



# UNIVERSITY TIMES

The faculty and staff newspaper

Volume 39

Number 8

December 7, 2006

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## From a distance: SHRS tests telerehab for wheelchair users

For rural wheelchair users, a perfect storm is brewing.

The aging population in rural areas is creating growing health care needs complicated by access issues based both on physical limitations and geographic isolation. And now health insurers including Medicare are tightening their policies on who qualifies for mobility devices, said Mark Schmeler, an assistive technology practitioner (ATP) and instructor in Pitt's School of Health and Rehabilitation Sciences Department of Rehabilitation Science and Technology.

According to a press release from the Centers for Medicare and Medicaid Services (CMS), which sets coverage policy, the changes stem from "numerous instances of fraud and abuse," as well as spiraling Medicare expenditures. According to CMS, from 1995 to 2003, expenditures for power wheelchairs increased 2,705 percent, from \$43 million to \$1.2 billion, not counting the 20 percent beneficiaries must pay.

In response to abuse by unscrupulous businesses that "handed out power chairs like candy" for their own profit, as Schmeler put it, new Medicare coverage policies require assessments by a physician and possibly a subsequent assessment by an ATP before qualifying a patient to receive mobility devices such as power wheelchairs. The changes will take full effect in 2008 when ATP assessments will be required before Medicare approves certain mobility equipment. The combination stands to create a growing access problem since few ATPs practice in rural areas, Schmeler said.

It's a health care issue that Pitt researchers hope to help solve with simple technology.

Certified ATPs from Pitt's Rehabilitation Engineering and Research Center on Telerehabilitation (RERCTR) and the joint Pitt-UPMC Center for Assistive Technology have begun testing videoconferencing as a way to evaluate patients at a distance.

The first of such assessments was performed last month in cooperation with the DuBois Regional Medical Center.

The idea isn't a new one, but until recently equipment costs were prohibitively



Assistive technology practitioner Mark Schmeler and graduate research assistant Rich Schein evaluate DuBois wheelchair clinic patients from SHRS offices in Pittsburgh.

high and bandwidth issues hampered communication. Now, with improvements in webcams and broadband high speed Internet access through a DSL or T1 line, those problems have been solved. "Teleconferencing is pretty intuitive now," Schmeler said.

On a recent afternoon, Schmeler and graduate research assistant Rich Schein sat down at their computers in front of a TV screen in a small room at the RERCTR on Pittsburgh's South Side. They adjusted their webcam and microphones, introduced themselves and began assessing a patient 100 miles away.

At the wheelchair clinic in DuBois, the setup was similar. A TV screen set up in the clinic allowed the staff and patient to see and hear Schmeler and Schein.

An occupational therapist and occupational therapy assistant at the DuBois wheelchair clinic helped 74-year-old wheelchair user Boots Rolick of Kane demonstrate on camera her range of motion, her ability to perform simple tasks such as picking up an object from the floor and transferring from her wheelchair to another seat.

The two-way connection enabled Rolick, along with family members who accompanied her, to answer Schmeler's questions about how well the current chair was meeting her needs.

"Live interaction is really important," Schmeler said later, noting that merely videotaping a patient and sending the video may not provide enough information to enable an ATP make a recommendation. The videoconference enabled Schmeler to request a closer view or ask follow-up questions when needed.

The assessment is the same as what a patient would receive in Pittsburgh at the Center for Assistive Technology, Schmeler said. The difference is only that occupational therapist Angela Regulski and occupational therapy assistant Amy Fatula took care of the hands-on portions of the assessment on his behalf. "They can replicate everything we can do here up there," Schmeler said.

Rolick, of Kane, can't walk without assistance and the chair she has been using is uncomfortable, her son, Tom Rolick, told Schmeler. Rolick's husband had picked it up at a local medical supply store to help her get around the house. "She'd spend more time in the wheelchair if she were comfortable enough," Tom Rolick told Schmeler.

After more than an hour of asking questions and observing, Schmeler and Schein began to narrow the choices to come up with more comfortable options for Rolick.

In DuBois, medical equipment supplier Mike Morelli got out his tape measure and started making notes to ensure the chair Rolick receives will fit properly.

Rolick's situation is not uncommon. Schmeler said the vast majority of wheelchair users get "junky chairs like they have at the airport," ones that are a 1930s design and not as functional, safe or cost-effective as others available on the market. People often get the wrong chair "because someone's making a decision with limited knowledge," Schmeler said, noting choices are especially limited in rural areas.

For patients who are evaluated in Pittsburgh at Center for Assistive Technology, there are dozens of demo wheelchairs that can be test driven right there so patients can make an informed choice. Rural patients will need to make their selection based on ATP-recommended choices they can view in an online catalog, but still will have the chance to try the equipment at home before committing to it.

"Demo equipment is essential," Schmeler said. So is trying the equipment at home. "If you can't get it in the bathroom door, it's not going to work for you," he said.

The evaluations that began last month are the first in a study that will include 50-100 evaluations over the course of two or three years to determine whether telerehab is an effective option for providing these services.

Schmeler said he was pleased with the initial evaluations. "I felt just as comfortable in clinical decision-making as if she were right in the same room," he said.

The wheelchair clinic capitalizes on Pitt's expertise in wheelchair and seating systems at the Center for Assistive Technology, said David Brienza, director of the RERCTR.

The project is one of several aimed at providing rehabilitation services at a distance to meet the growing needs of an aging rural population who find it difficult to travel to larger metropolitan areas for health care, said Brienza, who also is a professor in SHRS's Department of Rehabilitation Science and Technology and the engineering school's Department of Bioengineering.

"The benefit to telerehab is access to expertise they would not have had access to," Brienza said.

Of all the telerehab projects at RERCTR, the wheelchair application is particularly timely, Brienza said, because of a shortage of professionals who have the proper training to provide the evaluations.

To become an ATP, an occupational or physical therapist must have 2,000 hours of work experience and must then pass an exam. The process can take two or three years, Schmeler said, adding that SHRS occupational therapy and physical therapy graduates receive enough training that they often can sit for the exam right out of school.

A separate pilot project aims to help others get certified via an online course in which Schmeler mentors students, including colleagues in DuBois. "They're working on getting certified," he said.

Schmeler said he has no fear that by multiplying himself he and his clinic will no longer be needed. "If anything I see us always having a solid hub clinic but a whole network of satellites," he said.

—Kimberly K. Barlow