IC13

CLINICAL PRACTICE POINTS FOR THERAPISTS: PRESCHOOL AGED CHILDREN WITH MOTOR IMPAIRMENT

Authors: Sue Murr, DPT PCS; Tonya Rich, MA OTR/L

Level: Intermediate

Purpose: This instructional course is one of a group of instructional courses designed to provide an update of current practice to occupational therapists and physical therapists working in pediatrics. Each course addresses issues specific to a stage of the lifespan continuum (infant, preschool, school age and youth/young adult) and provides practical therapy suggestions. In addition, the theoretical/philosophical frameworks guiding the practice suggestions are introduced and the state of the evidence about the therapy approach is reviewed. This instructional course addresses intervention ideas for preschool aged children with diverse impairment.

Target Audience: Occupational therapists physical therapists

Course Summary: This course will address key frameworks for developing therapeutic interventions for preschool aged children. Previously held tenets related to treatment techniques have been replaced by theories of motor learning and dynamic systems theory. Young children interact with their environments and relationships with other people based on their motor skills and children with motor disabilities often require additional support to maximize these interactions and their function. In providing family centered care, therapists must understand what tasks and activities are important to the child and family, in the context of their chosen environment. The discussion of theoretical frameworks will be enhanced by case examples of children across the spectrum of motor impairment; other areas of discussion will include acquiring appropriate equipment, feeding issues, and balancing intensive therapy modalities with participation in community based activities.

Learning Objective 1: Understand the shift in framework from treatments such as NDT to child- or context-focused treatment, with implications for writing therapeutic goals and determining the intensity of the therapeutic intervention.

Learning Objective 2: Explore strategies for engaging parents in a therapeutic alliance as well as learning to effectively advocate and manage healthcare resources.

Learning Objective 3: Understand how to frame the child’s and family’s goals using the language of the ICF, and how to incorporate outcome measures that demonstrate change.

Learning Objective 4: Incorporate the framework into the best options for intervention, based upon the whole child and his/her family system. Critically assess the outcome of an intervention or episode of therapy.

IC14

EVALUATION AND SURGICAL TREATMENT OF PERSISTENT CROUCH GAIT IN INDIVIDUALS WITH CEREBRAL PALSY

Authors: Jean Stout, PT MS; Tom F. Novacheck, MD; Katie Walt, PT DPT

Level: Intermediate

Purpose: The specific etiology of crouch gait is poorly understood. Consequently, treatment outcomes have been poor. This course will discuss the mechanisms of crouch gait in cerebral palsy, the principles and available surgical interventions employed for treatment, and post-operative rehabilitation.

Target Audience: Pediatric orthopaedists, physiatrists and physical therapists who encounter children with cerebral palsy and crouch gait in their clinical practice.

Course Summary: This course will summarize our experience with crouch gait in cerebral palsy. A description and principles of crouch gait including the influence of abnormal forces during growth, lever arm dysfunction, and the importance of the plantarflexion knee-extension couple will be discussed. Contributions of abnormal muscle growth and the relative length of primary muscle groups will be described. Surgical treatment options, techniques, and typical surgical complications will be addressed. The role of physical therapy post-surgery and general protocols will also be discussed. Based on an understanding of the principles and pathology, the course will illustrate and emphasize treatment with appropriate case examples.

Learning Objective 1: Discuss the etiologic factors that produce crouch gait in a growing child with cerebral palsy.

Learning Objective 2: Identify relevant gait and physical examination data which contribute to development of a treatment program.

Learning Objective 3: Describe the principles of the operative procedures employed to correct crouch gait.

Learning Objective 4: Discuss the components of rehabilitation utilized post-surgery.
IC15

MANAGEMENT OF HIP DISPLACEMENT IN CHILDREN WITH CEREBRAL PALSY - SURVEILLANCE, EVIDENCE AND RATIONALE

Authors: Pam Thomason, MPT; Kate Willoughby, PhD; Benjamin J. Shore, MD

Level: Intermediate
Purpose: To present an integrated overview of the epidemiology of hip displacement in children with CP & results from natural history & intervention studies. A discussion on a management algorithm for hip displacement will follow. Newly published information on long term success of adductor surgery, evaluation of hip dysplasia in hemiplegia & RCT follow up included
Target Audience: Physical therapists, pediatricians, orthopaedic surgeons, rehabilitation physicians
Course Summary: An overview of the epidemiology & current research in the management of hip displacement in children with CP will be presented. The Australian consensus statement on hip displacement (available on course pdf) & newly developed information sheets will be presented. This information will be integrated to present the rationale for a management algorithm. This will be discussed using interactive case studies.

Learning Objective 1: Gain knowledge of epidemiology of hip displacement in children with CP.
Learning Objective 2: Gain knowledge of evidence for management of hip displacement.
Learning Objective 3: Understand the rationale for management options & timing of intervention for hip displacement & long term outcomes of intervention.
Learning Objective 4: Understand the management of hip displacement in relation to severity of the motor disorder.

IC16

AN OVERVIEW OF HYPERTONIA MANAGEMENT IN CHILDREN WITH CEREBRAL PALSY

Authors: Supreet Deshpande, MD; Mark E. Gormley, MD; Janey Farber, DPT PCS; Michael Healy, MD; Michael Partington, MD

Level: Intermediate
Purpose: Better recognize and understand the various hypertonic patterns in children with cerebral palsy (CP) and the efficacy and utilization of various treatment options
Target Audience: Health care professionals involved in the management of children with cerebral palsy.
Course Summary: This course will review the patterns of hypertonia common to children with CP, GMFCS I through V, and evidence based assessment tools of tone and various treatment options available for management of hypertonia. A multi-disciplinary team from Gillette Children’s Specialty Healthcare will summarize their algorithm for method of selection of appropriate treatment approaches for specific patterns of hypertonia. The course will also include case based presentations in video format of hypertonia management in children with CP. Workshop attendees will participate in discussion of these cases and develop treatment plans using the algorithm.

Learning Objective 1: Understand various patterns of hypertonia in children with CP, GMFCS I through V.
Learning Objective 2: Describe assessment tools and their utilization in this group.
Learning Objective 3: Discuss various treatment options available including oral and injectable medications, therapies and surgical interventions.
Learning Objective 4: Describe an algorithm for management of hypertonia in children with CP and be able to utilize it in a clinic setting.
IC17

SUPPORTING MOTOR FUNCTION, SELF-CARE, PARTICIPATION, AND PLAYFULNESS OF YOUNG CHILDREN WITH CEREBRAL PALSY

Authors: Doreen Bartlett, PT PhD; Lisa Chiarello, PT PhD; Sarah W. McCoy, PT PhD; Robert Palisano, PT ScD

**Level:** Intermediate

**Purpose:** The purpose of this instructional course is to review findings from the Move & PLAY study, a multi-site, observational, cohort study conducted in Canada and the United States, on a large sample of young children with cerebral palsy (CP).

**Target Audience:** Therapists, developmental pediatricians, physiatrists, and other rehabilitation professionals.

**Course Summary:** The results of a study investigating child, family and service determinants of multiple outcomes of 429 preschool children with cerebral palsy (CP), stratified by functional ability will be presented. The psychometric properties and utility of brief clinical tools will be reviewed and determinants of the range of outcomes for groups of children with different ability levels will be introduced. Implications for goal setting and intervention planning will be explored for individual children with a range of physical abilities. Service providers can expect to provide more holistic, comprehensive, and evidence-based care by incorporating this new knowledge into practice.

**Learning Objective 1:** Understand the conceptual model of the Move & PLAY study and identify the measures that are available to gather information on child and family attributes.

**Learning Objective 2:** Explain the varying contributions of multiple factors to a variety of outcomes of young children with CP.

**Learning Objective 3:** Differentiate determinants that are amenable to change from those that are not.

**Learning Objective 4:** Propose determinants that assist with realistic goal setting for children who have the potential to walk without mobility aides and those who will use assistive devices for mobility and apply determinants to intervention planning for children with different potentials for walking and self-mobility.

IC18

INTEGRATING ROBOTICS INTO CLINICAL CARE-EXPANDING HORIZONS AND BREAKING DOWN BARRIERS TO IMPLEMENTATION

Authors: Deborah Gaebler-Spira, MD; Jilda N. Vargus-Adams, MD; Gadi A. Revivo, DO; Ed Dabrowski, MD

**Level:** Intermediate

**Purpose:** This course will present evidence regarding the use of robotics in ambulation training in children with cerebral palsy. Review of the clinical guidelines and systematic reviews for treadmill training will introduce the concept of massed practice for functional walking. Clinical programs involved with successful initiation of robotic gait training “Lokomat” protocols will be presented. The main goal of the course is to discuss robotic gait training (RGT) for children. We will also review how to implement RGT into clinical practice while integrating newer technologies as they emerge.

**Target Audience:** Physical therapists, physicians, orthotists, administrators

**Course Summary:** This course will be a practical but evidenced-based approach to understanding the role of robotic innovations for gait in children with CP. After providing background information regarding the use of treadmill training, presenters will discuss robotic gait training, with a focus on children with CP. Successful paradigms for the use of the commercially available Lokomat will be discussed in terms of protocol and appropriate selection of children by individuals who are involved with these programs. Outcomes from these RGT programs will also be presented. Participants will hear about mechanisms for initiating and sustaining a robotics program, including a frank discussion of hindrances such as the expense of equipment, compliance issues within institutions, and reimbursement challenges.

**Learning Objective 1:** Understand the evidence that informs clinical decision making for the use of treadmill training or other massed practice interventions.

**Learning Objective 2:** Develop skills in identifying appropriate selection of patients for robotic gait training.

**Learning Objective 3:** Assess RGT clinical outcomes.

**Learning Objective 4:** Learn mechanisms to aid in implementing a clinical technology program.
IC19

EVALUATING TREATMENT OUTCOMES USING SYSTEMATIC REVIEWS—THE AACPDM METHODOLOGY AND BEYOND

Co-sponsored by the Treatment Outcomes committee

Authors: Kat Kolaski, MD; Linda Krach, MD; Michael E. Msall, MD

Level: Intermediate

Purpose: Systematic reviews are an essential component of evidence-based medicine. This course will review and critique the AACPDM systematic review methodology and contrast it with other methodologies using four recent systematic reviews as examples.

Target Audience: Clinicians and researchers interested in evidence-based medicine and who want to improve their understanding of systematic review methodologies.

Course Summary: Members of the Treatment Outcomes Committee will review elements of a systematic review and popular methodologies in use today. To highlight specific and relevant examples, four recent systematic reviews will be discussed representing various methodologies (Cochrane, PEDro, Methodological Index for Non Randomized Studies, and AAN). The methodologies will be described and the quality of each review will be assessed using the PRISMA checklist. In addition, presenters will compare and contrast the various systematic review methodologies with the AACPDM systematic review methodology using review articles on the same topic if available. Course participants and presenters will have an opportunity to discuss the impact of systematic reviews on their clinical practices based on their own experiences.

Learning Objective 1: To identify systematic review methodologies commonly encountered in the literature on children with developmental disabilities.

Learning Objective 2: To understand relative strengths and weaknesses of different systematic review methodologies.

Learning Objective 3: To understand how systematic reviews are evaluated for quality.

Learning Objective 4: To generate discussion about how systematic reviews should—or should not—be used in clinical practice.

IC20

ASSESSMENT AND MANAGEMENT OF PAIN IN CHILDREN AND YOUTH WITH CEREBRAL PALSY

Authors: Darcy Fehlings, MD MSc; Melanie Penner, MD; Lauren Switzer, MSc; Unni G. Narayan, MD MSc; Shauna Kingsnorth, PhD; Tessa Gresley-Jones, NP MN

Level: Basic

Purpose: Chronic pain in children and youth with CP significantly impacts on child participation in activities and quality of life. It is under-recognized and undertreated. This course will guide the clinician to more accurately identify children and youth with CP who experience pain and develop a differential diagnosis for pain to prioritize investigations and management.

Target Audience: Physicians, occupational therapists, physiotherapists and nurses

Course Summary: Attendees will be introduced to the body of research evaluating the prevalence of pain in children and youth and the negative impact of pain on activity, participation, and overall quality of life. Common risk factors and causes of pain will be presented and include clinical patterns of pain presentation. Discussion will focus on overcoming the challenge of developing a differential diagnosis for pain in this population given the heterogeneity of potential causes of pain. Attendees will be introduced to multiple evidence-based pain assessment tools available for use in this population based on a systematic review of the literature. Finally, intervention options will be discussed for the management of pain with a particular focus on musculoskeletal pain. Workshop attendees will then participate in case discussions centered on children/youth with CP who present with pain focusing on assessment, differential diagnosis and management strategies.

Learning Objective 1: Understand the need to clinically inquire/assess for pain in children with cerebral palsy.

Learning Objective 2: Have a working knowledge of tools for identifying pain in this population.

Learning Objective 3: Understand and be able to identify potential causes or risk factors associated with pain for the development of a thorough differential diagnosis.

Learning Objective 4: Have working knowledge of pain management strategies for children and youth with cerebral palsy.
IC21

A PRACTICAL APPROACH TO ASSESSING DYSMORPHOLOGY IN THE CHILD WITH DEVELOPMENTAL DELAY

Authors: Elizabeth A. Jimenez, BSc MD FRCPC; Anne Kawamura, MD FRCPC; Melissa Carter, MSc MD FRCPC

Level: Intermediate
Purpose: To present a practical clinical approach to assessing dysmorphology in the child with delays in their development. This is an approach that participants can learn quickly and then readily apply to their clinical practices. Participants will also develop their clinical knowledge about three common genetic syndromes associated with developmental delay.
Target Audience: This course is relevant to clinicians (physicians, nurses, psychologists, and occupational therapists) providing clinical assessment and management for children with developmental delays and behavioural concerns.
Course Summary: A practical clinical approach to the assessment of dysmorphology will be presented. We will provide a simple, “user-friendly” checklist of common dysmorphic features and how to recognize them, take measurements and document the physical findings. A standardized terminology for dysmorphic features (American Journal of Medical Genetics, January 2009), will be briefly reviewed. A system will be described that will allow the clinician to link salient dysmorphic features with the clinical history, thereby assisting with developmental/genetic diagnoses. In a small group setting, participants will apply this approach to three different clinical cases through examination of photographs. Participants will discuss the distinguishing dysmorphic features of three different syndromes. The most up to date literature regarding diagnosis, management and prognosis will be presented for each syndrome.

Learning Objective 1: To learn a practical clinical approach to dysmorphology assessment.
Learning Objective 2: To practice applying this approach in three clinical cases of children presenting with developmental delay.

IC22

HOW TO READ AND REVIEW A SCIENTIFIC ARTICLE

Authors: Peter Baxter, MD; Peter L. Rosenbaum, PhD; Steve Hanna, PhD; Hilary Hart, MB

Level: Intermediate
Purpose: To discuss how to review articles Statistical review considerations in quantitative reports and how a journal editor and reviewers consider an article for publication.
Target Audience: Manuscript reviewers for journals; anyone who is/might be an author; research active colleagues; trainees; anyone else who would like to know more about this!
Course Summary: The presenters will describe approaches to reviewing articles, including the Equator guidelines.

Learning Objective 1: Learn an approach to the assessment of an article.
Learning Objective 2: Learn how to review different types of articles and to assess an article’s potential contribution to the literature.
Learning Objective 3: Learn how to plan research projects with an eye to preparing papers that have a higher chance of getting published.
Learning Objective 4: Learn how to optimize the writing and presentation of articles.
IC23

SIMULATION OF HUMAN MOVEMENT AND GAIT PATHOLOGY: AN INTRODUCTION TO OPENSIM FOR THE CLINICIAN

Authors: Jennifer L. Hicks, PhD; Ajay Seth, PhD; Scott Delp, PhD; Katherine Steele, MS

Level: Intermediate

Purpose: Computer simulation has emerged as a powerful method to understand the dynamics of human movement and evaluate gait disorders in children with cerebral palsy. This course will provide a hands-on introduction to computer simulation that is accessible to clinicians of all backgrounds. Participants will learn about the capabilities and limitations of computer simulation and receive hands-on instruction about how to use OpenSim, a freely available software package for simulating movement.

*Participants are strongly encouraged to bring a laptop to the session.

Target Audience: Clinicians who want to learn how computer simulation can be used to answer clinical questions about gait. Participants will be asked to bring a laptop computer and will be given instructions on how to download and install OpenSim (a free software package) prior to the course.

Course Summary: A team of experts from the National Center for Simulation in Rehabilitation Research at Stanford University will introduce participants to the basics of computer simulation and its relevance to the treatment of gait pathology. In the hands-on portion of the course, participants will learn how to use the OpenSim software package to estimate hamstrings lengths. Additional clinical applications will also be described.

Learning Objective 1: Describe a musculoskeletal model and its component parts.
Learning Objective 2: Load a model in OpenSim and animate it with gait kinematics.
Learning Objective 3: Plot hamstrings muscle-tendon lengths over the gait cycle.
Learning Objective 4: List the capabilities and limitations of computer simulation.

IC24

THE YEAR’S TOP TEN ARTICLES ON DEVELOPMENTAL DISABILITIES

Authors: Gregory S. Liptak, MD; Gordon Worley, MD; Richard C. Adams, MD

Level: Intermediate

Purpose: To present summaries of the ten most important articles on developmental disabilities published in the past year (2011 to 2012), 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 impact on 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 2011 and Summer 2012 will be presented to the audience. Articles will be chosen from the presenters’ personal experience as well as from searches in Medline and CINAHL (Current Information in Nursing & Allied Health Literature). Categories from which the articles will be chosen include the following: attention deficit hyperactivity disorder, autism, cerebral palsy, Down syndrome, mental retardation, spina bifida, and spinal cord injury. They will be selected using the following criteria: (1) impact on clinical care, (2) scientific merit of the study [validity], and (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 discussed. 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 Objective 1: Summarize the major conclusions of each of the ten articles presented.
Learning Objective 2: Identify areas in which additional research is needed.
Learning Objective 3: Evaluate the utility of each of the articles for their own clinical practice.
Learning Objective 4: Be inspired by the presentations to seek articles on their own.