

The IOPTP Newsletter

Edition 18, May 2017

The International Organisation of Physical Therapists in Paediatrics

President's Message



Greetings all,

The IOPTP Board continues to work on activities to support our strategic plan related to education, practice, research, and communication. We have committees to support each area with members from a variety of countries. We aim to serve as a resource for WCPT member paediatric organizations and welcome others to join our group. IOPTP is a subgroup of the World Confederation of Physical Therapists. Members of WCPT are professional organizations recognized as the eminent physical therapy organization in their country. For a paediatric group to be recognized and accepted as an IOPTP member, they must be the recognized paediatric group affiliated with the WCPT member organization for their country. We encourage individuals who are members of a paediatric group affiliated with their country's WCPT recognized group to pursue membership in IOPTP.

WCPT in 2017

We hope you will join us at the WCPT conference in Cape Town, South Africa, July 2-4, 2017. From the WCPT:

WCPT is pleased to announce the opinion leaders and innovators in physical therapy who will present the key sessions at the WCPT Congress 2017.

Seventeen [focused symposia](#) will be presented featuring over 75 prominent [international speakers](#) from across WCPT's five regions. High quality speakers have been selected, covering cutting edge topics of vital importance for the profession across a wide variety of practice and research areas and policy perspectives. Focused symposia are always a popular feature of WCPT congresses,

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For submissions or questions regarding the newsletter please contact the newsletter editor Erin Wentzell PT, DPT, PCS at ewentzell@gmail.com

drawing large audiences, and providing the opportunity not just to hear from world authorities, but to engage with them in discussion.

View details of the focused symposia at: www.wcpt.org/wcpt2017/fs/sessions

Access the full list of speakers at: www.wcpt.org/wcpt2017/speakers.

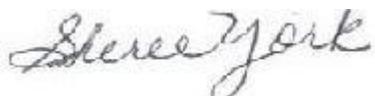
The focused symposia include Paediatrics: pelvic health and Paediatrics:physical activity. There are symposia on a wide variety of topics including intensive care, pain, HIV, PT in disasters, global health, fragility fracture, critical PT, clinical practice guidelines, men's health, and stroke.

The IOPTP will host a meeting for paediatric PTs Monday, July 3, 1230-1330, in the conference center rooms 1.43-1.44. Tea and snacks will be served.

A paediatric networking session will be lead by IOPTP Board members on Tuesday, July 4, 1300- 1415 in the convention center rooms 1.61-1.62.

Please join us for these events to network, meet new friends from all over the world, and discuss the practice of paediatric physical therapy.

We hope to see you in Cape Town in July.



Sheree York PT,DPT,PCS,cNDT

President, IOPTP



The IOPTP FACEBOOK page is a great resource for upcoming events and information on the IOPTP and the WCPT. It is also a great resource for information on pediatric physical therapy with an international prospective on research, practice and advocacy.



photo credit: MandiSmallhorne

Spotlight on WCPT 2017

EVENT	DATE	LOCATION	AGENDA, GOALS
IOPTP Business Meeting	Monday July 3 12:30-13:30	Conference Centre Room 1.43-1.44	Introductions, Strategic Plan presentations, Committee Reports and an Open Discussion on “What would Benefit Members?”
IOPTP Facilitated Network Session	Tuesday July 4 13:00-14:00	Conference Room 1.61-1.63	<ul style="list-style-type: none"> ➤ Networking Discussion on a variety of topics including: ➤ Core Content for Entry Level Programs ➤ International Collaboration & Service ➤ Clinical Outcome Measures ➤ Collaborative Research ➤ Health Promotion ➤ Integrating ICF into Practice
IOPTP Booth	Throughout the Congress		Information on the IOPTP, how to get involved and give-aways

DATE		TOPIC	LOCATION
Sunday July 2	11:00-12:30	Platform Presentations: Paediatrics (PL-15)	Room 1.43-1.44
	14:00-15:30	State of the art platform presentation: Paediatrics (PLSoA-06)	Ballroom West
Monday July 3	10:10-10:40	Poster walks Paediatrics (PW-03)	Exhibit Hall
	10:45-12:15	Focused Symposium: Motor control in padaetric bladder and bowel dysfunction (FS-10)	Ballroom West
	16:00-17:30	Rapid five platform presentation: Paediatrics (PLR5-16)	Room 2.40
Tuesday July 4	10:45-12:15	Focused Symposium: From fitness-training to active lifestyle coaching in paediatrics: global applications (FS-11)	Room 1.61-1.62

For the Full Program go to: http://www.wcpt.org/sites/wcpt.org/files/files/congress/17/WCPT2017-ProgrammeOverview_Apr27_v1_lores.pdf

Committee Spotlight: Introducing our amazing, dedicated Research Committee Members'

Hilda Mulligan (New Zealand) *Chair of the IOPTP Research committee*

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Hilda Mulligan, Research Committee Chair, completed her undergraduate physiotherapy degree at University of Cape Town, in South Africa. She has worked clinically in paediatrics and adult neurology both in South Africa and in New Zealand, and is now a Senior Lecturer (and Assoc Dean of Postgraduate studies) at the School of Physiotherapy, Otago University, New Zealand. She obtained a PhD at Otago University in 2010. Her PhD investigated physical activity for health and well-being for people with neurological disability. Her research focus is in disability and rehabilitation through the lifespan (children and adults). She has developed extensive research networks both in New Zealand and overseas. She has published in a wide range of rehabilitation and disability journals, and has had success in achieving funding to support her research interests. Producing translational research outcomes has been a core feature of all of her research.

Maria Nijhuis-Van der Sanden (Netherlands) IOPTP Executive Committee liaison

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Maria W.G. Nijhuis-Van der Sanden, PT, PhD received her BSc. degree in physical therapy from St Maartenskliniek, Nijmegen (1974); an Educational master 'Management in the non-profit sector' at HAN University of Applied Sciences, Nijmegen (1995) and a PhD from Radboud University, Nijmegen, the Netherlands` (2003). Between 1993 and 2011 she was head of the department of pediatric physical therapy at the Radboud University Medical Center and since 2009 she is Professor and chair of the Allied Health Sciences Research group. She is vice president of the International Organization of Physical Therapists in Pediatrics. She was one of the fundameters of the Dutch Association for physiotherapy in Pediatrics in 1989 and worked as the Secretary of the scientific committee for this association and as Secretary of the Dutch Society for Follow-up in Premature Born Infants, a subgroup of the Dutch society of Pediatrics. In 2007, she received a Radboud award for her work in the University Children's Hospital, in 2009 the Dutch open challenge award and in 2013 the Paul Helders award for her work in pediatric Physical therapy. She supervised seven PhD theses in the field of Pediatrics and has co-authored 150 publications in peer-reviewed journals, is editor of the Pediatric physical therapy book (3th edition starting in 2000) and co-authored numerous book chapters. She has presented over 100 juried and invited presentations at national and international conferences.

The main topics in pediatric research are focused on children with visual impairments, children born preterm, and children with syndromes with a special focus on personalized approach, clinical reasoning, motor learning and handwriting.

Brenda Morrow (South Africa)

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Brenda Morrow is a Professor in the Department of Paediatrics, University of Cape Town (UCT), South Africa. A physiotherapist by training, Brenda worked clinically from 1995 to 2006 at Red Cross War Memorial Children's Hospital in Cape Town. She developed a special interest in paediatric respiratory diseases, particularly in the context of critical care and the management of children with Cystic Fibrosis. She embarked on a Master's Degree in 2001, which was upgraded to PhD in 2003. In 2005 Brenda was awarded a PhD for her dissertation, "*An investigation into nonbronchoscopic bronchoalveolar lavage and endotracheal suctioning in critically ill infants and children*". In 2008 she completed a two-year postdoctoral fellowship funded by the Medical Research Council of Southern Africa (MRC). In 2009 she was awarded an MRC Career Development Award to develop clinical research using electrical impedance tomography – an emerging, noninvasive imaging tool which allows real-time quantitative analysis of ventilation distribution. In 2012 she was promoted *Ad Hominem* to Associate Professor, and in 2016 to full Professor. Since 1998, Brenda has been engaged in teaching and supervision of undergraduate and postgraduate students. She is lead of the child health rehabilitation therapy arm of the African Paediatric Fellowship Program, engaged in training paediatric allied health and rehabilitation therapists throughout Africa and facilitating the concept of a multidisciplinary, holistic approach to child health practice and research. In 2014, she completed a Postgraduate Diploma in Health Research Ethics (with Distinction) through the University of Stellenbosch. Brenda is Chair of the Department of Paediatrics' Research Committee; a

member of the Faculty of Health Sciences Research and Human Research Ethics Committees; and a member of many special interest, editorial and advisory boards. She is deputy editor of the *Southern African Journal of Critical Care* and a regular reviewer for many international journals.

Brenda has many research interests, all related specifically to paediatric practice. These include: chest physiotherapy/airway clearance modalities in paediatric critical care, cystic fibrosis and neuromuscular disease; aetiology, prevention and management of nosocomial pneumonia (including ventilator associated pneumonia); regional ventilation distribution (using electrical impedance tomography); non-invasive and invasive ventilation; advocacy; research ethics; and palliative care. She has over 70 peer reviewed publications, book chapters and has co-edited and authored a book on chest physiotherapy in trauma.

Michael Jung (Germany)

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Michael Jung (Dr. rer. medic.) is physical therapist, Master of health sciences and Professor at Fresenius University of Applied Sciences Frankfurt (Main), in Germany. He is a member of PhysioGermany (ZVK e.V.) and the German association of physiotherapy science (DGPTW e.V.).

His doctoral thesis focused on the physiotherapeutic treatment of infantile postural asymmetry. Another research focus was on Cancer related fatigue in pediatric oncology.

Michael worked over 20 years as a physical therapist in the Children`s hospital of the Goethe University Frankfurt and the Center of Developmental Neurology Frankfurt.

In 2016 he was involved in the ICF Core Set Consensus Conference in Stockholm, including development of two ICF Core Sets - for ADHD and ASD – published on <http://www.icf-core-sets.org/>.

In additions, he has published in national and international journals and is ad hoc reviewer for “PhysioScience” and “PT - Zeitschrift für Physiotherapeuten” in Germany.

In 2017 Dr Jung has initiated an investigation for children with chemotherapy induced peripheral neuropathy with the pediatric oncology Charité in Berlin.

For IOPTP he is mostly interested in a) collaboration and b) participation in research. His hope is to initiate or take part in international research via online surveys, DELPHI rounds or collecting data in different countries and analyzing the data together.

Hua-Fang (Lily) Liao (Taiwan)

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LIAO is the Executive Supervisor of the Taiwan Physical Therapy Association, the member of the Children and Youths Welfare and Rights promotion committee of Executive Yuan of Taiwan, the Executive Director and Academic Chair of the Taiwan Society of ICF, the Executive Director of the Taiwan Association of Child Development and Early Intervention, an Adjunct Associate Professor of the School and Graduate Institute of Physical Therapy of the NTU, and the Professional Supervisor of the Tatung Developmental Center in Taipei.

She has developed the ICF-based Functioning Scale of the Disability Evaluation System (FUNDES) for the disability eligibility determination in Taiwan and published more than 20 articles to introduce the FUNDES and ICF/ICF-CY in the past 5 years. She is now in charge of the training programs of the testers of the FUNDES for the health authority in Taiwan. The FUNDES has Adult version and Child version. If someone wants to use the FUNDES-Child for research purpose, please contact Lily.

Lily has recently published two interesting articles:

Participation of children with disabilities in Taiwan: The gap between independence and frequency, available on

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4427311/pdf/pone.0126693.pdf>

and Development and validation of the ICF-CY-based functioning scale of the Disability Evaluation System-Child version in Taiwan, available on

[http://www.ifma-online.com/article/S0929-6646\(15\)00354-X/pdf](http://www.ifma-online.com/article/S0929-6646(15)00354-X/pdf).

Satoshi Nonogaki (Japan)

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Satoshi has been working clinically in the field of paediatrics in Japan and is a part-time instructor of pediatric physical therapy at Nagoya University. He is also in charge of public relations for the Aichi Physical Therapy Society. He was a core member of the guidelines committee organized by the Japanese Association of Rehabilitation Medicine from 2006 to 2008 and involved in the development of the rehabilitation guidelines for cerebral palsy. He obtained a Master's degree in health science from Nagoya University. The main focus of his research was to investigate the relationship between walking ability and functional indicators of children with cerebral palsy. Recently, he obtained a license as a special-needs school teacher and is interested in special-needs education and school-based physical therapy.

Nora Shields (Australia)

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Nora Shields is Professor of Clinical and Community Practice at La Trobe University and Northern Health in Melbourne. Her research is aimed at improving the health and wellbeing of children with disability through participation in community-based physical activity and exercise. She has a strong track record in research publications, engagement, knowledge translation and research higher degrees student supervision. She was a director on the board of Disability Sport and Recreation (2011-2013), the peak body for disability sport in Victoria. She has considerable experience in the management of clinical trials and has completed randomized controlled trials investigating the effects of exercise program for young people with Down syndrome, cerebral palsy and Prader Willi syndrome. She was a chief investigator on a recently completed collaborative research translation project involving five health services across four Australian states aimed at increasing the uptake of evidence based practice among clinicians working with children with cerebral palsy. She runs the FitSkills community based physical activity program for youth with disability.

Maggie O'Neil (USA)

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Dr. Margaret (Maggie) O'Neil is an associate professor at Drexel University in Philadelphia, PA, USA. She is a physical therapist and a pediatric rehabilitation and physical activity researcher. Dr. O'Neil's research focus is on physical activity measures and interventions to promote health, functional mobility, physical activity and fitness in children and youth with chronic conditions (e.g., obesity) or disabilities (e.g., cerebral palsy). Dr. O'Neil has been a PI on grants from NIH, the APTA Academy of Pediatric Physical Therapy, the American Academy for Cerebral Palsy and Developmental Medicine and the Coulter Foundation. Her recent work combines accelerometers for objective measures of physical activity and active video games to promote physical activity. Dr. O'Neil's research is conducted in a variety of settings (primary care, outpatient, schools, and community recreation centers) to account for the different service delivery environments. She is past chair of the APTA Academy of Pediatric Physical Therapy Research Committee and a member of the IOPTP Research Committee of the WCPT. She is an Editorial Board Member for the journal *Physical and Occupational Therapy in Pediatrics*.

Gunn Kristin Øberg (Norway)

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Gunn Kristin Øberg, PT, PhD, is an Associate Professor at the Masters Program in Neurological Physiotherapy at the University of Tromsø, the Arctic University of Norway (UiT). She also holds a part time position as a researcher at the University Hospital North Norway, Tromsø Norway. Dr. Øberg received her physiotherapy degree from Oslo University College, Norway in 1982, Master of Science in Health Care Sciences in 2002 and PhD in Health Care Sciences 2008 from UiT. Her clinical expertise is in the area of infants and children with neurological disorders, particularly preterm infants and those born with congenital brain injury. Dr. Øbergs PhD explored physiotherapy with preterm infants. Her research focuses on clinical practice with newborns, infants and toddlers including developmental neurology and physiotherapy interventions for preterm infants. In her research she draws on an extended theoretical framework for physiotherapy in pediatrics by application of the theory of phenomenology of the body and enactivism to clinical encounters. She has several publications in International peer reviewed Journals, achieved funding for research studies and has research networks both in Norway and Internationally.

Linda Feters (USA)

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Linda is Professor and Sykes Family Chair in Pediatric Physical Therapy, Health and Development Division of Biokinesiology & Physical Therapy and Department of Pediatrics, Keck School of Medicine University of Southern California.

Dr. Feters directs the Development of Infant Motor Performance Laboratory where her research focuses on improving the quality of life for infants and children with movement difficulties due to neurological insults. She developed very early physical therapy treatments using an innovative computerized mobile paradigm for infants. Dr. Feters teaches development, motor control, pediatric physical therapy and evidence-based physical therapy practice. Dr. Feters is Editor-in-Chief of *Pediatric Physical Therapy*, the

journal of the Section on Pediatrics, APTA. Dr. Fetters is a Catherine Worthingham Fellow of the APTA and a Fulbright Senior Scholar to Australia, 2015-16.

Other members of the Research committee are Amanda Connell (Ireland), Grace O'Malley (Ireland), Jennifer Rowland (USA), Anne-Marie Wium (Denmark), Lynne Romeiser Logan (USA) and Kristy Rose (Australia).

Clinical Spotlight: Podcasting For Knowledge Translation

Mindy Silva
New Zealand



Seven years ago I moved from a big city in Johannesburg, South Africa to a small coastal town in New Zealand; and whilst I've loved the change in pace and lifestyle, I wasn't prepared for the professional isolation that came with it. The easy access to continued education courses and spontaneous dialogues with a variety of like-minded colleagues was something I had taken for granted my whole professional career; and it was no longer readily available. I must be honest, I didn't notice it at first but complacency and boredom crept in.

Then in 2016 Beverly (Billie) Cusick came to New Zealand to run a workshop on "New Paradigms in Paediatric Equinus Deformity Management and Developmental Orthopaedics". The Paediatric Special Interest Group of Physiotherapy New Zealand thought it would be a great opportunity to make a podcast with Billie as a way of sharing some of her knowledge and insights with our members. I had recently made a podcast with some parents of children with cerebral palsy for the 2016 Steptember challenge (an international fundraising event raising awareness for cerebral palsy), so was keen to give it a go. Luckily Billie was open to being interviewed and I got an amazing opportunity to chat with her and explore how she had developed her admirable skills and expertise! (<http://bit.ly/BillieCusick>).

When I'd first been introduced to a podcast a few years back, I hadn't been an immediate convert and I preferred to skim read an article or text for the information I needed rather than find the time to listen. Once I got into the habit of podcasts though, everything changed. I realized I actually preferred to stick on some headphones and listen whilst my hands and feet were busy and it was brilliant for making long training runs or housework more bearable. The real benefits though were the rich and deep understanding of a topic that I was able to get listening to an expert speak around their topic in a way that is not easily replicable in a text format.

I came to see podcasts as a great medium for knowledge translation, and started looking for ones related to paediatric neuromotor development and childhood disability. What I found is that the few that were available were mostly focused on researchers. I'd had so much fun interviewing Billie, I decided to make it a goal to capture the experiences, advice and insights of experienced clinicians that I considered leaders in this field. My aim was to gather nuggets of excellence as a resource to share with other therapists and so I built a website to house the interviews and upped my social media presence to promote them online.

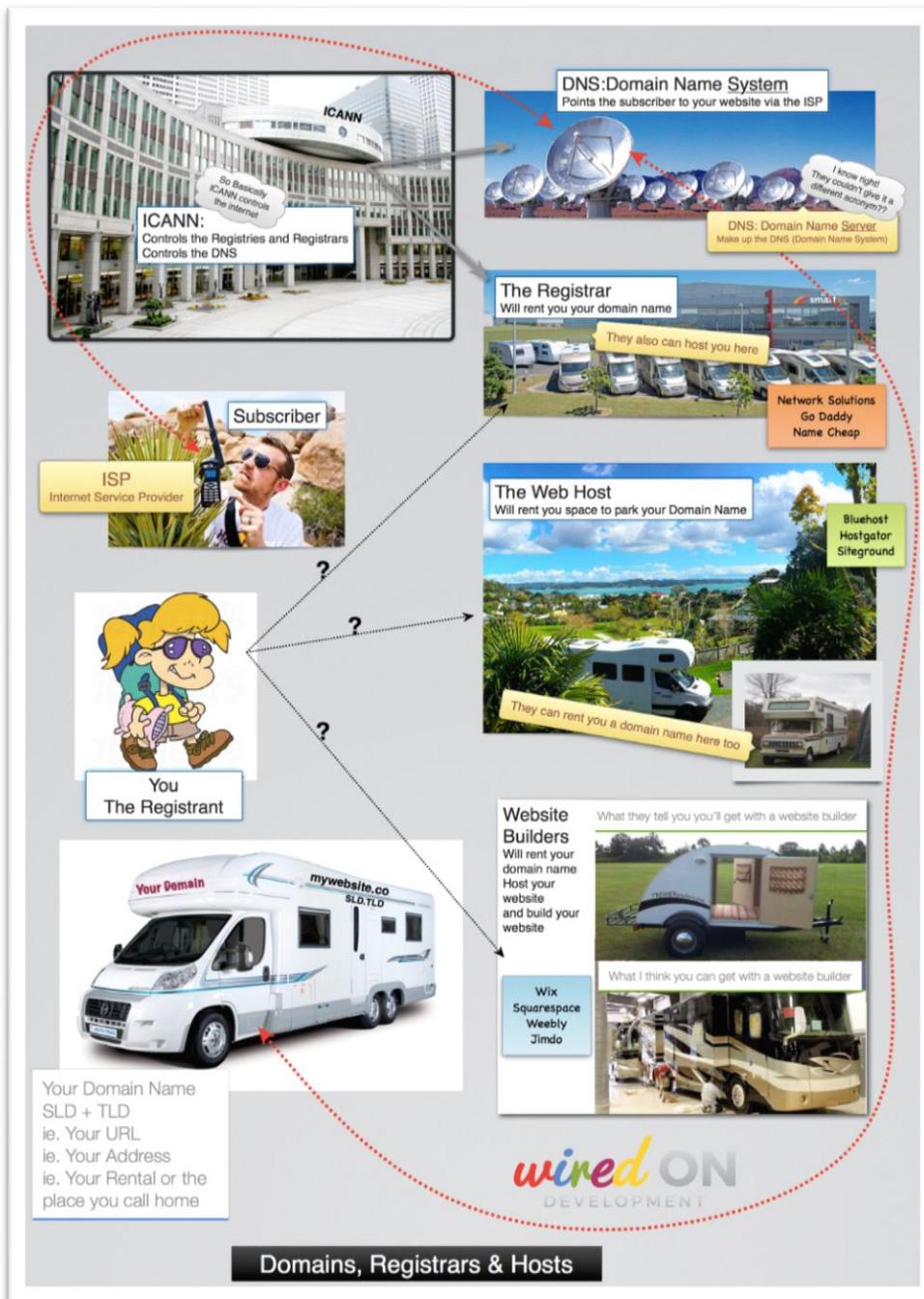
It's been a brilliant learning curve and my advice to those therapists who have something to share with their community and are looking to get online is definitely give it a go. These days there are many applications that make both recording podcasts and building websites pretty accessible. The hardest part is deciding which ones to use and how it all fits together. I've included one of the diagrams I made in the early stages as an example of how I worked through the complexities of the internet and all the millions of choices it offers up. There's an explanation of the diagram as an appendix to this article for those that want to know more. This diagram was internet 101 for me.

In summary though, doing the interviews and sharing them online has put me in contact with amazing people. I have learnt so much in a short time and it's rewarding to have my own platform to capture and share the stories and experiences of clinicians who make a difference in paediatric neurorehabilitation. I am no longer bored or complacent. I am excited and motivated by these brilliant people and the opportunity that podcasting provides for sharing their knowledge. You can find out more about them and my website at www.wiredondevelopment.com.

Looking forward to connecting

Mindy Silva

Domains, Registrars & Hosts Diagram explained:



Having a domain is like having a rented caravan. Imagine the caravan is your domain, or the place you call *home*. You can *rent* the caravan from the Registrar (whose main business is caravan rentals), but you can also *rent* it from a Web Host (whose main business is providing rental space like a caravan park) or from a Website Builder (whose main business is making websites easy to build – like a Caravan DIY workshop).

It doesn't matter where you *rent* it from, you can choose to "*park*" it anywhere. These days, Registrars, Web Hosts and Website Builders will all offer you space to *rent* and often combine *rental* for space and caravan if you get it from the same place.

Anyone who *rents* you a domain name falls under ICANN, which is basically a large organization that controls what registries and registrars are allowed to do. ICANN also owns DNS, which is the *post-*

office of the internet and keeps track of where everyone has parked their caravans. So if you want to find someone, you send a message via your computer to your internet service provider (ISP). Your ISP contacts DNS, who connects them to the caravan you are looking for and your computer "*arrives*" at that website – it's almost like magic, no wonder I don't understand it, but the point is that

1. You never outright own your domain name and must make sure you renew it each year or someone else can rent it and take it from you forever – no kidding
2. You can move your domain around to any host so start with whomever has a website that makes the most sense to you. You can change later when you have more experience and just redirect DNS to your new host.

Clinical Spotlight: *The Development and Application of the FUNDES-Child - an ICF-CY-based Measure of Activity and Participations for the disability evaluation system in Taiwan*

Submitted by Hua-Fang Liao

Adjunct associate professor, School and Graduate Institute of Physical Therapy, National Taiwan University

Executive supervisor, Taiwan Physical Therapy Association as

Executive director and academic committee chairman, Taiwan ICF Research Association,

Executive director, Taiwan Association of Child Development Early Intervention



FUNDES workshop in Taipei, Taiwan, 2013

With the promulgation of the Taiwan's People with Disabilities Rights Protection Act in 2007, the local government in Taiwan was assigned the responsibility of issuing disability identification and providing welfare services based on the framework of the International Classification of Functioning, Disability, and Health (ICF) and its child and youth version (ICF-CY). After five years of preparation, the ICF-based Disability Evaluation System (DES) was launched nationwide in July 2012, with determination of disability based on results of ICF-based evaluation by a medical team from authorized hospitals and on results of needs assessment from the local social welfare department (Liao & Hwang, 2009; Chiu, Yen, Teng, Liao, et al., 2013; Liao, Hwang, Pan, et al., 2013). The disability evaluation encompassed tests related to

assessment of body functions, body structures and activity and participation components of ICF and ICF-CY. Specifically, to assess the status of activities and participation, the ICF taskforce group developed the Functioning Disability Evaluation Scale (FUNDES) in 2007 with an adult version (FUNDES-Adult) and a Child version (FUNDES-Child) (Liao, Yen, Liou, Chi, 2015). This article describes the development, content and psychometric properties of the FUNDES-Child as well as its application in clinics and in providing social welfare services.

In 2007, the Taiwanese government authorized professionals to form a Taiwanese ICF taskforce to prepare the new eligibility determination system for disability. The mission of the taskforce was to develop standardized measures and regulations for disability evaluation and to monitor the impact of the new eligibility system. For children aged 6.0-17.9 years, an ICF-based measure for children, the Child and Family Follow-up Survey (CFFS), was translated and revised in the form of the FUNDES-Child (Hwang, Yen, Liou, et al., 2015; Kang, Yen, Bedell, et al., 2015). As part of development activities, on-going changes were made to the scale nearly every year to meet assessment procedure requirements at authorized hospitals and the training needs of FUNDES testers across the whole country (Liao, Fan, Liou, Yen, et al, 2013). The latest version of the scale is the FUNDES 8.0.

The FUNDES-Child is a proxy-report measure with 79 items, covering 4 sections to measure the b, d and e components of the ICF-CY, respectively. The sections are: Physical and emotional health, the Chinese version of Child and Adolescent Scale of Participation (CASP-C), the Chinese version of the Child and Adolescent Factors Inventory (CAFI-C), and the Chinese version of the Child and Adolescent Scale of Environment (CASE-C). The CASP-C covers both independence and frequency (performance) dimensions with good internal consistency found for the independence dimension, and factor analysis yielding two factors (Daily living, and Social/leisure/communication) (Hwang et al., 2013). The CASE-C provides evidence of internal consistency, test-retest reliability, content validity, convergent validity, and discriminant validity for children with disabilities (Kang et al., 2015). Significant relationships among CASP-C, CAFI-C and CASE-C total and factor subscale scores (Hwang et al., 2015; Kang et al., 2015) support the reliability and validity of the FUNDES-Child.

The results of the FUNDES have been used by Taiwan's DES as the basis for the first stage of needs assessment for a person with disabilities to identify, (a) required supports related to their mobility restriction, (b) a companion to assist in outings, and (c) access to RehabBus (a public transportation services for people with disabilities). Currently, the algorithm for assigning a disability grade is based on the results of the physician's evaluation of the individual's body functions/structures. However, algorithms for adjusting the disability grade with FUNDES data on activities and participation are under investigation.

In clinical applications, the differences (gaps) between independence and frequency dimensions of the CASP-C and information of the CASE-C can be used to identify possible impacts of contextual factors on participation (Liao, Yen, Hwang, Liou, et al., 2013; Hwang, Yen, Liou, Simeonsson, et al., 2015). The FUNDES-Child may also be used as a tool in the goalsetting process of the individualized education plan to support engagement in participation of elementary school students with special needs (Liao, Hwang, Liao, Kang, 2017). The combined use of the CASP-C, the CAFI-C and the CASE-C can assist clinicians to design intervention strategies to enhance participation for children with special needs. This would be consistent with the main theme of the ICF-CY — enhancing the full participation of children with disabilities in society — a goal to be reached through the application of the FUNDES-Child.

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Clinical Spotlight: Sensory Processing and Motor Development in Preterm Infants

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Preterm is defined as infants born alive before 37 completed weeks of gestation or fewer than 259 days. According to the World Health Organization (WHO), 11.1% of all pregnancies worldwide result in preterm birth¹.

Infants who are born preterm have increased risk of mortality and morbidity compared to term peers. Therefore, preterm infants usually spend a long period of hospitalization in Neonatal Intensive Care Units (NICU)^{2,3}. Although the NICU is necessary to support vital functions, excessive sensory stimuli exposure in the NICU may cause adverse consequences in the normal sensory development of the infant. Infants staying in the NICU long term are deprived of a natural sensory environment and have to cope with the excessive sensory stimulus originating from the NICU environment and the medical equipment supporting their lives^{4,5}.

The sensory environment of the NICU and uterus are substantially different. Infants in the NICU are exposed to many stimuli, which would not occur in the uterus. Since the soft tissues around the uterus absorb sounds and light, they protect the fetus from excessive light and sounds⁶. Exposure to the intense, unusual, and untimely inappropriate stimuli in the NICU may lead to significant changes in the normal sensory development pattern^{6,7}. For example, while the more developed tactile and vestibular systems of the preterm infants in the NICU receive less stimuli, the comparatively less developed auditory and visual systems receive much more stimulus⁸. This condition is not appropriate for the organization of the central nervous system (CNS) and maturational level of the infant⁹. This contradiction between the sensory need of the infant and the sensory environment provided by the NICU may lead to excessive sensory load, stress and changes in the neurosensory development^{8,10-11}. As a result, incomplete sensory development due to preterm birth and excessive sensory stimuli and painful invasive procedures which the infants are exposed to in the NICU may cause alternations in CNS organization and induce oral defense, tactile defense, and general sensory processing disorders in preterm infants^{5,12}.

The correct processing of the sensory impulses is very important in the normal neurodevelopmental period. In particular, disorders in the processing of the signals coming from the proximal sensory systems

(vestibular, proprioceptive, and tactile) lead to problems in producing an adaptive response, the development of postural control and movement coordination, and the motor development all of which impact the development of play, social participation, education and self-care occupations¹²⁻¹⁴. While there are numerous studies examining relationship between sensory and motor function in children and adolescents, there are insufficient numbers of studies reporting this relationship in infants^{15,16}. Therefore, we have investigated the relationship between the sensory processing and motor development in preterm infants¹⁷. The infants with gestational ages less than 37 weeks, adjusted age 10-12 months, without any congenital anomaly or systemic disease, who spent at least two weeks in the NICU were included in the “preterm group”. The infants who were undergoing physiotherapy and/or sensory integration therapy in any center were excluded from the study. Two standardized assessments were used. The sensory processing was assessed by using the Test of Sensory Function in Infant (TSFI) and the motor development was assessed by the Alberta Infant Motor Scale (AIMS). The Spearman correlation test indicated a strong positive relationship between the sensory processing and the motor development in preterm infants ($r=0.630$; $p<0.001$)¹⁷.

As a result, it was considered necessary to evaluate the sensory processing functions as well as the motor development in preterm infants, and to take the sensory-based approaches into consideration in the planning of intervention programs for more effective neurodevelopment outcomes. Additionally, emphasizing the importance of an interdisciplinary study and informing pediatricians and neonatologists about sensory processing disorder (SPD) through seminars, lectures, and workshops, is important for screening preterm infants for SPD, follow-up, and guidance for early intervention programs. Informing families with preterm infants about SPD will be beneficial for the identification of sensory signs and symptoms in the early stages of their lives.

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Clinical Spotlight: Using technology to provide physiotherapy services to children living in remote areas of Australia

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Australia is a large country with a relatively small population which is predominantly concentrated in two widely separated coastal regions on the east and south-west. However, approximately one-third of Australians live outside of Metropolitan areas which presents as a challenge for health service delivery. A national survey identified that 9.3% of 5 year old Australian children are vulnerable to physical health and wellbeing issues, such as poor gross and fine motor performance [1]. This rate increases with remoteness, with 22.8% of very remote children considered vulnerable [2]. Within rural and remote communities, there is a high demand for physiotherapists [3]. However, within these communities there are far fewer health professionals and available services when compared to metropolitan communities [3]. In fact, Australian

physiotherapists are twice as available in major cities than in remote areas [4, 5]. In addition to gaps in service, it has been identified that many children within these communities remain on waiting lists for paediatric physiotherapy developmental assessments [6]. This complements reports that there is a lack of paediatric physiotherapy expertise in rural areas [3, 6]. To meet these demands, rural and remote physiotherapists have developed diverse work practices, and are often called “generalists” [3]. “Generalist” physiotherapists will aim to deliver services as broadly as they can, even if this means taking on patients outside their interest or area of experience. Consequently, families in rural areas are forced to either commute to metropolitan areas to seek services or receive less specialised care from a “generalist” physiotherapist. It is clear that commuting long distances to seek services is costly and disruptive to a family. Therefore, within Australia, it has been identified that there are many children in remote and rural areas with disability, who receive fewer services than their metropolitan counterparts.

Telerehabilitation allows the remote delivery of allied health professional services via technology, as an alternative or supplement to face-to-face management. With adult cohorts, Telerehabilitation has been used to deliver education, counselling, assessment, intervention, ongoing management, as well as offline self-management programs. Even inter-disciplinary management has been successfully administered.

Telerehabilitation technology varies depending on many factors. Real-time imaged based technologies such as videoconferencing is the most commonly used technology. This technology allows both visual and audio data to be transmitted between the clinician and patient. Over the years, the enhancement in the technology of laptop computers, tablets and smart phones has allowed videoconferencing to be administered on these devices at low costs. Therefore, the cost to a family to access Telerehabilitation services is particularly low if they own a computer, tablet or smart phone. In addition, the networks used to transmit videoconferencing have improved over time, with consumer grade internet connections sufficient for these services. As a result of these advances, Telerehabilitation is a flexible, feasible and cost efficient option for many families.

There is growing evidence to support the clinical use of Telerehabilitation for the remote management of paediatric clients. One such study was completed at the University of Queensland in 2016. This study examined the validity of a Telerehabilitation administered Movement Assessment Battery for Children – 2nd Edition (MABC-2) in primary school-aged children compared to standard face-to-face administration of the assessment. Sixty children were recruited from a local primary school and each student was examined on two occasions: once face-to-face with a clinician and once by a remote clinician via a Telerehabilitation system (eHAB®, NeoRehab, Brisbane) (see Figure 1). Using real-time videoconferencing, with pre-recorded video demonstration the MABC-2 was successfully administered to children in all 3 age bands. The Telerehabilitation delivery identified the same children as the face-to-face delivery who would most benefit from intervention. Further, this study found that the MABC-2 has adequate concurrent validity to be performed via Telerehabilitation, since the limits of agreement for the total test score between the two delivery methods were smaller than a pre-determined clinically acceptable margin. These results are encouraging and further work is being undertaken to validate additional standardised assessments such as the Bruininks-Oseretsky Test of Motor Proficiency 2nd Edition, and the Neuro Sensory Motor Developmental Assessment.



Figure 1 Preparing for a balance test

One of the largest challenges to the widespread uptake of Telerehabilitation practice is the clinic training that is required to educate practitioners in this method of service delivery. To address this, The University of Queensland, through a generous donation from the Bowness Family Foundation, has established a student led Telerehabilitation Clinic where students provide Telerehabilitation services to the public under the supervision of trained clinical educators. This multidisciplinary clinic which includes students from Physiotherapy, Occupational Therapy, Speech Pathology and Audiology provides a critically important service to the public while also educating the next generation of practitioners in this innovative service delivery model. Students are also educated in the technical, legal, and ethical aspects of the delivery of care. Preliminary evaluation of the service has shown that students' knowledge and skills in the delivery of care via technology is significantly improved after exposure to clinical practice in the Telerehabilitation Clinic. The Telerehabilitation Clinic will provide a range of clinical services provided by speech pathologists, physiotherapists, occupational therapists, and audiologists including:

- Speech pathology assessment and intervention for children and adults with speech, language, voice, swallowing, and fluency disorders
- Hearing assessment and rehabilitation
- Physiotherapy for musculoskeletal and sports injuries, cardiorespiratory disease, neurological disorders and paediatrics
- Occupational therapy for children with developmental delay

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