

Introduction

The University at Buffalo hosted the first International Conference on Rehabilitation Science: Issues in Graduate Education and Research, April 28, 1999. This conference assembled a truly outstanding panel of speakers and an outstanding group of investigators who prepared poster presentations. Each speaker prepared a written version of their presentation, which we are publishing in this special issue of *Technology and Disability*.

Rehabilitation Science is a new and developing area for research and graduate education. Embraced within rehabilitation science is rehabilitation engineering, a major focus of this journal. The Rehabilitation Science Conference assembled key leaders in rehabilitation science and engineering – educators and researchers, with the overall goal to further refine the definition of the concept of Rehabilitation Science. Papers addressed (1) descriptions of curricula in graduate programs in rehabilitation science; (2) current and future areas of research; and (3) research methods appropriate to Rehabilitation Science. The conference also explored some of the important issues associated with the emergence of Rehabilitation Science and Engineering:

1. What disciplines participate in Rehabilitation Science?
2. Is an interdisciplinary Rehabilitation Science degree more appropriate than a discipline specific degree for clinical problems? Should we have both discipline specific and interdisciplinary degrees?
3. The emergence of clinical or professional doctorates in the rehabilitation professions raises other issues. Are these programs competing with Graduate Programs? Is there a need for both?
4. How will our graduates of doctoral programs in Rehabilitation Science fare? Will they be sought after by colleges and universities with faculties in the rehabilitation disciplines.
5. What role does distance education technology play in graduate education programs in rehabilitation science? Can you earn a research degree without a traditional period of residency on the campus?

The first paper, and speaker at the conference is Dr. Katherine Seelman, who has served many roles relating

to Rehabilitation Science: administrator, researcher, and advocate in disability policy. Appointed by President Clinton to Direct the National Institute on Disability and Rehabilitation Research, Dr. Seelman oversees a \$70 million discretionary research budget, as well as a program that fosters the use of assistive technology in the homes and workplaces of persons with disabilities in the United States. Dr. Seelman also serves as Chairperson of the Interagency Committee on Disability Research, which was established to promote coordination and cooperation among Federal agencies conducting rehabilitation research programs. Dr. Seelman has advanced scientific endeavor in such areas as telecommunications policy and accessibility issues for persons with disabilities. She brought to NIDRR an awareness of the need to address non-traditional disability populations, reinvigorating the agency's research agenda and targeting it toward the needs of the 21st century. She has promoted the visibility of disability studies and Participatory Action Research, designed to advance the interests of persons with disabilities throughout academic study and research. Dr. Seelman provides definitions for key terms in rehabilitation and disability, and discusses rehabilitation science in relation to the NIDRR long range plan and the Institute on Medicine report, *Enabling America*. Dr. Seelman relates federal policy to rehabilitation science, and discusses future challenges and considerations.

Our next set of papers represent five established doctoral programs and one developing program in rehabilitation science. Each of the papers is presented by the director of the doctoral program, or a member of the program's steering committee. The papers provide descriptions of the programs, the faculty, the students, the research labs, and some historical perspective for the development of the curricula.

The first of this set of papers is presented by the director of the first doctoral program in rehabilitation science, Dr. Sharon Wood-Dauphinee. Dr. Dauphinee holds degrees in Physical Therapy from McGill University and a Ph.D. in Epidemiology and Health, also from McGill. She serves as Director of the School of Physical and Occupational Therapy at McGill, and Associate Dean for Rehabilitation Science, in the Faculty of Medicine. Dr. Dauphinee is a Professor in the School of Physical and Occupational Therapy, and a Medi-

cal Scientist and Professor, Department of Medicine, Royal Victoria Hospital, and a member of the Geriatric Division of Clinical Epidemiology. Dr. Dauphinee also holds appointment as Professor in the Department of Epidemiology and Biostatistics. She currently serves as president of the International Society for Quality of Life Research. Dr. Dauphinee has published 28 papers in the last 5 years, and her funding has included 27 grants. She has been intimately involved in the development and oversight of the very first doctoral program in Rehabilitation Science.

Dr. Kay Walker, Professor and Chair in the Department of Occupational Therapy at the University of Florida (UF), describes the Ph.D. program in rehabilitation science at the University of Florida. Dr. Walker received her Ph.D. from the University of Florida. Her research areas include sensory integration and education. Very much involved with graduate education at the University of Florida, Dr. Walker developed the post professional master's degree program for occupational therapists, and more recently has been involved with the development of UF's Ph.D. in Rehabilitation Science.

I (William Mann, OTR, Ph.D.) author the next paper, which provides a description of the University at Buffalo's Ph.D. program in rehabilitation science. Together with Dr. Kenneth Ottenbacher, we designed the Buffalo program, and I served as director for the first two years. My research has focused on aging and compensatory strategies to promote independence. I also serve as principal investigator for the NIDRR funded Rehabilitation Engineering Research Center on Aging. Very recently (Summer, 2000) I moved to the University of Florida, where I now serve as Professor and Chair of Occupational Therapy, and I now direct the UF Ph.D. program in rehabilitation science.

Dr. Rory Cooper offers a paper describing the University of Pittsburgh graduate programs in rehabilitation science. Dr. Cooper holds a bachelors and masters degree in electrical engineering, and a Ph.D. in electrical and computer engineering, with a concentration in bioengineering from the University of California at Santa Barbara. He currently serves as Chair and Professor of the Department of Rehabilitation Science and Technology, and Professor of Bioengineering and Mechanical Engineering at the University of Pittsburgh. He is also a professor in the Division of Physical Medicine and Rehabilitation with the Department of Orthopedic Surgery at the University of Pittsburgh Medical Center Health System. Dr. Cooper is Director of the Pitt/VA Human Engineering Research

laboratories. Dr. Cooper has received several prestigious awards including: the IEEE-EMBS Early Career Award, The Paralyzed Veterans of America John Farkas Leadership Award, the CSUS President's Award for Research and Creative Activity – and more. Dr. Cooper has authored more than 150 papers, expanded abstracts and book chapters. He is the author of two books: *Rehabilitation Engineering Applied to Mobility and Manipulation*, and *Wheelchair Selection and Configuration*. Dr. Cooper is an elected Fellow of the Institute of Electrical and Electronics Engineers, and of the American Institute of Medical and Biological Engineering.

The next paper in this issue is authored by Dr. Carolyn Baum, Elias Michael Director and Assistant Professor for Occupational Therapy and Neurology at Washington University School of Medicine in St. Louis, Missouri. Dr. Baum served as President of the American Occupational Therapy Association and President of the American Occupational Therapy Certification Board. She also served on the advisory committee for the National Center for Medical Rehabilitation Research at the National Institute of Health and served on the Institute of Medicine's Committee to Assess Rehabilitation Science and Engineering needs, in that capacity helping to prepare the report for Congress, *Enabling America*. Dr. Baum serves on the McDonnell Science Foundation Task Force for Improving Cognitive Rehabilitation. Her research focuses on the relationship of activity and function in persons with cognitive impairment and chronic disease. She heads an interdisciplinary faculty that is contributing knowledge and preparing clinicians and rehabilitation scientists to understand the person and environmental factors that contribute to the performance in daily life tasks.

Next, Dr. Kenneth Ottenbacher describes the University of Texas, Medical Branch at Galveston's Ph.D. program in rehabilitation science. Dr. Ottenbacher received his bachelors degree in occupational therapy and his MS and Ph.D. in Special Education and Rehabilitation at the University of Missouri, Columbia. Dr. Ottenbacher is professor and vice dean in the School of Allied Health Sciences at the University of Texas Medical Branch in Galveston. Dr. Ottenbacher's research interests include the development and application of design and measurement strategies appropriate for use in clinical environments. He has published more than 120 scientific/technical articles in refereed journals, and is the author, co-author, or editor of four texts. Dr. Ottenbacher has served as the Principal Investigator or Co-investigator on more than a dozen fed-

erally funded grants totaling over 10 million dollars. He is past editor of *the Occupational Therapy Journal of Research*, and a member of several editorial boards. He currently serves as the Statistical Consulting Editor for *the American Journal of Physical Medicine and Rehabilitation*. Dr. Ottenbacher developed and directs the UTMB Ph.D. in Rehabilitation Science.

Our next paper, authored by Dr. Allen Heinemann, discusses research strategies appropriately placed within the area of rehabilitation science. Dr. Heinemann holds a Ph.D. in clinical psychology from the University of Kansas with a specialty focus in rehabilitation. He completed an internship at Baylor College of Medicine in Houston, and was an assistant professor in the Department of Psychology at Illinois Institute of Technology since 1985. Dr. Heinemann has worked at the Rehabilitation Institute of Chicago where he directs the Rehabilitation Services Evaluation Unit, whose focus is rehabilitation research. Dr. Heinemann is also Associate Director of Research at RIC and Professor in the Department of Physical Medicine and Rehabilitation at Northwestern University Medical School. He serves on the Coordinating Committee for Northwestern University's Institute for Health Services Research and Policy Studies. Dr. Heinemann's research interests focus on health services research, psychosocial aspects of rehabilitation including substance abuse, and measurement issues in rehabilitation. He is the author of more than 70 articles in peer-reviewed publications, and is the editor of the journal *Substance Abuse and Physical Disability*. He received the NIDRR Switzer Fellowship, and his research has been funded by such diverse entities as the Paralyzed Veterans of America-Spinal Cord Research Foundation, the National Institute on Alcohol Abuse and Alcoholism, the Centers for Disease Control, the JM Foundation, the American Occupational Therapy Association, and NIDRR.

Our final paper raises several very important issues for rehabilitation science. Dr. Marcus Fuhrer currently holds an appointment as Health Scientist Emeritus, National Institutes of Health. He is the immediate past Director of the National Center for Medical Rehabilitation Research, National Institute of Child

Health and Human Development, within the National Institutes of Health. Prior to his appointment as the Center's first director in April, 1993, he was Professor in the Departments of Physical Medicine and Rehabilitation and Psychiatry and Behavioral Sciences of Baylor College of Medicine. He also served as Vice President for Research of the Institute for Rehabilitation and Research, in Houston, Texas. Dr. Fuhrer is past President of the American Congress of Rehabilitation Medicine and of the National Association of Rehabilitation Research and Training Centers. He co-edited *Functional Assessment in Rehabilitation*, and edited (1) *Selected Research Topics in Spinal Cord Injury*, (2) *Rehabilitation Outcomes: Analysis and Measurement*, and (3) *Assessing Medical Rehabilitation: The Promise of Outcomes Research*. Dr. Fuhrer's research and writing have been concerned predominantly with medical rehabilitation outcomes research, factors affecting the life status of people with spinal cord injury, cognitive processes in the Pavlovian conditioning of human autonomic responses, and the characteristics of peripheral sympathetic activity following transection of the human spinal cord. In the paper prepared for this issue, Dr. Fuhrer provides a critical analysis of the strengths and weaknesses of the IOM report, *Enabling America*, and offers insightful suggestions for this area we are calling "rehabilitation science."

We conclude this issue with a resource list of graduate programs in Rehabilitation Science, prepared by Elena Casson.

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