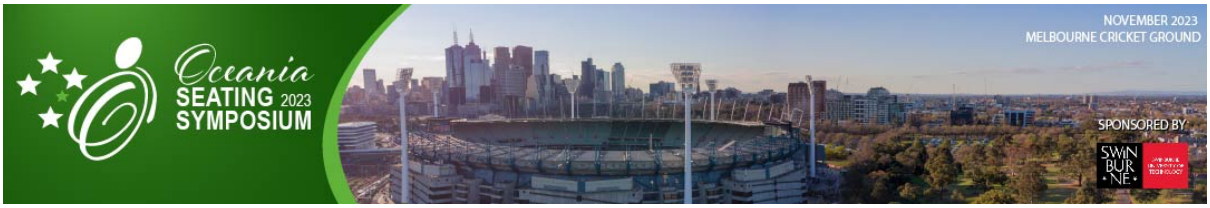

ABSTRACTS

TUESDAY 21 NOVEMBER

Opening Keynote: A Smart Future

Andrew Slorance

Session Description
Since the introduction of the first lightweight wheelchairs in the 1980s most products have evolved in the last forty years. The telephone has taken an extraordinary journey from an analogue, rotary dialling lump, locked to a landline to be re-imagined as pocket sized, life enhancing, smart device.

We are not delivering the same technological advancement to wheelchair users as we are to mainstream consumers. Stuck in a loop of what can be achieved mechanically and a lack of research and development from our market leaders, wheelchair users have been technologically trapped for decades. Meanwhile, comparable consumer products, bicycles, scooters even skateboards have evolved with digital technologies.

The digital age is finally poised to transform the wheelchair. With funding from the Toyota Mobility Foundation, Scottish company Phoenix Instinct is leading the charge for change introducing the Phoenix i, the first lightweight, smart wheelchair.

As the combustion engine will soon be consigned to history the auto companies are looking to new markets. We are about to see big brands we associate with cars come to our industry bringing with them a culture of research and development. The leading mobility brands we recognise today may not be the leaders of tomorrow.

Speaker Biography
Andrew Slorance a wheelchair users since SCI in 1983 is founder and owner of UK based Phoenix Instinct. Andrew built a career in television production, directing presenting and editing for BBC, ITN, Sky and Channel 4. Despite, a great career Andrew was frustrated at the lack of innovation in wheelchair design in the years since his injury. In 2009 he left television with a vision for a revolutionary wheelchair made from carbon fibre. Starting with a scale model carved at the kitchen table it would be a journey with much pain and struggle, but in 2012 the Carbon Black wheelchair was launched. Its single stem all carbon fibre design was ground breaking, getting a lot of traction for its radical design. Andrew was followed by the

BBC for eighteen months for a documentary following his journey from kitchen table to market. Carbon Black was runner up to Design of The Year 2012 by the London Design Museum and is on permanent exhibition at the Scottish National Museum, Edinburgh.

Andrew left Carbon Black in 2015 and began Phoenix Instinct. He still wanted to evolve the wheelchair but this time the business would commence with a brand new idea - Wheelchair compatible luggage. With a low cost 3D printer in the spare room and YouTube videos to learn 3D CAD Andrew proved his idea of wheeled bags with full wheelchair compatibility. Today Phoenix bags are sold worldwide with Australia a key market.

2020 saw Andrew lead Phoenix Instinct to win the Toyota Mobility Challenge against four international finalists and secure a $1M prize. The funds were to develop the first ever lightweight smart wheelchair. The Phoenix i has a light weight carbon fibre structure with an innovate power assist built in. Developed with input from the National Spinal Injuries Centre Stoke Mandeville Andrew's aim is to revolutionise the wheelchair as we have known it for many decades. Using smart systems he hopes to begin a new era of wheelchair innovation. The Phoenix i is undergoing regulatory compliance prior to launch.

A1: Transformation: Changing Futures for Indigenous Disabled

Dr Huhana Hickey

Learning objectives:

1. What is diversity and how can you be inclusive while still maintaining required service contractual obligations? Are there any negatives to utilising a diversity model to your services
2. What is the difference between global north and global south perspectives on disability?
3. What role does culture play in disability services and is it an important component of your services? Why?
4. (4th?) Is equity possible when addressing disparities between disabled and indigenous disabled?

Session description

This workshop explores the challenges faced by indigenous communities in providing equal opportunities and support for individuals who are both indigenous and disabled. It examines transformative approaches promoting inclusion, empowerment, and sustainable change within these communities. The abstract discusses initiatives fostering awareness, education, and advocacy to shift societal perceptions and dismantle stigmas associated with disabilities. It explores the significance of indigenous knowledge and traditional practices in promoting holistic well-being among disabled individuals. Additionally, it analyses the role of technology in improving accessibility, communication, and independent living for disabled indigenous people. The workshop aims to promote understanding, empathy, and collaboration towards an inclusive future that celebrates diversity and empowers every individual

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Presenter biography

Huhana Hickey has an LLB/BSoc Sci, LLM (Distinction) and a PhD in Law and Tikanga Maori from the University of Waikato. She was a solicitor at Auckland Disability Law (the first disability community law centre in New Zealand) and a Māori Research Fellow at the Taupua Waiora Māori Health Research Unit at the Auckland University of Technology, Akoranga, Auckland. Dr Hickey was the indigenous peoples' representative for the International Disability Association steering group caucus during the development of the UN Convention on the Rights of Persons with Disabilities, and is still involved with the IDA international networks. Dr Hickey was awarded the New Zealand Order of Merit in 2015 for her services to Māori and disability community. She holds several governance roles, has her own consultancy, is a member of the Multiple Sclerosis Society of New Zealand, sat on multiple ethics committee for over 18 years and is a life member of Rostrevor House in the Waikato.

A2: Introducing children to early powered mobility: How did we do it, how did we do?

Amy Currie

Learning objectives

Following this session, participants will:

1. Understand the benefits in providing early opportunities for self-initiated mobility for young children with disabilities
2. Take home practical tips and resources to facilitate provision of early powered mobility within own practice setting
3. Understand the impact of early powered mobility from the family's perspective

Session description

This presentation will describe the development and implementation of an initiative targeting early powered mobility, present case studies with family feedback up to 18 months post-intervention and reflect on key learnings.

Early opportunities for self-initiated mobility for young children with disabilities has been shown to improve development in several areas including cognition, visual perception, language, social skills, and psychology; leading to reduced learned passiveness and improving the potential for greater long-term independence.

Mobility Solutions provides a service to people of all ages with long-term, complex wheelchair and seating needs. Children with disabilities benefit from opportunities for exploratory movement at the same time as their typically developing peers, but children are rarely referred to Mobility Solutions before 3 years of age.

Barriers to referrals and intervention of this kind include: family adjustment to the child's delays; goals focused on walking; negative perceptions of powerchairs; limitations in funding; access to size appropriate paediatric equipment; and challenges with transporting equipment.

In 2020, the availability of the Explorer Mini, a powered mobility device for toddlers as young as 12 months, provided an opportunity to address these barriers. Funding from the Starship Foundation was used to purchase two Explorer Mini Units and Mobility Solutions worked alongside Child Development Teams to offer 12-week loans to young children with limited floor mobility.

The Wheelchair Outcome Measure was used to set measurable goals, and the ALP-tool (Assessment of Learning Powered Mobility use) was used to guide the learning experience, the ALP-tool was key to helping the family and funders to appreciate subtle skill attainment while they learn. This process led to promising results in relation to mobility, interaction, attention, mood, self-expression, postural stability; and also led to successful applications to fund Explorer Mini's for young children who would not typically meet funding criteria.

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Presenter biography

Amy Currie graduated with a Bachelor of Health Science - *Occupational Therapy* from Auckland University of Technology in 2007. She worked in Paediatrics for almost 6 years in New Zealand and the UK, and completed 16 months in Adult Neuro Rehabilitation before moving to a role at Mobility Solutions in Auckland 8 years ago, where she now works as a Senior Wheelchair and Seating Therapist.

A3: A Clinical Framework for Evaluating Seating for Clients with Mid to Advanced Stage Huntington's Disease

Madeleine Dazenko, Sarah Solomon, Stephanie Williams, Alex Holmes, Mira Varon
Calvary Health Care Bethlehem, Melbourne, Australia

Learning objectives

1. Understand the challenges and considerations involved in seating individuals with mid to advanced stage Huntington's Disease
2. Learn a clinical framework for identifying seating goals and evaluating chair features in order to enhance safety and support for individuals living with Huntington's Disease
3. Recognise the importance of collaboration with multidisciplinary teams and seating suppliers, while working towards seating solutions for individuals with complex needs

Session description

Huntington's Disease (HD) is a genetic neurodegenerative disorder that affects various aspects of an individual's physical, cognitive and psychological function. As the disease advances, the level of care required for activities of daily living increases substantially for the person. Often, individuals can become at high risk of serious injury due to the impact of their chorea and impulsivity.

Seating interventions for individuals in the mid to advanced stages of Huntington's Disease can be challenging for therapists due to the multifaceted symptoms of HD. The approach to seating requires a comprehensive understanding of these symptoms and individual presentation, as well as consideration of the environmental factors and primary purpose of the chair. Enhancing safety and functionality, as well as risk minimisation are often the foundation of seating goals.

The following clinical framework has been developed to guide therapists supporting individuals with Huntington's Disease:

- Assessment
- Goal Identification
- Feature Identification
- Trials
- Acquisition
- Training
- Evaluation

This framework enables therapists to identify the appropriate seating goals and systematically assess the necessary chair features for successful implementation.

This presentation will describe each component of the framework in detail. It will highlighting the significance of engaging with multidisciplinary teams as well as formal and informal supports throughout the process. It is also important to engage with seating suppliers to identify seating options that contain the features identified, as well as ensuring the seating solutions are tailored to the individual's complex needs.

Real-world case studies will be presented to illustrate the practical application of the framework. Additionally, we will explore key considerations and features to be mindful of when exploring seating options for individuals in the mid to advanced stages of Huntington's Disease. The aim to

increase the knowledge of clinicians which will enhance the quality of life and safety for individuals living with Huntington's Disease.

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Daly, O., Casey, J., Martin, S., Tierney, M., McVey, O. The Effectiveness of Specialist Seating Provision for Long Term Care Residents. Ulster University

Presenter biography

Madeleine Dazenko is an Occupational Therapist with a special interest in progressive neurological diseases. After commencing work at Calvary Health Care Bethlehem six years ago, Maddie has gained skills and knowledge in supporting people living with Huntington's Disease and other neurodegenerative conditions since working in the Statewide Progressive Neurological Disease Service (SPNDS) and for the past three years in the Calvary Healthcare Bethlehem NDIS Provider Service. Maddie also has an active role as a Huntington's Disease Clinician (HDC) through SPNDS, assisting with interdisciplinary needs identification for people with HD living across Victoria and border towns.

Through her NDIS and HDC roles, Maddie has developed expertise in supporting people living with Huntington's Disease in their home environment, working more closely with clients and their formal and informal supports on specific goals related to their care. This often includes prescription of Assistive Technology such as seating for individuals with mid-advanced Huntington's Disease.

A4: Service delivery models in wheelchair prescription: A scoping review.

Maheen Ashfaq

Session description

Introduction/ Rationale
Wheelchair prescription is complex, requiring collaboration between multiple stakeholders including wheelchair users, carers, clinicians, suppliers, and funding bodies. For this reason, a service delivery model which details how stakeholders interact and make decisions is critical. Despite this, wheelchair prescription models are rarely documented and understandings of models of service delivery lacks cohesion.

This study aimed to map and synthesise existing literature relating to models of service delivery in wheelchair prescription to describe the state of the existing knowledge base and identify knowledge gaps.

Methods
A scoping review was conducted. Medline, CINHAL, Cochrane, Embase, PsychInfo and Scopus were searched on 31 March 2022. Included texts' publication characteristics, methodological characteristics and areas of focus were summarised. Interpretive content analysis was used to synthesise existing literature.

Results
From 13,126 unique records, 141 texts were included. These discussed processes of wheelchair service delivery across the lifespan. Most services were based in resource rich contexts and included multidisciplinary teams. Service delivery models were rarely documented and, while most papers described a wheelchair assessment and intervention process, there was limited information available as to how these processes were designed or evaluated.

Conclusion:
Wheelchair service delivery models are poorly described in the current literature and there is limited evidence of a theoretically informed approach to service provision. More research is needed on models of service delivery particularly including consideration of the impact of the service delivery model on participation outcomes, economic cost, and consumer satisfaction

A5: Skin Injury – It's not all about the AT!

Ms Jenni Dabelstein

Learning objectives

1. Identify 3 key factors that may contribute to skin injury in the community, that are NOT AT related
2. Be able to understand and identify a range of external factors that may contribute to skin injury in the community.
3. Be able to utilise a problem-solving approach to discovering and remediating causes of skin injury for community clients.

Session description

Working in the community with clients with complex presentation, skin injury is a constant risk. When a skin injury occurs, it is common for various stakeholders to immediately focus on the assistive technology in use, as a potential cause for the breakdown, with the assumption that pressure is the primary factor.

However, my own experience suggests that external factors, and very often external injuries, are the initial trigger or cause for a very high percentage of skin breakdowns in community settings. External factors that reduce the skin's resilience very often lead to intolerance of load, which results then in a skin failure that is more about the damage to the skin itself, than the traditional pressure injury aetiology of prolonged load and deoxygenation of the supporting tissues.

When a skin breakdown does occur, it is natural to focus on the assistive technology in place, but in many cases the AT is quite appropriate, the history is stable and there is no evidence that AT has malfunctioned. So, the primary question for the clinician is, what has changed??

Clinicians in the field often have to problem solve to identify relevant external issues and rectify them so that the cycle of skin injury does not keep repeating. In my own clinical practice, I note that external injuries are often predicated by several key categories/activities: skin maceration, shear/sliding, transfer routine and commode routine, and in this presentation, I will provide examples of each. Throughout, my advice is that, unless there is clear evidence that the AT in place is inappropriate or malfunctioning, some good problem solving with clear thinking is a much more effective means to help your client to manage skin health effectively than knee-jerk replacement of AT items.

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Presenter biography

Jenni Dabelstein is a Physiotherapist who works exclusively as a prescriber and consultant in the area of complex assistive technology. Her special interests include biomechanics, customised seating and all types of wheeled mobility, including sports wheelchairs. Jenni has worked within the disability sector for over 3 decades, in a great variety of roles, including clinical, research, consultancy, education and business roles. She has a depth of knowledge and experience regarding specialised equipment and the industry that surrounds it, as well as a range of formal qualifications. Jenni strives to bring formal assessment together with theory and practical knowledge in order to generate positive outcomes for her clients via the latest assistive technology. Jenni is a former Board member of ARATA and a National Classifier in the Paralympic sports of Boccia and Wheelchair Basketball, and continues to present regularly at industry workshops, seminars and conferences.

A6: Power standing use and the relation to perceived impact: an observational study with device-measured data

Paula Ostendorf, Karin Leire

Learning objectives

1. Name 3 common ways individuals use power standing functionality
2. Comprehend at least 5 ways that standing impacts an individual using a wheelchair
3. Correlate individual health conditions to standing usage/benefits

Session description

Remaining seated for long periods of time is detrimental to health (Verschuren et al., 2016; World Health Organization, 2020). For individuals using a wheelchair, standing recommendations have been proposed between 40-60 minutes, 4-6 times per week for various health benefits (Paleg & Livingstone, 2015; Schofield et al., 2020). Standing in a power wheelchair not only allows increased environment access but also provides a functional alternative to sedentary behavior (Nordström et al., 2014; Verschuren et al., 2014). However, there is very little understanding of how power standing is being used and to what extent this impacts the individual.

The study had two objectives: 1) to describe how individuals use their power standing functionality, and 2) to analyse the impact of power standing on health, activities, participation, quality of life and independence.

A total of 39 individuals using a power standing wheelchair completed a survey on their perceived impacts of standing. Additionally, personal, health and wheelchair information was recorded, and permission to share their Permobil Connect data collected. The Connect data consisted of information collected from sensors on the individuals' wheelchair showing how often power standing was utilized and for what duration, during the time of March 2022 to March 2023.

This is the first study to use device measured data in a relatively large sample of individuals using a power standing wheelchair, monitoring their use over one year. Moreover, as these results could be linked to the perceived impacts of standing, this allows for a better understanding of how power standing use impacts the individual. The findings of this study will therefore be a strong source of evidence to the available literature and are therefore anticipated to be used to improve the access of individuals to power wheelchairs as well as contribute to power standing recommendations.

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Presenter biographies

Paula Ostendorf is a Biomedical Engineer from Flinders University, Australia. In 2022 she completed an award-winning, first-class Honours thesis researching Brain Computer Interfaces (BCIs) for neurodegenerative disease. Subsequently, she completed a 20-week internship at Permobil in Timrå, Sweden working with the Scientific and Medical Affairs team. At Permobil her work primarily focused on researching pressure redistribution in standing wheelchairs and contributing to the standing white paper update. She is passionate about assistive technology, especially where fun engineering is involved (such as wheelchairs!) and encouraging women in STEM.

Karin Leire has got a 20-year experience in clinical research and evidence-based medicine for both pharmaceuticals and medical devices. As Vice President of Scientific & Medical affairs at Permobil group, defining and leading the research roadmap, using customer insights from direct interactions with stakeholders and large datasets from the connected Permobil products with the main objectives to ensure innovation according to user needs, document performance and govern appropriate access to complex rehab technology based on unmet needs and human rights, globally. She has got a master's degree in biomedical sciences from University of Uppsala, Sweden.

A7: The Impact of a Powered Standing Wheelchair for a Person with Okinawan Neurogenic Muscular Atrophy

Karin Leire

Learning objectives

- List and describe 2 symptoms and/or characteristics of Okinawan neurogenic muscular atrophy
- List 2 positive, 1 negative and 2 inconclusive effects around standing powered wheelchairs in the current literature
- Describe 1 potential impact of standing powered wheelchairs on an individual's quality of life

Session description

Okinawan neurogenic muscular atrophy, hereditary motor and sensory neuropathy with proximal dominant involvement: HMSN-P, is a chronic, progressive disease characterized by adult-onset spinal muscular atrophy combined with sensory neuropathy. Studies suggest that the disease process is similar to ALS-like severe motor paralysis. HMSN-P shows autosomal dominant inheritance and progresses slowly over >30 years (Taniguchi 2022). It appears that there is little evidence behind treatment options currently. A potential intervention that has showed a wide range of positive effects in other population groups, e.g. those with Duchenne muscular dystrophy, is standing in a powered wheelchair (Paleg&Livingstone 2015, Bayley et al. 2020). Over a period of 5 months, this exploratory study followed one client with HMSN-P to examine the physical, functional and psychosocial effects of use of a standing powered wheelchair. Method: The client utilized the standing powered wheelchair for 8 hours per day across 5 months. Measurements were performed at baseline, after 2, and 4 months. The evaluation of the physical assessment included lower extremity edema, fasting blood glucose, bone mineral density, pressure injury status, and pain (NPRS); the functional impact was assessed with the Functional Mobility Assessment; and the psychological impact included quality of life (WHOQOL-BREF). Results: The results showed a positive impact of the power standing wheelchair in the physical domain, with improvements in bone mineral density and blood glucose levels, in the functional domain with improvements in indoor mobility, and in the psychosocial domain with improvements in quality of life. Conclusion: After starting to use a standing powered wheelchair, a person with HMSN-P showed a broad range of improvements in all the assessed domains; medical, functional and psychosocial. These promising results can serve as a basis for the development of a larger cohort study.

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Presenter biography

Karin Leire has got a 20-year experience in clinical research and evidence-based medicine for both pharmaceuticals and medical devices. As Vice President of Scientific & Medical affairs at Permobil group, defining and leading the research roadmap, using customer insights from direct interactions with stakeholders and large datasets from the connected Permobil products with the main objectives to ensure innovation according to user needs, document performance and govern appropriate access to complex rehab technology based on unmet needs and human rights, globally. She has got a master's degree in biomedical sciences from University of Uppsala, Sweden.

A8: Transforming the health and wellbeing of people with complex disabilities through motorised cycling

Dr Carlee Holmes[1,2], Professor Dinah Reddihough[3,2], Professor Prue Morgan[4,2], Professor Nora Shields[5,2], Dr Kim Brock[1]

Learning objectives

1. Identify the barriers to participating in physical activity and movement for adults with complex CP

2. Understand the perspectives of adults with CP and / or their families on participating in motorised movement therapy

3. Evaluate the benefits of motorised movement therapy on the wellbeing of adults with CP

Session Description

Transforming the health status of non-ambulant adults with CP is not without considerable challenges, especially for those with significant disabilities encompassing the musculoskeletal system, cognition, behaviour and communication. The high incidence of progressive musculoskeletal issues (1, 2) skeletal fragility and fracture risk (3) and mental health issues such as anxiety (4) in non-ambulant adults with CP may impede participation in physical activity. Adults with high levels of physical disability may experience minimal purposeful and functional active limb movement, abnormal biomechanical forces due to postural asymmetries, limited postural control and skeletal fragility, coupled with access limitations, necessitating alternate methods for engaging in physical activity. Adults with CP also have a high incidence of pain, fatigue, mental health issues and sleep disturbances which are interrelated and positively influenced by physical activity (5, 6, 7). The MOTOmed is a motorised movement (cycling) device, accessed from a person's wheelchair that provides an option to move for non-ambulant adults with CP.

This presentation also presents a model of integrating research into usual clinical practice to develop an evidence base for this cohort of vulnerable adults.

Aims

The purpose of this pilot study is to establish initial indications of the feasibility and acceptability of home-based motorised cycling movement for adults with CP and complex associated issues.

Research Design

Mixed methods pilot intervention study

Methods

10 non-ambulant adults with CP will be recruited to the study. Participants will undertake 4-weeks of home motorised cycling. Descriptive analysis of the frequency of use of the MOTOmed, data retrieved from the MOTOmed (date, time, active and passive phase duration (seconds), active and passive speed (rpm), load, tone start, and number of spasms detected, left and right limb balance) and qualitative data on the experience and perceived benefits of a home-based motorised cycling intervention will be analysed.

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Presenter biography

Carlee is a senior clinician physiotherapist at the Young Adult Complex Disability Service (YACDS), St Vincent's Hospital Melbourne and a post-doctoral Research Fellow within the NHMRC funded CP-Achieve Centre of Research Excellence (CRE) at the Murdoch Children's Research Institute. These roles enable Carlee to follow her passions for clinical practice and research with a particular focus on young adults with cerebral palsy (CP). Within the CRE, Carlee is currently co-leading research investigating the physical and mental health experiences of young adults with CP. She has also developed several collaborative research studies with a focus on physical activity options for adults with complex CP who are reliant on wheelchairs for mobility. Clinically Carlee has a passion for improving the lives of adults with complex disabilities through increased awareness of the musculoskeletal issues they experience and the impact on their health and wellbeing, alongside assessment and intervention options.

B1: Resources from the International Society of Wheelchair Professionals to improve your wheelchair service provision practice

Mr Alex Kamadu

Learning objectives

1. To describe 3 resources available at ISWP
2. To identify at least 1 opportunity for engagement with ISWP
3. To identify gaps in current ISWP's tools and resources, and provide recommendations for improvement

Session description

The WHO suggests that 70 million people need wheelchairs. The problem is multi-faceted, but a core barrier is lack of access to appropriate training, resulting in limited capacity to provide wheelchairs worldwide. An appropriate wheelchair can prevent secondary health complications, enhance quality of life, and facilitate access to human rights such as education, healthcare, and employment (WHO, 2008).

The International Society of Wheelchair Professionals (ISWP) was established in 2015 as a development project funded by USAID. ISWP's ambitious goal has been to become a global coordinating body of the wheelchair sector to leverage and scale previous achievements of the global wheelchair sector. During its 6 years of incubation at the University of Pittsburgh, ISWP became a global, collaborative, and multi-disciplinary platform of end-users, clinicians, designers, researchers, and activists. It grows daily with 8,200+ members from 120 countries and a social media reach of 112,000+ followers in 113 countries. Additionally, ISWP has leveraged digital platforms to develop scalable, and mostly open access, tools and resources to its community such as:

- **Wheelchair Educators' Package** to guide integration of wheelchair content into curriculum across 3 states of integration: advocating, planning & teaching, and evaluating. Wheelchair specific content in courses supports the development of a competent workforce of Occupational Therapists, Physical Therapists, and Prosthetics and Orthotics wheelchair service providers.
- **ISWP Wheelchair Service Training Series and Certifications** support the training of wheelchair providers in basic (for users who can sit upright without support) and intermediate level (for users who need additional support), trainers of both basic and intermediate level, and managers of wheelchair services and other stakeholders.

The future of ISWP as a separate entity involves opportunities for sustainability and to support its members through its tools, resources, and community to advocate and advance their local/national wheelchair sector with a systemic view.

Content references:

Goldberg, M., Pearlman, J., Rushton, P., & Cooper, R. (2018). The International Society of Wheelchair Professionals (ISWP): A resource aiming to improve wheelchair services worldwide.

World Health Organization. (2008). Guidelines on the provision of manual wheelchairs in less resourced settings. World Health Organization.

World Learning, International Society of Wheelchair Professionals, United States Agency for International Development. 2018. Wheelchair Stakeholders' Meeting Report

Presenter biography

Alex is the Executive Director of the International Society of Wheelchair Professionals (ISWP). ISWP established itself as a separate non-profit organization after seven years as a USAID grant-funded project at the University of Pittsburgh Department of Rehabilitation Science and Technology in Pittsburgh, Pennsylvania USA. Kamadu will be based in Johannesburg, South Africa.

Alex holds a master's degree in business administration from the University of Westminster, a managing health and social care diploma from Du Montford University and a bachelor's degree in occupational therapy from the University of Kwa-Zulu Natal.

Kamadu most recently served as director of Health Focus South Africa, leading the organization from its incorporation in 2016 to its current established position. He was responsible for new business development and operational management of the firm, which focused on strengthening the health care system in sub-Saharan Africa.

B3: Best Practice Guidelines for Assessment and Selection of Complex Shower Commode Chairs

Kim Vien[1,2], Cathy Young[1], Emma Friesen[3], Lois Brown[4]
[1]Royal Melbourne Hospital, Melbourne, Australia. [2]St Vincent's Hospital, Melbourne, Australia.
[3]Paragon Mobility, Brisbane, Australia. [4]ILS, Adelaide, Australia

Learning objectives

1. Name 5 clinical considerations in the selection and prescription of Shower Commode Chair

2. Name 5 product parameters associated with prescribing Shower Commode Chair

3. Be able complete the body measures for the prescription of a shower commode chair

Session description

This will be a two-hour practical for prescribing therapists to support people with complex pressure and postural needs in assessing and prescribing shower commode chairs. The session will focus on current best practice prescription process, assessment tools and boday measures and is structure in two parts:

Part One

- Discussion around the assessment framework for goal setting with shower commode chairs
- Reviewing current best practice guidelines and assessment tools in the prescription of shower commodes
- Review of postural and pressure care considerations Presentation of case studies
- Presenation of case studies

Part Two

- Demonstration of different off the shelf and customisable shower commodes (supported by product suppliers at OSS)
- Hands on opportunity for participants to look at several types of commodes, and critically analyse against the clinical framework and considerations - faciliatated by each presenter.
- Hands on pracitical taking critical body measurements and discussion on how this influences commode selection

LImited # of Participants to allow effective practicial sessions.

Content references:

European Pressure Ulcer Advisory Panel, National Pressure Ulcer Advisory Panel and Pan Pacific Pressure ulcer Alliance. Prevention and Treatment of of Pressure Ulcers / Injuries: Clinical Practice Guideline. The International Guideline. Emily Haesler (Ed.) EPUAP/ NPIP/PPIA: 2019

Friesen EL, Theodoros D, Russell TG. Use, performance, and features of mobile shower commodes: perspectives of adults with spinal cord injury and expert clinicians. Disability and Rehabilitation: Assistive Technology 2015;10(1):38-45.

Friesen EL, Theodoros D, Russell TG. Usability of mobile shower commodes for adults with spinal cord injury. British Journal of Occupational Therapy 2017;80(2):63-72.

Gefen A, Alves P, Ciprandi G et al. Device related pressure ulcers: SECURprevention. J Wound Care 2020; 29(Sup2a): S1–S52 https://doi.org/10.12968/jowc.2020.29.Sup2a.S1

Sharon E. Sonenbluma,, Davin Seola, Stephen H. Sprigle, et al, Seated buttocks anatomy and its impact on biomechanical risk. Journal Tissue Viability 29 (2020) 69-75

Lange. M & Minkel.J 2017, Seating and Wheeled Mobility: A Clinical Resource, Slack Incorporated, New Jersey

Presenter biographies

Emma Friesen is a rehabilitation engineer with almost 20 years' experience across the Assistive Technology industry. Emma's career has included working in frontline clinical services, research, manufacturing, and distribution of wheeled mobility and seating. After seven years living and working in the Netherlands, Emma has returned to Australia and manages the product portfolio for Paragon Mobility.

Lois Brown, MPT, ATP/SMS is the National Clinical Education Manager for Independent Living Specialists in Australia. Lois has 30 years of experience as a prescribing therapist, assistive technology consultant, clinical and funding manager for wheelchair suppliers and manufacturers. Lois has presented nationally and internationally on Seating and Mobility at OSS, ISS, ESS, CSMC, RESNA and ATSA. Lois has been published in rehab publications and is considered an expert in her field.

Catherine Young is an Occupational Therapist (OT) with a specialty in pressure injury prevention and wheelchair seating prescription. Her private practice focus has spanned 30 years, working with complex, high-risk clients, within an interdisciplinary, holistic client and family centred framework.

She is a senior clinician at Royal Melbourne Hospital, specializing in pressure injury prevention for young adults with Spina Bifida and other developmental disabilities. She has jointly been instrumental in setting the recommended minimum standards for hospital foam mattresses in Victoria. This work was published in the International (NPUAP/EPUAP/Pan Pacific) Clinical Practice Guideline 2014 and 2019 .

She consults to government, health facilities, and industry, critically analysing equipment and advising on specifications for the disability sector. Catherine conducts pressure injury prevention workshops and education to OT's, Nurses, Physiotherapists, and other Allied Health clinicians .

Kim Vien is a senior Occupational Therapist working in the disability sector specialising in seating and equipment prescription in Melbourne Australia. Having been in the disability sector for over 15 years, her work has led to a keen interest in seating, and she is part of the Wheelchair and Seating Clinic Team at the Royal Melbourne Hospital. Kim has presented the topic of seating and wheelchair in past Oceania Seating Symposiums and ATSA (Assistive Technology Suppliers Australia) Expos as well as research and professional development projects related to improving prescription skills of therapists and new graduates. She currently works at specialist outpatient clinics at Royal Melbourne Hospital and St Vincent's Hospital working with people with Spina Bifida and Post Polio Syndrome.

B4: Wheelchair and seating with a life-limiting illness: a personal and professional perspective.

Maria Whitcombe-Shingler[1], Pilar Cerezo-Gomez[2]
[1]Mobility Solutions, Te Whatu Ora, Auckland, New Zealand. [2]Mercy Hospice, Auckland, New Zealand

Learning objectives

1. Identify and consider collaborative and transformative support to people with life limiting illness.

2. Identify and consider the need for seating and wheelchair intervention in life limiting illnesses. Common positioning, seating and mobility issues and solutions in palliative care.

3. Identify and consider ethics, culture, communication and spiritual challenges.

Session description

Functional impairment is common in people with advanced cancer and other life limiting illnesses. This unique group of patients is growing as the incidence of most malignancies increases and medical therapies develop. People are living longer with advanced cancer and other life limiting illnesses with specific needs that have not been considered before.

The care and therapy support to this patient group raises many health, ethical, and socioeconomic issues. These patients are a very heterogeneous group and are often defined by their performance ability (Australia- modifed Karnofsky performance scale, AKPS) disease involvement, and treatment, active or palliative care.

Unfortunately, the shared characteristic of this group is their frailty and poor prognosis. From a wheelchair and therapist perspective this is a new population cohort with very specific needs, often changing rapidly, that are challenging the boundaries of intervention including timeliness and funding and requiring close collaboration. Providing therapy support for these patients is an area that is developing and expanding at a fast rate. This can encompass anything from exercise prescription, 24-hour postural management, to the provision of mobility and seating solutions.

Content references:

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Morgan, D.D.; Currow, D.C.; Denehy, L.; Aranda, S.A. Living actively in the face of impending death: Constantly adjusting to bodily decline at the end-of-life. BMJ Support. Palliat. Care 2015, 7, 179–188.

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Von Post, H.; Wagman, P. What is important to patients in palliative care? A scoping review of the patient's perspective. Scand. J. Occup. Ther. 2019, 26, 1–8.

Presenter biographies

Maria Whitcombe-Shingler NZROT MOccTher: I have been privileged to work as an occupational therapist in a community base specialised complex wheelchair and seating assessment service based in Auckland for many years, as well as in schools and inpatient settings. During this time, I have worked as a clinician and an educator. I love to mentor new and developing wheelchair and seating therapists. I am passionate about wheelchairs and seating and believe mobility is a human right. I completed my Masters' research considering adult perspectives and experiences of using multifunction power wheelchairs in Aotearoa, New Zealand. I am a passionate lifelong learner and find my clients are my greatest teachers. Recently I have lost two family members to metastatic cancer and this had given me another perspective to my understanding of the importance of collaborative working and wheelchairs and seating in palliative care.

Pilar Cerezo-Gomez NZRPT BSc (Hons): I started my journey into wheelchair and seating as an undergraduate physiotherapy student in the late 1990s in England. Oddly this was considered a component of the Physiotherapy rather than the Occupational Therapy syllabus at the time. My clinical background is in neurorehabilitation, and wheelchair and seating and 24-hour positioning has been an integral part of my practice over the past 25+ years. I have been privileged to work in England and New Zealand. I enjoy the challenge that this fast-developing area presents as I bring together clinical skills, anatomy and physiology and product knowledge to provide solutions for the population that we work with. Recently I have joined the Palliative Care team at Mercy Hospice in Auckland, where my positioning, seating and wheelchairs skills are used on a daily basis.

B5: Prescriber Confidence in Complex Wheelchair Seating: Introducing a new digital platform to support clinicians

Joana Santiago
Medifab, Sydney, Australia

Learning objectives

Understand the implications that non-reducible postural deviations have on a seating posture

Understand where postural supports may be required based on a 3D model visualisation

To look at innovative ways to support problem-solving and decision-making in the field of wheelchair seating

Identify benefits and risks of digital health technologies to store, manage and share clinical information between key wheelchair provision stakeholders

Session description

Wheelchair seating provision can be a complex process, requiring detailed assessment and consideration of numerous variables. Analysis of recent education feedback indicates that therapists often cite a “lack of confidence” when assessing their clients’ mobility and seating needs, and struggle to translate their assessment findings into product requirements and features. Whilst in-person education and CPD have been demonstrated to improve confidence levels amongst prescribers, there remains room for improvement in this area of practice.

With that in mind, this new digital platform has been designed to equip therapists, rehab engineers, and seating product specialists with a tool to support the step-by-step physical examination process. Users can store individual client data securely, providing a log for assessment findings over time in a password-protected environment. Body measurements and postural support needs can be inputted and then transferred into a 3D model, providing visualisation of client presentations that can be shared among stakeholders involved in the prescription process. Product selection and configuration can ultimately be improved with a clearer understanding of client presentation alongside a digital representation of assessment findings.

This presentation will provide live access to all attendees, demonstrating features that are designed to increase confidence and support prescribers with their clinical reasoning processes. The detailed assessment portal demonstrated can be used by clinicians during their thorough assessments, improving the accuracy of product prescription and ultimately achieving successful clinical outcomes.

Content references:

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Awad A, Trenfield SJ, Pollard TD, Ong JJ, Elbadawi M, McCoubrey LE, Goyanes A, Gaisford S, Basit AW. Connected healthcare: Improving patient care using digital health technologies. Adv Drug Deliv Rev. 2021 Nov;178:113958. doi: 10.1016/j.addr.2021.113958. Epub 2021 Sep 1. PMID: 34478781.

Cherubini M, Melchiorri G: Descriptive study about congruence in wheelchair prescription. Eur J Phys Rehabil Med, 2012, 48: 217–222

Dicianno BE, Gottschalk M, Benton E, Caro M, Pajer D. Development of an Electronic Exchange of Medical Documentation for Power Mobility Devices. Appl Clin Inform. 2021 Mar;12(2):348-354. doi: 10.1055/s-0041-1729166. Epub 2021 Apr 28. PMID: 33910261; PMCID: PMC8081589.

Nguyen L, Bellucci E, Nguyen LT. Electronic health records implementation: an evaluation of information system impact and contingency factors. Int J Med Inform. 2014 Nov;83(11):779-96. doi: 10.1016/j.ijmedinf.2014.06.011. Epub 2014 Jul 22. PMID: 25085286.

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Waugh, K, and Crane, B. (2013). A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces (rev. Ed.). Denver, CO. University of Colorado Denver.

Presenter biography

Joana Santiago is the Head of Clinical Education and the R&D Clinical Lead for Medifab. She completed her degree in Occupational Therapy in Portugal and soon developed a passion for Posture Care and Wheelchair Seating & Positioning. With more than 15 years of experience, Joana takes pride in her flexible capability to reach good clinical outcomes by considering the individual needs, wants, and expectations of those she works with. Joana is based in Australia where she primarily assists clinicians by sharing her knowledge and expertise through education and mentoring programs. Furthermore, she positively influences the development, supply, and training of Medifab's extensive range of products.

She is a specialist in her field and has presented at a variety of national and international conferences, around the world.

B6: Falls in manual wheelchairs: What's the tipping point?

Ms Angela Rowe, Mr Bill Contoyannis, Mrs Kim Vien

Learning objectives

1) Identify 5 potential factors that could lead to falls in wheelchair users.

2) To demonstrate how to simply assess the stability and centre of gravity of a wheelchair within a clinical environment.

3) Identify 5 scripting considerations in manual wheelchairs that can prevent falls.

Session description

Falls are considered a major public health problem and are the second leading cause of unintentional injury deaths worldwide (WHO 2021). Rice et al (2017) found that 65.9% of individuals with Multiple Sclerosis that are wheelchair and scooter users avoid some activities due to their concerns about falling. Can we accept a fall or two if we are pushing our physical limits?

This one hour workshop will outline specific areas of clinical wheelchair assessment relating to falls, including a thorough subjective history taking and user perspective. It will detail environmental factors and the physical assessment of the client in relation to stability and falls. Then, there is a unique opportunity to see a practical demonstration of a centre of gravity assessment, measuring rearward and anterior tipping angles and how they translate to the wheelchair set up.

As mobility and stability in a wheelchair can be conflicting goals, a clinical reasoning chart and risk assessment matrix will be presented as a way of prioritising a client's individual goals. This helps to determine how stable we want a wheelchair to be.

Manual wheelchair scripting considerations will be presented including the impact of the wheelbase, rear wheel and castor set up. The impact of various seating options and how these affect the stability of the entire system (ie wheelchair and user) will be discussed. Finally we will consider risk mitigation and what to do after a fall occurs.

Content references:

- Rice L, Kalron A, Berkowitz SH, Backus D, Sosnoff JJ. Fall prevalence in people with multiple sclerosis who use wheelchairs and scooters. Medicine. (2017) 96

- Sung J, Trace Y, Peterson EW, Sosnoff JJ, Rice LA. Falls among full-time wheelchair users with spinal cord injury and multiple sclerosis: a comparison of characteristics of fallers and circumstances of falls. Disabil Rehabil. 2019 Feb;41(4):389-395.

- Singh H, Scovil CY, Yoshida K, et al. Factors that influence the risk of falling after spinal cord injury: a qualitative photo-elicitation study with individuals that use a wheelchair as their primary means of mobility. BMJ Open 2020;10

Presenter biographies

- Angela Rowe is a physiotherapist with over 20 years' experience, 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 coauthored 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.

- Bill Contoyannis is a rehabilitation engineer with a degree in Mechanical engineering and a Master of Biomedical Engineering. He is an adviser to health departments, professional organisations, and support associations throughout Australia. He has conducted training courses worldwide in patient safety, failures of assistive technology devices and litigation avoidance, and material science relating to the fabrication of artificial limbs, orthopaedic devices, wheelchairs, and other assistive technology.

He also works as a senior forensic engineer with Mark Dohrmann and Partners Pty Ltd conducting investigations and providing expert advice and was instrumental in the setting up of REHAB TECH, a Prosthetics, Orthotics and Assistive Technology consulting service originally at Monash University. He has been involved in a broad range of rehabilitation and assistive technology areas with a range of activities including incident investigation, education, research, advice, and clinical support.

- Kim Vien is a senior Occupational Therapist working in the disability sector specialising in seating and equipment prescription in Melbourne Australia. Having been in the disability sector for over 15 years, her work has led to a keen interest in seating, and she is part of the Wheelchair and Seating Clinic Team at the Royal Melbourne Hospital. Kim has presented the topic of seating and wheelchair in past Oceania Seating Symposiums and ATSA (Assistive Technology Suppliers Australia) Expos as well as research and professional development projects related to improving prescription skills of therapists and new graduates. She currently works at specialist outpatient clinics at Royal Melbourne Hospital and St Vincent’s Hospital working with people with Spina Bifida and Post Polio Syndrome.

B7: Clinical Leadership in a Changing World: Rising to the Challenge

Bianca Brady[1], Mellinda Fitzgerald[2]
[1]Apex Mobility, Sydney, Australia. [2]Apex Mobility, Brisbane, Australia

Learning objectives

Upon completion of this session participants will:

- Understand clinical leadership and access to it for allied health clinicians and all stakeholders of clinical service delivery.

- Gain an understanding of Clinical Education and Supervision Frameworks in the AT sector, and be able to discuss what we need and how we might achieve this?
- Be able to identify the skills and resources of Senior Clinicians and Clinical Educators and how we can work together to be effective leaders in the AT sector.

Session description

Clinical leadership in the Assistive Technology (AT) sector is challenging, especially so in the current Australian funding model of NDIS and similar, which have no requirements or guidelines for supervision, formal training or accreditation in AT prescription for practice in this specialized area other than a degree. Add to this the subsequent shift to predominantly private organizations in the community providing the majority of AT services, with the need for them to adopt the dual roles of clinical leadership and quality service delivery, and we have the potential for overstretched senior clinicians with a wealth of information they have no time to impart and junior practitioners who "don't know what they don't know".

How then do we rise to the challenge of this dual responsibility as clinical leaders?

Let's start by understanding the challenges of both the experienced and early career clinicians.

We then aim to help bring some clarity to what clinical leadership is, outlining what attributes, skills, knowledge a clinical leader requires to fulfil the expectations of this role.

Gaining some understanding in this changing world of who our clinical leaders are and where everyone fits in will also be a useful exercise in furthering our universal aims of building the skills and knowledge of the profession and consistency in our expectations in training and leading new clinicians.

Discussion then needs to take place regarding a framework for what the core competencies are for AT assessment and prescription and how we train effective AT/ wheelchair and seating therapists.

We can begin by looking to The International Society of Wheelchair Professionals (ISWP) and others who have developed guidelines and resources for wheelchair service competence, as we have a great opportunity in our national funding system to develop the legacy of a competency framework for the future.

Content references:

• Mrayyan, Algunmeeyn, A., Abunab, H. Y., Kutah, O. A., Alfayoumi, I., & Khait, A. A. (2023). Attributes, skills and actions of clinical leadership in nursing as reported by hospital nurses: a cross-sectional study. BMJ Leader. https://doi.org/10.1136/leader-2022-000672

• Walder, Bissett, M., Molineux, M., & Whiteford, G. (2022). Understanding professional identity in occupational therapy: A scoping review. Scandinavian Journal of Occupational Therapy, 29(3), 175–197. https://doi.org/10.1080/11038128.2021.1974548

• Gauld. (2017). Clinical leadership: what is it and how do we facilitate it? Journal of Primary Health Care, 9(1), 5–8. https://doi.org/10.1071/HC16041

• 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. https://pubmed.ncbi.nlm.nih.gov/31012755/

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Presenter biographies

BIANCA BRADY: As an occupational therapist, Bianca began her career in physical rehabilitation where her passion grew for working with neurological conditions and physical challenges that impact daily life. Bianca has worked with NSW Health and as a community therapist in the private industry to support people with complex physical disability needs to achieve their goals. Currently in a role focused on education, she remains an advocate for people who access care and support to achieve life goals as well as serving to provide opportunities to foster growth and learning for others.

MELLINDA FITZGERALD: Mellinda is an experienced physiotherapist with a strong paediatric and disability focus throughout her career and a passion for helping both children and adults achieve their goals. Her work began with the CP League in Brisbane and has also included a Child Development Unit in NZ, a hospital for the elderly, a Physical Disability Unit within a regular school, 10 years with Ferndale Special School in Christchurch (NZ), and 7 years as Team Leader and Clinical Lead and Training Supervisor for Wheelchair and Seating with an international private rehabilitation firm (NZ). The move back to Australia brought a shift to an Assistive technology Consultancy role, and most recently a role focused on education in the AT and disability sector where through clinical education she aims to continue to help people young and old and their families live their best life.

C1: Developing Clinical Competency in the Prescription of Assistive Technology in Australia

Ms. Lois Brown[1], Ms. Karen Maurer[2]
[1]ILS, Mclaren Vale, Australia. [2]Capable Spaces, Cardiff, Australia

Learning objectives

1. The attendee will be able to name the three critical stages of client assessment. (Human assessment, Art of Listening and Communication, Prioritization of client goals).
2. The attendee will be able to state at least two training models to further their learning in AT Prescription. (Watch/Do/Train- Check reference, Deconstructed Cases Learning, …).
3. The attendee will be able to state at least 3 education resources to help enhance their learning of AT Prescription.
4. The attendee will be able to state the key principles of creating or searching for a competency- based training model.

Session description

With the growth of the NDIS as the primary funder of AT services in Australia allied health professionals are increasingly involved in AT prescription, but most report limited knowledge, supervision and mentoring by a clinician with extensive experience in AT.

The influx of clinicians to NDIS private practice has helped to fill a skills shortage, however there is a lack of safeguards to help clinicians recognize when they are beyond their scope of expertise. NDIS has created a system where previous certification or credentialling standards from funding bodies have been replaced with a self-nominated assessment as to whether you are competent to support clients with AT.

Understanding what you do not know, and the limits of your current skillset, is an essential phase in identifying learning goals. From an audit of the NDIS OT Facebook Providers group who write about daily practical challenges, some clinicians post questions that expose the fact that they maybe be working outside of their skillset.

Currently, there is a lack of professional standards and a specific credential for the prescription of AT beyond a bachelor degree for therapists within the NDIS model. Other countries use additional post- baccalaureate certification such RESNA ATP credentialing in USA, NRRTS Certification in the US and wheeled mobility and postural management Levels 1 and 2 in NZ. In the absence of external assessment and evaluation we will explore a variety of multi-modal training methods to assist clinicians to upskill in working with AT in their practice.

The presenters both provide practical skills AT training to clinicians across Australia and will outline some of the challenges identified and potential short-term strategies to establishing competency frameworks. We will discuss opportunities for therapists in small practices or those who work alone to grow their skills in the absence of formal credentialing or certification.

Content references:

1. Carmen P. DiGiovine, Meghan Donahue, Patricia Bahr, Mark Bresler, Joseph Klaesner, Raj Pagadala, Brian Burkhardt & Ray Grott (2023) Rehabilitation engineers, technologists, and

technicians: Vital members of the assistive technology team, Assistive Technology, 35:1, 23-34, DOI: 10.1080/10400435.2018.1454713

2. Rachel Gartz, Mary Goldberg, Alexandria Miles, Rory Cooper, Jon Pearlman, Mark Schmeler, Sarah Jonassen Bittman & Judith Hale (2017) Development of a contextually appropriate, reliable and valid basic Wheelchair Service Provision Test, Disability and Rehabilitation: Assistive Technology, 12:4, 333-340, DOI: 10.3109/17483107.2016.1166527

3. NRRTS: https://nrrts.org/

4. RESNA: https://www.resna.org/

5. Seating to Go: https://www.genevahealth.com/find-support/wheelchair-seating/

6. SWEP: https://www.swep.bhs.org.au/the-standard.php

Presenter biographies

Lois Brown, MPT (US), RESNA ATP/SMS is the National Clinical Education Manager for Independent Living Specialists in Australia. Lois has 30 years of experience as a prescribing therapist, assistive technology consultant, clinical and funding manager for wheelchair suppliers and manufacturers. Lois has presented nationally and internationally on Seating and Mobility at OSS, ISS, ESS, CSMC, RESNA and ATSA. Lois has been published in rehab publications and is considered an expert in her field.

Karen Maurer is an Occupational Therapist with over 25 years' clinical experience, who runs Capable Spaces, a boutique community-based Occupational Therapy service in Newcastle NSW. Karen and her team support adults with progressive neurological conditions and spinal cord injuries, using interventions to help people live as independently as possible in their homes, such as assistive technology, home modifications, home automation, and technology access. Karen has a passion for providing clinical supervision and practical training, supporting clinicians to grow their scope of practice to help maximise people's independence, function and safety in the community.

C2: A Multisegmented Approach Towards Head Support Interventions

MBA Filipe Correia[1], PT Bart Van der Heyden[2]
[1]Stealthproducts Inc, Porto, Portugal. [2]Stealthproducts Inc, Gent, Belgium

Learning objectives

1. List at least 4 different positions of the Head, Upper Cervical Spine (UCS) and Lower Cervical Spine (LCS).
2. List at least 2 head support interventions for these 4 different positions of the Head, Upper Cervical Spine (UCS) and Lower Cervical Spine (LCS).
3. Identify at least 3 Head Positioning Zones (HPZ) when using head supports

Session description

When head stability is compromised the correct positioning of the wheelchair user's head and cervical spine is essential for social interaction, access drive controls, upper extremity function and critical functions like breathing, eating and swallowing. (1,2,3,4).

Head support systems are often needed for clients with progressive neuro muscular disorders such as amyotrophic lateral sclerosis, muscle dystrophy, multiple sclerosis and wheelchair users with cerebral palsy or spinal cord injury. Besides a compromised head control, these users often experience limitations stabilizing the trunk. Therefor head support interventions should be used in conjunction with a seating assessment and seating interventions providing a stable base to support the cervical spine and head. (5,6)

When assessing for head support interventions, Head Positioning Zones (HPZ) cannot interfere with the user's hearing, vision or mandibular movement and movements of the Upper Cervical Spine (UCS), consisting of C0-C1, C1-C2, C2-C3 and responsible for approximately 40% of flexion-extension and 60% of axial rotation of the total cervical range of motion (7).

When facilitating a functional head control, distal movement of the head and Upper Cervical Spine (UCS) can be enhanced by stabilizing the proximal Lower Cervical Spine (LCS) and thoracic spine.

Conclusion:

This presentation will provide guidelines when assessing for head support interventions, provide a classification of different HPZ, UCS and LCS positions so specific head support interventions can be used. In addition, a classification of head supports by and clinical indication and by ability to support HPZ, UCS and LCS will be presented.

Content references:

Peeters LHC, Kingma I, Faber GS, et al. Trunk, head and pelvis interactions in healthy children when performing seated daily arm tasks. Exp Brain Res. 2018;236(7): 2023–2036.

Uyama S, Hanaki K. Seating arrangements for children with insufficient head control: lessons from trials using the i2i head and neck positioning and support system. J Phys Ther Sci. 2015;27(3):947–950.

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Presenter biographies

Filipe Monforte Correia MBA has worked in the seating and wheeled mobility industry for the past 23 years.

He is the European and Latin American Business Developing Manager. He represents Companies internationally and he presents Internationally in the area of seating and wheeled mobility, in focus of seating and positioning.He has been in charge of setting up new distributors and/or providing support for existing ones, offering training for clinicians, dealers/distributors and end users in those markets. Filipe has a great amount of experience working with clients in doing assessments.He has been a part of different Seating Conferences and now serves in the Board of Advisory of ISS since 2021.

Bart Van der Heyden, Physical Therapist - Owner SuperSeating and private physical therapy practice ‘De Kine’

Bart has specialized in the field of seating, wound care and mobility for the past 28 years. After studying physical therapy in Gent, Belgium, he gained experience in Germany providing seating and therapy for children with Cerebral Palsy. After working in a rehab setting in the USA he offered clinical consultations to wheelchair users, clinicians and manufacturers worldwide. He has also started a physical therapy practice with his wife in Belgium.

Bart has developed multiple training courses and workshops on skin management, seating assessment, seating techniques & interventions for different user populations. He has presented for seating specialists all over the world and he developed a seating approach for clinical problem solving and maximizing outcomes.

Bart is known as a skilled and experienced clinician and presenter with a global, hands-on and multi-disciplinary view on clinical practice and seating.

C3: The Paralympics Australia Referrer Network

Mrs Chrissie Banwell

Learning objectives

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

- Define Para-sport and understand the non-linear journey of Para-athletes into sport pathways
- Understand classification in Para-sport and the process assist athletes to get classified
- How to refer athletes to Para-sport
- The Paralympics Australia model to keep Allied Health and Disability Service professionals connected to Para-sport.

Session description

A large proportion of people with impairments will have contact with allied health and/or disability service professionals at various stages throughout their life. Our aim is to enhance the capability of this sector to promote participant involvement in Para-sport through improved knowledge and awareness. Research suggests that health professionals would like to refer more clients to Para-sport, they just don't have the knowledge or awareness to do so. This session aims to empower the participants involved through education on Para-sport, the opportunities for those with a disability and empower professionals to refer potential athletes to participation and pathway opportunities for ongoing involvement in Para-sport. Para-sport has the ability to change the lives of individuals with a disability – as we know sport benefits physical and mental health, social interaction and an overall increased quality of life; so through support of a formalised model for allied health professionals to refer individuals with a disability to Para-sport, Paralympics Australia are striving to achieve this.

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Presenter biography

Chrissie began her sporting career as an athlete in Trampoline Gymnastics, and after stepping away from the sport as a 16 year old, she began her career in the sports industry. Her roles have included working for the Western Australian Institute of Sport and presently, with Paralympics Australia. Her current role as Pathways Coordinator for Paralympics Australia provides facilitation and support to the Paralympic pathway sports and assists in creating efficiencies across the WA system. In 2018, Chrissie was also selected to work at the Gold Coast Commonwealth Games with the Australian

Institute of Sport's Sideline Champions program, an initiative for athletes to review their performances and recharge after their events. Chrissie is a member of the SportWest Women of Sport Network and is a Minerva Network Champion for Western Australia.

Aside from work, Chrissie is in her final year of studying a Bachelor of Sport, Recreation and Event Management at Edith Cowan University, is an accredited Australian Advanced Trampoline Judge and a mother of a two year old.

C4: Looking into individualized cushion selection based on performance metrics through ISO testing

Ms Rainy Wu[1], Ms Karin Leire[2]

Learning objectives

1. List and describe 3 ISO standard bench tests for cushions.
2. List 2 challenges with basing cushion performance on cushion material alone.
3. Explain in 1 way each how bench testing can and cannot be used for cushion selection.

Abstract

For decades, test standards have been developed by the International Organization for Standardization (ISO) to measure and characterize wheelchair seating. These standardized "bench tests" allow for an objective, scientific laboratory analysis of support surfaces. These tests measure the critical characteristics of wheelchair cushions, revealing properties that may be suitable for meeting the client's needs for tissue protection and positioning as well as enhancing the ability to perform mobility-related ADLs for a wheelchair user.

In 2019, the NPIAP/EPUAP/PPPIA clinical practice guideline (CPG) for pressure ulcer/injury prevention were published. How do the ISO standards relate to the CPG? How can your cushion selection process be simplified by using ISO technical data in combination with the latest clinical knowledge? In this presentation, attendees will gain an understanding of how standards are created. An overview of the current standards for wheelchair seating will be presented in the context of the CPG, demonstrating why the test data can provide valuable insights into selecting the appropriate cushion for the client.

Specific needs of the individual using the mobility device must always be considered and maintained at the center of the decision-making process. We often see challenges in the field to bridge the gap between clinical decision making, individual needs assessment and scientific evidence for cushion selection. This presentation will look at how an objective comparison of performance metrics from ISO testing can assist the end users, the clinicians, and the providers in understanding scientific results and their practical applications. In this presentation, various cushion technologies will be compared using blinded test data from several ISO standards to reveal important similarities and differences. Both the benefits and limitations of the test data will be discussed, emphasizing the role of ISO standards as an additional powerful tool in the clinical reasoning process.

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Presenter biographies

Rainy Wu is a physical therapist based in Taipei, Taiwan. After graduating from National Yang Ming University in 2012, with a Bachelor's degree in Physical Therapy and Assistive Technology, she worked as an ATP at the New Taipei City Assistive Technology Centre for 6 years. In 2018, Rainy moved to Shanghai as the rehabilitation industry is increasingly thriving within China. She joined Permobil as a Clinical Services Specialist in 2020. Upon relocating to Taiwan in 2022, she contributed to the development of clinical education, which fueled her passion for mentoring and educating therapists based on her extensive knowledge and expertise.

Karin Leire has got a 20-year experience in clinical research and evidence-based medicine for both pharmaceuticals and medical devices. As Vice President of Scientific & Medical affairs at Permobil group, defining and leading the research roadmap, using customer insights from direct interactions with stakeholders and large datasets from the connected Permobil products with the main objectives to ensure innovation according to user needs, document performance and govern appropriate access to complex rehab technology based on unmet needs and human rights, globally. She has got a master’s degree in biomedical sciences from University of Uppsala, Sweden.

ABSTRACTS
WEDNESDAY 22 NOVEMBER

Keynote: Advancing participation and health through the intersecting lenses of mobility, technology, and disability justice

Dr. Heather Feldner

Session description

Mobility is a human right, and all of us use mobility in one form or another to explore our world, engage in meaningful social relationships, support health, and foster participation. However, the extent to which these key mobility outcomes are actualized for disabled children and adults who use assistive technologies is dependent on a number of factors. These include technology access, cost, design, our built environments, and the attitudes of others, just to name a few, and leaves the field with some crucial questions to consider as we pursue advancement of equitable participation for disabled people from a rights-based perspective. Why is assistive technology, in particular mobility technology, perceived differently from mainstream technologies? How have our systems to support meaningful participation for disabled people developed throughout history and what does this mean for mobility technology access today? Perhaps most importantly, how, where, and to what extent have the voices of disabled people and technology users been amplified? And how can the disability community shape and prioritize our future research and design agendas? In this talk, Dr. Feldner will explore the history, background, and current evidence around these questions as she examines the intersections of mobility, technology, and disability justice. She will touch on examples from her research work, the work of others in fields of disability studies and engineering, and current evidence within the field to illustrate how perceptions of disability emerge and evolve through technology use, how attitudes and the built environment affect equity, participation, and learning, and how disability justice can be further integrated into mobility technology design and provision processes.

Presenter biography

Dr. Heather Feldner, PT, PhD, is an Assistant Professor in the Department of Rehabilitation Medicine, Adjunct Assistant Professor in the Department of Mechanical Engineering, 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.

Dr. Feldner's research is centered at the intersection of mobility, disability, and technology in two primary areas, including perceptions of disability and identity and how these emerge and evolve through technology use, and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity and participation. She also focuses on how disability can be further integrated into intersectional Justice, Equity, Diversity, and Inclusion initiatives, particularly in health professions education.

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 in mechanical engineering.

D1: Towards an Evidence-Based Coverage Policy for Complex Wheelchair Seating & Mobility devices

Mark Schmeler

Learning objectives

- Describe 3 issues associated with current policies based on published research
- List 3 domains of a standardized assessment protocol to identify the need for certain types of devices
- Discuss the findings of 3 published research studies that can inform an evidence-based policy for wheelchairs.

Session description

Coverage policies for complex wheelchairs and seating, especially in the United States, have been described as inequitable and a departure from contemporary models to support people with severe disabilities to function and participate in their communities. A collaboration of stakeholder groups in the USA are investigating new and alternative strategies for wheelchair coverage policies as part of a government funded Disability and Rehabilitation Research Project (DRRP) Program. The approach is to apply an evidence-based approach to the development of this policy. The first part of this session will share the findings of a scoping review and stakeholder survey related to the state of current global wheelchair service and policy. The second part will discuss the systematic development of a standardized ICF-based assessment and documentation process to describe a person's need for certain types of equipment. The third part will review the analytics of several large datasets that includes person centered outcomes, device repairs, claims data, and connected wheelchair data to inform a new policy. Finally, the presentation will discuss several global models for consideration. Participants will be encouraged to share their experiences with various coverage schemes.

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Presenter biography

Mark Schmeler is an Associate Professor and the Vice Chair for Education & Training in the Department of Rehabilitation Science & Technology at the University of Pittsburgh. He is an Occupational Therapist and Assistive Technology Professional (ATP) serving as the Director of the Center for Assistive Technology at the University of Pittsburgh Medical Center. His research is in the area large data analytics to inform practice and policy related to wheelchair mobility and other assistive technologies. Other research interests include the application of outcome measures, telehealth, service delivery, product development, and product testing.

D2: Big data as an enabler - how to make (the most) use of it

Karin Leire

Learning objectives

Present three potential sources of large data.

Present three opportunities associated with large data.

Present three examples of studies/projects where large data have provided insights and added value.

Session description

Content references:

James AM, Pramana G, Schein RM, Mhatre A, Pearlman J, Macpherson M, Schmeler MR. A descriptive analysis of wheelchair repair registry data. Assist Technol. 2022 Mar 23:1-9. doi: 10.1080/10400435.2022.2044407. Epub ahead of print. PMID: 35200093.

Jacob Handberg Gohlke & Lisa K. Kenyon (2022) Exploring powered wheelchair standing device use in children and adults: a longitudinal case series, Disability and Rehabilitation: Assistive Technology, DOI: 10.1080/17483107.2022.2120101

Magasi S, Wong A, Miskovic A, Tulsky D, Heinemann AW. Mobility Device Quality Affects Participation Outcomes for People With Disabilities: A Structural Equation Modeling Analysis. Arch Phys Med Rehabil. 2018 Jan;99(1):1-8. doi: 10.1016/j.apmr.2017.06.030. Epub 2017 Aug 5. PMID: 28784356.

Presenter biography

Karin Leire. has got a 20-year experience in clinical research and evidence-based medicine for both pharmaceuticals and medical devices. As Vice President of Scientific & Medical affairs at Permobil group, defining and leading the research roadmap, using customer insights from direct interactions with stakeholders and large datasets from the connected Permobil products with the main objectives to ensure innovation according to user needs, document performance and govern appropriate access to complex rehab technology based on unmet needs and human rights, globally. She has got a master’s degree in biomedical sciences from University of Uppsala, Sweden.

D3: What's happening under the covers? Bed positioning assessment and goal setting.

Ms Angela Rowe[1], Carlee Holmes[2]
[1]Postural Innovations, Melbourne, Australia. [2]St Vincent's Hospital Melbourne, Melbourne, Australia

Learning objectives

1. Understand a postural assessment in supine and sidelying
2. Understand the use of a relevant objective outcome for the measurement of posture of the ribcage, hips and pelvis (Goldsmith Indices of Body Symmetry)
3. Identify appropriate 5 potential client goals that you could set with a client in relation to their bed positioning.

Session description

Clinicians often focus on wheelchairs and seating, missing a big piece of the puzzle. Bed positioning in bed may impact on sleep, care needs, postural and pressure care management. Given the long periods of time some clients may spend unsupported, it is time to evaluate what is happening under the covers.

This course will outline the components of a bed positioning assessment including subjective assessment, personal preferences, sleep, the environment and carer considerations. It will consider risk assessments, pressure care, respiratory factors, restrictive practice, tone and behaviour. We will take a deeper dive into postural assessment in lying with a demonstration of a supine and sidelying postural assessment. Common postural presentations in lying will be presented.

The clinical efficacy of the Goldsmith Indices of Body Symmetry as a valid and reliable measurement tool in the lifespan management of postural asymmetry will be described. Case studies and research data will be provided alongside a hands-on demonstration of the measurement process.

Following a thorough clinical bed positioning assessment, goal setting drawing upon case studies will be discussed. This section will incorporate a clinical reasoning format, focusing on the prioritisation of client goals and selection of appropriate and relevant outcome measures. The presented outcome measures will focus on pain, sleep, satisfaction and posture including the Goldsmith Indices of Body Symmetry. Proxy and self report outcomes will be presented providing a means to evaluate the efficacy of therapeutic interventions for all clients. Are we making a difference?

Content references:

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2) Holmes C, Brock K, Morgan P. Progression of Postural Asymmetry in Young Adults With Cerebral Palsy Who Are Not Walking: An Exploratory Study. Pediatr Phys Ther. 2021;33(2):E94-E8.

3) Rodby-Bousquet E, Agustsson A. Postural Asymmetries and Assistive Devices Used by Adults With Cerebral Palsy in Lying, Sitting, and Standing. Frontiers in Neurology. 2021;12.

Presenter biographies

• Angela Rowe is a physiotherapist with over 20 years 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 works in two Wheelchair and Seating Services at The Royal Melbourne Hospital and Monash Health. Angela has coauthored 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 a jointly run business Postural Innovations which provides bed positioning assessments, wheelchair consultations and a product range of postural supports for 24 hour positioning.

• Carlee Holmes is a senior clinician physiotherapist at the Young Adult Complex Disability Service (YACDS), St Vincent's Hospital Melbourne and a post-doctoral Research Fellow within the NHMRC funded CP- Achieve Centre of Research Excellence (CRE) at the Murdoch Children's Research Institute. These roles enable Carlee to follow her passions for clinical practice and research with a particular focus on young adults with cerebral palsy (CP). Within the CRE, Carlee is currently co-leading research investigating the physical and mental health experiences of young adults with CP. She has also developed several collaborative research studies with a focus on physical activity options for adults with complex CP who are reliant on wheelchairs for mobility. Clinically Carlee has a passion for improving the lives of adults with complex disabilities through increased awareness of the musculoskeletal issues they experience and the impact on their health and wellbeing, alongside assessment and intervention options.

D4: Are We Satisfied With Current Seating Technology Outcomes Or Should We Strive To Achieve More?

PT Bart Van der Heyden[1], MBA Filipe Correia[2]
[1]Stealthproducts Inc, Gent, Belgium. [2]Stealthproducts Inc, Porto, Portugal

Learning objectives

1. List at least 3 limitations of providing wheelchair users with lumbar supports.
2. List at least 2 limitations of providing back support recline to wheelchair users.
3. Identify at least 3 measurable outcomes of providing a segmented variable postural support of the spine.

Session description

Seating systems providing wheelchair users with PSIS and lumbar support and back support reclining systems are common practice when dealing with seating challenges such as postural fatigue, user discomfort and passive seating and sliding. While PSIS, lumbar support and back support recline systems can provide many benefits to wheelchair users, there limitations to consider. Some of these limitations include:

- With severe passive seating the center of mass moves forwards and the lumbar / PSIS support does not prevent sliding
- If the shape of the PSIS and lumbar support is not ideal the support might not be effective and can result into sliding
- Passive seating is linked to fatigue of the postural muscles and changes are likely to occur during the seating time. The shape and support will not accommodate for these expected postural changes.
- Most back supports are 2-dimensional and too high.
- Customization of back supports can be difficult to execute.
- Reclining of the back support will change the position of the secondary positioning systems such as head supports, and lateral trunk supports.

This presentation will provide an in-depth biomechanical analysis of the outcomes of PSIS, lumbar support and back support recline interventions and will illustrate the limitation of such interventions using case studies. In addition, the benefits of an alternative seating approach whereas independent and dependent adjustments for postural changes for function, absorption of repetitive loading and for low shear seating interventions will be discussed.

Conclusion:

The outcomes of a new postural management approach show the functional benefits for clients when making both dependent and independent postural changes for function for clients with postural fatigue and passive seating tendencies as well as the ability to absorb voluntary and involuntary movements for clients with tone changes.

Content references:

Siefert et al.: Virtual Human Model CASIMIR - A Chance and a Challenge for the Aetiology Understanding of Pressure Injury Development, Proceedings Science of Experience Conference, Boston, 2018

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Oomens et al.: How does lateral tilting affect the internal strains in the sacral region of bed ridden patients? A contribution to pressure ulcer prevention, Clinical Biomechanics, Volume 35, pp 7 – 13, 2006

Presenter biographies

Bart Van der Heyden, Physical Therapist - Owner SuperSeating and private physical therapy practice 'De Kine'

Bart has specialized in the field of seating, wound care and mobility for the past 28 years. After studying physical therapy in Gent, Belgium, he gained experience in Germany providing seating and therapy for children with Cerebral Palsy. After working in a rehab setting in the USA he offered clinical consultations to wheelchair users, clinicians and manufacturers worldwide. He has also started a physical therapy practice with his wife in Belgium.

Bart has developed multiple training courses and workshops on skin management, seating assessment, seating techniques & interventions for different user populations. He has presented for seating specialists all over the world and he developed a seating approach for clinical problem solving and maximizing outcomes.

Bart is known as a skilled and experienced clinician and presenter with a global, hands-on and multi-disciplinary view on clinical practice and seating.

Filipe Monforte Correia, MBA has worked in the seating and wheeled mobility industry for the past 23 years. He is the European and Latin American Business Developing Manager. He represents Companies internationally and he presents Internationally in the area of seating and wheeled mobility, in focus of seating and positioning.

He has been in charge of setting up new distributors and/or providing support for existing ones, offering training for clinicians, dealers/distributors and end users in those markets. Filipe has a great amount of experience working with clients in doing assessments.

He has been a part of different Seating Conferences and now serves in the Board of Advisory of ISS since 2021.

D5: Title: Power Standing: A Systematic Review of the Evidence for Power Standing Wheelchairs

Tilly Brook[1], Paula Ostendorf[2]
[1]Permobil, Melbourne, Australia. [2]Permobil, Stockholm, Sweden

Learning objectives

To describe the impact that standing can have on an individual who uses a power standing wheelchair

Identify at least three areas where a power standing wheelchair can have a positive effect on a person's overall health and function

Describe how a power standing wheelchair can have a functional impact on a persons participation and activities

Session description

The design of the western world is typically based on the assumption a person can stand. The default position of a wheelchair user is to sit, consequently rendering typical living and work environments inaccessible and secondary health complications possible. Some power wheelchairs have the capacity to be prescribed with a power standing function, however it can be difficult to know when it is appropriate to prescribe this function. The aim of this research is to describe the impact that standing can have on an individual who uses a power standing wheelchair. Using the framework from the International Classification of Functioning, Disability & Health (ICF); this course will present up-to-date evidence on the impact that standing can have on an individuals' body functions and structures, activities, participation with an added analysis of quality of life and independence. The primary source of the evidence is a recent systematic literature review, where ten original scientific publications on power standing wheelchairs were reviewed. Secondary evidence included a survey of 137 individuals who use a Permobil power standing wheelchair, interviews with three individuals and motion capture data to indicate displacement during a sit-stand-sit sequence. Case studies will be discussed and used to tie together findings and additional applications of individual needs and outcomes. Summarising the wide range of sources will allow for a discussion of power standing and how its use can impact individuals using a power wheelchair.

Content references:

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Presenter biographies

Tilly Brook has extensive experience working as an Occupational Therapists within wheelchair and seating in Australia, New Zealand, and Singapore. Her passion for this area of practice started whilst working in Brain Injury Rehabilitation and continued to grow from there. Tilly has assisted in the development of clinical teams, and now focuses on upskilling, education, mentoring and developing best practice guidelines for clinicians in the field. She regularly contributes to the development of White Papers. Tilly holds a Bachelor of Health science and a Masters of Occupational Therapy (Hons) and is working as a Clinical Education Specialists at Permobil.

Paula Ostendorf is a Biomedical Engineer from Flinders University, Australia. In 2022 she completed an award-winning, first-class Honours thesis researching Brain Computer Interfaces (BCIs) for neurodegenerative disease. Subsequently, she completed a 20-week internship at Permobil in Timrå, Sweden working with the Scientific and Medical Affairs team. At Permobil her work primarily focused on researching pressure redistribution in standing wheelchairs and contributing to the standing white paper update. She is passionate about assistive technology, especially where fun engineering is involved (such as wheelchairs!) and encouraging women in STEM.

D6: Navigating the challenges of scoliotic curves in active MWC users.

Mr. Luke Chmielewski

Learning objectives

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

- Better understand the importance of posture and the impact of supportive seating on wheelchair users' posture and function.
- Better understand the key considerations of corrective seating in active MWC users.
- Attain greater understanding of varying intervention approaches for active MWC users.
- Set postural goals in line with wheelchair users' functional goals in seating and wheeled mobility.
- Better view postural asymmetries through a 24-hour postural management perspective.

Session description

Active manual wheelchair users who develop mild to major scoliotic spinal deviations present a unique clinical challenge when it comes to positional correction or accommodation. As correction and/or accommodation of spinal scoliotic asymmetries generally require 3-points of control to manage the asymmetry, these types of supports can dramatically impact on a wheelchair user's functional independence (i.e. reach, transfers, positioning and propulsion), risk of developing pressure injuries or skin irritation and increase the user's sense of disability due to more invasive and visually obvious supports. As a clinician, understanding the options available through current static, dynamic and custom seating options can be challenging. And even if you can achieve correction/accommodation of the asymmetry, how can we anticipate their impact on the end-user's function can be extremely challenging.

This presentation will explore the varying range of static, dynamic and custom seatings solutions available, discussing the benefits and challenges of each intervention option. Case studies will be used to demonstrate the strengths and challenges of options discussed. Participants will also explore the key assessment considerations and factors to help them identify/eliminate appropriate support options to achieve a more efficient and effective trial experience and outcome for their clients. Lastly, this presentation will highlight the importance of considering management of these asymmetries from a 24-hour positional framework, as generally speaking, management of such asymmetries can often require interventions beyond the wheelchair seating system to achieve optimal outcomes.

Content references:

The Application of Ultralight Manual Wheelchairs – RESNA – January 2023.

RESNA Position on the Application of Dynamic Seating (November 20, 2020).

ACI Spinal Seating Modules (https://aci.health.nsw.gov.au/networks/spinal-cord-injury/spinal-seating?a=302261)

Wheelchair Provision for Children and Adults with Neuromuscular Conditions in British Columbia (v1.April 2014)

Presenter biography

Luke has worked as an equipment rep, inpatient OT, outpatient OT and community OT in roles across Australia and New Zealand, giving him a broad exposure to the patient journey and different perspectives involved with service delivery across two countries. Luke worked in New Zealand with Seating To Go to upskill in the area of Wheeled Mobility and Postural Management through the NZ credentialing system. Luke then returned to work at the Prince of Wales Hospital Spinal Injuries Unit as a senior OT in the Seating Clinic, experiencing roles across the inpatient OT team and the Spinal Pressure Clinic team before beginning a new chapter in his career and establishing his own private practice. Luke now supports clients through various funding schemes in NSW as a private therapist with 'Specialised OT'. Luke remains highly passionate about the field of Wheeled Mobility and Postural Management and credentialing.

D7: 1000kms Down the Track - a high complexity powered mobility solution in a very remote setting

Mr Andrew Congdon

Learning objectives

Upon completion of the session and in the context of a case study presentation, participants will have an understanding of:

- the Modified Monash Model (MMM) and how it defines whether a location is a city, rural, remote or very remote.

- the challenges that may be faced by wheelchair users with complex needs who reside in very remote settings.

- the strategies utilised by a wheelchair user to introduce and maintain the use of a power wheelchair with standing function and head array control system in a very remote setting.

Session description

The Northern Territory (NT) has the smallest population (245,000) of any state or territory in Australia, and outside of Darwin (population 137,000) the population is found in remote towns and communities spread throughout its vast 1,400,000 square kilometre land mass.

The Modified Monash Model (MMM) is a classification system that categorises metropolitan, regional, rural and remote areas according to both geographical remoteness ie distance from capital cities and town size. The MMM was adopted by the National Disability Insurance Scheme (NDIS) to determine the remoteness of participants and the application of the NDIS price guide that includes higher price limits for participants residing in remote and very remote locations.

NDIS participants residing in remote and very remote locations may be faced with the challenges of a thin market where there is a gap between the needs of a client and the availability of services. This may result in a wheelchair user with complex needs relying on fly-in-fly-out, drive-in-drive-out and remote service delivery or travelling to service providers.

In this case study presentation you will learn about the experiences of a wheelchair user with complex needs who resides in a very remote setting with no access to local service providers or AT suppliers to assist with her wheelchair and seating needs, and how she has successfully implemented the use of a powered wheelchair with standing function, head array control system and personal device access with minimal external support.

Content references:

Modified Monash Model. (2019) Australian Government Department of Health and Aged Care. https://www.health.gov.au/topics/rural-health-workforce/classifications/mmm

NDIS Thin Markets Project. Discussion paper to inform consultation. (2019) Australian Government Department of Social Services

Rural and Remote Strategy (2016). National Disability Insurance Agency

Congdon, A., Lindop, N. (2019) MJD Foundation - Groote Eylandt Assistive Technology Feasibility Study An investigation into the opportunities to build local capacity to deliver NDIS supports specific to Assistive Technology.

Presenter biography

Andrew Congdon is an Occupational Therapist based in Darwin with a keen interest in the delivery of services in rural and remote settings. He has worked in the seating and mobility field for over 20 years in New South Wales, South Australia and Northern Territory working for private, government and non-government organisation services focussed on the delivery of seating and mobility supports.

Andrew has experience working in less resourced settings in the Asia/Pacific region and has contributed to the development and delivery of various training resources including the WHO Wheelchair Services Training Packages (WSTP). Andrew has also completed Assistive Technology (AT) sector development work in the Northern Territory exploring the feasibility of AT service delivery and the coordination of repairs and maintenance services in remote settings.

D8: Teledelivery of complex wheelchair and seating assessment: A mixed methods realist evaluation

Assoc Prof Fiona Graham, Dr Laura Desha
University of Otago, Christchurch, New Zealand

Learning objectives

1. Convey research findings

2. Stimulate reflection and discussion on the applicability and scalability of telehealth for wheelchair and seating assessment.

Session description

Wheelchairs are one of the most valued assistive devices for people who require them for personal mobility. Yet, the disability community reports widespread unmet needs for adaptive equipment. In New Zealand, inequity in access to adaptive equipment for Māori is also evident.

Aims of study

What contexts and mechanisms (intervention components) support teledelivery of complex wheelchair and seating assessment to achieve wheelchair users' mobility goals. (2) What culturally specific conditions support use of teledelivery of complex wheelchair and seating assessment for Māori?

Method

The study used a mixed method, realist evaluation. Participants included specialist wheelchair assessors, onsite assistants and wheelchair users. To understand the Context of teledelivered wheelchair assessment, health professionals completed the Determinants of Interventions Behaviour Questionnaire (DIBQ), focus groups and interviews. To understand the Mechanisms of intervention, teledelivery assessments were audio recorded, with intervention behaviours mapped to an audit tool. Wheelchair user response to intervention was measured using the Session Rating Scale and Quebec User Evaluation of Adaptive Equipment. Intervention Outcomes were identified through the Canadian Occupational Performance Measure.

Results

[Currently in data analysis, to be completed June 2023 and provided prior to conference]

Conclusions

Findings provide important knowledge on the key intervention components of tele-delivered wheelchair assessment and clarify which wheelchair-users (in particular, Māori), and under what conditions, tele-delivered assessments are likely to be most successful in achieving wheelchair-users' goals.

Content references:

Graham, F., Boland, P., Grainger, R., & Wallace, S. (2019). Telehealth delivery of remote assessment of wheelchair and seating needs for adults and children: A scoping review Disability and Rehabilitation. doi:10.1080/09638288.2019.1595180

Graham, F., Boland, P., Jones, B., Wallace, S., Taylor, W., Maggo, J., & Grainger, R. (2021). Socio-technical design requirements of a telehealth wheelchair and seating assessment service: A quantitative analysis of stakeholder perspectives. New Zealand Journal of Physiotherapy, 49(1), 31-39.

Health Quality and Safety Commission. (2019). A window on the quality of Aotearoa New Zealand's health care: A view on Māori health equity. (978-0-908345-94-6). Wellington, NZ.

Presenter biography

Fiona Graham teaches postgraduate courses in interprofessional rehabilitation with the University of Otago and supervises students through masters and PhD studies. Her research interests focus on relational interventions in rehabilitation, such as coaching; telehealth in rehabilitation and implementation of evidence-based rehabilitation.

Dr Laura Desha is an occupational therapist and research fellow with the University of Otago.

D9: A transformational journey advancing children's access to safe and suitable vehicle restraint systems.

Ms Helen Lindner[1,2], Mr Jamie Cockle[3], Ms Emma Clarkson[1,2]
[1]Mobility and Accessibility for Children in Australia Ltd (MACA), Melbourne, Australia. [2]Curtin University, Perth, Australia. [3]Medifab Australia Pty Ltd, Devonport, Australia

Learning objectives

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

- Describe two barriers impacting on children's rights to safe and accessible motor vehicle transport and how they are being addressed.
- Outline how child restraint systems are assessed and tested in Australia through the Australian Safety Assessment Program.
- Identify three conditions necessary for collective action to bring about transformative change.

Session description

Complex and wicked problems require not-for-profit organisations, governments, industry, academia, and the public to come together to drive systemic change around a common agenda.

Transformational change can be achieved through applying a collective impact framework. This approach is based on the premise that complex problems require a radical shift in the way they are solved, and the solutions themselves will both require and cause significant systemic changes. The system needs to change because "enhancing the current system most often gives us more of what we already have" (cited in Smart, 2017).

But what are the specific elements necessary for collective action to succeed? This presentation will explore how MACA is applying a collective impact framework, bringing together cross sector stakeholders and end users to address the systemic barriers impacting on the rights of children with disabilities and medical conditions to safe and accessible transport.

MACA will discuss how its dedicated focus on planning, managing, and coordinating cross sector action is delivering real world change and outcomes for families. The presentation explores the transformative experience of this approach through the lens of families and industry.

Industry organisation Medifab Australia will share the challenges and opportunities of their journey over the last four years of working with MACA and others. They will reflect on how this has impacted their organisation and enabled them to go from providing a small range of special purpose car seats to now offering the largest range of special purpose car seats for Australian children.

Content references:

Black, M. H., Hayden-Evans, M., Picen, T., Lindner, H., Clarkson, E., Vale, L., McGarry, S., & Falkmer, T. (Submitted for publication with the Scandinavian Journal of Occupational Therapy). Experiences of caregivers on the safe transport of children with disabilities and medical conditions.

Black, M. H., Hayden-Evans, M., Picen, T., Lindner, H., Clarkson, E., Vale, L., McGarry, S., & Falkmer, T. (Under review). Safe Transportation of Children with Disabilities and Medical Conditions - Experiences and Perspectives of Australian Health Professionals and Organisations.

Angela Downie, Angela Chamberlain, Rebecca Kuzminski, Sharmila Vaz, Belinda Cuomo & Torbjörn Falkmer (2019): Road vehicle transportation of children with physical and behavioural disabilities: A literature review, Scandinavian Journal of Occupational Therapy, DOI:10.1080/11038128.2019.1578408

Jessica Smart (2017): Collective Impact: Evidence and Implications for Practice, Child Family Community Australia, Australian Institute of Family Studies.

World Health Organization & United Nations Children's Fund (UNICEF). (2015). Assistive Technology for Children with Disabilities: Creating Opportunities for Education, Inclusion and Participation. A discussion paper.

World Health Organization & United Nations Children's Fund (UNICEF). (2022). Global report on assistive technology. World Health Organization.

Presenter biography

Helen Lindner (presenter)

Helen is the founder and Chief Executive of Mobility and Accessibility for Children in Australia (MACA) and a research associate at Curtin University.

Throughout her career, Helen has combined research, practice, and policy, from across diverse disciplines, to promote significant policy change.

Helen is represented on the Child Restraint and Seatbelts for Use in Motor Vehicles Standards Committees and was the drafting lead for the review of the 2013 Australian/New Zealand Standard 4370 Restraint of children with disabilities, or medical conditions, in motor vehicles.

Helen has led significant policy and program initiatives in early childhood, road safety and disability sectors, and been represented on the Austroads National Taskforce for Registration and Licensing.

Helen has a Master of Public Policy and Management, a Graduate Diploma in Administration of Child and Family Programs and a Diploma of Teaching and is an alumni of the Williamson Community Leadership Program.

Jamie Cockle (presenter)

Jamie completed his training in Physiotherapy at Cardiff University, UK and specialised immediately in Paediatrics.

He gained a varied clinical experience during his years working as a Paediatric Physiotherapist within the NHS, finding particular interest in neurological disability and rehabilitation. These experiences enabled him to work closely with a diverse range of clients understanding not only their needs, but the families that support them.

He is passionate about Paediatrics and ensuring all children, no matter of their ability, have opportunities to be well supported as they grow and develop.

Providing training and support in his role as a Clinical Educator, Jamie hopes to assist stakeholders better understand the principles behind 24-hour postural management for children, to optimise their health and happiness and to shape better lives.

Emma Clarkson (author)

Emma is the founder and Director of MACA and a research associate at Curtin University in Western Australia.

Emma brings extensive experience from across varied disciplines including education, health promotion, public relations, and innovation.

She has worked in road safety for over a decade, leading a wide range of research and evidence-based programs, including Victoria's early childhood road safety program.

Emma has a graduate Diploma in Education, a Graduate Diploma in Public Relations, and an Honours Degree in English Literature.

D10: “Wheely Fun”: a paediatric intensive therapy program for learning /practicing powered mobility with others.

Ms Sara West

Learning objectives

At the end of the presentation, attendees will be able to:

- List 5 benefits of providing self-initiated mobility opportunities for children who have mobility delays or restrictions.
- Discuss 3 ways to integrate powered mobility into the overall options for mobility for infants, children and young people with mobility challenges
- Describe the Wheely fun intensive program framework for facilitating powered mobility use, including assessments and potential outcome expectations

Session description

Self-initiated mobility is not only important for function, but also a human right. In typical developing infants, a critical phase occurs between 6-9 months when infants show a powerful drive to “Go To” something. This leads to object exploration, and opens up nearly endless opportunities for learning and social interaction. When self-initiated mobility is not possible due to mobility delay or disability, powered mobility is an effective option.

The reasons that young people might use powered mobility devices vary greatly. For example, in early intervention: small devices can be a tool to encourage first time exploration and motivation to move. For older children with significant and complex disability: devices can be used to experience cause and effect, promote sensory regulation, fun and social interaction. For others, powered mobility can enable functional independent mobility in a range of environments. Therapists collaborate with individuals and caregivers to ensure the device meets the needs of the young person and their context.

Wheely Fun is a specific 1:1 intensive program, delivered by Occupational Therapists and Physiotherapists in a motivating and enriched small group environment, that gives young people the opportunity to learn, practice and progress the skill of self-driving. It has been delivered to young people aged 9 months to 25 years who have mobility delays or disability.

The Wheely fun intensive program framework encompasses a referral and intake process to triage young people into groups of similar age, learning level and goals. Targeted assessments and techniques are used in a coaching-model, shaping intentional and functional movement in relevant environments. There are opportunities for peer modelling and sharing of lived experiences. The framework also includes reporting and recommendations for ongoing skill development.

Wheely Fun is run through a community-based, multi-disciplinary service for infants through to young adults, the majority of whom have NDIS plans.

Content references:

Livingstone R & Field D (2020) Enhancing Mobility and Exploration in Young Children with Motor Delays. Exploring change in young children's power mobility skill following several months' experience, Disability and Rehabilitation: Assistive
Technology, DOI: 10.1080/17483107.2020.1847207

Nilsson L, Durkin J. (2017) Powered mobility intervention: understanding the position of tool use learning as part of implementing the ALP tool. Disabil Rehabil Assist Technol. 12(7):730-739. doi: 10.1080/17483107.2016.1253119. Epub 2016 Dec 2. PMID: 27910723.

Sabet, A, Feldner, H, Tucker, J, Logan, S, Galloway, J (2022). ON Time Mobility: Advocating for Mobility Equity. Pediatric Physical Therapy, Volume 34, Number 4, October 2022, pp. 546-550(5) DOI: https://doi.org/10.1097/PEP.0000000000000939

Presenter biography

Sara West is a Senior Physiotherapist and Allied Health Team Leader at Kids+ Foundation in Geelong, Victoria. She works with infants, children, young people and their families to build their capacity to participate in meaningful activities with a wholistic view to lifelong health and quality of life. Sara believes in effective communication and collaboration both within the multidisciplinary team and also with external providers and community partners to bring about these client outcomes.

Sara has working in paediatrics for more than 10 years, completing a Masters of Physiotherapy (Paediatrics) in 2010. She is passionate about lifelong learning and translating evidence to practice as well as listening to stakeholders about real world experiences.

Most recently, Sara has supported sustainable Assistive Technology prescription at Kids+ and has been involved in developing opportunities for early powered mobility for clients with delayed mobility and exploration skills.

E1: Building Better Wheelchairs - The Latest Innovations in Manual Wheelchair Customisation

Mr. Sameer More

Learning objectives

After completing this workshop, participants will be able to:

1. Explain the process for provision of custom manual wheelchairs in Australia, including the roles of different stakeholders and potential challenges.
2. Gain a thorough understanding of the current research landscape surrounding the customisation of wheelchair components, including emerging trends, challenges, and opportunities.
3. Understand regulatory requirements governing the customisation of manual wheelchairs.

Session description

According to the recent report from the Australian Institute of Health and Welfare, manual wheelchairs have been identified as one of the top three mobility aids used in Australia (AIHW 2022). The ability of personalising devices to the users is extremely important as people with disabilities have diverse needs. For manual wheelchairs, this process involves manufacturers incorporating user's measurements, functional abilities, and preferences for developing design models to create customised wheelchairs (Cooper & Cooper 2019).

This presentation will focus on local manufacturing possibilities for manual wheelchairs. The first part of the presentation will provide an overview of local wheelchair manufacturers, services, and levels of customisation, as well as the role of each stakeholder in the provision process. The second part will discuss the history, benefits, and state-of-the-art methods for designing and manufacturing custom components such as frames, cushions, backrests, headrests etc. Lastly, the presentation will cover regulatory requirements governing the customisation of manual wheelchairs, providing participants with essential knowledge in this area. Overall, the presentation aims to provide a comprehensive understanding of the current state of the Australian AT market and the potential for local manufacturing, as well as the importance of compliance with regulatory requirements for custom manual wheelchairs.

This information will be valuable for researchers, healthcare professionals, wheelchair users and other stakeholders involved in the provision of manual wheelchairs.

Content references:

Australian Institute of Health and Welfare (AIHW) 2022, People with disability in Australia, viewed 1 August 2022, https://www.aihw.gov.au/reports/disability/people-with-disability-in-australia

Barbareschi, G, Daymond, S, Honeywill, J, Singh, A, Noble, D, N. Mbugua, N, Harris, I, Austin, V & Holloway, C 2020, 'Value beyond function: analyzing the perception of wheelchair innovations in Kenya', The 22nd International ACM SIGACCESS Conference on Computers and Accessibility, Association for Computing Machinery, New York, NY, USA, pp. 1–14, viewed 1 March 2022, .

Bogaards, K, Creagh, R, Donnet, R, Fallon, J, Kelley, D, Nam Loke, K, Seargent, A, Shanks, S & Yung, A 2014, 'Price Disparities for Disability Aids and Equipment', Queensland Competition Authority, p. 154.

Cooper, RA & Cooper, R 2019, 'Rehabilitation Engineering: A perspective on the past 40-years and thoughts for the future', Medical Engineering & Physics, vol. 72, pp. 3–12, viewed 13 April 2022, .

Oldfrey, B, Barbareschi, G, Morjaria, P, Giltsoff, T, Massie, J, Miodownik, M & Holloway, C 2021, 'Could Assistive Technology Provision Models Help Pave the Way for More Environmentally Sustainable Models of Product Design, Manufacture and Service in a Post-COVID World?', Sustainability, vol. 13, no. 19, Multidisciplinary Digital Publishing Institute, p. 10867, viewed 9 September 2022, .

Saey, T, Cuppens, K, Delien, T, Broeckx, M, Creylman, V, K, M, R, M, M, CR & P, P 2020, 'Digital design of aids for activities of daily living', Lect. Notes Comput. Sci., vol. 12377, Springer Science and Business Media Deutschland GmbH, Thomas More University of Applied Sciences, Mobilab & Care, Geel, Belgium, pp. 421–428, viewed .

Steel, EJ & Layton, NA 2016, 'Assistive Technology in Australia: Integrating theory and evidence into action', Australian Occupational Therapy Journal, vol. 63, no. 6, pp. 381–390, viewed 17 April 2022, .

Steel, EJ, Layton, NA, Foster, MM & Bennett, S 2016, 'Challenges of user-centred assistive technology provision in Australia: shopping without a prescription', Disability and Rehabilitation: Assistive Technology, vol. 11, no. 3, Taylor & Francis, pp. 235–240, viewed 12 April 2022, .

Summers, MP & Verikios, G 2018, 'Assistive technology pricing in Australia: is it efficient and equitable?', Australian Health Review, vol. 42, no. 1, p. 100, viewed 7 April 2022, .

World Health Organization. Regional Office for Europe 2019, Provision of wheelchairs in Tajikistan: economic assessment of alternative options, World Health Organization. Regional Office for Europe, viewed 12 September 2022, .

Presenter biography

With a background in Mechanical Engineering, Sameer is presently pursuing his PhD with MedTechVic at Swinburne University of Technology. His research interests revolve around leveraging computer aided design and manufacturing tools for medtech products. In his academic journey, he has actively contributed to various projects involving the development and production of implants, as well as diagnostic medical devices. Presently, Sameer's research focuses on exploring the application of design automation principles to the manufacturing process of custom wheelchairs in Australia.

E2: Fabricating, Modifying and Providing Personalised Medical Devices to Comply with TGA Regulations

Dr Iain Brown

Learning objectives

1. To develop a clear understanding of the TGA's categorisation and classification of Personalised Medical Devices, their sub-categories, and the regulatory requirements of each.
2. To become familiar with the process of developing a Design Envelope to define a Patient-Matched Medical Device, such that it meets the requirements for listing on the ARTG
3. To gain an understanding of the process of device modification and the resultant responsibilities on original equipment manufacturers and modifiers

Session description

The Therapeutic Goods Administration (TGA) regulates the supply of medical devices, including assistive technology, within Australia[1,2]. This important role helps to ensure that devices that are available on the market in Australia have verifiable therapeutic claims, protecting consumers from misleading or misrepresented products. The regulatory framework also checks the introduction of new and custom-made medical devices, to ensure they comply with design and fabrication standards, again in the interest of protecting end users. However, the framework can be difficult to navigate at first, and second glance. The past few years have also seen significant changes in the regulatory requirements concerning custom-made medical devices and assistive technology, making it doubly difficult to navigate.

This presentation aims to provide clarification of the current and emerging regulations concerning the fabrication, modification, registration and provision of personalised medical devices (including assistive technology)[3,4].

Covered in this presentation will be a brief review of terminology and requirements relating to the revised personalised medical devices regulation[5], a more detailed discussion on device modification and case study on preparing a *Design Envelope* for a patient-matched medical device.

This presentation will also introduce free-to-use templates covering the application of risk assessments, device modifications, custom-made device development and design envelope development for patient-matched medical devices.

Content references:

https://www.tga.gov.au/overview-medical-devices-and-ivd-regulation

Therapeutic Goods (Medical Devices) Regulations 2002:
https://www.legislation.gov.au/Series/F2002B00237

Therapeutic Goods (Excluded Goods) Determination 2018:
https://www.legislation.gov.au/Details/F2021C00847

https://www.tga.gov.au/resources/publication/publications/medical-device-inclusion-process/step-9-ongoing-responsibilities

https://www.tga.gov.au/resources/resource/guidance/personalised-medical-devices-including-3d-printed-devices

Presenter biography

Iain Brown is a professional Rehabilitation Engineer working in the field of wheelchairs, seating and assistive technology. He manages Assistive Technology & Seating NSLHD (NSW Health), one of two public spinal seating clinics in NSW. He works with clients in urban, rural and remote settings across NSW. He is the current chair of the National Committee on Rehabilitation Engineering, a committee of Engineers Australia, and is working to connect and support Rehabilitation Engineers across Australia.

Iain is based in Sydney and provides clinical and technical supports to assistive technology users and clinicians across NSW.

(Please note I am looking to collaborate with someone else who may end up delivering the presentation as I cannot attend in person, not sure who that is yet though)

E3: Pressure Injury Prevention in Seating and Lying for Bariatric, Ageing, and Palliative Care Clients

Mrs Sarah Uncle, Ms Lois Brown

Learning objectives

1. The participant will be able to state at least 2 physiological changes in the skin and/or underlying tissue that impact pressure injury development for each of the three groups of clients; bariatric, ageing and palliative care clients.
2. The participant will be able to state 2 unique considerations for equipment prescription to prevent pressure injuries for each of the three groups of clients.
3. The participant will be able to explain at least one recommendation for pressure injury prevention and/or treatment stated in The Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline, 2019 for each of the three groups of clients.

Session Description

All of our clients are susceptible to pressure injuries due to a combination of intrinsic and extrinsic factors, with immobility in sitting and lying being at the top of the list. In addition, seated pressure and postural asymmetries will increase a client's risk of pressure injury development. However, there is even more to consider for our bariatric, ageing and palliative care clients. Firstly, our bariatric clients are at an increased risk of pressure injuries due to their increased tissue weight, microclimate challenges and issues with perfusion. The correct prescription of support surfaces is vitally important for bariatric clients to prevent device-related pressure injuries. Secondly, our ageing clients experience changes in the layers of the skin that increases their risk of developing a pressure injury. These changes include thinning of the skin, less effective sensory receptors and multiple other changes. Our ageing female clients are at an increased risk when compared with ageing men. Thirdly, our clients in Palliative Care are also at a higher risk of pressure injury development and it is understood that pressure injuries can be unavoidable at end-of-life. The Prevention and Treatment of Pressure Ulcers/Injuries: Clinical Practice Guideline, 2019, has recommendations that are unique for this population and it is important that clinicians understand these recommendations. Furthermore, there are other wounds that can appear at end-of-life that are not pressure injuries and having an understanding of the aetiology of these terminal ulcers can help to differentiate them from pressure injuries. Developing an understanding of the unique physiology for these three groups of clients is imperative when recommending and prescribing suitable equipment and assistive technology.

Content references:

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." (2019)

Haesler E. Evidence summary: Prevention of pressure injuries in individuals with overweight or obesity. Wound Practice and Research. 2018 April;26(3):158-161

Farage MA, Miller KW, Elsner P, Maibach HI. Characteristics of the Aging Skin. Adv Wound Care (New Rochelle). 2013 Feb;2(1):5-10

Black J, Hotaling P. Ten top tips: end of life pressure injuries. Wounds International. 2018; 9(1); 18-21

Presenter biography

Sarah Uncle is the National Clinical Educator for the ILS Hospital and Pressure Care Team. Her focus is to provide education on pressure injury prevention and treatment to clinicians in hospitals, facilities, and in community care settings nationwide. She trained as an Occupational Therapist at Sydney University. She has worked as a paediatric OT in private practice, as a hospital-based OT on neuro and orthopaedic wards and with clients in group homes for ADHC and Cerebral Palsy Alliance.

E4: The Future Of Prescription – What Role Will AI Play

Ms Tracee-lee Maginnity

Learning objectives

1. By end of session attendees will be able to articulate at least one potential advantage and one potential disadvantage of using current AI to assist in funding justifications.
2. As a group we will discuss and consider the impact AI may have on current practice
3. Attendees will be able to identify at least one limitation of AI within the prescription process.

Session description

The concept of artificial intelligence (AI) is not new, Modern AI can be traced back to the 1950s when the term AI was first introduced with roots back to 1642 when the first counting machine was invented. Last decade we saw the advancements of AI with the personal computing and searching assistants such as Siri and Alexia. With the recent release of Chat GPT we are seeing a significant increase in the use of AI across multiple industries and tasks.

Several online AT industry and therapy-based forums have been discussing the use of Chat GPT and other technologies to assist in the ever-increasing amounts of report writing associated with the justification processes of prescribing Assistive Technology, with many disclosing that this would be a great way to manage the paperwork demands. So where are we at with Chat GPT? What are some of the advantages and disadvantages of using these technologies to complete funding justifications?

This session will provide a historical understanding of the development of AI and consider the ways in which it may be applicable to current practice. Discussion on the foundations of clinical reasoning will guide the group in considering the role AI may play in future prescription processes. This session will be interactive, and every attendee will have an opportunity to contribute to the discussion through use of a real live online tool.

Content references:

Hayani, Aprilia Sari and Sukiman (2021) Artificial Intelligence librarian as promotion in the revolutionary era 4.0. Journal of Robotics and Control (JRC) 2021

Paguinto, Kasparian and Farrar “It’s not just the wheelchair, it’s everything else”: Australian parents’ perspectives of wheelchair prescription for children with neuromuscular disorders” Disability and Rehabilitation (2020)

qbi.uq.edu.au/brain/intelligent-machines/history-artificial-intelligence

Presenter biography

Tracee-lee Maginnity joined Permobil Australia in July 2019, as a clinical education specialist. Originally from New Zealand, she graduated Auckland University of Technology with a BHSc (Occupational Therapy) in 2003 and has since worked in various roles related to seating and mobility including assessing, prescribing and educating. After gaining experience as an assessor and prescriber at Seating To Go / Wheelchair Solutions prescribing for both disability and injury, she moved to Australia in 2011 to take on the Senior Occupational Therapist role in a custom moulded

seating service. She then worked in clinical consulting and education roles until joining Permobil. Tracee-lee is passionate about maximising functional outcomes with end users and the importance of education within the industry. She has mentored many therapists interested in AT. Her experience includes working with individuals with complex postures to achieve customised client focused outcomes.

E5: Co-design and Wheelchairs - how to collaborate authentically to co-create technology

Professor Rachael McDonald[1], Dr Anna Lane[2], Dr Alyse Brown[3], Dr Ngan Nguyen[3], Ms Paris Triantis[3]
[1]Swinburne, Melbourne, Australia. [2]Swinburne University of Technology, Melbourne, Australia.
[3]Swinburne University, Melbourne, Australia

Learning objectives

1. For participants to demonstrate an understanding of collaborative co-design workshops with end users and stakeholders

2. To have gained some tools to undertake workshops with people to understand their wheelchair/AT needs

3. To develop a plan for co-design of a person issue

Session description

Person-centred practice aims to involve the individual in their own decision-making, yet evidence suggested that this practice is not always adhered to in assistive technology practice. Traditional development of assistive devices and products such as wheelchairs have often been has been in answer to a specific problem, and then retrofitted in an attempt to suit an individual. Yet, rates of abandonment of technology are high (Petrie et al, 2018). "Design for Disability" has been a concept for a number of years (de Couvreur & Goossens, 2011), with emerging technologies and manufacturing processes there is more potential than ever to ensure that technologies enabling participation in life can be achieved. Furthermore, the sustainability of assistive technologies requires successful implementation and translation into practice; and participatory co-design with end users is an important and emerging concept (Carroll, S. et.al. 2021). The MedTechVic hub is an innovative multidisciplinary team where all partners interested in the development of enabling and assistive technologies come together to address the issues of the end users. We have developed a number of models for the co-design process based upon the needs and abilities of end-users. These include supported face to face experiences, hybrid or fully online models with support. This workshop will share our experiences of a collaborative model for co-creation, and users will work together to discuss and design their own interventions which they will share with the group. Participants will come up with an idea for a wheelchair or assistive technology, and work in small groups to develop a plan for a co-designed solution

At the end of the workshop, participants will have developed knowledge and skills to engage further with the concept and process of co-design for enabling technologies within their own area of interest.

Content references:

Petrie, H., Carmien, S., Lewis, A. (2018). Assistive Technology Abandonment: Research Realities and Potentials. In: Miesenberger, K., Kouroupetroglou, G. (eds) Computers Helping People with Special Needs. ICCHP 2018. Lecture Notes in Computer Science(), vol 10897. Springer, Cham. https://doi.org/10.1007/978-3-319-94274-2_77

De Couvreur, L. & Goossens, R. (2011) Design for (every)one: co-creation as a bridge between universal design and rehabilitation engineering, CoDesign, 7:2, 107-121, DOI: 10.1080/15710882.2011.609890

Carroll, S., et al., Supporting Healthy Aging through the Scale-Up, Spread, and Sustainability of Assistive Technology Implementation: A Rapid Realist Review of Participatory Co-Design for Assistive Technology with Older Adults. Gerontology and Geriatric Medicine, 2021. 7: p. 23337214211023269.

Presenter biography

Professor McDonald leads the MedTechVic Hub, that co-creates and co-evaluates assistive technologies with end users and other stakeholders. She is or has supervised 34 HDR students, has published over 150 publications and attracted over $11m in research funding. She is passionate about co-design, enabling people to participate in their own desired life situations.

E6: Managing Behaviours of Concern Through Wheelchair Interventions. Allowing for Sensory Expression and Enhancing Participation.

Ms Lauren Hunter

Learning objectives

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

1.Name 4 common presentations of behaviours of concern and sensory seeking behaviours in wheelchair users.

2.Demonstrate how to assess presentations in a client centered way, using this information in models of practice to develop pathways to client outcomes.

3.Match equipment features available to enhance wheelchair prescriptions with the potential of reducing common breakage, enhancing participation and optimizing tolerance for being in the wheelchair.

Session description

We all have ways in which we communicate and express ourselves. At times, individuals with disabilities are labelled as having “behaviours of concern” because their communication, sensory and functional needs are not being met. Often these individuals are also wheelchair users who become reliant on their wheelchairs not only for mobility, but for enhanced participation and socialisation through meaningful ADLs.

What happens when certain features prescribed with good intention, are used in ways that promote restrictive practices? Are there features of wheelchairs, that when appropriately prescribed, reduce agitation to enhance sensory and motor experiences for those users who have been labelled “destructive” and “difficult”?

Together, we can unravel the assessment process essential to understanding the individual in the wheelchair. We will discover intervention practices to consider, that will lead to a deeper understanding of how the features you prescribe in a wheelchair can help the goals you set to improve the quality of life for this population demographic. Explore the outcomes of the RESNA position paper on the Application of Dynamic Seating and how paper highlights evidence through peer review and literature reviews to support dynamic hardware applications in wheelchairs to promote movement and sensory engagement through thoughtful, client centred prescriptions.

Content references:

1.RESNA Position on the Application of Dynamic Seating; Rehabilitation Engineering & Assistive Technology Society of North America, Michelle Lange, OTR, ABDA, ATP; Barbara Crane, PT, PhD, ATP/SMS; Frederick J. Diamond; Suzanne Eason, OT/L; Jessica Presperin Pedersen OTD, MBA, OTR/L ATP/SMS; Greg Peek; (2020);

2.Kaminski, J. W., & Claussen, A. H. (2017) Evidence base update for psychosocial treatment of disruptive behaviors in children. Journal of Clinical Child and Adolescent Psychology, 2017, 46:4, 477-499

3.Minshawi, N.F., Hurwitz, S., Morriss, D., McDougle, C.J.; (2015); Multidisciplinary assessment and treatment of self-injurious behavior in autism spectrum disorder and intellectual disability: integration of psychological and biological theory and approach. J Autism Dev Disord; 2015, June, 45(6): 1541-68

Presenter biography

Lauren Hunter has been working as an Occupational Therapist for over 15 years in a variety of inpatient and community settings. Wheelchair prescription and complex seating have always been a part of her practice, with a passion for optimising outcomes for those living with a variety of diagnosis requiring support from a wheelchair to maintain their mobility. Lauren has come from a senior community position to take on the Director of Clinical Services role with Linds Rehabilitation Equipment, located in Victoria, Australia. Lauren's role is to support therapist in their clinical decisions when choosing from a vast range of products and to provide education that makes wheelchair prescription systematic, using best practice guidelines, and a journey that finishes with the best outcomes for the end user.

E7: Early Vs. Late Intervention with Custom Moulded Seating

Mr David Fagan

Learning objectives

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

1. Describe three potential evaluation findings that could help build justification for early intervention with custom seating.
2. Explain 2 common errors often seen with indirect custom moulded simulation and how to overcome them.
3. Discuss how seating shape and orientation work together to optimize postural alignment and postural tendencies.
4. List 3 advantages of orthotic based over traditional custom moulded seating options.

Session description

Historically, custom moulded seating has been a last-resort effort to preserve an individual's ability to sit.

Typical users are often dependent sitters with multiple disabilities, significant postural deviations, and associated unique body shapes.

In many instances, the physical characteristics of traditional custom seating have been deemed appropriate for this population. However, this seating has frequently proven to be too heavy, bulky, and restrictive for more active and functional users. It has therefore infrequently justified in the realm of early seating intervention.

Recent advances in custom moulded seating, based on orthotic and prosthetic principles, have incorporated lighter, breathable and less bulky materials into manufacturing. These advances have significantly expanded the potential for custom seating application across a broader range of needs, and as a potential option for early intervention.

This workshop will introduce participants to unique seating strategies for early custom seating intervention. It will include a review of custom shaped seats and back supports, an overview of the importance of correct orientation of seating for a constructive relationship with gravity, and the importance of optimal wheelchair configuration and seating interface to maximize the potential for mobility, function, and skin care. Participants will discuss client assessment, simulation, and fitting strategies, along with strategies for documentation.

Content references:

Crane, B., Wininger, M., Call, E. (2016) OrthoticStyle Off-Loading Wheelchair Seat Cushion Reduces Interface Pressure Under Ischial Tuberosities and Sacrococcygeal Regions Archives of Physical Medicine and Rehabilitation, 97, pp 1872 - 1879

Hill, S.; Goldsmith, J. (2010) Biomechanics and Prevention of Body Shape Distortion. Tizard Learning Disability Review, 15 pp15-30

Kittleson-Aldred, T., Russell, G. (2016) The Link Between Lying and Sitting: Implications for practice Abstract for 2017 International Seating Symposium

Persson-Bunke, M. Hagglund, G., Lauge-Pederson, H., Westbom, L. (2012) Scoliosis in a Total Population of Children with Cerebral Palsy Spine, 37, pp 708-713

Presenter biography

David graduated from University with a Bachelor of Prosthetics and Orthotics in 1994. Working in the AT arena, David owned and Managed Sunshine Orthopaedic Services for 17 years, from where he made the transition to complex wheelchairs and seating in the late 90's. David has been fortunate to seek education and direction from many of the world's leading experts in Specialised and Custom Seating, Complex Wheelchair and Commode prescription with special areas of interest including a Spinal Cord Injury, Brain Injury and Neurological conditions.

F1: Supporting On Time Mobility: Multidisciplinary DIY Solutions and Emerging Evidence

Dr. Heather Feldner

Session Description

This workshop will focus on the development and implementation of several do-it-yourself (DIY) adaptation opportunities to enhance access to On Time Mobility for young children with disabilities. In this workshop, participants will review and define an On Time Mobility perspective, discuss opportunities for co-design partnerships with engineers, rehabilitation professionals, and families, explore tools and resources to support creative adaptation, and participate in a rapid prototyping activity to support self-initiated mobility for children 1-3 years of age. The workshop will highlight the benefits, challenges and future directions of DIY opportunities that involve both commercial and fully custom solutions, including the Go Baby Go! mobility and socialization programs across the world. Participants are invited to discuss and share their own bespoke solutions as well as success stories and learning opportunities from experiences across multidisciplinary fields.

Presenter Biography

Dr. Heather Feldner, PT, PhD, is an Assistant Professor in the Department of Rehabilitation Medicine, Adjunct Assistant Professor in the Department of Mechanical Engineering, 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.

Dr. Feldner's research is centered at the intersection of mobility, disability, and technology in two primary areas, including perceptions of disability and identity and how these emerge and evolve through technology use, and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity and participation. She also focuses on how disability can be further integrated into intersectional Justice, Equity, Diversity, and Inclusion initiatives, particularly in health professions education.

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 in mechanical engineering.

F2: Transformation; Lived experience of spinal cord injury, recovery and training as an OT

Mr Mark Hanson

Learning objectives

1. For participants to understand the journey post SCI from the perspective of the person in recovery in order to reflect upon their own practice
2. To give tips and tricks as to how to motivate their participants to take control of their own recovery
3. To demonstrate the effect of the right wheelchair prescription on living well

Session description

Approximately 350 people per year experience a Spinal Cord Injury in Australia, with approximately 80% male, and an overall population of 15,000 (Harrison et al, 2018). These are not insignificant numbers, yet the experience of experiencing an injury, recovery, resilience remains rooted in the medical model, with people experiencing powerlessness and seen as needing to be cured. In a study by Barker et al (2009), this was demonstrated through poor Quality of Life in comparison to the general population. Poor QOL was found to be associated with secondary impairments, activity limitations and restrictions on participation.

Chun and Lee (2008), identified three themes of posttraumatic growth for people with spinal cord injury: experience of meaningful family relationships, experience of meaningful engagement, and appreciation of life.

A personal journey of transforming from working in banking, the lived experience of spinal cord injury and training as an OT. Mark shares reflections of recovering and returning life as an active wheelchair user. From varied seating arrangements, desirable features and gaining the level of skills required to become an active wheelchair user.

Not only does this include the personal journey of recovery, it shares reflections with the use of language, connection and motivators that aided recovery after a traumatic spinal cord injury to promote longterm and meaningful engagement when people are adjusting to living with a disability.

OT practice should consider various ways to engage with clients by encouraging interests to show hope, and discover creative ways to motivate clients, thus, improving functional attainment and promoting participation to live well with a disability.

Content references:

Harrison J, O'Brien D and Pointer S 2021. Spinal cord injury, Australia, 2017–18. Injury research and statistics series no. 136. Cat. no. INJCAT 219. Canberra: AIHW.

Barker, R. N., Kendall, M. D., Amsters, D. I., Pershouse, K. J., Haines, T. P., & Kuipers, P. (2009). The relationship between quality of life and disability across the lifespan for people with spinal cord injury. Spinal cord, 47(2), 149-155.

Chun, S., & Lee, Y. (2008). The experience of post traumatic growth for people with spinal cord injury. Qualitative Health Research, 18(7), 877-890.

Presenter biography

Mark is a Occupational Therapist with lived experience of spinal cord injury, working in the community with a focus on physical disability (including others living with spinal cord injury) as well as a CLinical Advisor at MedTechVic. From a background of working in banking to the lived experience of spinal cord injury, Mark shares his personal transformation and reflections from how other allied health clinicians can tailor their practice to encourage their clients to live well with a disability.

Outside of work Mark enjoys, road trips, creating culinary adventures and thoroughly enjoys accessible arts and culture of Melbourne.

F3: Transforming how we educate health professionals

Bonita J Sawatzky PhD

Learning Objectives:

1. To understand what Equity, Diversity and Inclusion (EDI) looks like in health education.
2. To be able to re-frame clinical case studies that reflect our society that we live in to prepare the learner better for the diverse communities they might work in.

Session description:

In this interactive session we will explore what it means to teach our health professionals with an EDI lens. Our institutions world-wide are beginning to recognize that our western approach to education may be problematic with our colonialism, racism, sexism and ableism pasts. Various countries have acknowledged the traumas of colonialism to our First Nations in Australia and in Canada. We acknowledge that we discriminate based on abilities. We have discriminated based on gender. If we look at the textbooks that we have used for teaching or review the clinical cases we use for case-based learning, we see that the diversity is not represented. How does our education foundations feed still into our "isms" and do not prepare our clinicians for the amazing diversity they will see in the world? How do we re-frame our lens to see the breadth of who we see, listen to, and serve in the communities?

Presenter biography

Dr Bonita Sawatzky , an Associate Professor of Orthopaedics, was one of the original principal investigators in 2008 of ICORD, a spinal cord research centre. She has worked in spinal cord injury research as a clinical biomechanist for 25 years studying primarily wheeled mobility. Recently Dr. Bonita Sawatzky has closed her lab and is currently the Director of READI (Respect, Equity, Anti-Racism, Diversity and Inclusion) for the Department of Orthopeadics. Key initiatives so far have been on awareness and education with department grand rounds, resident training, website creation, and spotlights on department members who exemplify READI principles. She is a dedicated teacher in UBC's Faculty of Medicine, working with medical students, residents and graduate students. She encourages the patient's voice in her own research work, inviting patients to be collaborators, co-researchers and authors.

F5: 5 key differences between wheelchair and mobile shower commode chair seating

Dr Emma Friesen

Learning objectives

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

1. Identify four limitations in MSCC frame design that impact seating

2. Identify three characteristics of materials that impacts MSCC seating

3. Explain the three strategies of pressure management in seating and how these are used in MSCC seating.

Session Description

Toileting, intimate hygiene, and bathing / showering are essential activities of daily living (ADLs). For some people with disability, ADLs such as toileting, intimate hygiene, and bathing / showering, require use of mobile shower commode chairs (MSCCs). These activities involve a range of functional tasks including undressing and dressing, getting onto and off the toilet, positioning and repositioning, managing bowel movements, passing urine, maintaining personal hygiene, and managing menstruation. Seating in MSCCs requires balancing this functioning with managing three additional seating-related goals, namely: pressure and skin integrity, posture, and comfort.

This workshop draws on participants' existing knowledge of seating as it relates to wheeled mobility and other sitting surfaces, and applies it to MSCC seating. Specifically, this workshop addresses 5 key differences between seating in wheelchairs and MSCCs:

1. For over-toilet use, MSCC frames must be high and wide enough to roll back over the toilet;

2. MSCC frames and seating materials get wet;

3. MSCC seats (generally) have an aperture (i.e. a commode opening);

4. MSCCs generally have fewer after-market seating options and accessories available; and

5. MSCC seating requires different strategies for pressure and skin integrity management to wheelchair and other seating.

The workshop will explore the impact of these differences on the design, assessment, selection, and set up of MSCCs. Participants will also discuss challenges these differences can create for achieving seating goals.

The intended audience for this workshop is assistive technology practitioners who have limited experience with assessing, selecting, configuring, and setting up MSCCs to meet the needs of individual users. This workshop assumes a basic knowledge of wheelchairs seating.

Content references:

Emma L Friesen. An introduction to the electronic Mobile shower commode ASessment Tool. In: Proceeding of the 35th International Seating Symposium International Seating Symposium Bridging the Gap from Data to Value. RESNA; 2019:417-419. https://www.seatingsymposium.us/wp-content/uploads/2019/08/ISS2019_Syllabus_Interactive.pdf

Friesen, E. L., Theodoros, D., & Russell, T. G. (2017). Usability of mobile shower commodes for adults with spinal cord injury. British Journal of Occupational Therapy, 80(2), 63–72. https://doi.org/10.1177/0308022616676817

Ho, V. (2021, January 27). Do men really take longer to poo?. The Conversation AU. Retrieved 28 January, 2021 from https://theconversation.com/do-men-really-take-longer-to-poo-152233

Sheehan, K. (2019). Flushed successfully - do we look deeply enough. Paper presented at The OT Show, Birmingham, UK. Retrieved from https://www.theotshow.com/2019-education-programme

Presenter biography

Emma Friesen is a Rehabilitation Engineer with almost 20 years' experience in wheeled mobility and seating. Emma's PhD research, completed in 2016, focused on usability of mobile shower commode chairs. In her current role at Paragon Mobility in Brisbane, Emma educates dealers, end users, and funders about the design, specification, and set-up of wheeled mobility and seating equipment.

F6: Supporting community occupational therapists develop seating & positioning competence: a qualitative survey of early career therapists.

Mrs Alison Blyth, Mrs Kasey Morel

Learning objectives

1. To define the needs of the learning needs of a community NDIS OT workforce in relation to seating and positioning assessment and intervention skills.
2. To reflect on the clinician's perception of the most valuable supports in assisting them to develop competence with seating and positioning assessments and interventions.

Session description

Seating and positioning assessments and interventions are an area identified by many junior OT's as one where they lack skills and confidence. Existing research has focused predominantly on wheelchair and seating competence within occupational therapy undergraduate education programs. This existing literature indicates that:

- The time spent on wheelchairs, seating and positioning assessment and intervention skills varies widely between undergraduate programs.
- Not all undergraduate programs cover off the World Health Organisation 8 step process for wheelchair service provision.
- There is limited evidence to date on how to effectively upskill a junior OT workforce in the field of wheelchair service provision, seating and positioning.

Additionally, within our practice context, new graduate therapists have indicated limited confidence to provide wheelchair and seating assessments and intervention without high levels of supervision and practical support.

This presentation seeks to explores the perceptions of a junior OT workforce in relation to what approach/s they have found most beneficial in terms of developing the skills, confidence, and competence to support participants with their wheelchair provision, seating and positioning needs.

Content references:

Giesbrecht EM, Rushton PW, Dubé E (2022) Wheelchair service provision education in Canadian occupational therapy programs. PLoS ONE 17(2): e0262165. https://doi.org/10.1371/journal.pone.0262165

WHO. (2012). Wheelchair Service Training Package: Reference Manual for Participants. World Health Organization. Geneva. http://apps.who.int/iris/bitstream/10665/78236/1/9789241503471_reference_manual_eng.pdf

Presenter biographies

Alison Blyth – Principal Clinician OT

Alison graduated with a Bachelor of Occupational Therapy from James Cook University in 2005. Alison has worked in community disability sector for 15 years and within NDIS since its inception in QLD. Alison's areas of clinical expertise are complex equipment prescription and home modifications, driving assessment and vehicle modification, functional capacity assessment including SIL & SDA and supervising and mentoring Occupational Therapists in the disability space.

Kasey Morel – Principal Clinician OT

Kasey graduated with a Bachelor of Occupational Therapy (Honours) from Deakin University in 2006. She has worked as an occupational therapist in the disability sector for 16 years. Kasey has provided support to participants of all ages and with a wide range of disabilities and has extensive experience working with children and youth with physical impairments. She is passionate about supporting and empowering clinicians to work confidently and effectively with people with disabilities in the community.

F7: Socially Distanced Pressure Mapping in Rural and Remote Western Australia

Mrs Sandra Malkin, Ms Jane Sander, Mr Cameron Wagner

Learning objectives

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

- Describe options for using pressure mapping systems via remote access to rural and remote caseloads
- Describe applications that can be used to link specialised seating services with rural and remote clients and therapists
- View systems used by Rehabilitation Engineering Clinic via linking between OSS and REC clinic based in Perth Western Australia

Session description

The Rehabilitation Engineering Clinic (REC) has assisted clients in rural and remote locations of Western Australia in completing pressure mapping via the use of remote linkage. The pressure mapping equipment has been sent to the location via courier, and the local therapist within the country location has been provided with instructions on how to prepare the equipment for assessment of the client.

Once the pressure mapping sensor is in place, the clinicians at REC (based in Perth) are able to view the live data displayed on the mapping software. Systems used to achieve this have included Facetime, Teams, and Health Direct Video Call.

Case studies on use of various technology will be presented. Differences in the effectiveness of varied technology is dependent on location of client and services available within their local area.

A practical example will be demonstrated by linking from OSS to REC in Perth live throughout this session, such pressure mapping can be completed on a subject during the conference.

Content references:

Brigo, E., Rintala, A., Oyéné Kossi, Verwaest, F., Vanhoof, O., Feys, P., & Bonnechère, B. (2022). Using Telehealth to Guarantee the Continuity of Rehabilitation during the COVID-19 Pandemic: A Systematic Review. International Journal of Environmental Research and Public Health, 19(16), 10325. https://doi.org/10.3390/ijerph191610325

Irgens, I. (2022b). Telerehabilitation for Pressure Injury. In Elsevier eBooks (pp. 163–178). https://doi.org/10.1016/b978-0-323-82486-6.00012-5

Touchett, H., Apodaca, C., Siddiqui, S. et al. Current Approaches in Telehealth and Telerehabilitation for Spinal Cord Injury (TeleSCI). Curr Phys Med Rehabil Rep 10, 77–88 (2022). https://doi-org.smhslibresources.health.wa.gov.au/10.1007/s40141-022-00348-5

Presenter biographies

Sandy Malkin graduated from Curtin University in 1990 such has over 30 years of experience as an Occupational Therapist. She has also completed Postgraduate studies through Flinders University in the field of Disability. She has significant experience working with client undertaking rehabilitation post spinal cord injury, acquired brain injury, and cerebral vascular accidents both within Australia, England and the United States of America. Sandy commenced working at the Rehabilitation Engineering Clinic in 2015 and provides services to both inpatients and outpatients of varying diagnosis. She specialises in complex seating and wheelchair mobility solutions, including custom design and programming for individuals with significant physical disabilities.

Jane Sander completed her Bachelor of Science (Advanced Nursing) at Cumberland College, NSW and a Certificate of Spinal Injuries Nursing at the NSW College of Nursing. She has also completed a hospital based certificate in Burns and Plastics Nursing. Jane has worked at the Rehabilitation Engineering Clinic in Perth for 30+ years as a Clinical Nurse specialising in pressure management and manual wheelchair assessment and provision. Jane is a member of the Australian Wound Management Association, College of Nursing Australia, Australian Rehabilitation Assistive Technology Association (ARATA) and is a past ARATA Board Member.

Cameron Wagner completed his Master of Occupational Therapy at Curtin University in 2015. He has experience working within the hospital-based setting providing inpatient and rehabilitation services for the WA Country Health Service and NHS Trust. Following his years working abroad, Cameron returned to Perth WA to work for an NDIS provider where he collaborated with people living with disability and finding Assistive Technology solutions to achieve their goals. He joined the Rehabilitation Engineering Clinic in 2021 to continue his passion with working alongside a multidisciplinary team to provide complex seating and mobility solutions for inpatients and outpatients of varying conditions.

F8: Night Time is Complex – juggling health, sleep and postural care.

Jane Hamer[1], Deb Wilson[2]
[1]Te Whatu Ora Wautemata, Auckland, New Zealand. [2]Seating To Go, Hamilton, New Zealand

Learning objectives

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

- Reframe messaging around 24hr postural care appropriate to the priorities of the person and their family/carers
- Describe stages of sleep and strategies to improve sleep onset and maintenance.
- Identify 3 indicators for supported lying positions at night for people with complex needs.
- Utilise at least 3 outcome measures to quantify change through night-time positioning interventions.

Session description

As early as 1976, Fulford and Brown suggested that the effect of gravity on an immobile and growing child led to the development of windswept deformities, more so than spasticity or muscle imbalance. Fast forward to 2023, and the 24hr approach to postural care has become integrated into many clinicians' practices. Sustained asymmetry and habitual postures in supine have been linked to the development of non-reducible and progressive deformities such as hip dislocation, pelvic obliquity, wind sweeping, and scoliosis in people with cerebral palsy. Due to the secondary, and sometimes life-threatening, complications associated with body shape distortion, it is important that clinicians can identify those at risk. Recent scoping reviews for children with cerebral palsy, and people with intellectual disabilities and severely impaired motor function, have described the evidence base for night-time positioning as small with significant gaps.

But is night-time care only really about posture? Certainly not for caregivers. This session will review the evidence, including the link between postural asymmetry and pain, and the bidirectional relationship between pain and sleep. What do families tell us? Night-time is complex and messaging around prevention of asymmetries that may happen in the future does not resonate with their here and now where health needs and sleep insufficiency are at the forefront for families and carers. The perspective of some New Zealand families around night- time positioning and the themes identified will be discussed before reviewing health, sleep and postural care in the context of the ICF framework. Assessment tools, outcome measures and engagement strategies focusing on principles of family-centred care will be presented using case studies to illustrate how postural care intervention needs to be prioritised by the person and/or their carers. Attendees will understand alternative/ practical ways to support and engage families with complex night-time postural care.

Content references:

1. Fulford, GE. Brown, JK. Position as a Cause of Deformity in Children with Cerebral Palsy. Developmental Medicine & Child Neurology. 1976; (18); 305-14

2. Blake et al. Sleep Positioning Systems for Children with Cerebral Palsy (Review). Cochrane Database of Systematic Reviews 2015, Issue 11. Art. No.: CD009257.

3. Robertson et al. Postural Care for People with Intellectual Disabilities and Severely Impaired Motor Function: A Scoping Review. J Appl Res Intellectual Disabil 2016; 1-18

4. Gericke, T. Postural Management for Children with Cerebral Palsy: Consensus Statement. Developmental Medicine and Child Neurology. 2006; (48), 244

5. Porter D et al. Is There a Relationship Between Preferred Posture and Positioning in Early Life and the Direction of Subsequent Asymmetrical Postural Deformity in Non Ambulant People with Cerebral Palsy? Child Care Health Dev. 2008; (34), 635-41.

6. Rodby-Bousquet, E et al. Postural Asymmetries in Young Adults with Cerebral Palsy. Developmental Medicine and Child Neurology. 2013. 55; 1009-1015

7. Hill (Clayton), S & Goldsmith, J. Biomechanics and Prevention of Body Shape Distortion. The Tizard Learning Disability Review. 2010. (15) ; 15-29

8. Romeo DM, et al. Sleep Disorders in Children with Cerebral Palsy: Neurodevelopmental and Behavioural Correlates. Sleep Medicine. 2014;(15),213-8.

9. Tietze AL, et al. Sleep Disturbances in Children, Adolescents, and Young Adults with Severe Psychomotor Impairment: Impact on Parental Quality of Life and Sleep. Developmental Medicine & Child Neurology. 2014; 56(12):1187-93

10. Mörelius E, Hemmingsson H. Parents of Children with Physical Disabilities -Perceived Health in Parents Related to the Childs Sleep Problems and Need for Attention at Night. Child Care Health and Dev. 2014:412.

11. Casey J, Rosenblad A, RodbyBousquet E. Postural asymmetries, pain, and ability to change position of children with cerebral palsy in sitting and supine: a cross-sectional study. Disability and Rehabilitation. 2020:1- 9

12. Holmes C, Brock K, Morgan P. Postural asymmetry in non-ambulant adults with cerebral palsy: a scoping review. Disabil Rehabil. 2018;41(9):1-10.

13. Rodby-Bousquet E et al. Interrater Reliability and Construct Validity of the Posture and Postural Ability Scale in Adults with Cerebral Palsy in Lying, Sitting and Standing.Clin Rehabil. 2014; 28(1);82-90.

14. Rodby-Bousquet E et al. Psychometric Evaluation of the Posture and Postural Ability Scale for Children with Cerebral Palsy. Clin Rehabil. 2016;30(7);697-704

15. Holmes, C., Fredrickson, E., Brock, K., & Morgan, P. (2020). The intra- and inter-rater reliability of the Goldsmith indices of body symmetry in non-ambulant adults with cerebral palsy. Disability and rehabilitation, 1–7. 16. Osborne LJ, Gowran RJ, Casey J. Evidence for 24-hour posture management: A scoping review. British Journal of Occupational Therapy. 2023;86(3):176-187.

16. Osborne LJ, Gowran RJ, Casey J. Evidence for 24-hour posture management: A scoping review. British Journal of Occupational Therapy. 2023;86(3):176-187.

Presenter biography

Jane Hamer is a paediatric physiotherapist and also the Clinical Leader of Paediatric Physiotherapy (part-time), for Te Whatu Ora Waitematā (West Auckland and North Shore of Auckland, New

Zealand). She has worked with children for 30+years, primarily in Child Development Teams, but also in the private and education sector, and in PICU, and on the local acute paediatric medical ward. Her passion is supporting children with complex disability, and their families. She graduated with a Masters of Health Science from Otago University in 2023, exploring caregivers experience of implementing sleep systems for their children. She is currently working on a co-design partnership project with families, to implement the research findings into practice

Deb Wilson is an Occupational Therapist with over 30 years clinical experience. She is the Training Lead 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 was a member of the ISWP Wheelchair Educators Package Development Group.

ABSTRACTS
THURSDAY 23 NOVEMBER

G1: Navigating Power Assist Devices for Manual Wheelchairs Workshop

Kim Vien[1,2], Angela Rowe[1,3], Bill Contoyannis[1,3]

Learning objectives

1. Establish 3 user goals in provision of a power assist device

2. Understand the basic product features of 3 different power assist device types

3. Be able to apply a framework to navigate a growing market of power assist devices

Session description

This will be a two-hour practical for wheelchair users and prescribing therapists to support navigating new power assist devices on the market. In recent years, there has been a significant increase in power assist devices come to market and this part instructional and practical presentation will help participants understand how to establish their selection criteria, the main types of power assist devices and how to support their decision making in selecting the right device to meet the wheelchair user needs. The session will be structured as follows:

First Hour:

- Presentation of assessment and categorisation of power assist devices
- Goal setting and clinical reasoning involved in the prescription of power assist devices
- Discussion clinical limits of each power assist device type
- Video interviews of user perspective i.e., on managing devices on different terrains, environments, taking device on/off, getting it in/out of the car, things they have learnt

Second Hour:

- Demonstration of different power assist types (supported by product suppliers at OSS) front-mounted, rear-mounted, and powered wheels.
- Hands on opportunity for participants to trial and understand product features (possible outdoors of the MCG)
- Groups to apply the framework discussed and then bring this back to wider group for reflection

Content references:

Karmarkar A, Cooper RA, Liu H yi, Connor S, Puhlman J. Evaluation of Push Rim-Activated Power-Assisted Wheelchairs Using ANSI/RESNA Standards. Arch Phys Med Rehabil. 2008;89(6):1191–8.

Kloosterman, M. G., Snoek, G. J., van der Woude, L. H., Buurke, J. H., & Rietman, J. S. (2013). A systematic review on the pros and cons of using a push rim-activated power-assisted wheelchair. Clinical rehabilitation, 27(4), 299–313. https://doi.org/10.1177/0269215512456387

C. Ogilvie, M. Khalili, , H.F.M. Van der Loos, J. Borisoff (2018) How do Mobility Add-Ons Change the Loading Conditions on Manual Wheelchair Frames? Submission RESNA Annual Conference 2018

Dafne Zuleima Morgado Ramirez and Catherine Holloway. 2017. "But I Don't Want/Need a Power Wheelchair": Toward Accessible Power Assistance for Manual Wheelchairs. In Proceedings of the 19th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '17). Association for Computing Machinery, New York, NY, USA, 120–129. https://doi.org/10.1145/3132525.3132529

Medola, F. O., Elui, V. M., Santana, C.das., & Fortulan, C. A. (2014). Aspects of manual wheelchair configuration affecting mobility: a review. Journal of physical therapy science, 26(2), 313–318. https://doi.org/10.1589/jpts.26.313

Mahsa Khalili, Angela Eugenio, Allison Wood, Machiel Van der Loos, W. Ben Mortenson & Jaimie Borisoff (2021) Perceptions of power-assist devices: interviews with manual wheelchair users, Disability and Rehabilitation: Assistive Technology, DOI: 10.1080/17483107.2021.1906963

Presenter biographies

Kim Vien is a senior Occupational Therapist working in the disability sector specialising in seating and equipment prescription in Melbourne Australia. Having been in the disability sector for over 15 years, her work has led to a keen interest in seating, and she is part of the Wheelchair and Seating Clinic Team at the Royal Melbourne Hospital. Kim has presented the topic of seating and wheelchair in past Oceania Seating Symposiums and ATSA (Assistive Technology Suppliers Australia) Expos as well as research and professional development projects related to improving prescription skills of therapists and new graduates. She currently works at specialist outpatient clinics at Royal Melbourne Hospital and St Vincent’s Hospital working with people with Spina Bifida and Post Polio Syndrome.

Angela Rowe is a physiotherapist with over 20 years' experience, 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 coauthored 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.

Bill Contoyannis is a rehabilitation engineer with a degree in Mechanical engineering and a Master of Biomedical Engineering. He is an adviser to health departments, professional organisations, and support associations throughout Australia. He has conducted training courses worldwide in patient safety, failures of assistive technology devices and litigation avoidance, and material science relating to the fabrication of artificial limbs, orthopaedic devices, wheelchairs, and other assistive

technology. He was also instrumental in the setting up of REHAB TECH, a Prosthetics, Orthotics and Assistive Technology consulting service originally at Monash University.

He also works as a senior forensic engineer with Dohrmann Consulting Pty Ltd conducting investigations and providing expert advice. He has been involved in a broad range of rehabilitation and assistive technology areas with a range of activities including incident investigation, education, research, advice, and clinical support.

G2: ARATA Accessible Gaming Special Interest Group (SIG): An Introduction to Accessible Gaming for Wheelchair Users

Mr Yuho Okita[1], Mr David Harraway[2], Mr Andrew Congdon[3]
[1]Swinburne University of Technology, Melbourne, Australia. [2]Yooralla, Melbourne, Australia.
[3]Assistive Technology Lab, Darwin, Australia

Learning objectives

Identify strategies for improving the accessibility of gaming for people with physical disabilities, particularly those with upper limb impairments.

Understand a range of resources, assistive technologies and tools that can be used to enhance gaming accessibility, including adaptive controllers, switches, and environmental modifications.

Improve awareness of the impact of improved gaming accessibility and participation, both for individuals with disabilities and for the broader gaming community.

Session description

The gaming industry has seen a tremendous growth in recent years, with an ever-increasing number of games available on various platforms (Halbrock et al., 2019). In Australia, gaming is immensely popular, with 67% of residents playing video games and spending an average of 89 minutes per day on gaming. The COVID-19 pandemic has further boosted the popularity of gaming as a way to pass time, have fun, and relieve stress (Barr & Copeland-Steward, 2022; ;Brand et al., 2017).

According to the Accessibility in Gaming Report, 66% of gamers with disabilities experience barriers or gaming-related issues such as the affordability of suitable assistive technology (AT), followed by the lack of knowledge or time required to set up, limited availability of suitable AT, inaccessible consoles, and inaccessible games (Accessibility in gaming report, n/d).

In 2022 The Australian Rehabilitation and Assistive Technology Association (ARATA) hosted an accessible gaming webinar that led to the formation of a new special interest group (SIG) connecting members around Australia with a keen interest and/or expertise in accessible gaming.

This workshop aims to provide an introduction to gaming and the different technologies that can improve access for wheelchair users that may face some challenges using mainstream gaming technologies.

The hands-on experience will allow participants to develop practical skills and understand how the technologies work in real-world scenarios. They will also learn the importance of considering factors such as seating and positioning, function and play style when selecting assistive technology tools for disabled gamers.

Content references:

- Accessibility in gaming report | Disability charity Scope UK. (n.d.). Scope. https://www.scope.org.uk/campaigns/research-policy/accessibility-in-gaming/

- Barr, M., & Copeland-Stewart, A. (2022). Playing video games during the COVID-19 pandemic and effects on players' well-being. Games and Culture, 17(1), 122-139.

- Brand, J. E., Todhunter, S. & Jervis, J. (2017). Digital Australia 2018. Eveleigh, NSW: IGEA.

- Halbrook, Y. J., O'Donnell, A. T., & Msetfi, R. M. (2019). When and how video games can be good: A review of the positive effects of video games on well-being. Perspectives on Psychological Science, 14(6), 1096-1104.

Presenter biographies

Yuho Okita s a PhD candidate at Swinburne University of Technology, where he is conducting research on telehealth for people living with chronic pain. He is also a guest academic at several universities in Japan and Australia. In addition to his academic work, Yuho serves as an Assistive Technology Evangelist at Technotool corporation, where he supports research efforts and connects with international partners.

Yuho is committed to promoting gaming accessibility and exploring its potential impact. He currently serves as a committee member for the Japanese Clinical Occupational Therapy Conference, where he is organizing an international disabled e-sports match and a gaming accessibility symposium as part of the conference. He recently joined the ARATA gaming accessibility SIG organizers and is eager to bring his international background and experience to improve gaming accessibility in Australia.

David Harraway is an Occupational Therapist based in Melbourne Australia. He works as an Assistive Technology (AT) and Alternative Augmentative Communication (AAC) Consultant for Yooralla's ComTEC service and is also a Clinical Advisor to Swinburne University's MedTech VIC team and currently participating in a Clinical Innovation Fellowship there. He has presented at State, National and International Conferences on a range of AT and AAC related topics and maintains an ongoing interest in how people and their teams can be best supported to make informed choices about technologies and related systems to enable greatest possible Participation and Inclusion.

Andrew Congdon is an Occupational Therapist based in the Darwin with a keen interest in the delivery of services in rural and remote settings. He has worked in the seating and mobility field for over 20 years in New South Wales, South Australia and Northern Territory and has supported wheelchair users with a range of Assistive Technology supports including mounting systems for various devices and switches. Andrew's childhood interest in gaming was reignited in 2020 when he was presented with the opportunity to support a client who was facing challenges accessing a mainstream controller due to their progressive condition.

G3: From MAT Evaluation to Wheelchair and Seating Scripting: A Symbiotic Relationship

Mrs Sandie Grant, Mrs Jedda Fulcher

Learning objectives

- Refresh your skills/ knowledge of the MAT evaluation as it relates to wheelchair and seating.
- Identify 5 key pelvic positions and 3 key spinal positions.
- Execute a MAT evaluation in supine and sitting and translate this into equipment parameters to meet the person's needs.
- Gain practical skills and strategies for applying MAT evaluation to improve the overall outcomes of wheelchair and seating prescription.
- Identify indicators for referral to a specialised assessment service for people with complex wheeled mobility and seating needs.

Session description

This is an interactive workshop for beginner to intermediate assessors focussing on linking the Mechanical Assessment Tool (MAT) evaluation to wheelchair and seating prescription. This will be delivered considering that function and disability of an individual client occurs in context.

This workshop will draw on content delivered in the New Zealand two-day, Level 1 Wheeled Mobility and Postural Management credentialling workshop. *

Demonstration and practice of the principles and techniques of MAT evaluation will be presented, and participants will get hands on experience using the MAT evaluation. Common challenges encountered along the way will be discussed and practical-based approaches to overcome these will be demonstrated.

Participants will gain an understanding of how inappropriate wheelchair and seating prescription can create barriers to participation and contribute to secondary impairment resulting in shoulder injury, the development of non-reducible postural asymmetries and pain. Collaboration and effective communication with suppliers involved in the wheelchair and seating prescription process will also be considered.

In summary participants will gain practical skills and strategies for applying MAT evaluation outcomes to improve the overall outcomes of wheelchair and seating users.

**In 2010, the New Zealand Ministry of Health (MOH) now known as Te Whatu Ora, introduced a competency- based credentialing framework for occupational therapists and physiotherapists assessing and prescribing wheeled mobility and postural management equipment.*

The Wheeled Mobility and Postural Management framework includes learning and development requirements for the Level 1 (Non-Complex) and Level 2 (Complex) credentials. 24hr Postural Management (Lying) and Complex Custom Fabrication are optional endorsements. Seating To Go is the MOH approved training provider for the workshop component of the competency framework.

Note: Please bring a yoga mat or towel.

Content references:

1. Disability Resource Centre (2005) Environmental Support Services Review and Framework Plan. Summary Report: August 2005. Auckland, New Zealand: Disability Resource Centre.

2. International Classification of Function, Disability and Health (ICF) https://www.who.int/standards/classifications/international-classification-of-functioning-disability-and-health

3. Rispin, K., & Wee, J. (2015). The mechanical assessment tool: a valid, reliable, and efficient method of measuring mobility performance in community-dwelling older adults. Journal of the American Geriatrics Society, 63(8), 1639-1641.

4. Sakakibara, B. M., Miller, W. C., Backman, C. L., & Routhier, F. (2015). Effectiveness of wheelchair-specific rehabilitation on wheelchair use and participation: a systematic review. Journal of rehabilitation research and development, 52(3), 263-282.

5. Lange, M.L., & Minkel, J.L. (2018). Seating and Wheeled Mobility: A Clinical Resource Guide. Thorofare, NJ: Slack.

6. Waugh K., & Crane B. (2013). A clinical application guide to standardized wheelchair seating measures of the body and seating support surfaces (Rev. Ed.). Denver, CO: University of Colorado. Retrieved Aug 12 2022 from: https://www.ucdenver.edu/centers/center-for-inclusive-design-and-engineering/clinical-services/wheelchair-seating-measures-guide

Links to the NZ MOH Level 1 Wheeled Mobility and Postural Management credential: https://enable.co.nz/assets/Uploads/Competency-Framework-Wheeled-Mobility-Postural-Management-1.pdf , Level-1-Learning-and-Development-Programme.pdf (genevahealth.com)

Presenter biographies

Sandie Grant is a Wheelchair and Seating Clinical Specialist and Training Facilitator at Seating to Go in New Zealand. She has worked for over 30 years as an Occupational Therapist and joined the STG team in 2000. She has presented at several International Seating conferences and is passionate about empowering therapists to 'get it right', 'not give up', and enable the people that they work with to live their best life. Sandie takes pride in her flexible capability in reaching good clinical outcomes and is passionate about education and working collaboratively to achieve the best result for our end users.

In her spare time she enjoys spending time with her husband and three kids camping, tramping and adventure racing.

Jedda Fulcher is a Wheelchair and Seating Clinical Specialist at Seating to Go in New Zealand and has been working in wheelchair and seating for the past 14 years. Jedda is passionate about sharing her knowledge and training other therapists within the team. Jedda has a special interest in 24 hour postural management as it relates to wheelchair and seating and working in the community with other therapists as an advisor. Jedda loves a good 'Custom seating' challenge and believes anything is possible and that there are always compromises.

Jedda is a busy mum juggling her career and coaching her kids sports teams.

G4: Development of Telehealth Wheelchair Service Training Modules for Clinicians and Suppliers

Dr. Rachel Hibbs[1,2], Dr. Richard Schein[1], Dr. Andi Saptono[1]
[1]University of Pittsburgh, Pittsburgh, USA. [2]University of Pittsburgh Medical Center, Pittsburgh, USA

Learning objectives

Upon completion of the session, participants will:

1. Describe 3 benefits of telehealth for wheelchair service provision

2. Identify 3 items from the TH checklist that should be confirmed prior to initiating TH visit.

3. Identify 2 resources for TH wheelchair service provision that clinicians and suppliers could utilize to implement TH into practice.

Session description

The proposed presentation will discuss the development of an online course on the provision of wheelchair seating and mobility services through telehealth strategies. The target audience for the course is rehabilitation providers who serve people with SCI/D, MS, ALS, and other severe disabilities. General telehealth guidelines have evolved with position papers and guidelines developed to ensure appropriate strategies are used. Now that telehealth is being more widely used, a need for formalized strategies, guidelines, and training specific to CRT are needed to move forward with telehealth. Providing an online course that certifies the learner as credentialed in an area of expertise ensures education and quality standards are upheld and protects the consumer by ensuring that clinicians and other staff are trained to provide high quality and evidence-based care.

Content references:

Graham, F., Boland, P., Grainger, R. & Wallace, S. (2019). Telehealth delivery of remote assessment of wheelchair and seating needs for adults and children: A scoping review. Disability and Rehabilitation, [published online ahead of print, 2019 Apr 23].

Richmond T, Peterson C, Cason J, Billings M, Terrell EA, Lee ACW, Towey M, Parmanto B, Saptono A, Cohn ER, Brennan D. (2017). American Telemedicine Association's Principles for Delivering Telerehabilitation Services. International Journal of Telerehabilitation. 9(2):63-68.

Bell, M., Schein, R.M., Straatmann, J., Dicianno, B.E. & Schmeler, M.R. (2020). Functional Mobility Outcomes in Telehealth and In-Person Assessments for Wheeled Mobility Devices. International Journal of Telerehabilitation, 12(2), 27-34. DOI: https://doi.org/10.5195/ijt.2020.6335

Presenter biographies

Rachel Hibbs is an Assistant Professor and Director of Continuing Education in the Department of Rehabilitation Science & Technology at the University of Pittsburgh, and Co-Director of the International Seating Symposium. Additionally, she provides clinical care at the University of Pittsburgh Medical Center (UPMC) Center for Assistive Technology and the UPMC Rehabilitation Institute.

Richard M. Schein is a Research Heath Scientist in the Department of Rehabilitation Science and Technology at the University of Pittsburgh. He has extensive experience and background in telerehabilitation applications and developing educational content for healthcare professionals. His doctoral work was the development of a telerehabilitation service delivery protocol for remote wheeled mobility and has published numerous articles on telehealth outcomes.

Andi Saptono is an assistant professor in the Department of Health Information Management and has extensive experience in developing and supporting telehealth technologies, as well as implementing various telehealth services at national and international field. His current research interests are Telehealth, Assistive Technology outcome, and m-Health.

G5: Power Assist Devices – Show Me the Evidence!

Tilly Brook

Learning objectives

- Identify at least two areas where power assist devices can have a positive effect on a person's overall health and function.
- Compare two differences between types of power assist devices based on current evidence presented.
- Summarize one way that clinical evidence can influence decision-making for matching an individual with a power assist device.

Session description

Power Assist Devices (PADs) have primarily been utilised to reduce the risk of repetitive strain injuries and improve propulsion efficiency for individuals who use manual wheelchairs for mobility (Khalili et al. 2021). This is achieved through the benefit of decreased number of propulsion cycles and decreasing the amount of force or effort required to propel (Kloosterman et al. 2013). There is an increasing body of evidence, with multiple recent scientific publications, describing the potential larger impact of PADs. Using the framework from the International Classification of Functioning, Disability & Health; this course will present up-to-date evidence on PADs allowing a holistic approach at how mobility with a PAD can impact an individual's life. The primary source of the evidence is a recent systematic literature review, which identified 84 publications of which 35 were included. Other sources are a user survey amongst 125 participants, five interviews with individuals using different types of PADs and 32 supporting publications. From the available evidence, it can be concluded that PADs play a role that extends beyond the relief of repetitive strain and energy conservation into what activities people can participate in, the environments they can access and how independent they are. Another unique aim of this course is to review the evidence-based considerations to be aware of when matching the needs of a person to the type of PAD. A comparison of the evidence will be made between front, main wheel and rear PADs. In addition, clinical applications of a wide variety of PADs will be shared to discuss how the literature supports these experiences but also how understanding the lived experience can add knowledge to our clinical decision making. This course will provide an overview of the latest evidence and will help guide the equipment evidence-based decision-making process when prescribing PADs.

Content references:

Flockhart EW, Miller WC, Campbell JA, Mattie JL, Borisoff JF. Evaluation of two power assist systems for manual wheelchairs for usability, performance and mobility: a pilot study. Disabil Rehabil Assist Technol. 2021:1–13.

Guillon B, Van-Hecke G, Iddir J, Pellegrini N, Beghoul N, Vaugier I, et al. Evaluation of 3 pushrim-activated power-assisted wheelchairs in patients with spinal cord injury. Arch Phys Med Rehabil. 2015;96(5):894–904.

Kloosterman MG, Buurke JH, Schaake L, Van der Woude LH, Rietman JS. Exploration of shoulder load during hand-rim wheelchair start-up with and without power-assisted propulsion in experienced wheelchair users. Clin Biomech (Bristol, Avon). 2016;34:1–6.

Khalili (A) M, Eugenio A, Wood A, Van der Loos M, Mortenson W Ben, Borisoff J. Perceptions of power assist devices: interviews with manual wheelchair users. Disabil Rehabil Assist Technol. 2021;0(0):1–11.

WHO. ICF model. https://www.who.int/standards/classifications/international-classification-offunctioning-disability-and-health. 2001.

Presenter biography

Tilly Brook has extensive experience working as an Occupational Therapists within wheelchair and seating in Australia, New Zealand, and Singapore. Her passion for this area of practice started whilst working in Brain Injury Rehabilitation and continued to grow from there. Tilly has assisted in the development of clinical teams, and now focuses on upskilling, education, mentoring and developing best practice guidelines for clinicians in the field. She regularly contributes to the development of White Papers. Tilly holds a Bachelor of Health Science and a Masters of Occupational Therapy (Hons) and is working as a Clinical Services Specialists at Permobil.

H1: MND: Maintaining independence through power mobility.

Pam Glazener[1], Helen Lappin[2,3], Deb Wilson[4]
[1]Houston Medical Hospital, Houston, USA. [2]Te Whatu Ora, Christchurch, New Zealand. [3]Laura Fergusson Brain Injury Trust, Christchurch, New Zealand. [4]Geneva Healthcare - Seating To Go, Hamilton, New Zealand

Learning objectives

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

- Explain why early diagnosis is important and the link between early power mobility, muscle preservation and quality of life.
- Apply a holistic model of health lens such as Te Whare Tapa Wha, when working with people with progressive, life limiting conditions.
- Differentiate between symptoms at onset and considerations for alternative drive controls.
- Describe 6 actions that could be considered before discounting proportional drive controls.

Session description

Motor Neurone Disease (MND), the most prevalent form (90%) being Amyotrophic Lateral Sclerosis (ALS), is a progressive neuro-degenerative disease affecting the motor neurones of the brain and spine. The prevalence in New Zealand is thought to be higher than the international average with approximately 400 people living with MND at any one time. In the USA approximately 5,000 people are diagnosed each year. Symptoms can include muscle weakness, spasticity, fasciculations and atrophy which progress throughout the course of the disease. Depending on the site of onset, symptoms can initially present as stumbling or foot drop, difficulties with swallowing or speech, reduced dexterity and/or weak grip, and less commonly breathing problems or behavioural and cognitive changes. Life expectancy from onset of symptoms is 3-5 years but can vary.

In addition to supporting mobility and participation, early access to power mobility is an important strategy for muscle preservation. This can be counter-intuitive for people with progressive muscle weakness and requires an informed, holistic and sensitive approach.

This session will review MND symptoms, progression and how trauma/falls impact the progression of this disease. We will frame MND in the context of Te Whare Tapa Whā – a Māori model of health and well-being and provide a framework for having difficult conversations with people who can be overwhelmed by a new diagnosis or a decline in functional status. We will outline the importance of understanding the likely progression of symptoms when selecting a power mobility device, alternative drive control options and programming parameters to accommodate for future changes. A range of case studies will be included.

Content references:

Sheffield MND Care and Research Centre. What's the difference between MND and ALS?www.sheffieldmndcentre.group.shef.ac.uk/ Retrieved 20 May 2023.

NZ Best Practice Recommendations for the Care of People with Motor Neurone Disease. Nov 2022. https://mnd.org.nz/research/bpr/ Retrieved 20 May 2023

National Clinical Guideline Centre (UK). Motor Neurone Disease: Assessment and Management. (2016) London: National Institute for Health and Care Excellence (UK); PMID: 26962594

Curtis, E., Jones, R., Tipene-Leach, D., Walker, C., Loring, B., Paine, S.-J., & Reid, P. (2019). Why cultural safety rather than cultural competency is required to achieve health equity: a literature review and recommended definition. International Journal for Equity in Health, 18(1), 174. 10.1186/s12939-019-1082-3

Mason Durie (1984) https://www.health.govt.nz/our-work/populations/maori-health/maori-health-models/maori-health-models-te-whare-tapa-wha Retrieved 20 May 2023.

Presenter biographies

Pam Glazener: Pamela Glazener is a senior Occupational Therapist and Research Education Specialist at Houston Methodist Hospital in Houston, Texas, USA. Mrs. Glazener graduated from Texas Woman's University in 1991 with her Masters in Occupational Therapy. She has worked at Houston Methodist Hospital for 31 years, specifically with the MND/ALS and Myotonic Dystrophy clinics for 26 years. Mrs. Glazener has presented at the International Seating Symposium in 2011, 2013, 2015, 2023 and the Oceanic Seating Symposium in 2017 on power mobility and specialty controls in the ALS population.

Helen Lappin: Following graduation from Otago Polytechnic in 1998 as an Occupational Therapist, Helen worked in New Zealand, Australia and the UK in a number of practice areas including elderly rehab, neuro rehab, and assistive technology (predominantly for people with visual impairment). Since returning to New Zealand in 2008, she has been working solely as a Seating and Wheelchair Therapist for Te Whatu Ora and more recently for the Laura Fergusson Brain Injury Trust. Helen thrives on the challenges that both roles bring, enjoying working with both MoH and ACC complex seating clients. Helen contributed to the New Zealand MND Best Practice Recommendations and is a member of the MoH credentialing panel for wheeled mobility and postural management. As no two solutions are ever the same, she loves to continue her learning, to ensure she stays abreast of the knowledge and products that are available for this very specialised field of work.

Deb Wilson is an Occupational Therapist with over 30 years clinical experience. She is the Training Lead 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 (now Whaikaha – Ministry for Disabled People) 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 and Altus Resource Trust. Deb was a member of the ISWP Wheelchair Educators Package Development Group

H2: Selecting and implementing tools to measure outcomes of wheeled mobility and seating service provision

Dr Emma Friesen

Learning objectives

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

1. Define outcomes and identify at least three domains of outcomes measurement relevant to seating ad wheeled mobility;

2. Describe the three broad steps used to create outcomes measures (i.e. development, construction, psychometric evaluation);

3. Locate and analyse published psychometric, administrative, and procedural data on outcome measures developed for wheeled mobility and seating interventions;

4. Identify at least three practical considerations for incorporating outcomes measurement into routine AT service delivery.

Session description

As Assistive Technology (AT) practitioners, we are increasingly called to demonstrate outcomes and impact of AT provision. These calls come from a range of stakeholders, including AT funders, regulators, policy makers, and service providers. However, embedding outcomes measurement into routine service delivery can be challenging. The purpose of this workshop is to explore four keys to selecting and implementing standardised outcomes measurement into wheeled mobility and seating services.

The four keys covered in this workshop are (1) identifying the purpose for measuring outcomes and establishing which outcomes should be measured, (2) understanding how standardised outcomes measurement instruments are developed, constructed, and psychometrically evaluated, (3) developing skills to evaluate and select appropriate instruments using psychometric, administrative, and procedural data from published and grey literature, and (4) addressing the practical realities of implementing and administering outcomes measures in “real world” service delivery settings.

The workshop will explore results of a recent systematic review, which identified 37 standardised outcome-measurement tools used in published studies on wheeled mobility. These tools included both externally validated and study-specific measures, and captured outcomes across twelve domains including wheelchair use, user satisfaction, activity, and participation. The workshop will also discuss strategies and tips for locating relevant literature and information for decision making, including outcomes measurement databases, administration manuals, organisational policies and procedures, and other guidance documents. Finally, the workshop will outline practical considerations to consider such as organisational policies on clinical and ethical governance, health data collection and storage, privacy policies, and approaches to conducting quality improvement and research projects.

Participants will receive a copy of the comprehensive slide deck and handouts used in the workshop.

Content references:

Robertson B, Lane R, Lannin N, Laver K, Barr C. A systematic review of outcomes measured following new wheelchair and seating-prescription interventions in adults. Archives of Rehabilitation Research and Clinical Translation. 2023;5(1):100249. doi:10.1016/j.arrct.2022.100249

NSW Agency for Clinical Innovation. Analytic Principles for Patient-Reported Outcome Measures. ACI; 2021. https://aci.health.nsw.gov.au/__data/assets/pdf_file/0007/633454/Analytic-Principles-for-Patient-Reported-Outcome-Measures.pdf

Lo L, Hebert D, Colquhoun H. Measuring practice gaps in the delivery of evidence-based seating assessments: a retrospective chart review. Disability and Rehabilitation: Assistive Technology. 2021;16(3):255-261. doi:10.1080/17483107.2019.1672814

Friesen EL. Developing an administration manual for the electronic Mobile shower commode ASsessment Tool (eMAST): A case study. In: AAATE 2019 Conference. Vol 31, s1. IOS Press, Amsterdam:s174. https://aaate2019.eu/wp-content/uploads/sites/24/2019/08/AAATE2019_Proceedings.pdf

Kenny S, Gowran RJ. Outcome measures for wheelchair and seating provision: a critical appraisal. British Journal of Occupational Therapy. 2014;77(2):67-77.

Australian Commission on Safety and Quality in Healthcare. Selecting PROMs: Key considerations for selecting PROMs that meet your needs. Indicators, measuring, and reporting. Published 2023. https://www.safetyandquality.gov.au/our-work/indicators-measurement-and-reporting/patient-reported-outcomes/proms-implementers/selecting-proms

Presenter biography

Emma Friesen is a rehabilitation engineer with almost 20 years' experience across the Assistive Technology industry. Emma's career has included working in frontline clinical services, research, manufacturing, and distribution of wheeled mobility and seating. After seven years living and working in the Netherlands, Emma has returned to Australia and manages the product portfolio for Paragon Mobility.

H3: The difference between best intentions and best practice in implementing interdisciplinary design practice

Miss Hana Phillips, Associate Professor Gianni Renda, Professor Rachael McDonald
Swinburne University, Hawthorn, Australia

Learning objectives

1. Identify the potentially different roles of persons with lived experience of disability, health care professionals and designers within a team
2. Describe potential spaces where interdisciplinary practice between health care professionals, people with lived experience of disability and designers may be of benefit.
3. Identify potential issues in implementing design practices within this space and possible management strategies in the future.

Session description

Introduction: Increasingly, design practices such as human-centred design, codesign and design thinking are being used to improve outcomes in healthcare, including in the development of assistive technology. Notably, there is increasing interest in the collaboration of persons with lived experience of disability (PWLED), allied health professionals such as occupational therapists and design practitioners in developing assistive technologies. While these practices may have the potential for significant impact within assistive technologies, there are barriers to implementation at many levels.

Methods: To understand these potential barriers to engage in interdisciplinary practice between PWLED, occupational therapists and designers, a design sprint was developed using the Design Council's Double Diamond (2015) and elements of agile design and design sprints.

Result: While the design sprint had been developed with PWLED in mind, participants faced significant barriers to access and equity in participating in this research. This led to changing how the design sprint was facilitated and questioning further how this space can be more accessible.

Conclusion: Through navigating this process, it became evident that issues of access and equity are still significant barriers despite best intentions. This highlights the need for the engagement of PWLED throughout the development of services, particularly within the interdisciplinary practice between design and health, where empathy and engagement are central tenants of both professions.

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Presenter biographies

Hana Phillips

Hana's background is in Occupational Therapy, with an interest in adults and disability. With broad experience within the public and private health sectors, her interests include adaptive technology and environments. This led to further research in understanding how design principles may improve the utility of aids and improve personal independence.

Associate Professor Gianni Renda

Associate Professor Gianni Renda is Chair of the Department of Architectural and Industrial Design at Swinburne University of Technology. His primary research focus is investigating ways that design can empower the user in health, disability and ageing. Other interests include advanced manufacturing, food design and automotive design. He has been awarded by the Cumulus Association, and the Design Institute of Australia, and has received Dean's Awards and Vice Chancellor Awards from Swinburne University of Technology.

Professor Rachael McDonald

Professor Rachael McDonald is a teaching, research and clinical academic with a background in occupational therapy who undertakes research focused on enabling and supporting people with disabilities to participate in the activities they want and need to do. She is passionately interested in creating opportunities to work in a multidisciplinary way to recognise the potential of emerging technologies to address issues of support, access and health.

H4: Clinicians, We Hear You! - How Your Voice Can Drive Innovation

Mr Paul Eastwood[1], Miss Joana Santiago[2]
[1]Spex Ltd., Rolleston, New Zealand. [2]Medifab Ltd., Sydney, Australia

Learning objectives

1. Understand how to provide feedback and insight to designers to effectively drive development and innovation.
2. Understand how important a user-centered design approach is and having a clinical basis for product development.
3. Understand the relationship between clinicians and designers. What are their roles are in the development process?

Session description

Innovation is a much-desired element in development that engineers constantly pursue. On the other hand, problem-solving is a significant challenge that clinicians often face when addressing the unique needs of individuals with physical disabilities. The collaboration between clinicians and engineers offers a unique opportunity to merge clinical expertise and technical knowledge. Clinicians contribute valuable insights regarding functional requirements, ergonomic considerations, and patient preferences, while engineers provide their expertise in design, technology, and implementation.

This presentation shares experience and learnings from working in a transdisciplinary team developing assistive technology. Several successful and less successful real-world case studies will be shared, to show the direct impact they had on the initiation and continued development of products for users with complex postural presentations. This will emphasize the importance of user and clinical input from the beginning and the vital role of continuous re-evaluation and reassessment throughout the development journey.

We will also discuss the importance of designers gaining real world experience in providing solutions direct to end-users. Developing effective products cannot be done in isolation from the customer and gaining this perspective is not only a source of feedback for development, but a source of respect for clinicians and insight into what we don't know as designers.

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Presenter biographies

Paul has been a Design Engineer at Medifab and Spex Seating Since 2015. He studied Mechanical Engineering Be(Hons) at The University of Canterbury in Christchurch New Zealand and completed it that same year.

He has had experience in different engineering facets within an Assistive Technology manufacturer. Starting in product support and manufacturing; helping provide custom solutions, improving in-house manufacturing processes and launching new products. He then found his passion and has spent most of his tenure on the Product Development Team.

Paul has been involved in the development of several seating and positioning products, mainly focusing on complex users and has worked side by side with Joana on several of these.

Joana Santiago completed her training in Occupational Therapy in Portugal in 2004. She is passionate about Seating and Positioning and understands how comprehensive postural management can have a strong influence on functionality, health, and the ability to lead a positive lifestyle.

Over the years, Joana has gained extensive clinical experience throughout her career, working with suppliers of medical equipment as a Seating and Positioning Consultant among large hospitals and rehab centres in Europe and the United Arab Emirates. These experiences enabled her to work closely with a diverse range of clients from paediatrics to those affected with neurological and traumatic injuries, assessing, and supplying a wide range of Assistive Technology including aids for daily living, mobility, complex seating and positioning equipment. Her clinical expertise, combined with a comprehensive understanding of individual needs and the impact of postural management, enables her to make a meaningful difference in the lives of those she serves.

I1: From Idea to Impact: Utilizing Makerspaces to Transform Disability Services

Rachel Okazaki

Learning objectives

1. Compare and contrast 3 different pieces of equipment commonly found in a makerspace and how they can be utilized to create assistive technology.
2. Describe the 6 steps of the LAUNCH design thinking framework to identify and address the unique challenges faced by individuals with disabilities.
3. Identify 3 ways of measuring and evaluating the impact of innovative solutions in disability services and aging population

Session description

"From Idea to Impact: Utilizing Makerspaces to Transform Disability Services" is a presentation that explores the journey from generating innovative ideas to creating meaningful impact in the field of disability services and aging population. The course focuses on leveraging makerspaces as catalysts for innovation, equipping participants with the knowledge and skills needed to drive positive change and revolutionize the way services are provided.

Participants begin by developing a mindset of creativity, empathy, and problem-solving. They learn to identify and understand the unique challenges faced by individuals with disabilities and the aging population, and how innovation can play a pivotal role in addressing those challenges. They are introduced to the principles of design thinking, which encourage user-centered approaches and foster innovative solutions.

Central to the presentation is the utilization of makerspaces as collaborative environments that foster innovation and creativity. Participants explore the various tools, technologies, and resources available in a makerspace to design, prototype, and develop innovative solutions for disability services and aging population. They learn how makerspaces provide opportunities for hands-on experimentation, idea iteration, and co-creation, thereby transforming ideas into impactful outcomes.

Through practical exercises, participants apply their knowledge and skills in real-world scenarios. They develop action plans to implement their ideas, measure the impact of their initiatives, and refine their solutions based on feedback.

"From Idea to Impact: Utilizing Makerspaces to Transform Disability Services" empowers participants to become change agents in the disability services and aging population sector. By leveraging makerspaces as catalysts for innovation, participants are equipped to generate and implement transformative ideas that positively impact the lives of individuals within their community. Together, they create a future where services are driven by creativity, inclusivity, belonging, and meaningful impact.

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Presenter biography

Rachel Okazaki is a dedicated and compassionate healthcare professional in Santa Clara, California, US. With progressive experience in health and wellness, she focuses on transforming disability services through innovation. Rachel excels in design thinking, prototyping, and iterations to drive improvement. She has expertise in assistive technology, pediatric physical therapy, and designing inclusive experiences to promote creativity and connections through hands on multi-modal activities . Her background includes a Master of Science in Physical Therapy and a Bachelor of Arts in Biology. Rachel is a certified Makerspace Coordinator at Krause Center for Innovation and supports their mission to provide meaningful inclusion and equitable access to education. Her curiosity spills outside the makerspace into the kitchen where she experiments with new recipes for her bakery, The Hangry Moose, and enjoys hiking through the redwoods, power yoga, and competitive tennis.

I2: Telehealth assessment of wheelchair and seating: Expert-led demonstration and interactive experience

Assoc Prof Fiona Graham[1], Dr Laura Desha[1], Ms Rachel Brown[2], Ms Sandie Grant[3]
[1]University of Otago, Christchurch, New Zealand. [2]EnableNZ, Christchurch, New Zealand. [3]Seating To Go, Tauranga, New Zealand

Learning objectives

1. Participants will experience telehealth seating assessment in the role as an onsite assistant and wheelchair user, directed by a specialist assessor
2. Participants will examine the barriers and facilitators of telehealth in their local settings and develop an action plan for successful use of telehealth
3. Participants will reflect on the potential for telehealth in their work.

Session description

Background

Difficulty accessing specialist rehabilitation services, and inequity in who receives it are longstanding, systemic and unjust features of the New Zealand health system. Māori and Pacific are more frequently excluded due to the ongoing effects of colonisation for Māori, systemic racism and for many, the effects of poverty in accessing rehabilitation services. Highly specialist areas of rehabilitation, such as complex wheelchair and seating assessment require postgraduate training and extensive experience to develop competence. While system redesign is needed, telehealth can improve access and equity for complex assessments yet a lack of confidence and sense of competence among health professionals is a substantial barrier to its use.

Aim

The aim of this session is to provide participants with the experience and information about telehealth for physical assessment, enabling them to make more informed decisions about when it could improve access to specialist services.

Method

A brief summary of evidence of the use of telehealth for complex physical assessment will be shared, including its limitations, and in relation to Māori. In small groups, participants will be guided through a seating assessment via telehealth, including handling of technology. Through small and large group discussions participants will explore their personal action plan for optimising their use of telehealth.

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Presenter biographies

Fiona Graham teaches postgraduate courses in interprofessional rehabilitation with the University of Otago and supervises students through masters and PhD studies. Her research interests focus on relational interventions in rehabilitation, such as coaching; telehealth in rehabilitation and implementation of evidence-based rehabilitation.

Dr Laura Desha is an occupational therapist and research fellow with the University of Otago.

Sandie Grant is a specialist wheelchair and seating assessor with over 20 years experience and over 3 years experience with remote consultation for complex wheelchair and seating assessment.

Rachel Brown is a specialist wheelchair and seating assessor with over 20 years experience and over 3 years experience with remote consultation for complex wheelchair and seating assessment.

I3: Equality for the Aging: Ensuring Access to Assistive Technology for the Aged Care Population

Mrs Roseanna Tegel

Learning objectives

1.List 2 challenges adversely impacting aging consumers who require wheeled mobility for functional independence.

2.Identify 3 wheelchair features or configuration concepts that could reduce the risk and costs of medical complications related to pressure or over-use injuries incurred by aging wheelchair-dependent adults.

3.Describe 2 wheelchair features that may improve quality of life and functional independence for aging wheelchair users.

Session description

Global census and survey data tells us that the world population is not only growing, but also living longer due to improved access to health services and medical and technological advances (Australian Bureau of Statistics, 2021). While longevity is widely considered a success conceptually, challenges arise for the aging population. This demographic typically requires increased functional assistance and healthcare costs that are related to significant comorbidities.

Research also confirms that the use of assistive technology is highly effective at improving functional abilities, reducing the risk for costly medical complications, and reducing caregiver burden. However, despite these known benefits, a gap remains between access to assistive technology for younger people as compared to access given for the ageing population (World Health Organization, 2021). Often, mobility devices that are less adjustable or have fewer features to assist with medical self-management or functional tasks are prescribed to older clients, despite presenting with the same deficits as younger people. Attitudinal biases exist among certain medical teams and funding agencies regarding the needs of the older adult regarding assistive technology (Royal Commission into Aged Care Quality and Safety, 2021).

This 1-hr course will examine the current approach to AT access for older adults with functional impairments related to the ageing process across the Oceanic Region; take a focused look at wheeled mobility and seating and positioning for the aging person with disability and will present research-based best practice recommendations for clinical application.

Content references:

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Presenter biography

Roseanna joined Permobil in May 2023 as a Clinical Services Specialist after working as an Occupational Therapist in the community. She graduated from Western Sydney University with a Bachelor of Health Science/Master of Occupational Therapy and received the Prize in Undergraduate Occupational Therapy for Overall Achievement and the Cerebral Palsy Alliance scholarship. Roseanna has worked in residential and community aged care where her understanding of the need for suitable, person-centred equipment commenced. Roseanna then transitioned to community disability and quickly developed an interest for complex seating and mobility outcomes to benefit both the end user and wider network. She then stepped into a Team Leader role due to her passion for learning and best practice; supporting the Occupational Therapists with their own clinical needs

and outcomes. Roseanna is motivated to support clinicians with their confidence and clinical reasoning allowing them to provide the best outcome for each individual user.

I4: Understanding the impact of spinal surgery on postural alignment in wheelchair seating

Kate Pain

Learning objectives

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

- Describe factors contributing to the progression of neuromuscular scoliosis
- List evidence-based treatment options for neuromuscular scoliosis
- Identify 3 strategies to achieve optimal postural alignment in wheelchair seating following surgical correction of scoliosis

Session description

Scoliosis is a common condition causing postural asymmetry among wheelchair users with neuromuscular conditions including cerebral palsy and spinal cord injury. This presentation will review factors leading to progression of scoliosis, impact on physiological functioning and functional performance, as well as current non-surgical and surgical treatment methods. We will explore challenges found in supporting the wheelchair user in optimal postural alignment when surgical correction has taken place. We will also hear from wheelchair users and their caregivers sharing their experiences of the impact of surgical treatment on their wheelchair seating.

Content references:

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Presenter biography

Kate Pain is an Occupational Therapist, specialising in wheelchair seating and positioning, in her role as Assistive Technology Consultant/Clinical Educator with GTK. Kate completed her Bachelor of Applied Science (Occupational Therapy) at the University of Sydney in 1999 and has gained experience in both Australia and the United Kingdom in a variety of settings including hospitals, rehabilitation units, community and private practice. Kate has focused on wheelchair seating and positioning for children and adults with complex postural support and pressure care requirements over the past decade and is passionate about supporting therapists to increase their knowledge and skills in postural assessment and prescription of postural supports.

I5: Clinical Reasoning or Clinically Conceding: A Case Example of the Appeals Process within the NDIS

Ms Tracee-lee Maginnity

Learning objectives

Objective 1)

By the end of the session, attendees will be able to identify at least one of the funding criteria in Australia for the National Disability Insurance Scheme

Objective 2)

Following the session, attendees will be able to articulate at least one step in the appeal process for when CRT is determined to not meet funding criteria

Objective 3)

Attendees will be able to identify one reason that a standing mobility device is clinically justifiable for funding under a functional model.

Session description

The National Disability Insurance Scheme is a publicly funded scheme of the Australian Government that funds supports and services associated with disability. It provides people with a 'permanent and significant' disability, to full funding for any 'reasonable and necessary' support needed to assist in activities of daily living, participation in the community and reach their goals (Australian Government, 2022). Its implementation by the National Disability Insurance Agency (NDIA) in 2013 promoted choice and control for access to CRT supports and has enabled many individuals with disabilities to participate and engage in meaningful occupations. So, what happens if the NDIA deem that an AT application or AT feature does not meet the reasonable and necessary criteria? In these instances, the NDIA can decline an aspect of the AT or decline the AT device as a whole. Approval of an AT application relies on well-articulated clinical reasoning and supporting evidence, provided by the prescribing clinician. In instances where initial applications are declined the Administrative Appeals Tribunal (AAT) provides clinicians and end users an opportunity to appeal the denial (Administrative Appeals Tribunal, 2022). This can potentially be a lengthy process and cause time delays in end users receiving AT that promotes their independence, safety, and ability to achieve their goals. When faced with an initial decline are therapists conceding to this or backing up their original request? What short- and long-term impact is this having on end users? This session will provide an overview of the appeal process and use real case examples and qualitative data to discuss both the advantages of a functional based funding system and the impact the process can have on participants

Content references:

Australian Government. (2022), National Disability Insurance Scheme Act 2013. National Disability Insurance Scheme Act 2013 (legislation.gov.au)

Administrative Appeals Tribunal. (2022), Application for Review of a Decision. Application-for-Review-of-Decision-Individual.pdf (aat.gov.au)

Young, H., Bray, P., McKinnon, K. (2021). Everyday Life Participation Using Powered Wheelchair Standing Devices by Boys With DMD. OTJR Occupation, Participation and Health, (2021), 41(3)

Presenter biography

Tracee-lee Maginnity joined Permobil Australia in July 2019, as a clinical education specialist. Originally from New Zealand, she graduated Auckland University of Technology with a BHSc (Occupational Therapy) in 2003 and has since worked in various roles related to seating and mobility including assessing, prescribing and educating. After gaining experience as an assessor and prescriber at Seating To Go / Wheelchair Solutions prescribing for both disability and injury, she moved to Australia in 2011 to take on the Senior Occupational Therapist role in a custom moulded seating service. She then worked in clinical consulting and education roles until joining Permobil. Tracee-lee is passionate about maximising functional outcomes with end users and the importance of education within the industry. She has mentored many therapists interested in AT. Her experience includes working with individuals with complex postures to achieve customised client focused outcomes.

Closing Keynote: ‘The New Landscape of Health and Disability Services in Aotearoa/New Zealand’

Dr. Huhana Hickey

Session description

This keynote delves into the transformative shifts occurring within the health and disability services of Aotearoa/New Zealand, spotlighting the inception of Whaikaha (Ministry of disabled persons) and the Māori Health Authority, Te Aka Whaiora. With the recent formation of the Ministry for Disability and Health NZ, service providers face challenges and the need to adapt to new regulatory landscapes. These reforms promise better cultural sensitivity and tailored support, especially for the indigenous Māori disabled community. However, challenges such as implementation issues and persistent equity concerns, as highlighted by the Waitangi Tribunal, still persist. This presentation underscores the importance of adhering to the Treaty of Waitangi's principles and emphasizes collaborative efforts to bridge existing disparities. The overarching aim is to ensure that reforms truly benefit all, prioritizing the Māori and Pacifica disability community's unique needs and aspirations

Presenter biography

Dr. Huhana Hickey has an LLB/BSoc Sci, LLM (Distinction) and a PhD in Law and Tikanga Maori from the University of Waikato. She was a solicitor at Auckland Disability Law (the first disability community law centre in New Zealand) and a Māori Research Fellow at the Taupua Waiora Māori Health Research Unit at the Auckland University of Technology, Akoranga, Auckland. Dr Hickey was the indigenous peoples’ representative for the International Disability Association steering group caucus during the development of the UN Convention on the Rights of Persons with Disabilities, and is still involved with the IDA international networks. Dr Hickey was awarded the New Zealand Order of Merit in 2015 for her services to Māori and disability community. She holds several governance roles, has her own consultancy, is a member of the Multiple Sclerosis Society of New Zealand, sat on multiple ethics committee for over 18 years and is a life member of Rostrevor House in the Waikato.

Posters

P1: Wheelchair and Seating Guidelines for People with Neuropsychological Disorders

Maria Whitcombe-Shingler, Joanne Blaiklock
Mobility Solutions, Auckland, New Zealand

Learning objectives

Consider range of cognitive and behavioural function seen in neuropsychological disorders

Consider assessment approaches to neuropsychological disorders

Consider clinical vignettes.

Poster description

Neuropsychology is concerned with how a person's cognition and behaviour are related to the brain and the rest of the nervous system. Clients with neuropsychological disorders such as a diagnosis of functional neurological disorder are sometimes referred to specialist wheelchair and seating assessment services. It can be challenging to provide appropriate intervention for the minimization of long-term disability and ensure optimal client outcomes. That is, neither over-prescribing nor underprescribing equipment, as low activity levels such as sitting in a wheelchair as opposed to moving can lead to deconditioning and weakness; but sustained abnormal posture can lead to soft tissue contracture and joint deformity. Given the importance of beliefs for ordinary social behaviour, abnormal beliefs can be a challenge in neuropsychological disorders and pose a challenge to the accurate assessment of function and wheelchair and seating needs. Clinical vignettes and the challenge of transforming beliefs will be considered.

Content references:

Adams. C., Anderson. J., Madva, E.N., et al. (2018). You've made the diagnosis of functional neurological disorder: now what? Practical Neurology18:323–330.

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Presenter biographies

Maria Whitcombe-Shingler is a practising occupational therapist and educator from Mobility Solutions complex wheelchair and seating assessment service, Auckland.

Joanne Blaiklock is a practising occupational therapist and clinical supervisor from Mobility Solutions complex wheelchair and seating assessment service, Auckland.

We are both passionate about evidence informed practice, team working and positive transformation in clients lives.

P2: Empowering Mobility: A Comprehensive Guide to Choosing the Right Power Assist Device

Mr Justin Boulos

Learning objectives

1. To provide a comprehensive overview of power assist devices for manual wheelchairs, including the four different types of power assists.
2. To educate attendees on the unique features, benefits, and limitations of each type of power assist, as well as the specific use cases where each type is most effective.
3. To emphasize the importance of power assist devices and how they can improve independence, increase mobility, and enhance overall quality of life for people with mobility impairments.

Poster Description

This presentation will provide a comprehensive overview of power assist devices for manual wheelchairs. There will be discussion on how power assists can improve independence, increase mobility, and enhance overall quality of life for people with mobility impairments. We will explore the four different types of power assists, including rear mounted, push rim activated, joystick operated, and front mounted devices. Attendees will learn about the unique features, benefits, and limitations of each type of power assist, and gain insights into the specific use cases where each type is most effective. We will also examine the differences between similar products and provide guidance on how to choose the right device for specific needs. We will also discuss the importance of considering individual needs and preferences when choosing a power assist device. Factors such as body type, level of mobility, and lifestyle will all play a role in determining the best device for each user. By the end of the presentation, attendees will have a deep understanding of power assist devices and how they can help users achieve greater freedom and independence.

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1. Stoker, M., Riemersma, L., Prins, H., Renzenbrink, G. J., & Bussmann, J. B. (2017). Power assist wheels in daily life of long-term manual wheelchair users: A mixed-method study. Journal of neuroengineering and rehabilitation, 14(1), 1-14. doi: 10.1186/s12984-017-0285-x

This study found that power assist wheels can improve daily life and physical health for long-term manual wheelchair users, reducing effort and strain during mobility tasks and increasing the distance and frequency of travel.

2. Alam, F., Stewart, J., Schroeder, B., & Cooper, R. (2017). Effects of pushrim-activated power-assist wheelchairs on kinetic and kinematic outcomes and propulsion efficiency in wheelchair users with spinal cord injury. Journal of rehabilitation research and development, 54(6), 759-768. doi: 10.1682/jrrd.2016.08.0176

This study showed that pushrim-activated power-assist wheelchairs can improve propulsion efficiency and decrease biomechanical stress on the upper extremities for individuals with spinal cord injury, ultimately improving mobility and reducing the risk of upper extremity injury.

3. RESNA. (2018). Position on the Application of Power Wheelchair Standards for Power-Assist Add-On Devices. Retrieved from https://www.resna.org/sites/default/files/legacy/resources/position-papers/RESNA%20Position%20on%20Power-Assist%20Add-On%20Devices.pdf

This position paper from the Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) discusses the use of power-assist add-on devices for manual wheelchairs and provides recommendations for their safe and effective use. The paper emphasises the importance of considering individual needs and preferences when selecting and using power assist devices, and highlights the need for clear standards

Presenter biography

Justin is a registered Occupational Therapist with a specialisation in Assistive Technology, with over seven years of experience in the field. Justin's passion lies in the areas of seating, mobility, and helping people achieve independence. Justin has extensive experience working with paediatrics, neurological disabilities, rehabilitation and geriatrics. Justin continues to strive for excellence in his field and is always seeking new ways to improve the lives of his clients.

Justin also has a passion in sharing knowledge by providing free education on his social media platforms - @wheelieworx. The goal is to bring zero cost, easy to understand information to all people working in the disability sector.

P3: Structured Clinical Meeting – Benefits and learning from the Seating To Go Team

Liz Turnbull[1], Tina Clapham[2], Sarah Stewart[2]
[1]Seating To Go, Auckland, New Zealand. [2]Seating To Go, Hamilton, New Zealand

Learning objectives

- Understand the benefits, purpose and structure of an effective Clinical Meeting.
- Understand the impact of team culture on successful clinical reasoning outcomes.
- Be able to relate our team's experience to opportunities within your own workplace.

Poster description

Seating To Go is a specialist wheelchair and seating assessment service working with clients of all ages throughout Waikato, Lakes and Bay of Plenty regions in New Zealand. Our team of Occupational Therapists and Physiotherapists work alongside wheelchair technicians to provide solutions for clients with complex and long-term needs.

At Seating To Go we acknowledge the career-long learning journey that our therapists are on to deliver great outcomes to clients with postural management and mobility needs. We identify that from novice, to experienced therapist, shared learning, critical evaluation, reflection and problem solving are key to this success.

Since 2017, Seating To Go have used a solution-focused weekly Clinical Meeting to share clinical cases, present proposed solutions, and give and receive feedback. The Clinical Meeting has been constructed as a 'safe-space' for therapists to bring their clinical questions, ethical dilemmas and 'what should I do?' problems.

The Clinical Meeting has an agenda, is facilitated by clinical specialists, and all therapists are encouraged to contribute their experiences or recommendations. Client cases are presented to the group with photos, assessment findings, clinical needs, and proposed plans. Peers contribute their experience with similar scenarios, product knowledge, and clinical reasoning. The aim of presenting is to be able to leave with a plan for 'where to next' for their client.

This came about as a forum for utilising senior and peer knowledge and improving consistency with wheelchair and seating solutions and funding criteria. The meetings have evolved to become a forum for sharing successes and challenges. It makes best use of expertise and values the benefit and contribution of 'fresh eyes'.

In addition to sharing our experiences in implementing Clinical Meeting, this presentation will offer attendees resources and information regarding developing team culture, ensuring psychological safety, providing constructive and meaningful feedback, and coaching.

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Presenter biographies

Liz Turnbull:

Since qualifying as an Occupational Therapist in 1997, Liz has worked in several practice areas including acute care and rehabilitation in hospital settings and community rehabilitation in both New Zealand and the UK.

Having enjoyed assistive technology thorough out her career, Liz began working in the field of complex wheelchairs and postural management in 2007. Since then, she has worked in clinical, coaching and leadership roles within the wheelchair and seating. She has been involved extensively in service development, working groups and professional forums within the sector and 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 and has been a member of the planning committee for Oceania Seating Symposium - NZ. Liz joined the Seating to Go team as Service Manager in 2021.

Tina Clapham:

Tina has worked as a Wheelchair and Seating Therapist since March 2020 after graduating from Auckland University of Technology with a BHSc - OT in 2018. Tina has a strong interest in using Occuptional Therapy skills to problem-solve solutions and loves getting out her toolbox to make

changes to clients' wheelchairs. Having previously worked in childcare industries, Tina's passion lies in paediatrics and seeing young people discover their world through independent mobility for the first time.

Sarah Stewart:

Sarah has worked as a Wheelchair and Seating Therapist since October 2010 and is an accredited Enable New Zealand Wheeled Mobility and Postural Management (WMPM) Level 2 Assessor with endorsements for Lying positioning and Custom seating, named provider for ACC and a member of Enable New Zealand panel responsible for auditing case studies for WMPM credentialing.

Since qualifying as a physiotherapist in 2001 Sarah has worked in a range of practices in acute, rehab and community settings in both New Zealand and the UK, developing a broad knowledge and skill base in musculoskeletal, neurological and respiratory specialties which form the foundation to her practice today.

Sarah enjoys collaborative working to achieve a meaningful outcome for clients and their families and particularly enjoys innovation and interfacing complex seating to mobility bases promoting function and participation.

P4: “He could go wherever he wanted”: Driving Proficiency, Developmental Change, and Caregiver Perceptions following Powered Mobility Training for Children 1-3 Years with Disabilities

Dr. Heather Feldner

Background/Objectives:
Self-initiated mobility experiences are a critical part of development for all children with disabilities. Powered mobility (PM) may be an important facilitator of mobility and exploration, yet a critical knowledge gap exists in understanding how children learn to use PM over time and in documenting the developmental and functional outcomes of PM intervention in dose-controlled conditions. For children with disabilities ages 1-3, PM options specifically designed for this population are lacking. We investigated how a PM intervention impacted: 1) Driving proficiency over time; 2) Global developmental outcomes; 3) Learning tool use (i.e., joystick activation); and 4) Caregiver perceptions about PM devices and their child’s capabilities.

Design: Prospective, mixed-methods case series
Participants and Setting: Seven children (6 male, age M=21 mos) with cerebral palsy (GMFCS IV-V) and other developmental disabilities and their caregivers were included in this lab-based study from across Western Washington.
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Materials/Methods:
Children participated in 12 driving sessions in sitting and standing positions with the Explorer Mini, a PM device designed specifically for children ages 1-3 years, which was instrumented aftermarket with a custom sensor suite to detect device use patterns. All sessions were conducted in a lab set-up with an enriched play space that also included motion capture and video recording capabilities. Baseline and post-intervention PM learning stage was assessed using the Assessment of Learning Powered Mobility tool (ALP), and global development was assessed using the Bayley Scales of Infant Development- 4th ed. (BSID-4). Exit interviews with caregivers were conducted at the final session, transcribed verbatim, and coded into themes using constant comparison.

Results:
Analyses indicate significant increases in BSID-4 raw scores for cognition (p=0.0152), receptive communication (p=0.0019), fine motor (p=0.0058), socio-emotional (p=0.0429), and personal language domains (0.0094) post-intervention, with all children improving their driving proficiency by at least one ALP phase. Joystick activation strategies were varied but forward directionality increased, as did driving bout length over time. Caregivers discussed the fun, joy, sense of control, surprising progress, and developing agency observed as their child learned to drive. Despite some design and cost concerns, all caregivers noted consistent benefits of PM learning and driving skill progression during the intervention, even if PM was not anticipated to be a long-term need.

Conclusions/Significance:
This study adds important quantitative metrics and compelling qualitative outcomes to the evidence, supporting a deeper understanding of how children learn to use PM, its positive developmental effects, and how clinicians may integrate tools like PM more routinely into clinical practice to facilitate On Time mobility and participation for young children with disabilities.

Presenter biography

Dr. Heather Feldner, PT, PhD, is an Assistant Professor in the Department of Rehabilitation Medicine, Adjunct Assistant Professor in the Department of Mechanical Engineering, 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.

Dr. Feldner's research is centered at the intersection of mobility, disability, and technology in two primary areas, including perceptions of disability and identity and how these emerge and evolve through technology use, and in the design and implementation of pediatric mobility technology, considering how attitudes and the built environment affect equity and participation. She also focuses on how disability can be further integrated into intersectional Justice, Equity, Diversity, and Inclusion initiatives, particularly in health professions education.

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 in mechanical engineering.

P5: Mythbusting Manual Wheelchair Materials: What is the evidence, and does it really matter?

Rainy Wu & Tracee-lee Maginnity

Poster Description

The discussion around MWC materials is not new. Materials used in MWCs are sophisticated and diverse. Clinicians recommend MWCs for their clients on a daily basis, and the composition of this equipment has a direct impact on the health, functional performance, physical experience, and overall quality of life of the user. We understand that clinical decision making should include a more in-depth understanding of the materials and design that constitute the selected equipment. The latest position of RESNA (2022) is that the "design and construction of ultralight weight manual wheelchairs should use the most current technology to provide fully customizable wheelchairs made of materials that minimize weight, including but not limited to aluminum, titanium, magnesium, and carbon fiber." We have heard this for decades.

But do we really understand the materials and how they are applied when creating a manual wheelchair? Are we hearing evidence about the raw materials before it is altered for the manual wheelchair design and using those principles? Or perhaps we are hearing about materials from our industry's fantastic marketing teams? Is this information misinterpreted? Are we getting the whole story?

What really is the truth about materials? We have worked extensively with material science engineers to bring the REAL evidence behind materials. What claims can we make about specific material properties when considering clinical justification?

This presentation provides an extensive look at raw material versus what changes when they are incorporated into MWCs to improve the lives of wheelchair end-users. These materials can provide specific ride characteristics and relative advantages and disadvantages. In combination with the frame design and ULWC components, how these factors can greatly impact propulsion efficiency, comfort, and functional performance of the individuals will be discussed with a series of technical testing to objectively demonstrate the comparison of materials and designs.

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Presenters Biographies

Rainy Wu is a physical therapist based in Taipei, Taiwan. She graduated from National Yang Ming University in 2012 with a Bachelor's degree in Physical Therapy and Assistive Technology. She worked as an ATP at the New Taipei City Assistive Technology Centre for 5 years. In 2018, Rainy moved to Shanghai and later joined Permobil as a Clinical Services Specialist in 2020. Upon relocating to Taiwan in 2022, she contributed to the development of clinical education, which fuelled her passion for mentoring and educating therapists based on her extensive knowledge and expertise.

Tracee-lee Maginnity joined Permobil Australia in July 2019, as a clinical education specialist. Originally from New Zealand, she graduated Auckland University of Technology with a BHSc (Occupational Therapy) in 2003 and has since worked in various roles related to seating and mobility including assessing, prescribing and educating. After gaining experience as an assessor and prescriber at Seating To Go / Wheelchair Solutions prescribing for both disability and injury, she moved to Australia in 2011 to take on the Senior Occupational Therapist role in a custom moulded seating service. She then worked in clinical consulting and education roles until joining Permobil. Tracee-lee is passionate about maximising functional outcomes with end users and the importance of education within the industry. She has mentored many therapists interested in AT. Her experience includes working with individuals with complex postures to achieve customised client focused outcomes.