back."

What resulted was a recurrence of the nodules, coupled with mild hemorrhaging of the larynx. Says Verdolini, "I couldn't sing at all. Not even a phrase. And it lasted for months."

She continues, "I knew that I'd have to do something drastic if I wanted my voice back. It simply wasn't realistic to go to New York for a month every time I was having voice problems."

Her solution was to return to Indiana University, with its top-notch music and fledgling voice therapy programs, and start working on a master's degree in Speech Pathology with a specialization in the voice. If no one else could solve the problem, she would.



She earned her master's degree, then made plans to continue her studies at the University of Iowa under Dr. Ingo Titze, a renowned vocal physicist. "Dr. Titze is an amazing mathematician and vocal physicist," says Verdolini. "But, more important, he is a singer. I wasn't very mathematically inclined at the time, but somehow I could understand the formulas and principles as they applied to the voice."

But a tragic accident changed her life. Her husband, an Italian surgeon, was struck and killed by a passing motorist while walking home after their car had broken down. She left Iowa, putting her academic career on hold.

She returned to Italy. There, her husband's mentor, Dr. Pasquale Laudadio, a microsurgeon who specialized in the ear, agreed to perform vocal fold surgery on her. "The results were just amazing," exclaims Verdolini. "I finally had the voice I'd lost as a teenager."

Fresh from her surgery and ready to resume her academic career, she returned to the United States and began working on her doctorate at Washington University in St. Louis. "But," she says, "rather than going back to learn and research the biomechanics of voice, I chose to learn how to teach people with voice and speech disorders how to overcome their problems. As a clinician, it had become clear to me that the challenge in voice therapy wasn't solely the biomechanics of voice. The real challenge for people was in learning. We can have perfect models of biomechanics, but if we can't teach people the correct voice behaviors, then these models are useless."

While in St. Louis, Verdolini crossed paths with Dr. Robert Bastian, who, after hearing of her condition and the successful outcome of her surgery, began performing it himself on other singers. Bastian is now remembered as one of the first pioneers of voice disorder microsurgery. Explains Verdolini, "Bastian touched off a new wave of surgery on the larynx and vocal folds. I think it had a lot to do with the natural advance of medicine. But, as he later told me, it also had to do with my own successful outcome."

During this period she also resumed performing as a singer. While an adjunct professor of singing at the University of Missouri – St. Louis, Verdolini moonlighted as a soloist, auditioning for area orchestras and oratorios. Remembers Verdolini, "It was a fabulous voice teacher, Mark Madsen, who taught me more than I could ever have imagined. My voice was better than ever. Where I had formerly been a very good mediocre singer, I had turned into a low-level excellent classical singer."

A year before finishing her doctoral degree, Verdolini was offered an Assistant Professorship at the University of Iowa in Speech Pathology. There, together with Dr. Titze, she would establish the first Vocology Program in the country. "Students received specialized training in voice at the same time as they received basic training in the broader scope of the profession, including child phonology and language problems, dysarthria and aphasia and fluency," she explains.

Having co-established the first-of-its-kind program, the hard-working Verdolini became a hot commodity. She was offered a position as Director of Speech Pathology at three of the seven Harvard Medical School affiliate hospitals. Recalls Verdolini, "I wasn't elated to be moving again, but the clinical experience in a metropolitan area the size of Boston was the deal sealer."

An added bonus, she says, was the opportunity to develop administrative skills. "I simply couldn't refuse." She was also offered an academic appointment at Harvard.

The position was challenging but fascinating. She learned to navigate complicated bureaucracies and manage the politics inherent with a high-end Harvard post. She secured a grant from the National Institute of Health and conducted extensive speech pathology research. But eventually, she longed for an academic setting again. " I've been a student and scholar for so long, the university setting has just come to be where I feel most comfortable," she says.

Several phone calls later, the School of Health and Rehabilitation Sciences welcomed her aboard. "I felt like I was coming home."

Verdolini has been at SHRS for almost two years, and she continues to sing its praises. "I have the best of both worlds – an excellent academic atmosphere and some of the best health care systems in the world." And after a journey that has taken her from Boston to the Big Apple to Bologna, she concludes, "I couldn't be more satisfied with what I've found."

For more information, contact Kittie Verdolini at **kittie@csd.pitt.edu**

Looking at the Other Side

Deciphering the Relationship Between Right Hemisphere Brain Damage and Language

There are a lot of ways to view the human brain. Some people look at it as a gray mass that acts as the control center for the human body. Others see it as an analytical tool that can be exercised and developed. And still others believe the structure and development of the human brain governs an individual's creativity, personality, and technical skill. On some level, all of these views have merit. However, there is no disagreement on the fact that the brain and its functionality are significantly altered in the aftermath of a stroke.

The location of a stroke and the damage it causes can have a profound impact on the human being as a whole – particularly when it strikes the right hemisphere of the brain. When right hemisphere brain tissue is damaged, language abilities can be compromised, emotions and expressive capabilities can be amplified or subdued, and abstract reasoning, as well as the capability to recognize and respond to nuances, can be hindered or lost entirely.

"We are just beginning to really understand the effect of strokes on the right side of the brain," says Dr. Connie Tompkins, Professor, Department of Communication Science and Disorders. "For the past 150 years, the left hemisphere was considered 'dominant' for language functions, and was the primary focus of research efforts. Only in the last 15 years or so has research begun to document the important linkage between the right hemisphere and language functions."

A New Way to Look at Gray Matter

Tompkins and her team of researchers have been leaders in right hemisphere investigations. Her groundbreaking 1995 book, *Right Hemisphere Communication Disorders: Theory and Management*, proposed strategies on how to evaluate and treat language disorders of adults with right hemisphere brain damage. In other articles, two of which were recognized in 1995 and 2000 as "best language article of the year" by the prestigious *Journal of Speech, Language and Hearing Research*, Tompkins detailed the unique impact right hemisphere strokes can have on the language patterns of individual patients.

Looking at the Other Side

When someone has a right brain stroke, their ability to understand can go awry in a number of ways. Tompkins' research focuses on the difficulties that right brain stroke patients can have when they try to interpret what others are saying to them. These individuals have particular difficulty when there is more than one interpretation for a word or phrase that they hear. A lot of single words have more than one meaning; for example, the words "bat," "ball," and "lime." People with right brain damage know the meanings of the various words, but may have difficulty selecting the one that fits the context of a conversation.

Connie Tompkins

Right hemisphere patients also can have similar trouble with phrases that mean more than one thing. Statements like "That stereo is too loud!" can be interpreted as a simple observation or as a request to turn down the music. "Turn down" is another example of a phase with multiple meanings – you can "turn down" the temperature of an oven, "turn down" someone's invitation, "turn down" the bed, or "turn down" the street with your automobile. Ambiguity of this sort is rampant in the English language, and has been a particular area of interest for Tompkins.

Comprehension is further complicated for adults with a right-brain stroke when they have to change their first interpretation. For example, most of us would think that a speaker is reading a history book if we heard them say, "I'm really tired of that history book." If they then said, "I've spent five years writing it," we could quickly change our interpretation. This is not the case for many right brain stroke patients who have difficulty quickly adjusting an interpretation. Tompkins' research suggests that a patient's success in doing so will depend on things like their vocabulary knowledge and their "working memory," which refers to their ability to keep a lot of information active at the same time.

Tompkins' efforts have been funded by the National Institutes of Health since 1988, and currently involve three doctoral students, as well as a wide array of patients from the community. Some study participants are referred by their doctors for inclusion in the research activities. Others come to the research initiative through the Stroke Institute at UPMC Health System or through the VA Pittsburgh Healthcare System. Nearly all of the participants are enthusiastic to be part of the study effort and are proud to contribute to the research. In fact, some individuals have volunteered for as many as six different studies directed by Tompkins.

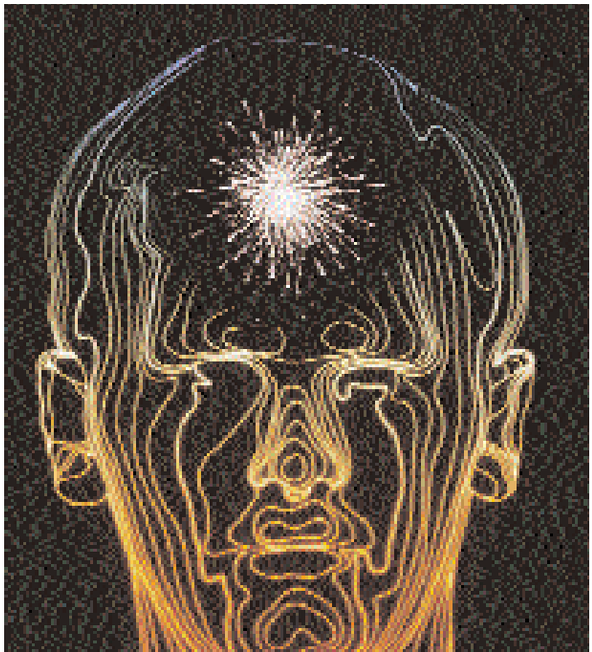
Bringing Home Innovative Evaluation

To determine the comprehension abilities of participants with right hemisphere brain injuries, Tompkins and her team regularly visit study participants in their homes and conduct a wide array of cognitive assessments. "We focus on the ability to recognize nuances and ambiguity through language stimuli," she observes. "We typically present sentences with ambiguities and then use computers outfitted with speech amplifiers to gather reaction times. We also document how accurately our participants process and respond to the various stimuli. In particular, we examine how fast a participant can resolve an ambiguity and make complex inferences. In addition, we use interference paradigms as a research method to evaluate the patient's ability to make appropriate interpretations, and to document their misunderstandings. Overall, it's really like a big puzzle where we find a few new pieces every day."

Putting Research to Work

Ultimately, the research into right brain hemisphere damage and language is being translated into innovative treatment programs. "We know that there are no quick answers – and that there is no canned program for rehabilitating individuals with right hemisphere damage and language problems," says Tompkins. "We have to acknowledge and accommodate the individual abilities and situations of the participant – both before and after the stroke. We also have to drive home the fact that what works with one person will not always work with another, as everyone's capabilities are different. As a result, we're putting forth treatment suggestions that encourage clinicians to try treatment approaches so we can gather evidence about what works. Over time, we're finding that we are making solid progress in understanding these injuries and their effect on language abilities. Most importantly, we're moving closer to being able to have solid foundations for treatment recommendations. The ultimate goal of our research is to provide information that will help patients make gains in areas where we have never seen them before. That would be the real reward."

For more information, contact Connie Tompkins at **tompkins@csd.pitt.edu**



Learning from Afar

Center for Emergency Medicine Helps Strengthen Long Distance CME

Here are the facts. To stay up to date on the latest advances in emergency medicine, you have to take Continuing Medical Education (CME) coursework. And to maintain your certifications and licenses, you need to accumulate the required amount of CME credits by the appointed date each year.

While these facts may seem fairly basic, they can be difficult to deal with when they're folded into busy professional lives. Changing shifts and overtime can make it hard for emergency medicine professionals to commit time to classroom sessions. And extended sessions of international travel – the kind that members of our armed forces face – makes obtaining CME credits difficult, if not impossible. Impossible, that is, unless they pursue their CME credits through *JEMS*, the Journal of Emergency Medical Services.

"We've partnered with *JEMS* to design a distance learning program that accommodates the schedules of emergency medicine professionals, wherever they are," commented Debra Lejeune, Continuing Education Coordinator, Center for Emergency Medicine. "Since 1998, we've been providing *JEMS* with 12 magazine articles a year that give readers an opportunity to earn some – or all – of their CME credits when and where it's most convenient for them."

Credits That Reach Far and Wide

Debra Lejeune

Read by more than 50,000 EMS professionals every month, each *JEMS* issue contains one CME article, as well as a 20-question multiple-choice test. Readers review the article, and then use it to help answer the test questions. There is no time limit on the written tests, so readers can complete them as their personal and professional schedules allow. Once the exam is completed, readers send it in to *JEMS* for grading. If they pass the test, they are sent a certificate that confirms the completion of 1.5 hours of CME credit.

"It really is an easy and convenient way to stay current with CME requirements," remarks Lejeune. "Out in the field, many EMTs and other emergency medical personnel have extended periods of downtime between calls. The self-paced nature of the program lets them put that time to work whenever it is available."

Learning On-Line, Anytime

While the *JEMS* CME program has been extremely well received – more than 1,000 readers send in tests for grading each month – Lejeune and her colleagues at the Center for Emergency Medicine have been working to make the education even more convenient. In March 2002, after more than a year of collaboration between *JEMS*, the Center for Emergency Medicine, and a California-based Internet firm, *JEMS* launched web-accessible versions of several CME articles and tests.

"We are looking for big results from this effort," said Lejeune. "Instead of being constrained by page count and the number of words allowed in a particular article, the Web gives us the opportunity to expand our coverage on particular topics. It also allows us to offer access to information on areas related to our primary subjects. For example, if an article is covering various allergies, we can now include links that connect readers to specific conditions, such as latex allergies. The on-line format really expands our ability to share information, and lets users learn more about subjects we might not typically cover."

The on-line version also provides real benefits for emergency medicine professionals working on assignments outside of the United States. In many cases, these practitioners don't have access to regular mail delivery or can't take time away from their assignments to attend classroom sessions, a combination of factors that can jeopardize their CME status. Now, these professionals can log on whenever their schedule permits and complete the requirements for nearly all of their CME credits without leaving their location.

Currently, 10 CME articles are available on-line at **www.mywebce.com**. An additional 20 articles are in the final stages of review and should be posted to the site shortly. Once a user has logged into an article, they may spend as much or as little time as they wish on-line. All articles can be printed out for easier reading, and users take all tests electronically.

According to Lejeune, "Taking the tests on-line speeds everything up. Our users can take the test, have it instantaneously scored, know immediately whether or not they earned their CME credits, and get their certificates that prove that they earned their hours. If they get answers wrong on the exam, the site automatically refers users back to specific sections of the article so they can quickly see where they went wrong. After reviewing the article again, users can take the exam a second time during the same on-line session. To make sure they really learned the material, the second exam scrambles the questions so that the correct answers are in a different order."

The web-based approach also significantly reduces a cumbersome paper trail. The automatic grading function completely eliminates manual review of each exam, and allows test results to be automatically entered into a database. Information in the database can be accessed by accrediting bodies or managers of organizations in a streamlined format that simplifies record keeping and allows for comprehensive reporting on CME compliance. And since the system allows completion certificates to be instantly generated on the user's printer, the on-line program helps cut mailing costs.

"The combination of the magazine format and the on-line program really makes getting your CME credits much easier," commented Lejeune. "Depending on the state the user lives in, it's possible to do almost all required CME through distance learning initiatives. We're currently working with accreditation bodies in various states to convince them that distance learning works as well as classroom sessions. Slowly, more and more of them are getting on-board, but some areas are still slow to change their standards."

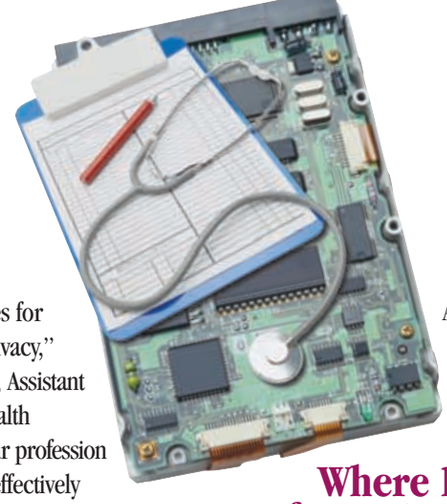
To simplify the awarding of CME hours, a number of states accept CECBEMS credits – a standard accreditation offered through the Coordinating Board for Emergency Medical Services. Nearly all the CME programs offered through *JEMS* are CECBEMS approved.

Distance learning is also gaining a reputation for consistency. As Lejeune sees it, it's an approach that puts the accreditation bodies in a position of control. "With our programs, they know what material was actually presented. They don't have to worry about speakers deviating from outlines or not offering complete information. They also don't have to be concerned about an instructor ending a three-hour class after only one hour because it's a nice day and he or she would rather be doing something else. If information and test answers are written down, either on-line or on paper, they don't change. The accreditation bodies know exactly what was presented and precisely what the users got out of it."

For more information, contact Debra Lejeune at **lejeuneda@msx.upmc.com**

Protecting Our Right to Privacy

New HIPAA Regulations Safeguard Patient Records



It's been estimated that during a typical five-day stay in a teaching hospital, as many as 150 people have legitimate access to a patient's medical records, according to *Time* magazine. Nurses, laboratory technicians, billing clerks – and, of course, doctors – are privy to intimate details concerning a patient's malady, course of treatment, and prognosis.

While our right to privacy is ensured by any number of federal and state statutes, the privacy of medical records and health information has been governed by a hodgepodge of state laws, no two of which are the same.

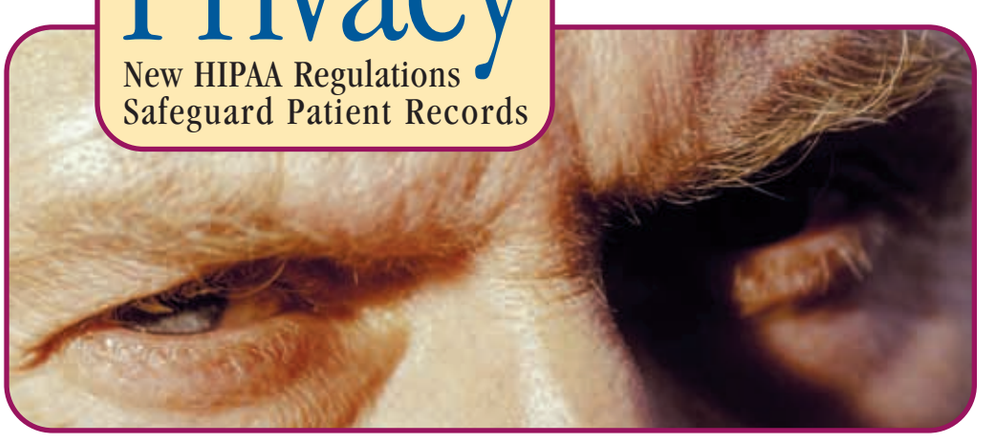
In 1996, Congress passed the Health Insurance Portability and Accountability Act (HIPAA), which was created to streamline and standardize the health care payment process and provide individuals with a continuity of health care coverage if they changed jobs. The Act also put forth guidelines for the electronic transmission and disclosure of information, generally referred to as "Administrative Simplification," including record sets, security regulations, and privacy regulations.

Faculty members in the Department of Health Information Management (HIM) are applauding the new privacy provisions of HIPAA that are slated to go into effect April 14, 2003 for most health care facilities. And HIM professionals around the country are destined to play a major role in the implementation of the regulations.

"We've always been advocates for patients and their right to privacy," says Patricia Anania-Firouzan, Assistant Professor, Department of Health Information Management. "Our profession has been at the forefront of effectively managing the release of medical information for decades. The passage of the HIPAA regulations levels the playing field and gives patients greater control of their personal medical information.

"Health care providers have always had a moral and ethical responsibility not to divulge confidential information – it's even stated in the Hippocratic Oath taken by physicians," Anania-Firouzan points out. The new HIPPA regulations ensure that workers throughout the system understand their role in maintaining that confidentiality. Just as important, the regulations also provide patients with greater control of their medical records, including who gets to see them, and who doesn't.

"If a patient can't trust that the confidentiality of their information will be maintained," states Anania-Firouzan, "they may withhold important facts that could compromise their health."



Where Does the Information Go?

Hospitals, clinics, pharmacies, physicians' offices, laboratories, insurance, and managed care companies all maintain some element of a patient's medical records. Confidential information may also be shared with universities and pharmaceutical companies for research purposes.

By law, certain information also must be reported to state and local governments that maintain databases. For example, most jurisdictions require reporting of certain sexually transmitted diseases and gunshot wounds.

There are significant benefits to this shared information. Much of the medical research that has led to discoveries of causes and cures could not have been accomplished without access to medical records. Epidemics have been prevented because public health authorities received early notification of communicable disease outbreaks. Alert pharmacists who were able to recognize the potential have spared patients dangerous drug interactions.

But in this day of instantaneous communication, and the social stigma attached to certain diseases, the unintended consequences of improper release of information could include inability to obtain insurance or employment, health care, or housing. Genetic testing has opened an entirely new quagmire of issues.

The American Health Information Management Association (AHIMA) cites a number of examples of illegal release of patient records. For example, the *New York Times* received the records of a Congressional candidate on the eve of the election, indicating she had once

attempted suicide; a medical student in Colorado sold records to lawyers seeking malpractice clients; and a Florida public health worker leaked the names of 4,000 HIV-positive patients to two news outlets.

Clearly, patients must be protected from this kind of behavior.

HIPAA regulations require that virtually every health care organization appoint a Chief Privacy Officer (CPO), and HIM professionals are stepping easily into the new role. "The logical thing for a hospital to do is appoint an HIM professional to the new CPO post," states Anania-Firouzan. "Proper protection of patient information is a matter of policy, and that policy must be diligently enforced. That's what we are trained to do. That is our skill set."

She points out that in larger institutions, the CPO role is a full-time job for at least one, if not more, individuals. Doctor's offices may simply designate an individual who assumes that role along with their regular responsibilities.

AHIMA also is considering a new credential, being reviewed under the working title of "Certified in Healthcare Privacy" (CHP). But the organization is not sitting still. Four on-line courses are being offered that include foundations of privacy, roles and responsibilities of the CPO, and effective compliance.

"AHIMA plays a significant role in our profession," Anania-Firouzan states. The organization has also created a job description for a CPO, available on-line, so that organizations and individuals can understand the scope and responsibilities of the post.

One of the responsibilities of the CPO is to devise HIPAA-required formal education and training programs for all employees in a health care setting, which must be conducted by the 2003 implementation date. Training is mandatory for everyone from senior management to volunteers who may come in contact with confidential patient information.

"Even the cleaning staff has a role to play in protecting patient records," says Anania-Firouzan. "For example, if they see that a piece of paper containing confidential information has been put with the regular trash, they need to make sure that it is shredded or otherwise properly disposed."

Privacy Versus Security

Anania-Firouzan notes that while both privacy and security are addressed in the HIPAA regulations, they are two different entities. "HIM professionals are responsible for creating policy and enforcing regulations that ensure privacy." But security is the bailiwick of the information technology professionals, and the regulations also call for the creation of a Chief Security Officer. "These are the people who ensure that access to computerized records, for example, are on an as-needed basis," says Anania-Firouzan.

For example, a billing clerk should only require access to the financial part of a patient's record; a nurse should only have access to the records of patients under his or her care. It seems logical and relatively easy to administer. However, she points out that a leadership survey conducted each year by the Healthcare Information Management and Systems Society (HIMSS), a professional organization aligned with AHIMA, reveals that among respondents, only 86 percent are using user-access controls as part of their security system. "This suggests that there are records systems that are not yet adequately protected," Anania-Firouzan notes.

What's Ahead?

As previously noted, the privacy regulations are slated to go into effect in April of 2003 for hospitals and other large health care institutions. The first step in ensuring compliance is conducting a complete assessment of all facets of the operation – even activities such as fundraising, e-mails, and faxing need to be evaluated in light of the new regulations.

While larger hospitals and other institutions are well on their way to compliance, there are still many details to be worked out. Anania-Firouzan notes that revisions to the original regulations were being issued as recently as April of 2002. As with all regulations of this magnitude, there are gray areas that will require significant interpretation.

But she confidently notes that HIM professionals are at the forefront of this important step in ensuring that a patient's medical information is properly protected. "Our profession is very happy with these regulations."

For more information, contact Patricia Anania-Firouzan at **patti@pitt.edu**

Advancing the Field through advanced degrees

The Master of Science Program Helps Career OTs Achieve Continued Competency

This year, the National Board for Certification in Occupational Therapy (NBCOT) incorporates an important new mandate in the certification renewal process. In the past, recertification was virtually automatic every five years. But a 20-year trend toward greater emphasis on continued competency has finally taken form.

Occupational therapy, like all segments of the health care industry, is under constant pressure to contain costs while ensuring that consumers receive effective and appropriate therapy. Continued competency implies that a therapist is constantly learning, evolving, and honing his or her skills. It assumes that professionals in the field will seek out opportunities for professional development as they apply to the practitioner's role and environment.

Margo Holm

In order to renew certification, NBCOT now requires documentation that an accredited occupational therapist has pursued continued competency; it has also allowed a wide variety of self-directed programs for developing and maintaining continued competency.

"Earning an advanced degree is a highly effective way to achieve continued competency," says Dr. Margo B. Holm, Professor, and Director of Post-Professional Education, Department of Occupational Therapy. "We now offer a Master of Science (MS) degree in Health and Rehabilitation Science with an emphasis in occupational therapy. Integral to this program is the career design or redesign component, which allows professionals to plan a course of study that will provide in-depth concentration in a particular area."

An Immersion Experience

For example, Lieutenant Commander Linda Coniglio, an occupational therapist and Naval officer, was recently reassigned to an exciting position as Director of OT at Bethesda Naval Hospital. Her new job duties included clinical research. Wisely, she wanted to gain an immersion in all aspects of research so that she could effectively manage data and supervise others.

As part of her degree requirements, Coniglio was directed to a Specialized Preceptorship in Research. She spent five months in the field participating in data collection and management for the new Prospective Payment System (PPS) for medical rehabilitation – a new federal mandate. Because Holm was a field manager for national data collection, Coniglio was able to experience all of the roles one might have in a large, federal project, excellent preparation for her new assignment.

Changing Direction

Janet Begg received her advanced degree last December. She entered the program because she was interested in changing her area of practice to become a hand therapist. Through HealthSouth – Texas Woman's University, she completed a Hand Therapy fellowship that included an intensive review of anatomy, observations of hand surgeries, and clinical training. She then was able to transfer these credits toward her Master of Science degree from the School of Health and Rehabilitation Sciences.

"Janet was then assigned to work with Linda, who was already a certified hand therapist, to develop a continuing education program in hand therapy for private practice groups," says Holm. "Linda continued to learn the intricacies of clinical research, conducting a record review of hand therapy practice patterns within the private practice groups. She also conducted a needs assessment for staff continuing education. Together, Linda and Janet developed the program that resulted from that research and conducted an in-service, giving them both valuable teaching experiences that they could use in their respective career settings."

Improving Outcomes

Jodi Polczynski, also an MS degree recipient, is a staff supervisor in a neurorehabilitation program. She was motivated to seek her advanced degree by her desire to provide better guidance to patients with neurological impairments. As patients begin to relearn motor skills after a stroke or head injury, they often don't realize when they have achieved movement. As a supervisor, she wanted to provide an augmented feedback system to improve outcomes for patients and therapists alike.

Her course of study emphasized evidence-based practice – a challenging but essential component of the continued competency discussion. Evidence-based practice requires occupational therapists to find conclusive research that supports and guides their everyday practice. Polczynski created a decision tree, which tracks each step in the process of guiding patients as they relearned motor skills. She then found the literature that supported each of these steps, and compiled all of the research into an evidence-based reference notebook. Combined with in-service staff training, this notebook provides Polczynski's OT staff with a theory-based and evidence-based decision tree, and the articles to guide and support their neurorehabilitation approach.

"These three women offer us an excellent snapshot of the many different pathways to continued competency that can be achieved through a post-professional degree program," says Holm. "Linda was in a unique position to enhance her career through a new assignment in the military – and she used the program to gain the new skills she would need to make that enhancement. Janet was interested in a career change. As she moved into a new area of specialization, she also needed new skills. Her continued competency was not just acquiring a hand therapy specialization, but also in effecting change in a clinical practice while honing her teaching skills. And in Jodi's case, it was a desire for career expansion and mentorship that inspired her to use evidence-based practice to enhance her staff's clinical skills and her own competency in clinical practice and supervision."

Not every profession can or will use an advanced degree program to achieve continued competency. But therapists who seek advanced degrees in the field are the vanguards of continued competency for their profession. Their hard work and commitment naturally translate into opportunities for continued competency for the individuals they supervise, which in turn translates into more effective therapy for patients, and better outcomes.

For more information, contact Margo Holm at **mbholm@pitt.edu**

Physical Therapy

Teaching the Hands *that* Heal

The D.T. Watson Story

US News & World Report **has ranked the Department of Physical Therapy number three in the country. Its professional doctorate in Physical Therapy is the standard for education in the field. Thousands of its graduates are working in hospitals and outpatient centers around the globe.**

And it started with a girl named Sophia.

She was the daughter of a young Englishman, Ernest Freemen, who traveled to the Pittsburgh area from London and in 1908, became the steward and butler for a wealthy attorney, David Thompson (D.T.) Watson, and his wife, Margaret. Watson, who represented such notable names as Carnegie, Mellon, Vanderbilt, and Rockefeller, is perhaps best known for representing the United States and winning the Alaskan Bounty Dispute against Russia.

D.T. and Margaret were childless, and the couple became extremely attached to young Sophia, who was crippled. They saw the obstacles she was forced to overcome, and set out to find her the best medical care available. But the true scope of the problems confronting Sophia and other young girls with disabilities became clear during a vacation trip to India. There, they watched in horror as the bodies of baby girls, presumably killed because of their birth defect, were loaded onto funeral pyres and floated down the Ganges River. Upon their return to the United States, they determined that they would transform their country estate outside of Pittsburgh, "Sunny Hill," into a convalescent home for crippled girls.

"Sunny Hill" has been described as "pastoral bliss." The estate consisted of 68 acres of landscaped grounds and 70 acres of farmland. In addition to the main house, there was a carriage house, greenhouse, farm and maintenance building, and a cottage.

Jan K. Nicholson, who chronicled the Watsons in a 1976 white paper, said the couple "found the greatest happiness of their lives in their country home with its beautiful gardens and vine-entwined woodlawns and in their plans to use it for the children who were waiting to be born but who never came."

"Common Sense" Education

Watson died in February 1916, and in his last will and testament, indicated that the property should be used as a "home for destitute poor white female children between the ages of three and 16 years, especially including and preferring children crippled or deformed."

Watson set forth that the children would be "clothed and fed and educated solely at the expense of the charitable organization." He went a step further, stating, "They shall not in any way be subject to the interference or the control of either their mothers, fathers or any other relatives."

He wanted the children educated in what he termed, "a common sense manner. I would teach them the ordinary accomplishments of reading, writing and arithmetic, and also to sew and become cooks or maids or milliners or dressmakers or some other suitable occupation for women. I would give them such a practical education as will enable them after they leave the institution to support themselves."

The estate remained in the ownership of his widow until her death in 1920. In an amendment to his will, she directed that it be named "The D.T. Watson Home for Crippled Children."

An Emerging Discipline

The home opened its doors to patients in the summer of 1920 under the direction of Dr. David Silver, a respected orthopaedic surgeon and long-time friend of Watson. At the same time, the Division of Physical Therapy was created and the school admitted its first student, Jessie Wright.

Physical therapy was in its infancy. Silver recognized that he was unqualified to teach the theory and principles of this emerging discipline, so Wright was sent to Harvard Medical School to study under Dr. F. B. Granger, a pioneer in the field. She returned to Watson a short time later.

In 1927, the course of study was formally organized, with Silver now assisted by Wright. In order to meet the requirements of the Pennsylvania State Board of Medical Education and Licensure, Silver agreed to affiliate the program with the University of Pittsburgh School of Medicine. Courses such as anatomy and physiology, unavailable at Watson but considered essential by the State Board, were offered through the university.

Dr. Jessie Wright

By the mid-1930s, the Watson program was one of only five schools of physical therapy approved in Pennsylvania and one of only 13 in the country accredited by the American Medical Association.

Classes were small. Until 1938, the course in physical therapy was a two-year program, with both a junior and a senior class. A minimum of two students and a maximum of four were accepted into each class. A Bachelor of Science degree from an accredited college, with a strong emphasis in science, was required for admission, although exceptions were made for nurses and students in a three-year program in physical education. Graduates received a certificate in physical therapy and were eligible to become licensed or registered. In 1938, a degree program, better known as the three-and-one plan, was initiated with the University of Pittsburgh. Students received their first three years of education at the university, and the final year at Watson. They received a baccalaureate degree from the university in their major field, and a certificate from D.T. Watson in physical therapy.

In 1937, a new 100-bed hospital was built adjacent to the main house, which then became a dormitory for students. An underground tunnel connected the two facilities. The students, all female and under the age of 35, were required to live on the campus.

A Gracious Environment

Mary Elizabeth Kolb, who later became Watson's Director of Physical Therapy, was a student at the school from 1941 to 1943. She describes the home as "gracious." She remembers a living room carpeted with Persian rugs, a collection of Delft tiles "better than the ones I saw in Delft," and classes held in the wood-paneled billiard room. There were fresh flowers from the garden, milk and cheese from the dairy herd, and each afternoon, tea served from a silver service. Says Kolb, "I loved it."

It was during her two years at Watson that Kolb saw a fundamental shift in the practice of physical therapy. Prior to 1941, physical therapy was primarily orthopaedic, with an emphasis on exercise and the use of infrared, ultraviolet, and diathermy machines. The majority of children at Watson suffered from bone diseases like osteomyelitis and tuberculosis of the bone, diseases later treatable with

penicillin but rampant at the time. "The nurses would dress the wounds and the physical therapists would move the bones," is how Kolb describes the treatment regimen. There was no cure. Many of the children arrived at Watson as infants and left as teenagers.

The Polio Years

But in the early 1940s, Watson began to see an influx of polio patients, and treatment moved from the orthopaedic to the neurologic. At the time, little was known about the origins of the disease. Some thought that it was caused by grapes. Others, that it entered the digestive tract and traveled by nerve pathways to the spinal cord, a theory that Kolb, even as a student, found "ridiculous."

The treatment of choice was the "Kenny Method," developed by Sister Kenny. The nun visited Watson in 1943 to instruct students in her pioneering techniques.

Her treatment was based on exercising the paralyzed muscles and applying various shaped, wet wool patches to the affected limbs. "We had triangular patches for the thighs and rectangular patches for the legs," describes Kolb. "It was a regular ritual. Very elaborate."

Later, Watson students received proprioceptive training, which involved stroking the affected muscles. The results were good, but Kolb laughingly remembers tiring of telling patients to "think here" as she attempted to get them to isolate particular muscles.

During the polio epidemic of the early 1950s, Watson was one of only four schools in the country chosen by the National Association for Infantile Paralysis to provide emergency care for epidemic areas without medical centers. The others were Harvard, Northwestern, and Stanford.

More important, Watson also was the site where Dr. Jonas Salk first conducted clinical trials with his experimental polio vaccine. Dr. Paul Enders, who later won a Nobel Prize for his work, paved the way for the vaccine with the discovery that polio was a virus carried through the bloodstream. Salk, whom Kolb describes as "one of the most careful researchers I have ever seen," developed vaccines for the three polio types.

Salk's first subjects were he, his wife, and his child. Children at Watson already affected with

The treatment of choice was the "Kenny Method."

the virus were next, followed by Watson students and staff. To this day, Kolb carries a memento of the trial – a lump on her tricep. "He was experimenting with mixing the vaccine with mineral oil and saline," she explains. "The mineral oil is still under my skin." In 1955, the vaccine was declared safe and effective, and widespread innoculation began.

Rapid Growth

The field of physical therapy – and D.T. Watson – grew dramatically following World War II. A brochure produced by the school in 1946 describes the profession as "the field for the new career girl of the health world." Driving the demand, the copy continues, are "the war wounded, those hurt in industrial accidents, victims of infantile paralysis and cerebral palsy, and the chronically disabled."

But women weren't the only people drawn to this "challenging, satisfying profession." In 1950, the first man was admitted to Watson.

Carol Levin, Class of 1963

It was strange going from a traditional college program with classes sporadically to the intensity of the physical therapy program at Watson. Full-time morning to night, and then studying for the next day – every day. At the time, it was a certificate course and we had basically one year to learn everything. We bonded as a class and I think everyone came out with a first class education. Dr. Jessie Wright was the matriarch of the program, and from her we learned many things, especially that "no adult should sit more than an hour without getting up to move around."

Mary Liz Kolb and Ann Pascasio were also primary instructors in our program. I think I began my path to a vegetarian diet at Watson, as cadaver lab was just before dinner. I still have fond memories of my student days at Watson. I went into physical therapy originally to work with children, but after being there with the children, even though they were sweet, I found that adult rehabilitation was much more satisfying and interesting. I've been in home care for the past number of years, where I continue to work part-time.

Others followed, thanks to the G.I. Bill. "You'd never find better students," comments Kolb. Male students were not permitted to live on campus, referred instead to rooms within private homes or to the Sewickley YMCA. Fraternization was discouraged.

While there were changes in the gender mix, the curriculum at the school remained static between 1950 and 1964. Prerequisites included 14 semester credits in biological sciences, six semester credits in chemistry and/or physics, and an equal number in psychology. Under the three-and-one program, classes in the final year at Watson ranged from anatomy and kinesiology to tests and measurement and therapeutic exercise. Graduates were eligible for membership in the American Physical Therapy Association and were qualified to take the state licensure examination.

The Transition Begins

1967 was a watershed year for D.T. Watson. Starting in the late 1950s, hospital schools like Watson began losing staff – and students – to university programs. But in 1967, a bad situation got even worse at Watson. Dr. Jessie Wright, who had been with the school since the beginning, retired. So did long-time administrator Lucille Cochran. Mary Elizabeth Kolb stepped down as co-director of the Physical Therapy program. Several interim appointments were made, but even these were short-lived.

Meanwhile, the University of Pittsburgh was contemplating changes of its own. While the university was affiliated with D.T. Watson, it was Watson that held the accreditation by both the American Medical Association and the American Physical Therapy Association. Without accreditation, the university could not apply for physical therapy-related grants. Under consideration was the creation of a School of Health Related Professions.

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Mary Elizabeth Kolb

Jane Linn, Class of 1945

I was one of three civilian students with a group of female army officers in 1944-45. The War Department requested D.T. Watson to condense the one-year course to a six-month didactic course. Current students should compare their schedule to our 6 1/2 days a week. Yes, Saturday morning and Sunday afternoon classes.

Dr. Jessie Wright ruled the roost, and believe me, we stood at attention when she entered. She taught and we learned.

The Army students were of various backgrounds. Some were teachers; all were officers, who had not been in a school situation for a number of years.

Since we were living at the Watson Estate, there was no such thing as "cutting classes." Everyone attended every class. If anyone was missing, they were located and soon arrived in the classroom. I did miss 10 days due to an emergency appendectomy and worried the whole time about how many bones, muscles, nerves, etc., I was behind.

Following the six months at Watson, all military students went to Army hospitals for clinical training. I had applied and was accepted at England General Hospital, an army hospital in Atlantic City that was set up to receive wounded directly from overseas. All types of injuries arrived – amputees, neurological, head, and spinal cord injuries. This was excellent preparation for me as I spent the next 30 years treating veterans from World War II, the Korean conflict, and Vietnam at the VA Medical Center in Pittsburgh.

Teaching the Hands *that* Heal

continued from page 38

In 1968, Watson approached the university and asked for help. The staffing situation had reached crisis proportions. Minutes from a June 1968 meeting of the steering committee created by the university and Watson underscored the problem.

"D.T. Watson, due to recent resignations, will have no full-time faculty as of September 20, 1968, and 45 students have been accepted beginning in October. Personnel is needed not only in the basic sciences, but also for administrative duties, as well as for the teaching of physical therapy procedures."

The committee concluded that "placement of the program within a university structure is more in keeping with current educational practice."

After several months of negotiation, an agreement was reached. Watson's physical therapy program would be transferred to the university. A School of Health Related Professions would be created. And in January 1969, Dr. Anne Pascasio, a former student at Watson and at the time, assistant to the Vice Chancellor of Health Professions, became its founding dean. An era had ended.

The home with its Persian rugs, Delft tiles, and silver tea service, is gone. The name remains. The Watson Institute is a nonprofit organization that provides educational and respite services for children with neurological impairments.

But most important, the legacy of D.T. Watson continues. The commitment to caring is embodied in the mission, vision, and values that are at the heart of the School of Health and Rehabilitation Sciences.

It started with a girl named Sophia. But its end is nowhere in sight.

What Do You Think?

Have an opinion about something you read in *FACETS*?
E-mail your thoughts to Karen Khan at
ktkhan@shrs.pitt.edu
We'll print letters to the editor as space allows.

What a Pain!

Identifying the Correct Treatment for Lower Back Pain

More than 80 percent of American adults will experience an activity-limiting episode of lower back pain at some point in their lives. But unlike patients who suffer from lumbar spinal stenosis (*FACETS*, Fall 2001) or other medical conditions that lead to chronic, persistent pain, most incidences of lower back pain are intermittent or occasional, but could last up to a year, even with treatment.

Despite the fact that lower back pain is so common, there is a dearth of research on which patients respond best to which treatments.

The Department of Physical Therapy has been at the forefront of evaluating various treatment modalities and attempting to quantify the specific factors that may suggest a particular course of treatment. Under a grant from the Foundation for Physical Therapy, Dr. Julie Fritz, Assistant Professor, Department of Physical Therapy, began a three-year study in 1997. "One of the things that hinders treatment of lower back pain is that it's often difficult to identify, from a structural sense, what's wrong with the patient," says Fritz. "Therefore, our approach has been to characterize and group the symptoms a patient exhibits that may point to a certain treatment, as opposed to trying to identify the pathology or the structure, which is often impossible."

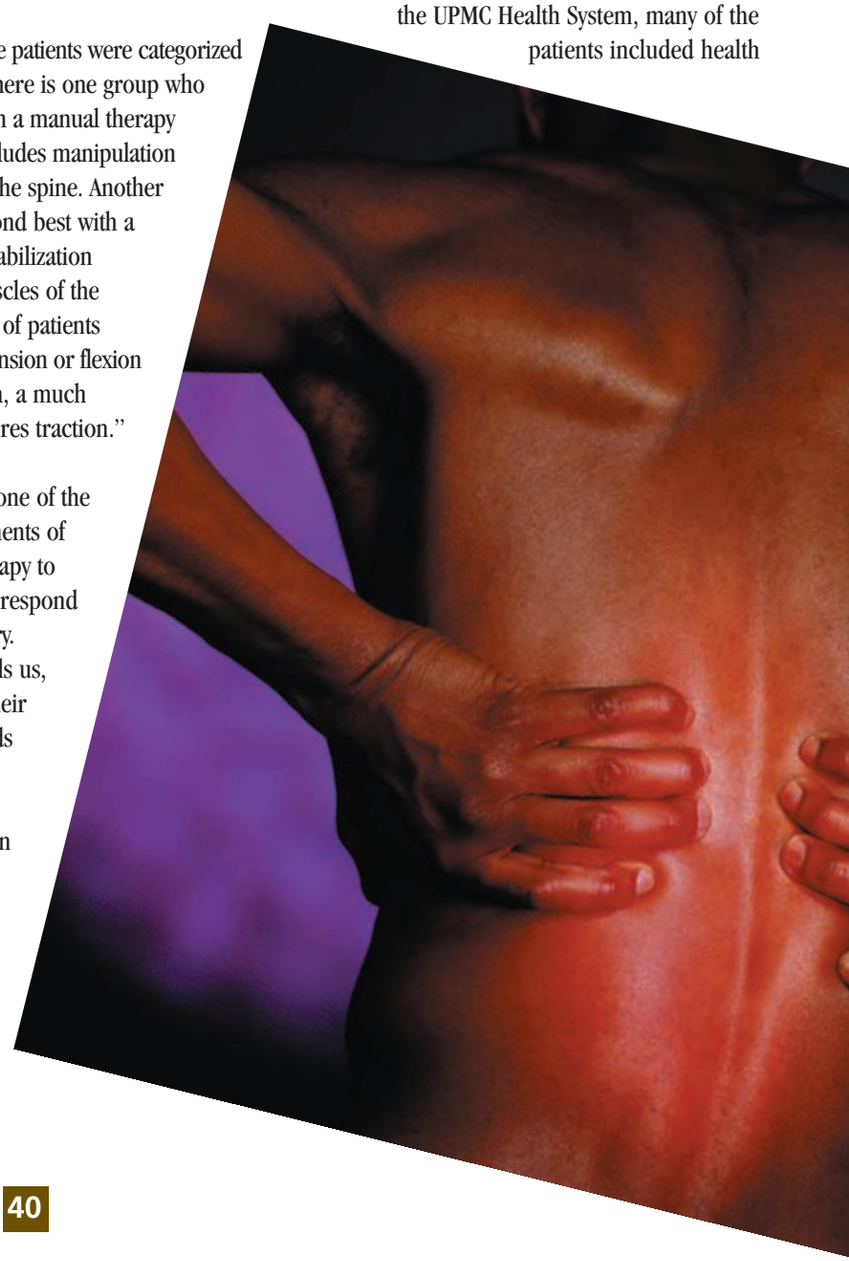
Her colleagues, Drs. Anthony Delitto and Richard Erhard, along with several graduate students, participated in the research, and the results, according to Fritz, were very favorable to the grouping approach. "Our patients seemed to do better, they got back to work more quickly, and used fewer medical resources."

According to Fritz, the patients were categorized into four groups. "There is one group who seems to do best with a manual therapy approach, which includes manipulation and mobilization of the spine. Another group tends to respond best with a strengthening and stabilization program for the muscles of the trunk. A third group of patients responds well to extension or flexion exercises. The fourth, a much smaller group, requires traction."

Fritz points out that one of the most important elements of determining the therapy to which a patient may respond is an extensive history. "What the patient tells us, how they describe their symptoms, what tends to make them better or worse, from their perspective, can often be a powerful factor in predicting what's going to help them," she states.

Other factors on which the researchers focused were measured factors such as range of motion, looking for certain restrictive patterns or aberrations of range of motion that seem to point to a certain problem. "We use palpitation techniques and other special tests to try to distinguish one group from another," Fritz continues.

The patients who participated in this research project were primarily those with work-related injuries. Because SHRS physical therapists perform much of their clinical work within the UPMC Health System, many of the patients included health



Julie Fritz

care workers, such as nurses and nurse's aides, who may have to move or shift patients who may be non-responsive or overweight.

Other people susceptible to lower back work-related pain are those who drive for a living – because of the constant vibration – and manual laborers, who may do a great deal of lifting. "But it's not uncommon for people who have sedentary desk jobs to develop lower back pain. Sitting may just be difficult for them," adds Fritz.

Finetuning the Research

The researchers, under a subsequent grant from the Foundation for Physical Therapy, are continuing to hone their theory and clarify the criteria within each subgroup. Fritz says they are now evaluating patients who respond best to manipulation therapy to review the original hypothesis of what were the best indicators of that treatment.

Patients who respond best to manipulation tend to be somewhat younger and usually have a shorter duration of symptoms. Typically, they have only back pain, not pain that radiates into the legs.

"We're attempting to determine if the indicators we thought were most important actually are, or are there more important things, and should we make any adjustments to better aid us in identifying those patients best suited to manipulation as the primary treatment," she says.

Thus far, the research has proved promising. "Based on our initial pilot study, some of the factors that we thought were important have played out," says Fritz. "There were other things that surfaced that somewhat surprised us, which is good, because that makes you refine your thinking and not fall back on things you've always believed."

She says the next step is to repeat the research to confirm the findings. The researchers hope to continue the research among patients who respond best to other treatments.

Other Initiatives

Fritz and her colleagues have applied to the National Institute for Occupational Safety and Health (NIOSH) for a grant to study the psychological factors that may play a role in the treatment of lower back pain among patients who have experienced work-related injuries. "Often, these are the individuals in whom the psychological and emotional aspects become most obvious because there are concerns about returning to a job that could cause them to re-injure their backs."

In addition, the Workers' Compensation system itself can be challenging for the patient to navigate. "The physician, the patient, the therapist and the employer can at times feel as though they are in an adversarial position, which doesn't help the patient's recovery," says Fritz.

"If the patient believes they are not receiving the right care or that someone is motivated by something other than their recovery, it can create anxiety and fear," Fritz points out. "They become concerned that they may not be able to return to work, or that they'll lose their job and have all the social and financial consequences that go along with that."

Unfortunately, if lower back pain is work-related, there is just so much that the therapist can do. "Unless there is a change in what has caused the lower back pain in the first place, patients could be set up to fail," says Fritz.

Parents Beware

Research on lower back pain has, up until now, focused almost exclusively on adults. Although it is uncommon for children to experience lower back pain, more and more adolescents and teens are experiencing the problem, primarily caused by sports or extra-curricular activities.

Fritz notes that young gymnasts, for example, may not experience pain while they are competing. "They are very flexible and limber and most practice on a regular basis." However, later in life, after they've stopped competing, many may require spinal fusion to reduce their pain. Linemen, because of their stance, and swimmers, divers, and ballet dancers also are prime candidates for lower back pain.

Be All You Can Be

Like many of the other faculty in the Department of Physical Therapy, Fritz teaches, performs research, and sees about 15 to 20 patients each week. Her clinical venue is the UPMC Center for Sports Medicine. "It really helps me in all of my roles. As a researcher, it helps to clarify what the relevant questions are, what clinicians care about, and what's feasible to do in a clinical setting.

"As an educator," she continues, "it helps maintain skills and decision-making abilities and ensures that what you teach students is relevant."

Fritz also points out that as a physical therapist, "If you stop practicing, you get rusty very quickly. Maintaining a clinical connection is something strongly encouraged by the department."

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Reaching Out and Grabbing On

Rehabilitation Science and Technology

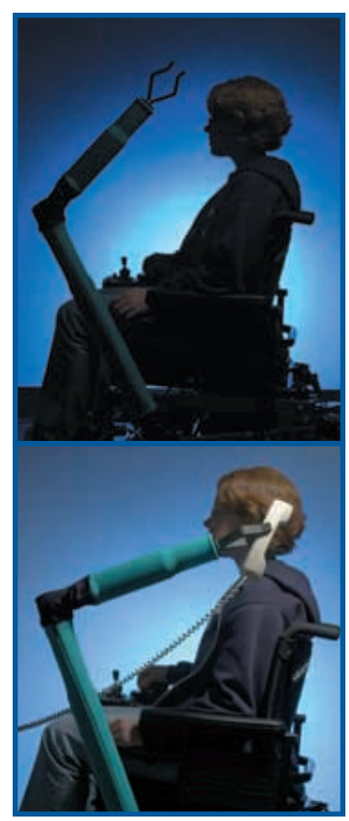
The Raptor Arm Improves Life for Patients with Limited Upper Extremity Function

It's frustrating when what you want is just out of reach. Sometimes it's grasping blindly under the sofa to retrieve the car keys. Other times, it's groping behind the washer to grab that long-lost sock.

Now consider how difficult daily life would be if you couldn't use your arms, hands, or shoulders. For many people living with the aftermath of spinal cord injuries or other conditions such as Multiple Sclerosis or ALS that compromise motor control, the frustration of not being able to reach out, grasp, or pick up items is not just a minor annoyance. It's an ever-present reality. And for many of those individuals, it's a major obstacle that limits their opportunities for interaction and erodes their overall quality of life.

Much of the frustration that comes from having life's necessities just out of reach may soon be part of the past due to research at the Human Engineering Research Laboratories (HERL). Working in tandem with the VA Pittsburgh Healthcare System and its sister facility in Houston, TX, researchers are evaluating the functionality of a state-of-the-art robotic arm. Known as the Raptor, the arm is a wheelchair-mounted device that allows users to reach out, grab, and maneuver a variety of objects.

Distributed by Applied Resources Corporation, the Raptor is the only FDA-approved robotic arm available in the United States. It attaches easily to most motorized wheelchairs, and is powered through the charging port on the chair's electrical system. Controlled by either a joystick, keypad or "sip-n-puff," the arm features three joints – a shoulder, an elbow, and a wrist. The shoulder facilitates forward and backward movement, and lets the arm rotate smoothly from side to side. The elbow allows the user to extend the arm forward a maximum distance of 48 inches. The wrist enables the user to rotate the unit's integral grippers into the correct position to pick up desired objects. And a two-button switch mounted on the joystick opens and closes the gripper.



"The Raptor can really expand the reach and functionality of the user," explains Dr. Alicia Koontz, Research Health Scientist at HERL.

"It allows patients to do things for themselves, and can open up a world of possibilities to those individuals who do not have use of their upper extremities."

The Raptor in Action

The current VA-HERL study is examining how well the Raptor performs in a number of tasks requiring gross motor control. Selected tasks replicate activities that commonly occur in the home. Specifically, the HERL team is using the arm to pick up various items, transfer objects from one spot to another, pour water from a pitcher into a glass, assist in eating, open doors, and turn on lights. The arm also is being used to shuffle papers, retrieve books, turn pages, and insert disks in computers.

"We wanted to see how the arm performed in a number of situations typically found around the home or workplace," comments Koontz. The groups in Pittsburgh and Houston have worked closely to examine how this device can help improve quality of life and independence by making tasking easier. And along the way, the team has evaluated the functionality of the device and made recommendations to the manufacturer on how it could be improved.

Koontz and her colleagues have also counseled users on how to interact with the arm safely. For example, if the Raptor is holding food, it's important that the user lean forward to take a bite, rather than run the risk of being accidentally hit in the face.

"It takes a little while to get used to how the Raptor works," says Koontz. "There are eight switches in the joystick that control the various movements of the arm. Usually users figure out the basic movements in about 10 to 15 minutes, but it can take some practice to be able to perform finer maneuvers, like pouring from a pitcher or picking a cookie up from a plate. Users frequently comment that it's easy to overshoot or to fall short of the target object."


Alicia Koontz

The team also takes time to familiarize users with a number of built-in safety features.

To protect users, their surroundings, and the arm itself, the Raptor is outfitted with slip clutches in each of the arm's joints as well as in the gripper. If the arm or gripper should inadvertently come in contact with an obstacle, such as a wall or a piece of furniture, the clutches open and cause the drive components to slip. This effectively eliminates potentially dangerous torque while it protects the user from getting pinched or pinned by the arm. In addition, the control switches within the joystick are outfitted with an automatic delay feature that provides the user with a cushion of time between movements. During the delay period, the user can cancel unintended movements by simply pointing the joystick in another direction.

Strengthening the Robotic Arm

In addition to evaluating the Raptor's functionality and familiarizing users with its capabilities, the team has offered a number of suggestions to improve its overall design. "We definitely need to rethink the mounting system so it's compatible with a wider range of wheelchairs," remarks Koontz. "Along that same line, we've also suggested making modifications to the arm's mounts to make the arm easier to remove and reinstall for transportation."

The team is also looking at "sip-n-puff" and other types of user interfaces that would replace the joystick and make the arm useful for people who do not have the hand or arm control necessary to operate the current interface joystick or keypad interfaces. "The company has a 'sip-n-puff' interface that will work with folks who don't have hand/arm control," notes Koontz, "but it is not efficient. We are also looking at different control methods to more easily and effectively position the arm. The current control method is joint-by-joint, that is the user must position each joint one at a time. We would like to explore gripper position control in which the user specifies a position of the gripper, and the Raptor is responsible for performing the calculations to determine the joint angles necessary to achieve that position."

On the whole, however, the Raptor is helping a number of VA residents reach out in ways they haven't been able to before. "Several of our study participants have gone down to the VA canteen and have successfully served themselves fountain drinks, picked up sandwiches and selected bags of chips and cookies," observes Koontz. "Best of all, they did all those things on their own."

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Partnering To Build A Better Wheelchair

There are many ways to look at India. One of the most populous countries of the world, it is a diverse melting pot of religions and cultures. It covers many different types of terrains, from steep mountains and rolling plains to barren deserts. It boasts heavily industrialized cities, as well as rural farmlands. And throughout this vast country with its legions of people, there's a constant need for effective – and affordable – assistive technology to support a growing population of individuals faced with the realities of physical disabilities.

Presently, there are more than 10 million potential wheelchair users in India. And each year, another million people require the assistance of a wheelchair to carry on daily activities.

To keep up with the expanding demand, and to provide chairs that are technologically up-to-date and within financial reach of the users, the Artificial Limbs of India Manufacturing Company (ALIMCO), the country's leading producer of wheelchairs, tricycles, artificial limbs, and hearing aids, needed assistance to upgrade its wheelchair offering.

They got the help they needed from the other side of the world. For the past two years, the School of Health and Rehabilitation Sciences (SHRS), in partnership with the National Institute on Disability and Rehabilitation Research (NIDRR) have been working closely with ALIMCO to design, build, and test wheelchairs that are specifically engineered to meet the varying needs of Indian users. NIDRR has provided funding to underwrite the cost of the project, and SHRS has provided technical and consulting support.

SHRS Steps Up to the Plate

"The challenge in this situation was building a chair that was inexpensive yet adjustable and functional," observes Dr. Rory Cooper, Professor and Chair, Department of Rehabilitation Science and Technology, and Director of the Human Engineering Research Laboratories (HERL). "Fortunately, it was a challenge that could be effectively addressed in our wheelchair design classes, and one that Cliff Brubaker, Dean of SHRS, and Kate Seelman, Associate Dean for Government and International Relations and Professor, Rehabilitation Science and Technology, were eager to participate in."

The groundwork for this innovative class assignment began in December 2000 when Cooper and other colleagues from HERL and SHRS traveled to India and met with the ALIMCO team. "ALIMCO is owned by the Indian government, but has to cover its own expenses, which can make it difficult for them to invest in advanced technologies. When we visited their facility, ALIMCO was producing chairs that were based on designs from the late 1940s and early 1950s. It was clear that we could offer assistance in upgrading their product and ALIMCO was ready to work with us," explains Cooper.

After conferring with their engineers, the SHRS team returned to the United States to begin work on a new chair. Cooper immediately generated several sketches that proposed improvement to the existing designs being manufactured by ALIMCO. Within a few months, those designs had been prototyped by the Indians and were sent to Pittsburgh for inspection and evaluation. At the same time, ALIMCO was working with the Indian Government to increase wheelchair production capacity.

"We needed to create a chair that had an updated appearance and that could stand up to the requirements of daily use," observes Cooper. "We also had to make it affordable. If the chair ended up costing thousands of dollars, none of the targeted users could afford to own one. We accomplished those goals easily."

Building Knowledge

In the spring 2002 semester, Cooper's students designed and built a chair that met the Indian requirements from the ground up. It then shipped a prototype to ALIMCO for inspection. At the same time, another prototype went to the VA Pittsburgh Health System for evaluation against ISO standards.

Also, during the spring semester, a group of engineers from ALIMCO traveled to the United States to learn more about wheelchairs and assistive technology research first hand. They began their 10-day visit by attending the International Seating Symposium in Vancouver with Mark Schmeler, Clinical Director of the Center for Assistive Technology (CAT). At the conference, they met with a number of manufacturers and participated in a meeting that discussed wheelchair standards.

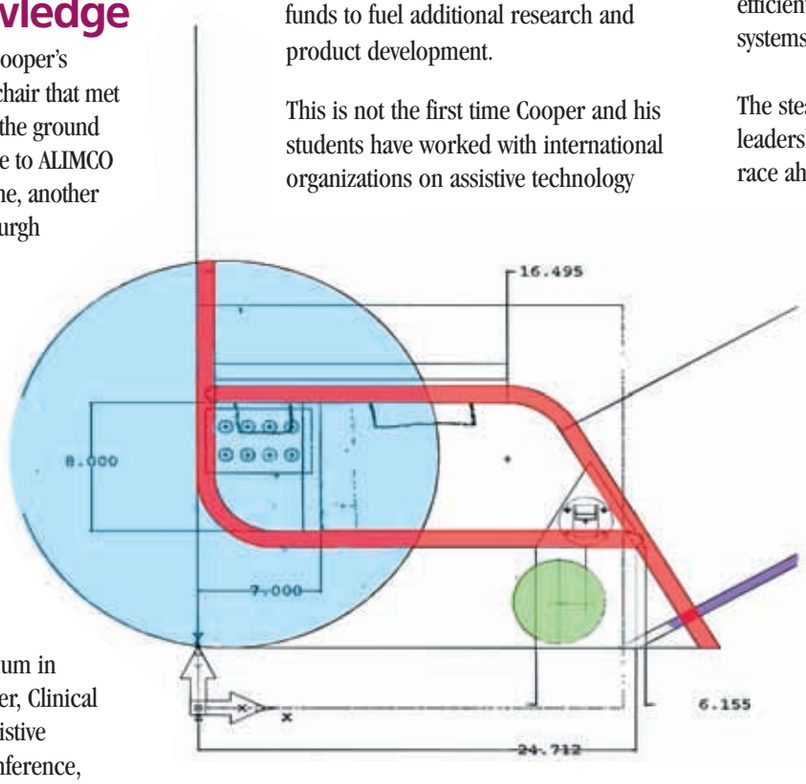
They then traveled to Pittsburgh and met with SHRS faculty members, Dr. Dave Brienza and Dr. Mary Jo Geyer, for a session on wheelchair seating. While in Pittsburgh, they also visited the CAT for discussions on clinical service delivery and wheelchair transportation safety. The team spent its final three days at HERL learning about materials and manufacturing issues, and then concluded their visit by actually building a wheelchair at the Pittsburgh VA facility.

Rory Cooper

Partnership Strengthened By Progress

The Indian government has been watching progress on this project closely. Committed to reducing childhood disability and diseases, they have promised to purchase a large quantity of the new chairs from ALIMCO and provide them to as many people as possible, an approach that ensures sales for ALIMCO and provides funds to fuel additional research and product development.

This is not the first time Cooper and his students have worked with international organizations on assistive technology issues. He has taught his wheelchair design course for the past eight years, and has worked with organizations in Russia, Cambodia, Vietnam, Colombia, Mexico, Zimbabwe, and Tanzania. Unlike past projects, however, this initiative has the potential to turn into a lasting partnership. ALIMCO has stepped up efforts to improve its products and expand its production initiatives. It is currently discussing development of a tilted space child chair and an electric-powered chair with the SHRS team to further broaden its product selection. In addition, it is positioning itself to compete against European-made chairs, the wheelchairs of choice among affluent Indians who can afford to purchase their own assistive technology equipment.



"Our collaborative efforts with ALIMCO have resulted in a good chair," says Cooper. "The product we've created can be manufactured for about $150, a figure that puts it in easy reach of most users. We've also streamlined the development cycle by creating a website that houses the plans for the chair. Our Indian counterparts can log on and download the plans quickly and easily, and we can all share testing and research information quite efficiently. Put that all together and you have systems that support ongoing good work."

The steady progress on this also impressed the leadership at SHRS. "Unlike other projects that race ahead and suddenly stop, this assignment continues to roll ahead smoothly and steadily," sums up Cooper. "It could conceivably continue for years to come, and we're more than willing to continue partnering with them to help create the right equipment for their users. Unlike some other international projects, it's not some black hole that we pour resources into and then walk away from when it's over. Everybody who has been involved with this effort is impressed with the outcome and is committed to moving forward. We still have a lot of work to do in India – and a lot of individuals to help with assistive technologies – but we're ready for it."

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

Par *without* Pain

Identifying the Best Course for Golf Injury Treatment and Prevention

Most people don't think of a 9-iron, a little white ball, and 18 holes as nefarious tools that could land them in an operating room. But as golf's popularity increases, so do the number of golf-related injuries, many requiring surgery. Dr. Scott Lephart wants to reverse this trend. Lephart is Associate Professor and Chair, Sports Medicine and Nutrition, at SHRS, and Director of the Neuromuscular Research Laboratory at the UPMC Center for Sports Medicine, which includes the center's Golf Medicine Program.

Housed in UPMC's Sports Performance Complex on the South Side, the Golf Medicine Program opened its doors last year with an eye to treating and preventing golf-related injuries. Lephart says while there are several golf medicine programs in the U.S. that treat and try to prevent golf-related injuries, his program is the first that is research driven, using research data and models to study golf injuries and develop injury-prevention techniques. In addition to research, the program seeks to educate golfers – especially those in youth programs – on the injury risks inherent within the sport.

"We are going to study the optimal way to treat, rehabilitate, and manage golf injuries, but our real focus will be prevention," says Lephart.

The impetus for the Golf Medicine Program is rooted in Lephart's belief that sports medicine has largely overlooked golf, which he thinks is 15 years behind other sports. He says serving athletes in all sports, including golf, is important for the department's identity.

"The incentive was to be as comprehensive as we possibly could – not to be a selective center of excellence in the area of sports medicine," says Lephart. "We have the football market, because we're in the same facility as the Steelers. Our team physicians provide services to the Steelers, Penguins, and the University of Pittsburgh, so we have virtually all the elite sports medicine alliances, but we didn't have golf. Because golf is a high-profile sport, we wanted to make a commitment to developing an expertise and center of excellence in golf."

The program is divided into three areas: training and conditioning, where patients work with golf-trained therapists to get their bodies in peak shape; medical/clinical, in which orthopedic surgeons determine the most effective treatment for injuries; and research, where models are designed to help prevent and treat specific golf-related injuries.

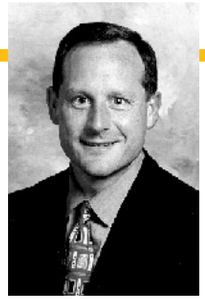
Lephart and his staff apply many of the same principles developed to study Anterior Cruciate Ligament (ACL) injuries in jumping, running, and landing sports – such as football and basketball – to study injuries common to golfers. Although golf is viewed as relatively sedentary compared to higher impact sports, chronic hip and shoulder injuries plague many golfers due to overuse, sub-par instruction, and poor conditioning.

"That's one thing people don't understand; the golf swing creates tremendous forces and torques on the body unlike many other sports," says Lephart. "We think because it's not a contact sport – there's not a lot of aerobic/physical activity in it – that it's a rather benign sport, when in fact the forces created in the low back, right hip, and left shoulder equal or exceed the forces we see in virtually any sport."

In order to better understand golf injuries and why they happen, researchers examine a patient's entire musculoskeletal profile, analyzing strength, flexibility, endurance, aerobic capacity, and mechanics of the golfer's swing. This analysis enables them to learn more about the various forces generated across the body during a golfer's swing, as well as the muscles that contribute to generating those forces and movement patterns.

The Gift of Star Power

A galvanizing force for the Golf Medicine Program has been the involvement of professional golfer, Greg Norman, and world-renowned surgeon, Dr. Marc Philippon.

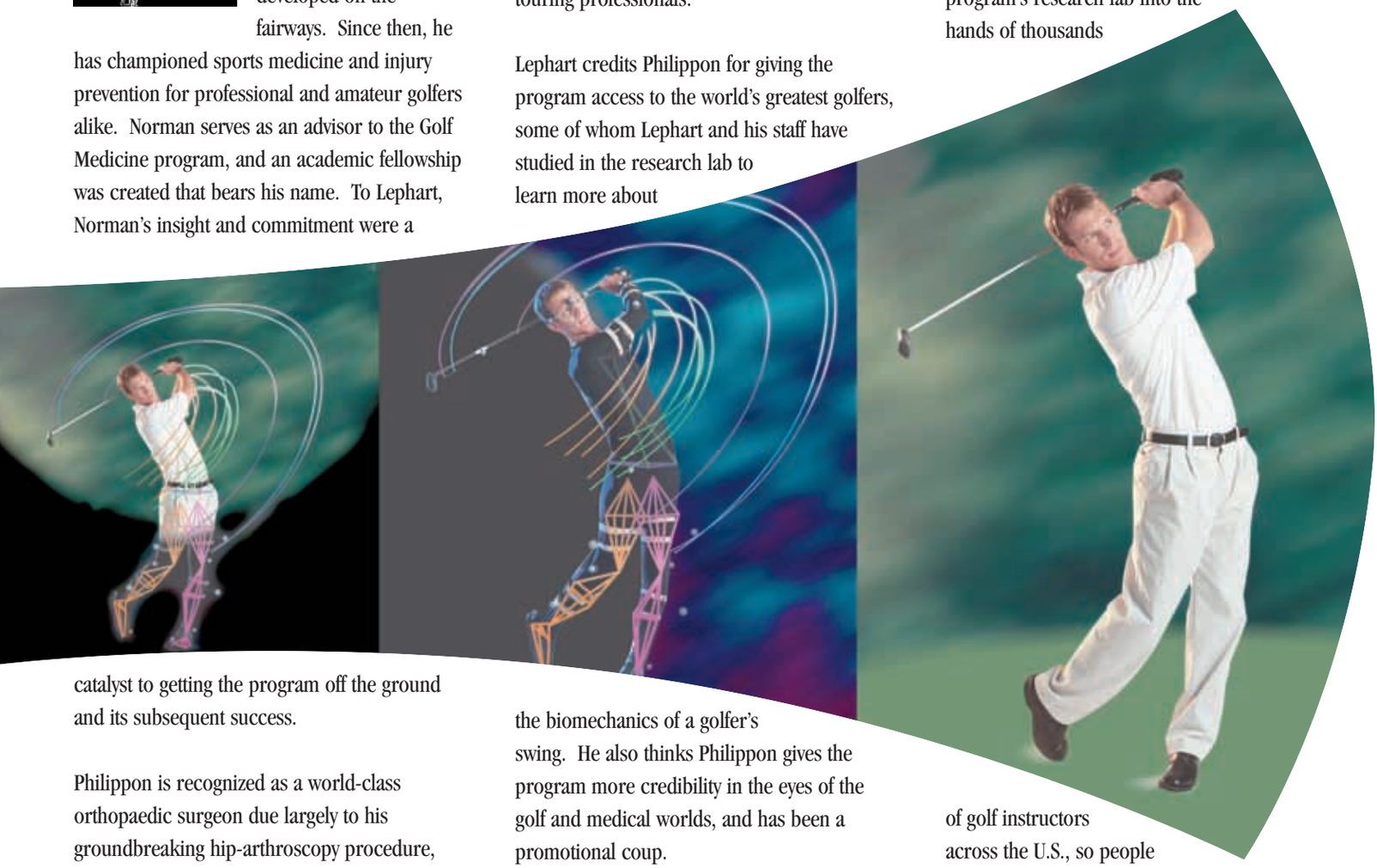


Norman's interest in golf medicine dates back to his experience overcoming chronic injuries developed on the fairways. Since then, he has championed sports medicine and injury prevention for professional and amateur golfers alike. Norman serves as an advisor to the Golf Medicine program, and an academic fellowship was created that bears his name. To Lephart, Norman's insight and commitment were a catalyst to getting the program off the ground and its subsequent success.

Philippon is recognized as a world-class orthopaedic surgeon due largely to his groundbreaking hip-arthroscopy procedure, which helped resurrect Norman's career two years ago. Hip cartilage tears are a painful reality for many golfers, and there was little in the way of relief until Philippon modernized the surgical procedure to treat these injuries by making it less invasive and physically traumatic. The procedure inhibits degenerative joint disease in the hip, and significantly reduces the likelihood of total hip replacement down the road. Consequently, golfers are able to have longer careers and play without chronic pain.

Norman was the first golfer to undergo hip surgery with Philippon, who had the Australian-born golfer back on the golf course four to six weeks later playing pain-free for the first time in years. Word quickly spread among professional golfers, many of whom suffer from chronic hip pain, of this seemingly miraculous surgical procedure. In the first 12 months of Philippon's tenure at UPMC, he has performed the hip arthroscopy procedure on 12 PGA touring professionals.

Lephart credits Philippon for giving the program access to the world's greatest golfers, some of whom Lephart and his staff have studied in the research lab to learn more about the biomechanics of a golfer's swing. He also thinks Philippon gives the program more credibility in the eyes of the golf and medical worlds, and has been a promotional coup.



"You've got to have a recognized figure like him in order to get some of these athletes into the program," says Lephart. "The program isn't set up for the elite golfer, but in order for us to market the program and in order for the program to be internationally known and respected, you have to have these types of clients for the business side of sports medicine."

Thinking Ahead

In the next five years, Lephart envisions golfers and golf instructors utilizing the UPMC Center for Sports Medicine not only for help with injuries, but also to tap into what he hopes will be an injury prevention model that highlights the physical attributes necessary for injury-free golfing. Moreover, Lephart would like to impart all the data collected from the program's research lab into the hands of thousands of golf instructors across the U.S., so people can enjoy golf throughout their lives with a lower risk of injury.

Norman is strongly encouraging the PGA to incorporate information from the injury-prevention studies into the overall curriculum for golf instructors, which Lephart thinks will happen by 2005.

For all the progress made so far, Lephart feels the Golf Medicine Program's advances have a more far-reaching benefit than just golf. "The Golf Medicine Program has really contributed to the whole sports medicine practice."

For more information, contact Scott Lephart at **lephart@pitt.edu**

Photos courtesy of UPMC Sports Medicine.

Sports Medicine and Nutrition

The Training Table

Healthy Eating and the Healthy Athlete

Every few years or so, health professionals refine their thinking on what goes into a healthy diet. The USDA, for example, has reshuffled the blocks on the food pyramid. The same elements – meat, dairy, fats, bread, fruits and vegetables – are always there. It's the recommended daily intake that usually gets readjusted as researchers learn more about the foods we eat and the role they play in maintaining a balanced, nutritious diet.

Today, dietary supplements are touted to improve everything from strength to athletic performance – little of which is based on any real science. Add to this fad diets that focus on protein or carbohydrates at the expense of other food groups, plus a barrage of tantalizing fast food advertising, and you've got a landscape of nutritional confusion.

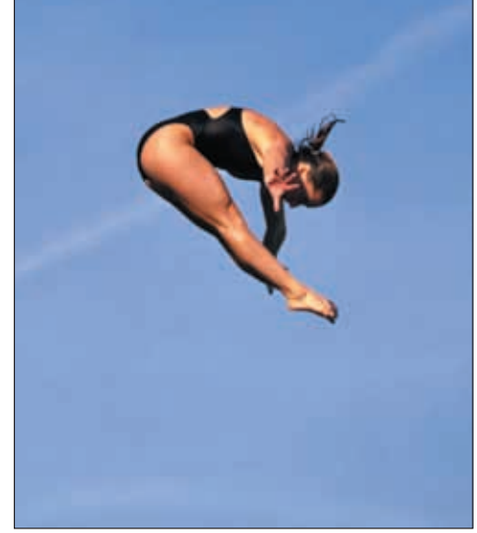
Drop a young athlete into this perplexing environment – add a dose of concern about physical appearance – and you have the potential for athletic injury or poor performance. Common sense suggests that athletes should be good candidates for developing sound nutrition habits. But the pressure to excel, coupled with mixed messages, may work against what seems to be a logical notion.

The importance of nutrition in athletic training, rehabilitation, and performance is not new – but in folding the Department of Sports Medicine/Athletic Training (SM/AT) into SHRS last year, the school is positioning itself on the cutting edge of education, research, and clinical practice in this important arena.

Now, faculty in Sports Medicine and Nutrition are joining forces to explore improving the science of nutrition as it relates to athletes and, along the way, improving the health and performance of the competitors. "There are some people still questioning the commonalities of our two disciplines," says Kim Crawford, Program Director and Instructor. "But we believe there is an important connection between nutrition and athletic training, and nutrition and rehabilitation from sports-related injuries.

"If you can convince an athlete that good nutrition will improve his or her ability to train at a high level, and therefore, improve their performance, I think you can convince them to improve their nutritional habits," says Crawford.

Kevin Conley, Program Director and Instructor in the Athletic Training Education program, agrees. "We have the potential to do some groundbreaking research as a result of merging the two programs," Conley explains.



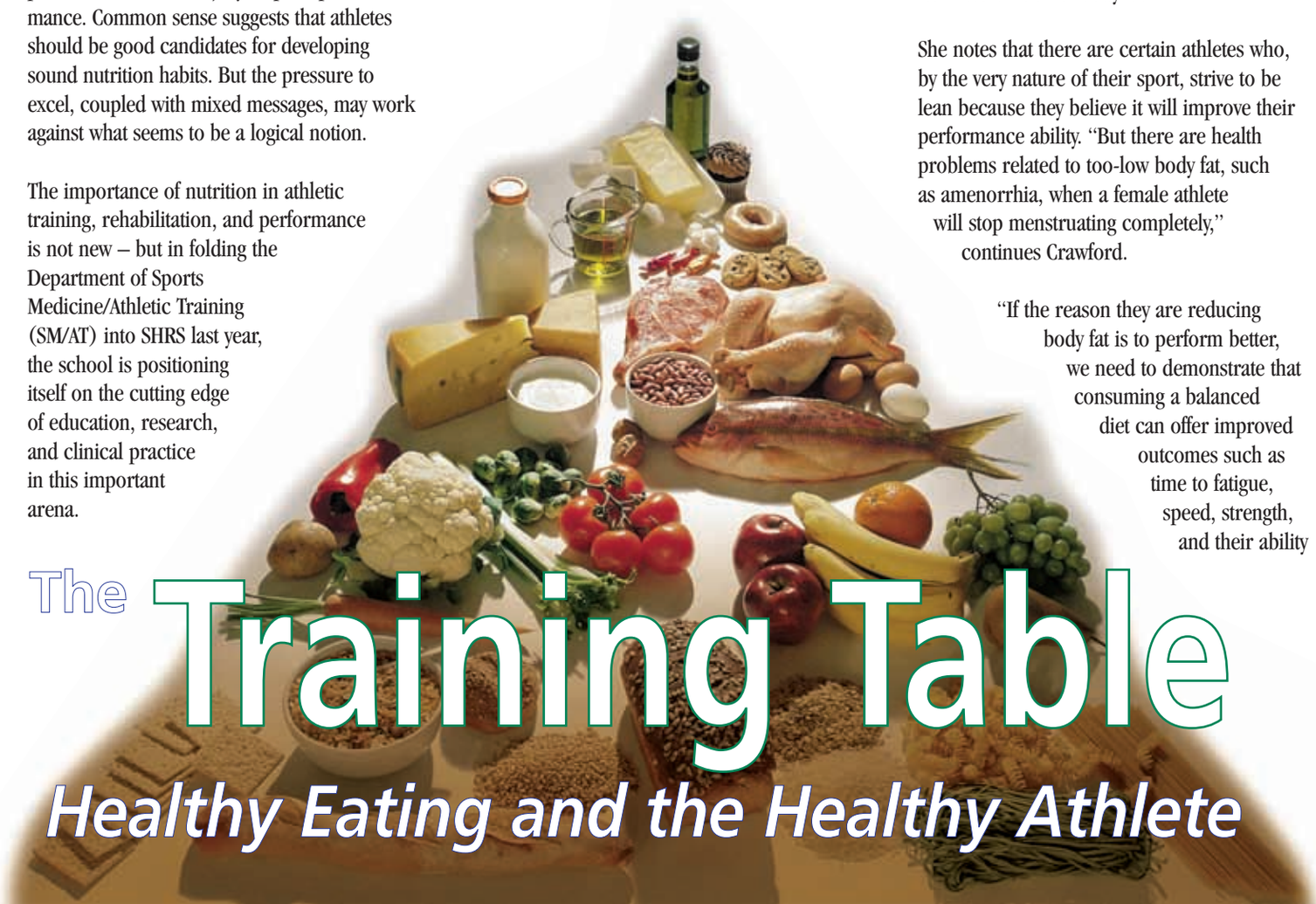
Nutrition and the Female Athlete

Female athletes offer athletic trainers and dietitians special challenges. Dubbed the Female Athlete Triad, its components include disordered eating, deficiencies in bone mineral density, and menstrual irregularities. Each of these components can affect the rate of injuries.

"There are also strong nutritional links to each and certain nutritional treatments that can reduce the risk of developing osteoporosis in women with deficient bone density, for example," says Crawford. "In addition, it's likely that many of these athletes' menstrual irregularities are related to their excessive leanness or lack of body fat."

She notes that there are certain athletes who, by the very nature of their sport, strive to be lean because they believe it will improve their performance ability. "But there are health problems related to too-low body fat, such as amenorrhia, when a female athlete will stop menstruating completely," continues Crawford.

"If the reason they are reducing body fat is to perform better, we need to demonstrate that consuming a balanced diet can offer improved outcomes such as time to fatigue, speed, strength, and their ability



to compete," she states. "We're never going to eliminate all injuries or unhealthy habits, but we believe that good nutrition, along with proper training, is an important preventative measure."

Nipping Problems Early

There are sports such as diving, gymnastics, and figure skating where body image is important.

Conley points out that athletic trainers and others who come into regular contact with an athlete need to be aware of significant changes in her body weight. "If a diver, for example, lost five to 10 percent of her already lean body weight, we would want to know why this occurred, whether the athlete could be developing an eating disorder.

"In diving, physical appearance is a performance variable and can impact an athlete's score," says Conley. "In some extreme cases, the diver may get way off the mark as to what they think they need to look like. The first thing they do to change their appearance is to change the way they eat."

Kevin Conley

Crawford cautions, however, that if an athlete develops a bona fide eating disorder, the treatment requires a team of experts, including a physician, psychologist, athletic trainer, and dietitian to devise a strategy to deal with the core issues of the eating disorder and structure a program for the athlete to reach and maintain the appropriate weight.

Researching the Female Athlete

There is currently research underway at the university's Neuromuscular Research Laboratory on what Conley labels "an epidemic of injuries to female athletes, particularly the anterior cruciate ligament of the knee. We're seeing the injury among a broad range of female athletes including gymnasts, basketball, soccer, and volleyball players," he points out.

There are a number of theories under consideration, including deficiencies in bone mineral density. Other areas being reviewed are how female athletes are coached and trained, and simply the biomechanics of how a woman might perform a move, compared to that of a man.

Training Camp Woes

It is not only female athletes who are risking injury because of poor nutritional habits.

"A lineman can come into camp weighing 320 pounds, when his ideal playing weight is 20 pounds less," says Conley. "Rather than seeking the help of a dietitian – their counsel is available to all Pitt athletes – the player devises his own method for quick weight loss, such as skipping meals."

Kim Crawford

But as Crawford points out, it's generally not physically possible to lose more than two pounds of body fat per week. "If aside from fluids, the weight loss is greater than two pounds, the additional pounds may be coming from muscle mass or organs, resulting in serious health concerns and poor athletic performance."

Severe dehydration is of major concern during hot weather. A player can lose as much as eight to 10 percent of body weight during a workout session. New guidelines developed by the American College of Sports Medicine and the National Athletic Trainers' Association now recommend that an athlete drink 24 ounces of water or sports drink for every pound lost during practice or competition.

The death of several football players last summer, including three high school students and Minnesota offensive lineman Korey Stringer, sounded a lot of alarms around the country. "Athletic trainers learned a great deal from those events," says Conley. "Among other things, it underscores the importance of weighing players both before and after a training session."

Wrestlers' weight can also represent a challenge. Conley says that a wrestler may try to lose as much as 12 pounds in the weeks before a match to qualify to compete in a lower weight class. "Again, they may be losing muscle mass, not fat." explains Conley. "They may believe they have a strength advantage at a lower weight, but they don't really understand the dynamics. There can be long-term health implications to this yo-yo weight loss."

Crawford and Conley plan to step up the research as it relates specifically to nutrition and athletic training and rehabilitation. "Organizations like the Gatorade Sports Sciences Institute and the National Institutes of Health have expressed interest in funding research that enhances the science of sports medicine and nutrition," says Conley. "We're moving ahead as quickly as possible."

For more information, contact Kevin Conley at **kconley@pitt.edu** or Kim Crawford at **kcrawfor@pitt.edu**