Telerehabilitation uses technology to bridge gaps in care

by Sharon Rolene

Rehabilitation can be a long and arduous process for patient and therapist alike. Add barriers like distance, transportation and the physical limitations of the patient and recovery can sometimes seem insurmountable.

Telemedicine – the ability to deliver medical services over a distance using technology – offers a promising solution for persons with brain injury who have barriers to conventional rehabilitation.

While telemedicine isn't necessarily a new or cutting-edge development, its application in the mainstream healthcare system is still a ways off.

Sister Kenny Rehabilitation Services in Minneapolis, a unit of Allina Hospitals and Clinics, is exploring the use of telerehabilitation (telerehab) as a way to bridge the gap between therapists and patients in remote or under served populations.

Under a five-year grant funded by the National Institute on Disability and Rehabilitation Research (NIDRR), Sister Kenny partnered with the National Rehab Hospital and the Catholic University of America – both located in Washington D.C.

As part of the Rehabilitation Engineering Research Center on Telerehab, Sister Kenny was chosen because of its connection to both therapists and rural partners.

The telerehab research at Sister Kenny focuses on occupational, physical, speech and vocational therapy.

Matthew White, an occupational therapist at Sister Kenny, was chosen because of its connection to both therapists and rural partners.

The telerehab research at Sister Kenny focuses on occupational, physical, speech and vocational therapy.

Matthew White, an occupational therapist at Sister Kenny, was working with two clinics. The first clinic, a member of the Minnesota Rehab Initiative, is located in Hibbing, Minnesota, also in Hibbing, to explore the use of videophones in-home rehab session.

The next level of telerehab involves the use of videophones to enable in-home rehab session. Shelley Santrauch, the telerehab coordinator at Sister Kenny, partnered with Hibbing-based HomeCare

For more information on telerehabilitation: Sister Kinney's research as part of the Rehabilitation Engineering Research Center on Telerehab

www.telerehab-rhr.org or call Matthew White at 612-863-7642

The Institute for Cognitive Prosthetics www.brain-rehab.com or email Elliot Cole at ecole@brain-rehab.com

The focus of Santrauch's work and patient present," said White.

White said that any therapy exercise can be conducted via teleconference, but it's important to have a family member or healthcare aid on the other side to assist the person and assure safety.

"It really makes you be creative with your treatment plans. A lot of times you're using people on the other end – the family members, the rehab aides or the physical therapists – you're using them to be your hands, to complete the assessments and follow through with the recommendations," said White.

"I can tell a patient, 'raise your arm up over your head' and I can see how far they can go up. If they can't go as far as I'd like them to, then I can get their family member involved to try and help them with their range of motion. It can be as basic as that," he added.

Currently White is utilizing teleconferencing, which requires a facility to facility connection due to the high cost of equipment.

The downside to the teleconferencing technique is that patients still have to go to a facility that can accommodate a teleconference.

Patients that are uncomfortable in a clinical setting will have the same challenge with telerehab utilizing teleconferencing technology.

The next level of telerehab involves the use of videophones to enable in-home rehab session. Shelley Santrauch, the telerehab coordinator at Sister Kenny, partnered with Hibbing-based HomeCare

specialists, who in the past they would have had to drive hundreds of miles for service.

"The therapist out in Elbow Lake might need someone who has an orthopedic specialty, so we'll provide that specialist here from Sister Kenny and at the other end will be the referring physical therapist and the patient present," said White.

White said that any therapy exercise can be conducted via teleconference, but it's important to have a family member or healthcare aid on the other side to assist the person and assure safety.

"It really makes you be creative with your treatment plans. A lot of times you're using people on the other end – the family members, the rehab aides or the physical therapists – you're using them to be your hands, to complete the assessments and follow through with the recommendations," said White.

"I can tell a patient, 'raise your arm up over your head' and I can see how far they can go up. If they can't go as far as I'd like them to, then I can get their family member involved to try and help them with their range of motion. It can be as basic as that," he added.

Currently White is utilizing teleconferencing, which requires a facility to facility connection due to the high cost of equipment.

The downside to the teleconferencing technique is that patients still have to go to a facility that can accommodate a teleconference.

Patients that are uncomfortable in a clinical setting will have the same challenge with telerehab utilizing teleconferencing technology.

The next level of telerehab involves the use of videophones to enable in-home rehab session. Shelley Santrauch, the telerehab coordinator at Sister Kenny, partnered with Hibbing-based HomeCare

Minnesota, also in Hibbing, to explore the use of videophones in-home rehab session.

The focus of Santrauch's work are persons who have experienced strokes.

"The idea is to access whether or not using a video phone could help people achieve their vocational and independent living goals," said Santrauch.

She was in Hibbing last fall installing the first of five pairs of interactive videophones.

Santrauch has seen an increased level of productivity in telerehab sessions.

"You actually get more out of people when you do video interaction because they are required to concentrate. You don't have anybody filing their nails during a video conference because they have to pay attention," she said.

White said that Sister Kenny's research focuses more on the physical side of rehabilitation and he would like to see a partnership formed with organizations that also focus on cognitive rehabilitation, like the Institute for Cognitive Prosthetics (ICP) in Pennsylvania.

Under the direction of founder Dr. Elliot Cole, ICP has been in the business of technology based medicine since 1985. When one of Bell Laboratory's scientists had a stroke and everyone had given up on her recovery, they came to Cole for help in the early nineties. Thus began ICP's focus on telerehab and brain injury.

A leader in the telerehab world, ICP has been conducting telerehabilitation sessions – and getting it reimbursed by insurance providers - since 1994.

"We deliver services to the patients' natural setting. They are working with our therapists that have a remote connection. They are using our specialized software that is highly customized to empower people who have had a brain injury who may have problems with conventional software," said Cole.

Sister Kenny’s research as part of the Rehabilitation Engineering Research Center on Telerehab