CPEG GCEP

Canadian Pediatric Endocrine Group
Groupe canadien d'endocrinologie pédiatrique

February 23-25, 2022

Digital Conference

16th Annual

CPEG Scientific Meeting

Hosted in Calgary by: Division of Endocrinology
Alberta Children's Hospital

Official Program

Welcome to Calgary (virtually!)

We would like to extend to you a warm Calgarian welcome to the 16th Annual Scientific Meeting of the Canadian Pediatric Endocrinology Group (CPEG). At the start of last year, we were deliberating over whether we should aim to host a virtual or an in-person conference. Early on we discounted a hybrid meeting. After the fourth wave of the pandemic started to come into effect last fall, we made the decision to go virtual. This decision was facilitated by support from the University of Toronto Continuing Professional Development group who helped create last year's virtual meeting.

We have produced a scientific program that includes topics requested from prior CPEG evaluations and features recognized speakers in their field. As per last year, the conference platform is easy to navigate and interactive. We encourage you to network with colleagues at our social event on Thursday evening and during the drop-in informal "lunch-rooms". Please also visit our industry partners who support our Scientific Meeting.

Welcome to CPEG 2022!

Rebecca, Carol, Kate, Matthew, Paola and Wendy (Local Organizing Committee, Calgary)

Dear Delegates,

Welcome! I would like to extend to you a warm virtual welcome to the 16th Annual Scientific Meeting of the Canadian Pediatric Endocrine Group (CPEG).

Our past meetings have provided a wonderful opportunity for the Canadian pediatric endocrine community to come together to learn, network, share ideas, visit old friends, and make new ones. Of course, last year and this year's virtual meetings are a bit different but hopefully still offer each of you many of these same opportunities, just perhaps in a different format. About 6 months ago we made the final decision to do this conference virtually. It was a difficult decision at the time, but both fortunately and unfortunately, a correct decision. This year, in addition to the expected great science, we will also continue many of the positively reviewed digital initiatives from last year's meeting including the recorded poster talks, recorded sessions for later viewing, chat networking, and the digital exhibit hall. As an added event this year, the local committee has planned a fun virtual social event for Thursday evening!

With our partners at the University of Toronto Continuing Professional Development group, the Scientific Committee has developed a wonderful program. As in past years, the meeting highlights work from our local hosts, this year "virtual" Calgary, and also includes presentations by other national and international experts. As always, learners and others will present their work in scheduled oral and poster abstract sessions. We will also continue to enjoy high level scientific symposia and the now infamous CPEG debate. We hope that our efforts have produced a virtual program that meets the needs of all attendees including nurses, scientists, endocrinologists, and trainees.

I would like to thank Rebecca Perry, the Local Chair, and the entire Scientific Committee, for their hard work in planning this meeting. I also thank our sponsors who continued to support us this year and made this meeting possible. The virtual format allows for a unique interaction with exhibitors and I encourage you to explore the virtual exhibits. I would also like to thank those sponsors who also support our CPEG Fellowship Awards allowing us to train our future endocrinologists. This year's awardees will be announced at the end of this meeting.

I wish you all a stimulating and collegial meeting and look forward to seeing and hearing you all on my computer screen.

Seth Marks MD, MSc, FRCPC
Scientific Chair
CPEG 2022 Scientific Meeting

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Program Overview

The 16th Annual Scientific Meeting of Canadian Pediatric Endocrine Group (CPEG) includes a program of current and high-level content in pediatric endocrinology. The meeting also provides an opportunity for the Canadian pediatric endocrine community to come together, network and share ideas.

Like last year, this year's meeting will be done in a virtual format due to the ongoing worldwide COVID-19 pandemic. The organizing committee has worked hard to adapt the annual meeting to this virtual format, including lessons that we learned from last year's virtual meeting, and still provide an exceptional educational experience.

The program includes theme-based symposia, an annual debate, oral abstracts, and poster presentations. Presenters include national and international experts. The meeting also provides a forum for trainees to present their work.

We have an exciting program planned for this year that should meet your educational needs as it has in past years.

Program Learning Objectives

At the conclusion of this conference, the participants will be able to:

1. Implement a psychosocial needs assessment in the care of children with diabetes
2. Identify the usefulness of patient registries in advancing the care of children with diabetes
3. Utilize current approaches in the management of endocrine tumors in children
4. Further develop a comprehensive care approach for children with congenital adrenal hyperplasia
5. Understand the complexity of the potential use of medications in the management of pediatric obesity

Session Learning Objectives

Fellows' Symposium

Adrenal Suppression - *Alexandra Ahmet*
Objectives:
1. Review the current literature about adrenal suppression in children
2. Discuss the controversies about diagnosis and management of this iatrogenic entity
3. Describe an approach to identification, screening and management of children at risk

Transition to Community Practice - *Karin Winston*
Objectives:
1. Understand the unique features of working in community pediatric endocrinology.
2. List pros and cons for various ways to set up a community practice.
3. Describe common pitfalls of transitioning to working in the community

Symposium I: Endocrine Tumors

Pediatric Thyroid Tumors - *Jonathan Wasserman*

Objectives:

1. To review clinical features of papillary thyroid carcinoma presenting in childhood, to distinguish this from adults and to examine nuances of clinical presentation based on age.
2. To describe pediatric thyroid tumour genomics and to relate this to tumour behaviour and prognosis.
3. Explore presenting features that can help streamline clinical decisions
4. Discuss possible opportunities for future improvement in the management of children with hyperinsulinism

Surgical Management of Endocrine Tumors - *Janice Pasieka*

Objectives:

1. Describe the unique presentation and the surgical options for primary HPT in pediatric population compared to the adult
2. Able to select the appropriate perioperative workup and preparation of Pheochromocytomas / paragangilomas

Genetics of Endocrine Tumors - *Mike Innes*

Objectives:

1. Identify the clinical features of common genetic Endocrine tumor predisposition syndromes
2. Contrast the relative strengths and limitations of different genetic testing approaches in the investigation of pediatric endocrine tumor syndromes
3. Explain the issues relevant to genetic testing in minors, for both diagnostic and presymptomatic indications

Symposium II: Diabetes

The Monitoring Individual Needs in Diabetes (MIND) Youth Questionnaire (MY-Q) - *Maartje de Wit*

Objectives:

1. Participants will understand the advantages of using PROMs in routine diabetes care
2. Participants will gain knowledge on how to use the MY-Q questionnaire in the care of children with diabetes

Canadian Implementations of My-Q - *Alexandra Ahmet, Ian Zenlea*

Objectives:

1. To describe the implementation of the MYQ into two pediatric diabetes programs
2. To discuss the challenges and benefits of routine screening for health-related quality of life and emotional well-being among adolescents with T1D
3. To identify opportunities to implement similar initiatives into "your" diabetes clinics

SWEET Pediatric Diabetes Initiative and CAnadian Pediatric diAbetes ConsortIum - *Daniele Pacaud*

Objectives:

1. Provide examples of Pediatric Registries which were successful in advancing the care of children living with diabetes
2. Contrast the construct and possibilities of SWEET and CAPACIty
3. Decide on having their centre participate in CAPACIty to advance the care of Canadian children living with diabetes

Symposium III: Congenital Adrenal Hyperplasia

CAH – A Physician's Perspective - *Richard Ross*
Objectives:
1. To understand the challenges in managing glucocorticoid replacement therapy in CAH
2. To understand the impact of glucocorticoid treatments in development on control of CAH

CAH – A Surgeon's Perspective - *Peter Metcalfe*
Objectives:
1. To discuss the goals of surgical correction for CAH
2. To discuss the risks and complications from feminizing genitoplasty / partial urogenital mobilization in CAH
3. To discuss the controversy about performing genital surgery in children with a disorder of sexual differentiation

CAH – A Parent's Perspective - *Jenna Whaley Coura*
Objectives:
1. Educate attendees about the experience of living with a patient with CAH and managing their care
2. Equip attendees with tools to better relate to and educate CAH patients and their families
3. Empower ongoing advocacy work to improve the outcomes of patients with adrenal insufficiency

Debate

Be It Resolved That Medications Should Be Used In The Management of Pediatric Obesity -
Pro: *Jill Hamilton* Con: *Mélanie Henderson*
Objectives:
1. To review clinical features of papillary thyroid carcinoma presenting in childhood, to distinguish this from adults and to examine nuances of clinical presentation based on age.
2. To describe pediatric thyroid tumour genomics and to relate this to tumour behaviour and prognosis.
3. To recognize the expected weight changes following lifestyle, pharmacotherapy interventions in the pediatric age range
4. To identify the medications commonly used in pediatric weight management
5. To describe the pros and cons of use of medication for treatment of pediatric obesity

CPEN Symposium

Update on Birth Control Options - *Tara Justice*
Objectives:
1. Develop increased comfort in discussing sexual health and contraception with adolescents under the care of Pediatric Endocrinology
2. Develop familiarity with the various forms of contraception available in Canada
3. Understand how choice of contraceptive is affected by common endocrine disease processes (Diabetes, PCOS, Low Bone Mineral Density, & Obesity)

Thyroid Ablation Protocol – A Nurse's Perspective - *Peggy Kalancha*
Objectives:
1. Identify the purpose of using thyroid ablation as a treatment for thyroid cancer
2. Explain the steps of setting up thyroid ablation for their patients
3. Access resources available to support their patients and families requiring thyroid ablation treatment

Reframing Memories of Pain in Children - *Melanie Noel*
Objectives: TBA

Interactive Learning

Each presentation will include a 25% (minimum) of interactivity from a combination of audience submitted questions throughout the presentations via the chat and audience polling questions.

Accreditation

Royal College of Physicians and Surgeons of Canada - Section 1

This event is an Accredited Group Learning Activity (Section 1) as defined by the Maintenance of Certification Program of the Royal College of Physicians and Surgeons of Canada, and approved by Post MD Education – Continuing Professional Development Temerty Faculty of Medicine, University of Toronto. You may claim up to a maximum of **8.5 hours** (credits are automatically calculated).

American Medical Association – AMA PRA Category 1 Credit™

Through an agreement between the Royal College of Physicians and Surgeons of Canada and the American Medical Association, physicians may convert Royal College MOC credits to AMA PRA Category 1 Credits™. For more information on the process to convert Royal College MOC credit to AMA credits please see: https://www.ama-assn.org/education/earn-credit-participation-international-activities.

European Union for Medical Specialists (EUMS) EC-MEC® Credit

Live educational activities recognized by the Royal College of Physicians and Surgeons of Canada as Accredited Group Learning Activities (Section 1) are deemed by the European Union of Medical Specialists (UEMS) eligible for ECMEC®.

Faculty Disclosure

It is the policy of the University of Toronto, Faculty of Medicine, Continuing Professional Development to ensure balance, independence, objectivity, and scientific rigor in all its individually accredited or jointly accredited educational programs. All speakers, moderators, facilitators, authors and scientific planning committee members participating in University of Toronto accredited programs, are required to disclose to the program audience any real or apparent conflict(s) of interest that may have a direct bearing on the subject matter of the continuing education program. This pertains but is not limited to relationships within the last FIVE (5) years with for-profit organizations, not-for-profit and public sector sponsors and donors, biomedical device manufacturers, or other corporations whose products or services are related to the subject matter of the presentation. The intent of this policy is not to prevent a speaker with a potential conflict of interest from making a presentation. It is merely intended that any potential conflict of interest should be identified openly so that the listeners may form their own judgements about the presentation with the full disclosure of facts. It remains for the audience to determine whether the speaker's outside interests may reflect a possible bias in either the exposition or the conclusions presented.

Scientific Committee

- Seth Marks (Chair)
- Rebecca Perry (Local Chair)
- Diane Wherrett
- Manpreet Doulla
- Sharon Costantini
- Matthew Feldman
- Paola Luca
- Wendy Schwarz
- Mélanie Henderson
- Mihaela Glodeanu
- Caroline Boucher
- Jill Hamilton

Invited CPEG Speakers

Alexandra Ahmet MD FRCPC
Associate Professor, Pediatrics
University of Ottawa
Chief, Division of Pediatric Endocrinology
Children's Hospital of Eastern Ontario
Ottawa, ON

Maartje de Wit PhD
Senior Researcher
Department of Medical Psychology
Amsterdam University Medical Centers
The Netherlands

Jill Hamilton MD FRCPC
Professor, Pediatrics
Division Head, Endocrinology
University of Toronto
Senior Associate Scientist, Research Institute
Director, Centre for Healthy Active Kids
Mead Johnson Chair in Nutritional Science
The Hospital for Sick Children
Toronto, ON

Mélanie Henderson MD FRCPC PhD
Associate Clinical Professor
Division of Endocrinology and Diabetes
University of Montreal
Pediatric Endocrinologist
Centre Hospitalier Universitaire Sainte-Justine
Montreal, QC

Micheil Innes MD FRCPC FCCMG
Professor,
Medical Genetics and Pediatrics
Alberta Children's Hospital Research Institute
Cumming School of Medicine
University of Calgary
Calgary, AB

Peter Metcalfe MD MSc FRCSC
Assistant Professor, Department of Surgery
Program Director, Division of Urology
University of Alberta
Pediatric Urologist
Stollery Children's Hospital
Calgary, AB

Danièle Pacaud MD FRCPC
Professor, Department of Pediatrics
Cumming School of Medicine
University of Calgary
Calgary, AB

Janice L Pasieka MD FRCSC FACS
Endocrine Surgeon
Clinical Professor of Surgery and Oncology
Cumming School of Medicine
University of Calgary
Section of General Surgery
Divisions of Endocrine Surgery, Surgical Oncology and Endocrinology
Secretary-Treasurer of the IAES
Calgary, AB

Richard Ross MD FRCP
Professor, Clinical Endocrinology
Head of Academic Unit of Diabetes, Endocrinology & Metabolism
Department of Oncology & Metabolism
Faculty of Medicine, Dentistry & Health
University of Sheffield
Sheffield, UK

Jonathan Wasserman MD FRCPC
Staff Physician, Endocrinology
Project Investigator, Genetics and Genome Biology
Hospital for Sick Children
Associate Professor, Paediatrics
Toronto, ONStaff Endocrinologist
Hospital for Sick Children
Toronto, ON

Jenna Whaley Coura BA
CAH Parent / Patient Advocate
Author: Welcome to Congenital Adrenal Hyperplasia: A Handbook for New CAH Families
San Diego, CA

Ian S. Zenlea MD MPH
Assistant Professor
Paediatric Endocrinology & Institute for Health Policy, Management & Evaluation
University of Toronto
Clinician Scientist & Lead, Family and Child Health Initiative
Trillium Health Partners
Toronto, ON

Invited CPEN Speakers

Tara Justice MSc MD FRCSC
Fellow
Paediatric & Adolescent Gynecology
University of Calgary
Calgary, AB

Peggy Kalancha RN BSN
Clinical Resource Nurse
Pediatric Endocrine
Gynecology and Metta Gender Services Clinics
Alberta Children's Hospital
Calgary, AB

Melanie Noel PhD RPsych
Associate Professor
Clinical Psychology
Killam Memorial Emerg Leader
University of Calgary
Calgary, AB

Invited Fellows' Symposium Speakers

Alexandra Ahmet MD FRCPC
Associate Professor, Pediatrics
University of Ottawa
Chief, Division of Pediatric Endocrinology
Children's Hospital of Eastern Ontario
Ottawa, ON

Karin Winston MD MSc FRCPC
Clinical Assistant Professor
Department of Pediatrics
University of Calgary
Calgary, AB

Invited CPEG Speaker Biographies

Alexandra Ahmet
Dr. Alexandra Ahmet is a pediatric endocrinologist and the Chief of the Division of Endocrinology at the Children's Hospital of Eastern Ontario and at an Associate Professor of pediatrics at the University of Ottawa. Dr. Ahmet has a clinical, research and advocacy focus on patient safety with a specific emphasis on adrenal suppression in children. More recently, Dr. Ahmet has also led the development, implementation and evaluation of new clinical programs for adolescents with Type 1 Diabetes with a goal of providing regular patient focused education in preparation for transition to adult care, and formal evaluation of quality of life and mental health status as part of routine diabetes care.

Maartje de Wit
Dr. Maartje de Wit is a senior researcher and PI diabetes psychology at the department of Medical Psychology Amsterdam University Medical Centers in the Netherlands. In her research, she focusses on the psychosocial aspects of diabetes in youth and (young) adults with type 1 diabetes. She is an expert in the integration of Person-reported outcome measures (PROMS) in the care of (young) people with diabetes, and developed the MIND-Youth Questionnaire (MY-Q) to monitor quality of life of youth with type 1 diabetes in paediatric diabetes care.

Jill Hamilton
Jill Hamilton received her medical degree at the University of Ottawa, Ontario, and Paediatric specialty degree at the University of Toronto. She trained in Paediatric Endocrinology at The Hospital for Sick Children (SickKids), Toronto.

She is currently Head of the Division of Endocrinology, Department of Paediatrics, Professor at the University of Toronto, and Senior Associate Scientist at the Research Institute at SickKids. She is the medical director of the SickKids Team Obesity Management Program (STOMP), and director of the Centre for Healthy Active Kids at SickKids.

Mélanie Henderson
Dr Henderson's research focuses on pediatric cardiometobolic health and its epidemiology, particularly the influence of lifestyle habits (physical activity, sedentary behavior, diet and sleep) on metabolic health in various population, including healthy children and those living with Type 1 and Type 2 Diabetes, in order to identify the best preventive strategies.

Micheil Innes
Dr. Micheil Innes is a Professor of Medical Genetics and Pediatrics at the Cumming School of Medicine and an attending clinical geneticist at the Alberta Children's Hospital. The goals of his academic program including novel gene identification, syndrome delineation, genetics of Canadian founder populations and the translation of novel genomic technologies to clinical practice. He is a past chair of the Specialty Committee of Medical Genetics and Genomics of the Royal College of Physicians and Surgeons of Canada, the national coordinator of Orphanet Canada and an Associate Editor of the American Journal of Medical Genetics and the journal Human Genetics and Genomics Advances. His clinical interests including neurogenetics, dysmorphology and endocrine genetics, and for 20 years he has been the attending geneticist associated with the multidisciplinary Hereditary Endocrine Clinic at the Tom Baker Cancer center.

Peter Metcalfe
Dr. Metcalfe has been a pediatric urologist at the Stollery Children's Hospital since 2006. He was born and raised in Edmonton and graduated from University of Alberta medical school in 1999. He attended Dalhousie University for his Urology residency until 2004 and completed his clinical training at Indiana University with a 2-year fellowship in Pediatric Urology. In 2010, he completed an MSc. in Experimental Surgery. He is currently an Associate Professor at the University of Alberta and Program Director for the Division of Urology. Other roles include President of the Prairie Urological Association, President of the Urology Section of the AMA, and Surgeon Champion for the Stollery P-NSQIP program.

His current clinical interests include complex reconstruction of urinary tract and genital anomalies. His research interests include preventing the pathophysiology of partial bladder outlet obstruction with mesenchymal stem cells, clinical outcomes with neuropathic bladders, and the prevention of testicular torsion.

Danièle Pacaud
Dr. Danièle Pacaud, MD, FRCPC is a Professor of Pediatrics at the Cumming School of Medicine, University of Calgary and Pediatric Endocrinologist working at Alberta Children's Hospital Diabetes and Endocrine Clinics for more than 20 years. She has ongoing involvement in clinical research in pediatric endocrinology with a focus in pediatric diabetes.

Janice L Pasieka
Dr. Janice L Pasieka graduated from the University of Western Medical School and did her General Surgery Training at the University of Calgary. She then did two and a half years of Endocrine Surgical Training at the University of Michigan, under the mentorship of Dr. Norman Thompson and the Karolinska Institute in Stockholm, Sweden . Since returning Calgary and has devoted her clinical practice solely to endocrine surgical disease. She has served in leadership roles in both the American and International Associations of Endocrine Surgeons including President (AAES). In April 2021, Dr. Pasieka was awarded the prestigious 'Oliver Cope Meritorious Achievement Award' from the AAES, in recognition of her substantial contributions to the field of endocrine surgery, becoming the first women and the 10th recipient of this award. Her areas of interests (besides running, mountain biking, cycling and hiking & snowshoeing with her dog Kocher) evolve around neuroendocrine tumors, adrenal disease, thyroid cancer and the study of surgical outcomes in patients with hyperparathyroidism. To date she has over 150 peer-review publications, has edited 3 Endocrine Surgical textbooks and written over 28 book chapters.

Richard Ross
Richard Ross trained in medicine at The Royal London Hospital (1974-1979) and in Endocrinology at St Bartholomew's Hospital, London (1983-1988). He was appointed to Sheffield University in 1995 and is Professor of Endocrinology and Head of the Unit of Diabetes, Endocrinology and Metabolism. He retired from clinical practice in June 2020. Richard's research and clinical interests are in pituitary and adrenal disease, transition endocrinology and the late effects of cancer. Richard has a particular interest in commercial research and founded Sheffield Healthcare Gateway. He is a founding Director of two university spin-out companies;

Asterion Ltd developing long-acting biologicals and Diurnal Ltd developing circadian endocrine therapies. Richard has served on the editorial boards of: Clinical Endocrinology (1996-2000), Growth & Growth Factors (1986-2006), Hormones (2004-2018), and J Clin Endocrinol Metab (2010-2014). Council member for the Society of Endocrinology (1999-2002), Editor Endocrinologist (2001-2004), Chair of CaHASE (2002-2015), member of the Bioscientifica Board (2006-2010), Society for Endocrinology Public Engagement Committee (2008-2011) and Nominations Committee (2010-2012). Executive Committee of the European Society of Endocrinology (2011-2015), Treasurer of the European Society of Endocrinology (2013-2015), The Growth Hormone Research Society Council (2011-2018), The Pituitary Society Board of Directors (2019-). Currently Chief Scientific Officer and Director on the Board of Diurnal Group Plc.

Jonathan Wasserman
Dr. Wasserman is a Staff Endocrinologist at The Hospital for Sick Children, where he maintains a clinical focus on treatment of pediatric endocrine neoplasms and endocrine sequelae of childhood cancer therapy. His primary research focus is on genomics of childhood endocrine tumours as well as health care utilization among children treated for endocrine malignancies. He is a co-chair of the American Thyroid Association Pediatric Thyroid Cancer Guidelines and is a member of the Children's Oncology Group Endocrine Long Term Follow Up task force.

Jenna Whaley Coura
Jenna Whaley Coura is the parent of a 6-year-old daughter with salt-wasting Congenital Adrenal Hyperplasia. She founded the Bay Area California CAH Families group and works alongside international nonprofit groups to improve emergency protocols for patients with adrenal insufficiency. She recently published her ebook, Welcome to Congenital Adrenal Hyperplasia: A Handbook for New CAH Families.

Ian S. Zenlea
Dr. Ian Zenlea is a Pediatric Endocrinologist, Clinician Scientist, and Lead of the Family and Child Health Initiative at Trillium Health Partners and the Institute for Better Health, and a Part-time Assistant Clinical Professor in the Temerty Faculty of Medicine at the University of Toronto. Dr. Zenlea and his team use community-based participatory research methods to co-design interventions alongside diverse communities to improve the health and wellness of children and families in the Peel region, Ontario. Dr. Zenlea is engaged in numerous research and quality improvement initiatives related to type 1 diabetes including developing peer support interventions, improving transitions from paediatric to adult care, and co-designing paediatric diabetes registries for Ontario and Canada.

Invited CPEN Speaker Biographies

Tara Justice
Tara is the current fellow in Paediatric & Adolescent Gynecology at Alberta Children's Hospital. She recently completed her residency in Obstetrics & Gynecology at the University of British Columbia. As a medical student, she wanted to be a Paediatric Endocrinologist – so it's not a surprise that her favourite referrals come from Endocrinology!

Peggy Kalancha
Peggy is a graduate from the University of Saskatchewan college of Nursing with a Bachelor of Science in Nursing. She has worked in pediatrics at the Alberta Children's Hospital for a number of years as a Clinical Resource Nurse, specializing in the areas of Perinatology, Child Development, Genetics, Neuromuscular and Neurology Clinics, Gastrointestinal and Rheumatology Clinics.

The past years 18 years she has been working in the areas of Endocrinology and Gynecology where she found a happy home!

She has recently retired but keeps in touch by working casual in the Endocrine, Gynecology and Metta clinics.

Melanie Noel
Melanie Noel, PhD, RPsych is an Associate Professor of Clinical Psychology at the University of Calgary and a Full Member of the Alberta Children's Hospital Research Institute and the Hotchkiss Brain Institute. She directs the PEAK (Pain Education, Advocacy, Knowledge) Lab within the Vi Riddell Pain & Rehabilitation Centre at the Alberta Children's Hospital in Canada.

Dr. Noel's expertise is on children's memories for pain and co-occurring mental health issues and pediatric chronic pain. She published guiding conceptual models of children's pain memory development, co-occurring PTSD and chronic pain, and fear-avoidance (137 peer-reviewed publications; H index = 35). In recognition of her contributions to advancing knowledge of the psychological aspects of children's pain, Dr. Noel received early career awards from the International Association for the Study of Pain (IASP), the Canadian Pain Society, the American Pain Society, the Canadian Psychological Association, and the Society of Pediatric Psychology. She was named Avenue Magazine Calgary's Top 40 Under 40 (Class of 2017) and a Killam Emerging Research Leader (2020). She also received the inaugural Killam Memorial Emerging Leader Chair (2021).

Dr. Noel is passionate about partnering with people with lived experience to transform how we understand and treat people with pain. She is an advocate for the use of developmentally tailored interventions for pediatric pain management and serves on committees to promote and implement evidence-based interventions within her children's hospital and beyond. As an evidence lead on the Help Eliminate Pain in Kids and Adults team, Dr. Noel co-authored clinical practice guidelines for pain and fear management for vaccine injections. Many of these recommendations were adopted by the World Health Organization.

Invited Fellows' Day Speaker Biographies

Alexandra Ahmet
Dr. Alexandra Ahmet is a pediatric endocrinologist and the Chief of the Division of Endocrinology at the Children's Hospital of Eastern Ontario and at an Associate Professor of pediatrics at the University of Ottawa. Dr. Ahmet has a clinical, research and advocacy focus on patient safety with a specific emphasis on adrenal suppression in children. More recently, Dr. Ahmet has also led the development, implementation and evaluation of new clinical programs for adolescents with Type 1 Diabetes with a goal of providing regular patient focused education in preparation for transition to adult care, and formal evaluation of quality of life and mental health status as part of routine diabetes care.

Karin Winston
Karin Winston completed her medical school at the University of Calgary, pediatrics residency at the University of Western Ontario, and endocrinology fellowship at the University of Calgary, Alberta Children's Hospital. She also completed a master's degree at the U of C in population and public health with a focus on transition from pediatric to adult care. She owns a community practice in Calgary and works in collaboration with the group at the Alberta Children's Hospital.

Awarded Fellowship Listing

1992-1993	M. Lawson
1993-1994	S. Lawrence
	M. Lawson
	A. Simone
1994-1995	S. Lawrence
	S.Taback
	A. Simone
1995-1996	C. Vaz
	S.Taback
	B. Cummings
1996-1997	J. Hamilton
	E. Sellers
	B. Cummings
1997-1998	J. Hamilton
	E. Sellers
	B. Cummings
1998-1999	J. Curtis
	J. Hamilton
1999-2000	J. Curtis
	J. Hamilton
2000-2001	C. Panagiotopoulos
	C. Huang
2001-2002	C. Panagiotopoulos
	S. Stock
2002-2003	P Krishnamoorthy
	P Zimakas
	R. McEachern
2003-2004	P Krishnamoorthy
	H. Bui
2004-2005	M. Nakhla
	J. Simoneau-Roy
2005-2006	M. Nakhla
	I. Chapados
	M. Jetha
2007-2008	B. Wicklow
	T. Pinto, B. Babic
	J. Deladoey
2008-2009	A.M. Sbrocchi
	P Olivier
	T. Pinto
2009-2010	R. Shulman
	P Olivier
	T. Edouard
	S. Runge-Wildi
	C. Saaman
2010-2011	E. Bassilious
	J. Wasserman
	Y. Yeshayahu
	S. Tsai
2011-2012	M. Millete
	J. Wasserman
	C. Zuijdwijk
	M. Cohen
2012-2013	J. Harrington
	T. Oron
	P. Luca
	M. Nour
	D. Manousaki
2013-2014	K. Winston
	C. Leblicq
	A. Ens
	B. Hursh
	I. Rousseau-Nepton
2014-2015	I. Levy
	D. Manousaki
2015-2016	L. Chiniara
	S. Basak
	K. Verbeeten
2016-2017	C. Nugent
	K. Pundyk
	N. Coles
2017-2018	C. Nugent
	S. Fuchs
2018-2019	J. Sorbara
2019-2020	A. Chesover
	B. Navabi
2020-2021	A. Marr
	M. Lautatzis
	J. Ladd
	H. Geddie (declined)
2021-2022	F. Babalola
	M. Jiang

Within the last 5 years, the CPEG Fellowship Program was and/or is supported by:
Eli Lilly, EMD Serono, Ipsen, Novo Nordisk, Pfizer, Sandoz, and Ultragenyx.

Dr. John Bailey Resident Research Award

The John Bailey Award is named after Dr. John D. Bailey. Dr. Bailey graduated from the University of Toronto Medical School in 1949, did his training in pediatrics at the Hospital for Sick Children, Toronto and the University of Manitoba in Winnipeg. By the mid-1950s he was firmly established as a major contributor to pediatric care and education at the Hospital for Sick Children and University of Toronto. His major area of interest was in understanding normal and abnormal growth patterns in childhood and adolescence. He was the first chief of the Endocrine Division at the Hospital for Sick Children and an important contributor to the development of the Canadian national growth hormone treatment program. He was the consummate academic: clinically fastidious, intellectually challenging and constantly learning and sharing.

Below is a list of the recipients of the Dr. John Bailey Resident Research Award:

2007	Meranda Nakhla	**2012**	Jennifer Harrington	**2017**	Stephen Zborovski
2008	Meranda Nakhla	**2013**	Karine Khatchadourian	**2018**	Marie Eve-Robinson
2009	David Saleh	**2014**	Akash Sinha	**2019**	Julia Sorbara
2010	Brandy Wicklow	**2015**	Rayzel Shulman	**2020**	Christine Tenedero
2011	Jonathan Wasserman	**2016**	Sanjukta Basak	**2021**	Richelle Waldner

CPEG Distinguished Service Award

The CPEG Distinguished Service Award will be awarded periodically (not annually) to a member who has shown exemplary service to the organization or to the discipline of pediatric endocrinology in Canada. The award will be focused on work that furthers the aims of CPEG and can be in one or more of the following areas: administration, teaching, research, clinical service. Nominations will be solicited by the CPEG Executive Committee every 1- 3 years. CPEG members can put forward a name for nomination at any time. The nomination should include a letter signed by two CPEG members in good standing describing the contributions of the nominee. The award will be presented at the annual CPEG business meeting. The awardee will receive a certificate and a $1,000 donation to a charity of their choice.

Below is a list of past recipients of the CPEG Distinguished Service Award:

2017	Daniel Metzger	**2019**	Denis Daneman

Fellows' Symposium Wednesday, February 23, 2022 (times listed in MT)

1300	Virtual Escape Room	
	Fellows' Symposium Chair: *Matthew Feldman (Calgary)*	
1400	Adrenal Suppression	*Alexandra Ahmet*
1500	Transition to Community Practice	*Karin Winston*
1600	Adjourn for the Day	

Program Thursday, February 24, 2022 (times listed in MT)

0800	Welcome & Opening Remarks	
	Symposium I: Endocrine Tumors ***Chairs:*** *Matthew Feldman (Calgary) & Despoina Manousaki (Montreal)*	
0815	Pediatric Thyroid Tumors	*Jonathan Wasserman*
0845	Surgical Management of Endocrine Tumors	*Janice Pasieka*
0915	Genetics of Endocrine Tumors	*Mike Innes*
0945	Break & Exhibits	
1200	**Oral Abstracts I** ***Chairs:*** *Teresa Pinto (Halifax) & Rebecca Perry (Calgary)*	
OR1	Risk Factors Associated with Prevalent Vertebral Fractures in boys with Duchenne Muscular Dystrophy	*Kim Phung*
OR2	Assessment of eGFR Decline in Youth with Type 1 Diabetes and Relationship to Bone Structure and Bone Biomarkers	*Funmbi Babalola*
OR3	Pediatric diabetes care before and during the COVID-19 pandemic: challenges with telemedicine	*Carolina Silva*
OR4	Postoperative glycemic management of children undergoing pancreatectomy with islet autotransplantation	*Marian Thorpe*
OR5	Denosumab monotherapy causes the rebound phenomenon in pediatric osteogenesis imperfecta type VI, which can be mitigated by alternating short- and long-acting anti-resorptive therapy	*Emily Seale*
OR6	Effect of Gender Affirming Hormones on Bone Health and Body Composition in Youth with Gender Dysphoria	*Madeline Edwards*

1145	Self-Care/Nutrition Break & Exhibits	
1245	**Poster Viewing I**	
P1	A Case of Buprenorphine Extended-Release Induced Adrenal Insufficiency in the Pediatric Context	*Supraja Rengan*
P2	Cushing syndrome caused by an ectopic ACTH secreting tumor in a 10 year old: a challenging diagnosis	*Danielle Dorinvil*
P3	"Choose your own adventure" learning: developing an asynchronous pediatric DKA curriculum using an online Chatbot	*Hannah Geddie*
P4	Exogenous Cushing's Syndrome in A 5-Month-Old Girl Due to Ophthalmic Intranasal Steroids	*Matthew Feldman*
P5	Profound hypothyroidism presenting with a pelvic mass and precocious menarche	*Tracey Dyer*
P6	Thyroid hormone resistance and large goitre mimicking infiltrative carcinoma: A pediatric case report	*Carly Baxter*
P8	Slow growth velocity in anorexia nervosa is not always nutritional	*Ruba Sahab*
P9	A Delayed Diagnosis of Salt Wasting Congenital Adrenal Hyperplasia Masquerading as Pseudohypoaldosteronism	*Stephanie Lenet*
1345	Break & Exhibits	
1400	CPEG Business Meeting	
1600	Adjourn for the Day	
1800	Guided Chocolate & Wine Tasting	

Program Friday, February 25, 2021 (times listed in MT)

0800	Welcome & Announcements	
	Symposium II: Diabetes ***Chairs:*** *Karen McAssey (Hamilton) & Mélanie Henderson (Montreal)*	
0815	Psychosocial Screening and Monitoring in Type 1 Diabetes 0815 The Monitoring Individual Needs in Diabetes (MIND) Youth Questionnaire (MY-Q) 0845 Canadian Implementations of My-Q 0900 Discussion and Questions	*Maartje de Wit* *Alexandra Ahmet, Ian Zenlea*
0910	SWEET Pediatric Diabetes Initiative and CAnadian Pediatric diAbetes ConsortIum (CAPACIty)	*Daniele Pacaud*

0945	**Break & Exhibits**	
1015	**Oral Abstracts II** ***Chairs:*** *Elizabeth Rosolowsky (Edmonton) & Brenden Hursh (Vancouver)*	
OR7	Gender Incongruence and Dysphoria Among Adolescents in an Obesity Management Program	*Zachary Zytner*
OR8	Associations between Technology-based Therapy Use and Social Determinants of Health in Pediatric Type 1 Diabetes Mellitus	*Joshua Stanley*
OR9	The Relationship of Social Health Determinants on Metabolic and Mental Health Comorbidities in Children with Severe Obesity	*Kelly Milton*
OR10	Glycemic Control and Socioeconomic Status in Children with Type 1 Diabetes Using CGM	*Jennifer Ladd*
OR11	Effect of obesity treatment interventions in preschool children aged two to six years: a systematic review and meta-analysis	*Samantha Nordlund*
OR12	Social Determinants of Health Linked with Patient Portal Use in Pediatric Diabetes	*Rachel Parker*
1145	**Self-Care/Nutrition Break & Exhibits**	
1245	**Poster Viewing II**	
P7	Characterization of severe primary IGF-1 deficiency in a cohort of Canadian children with short stature	*Carly Baxter*
P10	Pandemic Pivot to Virtual Visits in Pediatric Diabetes: An evaluation of the patient/family experience	*Alexa Marr*
P11	Burosumab for the Treatment of Chronic FGF23 Over-production due to Cutaneous-Skeletal Hypophosphatemic Syndrome	*Lillian Abebe*
P12	Too Tall, Too Fast.	*Shelby Thompson*
P13	Current models of care and perceived gaps in the care of Differences of Sex Development: a national survey	*Ashlee Yang*
P14	A Case of Tumour-Induced Osteomalacia: Success Without Surgery	*Krista Oei*
P15	A case of misdiagnosed 46 XY, gonadal dysgenesis	*Kristina Pabedinskas*
P16	Off-label use of an insulin pump in severe congenital hyperinsulinism post near-total pancreatectomy	*Samantha Gerber*
P17	Hypothalamic dysfunction including permanent diabetes insipidus after laser interstitial thermotherapy (LiTT) in pediatric epilepsy surgery.	*Matthew Feldman*

P18	The need for close monitoring of Natural Health Products: A Case Report on Vitamin D Intoxication	*Maggie McNeill*
	Symposium III: Congenital Adrenal Hyperplasia ***Chairs:*** *Paola Luca (Calgary) & Harpreet Gill (Winnipeg)*	
1345	CAH – A Physician's Perspective	*Richard Ross*
1415	CAH – A Surgeon's Perspective	*Peter Metcalfe*
1445	CAH – A Parent's Perspective	*Jenna Whaley Coura*
1515	Break & Exhibits	
	Debate ***Chairs:*** *Brandy Wicklow (Winnipeg)*	
1530	Be It Resolved That Medications Should Be Used In The Management of Pediatric Obesity	***Pro:*** *Jill Hamilton* ***Con:*** *Mélanie Henderson*
1630	John Bailey Award, Distinguishing Service Award, CPEG Fellowship Awards, & Closing Remarks	
1700	Meeting Adjourns	

CPEN Program Thursday, February 24, 2022 (times listed in MT)

1230	CPEN Business Meeting
1400	Meeting Adjourns

CPEN Program Friday February 26, 2021 (times listed in EST)

	CPEN Symposium ***Chair:*** *Wendy Schwarz (Calgary)*	
0815	Update on Birth Control Options	*Tara Justice*
0845	Thyroid Ablation Protocol – A Nurse's Perspective	*Peggy Kalancha*
0915	Reframing Memories of Pain in Children	*Melanie Noel*
1015	Rejoin CPEG Group	

Oral Abstracts

OR1

Risk Factors Associated with Prevalent Vertebral Fractures in boys with Duchenne Muscular Dystrophy

Kim Phung (1), Laura McAdam (2), Jinhui Ma (3), Hugh McMillan (4), Stefan Jackowski (5), Maya Scharke (5), Mary-Ann Matzinger 1), Nazih Shenouda (1), Khaldoun Koujok (1), Jacob Jaremko (6), Scott Walker (1), Colleen Hartigan (1), Nasrin Khan (5), Victor Konji (5), Lynn MacLeay (5), Marika Page (1), Elizabeth Sykes (5), Marie-Eve Robinson (1), David Saleh (7), Catharine Craven (8), Kerry Siminoski (6), Frank Rauch (9), and Leanne Ward (1)

(1) Children's Hospital of Eastern Ontario, University of Ottawa, Ottawa, ON, Canada; (2) Holland Bloorview Kids Rehabilitation Hospital, Toronto, ON, Canada; (3) Department of Health Research Methods, Evidence, and Impact, McMaster University, Hamilton, ON, Canada; (4) Montreal Children's Hospital, McGill University, Montreal, QC, Canada; (5) The Ottawa Pediatric Bone Health Research Group, Children's Hospital of Eastern Ontario Research Institute, Ottawa, ON, Canada; (6) Department of Radiology and Diagnostic Imaging, University of Alberta, Edmonton, AB, Canada; (7) Kingston Health Sciences Centre, Queen's University, Kingston, ON, Canada; (8) Toronto Rehabilitation Institute Lyndhurst Centre, Toronto, ON, Canada; (9) Shriners Hospital for Children, McGill University, Montreal, QC, Canada.

Objectives: Prevention of first fractures is an unmet need in boys with steroid- treated Duchenne muscular dystrophy (DMD). The purpose of this study was to explore clinical factors associated with prevalent vertebral fractures (VF) that could guide anticipatory prevention of first VF in this context.

Methods: This was a bi-centre, cross-sectional study of males aged 4 to 25 years with DMD. Lumbar spine areal bone mineral density (LS aBMD) was carried out by dual-energy x-ray absorptiometry. VF were evaluated by the Genant semi- quantitative method on lateral spine radiographs. Clinical factors including glucocorticoid (GC) exposure, anthropometry, and bone age (BA) were analyzed for their association with the Spinal Deformity Index (SDI, the sum of the Genant Grades from T4 to L4).

Results: Fifty-nine boys were enrolled (mean age ± standard deviation 11.4±3.9 years; all but 3 were GC-treated). Sixty-six VF were identified in 18 boys (31%, all GC-treated). Twenty-three of 66 VF (35%) were moderate or severe (Genant Grade 2 or 3), while the others were mild (Grade 1); the median SDI was 2.8 (interquartile range 1.4, 8.0). Sixty-seven percent of boys with VF (12/18) were asymptomatic, including 4/7 boys with moderate and severe VF. Boys with VF were shorter (mean height Z-score -3.1±1.5 vs. -1.8±1.4, p=0.002) and had longer GC exposure (mean duration 6.0±3.4 vs. 3.9±3.3 years, p=0.03), lower LS aBMD Z-scores (mean -2.9±1.0 vs. -2.1±1.1, p=0.02), and greater BA delay (mean BA to chronological age difference -3.3±3.5 vs. -1.3±1.2 years, p=0.03).

On multivariable modeling, every one-year BA delay was associated with a 1.3-fold increase in the SDI (95% Confidence Interval (CI):1.1-1.5, p=0.007). In addition, every 1 SD reduction in height Z-score was associated with a 1.4-fold SDI increase (95%CI: 1.1-1.8, p=0.024), and every 1 SD reduction in LS aBMD Z-score was associated with a 1.8-fold SDI increase (95%CI: 1.0-3.2, p=0.049).

Conclusion: Readily measurable clinical variables including BA delay plus reductions in height and LS aBMD Z-scores were associated with prevalent VF in boys with DMD on average after four years of GC. These variables may be useful to identify candidates for primary osteoporosis prevention in the years following GC initiation.

OR2

Assessment of eGFR Decline in Youth with Type 1 Diabetes and Relationship to Bone Structure and Bone Biomarkers

Funmbi T. Babalola (1), Etienne Sochett (1), Jacqueline Curtis (1), Rahim Moineddin (1), Yesmino Elia (1), James Scholey (2), Farid H. Mahmud (1).

(1) Department of Pediatric, Division of Endocrinology, The Hospital for Sick Children, University of Toronto, Toronto, ON; (2) Department of Medicine, Division of Nephrology, University Health Network, University of Toronto, Toronto, ON.

Background: Bone disease is an emerging complication of type 1 diabetes (T1D) with higher fracture rates observed during adulthood and associations with microvascular complications, such as diabetic nephropathy, potentially contributing to increased bone fragility.

Objective: To assess if decline in eGFR is associated with changes in bone structure and biomarkers in youth with T1D. Secondarily, to assess impact of demographic and diabetes variables on bone health.

Methods: N=99 participants were evaluated (55% female, 62% Caucasian, 13.8 years diabetes duration, 8.2% average A1C) from adolescence to early adulthood. CKiDU25 formula was used to assess change in eGFR slope to determine eGFR decliner (defined as slope >/= -3ml/min/1.73m2) and non-decliner. HRpQCT at procollagen-type-1-N-terminal-propeptide (P1NP), bone-specific-alkaline- phosphatase (bALP), and C-terminal-cross-linked-telopeptide (CTX) were measured to assess bone turnover.

Results: Mean change in eGFR slope, -2.9(+/- 2.9) over an average of 7.4(+/-1) years was observed. 44% of the participants were eGFR decliners, 73% male, and an average eGFR slope of -5.5 (+/- 2.1). Unadjusted linear regression model revealed significant difference in total area, TbvBMD, CtvBMD and all bone turnover markers. After adjustment for age, sex and BMI, these relationships were no longer significant.

Irrespective of decliner status, males had higher total area, TbvBMD and lower CtvBMD in comparison to females ($p<0.01$). Increase in age was associated with decrease in osteocalcin, P1NP, CTX and bALP. As A1C increased, P1NP and CTX decreased (p 0.013, 0.04). Longer diabetes duration was associated with reduced radius TbvBMD (p 0.03). Higher BMI was associated with decrease in osteocalcin and CTX (p 0.008, 0.04).

Conclusion: Progressive eGFR decline from adolescence into adulthood was observed predominantly in males with T1D. There were significant sex differences in bone structure. Higher A1C and BMI were associated with lower bone turnover makers and longer diabetes duration was associated with lower TbvBMD, highlighting the importance of optimal glycemic control and healthy weight in this population at high risk of bone fragility during adulthood.

OR3

Pediatric diabetes care before and during the COVID-19 pandemic: challenges with telemedicine

Carolina Silva (1), Qian Zhang (2), Jeffrey N. Bone (2), Shazhan Amed (1)

(1) Division of Endocrinology and Diabetes, Department of Pediatrics, University of British Columbia; (2) BC Children's Hospital Research Institute

In March of 2020, the Diabetes Clinic at BC Children's Hospital (BCCH) experienced an unprecedented shift to telemedicine. This has become standard practice for routine diabetes care worldwide. As per current guidelines, children and adolescents with type 1 diabetes (T1D) should have regular physical exams and investigations.

Objective: To compare rates of height, weight, blood pressure (BP) and A1c measurements and laboratory screening for hypothyroidism, nephropathy and dyslipidemia, in children and adolescents with T1D, 1-year before and after the onset of COVID-19.

Methods: Retrospective review of registry data from children and adolescents with T1D followed at BCCH, from March 2019–March 2021. Logistic and Poisson mixed effect models were used.

Results: 440 patients, with median (IQR) age and time since diagnosis 12.7 (9.5–15.4) and 4.7 (2.6–7.9) years respectively, were included. 1791 clinic visits were analyzed: 100% in-person before COVID-19, and 99% via telemedicine during the pandemic. The number of visits per patient was 2 (2–3), with a 6% increase during the pandemic (RR: 1.06, 95%CI: 1.01–1.10). There was a substantial decrease in height, weight and BP measurements (RR: 0.32, 95%CI: 0.28–0.36; RR: 0.34, 95%CI: 0.31–0.38; RR: 0.005, 95%CI: 0.002–0.014, respectively). During the pandemic year, only 49% of patients had anthropometric and 1% BP measurements, compared to >97% before. The number of yearly A1c measurements per patient decreased from 3 (2–4) to 1 (1–2), (RR: 0.53, 95%CI: 0.48–0.57). Screening rates for hypothyroidism dropped from 52% before the pandemic, to 13% (OR: 0.14, 95% CI: 0.10–0.20). Screening rates for nephropathy and dyslipidemia before and after the pandemic changed from 53% to 43% (OR: 0.66, 95% CI: 0.40–1.01), and from 33% to 29% (OR: 0.87, 95% CI: 0.40– 1.91), respectively.

Discussion: telemedicine ensured ongoing provision of diabetes care during the pandemic. However, there was a dramatic decline in anthropometric, BP and A1c measurements; laboratory screening, which was already suboptimal pre-pandemic, continued to decline. This model of telemedicine-only visits does not appear to be suitable for most children and adolescents with T1D. Hybrid in-person/telemedicine models should be considered to ensure high-quality care.

OR4

Postoperative glycemic management of children undergoing pancreatectomy with islet autotransplantation

Marian Thorpe (1), Elizabeth Rosolowsky (1), Tatsuya Kin (2), James Shapiro (2), Chelsey Grimbly (1)

(1) Division of Endocrinology, Department of Pediatrics, University of Alberta, Edmonton, AB. (2) Department of Surgery, University of Alberta, Edmonton, AB.

Background: Children with severe pancreatitis may require pancreatetomy, resulting in loss of pancreatic function and insulin-dependent diabetes. Our center has provided pediatric islet autotransplantation since 2003, to preserve pancreatic function and potentially prevent diabetes. We describe our center's experience with postoperative glycemic management of children who have undergone this procedure, with the aim to provide guidance for future management.

Method: We reviewed inpatient records for pediatric patients who underwent islet autotransplantation. Data collected included weight and age, indication for pancreatectomy, islet mass infused and details on insulin and nutritional support requirements. Descriptive analysis was performed.

Results: Twelve pediatric patients have undergone pancreatectomy and islet autotransplantation, with data available for ten patients. Mean age was 13 years (range 2.5-18.8), and mean weight was 54kg (range 12.9-123). Indications for pancreatectomy included eight patients with chronic pancreatitis due to mutations in PRSS1, SPINK1, or CFTR, one patient due to trauma, and one patient due to a pseudopapillary tumor. Eight patients underwent total pancreatectomy and two had partial pancreatectomies. Mean islet mass infused per kilogram was 6202 ieQ/kg (range 2023-10276); patients who were not on insulin at discharge had a larger islet mass infused per kilogram compared to those who were on insulin at discharge (mean 7441ieQ/kg versus 3311ieQ/kg). Five patients had postoperative feeding difficulties requiring parenteral nutrition and/or gavage feeds. Two patients did not require insulin therapy during admission, one of whom had had partial pancreatectomy. Insulin therapy was required for the remaining eight patients, initially via intravenous insulin infusion (median duration 9 days, IQR 1-11). Five patients were discharged with no insulin, after receiving insulin for a mean duration of 27 days (SD 25.5, range 1-59). Three patients were discharged home on insulin, requiring a mean total daily dose of 0.4 U/kg/day (range 0.12-0.74).

Discussion: Pediatric islet autotransplantation can be successful in maintaining endogenous insulin production. Postoperative feeding difficulties are common and can prolong the need for intravenous insulin. Half of patients were insulin- independent at discharge, and the remainder needed only partial replacement. Islet mass infused per kilogram body weight may predict insulin independence.

OR5

Denosumab monotherapy causes the rebound phenomenon in pediatric osteogenesis imperfecta type VI, which can be mitigated by alternating short- and long-acting anti-resorptive therapy

Emily Seale (1,2), Marie-Eve Robinson (2,3), Janusz Feber (2,3), Sasha Carsen (4), Kevin Smit (4), Marika Page M (2,3), Nasrin Khan (1), Khaldoun Koujok (5), and Frank Rauch (6), Leanne M. Ward (2,3)

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Osteogenesis imperfecta (OI) type VI is a severe, autosomal recessive form of OI caused by loss of function mutations in SER-PINF1. OI type VI is distinguished from other OI forms on histo-logical grounds by the presence of osteomalacia (in the absence of rickets). It is less responsive to intravenous (IV) bisphosphonate therapy than classic OI types, which is hypothesized to result from ineffective uptake of bisphosphonate therapy by the osteoclast due to the mineralization de-fect.

Denosumab is a fully human, monoclonal antibody to RANKL which decreases osteoclast for-mation, differentiation and function by preventing RANKL from binding to RANK on osteo-clast precursors. Denosumab's mechanism of action is therefore theoreti-cally attractive in OI VI, as it does not require the presence of mineralized bone tissue to exert an anti-resorptive ef-fect.

We describe a boy with OI VI and multiple vertebral and non-vertebral fractures. He was initial-ly treated with IV zoledronic acid (ZA) at 1.4 years of age; however, a year later was transitioned to denosumab 1 mg/kg sub-cutaneously every three months due to recurrent fractures. After two years on denosumab, he presented with symptomatic hypercalemia due to the denosumab-induced, hyper-resorptive "rebound" phenomenon. His laboratory parameters at this time were as follows: elevated serum ionized calcium (1.62 mmol/L, N: 1.16-1.36), elevated serum creati-nine due to hypercalcemia-induced muscle catabolism (83 µmol/L, N: 9-55), and suppressed PTH (<0.7 pmol/L, N: 1.3-5.8). The hypercalcemia was responsive to low-dose IV pamidro-nate, with an imme-diate decline in serum ionized calcium, and normalization of the aforemen-tioned parameters within 10 days (ionized calcium: 1.17 mmol/L, serum creatinine: 27.0 µmol/L, PTH: 3.2 pmol/L). To benefit from the powerful, albeit short-term anti-resorptive ef-fect of denosumab without further rebound episodes, he was treated thereafter with denosum-ab 1 mg/kg alternating every three months with IV ZA 0.025 mg/kg. This novel pharmacologi-cal approach of alternating short- and long-term anti-resorptive ther-apy every three months has not previously been reported. Five years later, he remains on alternating, dual anti-resorptive therapy without further episodes of the rebound phenomenon, and an overall reduction in frac-ture rates.

OR6

Effect of Gender Affirming Hormones on Bone Health and Body Composition in Youth with Gender Dysphoria

Madeline Edwards (1), Ken Tang (2), Laurence Bastien (3), Behdad Navabi (3), Margaret Lawson (1-3), Karine Khatchadourian (1-3).

(1) Division of Endocrinology & Metabolism, Department of Pediatrics, CHEO, Ottawa, Ontario. (2) Clinical Research Unit, CHEO Research Institute, CHEO, Ottawa, Ontario. (3) Department of Pediatrics, CHEO, Ottawa, Ontario.

Background: GnRHa monotherapy decreases bone mineral density (BMD) Z-scores. Our research group previously demonstrated that GnRHa monotherapy alters body fat distribution aligned with affirmed gen-der. Minimal data exists about the effect of gender affirming hormones (GAH) on BMD and body composi-tion in trans youth who have received GnRHa.

Methods: A retrospective chart review was conducted for youth with gender dysphoria seen in CHEO's Endocrine Diversity Clinic (2012-2020) who had whole- body dual-energy x-ray absorptiometry (DEXA). Those with a minimum of 3 DEXA scans including baseline, post-GnRHa initiation, and post-GAH initia-tion were included. Data were retrieved on birth assigned sex and affirmed gender, timing of initiation of GnRHa and GAH, BMD, android and gynoid fat percentages, lean body mass.

Results: Interim analysis included 33 trans youth – 63.6% transmales, median age of 15.31 years (IQR 14.43 – 15.82), and 36.4% transfemales, 15.04 years (IQR 14.33 - 15.85), at GnRHa initiation. Median GnRHa exposure prior to GAH initiation was 0.57 years (IQR 0.23 – 0.82) for transmales and 0.43 years (IQR 0.25 – 0.59) for transfemales. GAH was started at 16.0 years (IQR 15.34 - 16.49) and 16.13 years (IQR 15.31-16.5), respectively.

Baseline total hip BMD Z-score was 0.06 (SD=1.06) in transmales and -0.15 (SD=1.48) in transfemales, while L2-L4 BMD Z-score was 0.11 (SD=0.95) in transmales and -0.39 (SD=1.13) in transfemales. BMD decreased post-GAH with total hip Z-score -0.18 (SD=0.88) in transmales and -0.60 (SD=1.71) in trans-females and spine z-score -0.72 (SD=0.82) in transmales and -0.96 (SD=1.17) in transfemales.

Baseline BMI z-score was 0.69 (SD=1.07) in transmales and 0.73 (SD=1.79) in transfemales. GnRHa was associated with increase in BMI z-scores to 1.80 (SD=0.88) and 1.31 (SD=1.73), respectively. BMI z-scores decreased on GAH therapy to 0.67 (SD=1.17) among transmales and 0.77 (SD=2.37) among transfemales.

Conclusion: Preliminary results were obtained on bone density and body composition in a sub-set of trans youth who received gender affirming hormones after GnRHa initiation. BMD which decreased with GnRHa did not return to baseline with GAH. BMI z-scores increased with GnRHa and decreased on GAH. Further analyses will determine if these changes are ob-served for the entire cohort.

OR7

Gender Incongruence and Dysphoria Among Adolescents in an Obesity Management Program

Zachary Zytner (1,2), Preeti Grewal (1,2), Alene Toulany (1,3), Elizabeth Dettmer (1,4), Mark Palmert (1,2), Julia Sorbara (1,2)

(1) Department of Pediatrics, The Hospital for Sick Children, University of Toronto, Toronto, ON; (2) Division of Endocrinology, The Hospital for Sick Children, University of Toronto, Toronto, ON; (3) Division of Adolescent Medicine, The Hospital for Sick Children, University of Toronto, To-ronto, ON; (4) Division of Psychology, The Hospital for Sick Children, University of Toronto, Toronto, ON.

Background: Gender dysphoria (GD) and obesity share multiple clinical features. Both can intensify as puberty triggers physical changes not aligned with experienced gender, and as developmental changes pre-dispose to obesogenic behaviours. Youth with GD experience mental health problems, body dissatisfac-tion, and disordered eating, all of which may predispose to obesity. While a relationship between obesity and gender incongruence has been identified in community and gender clinic populations, it is unclear whether adolescents with obesity experience high rates of gender incongruence.

Primary Objective: To investigate the degree of gender incongruence in adolescents followed in an obesity management program.

Secondary Objectives: 1) To assess the relationship between gender incongruence and body mass index (BMI). 2) To determine the frequency of clinically significant GD within this clinical sample of adolescents with obesity.

Methods: The Gender Identity/Gender Dysphoria Questionnaire for Adolescents and Adults (GIDYQ-AA), a validated instrument to measure gender incongruence and dysphoria, was electronically distributed to eligible adolescents enrolled in an obesity man-agement program. Descriptive statistics were used to analyze questionnaire scores and determine frequency of GD cases. Spearman correlation analysis was used to assess the relationship between mean GIDYQ-AA scores and BMI Z-score (BMIz). Clinically sig-nificant GD was defined by a mean GIDYQ-AA score less than 3.

Results: Consent was provided by 72/106 adolescents who met inclusion criteria. The GIDYQ-AA and demographic questions were completed by 46/72 of consented adolescents, 29 assigned females and 17 assigned males. Seventeen (59%) assigned females reported non-heterosexual sexuality, and 6 (21%) reported non- cisgender identities. Assigned males all re-ported cisgender identities except for one individual whose GIDYQ-AA score was high, sug-gestive of cisgender identity. Two individuals, both assigned females, had scores suggestive of clinically significant GD, corresponding to a frequency of 4.3% among respondents or a mini-mum frequency of 1.9% among all eligible adolescents. GIDYQ-AA scores were not correlat-ed with BMIz among assigned females (rs = -0.19, p=0.32) or assigned males (rs = -0.19, p=0.48).

Conclusions: In this clinical sample, adolescents with obesity, particularly assigned females, re-ported high rates of non-cisgender identities and gender dysphoria.

Routine screening for gender-related concerns in obesity management settings may be warranted.

OR8

Associations between Technology-based Therapy Use and Social Determinants of Health in Pediatric Type 1 Diabetes Mellitus

Joshua R Stanley (1,2); Antoine BM Clarke (1); Rayzel Shulman (1,2); Farid H Mahmud (1,2)

(1) Division of Endocrinology, Department of Pediatrics, The Hospital for Sick Children, To-ronto, Ontario, Canad;
(2) Faculty of Medicine, Department of Pediatrics, University of Toronto, Toronto, Ontario, Canada.

Objective: To assess the association between diabetes technology use [continuous subcutaneous insulin infu-sion (CSII) pump therapy and continuous glucose monitoring (CGM)] on glycemic management according to validated measures of social determinants of health (SDH) in a clinic-based Canadian pediatric popula-tion with type 1 diabetes.

Research Design and Methods: Retrospective cross-sectional study of children aged 0-18 (n=813) with type 1 diabetes between 2018-2020. Material Deprivation (MD) indices were used to determine popula-tion-level measures of SDH. Diabetes technology use and HbA1c were described according to SDH. Cross-sectional associations between glycemic management and technology use were assessed with re-gression modeling.

Results: 42.5% and 30.3% of individuals used CGM and CSII respectively. HbA1c was 1.1% higher amongst participants in the most deprived (Q5) compared to the least deprived (Q1) quintile (P<0.0001). Real time CGM (rtCGM) and CSII use were 2.7 and 5.0 times less frequent in the most deprived quintile (Q5 vs Q1; P<0.0001) respectively. There were no differences in flash CGM use across MD quintiles. CGM use (all types) and CSII use were both associ-ated with lower HbA1c of -0.41% (p<0.01) and -0.88% (p<0.0001) respectively. Regression modelling, controlling for the effects of age and deprivation, revealed the largest difference in HbA1c (-1.0%) when comparing the use of rtCGM in combination with CSII therapy to no technology use (P<0.0001).

Conclusions: Use of diabetes technology was associated with improved glycemic management across all socioeconomic levels, providing supportive evidence that increasing access to diabetes technology to marginalized populations may help to improve outcomes.

OR9

The Relationship of Social Health Determinants on Metabolic and Mental Health Comorbidities in Children with Severe Obesity

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Background: Obesity in children is linked with negative health outcomes. Research suggests that individual and community educational programs may be less effective management strate-gies, and that broader interventions that address social determinants of health (SDH) are need-ed. Although significant research exists on the link between SDH and health outcomes, limited research exists on this relationship related to youth with obesity. The aim of this study is to ex-amine the relationship between SDH and comorbidities in youth with severe obesity. Understanding the impact of SDH in this population could lead to the development of popula-tion-focused community-based interventions and clinical aids for screening.

Methods: This study was a retrospective chart review of pediatric patients enrolled in a weight management program at a tertiary care center. Data was collected from the initial assessment and included patient demographics, metabolic comorbidities (hypertension, type 2 diabetes, dyslipidemia, non-alcoholic fatty liver disease, PCOS), mental health comorbidities (depression, anxiety, attention deficit hyperactivity disorder, learning disorder), and SDH stressors including household income, housing insecurity, and food insecurity. The relationship between SDH and cormorbidities was assessed by Fisher's exact test.

Results: 69 participants were included in preliminary results. The mean (SD) age of the cohort was 10.7 (3.2) years and 55.1% were male. Only 7.2% of the cohort reported low household income (< $25,000), 14.5% reported housing insecurity, and 4.8% reported food insecurity. 68.1% of participants had at least one mental health comorbidity and 47.8% had at least one metabolic health comorbidity at intake. There was no evidence of an association between SDH and the comorbidities. Data collection of a larger sample size for further analysis is ongo-ing and will be presented during the conference.

Conclusions: Preliminary results suggest little evidence for a relationship between SDH and the identified comorbidities, however the demographics indicate the program is assessing patients with a higher socioeconomic status (SES), which could be causing bias in the sample if lower SES patients are not represented. If this distribution is sustained with the larger sample size, it will be important to reflect on how this bias implies a larger issue with the accessibility of these programs.

OR10

Glycemic Control and Socioeconomic Status in Children with Type 1 Diabetes Using CGM

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Background: Studies have shown socioeconomic status (SES) inequities in children with type 1 diabetes (T1D), with worse glycemic control in those least well-off. Although expensive, continuous glucose monitoring (CGM), real-time and intermittently scanned, has the potential to improve glycemic control and quality of life. We hypothesized that SES disparities in glycemic control would be present in CGM users, but that these disparities would decrease after CGM use compared to before.

Methods: Using a de-identified clinical database, we conducted a retrospective cohort study of children with T1D followed in one Ontario center. We identified those first using CGM from 2017 to 2021 and computed descriptive statistics. We assigned SES quintiles using the validated Canadian Index of Multi-ple Deprivation (CIMD). We calculated average hemoglobin A1c (HbA1c) in the year before CGM use (excluding diagnosis) and the year after.

Results: We identified 444 individuals with T1D using CGM. Fifty-one percent were female. The me-dian age at first CGM use was 11.8years (interquartile range (IQR) 8.6–13.9years) and median duration of diabetes 1.8years (IQR 0.5–5.2years). In all CIMD indices (residential instability, economic dependency, ethnocultural composition, and situational vulnerability), there was a very modest difference in glycemic control in those least deprived compared to those most deprived in both the year before CGM use and the year after. For residential instability, economic dependency, and ethnocultural composition, there was a trend towards more improvement for those most deprived compared to those least deprived. The median HbA1c was 7.9% (IQR 7.3-8.9%) pre- and 8.0% (IQR 7.3-8.8%) post-CGM use for those in the least diverse ethnocultural composition quintiles; for those in the more diverse quintiles, HbA1c seemed to decrease from 8.2% (IQR 7.2-9.1%) pre- to 7.9% (IQR 7.3-8.9%) post-CGM use.

Interpretation: Our results suggest only modest variation in glycemic control by SES and by pre- and post-CGM use. This may be due to tight baseline glycemic control. We will next conduct an adjusted mixed effects regression model in this population and explore the same hypothesis with data from other centers to gain a more comprehensive understanding of SES disparities in glycemic control with CGM use in Canada.

OR11

Effect of obesity treatment interventions in preschool children aged two to six years: a systematic review and meta-analysis

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Background: The prevalence of preschool aged children with overweight and obesity has been increasing worldwide. There is a need for effective interventions to treat obesity in the preschool years to prevent concomitant health issues.

Objectives: (1) Assess the impact of pediatric weight management interventions on health outcomes in preschool aged children. (2) Describe the interventions and the real-world ap-plicability. Methods: Medline, Embase, CINAHL, Cochrane Library and PsychInfo databases were search from March 10, 2015, to January 31, 2020, to update a previous Cochrane review on the same topic. A systematic review and meta-analysis were completed. Studies included were randomized controlled trials (RCTs) addressing weight management in preschool chil-dren with overweight and obesity. The primary outcome was change in BMI or BMI z-score. Interventions were described using the Template for Intervention Description and Replication Checklist (TIDiER); real-world applicability was assessed using the Rating of Included Trials on the Efficacy-Effectiveness Spectrum (RITES) tool. Results: Four trial were identified (n=930). The interventions included motivational interviewing or nutrition and physical activity educa-tion. No statistically significant difference was found in the intervention groups compared to controls for BMI z-score (mean difference (MD) - 0.14, 95% CI -0.29 to 0.01; 3 trials, 754 par-ticipants; p=0.070; I2 79%), though heterogeneity was high. A subgroup analysis found a sta-tistically significant change in BMI z-score for educational interventions (MD -0.27, 95% CI -0.41 to -0.12; 2 trials, 242 participants; p<0.001; I2 40%). There were no significant differences in BMI z-score for participants receiving motivational intervention compared with controls. Clinically significant education interventions involved parents with repeated visits. All four in-terventions were reported in sufficient detail using the TIDieR checklists, while the controls were often not described in sufficient detail.

Three of the studies were assessed as pragmatic in nature using the RITES tool results. The overall quality of the evidence was considered low to moderate owing to the high risk for per-formance and attrition bias. Conclusions: Educational programs involving parents and children appear to result an improvement in BMI z score. Due to limited evidence, a gold standard for the treatment of preschool aged obesity has not been identified.

OR12

Social Determinants of Health Linked with Patient Portal Use in Pediatric Diabetes

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Objectives: Disparities among youth with type 1 diabetes (T1D) are associated with health outcomes. Pa-tient portal (PP) use can improve care quality. Therefore, equitable PP access is essential. Associations be-tween social determinants of health (SDH) and PP access have not been reported in pediatric T1D. The purpose of this study was to determine if PP access and use are associated with SDH in pediatric T1 D.

Methods: Cross sectional study of patients with T1D <18 years seen in diabetes clinic at a ter-tiary care centre in the last year. Patient postal code, PP activation status and use, and character-istics were collected on April 1, 2021. SDH were assessed using patient postal code linked to the Ontario-Marginalization Index (ON- Marg) to determine a quintile score across 4 dimensions of deprivation. Statistical analysis assessed for association between PP activation status and ON-Marg quintile.

Results: Data were obtained for 634 patients with mean age 12.8 ± 3.8 years, 53% male, mean hemoglobin A1C 8.4 ± 2.0%. 334 patients (53%) were PP active and 332 (52%) used PP in the last year. The odds of inactive PP status were higher for those with the highest degree of mate-rial deprivation (OR 2.91, 95%CI [1.62,5.36]) and residential instability (OR 3.49, 95%CI [1.86, 6.70]). PP activation status was not associated with dependency or ethnic concentration.

Conclusion: In our pediatric T1D population, inactive PP status is associated with greater material deprivation and residential instability. How these factors impact PP activation and how to improve equitable access requires further study.

Poster Abstracts

P1

A Case of Buprenorphine Extended-Release Induced Adrenal Insufficiency in the Pediatric Context

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Introduction: Opioid-induced endocrinopathy is an increasingly recognized phenomenon in the adult popu-lation. Long-term opioid use is thought to disrupt the hypothalamic-pituitary-adrenal (HPA) axis among other endocrine effects. Opioid use disor-der is increasing in prevalence among the adolescent population. We present a pediatric case of suspected reversible buprenorphine extended-release induced adrenal insuf-ficiency.

Case Presentation: A 13-year old transgender male presented with a several-month history of worsening headache with progressive visual impairment. On initial assessment, he was found to have bilateral papilledema. He was diagnosed with idiopathic intracranial hypertension (IIH). Given the degree of vision impairment, he was admitted for medical and surgical management. Past medical history was significant for obesity, mental health disorders, and polysubstance abuse, including opioids. After two unintentional opioid overdoses in the last year, he was ini-tiated on buprenorphine/naloxone and then buprenorphine extended-release (monthly injec-tion) approximately three months prior to his presentation. Buprenorphine is a partial ago-nist/antagonist opioid used in se-vere opioid use disorder and was used off-label due to age in this case. On workup for secondary causes of IIH, he was found to have an am cortisol of 94 mmol/L. Low dose ACTH-stimulation testing revealed the following results: baseline – 122 nmol/L, 20-min – 255 nmol/L, 30-min 295 nmol/L. He was initiated on hydrocortisone given the acuity of his presentation with IIH. In discussion with his multiple care providers, bupren-orphine and other opioids used for opioid agonist treatment were held in hospital. Low dose ACTH- stimulation testing was repeated 2-weeks after the initial test, approximately 6 weeks after his last dose of buprenor-phine. He showed evidence of normal adrenal function with peak cortisol of 734 nmol/L. Hydrocortisone replacement was discon-tinued. He was discharged with close follow-up in a local addiction medicine clinic.

Discussion: There have been limited reports of opioid-induced adrenal insufficiency in the pe-diatric population. Opioids affect the HPA axis at the level of the hypothalamus and adrenal gland. This case demonstrates reversible buprenorphine extended-release induced adrenal insuf-ficiency and highlights the need for increased recognition and understanding of this finding in adolescents.

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P2

Cushing syndrome caused by an ectopic ACTH secreting tumor in a 10 year old: a challenging diagno-sis

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We report the case of a 10-year-old girl who presented with sudden weight gain, abdominal distension, and increased acne for the past 3 weeks. Physical examination revealed a tender right flank mass and moon facies. An abdominal ultrasound showed multi-ple liver lesions of metastatic appearance, with normal ad-renals. A low and high dose dexamethasone suppression test showed an absence of suppression of cortisol (minidex: cortisol 937 nmol /L, HDST 8 mg: cortisol 722.3 nmol/L) and ACTH levels were elevated (49.5pmol/L). A pituitary MRI was also performed and was normal. A CT-scan confirmed the findings of the ultrasound, and showed pulmonary nodules and retroperitoneal lymph nodes.

The results of the ACTH and the HDST, as well as the normal adrenals and pituitary on imagining, implicat-ed that her Cushing syndrome might be caused by an ectopic secretion of ACTH.

A liver biopsy was performed and pathology results reported a well differentiated grade 2 neuroendocrine tumor.

In order to locate the origin of the primary neoplasia, the patient underwent a 18F- FDG PET/CT scan, which confirmed findings of the previous imaging, but did not identify a primary lesion.

To further look for the primary tumor, a 68Ga-DOTATATE PET/CT was performed and revealed a previously unseen lesion in the body of the pancreas overexpressing the somatostatin receptors, as well as para-cardiac and left supra-clavicular lymph nodes. A pancreatic MRI confirmed the lesion in the body of the pancreas, which could be the primary lesion.

Clinically, she quickly deteriorated with cortisol levels climbing to 3098.9nmol/L, within a couple of weeks after diagnosis. Keto-conazole was rapidly introduced but with poor response (cortisol >3299.8nmol/L). She also developed overt diabetes (blood sugar ranging from 16 to 30 mmol/L) treated with insulin, was put on LMWH for thrombosis prevention, infection prophy-laxis with TMP-SMX, spironolactone and potassium supplements for hypokalemia (2.4mmol/L). Temozolomide was started by the oncolo-gy team. Other therapeutic avenues are being consid-ered, such as 177Lu DOTATATE, but the main issue remains her aggressive Cushing's syn-drome, prompting the following question: should medical intervention be continued, for in-stance with Metyrapone, or should she undergo a bilateral adrenalectomy?

P3

"Choose your own adventure" learning: developing an asynchronous pediatric DKA curriculum using an online Chatbot

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Introduction: Diabetic ketoacidosis (DKA) is a common and life-threatening condition in pediatrics. It is essential that pediatric trainees learn how to manage this condition skillfully and safely.

One of the challenges of teaching DKA is that it is difficult to capture practical nuances of management with traditional didactic teaching methods. We developed an interactive and asynchronous pediatric DKA curriculum informed by Kolb's cycle of adult learning, based on an online Chatbot.

Curriculum Overview: The curriculum consists of 4 online modules. Module 1 is didactic in which learners review a video on DKA and respond to reflective questions. Modules 2-4 are interactive and case-based, using the platform of the IBM Watson Assis-tant Chatbot.

Each module presents a new case with open ended and multiple-choice questions. Learners work through the case via their web browser or cell phone. The learner interacts with the Chatbot, making manage-ment decisions after which they receive immediate feedback on the progress of their virtual "patient". Residents are then prompted to apply their learning to real life patient care, and return to the Chatbot cases in an ongoing cycle of practice and learning.

Methods: This is a before and after study. The chatbot curriculum was launched with first year pediatric residents in the first 2 months of residency. Participants completed a knowledge pretest and worked through Modules 1-4 independently over a 4–6-week period. A post test and satisfaction questionnaire were sent to residents at 8 weeks. Focus groups will also be used to obtain narrative feedback.

Next Steps: The curriculum was launched with 12 residents in September 2021. Preliminary results suggest that residents were satisfied with the curriculum (75%), found the online modules easy to use (100%) and valuable for learning (66.7%). Time investment was a significant limiting factor. Fo-cus group data will be used to further adapt the curriculum in an iterative process, before re-launching in July 2022.

P4

Exogenous Cushing's Syndrome in A 5-Month-Old Girl Due to Ophthalmic Intranasal Steroids

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Cushing's syndrome (CS) is rare with an overall incidence of 2 to 5 new cases per million people per year, with only 10% of new cases each year occurring in children. CS is suspected if there are signs and symptoms of prolonged high steroid exposure and is caused by either endogenous or exogenous glucocorticoid expo-sure. The most common cause of CS in children is exogenous exposure to high dose glucocorticoids.

A 5-month-old girl was referred with a two-month history of rapid weight gain and poor linear growth. At 2 months of age, she was prescribed tobramycin/dexamethasone ocular drops to be given intranasally to treat upper airway congestion. She was receiving the dose as directed, and it equated to 395 mg/m2/day of hydrocortisone. She had Cushingoid features including moon facies, flushed cheeks and an interscapular fat pad, as well as rapid weight gain and plateaued linear height. Her BMI was 23.6 kg/m2, >99.9th percentile. Her ICU blood pressure was initially 125/95, ultimately requiring antihypertensive medication for less than 2 weeks. Investigations revealed a suppressed ACTH level of <1.1 pmol/L and low random serum cortisol of 17 nmol/L. Subsequently, a 1mcg ACTH stimulation test showed a peak cortisol of 65 nmol/L. Nasal steroids were discontinued and she was started on oral steroid replacement therapy with stress dosing for illnesses. Five days after stopping the intranasal steroids, she developed a rash on her cheeks that was red and firm. Approximately 20 days later, a similar rash appeared on her chin and arms, and she was diagnosed with post-steroid panniculitis.

Between 1994-2017, 21 reported cases of CS secondary to intranasally administered steroids were reported in pediatrics. These cases demonstrate the potential harmful side effects arising from locally administered steroids secondary to systemic absorption. Small infants are at an even higher risk due to their small body surface area and supine position during administration lead-ing to more swallowing and intestinal absorption. In presenting this case, we highlight the need for close monitoring of children prescribed intranasal steroids, in particular watching for changes in growth, and to decrease or stop steroids as quickly as possible.

P5

Profound hypothyroidism presenting with a pelvic mass and precocious menarche

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Introduction: We report a case of Van Wyk Grumbach syndrome, a condition of primary hypothyroidism, isosexual precocious puberty and bilateral ovarian masses. Although rare, it should be part of the differential diagnosis in a girl with ovarian masses and precocious puberty. Thyroid hormone replacement is the only in-tervention needed, often leading to resolution.

Clinical case: A ten year-old healthy female presented to the emergency with one day of abdominal pain and distention, decreased energy and decreased oral intake for 1 month. She had chronic dry skin, recent menarche 2-3 months after thelarche, and subtle growth deceleration. Examination revealed a palpable mass in her right abdomen, a visibly puffy face and no goiter. Bloodwork showed severe hypothyroidism (TSH>2400 mIU/L with undetectable thyroxine and T3). Estradiol was 233pmol/L with LH 0.3

IU/L and FSH 8.3 IU/L. Anemia was detected (hemoglobin of 73g/L) along with mildly elevated tumour markers (LDH 488 U/L, alfafetoprotein 15.6ug/L, carcinoembryonic antigen 77 U/ml). Abdominal MRI revealed a right large multiloculated cystic lesion (10.3 x 7.7 x 12.8cm) likely ovarian in etiology and an enlarged left ovary (5.9 x 2.4 x 3.8 cm) containing several prominent follicles. Head MRI revealed diffuse enlargement and homogeneous enhancement of the pituitary gland, with no focal lesion. Bone age was concordant with chronological age. The diagnosis of Van Wyk Grumbach syndrome was made and treatment was initiated with gradually increasing doses of levothyroxine. In fol-low up, improvement of energy, abdominal distension and growth were seen with no further vaginal bleeding. Thyroid function tests and tumour markers have normalized.

Discussion: TSH, FSH, LH and bHCG share a common beta subunit; when TSH is significant-ly elevated, it acts as a ligand to the ovarian FSH receptors, subsequently causing ovarian hyper-stimulation leading to breast development and uterine bleeding. Hypothyroidism-mediated myxedematous infiltration of the ovarian stroma might contribute to the ovarian enlargement. Pituitary hyperplasia or even pituitary adenoma is often secondary to long-standing thyrotroph hyperplasia.

Conclusions: Recognition of Van Wyk Grumbach syndrome can avoid unnecessary surgical in-tervention, and reassure the patient and family that the etiology is benign despite the ovarian en-largement and elevated tumour markers.

P6

Thyroid hormone resistance and large goitre mimicking infiltrative carcinoma: A pediatric case report

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Thyroid hormone resistance (THR) is a genetic condition, caused by mutations in the thyroid hormone receptor gene and characterized by impaired end organ responsiveness to thyroid hor-mone. The clinical presentation of THR is variable and management of these patients if symp-tomatic, proves challenging due a paucity of pediatric literature. This case report reviews the presentation and subsequent management of imaging findings concerning for thyroid malignancy in a pediatric patient with THR.

A 13-year-old male with THR presented for follow-up and was identified as having an interval increase in goitre size and possible palpable nodule. He was previously diagnosed with THR as a toddler after presenting with clinical features of hyperthyroidism and was identified to have a de novo mutation in the thyroid receptor beta gene. He was started on nadolol and methimazole therapy with improvements in heart rate, weight gain, behaviour, and bone ac-crual. Over the past 10 years he had been unsuccessfully trialled off methimazole with wors-ening behavior, BMI and bone mineral density.

Given his exam findings a thyroid ultrasound was performed which showed diffuse enlarge-ment of the gland, coarse heterogenous texture, irregular hypoechoic areas, several foci concern-ing for microcalcifications and increased vascularity concerning for a dif-fuse infiltrative process or malignancy. Methimazole was discontinued.

Computed tomography (CT) of the neck and chest were performed to exclude adenopa-thy or lung metastasis. He underwent fine needle aspiration and core biopsies to differen-tiate whether his imaging findings were secondary to THR or malignancy. His biop-sy results were reassuring and in discussion with local and international experts, we concluded his imaging findings were attributed to his diagnosis of THR. He was subsequently started on every other day liothyronine therapy, which led to a decrease in goitre size and thy-roglobulin level, with no further progression of hyperthyroid symptoms.

This case report is the first to our knowledge describing the above thyroid imaging findings in association with THR. It also adds important information to the literature regarding manage-ment of the hyperthyroid phenotype of TRH in pediatric patients in-cluding the role of li-othyronine therapy.

P7

Characterization of severe primary IGF-1 deficiency in a cohort of Canadian children with short stature

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Background: Laboratory investigations for children with short stature include the measurement of insulin growth factor 1 (IGF-1). IGF-1 can be low in severe primary IGF-1 deficiency (SPIGFD), and due to several secondary causes. SPIGFD is defined as low basal IGF-1, short stature, growth hormone sufficiency, and exclusion of secondary forms of IGF-1 deficiency. The identification of children living with short stature caused by SPIGFD is important since these children can benefit from treatment with recombinant human IGF-1, which improves linear growth rate and final height. Despite this, the prevalence of SPIGFD among children with short stature is unknown in North America. Objectives: 1) Determine the prevalence of children with SPIGFD among children with short stature; 2) calculate the positive predictive value (PPV) of low IGF-1 to make a diagnosis of SPIGFD; and 3) explore the difference be-tween the mean IGF-1 z-scores in patients with SPIGFD compared to those with low IGF-1 for other reasons. Meth-ods: We will conduct a retrospective cohort study of all children as-sessed at the Children's Hospital of Eastern Ontario (CHEO) between November 1, 2013 and June 30, 2021 with a diagnosis of short stature (height ≤3.0 standard deviation) and low IGF-1 (basal levels ≤2.5th percentile for age, sex, and pubertal status). Using the data warehouse at CHEO, a queryable repository of all data stored within the CHEO electronic medical records, we will identify children with short stature and low basal IGF-1 values. From this number, we will complete chart reviews to exclude children with growth hormone deficiency and children with second-ary forms of IGF-1 deficiency.

Results: We have preliminarily identified 139 children assessed at CHEO within the study timeframe with low IGF-1. We are cur-rently developing the algorithm to identify children with short stat-ure and anticipate completing the data analyses in January 2022. Conclusion: Through this study, we will be able to assess the prevalence of SPIGFD among individuals with low IGF-1 and short stature in a single pediatric tertiary care center. In addition, our results could be beneficial to cli-nicians interpreting reduced IGF-1 values and may guide their choice of subsequent endocrino-logical investigations.

P8

Slow growth velocity in anorexia nervosa is not always nutritional

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Introduction: Anorexia nervosa is less common in males and is associated with multiple endocrinopathies including hypogonado-tropic hypogonadism, relative hypercortisolemia, and acquired growth hormone (GH) resistance. Here we present a case of a male adolescent with anorexia and GH deficiency.

Case: A fourteen-year-one-month-old male presented to the emergency department for electrolyte im-balances in the context of anorexia. He also reported delayed puberty and short stature, although no growth curves were immediately available. Vitals showed weight of 38.4kg (5th percentile), height 145cm (<1st percentile), heart rate 60BPM, and blood pressure 125/70mmHg. Exam was notable for rounded cherubic facies and Tanner 3 pubic hair with left testicular volume 3- 4ml and an undescend-ed right testicle. Initial laboratory testing showed elevated testosterone 2.8nmol/L and DHEAS 18.2umol/L, out of keeping with pubertal status, with undetectable LH. An adrenal ultrasound was grossly normal.

Growth charts then obtained from his pediatrician before the onset of anorexia showed stagnat-ing height since age 9.5 years with concurrent dramatic increase in weight. Prior to the onset of his anorexia, he only grew 10cm in five years despite his weight in-creasing from the 25th to 95th percentile. Repeat laboratory testing showed TSH 1.30mIU/L and free thyroxine 8.9pmol/L, ruling

out profound hypothyroidism, and a normal prolactin. Random cortisol was 683nmol/L. Subsequent AM cortisol was not suppressed after low dose dexamethasone, and midnight salivary cortisol was elevated at 29nmol/L (normal <5 nmol/L). GH stimulation test-ing showed a low peak of 4.26ug/L (normal >5ug/L), consistent with GH deficiency. A brain MRI showed a small for age but otherwise normal pituitary gland. An abdominal MRI is pend-ing.

Discussion: Although delayed puberty and slow growth velocity can be seen as a consequence of anorexia, endocrinopathies unrelated to malnutrition should also be considered in the differen-tial diagnosis. A review of growth charts prior to the onset of anorexia is essential, and in our case was fundamental in highlighting underlying GH deficiency. Additionally, although elevat-ed cortisol levels can be seen in anorexia, given the profoundly elevated levels seen in our pa-tient, we are awaiting further imaging to help rule out Cushing's syndrome prior to treatment with GH.

P9

A Delayed Diagnosis of Salt Wasting Congenital Adrenal Hyperplasia Masquerading as Pseudohypoaldosteronism

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Introduction: Salt wasting congenital adrenal hyperplasia (SW-CAH) is a life- threatening condition requir-ing timely diagnosis and management. We present a case of delayed diagnosis of SW-CAH at 15 months of age, initially diagnosed as pseudohypoaldosteronism (PHA).

Case: A 27-day-old boy presented to the emergency department with failure to thrive, vomiting and poor feeding. He was hemodynamically stable but dehydrated. Laboratory investigations showed sodium 108 mmol/L (reference range 131-143), potassium 7.5 mmol/L (reference range 3.9-6.9), renin > 10.3 ng/L/s (reference range 0.21- 1.06), 17-hydroxyprogesterone (17-OHP) 1006 nmol/L (reference range 0.6-6.1), and aldosterone 5115 pmol/L (reference range 111-860). The patient was managed with rehydration, 3% sodium chloride (NaCl) supplementation, hydrocortisone, and fludrocortisone. Abdominal imaging re-vealed bilateral grade 1 and 3 hydronephrosis and voiding cystourethrogram was normal. PHA was diagnosed given the elevated aldosterone level and the patient was discharged on 3% NaCl supplementation. Stress steroid coverage was also suggested by the endocrinology team, given baseline and adrenocorticotrophic hormone (ACTH)-stimulated cortisol values of 178.7 and 276.6 nmol/L, respectively.

Examination at 15 months of age showed prepubertal testes, an enlarged penis (6.8 cm in length), and Tanner stage 2 pubic hair, suggestive of untreated CAH. A pubertal testosterone level at 4.18 nmol/L (Tanner stage 3-4), DHEAS at 2.41 umol/L (prepubertal < 2.5) and elevated levels of renin >10.30 ng/L/s, 17OHP at 1990 nmol/L and ACTH at 39 pmol/L (normal range < 10) were found. Baseline and ACTH stimulated 17OHP levels were 3725 and 4506 nmol/L, respectively. Genetic testing identified two mutations in the CYP212 gene (c.293-13A/C>G and p.R357W) and was negative for PHA. The diagnosis of SW-CAH was confirmed and regular steroid coverage, fludrocortisone, and NaCl supplements were initiated. With this man-agement, laboratory parameters normalized, and examination was normal apart from penile en-largement.

Discussion: This is a case of delayed SW-CAH diagnosis despite salt-wasting crisis in infancy. CAH should be considered in the context of salt-wasting despite elevated aldosterone levels, which may be explained by cross reactivity between adrenal steroid precursors and aldosterone. ACTH-stimulated 17OHP and genetic testing can help differentiate between SW-CAH and PHA.

P10

Pandemic Pivot to Virtual Visits in Pediatric Diabetes: An evaluation of the patient/family experience

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Background: During the first year of the COVID-19 pandemic, 89% of pediatric diabetes follow-up care was delivered virtually (mostly video) in our clinic. Virtual visits (VV) are expected to remain a key compo-nent of diabetes care in the post- pandemic era, but how to incorporate VV into care models must be evi-dence-based with consideration of the patient/family experience.

Objectives: To evaluate patient/family perceived quality of care and satisfaction with VV and comparing VV to previous in-person visits. Associations between patient factors and patient experience were evaluated as secondary objectives.

Methods: A survey, including the validated Perceived Quality of Medical Care instrument (PQMC), was distributed via email to families who attended a VV between December 1, 2020 and March 31, 2021. Survey data were linked with patient-level electronic health record data. Results were summarized de-scriptively, and the Wilcoxon signed rank test with continuity correction was used to assess differences in PQMC.

Results: There were 181 survey respondents (132 parents, 49 youth, 14 dyads; response rate 37%). Mean patient age was 12.7 ± 3.8 years; 52.5% were female. Median diabetes duration was 4.7 ± 3.8 years; 91.2% had type 1 diabetes; 52.5% insulin pump, 39.8% multiple daily injections, and 7.7% no insulin. VV used video in 97%. Youth PQMC scores (median(IQR)) were similar for virtual vs. recollected in- person visits: 36.0 (32.5, 40.5) vs. 36.0 (35.0, 40.0); p= 0.54. Caregiver PQMC scores (median(IQR)) were slightly lower for virtual vs. recollected in-person visits: 40.0 (36.0, 42.0) vs. 42.0 (37.5, 42.0); p=0.01. Compared to in-person visits, 81% of respondents said VV quality was equivalent, and 18% said worse. Over 90% of re-spondents were mostly or completely satisfied with all aspects of the visit/care provided virtually. 87% of caregivers and 82% of patients felt VV should account for ≥50% of future diabetes clinic visits.

Conclusions: Patients and caregivers perceived diabetes VV favourably and most would like them to continue in the post-pandemic era. Evaluation of impact of virtual care on provider perception is underway. These results and evaluation of care modality on health outcomes should guide future care models.

P11

Burosumab for the Treatment of Chronic FGF23 Over-production due to Cutaneous-Skeletal Hypophosphatemic Syndrome

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Cutaneous-skeletal hypophosphatemic syndrome (CSHS) is a congenital bone disorder characterized by skeletal and skin dysplasia. In some cases, the underlying dysplastic bone over-produces fibroblast growth factor-23 (FGF23), resulting in renal phosphate-wasting and hypophosphatemic rickets. Treatment of disor-ders of FGF23 over-production traditionally involved multiple daily doses of oral phosphate and active vita-min D, neither of which address the renal phosphate-wasting.

Burosumab is a human monoclonal antibody which neutralizes FGF23 and was superior in a phase 3 random-ized controlled trial to conventional therapy in treating pediatric X-linked hypophosphatemia (XLH), another condition linked to FGF23 over- produc-tion. Therefore, burosumab is theoretically attractive for the treat-ment of CSHS.

We describe a girl with left-sided CSHS who presented at 2 years, 10 months with hypophosphatemic rick-ets, poor growth and lower limb deformity. At the time of diagnosis, her serum phosphorus and tubular reab-sorption of phosphate were low at

0.82 mmol/L (normal: 1.27-2.01) and 87.9% (normal: ≥95% in the presence of hypophosphatemia), respective-ly. Moreover, her serum C-terminal FGF23 was inappropriately normal, instead of appropriately suppressed in the setting of hypophosphatemia (63 RU/L, normal: 19-114). She was initially treated with conventional ther-apy (phosphate Joulie's solution and calcitriol) but 8 months later, she still had significant bone pain and lower limb deformity. Conventional therapy was discontinued, and she started burosumab 0.8 mg/kg subcutaneously every 2 weeks, the standard dose for pediatric XLH. On this dose, serum phosphate rose to the upper limit of normal and she subsequently underwent dose de-escalation to achieve targeted phosphate lev-els on burosum-ab 0.3 mg/kg every 2 weeks. After 12 months on burosumab, her alkaline phosphatase declined from 326 to 205 U/L, and height Z-score increased from -2.6 to -1.9. Additionally, pain, mobility, endurance and skeletal deformity improved significantly (lower extremity mechanical axis deviation declined bilaterally, on average, by 50%).

Burosumab appeared to be an effective therapy for the treatment of this patient's renal phos-phate-wasting. Interestingly, she re-quired less than half of the weight- based dose of bu-rosumab typically prescribed for pediatric XLH. We hypothesize that this may be due to the skeletal mosaicism of CSHS compared with the more systemic osteomalacia of XLH.

P12

Too Tall, Too Fast.

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We present a 6-year-old female of Filipino descent who presented to the emergency room with two days of severe headache, pro-gressive nausea and vomiting and altered level of consciousness. Urgent MRI revealed a large suprasellar mass (4.2 x 3.7 x 2.0 cm) with intra-tumoral hemorrhage, peripheral calcifications and hydrocephalus. A pi-tuitary screen revealed elevated IGF-1 of 747 ug/L (ref. range 24-326) with normal prolactin, free T4, cortisol and sodium. She underwent urgent bilateral ex-ternal ventricular drain (EVD) insertion and developed intra-operative, permanent diabetes insipidus. She subsequently underwent a subtotal tumor resection where pathology and immunohistology confirmed a pi-tuitary adenoma staining for growth hormone (GH) in 80% of cells.

Upon further history, the child had intermittent headaches and excessive linear growth for two years with growth velocity of 14 cm/year and tall stature >99.9%ile. She had concomitant rapid weight gain and was obese. Mid-parental height was <10%ile and she had no signs of central precocious puberty with age appropriate skeletal matu-ration and pre-pubertal levels of gonadotropins. Remodelling of the sella seen on imaging sug-gested tumor development was over the course of years. The patient suffered multiple post-operative complications and thus an oral glucose challenge was not completed to definitely di-agnose growth hormone excess.

However, GH levels were measured every 4 hours over 24 hours and were persistently elevated (5.95 – 10.7 ug/L). Post-operatively, the child's IGF-1 is lower than previous but remains elevated (562 ug/L) and growth velocity is >97%ile. Otherwise, she has devel-oped deficiencies of ACTH and TSH requiring replacement therapy.

Growth hormone secreting adenomas in childhood are rare, accounting for <1% of pituitary adenomas. They are often associated with simultaneous rapid weight gain, hyperprolactinemia and compared to adult tumors, are more locally aggressive and treat-ment-resistant. Up to 50% are associated with underlying genetic disease including McCune Albright Syndrome and MEN1. Sur-gery is curative in less than 50% and pharmacotherapy includes somatostatin analogs and, more recently, a growth hormone receptor antagonist, pegvisomant. Adjuvant radiation therapy is another treatment option, however, may lead to adverse neurodevelopmental conse-quences in a young child. Improved outcomes are associated with earlier tumor identification and thus in children presenting with excessive linear growth, growth hormone excess must be considered.

P13

Current models of care and perceived gaps in the care of Differences of Sex Development: a national survey

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Background: Differences (or disorders) of Sex Development (DSDs) include a variety of rare congenital conditions affecting sex determination and differentiation.

A fundamental recommendation from DSD consensus guidelines includes having a multidisciplinary team (MDT) approach. Clinicians may face challenges in DSD care given the rarity and heterogeneity of these conditions, and economic and practical barriers related to forming a MDT. The purpose of this study is to understand the models of practice for children with DSDs in Canada, degree of implementation of a multi-disciplinary team (MDT) approach, perceived challenges in DSD care, and priorities for national collabora-tion.

Methods: The data in this study were collected using a national online survey that was sent to Canadian pe-diatric endocrinologists through the Canadian Pediatric Endocrine Group (CPEG). The survey questions were informed by the literature as well as reviewed and edited by content experts and survey methodolo-gists.

Results: Participants from 12 different pediatric centers across Canada took part in the survey. Over half of the participants reported having multidisciplinary DSD rounds; however, very few indicated having multi-disciplinary DSD clinics. The majority of the responders highlighted using a multidisciplinary approach in the neonatal period. However, fewer reported doing so in the outpatient pediatric setting and at transition to adult care. Psychologists were the most frequently lacking but desired member of a MDT. The most frequently reported barriers to implementing a MDT model include availability of specialists, time limita-tions, and financial barriers. Canadian pediatric endocrinologists identify the most important priorities for future national collaboration as the creation of standardized guidelines, ongoing professional development, and creation of a DSD network and registry.

Conclusion: While over half of Canadian pediatric centers have a multidisciplinary care model, the vast majority lack psychosocial providers with expertise in DSDs. Canadian pediatric endo-crinologists face numerous practical and economic barriers in caring for DSD patients and view fu-ture national collaboration as a priority.

P14

A Case of Tumour-Induced Osteomalacia: Success Without Surgery

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A 7-year-old female presented with a two-week history of right upper quadrant abdominal pain, fatigue and weight loss. Investigations ultimately revealed an undifferentiated embryonal sarcoma of the liver (UESL) measuring 9.2 x 16.3 x 14.9 cm and she received urgent chemotherapy due to symptomatic hypertension sec-ondary to compression of vessels by the tumour.

During admission, she was found to have hypophosphatemia ranging between 0.40-0.91 mmol/L [1.41-2.02 mmol/L], mild hypocalcemia (ionized calcium between 1.08-1.15 mmol/L [1.22-1.37 mmol/L]), elevated PTH (159 ng/L [16-63 ng/L]), and elevated ALP (427 U/L [143-318 U/L]). She was vitamin D deficient (25-OH vitamin D of 44 nmol/L [70-250 nmol/L), which was initially thought to be the main cause for her elevated PTH and ALP. However, although imaging showed diffuse decreased bone mineralization, there was no radiographic evidence of rickets. Tubular reabsorption of phosphate was 60% and tubular maximum reabsorption rate of phosphate to glomerular filtration rate was 0.45 mmol/L [1.15-2.44 mmol/L], indicating renal phosphate wasting. This, in addition to a low 1,25-dihydroxyvitamin D (21 pmol/L [48-190 pmol/L]) in the context of hypophosphatemia raised concern for tumour-induced osteomalacia (TIO). FGF-23 was found to be inappropriately elevated (533 pg/mL [≤ 52 pg/mL]) in the context of

hypophosphatemia (0.78-0.91 mmol/L) which confirmed the diagnosis.

Hypophosphatemia was treated with phosphate supplementation and alfacalcidol. These were gradually weaned and ultimately discontinued following normalization of phosphate levels after completion of neo-adjuvant chemotherapy over the course of two months. Tumour showed obvious necrosis and interval de-crease in size following chemotherapy.

She subsequently underwent successful left hepatic trisectorectomy. Although phosphate levels had normal-ized pre-operatively, she was prophylactically treated with phosphate treatment given the extensive phosphate requirements for hepatic regeneration, which were then discontinued by discharge. No further phosphate supplementation was required.

TIO is a rare paraneoplastic syndrome characterized by tumour secretion of FGF-23, leading to increased urinary phosphate wast-ing. Management involves treatment of the tumour and resolution typically quickly follows complete surgical resection. This case highlights the unique clinical reso-lution following chemotherapy without the need for surgical resection, as is typically reported in literature.

P15

A case of misdiagnosed 46 XY, gonadal dysgenesis

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Background: Individuals with XY, gonadal dysgenesis commonly present in adolescence with delayed pu-berty. However, with increasing genetic testing, including non-invasive prenatal testing (NIPT), diagnosis in infants and pre-pubertal children is more common. We present a unique case of a phenotypically female infant found to have a 46, XY karyotype following an abnormal NIPT result.

Case: A 14 day-old infant was referred for assessment of disorder of sexual development (DSD). Mater-nal pregnancy was compli-cated by an abnormal NIPT result of "no-call" for monosomy X, though NIPT indicated that baby was female, with no detectable presence of a Y chromosome. At birth, baby had no features of monosomy X; however, given the abnormal NIPT, a karyotype was sent at parents' request and was reported as 46, XY with positive FISH for SRY.

On assessment, baby was clinically well and had normal female external genitalia with no clitor-omegaly and no palpable gonads. Investigations at 2 weeks of life revealed normal electrolytes, LH 1.7 IU/L, FSH 17.2 IU/L, testosterone 0.96 nmol/L, and normal cortisol in response to ACTH stimulation. Ultrasound pelvis identified a normal neonatal uterus with no gonads visualized. Clin-ically, baby's presentation was in keeping with a diagnosis of XY, gonadal dysgenesis. A buccal swab was submitted for gene panel analysis, and the sample was found to have a 46, XX karyotype. The possibility of mo-saicism or accidental sampling of maternal cells from breastfeeding was raised. Thus, a blood sample was then sent for repeat testing. Karyotype was 46, XX and gene panel for mutations causing DSDs was negative. Therefore, it was determined that the initial 46, XY karyotype was secondary to lab er-ror and that the patient was female with 46, XX karyotype.

Discussion: Though ultimately this patient was found to be a healthy female infant, this case highlights two important clinical points. First, it emphasizes the importance of clinical reasoning when ordering investigations as there is always a risk of error that can lead to unnecessary inves-tigations and misdiagnosis.

Additionally, it demonstrates how abnormal NIPT results may lead to earlier diagnosis of XY, gonadal dysgenesis and other disor-ders of sexual development.

P16

Off-label use of an insulin pump in severe congenital hyperinsulinism post near-total pancreatectomy

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Background: Congenital hyperinsulinism (CHI) is characterized by dysregulated insulin secretion and can be associated with significant brain injury given the decreased availability of ketone bodies for cerebral me-tabolism. The ABCC8 gene on chromosome 11p15.1 encodes for the SUR1 subunit of the K-ATP channel in the pancreatic beta-cell membrane. Recessive inactivating ABCC8 mutations typically cause medically unresponsive diffuse CHI, for which most patients require near-total pancreatectomy (95-98% excision). Glu-cagon, a counter-regulatory hormone that induces glycogenolysis, gluconeogenesis, and lipolysis, is often used as first line therapy by continuous intravenous infusion.

Case: This is the case of a young Hutterite girl who had been admitted to hospital from birth for diffuse CHI secondary to a recessive homozygous ABCC8 mutation. She underwent a near-total pancreatectomy aged 8-days with persistent glucagon needs post-operatively. She was trialed on diazoxide, octreotide, and sirolimus, which were discontinued due to inefficacy or serious side effects. At 15-months of age, she commenced a subcutaneous glucagon infusion through a Medtronic 630G insulin pump. She simultaneously started lanreotide depot by deep subcutaneous injection administered monthly. She was successfully weaned off her continuous intravenous glucagon infusion aged 16-months. Following the protracted process to attain an in-sulin pump for off-label use she was discharged home aged 21-months. Her glucagon infusion rates have been weaned as CGM trends have allowed. Now aged 3.7 years she is developing appropriately and continues on her subcutaneous glucagon infusion, monthly 90 mg lanreotide depot and continuous G-tube feed in addition to ad lib oral diet.

Discussion: Glucagon has been used in subcutaneous infusions in the long-term treatment of CHI however catheter occlusion commonly occurs due to the glucagon crystallizing out of an aqueous solution making the therapy ineffective and unreliable. Newer glucagon formulations that are soluble and stable in saline have been described in a small retrospective case series and are currently under study in larger, prospective studies in CHI cohorts in the USA and may provide long-term treatment options in the future. In the meantime, we report the successful use of subcutaneous glucagon off-label through an insulin pump for the management of persis-tent hypoglycemia in severe CHI.

P17

Hypothalamic dysfunction including permanent diabetes insipidus after laser interstitial thermotherapy (LiTT) in pediatric epilepsy surgery

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Background: Laser interstitial thermotherapy (LiTT) is a novel approach to the surgical treatment of drug-resistant focal epilepsies that is relatively new to Pediatrics in Canada. It is a minimally invasive stereotactic method that uses an implanted laser diode, guided by magnetic resonance (MR) imaging spatially, and con-tinuously controlled by MR thermometry. A recent large retrospective review of LiTT (25 studies compris-ing 179 children) describe promising results with seizure freedom rate of 57.5% and low rate of severe complications of 3.4%. Hypothalamic hamartomas represented the most frequent indication for LiTT ac-counting for 64.2% of cases.

Case: We present a 6-year-old boy with focal lesional epilepsy secondary to hypothalamic hamartoma (8 mm on MR scan) with multiple seizure types: bilateral tonic-clonic; focal im-paired awareness seizures (behavioral arrest, staring, unresponsive); focal to bilateral clonic and laughing while sleeping or awake. Also noted to have non-epileptic "rage attacks". Following discussion with

Neurology, Neurosurgery and connecting with the "Hope for HH" support group, the family decided to proceed with LiTT. Due to the tumor location, the family were counseled around potential complications such as memory difficulties and pituitary-related en-docrinopathies. In the immediate post-operative course, urine output increased dramatically to 15 ml/kg/hr with an associated rise in serum sodium consistent with central diabetes insipidus (DI) which responded well to initiation of intravenous vasopressin infusion. The first phase of DI lasted for ~100 hrs. He went on to develop permanent DI on the 9th post-operative day. Symptom control was challenging as both oral and nasal preparations of DDAVP had quite variable durations of action. He was ultimately controlled on 360 mcg DDAVP melts twice daily. Hypothalamic dysregulation was noted from the 6th post-operative day with hyperten-sion (systolic peak 130 mmHg) requiring anti-hypertensive therapy, tachycardia (peak heart rate 170 bpm) treated with clonidine, intermittent fevers, and hyperphagia leading to an 8.1 kg weight gain during his month-long admission.

Discussion: The appeal of a minimally invasive neurosurgical method to treat drug- resistant fo-cal epilepsy is clear. However, our case highlights the potential for serious and likely long-term hypothalamic dysfunction that may be associated with LiTT, a relative-ly new, emerging therapy.

P18

The need for close monitoring of Natural Health Products: A Case Report on Vitamin D Intoxication

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Background: Vitamin D (VitD) supplementation is a standard recommendation by the Canadian Pediatric Society for all exclusively breastfed term infants. Though VitD intoxication is rare, there are reports of intoxication due to mass food- fortification and man-ufacturing-errors. We describe a case of VitD intoxi-cation due to a dose administration error by a parent who purchased VitD to support the immune health of their infant during the COVID-19 pandemic

Case: A 6-month-old male presented with a 2 month history of failure to thrive, dehydration, constipation, and lethargy. His in-vestigations revealed an elevated calcium 3.97 mmol/L (2.20-2.80), low phosphate 0.89 mmol/L (1.20-2.20) and suppressed PTH 0.4 pmol/L (1.4-6.8). Initial history was negative for any natural product supplementation. Physical examination was normal. The infant was started on treatment with IV fluid hyperhydration with good effect and trans-ferred to our tertiary care pediatric hospital for further investigations and management.

Repeated questioning of the parents revealed infant supplementation with an adult formula-tion of VitD 1000 IU/drop, adminis-tered via medication dropper. He received 64, 000 IU (½ dropper) daily for 6 weeks, totaling 2.7 million IU in this timeframe.

The total VitD level, drawn at initial presentation, returned at 738 nmol/L (toxic > 200). His sib-ling also received 64, 000 IU/day of VitD for 4 weeks and was found to have asymptomatic hyper-calcemia

Discussion: We report the clinical presentation of VitD intoxication in two siblings and review the available literature. This case provides an interesting look at the human factors involved in a case of VitD intoxication. Health messaging and misinformation during a time when the public may be seeking alternative-therapies to prevent COVID-19 can have a significant im-pact on health decisions and patient safety. Product engineering with the use of a dropper to dispense a 1000 IU/drop supplement, rather than a metered 1-drop dispenser, allowed for over- supplementation. Natural health product over-supplementation can have significant ad-verse health effects highlighting the need for close monitoring and regulation to ensure safety.