McMaster Child Health Research Day

McMaster University | CIBC Hall

March 27, 2024

Event Program

Table of Contents

Making Connections: MCHRD 2024

Since 2008, McMaster Child Health Research Day (MCHRD) has been a vital knowledge translation forum showcasing the exciting child health research taking place in the Department of Pediatrics at McMaster University and at McMaster Children's Hospital.

This year, MCHRD enters a new era by expanding its reach to include child-focused research centres, healthcare institutions, community organizations, and families throughout Hamilton. This marks a significant milestone in our commitment to advancing child health research in our community.

MCHRD 2024 represents a collaborative effort between McMaster University Department of Pediatrics, CanChild Centre for Childhood Disability Research, the Centre for Metabolism, Obesity & Diabetes Research, and the Offord Centre for Child Studies with support from McMaster University Faculty of Health Sciences, McMaster Children's Hospital, and Hamilton Health Sciences Research Administration.

With over 130 research presentations by learners, research staff, and family advisors, participants will have the opportunity to explore a diverse range of topics, from laboratory-based studies to clinical and community-focused research. These projects cover various aspects of child health including acute care, chronic and complex conditions, health service innovation, and more. It's a testament to the dedication and excellence of our research teams and partners in advancing child health in our region and beyond.

Event Agenda

10:00 – 10:20 am
Registration

10:20 – 10:30 am
Land Acknowledgement & Opening Remarks
Dr. Gita Wahi, Associate Chair, Research, Department of Pediatrics, McMaster University

10:30 – 11:15 am
Oral Presentations - Themes: Health Promotion and Interventions
Chair: Dr. Olaf Kraus de Camargo, Co-Director, CanChild

11:15 am – 1:00 pm
Poster Presentations, Networking, and Lunch

1:00 – 1:15 pm
Leadership Remarks
Bruce Squires, President McMaster Children's Hospital; Vice-President Women's & Children's Health, Hamilton Health Sciences

Dr. Angelo Mikrogianakis, Chair, Department of Pediatrics, McMaster University; Chief of Pediatrics, McMaster Children's Hospital & St Joseph's Healthcare, Hamilton

1:15 – 2:15 pm
Keynote Address and Q&A
Child health advocate Hon. Mike Lake, PC, MP
Q&A Facilitator: Dr. Stelios Georgiades, Director, Offord Centre

2:15 – 3:00 pm
Oral Presentations - Themes: Pediatric Chronic Conditions and Epidemiology
Chair: Dr. Stelios Georgiades, Director, Offord Centre

3:00 – 3:05 pm
HHS Research Leadership Remarks
Dr. Marc Jeschke, Vice-President, Research, Hamilton Health Sciences

3:05 – 3:30 pm
Awards Presentation & Closing Remarks
Dr. Briano Di Rezze, Co-Director, CanChild
Dr. Gita Wahi, Associate Chair, Research, Department of Pediatrics, McMaster University

Keynote Address

Expect More - From Inclusion to Contribution

Hon. Mike Lake, PC, MP

Mike Lake's presentation uses video from interviews and news stories centered around his son. Although Jaden is non-verbal, his story enlightens people in ways that mere words cannot. Mike takes us on a journey through eight years of Jaden's life, demonstrating the power of inclusion as a key to unlocking otherwise undiscovered human potential. The clips, intertwined with Mike's compelling story-telling, create a narrative that resonates with audiences of all ages and from all backgrounds. In the end, his goal is to share Jaden's story to change the way we think about the people around us – their abilities, their challenges, and the unique contributions that they can make to the great benefit of us all.

Mike Lake is the six-term Conservative Member of Parliament for Edmonton-Wetaskiwin, first elected in 2006. In both 2019 and 2021, he received the highest vote total of any federal candidate, for any party, in Canada.

Mike served for eight years as Parliamentary Secretary to the Minister of Industry and was appointed to the Queen's Privy Council in 2012. He has served as Shadow Minister for Youth, Sport, and Accessibility; International Development; and Mental Health, Addictions, and Suicide Prevention.

Prior to entering federal politics, Mike worked for 10 years with the Edmonton Oilers Hockey Club where he served as National Accounts Manager, Director of Ticket Sales, and Group Sales Manager. He also holds a Bachelor of Commerce (with distinction) from the University of Alberta.

Mike has two adult children, his son, Jaden, and daughter, Jenae. The Lakes have been active supporters of autism organizations, families and neurodiverse individuals across the country, and around the world while sharing their story of life with Jaden, who has autism. Mike's mission is to challenge us to think differently, not only about people with autism, but about everyone we connect with.

Over the years, and often with Jaden by his side, Mike has spoken to the spouses of world leaders at the United Nations, 60,000 people at the Global Citizen Festival in Central Park, 15,000 high school students at WE Day, and tens of thousands of university students from around the world. He has done a TEDx Talk and traveled extensively, meeting with fellow elected officials from across the political spectrum and leaders in the global research community.

Oral Presentations

Session 1: Knowledge Translation & Determinants of Health
10:30am – 11:15am | CIBC Hall

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
1	Alice Kelen Soper *Dr. Peter Rosenbaum*	PhD Student	School-based disability awareness programs for children and youth: A scoping review
2	Natasha Ross *Dr. Gita Wahi*	PhD Student	Piloting co-designed interventions for newcomer health: A SCORE! project
3	Elyse Letts *Dr. Joyce Obeid*	PhD Student	Machine learning models to detect physical activity and sedentary time from a hip-worn accelerometer in toddlers

Session 2: Pediatric Chronic Conditions & Mental Health
2:15pm – 3:00pm | CIBC Hall

4	Catherine Hu *Dr. M Constantine Samaan*	MSc Student	The Prevalence of Non-Alcoholic Fatty Liver Disease in Pediatric Type 2 Diabetes: A Systematic Review and Meta-analysis
5	Samantha Morin *Dr. Michelle Batthish*	PhD Student	The association between body composition and disease and treatment outcomes in patients with juvenile idiopathic arthritis (JIA): Preliminary findings
6	Dr. Jordan Edwards *Dr. Kathy Georgiades*	Postdoctoral Fellow	Socioeconomic Trajectories throughout Childhood and Mental Health Service Use During Adolescence and Early Adulthood: A Birth-Cohort Study Using Population Based Health Administrative Data

Poster Presentations

11:15am – 1:00pm | CIBC Hall

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
7	Addison Wood *Dr. Joyce Obeid*	Undergraduate Student	Exploring the relationship between inflammation and endothelial function in children with cystic fibrosis and healthy controls
8	Anushka Patel *Drs. Michelle Batthish & Karen Beattie*	Undergraduate Student	Parent and Caregiver Perspectives of their Child's Transition from Pediatric to Adult Care: A Meta-Ethnography
9	Artadokht Yamini *Dr. Joyce Obeid*	Undergraduate Student	The Oxygen Uptake Efficiency Slope in Children with Inflammatory Bowel Disease and Juvenile Idiopathic Arthritis
10	Aydin Lim *Dr. Joyce Obeid*	Undergraduate Student	Cardiac autonomic function in children with inflammatory bowel disease and healthy children
11	Benjamin Domerchie *Dr. Joyce Obeid*	Undergraduate Student	Day-to-Day Variability in Well-Being and Physical Activity in Children with Inflammatory Bowel Disease
12	Chloe Williams *Drs. Rahul Chanchlani & Gita Wahi*	Undergraduate Student	Long Term Cardiovascular Outcomes in Children and Adolescents Diagnosed with Hypertension in Ontario: A Propensity-Matched Cohort study
13	Christopher Smolej *Drs. Yun-Ju Chen & Stelios Georgiades*	Undergraduate Student	Associations between Parent-Reported Environmental Supportiveness and Sensory Processing in Autistic Children
14	Delaney Ringer *Dr. Julia Frei*	Undergraduate Student	Through the Lens of Inclusion: A Content Analysis of Visible Disability Representation in Children's TV Shows

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
15	Ella Rival & Raquel Ocvirk *Dr. Derek Chu*	Undergraduate Student	Tree nut immunotherapy Route Assessment and DEvelopment (TRADE): A proof-of-principle 3-arm randomized trial
16	Ethan Mewhinney *Drs. Michelle Batthish & Karen Beattie*	Undergraduate Student	Understanding Variability in Depression Screening Scores in Young Adults with Rheumatic Diseases: A Retrospective Chart Review
17	Kevin Jin *Drs. Michelle Batthish & Karen Beattie*	Undergraduate Student	The Role of Ethnicity in Juvenile Idiopathic Arthritis: Initial presentation and time to diagnosis
18	Matthew Sholdice *Dr. Michelle Batthish*	Undergraduate Student	Rheuminating about Alcohol and Drugs? Assessing the Informational Needs of Adolescents and Young Adults with Chronic Rheumatic Disease
19	Meghan Pancucci *Dr. Michelle Batthish*	Undergraduate Student	Transition Readiness Trajectories in Adolescents with Rheumatic Disease
20	Mikayla Wang *Drs. Magdalena Janus & Caroline Reid-Westoby*	Undergraduate Student	Literature Review on Disability Representation in Disney and Pixar Animated Films
21	Muhammad Rao *Dr. Derek Chu*	Undergraduate Student	Systematic review and network meta-analysis of the efficacy of systematic antihistamines in patients with atopic dermatitis
22	Muhammad Rao, Fezan Khokhar & Rahul Patel *Dr. Waleed Kishta*	Undergraduate Student	Guiding Surgical Treatment Plans for Ankle Equinus in Pediatric Populations
23	Nicole Rob *Dr. Stelios Georgiades*	Undergraduate Student	From Initial Concerns to Formal Diagnosis: Exploring the Pre-Diagnosis Pathways of Newly Diagnosed Autistic Children

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
24	Nrithya (Rith) Bal *Drs. Anne Klassen & Leah Algu*	Undergraduate Student	A Qualitative Study to Inform the Development of a Patient-Reported Outcome Measure for Children with Upper Extremity Conditions
25	Rachel Kinneret Belmont *Dr. Brian W. Timmons & Madelyn Byra*	Undergraduate Student	Exploring the Relationship Between Submaximal and Maximal Aerobic Fitness Parameters and Glycemic Control in Youth with Type 1 Diabetes Mellitus
26	Sabrina Sefton *Dr. Brian W. Timmons*	Undergraduate Student	Exploring the IL-6-Mediated Anti-Inflammatory Effect of Exercise in Children with Chronic Inflammatory Disorders
27	Kayla Beaudoin *Drs. Katherine Prowse & Michelle Batthish*	Undergraduate Student	Evaluating Mental Health Conditions in Youth with Inflammatory Bowel Disease: A Retrospective Study
28	Sarah Allam *Dr. Joyce Obeid*	Undergraduate Student	Balancing Act: Investigating the Effects of Trikafta on Bone Health in Pediatric Cystic Fibrosis
29	Sarah da Silva *Dr. Joyce Obeid*	Undergraduate Student	Examining the effects of Trikafta therapy on health-related fitness, physical activity, and quality of life in children with cystic fibrosis
30	Sarah Gillies *Dr. Brian W. Timmons*	Undergraduate Student	Quality of Life and Physical Activity in Children with Chronic Conditions or Disabilities
31	Srishti Sharma & Laurie He *Dr. Jenna Dowhaniuk*	Undergraduate Student	Sex and age-based differences of manifestations of celiac disease in CeliacCONNECT: The first Canadian pediatric celiac disease registry
32	Zahra Ali *Dr. Joyce Obeid*	Undergraduate Student	Muscle strength and cardiorespiratory fitness in children with a chronic inflammatory disease

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
33	Erin Burnley & Clarissa Ngo *Drs. Tapas Mondal & Allison Rodrigues*	Medical Student	QTc Interval Prolongation and Its Association with Electrolyte Abnormalities and Psychotropic Drug Use Among Patients with Eating Disorders
34	Michelle Kan-Hodgson *Dr. Jenny Garkaby*	Medical Student	Dysgammaglobulinemia and Immune Thrombocytopenic Purpura in Kabuki Syndrome
35	Sahaj Puri *Dr. Jenna Dowhaniuk*	Medical Student	The Role of Culture in the Management of a Gluten-Free Diet for Pediatric Celiac Disease: A Scoping Review
36	Yimei (Victoria) Meng *Dr. Qiyun (Maggie) Shi*	Medical Student	A 7-year-old with abdominal pain, chronic cough, and failure to thrive
37	Simran Aggarwal *Dr. Rahul Chanchlani*	Resident	Validation of administrative codes in identifying pediatric solid organ transplant recipients
38	Megan Clarke *Dr. Michelle Batthish*	MSc Student	Transition to Adulthood through Coaching and Empowerment in Rheumatology (TRACER): A Feasibility Study Protocol
39	Samantha Morin *Dr. Joyce Obeid*	PhD Student	Examining barriers to physical activity in youth with pediatric inflammatory bowel disease
40	Tasnuva Ahmed *Dr. Derek K. Chu*	PhD Student	Prevention of Atopic Dermatitis Update
41	Anna Swain *Dr. Olaf Kraus De Camargo*	Research Staff	GrowDMD: An International Study on Transition of Youth with Duchenne Muscular Dystrophy (DMD)

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
42	Ellen Cole *Dr. Stelios Georgiades*	Research Staff	Exploring convergent and discriminant validity between the Behavioral Inflexibility Scale and the Autism Impact Measure in autistic children
43	Geil Han Astorga *Dr. Gabriel Ronen*	Research Staff	Physical activity in children and youth with Epilepsy: Development of a practice tool for healthcare providers
44	Jaden Lo *Dr. Michelle Batthish*	Research Staff	Assessing Mental Health in Adolescents with Juvenile Idiopathic Arthritis: A Retrospective Chart Review
45	Mark Daniel Bertone *Dr. Tapas Mondal*	Research Staff	Recent Demographic Trends and Clinical Insights in Pediatric Vascular Rings and Slings: A Retrospective Cohort Analysis
46	Anna Kata *Dr. Stelios Georgiades*	Research Staff	The Pediatric Autism Research Cohort (PARC) Study: Examining Trajectories of Functioning in Autistic Children in Canada
47	Samantha Rutherford *Dr. Mackenzie Salt & Alessia Greco*	Undergraduate Student	Bot-ched Data: Dealing with Bots and Bad Actors in Online Autism Research
48	Dr. Kinga Pozniak *Dr. Peter Rosenbaum*	Postdoctoral Fellow	What do today's parents want and need from healthcare services? Developing a new measure of Family-Centred Service
49	Dr. Kinga Pozniak *Drs. Peter Rosenbaum & Olaf Kraus De Camargo*	Postdoctoral Fellow	Every child's story is a treasure: Children with disabilities and their parents speak out about the supports and services they need post Covid-19 and into the future.
50	Ellen Wang *Dr. Julia Frei*	Undergraduate Student	Transforming Pediatric Care: Innovations in Toy Acquisition and Management for Enhanced Patient Experiences and Developmental Assessments

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
51	Elmira Noohpisheh *Dr. Katherine Morrison*	Undergraduate Student	Feasibility and Acceptability of an Online, Video-Based Knowledge Translation Tool for Enhancing Adolescent Health Knowledge: Small Improvements Everyday Program (SIED)
52	Emily Xiao *Dr. Michelle Batthish*	Undergraduate Student	Improving Mental Health Screening in Youth with Inflammatory Bowel Disease and Juvenile Idiopathic Arthritis: A Quality Improvement Initiative
53	Faris Almoli *Drs. Gerhard Fusch & Salhab el Helou*	Undergraduate Student	Mitigating microaggressions in a high-stress multicultural environment: A systematic narrative review
54	Fred Min *Dr. Gerhard Fusch*	Undergraduate Student	Workload on Hand Hygiene Compliance in a Hospital Setting
55	Gethmie Dep & Abjot Basra *Drs. Gerhard Fusch & Salhab el Helou*	Undergraduate Student	Using Social Media to Enhance Hand Hygiene Compliance in the Neonatal Intensive Care Unit: A Parental Engagement Initiative
56	Jennifer Zhang *Dr. Andrea Gonzalez*	Undergraduate Student	"I'm human. I have those feelings:" A Mixed-Methods Study Exploring the Perceived Emotion Regulation of At-Risk Parents in the Parents Under Pressure (PuP) Program
57	Sanjum Hunjan *Dr. David Zorko*	Medical Student	Characteristics of PICU Follow-Up Clinics: A Scoping Review Protocol
58	Kaitlyn Mah *Dr. Andrea Gonzalez*	Undergraduate Student	How Preventative Parenting Programs, Moderated by Partner Relationship Quality, Influence Parental Emotion Regulation

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
59	Joseph Saliba *Drs. Gerhard Fusch & Salhab el Helou*	Undergraduate Student	Strategic Approaches in Identifying & Mitigating Bias Within Clinical Artificial Intelligence: A Systematic Review
60	Karolein Sedik *Drs. Gerhard Fusch & Salhab el Helou*	Undergraduate Student	Quality Improvement: Influence of a new electronic health record system on the physicians' workflow in the NICU
61	Michelle Ira Roque *Julie Herrington*	Undergraduate Student	Is the Squegg™ digital grip device more reliable than the adapted sphygmomanometer? A clinical measurement study
62	Mohamed Elnagary *Dr. Gerhard Fusch*	Undergraduate Student	From Theory to Practice: Beyond Work-as-Imagined and Work-as-Done in Healthcare: A Human Factor Approach
63	Patrick Clarkin *Julie Herrington & Dr. Michelle Batthish*	Undergraduate Student	Measuring key performance indicators for the management of children with juvenile idiopathic arthritis in an Advanced Physiotherapist Practitioner model of care in pediatric rheumatology
64	Romy Shenderey & Sarah Tiessen *Dr. Nikhil Pai*	Undergraduate Student	Implementing Standardized Nutrition Screening and Assessment for Hospitalized Children: The P-INPAC Pilot Study Protocol.
65	Shibraa Bal *Dr. Anne Klassen*	Undergraduate Student	Global Impact and Translational Validity of the CLEFT-Q: Enhancing Cleft Care through Patient-Reported Outcome Measures
66	Shyreen Longia, Amoren Politano & Maddie Stanley-Rainbow *Dr. Andrea Gonzalez*	Undergraduate Student	Unlocking the Code of Care: Fidelity Coding for the Triple P Parenting Program

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
67	Tracy Su & Amelia Wilson *Dr. Sandra VanderKaay*	Undergraduate Student	Nature-Based Rehabilitation in Pediatric Occupational Therapy: A Scoping Review
68	Shira Gertsman *Dr. Karen Choong*	Medical Student	Cost Analysis of Implementing an Early Rehabilitation Bundle in a Pediatric Intensive Care Unit
69	Dr. Ali Alturki *Dr. Olaf Kraus De Camargo*	Clinical Fellow	Analyzing and Addressing Increasing Wait Times in Developmental Pediatrics at the Ron Joyce Children's Health Centre
70	Sureka Selvakumaran *Dr. Briano Di Rezze*	PhD Student	Unveiling the Clinical Impact of an Abilities-focused Social Communication Classification Tool for Children with Autism
71	Muhammed Mukadam *Dr. Gregorio Zúñiga*	Research Staff	Developmental Stages of Total Pain: Revising Pain in Children through a Child and Family-Centred Approach
72	Alessia Greco & Dr. Elyse Rosa *Dr. Stelios Georgiades*	Research Staff	Creating a Pediatric Learning Health System for Neurodevelopment
73	Dr. Elyse Rosa *Dr. Stelios Georgiades*	Research Staff	Evaluation of virtual care services offered to children across Ontario
74	Alessia Greco	Research Staff	Empowering Students as Collaborative Partners: How the Sibling Inquiry Based Systems Project Can Support the Brighter Path Project
75	Simran Heera *Julie Herrington*	Research Staff	Influence of Gender on Satisfaction Levels with an Advanced Physiotherapist Practitioner Model of Care in Pediatric Rheumatology: Opinions of Parents and Children

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
76	Jamie McLellan *Dr. Amit Mukerji*	Research Staff	Standardization of peri-extubation practices: An ongoing QI project
77	Shelby Kennedy *Dr. Anne Klassen*	Research Staff	Developing a new patient-reported outcome measure for youth receiving gender-affirming care: Results from the phase one qualitative study
78	Aryana Zarandi *Dr. Elif Bilgic*	Undergraduate Student	Exploring the Role of Immersive Virtual Reality to Support New Training and Assessment Mandates in Medical Education
79	Marriam Khan *Dr. Elif Bilgic*	Undergraduate Student	Patient and Family Engagement in Pediatric Residency Education
80	Clara Hick *Drs. Resham Ejaz & Anthony J. Levinson*	Medical Student	Development and assessment of an online course on chromosomal microarray to complement experiential learning for pediatric residents on a genetics rotation
81	Faris Kapra *Drs. Quang Ngo & Elif Bilgic*	Medical Student	Teaching and Assessment of Multi-patient Management in Health Professions Education: A Scoping Review
82	Kerrie Mirza *Drs. April Kam & Quang Ngo*	Resident	Implementation of a quality improvement checklist for learners to improve safety and expectations around break taking in the pediatric emergency department
83	Jasmin Dhanoa *Dr. Elif Bilgic*	MSc Student	Defining Principles of Expert Performance During Medical Procedures in Pediatrics: Optimizing Assessment Criteria of Procedural Skills

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
84	Marina Boutros Salama *Drs. Catharine Munn & Enas El Gouhary*	MSc Student	The UnWRaP Study: Understanding the Well-being of Residents and Partners
85	Sureka Pavalagantharajah *Drs. Bojana Babic, Andrea Hunter & Karen Beattie*	Resident	Understanding the Impact of Patient/Family Involvement in Pediatric Residency Education
86	Sureka Pavalagantharajah *Dr. Vicky Breakey*	Resident	Retrospective Cohort Study of Autoimmune Hemolytic Anemia (AIHA) at McMaster Children's Hospital
87	Ben Caputo *Dr. Brian W. Timmons*	Undergraduate Student	Assessing the Cardiopulmonary Response to Acute Aerobic Exercise in Concussion
88	Katherine Taplin *Dr. Mihir Bhatt*	Undergraduate Student	A Comprehensive Review on Low-Molecular-Weight-Heparin Anticoagulation Therapy Dose Management in Pediatric Patients at Risk of Thrombocytopenia
89	Mabel Koo *Dr. Brian W. Timmons*	Undergraduate Student	Exploring the Influence of Aerobic Exercise on Gait Variability in Adolescents with Sport-Related Concussions: A Prospective Observational Study
90	Sanjanaa Arunagiri *Dr. Herbert Brill*	Undergraduate Student	Impact of Maternal Insulin Levels on Likelihood of NICU Admission for Hypoglycemia Patients: A Retrospective Review
91	Zeenia Malik & Rayirth Sivakumar *Dr. Derek Chu*	Undergraduate Student	Incidence of Anaphylaxis among Hamilton Youth in a 5-year period
92	Christopher Chu & Darsh Shah *Dr. April Kam*	Medical Student	Management of pediatric guanfacine overdose in emergency departments: A systematic review

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
93	Dania Shikara *Dr. Liane Heale*	Medical Student	Discovering the Recurrent Fever Population at Hamilton Health Sciences
94	Meagan Quigley *Drs. Ipsita Goswami & Nina Stein*	Medical Student	Two-dimensional cranial ultrasound-based biomarkers of brain growth in extreme and very preterm infants
95	Kevin Karivelil *Dr. Jeffrey Pernica*	Resident	Estimates of pediatric community-acquired pneumonia incidence, morbidity, and mortality in high-income countries since 2010: A systematic review and meta-analysis
96	Meagan Kaye *Dr. Karen Choong*	Resident	Functional Outcome Assessment in Critically Ill Children: A Clinician-Reported versus Patient-Reported Outcomes Study
97	Lisiane Hoff Calegari *Dr. Amit Mukerji*	Clinical Fellow	Predictors and Outcomes of Extubation Failure in Preterm Neonates: A Systematic Review and Meta-Analysis
98	Tisha Parikh *Dr. Sarah Khan*	Research Staff	Treatment of gram-negative bacteremia (GNB) in Canadian pediatric hospitals: A Pediatric Investigators Collaborative Network on Infections in Canada (PICNIC) study
99	Tisha Parikh *Dr. Sarah Khan*	Research Staff	Coagulase-negative staphylococci (CONS) positive blood cultures in the NICU: A Quality Improvement Project
100	Vivian Slade *Dr. Shikha Gupta*	Research Staff	Enhancing Antimicrobial Stewardship in the Neonatal Intensive Care Unit (NICU) at McMaster Children's Hospital: Insights from Prospective Audit and Feedback

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
101	Avneet Mazara *Dr. Ipsita Goswami*	Undergraduate Student	Integrating Clinical and Neuroimaging Markers to predict the onset of post-hemorrhagic ventricular dilatation in preterm neonates
102	Avneet Mazara *Dr. Stephanie Atkinson*	Undergraduate Student	Maternal high protein/calcium dairy diet and exercise during pregnancy: Influence on infant bone mass
103	Angenie Christy Antony *Dr. Rahul Chanchlani*	Undergraduate Student	Global Prevalence of Cardiovascular Risk Factors Among South Asian Children: A Systematic Review and Meta-Analysis
104	Ariana Petrazzini *Dr. Olaf Kraus De Camargo*	Undergraduate Student	Exploring Indigenous Perspectives on Fetal Alcohol
105	Eileen Wang *Dr. Andrea Gonzalez*	Undergraduate Student	Childhood maltreatment, prenatal cortisol levels, and executive functioning: A cross-sectional study using data from the Healthy Foundations Study
106	Ethan Parikh *Dr. Brian W. Timmons*	Undergraduate Student	MOvement behaviours and health indicators in children with a chronic MEdical condition or disability: an iNTernational mUlticentre prograM (MOMENTUM): Exploring chronic condition-specific physical activity recommendations (CSPRs) and the value of Personalized Exercise Guidelines (PEGs)
107	Leila Maria Casasanta *Dr. Stephanie Atkinson*	Undergraduate Student	Exploring the Relationship Between Maternal Obesity and Excess Gestational Weight Gain and Infant Adiposity at 6 Months
108	Mariam Kore *Dr. Elyanne Ratcliffe*	Undergraduate Student	Influence of in utero exogenous cannabinoid exposure on the expression and distribution of axon guidance molecules in the postnatal gastrointestinal tract

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109	Novera Shenin *Dr. Elyanne Ratcliffe*	Undergraduate Student	The impact of exogenous cannabis exposure in utero on the postnatal development of enterochromaffin cells
110	Ally Yunjia Zhao *Drs. Elyanne Ratcliffe & Lucia Giglia*	Undergraduate Student	Development of a sample collection pipeline to measure cannabinoid metabolites in babies exposed and non-exposed to cannabis in utero
111	Rachel Serrao *Dr. Tapas Mondal*	Undergraduate Student	The Effect of Premature Birth on Major Adverse Cardiac Events in Adulthood
112	Rhyan Hawke *Dr. Magdalena Janus*	Undergraduate Student	Teacher-reported prevalence of FASD in 2016 to 2020 in kindergarten in Canada and its associations with neighbourhood-level socioeconomic status and home problems
113	Ruby Wang *Dr. Stephanie Atkinson*	Undergraduate Student	Probiotics in pregnancy: An exploration of use and association with pregnancy health outcomes in a recent randomized clinical trial
114	Samridhi Sharma *Dr. Elyanne Ratcliffe*	Undergraduate Student	Influence of in utero cannabis exposure on the development of enteric glia
115	Shreya Saha *Dr. Stephanie Atkinson*	Undergraduate Student	Exploring the Effects of Omega-3 Supplementation on the Duration of Sleep in Pregnancy
116	Sofia Panziera *Dr. Brian W. Timmons*	Undergraduate Student	Investigating Thermoregulation and Heat Tolerance in Prepubescent Girls as Compared to Boys
117	Johan Carballo *Drs. Jonathan Schertzer & Katherine Morrison*	MSc Student	Investigating the Association of Early Life Exposures with the Infant Gut Microbiota during the First Three Years of Life

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
118	Leili Hadayeghi *Dr. Brian W. Timmons*	MSc Student	Movement Behaviours and Health Indicators in Children with a Chronic Medical Condition or Disability
119	Paige Cheveldayoff *Dr. Katherine Morrison*	MSc Student	Energy expenditure in children and adolescents with obesity: A systematic review
120	Daniel Labach *Dr. Katherine Morrison*	Research Staff	Assessment of Brown Adipose Tissue and Energy Expenditure in youth and children using a Whole-Room Indirect Calorimetry System: A Pilot Study
121	Ashwini Pugazhendhi *Dr. Elyanne Ratcliffe*	Undergraduate Student	Facilitators and Barriers to Engaging Individuals Who Use Cannabis During Pregnancy in Research Studies: A Literature Review
122	Ashwini Pugazhendhi *Drs. Joanna Humphreys & Ceilidh Eaton Russell*	Undergraduate Student	Bereaved children's questions about illness, death, and grief: What they wonder and how to respond
123	Linda Thanh Duong *Dr. Kathy Georgiades*	Undergraduate Student	Developing a Protocol for Measurement-Based Care in School Mental Health Settings
124	Keiko Marshall *Dr. Anne Fuller*	Medical Student	Risk of food insecurity and protective factors among children with Autism Spectrum Disorder (ASD) or other Special Healthcare Needs (SHCNs)
125	Fazle Rabbi *Dr. Russell de Souza*	PhD Student	Healthy Active Living Programs for New Immigrant Families in High-income Countries: A Scoping Review
126	Praveen Nadesan *Dr. Russell de Souza*	Medical Student	Exploring the Barriers to and Facilitators of Inclusive Physical Education for Ontario Elementary Students

Abstract No.	Presenter(s) *Supervisor(s)*	Presenter Category	Presentation Title
127	Amanda St. Dennis	Family/Patient	Accessibility Accommodations in Patient-Oriented Research Partnerships
128	Sara Yantho	Family/Patient	Child Health Research Needs You!
129	Natasha Ross *Dr. Gita Wahi*	PhD Student	Co-designing healthy activity living interventions with families, service providers, and community members in Hamilton, Ontario: A SCORE! project
130	Dr. Emma Nolan *Dr. Kathy Georgiades*	Postdoctoral Fellow	Adaptation and Validation of the Washington Group/UNICEF Child Functioning Module in a Nationally Representative Sample of Canadian Children and Youth
131	Dr. Samantha Micsinszki *Drs. Andrea Cross & Michelle Phoenix*	Postdoctoral Fellow	The Family Engagement in Research Leadership Academy: An Advanced Training Opportunity to Support Emerging Leaders in Child Health Research
132	Shania Bhopa *Dr. Russell de Souza*	PhD Student	Protocol for the Design and Evaluation of a Community Advisory Board

Abstracts

1 - School-based disability awareness programs for children and youth: A scoping review

Alice Kelen Soper, Trinity Lowthian, Amanda Doherty-Kirby, Holly Marini, Melissa Shivnauth, Samantha Noyek, Shree Dave, Kerry Britt, Michelle Phoenix, Sandra Moll, Christine Imms, Peter Rosenbaum

Background: School-based disability awareness programs aim to enhance attitudes and inclusive behaviours of students towards peers with disabilities. This scoping review explored the current worldwide landscape of these programs.
Objectives: The objectives of this scoping review were to explore: i) program development and implementation in schools; ii) program components; and iii) educational content.
Methods: The scoping review followed Arksey and O'Malley's (2005) six-stage process (as revised by Levac et al. (2010)). A comprehensive search of publications from September 2011 to June 2023 was completed in seven databases. Data management was supported by Covidence review software. Thematic analysis was used to generate themes related to educational content. Descriptive statistics summarized program development, implementation, and components.
Results: Seventy-two studies from 26 countries, published in six languages, were included in the review. Programs were implemented across various school settings (kindergarten, primary, and secondary) by teachers, individuals with disabilities, researchers, and other professionals. Secondary school activities emphasized social contact and simulations, while kindergarten and early elementary programs used vicarious contact methods through storybooks and videos depicting characters with disabilities. Educational content included general knowledge of disability, feelings towards disabilities, and skills to interact with disabled peers.
Limitations: The global scope may limit relevance to local contexts due to varied inclusive education policies and cultural beliefs about disability.
Conclusions: There is a wide range of school-based disability awareness programs that can inform strategies and approaches to support social inclusion of students with disabilities in general education. Work is underway to report effectiveness of these programs.

2 - Piloting co-designed interventions for newcomer health: A SCORE! project

Natasha Ross, Sanya Vij, Aamina Zahid, Tyler Soberano, Nora Abdalla, Sujane Kandasamy, Natalie Campbell, Patricia Montague, Deborah DiLiberto, Russell de Souza, Sonia Anand, Gita Wahi on behalf of the SCORE! research team

Rationale: Emerging research suggests that newcomer children in Canada face a greater burden of obesity and related complications such as type 2 diabetes, compared to Canadian-born children. Physical activity is an important health promotion strategy, and newcomer children are observed to participate less often than Canadian-born children. To address potential health promotion interventions, we tested a series of co-designed physical activity programs to determine feasibility and acceptability.
Objectives: The objectives of this study are 1) To determine the feasibility of implementation of co-designed physical activity programs, as measured by recruitment, uptake and attendance, and; 2) To understand the experiences of families participating in these intervention activities using qualitative methods.
Methods: This was a pre-post study design to pilot test physical activity programs and family support interventions that were co-designed within the SCORE! program platform. Over 9 months, families were invited to participate in up to two activities and one family support intervention. Baseline data was collected from each family and follow-up data at the end of the intervention.
Results: In 4 months, we approached 64 families for our intervention prototype pilot; 44 families (95 children) consented to participate in our pilot, and 100% of families completed consents and baseline questionnaires. We subsequently

engaged newcomer children and families in prototype activities. No participants were lost to follow-up, interviews, and focus groups were completed to modify the prototype components and team operations.
Conclusion: This pilot testing demonstrates the potential of co-designed interventions for promoting healthy active living among newcomer families with children.

3- Machine learning models to detect physical activity and sedentary time from a hip-worn accelerometer in toddlers

Elyse Letts, Sara King-Dowling, Natascja Di Cristofaro, Patricia Tucker, John Cairney, Brian W. Timmons, Joyce Obeid

Introduction: Toddler movement patterns are unique and challenge current accelerometer-based detection of physical activity and sedentary time. This study aimed to develop a machine learning model that can accurately classify free-living activity in toddlers from raw acceleration data.
Methods: Toddlers (n = 111; 21 ± 7 mos; 51% female) attended two, 1-hour semi-structured play sessions (1-2 weeks apart; video-recorded). Toddlers wore an ActiGraph (w-GT3X-BT) accelerometer on the right hip. Video recordings were annotated second-by-second by activity class (ground truth): sedentary (SED), light PA (LPA), moderate-to-vigorous PA (MVPA), and non-volitional movement (NVM; e.g., being carried). We extracted twenty time and frequency domain features from the raw accelerometer data. Using a 60% train/20% cross-validate/20% test split, accelerometer features and ground truth annotations were used to train gradient boosted tree models in python (v3.9.6) using scikit-learn (v1.2.2) and XGBoost (v2.0.0). One model compared NVM, SED, and total PA (TPA; LPA and MVPA combined) and the second model compared classification into NVM, SED, LPA, and MVPA. Model performance was assessed using overall accuracy and an F1 score, the harmonized mean of recall and precision.
Results: The model comparing NVM, SED, and TPA had an overall accuracy of 89% and an F1 score of 83%. The model comparing NVM, SED, LPA, and MVPA had an overall accuracy of 85% and an F1 score of 79%. Discussion: Our models exhibit high accuracy in classifying toddler activity without appearing to overfit the data. Next steps should independently cross-validate the models to confirm their broad classification ability.

4- The Prevalence of Non-Alcoholic Fatty Liver Disease in Pediatric Type 2 Diabetes: A Systematic Review and Meta-analysis

Catherine Hu, Milena Cioana, Amandeep Saini, Stephanie Ragganandan, Jiawen Deng, Ajantha Nadarajah, Maggie Hou, Yuan Qiu, Sondra Song Jie Chen, Angelica Rivas, Parm Pal Toor, Laura Banfield, Lehana Thabane, M. Constantine Samaan

Introduction: Type 2 diabetes mellitus (T2DM) is a chronic metabolic disease emerging in the pediatric population associated with the obesity epidemic. Studies have demonstrated that T2DM is associated with the development of Non-Alcoholic Fatty Liver Disease (NAFLD), yet the precise estimation of this association is unclear.
Objective: This systematic review aims to estimate the prevalence of NAFLD and Non-Alcoholic Steatohepatitis (NASH) in pediatric T2DM patients, examining factors like sex, race/ethnicity, geography, diagnostic methods, and glycemic control.
Method: Literature searches were conducted in six major databases. Teams of independent reviewers screened titles, abstracts, and full-text articles, resulting in 26 eligible papers. Data extraction, risk of bias assessment, level of evidence assessment, and meta-analysis were subsequently performed.
Results/Limitations: Patients, aged ≤18 at T2DM diagnosis, had a diabetes duration ranging from diagnosis to 4.6 years post-diagnosis. NAFLD prevalence was 33.82% and 0.28% for NASH. Among race/ethnicity, pooled prevalence varied: 35.98% (Asian), 36.93% (White), 16.76% (Hispanic), 6.82% (Black). The Middle East had the highest (55.88%), Europe the lowest (22.46%), and North America, Asia, and Oceania ranged from 30.54% to 32.70%. Diagnostic method analysis revealed 24.17% NAFLD prevalence with liver function tests, rising to 48.85% with ultrasound addition. No sex or glycemic control differences were noted, and heterogeneity among studies was high.

Conclusion: A significant proportion of T2DM patients have NAFLD within a few years of their diabetes diagnosis. Further understanding the natural history and associations between NAFLD and T2DM in children is crucial for developing effective screening, prevention, and treatment strategies to enhance outcomes.

5- The association between body composition and disease and treatment outcomes in patients with juvenile idiopathic arthritis (JIA): Preliminary findings

Samantha Morin, Karen Beattie, Tania Cellucci, Liane Heale, Julie Herrington, Michelle Batthish

Introduction: Evidence has emerged linking abnormal body mass index (BMI) to adverse disease and treatment outcomes in adults with inflammatory arthritis, yet little is known about a potential connection in children with juvenile idiopathic arthritis (JIA).
Objective: Investigate the association between BMI categories and disease/treatment outcomes in children with JIA.
Methods: Data was collected by the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) JIA Registry; a registry of children with newly diagnosed JIA. BMI was categorized as underweight: <5th percentile, normal: 5th-<85th percentile, overweight: 85th-<95th, obese: ≥95th percentile. For each category, Kaplan-Meier curves assessed time to clinical Juvenile Arthritis Disease Activity Score 10 (cJADAS10) ≤1, parent-reported pain score (PS) <1, parent-reported global assessment (PGA) <1, and time to first disease-modifying antirheumatic drug (DMARD) and biologic. Log-rank tests compared outcomes across categories.
Results: Of 759 patients (61% female; mean±SD, age: 9.5±4.7 years), 36 were underweight, 546 normal, 76 overweight, and 101 obese. Significant differences were found between normal and obese for time to cJADAS10≤1 ($\chi2(1)=5.53$, $p=0.019$, median difference [MD]=36 weeks), PS<1 ($\chi2(1)=5.90$, $p=0.015$, MD=46 weeks), PGA<1 ($\chi2(1)=5.49$, $p=0.019$, MD=11 weeks), and first DMARD ($\chi2(1)=4.34$, $p=0.037$, MD=15 weeks). Time to first biologic was significantly longer in normal versus underweight ($\chi2(1)=4.65$, $p=0.031$, MD=185 weeks).
Conclusions: Compared to children with normal BMI, those underweight or obese required earlier treatment escalation. Obese children took longer to achieve clinical remission than those with normal BMI. These findings may help inform clinicians on anticipated treatment responses and disease outcomes when counselling families on body composition.

6- Socioeconomic Trajectories throughout Childhood and Mental Health Service Use During Adolescence and Early Adulthood: A Birth-Cohort Study Using Population Based Health Administrative Data

Jordan Edwards, Rebecca Rodrigues, Jinette Comeau, Piotr Wilk, Kelly K. Anderson

Background: The association between childhood socioeconomic deprivation and later mental disorders is well-established, however less is known regarding the impact of longitudinal change in socioeconomic status through childhood on mental and substance use disorders.
Objective: Examine the association between neighbourhood-level income trajectories during childhood and the subsequent risk of service use for mental or substance use disorders.
Methods: We constructed a population-based retrospective birth cohort using data from the Ontario health care system. This birth cohort includes over 600,000 children born between 1992 and 1996 and followed to age 25 within the databases. We used longitudinal latent class modelling to identify neighbourhood-level income trajectories from birth to age 12 and modelled the association between income trajectories and first contact with the health care system for a mental or substance use disorder during adolescence and early adulthood.
Results: We found evidence of a gradient effect for neighbourhood income trajectory and acute care visits for mental and substance use disorders. Compared to the stable moderate/high-income groups, youth in the upwardly mobile group had an IRR=1.25 (95%CI:1.23,1.27); those in the downwardly mobile group had an IRR=1.30 (95%CI:1.28,1.32); and those with stable low-income had an IRR=1.42 (95%CI:1.40,1.44).
Limitations: The generalizability of our evidence is limited to physician service use.

Conclusions: Identifying disparities in mental and substance use disorders across population subgroups using population-based data is important for addressing the substantial public health impacts of mental disorders among children and youth. Our findings suggest neighbourhood income trajectories are important antecedents of future mental health related acute care visits.

7- Exploring the relationship between inflammation and endothelial function in children with cystic fibrosis and healthy controls

Addison Wood, Madelyn M. Byra, Megan M. Lo, Elizabeth M. Ball, Nicole A Proudfoot, Maureen J. MacDonald, Brian W. Timmons, Joyce Obeid

Background: In healthy individuals, chronic inflammation is correlated with increased risk of cardiovascular disease (CVD). Both adults and children with Cystic Fibrosis (CF) often exhibit higher pro-inflammatory markers and decreased anti-inflammatory markers than healthy individuals. Furthermore, children with CF have demonstrated impaired endothelial function, an indicator of cardiovascular health, compared to their healthy peers. No studies to date have explored the relationship between inflammation and endothelial function in children with CF.
Objectives: This study examined the relationship between inflammatory markers and endothelial function in children with CF and healthy controls.
Methods: Children with CF and healthy children aged 7-17 years completed a single study visit. A fasted blood sample was collected, and the serum component was used to measure inflammatory markers including C-reactive protein, tumor necrosis factor alpha, interleukin-6, and interleukin-10. Endothelial function was assessed using duplex-mode ultrasound to measure flow-mediated dilation (FMD), which was defined as the change in the diameter of the brachial artery pre- to post-reactive hyperemia. Pearson correlations will be used to examine the relationship between inflammatory marker concentrations and FMD.
Results: Sixteen participants with CF (44% females), and 21 healthy controls (29% females) completed this study. Analyses are ongoing and results will be presented at CHRD.
Conclusion: Chronic inflammation plays a central role in the development and progression of CVD. Investigating the relationship between inflammation and endothelial function in children may provide insight into the impact of CF-related chronic inflammation on future CVD risk.

8- Parent and Caregiver Perspectives of their Child's Transition from Pediatric to Adult Care: A Meta-Ethnography

Anushka Patel, Hannah Rosales, Linda Nguyen, Karen Beattie, Michelle Batthish

Background: The parent/caregiver perspective is crucial to understanding the challenges and supports needed to prepare youth with chronic diseases for the transition from pediatric to adult healthcare. While current research has documented the patient/youth perspective, the perspectives of parents/caregivers have been excluded. There is a need to identify and synthesize the perspectives of parent/caregivers that will inform effective frameworks for healthcare providers.
Objective: This review aims to understand the perspectives and experiences of parents/caregivers of youth with chronic disease as they transition from pediatric to adult healthcare.
Methods: Using a meta-ethnography design, a systematic literature search was conducted and included search terms related to parents, caregivers, perspectives, youth, transition/transfer, and chronic diseases. Two reviewers independently assessed titles and abstracts. Full-texts were included for qualitative research articles that focused on parents/caregivers experiences regarding transition. Data extraction will be conducted using a modified Cochrane Collaboration Data Collection Form and Dedoose software. Risk of bias will also be assessed.
Results: Of 9,306 screened articles, 246 were included for full-text review. To date, we have screened 20 full-text articles and have included 8 for data extraction. Inductive coding will be employed to extract themes. Finally, quotes about parent/caregiver perspectives will be used to create a line-of-argument synthesizing third-order constructs.
Conclusion: It is essential to better understand parent/caregiver's perspectives on their child's

transition from pediatric to adult healthcare. This meta-ethnography will provide valuable insights about the perspectives of parents/caregivers that can inform future work on how to best support youth and families during healthcare transition.

9- The Oxygen Uptake Efficiency Slope in Children with Inflammatory Bowel Disease and Juvenile Idiopathic Arthritis

Arta Yamini, Sarah da Silva, Madelyn M Byra, Elyse G Letts, Brian W Timmons, Joyce Obeid

Cardiorespiratory fitness (CRF) assessments traditionally use maximal exercise protocols. These tests may not be practical for children with chronic diseases. The oxygen uptake efficiency slope (OUES) is measured at submaximal intensities and may yield similar prognostic outcomes to maximal testing. Few studies have examined the link between maximal (VO2peak) and submaximal (OUES) indicators of fitness in children with chronic inflammatory disease. This study aimed to (1) compare the OUES in children with Inflammatory Bowel Disease (IBD) and Juvenile Idiopathic Arthritis (JIA) to healthy peers, and (2) determine the relationship between VO2peak and OUES. Children with JIA or IBD and healthy controls between 7-17 years of age completed a single study visit. Anthropometric measurements including height, weight, and body fat percentage were conducted. A maximal aerobic fitness test was conducted using a cycle ergometer and metabolic cart for gas exchange analysis. VO2peak was defined as the highest 20-sec oxygen uptake. OUES was derived from the slope of a linear regression between VO2 and logVE at 25%, 50%, 75%, 80%, 90%, and 100% of exercise. Objectives 1 and 2 were assessed by ANCOVAs and Pearson correlations, respectively. Seventy participants (JIA = 29, IBD = 22, healthy = 19) completed the study. Analyses are ongoing and will be presented at CHRD. These results could help support the use of submaximal fitness testing and OUES as an important marker of CRF, particularly for children who are not able to do maximal exercise. Submaximal testing could increase accessibility to CRF testing for monitoring health status.

10- Cardiac autonomic function in children with inflammatory bowel disease and healthy children

Aydin Lim, Madelyn M. Byra, Roxy Chen, Nicole A. Proudfoot, Maureen J. MacDonald, Robert M. Issenman, Brian W. Timmons, Joyce Obeid

Background: Cardiac autonomic function is vital for regulating the cardiovascular response to physiological demands. It can be assessed using heart rate variability (HRV) and recovery (HRR). HRV is impaired in adults with inflammatory bowel disease (IBD), but few studies have examined HRV or HRR in children with IBD. Objective: This study aims to (1) compare HRR and HRV in children with IBD and healthy controls, and (2) investigate the relationship between HRV and HRR in children with IBD and healthy controls
Methods: Children with IBD were age- and sex-matched with healthy controls (7-17 years). Participants rested in a supine position for 10 minutes, this was followed by recording heart rate for 5-min to calculate HRV using the time and frequency domains. Participants then completed the McMaster All-Out Progressive Cycling Test to assess aerobic fitness. Heart rate was recorded every 30s for 2-minutes during recovery from peak exercise. HRR was calculated as (heart rate at maximum - heart rate during recovery). Objective 1 will be assessed by ANCOVA, and Objective 2 by linear regressions.
Results: Twenty-six children with IBD and twenty-six healthy controls (40% female) participated. Analyses are ongoing and will be presented at CHRD.
Conclusion: HRR and HRV may represent simple screening tools to monitor cardiovascular health in children with IBD. This work represents the first step towards establishing these measures for monitoring cardiovascular health outcomes in pediatric IBD.

11 - Day-to-Day Variability in Well-Being and Physical Activity in Children with Inflammatory Bowel Disease

Benjamin Domerchie, Samantha Morin, Sara King-Dowling, Emily Brackenridge, Robert Issenman, Nikhil Pai, Mary Sherlock, Mary Zachos, Samira Samiee-Zafarghandy, Lee Hill, Joyce Obeid

Introduction: Children with inflammatory bowel disease (IBD) may experience day-to-day variability in well-being, defined as a state of positive feelings and the meeting of an individual's potential. This may be caused by fluctuations in disease symptoms, feelings of isolation, fear of flare-ups, and may influence physical activity (PA). No studies have assessed the day-to-day variability of well-being and PA in pediatric IBD.
Objectives: We examined the (1) variability in well-being and PA; (2) relationship between daily PA intensity and well-being; and (3) relationship between the adherence to Canadian PA recommendations for youth and well-being in children with IBD.
Methods: Children ages 7-17 years with IBD wore an ActiGraph accelerometer for 4-6 weeks to determine daily time spent in total, light, and moderate-to-vigorous PA. Participants self-reported their IBD-related well-being daily in a logbook. The question, adapted from the Childhood Health Assessment Questionnaire, was "Considering your IBD, how well are you doing today?" and was scored from 0 (best score) to 10 (poorest score). Variability was assessed using the coefficient of variation. Pearson's rank correlation coefficient evaluated the relationship of PA intensity and well-being, and the Mann-Whitney U test evaluated well-being and adherence to PA guidelines.
Results: Nine participants (11% female, 10.3±1.8 years) have completed the study. Analyses are ongoing and will be presented at CHRD.
Conclusion: This study may provide insight into the day-to-day impact of IBD on feelings of well-being and physical activity. Understanding these associations may reveal important avenues for future interventions to improve outcomes for youth with IBD.

12 - Long Term Cardiovascular Outcomes in Children and Adolescents Diagnosed with Hypertension in Ontario: A Propensity-Matched Cohort study

Chloe Williams, Sanya Vij, Sujane Kandasamy, Jennie Butler, Lana Moayad, Rahul Chanchlani, Gita Wahi

Introduction: Hypertension (HTN) during childhood is a chronic condition with significant long-term complications. There is little known about pediatric HTN from the perspective of youth patients and parents. This study will use photovoice qualitative methods to empower participants to use photography, to explore patient and caregiver experiences, perceptions, barriers and facilitators to HTN treatment.
Objectives: To conduct a qualitative study that explores patient and caregiver experiences and perceptions of HTN, barriers and facilitators to HTN treatment, and to co-iterate an existing educational toolkit that promotes adherence to treatment.
Methods: We will enrol youth and caregivers from the Pediatric Hypertension Clinic at McMaster Children's Hospital. The enrollment of 12-15 children and caregivers is planned. An initial interview will seek to understand the child and caregivers' perceptions of the treatment for HTN. After the interview, the child will be asked to take photos of places or things that they 1) felt helped or prevented them from being physically active or eating healthy in their home and community; 2) felt made it challenging or easy to follow a treatment plan for a 2-week period. In a follow-up interview 4 weeks after the initial interview, participants will be asked to choose and reflect on 20 photographs. We will also present an existing educational toolkit on the topic of HTN management and treatment to explore caregiver perspectives of content.
Conclusion: The responses will be used to iterate the toolkit to be more relevant and accessible as per caregiver experiences.

13- Associations between Parent-Reported Environmental Supportiveness and Sensory Processing in Autistic Children

Christopher Smolej, Yun-Ju Chen, PARC Project Team, Stelios Georgiades

Background: Atypical sensory processing is common among autistic children. While previous research has shown that autistic children tend to experience more difficulties in certain environments, there is little evidence on the associations between environmental supportiveness/barriers and sensory processing across various daily life settings with consideration to demographic factors.
Methods: This study involved 74 autistic children diagnosed at 2-5 years as a part of the Pediatric Autism Research Collaborative pilot study. The caregivers completed questionnaires including the Young Children's Participation and Environment Measure (YC-PEM; for children aged <5 years), Participation and Environment Measure-Children and Youth (PEM-CY; for children aged ≥5 years), Socio-Demographic Questionnaire (SDQ), and Short Sensory Profile-2 (SSP-2). The associations between the summary scores of the YC-PEM/PEM-CY environmental supportiveness/barrier and SSP-2 scales are assessed using correlation and multiple regression analyses, with child's age, household income, parental education, and familiarity with English as covariates.
Results: Preliminary correlation analysis indicates that greater environmental barriers are associated with more difficulties in the sensory and behavioural domains (r=.19 to .38). Higher levels of environmental supportiveness in the home and community settings are associated with fewer sensory and behavioural problems (r=-.33 to -.28), but this correlation is not observed in the school setting (r=-.06 to .06).
Conclusion: Further regression analysis is needed to assess the associations when controlling for demographic factors. Identifying environmental settings and factors closely linked to sensory processing and behavioral issues may allow for more efficient allocation of resources (considering demographic variations) to better support the sensory needs of autistic children.

14- Through the Lens of Inclusion: A Content Analysis of Visible Disability Representation in Children's TV Shows

Delaney Ringer, Tanya Paes, Julia Frei

Background: Children's development is significantly influenced by media, and representations of disabilities often perpetuate stereotypes, impacting societal and individual perceptions. This study examines the portrayal of children with disabilities in television shows, recognizing the need for accurate and diverse depictions.
Objective: This study critically evaluates how children with disabilities are represented in popular TV shows.
Methods: Eight children's TV shows featuring characters with visible disabilities were selected from streaming platforms. Nine characters were analyzed, focusing on representation type, intersectionality, role portrayal, character development, and societal acceptance. Analysis was based on a randomly selected sample of episodes, covering twenty percent of each character's appearances.
Results: The analysis found a variety of visible disabilities depicted, but with limited intersectional representation. While some shows presented characters through progressive lenses of disability, others perpetuated negative stereotypes. Characters were mostly portrayed as multidimensional, exploring various aspects of their development. Although themes of self-acceptance and peer acceptance were prevalent, instances of self-doubt and exclusion were also observed.
Limitations: Findings may not be broadly applicable due to the focus on TV content and visible disabilities, as well as the small sample size. Additionally, limitations in perspective arose from the sole reviewer's analysis and the absence of consultation with individuals with disabilities.
Conclusion: The study highlights the predominantly positive portrayal of characters with disabilities in children's TV shows but emphasizes the need for more intersectional representation and collaboration with individuals with disabilities for authentic and diverse media depictions.

15-Tree nut immunotherapy Route Assessment and DEvelopment (TRADE): A proof-of-principle 3-arm randomized trial

Derek K. Chu, Heather Le, Ella Rival, Raquel Ocvirk, Dhruv Dhall, Anish Samanthapudi, Alexandro Chu, Megan Hagerman, Lan Chen, Tasnuva Ahmed, Rae Brager, Michael Cyr, Mary Messieh, Shannon French, Paul Oykhman, Jenny Garkaby, Rebecca Pratt, Arthur Chung, Susan Waserman, Jennifer Gerdts, Erica Mah, Richard Mah, Bram Rochwerg, Gail Gauvreau, Imran Satia, Paul O'Byrne, Jonathan Bramson, Lehana Thabane, Robert Wood, Gordon Guyatt

Background: Food allergies are a growing global problem now affecting over 3 million Canadians and 1 in 2 households. Available desensitization (oral immunotherapy) approaches address peanut allergy but cause a high rate of adverse reactions because they administer high doses. Current oral immunotherapies do not address tree nut allergies (cashew, pistachio, walnut, pecan, hazelnut, almond). Sublingual immunotherapy (SLIT) safely desensitize against inhaled allergens (e.g. pollens), but no RCTs robustly address their feasibility for tree nut allergies.
Objective: Evaluate the feasibility of low dose oral (ldOIT) or SLIT, vs placebo, for tree nut allergies.
Methods: In this randomized, placebo-controlled trial, we are recruiting 60 patients. Eligible participants are aged 1-16 years old with a history of tree nut allergy and a positive oral food challenge to 300 mg protein or less. Patients are randomly assigned (1:1:1) by concealed allocation to receive active ldOIT and placebo SLIT, placebo OIT and active SLIT, or double placebo. Oral food challenge at 52 weeks will be used to assess change in amount of tree nut tolerated.
Results: Since November 2023, we recruited 7 patients. Four (57%) are in the build-up phase, and three (43%) are in the maintenance phase. Five (71%) are targeting cashew, and one each (14%) for almond and walnut. There have been zero treatment-related adverse events.
Limitations: We aim to increase recruitment rate through advertisements and engaging patient and clinician partners.
Conclusions: TRADE trial results will help inform optimal treatment approaches for the millions living with tree nut allergies.

16- Understanding Variability in Depression Screening Scores in Young Adults with Rheumatic Diseases: A Retrospective Chart Review

Ethan Mewhinney, Julie Herrington, Mark Matsos, Karen Beattie, Michelle Batthish

Objectives: McMaster University Medical Center has established a Young Adult Clinic (YAC) (patients aged 18-22) to support newly transitioned patients independently manage their rheumatic condition(s). In October 2021, we began screening for depression before each clinical visit. Our objective is to understand the variability in symptoms of major depressive disorder among patients with rheumatic diseases in the YAC.
Methods: We conducted a chart review of all patients with rheumatic disease followed in the YAC since October 1, 2021. Patients completed the validated Patient Health Questionnaire-9 (PHQ9) at each clinic visit and were included if ≥2 scores were recorded. Age, diagnosis, and PHQ9 scores were extracted from charts. PHQ9 scores were converted into predetermined categories: none-minimal depression symptoms (0-4), mild (5-9), moderate (10-14), moderately severe (15-19) and severe (20-27). Changes in categories over time were described.
Results: Sixty-six patients, mean (SD) age 19.6 (1.3) years, mean (SD) follow-up 13.3 (5.9) months, and mean (SD) number of appointments per patient 3.6 (1.5) were included. Thirty-five (97%) of thirty-six patients (55%) with no category change remained under the moderate threshold. Eighteen (27%) patients changed by one category; seven (39%) between mild and moderate, three (17%) between moderate and moderately severe. Ten (15%) patients changed by 2 categories; seven (70%) between none-minimal and moderate, three (30%) between mild and moderately severe.
Conclusion: Longitudinal monitoring of PHQ9 scores may help differentiate temporary increases from trends that could require intervention. Even patients with low scores should be monitored regularly.

17-The Role of Ethnicity in Juvenile Idiopathic Arthritis: Initial presentation and time to diagnosis

Kevin Jin, Ola Elsharif, Tania Cellucci, Liane Heale, Julie Herrington, Karen Beattie, Michelle Batthish

Introduction: Juvenile idiopathic arthritis (JIA) affects children of all ethnicities, yet little is known about ethnic differences in JIA presentation.
Objectives: To describe 1) time to diagnosis from symptom onset, and 2) symptoms, disease subtype, and characteristics at JIA diagnosis by ethnic group.
Methods: Data were obtained from the Canadian Alliance of Pediatric Rheumatology Investigators (CAPRI) JIA registry in which patients, newly diagnosed with JIA, self-reported their ethnicity. Patients were excluded if they did not report ethnicity or if they selected >1 ethnicity. Data were described using frequencies, means and standard deviations.
Results: Of 730 patients, the 3 most frequent ethnicities were European (80.3%), South Asian (5.6%), and West Asian/North African (4.2%). Mean (SD) times from symptom onset to diagnosis were 11.2 (21.1), 10.8 (17.4), and 10.5 (21.5) months for East Asian, Indigenous and West Asian/North African groups, respectively, and 9.8 (15.0) for all other groups combined. Compared to the entire cohort, the Indigenous group had a higher prevalence of RF+ polyarthritis (14%, n=28) while the East Asian group had a higher prevalence of systemic JIA (20%, n=15). The Indigenous group reported the highest average pain, most active disease and lowest quality of life.
Conclusion: Despite being the largest Canadian registry of patients newly diagnosed with JIA, results must be interpreted with caution due to some small group sample sizes. There is considerable variability in time to diagnosis and symptoms amongst all ethnic groups which may be related to the prevalence of certain JIA subtypes.

18- Rheuminating about Alcohol and Drugs? Assessing the Informational Needs of Adolescents and Young Adults with Chronic Rheumatic Disease

Matthew Sholdice, Meghan Pancucci, Gauri Gupta, Simran Heera, Karen Beattie, Michelle Batthish

Introduction: Adolescents and young adults (AYA) with chronic rheumatic disease (RD) often engage in risk-taking behaviours that, when combined with medications, may lead to adverse effects. However, resources for patients regarding how these behaviours may affect their disease and interact with their medications are limited. Our study aimed to understand informational needs of AYA with RD on the use of alcohol and drugs and their impact on disease.
Methods: A questionnaire co-developed with patient partners was circulated to 16–22-year-olds in rheumatology clinics and by social media. Participants were asked how informed they were on the use of alcohol and drugs as it related to their disease and medications. Responses were summarized using descriptive statistics.
Results: To date, of 46 respondents (89% female, 57% arthritis), the majority felt poorly informed on how to manage symptoms after drug/alcohol consumption (68%/54%), how different types of recreational drugs/alcohol interact with medications (61%/52%), the safe frequency of drug consumption (61%), the safe time to consume drugs (61%), and the safe amount of drug consumption (59%). The majority felt well informed regarding the short- (61%/76%) and long-term (63%/80%) impacts of drugs/alcohol.
Conclusion: The majority of AYA felt poorly informed about most potentially harmful activities and expressed desire for more education. We are planning focus groups to further explore their preferences for how (e.g., website, videos, pamphlet, in-clinic discussion, etc.), when (e.g., starting age), and how often (e.g., every visit, annually) AYA would like to receive this information.

19-Transition Readiness Trajectories in Adolescents with Rheumatic Disease

Meghan Pancucci, Clara Moore, Tania Cellucci, Liane Heale, Julie Herrington, Karen Beattie, Michelle Batthish

Background: The transition from pediatric to adult rheumatology care is associated with poor disease control and loss to follow-up. Supporting adolescents to independently manage their health before transferring to adult care is essential. We assessed how an individualized goal-setting approach to improving self-management skills affects transition readiness over time among adolescents with Juvenile Idiopathic Arthritis (JIA) and lupus.
Methods: Adolescents aged 14-18 years with JIA or lupus at McMaster Children's Hospital's multidisciplinary transition clinic were recruited. Participants completed the Transition-Q, a validated questionnaire which assesses healthcare self-management skills (score 0-100), at consent and subsequent visits. Transition-Q responses identified areas of need and guided goal setting supported by healthcare team members. Changes in Transition-Q scores between baseline and follow-up (FU) visits were determined and then sub-grouped by sex.
Results: Of 105 participants who completed the Transition-Q at baseline and ≥1 follow-up, 70 (67%) were female and 82 (79%) had JIA. Mean (SD) Transition-Q scores improved by 10.4 (14.0) points between baseline and first FU, and 6.9 (11.3) (n=73) between first and second FU. Overall, 73% of males' Transition-Q scores stayed the same or improved from the baseline to first FU compared to 84% of females. Between the baseline and second FU, 96% (n=24/25) of males improved while 98% (46/47) of females improved.
Conclusion: Transition-Q scores increased over time, with varying improvement trajectories between genders. These results suggest that goal setting to improve self-management skills requires an individualized approach within a multidisciplinary clinic.

20- Literature Review on Disability Representation in Disney and Pixar Animated Films

Mikayla Wang, Caroline Reid-Westoby, Magdalena Janus

Background: Despite the prevalence of disability in society, there is not much research on how disability is depicted in children's animated films. Previous studies have investigated how health, illness, and disability are represented in children's media, including games, books, and comics. Furthermore, researchers have explored how animated films can influence children's beliefs and behaviours. However, research on disability representation in animated films appears to be lacking.
Objectives: The goal of this literature review was to explore the existing research on disability representation in Disney and Pixar animated films with the aim of achieving a better understanding how disability is depicted.
Methods: Key terms relating to disability and animation were searched in the databases Web of Science and Omni. From the results, 9 articles were identified to fit the inclusion criteria and included in this literature review.
Results: The studies included in this review had different ways of interpreting disability or did not provide an explanation for their methods of identifying disability. Nevertheless, they suggest that there are many positive and negative depictions of disability in Disney and Pixar animated films. In addition, disability representation seems to be increasingly positive in recent animated films.
Conclusion: The depictions of disability representation in Disney and Pixar animated films seem to be improving in recent films. Considering the mixed representation found in this review, future studies may consider how disability representation may impact children's beliefs and attitudes. In addition, as this study focused on Disney and Pixar films, future research may expand the scope.

21 - Systematic review and network meta-analysis of the efficacy of systematic antihistamines in patients with atopic dermatitis

Aaron Wen, Layla Bakaa, Alexandro Chu, Irene Zhao, Dimitri Deris, Shakil Popatia, Muhammad Rao, Angela Wang, Andy Zhu, Gordon Guyatt, Derek Chu

Atopic dermatitis (AD) is a chronic inflammatory skin disease prevalent in ~15% of children and ~3% of adults. Despite their common use in treating AD, the utility of antihistamines remains questionable. Newer generations also lack clear efficacy support. We searched MEDLINE, EMBASE, CENTRAL, and CINAHL from inception to 2023 for RCTs comparing oral antihistamines for AD treatment against placebo, standard care, or alternative antihistamines.
Text screening, data extraction and bias assessment were performed independently and in duplicate.
Outcomes included clinician-reported severity and pruritus scores; assessed using the GRADE approach. 16 RCTs (n = 2035) compared antihistamines to standard care and addressed clinician-reported AD severity, revealing little clinical efficacy.
Sensitivity analyses showed no significant differences across standard (MD -4.14 [95% CI -6.71 to -1.57)), mid (MD -4.97 [95% CI -9.87 to -0.07]), and high (MD -8.15 [95% CI -13.63 to -2.67]) doses. Ketotifen notably reduced AD severity (MD -23.30 [95% CI -28.56 to -18.03]). 19 RCTs (n = 1550) compared antihistamines to standard care for pruritus outcomes. Standard (MD -0.77 [95% CI -1.22 to -0.32]), mid (MD -0.59 [95% CI -1.50 to 0.33]) and high-doses (MD -0.59 [95% CI -1.50 to 0.33]) showed minimal differences.
Antihistamines modestly improve AD severity and itching, compared to standard care without antihistamines. The modest effects must be balanced against their neuropsychiatric side effects and burden of therapy.

22 - Guiding Surgical Treatment Plans for Ankle Equinus in Pediatric Populations

Fezan Khokhar, Muhammad Rao, Rahul Patel

Ankle equinus is a deformity that presents challenges in stability and gait due to triceps surae contracture. This deformity is primarily prevalent in pediatric cerebral palsy populations and occurs at a 75% incidence rate. Hemiepiphysiodesis, serial casting, and osteotomy are commonly employed interventions for ankle equinus. Ankle equinus often presents recurringly, despite interventions in the pediatric population which complicates treatment options. There is insufficient research to provide clear guidance on treatment pathways. This study examines the current surgical techniques and outcomes for ankle equinus in pediatric patients to inform clinicians about their respective successful cases.
Hemiepiphysiodesis effectively corrects extreme equinus angles, with studies demonstrating significant reductions in equinus magnitude. However, complications such as screw tract formation may arise. Serial casting, when combined with Botulinum toxin A injections, shows notable improvements in muscle tone and ankle motion. Studies report statistically significant enhancements in muscle tone and spasticity, as well as increased passive range of motion. The optimal timing for casting following BTX-A injections remains questionable due to conflicting findings across studies. Distal tibial closing wedge osteotomy coupled with tendon transfer presents an alternative for cases with bony protrusions hindering dorsiflexion. Attention to postoperative complications such as wound infections is crucial. Surgical options like hemiepiphysiodesis and osteotomy show promise for treating ankle equinus in children. However, careful consideration of their risks and benefits is necessary. Surgical decisions should be tailored to individual cases, while non-surgical methods like serial casting are a precautionary solution that should be employed for less severe deformities.

23- From Initial Concerns to Formal Diagnosis: Exploring the Pre-Diagnosis Pathways of Newly Diagnosed Autistic Children

Nicole Rob, Anna Kata, Stelios Georgiades, the PARC Study co-investigative team

Background: Past studies have investigated the accessibility and prevalence of autism diagnosis in different populations of children, but less is known about the pre-diagnosis journey. Specifically, there is little information about who first identifies concerns in children, and the time taken to receive a diagnosis following these concerns. To address these gaps, this work explores how demographic (race, gender) and contextual (income, education) factors are associated with pre-diagnosis pathways.
Objectives: Using data collected from newly diagnosed Autistic children, I will: 1) explore associations between sociodemographic factors and who observes initial concerns; and 2) examine correlations between these factors and the time from initial concerns to diagnosis.
Methods: The Pediatric Autism Research Cohort (PARC) Study is collecting data from newly diagnosed Autistic children and their families across Canada. This study uses data from PARC's Pathways to Diagnosis Questionnaire (PDQ) and Sociodemographic Questionnaire (SES). The PDQ provides specific insights on the pre-diagnosis pathway, including who observed initial concerns (parents, educators, or physicians) and months passed from concerns to formal diagnosis. The SES includes race, gender, and socioeconomic status (education attainment, income levels) information. Using logistic regression, correlations among PDQ and SES variables will be analyzed.
Results: Analysis is currently in progress as PARC's data collection continues; the current sample includes over 100 children. Data visualization and regression results will be presented.
Impact: This study will contribute to improved understanding of the unique pre-diagnostic pathways of Autistic children. Particularly, demographic-specific findings will help guide future efforts toward equitable care for diverse populations.

24- A Qualitative Study to Inform the Development of a Patient-Reported Outcome Measure for Children with Upper Extremity Conditions

Rith Bal, Leah Algu, Lucas Gallo, Samantha Keow, Kristen Davidge, Sally Hynes, Steven Koehler, Anne Klassen

Upper extremity conditions that are congenital and those caused by injury are common amongst children. Despite their prevalence, a comprehensive tool that measures outcomes important to patients from their perspective is lacking. Our qualitative study represents the first step in a program of research to fill this gap by developing a patient-reported outcome measure (PROM) for children with upper extremity conditions. We are currently conducting a concept elicitation qualitative study to identify concepts important to patients. Our study takes an interpretive description approach. English-speaking patients aged 8 to 18 with any form of acquired or congenital upper limb condition are being recruited from three hospitals in Canada and the USA: BC Children's Hospital, Toronto's SickKids Hospital, and New York's Montefiore Medical Center. Interviews last about one hour and are audio-recorded and transcribed verbatim. Up to 50 percent of interviews are double coded to establish rigour. Codes are transferred into Excel and constant comparison is used to refine categories and form a conceptual framework. The framework will be used to guide the development of scales that will form the new PROM called LIMB-Q Kids Upper Extremity Module. To date, 18 interviews have been conducted. Participants present with various upper extremity conditions, the most common of which include brachial plexus, venous malformation, and small finger camptodactyly. Each transcript is coded using a line-by-line approach. Concepts are labelled with a domain and major/minor theme. Once completed, this qualitative study will provide detailed insight into the experiences of children with upper limb conditions.

25- Exploring the Relationship Between Submaximal and Maximal Aerobic Fitness Parameters and Glycemic Control in Youth with Type 1 Diabetes Mellitus

Rachel K. Belmont, Madelyn M. Byra, Sarah M. da Silva, Joyce Obeid, Brian W. Timmons

Background: Type 1 Diabetes Mellitus (T1DM) is an increasingly prevalent chronic condition associated with elevated cardiovascular disease (CVD) risk. Existing evidence suggests aerobic fitness, a marker of cardiovascular health, is reduced in T1DM youth. However, studies to date have only reported on maximal aerobic fitness and few have explored the relationship between glycemic control and submaximal aerobic fitness in T1DM.
Objectives: (i) Assess the relationship between glycemic control, maximal, and submaximal aerobic fitness outcomes. (ii) Compare fitness outcomes between T1DM youth with good (T1DM-G) and poor (T1DM-P) glycemic control. Methods. Youth aged 7-17 with a single diagnosis of T1DM for ≥ 1 year were recruited from Endocrinology clinics at McMaster Children's Hospital to complete a single study visit. Hemoglobin A1c (HbA1c) values were determined by blood sample or from medical records closest to their study visit. Anthropometric measurements were taken, followed by an aerobic fitness assessment on a cycle ergometer to determine maximal and submaximal cardiopulmonary outcomes. Linear regression was used to examine relationships between HbA1c and aerobic fitness parameters. One-way ANCOVAs were conducted to compare fitness outcomes between T1DM-G and T1DM-P.
Results: Pending
Limitations: This cross-sectional study cannot determine changes in aerobic fitness and glycemic control over time. Methodological differences in determining HbA1c values introduce variability across the combined dataset.
Conclusions: Examining aerobic fitness at submaximal and maximal levels and across a range of glycemic levels may be critical in informing exercise-based interventions for T1DM youth aimed at reducing CVD risk.

26- Exploring the IL-6-Mediated Anti-Inflammatory Effect of Exercise in Children with Chronic Inflammatory Disorders

Sabrina Sefton and Brian W. Timmons

Initially recognized as a 'cytokine' in immune signalling, interleukin-6 (IL-6) has emerged as a significant skeletal muscle factor in mediating exercise's anti-inflammatory effects. However, elevated levels of IL-6 have also been established as a potent marker of chronic inflammation. These complex opposing effects, facilitated by differential interactions between IL-6, its soluble and membrane-bound receptors, and glycoprotein 130 (gp130), are poorly understood in children with chronic inflammatory disorders (CID) engaging in exercise interventions. Therefore, this study seeks to 1) assess how IL-6 and its pathway mediators are impacted by prolonged moderate- and high-intensity exercise in children with various CIDs, compared to healthy controls; and 2) compare these differences across sexes and different CIDs. An ELISA-based secondary analysis of serum IL-6, IL-6R, gp130 and IL-6/sIL-6R complex concentrations before and after exercise will be conducted. Changes in concentrations of these mediators will be compared for the first time between a sample of children with chronic kidney disease, cystic fibrosis, juvenile idiopathic arthritis, Crohn's disease and acute lymphoblastic leukemia, and healthy controls. While the analysis of soluble mediators cannot reveal their cellular origins, thus preventing concrete conclusions regarding their inflammatory nature, this study sets the foundation for future research on underlying inflammatory pathways involved in CIDs and exercise among children. As exercise becomes increasingly recognized as a therapeutic agent in children with varied inflammatory disorders, exploring these apparent gaps holds profound implications for the optimal provision of evidence-based exercise interventions without exacerbating baseline inflammation.

27- Evaluating Mental Health Conditions in Youth with Inflammatory Bowel Disease: A Retrospective Study

Kayla Beaudoin, Ethan Mewhinney, Jaden Lo, Smita Halder, Kristen Bortolin, Jenna Dowhaniuk, Robert Issenman, Nikhil Pai, Mary Sherlock, Mary Zachos, Christina Grant, Karen Beattie, Michelle Batthish, Katherine Prowse

Background: Adolescents with chronic diseases experience increased mental health concerns, especially post-COVID-19. Understanding mental health prevalence among youth with Inflammatory Bowel Disease (IBD) is critical to improve access to mental health supports and treatments.
Objective: We aimed to assess the prevalence of mental health conditions among IBD patients at McMaster Children's Hospital (MCH) who either have a documented mental health condition and/or are on medication(s) used to treat mental health conditions.
Methods: Charts of patients aged 12-17 with IBD with ≥ 1 appointment since June 4, 2022, were reviewed for documentation of a mental health condition (generalized anxiety disorder (GAD), social anxiety disorder (SAD), eating disorder, major depressive disorder (MDD), suicidal ideation, attention deficit disorder (ADD) and/or others) and/or 2) medication(s) used to treat mental health conditions.
Results: Among 114 patients (77 male) (mean (SD) age 15.1 (1.6) years old), 33 (29%, n=20 males) had ≥ 1 recorded mental health condition: GAD (n=27, 82%), SAD (n=1, 3%), eating disorders (n=4, 12%), MDD (n=9, 27%), suicidal ideations (n=5, 15%), ADD (n=9, 24%), and other conditions (n=1, 3%). Of these, 25 (76%) were on mental health-related medications.
Limitations: Relying on medical charts and solely MCH patients may have underestimated mental health prevalence. Future research will explore broader pediatric IBD mental health prevalence.
Conclusions: Our findings highlight a 29% mental health prevalence among youth with IBD at MCH. Future studies will integrate mental health screening into pediatric healthcare to address existing barriers and accessibility to support services.

28- Balancing Act: Investigating the Effects of Trikafta on Bone Health in Pediatric Cystic Fibrosis

Sarah Allam, Sarah da Silva, Linda Pedder, Brian W. Timmons, Joyce Obeid

Background: Cystic fibrosis bone disease (CFBD) is characterized by bone loss and fragility fractures, and can often progress to osteopenia and osteoporosis. Over the last 40 years, there has been an increase in the prevalence of CFBD in patients with cystic fibrosis (CF), largely attributed to advancements in disease management and increased life expectancy. Trikafta therapy, a novel combination therapy designed to correct and potentiate the trafficking defect caused by delF508 CFTR mutation, is expected to further enhance health outcomes and may further extend life expectancy. However, there is limited understanding of its impact on bone mineral density, particularly in children.
Methods: CF patients, under the age of 18, who are initiating Trikafta therapy will be invited to participate in 3 study visits. Each study visit will be identical, and will take place 1 month before beginning Trikafta, and again at 1-month 6-months of therapy. We will measure standing height and weight. We will use bioelectrical impedance analysis and whole-body dual x-ray absorptiometry to assess body composition. Bioelectrical impedance analysis results will be entered into a predictive model to determine bone mineral content (BMC), while BMC and bone mineral density (BMD) will be calculated from DXA.
Implications: This study will offer longitudinal insights into the relationship between Trikafta and bone density. By measuring BMC and BMD over time, we can determine if Trikafta has therapeutic extrapulmonary effects and if bone health will continue to be an area of concern in this new age of CF management.

29- Examining the effects of Trikafta therapy on health-related fitness, physical activity, and quality of life in children with cystic fibrosis

Sarah M. da Silva, Linda Pedder, Brian W. Timmons, Joyce Obeid

Introduction: Cystic fibrosis (CF) is a life-threatening autosomal recessive disease leading to multiorgan system dysfunction. CF transmembrane conductance regulator modulators, such as Trikafta, have revolutionized CF treatment, showing unparalleled improvements in clinical outcomes. While the clinical benefits of Trikafta are relatively well-documented, we have yet to fully understand changes in important markers of health and wellbeing as patients transition to Trikafta therapy. Therefore, the aim of this study is to examine the impact of 1-month and 6-months of Trikafta therapy on changes in aerobic fitness, physical activity, exercise metabolism, body composition, and quality of life (QoL) in girls and boys with CF.
Methods: Patients aged 2-17 years with a confirmed diagnosis of CF, beginning Trikafta therapy will be recruited (n=22; equal M/F distribution). Basic anthropometric measurements and body composition using dual-energy X-ray absorptiometry will be collected. Aerobic fitness and exercise metabolism will be measured on a treadmill using the Bruce protocol and a submaximal steady-state protocol, respectively. Physical activity will be measured with both a Garmin watch and an ActiGraph accelerometer. QoL will be assessed using the Cystic Fibrosis Questionnaire-Revised and Peds QL. Analysis of covariance will be performed to assess the impact of Trikata therapy on the aforementioned outcomes over time, including both sex and gender as potential confounders.
Implications: This study has the potential to extend our understanding of the effects of Trikafta therapy beyond traditional clinical outcomes and may offer evidence-based recommendations to support healthcare professionals caring for youth with CF initiating Trikafta therapy.

30- Quality of Life and Physical Activity in Children with Chronic Conditions or Disabilities

Sarah Gillies, Ethan Parikh, Leili Hadayeghi, Brian W. Timmons

Background: Previous studies examining the relationship between physical activity and quality of life in children with chronic conditions or disabilities report positive correlations. However, most studies restricted their analysis to one chronic condition and thus were limited by small sample sizes.
Purpose: To combat the small sample size limitation, we will examine movement behaviours across multiple chronic conditions. Using data from MOMEMTUM, this project aims to examine the relationship between physical activity and quality of life in children ages 12 to 17.
Methods: Children (12- to 17-years-old) with any chronic condition, at least one year past diagnosis, and their parent/guardian will complete an online survey. Physical activity is assessed using the International Physical Activity Questionnaire short form (IPAQ-SF), and quality of life is measured using the Pediatric Quality of Life Inventory (PedsQL). Linear regressions will be used to examine the correlation between these variables.
Results: In the preliminary stages of this project, 15 dyads have completed the survey. Child- and parent/guardian-reported PedsQL total scores range from 49 to 96 and 27 to 92, respectively, on a scale from 0 to 100 (100 being the highest score). On average, the child-reported minutes per day spent doing vigorous, moderate, and light physical activity were 96, 67, and 52, respectively; parents/guardians reported 79, 52, and 37 minutes, respectively.
Discussion: Research about the relationship between physical activity and quality of life in children with chronic conditions is significant to affected children, as well as their families and health care providers.

31 - Sex and age-based differences of manifestations of celiac disease in CeliacCONNECT: The first Canadian pediatric celiac disease registry

Laurie He, Srishti Sharma, Herbert Brill, Catharine Walsh, Lee Hill, Jenna Dowhaniuk

Introduction and Hypothesis: CeliacCONNECT is a multi-centred prospective registry of Canadian children with celiac disease. Prior adult studies have determined that diagnostic symptoms differ based on sex. We aim to assess the symptomatology at presentation and determine if any sex and age-based differences exist in recruited patients. We hypothesize that the diagnostic symptoms will differ based on sex and age.
Methods: We analyzed the symptomatology of patients in the CeliacCONNECT registry from McMaster Children's Hospital and SickKids from September 2020 to January 2023. A multivariate logistic regression was performed to assess the relation between the eleven symptoms (minimum n=30) and explanatory variables: Sex and Age. Data were checked for multicollinearity with EasyMedStat.
Results: The analysis included 407 patients (females n=242; males n=165). The average age of diagnosis of male and female patients was 6.56 and 7.67 years, respectively. The model did not show a significant relationship between symptoms and sex. Certain CeD manifestations, specifically GI symptoms were less common in older children ($p<0.05$). Youngest children (age < 2; n = 54) present with the most significant symptoms including growth restriction, bloating, diarrhea and vomiting. Oldest children (age 15-17, n = 24) present with significant symptoms of nausea and headache/migraines.
Conclusion and Limitation: Symptoms exhibit age-specific patterns, with youngest children more likely to present with symptoms of malabsorption and older children presenting with more atypical symptoms such as headache and nausea without features of malabsorption. CeD testing should be considered in the differential diagnosis for common gastrointestinal complaints, and atypical symptoms for older children.

32 - Muscle strength and cardiorespiratory fitness in children with a chronic inflammatory disease

Zahra Ali, Elyse Letts, Samantha Morin, Madelyn Byra, Tania Cellucci, Maureen J. MacDonald, Lehana Thabane, Brian W. Timmons, Joyce Obeid

Background: Children with a chronic inflammatory disease (CID) often demonstrate low cardiorespiratory fitness (CRF), a well-established independent marker of health. Maximal CRF testing (gold standard) may not be feasible or practical for children with CID. The handgrip strength (HGS) test is a simple alternative assessment commonly used as a health indicator in adults. In children, the HGS test is a valid and reliable measure of muscle strength but has not been examined in relation to CRF. Objective: To determine the relationship between CRF and HGS in children with and without a CID.
Methods: Girls and boys aged 7-17 years with a confirmed diagnosis of Type 1 Diabetes, Juvenile Idiopathic Arthritis, Inflammatory Bowel Disease, Chronic Kidney Disease or Cystic Fibrosis and healthy controls completed a single study visit. CRF was defined as peak oxygen uptake determined from a progressive, maximal cycling test. HGS testing was performed in triplicate on each hand, and average the strength was reported for each hand. Regression analyses will be used to determine a potential relationship between CRF and HGS, while controlling for potential covariates.
Results: A total of 112 participants completed the study. Analyses are ongoing and will be presented at CHRD.
Conclusion: The findings of this study may help to establish HGST as a simple, low-cost, and reliable method to monitor health. Through consistent monitoring, individuals with low or declining HGS can be referred for more regular and comprehensive CRF testing, thereby allowing for earlier interventions to improve and optimize health outcomes.

33- QTc Interval Prolongation and its Association with Electrolyte Abnormalities and Psychotropic Drug Use Among Patients with Eating Disorders

Emily Kacer, Erin Burnley, Terrel Marshall, Clarissa Ngo, Tapas Mondal, Allison Rodrigues

Eating disorders (ED) often develop in adolescence and are associated with substantial chronicity, morbidity, and mortality. Adverse cardiac outcomes include QTc interval prolongation, potentially leading to fatal arrhythmias. The relationship between pediatric ED and QTc prolongation requires clarification to inform surveillance strategies. Recent findings emphasize external factors, rather than ED disease processes themselves, as salient in QTc prolongation. This study aims to analyze QTc prolongation in pediatric ED patients and its association with psychotropic usage and electrolyte abnormalities. From the McMaster Children's Hospital Eating Disorders Service, 443 patients underwent retrospective chart analysis for QTc interval calculation and documentation of electrocardiogram parameters, electrolytes, psychotropic usage, and other clinical outcomes. The majority (86%) of participants were female with a mean age of 14 and anorexia nervosa as the most common diagnosis. Most (88%) patients had normal (<440ms) QTc intervals, with 7% and 5% having borderline (440-460ms) and prolonged (>460ms) intervals, respectively. Of the 443 patients, 36% used psychotropics known to prolong QTc. The prevalence of QTc prolongation was higher in this group than patients not using psychotropics ($P < 0.05$). Abnormal electrolyte values were not significant in the prevalence of borderline or prolonged QTc intervals ($P > 0.05$). Study limitations include the retrospective design, manual QTc calculation variability, exclusion of patients with pre-existing cardiac disorders, and use of generic values for QTc categorization. From these preliminary results, we can conclude that QTc prolonging psychotropics, rather than electrolyte abnormalities or an ED diagnosis, are associated with an increased risk of QTc interval prolongation.

34- Dysgammaglobulinemia and Immune Thrombocytopenic Purpura in Kabuki Syndrome

Michelle Kan-Hodgson, Rae Brager, David Fahmy, Jenny Garkaby

Introduction: Kabuki syndrome (KS) is a rare congenital multi-system disorder, characterized by distinct facial features, skeletal anomalies, intellectual disability, and postnatal failure to thrive. Immune dysfunction and autoimmune manifestations have previously been described in KS patients, notably increased susceptibility to infections, hypogammaglobulinemia, selective IgA deficiency, immune thrombocytopenic purpura (ITP), hemolytic anemia, vitiligo, and thyroiditis. Objective: To expand the literature regarding the phenotype of immunodeficiency in KS and highlight the importance of consistent screening for immune abnormalities for KS patients.
Cases: Patient 1, a 22-year-old male with KMT2D KS, has a history of recurrent otitis media, recurrent UTIs, and mild chronic ITP. His immune work-up revealed mild thrombocytopenia and impaired vaccine titers to tetanus, pneumococcus, and VZV. Patient 2, a 15-year-old male with KMT2D KS, has a history of recurrent respiratory infections, eczema, recurrent cellulitis, and chronic ITP triggered by a viral illness. His immune work-up showed low IgA levels, mild T cell lymphopenia, absent vaccine titers following PPSV23 immunization, and mild thrombocytopenia. Immunoglobulin replacement therapy was initiated. Patient 3, a 23-month-old female with KDM6A X-linked KS does not have a significant infectious history. Her immune work-up showed mildly low CD3+, CD8+, and CD19+ counts.
Conclusions: KS patients display diverse immune abnormalities and autoimmune manifestations, which may increase with age. Delayed development of immune manifestations highlights the importance of consistent screening for immune abnormalities in all KS patients. Delayed diagnosis of immunodeficiency is associated with increased morbidity and poor quality of life, further highlighting the importance of close follow-up in KS patients.

35-The Role of Culture in the Management of a Gluten-Free Diet for Pediatric Celiac Disease: A Scoping Review

Sahaj Puri, Lee Hill, Nikhil Pai, Nisha Pai, Jenna Dowhaniuk

Rationale: Celiac disease (CeD) is an autoimmune disorder with the sole treatment being a strict gluten free diet (GFD). The way a family eats is inherently tied to culture. Culture impacts the way we tell our stories, how we celebrate, and the traditions we keep. Therefore, culture will invariably impact how a family navigates food and eating.
Objective: Given Canada's diverse racial and ethnic backgrounds, this scoping review aimed to identify key themes regarding the role of culture in the management of CeD.
Methods: We conducted a scoping review of peer-reviewed articles up to May 2023 with 363 manuscripts identified for screening. A total of 36 papers included a discussion of culturally relevant topics and were included in the analysis.
Results: Four major themes were identified 1) Diagnosis and Diet with subthemes Symptomatology at presentation, Staple foods and Traditional foods; 2) GF food availability with subthemes Availability of GF foods, Financial pressures, Understanding food labels, and Legislation; 3) Cultural beliefs with subthemes Familial and Social norms and Acculturation and 4) Supports with subthemes Dietitian support, Local organizations and faith-based communities, and Psychosocial support.
Conclusions: Overall, there is a lack of research on this topic which calls for more mixed-methods studies exploring cross-cultural management within pediatric CeD. A personalized care plan for a child with CeD would require a healthcare provider to consider the themes included in this review as well as provide culturally specific resources. Providers are encouraged to have open conversations with families to promote culturally relevant recommendations.

36- A 7-year-old with abdominal pain, chronic cough, and failure to thrive

Yimei Meng and Qiyun Shi

A 7-year-old girl who was immigrated from Pakistan 4 years ago presented to the pediatric follow-up clinic with a history of recurrent of abdominal pain, diarrhea and cough. This was her fourth hospital visit this year. She visited the emergency room the day before, and diagnosed with constipation and viral illness. She was treated with enema and scheduled for a follow up appointment at pediatric clinic. Her father reported child was born at term with no complications. Child has a longstanding history of cough, pale color stool which sometimes difficulty to flush. She is always small for her age, which was attributed to her ethnicity background. Parents are first degree cousins otherwise no family history of chronic diarrhea, malabsorption, or asthma. Child is developmentally appropriate for age. She has been using probiotics, inhalers, and antibiotics with limited effects. There was also recent history of enamel hypoplasia with repair of several capped teeth. On physical exam, her height is 110cm and her weight is 15.8Kg, which are both below 1%ile. She has mild tachypnea, decreased bilateral air entry, coarse breath sounds but no wheezing or crackles. Her abdomen is grossly distended with diffuse tenderness. Her fingers and toes have significant clubbing. Blood work showed leukocytosis, thrombocytosis, mildly elevated liver enzymes (Table 1). Her x ray showed interstitial lung changes and dilated bowel loops with fecal loading. Her abdominal ultrasounds suggested hepatic steatosis.

37-Validation of administrative codes in identifying pediatric solid organ transplant recipients

Simran Aggarwal, Kyla Naylor, Yuguang Kang, Stephanie Dixon, Rulan Parekh, Jovanka Vasilevska-Ristovska, Rahul Chanchlani

Background: Health administrative datasets could offer valuable insights into pediatric solid organ transplantation but first require validation.
Objective: To determine sensitivity and positive predictive value (PPV) of administrative data compared to direct transplant records (reference standard).
Methods: Data collected from the SickKids transplant database (1991-2011) was linked to administrative data at ICES. Data from the Canadian Organ Replacement Register (CORR), physician billing claims from the Ontario Health Insurance Plan (OHIP), and hospital procedural codes from the Canadian Institute for Health Information Discharge Abstract Database (CIHI-DAD) were compared to the data from the SickKids transplant database.
Results: A total of 347 kidney, 250 liver, 200 heart, and 28 lung transplants were performed. CIHI performed best, with a sensitivity of 93%, 87%, 90%, 93% (95% CI [83-100%]) and PPV of 94%, 90%, 95%, 96% (95% CI [86-100%]) for kidney, liver, heart, and lung transplant patients, respectively. A combination of CORR or CIHI was also comparable, with higher sensitivity (90-98%) but lower PPV (87-95%). CORR performed well for kidney (sensitivity 82%, PPV 94%), but had poor sensitivity for other organs (32-42%). OHIP had poor sensitivity throughout (34-59%), but good PPV (89-91%).
Limitations: We validated the information from 1991 to 2011 and cannot attest to the reliability of the data beyond the study period.
Conclusions: CIHI-procedural codes, with or without CORR, performed best in identifying children undergoing solid organ transplants. CORR and OHIP had poor sensitivity in all organs except where CORR had better sensitivity for kidney transplant recipients.

38-Transition to Adulthood through Coaching and Empowerment in Rheumatology (TRACER): A Feasibility Study Protocol

Megan Clarke, Julie Herrington, Tania Cellucci, Liane Heale, Mark Matsos, Karen Beattie, Michelle Batthish

Introduction: The transition from pediatric to adult healthcare is a vulnerable time for youth with chronic disease with risks of disengagement from care and complications of inadequately managed disease. This comes when other transitions occur in a youth's life, including changes to vocation and social supports. The TRACER (Transition to Adulthood through Coaching and Empowerment in Rheumatology) study aims to assess the feasibility of conducting a multi-centred RCT of a virtual Transition Coach Intervention in youth transferring from pediatric to adult rheumatology care.
Methods: Patients will be recruited at their last pediatric rheumatology visit at McMaster Children's Hospital or Children's Hospital in London and will be randomized to standard of care or virtual, one-on-one transition coaching sessions, covering topics in health management, future planning, and self-advocacy. Protocol feasibility will be assessed (≥85% consent rate, ≥90% coaching session completion, and ≥90% data collected). Demographics, transition readiness, global functional assessment and disease activity will be collected. Differences in changes in self-efficacy scores between groups will be used to determine sample size in the fully powered study.
Results: To date, of 43 patients approached, 24 (56%) consented, 6 (25%) completed the 11-month follow-up, and five (21%) completed the 8-month follow-up. Virtual session attendance has been 98%, and 100% of assessments have been completed.
Conclusion: This study will inform the design of a robust, multi-centred RCT to investigate the impact of a virtual transition coaching program in supporting the physical, mental, and social well-being of youth with rheumatic disease transitioning into adult care.

39- Examining barriers to physical activity in youth with pediatric inflammatory bowel disease

Samantha Morin, Madelyn Byra, Robert Issenman, Brian Timmons, Joyce Obeid

Introduction: Inflammatory bowel disease (IBD) poses significant challenges to pediatric patients, which can affect their well-being. Physical activity (PA) can be an essential component of managing IBD, yet its adoption remains suboptimal. Understanding barriers to PA engagement in pediatric IBD is crucial.
Objective: To examine the relationship between PA by intensity and barriers to PA in youth with IBD.
Methods: Youth with any subtype of IBD between 7-17 years completed a barriers to PA questionnaire. Total barriers score and subdomain scores for body-related, convenience, resource, social, fitness, and disease-related barriers were calculated. Lower scores indicated lower barrier burden. Participants wore accelerometers during waking hours for 7 consecutive days to quantify average daily total PA (TPA), light PA (LPA) and moderate-to-vigorous PA (MVPA). Multiple regression analyses assessed the relationship between PA and barriers to PA.
Results: Forty-nine youth completed the study (31% females; mean±SD, age: 14.8±2.0 years). Total and resource barriers significantly predicted TPA (total: β=-47.76, $p=0.004$; resource: β=-48.30, $p<0.001$), LPA (total: β=-29.01, $p=0.01$; resource: β=-29.68, $p<0.001$), and MVPA (total: β=-18.75, $p=0.01$; resource: β=-18.62, $p<0.001$). Fitness barriers significantly predicted TPA (β=-41.48, $p=0.016$) and MVPA (β=-22.01, $p=0.008$). Body-related, convenience, social and disease-related barriers did not significantly predict TPA, LPA, or MVPA.
Conclusions: We found those with higher total barrier, resource- and fitness-related barriers participated in 48 minutes less of TPA, 29 minutes less of LPA, and 18 minutes less of MVPA. These findings highlight the need for tailored interventions aimed at reducing specific barriers to support PA participation in youth with IBD.

40- Prevention of Atopic Dermatitis Update

Tasnuva Ahmed, Jennifer J. Koplin, Nazmul Islam, Chia-Lun Chang, Adrian J. Lowe, Derek K. Chu

Background: Atopic dermatitis (AD) is the most common inflammatory skin disease. Affecting 30% of children starting early in life with intense itch and skin inflammation, it negatively impacts patient and family quality of life and is also a major risk factor for developing food allergy and asthma. Preventing AD could benefit populations, health systems, and economies.
Objective: To inform our groups' new randomized trials addressing prevention of AD and allergic diseases, we systematically reviewed randomized trials addressing primary prevention of AD.
Methods: We searched MEDLINE, EMBASE and CENTRAL for randomized clinical trials (RCTs) addressing primary AD prevention. We supplemented the search with Epistemonikos and by checking the reference list of reviews addressing AD prevention. We appraised the evidence within the context of GRADE approach.
Results: From 1055 screened records we reviewed 194 full-texts and included 76 articles for review. We identified 46 RCTs addressing probiotics, prebiotics, skin barrier enhancement, vitamin D, nutrients, and fatty acid supplementation. Skin care interventions, like emollients, likely provide little to no preventative effect (moderate certainty due to inconsistency). Supplementing both mothers and infants with probiotics and childhood Bacillus Calmette-Guerin (BCG) vaccination may reduce risk of AD(low-certainty). Vitamin D supplementation during pregnancy may prevent early life AD with moderate certainty of evidence. Prenatal fatty acid supplements (omega-3 and 6) may have preventive effect against AD at 12 months age.
Conclusion: Diverse interventions targeting at risk population, ranging from early skin interventions, probiotics, nutrition to childhood vaccinations are possible strategies in preventing AD development at early life.

41 - GrowDMD: An International Study on Transition of Youth with Duchenne Muscular Dystrophy (DMD)

Thorsten Langer, Sebastian Friedrich, Gudrun Reeskau, Sunil Rodger, Jana Willems, Gloria Antonini, Beatrice Brigliadori, Erika Guastafierro, Matilde Leonardi, Alessia Marcassoli, Isabella Moroni, Nardo Nardocci, Giada Perinel, Anna Petruzza, Anne Fournier, Julia Frei, Jan Willem Gorter, Rocio Gutierrez Rojas, Olaf Kraus De Camargo, Dayle McCauley, Homira Osman, Kinga Pozniak, Nethmi Rajapakse, Anna Swain

Background/Objectives: Care pathways for transition from childhood to adulthood are a well-described phenomenon that is receiving increasing attention in scientific and public health systems for many health conditions. However, the transition of patients with Duchenne muscular dystrophy (DMD) is still neither well-described or defined nor organized with common and agreed processes and indicators at national or international levels. DMD is a rare chronic debilitating disease. The period of transition from pediatric to adult care is particularly challenging for adolescents with DMD due to the progression of the condition at a time when youth typically strive for greater independence. This is even more pertinent nowadays as life expectancy as well as expectations of people with DMD are increasing. This international study (http://www.growdmd.org) aims to explore the diverse experiences of young people living with DMD and their families in Canada, Germany, and Italy to answer the questions: 1. How do patients with DMD and their caregivers experience the transition to adult care? 2. What measures and strategies are currently implemented in the care organizations of participating countries to support and facilitate the transition of care? 3. How can the transition of care be improved?
Description: This study utilizes an integrated knowledge translation process in which researchers, knowledge users, Patient Advocacy Organisations (PAOs) representatives, and patient partners collaborate across all stages of the research process. Conceptually, the study is guided by the World Health Organization (WHO) frameworks of International Classification of Functioning, Disability and Health (ICF) and the International Classification of Health Interventions (ICHI).

42 - Exploring convergent and discriminant validity between the Behavioral Inflexibility Scale and the Autism Impact Measure in autistic children

Ellen Cole, Patrick McPhee, Yun-Ju Chen, Eric Duku, Elizabeth Kelley, Anna Kata, Teresa Bennett, Katholiki Georgiades, Mohammad Zubairi, Julia Frei, Ronit Mesterman, Olaf Kraus De Camargo, Peter Rosenbaum, Briano Di Rezze, Caroline Roncadin, Irene Drmic, Stephen J Gentles, Lonnie Zwaigenbaum, Sherry Fournier, Judah Koller, Melissa Carter, Ana Hanlon-Dearman, Deepa Singal, Jonathan Lai, Mackenzie Salt, Stelios Georgiades

Background: The Autism Impact Measure (AIM) and Behavioral Inflexibility Scale (BIS) both measure behavioural patterns of autistic individuals and were previously validated for intervention and longitudinal follow-up designs. These similarities warrant further exploration to determine their convergent and discriminant validity.
Objectives: Estimate the degree of association between the BIS score and the AIM's total, behaviour (Repetitive, Atypical), and social-communication (Communication, Social Reciprocity, Peer Interaction) scores in autistic children.
Methods: This investigation utilized baseline data collected from the ongoing Pediatric Autism Research Cohort (PARC) study. Outcome measures were completed virtually by parents. 124 autistic children aged 2-5 were included in this analysis. Associations between BIS and AIM total/domain scores were assessed using Pearson's correlations.
Results: Analyses revealed a moderate positive correlation between overall BIS scores and AIM total ($r=0.52$, $p<0.01$) and behaviour domain scores (Repetitive: $r=0.63$, $p<0.01$; Atypical: $r=0.60$, $p<0.01$). The Peer Interaction domain showed a low association with the BIS ($r=0.20$, $p=0.02$), while other AIM social-communication domains were not significantly correlated.
Conclusions: The positive correlations between the BIS and AIM total and behaviour scores in autistic children suggest an overlap in measurable traits of inflexibility/restrictive behaviours between measures. The low and non-significant correlations between the AIM's social domains and BIS demonstrates discriminant validity. These findings suggest the BIS and AIM should be

considered as complementary tools for assessing behavioural outcomes in autistic children.
Limitations: Not all variability in behavioural inflexibility was correlated with observable atypical/repetitive behaviours. As such, further investigation into the convergent validity of BIS constructs is warranted.

43- Physical activity in children and youth with Epilepsy: development of a practice tool for healthcare providers

Geil Han Astorga and Gabriel Ronen

Background: Being physically active is key to supporting the health of children and youth with Epilepsy. A study by Wilfred et al. (2022) found that some youth with Epilepsy (YWE) are interested in physical activities aligned with their preferences but may have concerns with participation. The study also highlighted the essential role of healthcare providers in addressing physical activity-related issues in YWE. This knowledge translation project aims to identify and meet the needs of providers in discussing physical activity (PA) with YWE.
Methods: This study followed the Toronto Translational Framework to frame the context, ideate the design and test the prototype. A total of 73 specialists, nurses, nurse practitioners, trainees and researchers in Child Neurology/Epilepsy in Canada, USA, Israel, and Turkey completed a survey on their approaches to discuss PA with YWE. Content analysis of the results informed the prototype design.
Results: Among the respondents, 18% reported not discussing PA with YWE due to time constraints during visits and other competing priorities. Respondents expressed the need for easily accessible online (42%) and printed (32%) tools that YWE can understand and take home for review. These tools should address activity-specific accommodations, safety precautions, seizure concerns, social connections, family support, and other factors common to youth in general.
Conclusions: This study aims to develop a tool for providers to facilitate PA discussions with YWE. The design prototype will undergo testing for iteration, with the objective of creating similar tools for educators, sports or recreation facility staff, and advocates supporting YWE.

44- Assessing Mental Health in Adolescents with Juvenile Idiopathic Arthritis: A Retrospective Chart Review

Jaden Lo, Ethan Mewhinney, Kayla Beaudoin, Tania Cellucci, Liane Heale, Karen Beattie, Christina Grant, Michelle Batthish

Background: Youth with chronic disease are at an increased risk of developing a mental health condition compared to youth without chronic disease. It is important to understand the prevalence of mental health conditions in these youth in order to advocate for better mental health supports. Thus, we aimed to determine the proportion of patients with Juvenile Idiopathic Arthritis (JIA) in a Canadian pediatric rheumatology clinic who 1) have a documented mental health condition in their medical chart and/or 2) are currently taking medications traditionally used to treat a mental health condition.
Methods: Patients ≥12 years old diagnosed with JIA who had been seen at least once since June 4th, 2022, were considered eligible. Clinic notes were reviewed to identify documented mental health conditions and medications.
Results: In total, 126 charts were eligible for review. Twenty (16%) had ≥1 documented mental health conditions, of whom 9 (45%) were on an antidepressant/anxiolytic. Eight patients (40%) had more than one condition and 10 (50%) were under the age of 15.
Conclusions: Among those 12-18 years old seen in our clinic, 16% had a documented diagnosis of a mental health condition. Without routine screening for mental health conditions, patients may not always share this information with their healthcare team, leading to an under-representation of the number of youth with mental health comorbidities. Further prospective research will focus on screening for mental health conditions in youth with chronic rheumatic disease and better understanding the barriers, facilitators, and preferences for mental health supports.

45- Recent Demographic Trends and Clinical Insights in Pediatric Vascular Rings and Slings: A Retrospective Cohort Analysis

Mark Bertone, Matthew Fuda, Muhammad Bajwa, Tapas Mondal

Vascular rings and slings are the most common aortic arch anomalies. Age of presentation and diagnosis is 3 to 6 months, although incidental diagnoses are prevalent in later years. Diagnosis is commonly done with echocardiography, with the recent implementation of routine usage of the 3-vessel tracheal (3VT) view in fetal life. To further understand the recent demographic, clinical spectrum and surgical interventions with vascular rings and slings, a retrospective cohort study was performed at McMaster Children's Hospital from 2015 to 2021. A total of 115 patients (males, n=48), were diagnosed with a vascular ring or sling during this study period. The majority of patients were asymptomatic (83%) and the median age of diagnosis was 6 months. When symptoms were present, the median age was 44.6 months. The severity of symptoms varied with 17.4% of patients having at least one symptom (n=20). Diagnostic modalities used within this study include echocardiogram, computerized tomography (CT) scan, and magnetic resonance imaging (MRI). Ninety-six percent of patients were diagnosed using echocardiogram. All symptomatic patients (n=20) underwent further axial imaging in the forms of CT scan or MRI before undergoing surgical intervention. Due to routine usage of the 3-vessel tracheal view and increasing diagnostic capabilities, the prevalence of incidental diagnoses of fetal and pediatric vascular rings and slings have increased. Therefore, advancements in improved detection have necessitated novel appropriate guidelines and clinical reassurance during patient counselling.

46-The Pediatric Autism Research Cohort (PARC) Study: Examining Trajectories of Functioning in Autistic Children in Canada

Anna Kata, Teresa Bennett, Briano Di Rezze, Irene Drmic, Eric Duku, Kathy Georgiades, Julia Frei, Patrick McPhee, Ronit Mesterman, Olaf Kraus De Camargo, Caroline Roncadin, Peter Rosenbaum, Mohammad Zubairi, Yun-Ju (Claire) Chen, Stephen Gentles, Mackenzie Salt, Melissa Carter, Sherry Fournier, Ana Hanlon-Dearman, Elizabeth Kelley, Judah Koller, Lonnie Zwaigenbaum, Jonathan Lai, Deepa Singal, Stelios Georgiades

Background: Autism Spectrum Disorder (ASD or autism) is a neurodevelopmental condition affecting 1 in 50 Canadian children (~500,000 Autistic individuals). The diverse presentation of autism - between children on the spectrum, but also within children over time - makes prognosis difficult. Previous studies have documented autism trajectories at group levels; however, little is known about individual children's progress over time, or how contextual factors (e.g. socioeconomic status, services) are associated with trajectory variability. To address these evidence gaps, a multiprovincial, patient-oriented longitudinal investigation - the Pediatric Autism Research Cohort (PARC) Study - is underway.
Objectives: In newly diagnosed Autistic children, we will: 1) examine variability in trajectories of adaptive functioning (communication, socialization, daily living skills) from diagnosis to transition to school; 2) identify risk and protective factors (diagnostic, socioeconomic, service-related) associated with trajectories of adaptive functioning during these early years.
Methods: We are recruiting ~1,000+ children (to age 7) with a recent (<12mos) autism diagnosis from 6 sites across 4 Canadian provinces. Parent-reported assessments are administered at 6-month intervals, to age 8.
Results: Data collection is ongoing, with over 220 Autistic children and their families enrolled. Results of three-way clustering methods consisting of variables and observations over time will be presented, identifying homogeneous groups of children to inform service planning. Developmental trajectories will be mapped using longitudinal mixed membership models.
Expected Outcomes & Impact: The PARC Study will generate scientific evidence needed to understand the unique and changing needs of

Autistic children and their families, and advance personalized early intervention.

47- Bot-ched Data: Dealing with Bots and Bad Actors in Online Autism Research

Samantha Rutherford and Mackenzie Salt

Background: Bots (artificial intelligence (AI) or programs) and bad actors (participants who do not truthfully complete surveys), are significant barriers to online research and data collection. In the field of autism research, these present additional barriers to an already underrepresented population. As bots continue to evolve past prevention and detection methods, it is imperative researchers consider all options of prevention, detection, and elimination, without compromising their survey's integrity and increasing participation barriers.
Objective: To synthesize current studies and reviews of bot and bad actor prevention, detection, and elimination from online research surveys.
Methods: Conduct a search of major databases for independent studies and reviews. Summarize the literature and the most common methods. Distinguish which authors used each method, how they used it, and its effectiveness.
Results: The most commonly discussed methods for prospective bot/bad actor prevention include CAPTCHAs, two-step opt-in, and clarifying compensation rules. Retrospective detection/elimination methods include email screening, IP address tracking, timestamp analysis, consistency and attention checks, collection of contact information, and domain knowledge assessments. Authors note it is necessary to combine multiple methods to increase effectiveness.
Limitations: While these are the most commonly applied and discussed methods in the field of online research, authors note these are quickly becoming obsolete as AI continues to advance.
Conclusions: Given the rapid evolution of AI, researchers must continually adapt bot and bad actor prevention and detection strategies, exploring novel and combination approaches to ensure the reliability of online research data collection.

48- What do today's parents want and need from healthcare services? Developing a new measure of Family-Centred Service

Kinga Pozniak, Gillian King, Elizabeth Chambers, Rachel Martens, Alison Martens, Olaf Kraus De Camargo, Dayle McCauley, Rachel Teplicky, Eric Duku, Peter Rosenbaum

Background: Family-centred service (FCS) is an established approach for delivering services in children's rehabilitation and health. Evaluation of FCS has been possible with the Measure of Processes of Care (MPOC), a widely used valid and reliable tool to measure parents' self-reported experiences with health care services. However, since its development by our group in 1996 there have been significant changes in the field of healthcare, with important implications for the relevance of the original tool.
Objective: This study aimed to develop an up-to-date discriminative tool that will reliably and validly reflect, and measure, parents'/caregivers' experiences of the delivery of pediatric health care services.
Methods: The study uses a mixed methods approach to develop a measure of parents' and caregivers' experiences of the delivery of pediatric health care services. In Phase I, qualitative exploration of participants' experiences through virtual focus groups or individual interviews guided the development of domains and items on the new tool; in Phase II, the tool is tested for reliability and validity.
Results: 71 Canadian parents of children with disabilities identified components of care that they deemed to be important and desirable. Parents want care that is accessible, available, coordinated, supportive, empathetic, respectful, caring, and holistic. These components informed the development of an up-to-date measure of Family Centred Service called Measure of Processes of Care (MPOC)-2.
Conclusion: The new MPOC 2.0 tool is currently undergoing testing for reliability and validity.

49- Every child's story is a treasure: Children with disabilities and their parents speak out about the supports and services they need post Covid-19 and into the future.

Kinga Pozniak, Anna Swain, Wenonah Campbell, Cathy Humphreys, Sarah Patterson, Sandeep Raha, Genevieve Currie, Amanda Doherty-Kirby, Danijela Grahovac, Jeanine Lebsack, Jess Whitley, Olaf Kraus De Camargo

Background: Children and youth with disabilities and special healthcare needs, and their families, have been uniquely affected by the COVID-19 pandemic. However the voices of children with disabilities are underrepresented in the existing literature.
Objective: This study sought to engage children with disabilities and their parents to learn about their experiences during the pandemic in order to identify the supports and services these families need, at present and moving forward
Methods: This study was carried out through a partnership between researchers, parents and youth with disabilities. We used a combination of visual methods and interviews with youth (ages 8-21) and their parents. These were analyzed qualitatively using content and thematic analysis.
Results: Families' pandemic experiences were complex and nuanced. For many children, the pandemic complicated and disrupted everyday activities and supports, resulting in loss of learning, skills, opportunities for socialization and recreation. Parents made considerable sacrifices to compensate for these losses. However, some families also identified unexpected benefits, such as the increased use of virtual platforms for education or healthcare. Key themes pertaining to present and future needs included the need for services that are flexible; consistent; conducive to relationship-building; comprehensive; coordinated across sectors; and designed to support the needs of the whole family.
Conclusion: Findings from the interviews are informing the development of a quantitative survey in the next phase of this work. These findings will be used to articulate policy-related recommendations regarding services and supports that are needed.

50-Transforming Pediatric Care: Innovations in Toy Acquisition and Management for Enhanced Patient Experiences and Developmental Assessments

Ellen Wang and Julia Frei

As part of the ongoing commitment to optimizing pediatric patient experiences, the Developmental Pediatric Physician Clinic at Ron Joyce Children's Health Centre acknowledges the pivotal role of toys in facilitating developmental assessments and fostering positive interactions. However, existing challenges, such as disparities in toy distribution across clinic rooms and issues with missing or damaged pieces, pose obstacles to delivering consistent and effective care. This quality improvement initiative endeavors to tackle these obstacles by proposing a systematic strategy for toy acquisition and management. Through close collaboration with the clinical team and an extensive review of literature and best practices, we will develop criteria for selecting toys that are not only developmentally appropriate but also versatile and durable, enriching patient engagement. Subsequently, a comprehensive proposal outlining potential toys to be acquired and integrated into the clinic will be formulated. Moreover, our approach underscores the importance of empowering patients through representation and embracing diversity. Thus, particular emphasis will be placed on selecting toys that mirror the diverse demographics of our patient population, encompassing various abilities, backgrounds, lifestyles, and cultural identities. Additionally, we will establish standardized processes for inventory management and toy organization to ensure accessibility and sustainability. By implementing these enhancements, we anticipate improvements in patient engagement, assessment accuracy, and overall clinic efficiency, ultimately elevating the quality of care provided to our pediatric patients.

51 - Feasibility and Acceptability of an Online, Video-Based Knowledge Translation Tool for Enhancing Adolescent Health Knowledge: Small Improvements Everyday Program (SIED)

Elmira Noohpisheh, Paige Cheveldayoff, Selena Singh, Elizabeth Gunn, Sheri Nsamenang, Carline Gutierrez, Stephanie Tibelius, Katherine Morrison

Children and adolescents frequently struggle with engaging in health-related behaviors; given their digital media consumption, video-based approaches may be ideally suited. The effectiveness of video-based knowledge translation (KT) tools for children and adolescents has not been clearly demonstrated. This ongoing study examined the acceptability and feasibility of an online video-based KT tool educating children and youth about sleep, satiety, mental-health, and physical activity. Participants aged 9-14 recruited from the Children's Exercise and Nutrition Centre completed four workshops over one month. Recruitment rate >50%, with >85% overall adherence and individual workshop completion rates, was deemed feasible. Each workshop included 1-2 short videos, pre- and post-video knowledge questionnaires, and a 2-week follow-up questionnaire. 39 out of 63 eligible participants (61.9% recruitment rate) agreed to participate (61.2% females, mean±SD, age: 12.4±1.2 yr). 31 (79.5%) completed the demographic survey and 21 (53.8%) completed all program components. Of those who completed the follow-up at 2-weeks, 80.9% (17/21) reported making changes to their day-to-day life based on information from KT videos. Paired t-test showed significant improvements ($P<.05$) in participants' knowledge on health topics. One limitation is the brief time interval for administering knowledge-based questionnaires, with completion only before and immediately after the videos. Future research should explore knowledge retention for extended duration. Preliminary results suggest the novel KT tool is acceptable and has improved knowledge in children and adolescents, but it hasn't met feasibility thresholds. This study has implications for future research on whether KT tools can impact intent and actual behavior change in this population.

52 - Improving Mental Health Screening in Youth with Inflammatory Bowel Disease and Juvenile Idiopathic Arthritis: A Quality Improvement Initiative

Emily Xiao, Karen Beattie, Katherine Prowse, Michelle Batthish

Rationale: Higher rates of anxiety and depression in youth with Inflammatory Bowel Disease (IBD) and Juvenile Idiopathic Arthritis (JIA) underscore the necessity for integrated mental health screening in pediatric clinics. Current practices lack routine screening for these populations in subspecialty clinics leaving patients to seek help in primary care or risk undiagnosed and untreated mental health comorbidities.
Objective: The goal of this Quality Improvement (QI) initiative is to standardize anxiety and depression screening for youth 12 to 18 years old with IBD and JIA, followed at McMaster Children's Hospital, through routine mental health assessments using the PHQ-4.
Methods: We will employ QI principles and tools to establish reliable clinic-based implementation. QI tools involve creating a Key Driver Diagram, process flow maps, and Plan-Do-Study-Act (PDSA) cycles based on identified key drivers. The proportion of eligible youth screened will be measured. Limitations include potential incomplete data and a small sample size inherent to the nature of quality improvement studies.
Results: After measuring and integrating QI interventions, we expect increased screening from 0% to a measurable percentage, documented and displayed through a run chart. We aim to screen at least 75% of youth by the end of August 2024 through iterative PDSA cycles.
Conclusion: This study addresses a critical gap in mental health screening for youth with IBD and JIA. We anticipate the interventions we propose and employ for various challenges in routine screening will serve as valuable insights for other clinics looking to implement similar screening practices in this vulnerable population.

53- Mitigating microaggressions in a high-stress multicultural environment: A systematic narrative review

Faris Almoli, Gerhard Fusch, Salhab El Helou

Background: Neonatal Intensive Care Units (NICUs), along with other critical care environments, are characterized by high-stress levels and cultural diversity, conditions that often give rise to microaggressions (MAs). While the definition of MA can vary with context, it fundamentally refers to the inadvertent harm inflicted through particular remarks or behaviors. Given the notable occurrence of MAs within local hospital settings, there is a compelling need for an Equity, Diversity, and Inclusion (EDI) curriculum designed to address and reduce their impact.
Objective: This systematic narrative review aims to: 1) Examine microaggressions in NICU healthcare team interactions and provider-patient dynamics; and 2) Evaluate interventions for mitigating and preventing such occurrences.
Methods: We used three databases (Medline/PubMed and Google Scholar), applying search queries around the key concepts: "microaggression", "critical/acute care", and "NICU". We included articles written in English focusing on the presence of MA and intervention strategies in NICU and critical care.
Results: The search to date included 8 articles describing MA occurrences and 6 articles on interventions with 1 article containing both. Analyses are in progress and will be presented at CHRD.
Limitations: As MA is a relatively recent MeSH term, previous literature focused on similar topics using different research terms, which resulted in a broad and non-specific search strategy. Secondly, expanding the search to include critical care settings broadly compared to only NICU, may have impacted the evidence of MA and implementation strategies for provider-patient interactions.
Conclusions: The literature to date appears to be useful in informing the EDI curriculum.

54- Workload on Hand Hygiene Compliance in a Hospital Setting

Fred Min, Sarah Khan, Humaima Ashfaque, Salhab el Helou, Domenik Mertz, Gerhard Fusch

Background: Hand hygiene, crucial for infection prevention in hospitals, fluctuated significantly throughout the COVID-19 pandemic. At the McMaster Children's Hospital Neonatal Intensive Care Unit (NICU), an initial surge in hand hygiene compliance rates exceeding 90% was observed at the pandemic's onset. However, these rates experienced a decline in the following months, dropping far below pre-pandemic levels. This study aimed to investigate the trajectory of hand hygiene compliance within the NICU, compare it with broader trends within the Hamilton Health Sciences hospitals, and explore potential reasons for the observed fluctuations, with a particular focus on workload implications.
Methods: This retrospective, observational study employed an interrupted time series design. Hand hygiene compliance data, routinely collected by the Infection Prevention and Control team from January 2019 to December 2023, were analyzed. Additional data on worked hours per patient day (WHPPD) and bed census were utilized as surrogate measures of healthcare provider workload across all hospital units. The study period was divided into three phases: pre-COVID (January 2019 to March 2020), COVID pandemic (April 2020 to December 2021), and post-COVID pandemic (January 2022 to December 2023).
Results (Progress to date): The analysis is ongoing, with findings to be presented at the upcoming CHRD conference.
Significance: This study's insights into hand hygiene compliance relative to workload will inform improvement strategies for hand hygiene, regardless of workload changes.

55- Using Social Media to Enhance Hand Hygiene Compliance in the Neonatal Intensive Care Unit: A Parental Engagement Initiative

Gethmie Dep, Abjot Basra, Humaima Ashfaque, Salhab el Helou, Gerhard Fusch

Background: Hand hygiene (HH) compliance at McMaster Children's Hospital, while commendably high, still falls short of target standards. Literature suggests that engaging parents in the Neonatal Intensive Care Unit (NICU) as advocates for stringent HH practices among healthcare workers can significantly boost compliance levels. This project explores the potential of leveraging educational videos, coupled with empowerment strategies, to transform parents into proactive HH advocates.
Objective: To explore the potential of social media (SM) by creating engaging, brief video content (15-30 second reels) that illustrates common HH scenarios parents might encounter in the NICU, thereby promoting HH advocacy and compliance.
Methods: We reviewed current hand hygiene educational materials focusing on NICU environment to assess the current landscape and efficacy. Subsequently, we performed a frequency analysis of instances where HH compliance was not met (based on 2022/23 data) to identify key areas for improvement. Furthermore, we developed a tailored questionnaire to capture parental preferences regarding SM content, refining our strategy based on their feedback.
Results: Preliminary literature underscores the efficacy of concise video-based learning in enhancing comprehension and behavioral change, although current resources often fall short in accuracy and engagement. The analysis of "missed HH moments" highlighted that HH before patent contact (known as Moment 1) was most overlooked, indicating high priority in video scenarios. Lastly, the parent questionnaire has been finalized as paper and web-based version and is awaiting final NRC approval for distribution.
Results: Further results will be presented at the CHRD.

56- "I'm human. I have those feelings:" A Mixed-Methods Study Exploring the Perceived Emotion Regulation of At-Risk Parents in the Parents Under Pressure (PuP) Program

Jennifer Zhang, Jenna Ratcliffe, Katrina Abela, Charlene Attard, Andrea Gonzalez

The Parents Under Pressure (PuP) program is an individualized parenting intervention designed to support the unique needs of parents facing multiple adversities including childhood trauma, substance use, and socio-economic disadvantages. Although parental emotion regulation plays a vital socialization role in child development, it is unclear what strategies are significant to promoting healthy parent-infant interactions. The purpose of this study was to investigate changes in parental emotion regulation and explore their understanding of emotion regulation strategies after participating in PuP. This study employed an explanatory sequential mixed methods design. Participants included 53 parents (M = 25.6 years) who were recruited from five participating community health agencies. The 18-item Difficulties in Emotion Regulation Scale (DERS-18) questionnaire was conducted at each study visit: baseline, 2-months, 5-months, and post-PuP; however, only baseline and 5-months scores were analyzed to determine changes in parental emotion regulation. Parent's understanding of emotion regulation strategies was collected through semi-structured interviews and themes were developed through rapid qualitative analysis. A total of 46 parents completed the 5-months visit and 16 parents subsequently participated in the semi-structured interview. DERS-18 subscale scores that showed significant differences included strategies ($p < 0.01$), nonacceptance ($p < 0.01$), and goals ($p < 0.001$). Major themes included the use of cognitive reappraisal and mindfulness as emotion regulation strategies. Due to high attrition rates, some data collected at the post-PuP timepoint were missing. Overall, integrating goal-orientated emotion regulation strategies may be an important consideration when developing tailored parenting programs for at-risk parents.

57- Characteristics of PICU Follow-Up Clinics: A Scoping Review Protocol

Sanjum Hunjan, Katie O'Hearn, Laurence Ducharme-Crevier, Geneviève DuPont-Thibodeau, Rebecca Hay, Cara McQuaid, Margaret Sampson, Dayre McNally, Karen Choong, David Zorko

Background: There is increasing recognition that children who survive critical illness are at risk of new, long-term physical and neurodevelopmental morbidities that significantly impact their functioning and health-related quality of life, described as the pediatric post-intensive care syndrome. PICU follow-up clinics are gaining attention as a means to recognize and mitigate these sequelae, but their structure, function, and impact upon health outcomes is poorly understood. Resultantly, there is a lack of practice standards regarding PICU follow-up.
Objective: To synthesize the literature on PICU follow-up clinics, and describe the types of patients/caregivers followed, clinic structure, health outcomes assessed, and interventions offered.
Methods: We will search four electronic databases for studies that evaluated critically ill children and/or their caregivers seen in follow-up after PICU discharge. Study selection and data abstraction will be performed independently and in duplicate. The major outcome of interest is to describe the key characteristics related to PICU follow-up clinic structure and function.
Results: Citation screening will commence in March 2024. We will abstract details regarding study design, population evaluated, PICU follow-up clinic characteristics, outcomes assessed, and interventions delivered.
Limitations: Due to the emerging nature of post-PICU outcome research, screening criteria includes studies from January 2000 onwards.
Conclusion We will use the study results to help inform how PICU follow-up clinics can be best structured to impact important health outcomes after pediatric critical illness. Given a child's capacity for growth and development, addressing health sequelae after critical illness may have important implications on functional outcomes across a lifespan.

58- How Preventative Parenting Programs, Moderated by Partner Relationship Quality, Influence Parental Emotion Regulation

Kaitlyn Mah, Katrina Abela, Teresa Bennett, Krysta Andrews, Paul Pires, Magdalena Janus, Kathy Georgiades, Julie Gross, Andrea Gonzalez

Background: Emotion regulation (ER) refers to one's ability to effectively manage their emotions. Parental ER is crucial to a child's emotional development and overall family functioning as it impacts parenting practices, socialization behaviours, and the family's emotional climate. The Family Check-Up (FCU) intervention is a preventative parenting program that teaches ER strategies to reduce early child behaviour problems. Although the FCU demonstrates successful application within the American context, its effectiveness is understudied in other regional contexts, especially regarding its effects on parental ER.
Hypothesis: The FCU will improve parental ER in the Canadian context, with moderating effects from partner relationship quality.
Methods: In a randomized-control trial (RCT), 165 parents who reported having a partner were assigned to either a FCU intervention group or control group and assessed at baseline and 12 months. Parental ER was self-reported using the Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2003). Partner relationship quality was self-reported via the FCU questionnaire.
Results: Analyses are currently underway to explore the influence of the FCU on parental ER.
Limitations: Reliance on self-report methods of data collection may introduce potential response biases and outliers into the data.
Conclusion: As the first RCT of the FCU in Canada, this study highlights the FCU as a potential intervention to improve parental ER. By promoting positive parenting practices, the FCU supports children's ER development and family well-being. Future research should investigate how partner relationship quality influences the effectiveness of parenting interventions on parental ER.

59- Strategic Approaches in Identifying & Mitigating Bias Within Clinical Artificial Intelligence: A Systematic Review

Joseph Saliba, Karolein Sedik, Mohammed Elnagary, Saron Habtom, Ishsiga Kugathas, Salhab el Helou, Stelios Georgiades, Gerhard Fusch

Introduction: Despite the increase in efficiency brought forth by Artificial Intelligence's (AI) diagnostically predictive and practice-informing analytics, the technology remains susceptible to bias and may contribute to adverse patient outcomes if pre-maturely employed and sub-optimally monitored. Nevertheless, AI bias is more than a product of technical algorithmic faultiness. Sociotechnical and social facets of clinical AI implementation and human-interaction serve as additional modes of bias derivation, requiring equal consideration for robust bias assessments.
Objectives: 1) Outline methods of bias identification and mitigation stemming from deficient AI algorithms, AI implementation, and the human-computer interaction, and 2) Recognize the awareness, perceptions, and perspectives of clinical AI among healthcare staff and patients.
Methods: Thorough searches reviewed by a health sciences librarian were conducted in Web of Science (Core Collection), Scopus, Ovid MEDLINE, and Embase. Abstract screening, full text review, and data extraction were facilitated using Covidence. Two reviewers independently assessed abstracts and full texts for eligibility using a predefined inclusion and exclusion criteria. For data extraction, a standardized form was used by four reviewers independently.
Results: The search strategy yielded 4057 studies, with 1702 duplicates removed. 2355 abstracts were screened. 189 full texts were assessed for eligibility. A total of 109 studies underwent data extraction. Analyses are in progress and will be presented at CHRD. Investigating the identification and mitigation of clinical AI bias across its development, from initial data collection to practical feedback, may reveal actionable and holistic insights into potential challenges and opportunities for improvement.

60- Quality Improvement: Influence of a new electronic health record system on the physicians' workflow in the NICU

Karolein Sedik, Hamdi Najjer, Rose Leishman, Winsome Scott, Remy Gascoigne, Emma Harrison-Trainor, Tara Kaffashin, Ishsiga Kugathas, Joseph Saliba, Steve Turner, Salhab el Helou, Gerhard Fusch

Background: McMaster Children's Hospital transitioned from a hybrid documentation system to EPIC, a modern Electronic Health Record (EHR), to centralize medical records, improve communication, and enhance patient care through customized data management tools.
Objective: This quality improvement study evaluates the impact of the new EHR system on workflow efficiency and delineates areas for further optimization in the NICU.
Methods: The study employs a pre/post-intervention design to compare NICU workflow efficiency before and after the EHR system implementation, using mixed methods including qualitative staff feedback on induced changes and improvement areas, and a time-motion study assessing shifts in 32 tasks across seven domains (i.e., direct patient care, professional communication, documentation, education, administrative work, others, and unobserved).
Results (Progress to date): In the pre-intervention phase, 21 healthcare professionals were observed for 122 hours, logging 3489 tasks. Post-intervention, 19 professionals were monitored for 129 hours, with 2115 tasks recorded. Preliminary time-motion analysis indicates reduced task-switching frequency and notable changes in task duration and proportions (i.e., cell phone use, electronic documentation, and personal time, etc.), highlighting the impact of the new EHR system on workflow patterns. Detailed findings are presented at the CHRD. Furthermore, qualitative feedback from 15 professionals revealed that the new EHR system improved user-friendliness, charting, time efficiency, centralization of records, and wireless connectivity, but also indicated a need for better staffing, communication, and documentation in the NICU.
Conclusions: This study emphasizes the advanced EHR system's impact on user experience and efficiency, identifying areas for further improvement in patient care.

61 - Is the Squegg™ digital grip device more reliable than the adapted sphygmomanometer? A clinical measurement study

Michelle Ira Roque, Degen Southmayd, Michelle Batthish, Tania Cellucci, Liane Heale, Tara Packham, Julie Herrington

Background: Dynamometers are the most used tool to measure grip strength in clinical trials. These tools are heavy and uncomfortable for pediatric patients. The adapted sphygmomanometer has been used to address limitations of the dynamometer, with limited reliability. The Squegg™ is a grip evaluation and training device that may address these issues, while engaging pediatric patients with visual feedback. This study investigates whether the Squegg™ is more reliable and comfortable than the adapted sphygmomanometer in children attending an outpatient pediatric rheumatology clinic.
Methods: We aim to recruit a convenience sample of 50 children (5-17 years old) from a pediatric rheumatology clinic. Individuals with active disease limiting maximal grip effort and/or open wounds will be excluded. Two trained examiners will measure hand circumference and maximum grip strength on each hand, twice, for each tool. Order of the device will be determined by a coin flip. Participants will be asked to rate their comfort using the revised Faces Pain Scale, from 0-10. Ethics approval is pending.
Results (Anticipated): Results will be compared between devices. Interclass correlation will estimate test-retest reliability. Bland-Altman plots will estimate criterion validity. ANOVA and stepwise regression will estimate construct validity.
Conclusions (Anticipated): The reliability and comfort level of the Squegg™ will be higher than the sphygmomanometer. Results of the study will continue to build psychometric evidence considering the Squegg™ for use as an evaluation tool in pediatric populations. Future research can investigate whether the Squegg™ training features can be used to increase grip strength in children.

62 - From Theory to Practice: Beyond Work-as-Imagined and Work-as-Done in Healthcare: A Human Factor Approach

Mohamed Elnagary, Salhab el Helou, Gerhard Fusch

This study delves into the nuanced distinctions between Work-as-Imagined (WAI) and Work-as-Done (WAD), extending beyond to include Work-as-Prescribed, Work-as-Disclosed, and Work-as-Instructed, through the lens of human factors analysis in healthcare settings. Drawing on the theoretical frameworks of Steven Shorrock and Eric Hollnagel, we employ the Functional Resonance Analysis Method (FRAM) to visualize and understand the complex interrelations among different conceptualizations of work. FRAM's hexagonal modeling, representing aspects of work (Input, Output, Resource, Control, Time, and Precondition), facilitates a comprehensive analysis of how work is interconnected beyond direct actions, highlighting the multifaceted relationships and dependencies that influence work practices. Our research highlights the inadequacy of considering only WAI and WAD to grasp the full spectrum of work dynamics. We illustrate how different Work-as-X (WAX: WAI, WAD, Work-as-Prescribed, Work-as-Disclosed, and Work-as-Instructed) functions correlate, affecting each other through resources, preconditions, and control mechanisms, revealing a complex web of interactions. This study presents a detailed exploration of these relationships, where the trade-offs and adjustments made by healthcare providers to adhere to protocols-while ensuring timely care-demonstrate the practical challenges of aligning work practices with guidelines and safety measures. This emphasizes the importance of recognizing and addressing the broader array of WAX functions to truly understand and improve work practices in healthcare. By expanding the focus beyond the simplistic equation of WAI equals WAD, this paper contributes to a deeper understanding of the complexities involved in bridging the gap between theoretical models and real-world practice, offering pathways towards more effective and safe healthcare delivery.

63- Measuring key performance indicators for the management of children with juvenile idiopathic arthritis in an Advanced Physiotherapist Practitioner model of care in pediatric rheumatology

Patrick Clarkin, Michelle Batthish, Julie Herrington

Background: An advanced physiotherapist practitioner (APP) model of care (MOC) has demonstrated increased access to care, increased patient satisfaction and decreased wait times in adult orthopedic and rheumatology specialties. In pediatric rheumatology, the APP assesses, diagnoses, and manages children with Juvenile Idiopathic Arthritis (JIA). The Pediatric Rheumatology Care and Outcomes Improvement Network (PR-COIN) is an international registry with 5000 patients enrolled that tracks key performance indicators (KPIs) in JIA. KPIs measure patient outcomes, safety and access to care while providing a framework to improve quality of care across all pediatric rheumatology centres. The objective of this study is to determine the effectiveness in long-term care of children with JIA followed in an APP MOC by measuring KPIs.
Methods: This is a retrospective chart review over an 18-month period. Patients diagnosed with JIA, less than 18 years of age and seen by the APP during the 18-month period will be included. Approximately 25 unique patient charts with 1-4 visits each over the period will be reviewed. KPIs will include active joint count, assessment of arthritis-related pain, physician global assessment of disease activity, quality of life and yearly follow-up rate.
Results (Anticipated): Frequency and outcomes of KPIs will be compared with PR-COIN registry data from the same center as well as the entire registry.
Conclusions (Anticipated): Data from this study will contribute to the growing literature supporting the safety and efficacy of an APP MOC for patients with JIA. Future projects should investigate the patient experience and perspective with APP MOC care.

64- Implementing Standardized Nutrition Screening and Assessment for Hospitalized Children: The P-INPAC Pilot Study Protocol

Romy Shenderey, Sarah Tiessen, Jillian Owens, Fariha Chowdhury, Tejas S. Desai, Zujaja Tul-Noor, Erika Gibson, Megan Healey, Adelina Morra, Robert Bandsma, Bonnie Fleming-Carroll, Daina Kalnins, Jessie M. Hulst, Nikhil Pai on behalf Canadian Malnutrition Taskforce-Pediatric working group

Background: Disease-associated malnutrition affects 1 in 3 hospitalized Canadian children, however, a systematic protocol for diagnosing and managing pediatric malnutrition does not exist in Canada. The Canadian Malnutrition Task Force developed the evidence-informed Pediatric Integrated Nutrition Pathway for Acute Care (P-INPAC), to detect, treat and monitor malnutrition in children. P-INPAC requires real-world validation before implementation in clinical care. The aim of our multi-center, prospective study is to assess feasibility of the first 2 steps of P-INPAC: nutritional screening and assessment.
Methods: This three-phase study takes place on general pediatric and general surgery wards of McMaster Children's Hospital (MCH), Sainte-Justine Hospital and The Hospital for Sick Children in children aged 30 days-18 years. Phase 1: Eight-week review of medical charts and prospective data collection to define baseline practices of nutrition screening and assessment. Phase 2: Eight-week training program on P-INPAC pathway components (screening and routine antropometry by nurses and SGNA by dietitians), with staff physicians, nurses and dietititans. Phase 3: Twelve-week audit of implementation efforts on the ward, and further prospective data collection.
Results: MCH has completed Phase 1 on the inpatient surgery ward and initial results show that 73% (n=66) of admitted patients were eligible and included in the audit. Nutritional screening was performed in 24%, of which 31% within 24h of admission.
Conclusions: Preliminary results demonstrate gaps in nutritional screening, with 24% of patients screened at admission. This project will be instrumental to assessing the feasibility of P-INPAC implementation across Canada, in accordance with Canada's Health Standards Organization.

65- Global Impact and Translational Validity of the CLEFT-Q: Enhancing Cleft Care through Patient-Reported Outcome Measures

Shibraa Bal and Anne Klassen

Background: The CLEFT-Q represents the first comprehensive patient-reported outcome measure (PROM) for cleft lip and palate, designed for individuals aged 8 to 29 years. Developed through extensive international collaboration, it has been meticulously validated across multiple cultural contexts. Qualitative interviews with 138 patients from 6 countries and an international field test involving 2,434 patients from 30 hospitals in 12 countries underscore its ability to capture significant variations in patient experiences, highlighting its role in personalized care. With 380 licensed users from 56 countries, the CLEFT-Q's global uptake underscores its significance.
Aim: This study aimed to compare the translation processes between professional and academic settings, identifying differences and similarities in their approaches, understanding the back translation process for standardization, and investigating whether translators encountered similar challenges across contexts.
Methods: Using Excel and database analyses of prior CLEFT-Q translations and translator feedback, we compared professional versus academic translation strategies, focusing on back translation and translation challenges to ensure language standardization.
Results: Successfully translated into 12 languages, the CLEFT-Q revealed critical insights into the translation process. Translators highlighted cultural sensitivity and the necessity of conceptual equivalence. Despite challenges, back translation effectively resolved discrepancies, confirming the CLEFT-Q's cross-cultural reliability and validity. Issues like medical and cultural term equivalence underscored the need for nuanced translation approaches.
Discussion: The CLEFT-Q significantly advances patient-centered cleft care and international research collaboration, facilitating comparative studies and guiding clinical decisions. This study emphasizes the meticulous methodology required for developing globally applicable PROMs, ensuring they accurately reflect diverse patient experiences.

66- Unlocking the Code of Care: Fidelity Coding for the Triple P Parenting Program

Shyreen Longia, Amoren Politano, Maddie Stanley-Rainbow, Jenna Ratcliffe, Krysta Andrews, Emily Xu, Mackenzie Martin, Kowsiga Aravinthan, Raeesah Mohammed, Zenab Gill, Andrea Gonzalez

Background: Fidelity is defined as the degree to which a program is delivered as it was originally intended. Within research and real-world applications, fidelity monitoring is a crucial bridge between training and implementation. It is a key aspect of intervention success as it has implications for the effectiveness of the intervention and the envisioned outcomes for end users. A randomized control trial (RCT) led by the Promoting Healthy Families (PHF) team, was conducted to assess the effectiveness of two parenting programs - Triple P and Circle of Security in four community-based mental health agencies in Ontario, Canada. Fidelity was assessed within the context of the RCT.
Objective: To assess if program content was delivered according to treatment manuals (adherence) and determine the skill and style of the providers delivering the program (competence).
Methods: Providers and caregivers in the PHF RCT provided informed consent for audio recordings of program sessions for fidelity coding by the research team. The team adapted and developed fidelity coding schemes for both adherence and competence based on pre-existing program content checklists and the ENACT competency checklists. Trained coders used these fidelity coding schemes to assess fidelity across sessions and sites.
Results: An overview of the developed fidelity checklists will be presented with preliminary data.
Limitations: Sessions could only be evaluated through audio recordings.
Conclusions: Fidelity adherence and competence are essential components to program success and when measuring the effectiveness of an intervention. These findings will help explain RCT results and any potential differences between programs and/or sites.

67- Nature-Based Rehabilitation in Pediatric Occupational Therapy: A Scoping Review

Tracy Su, Amelia Wilson, Anna McMenemy, Victoria Loi, Nancy Rushford, Sandra VanderKaay

Background: Nature-based rehabilitation (NBR) is an emerging therapeutic intervention in child health that uses the natural environment as a facilitator to promote health and well-being. NBR has been proven to have promising effects on social-emotional, mental, and physical health in children. However, there is limited research that explores its applications in pediatric occupational therapy (OT).
Objective: This scoping review aimed to explore and examine the current research, key themes, and gaps in understanding the applications of nature as a therapeutic modality in pediatric OT.
Methods: A systematic search of OTSeeker, MEDLINE, CINAHL, ERIC, Embase, Emcare, Web of Science, and OVID-PsychInfo was conducted using keywords related to nature as a primary therapeutic intervention and pediatric OT. Arksey and O'Malley (2005) and Levac et al., (2010) were used to guide this scoping review.
Results: Forty-two articles met inclusion criteria. Six themes were identified: (1) forms of nature-based OT interventions; (2) role of occupational therapists; (3) diagnoses; (4) targets of interventions; (5) conceptualizations of nature; and (6) unique value of OT.
Limitations: Articles were limited to those accessible through McMaster University library catalogue. The selected definition of what constitutes NBR may have influenced the number of yielded results.
Conclusions: This scoping review contributes to identifying gaps in existing research and advancing knowledge on nature-based pediatric OT interventions. Additional epistemological development is required to develop a clear understanding of what constitutes nature-based OT to develop relevant practice frameworks to guide implementation.

68- Cost Analysis of Implementing an Early Rehabilitation Bundle in a Pediatric Intensive Care Unit

Shira Gertsman, Sureka Pavalagantharajah, Lindsey Falk, Sayem Borhan, Kevin Kennedy, Lehaba Thabane, Feng Xie, Cynthia Cupido, Karen Choong

Background: "PICU Liber8" was an early rehabilitation bundle implementation study at McMaster Children's Hospital Pediatric Intensive Care Unit (PICU) focused on sedation stewardship, delirium prevention, early mobilization, and family engagement.
Objective: To determine the resources required to implement the Liber8 bundle and compare patient-level PICU costs of patients pre- and post-implementation.
Methods: To estimate implementation resources, we tracked hours spent by various personnel and multiplied by the corresponding wages. Patient-level case costing data was calculated using data from Ontario Case Costing Initiative for all PICU patients between January-March 2019 and January-March 2020. Linear regression was used to compare total patient-level PICU costs and medication costs in the pre- and post implementation periods.
Results: The total cost of program development and implementation was estimated to be $51,129 and involved 949 person-hours, with program development processes consuming the most time. The highest numbers of hours were contributed by PICU staff, fellows, and registered nurses. The highest costs were attributed to intensive care staff, followed by PICU nurses and pharmacists. The analysis of patient-level costs included case costs from 141 patients pre-implementation and 84 patients post-implementation. The difference between pre- and post-implementation was 17% (95% CI -6.3, 46.4) for total PICU costs and -0.8% (95% CI -27,35) for medication costs.
Conclusions: It is probable that costs associated with the program would be significantly lower in future implementation now that process development is complete. There does not appear to be a significant difference in patient-level PICU costs associated with the Liber8 bundle.

69- Analyzing and Addressing Increasing Wait Times in Developmental Pediatrics at the Ron Joyce Children's Health Centre

Ali Alturki and Olaf Kraus De Camargo

Background: Wait times in healthcare, especially for children with developmental concerns, are critical. The Ron Joyce Children's Health Centre, part of McMaster Children's Hospital, has seen a decade-long increase in referrals to Developmental Pediatrics, now exceeding capacity.
Objectives: Identify and analyze factors contributing to prolonged wait lists to determine impactful and feasible solutions.
Methods: This study included a literature review on long wait times, analysis of our 2018-2020 referral data, and stakeholder interviews for insights on causes and solutions.
Results: Key findings highlight staffing and resource constraints as pivotal factors to meet service demands. Additionally, referral and assessment process inefficiencies were identified as significant delay contributors, with streamlined processes proposed as essential for enhancing patient access. The importance of improved collaboration, communication, and IT infrastructure for efficient information management was also emphasized, alongside the need for policy adjustments to facilitate easier access to services without strict diagnosis requirements.
Limitations: A notable limitation of this study is the lack of quantitative experimental studies for waitlist management. This limits the generalizability and applicability of the findings across different settings and populations. Future research could benefit from incorporating quality management data in the analysis to identify potentials for improvement.
Conclusion: Addressing wait times in pediatric outpatient services requires a multifaceted approach. Targeted solutions, including staffing increases, process streamlining, and policy adjustments, are essential for significantly reducing wait times, improving care access, and alleviating healthcare system burdens.

70- Unveiling the Clinical Impact of an Abilities-Focused Social Communication Classification Tool for Children with Autism

Sureka Selvakumaran, Peter Rosenbaum, Mary Jo Cooley Hidecker, Eric Duku, Briano Di Rezze

Introduction: Autism Spectrum Disorder (ASD) impacts about 1 in 66 Canadian children. Despite receiving deficit-focused assessments and interventions, families often feel their child's needs are unmet, prompting a call for a strengths-based approach. This approach centers on the child's abilities and underscores making environmental changes for better outcomes.
Rationale: While social communication, a key aspect of ASD, is commonly assessed for severity, the Autism Classification System of Functioning: Social Communication (ACSF) uniquely categorizes it into five levels with abilities-focused descriptions. Despite being published, used in research, and freely accessible on the CanChild website, the clinical utility of the ACSF has not been explored.
Objective: To investigate clinicians' current application of the ACSF within their practice.
Methods: Clinicians from various health disciplines who have requested ACSF copies from the CanChild website will be recruited for an online survey, exploring their experiences with ACSF utilization. Survey data will be analyzed across disciplines and clinical contexts, with distribution planned for March 2024.
Expected Outcomes: A sample size of over 100 clinicians is expected. The study aims to uncover ACSF utilization frequency and identify its implications, challenges, or benefits within clinical settings. This research will provide valuable insights into the practical utility of the ACSF from clinicians' perspectives.
Future Implications: This abilities-focused research will guide clinicians in enhancing clinical care based on a child's strengths. Applications of the tool in international clinical settings broaden our understanding of the ACSF, establishing it as a valuable resource in the ASD field for future research.

71 - Developmental Stages of Total Pain: Revising Pain in Children through a Child and Family-Centred Approach

Muhammed Mukadam and Gregorio Zúñiga-Villanueva

Introduction: Pain is a multi-modal symptom that profoundly impacts the quality of life for individuals. Total Pain (TP) uses a physical, emotional, social, and spiritual approach to address pain. Traditionally, pain is a person-centred experience; however, challenges arise when assessing TP in non-verbal or neurologically impaired children.
Objectives: To use a child and family-centred approach to TP to create a theoretical framework that allows the assessment of TP across childhood regardless of their developmental stage or cognitive abilities.
Methods: Using a theory-informed inductive reasoning study design, we developed a theoretical framework to address TP in children by describing the developmental stages of the four subcomponents of TP and analyzing them through the lens of child and family-centred care.
Results: The theoretical framework involves redefining TP as a progressive and evolving concept, rather than static, that becomes more complex as developmental milestones are achieved and that moves from a family-centred to a person-centred experience as autonomy is acquired. This framework focuses on addressing the child as a physical, emotional, social, and spiritual being that depends on and impacts their family, rather than just focusing on the physical, emotional, social, and spiritual symptoms.
Conclusion: This theoretical framework allows TP to be incorporated as a continuum across the lifespan, adapting to the patient's circumstances and offering a tailored assessment that matches the patient's and family's needs. This theoretical framework can help guide future studies on pain in children while maintaining the child and the family as the unit of care.

72 - Creating a Pediatric Learning Health System for Neurodevelopment

Elyse Rosa, Alessia Greco, Brittany Bekiaris, Jennifer Kennedy, Karen Beattie, Karen Margallo, Holly Augerman, Jeremy Petch, Stelios Georgiades, Pediatric LHS for NDD Study Team

Introduction/Background: The Pediatric Learning Health System (LHS) for Neurodevelopment (NDD) is a collaborative co-design project initiated as a pilot at the Ron Joyce Children's Health Centre (RJCHC) in Hamilton, to inform the creation of a Pan-Canadian Pediatric LHS for Neurodevelopment.
Description: The pediatric LHS for NDD project purpose is to break down the many silos that currently exist and hinder optimal healthcare for children with diverse needs. This work brings together parents, children, clinicians, administrators and researchers from McMaster University and Hamilton Health Sciences to design and implement a keystone project for the RJCHC. The pilot project will focus on children/youth 0-12 years receiving care at RJCHC. This work emphasizes collaboration, co-design and concurrent evaluation throughout the development of a system focused on efficiencies that are cost-effective, improve provide experience and most importantly, are patient-centered.
Implications: This project has the capacity to change the way children receive healthcare in our country. With an emphasis on evaluating the LHS as it is developed and implemented, this work will enable an iterative loop of continuous improvement, ensuring the LHS evolves an optimizes its outputs over time. This work aims to generate a system that drives positive patient outcomes and delivers high-quality healthcare services that are rooted in the child and family experience. The collaborative, co-design approach to this work, along with utilization of and improvement of existing healthcare infrastructure, will effectively breakdown siloed care and change the healthcare of children and their families.

73- Evaluation of virtual care services offered to children across Ontario

Elyse Rosa, Natalie Easson, Kate Jamieson, Patrick McPhee, Jean-Eric Tarride, Olaf Kraus De Camargo, Shauna Kingsnorth, Dorothy Harvey, Carolyn Hunt, Stelios Georgiades

Background: There is growing interest in increased virtual care provision to improve patient access to quality care, and while the utilization of virtual care services has increased substantially, an evaluation of this modality of care has been lacking. Our team led an evaluation of virtual care services offered to children across Ontario, focused on the processes and outcomes of a variety of virtual care services.
Objective: This evaluation addresses a key knowledge gap in our understanding of the provision of virtual care services for children.
Methods: This evaluation was informed by the Quintuple Aim Framework which focuses on: Population Health, User Experience, Provider Experience, Cost and Equity. Data were collected from 44 organizations that provided virtual care spanning across the province, 194 service providers with various specialties, and 909 parents/caregivers of children who have received virtual care in Ontario. Participants completed unique online questionnaires.
Findings/Results: This work consistently revealed that virtual care is not one-size fits all. Our findings provide consensus on the types of services, and aspects of care, that are not as compatible with a virtual setting compared to others. This work summarizes barriers circumvented by virtual care, and those that remain, and highlights agreement between those providing care and those receiving it, that a hybrid approach to future care for children would be optimal.
Conclusions/Implications: A targeted approach to providing specific aspects of care virtually, as outlined in this report can inform the allocation of virtual care resources to ensure its provision remains equitable and cost effective.

74- Empowering Students as Collaborative Partners: How the Sibling Inquiry Based Systems Project Can Support the Brighter Path Project

Alessia Greco, Michael Wong, Elyse Rosa, Nevart Terzian, Celina Antony, Margaret Secord

A crucial philosophy in the Child Health Specialization (CHS) of McMaster University's Bachelor of Health Sciences (BHSc) Program is that students are partners in the learning process. This philosophy is realized across the curriculum through various inquiry and problem-based approaches. One such approach is our Systems Inquiry Based Study (SIBS) project, a mandatory inter-cohort component of our upper-level courses, which challenges third and fourth-year students, working in inter-cohort groups, to consider how various systems can influence the health of children and youth. This academic year (2023-2024), we formed a collaboration with members of the Brighter Path (BP) Team to provide students with an opportunity to address real challenges faced by the Hamilton community. In Hamilton, health disparities stemming from geographic and socioeconomic factors significantly impact the mental and physical well-being of children, yet root causes remain elusive. Our collaboration thus tasks students to explore and generate ideas and approaches to the objectives of the BP initiative, namely: (1) exploring participation outcomes, (2) ensuring diverse and inclusive participant recruitment, (3) investigating the role of community and clinical navigation in child health, (4) fostering sustainable research partnerships, and (5) examining integrated knowledge translation approaches to influence policy changes. Since the formation of this collaboration, students have been working, receiving feedback and support from BP members and CHS instructors. The ideas and solutions generated will culminate in a presentation of the student's work, which has the potential to be implemented throughout the BP initiative.

75- Influence of Gender on Satisfaction Levels with an Advanced Physiotherapist Practitioner Model of Care in Pediatric Rheumatology: Opinions of Parents and Children

Simran Heera, Michelle Batthish, Julie Herrington

Background: An Advanced Physiotherapist Practitioner (APP) Model of Care (MOC) has demonstrated increased access to care, decreased wait times, and increased patient satisfaction in adult rheumatology and orthopedic care. There is limited exploration of the APP MOC in pediatrics and little consideration of the impact on women. Juvenile Idiopathic Arthritis (JIA) is the most common pediatric rheumatic disease and disproportionately affects girls. An APP MOC in Canadian pediatric rheumatology focuses on the management of JIA. The objective of this study is to investigate parent and child satisfaction with the APP MOC in pediatric rheumatology and determine any perceived gender differences.
Methods: This is a mixed-methods, prospective cross-sectional study using an electronic survey over a 6-month data collection period with a target sample size of 85. Consecutive patients seen by the APP will be invited to participate. All parents and patients aged 12-17 years will be included. Demographic data will be collected and scores and comments from the validated Visit Specific Questionnaire (VSQ), previously used in adult APP MOC, will be investigated.
Results (Anticipated): Data will be analyzed using descriptive statistics. Differences between gender responses will be determined using t-tests or Chi-square tests. Inductive content analysis will identify main themes from questionnaire comments.
Conclusions (Anticipated): Findings will contribute to the APP MOC literature within pediatric care. Examining impacts on gender will contribute knowledge with an equity lens. Future projects will include more in-depth qualitative interviews with parents and patients to understand the impact of gender on satisfaction with an APP MOC.

76- Standardization of peri-extubation practices: An ongoing QI project

Jamie McLellan, Heather Johnson, Nandita Manoj, Lucy Chen, Mel Amyotte, Amit Mukerji

Background: The optimal peri-extubation strategy for preterm neonates remains unknown. Emerging published data suggests that higher pressures on non-invasive respiratory support modes may reduce extubation failure.
Objective: To standardize peri-extubation practices at McMaster NICU, incorporating post-extubation pressures higher than pre-extubation pressures. The aim is to reduce the risk of re-intubation in 7 days.
Methods: This is an ongoing quality improvement initiative following a "Plan-Do-Study-Act" cycle. Population: Preterm neonates <29 weeks' GA on invasive mechanical ventilation. First extubation that met the following criteria: (i) pre-extubation Paw ≤13 cmH2O, (ii) extubation ≥72 hours' age; and (iii) ETT leak <50%.
Intervention: A standardized peri-extubation guideline that included keeping babies NPO 2 hours prior to and 2 hours following extubation, providing positive pressure ventilation at all times while the ETT is still present, and for all extubations that met the aforementioned criteria regarding pressures, age and leak - the use of CPAP at a pressure level 2 cmH2O above the pre-extubation Paw.
Results (Preliminary): We compared our primary outcome measure (re-intubation within 7 days) for eligible neonates over a 6 month period pre-launch and post-launch. We demonstrated adherence of 88% (14/16) in the post-launch phase and an overall reduction in incidence of reintubation from 46% (6/13) to 19% (3/16).
Conclusion: If these preliminary findings are confirmed in a larger cohort, this has the potential to reduce re-intubation risk and improve clinical outcomes. We will leverage our experience to help conduct a comparative-effectiveness research study in multiple Canadian centers to verify these findings.

77- Developing a new patient-reported outcome measure for youth receiving gender-affirming care: Results from the phase one qualitative study

Shelby Kennedy, Manraj Kaur, Sylvie Cornacchi, Leah Algu, Charlene Rae, Natasha Johnson, Anne Klassen

Background: Patient-reported outcome measures (PROMs) are used to evaluate healthcare outcomes and experiences from the perspective of patients.
Objective: This study aims to develop the GENDER-Q Youth Module, a new PROM for youth receiving gender-affirming care.
Methods: A mixed-methods, multi-phase approach is used to develop the GENDER-Q Youth Module. Phase one is a qualitative interpretive description study to explore gender-affirming care experiences and identify aspects of gender-affirming care that matter most to youth through concept elicitation interviews. The interview data is analyzed and used to create draft scales. To ensure the draft scales are comprehensive, relevant, and comprehensible, they are: (1) reviewed by experts in gender-affirming care and PROM development (e.g., researchers and healthcare providers), and (2) cognitive interviews are conducted with youth.
Results: 47 interviews (39 concept elicitation interviews and 8 pilot interviews) were conducted with youth (ages 12-18) from Canada and the United States. Youth were recruited through specialized clinics (Canada, the United States), community groups (Canada), snowball sampling (Canada), and a previous study (Canada). The rich interview data informed the development of 16 scales, which measure aspects of health-related quality of life and experiences of care. These scales were revised based on feedback from 33 experts and 16 cognitive interviews with youth.
Next Steps: After completing the cognitive interview stage, the scales are further refined in preparation for the second phase of GENDER-Q Youth Module development. Phase two is a quantitative study that involves field-testing the scales in a large, international sample of youth receiving gender-affirming care.

78- Exploring the Role of Immersive Virtual Reality to Support New Training and Assessment Mandates in Medical Education

Aryana Zarandi, Auva Zarandi, Quang Ngo, Spencer van Mil, Jason Harley, Elif Bilgic

Introduction: Trainees require frequent entrustable professional activities assessments (EPAs) to demonstrate their progress of competence; however, some EPA exposure remains limited. Immersive Virtual Reality (IVR) is a viable adjunct for education programs to support trainees in achieving competence and minimum EPA assessment requirements.
Objective: This study investigates the role of IVR in residency training by examining faculty and trainee perceptions to determine the benefits, challenges, and potential incorporation of IVR into medical education curricula.
Methods: This interpretative qualitative research study is a SSHRC-funded project in partnership with MedVR Education. Participants complete a demographics questionnaire, explore an EPA scenario through IVR, and share their perceptions in an interview (recruitment until thematic sufficiency). Interview recordings are transcribed and analyzed using thematic analysis.
Results: The study is in progress. Based on initial coding, participants perceive IVR as an effective training technology, allowing for repeated performance of an EPA scenario. Participants recognize IVR as a useful assessment platform, noting that specific learning/assessment objectives and assessment criteria should be clearly outlined for the EPA scenario. Some faculty note that trainees should be fully oriented to the controls, headset, and scenario environment before using IVR for training and assessment purposes.
Limitations and Conclusion: Participants indicated IVR has potential in EPA training and assessment; however, trainee orientation and scenario objectives should be considered. Though this is a single-centred study, the knowledge acquired will assist in advancing medical education research by elucidating the role of IVR as an educationally relevant adjunct to clinical and in-person simulation contexts.

79- Patient and Family Engagement in Pediatric Residency Education

Marriam Khan, Karen Beattie, Anne Fuller, Ruchika Sharma, Spencer van Mil, Ereny Bassilious, Elif Bilgic

Initiative of the Department of Pediatrics Education Advisory Committee Background: For pediatric residents to develop excellence in the quality, safety and experience of care, there is a critical need to actively engage patients and families in education and training, creating authentic opportunities for communication in understanding patient/family experiences and perspectives beyond clinical settings.
Objective: To understand the extent to which patients and families are engaged in pediatric residency training within the Department of Pediatrics (DoP) at McMaster University.
Methods: Web-based survey was administered to DoP program directors (or assistant program directors), eliciting detailed information on patient/family engagement in education curricula, collaborations with youth/family advisory councils (YACs/FACs), and barriers to partnerships. Questions included multiple-choice and short-answer responses. Descriptive statistics and simple thematic analysis were conducted.
Results: Study obtained responses from 6 out of the 13 program directors (46% response rate); 33% reported engaging families in their formal residency curriculum, while 16% reported engaging patients. Respondents identified several challenges, including time constraints, competing priorities, inadequate knowledge on engaging patients/families, ethical considerations of patient/family selection, compensation, and lack of evidence-based best practices for engaging patients/families. Suggestions for future engagement included clinical rounds, simulations, communication skills, and curriculum development. Eighty-three percent of respondents 'Agree'/'Strongly Agree' there is value in partnering with families (or FACs) and 66% with youth (or YACs).
Limitations/Conclusions: Respondents acknowledged the important role of patients/families in education/training, yet few are doing it. Though data are from a single center, exploring the extent to which mentioned barriers exist and further investigating opportunities for collaboration are next steps before systematic engagement can occur on a large scale.

80- Development and assessment of an online course on chromosomal microarray to complement experiential learning for pediatric residents on a genetics rotation

Course authors: Clara Hick, Resham Ejaz, Anthony J Levinson; e-Learning design and development: Anthony J Levinson, Jodie Bousfield

Background: Online resources are increasingly used to supplement resident education. There are currently no specific resources designed for McMaster pediatric trainees on genetics topics, despite it being a mandatory clinical rotation.
Objectives: To design, develop, implement, and evaluate an e-learning course on chromosomal microarray to complement the genetics curriculum for pediatric trainees.
Methods: An instructional systems development framework was used, including needs assessment and best practices in e-learning instructional design. The course provides an overview of chromosomal microarray genetic testing through a case-based approach, and includes a pre- and post-test quiz and evaluation survey delivered through the medportal learning management system. Pilot testers were recruited from a sample of pediatric residents at different levels of training. Data for those that completed the course were analyzed using SPSS, with descriptive statistics and paired sample t-test for comparison of pre- vs post-test scores.
Results: Thirteen residents completed the course. Paired samples two-sided t-test showed a statistically significant improvement from pre-test (mean = 50.8%, SD = 20.8) to post-test (mean = 65.2%, SD = 25.7), p = 0.021. Evaluation data showed that all respondents agreed or strongly agreed that the course was relevant and translatable to clinical learning needs.
Limitations: Scope is limited to the topic of chromosomal microarray, and a small sample of pilot testers within the McMaster University Pediatric residency program.
Conclusions: Our novel genetics e-learning course on chromosomal microarray testing is beneficial to the clinical learning needs of McMaster Pediatrics residents. Next steps include additional course creation and further dissemination.

81 - Teaching and Assessment of Multi-patient Management in Health Professions Education: A Scoping Review

Faris Kapra, Danielle Penney, Monica Sabbineni, Jo-Anne Petropoulos, Elif Bilgic, Quang Ngo

Multi-patient management refers to the ability to care for more than 1 patient concurrently. Across health professions education there is an increasing demand for learners to demonstrate this competency. Conventionally, it has been assumed that learners in medicine and nursing acquire this competency through clinical exposure and role modeling - however in the context of competency based education an understanding of effective formalized methods to teach and assess this competency is essential. We undertook a scoping review to investigate how Multi-patient care is being taught and assessed in health professions education, the quality of the current literature and how simulation is being used in these contexts. A search was conducted using key terms relating to the concepts of medical education, Multi-patient management, training, assessment, and simulation. In keeping with PRISMA scoping review guidelines, studies were screened by two authors with consensus votes used to resolve conflicts. Studies were excluded if published before 2005 or not concerning our target concepts. Nine databases were searched. 7355 unique articles were identified and 64 screened in for data extraction. The majority of studies occurred in the USA, involved nursing students, and occurred in simulated settings with a goal of training Multi-patient management skills. Literature on Multi-patient management is in early stages with a predominance of low quality designs, and there is no clear consensus on how to train and assess this competency. The majority of studies showed promise in the use of simulation, and reinforced the value of training and assessment in this field.

82 - Implementation of a quality improvement checklist for learners to improve safety and expectations around break taking in the pediatric emergency department

Kerrie Mirza, Maaz Mirza, Quang Ngo, April Kam

Background & Aim: The Pediatric Emergency Department (PED) is a unique environment for learners with an almost constant flow of patients, procedures, and high acuity presentations. By Summer 2024, we aim to have implemented a checklist to clarify expectations around learner break-taking. We aim to 1. Increase to 75% the number of learners who report that the expectations around break taking are clear, 2. Create a pre-break safety checklist containing items that 75% of staff physicians agree are important to complete and 3. Ensure no reduction in the uptake of breaks due to implementation of our checklist.
Measures and Designs: We surveyed learners and staff from the PED on baseline attitudes around learner break taking in terms of expectations and frequency of completion of certain patient-care tasks. We implemented a checklist to clarify these expectations and will use post-surveys in our monthly PDSA cycles to evaluate its efficacy.
Evaluations/Results: Of the initial learner respondents, only 40% felt there were clear expectations around break-taking and 70% felt there should be clearer expectations around break-taking. Only 16.7% of learners frequently complete all 14 safety checkpoints in our initial checklist.
Discussion/Impact: Learners reported unclear expectations around break-taking and expressed desire for clarification. All staff felt it was important for learners to take a break but noted some negative experiences due to unclear communication. A checklist may help prompt both staff and learners regarding breaks and set clearly defined expectations and steps to ensure learner well-being and patient safety.

83- Defining Principles of Expert Performance During Medical Procedures in Pediatrics: Optimizing Assessment Criteria of Procedural Skills

Jasmin Dhanoa, Quang Ngo, Anita Acai, Ruchika Sharma, Elif Bilgic

Introduction: The Royal College of Physicians and Surgeons of Canada (RC) has outlined entrustable professional activities (EPAs) that focus on procedural skills that pediatric residents are assessed on for competency. However, current understanding of skill domains in performing medical procedures is thought of in simpler terms, focusing on domains such as psychomotor skills and knowledge for decision-making. Hence, there are limitations in our ability to accurately assess resident procedural performance. Dr. Amin Madani and colleagues have defined and developed a framework of principles that guide intraoperative decisions and behaviours of expert surgeons. However, there could be differences in procedural expertise for OR-external pediatrics procedures. The purpose of this study is to define expert performance during pediatric medical procedures, and modify the above-mentioned framework to include procedural expertise outside the OR, and guide assessment criteria for procedural skills.
Methods: Semi-structured interviews will be conducted with physicians, with procedural experiences, from the Department of Pediatrics. Reflexive thematic analysis will be performed.
Results: This study is currently in the data collection phase. Based on our findings, we will better understand the skills crucial in performing medical procedures in pediatrics, modify Dr. Madani's framework to include expertise of medical procedures across settings, and optimize assessment criteria used by the RC and programs.
Limitations: This is a single-center study with procedure-heavy specialties, but expertise of physicians in other centers may differ.
Conclusion: In conclusion, this study will optimize the training and assessment of residents for procedural skills and improve procedural care for patients.

84-The UnWRaP Study: Understanding the Well-being of Residents and Partners

Marina Boutros Salama, Jillian Halladay, Kestrel McNeill, Hayley Harlock, Enas El Gouhary, Catharine Munn

Residency is a time of personal and professional growth that can challenge well-being, and contribute to burnout and other mental health issues. Residency may also strain intimate relationships, which can potentially buffer and protect residents from the stressors of training. This study seeks to understand residents' social support and intimate partner relationships, relationship quality, work-home conflict, and associations with burnout and mental health. Residents were invited to complete a cross-sectional survey including measures of demographics, relationship characteristics, social support, work and family conflict, and perceived relationship quality. Regression models were used to examine the relationships of these characteristics with burnout symptoms and mental health, measured by the Maslach Burnout Inventory and Mental Health Continuum Short-Form. Overall, 167 residents with partners responded to the survey; 73% were living together with partners, with an average relationship length of 5.4 years. Women reported higher levels of emotional exhaustion compared to men. Higher levels of social support were associated with better mental health and higher levels of personal accomplishment. Conflict between work and family was the most consistently correlated predictor across outcomes, with higher levels of conflict associated with greater burnout symptoms and poorer mental health. These associations remained consistent and significant after controlling for known confounders. This study allows us to better understand and describe postgraduate medical trainees' social support and intimate partner relationships, and connections with burnout and mental health. These insights can inform future research and the design of burnout interventions tailored to the challenges encountered during postgraduate medical training.

85- Understanding the Impact of Patient/Family Involvement in Pediatric Residency Education

Sureka Pavalagantharajah, Karen Beattie, Andrea Hunter, Bojana Babic

Background: Only a few Canadian Pediatric Residency Programs formally engage patients and families in residency curricula. The Family Advisory Council (FAC) approached the pediatric residency program directors about becoming included in residency training. Parents were then invited to help create and lead a half-day session during the first-year residents' orientation.
Objective: We sought to evaluate the impact of this session on residents and parents.
Methods: The session was divided into three sections beginning with patient and family stories followed by a presentation by the FAC chair about effectively communicating with parents. The last section was a panel discussion with the parents. Feedback from the residents about the session's relevance and impact was collected using a five-point Likert scale questionnaire. Parents were given a seven-question survey about their motivation for volunteering and their overall experience.
Results: 90% of residents rated all three sections a 5 out of 5 for the overall impact, with many offering that this session was the most impactful part of the bootcamp. Parents also thoroughly enjoyed the session with all stating that they would volunteer again in the future. Parents felt respected, validated and thought the residents demonstrated empathy and compassion throughout.
Conclusion: This session was impactful for residents and overwhelmingly positive for parents. Involving parents who are passionate about engaging with trainees and clinicians to help them understand the patient/family experience provides clinicians with invaluable insight into patients' medical journey. The program is now developing other formal ways to include FAC volunteers in training curriculum.

86- Retrospective Cohort Study of Autoimmune Hemolytic Anemia (AIHA) at McMaster Children's Hospital

Sureka Pavalagantharajah and Vicky Breakey

Background: Autoimmune hemolytic anemia (AIHA) is a rare acquired anemia involving the production of autoantibodies directed against self-red blood cells, leading to premature red cell destruction. It can be primary or secondary to medical or immune conditions, medications or infection. The estimated incidence of AIHA is 1-3 cases per 100,000 children and given how uncommon it is, the literature that has been published are small case series. There is significant practice variability in the evaluation and management of AIHA due to the limited evidence that exists.
Objective: The purpose of this study is to develop a local cohort in order to better describe the diagnostic evaluation, treatment strategies and outcomes of pediatric AIHA.
Methods/Results: Charts were collected for patients under 18 years of age diagnosed with AIHA at McMaster Children's Hospital from January 2011 to December 2023. We have already collected data for 13 charts and are awaiting approval from the HiREB amendment process to gather data from the remainder of our charts so that a preliminary analysis of the results can be done. This will be completed prior to the McMaster Child Health Research Day so preliminary results can be presented.

87- Assessing the Cardiopulmonary Response to Acute Aerobic Exercise in Concussion

Ben Caputo, Bhanu Sharma, Brian W. Timmons

Background: Concussion management has recently embraced an "exercise-is-medicine" mindset, after years of a "rest-is-best" management approach. As such, exercise testing is becoming part of clinical management for concussion. Symptom exacerbation during exercise may reflect ongoing physiological dysfunction post-injury; yet no study to date has comprehensively examined the cardiopulmonary response to acute exercise in concussion.
Objectives: This study aims to (1) describe the complete cardiopulmonary response to acute sub-maximal exercise in youth with concussion, and (2) compare the response in youth with concussion to healthy controls.
Methods: We recruited patients aged 12-17 years with a recent diagnosis of concussion, and no prior history of brain injury. Participants completed the Buffalo Concussion Treadmill Test to evaluate cardiorespiratory response using a calibrated metabolic cart. Recorded parameters included oxygen consumption (VO2), carbon dioxide output (VCO2), minute ventilation (VE), and end-tidal partial pressures of carbon dioxide (PETCO2). Oxygen uptake efficiency slope (OUES) and oxygen pulse were also calculated post-test. Heart rate was monitored continuously via chest strap throughout the test. Borg Rating of Perceived Exertion and symptom severity measurements were every 2 minutes during the test. Descriptive statistics and regression analyses will be used to summarize findings.
Results: Thirty-one children and adolescents have completed the study (14 female [45%]; age: 14.8 ± 2.1 years). Data analyses are ongoing and complete results will be presented at CHRD.
Conclusions: Our findings could provide insight into the underlying physiological dysfunctions in pediatric concussion. Future research may also be able to identify the prognostic value of relevant physiological markers.

88- A Comprehensive Review on Low-Molecular-Weight-Heparin Anticoagulation Therapy Dose Management in Pediatric Patients at Risk of Thrombocytopenia

Katherine Taplin, Felipe Fajardo, Uma Athale, Anthony KC Chan, Mihir Bhatt

Pediatric patients with cancer have increased risks of thromboembolism (TE) and thrombocytopenia. There is limited evidence assessing the management of anticoagulation therapies (ACT) for pediatric patients with concurrent thrombocytopenia. This comprehensive review aims to summarize and evaluate the evidence on the safety and efficacy of low-molecular-weight-heparin (LMWH), the most common ACT for children, in pediatric patients with concurrent thrombocytopenia. A literature search on MedLine and backward snowball sampling was conducted. All studies published in English assessing therapeutic/prophylactic LMWH-ACT safety and efficacy in children (≤18 years old) at risk of thrombocytopenia were included. Safety and efficacy were assessed through rates of bleeding episodes and thrombosis outcomes, respectively. Of 13 included studies, most were retrospective-cohorts (53.8%) and prospective-cohorts (30.8%). Participants' age across the studies ranged from 3 weeks-18 years old. LMWH-ACT dose adjustments were unspecified in 3 studies. Amongst those that specified dose adjustments, 3 held LMWH when platelets were below 20K and 1 held LMWH when below 50K. From those withholding LMWH below 20K, 2 administered half-dose LMWH when platelets were between 20K-30K. In 8 studies, platelets were transfused during LMWH-ACT (1 maintained platelets > 50K, 2 > 30K, and 3 > 10K-20K). No ACT-associated bleeds were reported in 8 studies (61.5%), and 5 studies (38.5%) reported at least one bleed (4/13 major, 8/13 minor, 1/13 unspecified). The average rate of complete/partial resolution was 86.9%, stable/progressed thrombus response was 9.0%. While LMWH-ACT seems safe and effective for pediatric patients with concurrent thrombocytopenia, LMWH-ACT management is heterogeneous in the context of thrombocytopenia.

89- Exploring the Influence of Aerobic Exercise on Gait Variability in Adolescents with Sport-Related Concussions: A Prospective Observational Study

Mabel Koo, Bhanu Sharma, Brian W. Timmons

Background: Pediatric concussions have emerged as a significant public health concern due to their prevalence, management complexities, and potential long-term effects on the developing brain. Between 2008 and 2016, over 1.3 million patients in Canada were diagnosed with concussions, emphasizing the critical need for research in this domain. Concussions are heterogenous injuries with respect to the symptoms they produce. However, there are common symptom sets, among which include balance- and gait-related impairment. Accelerometry emerges as a promising tool for objective measurement of gait parameters such as cadence, variability, and interstride acceleration. However, there are limited data on accelerometer-measured gait measures in children with acute concussion, leaving an important knowledge gap.
Methods: This thesis utilizes a prospective observational design to investigate the impact of aerobic exercise on gait variability in children aged 12 to 18 with sport-related concussions and healthy controls. Participants are recruited from McMaster Children's Hospital and through community outreach. Gait variability, focusing on cadence and overall gait variability, is evaluated using the ActiGraph GT3x accelerometer, which records movement at 30 Hz with data collected in 1-second epochs. The analysis is conducted utilizing R-studio.
Results: The analysis of accelerometer data is ongoing. The aim is to understand group-wise differences in gait metrics (including cadence and gait variability) between children with concussion and matched healthy controls.
Impact: This study can provide insight into gait in acute pediatric concussion. With additional research, we may be able to understand the extent of gait impairments and use this knowledge to inform guidelines.

90- Impact of Maternal Insulin Levels on Likelihood of NICU Admission for Hypoglycemia Patients: A Retrospective Review

Sanjanaa Arunagiri, Maria Merchant, Courtney Viner, Herbert Brill

Neonatal hypoglycemia is a prevalent metabolic disturbance that poses a risk for neurodevelopmental disabilities. Although criteria for diagnosing neonatal hypoglycemia exist, the study's central aim is to identify risk factors associated with its development. This study investigates whether maternal insulin intake greater than 100 units per day increases the incidence of babies being admitted to the NICU and additional factors that may contribute to NICU admission. A retrospective chart review within William Osler Health System (WOHS) identifies neonates with hypoglycemia born to mothers with diabetes. The data includes several demographic and clinical variables about the mothers and newborns. Statistical analyses, including t-tests and power analyses, assess the impact of maternal insulin levels on NICU admission. Significant differences in NICU admission rates were observed for neonates born to mothers with insulin ≥ 100 units/day (p-value 0.039) As maternal insulin levels increased, NICU admission rates for neonates with hypoglycemia also increased. There are no significant differences between maternal diabetes type during pregnancy and NICU admission (p-value 0.486) or between the age of NICU admission for patients with hypoglycemia born to mothers taking over 100 units of insulin (p-value 0.312). Given the retrospective nature of this study, prospective studies are needed to validate and assess the impact of diabetes management changes on admission rates. This study's findings underscore the importance of closely monitoring neonates born to mothers with diabetes, especially mothers with elevated insulin requirements. Further research can refine screening and treatment protocols in neonatal care to provide targeted interventions.

91 - Incidence of Anaphylaxis among Hamilton Youth in a 5-year period

Zeenia Malik, Rayirth Sivakumar, Derek Chu

Background: Anaphylaxis is a severe allergic reaction characterized by rapid symptom progression involving multiple organ systems, necessitating immediate intervention. Diagnostic criteria from the National Institute of Allergy and Infectious Diseases/Food Allergy and Anaphylaxis Network, World Allergy Organization, and the Brighton Case Collaboration aid in its recognition.
Objective: To determine the number of individuals aged ≤18 years old diagnosed with anaphylaxis in Hamilton Emergency Departments from January 1, 2018, to March 31, 2023.
Methods: Researchers used patient medical charts to document symptoms, potential allergens, and treatments for individuals with symptoms of anaphylaxis at five Hamilton Emergency Departments: Hamilton General Hospital, Juravinski Hospital, McMaster Children's Hospital, West End Urgent Care, and West Lincoln Memorial Hospital.
Results: Over 5.25 years, 13,840 presentations to Hamilton emergency rooms (crude rate, 2,636 cases/year). Of 773 randomly selected, 240 (31.05%) cases involved patients aged ≤18 (mean age = 7.16). Fifty (21.55%) patients were diagnosed with anaphylaxis. Upon considering the diagnostic criteria, 28.45% of patients experienced acute onset of illness, 4.18% experienced rapid symptom progression, 50.21% experienced skin/mucosal tissue involvement, 52.30% experienced respiratory involvement, 2.39% experienced cardiovascular involvement, and 11.30% experienced gastrointestinal symptoms.
Limitations: These preliminary data represent a subsample of the planned study population.
Conclusions: Presentations to urgent/emergency care for allergic reactions and anaphylaxis are common at all Hamilton Health Sciences hospitals. The next steps include extracting data from the full data set to understand anaphylaxis and its impacts on Hamilton's youth.

92 - Management of pediatric guanfacine overdose in emergency departments: A systematic review

Christopher Chu, Darsh Shah, Nuri Song, April Kam

Background: Guanfacine is a non-stimulant medication used to treat attention deficit hyperactivity disorder (ADHD) in children. While generally regarded as safe, pediatric overdoses can occur, often leading to hypotensive complications. Due to a lack of evidence on management, current protocols for guanfacine overdose remain largely supportive. Our study aimed to summarize existing literature on pediatric guanfacine overdose management to elucidate the ideal management protocol.
Methods: MEDLINE and Embase were searched from 1974 to September 2023. English articles investigating pediatric guanfacine overdose in emergency departments were included. Outcomes included cardiovascular or respiratory complications, and course of hospital stay. Management strategy including response to administered therapy was also an outcome of interest.
Results: Nine cases of pediatric guanfacine overdose are reported in the literature across eight studies. The mean age of patients was 12 years old. The majority of cases involved an accidental guanfacine overdose with a median time to ED arrival of 5 hours with a median length of stay of 3 days. All patients were admitted to the PICU for management. Cardiovascular complications included sinus bradycardia and prolonged QT interval. IV fluid resuscitation was the most common form of management followed by naloxone therapy. Only one study reported improvement after naloxone administration.
Discussion: There is limited evidence for the best management of pediatric guanfacine overdoses in emergency departments. The most common strategies include IV resuscitation and cardiorespiratory monitoring. The role of naloxone remains unclear. Prospective controlled studies are required to determine the best management plan for pediatric guanfacine overdose.

93- Discovering the Recurrent Fever Population at Hamilton Health Sciences

Dania Shikara, Karen Beattie, Tania Cellucci, Michelle Batthish, Ally Hoffman, Lauren Hessels, Matthew Sholdice, Gabrielle Sraka, Susan Waserman, Liane Heale

Background/Objective: The rapid discovery of new periodic fever syndromes has outpaced the scientific community's ability to adequately describe their epidemiology, and clinical course. The aim of this study was to describe the demographics, and disease course of the recurrent fever patient population at Hamilton Health Sciences (HHS).
Methods: A registry was created for patients of all ages seen at HHS clinics with periodic fever syndromes. Data were collected using both a retrospective chart review upon initial enrolment, and prospective data collection at each follow-up visit. Descriptive statistics were used to report on the prevalence of specific periodic fever syndrome diagnoses, time to diagnosis and response to treatment.
Results: In the first ten months of data collection, 42 participants were enrolled. Median age of participants was 10 years (range 2 - 53 years) and 31% were female. Time to diagnosis varied greatly, ranging from 0.5 - 23 years. The mean time to diagnosis was 4.6 (± 6.1) years. The majority (74%) of participants had genetic testing with the Next Generation sequencing autoinflammatory disease and recurrent fever syndrome panel. Twenty-six percent of those tested had a negative panel result.
Conclusion: This study's results characterize the periodic fever syndrome patient population in our community. The next phase of this project will examine those factors and explore the additional diagnostic value of whole exome sequencing for participants with undifferentiated fever syndromes and negative genetic panel testing.

94-Two-dimensional cranial ultrasound-based biomarkers of brain growth in extreme and very preterm infants

Medha Goyal, Meagan R. Quigley, Nina Stein, Ipsita Goswami

Background: Preterm infants are susceptible to white matter injury and altered brain growth.
Objectives: To compare linear brain metrics at term equivalent age (TEA) between neonates born ≤ 28 weeks gestational age (GA) and 28+1-32weeks GA. We hypothesized that neonates born ≤ 28 weeks GA have smaller linear measurements.
Methods: A retrospective study of consecutive infants born at GA≤32 weeks between January-May 2019 was conducted. We excluded those with major brain injury [Grade 3-4 IVH, periventricular leukomalacia, post-hemorrhagic ventricular dilatation]. The cranial two-dimensional ultrasound (cUS) performed at TEA (36-40 weeks) was assessed and regional linear brain metrics measured were quantified under cerebrum, cerebral white matter, deep grey matter, and cerebellum.
Results: We enrolled 48 neonates, and 3 neonates were excluded [2 had PHVD, and 1 Prader-villi]. Mean GA and birthweight were 28 ± 1.9 weeks and 1164 ± 368 grams, and 22 (49%) were males. Neonatal morbidities included respiratory distress syndrome (98%), intraventricular hemorrhage (22%), necrotizing enterocolitis (22%), PDA requiring treatment (29%), culture-positive sepsis (25%), meningitis (4%), bronchopulmonary dysplasia (53%), ROP requiring treatment (2%). Neonates ≤28 weeks had higher rates of delivery room intubation, PDA, culture-proven sepsis, and BPD. The mean GA for cUS was 36.74 ± 0.84 weeks. There was a statistically significant difference in corpus callosum length [≤28 weeks 4.12(3.9-4.5) mm versus 28-32 weeks 4.5(4.3-4.7) mm, p=0.006]. Other brain metrics were not significantly different.
Conclusion: Preterm neonates born before 28 weeks have shorter mean corpus callosum length at TEA, indicative of poor postnatal white matter growth.

95- Estimates of pediatric community-acquired pneumonia incidence, morbidity, and mortality in high-income countries since 2010: A systematic review and meta-analysis

Kevin Karivelil, Andy Zhu, Roman Dovbenyuk, Domenic Alaimo, Imali Gamage, Jeffrey Pernica

Background: Pneumonia is the leading cause of child death after the neonatal period. Although most deaths occur in the non-industrialized world, pneumonia morbidity is still significant in high income countries (HICs). The burden of community-acquired pneumonia (CAP) in HICs after the inclusion of 13-valent pneumococcal conjugate vaccines (PCV-13) in immunization programs has not been well-described, and worth further study to inform vaccination policies with new higher-valent products and antibiotic prescribing practices.
Aims: The objective of this study is to systematically review the incidence, prevalence, and morbidity of pediatric CAP in HICs post PCV-13 adoption.
Methods: We are performing a systematic review, including studies from high income countries that provide original data and report on the incidence or prevalence of CAP. Patients in eligible studies must be older than 3 months and less than 18 years old. Evidence for pneumonia must include a clinical diagnosis of CAP. We will perform meta-analyses whenever multiple studies report on a common outcome and risk factor. We intend to report the incidence of CAP, prevalence of CAP, hospitalization rates, and CAP-related fatality, if available.
Progress: Our protocol and search strategy were uploaded to PROSPERO. We screened 14,158 studies for inclusion and found 49 for full text extraction. We are currently finishing up data extraction.

96- Functional Outcome Assessment in Critically Ill Children: A Clinician-Reported versus Patient-Reported Outcomes Study

Sarah Altamimi, Meagan Kaye, Karen Choong

Background: Functional assessment using PROM tools is recommended as a core outcome in PICU studies. Function is currently most commonly assessed by the Functional status scale (FSS) is a clinician-applied tool.
Objectives: Aim is to evaluate the agreement between the clinician-applied tool (FSS), and patient-reported outcome measure of functioning, the Pediatric Disability Inventory-Computer Adaptive Test (PEDI-CAT).
Methods: In the "PICULiber8" sub-study (NCT03573479), PEDI-CAT and FSS were evaluated in critically ill children at PICU admission, discharge, and 1-3 months post-discharge. Investigators (SA and MK) retrospectively scored FSS from health records. Both tools were compared, collapsing functioning domains into 3: daily living, motor, and social/cognitive. The primary outcomes were agreement on categorical scores (normal/abnormal) and levels of functioning (normal, mild, moderate, severe disability). Cohen's kappa statistic determined agreement (poor <0.20, fair 0.21-0.40, moderate 0.41-0.60, good 0.61-0.80, very good >0.80).
Results: Agreement between FSS and PEDI-CAT to distinguish between normal and abnormal functioning: Fair for activities of daily living, Fair to moderate for mobility function, Poor to fair for social/cognitive function Agreement between FSS and PEDI-CAT distinguishing level of function (normal, mildly impaired, moderately impaired, or severely impaired): Poor to fair for activities of daily living, Poor to fair for mobility function, Poor for social/cognitive function.
Conclusions: FSS does not correlate well with PEDI-CAT. This study provides evidence that patient-centered outcomes such as functioning should be measured through PROMs in critically ill children. Further studies are needed to evaluate the feasibility of integrating PROMs in the Clinical setting in PICU6. Limitations include retrospective FSS scoring based on collected data and overall small sample size.

97- Predictors and Outcomes of Extubation Failure in Preterm Neonates: A Systematic Review and Meta-Analysis

Lisiane Hoff Calegari, Medha Goyal, Courtney Robb, Sourabh Dutta, Amit Mukerji

Background: In Canada, ~75% of preterm infants born below 29 weeks gestational age (GA) require invasive mechanical ventilation (IMV) during their NICU stay. A substantial portion (20-40%) of those undergoing IMV experience extubation failure (EF), which is associated with negative outcomes. However, a systematic review of EF predictors and outcomes is lacking.
Methods: A systematic review and meta-analysis following PRISMA guidelines and registered in PROSPERO (CRD42023395729) is being conducted. Observational and experimental studies published in English from 1995 onwards, reporting on EF predictors or outcomes in preterm infants (<37 weeks GA) were eligible. Extubation failure is defined as re-intubation within 7 days. Predictors include both clinical and ventilator parameters, while outcomes include mortality, bronchopulmonary dysplasia, major neonatal morbidities, and length of respiratory support. A comprehensive search strategy was conducted in multiple databases. Data extraction, risk of bias assessment, and publication bias evaluations were performed by 2 independent authors. Unadjusted and adjusted odds ratios are being collated and analyzed. Both qualitative and statistical heterogeneity with I2 values will be assessed.
Preliminary Results: The search yielded 8,311 references, from which 835 were fully reviewed and 133 have been included for analysis. Of these, 74 focused on predictors, 52 explored both outcomes and predictors, and one solely investigated outcomes. Seven studies discussed machine learning, with six lacking extractable data. Additional subgroup of 18 studies investigated predictors and outcomes of INSURE failure. Data analyses are ongoing.
Conclusions: Results from our review will provide a contemporary landscape of EF predictors and outcomes, while highlighting areas requiring further research.

98-Treatment of gram-negative bacteremia (GNB) in Canadian pediatric hospitals: A Pediatric Investigators Collaborative Network on Infections in Canada (PICNIC) study

Tisha Parikh, Sarah Khan, Kara K.Tsang, Sergio Fanella, Alison Lopez, Dara Petel, Jane McDonald, Mohammad Alghounaim, Robert Slinger, Jennifer Bowes, Jeannette L Comeau, Kirk Leifso, Joan L Robinson, John Gunawan, Ashley Roberts, Michelle Barton

Background: Unnecessary antibiotic use is linked to antibiotic resistance, risking individual and public health. Antibiotic treatment for pediatric gram-negative bacteremia (GNB) has been widely disputed for such reasons.
Hypothesis: To describe current management of pediatric GNB, focusing on drug-sensitive versus multi-drug resistant (MDR) organisms.
Methods: Retrospective chart review of pediatric GNB cases across 5 Canadian sites. MDR cases were defined as organisms resistant to at least three drug classes. Statistical analysis using Chi-square and ANOVA, or student's T-test was conducted to compare findings.
Results: Of the 235 episodes of GNB, the majority (85.1%) were drug-sensitive pathogens and 14.9% were MDR pathogens. The time to effective antibiotic therapy was significantly longer for MDR cases ($p<0.01$), though the time to clearance following effective therapy and mean treatment duration (17.1, SD=9.6) did not differ for MDR versus sensitive cases. All 207 cases with known antibiotic regimens were started on IV antibiotics, of which 27 (13%) were stepped down to oral antibiotics. Forty-two (17.9%) had a subsequent positive blood culture at least one day after initial positive culture. Death from GNB occurred in 16 patients (6.9%) of which 12 (75%) were neonates.
Limitations: Missing information from retrospective chart review included 11.9% of antibiotic-related information and 17% of cases had an unknown source of bacteremia.
Conclusions: Findings align with current literature; the need for repeat blood cultures, shorter treatment durations, and oral stepdown as a feasible option for non-neonates. This study confirms the need for multi-center RCTs on optimal antibiotic treatment of GNB.

99- Coagulase-negative staphylococci (CONS) positive blood cultures in the NICU: A Quality Improvement Project

Tisha Parikh, Ahmad Alghamdi, Souad Al-Muthree, Melani Sung, Shikha Gupta, Sarah Khan

Background: Coagulase-negative staphylococci (CONS) infection in the NICU may lead to late-onset sepsis. Differentiating between CONS bacteremia and contamination is vital to reduce unnecessary antibiotic therapy and minimize iatrogenic harms.
Hypothesis: Standardizing treatment of CONS blood cultures improves antibiotic use.
Methods: We implemented a best practice management algorithm for CONS-positive blood cultures in October 2019. We audited all CONS-positive blood cultures from April 2019 to February 2022. Fisher's exact, Chi-square and T-tests were used to compare treatment outcomes pre- and post-algorithm.
Results: Of the 95 CONS-positive blood cultures reviewed, 82% were cloxacillin resistant. Sixty-two were deemed contaminants and 33 true infections. The infection group had a significantly lower birth weight (p=0.009) and shorter time to positivity (p=0.0016) but was similar in age in days and presence of central lines at the time of infection. More contaminants were diagnosed post-algorithm (n=57/78) compared to pre-algorithm (n=7/17) (p=0.02). The mean time to positivity for contaminants reduced significantly after dissemination (21.6 to 17.7h, p=0.03). We found 92% compliance with repeat cultures prior to starting vancomycin, 100% compliance with stopping antibiotics when CONS considered a contaminant and 75.9% compliance with treatment duration recommendations.
Limitations: Review was retrospective, though all charts were reviewed by two reviewers to ensure accuracy. Despite a small sample size, improved diagnosis of contaminants was still demonstrated.
Conclusions: The standardization of CONS management improved antibiotic use and reduced the number of CONS-positive cultures treated as infections. Future directions include further algorithm optimization and improvements in blood culture collection techniques to reduce contamination.

100- Enhancing Antimicrobial Stewardship in the Neonatal Intensive Care Unit (NICU) at McMaster Children's Hospital: Insights from Prospective Audit and Feedback

Vivian Slade, Melani Sung, Jace Hui, Sarah Khan, Shikha Gupta-Bhatnagar

Background: Antimicrobial stewardship (ASP) is essential in NICUs to optimize antimicrobial use and combat antimicrobial resistance. This abstract presents findings from a prospective audit and feedback initiative conducted at McMaster Children's Hospital NICU, focusing on describing trends of NICU ASP rounds.
Hypothesis: We hypothesized that implementing prospective audit and feedback would lead to improvements in antimicrobial prescribing practices and patient outcomes in the NICU.
Methods: Data was prospectively collected during weekly McMaster Children's Hospital NICU ASP rounds. Patients were reviewed if they were receiving antimicrobials and were not consulted by the Infectious Diseases Service.
Results: Between January and December 2023, a total of 51 meetings were held, with 302 patients reviewed, averaging 6 patients per meeting. The mean attendance included 3 neonatologists (88%) and 1 learner. Out of 301 patients discussed, the majority presented with possible/confirmed early onset sepsis (53%), followed by late onset sepsis (16%) and other infectious syndromes. During NICU ASP rounds, 518 antimicrobial discussions occurred, reflecting a diverse range of antimicrobials utilized in the NICU setting. A total of 116 interventions were suggested, with common recommendations including additional investigations, narrowing of antimicrobials, infectious disease consultations, and duration adjustments.
Conclusions: Recommendations made during ASP rounds resulted in significant changes in antimicrobial utilization patterns, with a focus on optimizing antimicrobial selection and durations based on infectious syndromes. Prospective audit and feedback show promise in optimizing antimicrobial prescribing behaviors and improving patient care.

101- Integrating clinical and neuroimaging markers to predict the onset of post-hemorrhagic ventricular dilatation in preterm neonates

Abdul Aziz Al-Garni, Avneet Mazara, Nina Stein, Lawrence Mbuagbaw, Olufemi Ajani, Ipsita Goswami

Background and Purpose: Post-hemorrhagic ventricular dilatation (PHVD) is a major complication of intraventricular hemorrhage (IVH). It is associated with high risks of cerebral palsy and cognitive deficits compared to infants without PHVD. This study aims to explore the early perinatal risk factors, in addition to the severity of IVH, associated with the risk of progression to PHVD.
Methodology: Neonates ≤29 weeks gestational age (GA) with Grade 2-4 IVH, between 2015-2021 were retrospectively reviewed. All cranial US done within 2 weeks postnatal age (PNA) were assessed for Grade of IVH, Anterior-Horn-Width (AHW), Ventricular-Index (VI) and Thalamooccipital Index (TOD). The outcome was defined as death of any cause or any US with VI/AHW/TOD ≥ moderate risk based on 2 weeks PNA or 40 weeks postmenstrual age.
Results: A total of 146 infants with a mean GA of 26±1.8 weeks, birth weight 900±234g, and females (46%) were included. The primary outcome occurred in 56(39%), among them 17(30%) and 11(20%) needed ventricular reservoir and Shunt insertion respectively. On multivariable regression, the risk factors present within 2weeks PNA that significantly increased the odds of developing PHVD were hemodynamically significant patent duct arteriosus [Odds Ratio(OR) 6.1(95% Confidence Interval(CI) 1.9-22)], culture-proven sepsis [OR 5.4(95% CI 1.8-18)], Grade 3 IVH [OR 4.6(95% CI 1.1-22)], Grade 4 IVH [OR 3 (95% CI 0.9-10)], and VI [OR 2.1(95% CI 1.6-2.9)].
Conclusion: High grade IVH, significant duct arteriosus and bacterial septicemia, and risk levels of US-based markers such as AHW and VI measured within 2 weeks of life are potential predictors of subsequent onset of PHVD.

102- Maternal high protein/calcium dairy diet and exercise during pregnancy: Influence on infant bone mass

Avneet Mazara and Stephanie A. Atkinson

Background: Evidence exists that maternal diet, particularly protein, calcium, vitamin D, and exercise in pregnancy play a role in fetal bone accrual. Yet the literature is limited as the few studies available have inconsistent findings about infant bone health. Variations across studies include the dosage of nutrients, the specific measure of bone mass and age at measurement.
Objective: To explore the association between maternal calcium and protein intake and exercise during pregnancy on the bone mineral mass of infants at 6 months of age.
Methods: The Be Healthy in Pregnancy (BHIP) randomized control trial recorded pregnant women's food and supplement intake, energy expenditure and step count by accelerometry at 26-28 weeks gestation. At 6 months postpartum infants' feeding practices (breastfed, formula fed or mixed), vitamin D supplementation, and bone mass outcomes by whole body dual-energy x-ray absorptiometry were obtained (n=55). Unpaired T-tests, ANOVA tests and multiple regression were used for analysis.
Results: In this sub-sample of mother-infant pairs (intervention n=32, control n=23), higher intake of calcium (p=0.0031) and protein (p<0.0001) was observed in the intervention group however, no significant differences existed in energy expenditure and step count. No significant difference was observed in infant BMC (p=0.6745), BMC less head (p=0.9216) or BMD less head (p=0.6825) between control and intervention groups or by feeding type or vitamin D supplementation.
Conclusion: In this small subsample BHIP population infant bone mass at 6 months was not influenced by higher maternal dietary intake of protein and calcium or exercise during pregnancy.

103- Global Prevalence of Cardiovascular Risk Factors Among South Asian Children: A Systematic Review and Meta-Analysis

Angenie Christy Antony, Rahul Chanchlani, Sonia Anand, Russell De Souza, Gita Wahi, Laura Banfield, Joycelyne Ewusi, Arpsima Aziz, Neha Chandrasekharan, Ramneek Sunner

Background: Extensive literature has demonstrated that South Asians (those who immigrate from India, Sri Lanka, Pakistan, Bangladesh, and Nepal) carry a higher risk of developing cardiovascular disease (CVD) compared to other ethnicities due to an increased prevalence of cardiovascular risk factors (CVRF) such as hypertension, diabetes, obesity, and dyslipidemia. While the prevalence of various CVRF among South Asian adults is well-understood, minimal research has been conducted to determine their prevalence in South Asian children.
Hypothesis: The purpose of this systematic review is to determine the global prevalence of various CVRF in South Asian children and compare this prevalence to other ethnic groups. We hypothesize that CVRF are more prevalent among South Asian children than children of other ethnicities.
Methods: We searched four databases for relevant English articles published before May 2023 that investigated the prevalence of CVRF in South Asian children and children of other ethnicities between 5-18 years. CVRF included were hypertension, pre-diabetes, T2DM, overweight, obesity, and dyslipidemia(s).
Results: To date, 186 articles have undergone data extraction and are in the statistical analysis phase.
Limitations: Included studies used differing diagnostic criteria for CVRF, resulting in heterogeneity in the definition of CVRF across the studies.
Conclusion: To our knowledge, this will be the first study of its kind to examine an array of CVRF among the South Asian pediatric population. This will provide a basis for future studies to explore preventative strategies targeting CVRF in children to mitigate the CVD epidemic in the South Asian population.

104- Exploring Indigenous Perspectives on Fetal Alcohol

Ariana Petrazzini and Olaf Kraus De Camargo

Background: Fetal Alcohol Spectrum Disorder (FASD) describes the effects, symptoms and conditions provoked by prenatal alcohol exposure. The unequal burden of FASD in Indigenous peoples in Canada compared to the rest of the population can be attributed to the effects of intergenerational trauma on Indigenous health behaviours.
Objective: The goal of this study is to gain a better understanding of the ideas, perspectives, and behaviours of Indigenous people regarding the management and impact of FASD.
Method: A comprehensive literature search was performed on multiple databases to identify studies exploring topics related to Indigenous Perspectives on FASD.
Results: 26 studies were included spanning 5 areas of study: clinical description, prevalence, Indigenous perspectives, conducting research with Indigenous peoples and next steps. Studies were completed in Canada, the United States of America, Australia and New Zealand and some collected data internationally.
Conclusion: Several barriers to addressing FASD have been identified thus focus must shift toward removing these obstacles. High rates of FASD in Indigenous populations emphasizes a need to target the areas in which the Western medical system has failed to support Indigenous communities and apply a Two-Eyed Seeing (TES) model to integrate Indigenous and Western perspectives.
Limitations: FASD manifests differently in patients, patients access different supports and Indigenous peoples from varying communities have different cultural practices. Hence, while this review highlighted some common themes across studies, some aspects of lived experiences could be missed because they are less common. Additionally, electronic search methods may have limited the studies that were identified.

105- Childhood maltreatment, prenatal cortisol levels, and executive functioning: A cross-sectional study using data from the Healthy Foundations Study

Eileen Wang, Vanessa De Rubeis, Nicole Catherine, Krysta Andrews, Harriet L. MacMillan, Susan Jack, Charlotte Waddell, Andrea Gonzalez

Introduction: The effects of childhood maltreatment during pregnancy are not well understood, which is concerning as increased stress and impaired cognitive functioning could impact parenting practices and offspring development. Objectives of this study were to explore the association between childhood maltreatment among pregnant young women and 1) prenatal stress and 2) executive functioning. Effect modification by self-efficacy and sense of mastery were explored.
Methods: A cross-sectional study was conducted using mothers aged 14-24 years from the Healthy Foundations Study (n=395; a sub-study of the British Columbia Healthy Connections Project). The Childhood Trauma Questionnaire was used to measure total childhood maltreatment and five maltreatment subtypes. Chronic stress was measured using hair cortisol, and executive functioning was measured using the Trail Making Test. Linear regression was used to estimate beta coefficients and 95% confidence intervals (CIs). Effect modification was evaluated using statistical interaction with self-efficacy and sense of mastery, measured using questionnaires.
Results: Severe maltreatment, for at least one subtype of maltreatment, was reported by 41% of participants. Childhood maltreatment was associated with increased cortisol (b=1.00; 95% CI: 0.001-0.008) and decreased executive functioning when measured using the Trail Making Test (b=1.00; 95% CI:-0.003-0.002). Similar associations remained for some subtypes of maltreatment. Interaction terms between total maltreatment and self-efficacy/sense of mastery were found to be statistically significant ($p<0.05$).
Conclusion: Findings suggest childhood maltreatment has lasting effects into adulthood, specifically during pregnancy. Future research may consider exploring mechanistic pathways to determine appropriate intervention strategies.

106- MOvement behaviours and health indicators in children with a chronic MEdical condition or disability: An iNTernational mUlticentre prograM (MOMENTUM): Exploring chronic condition-specific physical activity recommendations (CSPRs) and the value of Personalized Exercise Guidelines (PEGs)

Ethan Parikh, Sarah Gillies, Leili Hadayeghi, Brian W. Timmons

The World Health Organization (WHO) recognizes the importance of physical activity (PA) in delaying, managing, and preventing disease, while improving the quality of life of children. Alarmingly, 81% of adolescents worldwide fail to meet the WHO's recommendation of 60 minutes/day of moderate-to-vigorous PA (MVPA). This includes adolescents with chronic conditions, who encounter unique barriers to PA. To understand the importance of creating condition-specific PA recommendations (CSPRs) for these individuals, this study: 1) explored existing CSPRs in the literature, 2) compared self-reported PA with CSPRs, and 3) identified opportunities for personalized exercise guidelines (PEGs). From the MOMENTUM Study of 12- to 17-year-old children with a chronic medical condition or disability at least 1 year past diagnosis, we examined self-reported levels of light, moderate, and vigorous weekly PA in adolescents diagnosed with at least one of the following: juvenile idiopathic arthritis (JIA), type 1 diabetes (T1D), inflammatory bowel disease (IBD), chronic kidney disease (CKD), and/or cystic fibrosis (CF). Furthermore, review studies from PubMed, OVID, and Web of Science that explored current CSPRs were included. CSPRs within the literature differed by frequency, duration, intensity, and exercise type, from WHO PA recommendations. Analyses of MOMENTUM participant PA data are in-progress and will be presented at MCHRD. Study limitations include potential self-misreporting of PA durations and intensities, and the varying sample sizes of children with each chronic condition. Establishing the relationship between survey-data and CSPRs can reveal the value of PEGs in improving PA accessibility and ameliorating condition symptoms in children with chronic conditions.

107- Exploring the Relationship Between Maternal Obesity and Excess Gestational Weight Gain and Infant Adiposity at 6 Months

Leila Maria Casasanta, Stephanie A. Atkinson, BHIP Study Team

Background/Objective: Evidence exists that mothers who enter pregnancy with obesity and/or experience excessive gestational weight gain (GWG), are at risk for adverse health outcomes for both themselves and their infants. We aimed to explore the relationship between maternal obesity and excess GWG and infant adiposity at six months of age.
Methods: For this secondary analysis data was derived from the Be Healthy in Pregnancy RCT. Values included maternal pre-pregnancy body mass index (BMI), and total GWG calculated by subtracting the pre-pregnancy weight from weight at 36-38 weeks gestation study visit. Infant triceps skinfold thickness was averaged from triplicate measures at 6 months postpartum using infant Lange calipers (Beta Technology Inc., MD). Growth percentiles were calculated from WHO reference standards.
Results: In 180 mother/infant dyads, 55.6% of mothers had a pre-pregnancy BMI in the normal range, 27.2% were overweight, and 17.2% were obese. Average GWG was 11.22±3.80kg (mean±SD). Infant triceps skinfold thickness ranged from 6-20mm for males (average of 13.52±3.18), and 7-22mm for females (average of 13.43±3.58). Statistical analysis will assess the association between maternal pre-pregnancy BMI and GWG with triceps skinfold thickness at six months expressed in percentiles from WHO reference standards.
Conclusions: Data analyzed show a range of values for maternal BMI, GWG and infant adiposity markers thus suitable for regression analysis. This exploration will contribute to the scarce body of research pertaining to the impact of maternal obesity and excess GWG on infant adiposity, which may have relevance to clinical guidelines for maternal weight gain in pregnancy.

108- Influence of in utero exogenous cannabinoid exposure on the expression and distribution of axon guidance molecules in the postnatal gastrointestinal tract

Mariam Kore, Maria Sunil, Tina Podinic, Sandeep Raha, Elyanne M. Ratcliffe

Background: Previous investigations have shown that the endocannabinoid system (ECS) has important roles in gastrointestinal homeostasis. Additionally, axon guidance molecules are co-localized with endocannabinoid receptors in the gastrointestinal (GI) tract, and these molecules have important roles in the development of the gut-brain axis. However, not much is understood about the relationships between the ECS and axon guidance molecules in the context of prenatal cannabis exposure.
Specific Aims: Our project aims to characterize the effects of in utero cannabinoid exposure on the expression and distribution of the axon guidance molecule deleted in colorectal cancer (DCC) in the postnatal GI tract. We hypothesize that in utero cannabis exposure will result in changes in DCC expression and distribution in the development of the GI tract.
Experimental Plan: Gut tissue was collected at postnatal days 1 and 21 from offspring of cannabis smoke-exposed and sham-exposed mouse dams. Immunohistochemistry double labelling of GI tissues from both groups will be performed with antibodies to DCC and the neuronal marker Hu. Statistical image analysis of DCC and Hu co-expression patterns will be conducted at the McMaster Centre for Advanced Light Microscopy. This project aims to improve our understanding of the effects of in-utero cannabinoid exposure on the gut-brain axis through the relationship between the ECS and axon guidance molecules.

109-The impact of exogenous cannabis exposure in utero on the postnatal development of enterochromaffin cells

Novera Shenin, Maria Sunil, Tina Podinic, Sandeep Raha, Elyanne M. Ratcliffe

Background: Cannabinoid receptor 1 (CB1), a key component of the endocannabinoid system, regulates intestinal permeability by modulating tight-junction proteins within the intestinal-epithelial barrier. CB1 is present in the gut epithelium of fetal and early postnatal mice, possibly exhibiting involvement in developmental programming. CB1 is expressed in enterochromaffin (EC) cells, enteroendocrine cells that secrete serotonin, a neurotransmitter critical for peristalsis and immune responses. However, the effects of exogenous cannabinoids on CB1 expression and EC cell populations during fetal development remain uncertain.
Specific Aims: This project will assess the expression levels of CB1 on EC cells and quantify the population of EC cells in the epithelial lining of the ileum and colon from 21-day-old postnatal mice that have been cannabis-exposed in utero. CB1 is anticipated to be present in EC cells; however, it is hypothesized their expression levels may change following cannabinoid exposure. EC cell populations are expected to undergo alterations due to their ability to selectively adjust in response to environmental stressors.
Experimental Plan: Gut tissue was collected from offspring exposed to cannabis smoke and sham exposure. CB1 and serotonin in the ileum and colon tissues of both exposed and sham groups will be double labelled with respective antibodies to perform immunohistochemistry. Imaging of labelled tissues and quantification of the EC cells will be performed at the McMaster Centre for Advanced Light Microscopy. Findings illustrating how exogenous cannabinoids might affect aspects of gut epithelium development may provide insights into the overall impact of in-utero exposure to cannabinoids on intestinal structure and function.

110- Development of a sample collection pipeline to measure cannabinoid metabolites in babies exposed and non-exposed to cannabis in utero

Ally Y. Zhao, Leticia Hernandez Galán, Ashwini Pugazhendhi, Sandra Seigel, Samara Chitayat, Alison Shea, Shamini Selvakumar, Rochelle Maurice, Saara Greene, Breklyn Bertozzi, Sandeep Raha, Lucia Giglia, Elyanne M. Ratcliffe

Background: Cannabis consumption during pregnancy has increased in Canada post-legalization. While previous literature demonstrates that cannabis exposure can affect brain development, a comprehensive post-legalization study is needed. The FiNCH study aims to prospectively assess the neurodevelopmental outcomes in of babies exposed to cannabis in utero. To comprehensively evaluate cannabis exposure, we needed to develop a collection pipeline to select and handle specimens. This study aims to determine the feasibility of collecting biological indicators for the quantitative measurement of cannabinoid metabolites.
Methods: The development of the collection pipeline required a 3-pronged approach: 1) a literature search to identify the most reliable evidence for selecting biological specimens, storage conditions, and analysis requirements; 2) a site visit to walk through the collection process; 3) collaboration with the mass spectrometry facility to plan experiments, identify quality control standards and optimize sample collection protocols.
Results: Previous studies indicate that cannabinoid metabolites can be measured in the umbilical cord and meconium samples from the second trimester onwards. Umbilical cord samples 5cm in length, and diapers with meconium will be collected and stored at -20 C in commercial freezers onsite until they can be transported for processing at the mass spectrometry facility. There, the plan is for an interim analysis after the first 10 samples are processed to refine a panel of measured cannabinoid metabolites.
Next Steps: The feasibility of this preliminary pipeline will be evaluated during in-hospital recruitment by collecting participant and hospital staff feedback, as well as by the quality of the interim analysis of cannabinoid metabolites.

111-The Effect of Premature Birth on Major Adverse Cardiac Events in Adulthood

Rachel Serrao and Susan Verdes

Background: Infants born prematurely are at increased risk of cardiovascular disease (CVD) in adulthood. However, little is known about their susceptibility to major adverse cardiac events (MACE), such as heart failure (HF), acute myocardial infarctions (AMI), ischemic heart disease (IHD), and acute coronary syndrome (ACS).
Objective: This study aims to systematically map the existing literature to assess the relationship between premature birth and the risk of MACE in adulthood.
Methods: Studies were identified through Ovid MEDLINE in February 2024. Articles were included if they were primary research conducted in humans and focused on the occurrence of MACE in adults born prematurely. Abstract, full-text screening, and data extraction were conducted in duplicate. The data extracted for further analysis included: title, author(s), journal, as well as patient characteristics such as extent of prematurity, current age, MACE, and patient outcomes. The JBI Critical Appraisal Tool was used to evaluate the quality of included studies.
Results, Limitations, and Conclusions: A total of 67 titles and abstracts were screened, with 5 studies included. Data extraction and analyses are ongoing and finalized results and conclusions will be presented at McMaster Child Health Research Day.

112-Teacher-reported prevalence of FASD in 2016 to 2020 in kindergarten in Canada and its associations with neighbourhood-level socioeconomic status and home problems

Rhyan Hawke, Magdalena Janus, Caroline Reid-Westoby

Pre-natal alcohol exposure is the leading cause of birth defects worldwide and may result in Fetal Alcohol Spectrum Disorder (FASD), a neurodevelopmental disorder involving symptoms such as abnormal facial development and developmental delay. Children with FASD are more likely to experience home problems and live in low socioeconomic status (SES) areas, which can negatively impact development. Since Canada has no national framework for the surveillance of FASD, its prevalence across the country is unknown. This study aimed to establish the prevalence of teacher-reported FASD in kindergarten children in Canada and its associations with neighbourhood-level SES and home problems. Kindergarten teachers from 9 provinces and territories reported the FASD status and presence or absence of home problems for each of their students using the Early Development Instrument. These records were linked to a neighbourhood-level SES index. The prevalence of teacher-reported FASD among kindergarten children was 0.08%. At the neighbourhood level, linear regression revealed that the prevalence of FASD was associated with SES quartile (B: -0.026, $p=0.002$) and home problems ($R=0.05$, $p=0.03$). At the individual level, regression analyses revealed that children in the first (OR: 2.7, $p<0.001$), second (OR: 2.0, $p=0.002$), and third (OR: 1.7, $p=0.01$) neighbourhood-level SES quartiles and children with home problems (OR: 15.2, $p<0.001$) were more likely to have FASD. Given that data were only collected for 9/13 provinces and territories, future work should aim to establish the prevalence of FASD in all jurisdictions. Improved understanding of the prevalence of FASD will inform policy and intervention efforts in Canada.

113- Probiotics in pregnancy: An exploration of use and association with pregnancy health outcomes in a recent randomized clinical trial

Ruby Wang and Stephanie A. Atkinson

Background: Probiotics in pregnancy are extensively marketed with health claims of a benefit to prevent or regulate the progression of pregnancy-related disorders. To date, scientific evidence is limited in supporting such claims for non-complicated and complicated pregnancies.
Purpose: To 1) determine the extent of use and type of probiotic in pregnancy; 2) explore the association of probiotic use in pregnancy with gestational diabetes mellitus (GDM), preeclampsia (PE), and fetal growth restriction (FGR).
Methods: Utilizing data from Be Healthy in Pregnancy (BHIP), ethnicity, education, income, parity, probiotic brand/type, dosage, urine glucose and protein, fasting blood glucose, blood pressure, gestational weight gain, gestational age, offspring birth weight, presence of abnormal blood sugar in offspring, and delivery type of 241 participants were recorded. Participants were separated into 1) consumed probiotics (+ probiotics) and 2) did not consume probiotics (- probiotics). Calculations included regression analyses, means (SD), and unpaired t-tests.
Results: 24 of the 241 participants consumed probiotics during pregnancy (~10%). Demographics for ethnicity, education, income, and parity were similar between groups. For + probiotics, n = 10 consumed in first trimester; n = 8 in third trimester; n = 6 in both trimesters. Dosage varied from 1-3 pills per day. Typically, lactobacillus was the most abundant genus, specifically species rhamnosus and acidophilus. The second most abundant genus was Bifidobacterium, specifically species breve and bifidum. Associations of probiotic use with health outcomes are being analyzed.
Conclusion: In this trial, probiotic use was relatively low. Association with health outcomes to be assessed.

114- Influence of in utero cannabis exposure on the development of enteric glia

Samridhi Sharma, Maria Sunil, Tina Podinic, Sandeep Raha, Elyanne M. Ratcliffe

Background: The endocannabinoid system (ECS) is an adaptive neuromodulatory network playing a critical role in gastrointestinal (GI) health. The effects of exogenous cannabinoids are mediated through interactions with cannabinoid receptors. Recent research in our laboratory has identified that ECS components are present in the GI tract during development and early postnatal life, including enteric glia. It is unknown, however, how exposure to exogenous cannabinoids might affect postnatal enteric glial development.
Aims: This project aims to test the hypothesis that exposure to exogenous cannabinoids in utero can affect the developing of enteric glia of the offspring.
Methods: Timed-pregnant mice were exposed to cannabis using a "real world" model of cannabis smoke exposure from embryonic day 6 to delivery. Control mice were sham exposed to room air. Both female and male offspring were collected from postnatal days 1 and 21 and GI tracts removed for histology. The GI tissues are being processed for immunolabeling with a rabbit primary antibody to the glial marker S100B. Image analysis will be conducted in the McMaster Centre for Advanced Light Microscopy (CALM) to determine whether there are differences in protein localization of S100B between cannabis-exposed and control tissues.
Anticipated Findings: Exposure to exogenous cannabinoids can lead to changes in the expression of enteric glia.

115- Exploring the Effects of Omega-3 Supplementation on the Duration of Sleep in Pregnancy

Shreya Saha and Stephanie A. Atkinson

Background: An association between omega-3 fatty acid (O3FA) consumption and sleep duration is of emerging research interest. For pregnant women, who often experience disordered sleep, limited investigation regarding this association exists despite frequent use of O3FA supplements throughout pregnancy proposed to support fetal development.
Purpose: To explore the association between 1) O3FA supplement use (linolenic acid+DHA+EPA), and 2) total O3FA consumption (diet + supplement intake) and the sleep duration of pregnant individuals.
Methods: Participants in the Be Healthy in Pregnancy study were divided into +O3FA and -O3FA groups according to O3FA supplement intake. At 26-28 weeks and 36-38 weeks gestation, over a 3-day period, participants' dietary data was obtained using a food diary and detailed supplement record, and sleep data obtained using an accelerometer (BodyMedia Inc, Pittsburgh PA).
Results: Mean (SD) for age was 32.3±4.5 years for -O3FA (n=26) and 31.7±4.0 years for +O3FA (n=31). Total O3FA consumption was 2.08±4.85 g for -O3FA and 2.03±0.9 g for +O3FA, with 0.81±0.7 g (40% total) provided by supplements. Regression analysis will assess if O3FA use is associated with different durations of sleep, and the overall association between O3FA consumption and sleep duration.
Conclusion: To date, total O3FA consumption of both groups is similar, with +O3FA participants consuming less dietary O3FA. This exploration will contribute to the dearth of research addressing the possible effect of O3FA on pregnancy sleep patterns. Identifying an association, or lack of, can give researchers insight into the effect of the nutrient in a population that often uses O3FA supplements.

116- Investigating Thermoregulation and Heat Tolerance in Prepubescent Girls as Compared to Boys

Sofia Panziera, João Antônio Chula, and Brian W. Timmons

Background: With rapidly rising global temperatures, it is imperative to explore the human body's ability to adapt to varying climates and thermoregulate. Existing studies analyzing thermoregulatory processes have focused largely on adult populations and male participants, however, with a dearth of information relevant to young girls, it is integral that we understand their physiological responses to heat and how they impact performance.
Objectives: This study investigates the thermoregulatory responses to exercise in heat in young girls and boys, directly compared by completing an identical exercise routine.
Methods: Eight 10-year-old boys and girls will be recruited to exercise for approximately 60 minutes in the heat, with assessed variables including heart rate, fluid balance, skin and core body temperature, perceived exertion, temperature sensation, comfort, and thirst, with a focus on heat tolerance. Participants will complete four 15-minute bouts of exercise in a climate chamber, set to 35℃ with a 35% rh, alternating from a treadmill and cycle ergometer. Collected variables will be compared between the girl and boy participants through statistical analysis.
Results: Data collection for this study is ongoing and results will be presented at MCHRD.
Conclusion: This study will provide new information on heat tolerance of young boys and girls. Comparing possible thermoregulatory differences in young girls and boys could be useful in revising heat-related physical activity guidelines.

117- Investigating the Association of Early Life Exposures with the Infant Gut Microbiota during the First Three Years of Life

Julia Simioni, Elizabeth Gunn, Jennifer Stearns, Eileen Hutton, Jonathan Schertzer, Katherine Morrison

Background and Objectives: The gut microbiota plays a crucial role in immune system development and metabolic health in infancy with the first three years being a critical period for gut microbiome colonization and maturation. This study aims to investigate the relationship between early-life exposures (delivery place, parity, and intrapartum antibiotics prophylaxis for Group B Streptococcus [IAP for GBS]) and the infant gut microbiome up to three years.
Methods: The Baby and Mi cohort comprised of 245 full-term, low-risk mother-infant pairs, recruited from midwifery practices. Data collection spanned from birth to 3 years and included birth records, questionnaires, anthropometric measures, and stool samples for 16S rRNA sequencing. The primary exposures are delivery place, parity, and IAP for GBS while the main outcome is the type and abundance of bacteria in the infant microbiome. Multivariable modeling was utilized to examine associations between exposures and microbiome beta diversity, followed by differential abundance analysis to explore taxonomic profiles associated with each exposure.
Results: Parity accounted for the largest beta diversity variation of the infant gut across all time points ($R2 = 0.18$, $p = 0.0005$). Longitudinal regression analysis further showed that multiparous infants had a higher abundance of Bifidobacterium up to 1 year ($p < 0.001$). Conversely, infants exposed to intrapartum antibiotics showed less Bifidobacterium and more Streptococcus ($p < 0.01$).
Discussion: The strongest predictor for infant gut microbiome variation is parity. Differences in early life exposures, such as delivery place, parity and antibiotics exposure coincide with altered taxonomic profiles during the first three years of life.

118- Movement Behaviours and Health Indicators in Children with a Chronic Medical Condition or Disability

Leili Hadayeghi, Joyce Obeid, Daniela Ruben, Patrick McPhee, Mark Ferro, Sarah Moore, Patricia Longmuir, Ethan Parikh, Sarah Gillies, Brian W. Timmons

Background: Children's adherence to movement behaviour (i.e., physical activity, sleep, and sedentary time) guidelines positively impacts their health indicators (i.e., quality of life and mental health). However, the development of movement behaviour guidelines did not consider children with a chronic medical condition or disability (CMCD). While accelerometers offer accurate movement behaviour measurements, they may not be feasible for children with CMCDs in clinical settings, highlighting the need for practical measurement tools.
Objectives: 1) Pilot a novel health survey to determine representation/recruitment rate of children with CMCDs/their parent to participate; 2) determine criterion validity of survey movement behaviour aspects against device-based measures; 3) explore the relationship between movement behaviours and health indicators among children with CMCDs.
Methods: 2,000 children, ages 12-17 years, with a CMCD for ≥ 1 year plus their parent are recruited from McMaster Children's Hospital clinics, the community, and social media. Health surveys assessing movement behaviours and health indicators are used for data collection. To validate survey-based movement behaviours, 400 children will wear waist-worn accelerometers for 7 days (24h/day). Descriptive analysis will assess representation/recruitment rate, and feasibility through completion rate, time, and participant feedback. Validity will be assessed using Spearman correlations, and exploratory analysis conducted using descriptive analysis. Analyses are in progress and will be presented at CHRD.
Significance: This study aims to develop a measurement tool with clinical utility for movement behaviours of children with CMCDs. This understanding may help improve their quality of life, promote independence, relieve symptoms, and reduce the risk of developing comorbidities.

119- Energy expenditure in children and adolescents with obesity: A systematic review

Paige Cheveldayoff, Elmira Noohpisheh, Alisha Sharma, Katherine Morrison

Background and Objective: Obesity is caused by an imbalance between energy intake and expenditure. Pediatric obesity is associated with multiple health conditions, many of which persist into adulthood. Therefore, it is important for clinicians and researchers to understand more about contributors to energy balance to best treat this population. The purpose of this review is to summarize the current literature on energy expenditure (EE) in children and adolescents with obesity.
Methods: Papers were identified from 1990 to 2024 through the Ovid Medline and Embase databases utilizing the following key words: obesity, overweight, pediatrics, children, energy metabolism, EE, and indirect calorimetry. The initial search resulted in 2,072 abstracts to screen; of those 254 matched the initial inclusion criteria and were analyzed for relevance. Inclusion criteria: 1. Original research, 2. Include children/adolescents with obesity, 3. Utilize validated measurements of EE (Indirect calorimetry, doubly labelled water, etc.). Screening and quality assurance processes involved two main reviewers and a third to resolve conflicts.
Intermediate results: Included studies largely examined determinations of EE, comparisons of EE in children with obesity to those without, and changes in EE after weight loss. Our next step in data extraction will be to inspect EE differences in children and adolescents with obesity compared to those without, specifically regarding physical activity EE, age, and sex.
Statement of Importance: The results of this review will establish the current state of knowledge regarding EE and energy balance in children and adolescents with obesity.

120- Assessment of Brown Adipose Tissue and Energy Expenditure in youth and children using a Whole-Room Indirect Calorimetry System: A Pilot Study

Daniel Labach, Bader Alamri, Paige Cheveldayoff, Dongdong Wang, Elizabeth Gunn, Zubin Punthakee, Gregory Steinberg, Katherine Morrison

Background: Pediatric obesity, which results from an imbalance between energy intake and energy expenditure (EE), presents significant public health challenges. Brown adipose tissue (BAT) promotes EE by inducing a futile cycle that expends energy as heat. BAT activity, which is stimulated by cold exposure, is lower in adults and children with overweight/obesity compared to normal BMI controls. The current study explores the correlation between cold-induced BAT activity and changes to EE and respiratory exchange ratio (RER) in children.
Methods: Twenty children are being recruited to a three-visit cross-sectional study. At visit 1, BAT content/activity are assessed before and after cold stimulation by magnetic resonance imaging (MRI) of supraclavicular adipose tissue. At visits 2 and 3, EE and RER, with or without cold exposure, are measured by gas exchange in a whole-room indirect calorimeter over 4 hours. Rates of glucose and fatty acid oxidation are calculated using RER. A standard meal is also consumed halfway through the visit to analyze diet-induced thermogenesis (DIT).
Results: To date, 9/20 participants have been recruited (6 males, 3 females; ages 9-17, median age: 15). Preliminary data indicate that EE is higher with cold exposure (18.2% increase in resting EE and 33.2% increase in post-meal EE); however, these increases are not associated with increased BAT activity. The increase in post-meal EE is accompanied by a decrease in RER, indicating greater fatty acid oxidation and less glucose oxidation.
Significance: Completion of this study will inform our understanding of how BAT metabolism influences EE dynamics in children.

121 - Facilitators and Barriers to Engaging Individuals Who Use Cannabis During Pregnancy in Research Studies: A Literature Review

Ashwini Pugazhendhi, Leticia Hernandez Galan, Sandra Seigel, Samara Chitayat, Alison Shea, Shamini Selvakumar, Rochelle Maurice, Saara Greene, Breklyn Bertozzi, Ally Zhao, Sandeep Raha, Lucia Giglia, Elyanne M. Ratcliffe

Background: Individuals who consume cannabis, particularly those who are pregnant or parenting, continue to encounter stigma and increased surveillance in health and social care settings. The FiNCH study aims to measure the feasibility of investigating the effects of cannabis exposure in utero on the neurodevelopmental outcomes of infants and toddlers. One component of FiNCH will involve conducting focus group discussions with parents to explore the factors that affect the participation of pregnant individuals who use substances in research studies.
Methods: The literature review was conducted by accessing existing sources on the barriers and facilitators of engaging with people who use substances in health and social care settings. Relevant peer-reviewed publications were identified using key search terms such as Substance Use, Cannabis Use, Pregnancy, Barriers and Facilitators and their variations in PubMed and OVID.
Results: Common fears included the potential involvement of child protection services and discovering potential health/neurodevelopmental concerns through the study. Common themes on the impacts of substance use during pregnancy on the ability to access clinical care were also identified. Factors supporting engagement with pregnant people included flexibility in study participation, individualized incentivization and free community outreach sessions on topics of interest to parenting people who use drugs. These findings, coupled with the analyses from FiNCH, can guide future research efforts to respond to the public health needs of pregnant individuals who consume cannabis from their own perspective. Adopting such an approach can diminish stigma and thus help reduce barriers to accessing care.

122 - Bereaved children's questions about illness, death, and grief: What they wonder and how to respond

Ashwini Pugazhendhi, Karleigh Sutton, Ceilidh Eaton-Russell, Sandra Ross, Joanna Humphreys

Objective: Grieving children and youth face heightened mental health risks related to unanswered questions and misconceptions about illness and death. Professionals working in pediatrics are well-positioned to provide clarification and supportive dialogues, however a guiding framework is needed to anticipate questions and inform supportive responses in these challenging conversations.
Methods: Bereaved young people aged 6 to 17 attended a weekend camp combining grief education and support. Between 2009 and 2023, 494 anonymous "Ask the Doctor" questions were collected from campers. Questions were thematically analyzed by a team of clinicians and researchers. The coding process was collaborative and consensus-seeking, following the steps of open-coding, axial-coding and selective-coding.
Results: From the 494 questions, 344 were considered to be expressing "concerns," while 150 were considered "curiosities." Among the "concerns," 53% dealt with the aspects of physical illnesses, death, and grief, while 47% were existential. Questions were first categorized by their focus on: physiology; condition; dying process; after death; grief; and moral/spiritual. Connections between categories were explored and guided selective-coding based on the type of question: how it works; catch; cause; cure/treatment; care; connect; or why/existential. Mapping questions' foci on one axis and type of question on the other, produced a matrix that formed the core of this conceptual framework.
Conclusion: Professionals in pediatrics can use this framework to create intentional opportunities for grieving children and youth to voice their questions. With increased abilities to anticipate and respond to these unanswered questions, healthcare workers can more effectively support this underserved population.

123- Developing a Protocol for Measurement-Based Care in School Mental Health Settings

Nicole S. J. Dryburgh, Linda T. Duong, Kathy Georgiades

Background: Schools serve as primary settings for youth mental health (MH) care, underscoring the importance of evidence-based practice. One pressing gap, however, is a lack of measurement-based care (MBC). MBC is a treatment approach where outcomes are regularly and systematically measured and shared back with clients. The goal of this practice is to track progress, tailor interventions and facilitate shared decision making. Despite the benefits, MBC is rarely implemented in school and community MH settings.
Objective: This research aims to develop-through consensus-based methods-a protocol for school MBC. It will include decisions on what to measure, how to measure (i.e., tools), when to measure (i.e., timepoints), and how to best present results to clients to facilitate engagement and empowerment. This process will result in (1) a set of measures to monitor intervention progress and (2) methods for implementing standardized assessment in schools and sharing with clients.
Methods: This study will leverage previous reviews and sets of measures developed for youth being treated for MH conditions in clinical settings and gather feedback on what should be adapted for schools. Input from an 'Experts by Experience' Focus Group (youth with lived experience) will inform construct prioritization. Subsequently, an 'Experts by Profession' Focus Group (clinical, academic, community, and political stakeholders) will provide feedback on constructs, measures, and processes. The final set will undergo open review before dissemination.
Conclusion: The resulting set can lay the foundation for enhancing evidence-based MBC with the ultimate goal of improving assessment and intervention outcomes in school MH care.

124- Risk of food insecurity and protective factors among children with Autism Spectrum Disorder (ASD) or other Special Healthcare Needs (SHCNs)

Keiko Marshall, Carol Duh-Leong, Anne Fuller

Background: Children with Autism Spectrum Disorder (C-ASD) are uniquely vulnerable to nutritional deficiencies. Food insecurity directly impacts access to nutritious food, and complex relationships with protective factors may vary this experience for children with ASD, other special healthcare needs (O-SHCNs), or no SHCNs (N-SHCNs).
Objectives: Compare odds of food insecurity among C-ASD, O-SHCNs, or N-SHCNs and odds of four protective factors: Family Resilience (FR), Family-Centred Care (FCC), Neighbourhood Support, and Food/Cash Support Programs (FCPs).
Methods: Cross-sectional study using data from the 2020-21 National Survey of Children's Health. Independent variable was child's healthcare needs (ASD vs. O-SHCN vs. N-SHCNs). Dependent variables were food insecurity and four protective factors. Logistic regression models assessed associations between independent and dependent variables, adjusting for sociodemographic characteristics.
Results: 73,433 participants were included, of whom 2.25% had ASD, 16.03% had O-SHCNs, and 81.7% had N-SHCNs. Compared to N-SHCNs, C-ASD or O-SHCN had greater odds of food insecurity (C-ASD: AOR=1.75, 95% CI: 1.14-1.76; O-SHCNs: AOR=1.48, 95% CI:1.36-1.62). C-ASD or O-SHCNs also had lower odds of FR, FCC, and living in supportive neighbourhoods. There were no differences in odds of receiving FCPs.
Limitations: Food insecurity is assessed at household level; parents likely shield children from nutritional hardship. Data is by parental self-report. Survey is cross-sectional; causality cannot be inferred.
Conclusions: Children with SHCNs, particularly ASD, were more likely to experience food insecurity, which may be explained by lower odds of most protective factors. Future research will investigate roles of protective factors in mitigating food insecurity and its effects.

125- Healthy Active Living Programs for New Immigrant Families in High-Income Countries: A Scoping Review

Fazle Rabbi, Amal Khan, Laura Banfield, Russell de Souza

Background: New immigrants to Western countries face significant barriers to adopting and maintaining active lifestyles. It is imperative to review the existing literature to understand the full spectrum of underlying barriers, facilitators, and existing programs.
Objectives: To conduct a scoping review of existing literature on barriers and facilitators of healthy active living for new immigrants in developed countries and identify program interventions that have effectively addressed these challenges.
Methods: The scoping review was designed according to the PRISMA Extension for Scoping Reviews (PRISMA-ScR). The search strategy encompassed key concepts such as "Immigrants," "High-income countries," and "Physical activity"/ "Active living"/"Healthy living." Summarizing data from the chosen studies, we employed the Template for Intervention Description and Replication (TIDieR) table.
Results: After duplication removal, we screened 5937 titles and abstracts. Two reviewers reviewed the full text of 89 articles, and 48 articles were included in the final review. The most reported barriers were gender-related issues, public transport issues, lack of time, lack of social support, and language barriers. Key facilitators included community resources, robust social support networks, and culturally tailored programs. Successful program interventions include community-based interventions, school-based interventions, and family-based interventions.
Limitations: The review primarily focused on studies conducted in high-income countries, potentially limiting the generalizability of findings to other settings.
Conclusion: The study identified diverse factors influencing adopting and maintaining active lifestyles, reflecting the complex interplay of socio-cultural, environmental, economic, and individual-level determinants.

126- Exploring the Barriers to and Facilitators of Inclusive Physical Education for Ontario Elementary Students

Praveen Nadesan, Laura Banfield, Shania Bhopa, Angenie Christy Antony, Russell de Souza

Background: Physical education (PE) provides several benefits for developing children, such as improvements to physical health, mental health, academic performance, cognition, and social skills. However, not all youth are fully engaged in PE because such classes may not be designed to accommodate the needs of students with disabilities or accessibility issues.
Objective: This scoping review aims to identify the barriers and facilitators of inclusive PE for Ontario elementary students.
Methods: An inclusivity focused search strategy was designed with an information specialist in December 2022 to identify Canadian articles published between 2000 and 2022 in six electronic databases: Web of Science, ERIC, Sportdiscus, Sociological Abstracts, APA Psycinfo, and Medline.
Results: A total of 40 studies were included and synthesized to identify four main themes: exceptionalities, culture, gender, and teacher related factors. Gaps identified in the literature include the limited exploration of exceptional students' first-hand perspectives, ethnically diverse groups, gender non-binary youth, intersectionality, and the lack of inclusive training within the Ontario PE teacher education program.
Limitations: The exclusion of grey literature limited the representation of multiple interest groups within inclusive PE, while the scarcity of Ontario-specific scholarly research led to reliance on sources outside of Ontario, reducing geographical specificity.
Conclusion: In mapping the academic literature geared towards understanding inclusive PE for Ontario elementary students, this review has identified barriers and facilitators, as well as gaps which may be addressed with future research, with the aim of normalizing inclusivity in the PE curriculum.

127- Accessibility Accommodations in Patient-Oriented Research Partnerships

Amanda St. Dennis, Jessica Geboers, Danny Steeves, Samantha Dong

Accommodation is a human right and an avenue to full participation and respect for all people in society, including but not limited to research. Just as disability varies from person to person, so too will the act and provision of accommodation vary. The Accessibility Accommodations in Patient-Oriented Research Partnerships booklet was created to assist in conversation and brainstorming when discussing accommodations in research partnerships. The booklet provides family members, people with lived disability experience, clinicians, and researchers with different ideas and types of accommodations and can be used as a springboard to creativity, conversation, and collaboration about the topic of individual accommodations (e.g., accommodations related to communication, built environment, meetings, conferences, technology etc.). The booklet was created by a 4-member team, all of whom live in Ontario, Canada and identify as either having disabilities and/or neurodivergencies in varied ways. It was created as part of CanChild, McMaster University, and Kids Brain Health Networks' Family Engagement in Research course - Winter 2023 session. Accommodation can and should change as needed to ensure full participation in research partnerships. This booklet will be presented as a tool not only for those entering new research teams and partnerships but also for those who are already in established research teams. It is believed that this is a tool that can and should be utilized at any and all stages of research.

128- Child Health Research Needs You!

Sara Yantho, Jasmine Bravo, Allison Sohanlal

Child Health Research depends on caregivers sharing their lived experiences to build meaningful research projects. Many families are unaware they can participate in research, and if are interested- are not aware of how/ where to access information about projects. By creating visually simplistic posters with easy-to-understand information and written to NICU parents, we aim to attract more caregivers seeking information about how to assist with projects and collaborate with researchers.

129- Co-designing healthy activity living interventions with families, service providers, and community members in Hamilton, Ontario: A SCORE! project

Natasha Ross, Sanya Vij, Aamiza Zahid, Nora Abdalla, Sujane Kandasamy, Natalie Campbell, Patricia Montague, Deborah DiLiberto, Russell de Souza, Sonia Anand, Gita Wahi on behalf of the SCORE! research team

Rationale: Newcomer children face a greater burden of obesity and related complications such as type 2 diabetes. This project is in partnership with a newcomer community in the Riverdale neighbourhood in Hamilton, Ontario. The community of Riverdale has higher material deprivation and higher proportions of immigrants when compared to other areas of the city of Hamilton.
Objective: The objective of this study was to co-design interventions that aim to promote physical activity (PA) for children and families in Riverdale.
Methods: An experience-based co-design (EBCD) approach was selected as it is suitable for multiphase projects and in designing interventions. Workshops included community partners, community members, and organization leads in the community. Learnings and identified touchpoints from the community were presented to participants for discussion and modification. Participants discussed any barriers and facilitators and were asked to provide suggestions on how to improve user experiences at these touchpoints. Workshop participants then collaborated to design interventions.
Results: Three SCORE! co-design workshops were facilitated with diverse groups in the community. Participants (n=45) identified the greatest facilitators to HAL as improving awareness of programs, providing a welcoming environment, and transportation. The greatest barriers to HAL for children and families were cost of programs, parental availability and unfamiliarity of spaces that results in discomfort. In small groups, participants led the design of seasonal community interventions to increase physical activity for children and families.
Conclusion: Through the EBCD workshops, tailored interventions addressing barriers and facilitators to PA for newcomer families in Riverdale were developed with the community.

130- Adaptation and Validation of the Washington Group/UNICEF Child Functioning Module in a Nationally Representative Sample of Canadian Children and Youth

Emma Nolan, Katherine Cost, Ryan Miller, Li Wang, Chen Claire Yun-Ju, Jordan Edwards, Eric Duku, Stelios Georgiades, Peter Szatmari, Katholiki Georgiades

Objectives/background: The Washington Group/UNICEF Child Functioning Module (WG/UNICEFCFM) was developed to assess disability and functional difficulties among children and youth in national household surveys. The WG/UNICEF CFM has predominantly been evaluated in low-to-middle income countries. To date, no study has evaluated the use of the WG/UNICEF CFM in a general population sample within a high-income country. This study examined the latent structure of the WG/UNICEF CFM using a graded response scale in a nationally representative sample of children and youth aged 5-17 years in Canada.
Methods: Data from the 2019 Canadian Health Survey on Children and Youth (n=33,420) were assessed in four linked phases focusing on the following 9 domains: self-care, communication, learning, remembering, concentrating, accepting change, behavior, relationships, and emotions. An exploratory factor analysis was conducted first, followed by, confirmatory factor analysis, evaluations of measurement invariance across age and sex and external validity using structural equation modeling and instrumental variables.
Results: Results indicated that a two-factor model best described the data. Factor one represented Cognitive, Behavioural and Interpersonal Functional Difficulties; Factor two represented Emotional Functional Difficulties. External validity tests supported the two-factor model by demonstrating stronger associations with instrumental variables measuring similar underlying constructs.
Conclusions: This study extends existing evidence and demonstrates the utility of the WG/UNICEF CFM for assessing childhood functional difficulties as a dimensional construct in a general population sample within a high-income country. It is the first study to explore the underlying latent structure of functional difficulties using graded responses of levels of functional difficulty.

131 - The Family Engagement in Research Leadership Academy: An Advanced Training Opportunity to Support Emerging Leaders in Child Health Research

Samantha Micsinszki, Donna Thomson, Connie Putterman, Rachel Martens, Alice Soper, Dayle McCauley, Michelle Phoenix, Victoria Forster, Jan Willem Gorter, Andrea Cross

Background: Family engagement in research (FER) is a growing field in Canada with leadership roles being established to support meaningful engagement of patients and families at project, organizational, and systems levels. However, there are limited training opportunities to support emerging FER leaders in their efforts to promote meaningful engagement in their organizations or communities. To address this training gap, family leaders and researchers co-developed the FER Leadership Academy.
Objective and Progress to Date: This presentation will provide an overview of the FER Leadership Academy and the process of its co-development and co-facilitation. We draw upon our interdisciplinary team's reflections on the co-development and implementation of the first three cohorts (32 family and researcher graduates to date). The course is grounded in five core competency areas for FER leadership, drawn from multiple sources of literature, lived experience and expertise: self-awareness, communication, empathy and compassion, advocacy, and entrepreneurship. The course includes weekly synchronous sessions, small group mentorship, and an individual project in the form of a FER Leadership Learning/Action Plan and Elevator Pitch. Using examples of course activities and assignments, we describe how participants build knowledge and skills in the identified FER leadership core competencies.
Implications: The FER Leadership Academy is supporting leaders who are championing meaningful family engagement at a national and international level. We will share the FER Leadership Academy model, discuss how the five competencies relate to FER leadership, and describe how they can be used to ground capacity building efforts in this area.

132 - Protocol for the Design and Evaluation of a Community Advisory Board

Bhopa Shania, Kandasamy Sujane, Memon Parsa, Apatu Emma, Wahi Gita, Diliberto Deborah, Raza Momina, Montague Patricia, Anand Sonia, & de Souza Russell

Background: Meaningful community engagement is essential to successful academic-community partnered research. Community Advisory Boards (CABs) serve as a voice for the community and local study participants and help ensure timely and ethical achievement of research goals, facilitate information exchange, and generate ideas. This work aims to describe the formation and operation of a CAB as part of SCORE!, a Community-Based Participatory Research (CBPR) project designed to understand ways of promoting healthy, active living in the community of Riverdale in Hamilton, Ontario, Canada.
Objective: To describe the principles followed in the creation of a CAB that serves as a crucial link between the community and researchers.
Methods: CBPR methodology, guided by the Social Ecological Model (SEM), was the theoretical framework used to develop a holistic and effective approach to address health needs, focus on stakeholder engagement, ensure cultural relevance and multi-level community representation to influence policy.
Results: The successful formation and operation of a Community Advisory Board hinged upon six critical domains: focus, recruitment, operation, maintenance, sustainability, and retention. A comprehensive understanding of potential emerging challenges bolsters the CAB's continued functioning and durability.
Limitations: Ensuring that all community segments were represented, especially newcomer and hard-to-reach groups, despite efforts to ensure broad stakeholder engagement.
Conclusion: The CAB is critical in the SCORE! project's formation, evaluation, and operation. By leveraging diverse community stakeholders' insights, interests, and experiences, the project is poised to develop interventions that resonate with the local community.

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