RERC on Telerehabilitation State of the Science Conference

June 13–14, 2013

Webcast address: http://shrsft6025himc.shrs.pitt.edu/user/StreamingSession/sos

Day 1● June 13, 2013 ● 10:00AM – 1:00PM U.S. EST

Telerehabilitation Technology Usability: Lessons Learned and Future Directions

Communication, information and computer technology are the foundation upon which telerehabilitation applications are built. As communication channel capacities have opened and widened, new technical barriers to implementation of remote rehabilitation services have emerged. These new technological barriers seem to be largely centered on computing (including mobile computing) hardware and software usability. Several of our own RERC on Telerehabilitation R&D projects have either directly or indirectly evaluated usability. For example, our project on prevention and self-management of chronic edema and lymphedema uncovered issues related to the use of computer equipment and diagnostic devices in home environments. Our development and evaluation of a wellness program for people with Spinal Bifida revealed limitations associated with software on mobile computing devices—smart phones. In the area of communication technology assessment, we found limitations associated with users' tolerances to monitoring protocols. There are many more examples.

Day 1 of the RERC-TR 2013 State of the Science Conference consists of presentations by RERC-TR investigators on our experiences with additional presentations by others on their experiences with telerehabilitation technology usability. Invited additional expert panelists will comment on the presented material and lead discussions on potential future directions for research and development to better define usability barriers and to propose solutions for overcoming the barriers already exposed.

Agenda

10:00-10:15am

Introductions and overview of the State of the Science Format

David Brienza, Ph.D.

Michael McCue, Ph.D.

Katherine Seelman, Ph.D.

10:15-10:40am

Self-management of Lymphedema

Charles Vukotich, BS

Treatment of lymphedema requires extensive clinic visitation as well as home care support, which is particularly difficult for persons with limited mobility. We will discuss our endeavor to evaluate a treatment utilizing telerehabilitation, advanced pneumatic compression, and self-care that will ease the burden on individuals with limited mobility with lymphedema and provide them with the skills to halt the progress of their disease.

10:40-10:45am

Audience discussion: *Speaker and Respondent answering questions from audience*

10:45-10:50am

5-minute technical transition

10:50-11:25am

Evaluation of Remote Computer Access Service Delivery

Richard Simpson, Ph.D., ATP

The Communication Technology Assessment and Training focus area is developing and evaluating technologies for remote computer access and augmentative communication service delivery. Results to date and the implications for service delivery will be discussed.

11:25-11:30am

Respondent: *Denis Anson, MSOT, Assistive Technology Research Institute, Misericordia University*

11:30-11:35am

Audience discussion: *Speaker and Respondent answering questions from audience*

11:35-11:40am

5-minute technical transition

11:40am-12:00pm

TR Enhanced Wellness Program in Spina Bifida

Brad Dicianno, M.D.

Andrea Fairman, Ph.D., OTR/L

The medical complexity of spina bifida (SB) results in equally complex self-care regimes that many persons with SB struggle to manage. The R3 project has focused on the development and initial clinical testing of an innovative mHealth system, called iMHere, to help support adults with SB. While this project focused on SB, use of this system could be generalized to many other disability populations with chronic conditions.

12:00-12:05pm

Respondent: *Dr. Clayton Lewis, Professor of Computer Science, Coleman Institute for Cognitive Disabilities, Boulder, CO*

12:05-12:10pm

Audience discussion: *Speaker and Respondent answering questions from audience*

12:10-12:15pm

5-minute technical transition

12:15-12:35pm

Autism Service, Education, Research, and Training (ASERT)

Cognitive Skills Enhancement Program (CSEP)

Jamie Schutte, Ph.D., CRC

The ASERT is a collaborative network of providers of comprehensive, high-quality, state-of-the-art diagnostic assessments, research, education, and training programs. The RERC TR has supported ASERT in delivering services using VISYTER and the TR portal, specifically: delivering an adult autism assessment, the Autism Diagnostic Observation Schedule (ADOS) Module 4, remotely. In addition, VISYTER and a TR portal are used in CSEP to support a variety of clinical activities to increase efficiency and to improve clinical practices.

12:35-12:40pm

Respondent: *Ben Handen, Ph.D., Associate Professor of Psychiatry and Pediatrics at the Western Psychiatric Institute and Clinic, Merck Child Outpatient Program*

12:40-12:45pm

Audience discussion: *Speaker and Respondent answering questions from audience*

12:45-1:00pm

Panel discussion

Bambang Parmanto, Ph.D.

Technical challenges working in the natural environment will be discussed.

1:00-1:05pm

Audience discussion: *Speaker and Respondent answering questions from audience.*

Day 2● June 14, 2013 ● 10:00AM – 1:00PM U.S. EST

Telerehabilitation Evidence and an Approach to Uniform Outcome Data

Establishing efficacy of telerehabilitation must deal with the great diversity of clinical applications, disabilities served, technologies utilized and professional disciplines involved in the delivery of telerehabilitation services. The existing research on telerehabilitation is limited by a lack of randomized clinical trials, small sample sizes and a lack of common outcome measures and metrics. An accepted, standardized set of outcome definitions and measures for telerehabilitation (TR) is critical for establishing an evidence base for the efficacy, usability and cost effectiveness of telerehabilitation services. Such outcomes also facilitate clinical decision-making and optimal communication among caregivers, clinicians and payers. A set of common outcome measures that have been endorsed by clinicians and researchers is expected to enable researchers to target meaningful outcomes for comparative effectiveness studies that will potentially lead to increased evidence for telerehabilitation.

Day 2 will focus upon disseminating the recommendations of the International Consensus Group on uniform outcomes in telerehabilitation. A panel of experts and stakeholders will present current the current status of the evidence for TR, nominate uniform measures for satisfaction and usability and for cost effectiveness, and provide guidelines for a standard approach to measuring efficacy that is conducive to subsequent data aggregation and meta-analysis. The panel will engage the audience in providing formative feedback for implementing the recommended outcome approaches and determining future directions.

Agenda

10:00-10:10am

Introduction

Michael McCue, Ph.D.

Overview of the session, rationale, and goals

10:10-10:40am

Evidence for Telerehabilitation

Michael McCue, Ph.D. (moderator)
Marco Rogante, M.S. (Italy)
Dahlia Kairey, Ph.D. (Canada)

Review of Literature

10:40-10:50am

Discussion Q&A

10:50-10:55am

5-minute technical transition

10:55-11:25am

Satisfaction and Usability Outcomes

Allen Lewis, Ph.D., CRC (moderator)

Bambang Parmanto, Ph.D.

Review of approaches to satisfaction and usability, promotion of uniform S+U measure

11:25-11:35am
Discussion Q&A

11:35am-12:05pm
Cost Effectiveness Measures

Allen Lewis, Ph.D., CRC (moderator)

Richard Schein, Ph.D.

Suzanne Paone, Ph.D.

Review of approaches to cost effectiveness research and measures, promotion of cost effectiveness measure

12:05-12:15pm
Discussion Q&A

12:15-12:45pm
Measuring Clinical TR Outcomes

Allen Lewis, Ph.D. (moderator)

Michel McCue, Ph.D.

Mark Schmeler, Ph.D., OTR/L, ATP

Discussion of complexity of TR Clinical outcome; TR outcome paradigms; introduction to Guidelines for Conducting Clinical TR Research

12:45-12:55pm
Discussion Q&A

12:55-1:05pm
Wrap Up

Allen Lewis, Ph.D., CRC

Michael McCue, Ph.D.

Process and timeframe for building in SOS feedback, future directions, accessing and implementing measures