

Presentation type: 60 mins - Instructional Course Session / Workshop

Blazing Trails! Assessment of All-Terrain Wheelchairs for Off Road Access

Ms. Kendra Betz

Kick the Tires! Evaluating Wheeled Mobility Devices for Performance & Safety

Ms. Kendra Betz

The Art and Science of community Mat Evaluations. Toolbox tips to overcome identified barriers.

Ms Lisa Bidgood

Yoga Practical Session – reconnection with self and community. An embodying practice for all Abilities.

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Diversifying Standing Opportunities for Children: Clinically reasoning the options and justifying their funding

Mr Jamie Cockle

Time for a Switch: The Evaluation of Non-Proportional Drive Controls

Mr John "Jay" Doherty

Applying Disability Studies and Critical Disability Theory to Mobility Technology Research: Tensions Explored, Lessons Learned

Dr. Heather Feldner

Development and Implementation of an Evidence-Based Guideline for Introducing Powered Mobility to Infants and Toddlers

Dr. Heather Feldner, Dr. Teresa Plummer

Culturally Safe Practice in Aotearoa New Zealand as a Wheelchair and Seating Therapist

Miss Jazz Fox, Mrs Liz Turnbull

Understanding the lifespan postural issues of non-ambulant adults with CP, as measured with the Goldsmith Indices of Body Symmetry.

Carlee Holmes

Listening to their voices: Children's and families' perspectives of power mobility use

Dr. Lisa K. Kenyon

The pediatric powered wheelchair standing device: a historical perspective

Dr. Lisa K. Kenyon, Dr. Bonita Sawatzky

Training Caregivers to Assist with Manual Wheelchair Skills: An Instructional Session

R. Lee Kirby, Cher Smith

Using power mobility as a therapeutic intervention to support development and learning across the lifespan

Dr Lisbeth Nilsson, Dr Lisa Kenyon

A Pilot Study Comparing Postural and Functional Skills in Supportive vs. Unsupportive Wheelchair Backs

Dr. Jessica Pedersen

Can user centered design be used to develop assistive technology? Testing a framework for collaboration

Miss Hana Phillips, Associate Professor Gianni Renda, Professor Rachael McDonald

The intricacies of posture, vision and mobility: The developmental trajectory of self-initiated mobility

Dr. Teresa Plummer

How Do People Actually Use Their Manual Wheelchairs, and What Really Matters?

Curt Prewitt

The Wheel Story: Impact of Wheels and Tires on Manual Wheelchair Performance and Propulsion Efficiency

Curt Prewitt

Balancing the options – Managing Pelvic Obliquity in Seating

Ms Angela Rowe, Ms Kim Vien

Wheelchair Educators' Package: A tool to enhance wheelchair education globally.

Paula Rushton, Mary Goldberg, Yohali Burrola-Mendez, Jon Pearlman, Debbie Wilson

Strategies for Online Training in Seating & Mobility Complimented with Telehealth

Dr. Mark Schmeler, Ms. Madelyn Betz

Pressure Injuries are Ageist! Why is Ageing a major risk factor for Pressure Injury development?

Mrs Deirdre (Dee) Smith

Access & Independence for Everyone – Enabling independence through power wheelchairs and alternative controls.

Mr Scott Staunton

Get me out of here, Manual Wheelchair Power add on Devices

Mr Mitchell Stone

International Society of Wheelchair Professionals' (ISWP) learning modules for wheelchair service providers.

Ms. Amira Tawashy, Dr. Mary Goldberg, Dr. Lee Kirby, Dr. Paula Rushton

Made to Move - I am

A workshop on the application, use and value of seated balance based movement technology and how moving with balance can change a life.

Marcus Thompson

Supporting the growth and development of wheelchair and seating therapists: a coaching approach

Mrs Maria Whitcombe-Shingler, Mrs Jo Blaiklock

Ready to Roll: wheelchair skill development for therapists

Mrs Meg Whitelaw, Ms Ulrike Luebcke, Ms Amy Hughes, Mrs Michelle Smith

Blazing Trails! Assessment of All-Terrain Wheelchairs for Off Road Access

Kendra Betz

University of Pittsburgh, Denver, USA

Physical Therapist

Learning objectives

At the end of the session, participants will be able to:

1. Describe three enhanced features of wheeled mobility devices that support access to off-road and extreme terrain environments.
2. Discuss three limitations of wheeled mobility devices designed for all-terrain performance.
3. Review two reasons that consumer cognition and problem solving are critical for safe use of an all-terrain mobility device.

Abstract

Wheeled mobility devices with enhanced function that are intended for off-road or extreme-terrain access are commercially available and pursued by individuals with mobility impairment. Many people pursue an all-terrain wheelchair for recreational pursuits such as hiking, hunting, fishing, golf, or beach access. Others are interested in unique wheelchair features to access personal property, perform yard maintenance or animal care tasks, for farm/ranch work or to just “go for a walk” on terrain that cannot be accessed from their usual wheelchair. For some, an enhanced function wheelchair is appealing for vocational or volunteer work, community participation or hobby interests. While many products offer highly exceptional features that support access otherwise inaccessible environments, objective assessment of the wheeled mobility device and comprehensive evaluation of the wheeled mobility user is critical for determining reliable performance, durability and consumer safety. Common wheelchair provision considerations carry exceptional implications for enhanced function wheelchairs including specific device characteristics, customization options, power seat function capability, controller features, transportation and storage requirements, and interface with other assistive technologies. The consumer evaluation must include cognition, risk management and problem solving abilities in addition to physical, sensory and functional assessment. This session will empower participants with a framework for evaluating all-terrain mobility devices to support an accurate and meaningful assessment of potential benefits and possible limitations for clients who use wheelchairs. Case examples with action photos and video will be utilized to emphasize key points, and audience participation will be facilitated to support a thorough review of the topic. Discussion points will include application of established international test standards, relevance of current published literature and needs for further study, product regulation and coding, funding options, ethical considerations and essential consumer education and training to optimize safety and mitigate risks associated with enhanced function mobility device compromise or failure.

Content references:

1) Mhatre A, Martin D, McCambridge M, Reese N, Sullivan M, Schoendorfer D, Wunderlich E, Ruchman C, Mahilo D, Pearlman J. Developing product quality standards for wheelchairs used in less-resourced environments. *African J of Disability*. 2017.

- 2) Kirby RL, Miller WC, Routhier F, Demers L, Mihailidis A, Polgar JM, Rushton PW, Titus L, Smith C, McAllister M, Theriault C, Thompson K, Sawatzky B. Effectiveness of a Wheelchairs Skills Training Program for Powered Wheelchair Users: A randomized controlled trial. *Arch Phys Med Rehabil.* 2015; 96(11): 2017-26.
- 3) Toro ML, Worobey L, Boninger MD, Cooper RA, Pearlman, J. Type and frequency of reported wheelchair repairs and related adverse consequences among people with spinal cord injury. *Arch Phys Rehabil.* 2016; 97(10):1753-60.
- 4) Hogaboom NS, Worobey LA, Houlihan B, Heinemann A, Boninger M. Wheelchair breakdowns are associated with pain, pressure injuries, rehospitalization, and self-perceived health in full-time wheelchair users with spinal cord injury. *Arch of Phys Med Rehabil.* 2018 Oct;99(10): 1949-1956.
- 5) Betz K, Dicianno B, Pearlman J, Karg T, Mandala M, Jacobs K, Bagian T. Clinical Limits of Use Tools (CLOUT) for Wheeled Mobility Devices. February 2018.
www.ncps.va.gov/professionals/publications/CLOUT.asp

Presenter biography

Kendra Betz is a Physical Therapist and RESNA Assistive Technology Professional who is speaking at OSS as adjunct faculty for the University of Pittsburgh. She has also worked for the Veterans Health Administration in the USA since 1993. Kendra's areas of clinical specialization include SCI rehabilitation, assistive technology, adaptive sports, and patient safety. Kendra teaches regularly at national and international forums, leads national projects for medical device evaluation and has developed innovative programs to provide specialized support for adaptive athletes. Her expertise is recognized in the USA by induction into the National SCI Association Hall of Fame, the Air Force Association's Employee of the Year Award, and the Clinical Excellence and Distinguished Lecture Awards from the Academy of SCI Professionals.

Kick the Tires! Evaluating Wheeled Mobility Devices for Performance & Safety

Ms. Kendra Betz

University of Pittsburgh, Denver, USA

Physical Therapist

Learning objectives

Upon completion of the session, participants will be able to:

- 1) Review three critical considerations for evaluating new and emerging wheeled mobility devices
- 2) Discuss two reasons that objective results from standardized test protocols provide meaningful information about mobility device performance.
- 3) Describe three common wheeled mobility device failure modes that result in challenges for wheelchair users.

Abstract

Mobility technologies that support increased mobility and participation for individuals with physical impairment are consistently developed and introduced to the rehabilitation community. Product innovations capture a wide realm of proposed mobility solutions, ranging from unique ambulation assistive devices to highly customizable wheeled mobility options and rapidly evolving powered exoskeletons that support individuals who are paralyzed to stand and walk. Within each mobility device category, extensive variability exists. As just one example, manual wheelchairs are available with a multitude of frame designs and features, are built with diverse materials, and are highly customizable by configuration, individualized selection of options and accessories, and interface with complementary mobility enhancing products such as power add-on systems. Often, limited objective evidence is available about the appropriate use and effectiveness of a new mobility device, yet rehabilitation professionals must respond to consumers who believe it is a “must have,” to product representatives who promote it as the “greatest invention ever” and to funding sources who insist it is an “unnecessary expense”. Many people are challenged to strategically analyze mobility products to differentiate between beneficial attributes and limits of use based on the information available.

The aim of this session is to empower participants to evaluate existing, new, and emerging mobility technologies to support an accurate and meaningful assessment of potential value and identified limitations. Topics will include regulatory requirements, established international test standards, impact of published literature, ethical considerations, objective and hands-on review of device performance, durability, and safety. Strategies to identify specific clinical indications and contraindications for various mobility options will be discussed and the impact of mobility device failure on consumers will be explored. Participants will develop a framework for objectively evaluating devices to support practical clinical recommendations to support clients with unique mobility needs.

Content references:

- 1) Mhatre A, Martin D, McCambridge M, Reese N, Sullivan M, Schoendorfer D, Wunderlich E, Ruchman C, Mahilo D, Pearlman J. Developing product quality standards for wheelchairs used in less-resourced environments. *African J of Disability*. 2017.

2) Kirby RL, Miller WC, Routhier F, Demers L, Mihailidis A, Polgar JM, Rushton PW, Titus L, Smith C, McAllister M, Theriault C, Thompson K, Sawatzky B. Effectiveness of a Wheelchairs Skills Training Program for Powered Wheelchair Users: A randomized controlled trial. *Arch Phys Med Rehabil.* 2015; 96(11): 2017-26.

3) Hogaboom NS, Worobey LA, Houlihan B, Heinemann A, Boninger M. Wheelchair breakdowns are associated with pain, pressure injuries, rehospitalization, and self-perceived health in full-time wheelchair users with spinal cord injury. *Arch of Phys Med Rehabil.* 2018 Oct;99(10): 1949-1956.

4) Betz K, Dicianno B, Pearlman J, Karg T, Mandala M, Jacobs K, Bagian T. Clinical Limits of Use Tools (CLOUT) for Wheeled Mobility Devices. February 2018.

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Presenter biography

Kendra Betz is a Physical Therapist and RESNA Assistive Technology Professional who is speaking at OSS as adjunct faculty for the University of Pittsburgh. She has also worked for the Veterans Health Administration in the USA since 1993. Kendra's areas of clinical specialization include SCI rehabilitation, assistive technology, adaptive sports, and patient safety. Kendra teaches regularly at national and international forums, leads national projects for medical device evaluation and has developed innovative programs to provide specialized support for adaptive athletes. Her expertise is recognized in the USA by induction into the National SCI Association Hall of Fame, the Air Force Association's Employee of the Year Award, and the Clinical Excellence and Distinguished Lecture Awards from the Academy of SCI Professionals.

The Art and Science of community Mat Evaluations. Toolbox tips to overcome identified barriers.

Ms Lisa Bidgood

Sunrise Medical, Sydney, Australia

Clinical Educator

Learning objectives

- Importance of the Mat Eval; when and why;
- Understand body planes and ranges of movement to identify reducible vs. non-reducible deformities; and
- 5 tips to overcome barriers in conducting a MAT assessment independently.

Abstract

Of those Therapists surveyed on Australia's east coast, only 28% of respondents reported always completing a Mat Eval (biomechanical assessment) prior to prescribing a seating system. Completion of a MAT assessment assists in the identification of postural abnormalities. This contributes to a wider picture of prescribing the correct supports needed for optimal and functional seating. So why don't we have this as standard practice and execute a systematic approach to seating assessments?

Several barriers to completing a Mat Eval were identified by Therapists when working in both metro and regional community settings;

- lack of mat / plinth,
- need of a second person,
- reduced confidence in locating landmarks / manual handling,
- working with a client who has increased tone, and
- working with a bariatric client.

The assessment usually involves postural assessment of the person in their existing seating system, in supine, and sitting on a firm surface. However, how can this be best managed when practicing on our own? Or not in a clinic setting with equipment? How can we locate body landmarks on a client with significant tone or significant adipose tissue? Whilst no single outcome measure captures all necessary information, a Mat Eval will reveal postural tendencies, postural capacity and provide insight into essential postural supports needed for sitting. This informed decision-making process when prescribing a wheelchair reduces the risk of pressure injuries, increased postural deformities, incorrect prescriptions and associated funding issues. All of which can negatively impact on an individual's quality of life.

In this workshop, participants will learn hands-on techniques and skills to independently assess clients in their current environment, use technology to record data from the assessment and how to interpret results.

Content references:

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Waugh, K. & Crane, B. (2013) A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces. Revised Ed. Assistive technology partners, University of Colorado

Presenter biography

Lisa began working as an Occupational Therapist after graduating from LaTrobe University, Melbourne in 2005. Since then, her professional career has led her to work with adults and children in a variety of settings within the area of Neurological Rehabilitation. She places emphasis on positioning to optimise movement, function and vitality when working. Lisa has recently relocated from Sydney to work as part of the Sunrise Medical Clinical Hub in Queensland.

Yoga Practical Session – reconnection with self and community. An embodying practice for all Abilities.

Ms Lisa Bidgood

Sunrise Medical, Sydney, Australia

Yoga Specialist

Learning objectives

- participation in a group based all-inclusive yoga class (yoga poses, breathwork and meditation)
- Learn self-management skills to reduce stress and anxiety through movement and breath
- Gain confidence in moving the body for posture, improved function and participation

Abstract

In this workshop, we explore the essence of yoga with variations of asana (yoga positions) being offered alongside breathwork and meditation. Yoga poses are readily adapted to meet the physical abilities of *all* individuals. The focus of adapted yoga is for the individual to move and connect with their sense of self whilst strengthening bonds as part of a community.

Rooted in Indian philosophy and spiritual practice, yoga is considered a tool to quieten the mind and achieve union of mind, body and spirit. Whilst mainstream media generally depicts yoga as having a limited representation of ability, racial/ethnic, gender, age, and body size diversity, there is growing interest within the disability and chronic health demographics. Whether you stand, sit or roll, you can practice yoga.

Yoga has shown to demonstrate meaningful physical, psychological, and social health benefits; establishing the practice as a promising adjunct for community-based rehabilitation. Research reports yoga is beneficial for decreasing pain, reducing stress, increasing activity and participation, improving sleep and increasing self-awareness. Studies further state participants continue to use tools (such as breathing exercises) to better manage negative emotions and stress outside of class.

Self-efficacy is especially important as the world changes around us. For many people, the impact of COVID-19 on everyday life has exacerbated existing wellbeing issues, as well as created a new set of challenges such as social isolation, inactivity, loneliness and anxiety.

We have seen the renewal and importance of self-care, reaching out and being socially connected even while physically separated. Through yoga we embrace the innate capacity of the human body mind connection to move towards healing and growth. Slow and gentle body movements, in conjunction with breathwork, are used to nourish the self.

Assistants are available to support those with limited movement if required.

Content references:

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Presenter biography

Lisa has worked as an Occupational Therapist with adults and children for over 15 years in the area of Neurological Rehab. Lisa is drawn to a space which promotes body awareness and connection through touch and energy.

Born out of her passion for mindfulness, meditation and yoga, she obtained her yoga teaching qualifications in Australia and the USA and has facilitated yoga classes, workshops and specialist teacher trainings for the past 8 years in Sydney. Lisa has recently completed a Masters of Philosophy degree with Sydney University, researching the impact of a yoga practice for people with a Spinal Cord Injury. The title of the thesis being “An evaluation of an adapted yoga program for people with a spinal cord injury: A journey of reconnection with the self”. Her poster presentation was accepted at ISCOS 2020.

Diversifying Standing Opportunities for Children: Clinically reasoning the options and justifying their funding

Mr Jamie Cockle
SWCO, Sydney, Australia
Product Specialist

Learning objectives

1. To recognise the clinical application of four different styles of standing frame available to a child
2. Recognise five benefits of incorporating standing as part of a 24-hour positioning approach
3. Identify three barriers to establishing effective standing programs at home

Abstract

Standing upright is widely recognised as one of the most important evolutionary changes in our history as a species. It is documented that prolonged periods of sitting can increase mortality and have detrimental impacts on our cardiovascular, metabolic, and mental health (1,2).

Prolonged sitting, such as office workplace environments, is regarded by many to be an emerging public health concern, with periods longer than 20-30 minutes considered to be clinically significant (3). Whilst the need for us to regularly move and change position throughout our day is now widely recognised, for those with a physical disability, access to positions such as standing or weight-bearing remains a big challenge.

To achieve optimum outcomes, selection of sufficient equipment based on individual characteristics is necessary (4). Seating assessment techniques among other assessment tools can provide a wealth of information relating to biomechanics and physical evaluation (5). The data gleaned from these assessments can further inform the selection of appropriate standing frames in relation to the function of the user. This data can also highlight contraindications to the use of particular devices for the individual.

How can we support clients with varying clinical presentations to achieve a common goal of weight-bearing and standing? How do we educate and nurture how standing is prioritised in a child's day to gain the understood benefits? How do we harness the clinical reasoning and understanding of these benefits to justify the required funding?

This workshop provides an introduction to the different styles of standing/weight-bearing that can be supported through equipment provision. The presenter will draw on case studies and clinical experience to explore these options and how one can promote optimum outcomes. We will discuss the barriers to why appropriate standing programs aren't followed and how we can understand these to improve compliance and tolerance.

Content references:

1. Paleg, G. S., Smith, B. A., & Glickman, L. B. Systematic Review and Evidence Based Clinical Recommendations for Dosing of Paediatric Supported Standing Programs. *Paediatric Physical Therapy* 25(3), 232-247 (2013)
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Presenter biography

Jamie Cockle completed his training in Physiotherapy at Cardiff University, UK in 2015. He is passionate about Paediatrics and ensuring all children, no matter their ability have opportunities to be well supported as they grow and develop. He understands how comprehensive postural management can have a strong influence on functionality, health, and the ability to lead a positive lifestyle.

Jamie has gained extensive clinical experience during his work as an acute neurological and orthopaedic Paediatric Physiotherapist within the NHS with further roles within highly specialised community services for children with rare conditions. These experiences enabled him to work closely with a diverse range of clients understanding not only their needs but the families that support them as well.

Since arriving in Australia in 2019 Jamie has applied his acquired clinical knowledge and understanding in his work as a product specialist, working with a wide range of products and solutions, pairing up the right assistive technology with the right clients.

Time for a Switch: The Evaluation of Non-Proportional Drive Controls

Mr John "Jay" Doherty

Pride Mobility Products Corporation, Exeter, PA, USA

Director Clinical Education

Learning objectives

1. Participants will apply the hierarchy of drive controls to the selection of non-proportional drive control selection.
2. Participants will explain 2 programming features available for non-proportional drive controls that can increase independence and maximize function.
3. The Participant will discuss 2 options for controlling power seat functions when utilizing non-proportional input devices.

Abstract

There are many considerations to make when assessing an individual for power mobility use. The decisions made will impact not only the individual's mobility, but also how they reposition themselves, interact socially, and access their environment. There are many options for non-proportional drive controls on the market today, so how does the therapist and supplier choose the correct device when a proportional device is not an option? This course will review the hierarchal decision tree to allow the participant to understand how to decide which non-proportional input device is best for the individual they are working with. The course will use videos and case studies to assist in showing actual devices being utilized.

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Presenter biography

Jay has 26 years of experience working in the assistive technology field with a concentration in complex rehab technology. As the director of clinical education at Quantum Rehab, Jay presents nationally and internationally on seating and wheeled mobility, focusing on evaluation and application of available technologies.

Before joining Quantum, Jay worked in both rehabilitation and assistive technology settings. His expertise ranges from pediatrics to adults. His presentations reflect a strong emphasis on different technology interventions. Jay currently sits on the Mobility Management Editorial Board and holds his ATP and SMS certifications from RESNA.

Applying Disability Studies and Critical Disability Theory to Mobility Technology Research: Tensions Explored, Lessons Learned

Dr. Heather Feldner

University of Washington, Seattle, USA

Assistant Professor

Learning objectives

After attending this session, participants will be able to:

1. Discuss two differences between the medical, social, and political-relational models of disability.
2. Identify three ways in which a medical model of disability underpins pediatric mobility technology provision, despite adoption of more contemporary philosophical beliefs about mobility, disability, and assistive technology.
3. Describe at least two methods and outcomes of a mobility technology research program infused with Disability Studies principles.
4. Evaluate one way that Disability Studies and Critical Disability Theory may be applied to the development of a mobility technology research program or influence clinical practice in the participant's practice setting.

Abstract

Mobility is essential for all children to access their world and achieve self-directed participation in family and community life. However, a complex landscape exists for clinicians and caregivers supporting this goal, especially for young children who may benefit from early mobility technology (MT) intervention. Despite adoption of more contemporary philosophical beliefs about mobility, disability, and technology, challenges to implementation remain, including a focus on walking as an implicitly preferred mode of mobility, shortcomings in the availability and design of pediatric technology, negative perceptions of wheelchairs as a signifier of disability, and accessibility barriers. These issues reflect a medical model view of disability and expose the tension between this traditional rehabilitation approach and a disability studies perspective, which interrogates the able-bodied ideal, situates disability as a social construct, and considers technology use in a more relational context.

This presentation describes how the field of Disability Studies and a political-relational theory of disability underpinned the development and implementation of a novel MT research program at the University of Washington in Seattle, WA, USA. Results from several studies conducted as a part of this research program will be shared, including quantitative device use patterns; qualitative caregiver perspectives of disability and responses to their child's disability/identity, their emerging role as advocates, and their changing views of MT across time; and participatory photo journals that provide visually compelling narratives about technology and community engagement. This presentation will highlight new research evidence that may better prepare clinicians and assistive technology professionals to engage with families around the complex topics of disability and MT as a part of multimodal mobility intervention, as well as to advocate for policy and accessibility change outside the clinic. It will also highlight how critical disability theory can serve as a powerful tool for interrogating both the role of, and reaction to, the introduction of MT in the early stages of family life with a child with a disability.

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Presenter biography

Dr. Heather Feldner is an Assistant Professor in the Department of Rehabilitation Medicine, core faculty in the Disability Studies Program, and an Associate Director of the Center for Research and Education on Accessible Technology and Experiences (CREATE) at the University of Washington in sunny Seattle, WA, USA. Her research is centered at the intersection of mobility, disability, and technology in two primary areas: Perceptions of disability and identity and how these emerge and evolve through technology use in children and adults with disabilities; and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity, participation, and device use. Her current work incorporates multidisciplinary, mixed methods, and participatory approaches drawing from her background as a pediatric physical therapist, doctoral work in disability studies, and postdoctoral research in user-centered rehabilitation and design in mechanical engineering.

Development and Implementation of an Evidence-Based Guideline for Introducing Powered Mobility to Infants and Toddlers

Dr. Heather Feldner¹, Dr. Teresa Plummer², Ms. Alyson Hendry³

¹University of Washington, Seattle, USA. ²Belmont University, Nashville, USA. ³Speech and Movement, LLC, Columbus, USA

Dr. Heather Feldner, Assistant Professor

Dr. Teresa Plummer, Professor

Ms. Alyson Hendry, Speech Language Pathologist

Learning objectives

After attending this session, participants will be able to:

1. Describe two ways that principles of family-centered care and evidence-based practice can inform powered mobility device introduction and use for infants and toddlers with disabilities.
2. Understand the purpose and results of an international Delphi consensus survey in developing an evidence-based guideline consensus document for the introduction of powered mobility to infants and toddlers.
3. Discuss three major components of the guideline consensus document and how they are relevant to clinical seating and mobility provision.
4. Synthesize three benefits of interdisciplinary collaboration for facilitating successful introduction of powered mobility devices for infants and toddlers.
5. Describe how the components of the guideline consensus document may support more rigorous international research and clinical work in the future.

* Justification for a two-hour session: This presentation represents the culmination of a one-year long research project. It is split into two parts, the first hour of the session describes the research process and results, and the second hour of the session introduces the final research product- a guideline for the systematic introduction of powered mobility to infants and toddlers. Our team believes that both sections of the presentation are essential in communicating our evidence-based research process and literature gathering across multiple rehabilitation disciplines and with caregivers, as well as introducing the result of the work and assisting participants in navigating the guideline and applying it to their practice.

Abstract

It is essential to support emerging mobility and exploration for infants and toddlers with disabilities. One means of enacting this support is via access to, and success with, powered mobility as one aspect of multimodal mobility intervention. Pioneering work in this field has led to promising theory and evidence, defining powered mobility learner stages, developing training tools to facilitate driving skills, and amplifying the important ties between mobility, socialization, and cognition. However, between varying policies, attitudes, access to devices, and device design constraints, there remains little standardization of how to introduce powered mobility to infants in a safe and structured manner during an exploratory stage of learning. With the recent introduction of the Permobil® Explorer Mini powered mobility device, the first of its kind designed for children ages 12-36 months, a unique interdisciplinary opportunity arose to address this gap by developing an evidence-based, family-centered guideline for systematically introducing the Explorer Mini and other powered mobility devices to this age group.

This session will be presented in two parts. Part one will describe the processes of guide development, which included an extensive literature review combined with a Delphi Consensus study undertaken with more than 40 international stakeholders (PT, OT, SLP, caregivers) to identify and prioritize critical elements of powered mobility introduction to infants and toddlers. Delphi study results will be shared and literature from across rehabilitation, psychology, child development, and family-centered care will be highlighted. Part two will present a detailed examination of the completed guideline document. Safety, play and communication recommendations, environmental and sensory approaches, and facilitating strategies for structured and unstructured learning across multiple developmental domains will be shared. The session will conclude with exploring how this guideline may support clinical practice and research in a variety of contexts to maximize outcomes for infants and toddlers learning powered mobility.

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Presenter biography

Dr. Heather Feldner is an Assistant Professor in the Department of Rehabilitation Medicine, core faculty in the Disability Studies Program, and an Associate Director of the Center for Research and Education on Accessible Technology and Experiences (CREATE) at the University of Washington in sunny Seattle, WA, USA. Her research is centered at the intersection of mobility, disability, and technology in two primary areas: Perceptions of disability and identity and how these emerge and evolve through technology use in children and adults with disabilities; and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity and participation. Her current work incorporates multidisciplinary, mixed methods, and participatory approaches drawing from her background as a pediatric physical therapist, doctoral work in disability studies, and postdoctoral research in user-centered rehabilitation and design in mechanical engineering.

Dr. Teresa Plummer, PhD, OTR/L, ATP, CEAS, CAPS holds credentials as an Assistive Technology Professional (ATP), Certified Ergonomic Specialist (CEAS) and Certified Aging in Place Specialist (CAPS). Dr. Plummer has been a practicing occupational therapist since 1979 and has been an invited presenter to Dublin, Switzerland, Singapore, Buenos Aires and many state and national conferences. She has assisted in the development of wheelchair service practice guidelines for North America, Europe and Australia. She also works the International Society of Wheelchair Professionals, selected to serve on the Educators' Package Development to create sustainable evidence -based curriculum for OT/PT programs worldwide. Her areas of research center around participatory methods, qualitative research and user perspectives of mobility devices. Her recent works has been with the Explorer Mini by Permobil, a device cleared by FDA for infants 12-36 months. Her work now centers around creating practice guides and developing research protocols for clinical testing.

Ms. Alyson Hendry, MA, CCC-SLP is a Speech Language Pathologist and Institute for Integrative Nutrition Certified Health Coach. She owns a private practice where she provides speech language pathology services in both English and Spanish for children and their families. Alyson also provides individual and group health coaching for rehabilitation professionals and educators, and offers courses for provision of

effective telehealth services. She is passionate about the integration of communication and mobility for children with disabilities.

Culturally Safe Practice in Aotearoa New Zealand as a Wheelchair and Seating Therapist

Miss Jazz Fox, Mrs Liz Turnbull

Auckland District Health Board, Auckland, New Zealand

Miss Jazz Fox, Wheelchair & Seating Therapist

Mrs Liz Turnbull, Team Leader - Mobility Solutions

Learning objectives

1. Understand wheelchair and seating practice in the context of Aotearoa, New Zealand and develop an appreciation of the Māori world view and how this complements holistic practice.
2. Be able to implement a theoretical model into their everyday practice based on Te Whare Tapa Whā but with a wheelchair and seating focus.
3. Become familiar with Te Waka Oranga as a goal setting and care planning tool that could add to their clinical tool kit.

Abstract

When working with clients who have complex postural management and mobility needs, wheelchair and seating practitioners are required to draw on all aspects of a person in order to provide the best and most suitable solution for them. Our organisation's values are Welcome (Haere Mai), Respect (Manaaki), Together (Tuhono) and Aim High (Angamua). These values underpin our service delivery and clinical practice.

As a Māori Occupational Therapist practicing in wheelchairs and seating, the development of a guiding model that merges Western and Māori perspectives is important. The model Te Whare Tapa Whā developed by Professor Sir Mason Durie identifies that the Māori world view has four key elements that require attention to achieve an optimal health outcome. Taha Whānau, Taha Wairua, Taha Tinana, Taha Hinengaro are the corner stones of wellbeing and offer a unified holistic theory of health. These four corner stones are represented by the four pillars of a whareniui. If one cornerstone does not have structural integrity, the building will collapse.

Using Te Whare Tapa Whā as a guide, a complementary model was developed that leads wheelchair and seating practitioners through their journey and experience with clients as they work towards a wheelchair and seating solution. The model encourages a depth of thinking that can lead to successful clinical outcomes for Māori and all of our clients.

A case study will be shared to introduce the model which is based on a broader representation of a house and how to develop an effective clinical relationship. The client and their whānau open their home to us both literally and figuratively. The therapist steps across the threshold and establishes whanaungatanga (a relationship, belonging and connection between people and communities) with the client. In addition a Māori world view goal setting model will be introduced as a complimentary tool.

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Presenter biography

Jazz Fox has been working at Mobility Solutions since graduating from AUT in 2018 as an Occupational Therapist. Jazz and her whānau are affiliated to the iwi - Te Aupōuri which is located in the far north of Aotearoa. While working at Mobility Solutions, she has gained a passion for wheelchair and seating and has developed an interest and strong commitment for improving Māori health outcomes.

Liz Turnbull is the Team Leader for Mobility Solutions, Wheelchair and Seating service for people with complex needs in the greater Auckland region. Liz graduated in 1997 and has worked in NZ and the UK in a number of different fields. She is a member of the national Enable Panel for the credentialing of therapists in Wheeled Mobility and Postural Management – Level 2 and complex custom fabrication. Liz joined the Mobility Solutions team in 2005 when her keen interest in working with people to achieve wheelchair and seating outcomes that support them to accomplish their goals was ignited. Since then she has worked clinically and in leadership, mentoring and supervising the team. She has been involved extensively in service development, working groups and professional forums with Auckland DHB, the Ministry of Health and Accessible.

Understanding the lifespan postural issues of non-ambulant adults with CP, as measured with the Goldsmith Indices of Body Symmetry.

Carlee Holmes

Listening to their voices: Children's and families' perspectives of power mobility use

Dr. Lisa K. Kenyon

Grand Valley State University, Grand Rapids, USA

Professor

Learning objectives

At the completion of this educational session, attendees will be able to:

1. Discuss 3 ways in which children's perspectives of power mobility intervention could be incorporated into a pediatric power mobility intervention plan.
2. Discuss 3 ways in which parent's/caregivers' perspectives of power mobility use may evolve over time.
3. Compare and contrast 3 factors influencing procurement and use of power mobility devices.
4. Explain 3 ways in which these children's and families' perspectives can be applied to enhance our daily practice.

Abstract

Power mobility use can have a life-changing impact on children and their families. The influence of power mobility use on children's play skills, psychosocial skills, and interpersonal/peer relationships is well documented in the literature. Children's use of power mobility also has been found to positively impact the attitudes of others towards children with disabilities, and in some cases, changes how other people view the abilities of children with mobility limitations. Despite these documented benefits, understanding children's and families' perspectives of power mobility use may provide additional insights into how these user groups see, judge, and perceive power mobility devices. This session will involve listening to the voices of >75 children and parents/caregivers (20+ children and 55+ parents/caregivers) as they describe their experiences, concerns, joys, and sorrows related to children's power mobility use. Voices will include children who use a powered wheelchair and their parents/caregivers, children who use a powered wheelchair standing device and their parents/caregivers, and parents/caregivers of children who are exploratory or operational power mobility learners who are unable to speak for themselves. Through these voices, we will explore user perspectives and experiences on power mobility device use, power mobility intervention methods, factors influencing procurement of power mobility devices, and personal/environmental factors influencing everyday power mobility device use. These perspectives and experiences will be further examined within the context of existing research findings to consider interconnections amongst self, family, technology, and other people across time and place. Finally, we will reflect on how the perspectives of these children and families can be applied to enhance our daily practice.

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Presenter biography

Lisa Kenyon is a Professor in the Department of Physical Therapy at Grand Valley State University in Grand Rapids, Michigan. Dr. Kenyon heads the Grand Valley Power Mobility Project, an inter-professional research and service project that provides power mobility training for infants, toddlers, children and young adults who are not typically considered to be candidates for power mobility use. Dr. Kenyon presents nationally and internationally on topics related to pediatric physical therapist practice and has published multiple peer-reviewed journal articles and book chapters pertaining to power mobility and pediatric topics. Dr. Kenyon currently serves on the Editorial Committee for the Wheelchair Skills Program (Dalhousie University, Halifax, Nova Scotia, Canada) and on the Pediatric Specialty Council of the American Board of Physical Therapy Specialties.

The pediatric powered wheelchair standing device: a historical perspective

Dr. Lisa K. Kenyon¹, Dr. Bonita Sawatzky²

¹Grand Valley State University, Grand Rapids, USA. ²University of British Columbia, Vancouver, Canada
Dr. Lisa K. Kenyon, Professor

Learning objectives

At the completion of the session, attendees will be able to:

1. Explain 3 ways in which powered wheelchair standing devices have evolved over the past 40 years.
2. List 3 potential factors that have affected of powered wheelchair standing device development for children
3. Discuss 3 societal changes that have enhanced our ability to provide powered wheelchair standing devices to children
4. Compare and contrast various pediatric PWSDs from around the world

Abstract

Idioms such as ‘stand up for yourself’, ‘as sure as I am standing here’, and ‘stand your ground’ reinforce standing as a societal norm symbolizing independence, dignity, and autonomy. For children who use a powered wheelchair, a powered wheelchair standing device (PWSD) may offer more than just opportunities for lower extremity weight bearing. This session will explore pediatric PWSDs through the lens of a historical perspective. We’ll start in the 1970s with the development of the first standing wheelchair devices/PWSDs for adults and examine the evidence-based value and benefits of these early devices. We will then shift our focus to the evolution of pediatric PWSDs and track changes in pediatric PWSDs to society’s changing values and beliefs over time regarding adults and children with disabilities. We’ll then explore potential factors influencing pediatric PWSD design and use. Finally, we will compare and contrast various pediatric PWSDs from around the world.

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Presenter biography

Lisa Kenyon is a Professor in the Department of Physical Therapy at Grand Valley State University in Grand Rapids, Michigan. Dr. Kenyon heads the Grand Valley Power Mobility Project, an inter-professional research and service project that provides power mobility training for infants, toddlers, children and young adults who are not typically considered to be candidates for power mobility use. Dr. Kenyon presents nationally and internationally on topics related to pediatric physical therapist practice and has published multiple peer-reviewed journal articles and book chapters pertaining to power mobility and pediatric topics. Dr. Kenyon currently serves on the Editorial Committee for the Wheelchair Skills Program (Dalhousie University, Halifax, Nova Scotia, Canada) and on the Pediatric Specialty Council of the American Board of Physical Therapy Specialties.

Bonita Sawatzky is an Associate Professor in the Department of Orthopaedics at the University of British Columbia. Dr. Sawatzky has worked extensively with people with spinal cord injury, including traumatic and non-traumatic populations, as well as adults and children. The focus of her research has been to find ways to make mobility easier and more efficient for those with spinal cord injuries with over 80 peer reviewed publications. She aims to develop a better understanding of the biomechanics of mobility and identifying ways to educate individuals on how to walk or wheel more effectively. In addition, Dr. Sawatzky has begun to explore more specifically issues related with ageing such as technologies and training for older populations, as well as understand functional changes with ageing of individuals with rare neuro/orthopaedic conditions. She worked with the Vancouver ISS committee for 18 years and now enjoying working with the OSS organizing committee!

Training Caregivers to Assist with Manual Wheelchair Skills: An Instructional Session

R. Lee Kirby¹, Cher Smith²

¹Dalhousie University, Halifax, Canada. ²Nova Scotia Health, Halifax, Canada

R. Lee Kirby, Professor

Cher Smith, Occupational Therapist

Learning objectives

On completion of this workshop, attendees will be able to:

1. Describe how to safely and effectively perform a set of 23 wheelchair skills in the capacity of a caregiver assisting a manual wheelchair user.
2. Assess caregivers' capacity to assist manual wheelchair users in performing a set of 23 wheelchair skills.
3. Identify motor-skills-learning principles and training tips that may be useful for training caregivers to perform a set of 23 wheelchair skills.

Abstract

Many manual wheelchair users require the assistance of caregivers to effectively and safely manage obstacles in their everyday lives. Unfortunately, there can be negative health impacts on caregivers. Although research evidence is beginning to accumulate on the caregiver role in general, the assessment and training of caregivers to assist in the performance of wheelchair skills have received little attention. The Wheelchair Skills Program (WSP) (www.wheelchairskillsprogram.ca) provides such protocols. This workshop will provide participants with an opportunity to observe and discuss a set of 23 caregiver skills including preferred techniques, assessment methods and training principles.

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Presenter biography

R. Lee Kirby received his MD degree from Dalhousie University in Halifax, Nova Scotia, Canada. His specialty training in Physical Medicine and Rehabilitation was carried out at the University of Washington in Seattle, Washington, USA, at Dalhousie University and at Stoke Mandeville Hospital in England. He is a Professor in the Division of Physical Medicine and Rehabilitation in the Department of Medicine at Dalhousie University in Halifax, Nova Scotia, Canada with a cross-appointment in Community Health and Epidemiology. His primary research interest is the safety and performance of wheelchairs. He has held research grants from a number of national and international funding bodies. He has authored or co-authored 2 books and 168 papers in peer-reviewed journals. He heads the team that developed the Wheelchair Skills Program, a low-tech, high-impact training program that is relevant for both more- and less-resourced settings.

Cher Smith did her Occupational Therapy training at the University of Toronto and received her MSc Degree in Kinesiology from Dalhousie University. She is a member of the Dalhousie University Wheelchair Research Team and acts as the Seating and Mobility Coordinator at Nova Scotia Health in Halifax, Nova Scotia, Canada. She is also an Adjunct Professor in the School of Occupational Therapy at Dalhousie University. She has been working as an OT in research, clinical and educational work for 25 years. In 2002, Cher was awarded the Mundy Award by the Canadian Adaptive Seating and Mobility Association. She has presented widely to national and international audiences.

Using power mobility as a therapeutic intervention to support development and learning across the lifespan

Dr Lisbeth Nilsson¹, Dr Lisa Kenyon²

¹Associated to Health Science Centre, Lund University, Lund, Sweden. ²Grand Valley State University, Grand Rapids, Michigan, USA

Dr Lisbeth Nilsson, researcher and occupational therapist

Dr Lisa Kenyon, Professor

Learning objectives

1. Explain the value of the ALP in supporting power mobility interventions for infants and people with severe or profound cognitive impairments.
2. Discuss the value of using power mobility as a therapeutic intervention to facilitate development and tool use learning in infants and people with severe or profound cognitive impairments.
3. Connect early phases in the learning process to three specific sensorimotor/cognitive achievements attained through power mobility practice in infants and people with severe or profound cognitive impairments.

Abstract

Four decades have passed since powered mobility studies first documented the developmental and functional benefits of self-generated mobility for children with disabilities. But why are power mobility interventions still so rarely used with the youngest children, and almost entirely absent for people of all ages who have severe or profound cognitive impairments?

Infants and people with severe or profound cognitive impairments are typically unable to voice their needs or desires. Advocating is therefore a task that falls to stakeholders such as parents, relatives, therapists, and care staff who serve as their vicarious voices. Familiarity with an individual's needs and desires, and knowledge of the developmental and learning opportunities provided by powered mobility intervention, are prerequisites for effectively becoming this vicarious voice. To advocate effectively, the stakeholders themselves must be confident that the intervention will provide valuable and beneficial achievements.

Insights from research on infant development and tool use learning help to explain the importance of self-generated mobility for these individuals. We will highlight the developmental achievements and tool use learning that may be gained through therapeutic power mobility intervention with infants and people with severe or profound cognitive disabilities. Showcasing and detailing these valuable achievements that are inter-related and built on each other, may inspire and motivate stakeholders to advocate for therapeutic power mobility interventions for these vulnerable populations in need of unique approaches.

In addition, being able to recognize, track, interpret, and facilitate minor changes and achievements associated with becoming a power mobility tool user are important in cultivating stakeholders' motivation and persistence to engage in the intervention. The Assessment of Learning Powered mobility use (ALP) can be used to assess and facilitate necessary achievements, thereby supporting stakeholders' motivation to persist with practice over the prolonged periods of time needed to achieve desired outcomes in these focused populations.

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Presenter biography

Lisbeth Nilsson is a PhD and specialist in occupational therapy and associated researcher of Occupational Therapy and Occupational Science Group in Lund University, Sweden. She became an occupational therapist in 1974, earned a Master degree in 1996 and a Doctoral degree in 2007. She developed the intervention Driving to Learn in powered wheelchair for people with cognitive disabilities (1993-2007). Her special interests are tool use learning and assessment and facilitation of the learning process. She and her collaborator Durkin, PhD, UK, developed the Assessment of Learning Powered mobility use (ALP) (2009-2013). One of her current interests is what drives human development, learning and creates meaning-making in activity and participation.

Dr. Kenyon is a Professor in the Department of Physical Therapy at Grand Valley State University in Grand Rapids, Michigan. Dr. Kenyon heads the Grand Valley Power Mobility Project, an inter-professional research and service project that provides power mobility training for infants, toddlers, children and young adults who are not typically considered to be candidates for power mobility use. Dr. Kenyon presents nationally and internationally on topics related to pediatric physical therapist practice and has published multiple peer-reviewed journal articles and book chapters pertaining to power mobility and pediatric topics. Dr. Kenyon currently serves on the Editorial Committee for the Wheelchair Skills Program (Dalhousie University, Halifax, Nova Scotia, Canada) and on the Pediatric Specialty Council of the American Board of Physical Therapy Specialties.

A Pilot Study Comparing Postural and Functional Skills in Supportive vs. Unsupportive Wheelchair Backs

Dr. Jessica Pedersen^{1,2}, Dr. Cynthia Smith³

¹Shirley Ryan AbilityLab, Chicago, USA. ²Devices 4 the Disabled, Chicago, USA. ³Private Practice, Denver, USA

Dr. Jessica Pedersen, Clinical Director/Research Assistant

Dr. Cynthia Smith, owner

Learning objectives

1. Identify two outcome measures for determining the benefits of a back support
2. Describe a method for measuring a a kyphosis when sitting in a wheelchair
3. Identify evidence demonstrating differences in forward upward reach when using two different backs

Abstract

Does a back support make a difference for people with a C6-T4 SCI? The intervention of back supports for people with spinal cord injury began in the 1980s. Since that time, many products were introduced to provide posterior support at the pelvic and sacral area in an effort to neutralize pelvic tilt and promote a more upright spine. Does a back support, placed in an optimal position to prevent a posterior pelvic tilt, make a significant difference compared to no back support? What outcomes make a statistical significance? This study looked at the ability to maintain spinal alignment, spirometry outcomes, reach, pain, and wheelchair skills with a person using a K5 wheelchair with and without a back support. This presentation will demonstrate how a clinician can practically gather evidence in the clinic to demonstrate any physical or functional changes with a back support intervention. This data can help in clinical decision making as well as provide data to support reimbursement to third party payers questioning the expense. Participants will learn the process for incorporating research into a clinical setting including determining the research question, developing a PICO, determining appropriate outcome measures, collecting and analyzing the data. The measures will be demonstrated, illustrating how they can be incorporated during a clinical session. Outcomes will be outlined with analysis determining significance to show how a supportive back can enhance function versus a back that does not support the pelvis and spine into a neutral position.

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Presenter biography

Jessica and Cindy have over 80 years of experience combined. Each worked in a large rehab center in the United States, Shirley Ryan Abilitylab and Craig Rehabilitation Hospital. They have had the opportunity to provide clinical wheelchair and seating service delivery, manage a wheelchair and seating clinic, teach and mentor students and young therapist, advocate for legislative and policy change, and conduct research. They have shared their passion for wheelchairs and seating around the world. They are excited to join together to share these findings.

Can user centered design be used to develop assistive technology? Testing a framework for collaboration

Miss Hana Phillips, Associate Professor Gianni Renda, Professor Rachael McDonald
Swinburne University, Melbourne, Australia
Miss Hana Phillips, Occupational Therapist

Learning objectives

- 1) For participants to be exposed to current design methodologies and how these may run in parallel with current practices within both healthcare and with development of assistive technologies
- 2) For participants to experience current design methodologies and trial a collaborative framework in a safe space
- 3) For participants to have an opportunity to reflect on their own practices and the proposed framework and whether they can see the benefits of further interdisciplinary practice to start conversations for further interdisciplinary opportunities and gaps in the research.

Abstract

Introduction: There is growing evidence that there is a need for change in the approach to Assistive technology (AT), to reduce the levels of abandonment in the community and improve quality of life for the users of AT. Alongside this, healthcare professionals are interacting with design professionals to solve complex issues within healthcare on an increasingly frequent basis. Examples of this include areas of oncology, hospital design and dementia care. However, there has been limited research into human centered design with the collaboration of users of AT, health care professionals and designers. As there is growing evidence that collaboration between the users of AT, as well as health care professionals and design professionals utilising a human and user centered design approach may be of benefit to the users of AT and reduce the abandonment of AT.

Method: To further engage with this topic, users of AT, healthcare professionals and designers have participated in research to understand the current understandings of human centered design and collaboration in this space of AT design and inter-professional practices. This data was then used to formulate a framework to implement user and human centered design within the field of AT. This framework was developed to address the areas of difficulty presented and to mitigate these issues. This framework will be demonstrated and run as a pilot to ensure its suitability prior to being used within the community.

Result: After trialing of this methodology, it will be adapted and used within the community to provide a use case for the interdisciplinary collaboration of users of AT, designers and healthcare professionals. This will assist in both understanding the potential role of human centered design in the area of AT and promoting the interactions between user centered and client centered practice within the AT community.

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Presenter biography

Hana Phillips: Hana's has a background in Occupational Therapy and rehabilitation, with an interest in adults and disability. With broad experience within the public and private health sectors, her interests include adaptive technology and environmental design and modification. This led to working on a PhD in understanding how design principles, specifically user centred design and design thinking may improve the utility of aids and improve personal independence as well as decrease long term abandonment.

Gianni Renda: Associate Professor Gianni Renda is Deputy Chair of the Department of Architectural and Industrial Design. His research focus is investigating ways that design can empower the user in the field of health, disability and ageing. Other interests include food design, advanced manufacturing, Italian design history and automotive design. Gianni has worked professionally as a graphic designer, retoucher, printer, exhibition and set designer.

Rachael McDonald: Associate Professor Rachael McDonald is a clinical, research and teaching Health Professional with an interest in enabling people with lifelong disabilities to participate in life situations. She has worked extensively in this field, with in both children's services and adult settings. She supervises research (honour's, MSc and PhD) students specialising in the care of people with complex disability as well as development and evaluation into the effectiveness of assistive technologies, and has published widely. She has qualifications in occupational therapy, biomechanics and higher education in addition to her Doctorate which was an exploration of the acceptability and effectiveness of adaptive seating systems in wheelchairs for children with cerebral palsy. She previously held a joint appointment with the Department of Occupational Therapy and the Centre for Developmental Disability Health Victoria at Monash University. Her role at CDDHV included health professional education and leading research activities, whereas her interest in using technology as an enabler but also as a tool for collecting objective evidence was a feature of her occupational therapy research. This interest has led to her recent appointment as the Chair, Department of Health and Medical Science at Swinburne University of Technology, where this research is developing further.

The intricacies of posture, vision and mobility: The developmental trajectory of self-initiated mobility

Dr. Teresa Plummer

Belmont University, Nashville, USA

Associate Professor

Learning objectives

1. Describe the visual structures and functions of typical infants/children.
2. Understand the relationship between visual, postural and mobility milestones and how this impacts self-initiated mobility.
3. Discuss ways in which postural and mobility interventions can be utilized to improve visual functions for children with mobility impairments.
4. Describe the importance of self-initiated mobility for infants 6-36 months.

Abstract

This instructional session will present an overview of typical infant development. A comparison will be made between typical and atypical development for infants with developmental and mobility delays. A review of the neurological structures and functional skills related to posture, mobility and vision will be discussed and linked to the need for multi-modal interventions for mobility. Because the first 6 months of life are the most sensitive and the first 6 years the most significant for developmental of the visual system, this instructional course will highlight the need for mobility interventions for infants and discuss how this specifically relates to visual development. Further, this course will stress the importance of an inter-disciplinary collaboration of therapists and caregivers to develop effective strategies that can provide for integration of “therapy” that supports visual and motor development into everyday life activities. We will discuss positioning, handling, environmental, and mobility modifications to enhance the progress and participation of infants with developmental delays.

The intricate link between all sensorimotor systems will be explored to demonstrate how visual development relates to postural control and how postural control relates to mobility.

An understanding of these topics will aid participants in understanding the need for self-initiated mobility for infants and recommending appropriate mobility interventions at an early age

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Presenter biography

Teresa Plummer, PhD, OTR/L, ATP, CEAS, CAPS - Associate Professor in School of Occupational Therapy, Belmont University, Nashville, TN, USA

Dr. Teresa Plummer, PhD, OTR/L, ATP, CEAS, CAPS holds credentials as an Assistive Technology Professional (ATP), Certified Ergonomic Specialist (CEAS) and Certified Aging in Place Specialist (CAPS). Dr. Plummer has been a practicing occupational therapist since 1979 and has been an invited presenter to

Dublin, Switzerland, Singapore, Buenos Aires and many state and national conferences. She has assisted in the development of wheelchair service practice guidelines for North America, Europe and Australia. She also works the International Society of Wheelchair Professionals, selected to serve on the Educators' Package Development to create sustainable evidence-based curriculum for OT/PT programs worldwide. Her areas of research center around participatory methods, qualitative research and users' perspectives of mobility devices. Her recent works has been with the Explorer Mini by Permobil A device cleared by FDA for infants 12-36 months. Her work now centers around creating practice guides and developing research protocols for clinical testing.

How Do People Actually Use Their Manual Wheelchairs, and What Really Matters?

Curt Prewitt, PT, MPT Deborah Pucci
Ki Mobility, LLC, Stevens Point, Wisconsin, USA
MS, PT, ATP Curt Prewitt, Director of Education
PT, MPT Deborah Pucci, Clinical Educator

Learning objectives

- Following this presentation, participants will be able to cite 2 examples of how end users move about in wheelchairs during everyday life.
- Following this presentation, participants will be able to describe 3 physical principles that impact propulsion efficiency of a manual wheelchair.
- Following this presentation, participants will be able to describe 3 component selections that impact propulsion efficiency of a manual wheelchair.

Abstract

Every manual wheelchair user would like their chair to be a high-performance machine. Performance is impacted by principles involved in translating human movement into movement of a wheelchair and factors that contribute to energy loss. In order to help end users achieve maximum performance, persons involved in the wheelchair selection process need to have a fundamental understanding of how people use their wheelchairs, and how those wheelchairs function.

This presentation will examine the real-world behaviors of manual wheelchair users and discuss the mechanical principles and factors that affect propulsion efficiency. In addition to explaining some details of the science involved, we hope to inspire participants to think critically about their current understandings and beliefs on this topic.

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Presenter biography

Curt Prewitt is Director of Education for Ki Mobility. He has a BS in Exercise Physiology and an MS in Physical Therapy from the University of Colorado.

He practiced as a physical therapist in a number of settings for a few years, most prominently in long term care, where he gained experience with seating and wheeled mobility. He transitioned from a practicing therapist to a manufacturer's representative, eventually moving into sales management and focusing on complex rehab technology. Throughout his tenure on the manufacturer's side in the complex rehab arena, he has dealt largely with pediatric positioning and mobility products. He has previously also served as a product trainer/product specialist, teaching product features and clinical application, as well as coordinating continuing education presentations, both credited and non-credited. He has presented continuing professional education courses across the US and internationally.

The Wheel Story: Impact of Wheels and Tires on Manual Wheelchair Performance and Propulsion Efficiency

Curt Prewitt¹, PT, MPT Deborah Pucci²

¹Ki Mobility, LLC, Stevens Point, Wisconsin, USA. ²Ki Mobility, LLC, Stevens Point, WI, USA

MS, PT, ATP Curt Prewitt, Director of Education

PT, MPT Deborah Pucci, Clinical Educator

Learning objectives

Attendees will be able to list three features of caster wheels and explain how they influence manual wheelchair propulsion efficiency

Attendees will be able to list three features of drive wheels and explain how they influence manual wheelchair propulsion efficiency

Attendees will be able to explain three characteristics of drive surfaces and explain how they impact manual wheelchair drive wheel and caster selectio

Abstract

Imagine a meticulously configured ultralightweight rigid manual wheelchair, set-up for the user's anatomic measurements, postural support needs, and skill level. The wheelchair has an aggressive axle position and is stripped down of secondary components, such as anti-tippers, armrests or even wheel locks. The end user is expecting a highly efficient, high-performance wheelchair. Now, imagine the chair being issued equipped with mag wheels and pneumatic tires with flat-free inserts.

Research is giving us new insights into the impact of wheel and tire selection as a critical influencer of performance. Are we considering the right factors and context when it comes to wheel and tire selection? Wheel and tire selection on manual wheelchairs often comes down to choosing the standard, no-additional-cost option, or may be based on an assumption that a user is not able or willing to maintain wheels and tires that require it. Are we providing end users an explanation of what to consider, and giving them the options to determine how much maintenance they are willing to accept?

An understanding of materials, and the physical and performance characteristics of wheels and tires, can contribute to improved decision making regarding the selection of a critical aspect of wheeled mobility: the wheeled part. This presentation will address the science of wheels and tires and review current research findings on the impact of selection and setup on wheelchair performance and propulsion efficiency. Attendees will be provided practical considerations to equip them to make appropriate wheel and tire selection when configuring manual wheelchairs.

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Presenter biography

Curt Prewitt is Director of Education for Ki Mobility. He has a BS in Exercise Physiology and an MS in Physical Therapy from the University of Colorado.

He practiced as a physical therapist in a number of settings for a few years, most prominently in long term care, where he gained experience with seating and wheeled mobility. He transitioned from a practicing therapist to a manufacturer's representative, eventually moving into sales management and focusing on complex rehab technology. Throughout his tenure on the manufacturer's side in the complex rehab arena, he has dealt largely with pediatric positioning and mobility products. He has previously also served as a product trainer/product specialist, teaching product features and clinical application, as well as coordinating continuing education presentations, both credited and non-credited. He has presented continuing professional education courses across the US and internationally.

Balancing the options – Managing Pelvic Obliquity in Seating

Ms Angela Rowe¹, Ms Kim Vien²

¹Melbourne Health, Melbourne, Australia. ²Melbourne Health, Melbourne, Australia

Ms Angela Rowe, Physiotherapist

Ms Kim Vien, Occupational Therapist

Learning objectives

- To be able to measure pelvic obliquity objectively both postural and pressure interface mapping perspectives
- To identify the causes and evaluate the impact of pelvic obliquity
- To identify strategies to manage pelvic obliquity in seating

Abstract

Have you ever followed the “recipe” and not got the desired outcome? Our definitions of fixed and flexible postures can often limit our thinking and problem solving when managing posture and setting up AT solutions in seating.

We will do a deep dive into the topic of pelvic obliquity including a discussion around the assessment process involving postural and pressure measures. We will examine the causes and impact of Pelvic Obliquity on pressure injury risk, postural changes, self-propulsion efficiency, and everyday function. We will demonstrate how we assess and clinically reason through a number of video case studies. A number individualised AT solutions and the evaluation of outcomes will be presented. This will spark a debate regarding the management posture vs pressure and expand on the traditional ideas of correction vs accommodation.

Angela (Physiotherapist) and Kim (Occupational Therapist) are part of a specialist multidisciplinary seating team as part of the Young Adults Transition clinic at Melbourne Health. Our model of service allows input from differing clinical perspectives that can allow for more developed AT solutions.

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Presenter biography

Angela Rowe is a physiotherapist with over 20 years of experience, predominantly in the fields of neurology and disability. She has completed post graduate studies in the field of Postural Management and worked as a Postural Management therapist at The Royal Hospital for Neuro-disability in London. Since returning to Melbourne, Angela has worked in two Wheelchair and Seating Services at The Royal Melbourne Hospital and Monash Health. Angela has co-authored a Wheelchair organisational standard at Monash Health and been involved in various research projects and conference presentations with her Wheelchair and Seating clinic team. She has a particular passion for upskilling other therapists and has led training workshops and provided mentorship. Angela also has her own business Postural Innovations which provides bed positioning assessments, wheelchair consultations, and a product range of postural supports for 24 hour positioning.

Kim Vien is a Senior Occupational Therapist working in the disability sector specialising in the area of seating and equipment prescription. Having been in the disability sector for over 10 years, Kim has presented on the topic of seating at the 2017 & 2019 Oceania Seating Symposiums and at multiple ATSA daily living expos. Kim graduated in 2005 from the University of South Australia and completed honors in health sciences. With further studies in access consulting, she has expanded her skills to understand the built environments and how consumers and their technologies can interact more effectively. She has worked in both hospital and community settings and is now focused on improving services for adults with disabilities and their assistive technology needs.

Wheelchair Educators' Package: A tool to enhance wheelchair education globally.

Paula Rushton¹, Mary Goldberg², Yohali Burrola-Mendez¹, Jon Pearlman², Debbie Wilson³

¹University of Montreal, Montreal, Canada. ²University of Pittsburgh, Pittsburgh, USA. ³Seating to Go, Hamilton, New Zealand

Paula Rushton, Associate Professor

Mary Goldberg, Associate Professor

Yohali Burrola-Mendez, Post Doctoral Trainee

Jon Pearlman, Associate Professor

Debbie Wilson, Occupational Therapist

Learning objectives

By the end of this workshop participants will be able to:

- describe the Wheelchair Educators' Package purpose and content;
- identify how the Wheelchair Educators' Package may be used to enhance the wheelchair education provided within their training programs;
- understand how the Wheelchair Educators' Package may be modified to improve its use within their context.

Abstract

It is estimated that 75 million people with disabilities around the world need wheelchairs in order to fulfill all human rights (WHO, 2018). Providing wheelchairs, and other assistive technology, can increase health and wellbeing of individuals and reduce social exclusion. It can also have important economic benefits for a person and a community (ATScale, 2020). Unfortunately, only between 5-15% of those in need of a wheelchair can access one (WHO, 2018). This increases inequity and limits the ability for countries to meet their obligations under the United Nations Convention on the Rights of Persons with Disabilities.

An increasingly recognized barrier to access appropriate wheelchairs is the lack of trained wheelchair personnel (Fung, 2017). Not all educational institutions teach wheelchair content, and there is great variability in what and how it is taught and evaluated. To support the integration of wheelchair content into universities and regional training centres globally, the Wheelchair Educators' Package has been developed by a diverse group of 30 people, with representation from different professions and economic settings, including technical experts, end-users, experts in assessing evidence and stakeholders. This package will enable programs to strengthen rehabilitation systems worldwide, through appropriately trained professionals in wheelchair service provision.

In this workshop, we will describe the participatory action research approach used to develop the Wheelchair Educators' Package, an overview of the content and preliminary results from education institutions currently piloting the Package. Participants will have the opportunity to engage in simulated use of the Package in order to explore how it may be used to address training needs of wheelchair service providers in their contexts. Facilitated discussion will enable participants to provide feedback on how the Package could be improved to meet the education needs within their contexts. Post-conference, all participants will be notified of the Wheelchair Educators' Package launch.

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Presenter biography

Paula Rushton is an Associate Professor in the School of Rehabilitation, Occupational Therapy Program at the University of Montréal and a researcher at the CHU Ste-Justine Research Center. Her research is focused on measurement, intervention, knowledge translation and education related to improving the wheeled mobility of both adults and children through an improved wheelchair service provision process. From the measurement, intervention and knowledge translation perspective, Rushton's expertise lies in the domains of wheelchair skills and wheelchair confidence. From the education perspective, Rushton has been working with the International Society of Wheelchair Professionals to enhance wheelchair content in health care professional university curricula globally.

Mary Goldberg is an Associate Professor in the School of Health and Rehabilitation Sciences and Education and Outreach Project Director at the Human Engineering Research Laboratories at the University of Pittsburgh. Goldberg focuses on developing and testing evidence-based online continuing education interventions for rehabilitation professionals. She is Project Co-Director for the International Society of Wheelchair Professionals grant sponsored by USAID and the NIDILRR Initiative to Mobilize Partnerships for Successful Assistive Technology Translation (IMPACT) Center. She teaches a rehabilitation engineering design course series and two Coursera Massive Open Online Courses (MOOC) on "idea 2 Impact" and "Disability Awareness and Supports".

Yohali Burrola-Mendez is a Postdoctoral fellow at the University of Montreal and the CHU Ste-Justine Research Center. Yohali received her BS and MS in Physical Therapy and her PhD in Rehabilitation Sciences. Her research is focused on the development and implementation of educational interventions related to improving wheelchair service provision competencies among rehabilitation professionals and lay health workers in low - to high income settings. Yohali has been working with the International Society of Wheelchair Professionals since 2015.

Jon Pearlman is an Associate Professor & Chair in the Department of Rehab Science & Technology, and the founding director of the International Society of Wheelchair Professionals. Jon received his BS and MS in Mechanical Engineering, and his PhD in Rehabilitation Science. Jon is a translational researcher focused on developing and improving technologies which support physical rehabilitation and improve the lives of people with disabilities.

Deb Wilson is an Occupational Therapist with over 30 years clinical experience. She is the Service Manager and training facilitator of Seating To Go, part of the Geneva Healthcare Group and a leading

wheelchair and seating assessment, training and repair service in New Zealand. In 2009, she helped develop the NZ Ministry of Health wheeled mobility and postural management credential for occupational therapists and physiotherapists. She is the NZ Chair for OSS and has contributed to capacity building in the Pacific Islands with Motivation Australia. Deb is currently a member of the ISWP Wheelchair Educators' Package Development Group.

Strategies for Online Training in Seating & Mobility Complimented with Telehealth

Dr. Mark Schmeler, Ms. Madelyn Betz
University of Pittsburgh, Pittsburgh, USA
Dr. Mark Schmeler, Associate Professor
Ms. Madelyn Betz, Research Assistant

Learning objectives

Upon attending this session learners will be able to:

- List 3 findings of research studies related to the outcomes of telehealth services for seating and mobility.
- Explain 3 factors that have contributed to the shift to online training.
- Identify 3 strategies to support remote student clinical observations.

Abstract

The recent global pandemic created many challenges in the delivery of seating and mobility services and further impacted student clinical training. For years clinical researchers at the University of Pittsburgh and others have investigated the feasibility and effectiveness of telehealth strategies in the provision of seating and mobility. Likewise, many academic programs have been shifting to online education. This session will review recent research in telehealth as it applies to seating and mobility services as well as current trends for online clinical education. This session will then describe a new online/hybrid Master of Rehabilitation Technology degree program and how telehealth strategies were applied to address student clinical observations. Finally, the perspectives of a graduate student and clinical instructor in the program will be shared for discussion.

Content references:

Ott, K.K., **Schein**, R.M., Straatmann, J., Schmeler, M.R., & Dicianno, B.E. (2021). Development of a home-based telerehabilitation service delivery protocol for wheelchair seating and mobility within the Veterans Health Administration. *Military Medicine*, 186. Published February 27, 2021. DOI: <https://doi.org/10.1093/milmed/usab091>

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Presenter biography

Mark Schmeler is an Associate Professor and Vice Chair for Education & Training in the Department of Rehabilitation Science & Technology at the University of Pittsburgh. He oversees all aspects of the graduate training curriculums and continuing education in the field of Assistive Technology. He is also an Occupational Therapist and Assistive Technology Professional with over 30 years of experience. He continues to practice part-time at the Center for Assistive Technology at the University of Pittsburgh Medical Center where he also serves as Interim Director. His area of research is focused on clinical outcomes and service delivery models to foster evidence-based practice and equitable policy for access to products and services. He has published several peer-reviewed articles and position papers related to tool development, registries, telehealth, and best-practices in Assistive Technology.

Madelyn Betz is a graduate student in the Master of Rehabilitation Technology program at the University of Pittsburgh. She also works as a research assistant on a project related to the investigation of global policies related to wheelchair services to identify new models for implementation in the United States.

Pressure Injuries are Ageist! Why is Ageing a major risk factor for Pressure Injury development?

Mrs Deirdre (Dee) Smith

Permobil, Sydney, Australia,
LTC/Aged Care Clinical Specialist

Learning objectives

- 1) Describe 5 risk factors for Pressure Injuries that can be found in the older aged population.
- 2) Discuss 2 ways that a pressure injury can impact the ageing individual's participation, independence and well-being.
- 3) List 3 common areas on the body for pressure injury development

Abstract

Pressure injuries are associated with increased pain and discomfort, decreased quality of life, along with an increase in morbidity and mortality. Pressure injuries are ageist with a tendency to target our older population and yet, they are largely preventable!

According to the 2019 International Guidelines, there are some individuals who have special pressure injury specific needs, due to their medical condition, the setting in which care is delivered and in relation to their age.

In the US, pressure injury care is estimated to cost \$11.6 billion/yr. In New Zealand, the total cost of pressure injury treatment is estimated at \$694 million/yr. In Australian public hospitals it has been estimated to cost \$983 million/yr to treat a Healthcare Associated Pressure Injury.

What is the impact of a pressure injury to an individual? How does this pressure injury impact the person's ability to participate in daily activities, to interact with others and engage in their community? As a clinician you are part of the multidisciplinary approach and can assist as part of the team member in the identification, treatment and prevention of pressure injuries.

This presentation will refer to the 2019 International Guidelines as a basis of best practice for pressure injury prevention and treatment. We will explore the guidelines to build a foundation of understanding of pressure injuries, looking at the definitions, locations and risk factors. We will then refocus our attention to the ageing individual.

Why is the ageing individual at an even greater risk for developing pressure injuries? The factors increasing the susceptibility of pressure injury development with an ageing individual, such as the ageing skin, nutrition and weight loss will be discussed. Finally we will review the current research on pressure injuries and the impact upon the ageing individual's well-being, independence and participation.

Content references:

- 1) European Pressure Ulcer Advisory Panel, National Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline. The International Guideline. Emily Haesler (Ed.) EPUAP/NPIAP/PPPIA: 2019.
- 2) Carryer J, Weststrate J, Yeung P, Rodgers V, Towers A, Jones M. Prevalence of key care indicators of pressure injuries, incontinence, malnutrition, and falls among older adults living in nursing homes in New Zealand. *Res Nurs Health*. 2017 Dec;40(6):555-563. doi: 10.1002/nur.21835. Epub 2017 Nov 11. PMID: 29127713.
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- 6) Team V, Tuck M, Reeves J, Way M, Enticott J, Evans S, Weller CD. Pressure injury data in Australian acute care settings: A comparison of three data sets. *Int Wound J*. 2020 Jun;17(3):578-586. doi: 10.1111/iwj.13320. Epub 2020 Feb 6. PMID: 3202709 <https://pubmed.ncbi.nlm.nih.gov/32027094/>
- 7) Wilson, L, Kapp, S, Santamaria, N. The direct cost of pressure injuries in an Australian residential aged care setting. *Int Wound J*. 2019; 16: 64– 70. <https://doi.org/10.1111/iwj.12992>

Presenter biography

Dee is a Registered Nurse with almost 25 years' experience in a variety of specialties'.

She graduated from Sydney University with a Bachelor of Nursing in 1997 and in 2001 gained a Post Graduate Certificate in Infection Control.

In recent years Dee has been working within the Aged Care Industry as a Clinical Nurse Consultant in Infection Prevention & Control, to assist Residential Aged Care Facilities in meeting the requirements for the Australian Aged Care Quality Standards. Dee developed and delivered education and training of evidenced-based practice in Infection Prevention & Control, Wound Care and Pressure Injury Management.

Dee joined Permobil in 2020 as the Seating and Positioning BDM and in 2021, joined the Asia Pacific Clinical Education team as Long Term Care/Aged Care Clinical Specialist. Dee is passionate about mentoring, educating and empowering health care professionals to provide safe and quality care.

Access & Independence for Everyone – Enabling independence through power wheelchairs and alternative controls.

Mr Scott Staunton

Sunrise Medical, Wetherill Park, Australia, Rehabilitation Engineer / Clinical Hub Team at Sunrise Medical

Learning objectives

- Assessment for suitability of alternative controls
- Raise awareness in regards to options available for alternative controls
- Raise awareness with regards to modifications possible for powerchairs to enable independence

Abstract

Realising the potential of clients with reduced motor function can result in improved independence and ability to integrate with their environment. Through the provision of powered wheelchairs, alternative drive controls and made to order modifications these limiting factors can be reduced to helping maximise function and independence.

The challenge and goal for therapists when evaluating for appropriate alternative drive controls is knowing what technology is available to enable maximum independence where limiting factors are present and independence where it was thought there were none or limitations were present prior to assessment.

The session will take on a holistic approach to the assessment of alternative drive controls for powered wheelchairs and highlight the importance of the seating, mobility and driving assessment impact on the assessment of specialty controls. Demonstrating the need for special modifications such as powered swing away chin controls and foot operated control systems as an example to help enable independence will also help provide clarity on options that it was thought may have not been available prior to the assessment process.

By the end of the session, each participant will have a good understanding of the assessment process for powered wheelchair controls systems. Be able to establish various options available in regards to alternative control devices and maximise the potential movements of their clients through systems such as:

- Proportional Head control
- Chin Control Systems
- Switched Systems
- Sip and Puff Systems
- Head Array Systems

Assessment techniques will also be discussed in regards to driving competencies allowing participants to apply what has been learned during the session to help achieve the outcomes and goals of their clients. This session will ensure equipment issued can meet the goals of clients: promoting function, independence and integration into the community, ensuring equipment is fit for purpose.

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Koontz AM, Brindle ED, Kankipati P, Feathers D, Cooper RA. Design Features that Impact the Maneuverability of Wheelchairs and Scooters. Archives of Physical Medicine and Rehabilitation May 2010; 91:759-64.

Wiat L, Darrah J, Cook A, Hollis V, May L. Evaluation of powered mobility use in home and community environments. Physical & Occupational Therapy in Pediatrics. 2003; 23(2):59-75.

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Presenter biograph

From the UK and with experience in Prosthetics prior to training with the NHS as a Rehabilitation Engineer in 2003 Scott brings with him 18 years of knowledge and experience in the management of various client populations with relation to the provision of appropriate seating, mobility and pressure reducing equipment. In 2008, Scott moved to Australia and has worked with various equipment suppliers helping to support clients, carers and therapists to help provide a holistic approach to the provision of assistive technology.

Now with the Clinical hub team at Sunrise Medical Scott brings with him a passion for the assessment and management of clients with complex seating and mobility needs, ensuring equipment issued has a positive outcome in relation to the needs of his clients.

Get me out of here, Manual Wheelchair Power add on Devices

Mr Mitchell Stone

Sunrise Medical, Sydney, Australia, Product specialist

Learning objectives

- Have a good understanding of considerations regarding add on devices.
- Be able to establish various options available in regards to features and considerations of each
- Have increased confidence which may help decide which product is going to be suitable for the end user

Abstract

This highly engaging workshop will describe the diverse equipment available to manual wheelchair users to get out in the community. We'll also discover what add on devices make it possible to visit places that would otherwise be too difficult to access. The workshop will cover options that can be attached to a user's manual wheelchair, what to look out for when scripting these products and restrictions that may apply to both the wheelchair and add on devices. Benefits of the use of power add on devices will be covered as well as how it can help users interact in the community; getting them out and about without the fear of being "stuck".

Products available on the market, such as Smart Drive, Smoov, Freewheel, Front Wheel, Batec, F55, Street Jet, Claxon, Tri-Ride, Extender, I-Express, E-fix, E-motion will be reviewed including their and unique applications and benefits.

Content references:

Kloosterman, M., Snoek, G., van der Woude, L. and Rietman, J., 2012. A systematic review on the pros and cons of using a pushrim-activated power-assisted wheelchair. *Clinical Rehabilitation*, 27(4), pp.299-313. A systematic review on the pros and cons of using a pushrim-activated power-assisted wheelchair

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M.D.,^{1,2} [Matthew P. Buman](#), Ph.D.,³ [John W. Chow](#), Ph.D.,⁴ [Mark D. Tillman](#), Ph.D.,⁵ [Kimberly A. Fournier](#), Ph.D.,⁶ and [Peter Giacobbi, Jr](#), Ph.D.⁷

Fomiatti, R., Richmond, J., Moir, L. and Millsteed, J., 2013. A Systematic Review of the Impact of Powered Mobility Devices on Older Adults' Activity Engagement. *Physical & Occupational Therapy In Geriatrics*, 31(4), pp.297-309

Presenter biography

Mitch joined Sunrise Medical at the start of 2021 as the RGK product specialist. He has a passion for maximising function and skills for both new and old wheelchair users. He knows the difference a millimetre can make in a perfect set up. Mitch has been a manual wheelchair user since 2010 and brings a breadth of both practical and technical experience to his role. Prior to joining the assistive technology industry, Mitch work in the trade industry where millimetres also made a difference.

Mitch plays both basketball and wheelchair rugby league. He has represented Australia in the League competition and is striving to play on the international stage again in 2021. His skills on the court provide him with an expert insight and understanding the essential needs when scripting elite chairs for athletes.

Mitch enjoys mentoring and upskilling wheelchair users, helping them to maximise their daily function and participation both in the community and on the field.

International Society of Wheelchair Professionals' (ISWP) learning modules for wheelchair service providers.

Ms. Amira Tawashy¹, Dr. Mary Goldberg², Dr. Lee Kirby³, Dr. Paula Rushton⁴, Ms Samantha Shann⁵

¹Dalhousie University, Halifax, Canada. ²University of Pittsburgh, Pittsburgh, USA. ³Nova Scotia Health Authority, Halifax, Canada. ⁴University of Montreal, Montreal, Canada. ⁵World Federation of Occupational

Therapists, Newcastle, United Kingdom

Ms. Amira Tawashy, Occupational Therapist

Dr. Mary Goldberg, Associate Professor

Dr. Lee Kirby, Physician

Dr. Paula Rushton, Associate Professor

Ms Samantha Shann, President

Learning objectives

1) Describe the content of the International Society of Wheelchair Professionals (ISWP) modules, including similarities and differences from 2012 World Health Organization (WHO) Wheelchair Service Training Package (Basic Level); 2) Discuss the development process of the ISWP modules; 3) Provide feedback on the content and development process

Abstract

The WHO estimates that less than 20% of the 100 million people in the world who need a wheelchair have access to an appropriate one that meets their needs. Inappropriate wheelchair service provision has adverse effects on safety, health, and other basic human rights. Limited training allocated to wheelchair service provision contributes to inappropriate wheelchair service delivery.

The ISWP has a mission to serve as a global resource to wheelchair service standards and provision through education and information exchange. In its aim to professionalize wheelchair services around the world, ISWP promotes the WHO Guidelines on providing manual wheelchairs in less resourced settings. Expert opinion provided the basis for these guidelines and related WHO educational packages that have been the primary basis of ISWP's hybrid training (part on-line, part in-person) of wheelchair service providers. The Integration Committee of the ISWP was charged with reviewing the content of the Basic Package with a view to making any necessary revisions to ISWP materials to reflect updated knowledge and practice. As such, the ISWP has integrated current literature and evidence-based guidelines into the ISWP materials to create an up-to-date online, interactive learning experience. This process was completed in an iterative manner through consensus of an international group of content experts. The ISWP's online modules can be used either through instructor facilitation or asynchronous self-study.

This session will provide information on the development and content of the updated ISWP learning resources for wheelchair provision. The participants will explore select on-line modules and be encouraged to discuss the process and content with questions and comments in both small and large group discussions.

Content references:

- 1) Toro ML, Eke C, Pearlman J. The impact of the World Health Organization 8-steps in wheelchair service provision in wheelchair users in a less resourced setting: a cohort study in Indonesia. *BMC Health Serv Res.* 2016 Jan 22;16:26. doi: 10.1186/s12913-016-1268-y. PMID: 26801984; PMCID: PMC4722611.
- 2) Fung K, Miller T, Rushton PW, Goldberg M, Toro ML, Seymour N, Pearlman J; International Society of Wheelchair Professionals. Integration of wheelchair service provision education: current situation, facilitators and barriers for academic rehabilitation programs worldwide. *Disabil Rehabil Assist Technol.* 2020 Jul;15(5):553-562. doi: 10.1080/17483107.2019.1594408. Epub 2019 Apr 23. PMID: 31012755.
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- 4) Guidelines on the Provision of Manual Wheelchairs in Less Resourced Settings. Geneva: World Health Organization; 2008. PMID: 23785745.

Presenter biography

Amira Tawashy is an occupational therapist with a special interest in wheelchair provision – particularly in under resourced settings. She has over 15 years of clinical rehabilitation experience working with individuals who have sustained spinal cord injuries and traumatic brain injuries. Amira currently teaches in the Occupational Therapy program at Dalhousie University and travels with the Walkabout Foundation to provide wheelchairs and wheelchair education to individuals living in Eastern Africa.

R. Lee Kirby received his MD degree from Dalhousie University in Halifax, Nova Scotia, Canada. His specialty training in Physical Medicine and Rehabilitation was carried out at the University of Washington in Seattle, Washington, USA, at Dalhousie University and at Stoke Mandeville Hospital in England. He is a Professor in the Division of Physical Medicine and Rehabilitation in the Department of Medicine at Dalhousie University with a cross-appointment in Community Health and Epidemiology. His primary research interest is the safety and performance of wheelchairs. He has held research grants from a number of national and international funding bodies. He has authored or co-authored 2 books and 168 papers in peer-reviewed journals. His Google Scholar profile notes 6,199 citations. He heads the team that developed the Wheelchair Skills Program, a low-tech, high-impact training program that is relevant for both more- and less-resourced settings.

Paula Rushton is an Associate Professor in the School of Rehabilitation, Occupational Therapy Program at the University of Montréal and a researcher at the CHU Ste-Justine Research Center. Her research is focused on measurement, intervention, knowledge translation and education related to improving the wheeled mobility of both adults and children through an improved wheelchair service provision process. From the measurement, intervention and knowledge translation perspective, Rushton's expertise lies in the domains of wheelchair skills and wheelchair confidence. From the education perspective, Rushton has been working with the International Society of Wheelchair Professionals to enhance wheelchair content in health care professional university curricula globally.

Made to Move - I am

A workshop on the application, use and value of seated balance based movement technology and how moving with balance can change a life.

Marcus Thompson

OMEEO

Learning objectives

1. To understand when to use 'seated balance based movement technology', by exploring how such a tool works in partnership with a user.
2. Develop knowledge of function, performance and outcome to clarify how to assess the suitability of the tool in relation to a broad range of users.
3. To develop an understanding of the 'value' of using 'seated balanced based movement technology' from the client and whanau perspective. To be done through the lens of the Omeo story.
4. Hands on experience using an Omeo to correlate the objectives to the attendees own professional body of knowledge.

Abstract

Purpose - understanding what seated balanced based mobility technology does, how to assess when it should be used and establishing value from the clients perspective with a practical riding component for attendees to align and explore their existing professional knowledge with the findings presented.

People are made to move - it is a core human function. When mobility issues exist, the impact on life goes beyond the obvious challenges of achieving a task, our motivation and sense of self are challenged, without movement through balance our rhythm in life is altered, and in that space we establish or reestablish our identity of 'I AM'.

It is in this space where good design with smart technology gives us tools of partnership. And in this case 'seated balanced based movement technology'.

A partnership tool that affords a person to be more whole, should be used by every one - but there are parameters for safe and sustainable use with the products currently available, to establish the suitability for a client requires the assessment of learning and physical capability, fit, motivation, durability, decision making, control, character, logistical support and motivation. For a robust suitability assessment clear trials and an understanding of the functional and performance parameters of the tool / client partnership are required as illustrated by the Omeo Technology trial process and post sale user success.

Value - the biggest part of the story - success as measured by the client using a tool regularly by choice.

Through the lens of the 10 year Omeo story and case studies explore :

Range of users

Task

Feel
Motivation to move
Mobilisation of body
Exercise
Cognitive action
Skill acquisition
Increased use of sensory system
Freedom - empowerment
Engagement - connections - family / society / self
Movement coordination rhythm
Productivity

This workshop get hands on, ride it and explore with the support of an Omeo specialist.

Content references:

to be supplied.

Presenter biography

TBA

Supporting the growth and development of wheelchair and seating therapists: a coaching approach

Mrs Maria Whitcombe-Shingler, Mrs Jo Blaiklock

ADHB, Auckland, New Zealand

Mrs Maria Whitcombe-Shingler, Educator

Mrs Jo Blaiklock, Practice Supervisor

Learning objectives

1. Have been introduced to coaching tools and techniques used to facilitate growth and development of wheelchair and seating therapists
2. Learn and apply the GROW model of coaching
3. Practical tips for effective coaching sessions.

Abstract

From novice to expert, the journey of wheelchair and seating training can be a long and challenging journey. This session will be offering participants the opportunity to learn about coaching principles, models and tips, and the lived experience of applying these. As clinicians in a field with increasing demand and funding complexities, the need to work effectively to achieve positive outcomes for our clients whilst avoiding feeling overwhelmed and frustrated was recognised.

The use of mentoring as opposed to preceptoring and the use of a coaching model in conjunction with other models of training and supervision has been effective in building skill and confidence. The learning with these approaches could be useful to other services. Supporting and valuing individual team members, understanding the client population and context, and focussing on client outcomes have led to a focus on coaching, support and empowerment. This is alongside enabling therapist participation in the New Zealand wheeled mobility and postural management competency framework training, tasks, and formal case studies.

The essential components of effective coaching using the GROW coaching model can be a powerful catalyst for change. With therapists on the ground identifying the possible solutions, success can come from listening, exploring and supporting ideas in a structured and safe framework.

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Presenter biography

Maria Whitcombe-Shingler graduated as an occupational therapist from CIT, Upper Hutt. She has worked in a range of hospital school and community settings and has clinical, teaching and supervisory experience. She has worked at Mobility Solutions since its inception in 2000. Maria is a reflective practitioner, and completed her Masters research (Otago Polytechnic) using qualitative methodology to look at adult users' experiences and perspectives of using multifunction power wheelchairs in Aotearoa, New Zealand.

Jo Blaiklock graduated as an Occupational Therapist in 1981 when the school was at CIT in Upper Hutt. Foundation years were spent working in mental health, then in establishing a day programme for people with Alzheimer's disease. Since 2009 she has worked in the area of complex wheelchair and seating provision at Mobility Solutions (Wheelchair and Seating Assessment Service at Auckland DHB) becoming the Practice Supervisor in 2015. An early influence on this direction was her mother, who became a quadriplegic following a motor accident when Jo was 6 years old. This lived experience stirred a desire for removing barriers to participation and promoting well-being for all. Jo is also keenly involved with Building for Education, a charity that provides funding and skills to develop education and humanitarian programmes to benefit children affected by poverty, HIV/Aids and abuse in East Africa.

Ready to Roll: wheelchair skill development for therapists

Mrs Meg Whitelaw¹, Ms Ulrike Luebcke², Ms Amy Hughes², Mrs Michelle Smith², Miss Jazz Fox²

¹Mobility Solutions, Auckland, New Zealand. ²ADHB, Auckland, New Zealand

Mrs Meg Whitelaw, Occupational Therapist

Ms Ulrike Luebcke, Kaiwhakaora Ngangahau

Ms Amy Hughes, Kaiwhakaora Ngangahau

Mrs Michelle Smith, PT

Miss Jazz Fox, Kaiwhakaora Ngangahau

Learning objectives

1. Have been introduced to the resources, tools and techniques used to facilitate wheelchair skill development amongst therapists.
2. Learn about applying wheelchair skills assessment and training with their clients.
3. Take home practical tips and resources that will facilitate provision of wheelchair skills assessment and training.

Abstract

From identifying learning needs to skill competency, the journey of service improvement can take time. In this session we will be offering participants the opportunity to learn about our Ready to Roll wheelchair skill development for therapists within the Mobility Solutions service.

As clinicians working with complex clients, we recognised the need to up skill our team to achieve more effective wheelchair training outcomes. Our goal was to ensure that there is consistency in our practice through having standardised processes and skill level within our team.

Utilising the initial training and experience from Debbie Wilson and the Seating to Go service and drawing on the Wheelchair Skills Programme (Kirby et al.2018) we have embarked on a service improvement journey. We completed a pre wheelchair skills training confidence survey across the team which identified the need for skill development, standard practice procedures and equipment to facilitate safe and effective training. Understanding our client population and improving on client outcomes has guided us in this project.

We have completed a post wheelchair skills training confidence survey across the team with excellent results and helpful feedback for the continuation of the project. Through measuring baseline confidence and setting specific goals we have been able to increase the awareness, skill and confidence level of the therapy team. These outcomes are expected to support clients to become more effective wheelchair users.

In this session we will cover the essential components of wheelchair skills assessment and training for therapists and how we have applied this within our service. We will share the resources developed throughout this mahi which could be of benefit to other service providers thereby weaving people together, whiria te tangata.

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Presenter biography

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