The promise to go the distance.

Ranked among the best in the nation for pediatric orthopedics by U.S. News & World Report, Nemours/Alfred I. duPont Hospital for Children in Wilmington is home to one of the largest cerebral palsy programs in the mid-Atlantic.

With access to the region’s only accredited, pediatric Gait and Motion Analysis Laboratory — one of seven pediatric gait labs with full accreditation in the country — we’re setting the standard for cerebral palsy care. And helping every child reach their full potential.

Dr. Freeman Miller
Pediatric orthopedic surgeon / Medical Director of the Gait and Motion Analysis Laboratory

Dr. Miller is a recipient of the Lifetime Achievement Award for Impacting the Care for Children with Disabilities and remains dedicated to advances in cerebral palsy care.
Welcome to San Diego!

Thank you for taking time out of your busy schedules to participate in the AACPDM 68th Annual Meeting. The planning committee has worked hard to provide a diverse, innovative and well-rounded program to provide multiple opportunities for you “To Boldly Go...”. I invite you to explore new frontiers, both academically and socially. Our program offers four days filled with learning opportunities, engaging keynote speakers and networking events. The Scientific Program Committee, led by Dr. Iona Novak and Dr. Wade Shrader, created a program that will offer valuable education to every participant. Opportunities include our new Orthopedic Day Pre-Course on Tuesday, four Pre-Conference Wednesday afternoon Sessions [with a focus on intervention for infants, CP registries, ERhabilitation, and Ultrasound techniques], the GaitCMAS Symposium, 120 Free Paper Presentations, 88 Poster Displays, 21 Breakfast Seminars, and 35 Instructional Courses!

There are many networking opportunities in a city known for its coastal culture and lifestyle. We start the meeting with our Welcome Reception Wednesday evening aboard the USS Midway, and then we devote time for the poster and exhibit viewing session during the Wine & Cheese Reception on Thursday. Our Networking Dinner will be held on Friday night in the open air at Fiesta de Reyes (Old Town), plus there are other opportunities to connect with others throughout the conference using our new mobile app focused on collaboration and thought-sharing.

We are excited to launch the Academy’s new identity with our new logo. The pinwheel is a metaphor for ‘moving forward’. The forms for the patterns were extracted from the letters “c” and “p” as in cerebral palsy. The colors within this logo are intended to communicate community, diversity, collaboration, and hope.” Along with this branding, we look forward to new projects and partnerships that will support our mission to provide multidisciplinary scientific education for health professionals and promote excellence in research and services for the benefit of people with and at risk for cerebral palsy and other childhood-onset disabilities. Importantly, we would like to say “Thank You” to all of our sponsors and exhibitors who contribute significantly to the success of this meeting.

I hope you take this conference experience home with you and continue the mission to explore new things, seek out new connections, and help to lead our “forward thinking”.

Darcy Fehlings, MD MSc FRCPC
First Vice President
Head, UofT Division of Developmental Paediatrics
Bloorview Children’s Hospital Foundation Chair in Developmental Paediatrics
Senior Scientist, Bloorview Research Institute
Physician Director, Child Development Program
Holland Bloorview Kids Rehabilitation Hospital
Professor, University of Toronto
## TUESDAY, SEPTEMBER 9

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Orthopedic Day Pre-Course</td>
<td>8:00 AM – 5:30 PM</td>
<td>Aqua EF</td>
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## WEDNESDAY, SEPTEMBER 10

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Board &amp; Committee Breakfast and Meetings</td>
<td>7:30 AM – 11:30 AM</td>
<td>See pg 12</td>
</tr>
<tr>
<td>GCMAS Pre-Course</td>
<td>8:00 AM – 12:00 PM</td>
<td>Sapphire 400</td>
</tr>
<tr>
<td>Board &amp; Committee Luncheon</td>
<td>11:30 AM – 12:45 PM</td>
<td>Sapphire Terrace</td>
</tr>
<tr>
<td>Pre-Conference Sessions</td>
<td></td>
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<tr>
<td>Intervention for Infants</td>
<td>1:00 PM – 5:00 PM</td>
<td>Sapphire A</td>
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<tr>
<td>World CP Registry Day</td>
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<tr>
<td>ERehabilitation</td>
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<tr>
<td>Ultrasound Training Session</td>
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<tr>
<td>Board of Directors Meeting</td>
<td>1:00 PM – 5:00 PM</td>
<td>Sapphire 411</td>
</tr>
<tr>
<td>Welcome Reception</td>
<td>6:30 PM – 9:30 PM</td>
<td>Transportation provided</td>
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## THURSDAY, SEPTEMBER 11

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td>Invigorate!</td>
<td>6:00 AM – 6:45 AM</td>
<td></td>
</tr>
<tr>
<td>Breakfast Seminars 1-7</td>
<td>7:00 AM – 7:50 AM</td>
<td>See pgs 25-27</td>
</tr>
<tr>
<td>General Session</td>
<td>8:00 AM – 10:15 AM</td>
<td>Sapphire Ballroom</td>
</tr>
<tr>
<td>Free Paper Presentations A-D</td>
<td>10:45 AM – 12:45 PM</td>
<td>Indigo A</td>
</tr>
<tr>
<td>Orthopedics</td>
<td></td>
<td>_indigo BF</td>
</tr>
<tr>
<td>Health &amp; Families</td>
<td></td>
<td>_indigo CG</td>
</tr>
<tr>
<td>Outcome Measurements</td>
<td></td>
<td>_indigo E</td>
</tr>
<tr>
<td>Hypertonia</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Membership Business Meeting and Boxed Lunch</td>
<td>12:45 PM – 2:00 PM</td>
<td>Indigo DH</td>
</tr>
<tr>
<td>General Session</td>
<td>2:00 PM – 3:30 PM</td>
<td>Sapphire Ballroom</td>
</tr>
<tr>
<td>Free Paper Presentations A-D HYP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Session</td>
<td>4:00 PM – 6:00 PM</td>
<td>See pgs 30-34</td>
</tr>
<tr>
<td>Instructional Courses 1-12</td>
<td>6:15 PM – 7:45 PM</td>
<td>Sapphire Ballroom</td>
</tr>
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</table>

## FRIDAY, SEPTEMBER 12

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Invigorate!</td>
<td>6:00 AM – 6:45 AM</td>
<td></td>
</tr>
<tr>
<td>Breakfast Seminars 9-14</td>
<td>7:00 AM – 7:50 AM</td>
<td>See pgs 35-37</td>
</tr>
<tr>
<td>General Session</td>
<td>8:00 AM – 10:00 AM</td>
<td>Sapphire Ballroom</td>
</tr>
<tr>
<td>Free Paper Presentations E-H</td>
<td>10:30 AM – 12:30 PM</td>
<td>Indigo A</td>
</tr>
<tr>
<td>Activity &amp; Participation</td>
<td></td>
<td>_indigo BF</td>
</tr>
<tr>
<td>Epidemiology</td>
<td></td>
<td>_indigo CG</td>
</tr>
<tr>
<td>Communication</td>
<td></td>
<td>_indigo E</td>
</tr>
<tr>
<td>Upper Limb</td>
<td></td>
<td></td>
</tr>
<tr>
<td>International Networking Luncheon</td>
<td>12:30 PM – 1:30 PM</td>
<td>Sapphire Ballroom</td>
</tr>
<tr>
<td>Case Analysis Luncheon</td>
<td>12:30 PM – 1:30 PM</td>
<td>Indigo DH</td>
</tr>
<tr>
<td>General Session</td>
<td>1:30 PM – 3:30 PM</td>
<td>Sapphire Ballroom</td>
</tr>
<tr>
<td>Family Forum</td>
<td>3:45 PM – 6:45 PM</td>
<td>Indigo DH</td>
</tr>
<tr>
<td>Instructional Courses 13-24</td>
<td>4:00 PM – 6:00 PM</td>
<td>See pgs 40-44</td>
</tr>
<tr>
<td>Networking Dinner*</td>
<td>7:00 PM – 12:00 AM</td>
<td>Transportation provided</td>
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## SATURDAY, SEPTEMBER 13

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td>Invigorate!</td>
<td>6:00 AM – 6:45 AM</td>
<td></td>
</tr>
<tr>
<td>Breakfast Seminars 15-22</td>
<td>7:00 AM – 7:50 AM</td>
<td>See pgs 45-47</td>
</tr>
<tr>
<td>Free Paper Presentations I-L</td>
<td>8:00 AM – 10:00 AM</td>
<td>Indigo A</td>
</tr>
<tr>
<td>Gait</td>
<td></td>
<td>_indigo BF</td>
</tr>
<tr>
<td>Infants</td>
<td></td>
<td>_indigo CG</td>
</tr>
<tr>
<td>Imaging</td>
<td></td>
<td>_indigo E</td>
</tr>
<tr>
<td>General Session</td>
<td>10:15 AM – 12:00 PM</td>
<td>Sapphire Ballroom</td>
</tr>
<tr>
<td>Free Paper Presentations I-L</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Committee Lunch Meetings</td>
<td>12:00 PM – 1:30 PM</td>
<td>See Itinerary</td>
</tr>
<tr>
<td>Board of Directors Meeting</td>
<td>1:30 PM – 5:00 PM</td>
<td>Aqua AB</td>
</tr>
<tr>
<td>Instructional Courses 25-36</td>
<td>1:30 PM – 3:30 PM</td>
<td>See pgs 50-54</td>
</tr>
</tbody>
</table>

* = ticket required

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### American Academy for Cerebral Palsy and Developmental Medicine

The American Academy for Cerebral Palsy and Developmental Medicine (AACPDM) is an academy of over one thousand members of multiple professional disciplines dedicated to the improvement in the care of people with childhood-onset disabilities, their families and communities. We are pediatricians, neurologists, surgeons, therapists, nurses, special educators, engineers, and scientists from all over the world. Together we strive daily in our quest to perform the highest quality research, offer education opportunities for ourselves and others in the field, and work to elevate society and culture by recognizing the value and dignity of our fellow citizens with disabilities. Each year, about 1,000 healthcare professionals gather for the AACPDM Annual Meeting to participate in the high-quality dissemination of information in the basic sciences, prevention, diagnosis, treatment, and technical advances as applied to persons with cerebral palsy and other childhood-onset disabilities.
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American Academy for Cerebral Palsy and Developmental Medicine

# 68TH ANNUAL MEETING

- 68TH ANNUAL MEETING: September 9-13, 2014
  - Hilton San Diego Bayfront
  - San Diego, CA, US

# FUTURE ANNUAL MEETINGS

- FUTURE ANNUAL MEETINGS: October 21-24, 2015 – JW Marriott Austin
  - Austin, Texas

- September 21-24, 2016- Westin Diplomat
  - Hollywood, Florida

- September 13-16, 2017
  - Montreal, Quebec, Canada

# AACPDM OFFICE:

- AACPDM OFFICE: 555 E. Wells Street, Suite 1100
  - Milwaukee, WI  53202-3823
  - Tel: 1-414-918-3014
  - Fax: 1-414-276-2146
  - Email: info@aacpdm.org
  - Website: www.aacpdm.org
2013-2014 AACPDM BOARD OF DIRECTORS
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Johanna Darrah, PhD PT – Secretary
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Mauricio Delgado, MD – Director
Gordon Worley, MD – Director
Laura Vogtle, PhD OTR/L – Director
Deidre McDowell, PhD PT – Director
Lisa Thornton, MD – Director

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Lynne Romeiser Logan, PhD PT – eNewsletter Editor
Susan Sienko, PhD – Webmaster
Tracy Burr, CAE – Executive Director

2014 SCIENTIFIC PROGRAM COMMITTEE
Iona Novak, PhD OT- Co-chair
Wade Shrader, MD- Co-chair
Jilda Vargus-Adams, MD- Co-chair elect
Benjamin Shore, MD- Co-chair elect
Hank Chambers, MD
Uri Givon, MD
Harriet Fain-Tvedt, PT MPA
Mario Petersen, MD
Jessica Rose, PhD
Linda Krach, MD
Edward Dabrowski, MD
Mary Jo Cooley Hidecker, PhD, SLP
Sue Leibold, RN
Ratan Bhardwaj, MD
Lucyna Lach, MSW, PhD
Ellen Wood, MD
Keiko Shikako-Thomas, PhD OT

2014 LOCAL HOST
Hank Chambers, MD

OFFICE STAFF
Tracy Burr, CAE- Executive Director
Amanda Senkbeil- Meetings Manager
Jesse Cunningham- Project Coordinator
<table>
<thead>
<tr>
<th>AACPDM PAST AND FUTURE PRESIDENTS</th>
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<tbody>
<tr>
<td>Winthrop Phelps, MD</td>
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<tr>
<td>George G. Deaver, MD</td>
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<tr>
<td>Earl R. Carlson, MD</td>
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<tr>
<td>Bronson Crothers, MD</td>
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<tr>
<td>Leslie B. Hohman, MD</td>
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<tr>
<td>Arnold Gesell, MD</td>
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<td>Meyer A. Perlstein, MD</td>
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<td>Lenox D. Baker, MD</td>
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<tr>
<td>Margaret H. Jones Kanaar, MD</td>
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<tr>
<td>Nicholson J. Eastman, MD</td>
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<tr>
<td>William T. Green, MD</td>
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<tr>
<td>Alvin J. Ingram, MD</td>
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<td>Raymond R. Rembolt, MD</td>
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<td>G.W.R. Eggers, MD</td>
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<tr>
<td>Jessie Wright, MD</td>
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<tr>
<td>Eric Denhoff, MD</td>
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<tr>
<td>Chester A. Swinyard, MD</td>
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<tr>
<td>Samuel B. Thompson, MD</td>
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<td>Sedgwick Mead, MD</td>
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<td>William Berenberg, MD</td>
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<tr>
<td>William J. Hillman, MD</td>
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<tr>
<td>Harriet E. Gillette, MD</td>
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<tr>
<td>Henry H. Banks, MD</td>
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<tr>
<td>Lawrence T. Taft, MD</td>
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<tr>
<td>Robert L. Samilson, MD</td>
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<tr>
<td>Elliott D. O’Reilly, MD</td>
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<tr>
<td>Hans U. Zellweger, MD</td>
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<tr>
<td>Eugene E. Bleck, MD</td>
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<tr>
<td>Leon Greenspan, MD</td>
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<tr>
<td>Gerald Solomons, MD</td>
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<tr>
<td>Hyman H. Soboloff, MD</td>
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<tr>
<td>Leonard F. Bender, MD</td>
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<td>Fred P. Sage, MD</td>
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Download the AACPDM 2014 MOBILE APP!

This mobile app allows you to:

- View schedules, explore sessions, and find networking events.
- Curate your own personal schedule for easy conference attendance.
- Access location and speaker information at your fingertips.
- Post updates to sessions, keynotes, and exhibitor booths.
- Interact with a real-time feed of all event activity, that showcases which sessions are trending, most popular photos, and popular discussion topics.
- Earn points and badges for being active on the app and at the event.
- Expand your professional network and have fun!

Features of the App:

- Agenda - view the full agenda and related information (session time, room number, speaker info, etc)
- Update - a quick way to share photos, comments, and which session you’re attending
- Activity Feed - the real-time pulse of the event. See what people are saying, view photos from the event, and find trending sessions and topics.
- Users - see who’s at the event, and connect with them on the app
- Exhibitors - find exhibitors and sponsors, and leave comments or ratings
PURPOSE
The educational program of the American Academy for Cerebral Palsy and Developmental Medicine (AACPDM) is designed to provide targeted opportunities for dissemination of information in the basic sciences, prevention, diagnosis, treatment, and technical advances as applied to persons with childhood onset disabilities. The program provides a forum for discussion of scientific developments and clinical advances in the care of people with these conditions. By presenting forums which foster interdisciplinary communication and interchange among all allied health care professionals concerned with individuals with cerebral palsy and neurodevelopmental disorders, this program’s purpose is to ensure that the qualified personnel have the skills and knowledge derived from practices that have been determined through research and experience to be successful in serving children with disabilities. The purpose is also to encourage teambuilding within organizations and institutions, encourage multicenter studies, develop information for parents, and find a consensus on the optimal care of various conditions.

OBJECTIVES
• To disseminate information on new developments in applied and translational sciences, prevention, diagnosis, technology and utilizing recommendations from current clinical guidelines for treatment for individuals with cerebral palsy and other childhood-onset disabilities.
• To create an interdisciplinary forum to facilitate communication and team-building between professionals who are providing services and care for individuals with childhood-onset disabilities.
• To facilitate the integration between research and practice to improve the well-being of people with childhood onset disabilities.

TARGET AUDIENCE
All healthcare professionals, clinicians, researchers and health administrators who are concerned with the care of patients with cerebral palsy and other childhood-onset disabilities, including: developmental and other pediatricians, neurologists, physiatrists, orthopedic and neuro-surgeons, physical and occupational therapists, speech and language pathologists, orthotists, dieticians, rehabilitation engineers, kinesthesiologists, nurses, psychologists, special education teachers and educators.

NOTE: All levels of skill will be addressed.

AACPDM VISION
A global leader in the multidisciplinary scientific education for health professionals and researchers dedicated to the well-being of the people with childhood-onset disabilities.

AACPDM MISSION
Provide multidisciplinary scientific education for health professionals and promote excellence in research and services for the benefit of people with cerebral palsy and childhood-onset disabilities.

CERTIFICATE OF ATTENDANCE
All attendees may claim a Certificate of Attendance. Access this form at the Registration Desk.

ONLINE SELF-REPORTING SYSTEM FOR CME / CEU / CE CREDITS
After the AACPDM 68th Annual Meeting, all registrants will receive an instructional email about reporting and printing out their own continuing education certificates. The online self-reporting will be open by no later than October 2014. To verify your correct email address, please visit the registration desk before you leave the meeting.

Please note: in self-reporting, if you miss more than 15 minutes of a session/course, it is not considered full attendance, and cannot be claimed.

ACME ACCREDITATION STATEMENT
The American Academy for Cerebral Palsy and Developmental Medicine (AACPDM) is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.

AMA CREDIT DESIGNATION STATEMENT
The American Academy for Cerebral Palsy and Developmental Medicine (AACPDM) designates this live activity for a maximum of 39.5 AMA PRA Category 1 Credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

PHYSICAL THERAPISTS / PHYSICAL THERAPY ASSISTANTS
The American Academy for Cerebral Palsy and Developmental Medicine is an Approved Provider of Continuing Education by the American Occupational Therapy Association (AOTA) #6379. Occupational Therapists and Occupational Therapy Assistants will be able to claim a maximum of 3.95 AOTA CEUs. All educational sessions during the 68th Annual Meeting are available for credit.

Note: The assignment of AOTA CEUs does not imply endorsement of specific course content, products, or clinical procedures by AOTA.

NURSING CREDITS
The American Academy for Cerebral Palsy and Developmental Medicine (AACPDM) is a Provider approved by the California Board of Registered Nursing, Provider # CEP 14720, for 39.5 Contact Hours.

ABSTRACT SUPPLEMENT
Free Paper and Scientific Poster abstracts accepted for presentation at the AACPDM 68th Annual Meeting have been published in a supplement of Developmental Medicine and Child Neurology. Each attendee will receive one copy of the supplement along with their registration materials.
Help your patients step out of the brace.

Mobility, Confidence & Independence.

The L300 System provides ankle dorsiflexion for patients with cerebral palsy or other upper motor neuron injuries and may help improve your young patient’s gait, helping them to regain natural function and mobility and get back to what they do best – being KIDS.

“It allows me to walk FASTER at school because I’m not dragging my toes which slows me down a lot.”
— Daleney, Bi-lateral L300 User with Cerebral Palsy

Please contact us at 800.211.9136 Option 2 | www.bioness.com
AACPDM MEMBER BENEFITS

How can you benefit from membership in the American Academy for Cerebral Palsy and Developmental Medicine? - put in a shaded box below the banner

Annual Meeting: An international forum for the dissemination and exchange of new knowledge, ideas and educational information between participants from all disciplines.

Each year, the Academy offers International Scholarships and Student Scholarships to members to assist with the cost of attending the Annual Meeting. Financial support for the creation of new international meetings that are related to cerebral palsy and developmental medicine is also available through the Development Grant.

Networking: Membership in AACPDM facilitates making contacts with medical professionals and researchers with similar interests. This diverse group of professionals is bound together by a unified interest in improving the lives of people with cerebral palsy and developmental disabilities.

PUBLICATIONS

Developmental Medicine and Child Neurology (DMCN) is the official journal of the AACPDM. This peer reviewed journal is recognized internationally as the leader in the field. Fellow Members receive a FREE subscription to DMCN, or they may choose to select from a list of Clinics in Developmental Medicine series books in place of the DMCN Journal.

AACPDM creates a quarterly newsletter and periodic broadcast emails about various events and activities in the industry. Members assist in developing informational materials to keep the public informed about advances in treating cerebral palsy and other developmental disabilities.

RESEARCH

AACPDM offers the opportunity for members to apply for a Research Grant. The purpose of this grant is to provide financial support to bring together investigators from geographically disparate locations, obtain statistical consultation and develop a multi-center research study plan. The goal is to provide the forum and initial planning to develop a successful grant submission for full funding through some larger agency (e.g., NIH, UCP, NIDRR, CDC, CIHR etc). The grant should focus on an important clinical question relevant to the membership of AACPDM and the involvement of a multidisciplinary team is expected.

WEBSITE

Members can visit the Members Only section of the AACPDM website for a wide variety of information not available to non members including Fred P. Sage Award Videos, membership contact information and other educational opportunities.

COMMITTEES

The heart of the Academy is our committees. These committees offer networking and opportunities to explore areas of deep interest with a wide range of professionals from the membership.

• Adapted Sports and Recreation
• Advocacy
• Awards
• Communications
• Complex Care
• Education
• International Affairs
• Lifespan Care
• Membership
• Nominating
• Research
• Scientific Program

MEMBER EVENTS AT THE MEETING

AACPDM BOARD OF DIRECTORS MEETINGS

Wednesday, September 10
7:30 am – 8:00 am, Sapphire Terrace (Breakfast)
8:00 am – 11:15 am, Sapphire 411 (Executive Committee Meeting)
11:30 am – 12:45 pm, Sapphire Terrace (Lunch)
1:00 pm – 5:00 pm, Sapphire 411 (Board of Directors Meeting)

Saturday, September 13
12:00 pm – 5:00 pm, Aqua AB (Lunch/Meeting)

AACPDM COMMITTEE MEETINGS

Wednesday, September 10
7:30 am – 8:00 am, Sapphire Terrace (Breakfast)
8:00 am – 11:15 am, See Itinerary (Committee Meetings)
11:30 am – 12:45 pm, Sapphire Terrace (Lunch)

Saturday, September 13
12:00 pm – 1:30 pm, See Itinerary (Working Lunch)

AACPDM ANNUAL MEMBERSHIP BUSINESS MEETING AND LUNCH

Current members only. Pre-registration is required.

Thursday, September 11
12:45 pm – 2:00 pm, Indigo DH

2014 Membership Business Meeting AGENDA

Welcome: Darcy Fehlings, MD President
Treasurer’s Report: Joshua Hyman, MD Treasurer
International Alliance of the Academies: Richard Stevenson, MD Past President
Strategic Planning: Richard Stevenson, MD Past President

Committee Reports:
Adapted Sports & Recreation Chair: Jennifer Miros, MPT
Advocacy Chair: Kerstin Sobus, MD
Awards Chair: Uri Givon, MD
Communications Chair: Harriet Fain-Tvedt, MPA PT
Complex Care Chair: Irene Dietz, MD
Education Chair: Mario Petersen, MD
International Affairs Chair: Mary-Clare Waugh, MBBS FRACP FAFRM
Lifespan Care Chair: Jan Willem Gorter, MD PhD FRCP(C)
Membership Chair: Jean Stout, PT
Publications Chair: Hank Chambers, MD
Research Chair: Jessica Rose, MD
TUESDAY

NEW! ORTHOPEDIC DAY PRE-COURSE
A panel of senior surgeons will lead a discussion on hot topics in orthopedics. Cases will be presented for the panel’s input, and then opened to the floor for further discussion. Topics that will be covered include Hip, Crouch Gait, Complex Foot, Neuromuscular Scoliosis, and Spina Bifida.

WEDNESDAY

GAIT AND CLINICAL MOVEMENT ANALYSIS SOCIETY
Join the GCMAS for a morning session focused on “Novel Uses of Motion Analysis Technology!” Several presenters will share their experience and vision to discuss advances in the field of motion analysis and how this information can improve patient care.

PRE-CONFERENCE SESSIONS
Get the most out of the Annual Meeting and attend one of four afternoon Pre-Conference Sessions! The AACPDM is offering sessions on Intervention for Infants, CP Registries, ERehabilitation, and Ultrasound to jumpstart your learning.

WELCOME RECEPTION
Experience the USS Midway on Wednesday evening for a Welcome Reception to kick off the meeting and connect with colleagues. The flight deck and hangar bay will allow attendees to experience storytelling docents and flight simulators while exploring the longest-serving U.S. Navy aircraft carrier of the twentieth century.

THURSDAY

WINE & CHEESE POSTER AND EXHIBIT REVIEW
Explore the Poster and Exhibit Hall with an attendee-favorite on Thursday evening! Enjoy wine and cheese while viewing the innovative work of colleagues and meet with the 2014 exhibiting participants who are key contributors to the success of our meeting. Don’t forget to complete your Visit and Win Card and vote for the CPIRF Best Scientific Poster!!

DINE AROUND
Want to experience San Diego’s culinary scene? Sign up for the Dine Around onsite at the Registration Desk where we make the reservations for you. Reservations will be first-come, first-served.

SATURDAY

COMPLEX CARE SIG MEETING
Please join the Complex Care SIG as we review progress over the last year and chart a course for the coming year! The meeting will consist of updates from the Complex Care Committee as well as group discussion about a project to create interdisciplinary educational competencies for complex care teams.

NEW! CARE PATHWAYS/GUIDELINES MEETING
Are you interested in helping to shape care pathways/evidence informed guidelines for children with CP/disabilities for use in your country and internationally? Join us for a “special interest group” discussion to engage and discuss! Meeting will be facilitated by D.Fehlings/I.Novak/I.Autti-Ramo/M.O’Donnell.

FRIDAY

INTERNATIONAL NETWORKING LUNCHEON
Help foster the AACPDM International community! The AACPDM International Affairs Committee will be showcasing the International Scholarship recipients by inviting several from all areas of the globe to present at the luncheon about their services at home and how the AACPDM meeting will be shared and dispersed on their return.

NEW! CASE ANALYSIS LUNCHEON
Dr. Freeman Miller and Dr. Jilda Vargus-Adams will take the lunch-time audience through a few case scenarios of complex diagnosed patients throughout their lifespan. This is a sold out ticketed event.

NETWORKING DINNER
Get ready to fiesta in Old Towne San Diego at Fiesta de Reyes for an authentic Mexican experience! Surrounded by lush gardens, water features, and folk art décor, you’ll be able to enjoy strolling mariachis, specialty shoppes, homemade Mexican food, and a live Latin Jazz band! Pre-registration is recommended. Only a limited number of tickets are available onsite!

EXHIBITS – SAPPHIRE BALLROOM
All participants are urged to allow adequate time in your daily schedule to visit the exhibits, as they are an integral part of the success of the meeting. See pages 60-64 for more details.

Visit & Win Returns! Have a minimum of 20 exhibitors place a sticker on our card next to their company organization. Turn in your completed card to the Registration Desk by 3:00pm Friday, September 12th. The winner of the drawing will receive free registration for the 2015 Annual Meeting!
HOURS AT A GLANCE
REGISTRATION
Monday, September 8
6:00 pm - 8:00 pm
Tuesday, September 9
7:30 am - 8:00 pm
Wednesday, September 10
7:00 am - 5:30 pm
Thursday, September 11
6:30 am - 6:00 pm
Friday, September 12
6:30 am - 6:00 pm
Saturday, September 13
7:00 am - 5:00 pm

EXHIBIT HALL
Thursday, September 11
10:15 am – 4:30 pm
6:30 pm – 8:00 pm Wine & Cheese Poster and Exhibit Review
Friday, September 12
10:00 am – 3:30 am

POSTER VIEWING
Presenters have been asked to be available at their posters during the listed times below, although posters will be available to view from 8:00 am Thursday, September 11 through 1:00 pm Saturday, September 13 in the Sapphire Ballroom.

Thursday, September 11
6:15 pm – 7:45 pm: Wine & Cheese Poster and Exhibit Review
Friday, September 12
10:00 am – 10:30 am
Saturday, September 13
10:00 am – 10:15 am

SPEAKER READY ROOM
Aqua 311B
Wednesday, September 10
7:00 am – 6:00 pm
Thursday, September 11
7:00 am – 6:00 pm
Friday, September 12
7:00 am – 4:00 pm
Saturday, September 13
7:00 am – 2:00 pm

E-POSTER
An E-Poster is an electronic version of the traditional paper poster in PowerPoint® format, and is displayed on a monitor. In addition to traditional paper posters on bulletin boards, Scientific and Demonstration Poster Presenters were also required to submit their poster as an E-Poster. There will be computer kiosks throughout the Hilton San Diego Bayfront dedicated to E-Posters. They will also be posted on the AACPDM website during and 2 months after the meeting. E-Posters increase exposure to the work and allow people to view the poster in the comfort of their hotel room or even at home after the meeting. Thank you to all the Poster Presenters who took the extra work to participate in the Poster Preview and/or to submit an E-Poster!

NO SMOKING
Smoking is prohibited at all Annual Meeting sessions and events.

ATTIRE
Attire for the educational sessions of the meeting is business casual. Please bring a jacket or sweater, as room temperatures may vary.

CAMERA/RECORDING POLICY
It is the policy of AACPDM that no cameras are permitted in the meeting sessions, exhibit hall, or poster sessions. Please refrain from taking any photos in those locations. Audio or videotaping is strictly prohibited.

FDA DISCLAIMER
Some medical devices or pharmaceuticals not cleared by the FDA or cleared by the FDA for a specific use only may be used “off-label” (i.e., a use not described on the product’s label) if, in the judgment of the treating physician, such use is medically indicated to treat a patient’s condition. “Off label” uses of a device or pharmaceutical may be described in AACPDM educational programs or publications so long as the lack of FDA clearance for such uses is also disclosed. Results from scientific studies known to the author or presenter relating to the described intended use should be discussed, if so doing will not adversely affect the study or violate some other regulatory requirement. Some drugs or medical devices described or demonstrated in Academy educational materials or programs have not been cleared by the FDA or have been cleared by the FDA for specific use only. The FDA has stated that it is the responsibility of the physician to determine the FDA clearance status of each drug or device he or she wishes to use in practice.

AMERICANS WITH DISABILITIES ACT
The AACPDM wishes to ensure that no individual with a disability is excluded, denied services, or otherwise treated differently than other individuals because of the absence of auxiliary aids and services. If you need any auxiliary aids or services identified in the Americans with Disabilities Act please notify AACPDM at least 14 working days prior to the program to allow time to acquire the support needed.

GUEST ATTENDANCE
AACPDM asks registered attendees to refrain from taking children, spouses, or guests to any educational sessions or functions offered at the Annual Meeting that are not included in the guest attendance registration. Please urge your guests to wear their name badges at all times.
SESSION EVALUATIONS
We need your feedback! As a dedicated learner during the 68th Annual Meeting we truly value your feedback on the individual sessions, general sessions as well as the overall meeting experience. The future leadership of the AACPDM uses this information to improve on the future educational offerings and to make your experience the most productive and realistic in bringing back practical information to your practice.

Please take a moment to provide your feedback on 68th Annual Meeting in the in the following ways:
• The Annual Meeting website will include access to the online survey tool to complete various session evaluations. You will be able to access the internet on various internet café kiosks OR take time in your hotel room – all attendees receive complimentary internet in your hotel room. VISIT: http://www.aacpdm.org/meetings/2014/surveys
• Participants will be asked to provide input on the educational program of the 68th Annual Meeting through the online CME / CEU Claim System when claiming credit for participation.

DISCLOSURE
The presenting authors on the Free Papers and Posters are underlined. All corresponding authors were responsible for querying the co-authors regarding the disclosure of their work. The AACPDM does not view the existence of these disclosed interests or commitments as necessarily implying bias or decreasing the value of the author’s participation in the course. To follow ACCME guidelines the Academy has identified the options to disclose as follows:

a. Research or institutional support has been received
b. Miscellaneous, non-income support (e.g., equipment or services), commercially derived honoraria, or other nonresearch related funding (e.g., paid travel) has been received
c. Royalties have been received
d. Stock or stock options held
e. Consultant or employee
f. Received nothing of value
g. Did not respond or unable to contact

One or more of these letters appears by each author’s name indicating their disclosure. Please see Disclosure Index at the back of the program.

INSURANCE/LIABILITIES AND DISCLAIMER
The AACPDM will not be held responsible for injuries or for loss or damage to property incurred by participants or guests at the Annual Meeting, including those participating in social and fitness events. Participants and guests are encouraged to take out insurance to cover loss incurred in the event of cancellation, medical expenses, or damage to or loss of personal effects when traveling outside of their own country. The AACPDM cannot be held liable for any hindrance or disruption of Annual Meeting proceedings arising from natural, political, social or economic events, or other unforeseen incidents beyond its control. Registration of a participant implies acceptance of this condition. The material presented at this continuing medical education activity is made available for education purposes only. The material is not intended to represent the only, nor necessarily the best, methods or procedures appropriate for the medical situations discussed, but rather is intended to present an approach, view, statement, or opinion of the faculty that may be helpful to others who face similar situations.
SCIENCE HYPE AND STEM CELL TOURISM: WHAT CAN BE DONE?
Timothy Caulfield is a Canada Research Chair in Health Law and Policy and a Professor in the Faculty of Law and the School of Public Health at the University of Alberta. He is a Fellow of the Trudeau Foundation and has been the Research Director of the University’s Health Law Institute since 1993. He is a Principal Investigator for a number of large interdisciplinary projects that explore the ethical, legal and health policy issues associated with a range of topics, including stem cell research. Caulfield is a Fellow of the Royal Society of Canada and the Canadian Academy of Health Sciences.

Friday General Session
8:00 – 10:00 am

OMG. TOMORROW HAPPENED YESTERDAY!
DEALING WITH TECHNOLOGY IN TODAY’S TIMES
Richard Ellenson is CEO of the Cerebral Palsy International Research Foundation. Prior to that, he was founder and CEO of Panther Technology and Blink Twice. Richard is the father of a 16-year-old son, Thomas, who has Cerebral Palsy and has worked tirelessly to create awareness about people with disabilities and share stories about their vibrant lives. He and Thomas have been featured on many networks, including ABC World News’ People of the Year. He was previously an advertising executive who created campaigns and penned the line, “It’s Not TV. It’s HBO.” Richard has served on the Advisory Council of the NIH’s NIDCD and on the boards the US Society for AAC and the Assistive Technology Industry Association, and has received two NIH grants. He lives in New York City with his wife, Lora, and his two very special children, Thomas and Taite.

Saturday General Session
10:15 am – 12:00 pm

HEALTH CARE FOR INDIVIDUALS WITH DISABILITIES IN THE ACA ERA
Heidi M Feldman, MD, PhD holds the Ballinger-Swindells Endowed Professorship of Developmental and Behavioral Pediatrics at Stanford University and serves as the Medical Director of the Mary L Johnson Developmental-Behavioral Pediatrics Clinical Programs at Lucile Packard Children’s Hospital. She has served as president, Society for Developmental and Behavioral Pediatrics; Program Chair, Section of Developmental-Behavioral Pediatrics of the American Academy of Pediatrics; chair, Sub-Board for Developmental-Behavioral Pediatrics of the American Board of Pediatrics; and chair, Behavioral and Biobehavioral Study Section of the NICHD. Her book, Redesigning Health Care for Children with Disabilities, published in 2013, argues for a new paradigm for health care delivery for children with disabilities.

Friday General Session
1:30 – 3:30 pm

Speaker Meet and Greet
- Speakers will be available for about 15 minutes following each General Session on the Sapphire Terrace.

Please take this opportunity to discuss any questions or ideas that you may still have after the presentations.
**Neonatal Brain Injury: A 21st Century View on Protection and Repair**

**Donna Ferriero**, MD, MSc is the W. H. and Marie Wattis Distinguished Professor of Pediatrics and Neurology and Chair of the Department of Pediatrics and Physician-in-Chief of the UCSF Benioff Children’s Hospital. Dr. Ferriero is Director of the Neonatal Brain Disorder Laboratories and co-director of the Newborn Brain Research Institute at UCSF. Her laboratory has been critical in defining the relationship of selectively vulnerable populations of neural cells during maturation-dependent injury. She was elected to the Institute of Medicine of the National Academy of Sciences in 2005, the Association of American Physicians in 2011 and to the American Academy of Arts and Sciences in 2013.

Friday General Session 8:00 – 10:00 am

**Collaborative Efforts to Globally Improve the Management of Childhood Disability**

**Hans Forssberg**, MD, PhD, is Professor in Neuroscience at Karolinska Institutet and Consultant in Neuropediatrics at Astrid Lindgren Children’s Hospital in Stockholm, Sweden. He has a broad scientific background in translational research on Neurodevelopmental Disorders with more than 200 publications. Dr. Forssberg is a member of the Nobel Committee for Physiology or Medicine, and Chairman of the European Academy of Childhood Disability.

Friday General Session 8:00 – 10:00 am

**Intensity Matters: The Importance of Treatment Intensity for Children with Cerebral Palsy**

**Andrew Gordon** is a professor in Movement Science at Teachers College, Columbia University. He received his MS from Pennsylvania State University and a PhD in Neurophysiology/Pediatrics from the Karolinska Institute in Stockholm before completing a postdoc at the University of Minnesota Medical School. In 2001 his group was the first to publish a CIMT study in children with hemiplegia. In 2004 they developed Hand-Arm Bimanual Intensive training. More than 200 children have participated in his research-treatment program. His current work focuses on applying research-based knowledge toward developing evidence-based therapeutic interventions. He has more than 100 peer-reviewed papers, and has had funding from NIH, NSF and private foundations. He is a past co-recipient of the Gayle Arnold Award for Best Free Paper and was recently elected to the National Academy of Kinesiology.

Thursday General Session 8:00 – 10:15 am

**“To Boldly Follow”... - CPUP 20 Years in the Making**

**Professor Gunnar Hägglund**, MD, PhD is a practicing pediatric orthopedic surgeon at Lund University and Skane University Hospital in Lund, Sweden. Hägglund was one of the initiators and creators of the nationwide quality registry and secondary prevention follow-up programme CPUP— a program that actively follows and treats 95 percent of the Swedish pediatric population with CP. Professor Hägglund has been the Director of CPUP for twenty years. During Hägglund’s lead, CPUP has expanded to include persons with CP across the lifespan. The program has spread and has now been implemented in Norway, Denmark, Iceland, Scotland and New South Wales, Australia.

Thursday General Session 2:00 – 3:30 pm

**Moving Together Towards a Healthy and Inclusive World**

**Rick Hansen** is a celebrated athlete, leader, dedicated social innovator and a man committed to making a difference, and is best known in Canada and globally as the Man In Motion. A car crash at age 15 left Rick paralyzed. Fuelled by his mantra ‘anything is possible’, he became a decorated international wheelchair athlete and Paralympian. In 1985, Rick set out on his legendary Man In Motion World Tour that took 2 years, 2 months and 2 days, wheeling 40,000km through 34 countries, raising $26 million for SCI research and awareness for the potential of people with disabilities. Today Rick continues his quest for an accessible and inclusive world and a cure for spinal cord injury.

Saturday General Session 10:15 – 12:00 pm
CORBETT RYAN PATHWAYS PIONEER AWARD
The recipient of the award will represent excellence in the pursuit of and quality of life who also happens to live with a personal physical challenge. The recipient will have the following:
• Motivation and achievement in pursuing and accomplish-ing personal and vocational/professional goals
• A creative approach to their pursuit of education and par-ticipation in their vocation/profession
• A positive approach to life. The recipient serves as a role model to persons in their sphere of influence and demonstrates sensitivity to others and respect for self.

2014 Winner: Paul Tudisco
Friday General Session 1:30 – 3:30 pm

CATHLEEN LYLE MURRAY AWARD
The Cathleen Lyle Murray Foundation award recipient is selected on the basis of their impact on society through their humanitarian efforts to enhance the lives of persons with severe multiple disabilities. The award recipient demonstrates an effective and unique humanitarian approach through advocacy, legislation, clinical services, life experiences, etc., that can be shared with the AACPDM to help promote bet-ter understanding of and advancement in society of persons with disabilities.

2014 Winner: Michael Bortolotto
At the age of sixteen months, Michael Bortolotto was diagnosed with Cerebral Palsy. Through an extensive routine of time consuming exercises, he has learned to lead himself beyond the various challenges and obstacles which threatened to prevent him from walking, talking, and using his arms, hands, and fingers. Since 1989 Michael has delivered approximately 2900 presentations to audiences of all backgrounds in both Canada and United States of America. He is married to Dorothy and has a daughter, Natasha, and a son, Quintin.
Friday General Session 1:30 – 3:30 pm

LIFETIME ACHIEVEMENT AWARD
This award is specifically selected by the First Vice President. The recipient of this award has, during their lifetime, made creative contributions of outstanding significance to the field of medicine and for the benefit of patients with cerebral palsy and other childhood-onset disabilities.

2014 Winner: Peter Rosenbaum, MD, FRCP(C)

IT TAKES A VILLAGE TO DEVELOP A RESEARCHER: LESSONS FROM A OPPORTUNIST’S CAREER!
Peter Rosenbaum is a Developmental Paediatrician with over 40 years of clinical and health service research experience. He is also an author (almost 300 papers, book chapters, editorials and commentaries, as well as four books), a graduate supervisor (he has worked with over 50 graduate students); an editor with Mac Keith Press; and an invited lecturer and teacher in over 20 countries. Growing up professionally at McMaster was a key element in his training in research, as was the opportunity to work with mentors, colleagues and bright students who have helped to shape his thinking.

Thursday General Session 8:00 – 10:15 am

FRED P. SAGE AWARD
The Sage Award is given to the best audio/visual submission presenting clinical, research, or educational material on CD-ROM or DVD in a digital format. The award is named after Fred Sage, MD, past president (1981) and Chairman of the A/V Committee of the AACPDM. Dr. Sage envisioned the great potential of audio-visual use in the Academy. He advocated for ways to popularize this method of teaching, and this interest eventually lead to the Fred P. Sage Award for the best program submitted each year.

2014 Winner: Complex Care App for Helping Caregivers Manage their Child’s Feeding Tube
Submitted by: Wendy Burdo-Hartman and Garey Noritz
See the presentation during the Wine & Cheese Poster and Exhibit Review Thursday evening.

MENTORSHIP AWARD
This award recognizes an individual who has demonstrated outstanding leadership for trainees and colleagues in the field of cerebral palsy and other developmental disabilities. The Research Committee considers the breadth and depth of the nominee’s contribution and impact on improving services and care, promoting professional education and research for indi-viduals with disabilities, and the sustainability of the nominee’s mentorship over time. The award recipient must be a current member of the AACPDM.

2014 Winner: David Price Roye Jr., MD
Friday General Session 8:00 – 10:00 am
GAYLE G. ARNOLD AWARD FOR BEST FREE PAPER

The 2014 Gayle G. Arnold Award is selected from a set of abstracts nominated by the Awards Committee. Then the authors are invited to submit a manuscript for final judging. The award of $2,000 is provided by the Children’s Hospital in Richmond, Virginia. The editors of Developmental Medicine and Child Neurology Journal request to have first option on publication of this winning paper, as long as the authors comply with the publishing requirements of Mac Keith Press.

2014 Winner: Sarah James, BOccThy (Hons)

Efficacy of a web based multimodal therapy program on occupational performance, upper limb function and visual perception for children with unilateral cerebral palsy

Co-authors: Jenny Ziviani, PhD, MEd, BA, BAppSc (OT); Roslyn N. Boyd, PhD, MSc

2014 Best Free Paper Nominations

Relationship between brain lesion severity and motor outcomes in pre-school aged children with cerebral palsy

Roslyn Boyd, PhD PT

Comparison of lumbar epidural bupivacaine with fentanyl or clonidine for postoperative analgesia in children with cerebral palsy after single event multilevel surgery: a double blind randomized clinical trial.

George Chalkiadis, MD

Co-occurring autism spectrum disorder, intellectual disability, and epilepsy among children with cerebral palsy

Deborah Christensen, PhD

Relationship between brain structure and communication skills in children with cerebral palsy

Andrea Coleman, BSpPath

Patterns of gross motor severity and motor type in preschool age children with cerebral palsy: comparison between high and low resource countries

Rachel Jordan, BPhysio

Relationship between white matter fractional anisotrophy and general movement assessments in high-risk premature infants: a tract-based spatial statistical analysis

Colleen Peyton, PT, DPT, PCS

Effectiveness of a lifestyle program among adolescents and young adults with cerebral palsy; a randomized controlled trial

Jorrit Slaman, MSc

Child Apolipoprotein E gene variants and risk of cerebral palsy: estimation from case family triads.

Magne Stoknes, MD MSc

Trends in period prevalence of cerebral palsy, 1993-2010

Kim Van Naarden Braun, PhD

DUNCAN WYETH AWARD

This award is named after Duncan Wyeth, who has been both an outstanding athlete and advocate. The award is presented to an individual who has promoted sports and/or recreation in their area for individuals with disabilities. The recipient may be an athlete, coach, or sponsor.

2014 Winner: Ryan Chalmers

Ryan Chalmers has always believed he could do whatever anyone else can do and never wanted to be treated differently. Like the parents of Duncan Wyeth, Ryan’s parents encouraged him to pursue his dreams, and, in 2012, as a member of Team USA competing in the London Paralympic Games, Ryan realized a dream he had first imagined when he was eight years old. Born with spina bifida, Ryan took to sports at an early age and thrived on the competition. A 2011 graduate of the University of Illinois at Urbana-Champaign in Sports Management, Ryan is currently training for the 2016 Paralympic Games in Rio, while working as a Director for a nonprofit organization, Stay-Focused, Inc., which enables teens with disabilities to become certified SCUBA divers.

CPI RESEARCH FOUNDATION’S BEST SCIENTIFIC POSTER AWARD

Each year, the AACPDM awards the CPI Research Foundation’s Best Scientific Poster Award. The award recipient is selected as the highest rated poster from all committee member ratings.

2014 Winner: To Be Selected on Site. Don’t forget to vote!

MAC KEITH PRESS PROMISING CAREER AWARD

Mac Keith Press sponsors this award for the best Free Paper or Scientific Poster by an author who is within four years of completion of training and commencement of current career. The award recipient must be a member of the AACPDM or have an application pending. The recipient is selected by the Awards Committee on site and awarded after the Annual Meeting.

2014 Winner: To Be Announced on Site

FAMILY FORUM: FRIDAY 3:30-6:45PM

With a focus on transitional care and local adapted sports and recreational opportunities, the Family Forum is hosted for local families and medical professionals whose lives are influenced by cerebral palsy and other childhood-onset disabilities. The community has the chance to come together to meet with leading experts, adapted sports athletes and local organizations to participate in an interactive question and answer period.
Where Possibilities Are Endless for Excellence in Pediatric Rehab

You are committed to providing the best pediatric rehabilitation care possible. That’s why it’s imperative to work for an organization that is a nationally recognized rehabilitation leader—one that offers leading-edge technology and the most current therapeutic approaches. You’ll find just such an organization in Good Shepherd Rehabilitation Network, located in Allentown, Pennsylvania. We invite you to explore a future with us.

- Pediatric Physiatrist
- Developmental Behavioral Pediatrician

Here, we provide the most specialized inpatient and outpatient rehabilitation services for infants, children and teens. Our multidisciplinary medical environment offers an unmatched continuum of care for people with physical and mental disabilities. We specialize in the treatment of acquired and developmental disabilities, including autism spectrum disorders, ADHD, pediatric stroke, feeding and swallowing disorders, spinal cord injuries, TBI, orthopedics and sports injuries.

We offer an attractive compensation and benefits package and a wonderful lifestyle in the Lehigh Valley, Pennsylvania’s third largest region, which offers a wealth of cultural, recreational, educational and entertainment amenities. To learn more, contact Kelly Kozik, Talent Acquisition Manager, phone: 610-778-1074 or email: KKozik@gsrh.org

www.GoodShepherdRehab.org
2014 SCIENTIFIC PROGRAM OVERVIEW

This year’s program was developed from a submission total of 520 abstracts. All electronically submitted abstracts were independently rated by the multidisciplinary scientific program committee of 18 members (see page 6 of the program). The committee met in March 2014 to review the abstracts and finalize the program (e.g. Scientific paper or poster, instructional course/breakfast seminars). Scientific papers and Posters were rated (masked to authors) on research question/Objectives, design, methodology, conclusions and relative impact, relevance and importance to the care and treatment of children with childhood onset disabilities. Instructional Courses and Breakfast Seminars were rated (unmasked) on course objectives, content, presenters and level of impact, relevance and importance to conference attendees and the AACPDM membership at large. The feedback from the previous year’s evaluations are utilized in the process of creating the program with the aim of better meeting the needs of meeting attendees.

The 2014 program includes:
- 120 Scientific Papers
- 58 Scientific Posters
- 29 Demonstration Posters
- 4 Pre-Conference Sessions
- 1 GCMAS Joint Symposium
- 36 Instructional Courses
- 22 Breakfast Seminars

Scientific Review Process
- Abstracts submitted electronically
- Abstracts are blinded and scored independently by the program committee with scores submitted electronically and then tallied/averaged
- Highest scored abstracts are selected
- Program Committee meets in March to make final decisions regarding scientific program planning and to ensure that the program is balanced in content.

Free Papers and Posters are rated on:
- Research Question/Objectives
- Research Design, Methodology
- Impact, Relevance & Importance

Instructional Courses and Breakfast Seminars are rated on:
- Course Objectives
- Content/Presenters
- Impact, Relevance & Importance

SCHOLARSHIPS

AACPDM INTERNATIONAL AND STUDENT SCHOLARSHIP RECIPIENTS

The American Academy for Cerebral Palsy and Developmental Medicine Scholarship Program supports the mission of the AACPDM to improve the health and general status of children and adults with cerebral palsy, developmental disorders and childhood acquired disabilities. The Academy seeks international applicants who are highly motivated, currently in clinical practice, and who are in a position which will enable them to disseminate knowledge acquired at the meeting to others in their home country once they return. Particular emphasis is placed on assisting those from areas with under supported medical systems and limited financial resources. The AACPDM also awards scholarships to students each year so that they may attend the Annual Meeting.

2014 INTERNATIONAL SCHOLARSHIP WINNERS

Ynes Arredondo, Venezuela
Etzyona Eisenstein, Israel
Komomo Eyong, Nigeria
Shyamani Herriarachchi, Sri Lanka
Rita Ivontye, Lithuania
Ozgun Kaya Kara, Turkey
Francis Kimani, Kenya
Jessica Mahy, Australia
Laura Molina Tamacas, El Salvador
Samuel Olawuwo, Nigeria
Elsa Perez Flores, Mexico
Vikas Trivedi, India
Emily Trujillo Vasquez, Peru
Kelly Weir, Australia
Dimuthu Wijesekara, Sri Lanka

2014 STUDENT SCHOLARSHIP WINNERS

Katherine Benfer, BSpPath MPH
Misty Blakeman, MBBS
Zachary Boychuck
Rhondi Christensen, PhD
Andrea Coleman, BSpPath
Noemi Dahan-Oliel, PhD
Luke Gauthier, MD
Sofie Gjessing
Sarah James, OT
Yvette Kerkum, MSc
Joanna Kudzin, MD PhD
Hsing-Ching Kuo
Daniel Lorenzana
Kathryn Manning, MSc
Louise Mitchell, PT MHSt
Keiko Shikako-Thomas, PhD OT
Kathryn Shipp, MD
Harshvardhan Singh, MS
Swati Surkar, MS PT
Mikhail Tretiakov
Nangfang Xu, MD

2014 ORTHOPEDIC TRAVEL SCHOLARSHIP WINNERS

Ari Anitai, MD
Matthew Burn, MD
Rachel Mednick, MD
Tonya Rich, MA, OTR/L
Nathan Rosenberg, MD
Ana Smorensberg, PhD
TUESDAY, SEPTEMBER 9
ORTHOPEDIC DAY PRE-COURSE
8:00 am – 5:30 pm
Location: Aqua EF
Presenters: Benjamin Shore, MD; Kerr Graham, MD; Unni Narayanan, MBBS MSc FRCSI(C); Freeman Miller, MD; Joshua Hyman, MD; Michael Aiona, MD; Hank Chambers, MD; M. Wade Shrader, MD; Brian Snyder, MD PhD; Kirk Dabney, MD; Vineeta Swaroop, MD; Deidre Ryan, MD; Lawrence Karlin, MD; Scott Hoffinger, MD; Tom Novacheck, MD; Robert Kay, MD; Jon Davids, MD; David Scher, MD; Jim McCarthy, MD
Course Level: Advanced
Target Audience: Pediatric Orthopedic Surgeons
Course Summary: This pre-conference session will be a primarily moderated-type case discussion, where the experts address preoperative assessment, intra-operative details (including positioning, approach, technique, implants, etc.), and then postoperative care on various topics. A moderator for each topic will guide the discussion from a panel of experts, with time for audience participation and input. The topics include:

**Hip**
Moderator: Benjamin Shore
Panel: Kerr Graham, Unni Narayanan, Freeman Miller

**Complex Foot**
Moderator: David Scher
Panel: Michael Aiona, Hank Chambers, Jon Davids

**Spine**
Moderator: Wade Shrader
Panel: Brian Snyder, Kirk Dabney, Joshua Hyman

**Myelo (Neuromuscular Scoliosis, and Spina Bifida)**
Moderator: Vineeta Swaroop
Panel: Deidre Ryan, Lawrence Karlin

**Crouch Gait**
Moderator: Scott Hoffinger
Panel: Tom Novacheck, Robert Kay, Jim McCarthy

Learning Objectives:
After the completion of this course, the attendee will be able to:

1. Discuss preoperative assessment and planning of patients with Cerebral Palsy undergoing complex orthopedic reconstruction.
2. Discuss the surgical details of complex hip reconstruction, spine fusion, foot reconstruction, and the surgical treatment of gait disorders in children and adolescents with Cerebral Palsy.
3. Discuss postoperative care protocols for patients with Cerebral Palsy undergoing orthopedic surgery. Discuss the orthopedic treatment strategies, preoperative assessment, surgical details, and postoperative care for patients with Spina Bifida.

WEDNESDAY, SEPTEMBER 10
GCMS SYMPOSIUM
8:00 am – 12:00 pm
Location: Sapphire 400
BEYOND GAIT – NOVEL USES OF MOTION ANALYSIS TECHNOLOGY
Presenters: Tom Novacheck, MD; Katherine Steele, PhD; Aviva Wolff, OTR CHT; Jean Stout, MS PT; Kaat Desloovere, PhD; Gerald Harris, PhD
Course Level: Beginner, intermediate, and advanced.
Target Audience: Clinicians who evaluate and provide treatment for children, youth and adults with cerebral palsy and other movement disorders will benefit from this symposium. Prior experience analyzing and interpreting motion analysis data is beneficial, but not required.

Summary: This course will provide a review of current innovation and future applications of motion analysis technology. Six presenters will share their experience and vision to discuss advances in the field of motion analysis and how this information can improve patient care. Alternative uses of motion analysis will be discussed, including assessment of non-gait related movement such as upper extremity function; assessment of spinal deformities; sports assessments for children with disabilities; stair climbing; crutch use; and wheelchair propulsion. Innovative applications include: advances in motion analysis technology, EMG, fluoroscopy and dynamic imaging techniques; the use of foot models to assess complex foot deformities and make AFO recommendations; computerized musculoskeletal modeling to explore dynamic muscle and tendon lengths during function; and the use of motion analysis, torque and EMG instrumentation to provide a greater understanding of spasticity. The symposium will conclude with a look at the future of motion analysis, or “where will we be in 20 years?” This section will explore: abandoning the standard gait model in favor of subject specific functional joint and multi-segment foot modeling techniques; the possibility of marker-less motion capture systems and motion analysis “in the field”; the future of motion analysis for activities such as exercise and fitness; the potential of expanding motion analysis application into the operating room for surgical navigation of osteotomies and soft tissue tension; and application in the assessment of movement disorders.

Learning Objectives:
At the end of the symposium participants will be able to discuss:

1. How motion analysis models have been expanded to study movement of the upper limb, spine and foot
2. How motion analysis is used to study movements and function in children with disabilities other than gait, such as wheelchair propulsion and sports activities
3. How motion analysis and musculoskeletal modeling can be used to improve our understanding of the causes and treatments of pathological movement
4. How motion analysis technology and electromyography (EMG) can be used to quantify spasticity and other types of resistance to passive movement
PC 1: EARLY DETECTION AND EARLY INTERVENTION FOR CEREBRAL PALSY: GROUNDBREAKING NEW TOOLS AND TREATMENTS
Location: Sapphire A

Presenters: Cathy Morgan, PT; Iona Novak, PhD OT; Alicia Spittle, PhD PT; Linda Fetters, PhD PT

Course Level: Beginner, intermediate, and advanced.

Target Audience: Clinicians and researchers who diagnose, assess and treat children with cerebral palsy will benefit from this symposium and hands-on practicum.

Summary: Registers indicate the average age for the diagnosis of CP is 19 months. Recent neuroplasticity literature suggests that intensive, repetitive, task-specific intervention for CP ought to commence very early while the brain is most plastic, which is almost never the case when “wait and see” monitoring is occurring prior to diagnosis. It is important for those managing the care of infants and young children with motor delay discriminate as early as possible between CP and other diagnoses. The choice of evidence-based interventions and prognostic messages now differs greatly depending on diagnosis. Early motor assessment tools, brain imaging, and neurological examinations all help in predicting CP, with the most promising of these tools the General Movements Assessment. With growing evidence regarding available tools and the potential neuroplastic benefits of early intervention, we propose a major change in diagnostic and intervention practice.

This course will outline evidence-based diagnostic, assessment, prognostic and treatment options for infants “at risk” of CP, separated into three distinct groups; 1) premature infants – whose risk increases as gestational age decreases; 2) term born infants with neonatal encephalopathy (NE) – whose risk of CP increases with increased severity of NE; and 3) “healthy” term born infants born with no identifiable risk factors at birth, but are numerically the largest CP group. Based on latest evidence, this course outlines a recommend a shift away from referral for intervention following a formal (most often late) description of CP, to one of referral for intervention which occurs immediately once an infant is considered “at risk” of CP. New data from rigorous international trials studying the efficacy of novel early intervention treatments will be presented. Clinical pathways and decision-making trees that include assessment, treatment, and expected outcomes will be presented based on best-available evidence. Interactive video case studies will be used to assist participants to simulate planning treatment activities using these new novel interventions.

Learning Objectives:
1) To provide an overview of evidence-based diagnostic, assessment, and prognostic tools for infants “at risk” of CP, including; 1) preterms; 2) infants with NE; and 3) “healthy” term born infants
2) To provide an overview of new research data and video demonstrations of the latest very early intervention options and the associated child outcomes
3) To provide an overview of the findings from the Early Detection and Intervention World Summit in Vienna 2014, in terms of practical ways forward for researchers and clinicians For example, internationally agreed measures, agreed terminology.
4) To provide practical advice and illustrative video case studies of how to carry out these new treatments – so as to provide clinicians with the knowledge and skills to translate these new discoveries.
Presenters working in and using (cerebral palsy, autism, spina bifida, hydrocephalus, and neuro-sensory) registers/ surveillance programs throughout the world will discuss with delegates strategies for overcoming common challenges when establishing registers. Delegates will work in small teams to develop a plan for commencing their own theoretical register. They will be guided at different stations manned by presenters to choose the aim of their register, decide on practical elements and brain-storm together complexities such as: funding, governance, consent procedures, inclusion and exclusion criteria, the data to be collected, how it will be collected, validated and computerised. At the conclusion of the workshop delegates will leave with the knowledge of what registers can be used for, the questions to ask when establishing one, and who to ask for support and guidance.

**Learning Objectives:**
1. Gain familiarity with different registers throughout the world, their aims and outputs.
2. Appreciate the contribution registers can make to surveillance, follow up programs, etiology and intervention research.
3. Understand the different approaches to consent, inclusion and exclusion criteria
4. Be knowledgeable about the various methods to ascertain cases and data to the register
5. Have a thorough understanding of data points considered as essential when establishing a register, to be in alignment with registers throughout the world. Have access to tools for harmonisation/standardisation of data.
6. Recognise the common challenges when establishing a register, and have a resource and network of potential mentors to liaise with to overcome these issues.
7. Know the practical next step to establish a register in your area and sustainability strategies.

**PC 3: EREHABILITATION- USING VIRTUAL REALITY TECHNOLOGIES IN REHABILITATION FOR CHILDREN AND ADOLESCENTS WITH CEREBRAL PALSY**

**Location:** Aqua EF

**Presenters:** Roslyn N. Boyd, PhD PT; Elaine Biddiss, MASc PhD; Louise E. Mitchell, PT MHSt; Peter J. Chung, MD; Richard Simpson, PhD ATP; Linda Fay, (OT) Reg (Ont.)

**Course Level:** Intermediate level

**Target Audience:** Occupational, Physiotherapists, Physicians and Psychologists

**Course Summary:** This course will provide an overview of the evidence for VRTs used for EREhabilitation of individuals with cerebral palsy (CP). VRTs which include interactive computer play and exergames or “active video games” are played using movements of the arms, trunk, and/or legs as opposed to conventional hand controllers. The workshop will (a) present the development and current evidence for Move it To improve it (Mitti), a virtual, web-based and individualised training system, (b) outline practical challenges and experience-based strategies for implementing mainstream gaming systems such as Microsoft’s Kinect and commercially available VRTs such as SeeMe Rehab in the clinic, (c) discuss how engineers, therapists, and kids can work together to create games that are both therapeutically relevant and fun to play, and (c) review the use of a novel multi-player “Exergame” consisting of a stationary cycling unit powering an avatar in customized computer games. In the middle of the session there will be an interactive session where attendees will be able to trial these virtual reality platforms (“Mitti”, “SeeMe Rehab”, “Exergame”, FAAST) and up to ten other platforms from software developers, industry representatives, and patient advocates who will have participated in a morning seminar sponsored by the National Science Foundation (NSF) and the American Academy of Cerebral Palsy and Developmental Medicine (AACPDM).

**Learning Objectives:**
1. To review the current evidence for the use of VRTs for EREhabilitation
2. To understand clinical frameworks to guide decision making when using EREhabilitation
3. To learn current EREhabilitation models adopted in research settings and explore how these might be implemented in clinical practice
4. To become familiar with the application of VRTs as rehabilitation tools

**PC 4: USING B MODE ULTRASOUND FOR MUSCLE HYPERTONIA AND NEUROMUSCULAR DISORDERS: REVIEW OF SCANNING TECHNIQUES AND HANDS ON TRAINING**

**Location:** Cobalt 500

**Presenters:** Katharine Alter, MD; Steffen Berweck, MD; Jahannaz Dastgir, MD; Florian Heinen, MD; Sebastian Schroeder, MD

**Course Level:** Intermediate

**Target Audience:** Primarily Physicians, those treating patients with muscle hypertonia or neuromuscular disorders

**Summary:** This course will provide a review of scanning techniques for: US guided chemodenervation procedures, diagnostic US for suspected neuromuscular disorders, and procedural guidance techniques.

This course will provide hands on Scanning to provide training to physicians in scanning techniques for chemodenervation procedures, and scanning techniques for evaluation of patients with suspected neuromuscular disorders.

**Learning Objectives:**
1. Participants will become familiar with ultrasound scanning modes, terminology
2. Participants will gain hands on skills in ultrasound scanning techniques required to add US scanning/guidance in clinical practice
3. Physicians will become familiar with the use of US as a diagnostic tool in suspected neuromuscular disorders

**WELCOME RECEPTION ABOARD THE USS MIDWAY**

6:30 pm – 9:30 pm

Connect with AACPDM meeting attendees while exploring the longest-serving U.S. Navy aircraft carrier of the twentieth century. The flight deck and hangar bay will host AACPDM’s evening reception, allowing attendees to experience storytelling docents and flight simulators to kickoff the AACPDM 68th Annual Meeting. Transportation will be provided. The bus pick-up and drop-off location is on Gull Street near the Promenade East Foyer.
Target Audience: Physicians, Therapists, Educators interested in the etiology of cerebral palsy.

Course Summary: A “success” history of research on preventable, etiologic factors leading to cerebral palsy is the unraveling of the pathophysiology underlying kernicterus as a consequence of Rhesus incompatibility. However, it may appear that much of the current research on etiology and risk factors for cerebral palsy is going in circles, mainly repeating earlier studies, without real progress, and with a lack of novel approaches. It may also be questioned whether one should study etiological factors for specific cerebral palsy subtypes, instead of cerebral palsy as one condition, or if indeed cerebral palsy should be considered one of several neurodevelopmental outcomes of a brain injury. Moreover, some populations with high risk for cerebral palsy, such as those born extremely preterm, contribute only a proportion of all children with cerebral palsy, and the causes of brain insults in the preterm population are different from the causes leading to brain lesions in the term newborn. Genes, the placenta, inflammation and fetal growth restriction are among the “hot topics” in this research. During the breakfast seminar leading researchers will review current knowledge of CP risk factors, with an emphasis on potentially preventable causes as well as the challenges and opportunities that researchers face when performing etiologic studies of cerebral palsy. Participants will be invited to participate in the discussion.

Learning Objectives:
1) To provide the participants with an update on the current knowledge of etiological and risk factors, with emphasis on preventive causes.
2) To make the participants aware of the complexity and limitations of research into causal factors.
3) To give the participants insight in some selected study designs of future research.
4) To share with the participants ideas for future research.

BRK 3 - SLEEP PROBLEMS IN CHILDREN WITH NEURODEVELOPMENTAL DISORDERS
Golda Milo-Manson, MD MHsc

Location: Sapphire 410A
Level: Basic

Purpose: To improve the clinician’s understanding of sleep problems in children and youth with disabilities. To provide evidence informed recommendations on how best to counsel families and when to refer for a formal sleep study.

Target Audience: Clinicians treating children and youth with a variety of disabilities and associated sleep challenges.

Course Summary: Pediatric sleep problems occur more frequently in children with neurodevelopmental disorders. This session with focus on the following areas: 1) current state of the literature 2) typical developmental variations in sleep 3) physiology of sleep problems 4) why children with neurodevelopmental disorders have more frequent sleep issues 5) management strategies including both behavioral and medication. The second half of the presentation will include cases with opportunity for the audience to raise examples from their own practice.
Learning Objectives:
1) To gain knowledge of current evidence related to the management of sleep disorders in children and youth with neurodevelopmental disorders.
2) To understand the role of behavior management and when to use.
3) To understand the role of medication management and when to use.
4) To understand when to refer for an overnight sleep study.

BRK 4 - A NURSING DRIVEN HOLISTIC APPROACH TO IMPROVING THE HEALTH OUTCOMES OF CHILDREN WITH CEREBRAL PALSY
Lamara I. Love, BSN; Judith A. Lang, BSN; Nancy Ryan-Wenger, PhD
Location: Sapphire 402
Level: Basic
Purpose: Describe a novel, interdisciplinary care-coordination model used at Nationwide Children’s Hospital that fosters holistic, evidence-based care to children with Cerebral Palsy and has demonstrated outcomes of success.
Target Audience: Nurses, Physicians, all Allied Health Professionals
Course Summary: Children with Cerebral Palsy (CP) typically receive care from many specialty providers, which require many visits to the hospital annually and increase the potential for fragmented care. To remedy this clinical problem we have implemented a nurse-driven Comprehensive Interdisciplinary Team approach to provide holistic care coordination to patients and families. During a Comprehensive CP Clinic appointment, a team of specialists meets with the family, and a holistic, evidenced-based plan of care is developed by a nurse and/or a social worker. This family-centered approach includes summaries of each discipline’s plan of care with individualized goals and evidence-based interventions. Family concerns are at the forefront of this model of care. The plan of care is mailed to the family, primary care and community providers for continuity of care. We will present patient health and financial outcomes from 131 patients before and after implementation of this model of care. After 1 year, annual ED visits decreased from 155 to 109 (p=0.005), hospital admission rates decreased by 27%, and hospital days were reduced by 43%. Health care cost savings were an estimated $1,368,804 in the year following implementation of the program. Families voiced gratitude for this interdisciplinary approach to care. Parents use their care plans for school IEP meetings and to support their need for state and community resources.
Learning Objectives:
1) Understand the process of producing a DVD format home exercise program
2) Evaluate use of DVD format on parent preferences and perceptions regarding home programs
3) Understand evidenced-based practice behind using an exercise DVD for range of motion home program
4) Understand application of applying project principles to other education programs

BRK 5 - CREATING A PROFESSIONAL DVD HOME EXERCISE PROGRAM
Lynnette Rasmussen, BS; Virginia Nelson, MD MPH
Location: Sapphire Green Room
Level: Basic
Purpose: Describe production of a DVD video home exercise program; discuss evaluation results of home use by caregivers, and present evidenced-based practice use for home exercise programs.
Target Audience: Physicians, Therapists, Educators
Course Summary: Caregivers of children with disabilities are often shown exercises by therapists and asked to perform at home. Compliance and complexity of exercises can influence follow through. Video-based patient education has been found to be an effective way to guide accuracy of exercises and to improve compliance. Effectively using educational materials requires you to use products good teaching principles including use of clear examples, using plain language and using a moderate pace. Dr. Nelson and Lynnette Rasmussen will present creating an exercise video, present two published articles that evaluated the effectiveness of its use with children with neonatal brachial plexus palsy and provide the audience a springboard to explore potential education topics to educate patients.
Learning Objectives:
1) Understand the process of producing a DVD format home exercise program
2) Evaluate use of DVD format on parent preferences and perceptions regarding home programs
3) Understand evidenced-based practice behind using an exercise DVD for range of motion home program
4) Understand application of applying project principles to other education programs

BRK 6 - EVALUATION AND INSIGHTS IN SECONDARY DYSTONIA AND CHOREOATHETOSIS IN DYSKINETIC CP
Elegast Monbaliu, PhD MSc; Els Ortibus, PhD MD; Guy Molenaers, PhD MD; Hilde Feys, PhD MSc
Location: Sapphire 400
Level: Intermediate
Purpose: To improve insights in the clinical presentation of secondary dystonia and choreoathetosis in dyskinetic CP
Target Audience: Most paediatric health care professionals: medical doctors, therapists, kinesiologists, orthotists
Course Summary: Dyskinetic CP is the second largest group of children with CP but, to date it has not received the same level of attention as spastic CP. This is understandable in view of the complexity of dystonia and choreoathetosis in dyskinetic CP and the difficulty of measuring these particular motor disorders. However, better evaluation and understanding of dystonia and choreoathetosis is vital if medical interventions and rehabilitation are to be better targeted. This course is subdivided in four parts. First, definition and classification of CP will be presented with special attention for the discrimination between dystonia and choreoathetosis. Secondly, pathological signs will be reviewed in accordance with the International Classification of Functioning, Health
and Disability model (ICF), specifically within the ICF body function and structure. The third part will focus on clinical assessment, with special attention for the newly developed Dyskinesia Impairment Scale. In the fourth part, the possibility will be given to evaluate dystonia and choreoathetosis in an interactive way with the audience using videos and clinical cases.

**Learning Objectives:**
1. To clarify the currently definition and classification of dyskinetic CP
2. To gain insight in the distinction between dystonia and choreoathetosis
3. To illustrate the clinical presentation of secondary dystonia and choreoathetosis in dyskinetic CP
4. To review the currently available clinical assessment scales for secondary dystonia and choreoathetosis in dyskinetic CP

**BRK 7 - SECONDARY CONDITIONS IN ADULTS WITH CEREBRAL PALSY: PATIENTS’ PERCEPTIONS**
*Ronna Linroth, PhD*

**Location:** Sapphire 411B

**Level:** Basic

**Purpose:** To improve understanding of the patient perception of the types of medical and functional difficulties experienced by adults with cerebral palsy as they age.

**Target Audience:** Providers from all disciplines who work with individuals with cerebral palsy and their caregivers

**Course Summary:** Secondary conditions are medial, social, emotional, family, or community problems a person with a primary disabling condition are at risk for. Designing health prevention and maintenance strategies can be more effective when providers and patients/caregivers are versed in the risks for secondary conditions. This clinically based quantitative study using a survey design identifies the secondary conditions experienced by adults with cerebral palsy (CP) who are 18 years of age and older. Perhaps surprisingly, age has no relationship with the number of types of secondary conditions and a limited relationship with perceived impact of those conditions. CP type is a better predictor than age and/or gender in predicting the number of types of secondary conditions with spastic quadriplegia and dyskinetic having the most. Participants report a remarkable amount of pain in multiple locations, constipation and incontinence, and depression. The results of this study will be shared and the audience members will be invited to discuss the clinical implications of the findings.

**Learning Objectives:**
1. Participants will list seven secondary conditions experienced by adults with cerebral palsy.
2. Participants will list two secondary conditions that greatly impact the daily activities of adults with cerebral palsy.
3. Participants will reflect on clinical implications including approach to patient interview in order to identify the impact of secondary conditions.
4. Participants will discuss program development for patients with cerebral palsy to address prevention and health maintenance in the presence of secondary conditions.
11:22 am – 11:29 am  
**A5 - THE ROLE OF RECTUS FEMORIS TRANSFER IN THE DEVELOPMENT OF COUCH KNEE GAIT IN CEREBRAL PALSY**  
Mauro C. Morais Filho, MD MSc; Francesco C. Blumetti, MD MSC; Catia M. Kawamura, PT; Michelle O. Cardoso, MD; Daniella L. Neves, MD; Marcelo H. Fujino, MD; José Augusto F. Lopes, Eng

11:30 am – 11:45 am  Questions and Answers

11:46 am – 11:53 am  
**A6 - SENSITIVITY OF THE CPHILDA QUESTIONNAIRE TO CHANGE FOLLOWING SURGERY FOR SCOLIOSIS IN CHILDREN WITH SEVERE CEREBRAL PALSY**  
Unni G. Narayanan, MBBS MSc FRCS(C); Clarissa Encisa, BSc; Shannon Weir, MSc; Paul Sponseller, MD

11:54 am – 12:01 pm  
**A7 - COMPARISON OF LUMBAR EPIDURAL BUPIVACAINE WITH FENTANYL OR CLONIDINE FOR POSTOPERATIVE ANALGESIA IN CHILDREN WITH CEREBRAL PALSY AFTER SINGLE EVENT MULTILEVEL SURGERY: A DOUBLE BLIND RANDOMIZED CLINICAL TRIAL**  
George Chalkiadis, FANZCA FFPMANZCA; David Sommerfield, FANZCA FFPMANZCA; Marinis Pirpiris, FRACS PhD; Janette Low, FANZCA; Stephanie Dowden, RSCN MED MN (NP); Sueann Penrose, RSCN BEd; Michelle Tay, MMed; H. Kerr Graham, MD FRCS (Ed) FRACS

12:02 pm – 12:09 pm  
**A8 - LOWER EXTREMITY STRENGTH REFERENCE CURVES FOR AMBULATORY INDIVIDUALS WITH CEREBRAL PALSY**  
Donna J. Oeffinger, PhD; Mark Conaway, PhD

12:10 pm – 12:17 pm  
**A9 - LONGITUDINAL CHANGE IN FOOT POSTURE IN CHILDREN WITH CEREBRAL PALSY**  
Chris Church, MPT; Nancy Lennon, MSPT; Joshua Schwartz, BS; Tim Niler, PhD; Daveda Taylor, DPT, John Henley, PhD; Freeman Miller, MD

12:18 pm – 12:25 pm  
**A10 - DIRECT QUANTIFICATION OF PASSIVE MUSCLE STIFFNESS IN CHILDREN WITH CEREBRAL PALSY USING SHEAR WAVE ELASTOGRAPHY**  
Joline E. Brandenburg, MD; Sarah Eby; Pengfei Song; Heng Zhao, PhD; Brad Landry, DO; Shigao Chen, PhD; Kai-Nan An, PhD

12:26 pm – 12:45 pm  Questions and Answers

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**FREE PAPERS B: HEALTH & FAMILIES**

**Location:** Indigo BF

10:50 am – 10:57 am  
**B1 - QUANTITATIVE ANALYSIS OF LOWER EXTREMITY ADIPOSE TISSUE DISTRIBUTION IN CHILDREN WITH MYELOMENINGOCELE**  
Daniel Lorenzana, AB; Nicole Mueske, MS; Deirdre Ryan, MD; Tishya Wren, PhD

10:58 am – 11:05 am  
**B2 - MYELOMENINGOCELE: MORTALITY RISK FACTOR ANALYSIS FROM A NATIONAL INPATIENT DATABASE**  
Ryan Miller, MD; Ryan Mclemore, PhD; Richard Gerkin, MD; M. W. Shrader, MD; Lee Segal, MD

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11:06 am – 11:13 am  
**B3 - SUMMARY DATA FROM THE NATIONAL SPINA BIFIDA PATIENT REGISTRY 2009-2012**  
Elaine L. Pico, MD MA; John S. Wiener, MD; Kathryn Smith, RN, PhD; David B. Joseph, MD

11:14 am – 11:21 am  
**B4 - DEVELOPMENT OF GROSS MOTOR FUNCTION IN CHILDREN WITH CEREBRAL PALSY, AN INVESTIGATION OF “MOTOR GROWTH CURVES”**.  
Gerd S. Myklebust, PT; Reidun Jahnsen, PT PhD; Sonja Elkjæra, OT Cand. San.

11:22 am – 11:29 am  
**B5 - ASSESSMENT OF THE ASSOCIATION BETWEEN STRENGTH AND FUNCTION IN YOUTH WITH CP USING NEWLY DEVELOPED REFERENCE CURVES**  
Donna J. Oeffinger, PhD; Mark Conaway, PhD

11:30 am – 11:45 am  Questions and Answers

11:46 am – 11:53 am  
**B6 - BUILDING A MODEL TO ADDRESS THE ROLE OF PARENTING IN THE LIVES OF CHILDREN WITH NEURODEVELOPMENTAL DISORDERS (NDD): DOES OVERPROTECTIVENESS MATTER?**  
Lucyna M. Lach, MSW PhD; Aline Bogossian, PhD (Candidate); Sacha Bailey, PhD (Candidate); David Nicholas, MSW PhD; Dafna Kohen, PhD; Peter Rosenbaum, MD

11:54 am – 12:01 pm  
**B7 - CAREGIVER BURDEN IN CEREBRAL PALSY IS RELATED TO DISEASE SEVERITY AND LIFE STAGES**  
Teresa S. Clark, MSW LISW-S; Linda P. Lowes, PT PhD; Garey Noritz, MD

12:02 pm – 12:09 pm  
**B8 - A LONGITUDINAL EXAMINATION OF ANXIETY AND DEPRESSION AMONG YOUTH WITH SPINAL CORD INJURY: THE IMPORTANCE OF CAREGIVER AND COMMUNITY FACTORS**  
Erin H. Kelly, PhD; Anne Riordan, MA; Sara Klaas, MSW, C-ASWCM; Heather F. Russell, PhD; Louis Fogg, PhD; Lawrence C. Vogel, MD

12:10 pm – 12:17 pm  
**B9 - EVALUATION OF THE DISPARITY OF HARM CAUSED TO CHILDREN WITH MEDICAL COMPLEXITY WHILE HOSPITALIZED**  
Farah Brink, MD; Sandhya Ramachandran, MPH; Richard McCleod, MD; Garey Noritz, MD

12:18 pm – 12:25 pm  
**B10 - PARENT, THERAPIST AND RESEARCHER PERSPECTIVES REGARDING IMPORTANT PARTICIPATION ELEMENTS FOR CHILDREN WHO USE POWER MOBILITY USING A DELPHI SURVEY**  
Debra Field, MHScOT; William C. Miller, PhD; Tal Jarus, PhD; Steven Ryan, PhD; Lori Roxborough, MSc OT/PT

12:26 pm – 12:45 pm  Questions and Answers
FREE PAPERS C: OUTCOME MEASUREMENTS
Location: Indigo CG
10:50 am – 10:57 am
C1 - VALIDITY OF THE OMNI- RATE OF PERCEIVED EXERTION SCALE FOR YOUTH WITH CEREBRAL PALSY
Maria Fragala-Pinkham, DPT PT MS; Margaret E. O’Neil, PhD PT MPH; Nancy Lennon, PT MS; Stewart Trost, PhD

10:58 am – 11:05 am
C2 - IS IT FEASIBLE TO USE THE GROSS MOTOR FUNCTION MEASURE-66 BASAL AND CEILING IN CHILDREN WITH ACQUIRED BRAIN INJURY?
Melissa Walk-ley, MSc BSc; Gemma Kelly, BSc; Sue Mobbs, BSc; Margaret Mayston, BAAppSc MSc PhD

11:06 am – 11:13 am
C3 - THE DEVELOPMENT AND VALIDATION OF THE FATIGUE IMPACT AND SEVERITY SELF-ASSESSMENT FOR USE WITH YOUTH AND YOUNG ADULTS WITH CEREBRAL PALSY
Laura Brunton, BKin MSc; Doreen Bartlett, PT PhD

11:14 am – 11:21 am
C4 - USING ACTIGRAPH® ACCELEROMETERS IN CHILDREN AND ADOLESCENTS WITH CONGENITAL HEMIPLEGIA: DAYS OF MONITORING NEEDED AND TEST-RETEST RELIABILITY
Louise E. Mitchell, M.HltSt(ClinEpi) B.Phty(Hons1); Jenny Ziviani, PhD; Roslyn N. Boyd, PhD PT

11:22 am – 11:29 am
C5 - USE OF GOAL ATTAINMENT SCALE IN POST-ACUTE CARE SETTING
Joelle Mast, PhD MD; Linda Monterroso, MPH
WITHDRAWN

11:30 am – 11:45 am  Questions and Answers
11:46 am – 11:53 am
C6 - BIMANUAL FINE MOTOR FUNCTION (BFMF)
CLASSIFICATION IN CHILDREN WITH CEREBRAL PALSY: ASPECTS OF CONTENT AND CONSTRUCT VALIDITY
Ann-Kristin G. Elvrum, OT/PhD-student; Guro L. Andersen, MD; Kate Himmelmann, MD; Eva Beckung, Physio; Ann-Marie Öhrvall, OT; Stian Lydersen, STAT; Torstein Vik, MD

11:54 am – 12:01 pm
C7 - PSYCHOMETRIC PROPERTIES OF THE REVISED ASSISTING HAND ASSESSMENT VERSION 5.0
Lena Krumlinde-Sundholm, PhD reg OT; Marie Holmefur, PhD reg OT

12:02 pm – 12:09 pm
C8 - TEST-RETEST RELIABILITY OF THE ASSESSMENT OF MOTOR AND PROCESS SKILLS IN 8-16 YEAR OLD CHILDREN WITH UNILATERAL CEREBRAL PALSY
Sarah James, BOccThy (Hons); Jenny Ziviani, PhD MED BA BAAppSc (OT); Roslyn N. Boyd, PhD (Human Bioscience), MSc (Physio) Pgrad (Biomech)

12:10 pm – 12:17 pm
C9 - MEASURING THE DISCRIMINANT VALIDITY OF THE PEDI-CAT IN CHILDREN WITH CEREBRAL PALSY
Benjamin J. Shore, MD FRCS; Patricia Miller, MS; Benjamin Allar, BA; Travis Matheney, MD; Brian Snyder, MD PhD; Maria Fragala-Pinkham, PT DPT MS

FREE PAPERS D: HYPERTONIA
Location: Indigo E
10:50 am – 10:57 am
D1 - PREVENTION OF BACLOFEN WITHDRAWAL SYNDROME: PHARMACOKINETICS AND TOLERABILITY OF ORAL AND INTRAVENOUS BACLOFEN IN HEALTHY ADULT VOLUNTEERS
Robert L. Kriel, MD; Suresh K. Agarwal, MS PhD; James C. Cloyd, PharmD; Lisa D. Coles, PhD; Lisa A. Scherkenbach, PharmD; Linda E. Krach, MD

10:58 am – 11:05 am
D2 - INTRATHecal BACLOFEN THERAPY VS ORTHOPEDIC SURGERY IN ADOLESCENCE WITH CEREBRAL PALSY GMFCS LEVEL III
Francesco Motta, MD; Clara E. Antonello, PT

11:06 am – 11:13 am
D3 - IS THERE DIFFERENCE IN PROPRIOCEPTION SENSE OF CHILDREN WITH RIGHT AND LEFT HEMIPLEGIC CEREBRAL PALSY?
Ozgun Kaya Kara, MSc; Duygu Turker, MSc; Yavuz Yakut, Prof

11:14 am – 11:21 am
D4 - BASeline groSS Motor ClASSifiCA tion VS peDiA triC Qu Ality of life in p A tientS reCruiteD into A rAnDoMiZeD, Double-blinD plACebo-ControlleD S tuDy of AbobotulinuMtoxinA (D ySport®) in the treA tMent  of DynAMiC eQuinuS DeforMity  in ChilDren With CEREBRAL PALSY
Anissa Tse, BM BS FRCSI FFPM; Ann Tilton, MD; Marcin Bonkowski, MD PhD; Jorge Carranza, MD; Nigar Dursun, MD; Philippe Picaut, PharmD; Mauricio R. Delgado, MD

11:22 am – 11:29 am
D5 - THE IMMUNOLOGICAL RESPONSE TO BOTULINUM TOXIN-A IN TOXIN-NAÏVE CHILDREN WITH CEREBRAL PALSY – A RANDOMIZED CLINICAL TRIAL
Tandy Hastings-Ison, B App Sci (Physio) PhD Candidate; Minako Oshima, PhD; Philip Deitiker, PhD; Barry Rawicki, MB BS; M Zouhair Atassi, PhD, Dsc; H Kerr Graham, MD

11:30 am – 11:45 am  Questions and Answers
11:46 am – 11:53 am
D6 - AN ELECTROMYOGRAPHIC PROTOCOL THAT DISTINGUISHES SPASTICITY FROM DYSTONIA
Cammy Beattie, PT; Mark Gormley, MD; Roy Wervey, BS; Heather R. Wendorf, MPH
11:54 am – 12:01 pm
**D7 - THE RELATIONSHIP OF SECONDARY DYSTONIA AND CHOREATHETOSIS WITH ACTIVITY, PARTICIPATION AND QUALITY OF LIFE MEASURES IN CHILDREN WITH DYSKINETIC CEREBRAL PALSY**
*Eleazar Monbaliu, PhD PT; Paul De Cock, PhD MD; Lisa Mailleux, MSc PT; Elis Ortibus, PhD MD; Katrijn Klingels, PhD PT; Hilde Feys, PhD PT*

12:02 pm – 12:09 pm
**D8 - MUSCLE STRENGTH AFTER BOTULINUMTOXIN INJECTION IN CHILDREN WITH CEREBRAL PALSY**
*Meta N. Eek, PhD; Magnus Pahlman, Dr; Kate Himmelmann, PhD; Berit Askljung, RN*

12:10 pm – 12:17 pm
**D9 - HIGH PASSIVE STRESSES IN SPASTIC MUSCLE ARE NOT GENERATED FROM MYOFIBRILS FOR CHILDREN WITH CEREBRAL PALSY**
*Jason Howard, MD; Timothy Leonard, PhD; Kelly Kaiser, PhD; Jens Herzog, BSc; Luke Gauthier, MD; Karl Logan, MD; Ben Orlik, MD; Ron El-Hawary, MD; Walter Herzog, PhD*

12:18 pm – 12:25 pm
**D10 - MITOCHONDRIAL ENZYME ACTIVITY IS REDUCED IN SKELETAL MUSCLE IN CHILDREN WITH CEREBRAL PALSY**
*Sudarshan Dayanidhi, PhD; Elisa B. Buckner, BS; Henry G. Chambers, MD; Simon Schenk, PhD; Richard Lieber, PhD*

12:26 pm – 12:45 pm Questions and Answers

12:45 – 2:00 pm  
**AACPDM Annual Membership Dinner**  
**Business Meeting and Lunch**  
*Location: Indigo DH*

This event is about the business of the Academy and serves a very important role – you will also have lunch provided and see your colleagues that perhaps you haven’t bumped into yet. Be sure to come if you are an AACPDM member!

2:00 pm – 3:30 pm  
**General Session**  
*Location: Sapphire Ballroom*

**Presidential Guest Lecture**  
*Gunnar Hägglund, MD, PhD*

**Point-Counterpoint: Hip Management**  
The debate is back! Learn more about hip management from orthopedic surgeons.  
*Unni Narayanan, MBBS, MSc, FRCS(C)* vs.  
*Kerr Graham, MD*  
Moderated by Wade Shrader, MD

3:30 pm – 4:00 pm  
**Coffee Break - Poster and Exhibits**  
*Location: Sapphire Ballroom*

4:00 pm – 6:00 pm  
**Instructional Courses 1-12**

**IC 1 - IMAGING OF THE PEDIATRIC BRAIN, SPINAL CORD AND MUSCLE: TOOLS AND CLINICAL APPLICATIONS**
*Andrea Poretti, MD; Avner Meoded, MD; Alec Hoon, MD*

*Location: Sapphire 411B*

**Level:** Intermediate

**Purpose:** To provide an in depth understanding of the principles and clinical applications of the wide spectrum of conventional and advanced imaging techniques available in the evaluation of etiology and prognosis in children with pediatric neurology disorders.

**Target Audience:** Clinicians involved in the diagnostic evaluation of children with pediatric neurology disorders.

**Course Summary:** Imaging plays a key role in the diagnostic evaluation of children with pediatric neurology disorders. The spectrum of modalities available may provide a specific diagnosis, or sharpen and guide further etiological testing. Conventional imaging techniques such as ultrasonography (US), computed tomography (CT), T1- and T2-weighted as well as FLAIR magnetic resonance (MR) images with and without contrast, and MR angiography allow the study of anatomical brain structures. Advanced MR techniques such as diffusion weighted (DWI), diffusion tensor (DTI), perfusion weighted (PWI), and susceptibility weighted imaging (SWI) as well as 1H-MR spectroscopy allow additional non-invasive evaluation of the various biological processes and functions of the pediatric nervous system. Both conventional and advanced imaging techniques may be applied to investigate children with disorders of the brain, spinal cord, and/or muscles. Given the wide spectrum of imaging modalities available as well as the variability in rendered information and costs, it is critical for clinicians to understand what each modality can offer. After a short technical introduction, we will discuss indications, “non-indications” (when the modality is unlikely to be beneficial), and advantages vs. disadvantages of every imaging tool based on selected, illustrative clinical cases.

**Learning Objectives:**
1. The participant will identify the principles of the various imaging modalities available to clinicians.
2. The participant will recognize clinical settings when specific imaging tools are appropriate/indicated.
3. The participant will recognize clinical applications of the imaging techniques.
4. The participant will consider the use of these techniques in his/her clinical practice.

**IC 2 - ORTHOPEDIC SURGERY FOR ADULTS WITH CEREBRAL PALSY**
*M. W. Shrader, MD; Garey Noritz, MD; Hank Chambers, MD*

*Location: Sapphire 410A*

**Level:** Basic

**Purpose:** This course will present an overview of typical orthopedic surgical procedures that adults with cerebral palsy (CP) may need. Specifically, the course will present the unique aspects of caring for adults with CP undergoing orthopedic surgery, including preoperative assessment, medical co-management, and postoperative rehabilitation.

**Target Audience:** Physicians, Occupational and Physical Therapists, Nurses

**Course Summary:** This course will provide an introductory level discussion of orthopedic surgical procedures that adults with CP may undergo. Surgery of the foot, knee, hip, and spine will be briefly discussed, including indications, patient selection, consent issues, surgical techniques, and postoperative care, including a discussion of the unique technical challenges present in adults with CP.
rehabilitation requirements for adults with CP. A discussion of the issues regarding medical co-management of this patient population will also be presented. Specifically, the course will focus on preoperative assessment, where to do the surgery (children's hospital vs adult hospital), ICU issues, management of complex medical issues, such as nutritional issues and seizure disorders, and postoperative complications.

**Learning Objectives:**
1. To understand some details of orthopedic surgical procedures that are performed on adults with cerebral palsy.
2. To develop an appreciation for the complex issues requiring medical management of adults with CP undergoing surgery, including preoperative assessment, hospital management, and management of postoperative complications.
3. To learn about how postoperative care and rehabilitation differs for adults with CP undergoing orthopedic surgery.
4. Participants will learn about patient selection in this patient population, with special emphasis on the consent/assent process.

**IC 3 - TRANSLATING RESEARCH EVIDENCE INTO PRACTICE: THERAPY DOSING AND CONTEMPORARY MOTOR LEARNING APPROACHES FOR CHILDREN WITH UNILATERAL CP**

*Leanne Sakzewski, PhD OT; Iona Novak, PhD, OT*

**Location:** Sapphire 410B  
**Level:** Basic  
**Purpose:** The instructional workshop aims to give clinicians a comprehensive understanding of processes and strategies for translating research evidence into clinical practice.

**Target Audience:** Occupational therapists and physiotherapists working with children with CP.

**Course Summary:** Adopting research evidence into clinical practice takes an unpredictable and long period of time, requiring theoretically informed implementation strategies to drive change in the workplace. Based on current evidence for upper limb therapy in children with unilateral CP and in the absence of clinical practice guidelines, four evidence criteria are proposed: Therapy should (1) be goal directed and goal attainment measured objectively pre/post intervention; (2) use contemporary motor learning approach; (3) achieve an adequate dose; (4) measure upper limb outcomes pre/post therapy. Participants will work through a systematic process based on the Implementation of Change Model to determine practical ways to progress change in their workplace and adopt research evidence into clinical practice.

**Learning Objectives:**
1. Participants will: Have in depth knowledge of the evidence for upper limb training for children with unilateral cerebral palsy (CP) and determine ways evidence could be adapted for their particular work context.
2. Learn methods of evaluating clinical performance against specific evidence criteria both before and after implementing changes in clinical practice.
3. Understand methods of identifying potential barriers and enablers to implementing changes in clinical practice.
4. Develop knowledge about possible implementation strategies and identify and develop their own strategies to enable change to be integrated into routine clinical practice.

**IC 4 - SELECTIVE DORSAL RHIZOTOMY: APPLYING SELECTIVE DORSAL RHIZOTOMY TO IMPROVE GAIT AND AMBULATORY FUNCTION IN THE CHILD WITH CEREBRAL PALSY**

*Marcie Ward, MD; Tom F. Novacheck, MD; Peter Kim, MD*

**Location:** Aqua 310  
**Level:** Intermediate

**Purpose:** To educate providers regarding Selective Dorsal Rhizotomy (SDR), a collaborative approach to evaluating candidates including gait analysis, the surgical techniques, the rehabilitation postoperatively and outcome data which will elevate the quality of our practices and the care of our patients.

**Target Audience:** Developmental pediatricians, pediatric neurologists, neurosurgeons, orthopedists, physiatrists and physical therapists who want to know more about SDR, or who consider SDR as a potential treatment option for their patients.

**Course Summary:** This course is Part I of a two part course. It is designed to discuss the selection criteria associated with predictable outcomes for tone reduction and improved ambulation after selective dorsal rhizotomy. This team’s collaborative approach will be explained and include selection criteria which suggest a favorable outcome can be predicted if SDR is pursued. Applicable gait analysis principles will be highlighted. Surgical technique and the postoperative rehabilitation treatment plan implemented by this team will be discussed. Evidence will be presented to show short term and long term outcome data regarding patients treated with selective dorsal rhizotomy. The audience will participate through an electronic audience response system. This will allow the speakers to adjust teaching points commensurate with the audience’s level of understanding of the material and to identify areas for further discussion during the course.

**Learning Objectives:**
1. Describe characteristics of patients that are consistent with a predictable positive result following SDR.
2. Learn the benefits of a multidisciplinary collaborative evaluation of the ambulatory patient with cerebral palsy.
3. Explore the techniques of rhizotomy and the benefits of utilizing a selective approach in the procedure.
4. Review the post SDR short and long term outcomes data.

**IC 5 - DEEP-BRAIN STIMULATION FOR SECONDARY DYSTONIA**

*Terence Sanger, MD PhD; Warren A. Marks, MD; Mark Liker, MD*

**Location:** Cobalt 500  
**Level:** Intermediate

**Purpose:** This course will present recent results on the use of DBS for patients with secondary dystonia, including Cerebral Palsy. The workshop will describe current indications and patient selection for this procedure, as well as management of patients with implanted stimulators. The workshop will also provide information on entry of patients in the pediatric DBS consortium registry.

**Target Audience:** Physicians, Occupational and Physiotherapists, Nurses
**IC 6 - TO BOLDLY GO TOWARDS ADULTHOOD! PROMOTING AUTONOMY IN EMERGING ADULTS WITH A CHILDHOOD ONSET DISABILITY**  
*Wilma M. van der Slot, PhD; Marij Roebroeck, PhD; Susan C. Labhard, MSN RN; Jan Willem Gorter, MD PhD FRCPCH*

**Location:** Sapphire 411A  
**Level:** Intermediate  
**Purpose:** To provide practical information on effective interventions to promote autonomy (e.g. college, work, independent living and socialization) in adolescents and young adults with childhood onset disabilities.  
**Target Audience:** Health-care professionals working with adolescents and young adults with childhood onset disabilities in a variety of settings.

**Course Summary:** A key element for young people with a disability is to learn how to self-manage life. In this course we will present interventions from Dutch, American and Canadian Transition programs aimed at supporting young people to improve their self-management of life and participation. Feasibility and effectiveness of these interventions will be discussed. We will provide practical information, and promote an interactive discussion with participants on the implementation of self-management interventions.

**Learning Objectives:**  
1) To identify ways to promote autonomy among emerging adults across different types of chronic disabilities.  
2) To explore application of transition interventions in a variety of settings.  
3) To gain knowledge on implementation of transition interventions for young adults with childhood onset disabilities.  
4) To use evidence-based outcomes to support autonomy in several life areas.

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**IC 7 - HEALTH DISPARITIES, PREMATURITY, AND CEREBRAL PALSY: OPPORTUNITIES AND CHALLENGES**  
*Michael E. Msall, MD; Leslie I. Rubin, MD*

**Location:** Sapphire 402  
**Level:** Intermediate  
**Purpose:** We will explore strategies aimed at raising awareness and reducing disparities in prevalence and outcomes of prematurity and cerebral palsy in low income, minority and underserved communities.

**Target Audience:** Health care professionals involved in the care of children, adolescents and adults who survived preterm birth or who experience cerebral palsy and those who work in low income, minority and underserved communities.

**Course Summary:** Despite advances in obstetrics and neonatal medicine, high rates of prematurity disproportionately impact families experiencing poverty and social disadvantage. Though rates of survival have dramatically increased for very preterm and extremely preterm infants, there are high rates of cerebral palsy and neurodevelopmental disabilities in survivors. Post hospital discharge, these children from low income, minority and underserved communities often experience barriers to medical, therapeutic, educational and vocational services. We will examine how the ICF model of functioning and participation can be a useful framework for understanding health, development, and life course trajectories. Through active participation of attendees, we will develop strategies to begin to reduce disparities in services while promoting health equity among the most vulnerable children in our society.

**Learning Objectives:**  
1) To review current population data on health disparities and prevalence of prematurity.  
2) To examine current neurodevelopmental outcomes after prematurity in relation to health disparities.  
3) Through audience participation, to develop key indicators of health, development, rehabilitation, and family supports that increase resiliency in settings of adversity.  
4) To discuss advocacy strategies to promote health equity among the most vulnerable children in our society.

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**IC 8 - THE YEAR’S TOP TEN ARTICLES ON DEVELOPMENTAL DISABILITIES**  
*Richard C. Adams, MD; Gordon Worley, MD*

**Location:** Sapphire 400A  
**Level:** Intermediate  
**Purpose:** To present summaries of the ten most important articles on developmental disabilities published in the past year (Autumn 2013 - Summer 2014) and to encourage discussion about them by participants.

**Target Audience:** Physicians and nurses who treat children with developmental disabilities and want to keep abreast of the latest evidence-based, scientific findings that have the greatest likelihood of impact of clinical care. Although therapists are welcome and some articles may be relevant to their practices, most papers will have a medical focus.

**Course Summary:** The top ten clinically relevant articles published in English between Autumn 2013 and Summer...
2014 will be presented to the audience/participants. Articles will be chosen from the presenters’ personal experience and from searches in Medline and CINHAL (Current Information in Nursing and Allied Health Literature). Categories from which the articles will be chosen include (but not limited to) the following: attention deficit hyperactivity disorder, autism, cerebral palsy, genetic syndromes (Trisomy 21, others), intellectual disabilities, spina bifida, spinal cord injury. They will be selected using the following criteria: 1) impact on clinical care, 2) scientific merit of the study (validity), 3) generalizability to practice. The presenters will summarize the ten articles in reverse order (saving number one for last). Their impact on clinical practice, place in the context of current care, and their implications for future research will be areas for discussion. The audience will be encouraged to respond to each article as it is presented. A copy of the references and abstracts will be given to the attendees.

Learning Objectives:
1) Summarize the major conclusions of each of the ten articles presented.
2) Identify areas in which additional research is needed.
3) Evaluate the utility of each of the articles for one’s own clinical practice
4) Be inspired by the presentations and discussion to seek additional articles on one’s own.

IC 9 - INTRODUCTION TO THE PEDIATRIC EVALUATION OF DISABILITY INVENTORY COMPUTERIZED ADAPTIVE TEST (PEDI-CAT): A NEW OPTION FOR MEASURING FUNCTION
Maria Fragala-Pinkham, DPT MS; Benjamin J. Shore, MD MPH

Location: Cobalt 520

Purpose: To provide information on a newly developed test designed to measure daily activities, mobility, social/cognitive, and responsibility abilities in youth with disabilities.

Target Audience: Physicians, therapists and other rehabilitation professionals interested in measuring functional abilities in youth with disabilities.

Course Summary: The original Pediatric Evaluation of Disability Inventory (PEDI) has been transformed to a new computer adaptive test (CAT). This test, the PEDI-CAT, uses a statistical algorithm that selects questions from a large set of items, based on the respondent’s previous choices creating an efficient, meaningful and personalized assessment. This session will introduce the PEDI-CAT with a description of the intended population, domains, test items, response scales, administration procedures, and scoring interpretation. Psychometric properties including validity, test-retest reliability for youth with disabilities as well as psychometric test properties specific for youth with cerebral palsy will be discussed. Information about the PEDI-CAT: Autism Spectrum Disorders (ASD) option preliminary research findings as well as future development of other PEDI-CAT disability specific options will be discussed.

Learning Objectives:
1) Describe the transition from the Pediatric Evaluation of Disability Inventory (PEDI) to the Pediatric Evaluation of Disability Inventory Computer Adaptive Test (PEDI-CAT)
2) Identify the PEDI-CAT test applications including intended populations, domains, test items, response scales, administration procedures, and scoring
3) Discuss applicability of the PEDI-CAT to measure abilities in youth with disabilities including psychometric properties specifically for youth with CP (GMFCS Levels I-V)
4) Discuss future development and preliminary findings of the PEDI-CAT: ASD option as well as other disability specific PEDI-CAT options
4) Gain perspective on how assessment of this population is likely to continue to evolve.

**IC 11 - PUTTING THE ICF-CY INTO PRACTICE**  
Olaf Kraus de Camargo, MD PhD; Liane Simon, MEd PhD  
**Location:** Sapphire Green Room  
**Level:** Intermediate  
**Purpose:** Introduce the use of an age-specific code-set of the ICF-CY (International Classification of Functioning, Disability and Health - Version for Children and Youth, WHO) for children with disabilities  
**Target Audience:** Clinicians, Parents, Physicians  
**Course Summary:** The ICF concept of health provides perspectives on people’s lives through the lens of functioning. This view of health promotes an integration of a patient’s body functions and structures, activities performed in daily life, and the personal and social roles that constitute their participation in life situations. Health professionals engaged in the habilitation process have varied disciplinary language, training and culture that all emphasize certain domains of patient’s functioning over others. However, adoption of the ICF allows that all members of a clinical team are motivated to improve their patient’s functioning within a common conceptual approach. This can be used to describe the different goals of intervention, negotiate priorities and communicate among different disciplines and with patients and parents. Based on the practical experience of the presenters in numerous workshops given for early childhood educators and developmental pediatricians in Germany, the audience will be introduced to one of the existing code-sets for children and youth and its use will be demonstrated and practiced on case examples with the attendees. Reference: Kraus de Camargo, O. and L. Simon (2013). Practical use of the ICF-CY [Die ICF-CY in der Praxis]. Bern, Verlag Hans Huber.  
**Learning Objectives:**  
1) To understand the benefits of working with a code-set of the ICF-CY to set goals for intervention.  
2) To learn how the ICF-CY can be useful to promote interdisciplinary collaboration.  
3) To learn how to empower patients and parents to participate in goal setting by using the ICF-CY.  
4) To become familiar with the ICF as a clinical tool.

**IC 12 - LINKING STRUCTURE AND FUNCTION: DOSING PARAMETERS AND PROTOCOLS FOR CURRENT AND NOVEL THERAPIES TO IMPROVE MOTOR FUNCTION OUTCOMES IN CEREBRAL PALSY**  
Jill Heathcock, MPT PhD; Laura Prosser, PT PhD; Hlapang (Thubi) A. Kolobe, PT PhD; Andrew Gordon, PhD  
**Location:** Aqua EF  
**Level:** Intermediate  
**Purpose:** This course will present the state of the science in rehabilitation and dosing as it relates to children with Cerebral Palsy and includes two main topic areas: 1) current and novel rehabilitation protocols, and 2) brain plasticity specific to dosing and early brain injury. This workshop will help attendees integrate evidence on neuroplastic adaptations to rehabilitation into their clinical practice.
FRIDAY, SEPTEMBER 12
6:00 am-6:45 am  Invigorate!
Meet at the Promenade Plaza for a guided walk.

6:45 am–8:00 am  Continental Breakfast
Location: Sapphire Terrace

7:00 am–7:50 am  Participants will be able to describe current research on
the near future.

4) Participants will be able to describe clinical features and
treatments that can reverse the symptoms in patients with
RS. Some of these treatments are currently being studied
in clinical research. After a brief explanation of the clinical
presentation and current diagnostic criteria we are going to
review the pathophysiology of RS and role of MeCP2 and the
rational for current basic and translational research and how
these advances are providing guidance to ongoing clinical
research. Attendants will leave with knowledge on treatments
that are being studied and may become standard treatment in
the near future.

Learning Objectives:
1) To identify key components of the prevention and
evaluation of low bone mineral density in children with
disabilities.
2) To develop skill in implementing nutrition based
interventions for preventing and treating low bone
mineral density in children with disabilities.
3) To understand how DXA is used in patients with
disabilities and what the measurements mean.
4) To understand the evidence for treatment modalities of
osteoporosis of children with CP

BRK 10 - BONE HEALTH IN CHILDREN WITH PHYSICAL DISABILITIES
Steven Bachrach, MD; Tessa Gresley-Jones, BScN MN NP-Paeds
Location: Sapphire 400
Level: Intermediate
Purpose: To review the evidence around prevention,
surveillance and treatment of osteoporosis and fragility
fractures in children with mobility restrictions
Target Audience: Physicians, Nurses, Therapists, Parents
Course Summary: Children with mobility restrictions are at
increased risk for developing osteoporosis. Approximately
20% of children and young adults with cerebral palsy who
cannot walk independently develop fragility fractures.
Fractures can cause significant pain and impairment, as well
as impact family functioning. Therefore, it is important for
caregivers and health care providers to know how to improve
bone mineral density and prevent fragility fractures in these
children. We will review the evidence around prevention,
surveillance and treatment of osteoporosis and fragility
fractures in children with mobility restrictions. We will also
introduce a clinical practice guideline for children with
Cerebral Palsy at risk for osteoporosis as well as practical
tools to facilitate knowledge translation of this practice
guideline. The presenters will prompt participants to engage in
discussion about gaps in the evidence and challenges in their
own clinical practice, specifically around monitoring vitamin
D levels, use of DXA scans and decision making around
bisphosphonates.

Learning Objectives:
1) To identify key components of the prevention and
evaluation of low bone mineral density in children with
disabilities.
2) To develop skill in implementing nutrition based
interventions for preventing and treating low bone
mineral density in children with disabilities.
3) To understand how DXA is used in patients with
disabilities and what the measurements mean.
4) To understand the evidence for treatment modalities of
osteoporosis of children with CP

BRK 11 - EVALUATION OF TRUNK CONTROL IN CHILDREN
WITH CEREBRAL PALSY: THE TRUNK CONTROL
MEASUREMENT SCALE
Lieve Heyrman, PhD; Hilde Feys, PhD
Location: Sapphire 410
Level: Basic
Purpose: (1) To provide the state-of-the-art of evaluation tools
and intervention studies targeting trunk control in children
with cerebral palsy (CP); (2) To present a new measurement
tool, the Trunk Control Measurement Scale (TCMS) and provide
practical guidelines for administration.

Target Audience: medical doctors, therapists
Course Summary: The development of trunk control is
a complex process and therefore vulnerable for adverse
events that may occur in early life. Children with CP often
show impaired trunk control, which plays a crucial role in the
development of postural control and in achieving functional

BRK 8 - NOT INCOMPATIBLE WITH LIFE: LONG-TERM
SURVIVORS WITH TRISOMY 18 AND TRISOMY 13
Deborah Bruns, PhD
Location: Sapphire Terrace
Level: Intermediate
Purpose: The purpose of this course is to introduce
participants to recent advances on the knowledge of the
pathophysiology and current treatments approaches for Rett
Syndrome (RS)

Target Audience: Clinicians and practitioners who work with
patients with Rett syndrome.

Course Summary: Recent studies have shown in animal
models that Rett syndrome can be reversed or markedly
improved. Improvements have been demonstrated at multiple
levels (molecular, cellular, and functional) in animal models.
These advances in the knowledge of the pathophysiology of
Rett is changing our view of these developmental disorders
and gives hopes that in the near future we will have
treatments that can reverse the symptoms in patients with
RS. Some of these treatments are currently being studied
in clinical research. After a brief explanation of the clinical
presentation and current diagnostic criteria we are going to
review the pathophysiology of RS and role of MeCP2 and the
rational for current basic and translational research and how
these advances are providing guidance to ongoing clinical
research. Attendants will leave with knowledge on treatments
that are being studied and may become standard treatment in
the near future.

Learning Objectives:
1) Participants will be able to describe clinical features and
current criteria for the diagnosis of Rett Syndrome
2) Participants will have an understanding of current
knowledge of the role of MeCP2 function and
pathophysiology RS.
3) Participants will be able to describe how the reversal of
symptoms of Rett Syndrome have been demonstrated in
animal models.
4) Participants will be able to describe current research on
 treatments that may be used for the treatment of Rett
syndrome.

BRK 9 - RECENT ADVANCES IN RETT SYNDROME
Mario C. Petersen, MD MSc
Location: Sapphire 411A
Level: Intermediate
Purpose: The purpose of this course is to introduce
participants to recent advances on the knowledge of the
pathophysiology and current treatments approaches for Rett
Syndrome (RS)

Target Audience: Clinicians and practitioners who work with
patients with Rett syndrome.

Course Summary: Recent studies have shown in animal
models that Rett syndrome can be reversed or markedly
improved. Improvements have been demonstrated at multiple
levels (molecular, cellular, and functional) in animal models.
These advances in the knowledge of the pathophysiology of
Rett is changing our view of these developmental disorders
and gives hopes that in the near future we will have
treatments that can reverse the symptoms in patients with
RS. Some of these treatments are currently being studied
in clinical research. After a brief explanation of the clinical
presentation and current diagnostic criteria we are going to
review the pathophysiology of RS and role of MeCP2 and the
rational for current basic and translational research and how
these advances are providing guidance to ongoing clinical
research. Attendants will leave with knowledge on treatments
that are being studied and may become standard treatment in
the near future.

Learning Objectives:
1) Participants will be able to describe clinical features and
current criteria for the diagnosis of Rett Syndrome
2) Participants will have an understanding of current
knowledge of the role of MeCP2 function and
pathophysiology RS.
3) Participants will be able to describe how the reversal of
symptoms of Rett Syndrome have been demonstrated in
animal models.
4) Participants will be able to describe current research on
 treatments that may be used for the treatment of Rett
syndrome.
abilities such as sitting, reaching and walking. Despite its clinical importance, therapeutic strategies in children with CP are mainly focused on interventions targeting upper and lower extremities, while the trunk receives poor attention. This may be due to the fact that interventional research focusing on trunk intervention is limited and scattered. Moreover, the outcome measures thus far used to monitor changes in trunk control had limited sensitivity. This has led us to the development of a new tool for evaluation of trunk control in children with CP, the TCMS. This breakfast seminar consists of three parts. In the first part, a brief overview of current assessments and intervention studies for impaired trunk control in children with CP will be presented. The second part will focus on assessment of trunk control, with special attention for the recently developed TCMS and its psychometric properties. In the third part, administration of the TCMS will be explained in detail and discussed interactively with the participants using demonstration videos.

Learning Objectives:
1) To illustrate the state-of-the-art of trunk interventional research in children with CP.
2) To review currently available clinical assessment tools for trunk control in children with CP.
3) To practice standardized administration and scoring of the TCMS.

BRK 12 - FROM EVIDENCE TO PRACTICE: OPTIMIZING WALKING OUTCOMES IN YOUNG CHILDREN WITH NEUROMOTOR IMPAIRMENT
Katrin Mattern-Baxter, PT DPT PCS; Stefani McNeil, PT MSPT PCS
Location: Sapphire 402
Level: Intermediate

Purpose: This course will bring participants up to date on current research on treadmill training in pre-ambulatory children with neuromotor impairment. The presenters will report research findings and review evidence-based parameters for treadmill walking, including home-based intensive treadmill training protocols for pre-ambulatory children. Factors for walking-readiness and inclusion criteria for appropriate timing of treadmill training will be discussed.

Target Audience: Physical therapists and other clinicians who encounter young children with neuromotor impairment who show potential for assisted or independent ambulation.

Course Summary: Intensive treadmill programs have been shown to promote neuroplasticity and accelerate walking onset in pre-ambulatory, young children with neuromotor impairment. The presenters will review the current evidence on treadmill training in young children with developmental disorders and highlight how researchers and clinicians have successfully collaborated to promote an evidence-based model for in-home and facility-based access to portable treadmills. Parameters for intensity, duration and inclusion criteria for the treadmill intervention will be outlined. The presenters will encourage problem-solving and provide solutions for the participants’ specific circumstances at their own facilities.

Learning Objectives:
1) Understand the current evidence on treadmill training in young children with neuromotor impairment.
2) Identify indicators of readiness for the task-specific practice of walking in young children with neuromotor impairment.
3) Develop an understanding of the required dosage for intensive treadmill training to promote the acquisition of walking.
4) Guide practitioners in implementing an intensive treadmill training and walking program into clinical practice by demonstrating a successful model.

BRK 13 - TO BOLDLY GIVE IT A TRY
Karen Harpster, PhD OTR/L; Jennifer Schmit, PhD DPT, Amy Wenz, OTD OTR/L
Location: Sapphire Green Room
Level: Intermediate

Purpose: To discuss a preliminary efforts to implement an episodic care therapeutic delivery model from both the perspective of system processes and patient outcomes as we approach healthcare payment systems that support bundled payment or capitation.

Target Audience: Physicians, Therapists, Nurses

Course Summary: Therapeutic service models for children with neurodevelopmental disability have historically favored weekly visits and ongoing care practices. The current healthcare climate now emphasizes care focusing on best practices, patient engagement, and achievement of outcomes, for a fixed price, or within a fixed period of time (e.g., ProvenCare). In this seminar, speakers will share early learnings associated with episodic care applications in outpatient therapies. Content will focus on exploration of key processes associated with two smart aims: 1) optimizing the duration and cost of an episode of care and 2) achievement of goals associated with engagement in valued activity.

Learning Objectives:
1) To understand the implications of bundled services in the new healthcare system.
2) To define the episodic service delivery model in the therapy setting.
3) To identify key drivers associated with the implementation of episodic care.
4) To discuss the utility of the episodic care therapeutic model as a vehicle for targeting best practice/evidence based practice.

BRK 14 - ESTABLISHING A SUSTAINABLE INTERNATIONAL PROGRAM IN DEVELOPING COUNTRIES FOR THE REHABILITATIVE MANAGEMENT OF CHILDREN WITH DISABILITIES
Mark Gormley, MD; Supreet Deshpande, MD; Daniel Lundberg
Location: Sapphire 411B
Level: Intermediate

Purpose: To disseminate knowledge of our experiences and challenges in setting up, hopefully, self-sustaining programs to care for children with disabilities in developing countries.

Target Audience: Health care professionals involved in the management of children with disabilities and interested in international medicine.
Course Summary: Much of international healthcare assistance focuses on episodic “mission” trips to provide services. Often, these individual “mission” organizations are necessary to sustain the healthcare provided and do not necessarily foster development of a self-sustaining independent program. This course will not only discuss our experiences in providing healthcare for children with disabilities in developing countries, but our experiences in setting up such programs. Many cultural, political, educational, and financial barriers hinder establishing these programs. This course will review the care available for children with disabilities in Jamaica, Ghana, and India, and discuss the existing challenges/barriers to providing that care. We will review our successes and failures, and what we have learned in the process of establishing a self-sustaining, ongoing healthcare program in these countries. Presenters include physicians establishing programs and a college student starting his own non-profit organization for international pediatric neuromuscular care. Workshop attendees will participate in the discussion of these programs and share their experiences.

Learning Objectives
1) Understand care available for children with disabilities in Jamaica, Ghana, and India.
2) Describe existing challenges/barriers to providing care for this group.
3) Discuss various options available to help establish an ongoing program in these countries.
4) Be able to use these experiences to help provide care for children with disabilities in other developing countries.

8:00 am–10:00 am  General Session
Location: Sapphire Ballroom
Mac Keith Press Basic Science Lecture
Donna Ferriero, MD MS
Mentorship Award
David Price Roye Jr., MD
Presidential Guest Lecture
Timothy Caulfield, LLM FRSC FCAHS
European Academy of Childhood Disability
Hans Forssberg, MD PhD

10:00 am-10:30 am  Coffee Break - Poster and Exhibits
Location: Sapphire Ballroom

Expanded breaks will give you a chance to visit the exhibits and posters. Plan to meet a friend during one of these times and just catch up!

8:00 am–10:00 am  General Session
Location: Sapphire Ballroom
Mac Keith Press Basic Science Lecture
Donna Ferriero, MD MS
Mentorship Award
David Price Roye Jr., MD
Presidential Guest Lecture
Timothy Caulfield, LLM FRSC FCAHS
European Academy of Childhood Disability
Hans Forssberg, MD PhD

10:30 am-12:30 pm  Free Paper Session E-H

FREE PAPERS E: ACTIVITY & PARTICIPATION
Location: Indigo A
10:35 am – 10:42 am  E1 - THE EFFECTS OF KINESIO TAPING® ON ACTIVITY AND PARTICIPATION IN CHILDREN WITH UNILATERAL SPASTIC CEREBRAL PALSY: TWO BLIND-RANDOMIZED CONTROL TRIAL
Ozgur Kaya Kara, MSc; Songul Atasavun Uysal, Assoc, Prof; Duygu Turker, MSc; Sedef Karayazgan, MSc; Mintaze Kerem-Gune, Prof; Yasar G. Baltaci, Prof
10:43 am – 10:50 am  E2 - MOVE IT TO IMPROVE IT – USING A WEB-BASED THERAPY PROGRAM TO INCREASE PHYSICAL ACTIVITY IN CHILDREN AND ADOLESCENTS WITH CONGENITAL HEMIPLEGIA
Louise E. Mitchell, M.HltSt(Epi) B.Phty; Jenny Ziviani, PhD, B.OccThy; Anthony Smith, PhD (Medicine) MEd (Adult & Workplace Training) BNurs RN; Roslyn N. Boyd, PhD B.Phty
10:51 am – 10:58 am  E3 - THE EFFECT OF PARTICIPATION IN AN INTENSIVE ADAPTIVE SPORTS PROGRAM ON WALKING FUNCTION AND ENDURANCE IN CHILDREN WITH CEREBRAL PALSY
Sandy A. Ross, PT DPT MHS PCS; Morgan Rudolph, DPT; Sara Ankarstad, DPT; Britta Orso, DPT; Samantha Bock, DPT; Jennifer E. Miro, MPT; Janice Brunstrom-Hernandez, MD
10:59 am – 11:06 am  E4 - IMPROVING THE PARTICIPATION OF YOUTH WITH PHYSICAL DISABILITIES IN COMMUNITY ACTIVITIES: AN EVALUATION
Dana Anaby, PhD; Mary Law, PhD; Laura Turner, MD; Rachel Teplicky, MD
11:07 am – 11:14 am  E5 - EFFECTIVENESS OF A LIFESTYLE PROGRAM AMONG ADOLESCENTS AND YOUNG ADULTS WITH CEREBRAL PALSY: A RANDOMIZED CONTROLLED TRIAL
Jorrit Slaman, MSc; Marij Roebroeck, PhD; Wilma M. van der Slot, PhD; Rita van den Berg-Emons, PhD
11:15 am – 11:30 am  Questions and Answers
11:31 am – 11:38 am  E6 - AMBULANT CHILDREN WITH CEREBRAL PALSY PARTICIPATE IN REDUCED LEVELS OF VIGOROUS PHYSICAL ACTIVITY COMPARED TO THEIR TYPICALLY DEVELOPING PEERS
Jennifer M. Ryan, BSc (Hons); Cuisle O’Donovan, PhD; Juliette Hussey, PhD; John Gormley, PhD
11:39 am – 11:46 am  E7 - “I CAN PARTICIPATE”: CHILDREN WITH DISABILITIES AND PARTICIPATION IN PHYSICAL ACTIVITY A MIXED METHODS STUDY IN A REHABILITATION CONTEXT
Astrid Nyquist, MSc PhD; Reidun Jahnsen, PT PhD
11:47 am – 11:54 am

**E8 - RESULTS OF A 3 YEAR PROSPECTIVE COHORT STUDY INVESTIGATING THE INFLUENCE OF HOME-BASED THERAPY ON CEREBRAL PALSY PATIENTS GMFCS TYPES 4 AND 5**  
Mark Driscoll, PEng PhD; Leonid Blyum, BSc

11:55 am– 12:02 pm

**E9 - FOCUS ON PARTICIPATION FOR CHILDREN AND YOUTH WITH PHYSICAL DISABILITIES: A KNOWLEDGE TRANSLATION IMPLEMENTATION STUDY**  
Dana Anaby, PhD; Nicol Korner-Bitskeny, PhD; Mary Law, PhD; Isabelle Cormier, MD

12:03 pm – 12:10 pm

**E10 - SCHOOL-BASED PHYSICAL THERAPY SERVICES FOR CHILDREN WITH CEREBRAL PALSY WITHIN THE UNITED STATES**  
Sarah W. McCoy, PhD PT; Susan Effgen, PhD PT; Lisa Chiarello, PhD PT; Lynn Jeffries, PhD PT; Scott Secamiglio, BS; Heather Bush, PhD

12:11 pm – 12:30 pm  Questions and Answers

**FREE PAPERS F: EPIDEMIOLOGY**

**Location:** Indigo BF

10:35 am – 10:42 am

**F1 - CHILD APOLIPOPROTEIN E GENE VARIANTS AND RISK OF CEREBRAL PALSY: ESTIMATION FROM CASE FAMILY TRIADS**  
Magne Stoknes, MD PhD MSC; Espen Lien, MD; Guro L. Andersen, MD PhD; Yongde Bao, PhD; James A. Blackman, MD MPH; Rolv T. Lie, PhD; Torstein Vik, MD PhD

10:43 am – 10:50 am

**F2 - CLINICAL AND NEUROIMAGING FINDINGS IN CHILDREN WITH CEREBRAL PALSY ASSOCIATED WITH CONGENITAL CYTOMEGALOVIRUS**  
Hayley Smithers-Sheedy, MPH; Camille Raynes-Greenow, PhD; Nadia Badawi, PhD; Susan M. Reid, PhD; Elaine Meehan, BSc; Public Health; Catherine Gibson, PhD; Russell C. Dale, MBChB; MSc; MRCPHCH PhD; Cheryl Jones, MBBS (Hons) PhD FRACP

10:51 am – 10:58 am

**F3 - CAUSAL PATHS TO CEREBRAL PALSY IN TERM AND LATE PRETERM SINGLETONS THAT INCLUDE FETAL GROWTH RESTRICTION**  
Eve Blair, PhD; Sarah McIntyre, PhD; Karin Nelson, MD

10:59 am – 11:06 am

**F4 - HYPERTENSION, PROTEINURIA, FETAL GROWTH RESTRICTION AND CEREBRAL PALSY IN TERM BIRTHS.**  
Eve Blair, PhD; Sarah McIntyre, PhD; Karin Nelson, MD

11:07 am – 11:14 am

**F5 - NEURODEVELOPMENTAL OUTCOMES IN A PHASE I PILOT TRIAL OF ERYTHROPOIETIN AND HYPOTHERMIA FOR NEONATAL ENCEPHALOPATHY**  
Elizabeth E. Rogers, MD; Sonia Bonfacio, MD; Hannah Glass, MDCM; Roberta A. Ballard, MD; Yvonne W. Wu, MD

11:15 am – 11:30 am  Questions and Answers

11:31 am – 11:38 am

**F6 - TRENDS IN PERIOD PREVALENCE OF CEREBRAL PALSY, 1993-2010**  
Kim Van Naarden Braun, MD; Nancy S. Doernberg, BA; Deborah Christensen, PhD; Alyson Goodman, MD; Laura Scheive, PhD; Marshalyn Yeargin-Allsopp, MD MPH

11:39 am – 11:46 am

**F7 - DECLINING TRENDS IN THE PROPORTION OF 8 YEAR-OLD CHILDREN WITH CEREBRAL PALSY BORN LOW BIRTH WEIGHT, WITH EVIDENCE OF INCREASING RACIAL DISPARITY, UNITED STATES, 2002-2008**  
Maureen S. Durkin, PhD DrPH; Lindsay Allerton, MPH; Kim Van Naarden Braun, Ph.D; Deborah Christensen, Ph.D; Martha Wingate, Ph.D; Alyson Goodman, MD; Marshalyn Yeargin-Allsopp, MD

11:47 am – 11:54 am

**F8 - DO PERSONS WITH CEREBRAL PALSY FROM WEALTHY CALIFORNIA ZIP CODES LIVE LONGER?**  
Jordan Brooks, PhD MPH; Robert Shavelle, PhD; David Strauss, PhD FASA; Yvonne Wu, MD MPH

11:55 am- 12:02 pm

**F9 - CO-OCCURRING AUTISM SPECTRUM DISORDER, INTELLECTUAL DISABILITY, AND EPILEPSY AMONG CHILDREN WITH CEREBRAL PALSY**  
Deborah Christensen, PhD; Marshalyn Yeargin-Allsopp, MD; Alyson Goodman, MD MPH; Kim Van Naarden Braun, Ph.D

12:03 pm – 12:10 pm

**F10 - PATTERNS OF GROSS MOTOR SEVERITY AND MOTOR TYPE IN PRESCHOOL AGE CHILDREN WITH CEREBRAL PALSY: COMPARISON BETWEEN HIGH AND LOW RESOURCE COUNTRIES**  
Katherine A. Benfer, MPH B SpTH; Rachel Jordan, B. Physiotherapy B. Exercise Science; Sasaka Bandaranayake, MBBS; Christine Finn, B. PT; Rob Ware, PhD; Roslyn N. Boyd, PhD PT

12:11 pm – 12:30 pm  Questions and Answers

**FREE PAPERS G: COMMUNICATION**

**Location:** Indigo CG

10:35 am – 10:42 am

**G1 - RELATIONSHIP BETWEEN BRAIN STRUCTURE AND COMMUNICATION SKILLS IN CHILDREN WITH CEREBRAL PALSY**  
Andrea Coleman, BSpPath; Simona Fiori, MD PhD; Kelly A. Weir, MSPath; Robert Ware, PhD; Roslyn N. Boyd, PhD PT

10:43 am – 10:50 am

**G2 - DOES EARLY COMMUNICATION EXPLAIN THE RELATIONSHIP BETWEEN MOTOR ABILITY AND SOCIAL FUNCTION IN CHILDREN WITH CEREBRAL PALSY?**  
Belinda Lipscombe, BA; Andrea Coleman, BSpPath; Koa Whittingham, PhD; Robert Ware, PhD; Roslyn N. Boyd, PhD PT

10:51 am – 10:58 am

**G3 - STABILITY AND VALIDITY OF THE COMMUNICATION FUNCTION CLASSIFICATION SYSTEM (CFCS)**  
Linda P. Lowes, PT PhD; Sara Sacksteder, MSP CCC-SLP; Garey Noritz, MD; Han Yin, MS; William Ray, PhD; MJC Hidecker, PhD; CCC-A/SLP
**G4 - PREDICTING COMMUNICATION FUNCTIONING AT SCHOOL ENTRY IN CHILDREN WITH CEREBRAL PALSY**
Andrea Coleman, BSpPath; Kelly A. Weir, MSpPath; Rob Ware, PhD; Roslyn N. Boyd, PhD PT

**G5 - REHABILITATION SERVICES FOR PRESCHOOL CHILDREN WITH PRIMARY LANGUAGE IMPAIRMENT: INDIVIDUAL VERSUS DYAD INTERVENTION**
Barbara Mazer, BSc(OT) PhD; Annette Majnemer, BSc(OT) PhD; Elin Thordardottir, MSc(SLP) PhD; Lucyna M. Lach, MSW PhD; Michael Shevell, MD CM FRCP FAAN FANA; Irene Sebestyen, BSc(OT)

**G6 - JAW KINEMATICS OF CHEWING IN CHILDREN WITH CEREBRAL PALSY**
Ignatius Nip, PhD; Erin Wilson, PhD

**G7 - OROPHARYNGEAL DYSPHAGIA IN PRESCHOOL CHILDREN WITH CEREBRAL PALSY: COMPARISON BETWEEN HIGH- AND LOW-RESOURCE COUNTRIES**
Katherine Benfer, MPH BSpPath; Kelly A. Weir, MSpPath BSpThy; Kristie L. Bell, PhD, B Health Science (Nutrition and Dietetics); Robert Ware, PhD; Peter S. Davies, PhD MPhil, B Science; Roslyn N. Boyd, PhD PT

**G8 - DEVELOPMENT OF WORK PARTICIPATION IN YOUNG ADULTS WITH CEREBRAL PALSY: A PROSPECTIVE STUDY**
Joan Verhoef, OT MSc; Marij Roebroeck, PhD; Inge Bramsen, PhD; Harald Miedema, MD; Henk Stam, MD PhD

**G9 - MOTOR IMAGERY AND PLANNING DEFICITS IN CHILDREN WITH CONGENITAL HEMIPLEGIA**
Cathleen E. Buckon, MS; Susan Sienko Thomas, PhD; Michael Aiona, MD; Scott H. Frey, PhD

**G10 - EARLY VERSUS LATER BRAIN INJURY: NO DIFFERENCE IN EXECUTIVE FUNCTIONING**
Stephanie Ross, BSc Hon MSc Neuropsychology; Koa Whittingham, PhD; Roslyn N. Boyd, PhD PT; Carly Mayberry, DPsy; Owen Lloyd, MSC; Lynne McKinlay, FRACP

**H4 - POOR DESCRIPTION OF UPPER LIMB THERAPIES FOR CHILDREN WITH UNILATERAL CEREBRAL PALSY: A BARRIER TO UPTAKE OF EVIDENCE INTO PRACTICE**
Leanne Sakzewski, PhD OT; Vineel Lal, BScMBBS student; Tammy Hoffmann, PhD OT (Hons 1)

**H5 - HAND AND ARM BIMANUAL INTENSIVE THERAPY INCLUDING LOWER EXTREMITY (HABIT-ILE) IN CHILDREN WITH CEREBRAL PALSY: A RANDOMIZED TRIAL**
Yannick Bleyenheuft, PhD; Carlyne Arnould, PhD; Marina Brandão, PhD; Corinne Bleyenheuft, MD; Andrew Gordon, PhD

**H6 - REPEITITIVE TRANSCRANIAL MAGNETIC STIMULATION FOR PERINATAL STROKE-INDUCED CEREBRAL PALSY: SHORT-TERM OUTCOMES FROM THE PLASTIC CHAMPS TRIAL**
Adam Kirton, MD MSc FRCP; John Anderson, MD; Mia Herrero, OT; Lisa Carсолio, CCLS; Aleksandra Mineyko, MD FRCP; Jamie Keess, BSc; Omar Damji, MSc BHSc; Jacqueline Hodge, MSc BSc; Alberto Nettel-Aguirre, PhD; Michael Hill, MD MSc BSc FRCP

**H7 - APPROPRIATE INTERVENTION AND ADEQUATE DOSE: AN IMPLEMENTATION STUDY FOR UPPER LIMB THERAPY FOR CHILDREN WITH UNILATERAL CEREBRAL PALSY**
Leanne Sakzewski, PhD OT; Jenny Ziviani, PhD MEd BA BAppScOT; Roslyn N. Boyd, PhD PT

**H8 - THE EFFECTS OF INTENSE COMBINED CONSTRAINT AND BIMANUAL TRAINING ON UPPER EXTREMITY FUNCTIONING AMONG CHILDREN WITH HEMIPLEGIC CEREBRAL PALSY: DOES SEVERITY MATTER?**
Marilyn Cohen, OT MSc; Julie Kerem, PT MA; Gilad Sorek, PT; Simon Schless, PT; Michal Katz-Leurer, PhD; Hemda Rotem, MScPT

**H10 - KNOWLEDGE TRANSLATION IN CONSTRAINT-INDUCED MOVEMENT THERAPY AND HAND-ARM BIMANUAL INTENSIVE THERAPY – CLINICIANS’ PERSPECTIVES ON BARRIERS AND FACILITATORS FOR THE UPTAKE OF INTENSIVE UPPER EXTREMITY TRAINING IN CHILDREN WITH HEMIPLEGIA IN CANADA**
Keiko Shikako-Thomas, PhD OT; Annette Majnemer, PhD OT; Darcy Fehlings, MD MSc FRCP(C); Andrew Gordon, PhD; Manon Germain, BSc OT; Douglas Maynard, MBA
F11 - CHANGE IN LEVEL OF LESIONS IN INDIVIDUALS WHO HAVE SPINA BIFIDA IN SOUTHERN ARIZONA IN THE PRE - VS. POST-FOLATE FORTIFICATION ERAS
Rice, Sydney; Andrews, Jennifer
12:11 pm – 12:30 pm Questions and Answers

12:30 pm – 1:30 pm
International Networking Luncheon
Location: Sapphire 400
Medtronic Case Analysis Luncheon
Location: Indigo DH
Exhibits and Posters
Location: Sapphire Ballroom

1:30 pm – 3:30 pm
General Session
Location: Sapphire Ballroom
Cathleen Lyle Murray Award
Michael Bortolotto
Corbett Ryan Pathways Pioneer Award
Paul Tudisco
Chambers Family Lifespan Lecture
Heidi Feldman, MD PhD

3:30 pm – 4:00 pm
Coffee Break - Poster and Exhibits
Location: Sapphire Ballroom
3:45 pm – 6:45 pm
Family Forum
Location: Indigo DH
4:00 pm – 6:00 pm
Instructional Courses 13-24

IC 13 - NEURAL STEM CELLS AS A POTENTIAL THERAPEUTIC APPROACH FOR DEVELOPMENTAL BRAIN DISORDERS: WHAT DOES THE CLINICIAN NEED TO KNOW?
Michael Fehlings, MD PhD FRCS; Evan Snyder, MD PhD; Stephen Huhn, MD
Location: Cobalt 500
Level: Intermediate
Purpose: This course will present a translationally relevant scientific update on the preclinical and clinical application of neural stem cells for developmental brain disorders, with a focus on cerebral palsy. This course will help attendees integrate evidence on the current status and potential future clinical applications of neural stem cells for developmental brain disorders. This will enable clinicians to counsel individuals with developmental brain disorders and their families/care-givers more effectively. The course will also provide an important knowledge basis for students, residents and research fellows.
Target Audience: Physicians, Occupational and Physiotherapists, Speech and Language Therapists, Nurses, Clinical and Basic Scientists, Graduate students, Postdoctoral Research Fellows, Residents, Clinical Fellows
Course Summary: This course will present the basic concepts of stem cell biology with a particular focus on neural stem cells and the rationale for their application to developmental brain disorders. The translationally relevant basic science will be summarized in a clinician-friendly manner. An update on the status of current clinical trials with neural stem cells will be provided and this will be cross-referenced with trials using other types of stem cells. A facilitated open discussion with active audience participation will be built into the program so that clinicians and students can have an opportunity to have their questions around stem cells addressed.

Learning Objectives:
1) To understand the biology of stem cells with a particular focus on adult neural stem cells and induced pluripotent stem cells.
2) To understand the biological rationale (and key limitations) for using neural stem cells in developmental brain disorders, with a particular focus on cerebral palsy.
3) To understand the current status of clinical trials with neural stem cells in developmental brain disorders, with cross-referencing to clinical trials with other types of stem cells.
4) To have a greater understanding of what sources of information regarding stem cells and developmental brain disorders are available and how to access these.

IC 14 - DIFFUSION TENSOR IMAGING: ANALYSIS OPTIONS IN PEDIATRIC NEUROIMAGING RESEARCH
Andrea Poretti, MD; Avner Meoded, MD; Alec Hoon, MD
Location: Sapphire 410A
Level: Intermediate
Purpose: To provide an in depth understanding of the principles of Diffusion Tensor Imaging (DTI) and Fiber Tractography (FT) and their analytic options available for clinical research.
Target Audience: Researchers involved in the application of Diffusion Tensor Imaging and clinicians who want to learn more about this neuroimaging technique.
Course Summary: Diffusion Tensor Imaging (DTI) is an advanced Magnetic Resonance Technique (MRI) that provides information about the three-dimensional degree of water diffusion in individual voxels of MRI images providing clues about the microstructure of the brain tissue and the course of white matter tracts. Fiber tractography (FT) combines this information between neighboring voxels allowing the graphical three-dimensional reconstruction of white matter pathways. Several analytic approaches are available for DTI data including qualitative analysis, regions of interest (ROI) based analysis, atlas-based analysis and voxel-based analysis. After an introduction about the principles of DTI and FT, we will discuss the different analytic approaches emphasizing the pros and cons of each of these methods based on clinical research projects. Finally, we will briefly discuss the structural connectome, which is a powerful new way of quantifying the brain’s structural systems.
Learning Objectives:
1) The participant will identify the principles of Diffusion Tensor Imaging and Fiber Tractography.
2) The participant will recognize the significance of the DTI scalars including fractional anisotropy (FA), mean (MD), axial (AD) and radial (RD) diffusivity and their changes in different conditions.
3) The participant will describe different analytic approaches of DTI data.
4) The participant will recognize advantages and disadvantages of the different analytic approaches of DTI data.

IC 15 - SINGLE EVENT MULTILEVEL SURGERY(SEMELS) FOR CHILDREN WITH BILATERAL SPASTIC CEREBRAL PALSY: THE EVIDENCE FROM EUROPE AND AUSTRALIA

Pam Thomason, M PT; Jessica Mahy, B PT(hons); Martin Gough, MCh, FRCS; H Kerr Graham, MD

Location: Sapphire 400B
Level: Intermediate
Purpose: To review the recent evidence and expected outcome of SEMLS from Australia and Europe and to provide a framework for prospective multicenter outcome studies
Target Audience: Orthopaedic surgeons physical therapists rehabilitation physicians orthotists
Course Summary: Centers in Europe and Australia have adopted the use of the Gait Profile Score(GPS) when reporting the outcomes of SEMLS. The use of these tools in common, has permitted researchers to compare and contrast outcomes from different centers. The authors have reported the outcome of >300 young people who have had SEMLS, the largest combined cohort to date. The evidence presented in this course will include the world first randomized clinical trial of SEMLS (N=19) plus two large cohort studies, (N=121, N=160). The RCT evidence showed improvement across all domains of the WHO-ICF. In the cohort studies, mean improvement in GPS was significantly greater then the Minimal Clinically Important Difference(MCID). However, a number of children did not have clinical improvement and a small number showed deterioration. Predictors of success, no change or deterioration will be discussed with reference to long term case studies
Learning Objectives:
1) Gain knowledge of SEMLS indications, surgery, rehabilitation and outcomes
2) Gait an understanding of the role of the GPS with reference to gait pathology and outcome
3) Understand the predictors of clinical improvement, no change or deterioration in gait and function post SEMLS
4) Gain knowledge of rehabilitation programs

IC 16 - USE OF GAIT ANALYSIS IN SURGICAL TREATMENT PLANNING FOR PATIENTS WITH DEVELOPMENTAL DISABILITIES

Robert Kay, MD; Deirdre Ryan, MD; Susan Rethlefsen, PT DPT

Location: Sapphire 410B
Level: Intermediate
Purpose: To educate attendees regarding use of gait analysis for evaluation and treatment planning for children with developmental disabilities such as myelomeningocele and cerebral palsy
Target Audience: Clinicians of all levels-- physicians, physical therapists, occupational therapists.
Course Summary: Faculty will introduce attendees to computerized gait analysis data collection and interpretation. They will discuss how data are used for treatment planning for lower extremity surgical and non-surgical intervention in children with CP and myelomeningocele. Discussion will focus on common clinical problems associated with each diagnosis and ways gait analysis alters treatment plans. Content will be based both on the presenters’ clinical expertise and evidence-based review of literature. Computerized gait data, videos, photographs and x-rays from sample cases will be used and handouts will be given to participants. Faculty will also demonstrate how gait data are interpreted and treatment plans determined using sample cases.
Learning Objectives:
1) Accurately identify and evaluate the most common gait problems specific to CP and myelomeningocele
2) Be able to accurately identify deviations on joint kinematic, kinetic and EMG data plots
3) Outline a treatment plan for a child with CP or myelomeningocele with multiple lower extremity problems using gait analysis data
4) Gain perspective on the complexity of evaluation and treatment planning for orthopaedic problems in children with developmental disabilities
IC 18 - NON-INVASIVE BRAIN STIMULATION IN CONGENITAL HEMIPARESIS
Bernadette T. Gillick, PhD MSPT PT; Kathleen Friel, PhD MS; Adam Kirton, MD MSc FRCPC
Location: Sapphire 402
Level: Basic
Purpose: This course will present an overview of the current applications of non-invasive brain stimulation in the pediatric population, with emphasis on congenital hemiparesis. Such a course will educate on both the potential benefits and limitations in such applications.
Target Audience: Physicians, Neuroscientists, Occupational, Speech and Language, Physical Therapists, Nurses
Course Summary: This course will present the growing body of evidence developing regarding the applications of the use of non-invasive brain stimulation in research as a whole and specifically with children with hemiparesis. The three international multidisciplinary instructors experienced in their own research laboratories in such applications will present resultant potential benefits and limitations in use. Discussion regarding the varying types of non-invasive brain stimulation (eg- transcranial magnetic stimulation, transcranial direct current stimulation), resultant effect on function/activity/participation outcomes, adverse events and safety considerations will be discussed. Course attendees will participate in active discussions of limitations and benefits, case discussion/video sessions of current instructor-based research and potential “optimal” protocol applications for non-invasive brain stimulation use. Review of current guidelines and literature will be discussed. An active Question and Answer session through leading questions and an interactive pop-quiz format is integrated into the course.
Learning Objectives:
1) To be familiar with different manifestations of pain in the non-verbal child.
2) To be able to identify a comprehensive range of potential etiologies of pain in a child with medical complexity.
3) To be able to pursue an efficient and focused series of studies to evaluate irritability in this clinical setting.
4) To be familiar with the most common pharmacologic approaches to management of pain of unclear etiology in this population.

IC 19 - IRRITABILITY IN THE CHILD WITH MEDICAL COMPLEXITY
Laurie Glader, MD; Sangeeta Mauskar, MD MPH
Location: Sapphire 411B
Level: Intermediate
Purpose: To explore potential etiologies, diagnosis and management of pain in children with medical complexity.
Target Audience: Physicians, nurses and therapists who work with medically complex children and who may be in a position to observe discomfort or receive reports of concerning symptoms.
Course Summary: Children with medical complexity often have limited expressive communicative abilities. When they are uncomfortable or in pain it can be challenging to determine the source of their discomfort. When and how far to pursue a diagnostic work-up is a concern among providers who care for this population of children. This course will provide a review of potential etiologies of pain in children with medical complexity, explore options for reasonable and efficient scope of evaluation, and address potential pharmacologic interventions when no clear source is identified. A combination of didactic and interactive approaches to learning will be utilized.
Learning Objectives:
1) To be familiar with different manifestations of pain in the non-verbal child.
2) To be able to identify a comprehensive range of potential etiologies of pain in a child with medical complexity.
3) To be able to pursue an efficient and focused series of studies to evaluate irritability in this clinical setting.
4) To be familiar with the most common pharmacologic approaches to management of pain of unclear etiology in this population.

IC 20 - EVALUATING AND ADVANCING CHEWING SKILLS IN CHILDREN WITH DEVELOPMENTAL DISABILITIES
Donna J. Reigstad, MS; Caitlin L. Sullivan, MS CCC-SLP; Melissa L. Gonzalez, PhD
Location: Sapphire 400A
Level: Intermediate
Purpose: This course will present evidence-based information regarding interdisciplinary evaluation and intervention for advancing chewing skills in children with developmental disabilities. Preliminary data from behavioral and therapeutic observations of chewing will be presented. Suggestions for objective methods for measuring progress in chewing will be reviewed. This workshop will focus on assisting attendees to identify specific chewing problems, measure progress with chewing, evaluate interventions, and incorporate these strategies into clinical practice.
Target Audience: Speech and Language Pathologists, Occupational Therapists, Psychologists, Behavior Analysts, Special Educators, Physicians, Nurses
Course Summary: Children with developmental disabilities frequently present with oral dysphagia, including atypical, delayed or absent chewing skills. Swallowing food whole, unsuccessfully masticating food or demonstrating delayed
skills are noted in children with a variety of diagnoses. These can include cerebral palsy, Down syndrome, autism spectrum disorders and, other neurodevelopmental disabilities. Despite the prevalence of chewing problems, the literature is limited in describing empirical evaluation and intervention strategies. The Pediatric Feeding Disorders Program at Kennedy Krieger Institute employs an interdisciplinary approach to address this complex issue. This team includes members from the fields of Pediatrics, Behavioral Psychology, Speech and Language Pathology and Occupational Therapy, Social Work and Nutrition. This presentation will focus on precisely defining and identifying chewing problems in children with developmental disabilities, and creating effective data-based intervention strategies. Attendees will participate in case study discussions that illustrate the diversity of chewing problems and specific therapeutic strategies to measure and advance skills.

**Learning Objectives:**
1) To understand acquisition of chewing skills in typically developing children
2) To identify atypical, delayed or absent chewing skills
3) To examine current evidence-based research related to intervention for chewing problems
4) To discuss the development of effective, data-based intervention strategies to advance chewing skills

**IC 21 - UNDERSTANDING THE AFFORDABLE CARE ACT AND THE I/DD COMMUNITY; AN OVERVIEW OF THE LAW, ADVOCACY PRIORITIES, TRANSITION NEEDS OF YOUTH**

*Kerstin M. Sobus, MD PT; Garey Noritz, MD FAAP FACP*

**Location:** Sapphire Green Room

**Level:** Basic

**Purpose:** To explore and discuss The Affordable Care Act (ACA) which is the most significant change in our nation’s health insurance system since the development of Medicare and Medicaid programs. Individuals with intellectual and developmental disabilities (I/DD) will have the opportunities to have enhanced access and quality of health care service provision. If the ACA is going to succeed, access to meaningful long-term services and supports will need to occur. The Affordable Care Act has distinct healthcare infrastructure through the establishment of the exchange marketplaces and close coordination with Medicaid, which will be explored during discussions. Through Healthcare provider education, advocacy and collaboration with the I/DD community, the positive impacts and the future needs/changes for the Affordable Care Act can be achieved.

**Target Audience:** Physicians, Therapists, Nurses, Case Managers

**Course Summary:** The Affordable Care Act of 2010 (Public Law 111-148) which offers unique opportunities for the health care of individuals with intellectual and developmental disabilities. The relationship between access to health care, insurance and employment for people with I/DD will be openly discussed. An open discussion will occur with the audience to facilitate the understanding of the audience geographical practice locations, their understanding of their states participation with the Affordable Care Act and current positive or negative implications and future directions for research, advocacy or change.

**Learning Objectives:**
1) To gain an increased understanding of the Patient Protection and Affordable Care Act of 2010 (Public Law 111-148) and how it offers increased opportunities to improve and enhance access for the health care of individuals with intellectual and developmental disabilities.
2) To discuss the Qualified Health Plans and minimum set of “essential health benefits” (EHB).
3) To explore options to keep health care benefits when trying to transition to work with an intellectual or developmental disability.
4) To explore opportunities to facilitate transition care for youth with I/DD to adult care that may enhance the care you are already providing.

**IC 22 - SUBJECTIVE VERSUS OBJECTIVE EVALUATIONS FOR LOWER LIMB ORTHOTIC PRESCRIPTION: BELIEFS VERSUS EVIDENCE AND THE LABORATORY VERSUS PATIENT ENVIRONMENT.**

*Marcie Ward, MD; George Gent, BS; Sue Sohrweide, BS*

**Location:** Cobalt 520

**Level:** Intermediate

**Purpose:** To explore and compare the benefits and limitations of subjective clinical evaluation of patients and objective gait analysis when determining ideal orthotic prescription.

**Target Audience:** Physicians, orthotists, and therapists who prescribe, provide or recommend lower limb orthotics for their patients.

**Course Summary:** Orthotic prescription is typically a subjective decision. Function goals and alignment goals can intermittently conflict. Clinical gait and motion analysis offers some objective evidence to guide this decision making. Often, physicians, therapists, and orthotists may differ on their opinions regarding the type of orthotic to provide for a patient. This course will review some of the available literature guiding orthotic prescription. The available information gait analysis provides will be discussed to highlight some pros and cons of various orthotic designs in a few commonly treated gait patterns. Case studies will then illustrate patients in whom orthotics may or may not be of benefit. The audience will choose by electronic audience response system the type of orthotic they would recommend based on first physical exam data, second after the addition of gait video, and finally when gait data is added. Discussion will also include patient care needs and goals that may influence the final orthotic that is provided.

**Learning Objectives:**
1) Discuss typical alignment and functional goals in orthotic prescription.
2) Review some available literature guiding orthotic prescription.
3) Explore gait analysis data for evidence suggestive of improved function and/or alignment with the application of orthotics.
4) Consider the short-term and long-term goals in orthotic prescription and how patient goals and compliance influence prescription choice.

**IC 23 - DEVELOPMENTAL TRAJECTORIES FOR DAILY ACTIVITIES AND SOCIAL PARTICIPATION OF INDIVIDUALS WITH CEREBRAL PALSY: CLINICAL IMPLICATIONS**

*Annet J. Dallmeijer, PhD; Marij E. Roebroeck, PhD; Jan Willem Gorter, MD PhD; Jeanine M. Voorman, MD PhD; Marjolijn Ketelaar, PhD*

**Location:** Sapphire 411B

**Level:** Basic

**Purpose:** To provide knowledge about the developmental trajectories of daily activities and social participation of individuals with cerebral palsy (CP) from toddler to adulthood, and to discuss implications for clinical practice.

**Target Audience:** This course will be of interest for health service providers and researchers working with toddlers, children, adolescents and young adults with CP

**Course Summary:** Developmental trajectories empirically model the evolution of an outcome variable over time, which can provide important information for clinical practice. As an example, motor growth curves are increasingly used for evidence based management in CP. These developmental trajectories are, as yet, limited to gross motor function, while no information is available about the development on activity and participation domains across the lifespan. This knowledge is provided by the Dutch PERRIN+ program, a longitudinal study covering over 400 toddlers, children, adolescents and young adults with CP aged 1-24 years. Participants were followed (bi)yearly over a period of 2-4 years. These data were combined to create developmental trajectories for daily activities, communication and social participation stratified by GMFCS-levels (level I-V) and intellectual disability (present, absent). In this instructional course, we will firstly describe the creation of these developmental trajectories and discuss their key characteristics. Secondly, we will discuss the potential impact of this new knowledge for different users including patients/parents, rehabilitation professionals, service providers, administrators and policy makers.

**Learning Objectives:**
1) To gain knowledge about the developmental trajectories for daily activities of individuals with CP
2) To gain knowledge about the developmental trajectories for communication and social participation of individuals with CP
3) To identify similarities and key differences among trajectories for different activity and participation domains
4) To get understanding of how developmental trajectories may be used in clinical practice

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**IC 24 - SALSA DANCE LESSONS**

*Joseph Dutkowsky, MD*

**Location:** Sapphire A

**Level:** Basic

**Target Audience:** All conference attendees

**Course Summary:** Learn the fundamentals of Latin dance from one of the AACPDM Past Presidents! Dr. D will teach and lead various salsa and Latin dances to prepare for the Friday night Networking Dinner at Fiesta de Reyes in Old Towne San Diego. After the course, you’ll be ready to show off your new dance moves! The course is $50 for individuals or $75 if you sign up as a pair. Proceeds from this IC will be donated to Sports for Exceptional Athletes, a San Diego-based sports program serving athletes with developmental disabilities ages 5 through adult (www.s4ea.org).

7:00 pm – midnight **Networking Dinner**

Strengthen your connections in Old Town San Diego! Experience Old Town’s Fiesta de Reyes, an authentic Mexican experience for all the senses. Surrounded by lush gardens, water features, and folk art décor. You’ll be able to enjoy strolling mariachis, specialty shops, homemade Mexican food, and a live Latin Jazz band! Transportation will be provided. The bus pick-up and drop-off location is at the Promenade East Foyer.
BRK 15 - CLINICAL USE OF WHOLE EXOME SEQUENCING IN NEURODEVELOPMENTAL DISABILITIES

Julie S. Cohen, ScM CGC; Eric B. Levey, MD; Ali Fatemi, MD

Location: Sapphire 402

Level: Intermediate

Purpose: To provide clinicians with an overview of whole exome sequencing as a clinical diagnostic test for patients with neurodevelopmental disabilities.

Target Audience: Clinicians caring for patients with NDD.

Course Summary: A substantial number of children with cerebral palsy and other neurodevelopmental disabilities (NDD) have a genetic etiology for their condition, yet many go undiagnosed. Pediatricians, neurologists and other non-genetic clinicians will increasingly assume the role of initiating the etiologic work-up for patients with NDD. The field of genomic medicine is expanding rapidly, so it is essential for the clinician to keep up-to-date on new and emerging diagnostic technologies. Whole exome sequencing (WES) is a new technology that simultaneously analyzes the protein-coding regions (exons) of >20,000 genes. It is a powerful test with high diagnostic yield, but result interpretation can be complex and there are numerous pitfalls including the potential discovery of incidental findings. The advent of WES represents a significant breakthrough in clinical genetics, providing physicians with a powerful tool for etiological discovery in neurodevelopmental disorders with a suspected genetic basis. Due to decreasing costs, many in the field predict that WES will soon become a first-line test in the etiologic evaluation of patients with suspected genetic disorders. The high diagnostic yield of WES, coupled with its role in discovering etiologies for nonspecific clinical presentations and atypical manifestations of disease, support the use of WES in pediatric neurodevelopmental medicine practices. It is therefore important that clinicians caring for patients with NDD understand the benefits and limitations of this new technology. This session will provide a primer on WES, outline test indications, possible results and limitations and discuss psychosocial and ethical considerations. We will also describe our Institute’s experience with using WES in over 100 patients with NDD and present several illustrative cases.

Learning Objectives:
1) Understand the basics of WES technology.
2) Learn guidelines for use of WES as a diagnostic test.
3) Recognize necessary components of informed consent and counseling for WES.
4) Appreciate ethical and psychosocial considerations regarding WES.

BRK 16 - THE ART OF MENTORING

Peter A. Blasco, MD; Peter L. Rosenbaum, MD; Barry S. Russman, MD

Location: Sapphire 410B

Level: Advanced

Purpose: To discuss/debate the attributes that characterize the good mentor and to explore the features essential to establishing a good mentor – mentee relationship.

Target Audience: Individuals striving to make teaching/training a substantial element of their career; individuals in training seeking a relationship with a good mentor.

Course Summary: Teaching requires a sound grasp of factual information but is as much art as it is science. It is an acquired skill and is not easy to do well. The mentor – mentee relationship is a very special one and involves many attributes beyond good teaching. Success in mentoring – guiding a young or at least relatively naive learner – is dependent upon mastery of the elements of teaching and conscious attention to the elements of personal interaction. The entire session will be conducted as a seminar discussion involving panel response to proposed attributes important for the mentor to nurture in him or herself and in crafting the relationship with a mentee, coupled with audience input on each element.

Learning Objectives:
1) To discuss or debate the characteristics of the good mentor
2) To explore elements of the mentor–mentee relationship
3) To touch on special considerations of the mentoring relationship; e.g., racial, ethnic, cultural differences; personal and personality interactions
4) To provide resources on teaching and mentoring strategies

BRK 17 - ADVANCES IN THE TREATMENT OF FRAGILE X SYNDROME

Dianne McBrien, MD

Location: Sapphire Boardroom

Level: Advanced

Purpose: The purpose of this course is to introduce participants to recent advances in the knowledge of the pathophysiology and current treatment approaches for fragile X syndrome. In addition, participants will be introduced to the concept of fragile X as a family of disorders, with a review of health and developmental issues associated with the premutation.

Target Audience: Health care providers who work with patients with developmental disabilities

Course Summary: Recent studies have demonstrated rescue of cellular and neuroanatomic pathology as well as of some functional deficits in animal models of fragile X syndrome. These advances in the knowledge of the pathophysiology of fragile X are changing our view of this developmental disorder, giving hope that in the future we will have treatments that can reverse the symptoms in patients with fragile X. Some treatments are currently being studied in clinical trials. After a brief explanation of the clinical presentation of fragile X, we will review its pathophysiology, the rationale for current basic and translational research, and how these advances are guiding ongoing clinical research.
Learning Objectives:
1) Participants will be able to describe clinical features and diagnosis of fragile X syndrome.
2) Participants will have an understanding of current knowledge of the pathophysiology of fragile X syndrome.
3) Participants will be able to describe how the reversal of fragile X-associated neuropathology, as well as some syndrome-associated functional deficits, has been demonstrated in animal models.
4) Participants will be able to describe current research on potential rescue therapies for fragile X syndrome.

BRK 18 - INTENSIVE VOICE TREATMENT FOR CHILDREN WITH MOTOR SPEECH DISORDERS SECONDARY TO CEREBRAL PALSY
Carol A. Boliek, PhD; Cynthia M. Fox, PhD
Location: Sapphire 411A
Level: Intermediate
Purpose: To summarize treatment outcomes from a series of studies using intensive voice treatment (LSVT®LOUD) in children with dysarthria and CP.
Target Audience: Physicians, Therapists, Nurses, Educators
Course Summary: Speech treatment research in children with dysarthria secondary to CP is limited. We have completed a series of three studies using a single focus (vocal loudness) treatment and a mode of delivery that is intensive on children ranging from 3 to 16 years of age with CP and dysarthria. We will report on outcomes immediately post-treatment and a mode of delivery that is intensive on children ranging from 3 to 16 years of age with CP and dysarthria. We will report on outcomes immediately post-treatment and maintenance of treatment effects over time. Outcomes will be discussed in the context of activity-dependent neuroplasticity, spreading effects to multiple speech subsystems, and translation to everyday communication.
Learning Objectives:
1) To understand key principles that drive neuroplasticity related to speech motor control.
2) To become familiar with LSVT LOUD as one example of a treatment approach consistent with principles of activity-dependent neuroplasticity.
3) To become familiar with observed therapeutic, physiological, and neural outcomes following LSVT.
4) To describe treatment feasibility and the use of technology to enhance maintenance of skills and accessibility to treatment.

BRK 19 - INCREASING ACTIVITY AND PARTICIPATION THROUGH USE OF MOBILITY DEVICES FOR CHILDREN AND ADULTS AT GMFCS LEVELS 4 AND 5
Ginny Pang, DScPT MPT BS; Elisabet Rodby-Bousquet, PhD
Location: Sapphire 400
Level: Advanced
Purpose: Gait Trainers, Power Mobility and Self-mobile prone standers are evidence-based interventions which are greatly under-used in homes, schools and in the community. Professionals that work with people at GMFCS Levels 4 and 5 need to be familiar with attainable measurable ICF-based goals which can be met through the use of mobility devices.
Target Audience: Physicians, Therapists, Psychologists, Nurses, Educators, Families and people at GMFCS Levels 4 and 5.

Course Summary: Through the use of case studies, participants will be introduced to an array of mobility devices which can be used to increase activity and participation in children at GMFCS Levels 4 and 5. Evidence for gait trainers, power mobility, and self-mobile prone standers will be matched with ICF-based goals. Goal attainment scaling will be offered as a way to measure progress as well as plotting percentile within GMFM scores. Audience will discuss which children at GMFCS Levels 4 and 5 can benefit most from which devices, at what dosage, age and in which environments.

Learning Objectives:
1) Describe the evidence supporting the use of gait trainers, power mobility and self-mobile prone standing equipment
2) Analyze how equipment can enhance activity and participation in children at GMFCS Levels 4 and 5
3) Choose dosing parameters for a mobility program (type of device, dosage, choose and write goals, assess effectiveness, etc)
4) Apply new knowledge to people in your practice at GMFCS Levels 4 and 5

BRK 20 - PAIN INDUCED BY NON-SEDATED BOTULINUM TOXIN INJECTIONS. WHAT DO OUR PATIENTS TELL US ABOUT THEIR PAIN PERCEPTION AND WHAT CAN BE OFFERED TO REDUCE THEIR PAIN EXPERIENCE?
Ronit Mesterman, MD; Nancy Goldie, BScN RN
Location: Sapphire Green Room
Level: Basic
Purpose: To raise awareness on pain perception of patients receiving non sedated Botulinum Toxin injections and suggested supports and techniques to improve their pain experience.
Target Audience: Health professionals involved in providing Botulinum Toxin injections.
Course Summary: There is an increasing awareness that patients with cerebral palsy endure pain of different origins. One source of pain can be the procedure of intra muscular Botulinum injections. General or conscious sedation is not always available or the preferred method chosen by the families. The breakfast seminar will review the evidence on pain perception of children receiving intra muscular injections in general and more specifically will review the findings of a prospective study on patients age 2-18 years receiving non-sedated Botulinum Toxin injections. The seminar will discuss options how to prepare children for non-sedated injections and review different options of distractions that are child appropriate as well as relaxation techniques to make the experience more tolerable. Comparative trials on the use of local sedation, icing and vibration devices to improve pain sensation will be reviewed.

Learning Objectives:
1) Learn to identify an appropriate population for non-sedated Botulinum toxin injections.
2) Gain knowledge on how children 2-18 years rate their pain experience following Botulinum toxin injections.
3) Learn about child appropriate methods including distraction and relaxation techniques to help the patient cope with non-sedated Botulinum toxin injections.
4) Learn about pain reducing methods such as local anesthesia, icing and vibration.

**BRK 21 - FUTURE LINES OF RESEARCH IN CONSTRAINT-INDUCED MOVEMENT THERAPY FOR CHILDREN: WHAT IS THE NEXT STEP?**

**Brian J. Hoare, PhD; Lena Krumlinde-Sundholm, PhD; Eugene Ramekers, PhD; Katrijn Klingels, PhD**

**Location:** Sapphire 411B  
**Level:** Advanced  
**Purpose:** To clarify and discuss what is currently known about Constraint-induced movement therapy (CIMT) in children with unilateral cerebral palsy (CP), aiming to address current gaps in knowledge and highlight areas for future research  
**Target Audience:** pediatricians, neurologists, physiotherapists, occupational therapists  
**Course Summary:** Over the past decade, interest in CIMT for children with unilateral CP has grown exponentially. Research has seen publications expand from a few single case studies to over 25 randomized controlled trials. However, unlike areas of medical research that follow a progressive staging of studies to build on existing knowledge, the development of CIMT literature consists of a diversity of small to medium sized trials that do not necessarily build on each other. The variation within CIMT and its modifications, as well as the different study designs make it extremely difficult to draw conclusions about what constitutes the key ingredients of CIMT and the effects of various models. Which children benefit most from CIMT? What restraint should be used? How much therapy should be offered each day and for how many days? First, a comprehensive literature search was conducted. Guided by the EUnetHTA framework, outcomes from the literature review were synthesized and following consensus agreement, a list of questions for each EUnetHTA domain was formulated. Specific domains were then prioritized to guide future lines of research. The outcome of this process and clinically relevant research questions will be further explored and discussed during this seminar.

**Learning Objectives:**

1) To learn what is currently known about CIMT and its modified versions  
2) To understand current gaps in knowledge on CIMT and its modified versions  
3) To discuss suggestions on prioritization of future studies on CIMT  
4) To critically appraise the design and methodology of past and future intervention studies on CIMT

**BRK 22 - INDICATIONS & EXPLICIT GUIDANCE FOR SOFT-TISSUE SURGERY USING GAIT ANALYSIS**

**Tom F. Novacheck, MD; Jean L. Stout, MS PT**

**Location:** Sapphire 410A  
**Level:** Intermediate  
**Purpose:** To describe the role of gait analysis in decision-making for soft-tissue surgery in children with cerebral palsy (CP). Indications & contraindications for psoas, hamstring & gastrocnemius surgery will be discussed. Case examples will be used to demonstrate important concepts.

**Target Audience:** MD’s, PT’s, engineers

**Learning Objectives:**

1) Discuss how biomechanical models contribute to the understanding of surgical indications for hamstring & psoas procedures.  
2) Identify specific gait analysis findings which are indications for psoas, hamstring, & gastrocnemius procedures in the child with CP.  
3) Recognize common pitfalls in decision-making regarding psoas, hamstring, and gastrocnemius procedures in order to avoid adverse outcomes.  
4) Recognize current shortcomings in gait analysis guided decision making for soft tissue procedures.

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**PROGRAM & EVENTS**

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**Free Papers I-L**

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**FREE PAPERS I: GAIT**

**Location:** Indigo A

**8:05 am – 8:12 am**  
**11 - THE EFFECT OF VARYING STIFFNESS OF AN ANKLE-FOOT ORTHOSIS ON WALKING ABILITY IN CHILDREN WITH CEREBRAL PALSY**

**Yvette L. Kerkum, MSc; Merel-Anne Brehm, PhD; Josien C. van den Noort, PhD; Jules Becher, PhD MD; Jaap Harlaar, PhD; Annemieke Buizer, PhD MD**

**8:13 am – 8:20 am**  
**12 - INFLUENCE OF DIFFERENT AFO TYPES ON CROUCH GAIT: A RETROSPECTIVE REVIEW USING COMPUTERIZED GAIT ANALYSIS**

**Mitch Barr, MPT; Abigail Dull, DPT; Amy Lenz, MSME; Kayla Holtz, DPT; Saxony Matousek, DPT**

**8:21 am – 8:28 am**  
**13 - THE EFFECT OF FOOT TYPE ON ANKLE POWER IN CHILDREN WITH CEREBRAL PALSY**

**Paz Kedem, MD; Lisa C. Drefus, PT DPT; Jayme C. Burket, PhD; David Scher, MD**

**8:29 am – 8:36 am**  
**14 - THE INFLUENCE OF THE UNAFFECTED HIP ON GAIT KINEMATICS IN PATIENTS WITH HEMIPLEGIC CEREBRAL PALSY**

**Mikhail Tretiakov, BS; K.Patrick Do, BS, Engineering; Michael Aiona, MD**

**8:37 am – 8:44 am**  
**15 - KINEMATIC PROFILES OF GROSS MOTOR FUNCTION CLASSIFICATION SYSTEM LEVEL III FUNCTIONAL SUBGROUPS**

**Lynsie Ishimaru, MS; Jon R. Davids, MD; Anita Bagley, PhD; Mitell Sison-Williamson, MS**
8:45 am – 9:00 am  Questions and Answers
9:01 am – 9:08 am  
I6 - COMPLEXITY OF NEUROMUSCULAR CONTROL IS REDUCED DURING GAIT AMONG INDIVIDUALS WITH CEREBRAL PALSY  
Katherine M. Steele, PhD; Adam Rozumalski, MS; Michael H. Schwartz, PhD
9:09 am – 9:16 am  
I7 - POSTURAL CONTROL EXERCISE INTERVENTIONS FOR CHILDREN WITH CEREBRAL PALSY: A SYSTEMATIC REVIEW  
Rosalee Dewar, BPhy (Hons); Sarah Love, PhD; Leanne M. Johnston, PhD, BPhy (Hons)
9:17 am – 9:24 am  
I8 - LOWER LIMB MUSCLE FASCICLE FUNCTION DURING GAIT IN YOUNG ADULTS WITH CEREBRAL PALSY  
Lee A. Barber, PhD MPhy BAppSc; Shari M. O’Brien, BHMS(Hon); Roslyn N. Boyd, PhD PT; Glen A. Lichtwark, PhD
9:25 am – 9:32 am  
I9 - POSTURAL RESPONSES TO VISUAL AND SOMATOSENSORY PERTURBATIONS IN ADULTS WITH CEREBRAL PALSY.  
Yawen Yu, PhD; Emily Keshner, EdD; Carole Tucker, PhD; Elizabeth Thompson, DPT; Richard Lauer, PhD
9:33 am – 9:40 am  
J10 - WHAT EVIDENCE EXISTS ON THE EFFECTIVENESS OF THE USE OF ROBOTIC-ASSISTED GAIT TRAINING IN CHILDREN WITH NEUROLOGICAL GAIT DISORDERS?  
Sophie Lefmann, PhD; Ray Russo, PhD; Susan Hillier, PhD
9:41 am – 10:00 am  Questions and Answers

FREE PAPERS J: INFANTS
Location: Indigo BF
8:05 am – 8:12 am  
J1 - ASSESSMENT OF GENERAL MOVEMENTS BY PRECHTL ANALYSIS AND FOLLOW UP RESULTS IN HIGH RISK INFANTS DURING EARLY INTERVENTION PERIOD  
Akmer Mutlu, PT PhD; Ayse Livanelioglu, PT PhD
8:13 am – 8:20 am  
J2 - SUPPORTING PLAY, EXPLORATION, & EARLY DEVELOPMENT OF INFANTS BORN PRETERM (SPEEDI): A PILOT RANDOMIZED CLINICAL TRIAL  
Stacey Dusing, PT PhD; Leroy Thacker, PhD; Karen Hendricks-Munoz, MD MPH
8:21 am – 8:28 am  
J3 - IDENTIFICATION OF MOTOR DISABILITIES USING THE BAYLEY SCALES OF INFANT-TODDLER DEVELOPMENT-3RD EDITION (BSID-3) AND THE NEURO-SENSORY MOTOR DEVELOPMENTAL ASSESSMENT (NSMDA) IN A HIGH RISK INFANT FOLLOW UP PROGRAM  
Lynn Boswell, PT MS; Mary Weck, PT; Annamarie Hayner, MEd; Mary Kay Santella, PT; Elizabeth Overland, PT; Evette Coll, PT; Marie Weissbourd, PhD; Raye-Ann De Regnier, MD
8:29 am – 8:36 am  
J4 - MOTOR ASSESSMENTS IN THE FIRST YEAR OF LIFE FOR PRETERM INFANTS PREDICT MOTOR OUTCOMES AT PRESCHOOL AGE  
Alicia J. Spittle, PhD MPhysio; Peter Anderson, PhD; Katherine J. Lee, PhD; Megan Spencer-Smith, PhD; Lucy E. Lorence, PhD; Lex W. Doyle, MD
8:37 am – 8:44 am  
J5 - DEVELOPMENTAL EFFECTS OF BEVACIZUMAB TREATMENT FOR RETINOPATHY OF PREMATURETY  
Kathryn Shipp, MD; Brita Deacon, MD; Lori Huff, MD; Richard Saunders, MD; Myle Ebeling, RA; Amy R. Humphries, RN; Kinsey Shirer, RN; Lakshmi Katikaneni, MD
8:45 am – 9:00 am  Questions and Answers
9:01 am – 9:08 am  
J6 - OPTIMIZING THE MOTOR OUTCOMES OF INFANTS AT HIGH RISK OF CEREBRAL PALSY: PILOT RANDOMIZED CONTROLLED TRIAL  
Cathy J. Morgan, B APP Sc (Physio); Iona Novak, PhD; Russell C. Dale, PhD; Nadia Badawi, PhD
9:09 am – 9:16 am  
J7 - SEDENTARY AND ACTIVE TIME IN TODDLERS WITH AND WITHOUT CEREBRAL PALSY  
Stina Oftedal, BHlthSc (Hons); Kristie L. Bell, BHlthSc (Hons) PhD; Camilla Davenport, BHlthSc; Peter S. Davies, BSc (Hons) MPhil PhD; Robert Ware, BSc (Hons) PhD; Roslyn N. Boyd, PhD PT
9:17 am – 9:24 am  
J8 - INDICATORS OF READINESS FOR INDEPENDENT WALKING IN YOUNG CHILDREN WITH CEREBRAL PALSY  
Denise M. Begnoche, PT DPT; Lisa A. Chiarello, PT PhD PCS; Robert J. Palisano, PT ScD FAPTA; Edward J. Gracely, PhD; Sarah W. McCoy, PT PhD FAPTA; Margo N. Orlin, PT PhD
9:25 am – 9:32 am  
J9 - FULL-DAY MONITORING TO MEASURE QUANTITY OF KICKING ACROSS THE FIRST YEAR OF LIFE  
Beth A. Smith, PT DPT PhD; Fay Horak, PT PhD
9:33 am – 9:40 am  
J10 - THE EFFECT OF SENSOR ROBOTIC TECHNOLOGY ON THE DEVELOPMENT OF PROXIE MOBILITY IN INFANTS WITH OR AT RISK FOR CEREBRAL PALSY  
Hlapang (Thubi) A. Kolobe, PT PhD; Andrew H. Fagg, PhD
9:41 am – 10:00 am  Questions and Answers

FREE PAPERS K: HEALTH
Location: Indigo CG
8:05 am – 8:12 am  
K1 - BONE MINERAL DENSITY IN AMBULATORY CHILDREN WITH CEREBRAL PALSY  
Ane-Kristine Finbråten, MD; Unni Syversen, MD Phd; Jon S. Skranes, MD PhD; Guro L. Andersen, MD Phd; Richard D. Stevenson, MD; Torstein Vik, MD Phd
**PROGRAM & EVENTS**

8:13 am – 8:20 am
**K2 - INFLUENCE OF ACTIVITY ON BONE HEALTH IN CEREBRAL PALSY**  
Susan Apkon, MD; Kathryn Ness, MD; Marguerite Parisi, MD; Ana Christensen, MPH; Kristie F. Bjornson, PhD PT

8:21 am – 8:28 am
**K6 - IS GROWTH AND NUTRITIONAL STATUS IN CHILDREN WITH CEREBRAL PALSY RELATED TO THE SEVERITY OF THE BRAIN LESION?**  
Kristie L. Bell, PhD B Health Science; Simona Fiori, MD; Kelly A. Weir, B; Katherine A. Benfer, MPH; Peter S. Davies, PhD; Roslyn N. Boyd, PhD PT

8:29 am – 8:36 am
**K4 - THE ROLE OF BLADDER MANAGEMENT AND FUNCTIONAL MOBILITY IN PROMOTING LIFE SATISFACTION OVER TIME FOR INDIVIDUALS WITH CHILDHOOD-ONSET DISABILITIES.**  
Alicia M. January, PhD; Kathy Zebracki, PhD; Kathleen Chlan, BA; Lawrence C. Vogel, MD

8:37 am – 8:44 am
**K5 - A POPULATION-WIDE INTERVENTION TO IMPROVE THE CARE OF CHILDREN WITH MEDICAL COMPLEXITY**  
Melissa Madden, MPH; Garey Noritz, MD; Wendelin A. Burdo-Hartman, MD; Naomi Makni, MHA; Sean Gleeson, MD MBA; Lee Budin, MD; Kimberly Conkol, BSN; Elaine Damo, MBA RHIA; Dina Roldan, BA; Kelly Kelleher, MD

8:45 am – 9:00 am Questions and Answers

9:01 am – 9:08 am
**K3 - HEART RATE VARIABILITY IN CHILDREN WITH CEREBRAL PALSY AND ACQUIRED BRAIN INJURY**  
Etyyona Eisenstein, MSc PT; Sharon Barak, PhD

9:09 am – 9:16 am
**K7 - ENERGY AND MICRONUTRIENT INTAKES OF PRE-SCHOOL AGED CHILDREN WITH CEREBRAL PALSY**  
Camilla Davenport, BHsc; Peter S. Davies, PhD MPhil BSci; Roslyn N. Boyd, PhD PT; Kristie L. Bell, PhD

9:17 am – 9:24 am
**K8 - ASSESSMENT OF THE IMPACT OF ENTERAL NUTRITION METHOD (BOLUS VS. CONTINUOUS INFUSION) ON CARBOHYDRATE METABOLISM IN CHILDREN WITH NEUROLOGICAL IMPAIRMENT FED BY PERCUTANEOUS ENDOSCOPIC GASTROSTOMY**  
Joanna Kudzin, MD PhD; Beata Gebora-Kowalska, MD PhD; Ewa Toporowska-Kowalska, MD PhD

9:25 am – 9:32 am
**K9 - ADIPOSE TISSUE DISTRIBUTION AND MUSCULOSKELETAL DENSITY IN ADULTS WITH CEREBRAL PALSY**  
Mark Peterson, PhD MS; Peng Zhang, PhD; Heidi J. Haapala, MD; Edward A. Hurvitz, MD; Stewart Wang, MD PhD

9:33 am – 9:40 am
**K10 - DOWN SYNDROME GROWTH CHARTS AND TRENDS IN OBESITY**  
Linh Tran, MPH; Jordan Brooks, PhD MPH; David Strauss, PhD; Robert Shavelle, PhD

9:41 am – 10:00 am Questions and Answers

FREE PAPERS L: IMAGING

**Location:** Indigo E

8:05 am – 8:12 am
**L1 - NEONATAL PHYSIOLOGICAL CORRELATES OF EARLY BRAIN DEVELOPMENT ON MRI AND DTI IN VERY-LOW-BIRTH-WEIGHT PRETERM INFANTS**  
Jessica Rose, PhD; Rachel Vassar, BA; Katelyn Cahill-Rowley, BS MS; Ximea Stecher Guzman, MD; Susan Hintz, MD; David K. Stevenson, MD; Naama Barnea-Goraly, MD

8:13 am – 8:20 am
**L2 - RELATIONSHIP BETWEEN WHITE MATTER FRACTIONAL ANISOTROPY AND GENERAL MOVEMENT ASSESSMENTS IN HIGH-RISK PREMATURE INFANTS: A TRACT-BASED SPATIAL STATISTICAL ANALYSIS**  
Colleen Peyton, PT DPT; Alexander Drobyshevsky, MD PhD; Lars Adde, PT PhD; Ragnhild Steen, MD PhD; Toril Fjortoft, PT MSc; Michael Schreiber, MD; Michael E. Msall, MD

8:21 am – 8:28 am
**L3 - NEUROPLASTIC SENSORIMOTOR RESTING STATE NETWORK REORGANIZATION IN HEMIPLEGIC CEREBRAL PALSY SUBJECTS TREATED WITH CONSTRAINT-INDUCED MOVEMENT THERAPY**  
Kathryn Y. Manning, BSc; Darcy Fehtings, MD MSc; Jan Willem Gorter, MD PhD; Lauren Switzer, MSc; Ronit Mesterman, MD; Craig Campbell, PhD; Ravi S. Menon, PhD

8:29 am – 8:36 am
**L4 - USING DIFFUSION TENSOR IMAGING AS A SURROGATE TO IDENTIFY CORTICOSPINAL TRACT CONNECTIVITY IN CHILDREN WITH UNILATERAL SPASTIC CEREBRAL PALSY**  
Hsing-Ching Kuo, MS PT; Claudio Ferre, MA; Jason Carmel, MD, PhD; Jaimee Gowskcy, MA; Arielle Stanford, MD; Stefan Rowny, MD; Sarah Lisanby, MD; Andrew Gordon, PhD; Kathleen Friel, PhD

8:37 am – 8:44 am
**L5 - RELATIONSHIP BETWEEN BRAIN LESION SEVERITY AND AMBULATION IN PRE-SCHOOL AGED CHILDREN WITH CEREBRAL PALSY**  
Rachel Jordan, B. PT B. Exercise Science; Simona Fiori, MBBS; Christine Finn, B. PT; Eynn Arnfield, MBBS; Andrea Guzzetta, MBBS; Rob Ware, PhD; Roslyn N. Boyd, PhD PT

8:45 am – 9:00 am Questions and Answers

9:01 am – 9:08 am
**L6 - BRAIN LESION SEVERITY AND RELATIONSHIP TO EXECUTIVE FUNCTION IN CHILDREN WITH UNILATERAL CEREBRAL PALSY**  
Carly Mayberry, DClinPsy; Simona Fiori, MD; Stephanie Ross, Masters of Neuropsychology; Koa Whittingham, PhD; Andrea Guzzetta, PhD MD; Giovanni Cioni, MD; Roslyn N. Boyd, PhD PT

9:09 am – 9:16 am
**L7 - VALIDATION OF A SEMI-QUANTITATIVE SCALE FOR BRAIN STRUCTURAL MRI IN UNILATERAL CEREBRAL PALSY: RELATIONSHIP WITH PARETIC HAND SENSORIMOTOR FUNCTION**  
Simona Fiori, MBBS; Andrea Guzzetta, MBBS; Giovanni Cioni, MBBS, Neurology; Roslyn N. Boyd, PhD PT
American Academy for Cerebral Palsy and Developmental Medicine • FINAL PROGRAM

9:17 am – 9:24 am
L8 - DISRUPTION OF CEREBRO-CEREBELLAR PATHWAYS IN CONGENITAL UNILATERAL BRAIN LESIONS AND CORRELATION WITH HAND FUNCTION: A DIFFUSION TRACTOGRAPHY STUDY
Simona Fiori, MBBS, Neurology; Andrea Guzzetta, MBBS, Neurology; Kerstin Panneck, BSc; Giovanni Cioni, MBBS, Neurology; Stephen Rose, PhD; Roslyn N. Boyd, PhD PT

9:25 am – 9:32 am
L9 - VALIDATION OF SEMI-QUANTITATIVE STRUCTURAL MRI SCALE AGAINST HEMISPHERIC CONNECTIONS USING A WHOLE BRAIN DIFFUSION APPROACH IN CHILDREN WITH UNILATERAL CEREBRAL PALSY
Simona Fiori, MBBS, Neurology; Kerstin Panneck, BSc; Andrea Guzzetta, PhD, Neurology; Stephen Rose, PhD; Roslyn N. Boyd, PhD PT

9:33 am – 9:40 am
L10 - RELATIONSHIP BETWEEN BRAIN LESION SEVERITY AND MOTOR OUTCOMES IN PRE-SCHOOL AGED CHILDREN WITH CEREBRAL PALSY
Evyn Arnfield, MBBS Hons 1A; Simona Fiori, MBBS; Andrea Guzzetta, MBBS PhD; Rachel Jordan, BSc PT; Christine Finn, BScPT; Robert Ware, PhD; Roslyn N. Boyd, PhD PT

9:41 am – 10:00 am Questions and Answers

10:00 am – 10:15 am Coffee Break - Poster Review
Location: Sapphire Ballroom

10:15 am – 11:45 am General Session
Location: Sapphire Ballroom
Presidential Guest Lecture
Rick Hansen
CPRIF Best Scientific Poster & Mac Keith Press Promising Career Awards
Gayle G. Arnold Award for Best Scientific Paper
Sarah James, BOccThy (Hons)
Presidential Guest Lecture
Richard Ellenson

12:00 pm – 1:30 pm Lunch on own

1:15 pm – 5:00 pm Board of Directors Meeting
Location: Aqua AB

1:30 pm – 3:30 pm Instructional Courses 25-36

IC 25 - THE END ORGAN: MUSCLE IN THE CEREBRAL PALSY
Hank G. Chambers, MD; Richard Lieber, PhD; Adam Shortland, PhD; Martin Gough, MD
Location: Aqua C
Level: Intermediate
Purpose: Although it is known that the brain is the source of the cerebral palsies, the disorder is often manifest in the musculoskeletal system. Hypertonic, chorioathetoid, ataxic and hypotonic states all have adverse action on the muscular system. Many therapies involve the musculoskeletal system. Drug therapies such as botulinum toxins target the muscles and the entire field of orthopedic surgery operates at the level of the muscle and bone. Recently great insight has been achieved with the use of noninvasive in vivotesting such as ultrasound and MRI. New research has expanded the knowledge of the effects of cerebral palsy on muscle in people with cerebral palsy. This understanding of the basic science of muscle may lead to changes in drug, cell-based and surgical therapies in the future.

Target Audience: Orthopedic Surgeons, Therapists, Physical Medicine and Rehabilitation Physicians, Basic Scientists
Course Summary: We will discuss the clinical problems of muscle involvement of the cerebral palsies from dynamic posturing, contracture formation, maintenance of abnormal forces on the bones leading to lever arm syndrome, and eventually dislocation or deformity of the upper extremity, spine and lower extremities. A thorough review of the noninvasive methods of evaluating muscle function including gait analysis and ultrasound will be presented. Finally, recent insights into the basic science of muscle from children and young adults with cerebral palsy will be shared. This will include changes in morphology, mechanical properties and even genetic expression. An attempt to unify these concepts to form a current state of the art and more importantly suggest future research and potential changes in our therapies and perhaps novel approaches to prevention of muscular changes and deformities.

Learning Objectives:
1) To understand the effect of central nervous system injury on the musculoskeletal system.
2) To understand how noninvasive evaluation of the musculoskeletal system has altered our idea of how muscle works. New techniques in clinical and research methodology will also be shared.
3) To appreciate how the new frontier of the basic science knowledge of muscle may impact our understanding of the current therapies and how knowing how the mechanical properties of muscle and the genetic expression of muscle may help us prevent or at least ameliorate muscle involvement in the cerebral palsies.
4) To synthesize the information from the course to propose new therapeutic approaches to muscle problems in cerebral palsy.

IC 26 - LIFE EXPECTANCY IN CEREBRAL PALSY: METHODS FOR CLINICIANS
Robert J. Reynolds, PhD; Scott J. Kush, MD JD MPH; Steven M. Day, PhD
Location: Sapphire 410A
Level: Basic
Purpose: Explain the methodology of calculating life expectancy of children and young adults with CP using evidence from the peer-reviewed medical literature, survey that literature, and demonstrate a simple tool which synthesizes the literature to allow clinicians to calculate evidence-based estimates of life expectancy for children and young adults with CP.
IC 27 - CAN YOU HAVE A MOTOR DISABILITY AND BE A COMPETITIVE ATHLETE?
Jennifer Miro, MPT; Jill Meilahn, DO; Joyce Oleszek, MD; Patricia Morena Grangeiro, MD; JenFu Cheng, MD

Level: Basic

Purpose: After the excitement of the 2014 Winter Paralympics is over, this course will help clinicians, patients and families understand the role of competitive athletics for individuals with Cerebral Palsy and Other Childhood-Onset Disabilities (COD). This course will also teach how to become involved with Competitive Adapted Sports (CAS) opportunities. We will outline the social, psychological, and physical benefits of competitive adapted athletic programs.

Target Audience: This course is relevant to clinicians, patients and care givers of individuals with COD who are interested in promoting and/or want to become active in competitive adapted sports.

Course Summary: A multi-disciplinary team will showcase CAS. These are sporting activities that are done for a competitive outlet, enjoyment and/or pleasure. Individuals living with a motor disability (GMFCS I-V) need to be given the opportunity to participate in CAS activities and become an athlete. An athlete is defined by the Mirriam-Webster dictionary as a person who is trained or skilled in exercises, sports, or games requiring physical strength, agility, or stamina. These activities can range from a highly organized team to an individual activity. This course will summarize and give examples of CAS options for individuals with COD.

Learning Objectives:
1) Understand the definition and interpretation of life expectancy and related summary measures of survival probabilities, their value, and their limitations.
2) Review the current state of evidence concerning the life expectancy of patients with cerebral palsy, including issues regarding the quality of that evidence.
3) Learn which variables, such as functional ability (e.g., GMFCS) and feeding ability, are known to affect the life expectancy of individuals with cerebral palsy.
4) Become competent in the use of the Life Expectancy Calculation Tool (provided by the authors at the instructional course) to estimate life expectancy for various levels of functional profile among individuals with CP.

IC 28 - THE INTERFACE BETWEEN PHYSICAL AND MENTAL HEALTH: MEETING THE NEEDS OF ADULTS WITH INTELLECTUAL/DEVELOPMENTAL DISABILITY
Garey Noritz, MD

WITHDRAWN

IC 29 - MANAGEMENT OF THE HIP IN CEREBRAL PALSY: THE REVISED AUSTRALIAN STANDARDS OF CARE FOR HIP SURVEILLANCE AND THEIR RELEVANCE TO MANAGEMENT
Pam Thomason, M PT; Kate Willoughby, D PT; Abhay Khot, MD; H Kerr Graham, MD

Location: Sapphire 411A

Level: Intermediate

Purpose: This updated course will focus on the practical application of evidence for the surveillance and management of hip displacement in children with cerebral palsy (CP). It will help participants navigate the management options in relation to complex and sometimes competing needs of the child and family.

Target Audience: Physical therapists, paediatricians, orthopaedic surgeons, rehabilitation physicians.

Course Summary: In the context of previously presented and new evidence this course will provide an overview and practical approach to the management of hip displacement in CP. The difficulties of developing and implementing management algorithms will be explored. Participants learning will be enhanced through interactive case studies including management of children with hemiplegia and children for whom the complex nature of their disability extends far beyond the hip. The recently revised Australian hip surveillance guidelines will be presented with a copy available to all participants. There will be ample time to discuss the revisions and their implications. The outcome of surgical and non-surgical management including evidence of the
effectiveness of non surgical options such as complementary/alternative medicine(CAM) explored. A focus will be interactive case studies to provide participants with rationale to support their decision making about managing hip displacement for children in their care.

Learning Objectives:
1) Gain knowledge of evidence for the management of hip displacement in children with CP
2) Understand the rationale and timing of surgical intervention
3) Understand the management of hip displacement in relation to the severity of motor disorder and in the context of complex/competing needs of the child and family
4) Gain knowledge about the evidence for long term outcomes of surgical and non surgical interventions

IC 30 - SUPPORTING LIFELONG HEALTH-RELATED FITNESS AMONG INDIVIDUALS WITH CEREBRAL PALSY
Wilma M. van der Slot, MD PhD; Jan Willem Gorter, MD PhD FRCPC; Mark Peterson, PhD MS
Location: Sapphire 411B
Level: Intermediate
Purpose: This course will address underlying mechanisms and promotion of health-related fitness of individuals with cerebral palsy (CP) from adolescence onwards.

Target Audience: Everyone interested in health-related fitness in individuals with CP including researchers, therapists, physicians, and kinesiologists.

Course Summary: Despite the paucity of literature, fitness is thought to have a positive effect on health and quality of life in individuals with CP. This course will integrate information based on up to date research and clinical practice from the Stay-FIT Research Program in Canada, MoveFit, a Dutch research program on movement behavior and fitness, and work regarding the secondary health complications of chronic inactivity from the U.S. Health-related fitness impairments and training options will be discussed. Specific attention will be given to viable interventions to lessen the health burden of aging and obesity with CP.

Learning Objectives:
1) To understand health-related fitness impairments in adolescence and adults with CP, including body composition, fatigue and cardiovascular health.
2) To review cardiometabolic risk factors in individuals with CP.
3) To identify motivators and barriers to physical activity (PA) participation.
4) To discuss minimal versus optimal strategies to promote fitness and PA in individuals with CP.

IC 31 - AN OVERVIEW OF INTRATECHAL BACLOFEN (ITB) MANAGEMENT AND TROUBLESHOOTING
Nanette Aldahondo, MD; Linda E. Krach, MD; Marcie Ward, MD
Location: Sapphire Green Room
Level: Intermediate
Purpose: To summarize common ITB management practices, strategies for troubleshooting, and this children’s hospital’s experience with ITB complications.

Target Audience: Health care professionals involved in the management of intrathecal baclofen pumps.

Course Summary: A team of physiatrists will summarize their experience with ITB management and their algorithm for troubleshooting. The course will include case-studies to demonstrate the management, observed complications, and troubleshooting principles. Presenters will elicit participant opinions and their own case examples/questions throughout the course. The session is intended to be interactive.

Learning Objectives:
1) Describe the typical course when beginning management with an ITB pump and understand the rationale behind initial dosing.
2) Understand when work-up of system integrity is indicated and the rationale for various techniques to evaluate the system hardware.
3) Understand the existing literature about ITB complications.
4) Understand the indications for surgical intervention.

IC 32 - REVIEW OF NEUROPHARMACOLOGY IN PEDIATRIC BRAIN INJURY
John Pelegano, MD; Jilda N. Vargus-Adams, MD MSc; Micah W. Baird, MD
Location: Sapphire 400A
Level: Intermediate
Purpose: This course will present a review of the literature and current practices regarding the use of neuropharmacologic agents in the treatment of children with moderate to severe acquired brain injuries (ABI’s).

Target Audience: Physicians, physician assistants, advanced practice nurses, occupational and physiotherapists, speech and language pathologists, nurses.

Course Summary: A 2010 CDC study estimated that approximately 275,000 individuals are hospitalized for Traumatic Brain Injury annually. Over the past several years there has been increasing use of pharmacologic agents as rehabilitative adjuncts in these individuals and those with other Acquired Brain Injury. Though most of the limited number of clinical studies to date have been performed in the adult population, these medications are increasingly used in the over 35,000 annual pediatric hospitalizations for ABI’s. This course will provide a review of existing literature on this topic, discuss practice trends, and provide a framework for the judicious use of these agents in pediatric settings. An audience response system will be utilized during this course to survey current practice patterns and allow participants to learn interactively. Ample time will be allotted for discussion and sharing of experiences.

Learning Objectives:
1) To identify neuropharmacologic agents which have been utilized to augment the rehabilitation of children with ABI’s.
2) To review the available literature on neuropharmacology in ABI including ratings of Level of Evidence
3) To describe a clinical framework for the judicious use of these medications in children with ABI.
4) To elucidate those areas of neuropharmacology in ABI requiring further study.
IC 33 - PARTNERSHIPS IN RESEARCH: ENGAGEMENT OF FAMILIES, SERVICE PROVIDERS AND RESEARCHERS. WHY AND HOW?
Marjolijn Ketelaar, PhD; Cynthia Frisina, MA; Chris Morris, PhD; Iona Novak, PhD OT; Dianne J. Russell, PhD

Location: Sapphire 402
Level: Basic

Purpose: The purpose of this course is to discuss why and how to promote partnership between families, service providers and researchers to improve the relevance and usefulness of research, considering their different perspectives.

Target Audience: This course will be for researchers, families and service providers interested in strategies for partnership in research throughout the whole research process.

Course Summary: Research evidence shows that publication of research results does not automatically lead to improvements in the health and well-being of persons with disabilities and their families, nor does it influence decisions made by families and clinicians. Involving stakeholders, fully and meaningfully, in all stages of the research process will lead to more relevant and useful research.1 This course will encourage participants to discuss (i) the rationale for involving families and service providers, (ii) challenges and opportunities from their own experiences, and (iii) examples of successful partnerships between families, service providers and researchers. The course will be structured around all stages of a research cycle from identifying questions to promoting uptake and change. The format will be small group discussions and synthesizing ideas in the larger group.1

Learning Objectives:
1) To understand the philosophical and practical arguments for partnerships between researchers, families and service providers in the context of childhood disability research.
2) To be familiar with all stages in the research cycle, in relation to various ways of engaging stakeholders.
3) To identify common challenges and facilitating factors to effective partnerships.
4) To be familiar with strategies for meaningful partnership between families, service providers and researchers in all stages of the research process.

IC 35 - CLINICAL MANAGEMENT OF MOTOR MANIFESTATIONS OF DYSTONIA
Warren A. Marks, MD; Eric B. Levey, MD; Alec Hoon, MD MPH

Location: Sapphire 400B
Level: Advanced

Purpose: To provide an in depth understanding of the principles of assessment and management of children and adolescents with dystonia syndromes.

Target Audience: Clinicians involved in the management of children and adolescents with dystonia and other childhood movement disorders.

Course Summary: Dystonia is a clinical diagnosis with different underlying etiologies and anatomic distributions, often with widely variable manifestations and functional impairments. It may present as isolated dystonia, dystonia with hypertonia ( dystonic hypertonia) or dystonia with other movement abnormalities. There are non-neurologic conditions that may mimic dystonia. Transient developmental phenomena (idiopathic dystonia of infancy), pseudodystonias (SANDifer syndrome) and “sensory tricks” will also be reviewed. An approach to treatment should take etiology, anatomic distribution of dystonia, patient age and potential side effects into consideration, and include parental education about diagnosis and treatment options. For focal dystonia, injections of botulinum toxin often work well, but benefits may not persist over time. With more generalized dystonia, oral medications may be beneficial. However, it should be recognized that there may be variability in response based on etiology, drug absorption, distribution and metabolism. Baclofen is the only oral medication with FDA approved dosing. Intrathecal baclofen is also an option for treatment. There has been a recent interest in deep brain stimulation (DBS) for patients with refractory dystonia. DBS has a well demonstrated role in some primary genetic dystonias. Treatment of secondary dystonia, in particular cerebral palsy, presents unique challenges. Anatomic pathways are often physically disrupted. In addition, dystonia rarely presents as the sole motor manifestation.
of cerebral palsy and is often seen in conjunction with both spasticity and hypotonia. Currently available dystonia outcome measures fail to capture small but important functional changes in response to treatment.

**Learning Objectives:**
1) The participant will recognize various clinical manifestations of dystonia, hypertonic dystonia and dystonia associated with other movement disorders.
2) The participant will recognize the utility of botulinum toxin in focal dystonia syndromes
3) The participant will recognize indications for oral medications and the potential for deep brain stimulation
4) The participant will identify transient developmental conditions that may present as “dystonia” and pseudodystonias

**IC 36 - THE CONSERVATIVE MANAGEMENT OF IDIOPATHIC TOE WALKING UTILIZING AN EVIDENCE BASED ALGORITHM AND SENSORY MOTOR TREATMENT APPROACH**

*Elizabeth Maus, DPT; Catie Christensen, DPT; Amanda Haddad, DPT; Jessica Brock, DPT; Ilene Crabtree, DPT; Michelle Sveda, BSPT*

**Location:** Aqua 310

**Level:** Intermediate

**Purpose:** This course will focus on the evaluation and treatment of idiopathic toe walking using an evidence-based algorithm to individualize care. This course will guide the clinician through an evidence-based decision making process to inform treatment for children with idiopathic toe walking.

**Target Audience:** Physical therapists, occupational therapists, nurses, social workers, and physicians

**Course Summary:** Evaluation and treatment of children with idiopathic toe walking continue to challenge pediatric clinicians. Treatment techniques including serial casting, night splinting, stretching, sensory integration, and motor control have been explored in the literature with mixed results. There has been very little investigation into combining the above interventions based on the specific impairments and activity/participation limitations of each individual child. This presentation will review the current literature on idiopathic toe walking including differential diagnoses, evaluation and evidence-based intervention. The Toe Walking Tool will be presented as a standardized method of screening for non-idiopathic origins of toe walking. Two valid and reliable evaluation instruments, the Sensory Processing Measure and the Lunge Test of functional ankle dorsiflexion range of motion will be presented to assist the clinician in identifying appropriate interventions for optimal gait outcomes. Individualized treatment options will be presented in an evidence-based algorithm. The algorithm will guide clinicians in selecting the most appropriate conservative treatment techniques based on each individual child’s body structure and function, impairments, and activity/participation limitations. Conservative treatment techniques reviewed in this presentation will include the use of traditional stretching, serial casting, night splinting, orthoses, as well as motor control and sensory processing interventions. Participants will use written case studies to practice using The Toe Walking Tool and the algorithm. Previous experience treating children with idiopathic toe walking is not required. Discussion and participant problem-solving will be encouraged.

**Learning Objectives:**
1) Utilize The Toe Walking Tool to screen for non-idiopathic etiology of toe walking to determine need for medical referrals.
2) Describe and apply evaluation tools for children with idiopathic toe walking.
3) Compare treatment options to create an individualized treatment plan for a case child with idiopathic toe walking.
4) Practice clinical decision making using an evidence based algorithm from initial evaluation through discharge.
SP 1 - LIVING ARRANGEMENTS, OCCUPATION, AND USE OF PERSONAL ASSISTANCE IN YOUNG SWEDES WITH CEREBRAL PALSY
Ann Alriksson-Schmidt, PhD MSPH; Gunnar Hägglund, MD PhD; Elisabet Rodby Bousquet, PT PhD; Lena Westborn, MD PhD

SP 2 - THE RELATIONSHIP BETWEEN SHOULDER MUSCLE ATROPHY AND WEAKNESS IN CHILDREN WITH OBSTETRICAL BRACHIAL PLEXUS BIRTH PALSY
Frances Sheehan, PhD; Cristelle Pons, MS MD; Sylvain Brochard, MD; Hyun Soo Im, BS; Katharine E. Alter, MD

SP 3 - THE THREE DIMENSIONALITY OF THE GLENOHUMERAL DEFORMITY IN OBSTETRICAL BRACHIAL PLEXUS PALSY
Sylvain Brochard, MD PhD; Frances Sheehan, PhD; Monzinho Joseph, BS; Katharine E. Alter, MD

SP 4 - SHORT-TERM EFFECT OF HANDLING METHODS OF BOBATH THERAPY ON CHILDREN WITH BILATERAL SPASTIC CEREBRAL PALSY
Hiroshi Arai, MD; Yoshitomo Torise, RPT; Masaki Miura, ROT; Megumi Shima, RPT; Tomoyuki Ohashi, PhD

SP 5 - UNSTABLE HIPS IN CHILDREN WITH CEREBRAL PALSY GMFCS 3-5: DOES ACETABULOPLASTY MAKE A DIFFERENCE IN HIP RECONSTRUCTIVE SURGERY?
Matthias W. Axt, MD MBBS; Danielle Wadley, MBBS MD; Elizabeth H. Barnes, Biostatistician

SP 6 - ABNORMAL EXPRESSION OF GADD45β AND EPIGENOMIC ABNORMALITIES IN SKELETAL MUSCLE FROM CHILDREN WITH SPASTIC CEREBRAL PALSY
Daniel T Barnes, BS; Karyn Robinson, MS; Freeman Miller, MD; Robert Akins, PhD

SP 7 - DIETARY INTAKE AND UNDERNUTRITION IN PRESCHOOL CHILDREN WITH CEREBRAL PALSY: COMPARISON BETWEEN HIGH- AND LOW-RESOURCE COUNTRIES
Katherine Benfer, MPH BSPath; Kelly A. Weir, MSPath BSThy; Kristie L. Bell, PhD B Health Science; Robert Ware, PhD; Peter S. Davies, PhD, MPhil, B Science; Roslyn N. Boyd, PhD PT

SP 8 - COMMUNITY WALKING ACTIVITY IN CEREBRAL PALSY: DO ORTHOSES HELP?
Kristie F. Bjornson, PT PhD; Chuan Zhou, PhD; Richard Stevenson, MD; Dimitri Christakis, MD MPH; Sariya H. Rashid, MS

SP 9 - FINANCIAL STRESS AMONG PARENTS OF CHILDREN WITH NEURODISABILITIES IN CANADA: THE ROLE OF ‘COMPLEXITY’
Aline Bogossian, MSW; David Rothwell, MSW PhD; Lucyna M. Lach, MSW PhD; David Nicholas, RSW PhD; Sacha Bailey, MSW; Dafna Kohen, MS MPhil PhD; Peter Rosenbaum, MD

SP 10 - INTERMEDIATE OUTCOMES OF THE TREATMENT OF DORSAL BUNIONS OF THE FIRST METATARSAL-PHALANGEAL JOINT IN CEREBRAL PALSY
Henry G. Chambers, MD; Masahal Muwanis, MD

SP 11 - STABILITY OF PAIN IN CHILDREN AND YOUTH WITH CEREBRAL PALSY OVER TIME
Rhandi Christensen, PhD; Lauren Switzer, MSc; Darcy Fehlings, MD MSc

SP 12 - SELF REPORTS OF HISTORICAL DATA AND CURRENT STATUS IN YOUNG ADULTS WITH CEREBRAL PALSY
Chris Church, MPT; Danush Hoskere, BS; Carole Tucker, PhD; Nancy Lennon, MSPT; Larry Holmes, PhD; Daveda Taylor, DPT; John Henley, PhD; Freeman Miller, MD

SP 13 - IDENTIFYING PREMATURE INFANT AT HIGH AND LOW RISK FOR MOTOR DELAYS USING MOTOR PERFORMANCE TESTING AND MRS
Patricia Coker-Bolt, PhD OTR/L; Michelle Woodbury, PhD OTR/L; Jessica Perkel, BS; Noelle G. Moreau, PT PhD; Kathryn Hope, MPH; Truman Brown, PhD; Viswanathan Ramakrishnan, PhD; Denise Mulvihill, MD; Dorothea Jenkins, MD

SP 14 - ASSOCIATION BETWEEN ISOMETRIC STRENGTH OF THE LEG MUSCLES AND GROSS MOTOR TASKS IN CHILDREN WITH CEREBRAL PALSY
Annet Hallmeijer, PhD; Vanessa A. Scholtes, PhD; Jules Becher, MD PhD

SP 15 - GOAL SELECTION USING THE GOAL ATTAINMENT SCALE IN AMBULATORY PATIENTS WITH CEREBRAL PALSY ACCORDING TO GMFCS LEVELS IN A RANDOMIZED, DOUBLE-BLIND PLACEBO-CONTROLLED STUDY OF ABOTOBULINUMTOXINA (DYSPORT®)
Anissa Tse, BM BS FRCSi FFPM; Ann Tilton, MD; Ian Gonsowski, MD PhD; Jorge Carranza, MD; Nigar Dursun, MD; Philippe Picaut, PharmD; Mauricio R. Delgado, MD

SP 16 - DEVELOPMENT OF A FUNCTIONAL CLASSIFICATION TOOL OF SOCIAL COMMUNICATION FOR PRESCHOOL-AGED CHILDREN WITH AUTISM SPECTRUM DISORDER (ASD): PRELIMINARY ASSESSMENT OF INTRA- AND INTER-RATER AGREEMENT
Briano Di Rezze, PhD; Martha Cousins, MSc; Lonnie Zwaigenbaum, MD MSc; Mary Jo Cooley Hidecker, PhD MD MA; Chantal Canden, PhD; Mary Law, PhD; Paul Stratford, MSc; Peter Rosenbaum, MD

SP 17 - BIMANUAL PERFORMANCE AND MIRROR MOVEMENTS IN ADOLESCENTS WITH UNILATERAL SPASTIC CEREBRAL PALSY: ASSESSMENT BY A NOVEL COMPUTER VISION BASED SOFTWARE
Angelina J. Lied, MD; Lars Adde, PT PhD; Ann-Kristin G. Elvrum, OT MSc; Ragnhild Støen, MD; Alexander R. Jensenius, PhD; Angelina J. Lied, MD

SP 18 - MIRROR MOVEMENTS AND THEIR RELATION TO HAND FUNCTION AND BRAIN LESIONS IN CHILDREN WITH UNILATERAL CEREBRAL PALSY
Katrijn Klingels, PhD; Ellen Jaspers, PhD; Torstein Vik, MD

SP 19 - A CLINICAL DECISION FRAMEWORK FOR THE IDENTIFICATION OF MAIN PROBLEMS AND TREATMENT GOALS FOR AMBULANT CHILDREN WITH BILATERAL SPASTIC CEREBRAL PALSY
Inge Franki, PT MSc; Jos de Cat, PT MSc; Deschepper Ellen, PhD; Guy Molenaers, MD PhD; Kaat Deschepper, PhD; Guy Vanderstraeten, MD PhD; Christine Van den Broeck, PT PhD
SCIENTIFIC POSTERS

SP 20 - REMAINING ACTIVE - BARRIERS AND FACILITATORS FOR PERSISTENT PARTICIPATION IN PHYSICAL ACTIVITY FOR ADOLESCENTS WITH AND WITHOUT PHYSICAL DISABILITY
Berit Gjessing, Master, PT; Reidun Jahnsen, PhD PT; Astrid J. Nyquist, PhD

SP 21 - EFFECT OF BOTULINUM NEUROTOXIN A ON NEUROMUSCULAR TRANSMISSION: AN EXPERIMENTAL STUDY ON JUVENILE RAT SKELETAL MUSCLE
Sofie Gjessing, MD; Ole Rahbek, MD PhD Assoc. Professor; Ole B. Nielsen, Professor, PhD; Bjarne Moeller-Madsen, MD DMSc Professor

SP 22 - FAMILY-REPORTED HEALTH SERVICE NEEDS OF CHILDREN WITH MEDICAL COMPLEXITY
Dennis Z. Kuo, MD MHS; Laurie Glader, MD; Melinda Morin, MD MBA; Jay Berry, MD, MPH; John Gordon, MD; Sarah Johansmeir, BA

SP 23 - LONG TERM GAIT OUTCOMES OF IDIOPATHIC TOE WALKERS
Andi Gordon, MPT; Mark McMulkin, PhD; Bryan Tompkins, MD; Paul Caskey, MD; Glen Baird, MD

SP 24 - COMPARISON OF DESCENDING MOTOR PATHWAYS BETWEEN PRENATAL AND PERINATAL UNILATERAL BRAIN INJURIES
Rachel Hawe, DPT; Jules Dewald, PT PhD

SP 25 - INTERRELATIONSHIPS AMONG QUANTITATIVE MEASURES OF BRAIN WHITE MATTER INJURY AND LOCOMOTION IN CHILDREN WITH CEREBRAL PALSY
Elaine E. Stashinko, PhD; Alec Hoon, MD; Andreia V. Faria, MD PhD; Shoko Yoshida, MD; Gelsy Torres-Oviedo, PhD; Kristin Musselman, PT PhD; Michael Johnston, MD

SP 26 - REVIEW OF CEREBRAL PALSY REGISTRIES: EXPLORATION OF KNOWLEDGE DISSEMINATION AND THE RELATIONSHIP BETWEEN DATABASE VARIABLES AND THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY AND HEALTH
Donna Hurley, PT DPT; Akmer Mutlu, PT PhD; Michael E. Msall, MD; Deborah Gaebler-Spira, MD; Kristin Krosschell, PT DPT MA PCs; Larissa Pavone, MD; Jules Dewald, PT PhD; Therresa Sukal-Moulton, PT DPT PhD

SP 27 - ACTIVITIES OF DAILY LIVING MOTOR AND PROCESS SKILLS IN CHILDREN WITH UNILATERAL CEREBRAL PALSY: RELATIONSHIPS WITH UPPER LIMB FUNCTION AND VISUAL PERCEPTION
Sarah James, BOccThy (Hons); Jenny Ziviani, PhD MEd BAppSc(OT) BA; Roslyn N. Boyd, PhD PT

SP 28 - REDUCED SATELLITE CELL NUMBER DOES NOT PRECLUDE STRETCH-INDUCED SARCOMERE ADDITION IN MUSCLE
Matthew C. Kinney, MD; Sudarshan Dayanidhi, PhD; Richard L. Lieber, PhD

SP 29 - THE OUTCOMES AND THE FACTORS INFLUENCING THE OUTCOMES OF RECTUS FEMORIS TRANSFER IN CEREBRAL PALSY PATIENTS WITH STIFF KNEE GAIT
Seung Yeol Lee, MD; Chin Youb Chung, MD PhD; Kyoung Min Lee, MD PhD; Soon-Sun Kwon, PhD; Sang Young Moon, MD; Kijin Jung, MD; In hyeok Lee, MD; Moon Seok Park, MD PhD

SP 30 - DIFFERENCES IN PHYSICAL ACTIVITY BY DAY, BY WEEK, AND BY SEASON FOR YOUTH WITH CEREBRAL PALSY
Nancy Lennon, MS PT; Aaron Weaver, BS; Ameeka George, BS; John Henley, PhD; Justin Connor, MD; Freeman Miller, MD

SP 31 - IN VITRO PROLIFERATION, MOVEMENT, AND DIFFERENTIATION IN SATELLITE CELLS FROM PATIENTS WITH AND WITHOUT CEREBRAL PALSY
Margie Mathewson, MS; Henry Chambers, MD; Richard Lieber, PhD

SP 32 - GAIT CORRECTION SURGERY IN CHILDREN WITH HEREDITARY SPASTIC PARAPARESIS (HSP)
Jessica Mahy, BPhysiothons; Pam Thomason, Mphysio; H Kerr Graham, MD FRCS (Ed) FRACS

SP 33 - DELAYS IN THE AGE AT REFERRAL TO MEDICAL AND REHABILITATION SPECIALISTS FOR INITIAL DIAGNOSIS OF CHILDREN WITH CEREBRAL PALSY: AN ENVIRONMENTAL SCAN OF CURRENT PRACTICES
Zachary Boychuck, BSc MSc OT; Lara Hubermann, BSc candidate; Michael Shevell, MD CM; Annette Mainemor OT PhD

SP 34 - THE POTENTIAL INFLUENCE OF STRETCH REFLEXES ON JOINT-POSITION SENSE IN PATIENTS WITH CEREBRAL PALSY
Faustyna Manikowska, PT PhD; Po-Jung B. Chen, MD PT; Marek Jozwiak, MD PhD; Maria Lebiedowska, PhD

SP 35 - IMPACT OF MASTERY MOTIVATION ON RESPONSE TO UPPER LIMB INTERVENTION
Laura Miller, Master of Health Services Management OT; Jenny Ziviani, PhD MEd BA BAppSc (OT); Robert Ware, PhD; Roslyn N. Boyd, PhD PT

SP 36 - PATTERNS OF HABITUAL PHYSICAL ACTIVITY PERFORMANCE IN INDEPENDENTLY AMBULANT CHILDREN AND ADOLESCENTS WITH CONGENITAL HEMIPLEGIA
Louise E. Mitchell, MHltSt(ClinEpi) B.Phty(Hons1); Jenny Ziviani, PhD; Roslyn N. Boyd, PhD PT

SP 37 - HOW MUCH DEGREE DO TORSIONAL STRUCTURAL DEFORMITIES DETERMINE ROTATIONAL GAIT PARAMETERS IN PATIENTS WITH DIPLEGIC CEREBRAL PALSY?
Sang Young Moon, MD; Chin Youb Chung, MD PhD; Kyoung Min Lee, MD PhD; Soon-Sun Kwon, PhD; In hyeok Lee, MD; Kijin Jung, MD; Moon Seok Park, MD PhD

SP 38 - A HOME BASED THERAPEUTIC EXERCISE PROGRAM TO IMPROVE SELECTED FUNCTIONAL SKILLS IN SCHOOL AGED CHILDREN WITH DOWN SYNDROME IN A LOW RESOURCE SETTING: A COMPARATIVE INTERVENTIONAL STUDY
Nuzrath Nimasha; Samanmali P. Sumanasena, MD; Nalika Gunawardena, MD; Kasuni Chandima, BSc Science; Punya Arunodha, BSc
SP 39 - SELECTIVE MOTOR CONTROL AND MUSCLE VOLUME PREDICTS GROSS MOTOR FUNCTION IN BILATERAL SPASTIC CEREBRAL PALSY
Jonathan J. Noble, MSc MSc PGDip BSc (Hons); Susie Turner, BSc (Hons) Physiotherapy; Martin Gough, FRCSI; Adam Shortland, PhD

SP 40 - THE USE, UTILITY AND IMPACT OF THE YOUTH KIT, A TOOL TO AID TRANSITIONING YOUTH: LESSONS LEARNED FROM A LONGITUDINAL STUDY
Tram D. Nguyen, MSc PhD Candidate; Debra Stewart, MSc OT Reg (ON); Oksana Hlyva, MSc PhD; Zubin Punthakee, MD; Jan Willem Gorter, MD PhD FRCP

SP 41 - THE ELASTIC COMPONENT OF RESISTANCE DURING WRIST FLEXOR STRETCH IS NEGATIVELY CORRELATED TO THE CROSS SECTIONAL AREA OF A WRIST FLEXOR MUSCLE IN CHILDREN WITH CP
Eva Pontén, MD PhD; Johan Gaverth, PT PhD; Johanna Friberg, Medical student

SP 42 - COMPARISON OF DYNAMIC VERSUS ADJUSTABLE DYNAMIC RESPONSE ANKLE FOOT ORTHOSES IN CHILDREN WITH CEREBRAL PALSY
Tishya Wren, PhD; James W. Dryden, CPO; Nicole Mueske, MS; Sandra W. Dennis, PT; Bitte S. Healy, PT; Susan Rethlefsen, DPT

SP 43 - COMPARISON OF PATELLAR ADVANCEMENT TECHNIQUES IN CHILDREN WITH CEREBRAL PALSY
Qing-Min Chen, MD; Breanna Pritchard, BA; Mark Hotchkiss, BA; Zhaoxing Pan, PhD; Jason Rhodes, MD MS; Franklin Chang, MD

SP 44 - RELATIONSHIP BETWEEN NEUROIMAGING CLASSIFICATION AND HYPERTONIA PATTERNS IN A CEREBRAL PALSY POPULATION
James Rice, MBBS; Remo Russo, MBBS PhD; Felicity Baker, BPhTy; Nick Rice, BMBS

SP 45 - CAN A WEB-BASED MULTI-MODAL THERAPY PROGRAM IMPROVE EXECUTIVE FUNCTIONING IN CHILDREN AND ADOLESCENTS WITH UNILATERAL CEREBRAL PALSY?
Stephanie Ross, MSc; Carly Mayberry, DPsyc; Owen Lloyd, MSc; Koa Whittingham, PhD; Jenny Ziviani, PhD; Roslyn N. Boyd, PhD PT

SP 46 - GAIT CHARACTERISTICS IN CHILDREN AND ADOLESCENTS WITH CEREBRAL PALSY ASSESSED WITH A TRUNK-WORN ACCELEROMETER
Rannei Saether, PhD student; Lars Adde, PhD; Jorunn Helbostad, PhD; Siri Braendvik, PhD; Stian Lydersen, PhD; Torstein Vik, PhD

SP 47 - AUTOMATED IMPEDANCE MANOMETRY ANALYSIS ALLOWS QUANTIFICATION OF SWALLOWING DYSFUNCTION: A COMPARISON BETWEEN CONTROLS AND PEDIATRIC PATIENTS WITH NEURODISABILITY
Margot Selleslagh, MSc; Marleen Smet, MD PhD; Ilse Hoffman, MD PhD; Indra Lens, MSc; Jan Tack, MD PhD; Taher Omari, PhD; Nathalie Rommel, PhD

WITHDRAWN

SP 48 - INVENTARIZATION OF PREVALENCE AND SYMPTOMS OF FEEDING PROBLEMS IN CHILDREN WITH CEREBRAL PALSY
Margot Selleslagh, MSc; Greet Gelin, MSc; Els Ortibus, MD PhD; Nathalie Rommel, PhD

WITHDRAWN

SP 49 - MEASURING PHYSICAL FUNCTION IN CHILDREN WITH CEREBRAL PALSY USING THE PEDI-CAT: A VALIDATION ANALYSIS
Benjamin J. Shore, MD MPH FRCS; Patricia Miller, MS; Benjamin Allar, BA; Travis Matheney, MD; Brian Snyder, MD PhD; Maria Fragala-Pinkham, PT DPT MS

SP 50 - PROXIMAL FEMORAL OSTEOTOMY IN CHILDREN WITH CEREBRAL PALSY: WHAT FACTORS ARE ASSOCIATED WITH REVISION?
Benjamin J. Shore, MD MPH FRCS; David Zurakowski, PhD; Travis Matheney, MD; Brian Snyder, MD PhD

SP 51 - TRANSMISSION OF A FLOOR BASED, HIGH-FREQUENCY, LOW-MAGNITUDE VIBRATION STIMULUS TO THE TIBIA AND FEMUR OF CHILDREN WITH SPASTIC CEREBRAL PALSY
Harshvardhan Singh, MS BPT; Daniel G. Whitney, BS; Christopher A. Knight, PhD; Freeman Miller, MD; Kurt Manal, PhD; Christopher M. Modlesky, PhD

SP 52 - IS LEAN BODY MASS A GOOD PROXY FOR MUSCLE STRENGTH MEASUREMENT IN BOYS WITH DYSTROPHINOPATHY?
Loretta Staudt, MS PT; Tahoora sadoughi, BA; Kent Heberer, MS; Eileen G. Fowler, PhD PT

SP 53 - DEVELOPMENTAL OUTCOMES WITHIN THE FIRST YEAR OF DIAGNOSIS: A DESCRIPTIVE STUDY OF CHILDREN DIAGNOSED WITH INFANTILE SPASMS
Samanmali P. Sumanasena, MD MBBS MSc; Jithangi Wanigasinghe, MD; Carukshi Arambepola, MD; Eindrini Muhandiram, MBBS

SP 54 - HOW DOES REDUCED SPASTICITY AFFECT THE YOUNG ADULT WITH CEREBRAL PALSY? A PROSPECTIVE COHORT STUDY INVESTIGATING SPASTICITY, GROSS MOTOR FUNCTION AND PAIN 17 YEARS AFTER SELECTIVE DORSAL RHIZOTOMY
Kristina Tedroff, MD PhD; Kristina Löwing, PhD; Eva Åström, PhD

SP 55 - PARTICIPATION AND SATISFACTION WITH LIFE IN YOUNG ADULTS WITH CEREBRAL PALSY: THE ROLE OF PERSONAL FACTORS AND ENVIRONMENTAL BARRIERS
Susan Seinko, PhD

SP 56 - OBESITY AMONG ADOLESCENTS WITH PHYSICAL DISABILITIES
Lawrence C. Vogel, MD; Pamela L. Patt, RDN; Susan Lescher, BS; Kiyoshi Yamaki, PhD; Brienne D. Lowry, MPH, James Rimmer, PhD
**SP 57 - LINKING PEDIATRIC AND ADULT SPINAL CORD INJURY OUTCOMES INSTRUMENTS**
Mary Jane Mulcahey, OTR\L PhD; Feng Tian, PhD; Alan Jette, PhD; Lawrence C. Vogel, MD

**SP 58 - RELATIONSHIP BETWEEN BRAIN LESION SEVERITY AND OROPHARYNGEAL DYSPHAGIA IN YOUNG CHILDREN WITH CEREBRAL PALSY**
Kelly A. Weir, BSpThy, MSPath; Katherine Benfer, MPH; Simona Fiori, MD; Kristie L. Bell, PhD; Peter S. Davies, PhD; Roslyn N. Boyd, PhD PT
DP 1 - TECH KIDS AND TECH TEENS: INTRODUCING TECHNOLOGY TODAY TO CREATE GREATER INDEPENDENCE TOMORROW
Roselle Adler, BSc OT; Tara Previl, MSc OT

DP 2 - CREATING A ROBOTIC-BASED INTERVENTION PARADIGM THAT IMPACTS A CHILD’S DAILY PHYSICAL ACTIVITY LEVELS BY IMPROVING Locomotor Capacity
Peter Altenburger, PhD; Ryan Cardinal, DPT; Robyn K. Fuchs, PhD; Sara Gleason, DPT; Maggie Cappel, DPT

DP 3 - CARE COORDINATION ENTITIES FOR CHILDREN WITH COMPLEX MEDICAL NEEDS: A POPULATION HEALTH INITIATIVE IN ILLINOIS
Rishi Agrawal, MD MPH

DP 4 - DEVELOPMENT AND IMPLEMENTATION OF 6, 1-HOUR GROUP EDUCATIONAL CLASSES FOR PARENTS OF CHILDREN WITH CEREBRAL PALSY
Catie Christensen, PT DPT

DP 5 - FITNESS TRAINING IN CEREBRAL PALSY: EPISODIC CARE PILOT
Michael Clay, DPT; Jennifer Schmit, PhD DPT; Amanda Fowler, DPT; Kathleen Neff, DPT; Pamela Hudson, DPT

DP 6 - USING VIRTUAL REALITY TECHNOLOGIES COMBINED WITH FUNCTIONAL ACTIVITIES TO IMPROVE UPPER EXTREMITIES MTr PERFORMANCE
Jenny M. Dorich, MBA OTR/L CHT; Karen Harpster, PhD OTR/L; Amber Lowe, MOT OTR/L

DP 7 - DEVELOPING A COMMON LANGUAGE FOR DYSPHAGIA DIETS: AN INTERNATIONAL INTER-PROFESSIONAL INITIATIVE
Janice Duivestein, MRSc

DP 8 - ENCOURAGING ADVOCACY AND SEXUAL EDUCATION; A SEXUAL EDUCATION PROGRAM FOR YOUTH WITH COGNITIVE AND/OR PHYSICAL DISABILITIES
Paula Dunn, RN; Kendra Rex, OT

DP 9 - EXPLORING THE TENSION BETWEEN WRITTEN AND ENACTED POLICY: PROVINCIAL LEGISLATION, POLICIES AND PROGRAMS THAT AFFECT CANADIAN PARENTS OF CHILDREN WITH A NEURODEVELOPMENTAL DISORDER
Gina Glidden, MSW; Radha MacCulloch, MSW; Rachel Birnbaum, PhD RSW LLM; Lucyna M. Lach, MSW PhD; Peter Rosenbaum, MD

DP 10 - INNOVATIVE COLLABORATION TO IMPROVE UNDERSTANDING OF NEUROIMAGING FINDINGS IN CHILDREN WITH CEREBRAL PALSY IN THE US: THE AUTISM AND DEVELOPMENTAL DISABILITIES MONITORING (ADDM) NETWORK CEREBRAL PALSY NEUROIMAGING PILOT STUDY
Alison Goodman, MD MPH; Niles Desai, MD; Carrie Arneson, MS; Nancy S. Doernberg, BA; Kim Van Naarden Braun, PhD; Deborah Christensen, PhD; Marshalyn Yeargin-Allsopp, MD

DP 11 - QUANTIFICATION OF CORTICAL ACTIVITY DURING VARYING REACHING TASKS IN CHILDHOOD HEMIPARESIS
Nayo M. Hill, BS; Jules Dewald, PT PhD

DP 12 - CALIFORNIA CHILDREN’S SERVICES-MEDICAL THERAPY PROGRAM: OUTCOME MEASUREMENTS
Patricia Howard, BS OT

DP 13 - USING THE INTERNATIONAL CLASSIFICATION OF FUNCTION FOR CHILDREN AND YOUTH (ICF-CY) FRAMEWORK TO CLARIFY ROLE DELINEATION IN OUR NEUROMOTOR CLINIC MULTI-DISCIPLINARY TEAM
Karen Hurtubise, MRSc

DP 14 - IIAM (IMPORTANT INFORMATION ABOUT ME): THE ONGOING DEVELOPMENT OF A NOVEL IPAD APP
Nicole Jiam, BA; Elaine E. Stashinko, PhD RN; Montserrat Capdevila, MS BBA Bsc; Frances Tolley, RN; Alec Hoon, MD MPH

DP 15 - INSTRUCTIONAL TOOLS FOR BACLOFEN PUMP EDUCATION
Mary E. Kautto, MA BSN RN; Rhonda Cady, PhD RN

DP 16 - GOOGLE GLASS: AN ALTERNATE ACCESS SOLUTION
Denee M. Kroeger, MOT R/L

DP 17 - FROM PATERNALISM TO PARTNERSHIP; THE EVOLUTION OF A FAMILY-CENTERED, EPISODIC SERVICE DELIVERY MODEL IN THE CALIFORNIA CHILDREN’S SERVICES-MEDICAL THERAPY PROGRAM (CCS-MTP)
Sue Lennan, BS Oy; Kaitlin Smith, OT, Doctorate

DP 18 - IMPLEMENTATION OF DEPRESSION SCREENING USING THE PATIENT HEALTH QUESTIONNAIRE TO IDENTIFY AT RISK INDIVIDUALS, REFER FOR DEPRESSION MANAGEMENT PLAN, AND MONITOR EFFECTIVENESS
Kim Marben, MSN; Becky Nelson, MSW; Ellen Snoxell, PhD

DP 19 - KNOWLEDGE TRANSLATION IN A COLLABORATIVE APPROACH: DEVELOPMENT OF THE TREADMILL LOAN PROGRAM AND THE SUPPORTED TREADMILL EXERCISE PROGRAM SACRAMENTO STATE-EASTER SEALS (STEPS)
Katrin Mattern-Baxter, PT DPT PCS; Stefani McNeil, PT MSPT PCS
DP 20 - UTILIZATION OF THE 1-RM TO GUIDE DOSING INTENSITY AND MEASURE STRENGTH CHANGES DURING AN INTENSIVE THERAPY PROGRAM
Kelli Dilver, DPT; Rachel Petras, DPT; Jennifer Campbell, MPT; Leah Lumbaca, MPT; Elizabeth Maus, DPT

DP 21 - PARENT-IDENTIFIED GOALS FOR CHILDREN WITH HEMIPLEGIA ENROLLED IN A CONSTRAINT INDUCED MOVEMENT THERAPY (CIMT) PROGRAM USING THE INTERNATIONAL CLASSIFICATION OF FUNCTIONING, DISABILITY AND HEALTH FOR CHILDREN AND YOUTH (ICF-CY)
Teressa Garcia Reidy, MS; Erin Naber, DPT; Frank Pidcock, MD; Joan Carney, PhD; Elaine E. Stashinko, PhD

DP 22 - NAVIGATE MY CARE: A STRATEGIC PLAN TO IMPROVE THE CARE OF COMPLEX PATIENTS
Lee Budin, MD; Brandis Roman, MS RD LD CSP; Melissa Madden, MPH; Naomi Makni, MHA; Carey Noritz, MD; Richard Brilli, MD

DP 23 - THE ROLE OF ANXIETY IN CHILDREN WITH CEREBRAL PALSY WITH SPASTICITY AND MOVEMENT DISORDERS
Laura Owens, MD; Maura McManus, MD; Stephanie Chopko, PhD

DP 24 - USING THE CANADIAN OCCUPATIONAL PERFORMANCE MEASURE (COPM) AS AN INDIVIDUALIZED THERAPY OUTCOME MEASURE FOR CHILDREN WITH CEREBRAL PALSY
Lora Woo, OTD OTR/L; Elizabeth Russel, PhD OTR/L; Kelly Khun, OTR/L

DP 25 - SERIAL CASTING: DEVELOPMENT OF A CLINICAL PRACTICE GUIDELINE
Molly Thomas, DPT; Heather Blackburn, MPT; Molly Mays, MPT

DP 26 - GROUP VERSUS INDIVIDUAL PHYSICAL THERAPY SESSIONS IN A RURAL SETTING- PROS, CONS AND LESSONS LEARNED
Michele Tourne, DPT; Michele Harrison, MS PT; Samantha Calhoun, BS

DP 27 - HOW DO PARENTS EXPERIENCE THE PIRATE GROUP INTERVENTION (CIMT) FOR CHILDREN WITH CEREBRAL PALSY IN THE AGE FROM 2,5 TO 8 YEARS OLD?
Carola Bouwhuis, MD; Hélène van der Heijden, MD; Carmen Stut, MD; Rose van Thiel, Bsc; Irene Timmermans, MSc

DP 28 - THE TWO "T"S HAVE CROSSED IN NEW MEXICO: TRANSITION AND TELEHEALTH
Sandra Whisler, MD MS; Jennifer Benson, MD; Lourdes Vizcarra, MD; Jennifer DiTucci, RD LD; Anthony Cahill, PhD; Susan Chacon, MD; Janis Gonzales, MD; Mario Torres, BA

DP 29 - WHAT PARTICIPATION MEANS TO ME! MODELLING KNOWLEDGE TRANSFER WITH THE USE OF VIDEOS TO PROMOTE PARTICIPATION
Uzma Williams, MSc PhD Student; Mary Law, PhD; Rachel Teplicky, MSc; Laura Turner, OT MSc
Premium

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At Medtronic, we’re committed to **Innovating for life** by pushing the boundaries of medical technology and changing the way the world treats chronic disease. We continually find ways to help people live better, longer. Visit our booth to learn more about our treatments that may help people with cerebral palsy.

**Orthopediatrics**
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Silver

**Children's Hospital Foundation**
Children’s Hospital Foundation is dedicated to funding and advocating for pediatric initiatives that improve the status of health care and the quality of life for children in our region. The Foundation provides support for the programs and initiatives of Children’s Hospital of Richmond at VCU and the children it serves each year, as well as other pediatric health care programs in the community.

Bronze

**Cerebral Palsy International Research Foundation**
The Cerebral Palsy International Research Foundation (CPIRF) is a not-for-profit 501(c)3 organization with the dual mission to maximize the potential and quality of life of people with Cerebral Palsy and their families and to reduce the prevalence and impact of Cerebral Palsy through funding cutting-edge research. The Foundation has provided guidance, funds and other resources to research programs in the United States, the Middle East, Canada, the UK, Australia, and Greece as part of its global commitment to research and medical discoveries.
MAC KEITH PRESS
Mac Keith Press provides information to advance treatment and care of children with disability. Primarily for a health-orientated audience of therapists, doctors, nurses and health workers, MKP’s publications are also of interest to psychologists, special teachers and others involved in the care of children with disabilities.

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Orthopaedic Institute for Children (OIC) improves the quality of life for children with musculoskeletal disorders, through the advancement of outstanding clinical care, medical education, and scientific research worldwide. In alliance with UCLA Health, OIC is the only healthcare organization in Los Angeles dedicated solely to pediatric orthopaedics.

World-renowned physicians and an integrated clinical model ensure timely, coordinated care. The organization’s charitable mission extends this level of excellence to children whose families cannot afford to pay.

Leveraging the expertise at all of its locations, OIC remains committed to its century-long mission of delivering innovative and compassionate care to children with musculoskeletal injuries and disorders.

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The Southern California Cerebral Palsy Center at Rady Children’s Hospital is one of the nation’s most comprehensive programs dedicated to the care of children and adults with cerebral palsy. A multidisciplinary team consisting of orthopedic surgeons, psychiatrists, physician assistants, nurse practitioners, nurses, occupational, physical and speech therapists, orthotists, social workers and consulting specialists provide a complete evaluation, diagnosis and treatment for patients with cerebral palsy.

Rady Children’s Hospital Orthopedic Team has been ranked as one of the top three pediatric orthopedic departments in the United States, a reflection of our dedication and expertise in the treatment of cerebral palsy. The orthopedic department at Rady Children’s Hospital has also been one of the leading research and teaching programs in the field of cerebral palsy for the past 30 years.

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**BOSTON BRACE**  
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BTS Bioengineering Corp. has been providing state of art technology for gait and movement analysis since 1986. The only company manufacturing and digitally integrating optoelectronic cameras, force plates and wireless EMG.

**BOOTH 31**  
**CASCADE DAFO**  
Cascade Dafo, Inc. is the leader in design, innovation, and manufacturing of dynamic pediatric orthoses. We introduced the first DAFO® (Dynamic Ankle Foot Orthosis) more than 25 years ago. At Cascade, product design, technical support, education, and research and development have a sole focus: helping kids lead healthier, happier lives.  
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**CHILDREN'S CENTER REHABILITATION HOSPITAL**  
The Children’s Center Rehabilitation Hospital, a private non-profit hospital, offers 24-hour medical care, comprehensive rehabilitative therapies, respiratory care, and special education. The state-of-the-art facility is home to four main areas of service: Complex Care, Pediatric Medical Rehabilitation, Pediatric Clinic and Outpatient Therapy Services.  
[www.cookchildrens.org](http://www.cookchildrens.org)

**BOOTH 20**  
**COOK CHILDREN'S HEALTH CARE SYSTEM**  
With one of the largest, most technologically advanced pediatric neurosciences programs in the southwestern United States, Cook Children’s Health Care System is redefining the future of children with neurological conditions. Our leading edge programs and services include pediatric deep brain stimulation, Level 4 EMU, MEG and iMRI for epilepsy treatment.  
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**BOOTH 28**  
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**BOOTH 18**  
**EVERY CHILD ACHIEVES AND WELLNESS WORKS THERAPY**  
Every Child Achieves (ECA) & Wellness Works Therapy (WW) are part of a multidisciplinary organization that provides Occupational, Physical, and Speech Therapy services along with health and wellness programs for patients of all ages throughout Southern California in outpatient clinic, school, and home settings.  
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**BOOTH 77**  
**GAITRITE**  
GAITRite’s Portable Gait Analysis System automates measuring temporal-spatial parameters of gait. The rollout electronic walkway can be laid over flat surfaces: connects to PC USB port; up to 2 cameras; use with/without assistive devices. GAITRite’s rollout walkway: minimal setup (3 min); quick, easy, accurate data collection, multiple report generation.  
[www.gaitrite.com](http://www.gaitrite.com)

**BOOTH 26**  
**GILLETTE CHILDREN’S**  
Gillette Children’s Specialty Healthcare, an independent, not-for-profit hospital and clinics, is internationally recognized for its work in the diagnosis and treatment of children, adolescents and young adults with chronic conditions, including cerebral palsy, brain and spinal cord injuries, complex orthopaedic problems, arthritis, neurological conditions, spina bifida and craniofacial anomalies.  
[www.gillettechildrens.org](http://www.gillettechildrens.org)

**BOOTH 6**  
**GOOD SHEPHERD REHABILITATION NETWORK**  
Good Shepherd Rehabilitation Network is a nationally recognized rehabilitation leader, offering a continuum of care for people with injuries, complex medical needs and physical and/or cognitive disabilities. Almost 60,000 adults and children come to Good Shepherd each year for specialized programs in stroke, orthopedics and sports injuries, brain injury, spinal cord injury, amputation and more.  
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BOOTH 34+35
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BOOTH 11
J&J ARTIFICIAL LIMB AND BRACE
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www.jandi.org

BOOTH 12
KENNEDY KRIEGER INSTITUTE
Located in the Baltimore/Washington region, the Kennedy Krieger Institute is internationally recognized for improving the lives of 20,000 children and adolescents with disorders and injuries of the brain, spinal cord, and musculoskeletal system each year, through inpatient and outpatient clinics; home and community services; and school-based programs.
www.kennedykrieger.org

BOOTH 99
MALLINCKRODT
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BOOTH 7
MARQUETTE UNIVERSITY TECH4POD
Tech4POD is an acronym for the Rehabilitation Engineering Research Center on Technologies for Children with Orthopaedic Disabilities funded by NIDRR (H133E100007). Tech4POD is a national center that focuses on advanced engineering research and development based on innovative technologies. Further information can be obtained at Tech4POD.org. The Project Director/PI is Dr. Gerald F. Harris.
www.Tech4POD.org

BOOTH 19
MCKIE SPLINTS, LLC
McKie Splints, LLC manufactures neoprene thumb splints, supinator straps and custom wrist-hand orthoses. The designs are stream-lined and biomechanically aligned to assist weaker muscles during grasp and reach. Available in six appealing colors our products are sized for infants, children, and adults. Prices are reasonable and we ship worldwide.
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BOOTH 13/14
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At Medtronic, we’re committed to innovating for life by pushing the boundaries of medical technology and changing the way the world treats chronic disease. We continually find ways to help people live better, longer. Visit our booth to learn more about our treatments that may help people with cerebral palsy.
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BOOTH 22
NEMOURS/ALFRED I. DUPONT HOSPITAL FOR CHILDREN
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nemoursdupont.org

BOOTH 3+4
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BOOTH 17
PATHWAYS.ORG
Since 1985, Pathways.org has used outcome-based research and multimedia as tools to promote each child’s fullest inclusion. Pathways.org creates materials under the direction of the Pathways.org Medical Round Table. We strive to empower health professionals and parents with the knowledge of the benefit of early detection and early intervention for children’s sensory, motor, and communication development.
www.pathways.org

BOOTH 23
NATIONAL LIBRARY FOR THE BLIND AND PHYSICALLY HANDICAPPED
www.loc.gov/nls

www.pathways.org
Phoenix Children's Hospital, ranked in U.S. News & World Report’s Best Children’s Hospitals, is Arizona’s only licensed children’s hospital, providing world-class inpatient, outpatient, trauma, emergency and urgent care to children and families in Arizona and throughout the Southwest. As one of the largest children’s hospitals in the country, Phoenix Children’s provides care across more than 70 pediatric specialties. The Hospital is poised for continued growth in quality patient care, research and medical education.

www.phoenixchildrens.com

Pro-Tech Orthopedics is a Massachusetts based custom orthotics manufacturer that also offers the Sensory Dynamic Orthosis, a made to measure product, designed to provide dynamic compression to increase sensory and proprioceptive feedback and provide musculo-skeletal support.

www.protech-intl.com

Movement analysis systems for dynamic and standing studies. Export pressure, temporal and spatial parameters over a variety of protocols, alongside EMG data from wireless surface probes. Quantify the phases of gait, pressure transitions, muscle activity and their corresponding symmetries during the evaluation and research of individuals with cerebral palsy.

www.protokinetiks.com

Randall Children’s Hospital at Legacy Emanuel is 165-beds and represents a new approach to children’s health care — blending the finest in medical care with a space built for children and their families. Randall Children’s Hospital is dedicated to family-centered care and ensures hospitalized and chronically ill children from throughout Oregon, Southwest Washington and the Northwest region have access to superior medical services in a healing environment designed for their unique medical and non-medical needs. RCH is part of the Legacy Health system.

www.goodshepherdrehab.org

Restorative Therapies is the leader in Functional Electrical Stimulation systems for arms, legs and trunk muscles. FES manages tone and enables muscles to work even though muscles may be compromised from neurological impairment. Our cycling, stepping and elliptical systems are available for pediatrics and adults in the clinic or home.

www.restorative-therapies.com

Ride Designs is unique in being both a practicing seating clinic and manufacturer. Ride's seating solutions originate from our clinic’s direct care of thousands of people with complex seating needs. A highly experienced team of therapists, orthotists, and engineers have translated clinical solutions into patented processes and innovative products.

www.ridedesigns.com

Led by a team of board-certified, fellowship-trained surgeons with subspecialty pediatric orthopaedic expertise, Shriners Hospitals for Children treats all children with the same high level of care regardless of the families’ ability to pay. A perfect source for all of your pediatric orthopaedic, cleft lip & palate, and spinal cord injury referrals; we accept a growing list of private insurance programs, Medicaid, and the uninsured.

www.shcla.org

Sidra Medical and Research Center is a groundbreaking hospital, research and education institution, in Doha, Qatar, that will focus on the health and wellbeing of women and children regionally and globally. Sidra will be a fully digital facility, incorporating the most advanced information technology applications in clinical, research and business functions. Sidra will initially have around 400 beds with infrastructure to enable expansion to 550 beds in a subsequent phase.

www.sidra.org

Southwest Medical Books carries all the latest publications from the world’s largest medical publishers. Please visit our booth and check out all the latest titles in Pediatrics, Neurology and Movement Disorders.

www.walkaide.com and www.scootzAFO.com
**EXHIBITORS**

**BOOTH 36+37**
**STIMDESIGNS**
StimDesigns LLC is a forward thinking company that designs and distributes innovative solutions to enhance neuromuscular rehabilitation. Products and systems incorporate techniques that augment neuromuscular plasticity to improve people’s muscle recovery, function, independence and quality of life. StimDesigns distributes the pioneering Galileo side-alternating vibration product line from Germany.

www.stimdesigns.com

**BOOTH 29+30**
**ULTRAFLEX SYSTEMS**
Ultraflex dynamic stimulus braces address the rehabilitation challenges associated with neurological and congenital presentations, gait dysfunction, and complex orthopedic conditions. Ultraflex therapeutic/at rest orthoses maintain and increase muscle length and improve passive range of motion. Ultraflex functional/gait orthoses provide unrestricted motion and customized stability. 800-220-6670

www.ultraflexsystems.com

**BOOTH 88**
**TYROMOTION**
Tyromotion is a global leader in supporting pediatric rehabilitation programs with advanced technology. Our products leverage robotics, assessments, and fun and engaging therapy gaming software to maximize repetitions for children and adults. We invite you to explore how Amadeo, Diego, Pablo, and Tymo can benefit your program.

www.tyromotion.com

**BOOTH 16**
**WILEY**
Wiley is the leading society publisher. We publish on behalf of more societies and membership associations than anybody else, and offer libraries and individuals 1250 online journals, thousands of books and e-books, reviews, reference works, databases, and more. For more information, visit www.wiley.com, or our online resource: onlinelibrary.wiley.com.

www.wiley.com
AACPDM
SEPTEMBER 9-13, 2014
HILTON SAN DIEGO BAYFRONT SAPPHIRE BALLROOM

Thursday, September 11: 10:15 am – 4:00 pm
6:15 pm – 7:45 pm Wine & Cheese
Friday, September 6: 10:00 am – 4:00 pm Poster & Exhibit Review
Our legacy is healthier children.

Developmental Pediatrician
Legacy Health

Randall Children’s Hospital at Legacy Emanuel is currently recruiting for a BE/BC Developmental Pediatrician to work with our growing Pediatric Rehabilitation and Child Development Program. Our clinic-based team includes collaborative and experienced Developmental Pediatricians, Pediatric Psychiatrists, a Geneticist and Neuropsychologists as well as Speech, Occupational and Physical Therapists. The physician will see children with a broad range of developmental disorders including Autism and Intellectual Disabilities and will participate in the Feeding Disorders Clinic, Cleft/Lip Palate Program, Communications Disorders Clinic and NICU follow-up. The ideal candidate will have completed a fellowship in Developmental and Behavioral Pediatrics or Neurodevelopmental Disabilities with a desire for program development in a supportive non-academic teaching environment.

For decades, Randall Children’s Hospital at Legacy Emanuel has been a regional leader in providing excellent care to infants, children and teens in Portland and the Pacific Northwest and is one of Oregon’s largest providers of pediatric inpatient and trauma services. Randall Children’s Hospital medical staff is made up of more than 600 physicians, including pediatric medical and surgical specialists, sub-specialists, hospitalists and community pediatricians. Randall Children’s Hospital receives nearly 100,000 patient visits per year. The Children’s Emergency Department is Oregon’s busiest, with more than 19,000 visits annually. Randall Children’s Hospital is the only Children’s Emergency Department in Oregon open 24 hours a day, seven days a week, staffed exclusively by physicians and nurses specializing in the emergency care of children. In February 2012, Randall Children’s Hospital opened a brand new 165-bed hospital, including a state-of-the-art level III NICU with leading technology, healing environment and family focused patient centered care. The hospital is a teaching facility for medical students and residents. Additionally, this program sees referral patients from Legacy Salmon Creek level IIIb NICU.

Legacy Health consists of six hospitals, dozens of primary care and specialty clinics, a regional medical laboratory service, a research facility and The Oregon Burn Center.

Portland, which is home to several universities, is a sophisticated city offering diverse cultural activities and communities that appeal to a wide variety of needs and tastes. Portland is home to Powell’s Bookstore, which is the largest independent bookstore in the U.S. as well as a host of fine arts choices and diverse dining. Beautiful parks and more biking paths per mile than any other city in the U.S. promote an active and healthy lifestyle. The temperate four seasons, spectacular surroundings of the Columbia River Gorge and the majestic Cascade Mountains, as well as close proximity to ocean beaches and long skiing seasons make this an opportunity for both a dynamic position and a wonderful lifestyle.

As we consider qualified candidates, we are committed to building a culture that values diversity and is reflective of those we care for.

Please stop by booth 39 for additional information at the AACPDM conference.

Applications are required and can be accessed at www.legacyhealth.org/jobs. A CV can be inserted into the application. For additional information, please contact Vicki Owen at 503-415-5403 or via email at vowen@lhs.org. AA/EOE/Vets/Disabled

www.legacyhealth.org/jobs
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- **A**=Research and institutional Support has been received
- **B**=Miscellaneous non-income support (e.g. equipment or services), commercially derived honoraria, or other non-research related funding (e.g. paid travel)
- **C**=Royalties have been received
- **D**=Stock or Stock options held
- **E**=Consultant or employee for
- **F**=Nothing to Disclose

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