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Celebrate Research Day 2024

Residents Oral Competition

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Dr. Marabeth Kramer

Caring for Youth with High-Risk Substance Use: Defining Admission to a Tertiary Pediatric Hospital

Marabeth Kramer

Research Supervisors: Drs. Eva Moore, Danya Fast

Celebrate Research Day

UBC Department of Pediatrics

April 12, 2024

BACKGROUND (1)

- BC is at the epicentre of the opioid crisis in North America
  - Since 2014 cause of death from unintentional illicit drug overdose has risen dramatically – largely due to synthetic opioids[1]
- Youth have not been spared
  - Death due to drug overdose continues to be the leading cause of death for adolescents (~24 deaths/year)[1]

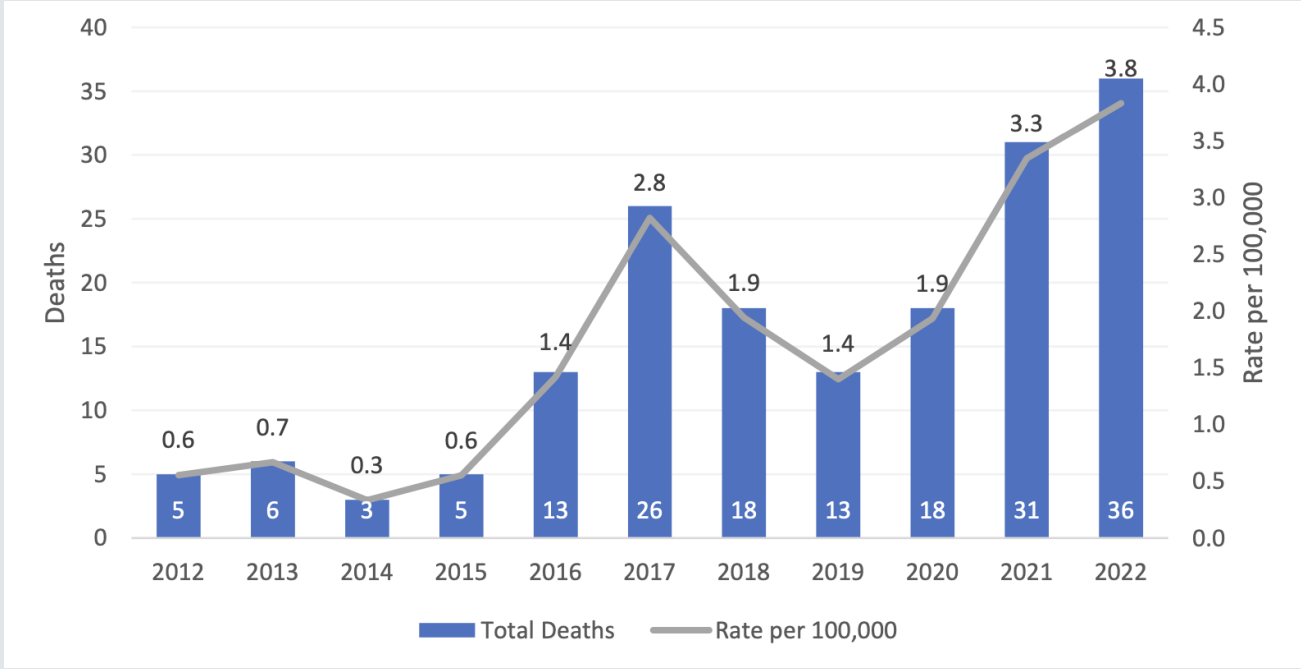


Figure 2: Youth unregulated drug toxicity deaths and rates of death per 100,000 by year 2012-2022[1]

BACKGROUND (2)

- Youth who use substances are particularly vulnerable
  - Critical period of brain development → neurobiological impacts[2], pattern of chronic addiction[3]
  - Associated with significant morbidity[3,4]
  - Services are piecemeal, often not age or culturally appropriate; youth not offered full harm reduction services[2,5,6]
- Debate continues regarding best approach for treatment of youth who present with life-threatening overdose or drug use
  - Few evidence-based guidelines[7]
  - Role of pediatric hospitals is undefined

RESEARCH AIMS

- Define the population of youth admitted to BC Children's Hospital for substance use-related admissions
- Determine scope of care being offered to these youth
- Explore outcomes of admission
- Apply an ethical and quality improvement lens to care for youth with high-risk substance use
  - Work towards evidence-based care
  - Disseminate results to influence clinical practice and policy

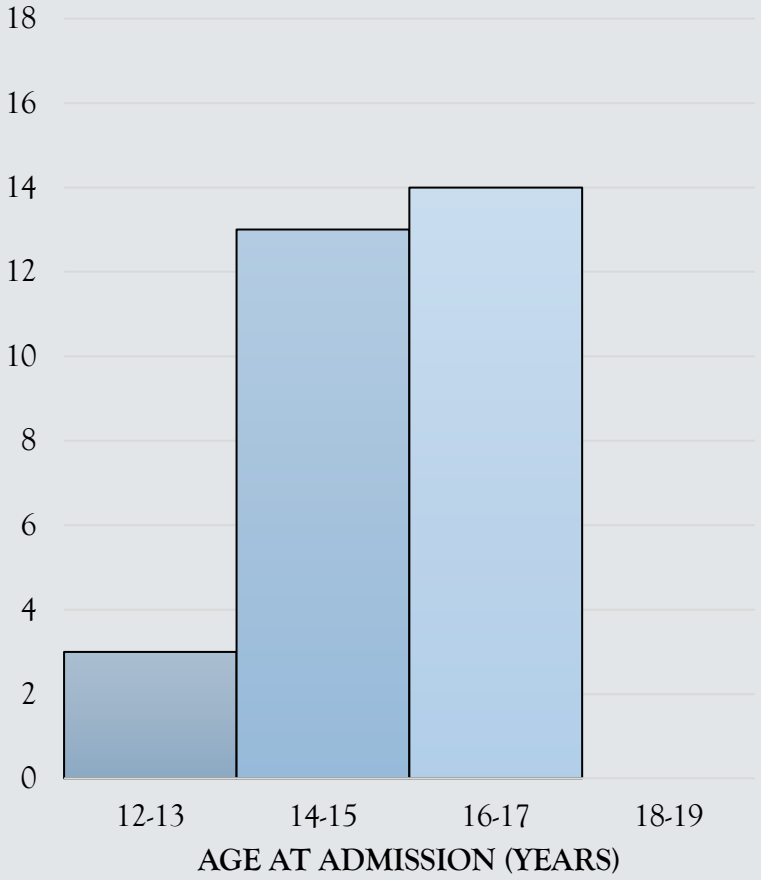
STUDY DESIGN (1)

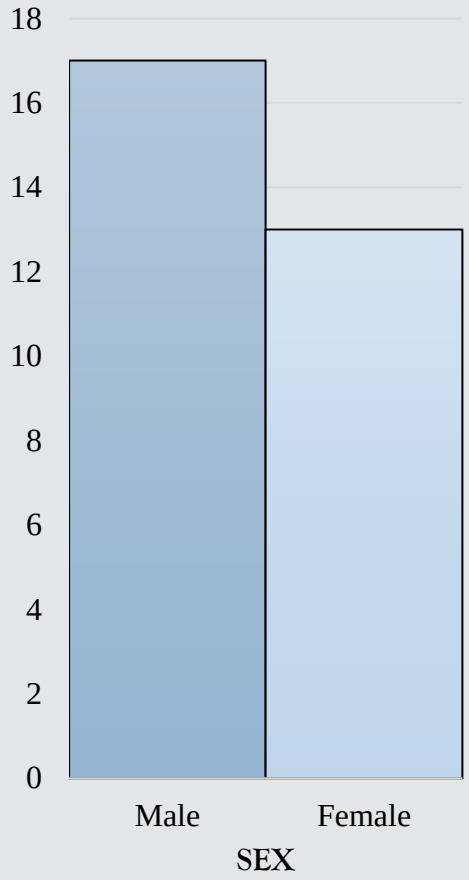
- Descriptive, hypothesis-generating study
- Retrospective chart review
  - Youth aged 12-19; convenience sample
  - Admitted to hospital between June 1, 2018 and May 31, 2021
  - Reason for admission → life threatening overdose, or complications of substance use
  - Repeat admissions for the same youth were reviewed
  - Exclusion criteria: managed in ED only, Adolescent Medicine not involved in admission
- Sample: 44 admissions to hospital, and 30 youth

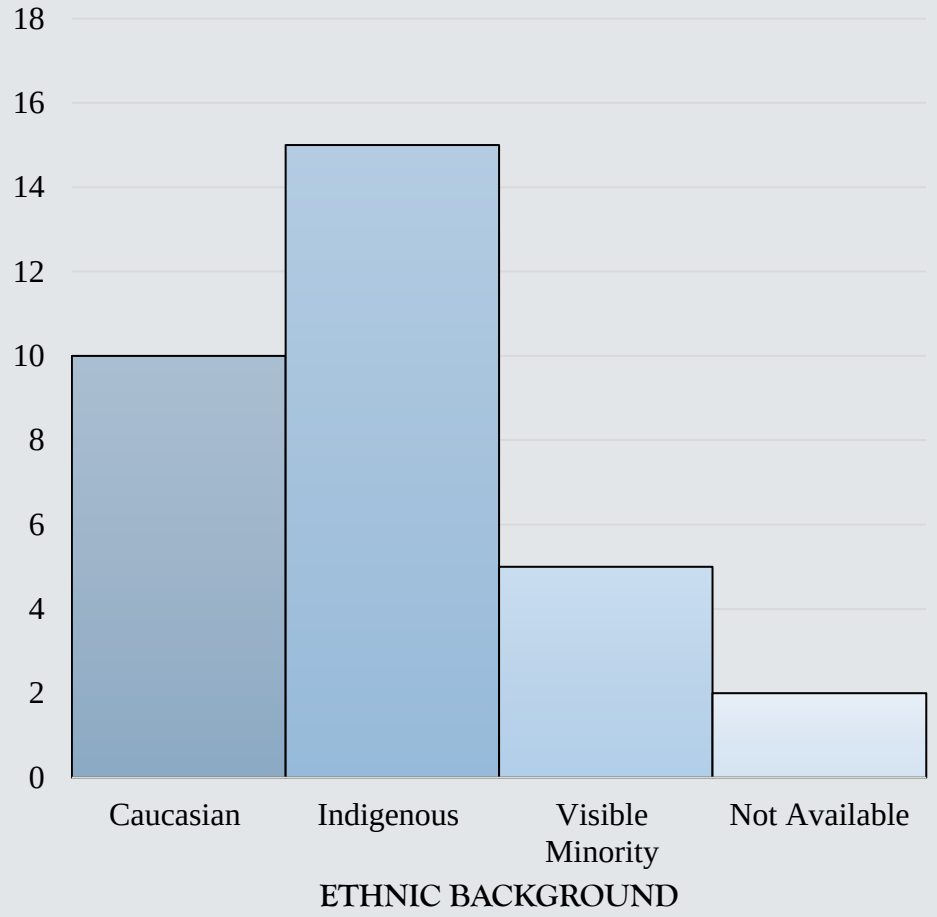
STUDY DESIGN (2)

- Electronic charts (Old Cerner, Care Connect; all physician and allied health notes) were reviewed → data were collected to Excel file
- Primary outcome: baseline demographic characteristics of youth
- Secondary outcomes:
  - Summary data regarding course in hospital
  - Outcomes of admission
- Statistical analysis was descriptive and was completed using Excel

RESULTS: DEMOGRAPHICS

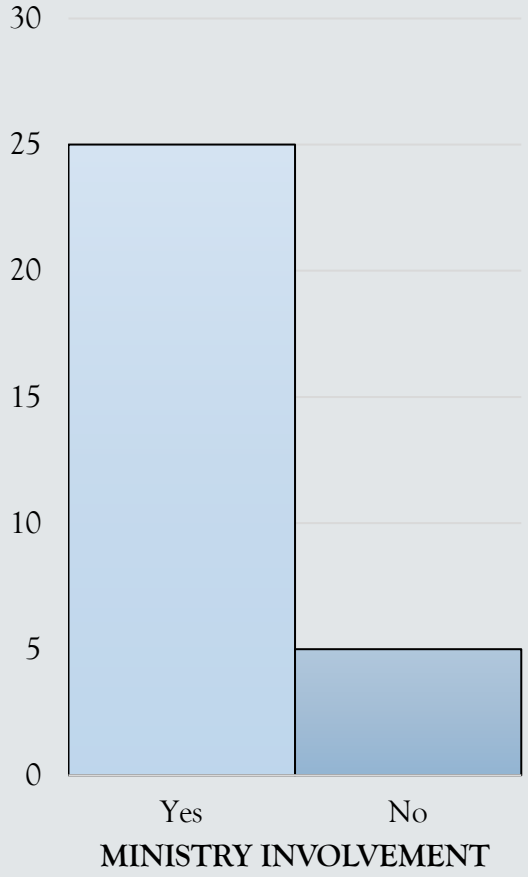


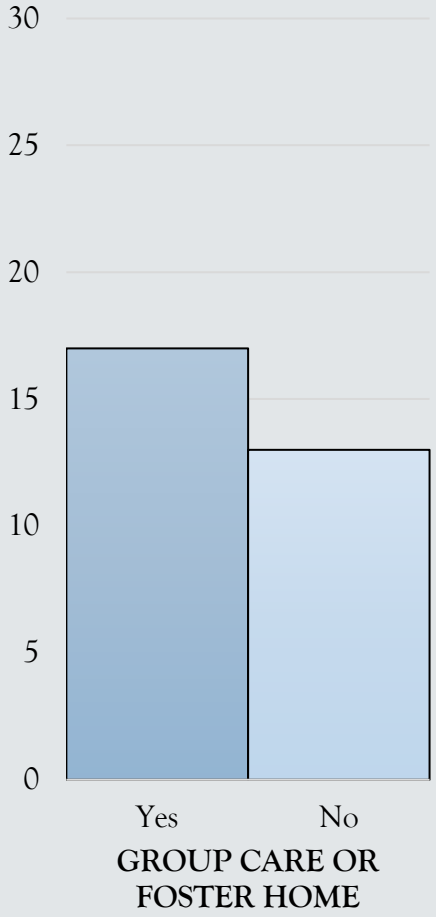


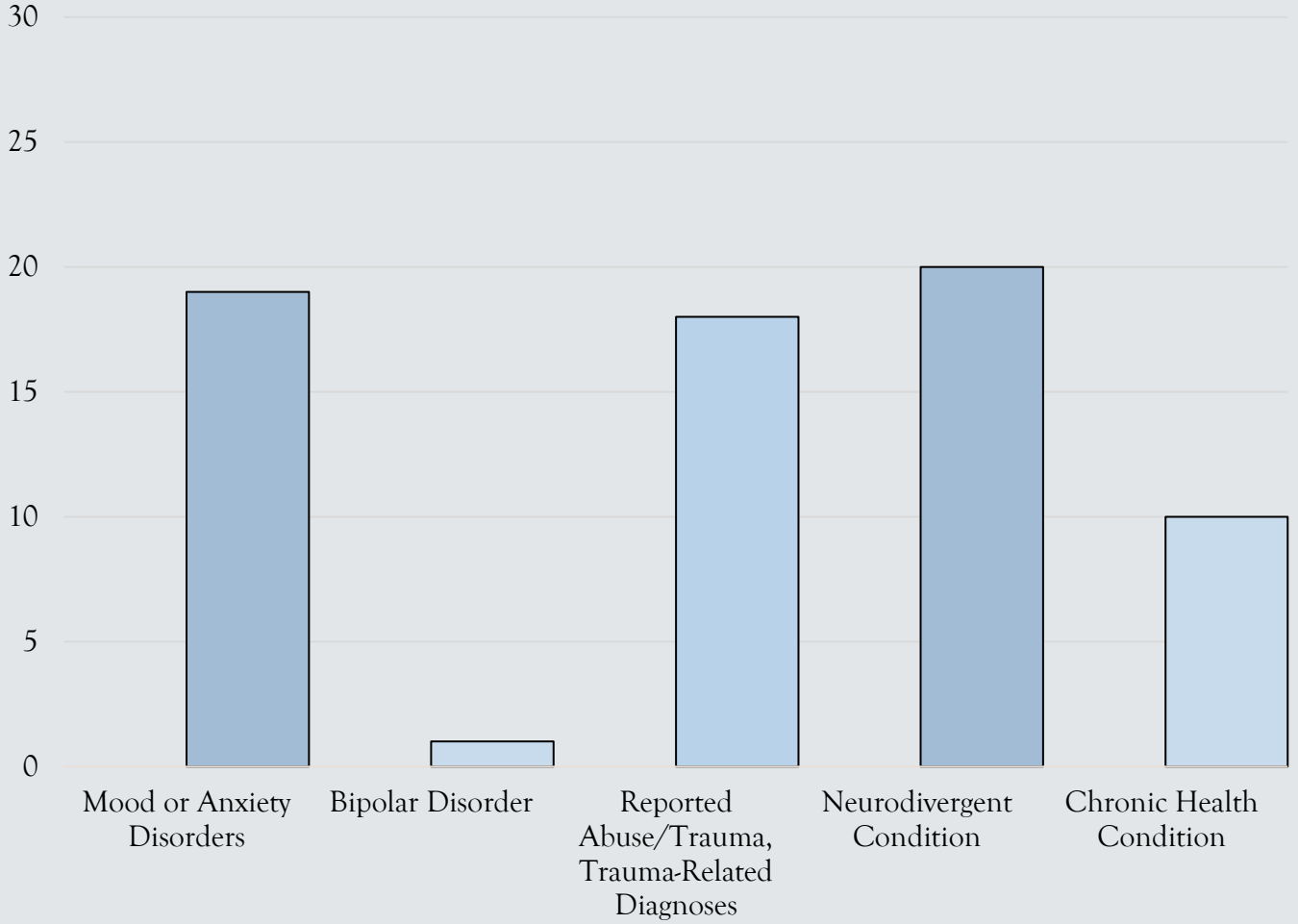


n = 30

RESULTS: DEMOGRAPHICS







n = 30

RESULTS: SUBSTANCE USE

- Onset of drug use
  - Any substance = mean 12.8 years (range 6-16 years)
  - Substance related to admission = mean 13.6 years (range 11-16)
- Reported substance use (youth or parent/guardian report) – all polysubstance use
  - Many reported regular nicotine (50%), cannabis (60%), alcohol (47%) use
  - Ever use of benzodiazepines (40%), opioids (67%), and stimulants (83%)
- 21 youth (70%) had overdose requiring resuscitation at least once
- 5 youth (17%) had previously been prescribed opioid agonist therapy (OAT)

RESULTS: ADMISSION

- 26 youth (59%) post life-threatening overdose, 3 (7%) medical indications
- 17 youth (39%) voluntary admission, 19 youth (43%) involuntary admission, 7 (16%) medically incapacitated
- Mean length of stay 4 days (SD 3.5)
- Mean number of services involved 3.5
  - Treatment: withdrawal mgmt. (82%), sexual health (80%), harm reduction (66%), medical complications (48%), psychiatric (48%)
- 100% family/guardian notified; 97.7% involved in admission

n = 44

RESULTS: OUTCOMES

- Discharge setting: 24 group home or foster care (55%), 11 (25%) family home
- Minority youth-initiated discharges, 4 youth (9%)
- 11 youth (25%) admitted to inpatient substance use treatment
- 4 youth (9%) initiated on OAT
- Connection to services: 32 youth (73%) seen in community setting, 3 (7%) lost to follow up
- 2 youth (4.5%) died post admission

n = 44

LIMITATIONS

- Small study size with possibility of limited generalizability
- Convenience sample – some serious substance-use related admissions may have been missed
- Data for outcomes (particularly in assessing community referral vs. engagement) were difficult to determine from retrospective chart review
- Variability of provider charting and diagnostic process – limitation of hospital chart review
- Thoughts and perspectives of the youth not always captured
  - More focus on resilience and protective factors required

FUTURE DIRECTIONS

- Ongoing concurrent qualitative study – will help to better understand youths' perspectives regarding admission (as well as family and care providers)
- Dissemination of data and information to better inform practice
  - Need to do this in culturally sensitive manner with input from Indigenous colleagues/stakeholders
- Collect more data to be better powered to compare voluntary vs. involuntary admissions, medical vs. life-threatening overdose admissions

CONCLUSIONS

- Medically and socially complex population of youth with intersecting risk factors
- Admissions are high-intensity, multidisciplinary, and require specialized skill set
  - Capacity to provide this care continues to be strengthened at Pediatric centers
- Brief inpatient admissions for life-threatening substance use may increase initiation of OAT, rate of outpatient, intensive substance use treatment
- Ongoing research needed to inform best practices in caring for youth with high-risk substance use

ACKNOWLEDGEMENTS

- Dr. Moore and Dr. Fast for their guidance and support throughout this process!
- Jeffery Bone for initial descriptive statistical analysis
- Madison Thulien for support with the ethics application
- Japneet Gill for initial data organization, thematic analysis

REFERENCES

1. British Columbia's Coroner's Service. Youth Unregulated Drug Toxicity Deaths 2017-2022 [Internet]. 2023. Available from: https://www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/statistical/youth_drug_toxicity_deaths_2017-2022.pdf
2. Turpel-Lafond, M. A review of youth substance use services in B.C. (2016).
3. Warshawski, T. *et al.* Chapter 9: Building an Effective System of Care for Adolescents Following Opiate Overdose: Stabilization Care, Residential Secure Care, Family and Community Engagement, and Ethical Concerns. in *Clinical Care for Homeless, Runaway and Refugee Youth* 157–185 (Springer Nature Switzerland, 2020).
4. Warden, D. *et al.* Predictors of attrition with buprenorphine/naloxone treatment in opioid dependent youth. *Addictive behaviors* 37, 1046–1053 (2012).
5. Pilarinos, A., Kendall, P., Fast, D. & DeBeck, K. Secure care: more harm than good. *CMAJ* 190, E1219-1220 (2018).
6. Hadland, S. *et al.* Evidence-Based Treatment of Young Adults With Substance Use Disorders. *Pediatrics* 147, S204-214 (2021).
7. Krausz M, Westenberg JN, Tsang V, Suen J, Ignaszewski MJ, Mathew N, et al. Towards an International Consensus on the Prevention, Treatment, and Management of High-Risk Substance Use and Overdose among Youth. Med Kaunas Lith [Internet]. 2022;(Journal Article). Available from: https://go.exlibris.link/T3g3Mb2k

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Dr. Jessica Falls

Improving breastfeeding outcomes for preterm infants in the Mother Baby Care Unit

Jessica Falls, Dr. Shawn George, Sarah Coutts

Background

- Benefits of breastfeeding are well known
- Preterm babies are at higher risk of not establishing exclusive direct breastfeeding
- Transition from nasogastric feeding to oral feeding is major milestone for preterm babies
- The MBC unit promotes mother-baby togetherness

Project Aim

- To enhance breastfeeding rates of preterm infants (<37 weeks) in the Mother Baby Care Unit. Our goal is to increase the current rate from **35% to 80%**

Methods: The Process

ESTABLISH BASELINE

WORKING GROUP MEETINGS

DEVELOPMENT OF CARE BUNDLE

We determined underlying factors contributing to low breastfeeding rates via two methods

Type	Stats	Objectives	Key findings
Staff surveys	190 responses	Understand values and practices of healthcare workers supporting families with breastfeeding preterm babies	• Variable understanding of breastfeeding practices and difficulty troubleshooting problems • Breastfeeding was inconsistently discussed during patient rounds and inconsistently discussed with families
Parent experience interview	1	Subjective breastfeeding experience from a parent of a preterm baby	• Parent had two different experiences with two different healthcare workers

Building upon the baseline, we sought to validate and generate solutions

ESTABLISH BASELINE

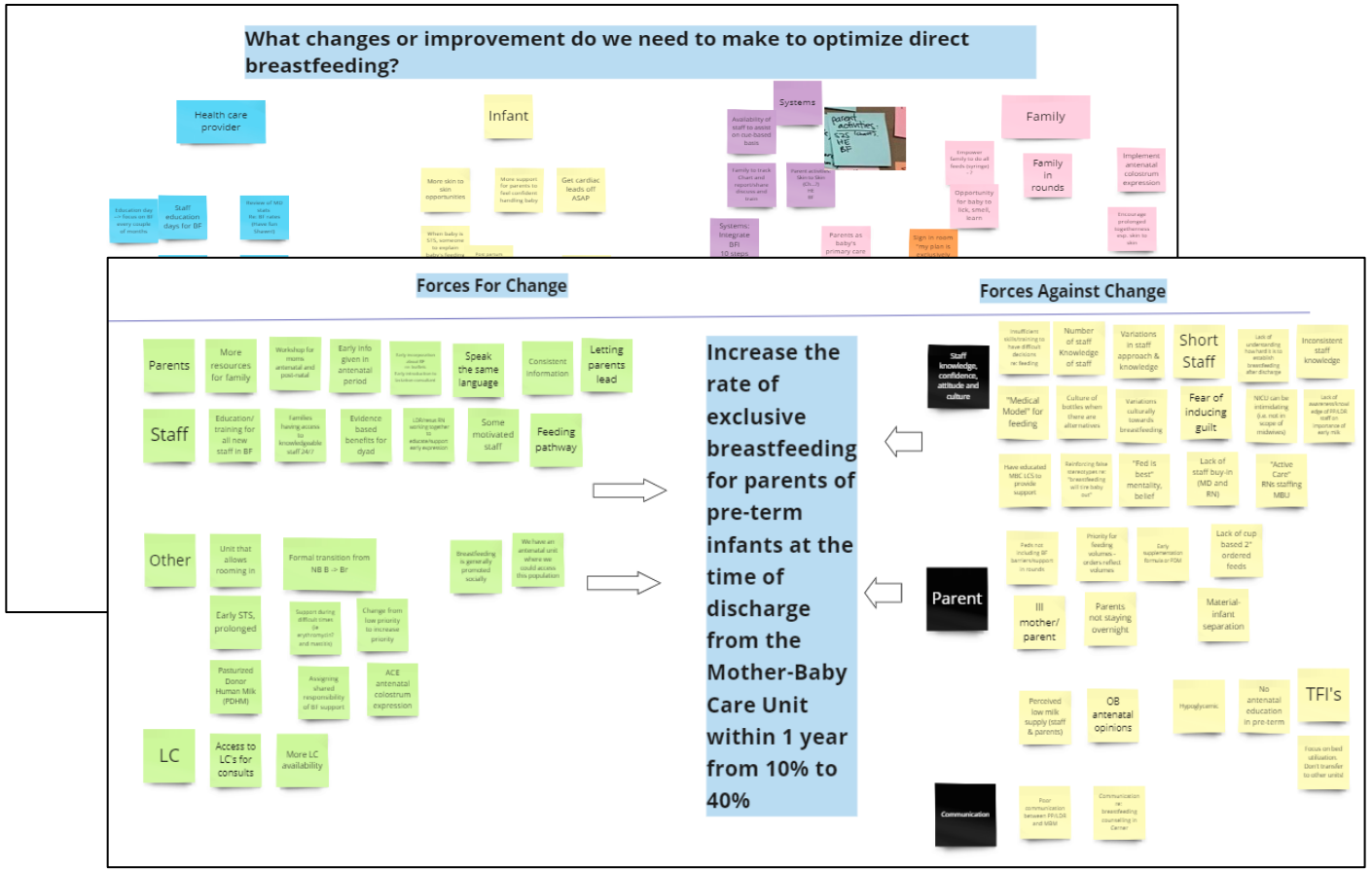
WORKING GROUP MEETINGS

DEVELOPMENT OF CARE BUNDLE

Multidisciplinary working groups

Nurses, Nurse educators, NICU leadership, Pediatricians

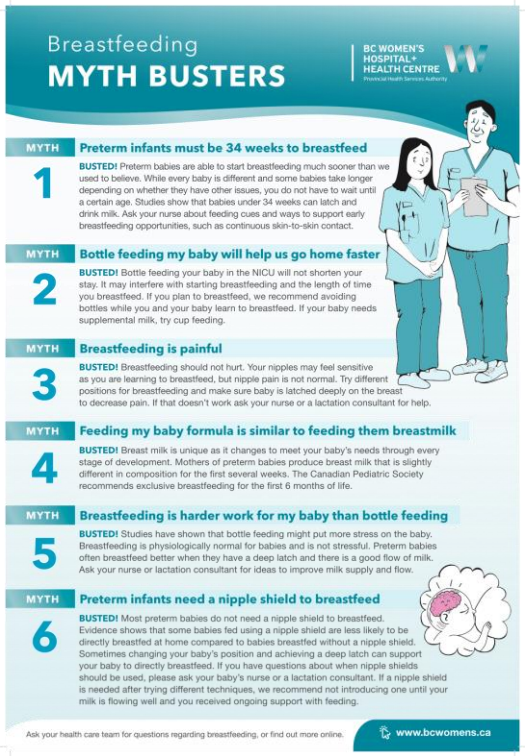
1. Communicated the problem and barriers from baseline exercise
2. Expand on barriers
3. Brainstormed solutions to increase direct breastfeeding



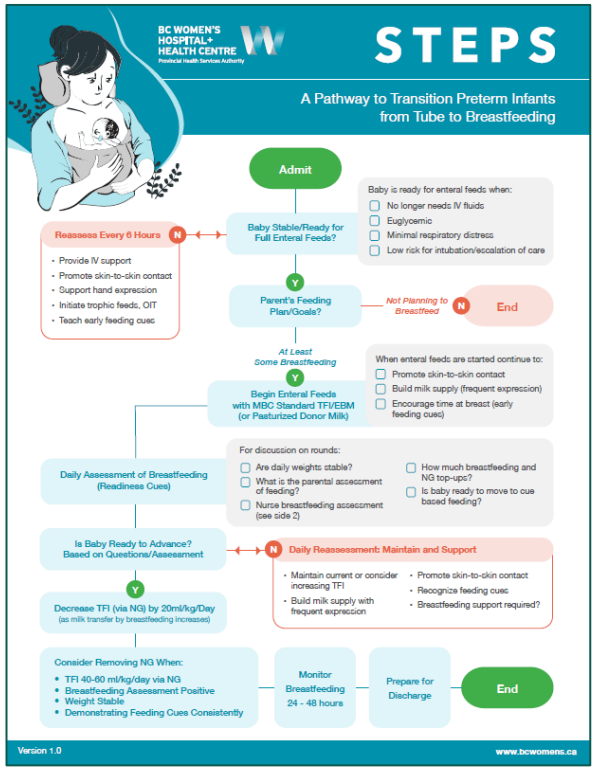
We designed a multifaceted approach to tackle the key challenges

ESTABLISH BASELINE | WORKING GROUP MEETINGS | DEVELOPMENT OF CARE BUNDLE

Challenge	Knowledge gap
Solution	Staff education



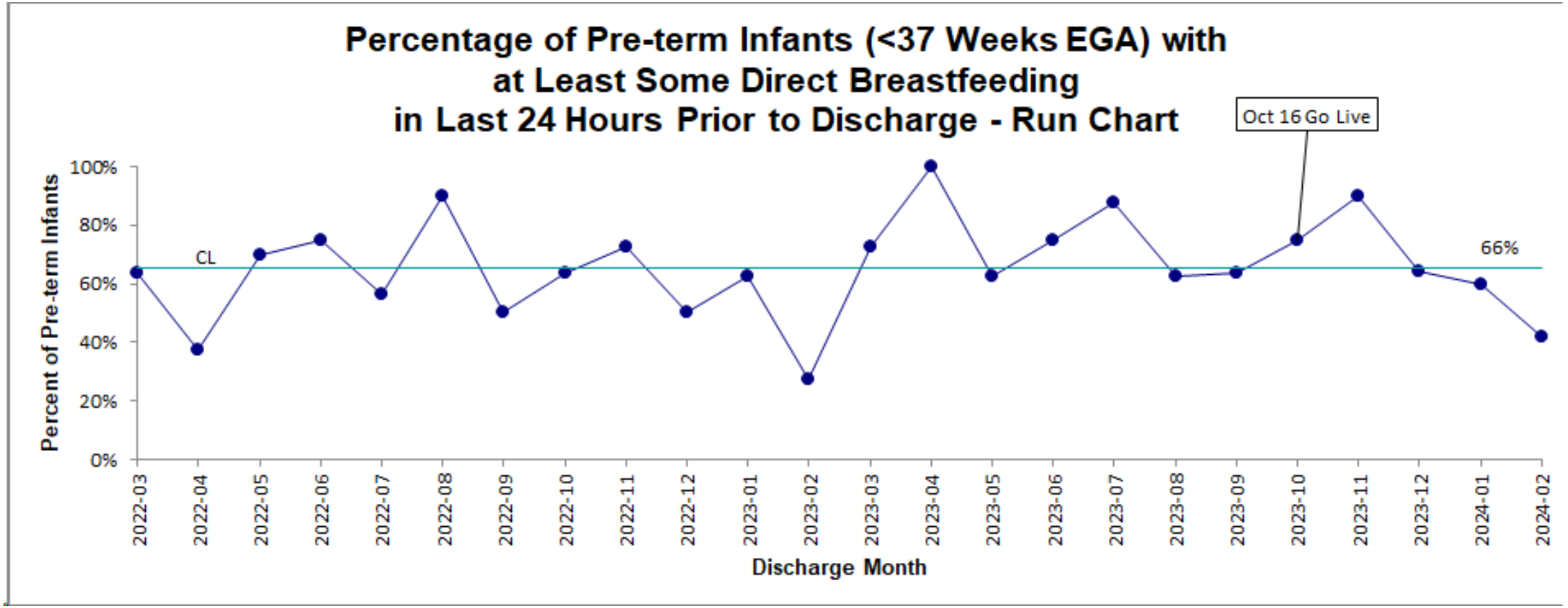
Challenge	Lack of standardization
Solution	Clinical support tool



Methods: The Results

- We used CST Cerner to extract data on feeding route, number of feeds in the 24 hours prior to discharge and the percentage of these which were direct breastfeeding.

We have not noticed improvement from our implemented solution



Limitations

- Limited sample size and high patient turnover
- Differences in practitioner practices and uncertainty of uptake

Conclusions & Next Steps

Conclusions

- Staff beliefs and attitudes can be barrier to change
- Implementation of the care bundle did not see sustained improvement in rate of direct breastfeeding at discharge

Next steps

- There needs to be ongoing education and support provided to healthcare workers for consistent care + information provided to parents
- Change management takes time, so we'll continue to monitor breastfeeding uptake in the MBU

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Dr. Gurkirat Kaur Kandola

BC INJURY research and prevention unit

DESCRIPTIVE EXPLORATORY ANALYSIS TO UNCOVER TRENDS OF SELF-HARM IN YOUTH AGED 10-19YO IN BRITISH COLUMBIA

AN EXPLORATORY ANALYSIS

Dr. Gurkirat Kaur Kandola PGY4 Pediatrics

Preceptor: Dr. Ian Pike

April 12, 2024

BC Children's Hospital™

Land Acknowledgement

I would like to firstly acknowledge that I am giving this presentation from the traditional, ancestral, and unceded territory of the Musqueam, Squamish, Tsleil-Waututh Nations.

As someone who resides on stolen land, I would also like to acknowledge the stolen and murdered, Indigenous children who have both been discovered and those who have yet to be found.

Outline

- Background
- Question Development
- Methods
- Results and Discussion
- Limitations
- Future Implications

Background

- Suicide is the second leading cause of death in 15-24yo in Canada and worldwide[3]
- Self-harm is associated with increased suicidal risk and may or may not be associated with suicidal intent[1]
- Most common reason for adolescent self-harm is the desire to relieve psychological pain[8]
- Systematic review of 90 studies by Owens et al (2002) estimated that among those who present to hospital for self-harm, 0.5-2% will die by suicide within the year and 5% will die by suicide within 9 years.

Question Development

Who?

- Adolescents ages 10-14yo and 15-19yo

What?

- Rates of self-harm resulting in hospitalization (including hospital transfers)

When?

- 2002 to 2019

Where?

- British Columbia, Canada (specifically the health service delivery areas)

Why?

- Self-poisoning rates are on the rise but are other causes of self-harm also increasing?

Objective

Explore hospitalization trends in BC due to all causes of self-harm (excluding self-poisoning) in youth ages 10-19 years old from 2002-2019.

Methods

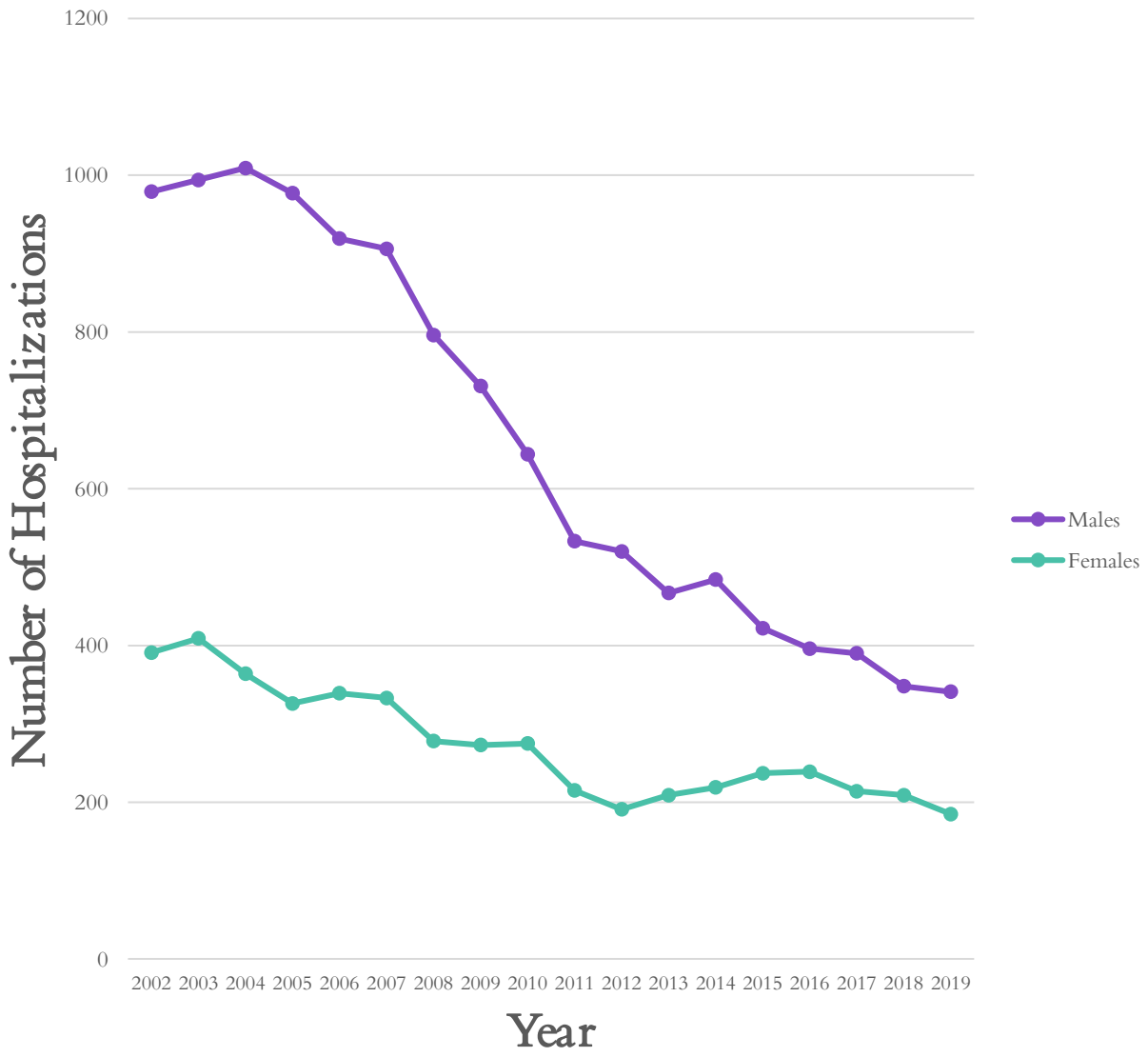
- Hospitalization and death rates were extracted from the Discharge Abstract Database, BC Ministry of Health
- Stratified according to the ICD-10 codes (International Classification of Diseases, tenth revision)

Results

Hospitalization rates for Year by Sex

2002: Males 2.5 times higher than females

2019: Males 1.8 times higher than females



Current Literature

Males:

- More likely to die by suicide, less likely to attempt suicide c/o females
- More likely to use more lethal means (ie. firearms)[7]

Females:

- More likely to self-harm, less likely to die by suicide
- Less likely to use more lethal means[7]

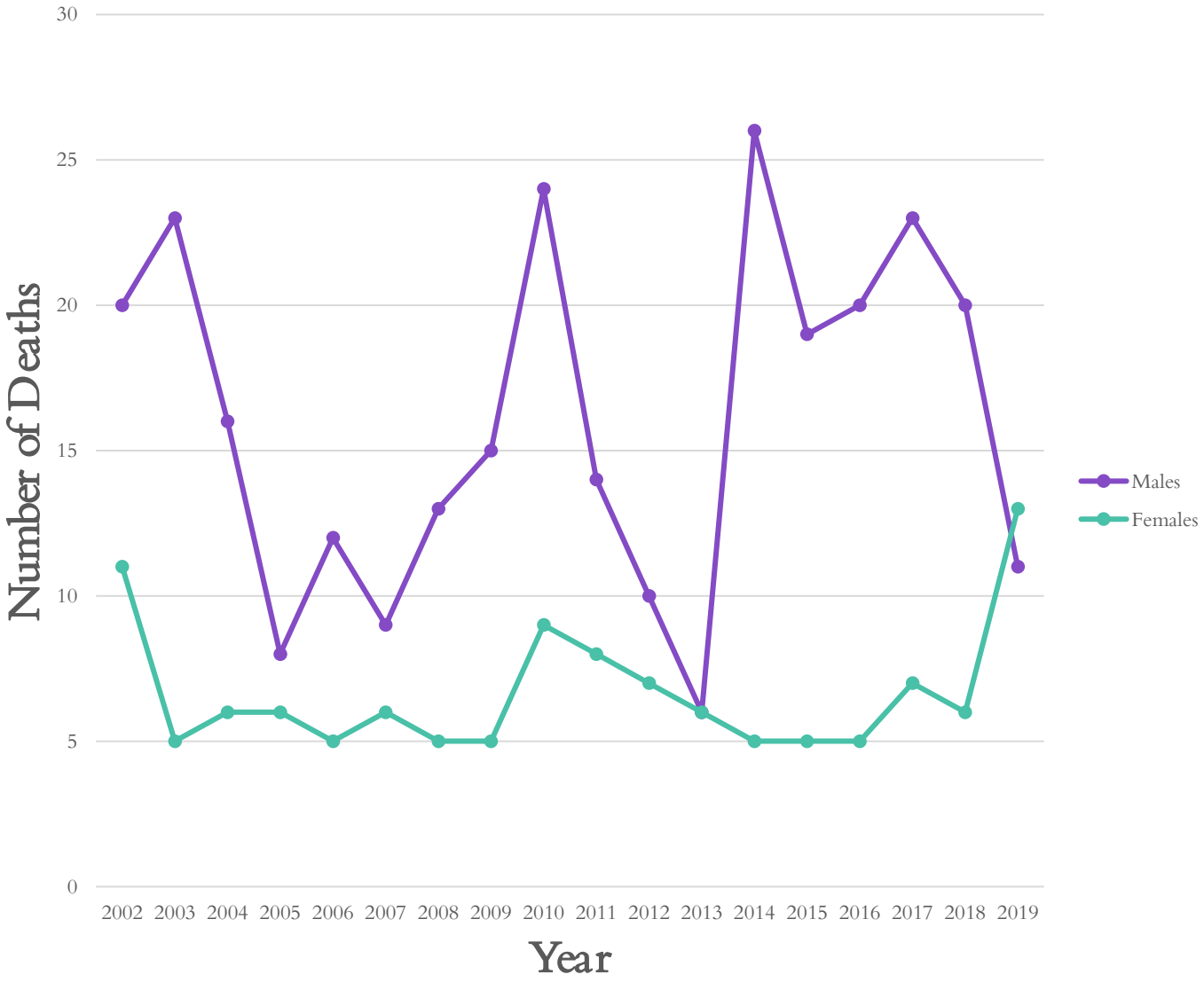
Females are more likely to report self-harm than males (8.9% vs. 4.6%) in the previous year[6]

Why?

- Is it because males use more lethal methods and therefore, they more likely have to be hospitalized?
- Are the rates of hospitalization due to self-harm in males decreasing due to them using different means not covered here?
- Is the decrease due to an increase in suicides in male adolescents?

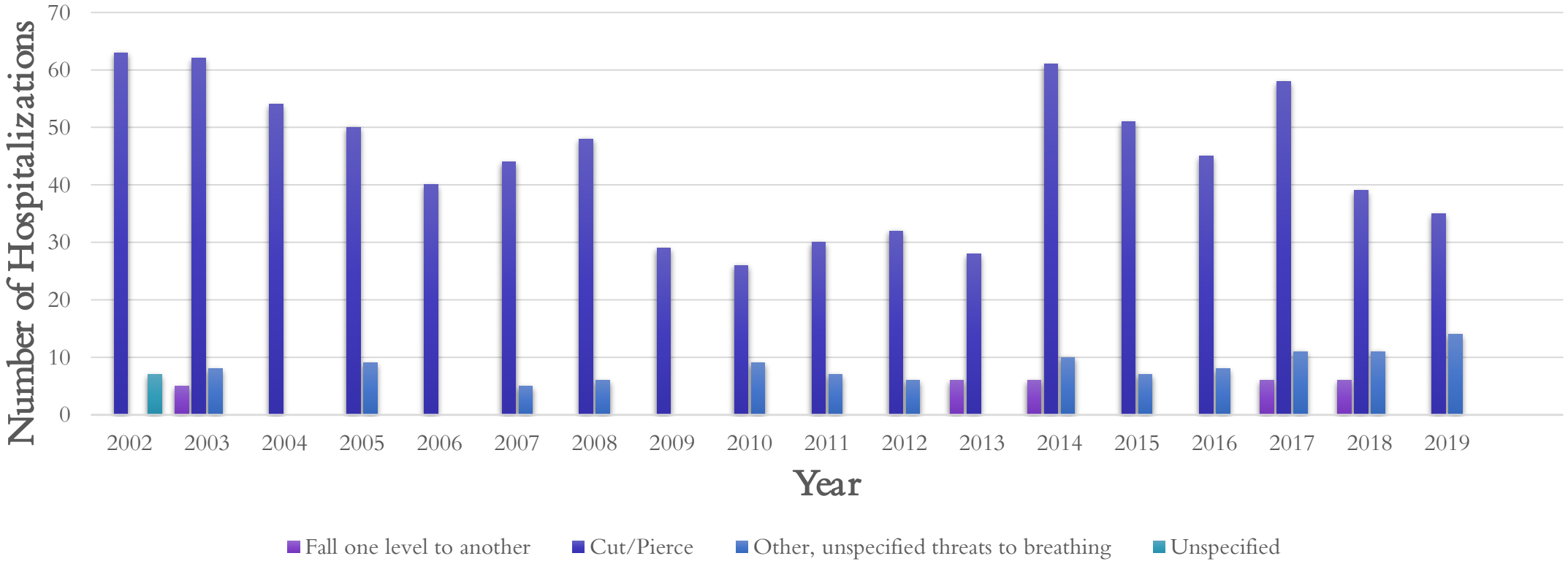
Death by Year and Sex

There did not appear to be any correlation between rates of hospitalization and rates of death

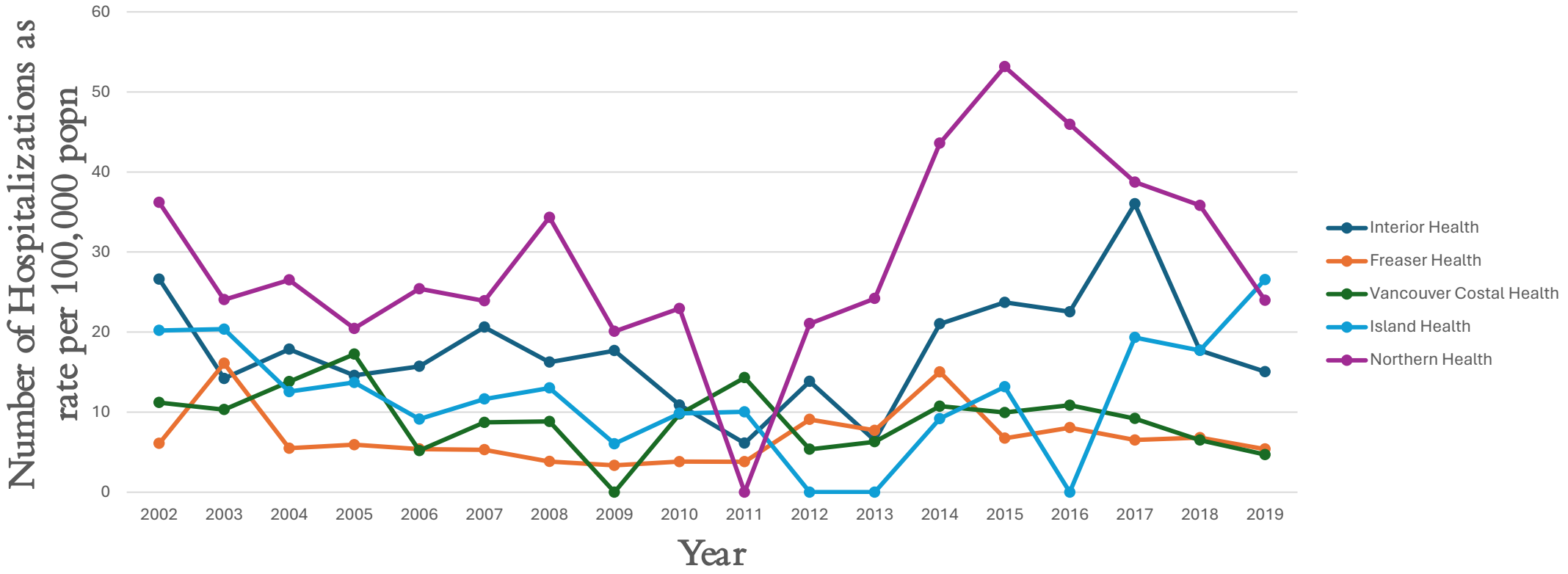


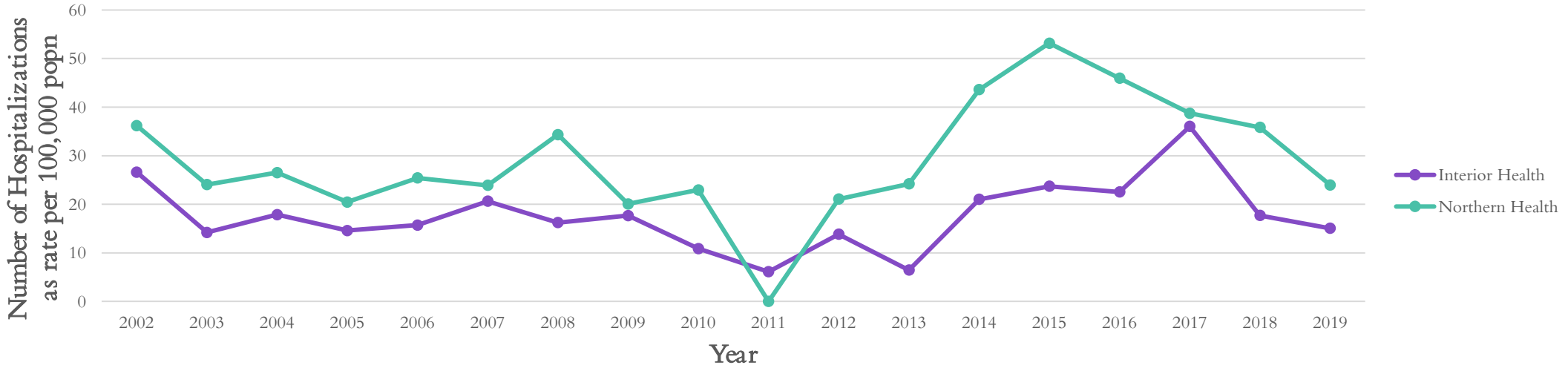
Hospitalization for Year by Cause of Injury

- Cut/pierce was found to be the most common cause of self-harm



Hospitalization for Year by Region




Number of Hospitalizations as rate per 100,000 popn
60
50
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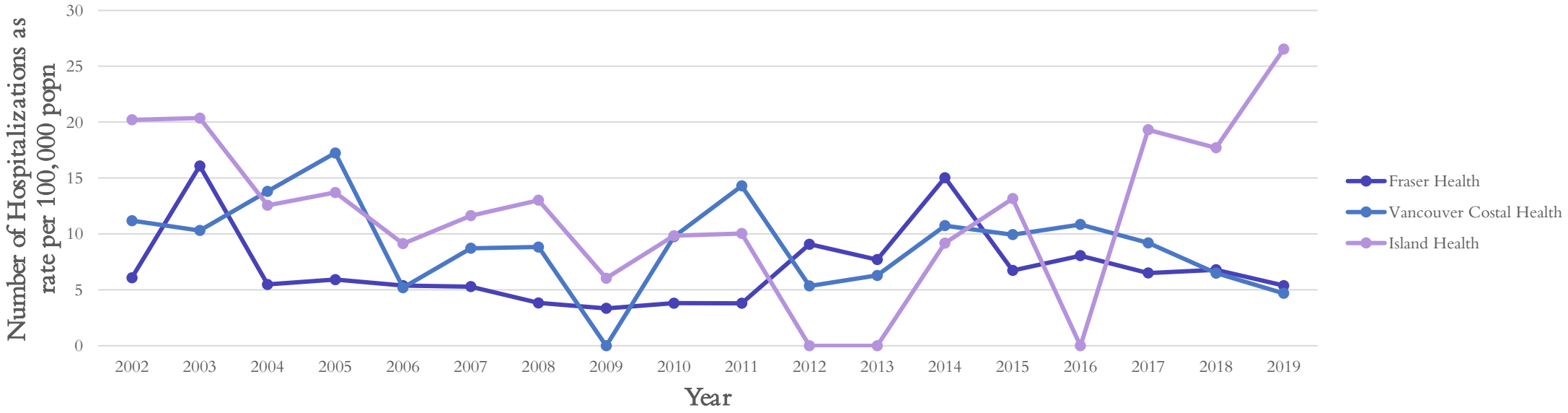
Year
Interior Health
Northern Health


Number of Hospitalizations as rate per 100,000 popn
30
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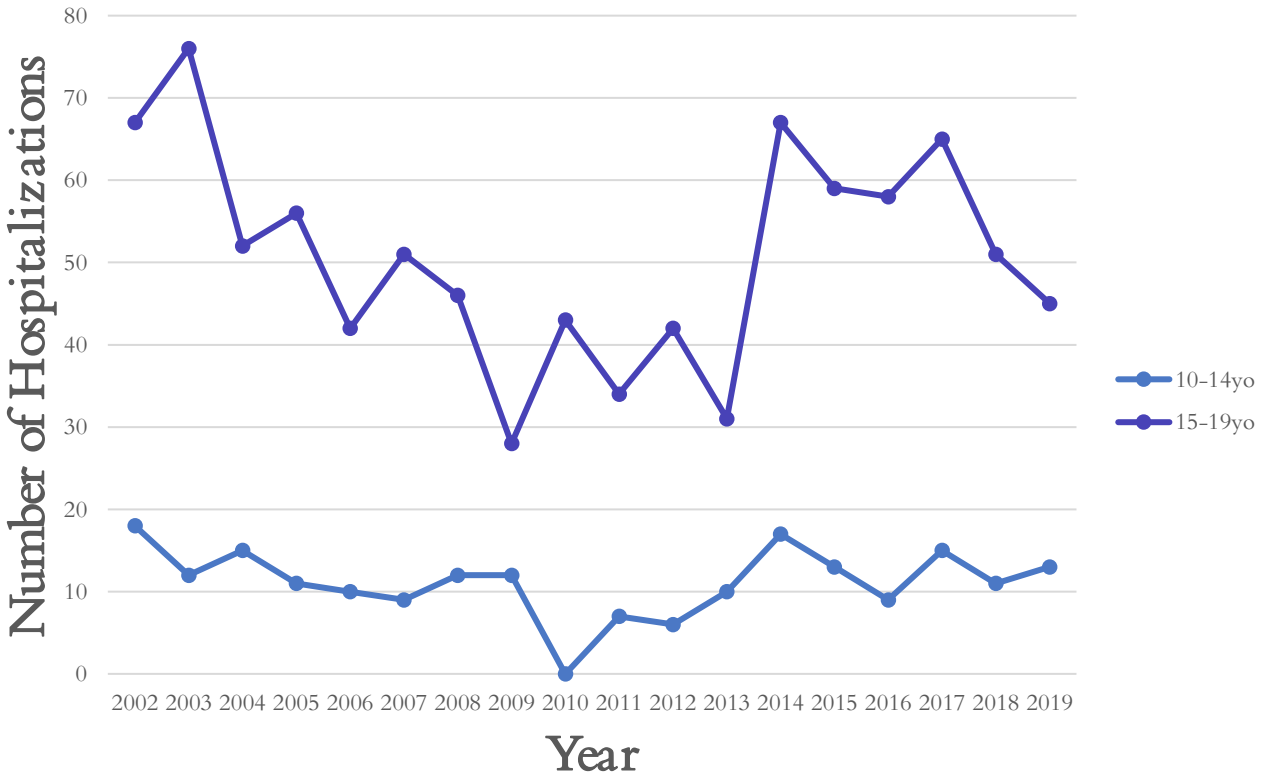
2013
2014
2015
2016
2017
2018
2019
Year
Fraser Health
Vancouver Costal Health
Island Health

Hospitalization for Year by Age Group

As expected, higher rates of self-harm were observed in the middle-late adolescent group compared to the early adolescent group



Limitations

- Determination of self-harm vs intent to end life was based on healthcare providers assessment
- Not just hospital presentations/ED visits as this data for the province was not readily available

Themes

Rates of hospitalization due to self-harm in adolescents in BC appear to be higher in males than females

Rates of hospitalizations due to self-harm appear to be higher in middle to late adolescents compared to early adolescents

Rates of hospitalization due to self-harm appear to be higher in the Northern and Interior Health Authorities

Future Implications

- Post COVID19 trends of hospitalizations are being collected and not yet available
- Availability of mental health services pre and post COVID and compare this to the trends of hospitalizations
- Does the method of self-harm impact duration of stay in hospital?

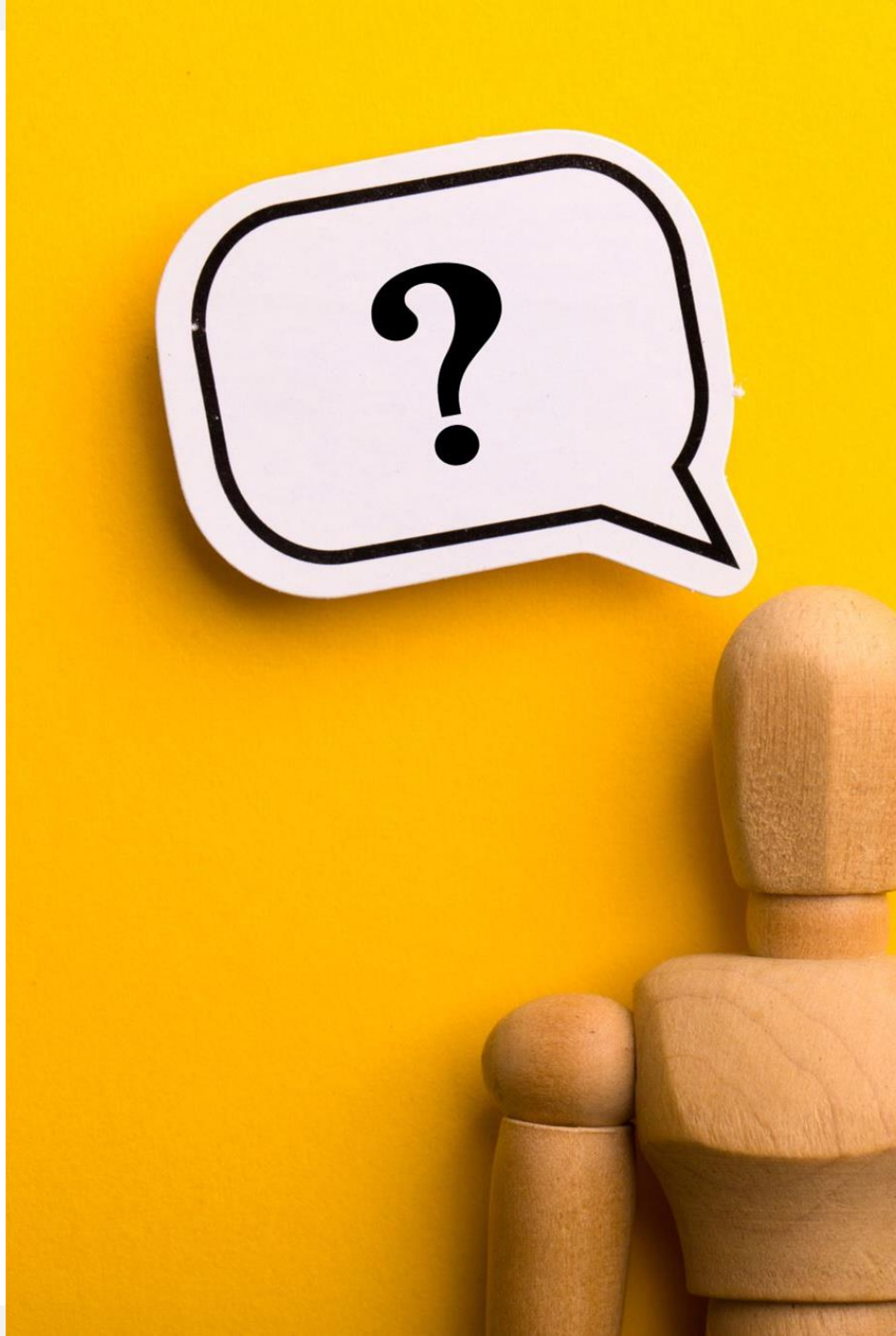
Preventing Accessibility to Self-Harm Methods

- Self-harm is highly taxing both economically and socially
- Restricting access to means of self-harm at provincial level
- Systematic review in 2005 by Mann and colleagues examined evidence from suicide prevention research.
  - This review concluded that the most promising interventions were detecting and treating mental illness, restricting access to means, and gatekeeper education

Thank You

Questions?

Acknowledgments: Alex Zhang and Farah Rajabali



References

1.Apter A, Beautrais A, Bertolote J, Currier D, Haas A, Mann JJ, et al. Suicide prevention strategies: a systematic review. JAMA. 2005;294:2064-74. Available from: https://cps.ca/en/documents/position/suicidal-ideation-and-behaviour

2.BC Coroners Service. Supporting youth and health professionals: A report on youth suicides. Victoria, BC; 2019. Accessed 6 February 2020. www2.gov.bc.ca/assets/gov/birth-adoption-death-marriage-and-divorce/deaths/coroners-service/child-death-review-unit/reports-publications/youth_suicide_drp_report_2018.pdf.

3.Bethell J. Child and Adolescent Emergency Department Presentations for Self-harm: Population-based Data from Ontario, Canada.

4.Canadian Institute for Health Information. Canadian coding standards for Version 2018 ICD-10-CA and CCI. Ottawa, ON; 2018. Accessed 6 February 2020. https://secure.cihi.ca/free_products/CodingStandards_v2018_EN.pdf.

5.Carter G, McPherson M, Reith DM, Whyte IM. Repeated self-poisoning: Increasing severity of self-harm as a predictor of subsequent suicide. Br J Psychiatry. 2005;186:253-7.

6.Colman I, Rosychuk RJ, Rowe BH, Schopflocher D, Svenson LW, Yiannakoulias N. Population-based study of medically-treated self-inflicted injuries. Can J Emerg Med. 2004;6:313-320.

7.Erland A. A review of child and youth mental health services in BC. Victoria, BC: BC Ministry of Children and Family Development; 2008. Accessed 6 February 2020. https://cwrp.ca/sites/default/files/publications/BC-CYMH_Review_report.pdf.

8.Hawton K, O'Connor RC, Philpott-Morgan S, Rasmussen S. Why do adolescents self-harm? An investigation of motives in a community sample. Crisis. 2016;37:176-183.

9.Hewitt A, Madge N, Corcoran P, Fekete S, Hawton K, Wilde EJd, et al. Deliberate self-harm within an international community sample of young people: comparative findings from the Child & Adolescent Self-harm in Europe (CASE) Study. J Child Psychol Psychiatry. 2008;49:667-677.

10.Kessing LV, Lidegaard Ø, Mørch LS, Skovlund CW. Increase in depression diagnoses and prescribed antidepressants among young girls: A national cohort study 2000–2013. Nord J Psychiatry. 2017;71:378-385. Available from: https://www2.gov.bc.ca/assets/gov/health/managing-your-health/mental-health-substance-use/child-teen-mental-health/preventing_youth_suicide_practitioners_guide.pdf

11.Parachute. The cost of injury in Canada. Toronto, ON; 2015. Accessed 6 February 2020. https://parachute.ca/wp-content/uploads/2019/06/Cost_of_Injury-2015.pdf.

12.Peterson CM, Copps-Smith E, Matthews A, et al. Suicidality, Self-Harm, and Body Dissatisfaction in Transgender Adolescents and Emerging Adults with Gender Dysphoria. Suicide Life Threat Behav. 2017 Aug;47(4):475-482. Available from: https://www.aap.org/en/news-room/news-releases/health--safety-tips/american-academy-of-pediatrics-how-to-help-when-you-believe-a-child-is-engaging-in-self-harm/

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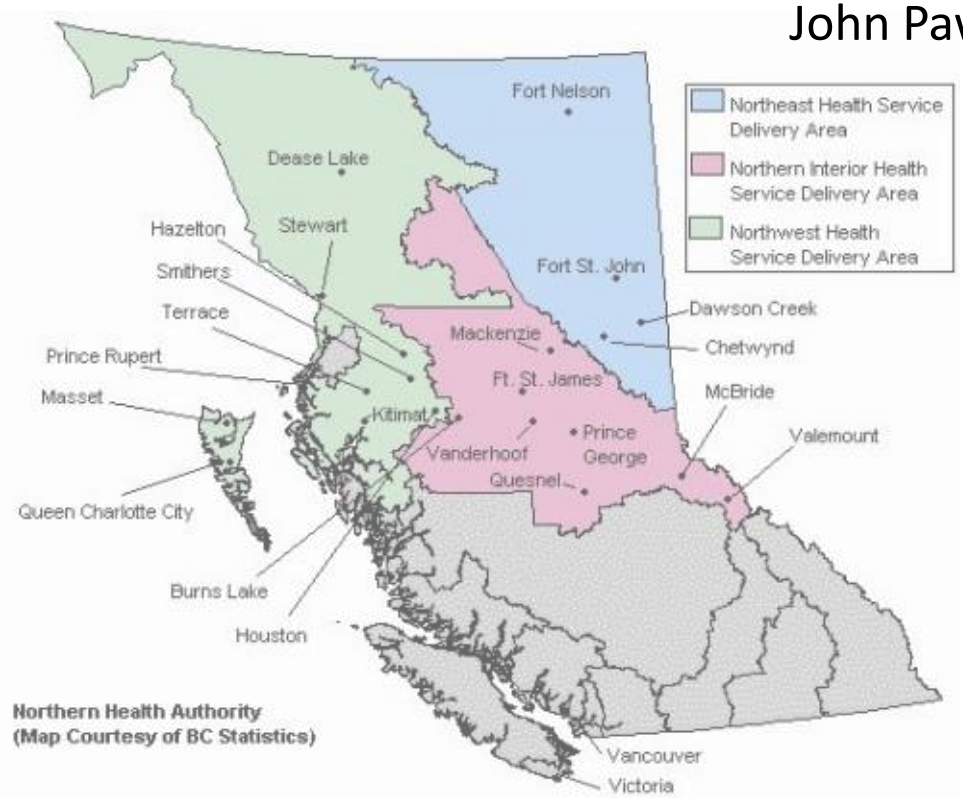
Dr. Sean Duke

An Exploration of Child Health Advice in Real-Time Electronically (CHARLiE) in Northwestern BC

Sean Duke, Jenna Treissman, Shannon Freeman, Emma Rossnagel, Salima Somani, Alam Lakhani, Kirsten Miller, John Pawlovich, and David Wensley



Rural Coordination Centre of BC

BC Children's Hospital

Real-Time Virtual Support

UNBC University of Northern British Columbia

Disclosures

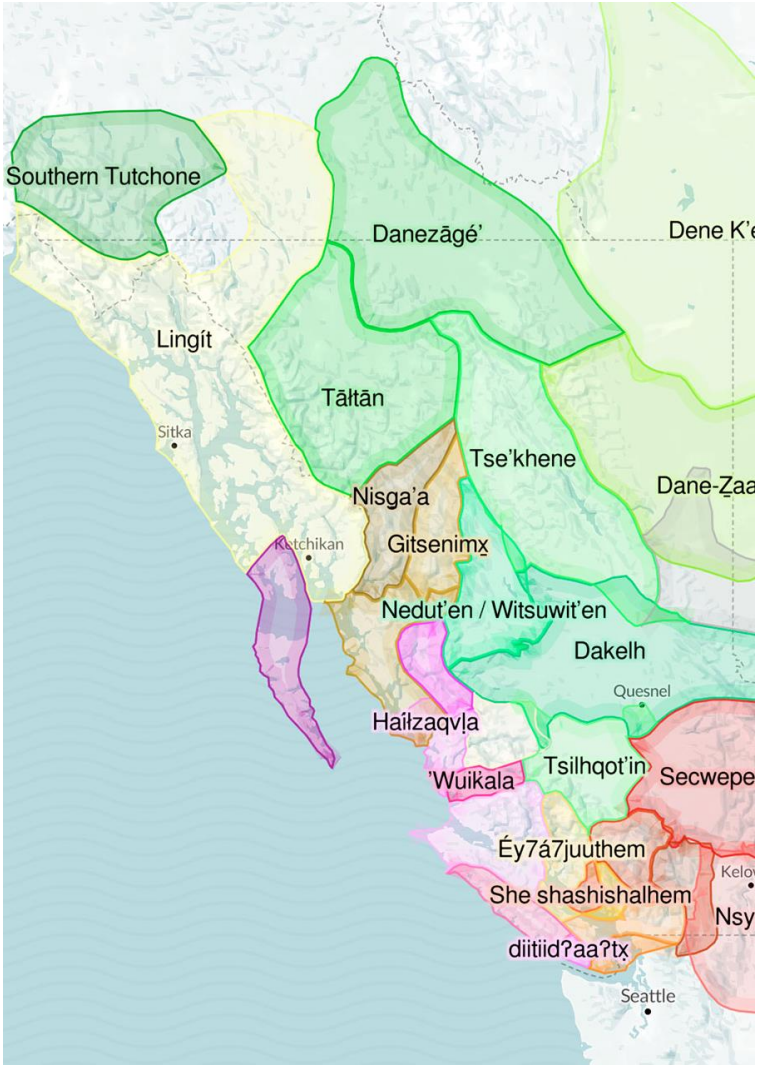
I have no conflicts of interest to disclose

Coinvestigator disclosures:

- Dr. David Wensley is a co-lead of the Pediatric RTVS (CHARLiE) pathway, and is a CHARLiE consultant
- Dr. John Pawlovich is employed by the RCCBc as clinical lead for the Real-Time Virtual Support program
- Dr. Kirsten Miller is a CHARLiE consultant

This research was funded by the Ministry of Health, the Rural Coordination Centre of BC, and the Joint Standing Committee on Rural Issues in BC

Land Acknowledgement



What is CHARLiE?

Child Health Advice in Real Time Electronically

Background

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- Real-Time Virtual Support (RTVS) pathway developed by the the Rural Coordination Centre of BC (RCCbc) to improve access to pediatric care in rural communities
- CHARLiE supports rural healthcare providers with 24/7 on-demand virtual pediatric consultation via bedside videoconference

Rural Coordination Centre OF BRITISH COLUMBIA

Northwest Health Service Delivery Area

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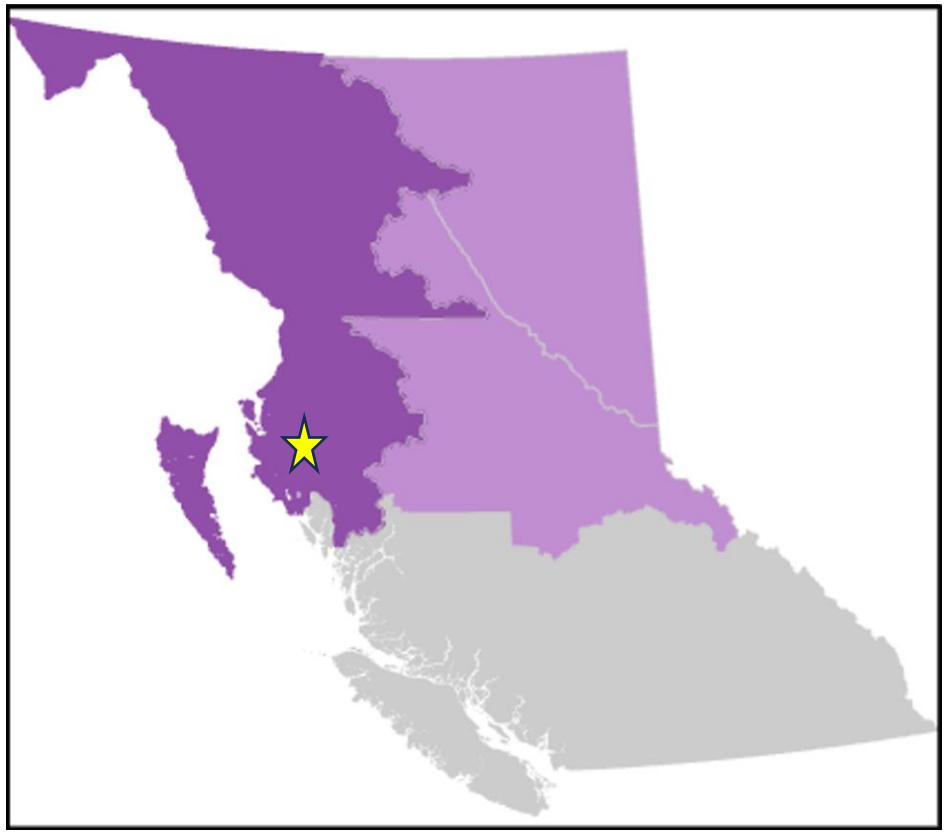

Map of British Columbia, depicting the geographic area of the Northwestern HSDA (dark violet) within the Northern Health Authority (light violet).

https://www2.gov.bc.ca/assets/gov/data/geographic/land-use/administrative-boundaries/health-boundaries/51_northwest.pdf

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September 2020 saw an unforeseen shortage of pediatricians in Terrace

- In response, a local community leader proposed that CHARLiE's virtual consultants fill gaps in the on-call schedule when no local pediatrician was available
- Between Sept 2020 - Dec 2022, CHARLiE assumed up to 50% of the pediatric on-call schedule

This the first virtual pediatric service in Canada to be introduced into the local on-call schedule in lieu of adequate local pediatrician coverage

Rural Coordination Centre of BC

Study Purpose

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Questions

Understand local healthcare providers' experiences with the integration of CHARLiE into the Northwest HSDA pediatric on-call schedule

Methods

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Surveys

Focus groups

Respondents:

- Registered Nurses (RNs)
- Nurse Practitioners (NPs)
- Registered Midwives (RMs)
- Family Physicians
- Emergency Physicians
- Pediatricians
- Medical trainees
- Allied health professionals

Survey Results

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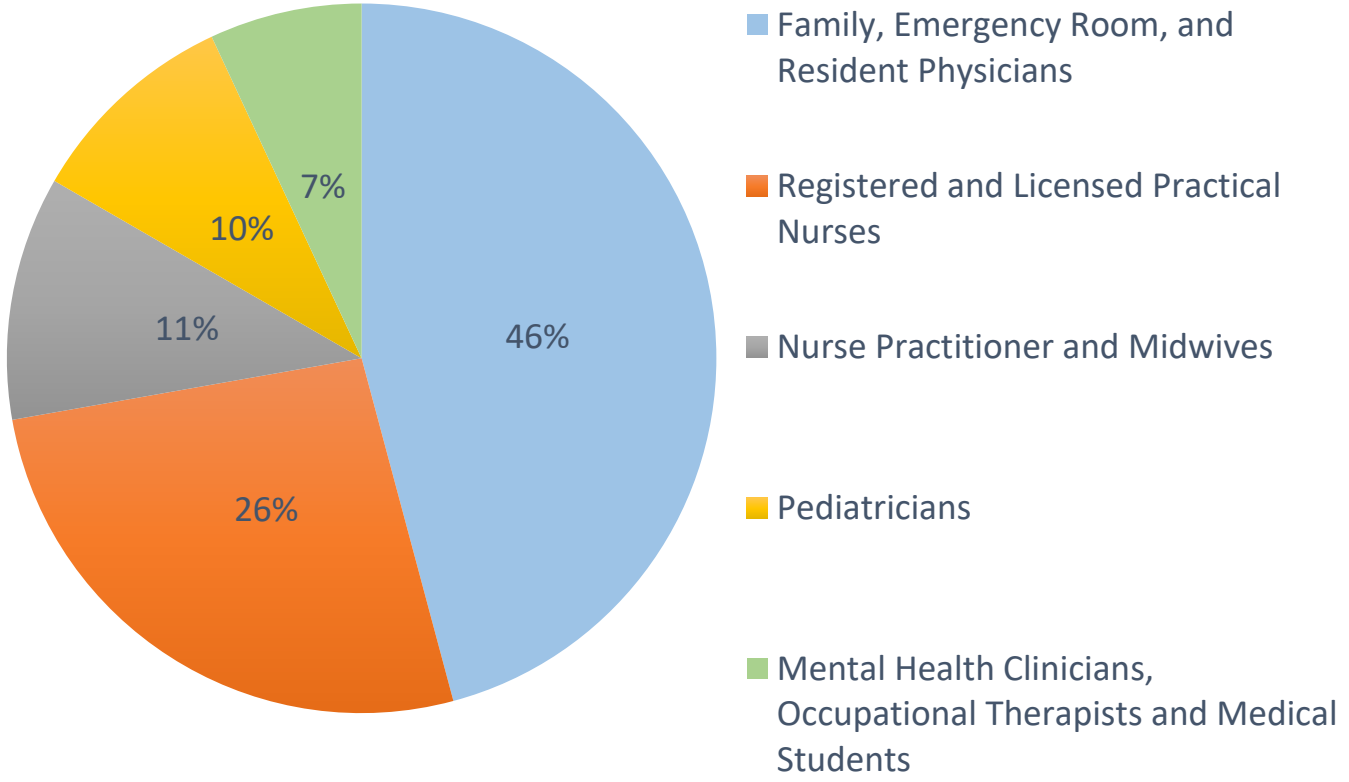
72 participants, of whom 83% had been involved in at least one CHARLiE consultation



Survey Results

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The majority of CHARLiE users were “satisfied” or “very satisfied” with:

- Overall support (96.1%)
- Collegiality and professionalism (96.1%)
- User friendliness (94.2%)
- Provision of culturally-safe care (90.7%)
- Efficiency (90.4%)
- Assessment of patients (90.4%)

Fewer participants were “satisfied” or “very satisfied” with:

- Knowledge of local healthcare resources (75%)
- Guidance for procedural skills (55.7%)

Of the respondents who had not used CHARLiE, the most frequently reported barrier was lack of necessary resources to access the service within the workplace (54.5%)

Focus Group Results

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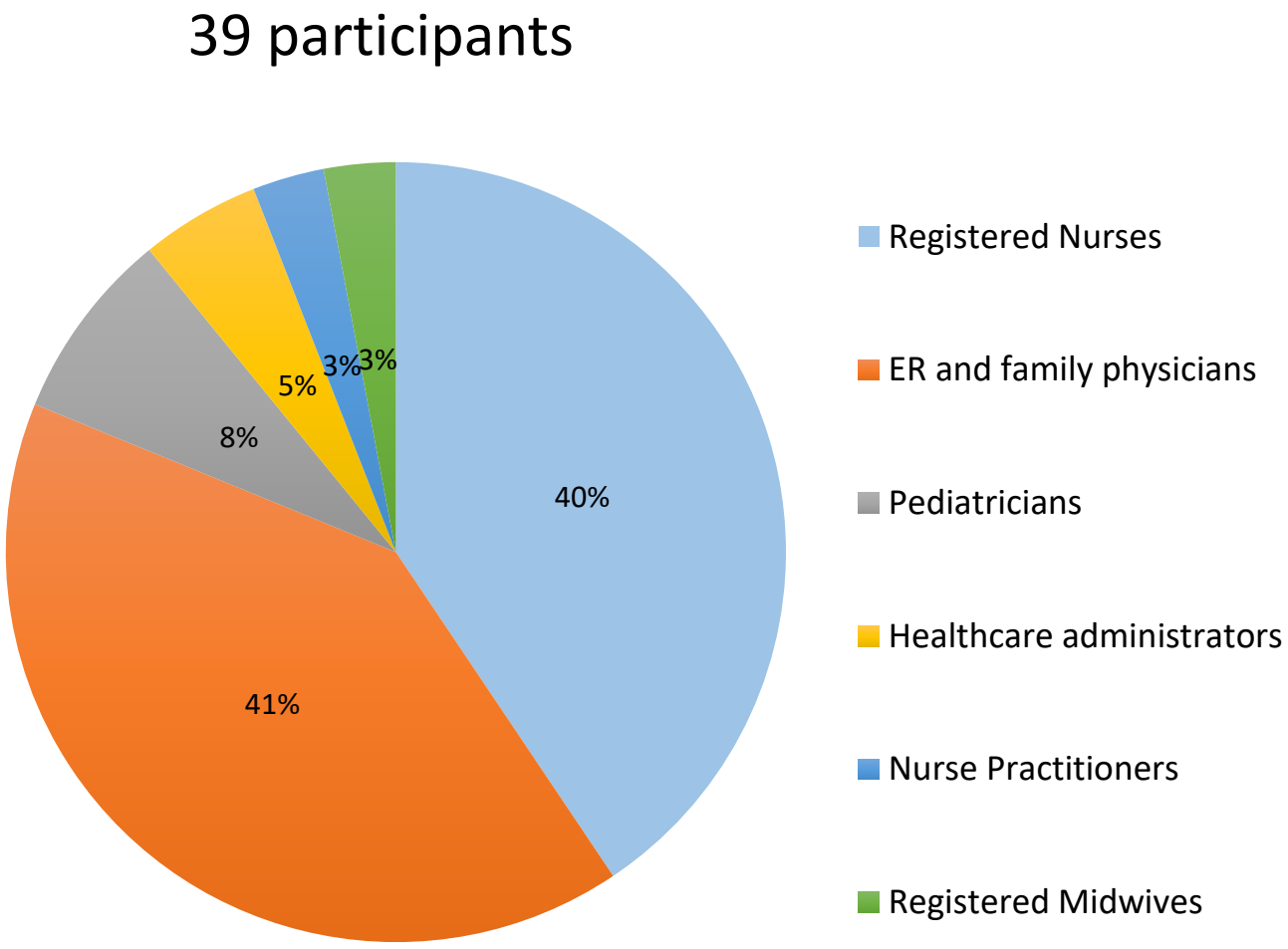

Focus Group Results

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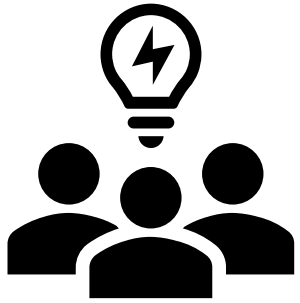
4 themes emerged:

1. Efficiency, collegiality and professionalism
2. Improved access to general pediatric and subspecialty care
3. Preventing burnout for local pediatricians
4. Concerns with using CHARLiE



Focus Group Results

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Theme 1: Efficiency, collegiality and professionalism

CHARLiE pediatricians were reported to be rapidly available, courteous, helpful and receptive

"The [CHARLiE doctors] are always friendly"

"I was definitely treated like staff… I don't think anyone treated me any differently for being a resident… calling them definitely helped [me] take responsibility for my own patients."

CHARLiE was reported to be helpful in managing indirect patient care tasks, such as arranging transport, which allowed care providers to remain at the bedside

"I get the pediatrician to call the Patient Transfer Network... CHARLiE is exceptional, they always do that"

Focus Group Results

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Theme 2: Improved access to general pediatric and subspecialty care

Virtual bedside consultation, whereby consultants “lay eyes” on patients and directly counsel families improved confidence for local healthcare providers, and was perceived to be helpful for families

“They take our concerns very seriously. I feel heard, the family feels heard, and often I use [the pediatrician] to communicate with the family where I’m not going to be able to do enough to help their concerns.”

“I'm sometimes absolutely amazed at what they managed, especially on the labour floor. They had a baby with meconium aspiration on CPAP, and the entire time they were supported by the CHARLiE pediatrician, and didn't call me. I was absolutely floored with what they managed to do with CHARLiE's support.”

Shutterstock.com

Focus Group Results

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Theme 3: Preventing burnout for local pediatricians

"There's no comparison between before and after CHARLiE in terms of the number of times we were called when we were not on call… Now you have that freedom, you can go to the lake when you're not on call and not have that pressure the whole time. [Before CHARLiE], I couldn't go anywhere outside of cell service, even when I wasn't paid to be on call. I still had to be available for my community. It has been priceless to be able to say, I know that they'll be okay… I don't have to be available."

"I don't think I would have been able to stay as a provider in in my community had it not been for CHARLiE"

However, there was concern that CHARLiE may curb efforts to recruit and retain local pediatricians

"When the model was proposed, it was proposed [as] a bridge… never a solution. And it's difficult because… when you offer a solution, even if it's temporary… it can be hard to remember that it's still an issue when it's no longer a crisis."

Focus Group Results

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Theme 4: Concerns with using CHARLiE

Inconsistent WiFi access and the inability for a virtual consultant to provide hands-on patient care (e.g. perform examinations and procedures) were seen as major shortcomings

"The only setback with using CHARLiE is our internet connection… I lost connection and had to figure out another way to get through to the pediatrician that was on call that night"

"[CHARLiE] doesn't replace the on-ground issues… for procedural skills… neonatal resuscitation, insertion of umbilical lines, and giving surfactant through an ET tube. It doesn't matter who is guiding it, the risks tend to be too much [for non-pediatricians to perform the procedures]."

Focus Group Results

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Theme 4: Concerns with using CHARLiE

Participants noted lack of continuity among CHARLiE providers when managing children over the course of multiple days.

"You could call CHARLiE every day and get a different doc and review the whole case… that's one of the big negatives is that CHARLiE's very episodic.

CHARLiE pediatricians were reported to have limited site-specific knowledge of healthcare resources (e.g. healthcare personnel, access to diagnostics)

"When we call CHARLiE it does take some explaining for them to understand where we're coming from… what our resources are, where we normally refer to…"

"…one of the CHARLiE docs says 'well get your respiratory therapist' and the person on the ground says 'well there isn't one'"

Discussion

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Participants valued CHARLiE's timely virtual assessments and benefitted from offloading indirect patient care tasks

Video-based consultation enhanced care provider confidence and perceived family/caregiver trust

While providers from communities large enough to support local pediatricians naturally had a strong preference for consulting local, rather than virtual pediatricians, some providers from smaller communities preferred to consult CHARLiE, rather than obtain telephone advice from a pediatrician in a busy regional centre

Areas of improvement for CHARLiE included addressing technologic barriers, knowledge of local resources, access to documentation, and continuity of care

Conclusions

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While maintaining a full complement of on-the-ground pediatricians remains the ultimate goal for larger communities in Northwestern BC, CHARLiE can bolster existing healthcare personnel **in times of crisis** to ensure **timely access to pediatric care** and **improve work-life sustainability for local pediatricians**

Recommendations for Improved CHARLiE Delivery

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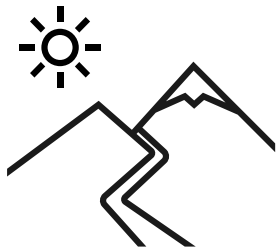
1. Develop of a searchable database outlining the local healthcare resources of remote communities to equip virtual consultants with contextual data
2. Develop of health records accessible to all providers to support continuity of care
3. Develop protocols for support tasks, such as patient transfer and referral
4. Improve access to and knowledge of video-conferencing technology in rural communities
5. Develop processes for coordinated follow-up of patients seen during virtual care
6. Ensure ongoing efforts to recruit and retain on-the-ground pediatricians within the Northwest HSDA



Acknowledgements

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Questions

We would like to acknowledge the community healthcare leaders who were involved in developing this study and all the study participants who continue to demonstrate their unwavering commitment to the health and wellbeing of children and families living in Northwestern BC

Questions?

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Acknowledgments

Questions

CHARLiE

Child Health Advice in Real Time Electronically

Pediatrics

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Phone: 236-305-5352

THE UNIVERSITY OF BRITISH COLUMBIA

Department of Pediatrics
Faculty of Medicine

BC Children's Hospital Research Institute

Celebrate Research Day 2024

Dr. Sabine Laguë

Learning on the wards:
Quality improvement of inpatient pediatric learner education on CTU

BCCH Celebrate Research Day | April 12, 2024

Sabine Laguë, MD, PHD (Pediatrics PGY-4)
with Dr. Mia Remington
Department of Pediatrics, BC Children's Hospital,
Faculty of Medicine University of British Columbia

Contact information: sabine.lague@phsa.ca

Land Acknowledgement

Learning in Pediatrics Residency

Learning in Pediatrics Residency

Ward rounds

Learning in Pediatrics Residency

Ward rounds

Bedside teaching

Learning in Pediatrics Residency

Ward rounds

Bedside teaching

Clinical medicine

Learning in Pediatrics Residency

Ward rounds

Bedside teaching

Clinical medicine

Peer to peer learning

Learning in Pediatrics Residency

Ward rounds

Bedside teaching

Clinical medicine

Peer to peer learning

Formal rounds

Learning in Pediatrics Residency

Ward rounds

Bedside teaching

Clinical medicine

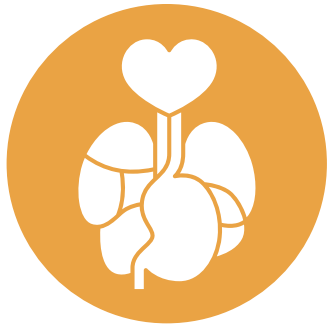
Peer to peer learning

Formal rounds

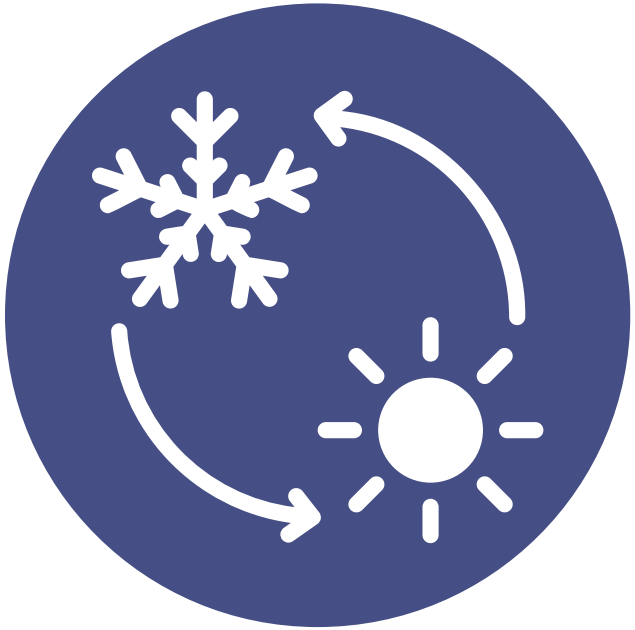
Feedback + reflection

Seasonality in Hospital Pediatrics

Respiratory



Other



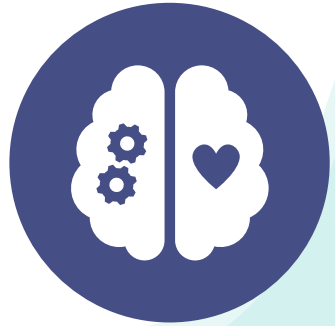
Ward rounds

Bedside teaching

Clinical medicine

Peer to peer learning

Formal rounds



Feedback + reflection

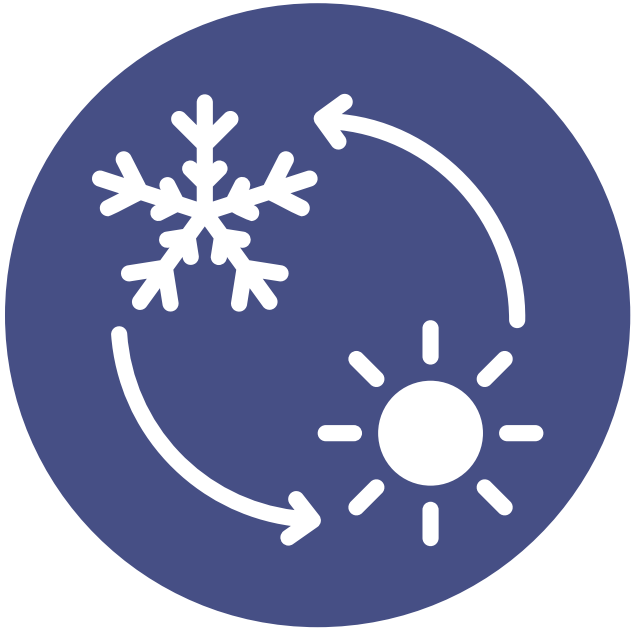
Seasonality in Hospital Pediatrics

Respiratory

Other

Volume

Workload variance



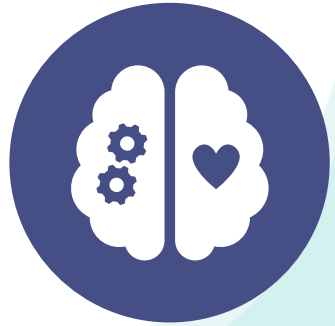
Ward rounds

Bedside teaching

Clinical medicine

Peer to peer learning

Formal rounds



Feedback + reflection

Identification of a Possible Need

Respiratory

Other

Volume

Work load variance

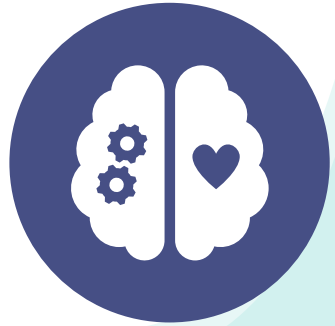
Ward rounds

Bedside teaching

Clinical medicine

Peer to peer learning

Formal rounds



Feedback + reflection

Identification of a Possible Need

Respiratory

Other

Volume

Work load variance

Case-based peer learning

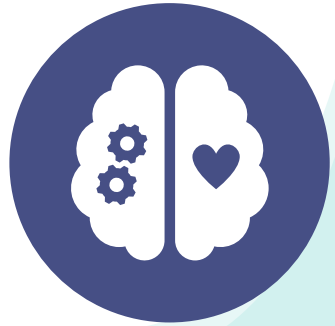
Ward rounds

Bedside teaching

Clinical medicine

Peer to peer learning

Formal rounds



Feedback + reflection

Landrigan et al., 2002

Objectives

Objectives

Identify what **general pediatric topics** learners and staff perceive as being important to learn on an inpatient hospital pediatrics rotation.

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Discern preferred **learning modalities**.

Objectives

Identify what **general pediatric topics** learners and staff perceive as being important to learn on an inpatient hospital pediatrics rotation.

Discern preferred **learning modalities**.

Assess impact of new curriculum content.

Methods

Location:
BC Children's Hospital
Vancouver, Canada

Methods

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BC Children's Hospital
Vancouver, Canada

Needs assessment:

- February 2023
- Residents, hospitalist fellows, CTU staff physicians

Surveyed regarding:

a) Whether a curriculum was wanted
b) Content (CPS and non-CPS)
c) Delivery method
d) Need for resources
e) Curriculum structure

Methods

Location:
BC Children's Hospital
Vancouver, Canada

Curriculum development:
guided by the needs assessment results.

Needs assessment:
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Surveyed regarding:
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Surveyed regarding:

a) Whether a curriculum was wanted
b) Curriculum structure
c) Content (CPS and non-CPS)
d) Delivery method
e) Need for resources

Who: learners - MSI3, MSI4, pediatric residents (R1-R4)

When: Feb 2023- Feb 2024

Quality Improvement:
4 Likert scale questions after sessions regarding:

- Teaching quality,
- Clinical translatability,
- Enhanced understanding,
- Improved clinical confidence in management.

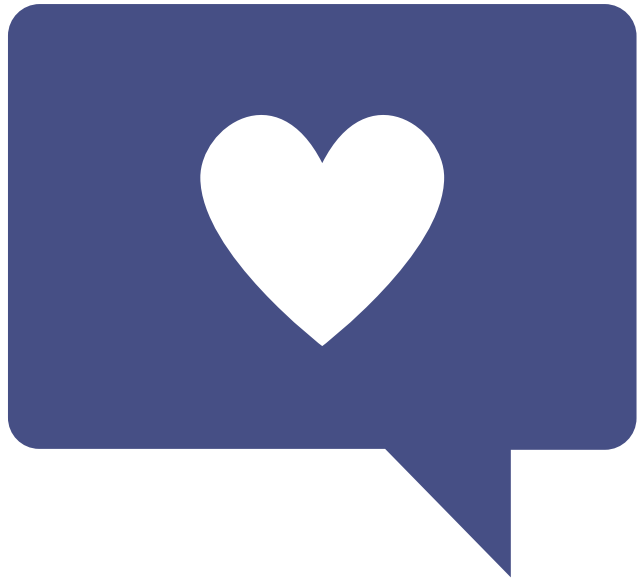
Results

Needs Assessment

Curriculum Development

Quality Improvement

1. NEEDS ASSESSMENT

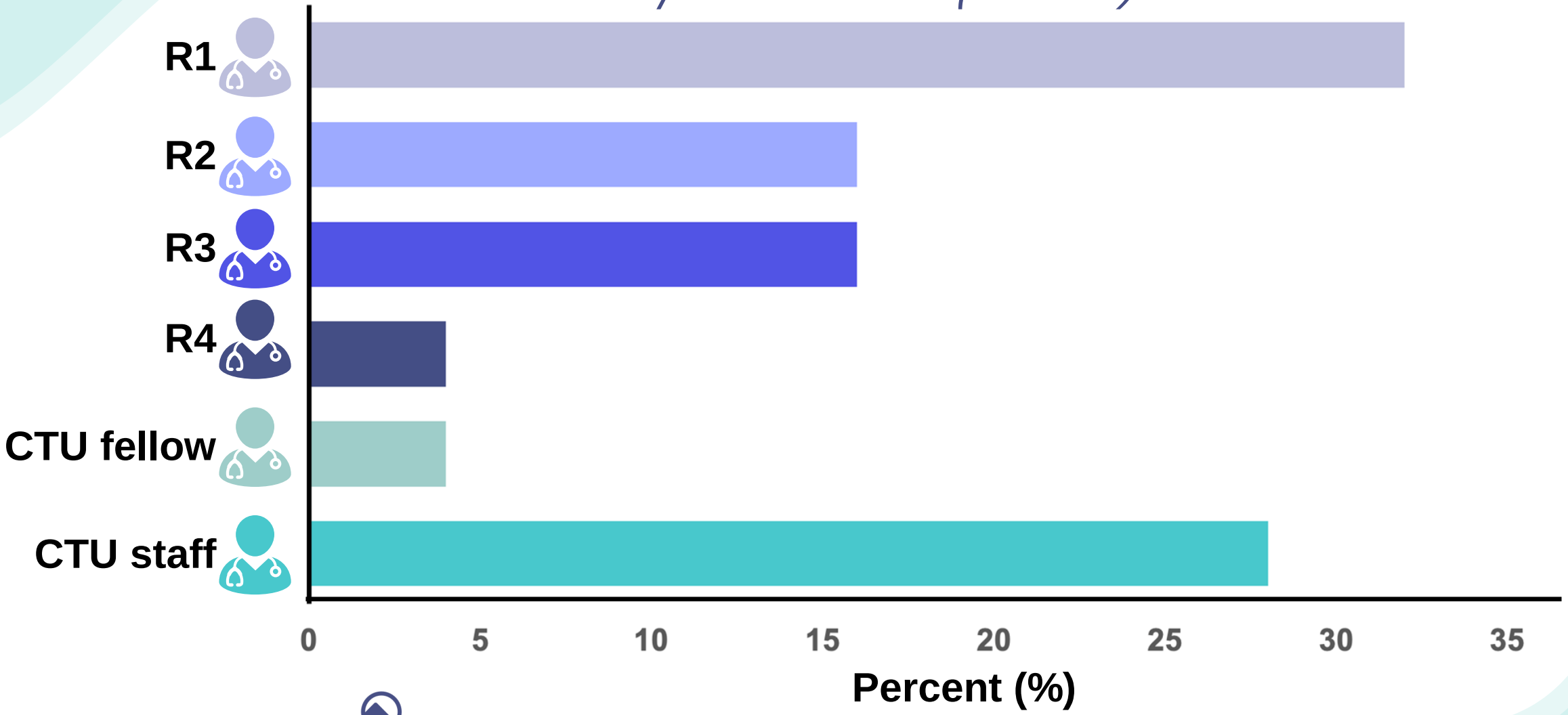


Needs Assessment

1. **Curriculum set up:** Gauging level of **perceived need** for a curriculum
2. **Curriculum structure:** Desired **structure** of the curriculum
3. **Content:** Perceived most **important topics** in terms of CPS statement topics and non-CPS statement topics
4. **Delivery method:** Preferred **format** of learning
5. **Resources:** Perceived need for formal post-teaching **resources**

Needs Assessment

Respondents (N=25)



Distribution: What balance should there be between twice weekly lead resident teaching of the listed topics and flexibility for additional topics or interesting cases?

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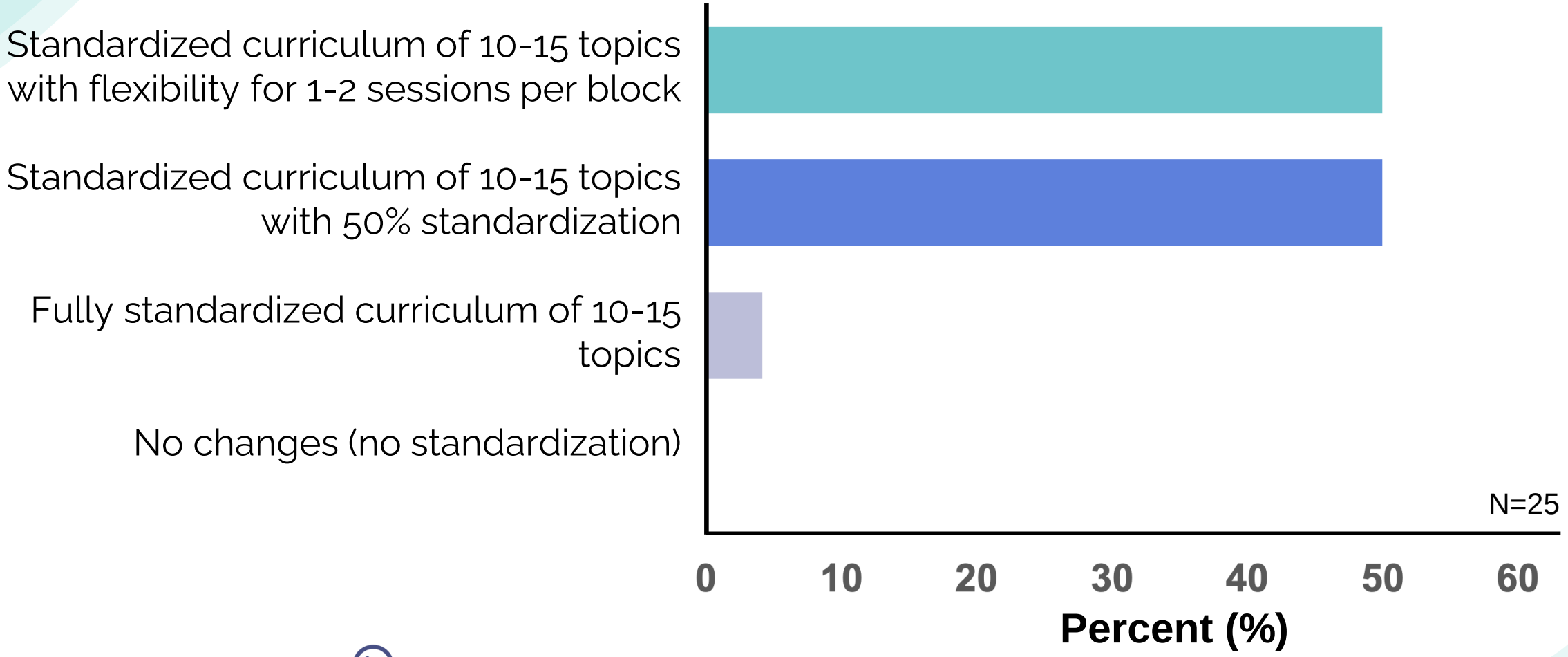
Week 1	**Orientation**	**Lead Resident**	**Simulation: Just in Time**
Week 2	**Lead Resident**	**Lead Resident**	**Simulation: Full site mock code***
Week 3	**Lead Resident**	**Lead Resident**	**Simulation: Just in Time**
Week 4	**Lead Resident**	**Consults Resident**	**Simulation: Full site mock code***

☐ Topic may be selected lead resident seeking input from CTU teams

Distribution: What balance should there be between twice weekly lead resident teaching on the listed topics and flexibility for additional topics or interesting cases?



CPS Statement Topics: Which **8** of the following topics identified on the CPS website as being important for hospital pediatrics do you feel would be important to include regularly in formal* (not bedside) CTU resident teaching?

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Respirology

Infectious Diseases

Neurology

General Pediatrics

CPS Statement Topics: Which **8** of the following topics identified on the CPS website as being important for hospital pediatrics do you feel would be important to include regularly in formal* (not bedside) CTU resident teaching?

Respirology:

Pneumonia
Asthma
Bronchiolitis
Croup

Infectious Diseases:

Urinary tract infection
Acute otitis media
Osteomyelitis
Group A strep

Neurology:

Meningitis
Status epilepticus

General Pediatrics:

Failure to thrive

CPS Statement Topics: Which **8** of the following topics identified on the CPS website as being important for hospital pediatrics do you feel would be important to include regularly in formal* (not bedside) CTU resident teaching?

Results:

N values in parentheses

Respirology:

Pneumonia (20)
Asthma (18)
Bronchiolitis (15)
Croup (3)

Infectious Diseases:

Urinary tract infection (16)
Osteomyelitis (15)
Group A strep (9)

Neurology:

Meningitis (20)
Status epilepticus (16)

General Pediatrics:

Failure to thrive (17)

CPS Statement Topics: Which **8** of the following topics identified on the CPS website as being important for hospital pediatrics do you feel would be important to include regularly in formal* (not bedside) CTU resident teaching?

Results:

N values in parentheses

Respirology:

Pneumonia (20)
Asthma (18)
Bronchiolitis (15)
Croup (3)

Infectious Diseases:

Urinary tract infection (16)
Osteomyelitis (15)
Group A strep (9)

Neurology:

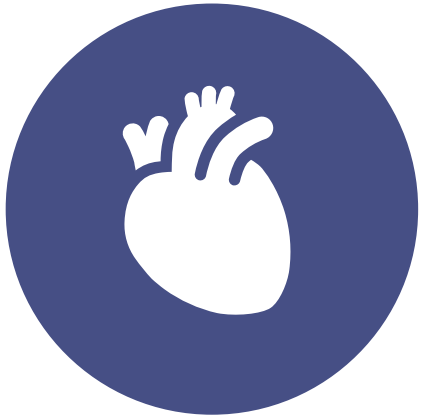
Meningitis (20)
Status epilepticus (16)

General Pediatrics:

Failure to thrive (17)

Other Important Topics: Which **5** of the following non-CPS statement topics do you feel are important to include regularly in formal CTU resident teaching?

General Pediatrics



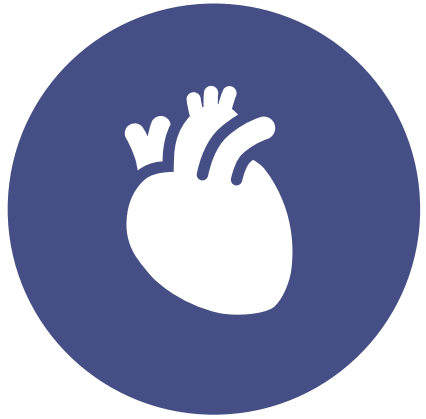
Cardiology

Miscellaneous

Other Important Topics: Which **5** of the following non-CPS statement topics do you feel are important to include regularly in formal CTU resident teaching?

General Pediatrics:

Pain in a nonverbal child
Sepsis
AKI
Febrile seizures
Toxidromes
IgA Vasculitis
ITP



Cardiology:

Kawasaki disease
Cardiac infections
Congenital heart disease
MISC

Miscellaneous:

Hemolysis
Transfusion reactions
Inborn errors of metabolism
Inborn errors of immunity
Nephrotic syndrome
Juvenile Idiopathic Arthritis
Lupus

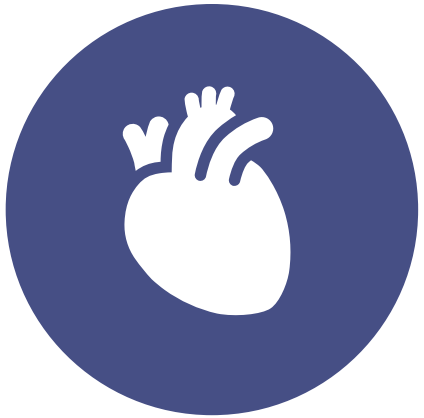
Other Important Topics: Which 5 of the following non-CPS statement topics do you feel are important to include regularly in formal CTU resident teaching?

Results

N values in parentheses

General Pediatrics:

Pain in a nonverbal child (10)
Sepsis (14)
AKI (11)
Febrile seizures (10)
Toxidromes (5)
IgA Vasculitis (1)
ITP (4)



Cardiology:

Kawasaki disease (18)
Cardiac infections (10)
Congenital heart disease (10)
MISC (9)

Approach to:

Hemolysis (4)
Transfusion reactions (11)
Inborn errors of metabolism (11)
Inborn errors of immunity (10)
Nephrotic syndrome (1)
Juvenile Idiopathic Arthritis (2)
Lupus (2)

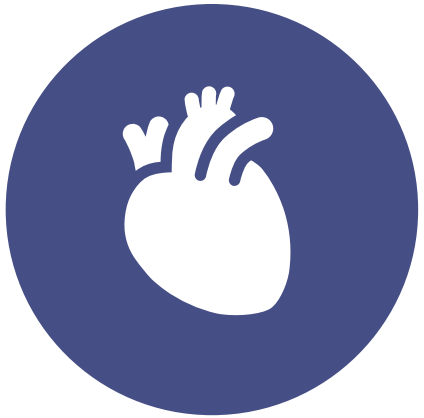
Other Important Topics: Which 5 of the following non-CPS statement topics do you feel are important to include regularly in formal CTU resident teaching?

Results

N values in parentheses

General Pediatrics:

Pain in a nonverbal child (10)
Sepsis (14)
AKI (11)
Febrile seizures (10)
Toxidromes (5)
IgA Vasculitis (1)
ITP (4)



Cardiology:

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Congenital heart disease (10)
MISC (9)

Approach to:

Hemolysis (4)
Transfusion reactions (11)
Inborn errors of metabolism (11)
Inborn errors of immunity (10)
Nephrotic syndrome (1)
Juvenile Idiopathic Arthritis (2)
Lupus (2)

Delivery Method: What delivery methods do you prefer most?

Options: Case-based presentation +/- live questions, case-based whiteboard talk, Jeopardy

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Case-based presentation +/- live questions (e.g. Kahoot)

Delivery Method: What delivery methods do you prefer most?

Options: Case-based presentation +/- live questions, case-based whiteboard talk, Jeopardy

#1 Case-based presentation +/- live questions (e.g. Kahoot)

#2 Case-based whiteboard talk

Delivery Method: What delivery methods do you prefer most?

Options: Case-based presentation +/- live questions, case-based whiteboard talk, Jeopardy

#1 Case-based presentation +/- live questions (e.g. Kahoot)

#2 Case-based whiteboard talk

#3 Jeopardy

Resources: “It is important for me to have a handout or resource to take away from the session for future reference.”

5 point Likert scale: 5 = strongly agree

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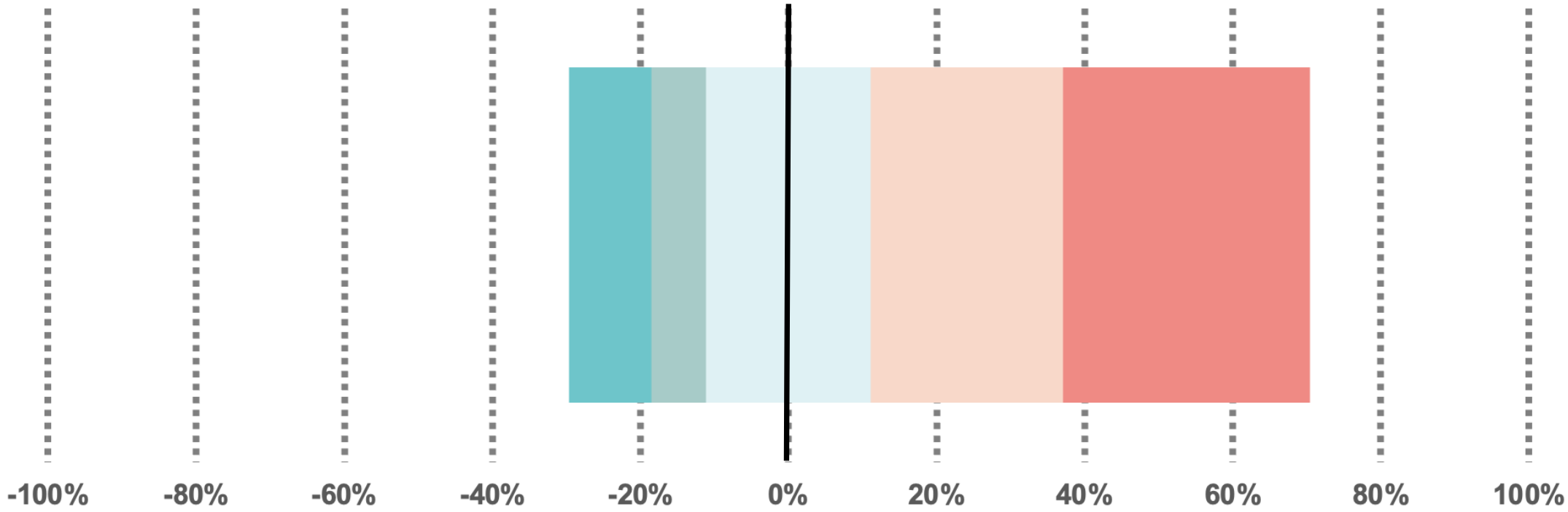
5 point Likert scale: 5 = strongly agree

Legend: strongly disagree, disagree, neutral, agree, strongly agree



Average: 3.64 +/- 0.28

N=25

Mean +/- standard error of mean

2. CURRICULUM DEVELOPMENT

Content and Format

20 topics

13 interactive guideline-based teaching sessions with take-away resources

Curriculum Topic	Format	Handout	Simulation

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Resp Potpourri: communicated acquired pneumonia, complicated pneumonia, asthma, bronchiolitis, croup (CPS)	**Jeopardy**	✓	✓

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Canadian Paediatric Society

11 CPS statements covered in overview with handouts

Pediatric Resident Teaching

Available for leads in a shared drive

CTU Topic	Content Available	Form of Content	Simulation Case Available	Link to talk	Participant handout	Handout answer key
Resp Infections Potpourri: CAP, complicated pneumonia, asthma, bronchiolitis	Yes	Jeopardy + Handout	Yes	Presentation	Handout with blanks	Handout answer key
Neuro: Status epiplepticus	Yes	Talk + Kahoot + Handout	Yes	Presentation	Handout with blanks	Handout answer key
Cardio: Congenital heart disease	Yes	Talk + Kahoot + Handout	Need to check	Presentation	Handout	
Cardio: Cardiac infections	Yes	Talk + Kahoot + Handout	Need to check	Presentation	Handout	
Common inpatient Infections: Meningitis, UTI, Sepsis, OM	Yes	Jeopardy + Handout	Yes	Presentation	Handout with blanks	Handout answer key
Gen Peds: Transfusion reaction	Yes	Talk only	Yes	Presentation		
Gen Peds: Approach to failure to thrive	Yes	Whiteboard talk + Handout	Need to check	Presentation	Handout with blanks	Handout answer key
Metabolics: Approach to inborn errors	In Progress	Whiteboard talk + Handout	Yes			
Immunology: Approach to inborn errors	Yes	Talk only	Need to check	Presentation		
Nephro: AKI	No		Yes			
Gen Peds: Approach to pain in a nonverbal child	No		Need to check			
Toxidromes	Yes	Talk + Kahoot + Handout	Yes	Presentation	Handout with blanks +	
Rheum: KD and MIS-C (part of cardiac infections talk)	Yes	Talk + Kahoot + Handout	Yes	Presentation	Handout (KD only)	

3. QUALITY IMPROVEMENT

Pediatric Lead Teaching

Deliver ≥ 4 core CTU teaching topics per block.

Use 1 of the Just in Time simulation sessions during the block to cover a core teaching session in a simulation setting.

Allocated Learning Times

Pediatric lead resident CTU teaching times

Week 1	**Orientation**	**Lead Resident**	**Simulation: Just in Time**
Week 2	**Lead Resident**	**Lead Resident**	**Simulation: Full site mock code***
Week 3	**Lead Resident**	**Lead Resident**	**Simulation: Just in Time**
Week 4	**Lead Resident**	**Consults Resident**	**Simulation: Full site mock code***

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CTU curriculum

Team/lead choice

Example Curriculum

Pediatric lead resident CTU teaching times

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Quality Improvement

Quality Improvement

Why assess?

Quality Improvement

Why assess?

Likert scales from 1-5 on the following topics:

a. Applicable to practice
b. Enhanced understanding of this topic.
c. Enhanced confidence in clinical management
d. Sufficient quality of clarity, delivery, and content

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Why assess?

Likert scales from 1-5 on the following topics:

a. Applicable to practice
b. Enhanced understanding of this topic.
c. Enhanced confidence in clinical management
d. Sufficient quality of clarity, delivery, and content

Optional additional questions:

a. What the learner liked
b. Areas for improvement
c. Other topics that the learner would like to see

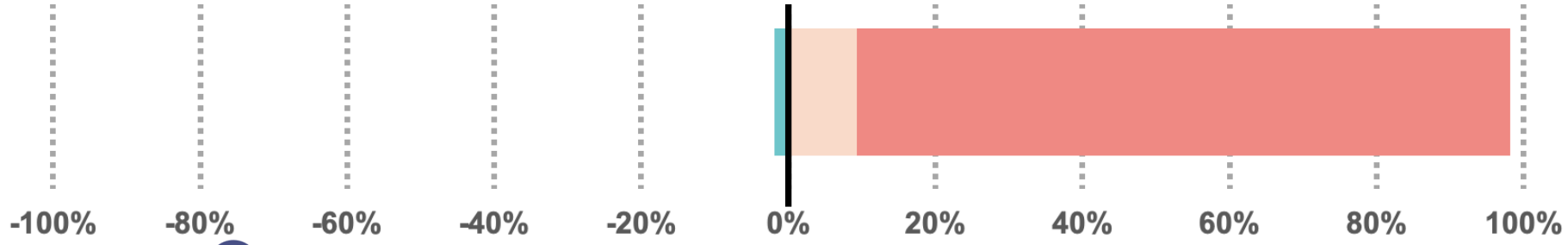
Likert Question #1:

The topic presented represents something that the learner could encounter in practice.

Legend: strongly disagree, disagree, neutral, agree, strongly agree

N=54

Mean +/- s.e.m



4.85 +/- 0.08

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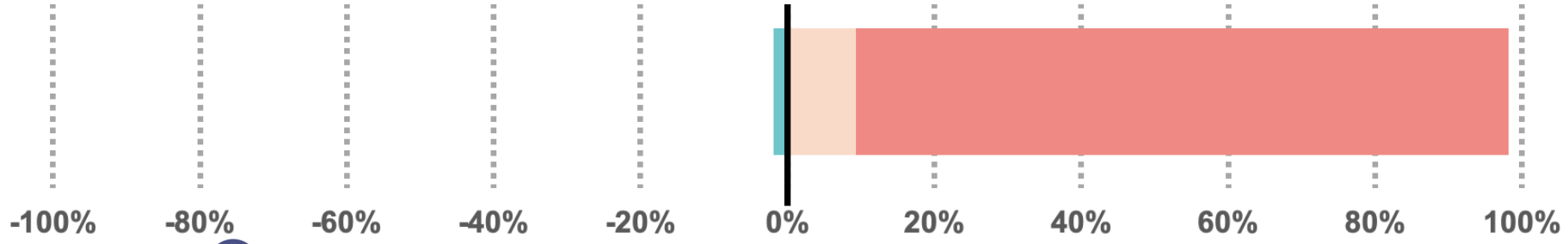


4.85 +/- 0.08

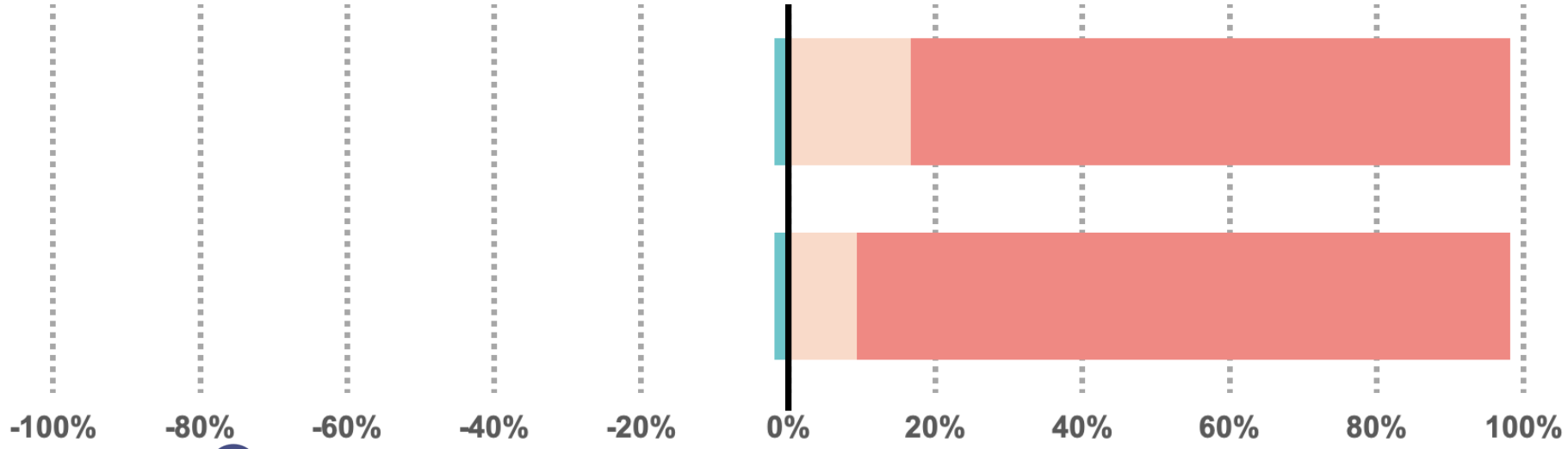
Likert Question #2:

After this teaching the learner have a better understanding of this topic

Legend: strongly disagree, disagree, neutral, agree, strongly agree

N=54

Mean +/- s.e.m



4.57 +/- 0.1

4.85 +/- 0.08

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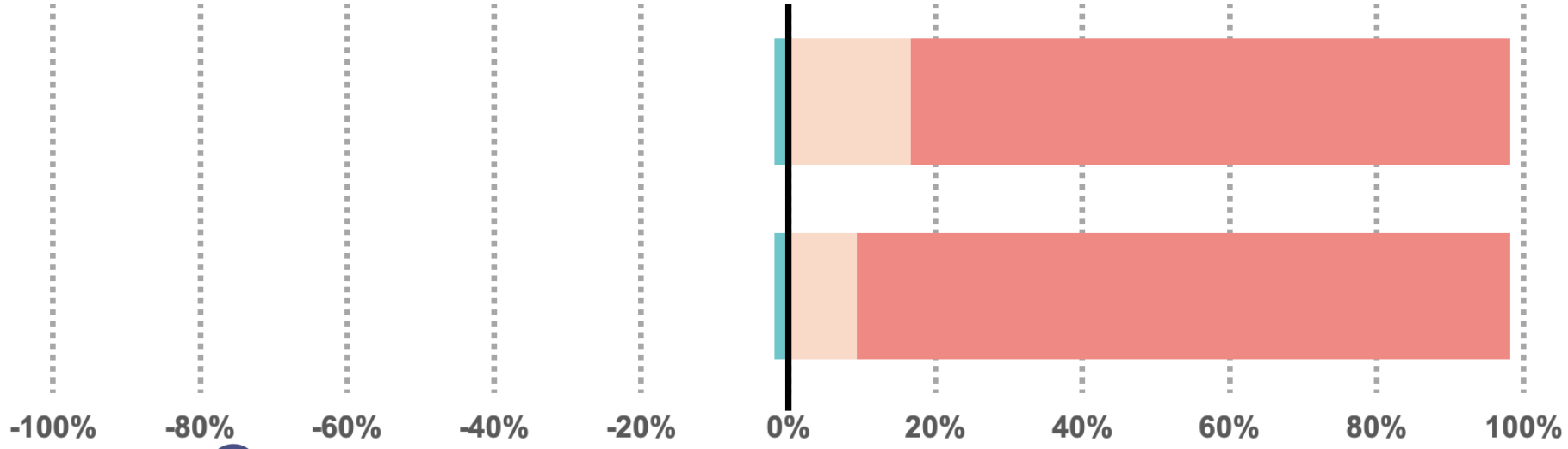
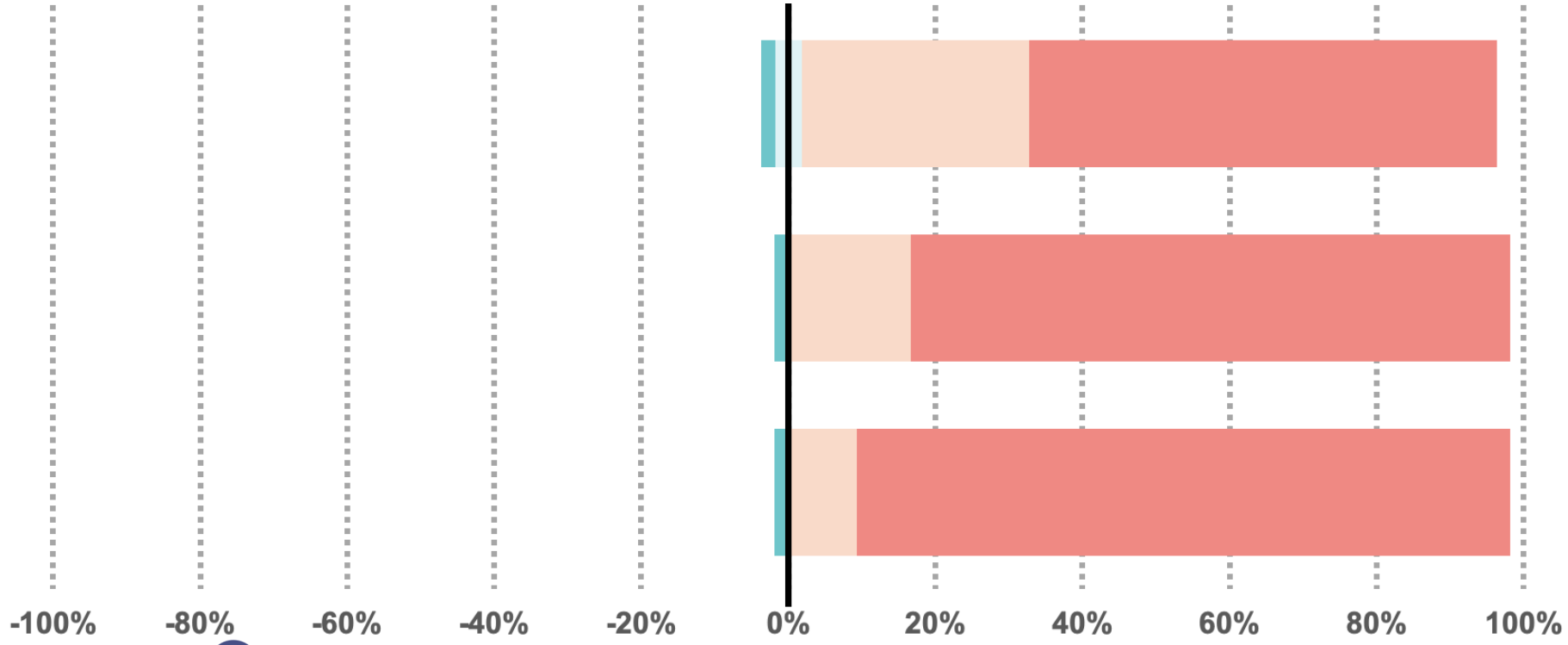


Likert Question #3:

After this teaching the learner feels more confident in being able to clinically manage this topic within their scope of their practice.

Legend: strongly disagree, disagree, neutral, agree, strongly agree

N=54



Mean +/- s.e.m

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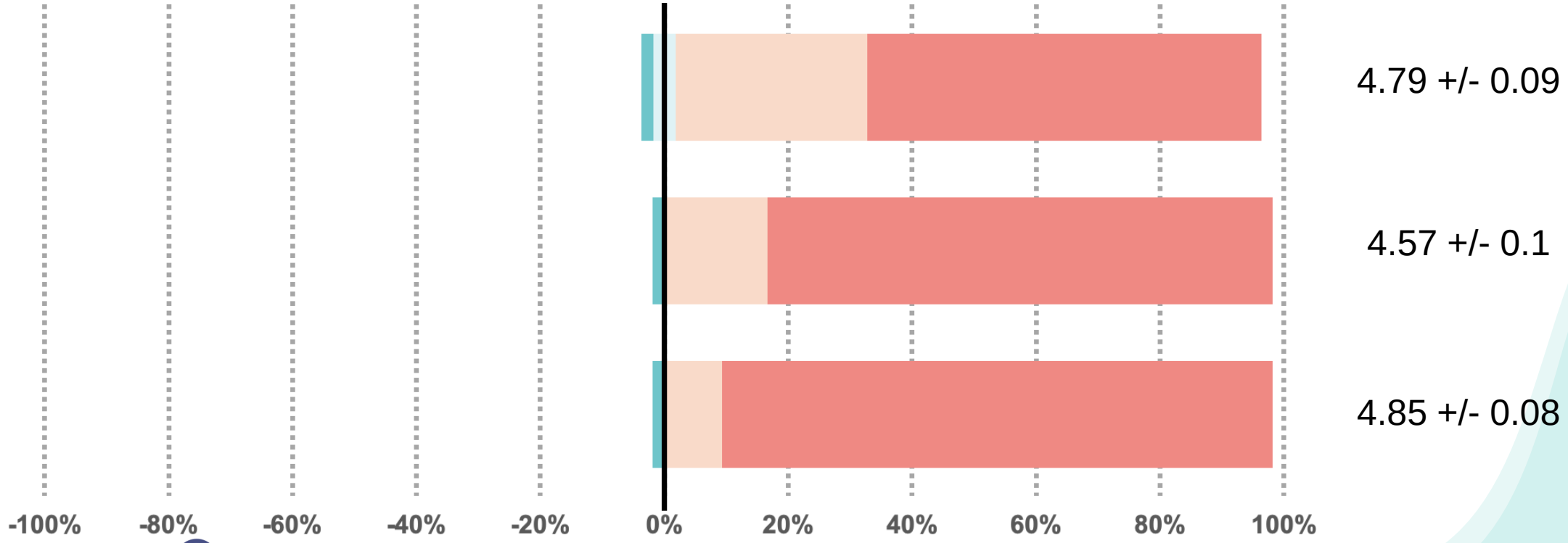

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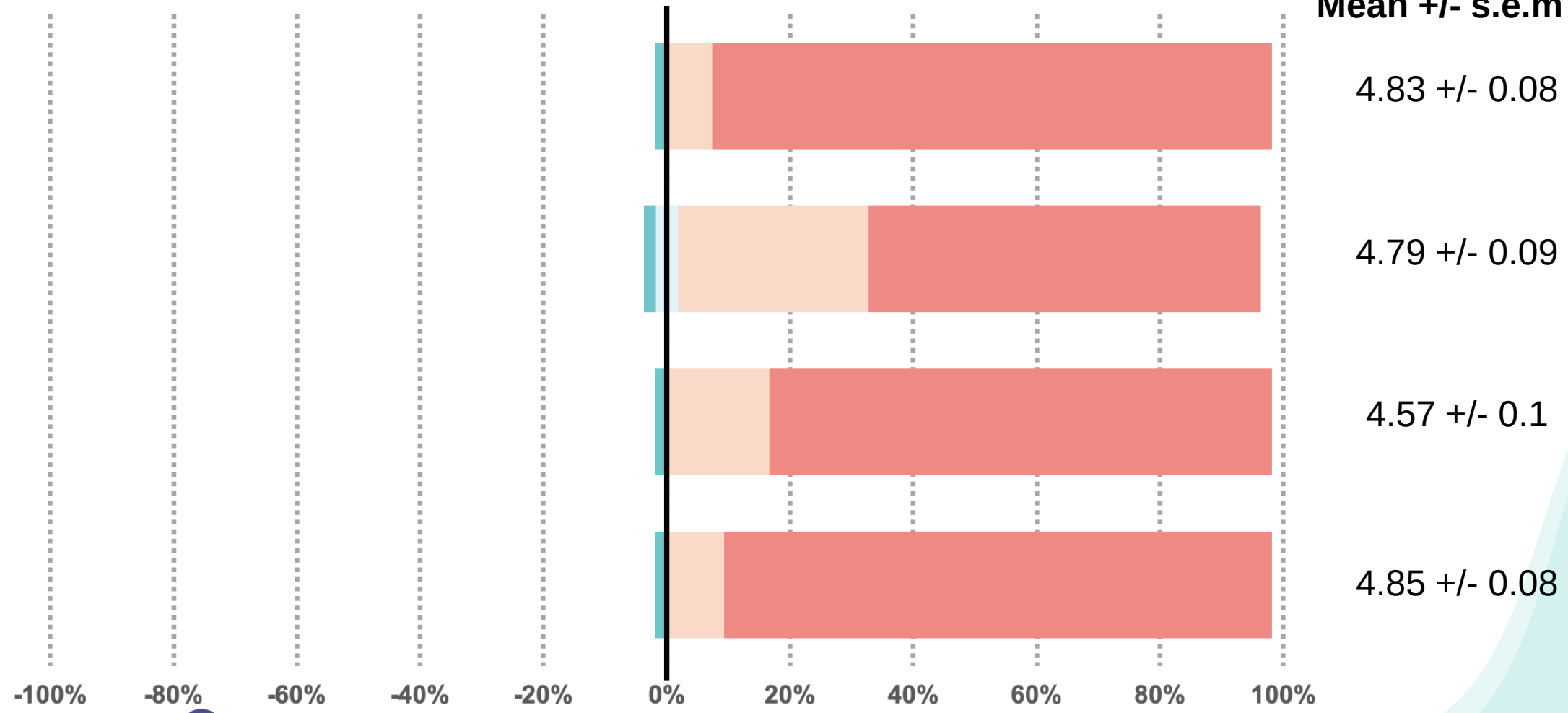
Likert Question #4:

The quality of the presentation was sufficient in clarity, delivery, and content.

Legend: strongly disagree, disagree, neutral, agree, strongly agree

N=54



Mean +/- s.e.m

4.83 +/- 0.08

4.79 +/- 0.09

4.57 +/- 0.1

4.85 +/- 0.08

Likert Question #4:

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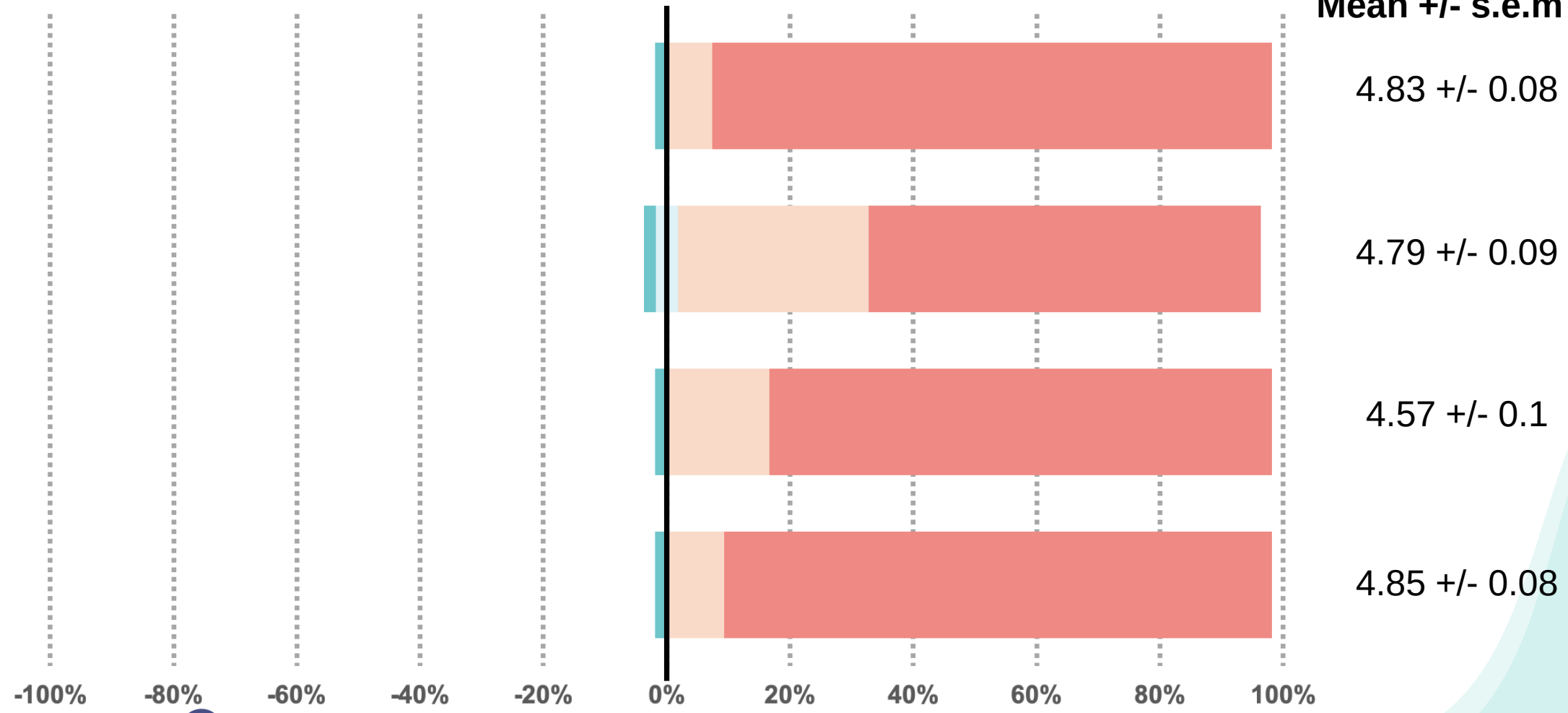

SUMMARY

Objectives Revisited

Identify what **general pediatric topics** learners and staff perceive as being important to learn on an inpatient hospital pediatrics rotation.

Discern preferred **learning modalities**.

Assess impact of new curriculum content.

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→ *Content identified and 13 educational sessions created.*

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→ *Case-based learning with interactive questions, either in the form of a presentation, whiteboard talk, or Jeopardy.*

Assess impact of new curriculum content.

→ *Applicable*

→ *Increased understanding*

→ *Increased management confidence*

→ *Quality of clarity, delivery, and content*

FUTURE DIRECTIONS

Future Directions

Identifying learning opportunities

Future Directions

Identifying learning opportunities

Continued curriculum development

Future Directions

Identifying learning opportunities

Continued curriculum development

Knowledge dissemination

Acknowledgements

Co-Leads

Dr. Natasha Benson
Dr. Sarah Peters
Dr. Emilie Russell

CTU Education Head

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BCCH Pediatric Residents

Questions?

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THE UNIVERSITY OF BRITISH COLUMBIA

Department of Pediatrics
Faculty of Medicine

BC Children's Hospital Research Institute

Celebrate Research Day 2024

Dr. Courtney Leach

Impact of Public Coverage on Access to Continuous Glucose Monitoring Systems in the Canadian Province of British Columbia

Courtney Leach MD[1], Jeffrey Bone PhD[2], Ananta Addala MD[3], Shazhan Amed MD[1]

[1]UBC Department of Pediatrics, [2]BC Children's Hospital Research Institute, [3]Stanford School of Medicine

Disclosures

- No conflicts of interest to disclose.

Introduction

- Studies globally have shown an association between structural inequities in pediatric diabetes care and poorer diabetes outcomes such as hemoglobin A1C (A1C) and time in range (TIR) [1–4]
- Diabetes technology, such as continuous glucose monitoring (CGM) and insulin pumps, have the potential to partially mediate this effect[5]
- However, multiple barriers including cost and social determinants of health have impeded uptake of diabetes technology, particularly in marginalized populations[2]
- In BC, universal coverage of insulin pumps was implemented in 2008, however the impact of this policy on pump uptake was not formally evaluated

Introduction

- In June 2021, public coverage of the Dexcom CGM was introduced in BC for all individuals living with insulin dependent diabetes
- Previous research has shown that public funding of diabetes technology only partially closes inequity gaps in diabetes technology uptake[6]
- Therefore, it is essential to evaluate the impact of public policies such as universal coverage of diabetes technology

Study Objective

Objective: To describe differences in diabetes outcomes (i.e., A1C, TIR, and insulin pump use) and the impact of universal CGM coverage on CGM uptake across different levels of deprivation in children living with type 1 diabetes in BC, Canada.

Hypothesis: Differences will exist by deprivation index in diabetes outcomes, as well as CGM uptake before and after universal coverage.

Research Design and Methods: Data Source and Population

- **Data Source**: BC Pediatric Diabetes Registry (BC-PDR)
  - Socio-demographic and health data for consenting patients accessing care at the BC Children's Hospital (BCCH) Diabetes Clinic (80% consent rate)
  - Patient-level and visit-level data from time of enrolment to transition to adult care
- **Inclusion Criteria**: Patients with at least one visit after June 10, 2020
- **Exclusion Criteria**: Patients with a diagnosis of non-type 1 diabetes, or whose postal code was not available in dataset

The Canadian Index of Multiple Deprivation (CIMD)

- An area-based, geographically derived index developed for use across Canada to approximate deprivation across 4 dimensions
- Using individual postal codes, CIMD is calculated by Dissemination Area (DA) and Census data is used to assign individuals to equally sized levels of deprivation*

1 = least deprived; 5 = most deprived

Residential Instability

Speaks to the tendency of neighbourhood inhabitants to fluctuate over time, taking into consideration both housing and familial characteristics.

Economic Dependency

Relates to reliance on the workforce, or a dependence on sources of income other than employment income.

Situational Vulnerability

Refers to variations in socio-demographic conditions in the areas of housing and education, while taking into account other demographic characteristics.

*Ethnocultural Composition, the fourth dimension in the CIMD, was ultimately not used, as due to regional demographics, the quintiles in this domain were felt to be an inaccurate approximation of SES.

Research Design and Methods

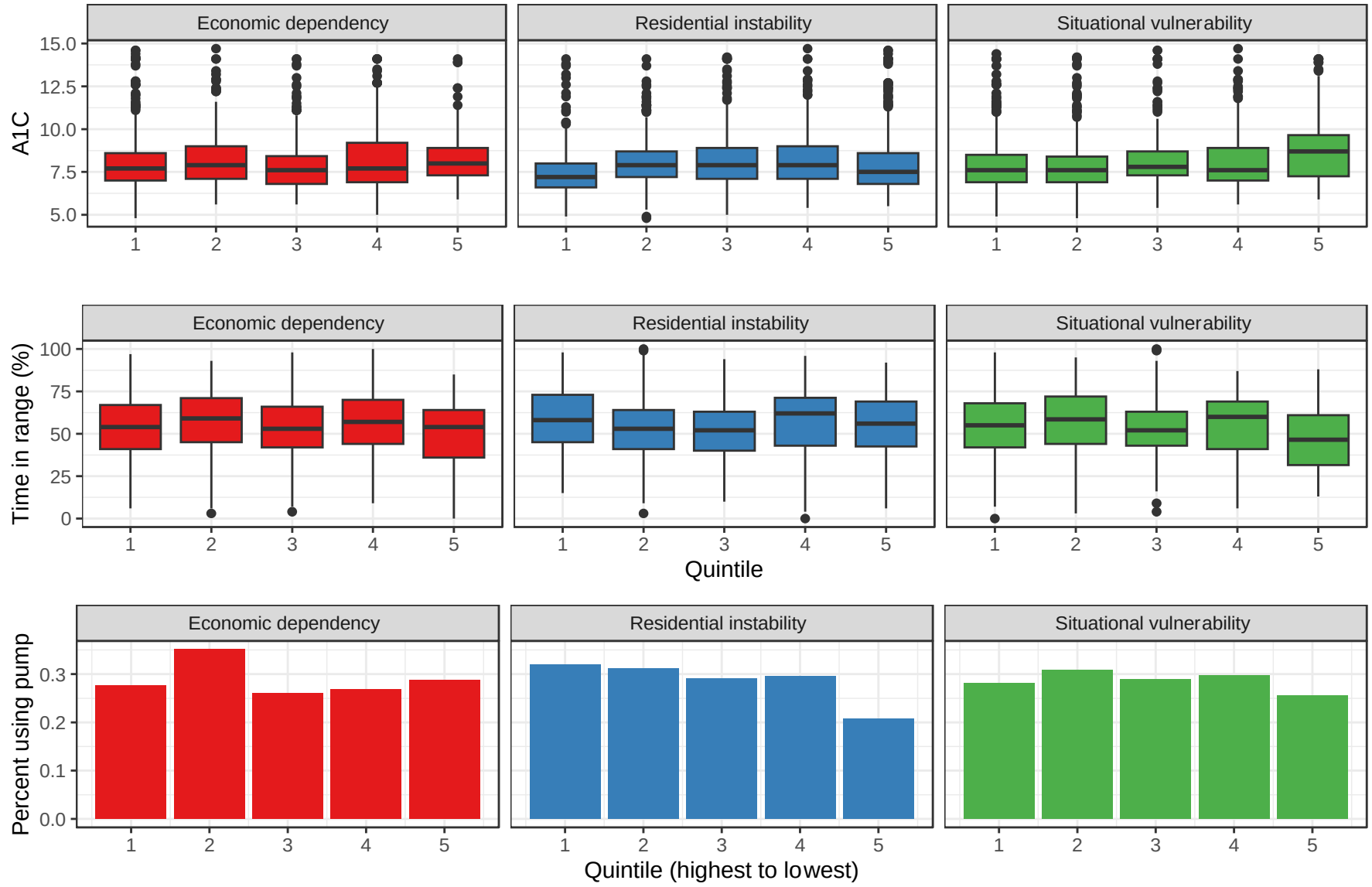
- The cohort was described using medians and interquartile ranges for continuous variables and counts and percentages for categorical variables
- A1C, TIR, and pump use were summarized graphically by quintile and analyzed via linear mixed effects models, adjusting for age and sex
- An interrupted time-series analysis was used to compare predicted trend in CGM use following funding implementation to the actual use observed, per deprivation quintile

Demographics and deprivation quintiles in study population

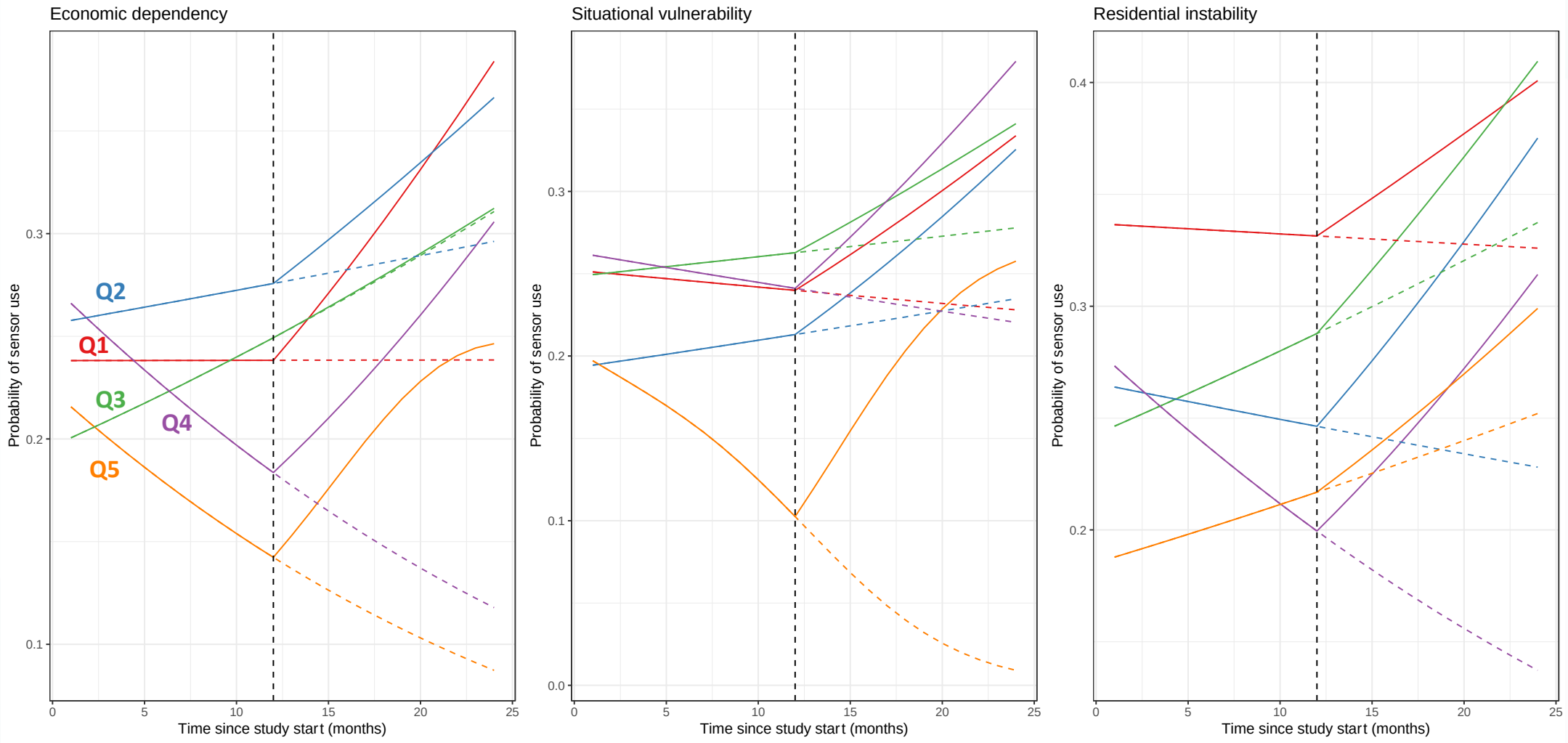
Baseline Demographics, N= 494	
Gender Distribution (F/M)	213 (43.1%) / 281 (56.9%)
Median Age at Study Start (Years) [IQR]	13.4 [9.7, 16.3]
Median A1C at Diagnosis (%) [IQR]	11.7 [9.8, 13.8]
Median A1C at Study Start (%) [IQR]	7.9 [7.1, 8.6]

CIMD Quintile Distribution, by Dimension, Number (%)					
	1	2	3	4	5
Residential Instability	74 (15)	132 (27)	120 (24)	98 (20)	70 (14)
Economic Dependency	158 (32)	107 (22)	98 (20)	75 (15)	56 (11)
Situational Vulnerability	173 (35)	120 (24)	90 (18)	78 (16)	33 (7)

There was no significant difference observed in A1C, TIR, or pump use across deprivation quintiles



Overall increase in CGM uptake one year following implementation of universal funding for CGM with the **greatest increase observed in the most deprived groups**



Comparison to Existing Literature

- In our study, although the greatest increase in CGM uptake was in the most deprived groups, differences in CGM use across indices of deprivation **did not completely disappear** after universal coverage was implemented

- In Australia, CGM uptake increased from 5% to 79% two years after universal CGM coverage however, an equity gap persisted between the least and most deprived groups 5 years later[6]

- In Germany, the equity gap between the least and most deprived groups disappeared 5 years after universal CGM coverage[7]

Strengths and Limitations

Strengths:

- Reasonably large sample size
- Diverse population

Limitations:

- Deprivation index quintiles are derived at the dissemination area (DA) level which may not accurately represent all individuals' deprivation
- BC-PDR includes patients accessing care at BC Children's Hospital (~40% of all children living with diabetes in BC), limiting the generalizability of our results
- Our study did not evaluate sustained use of CGM (i.e. for >1 year) by deprivation index

Conclusions & Next Steps

- Prior to universal CGM funding in BC, CGM uptake varied significantly by deprivation index, with the most deprived groups demonstrating lower uptake
- **Our study showed that the implementation of a universal CGM funding policy in the province of BC was effective in narrowing, but not closing, this equity gap**
- Our study demonstrates the impact of policy change and will inform future policy decisions as new diabetes technology becomes available
- Future studies will focus on assessing sustained diabetes technology use by deprivation index and will explore factors that might contribute to the residual equity gap in technology uptake

Acknowledgements

Thank you to my supervisors, Shazhan Amed and Jeffrey Bone, and co-authors, Crystal Ng and Ananta Addala, on this project.

References:

1. Addala A, Auzanneau M, Miller K, Maier W, Foster N, Kapellen T, Walker A, Rosenbauer J, Maahs DM, Holl RW. A Decade of Disparities in Diabetes Technology Use and HbA1c in Pediatric Type 1 Diabetes: A Transatlantic Comparison. Diabetes Care 2021;44(1):133–140. PMID:32938745
2. Lipman TH, Hawkes CP. Racial and Socioeconomic Disparities in Pediatric Type 1 Diabetes: Time for a Paradigm Shift in Approach. Diabetes Care 2020;44(1):14–16. PMID:33444165
3. Lipman TH, Smith JA, Patil O, Willi SM, Hawkes CP. Racial disparities in treatment and outcomes of children with type 1 diabetes. Pediatr Diabetes 2021;22(2):241–248. PMID:33871154
4. Fegan-Bohm K, Minard CG, Anderson BJ, Butler AM, Titus C, Weissberg-Benchell J, Hilliard ME. Diabetes distress and HbA1c in racially/ethnically and socioeconomically diverse youth with type 1 diabetes. Pediatr Diabetes 2020;21(7):1362–1369. PMID:32893939
5. Addala A, Maahs DM, Scheinker D, Chertow S, Leverenz B, Prahalad P. Uninterrupted continuous glucose monitoring access is associated with a decrease in HbA1c in youth with type 1 diabetes and public insurance. Pediatr Diabetes 2020;21(7):1301–1309. PMID:32681582
6. Lomax KE, Taplin CE, Abraham MB, Smith GJ, Haynes A, Zomer E, Ellis KL, Clapin H, Zoungas S, Jenkins AJ, Harrington J, Bock MI de, Jones TW, Davis EA. Socioeconomic status and diabetes technology use in youth with type 1 diabetes: a comparison of two funding models. Front Endocrinol 2023;14:1178958. PMID:37670884
7. Auzanneau, M. *et al.* Heterogeneity of Access to Diabetes Technology Depending on Area Deprivation and Demographics Between 2016 and 2019 in Germany. *J. Diabetes Sci. Technol.* **15**, 1059–1068 (2021).

Thank you!

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Faculty of Medicine

BC Children's Hospital Research Institute

Celebrate Research Day 2024

Dr. Lindsay Newman

The Incorporation of Entrustable Professional Activities into Simulation Curricula within Canadian Pediatric Residency Programs

Researchers:
Dr. Lindsay Newman PGY4
Dr. Mel Chan
Dr. Mia Remington

Outline

1. Background
2. Purpose
3. Methods
4. Results
5. Conclusions

Background

- Pediatrics launched CBD in 2021
- Move through stages via Entrustable Professional Activities (EPAs)
- Some EPAs can be completed in simulation (SBA of EPAs)…

Background

But how?

- Certain EPAs may be more amenable to SBA than others
- Need for increased resources
- Psychological effect on trainees

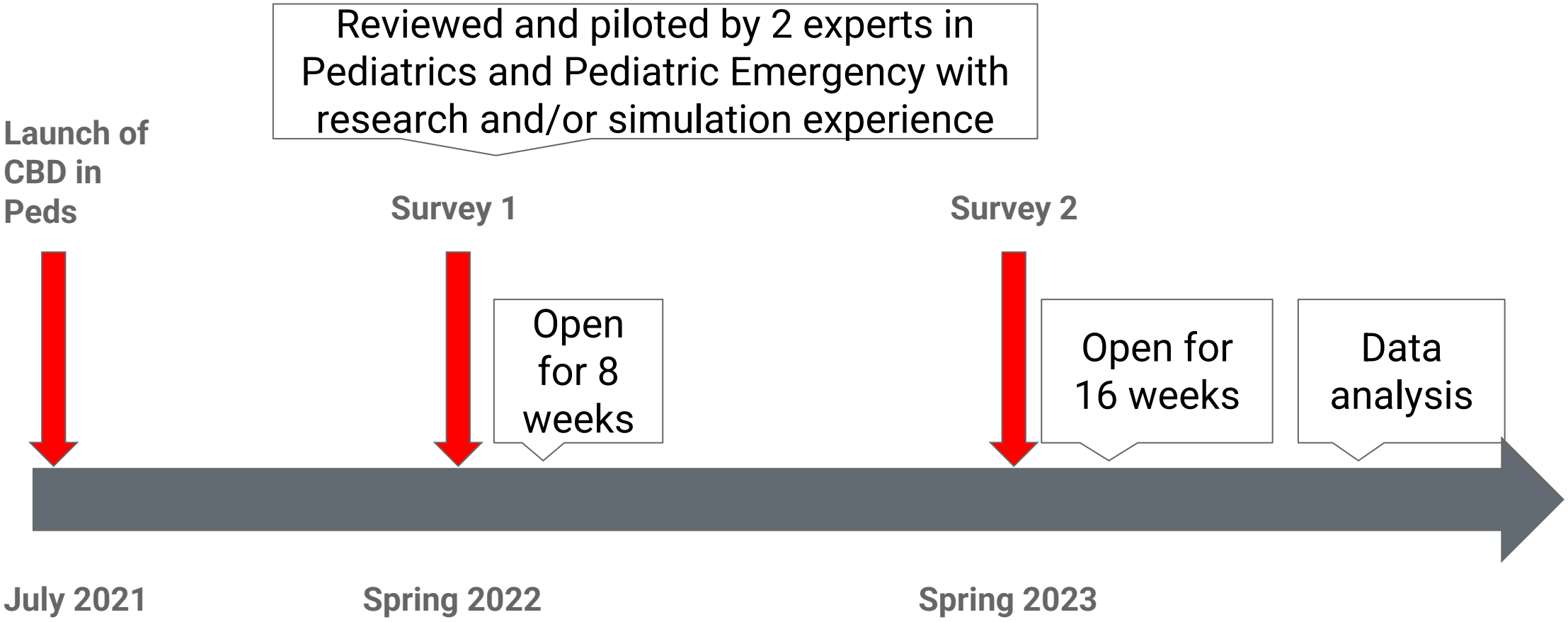
Study Purpose

To explore how Canadian pediatric residency programs planned to assess EPAs in simulation and to follow-up one year later to explore successes and barriers in this process

Methods

- REB approved
- Surveys emailed to PDs/simulation leads in all 17 programs
- Voluntary, anonymous participation
- Collection & management via REDCap

Methods


Reviewed and piloted by 2 experts in Pediatrics and Pediatric Emergency with research and/or simulation experience
Launch of CBD in Peds
Survey 1
Survey 2
Open for 8 weeks
Open for 16 weeks
Data analysis
July 2021
Spring 2022
Spring 2023

Results

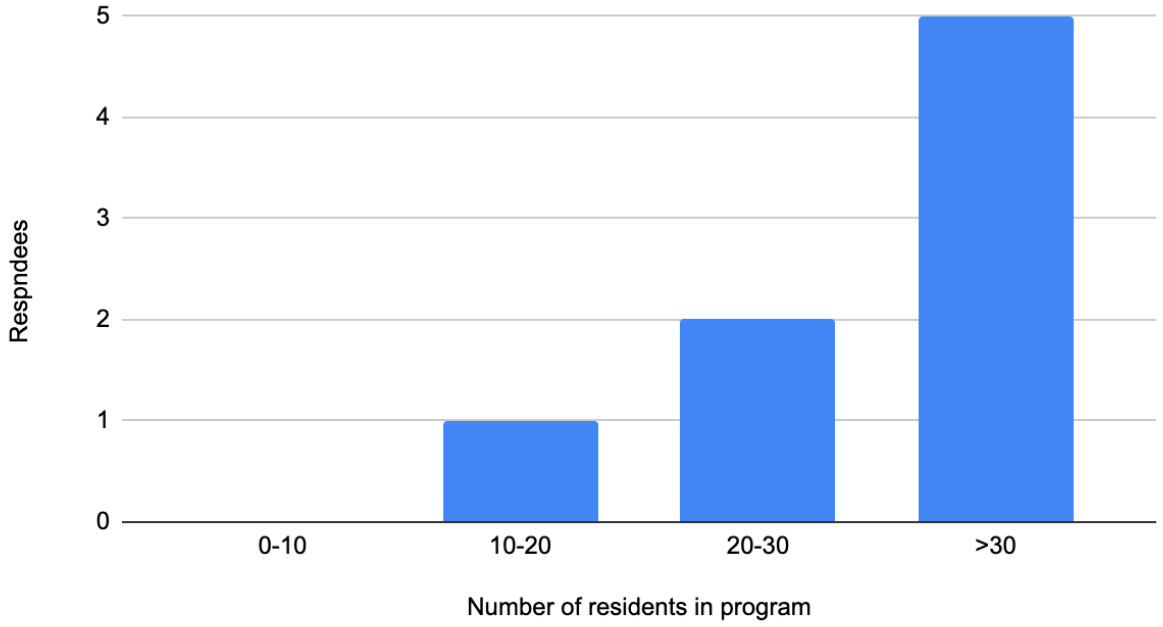
Survey 1

- Completed by 8/17 programs (47%)
  - 7/8 PD, 1/8 SL
- All had dedicated sim centre and peds sim curriculum

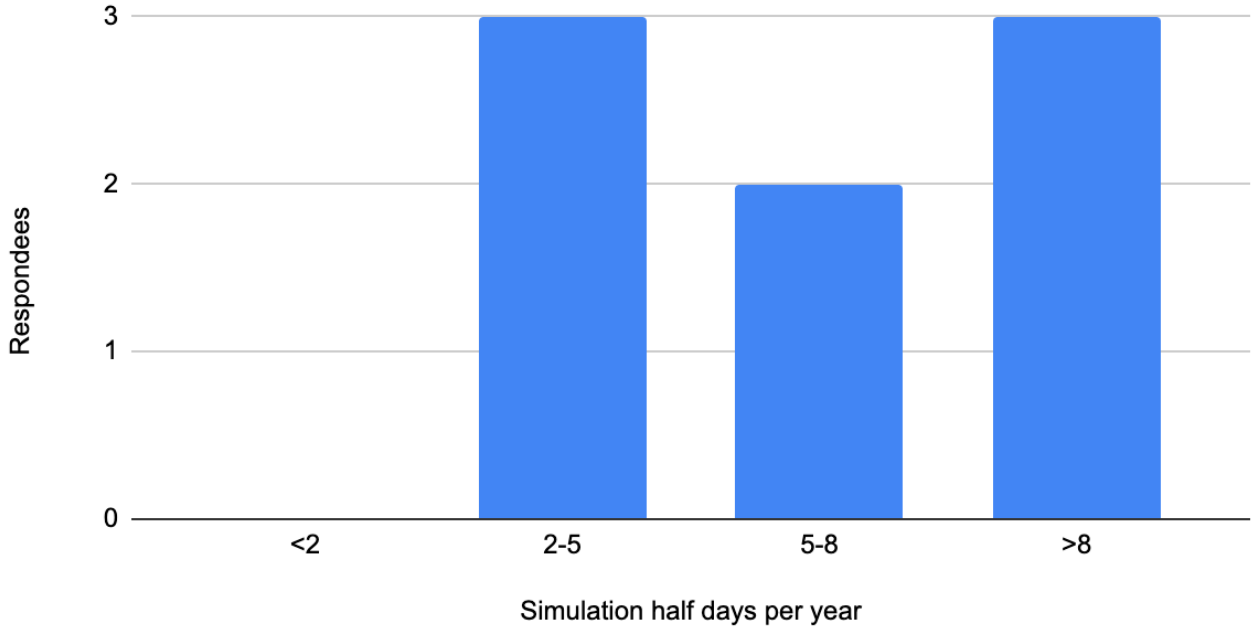
Results

Survey 1

How many residents are in your general pediatrics program?



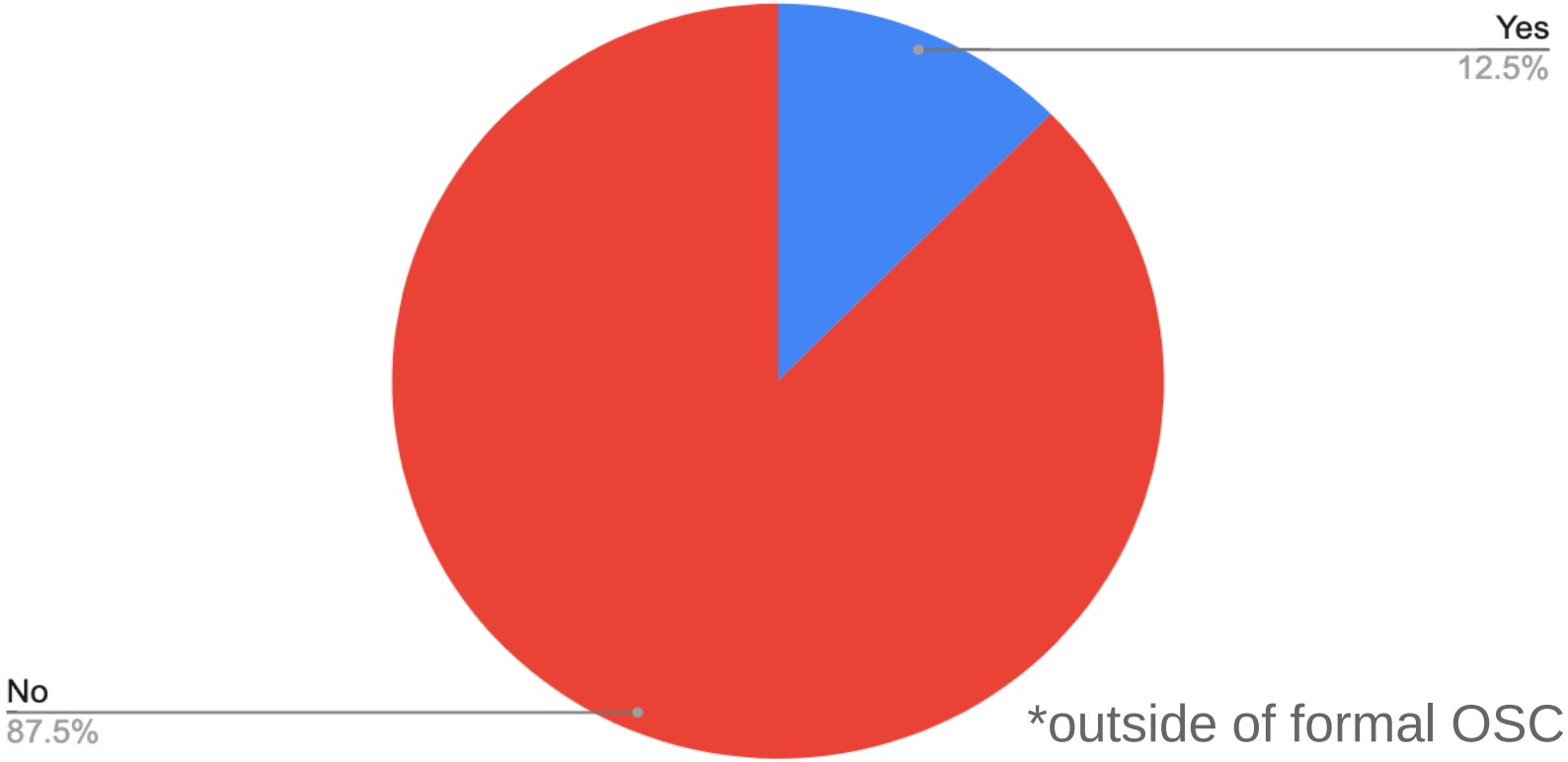
How many simulation half day sessions does each resident participate in per year?



Results

Survey 1

Prior to the launch of CBD, did you do formal assessments of resident performance within your simulation curriculum?*



*outside of formal OSCEs/STACERS

Results

Survey 1

- With the launch of CBD, 100% were assessing or planning to assess EPAs in simulation!
- 7/8 planned to develop specific simulation sessions for dedicated EPA assessment

Results

Survey 1

- 5/8 planned to have a separate assessor present; all were undecided if they would provide specific assessor training
- All were either undecided (6/8) or decided against (2/8) the planned use of standardized patients

Results

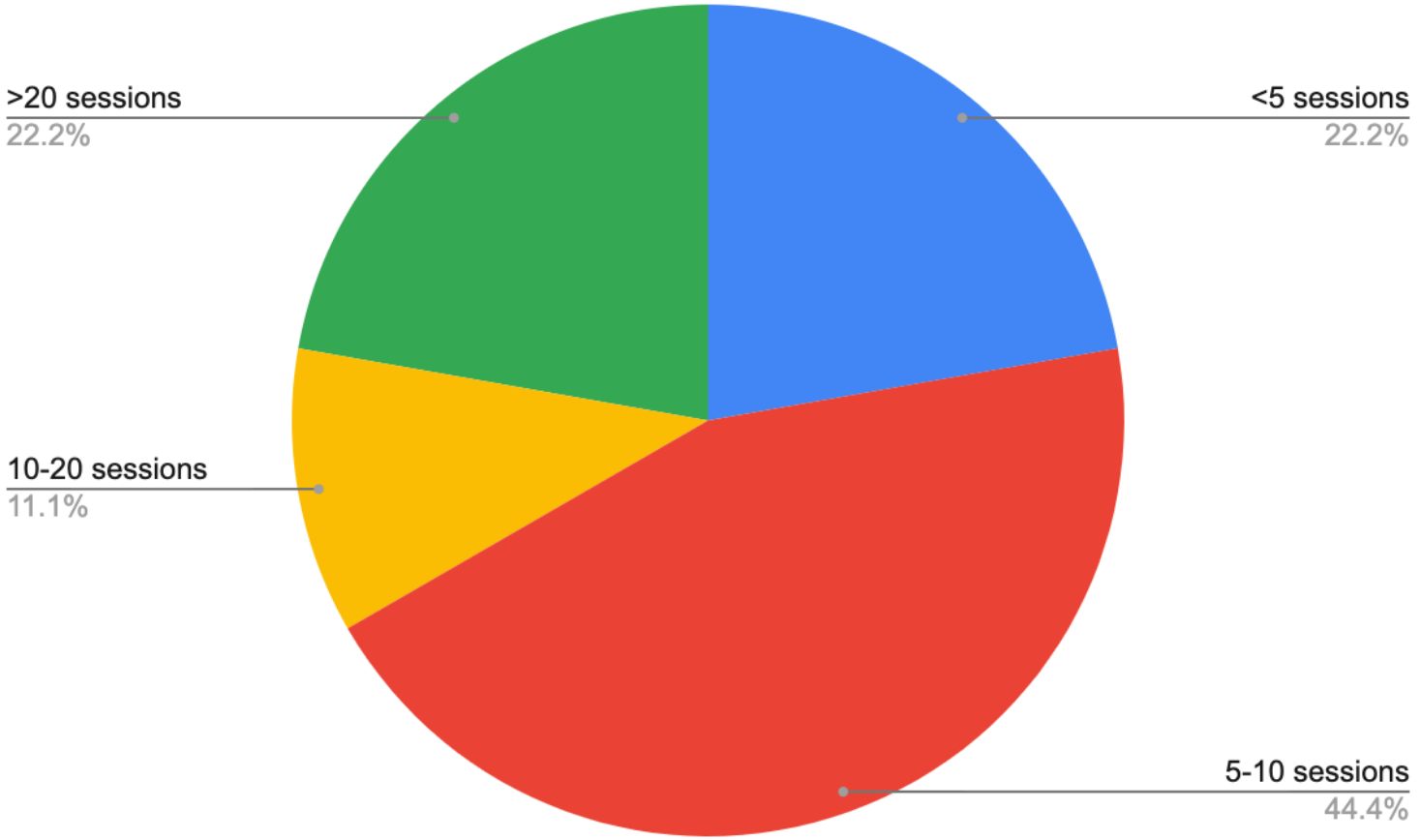
Survey 2

- Completed by 10/17 programs (59%)
  - 5/10 SL, 4/10 PD, 1/10 CBME director

Results

Survey 2

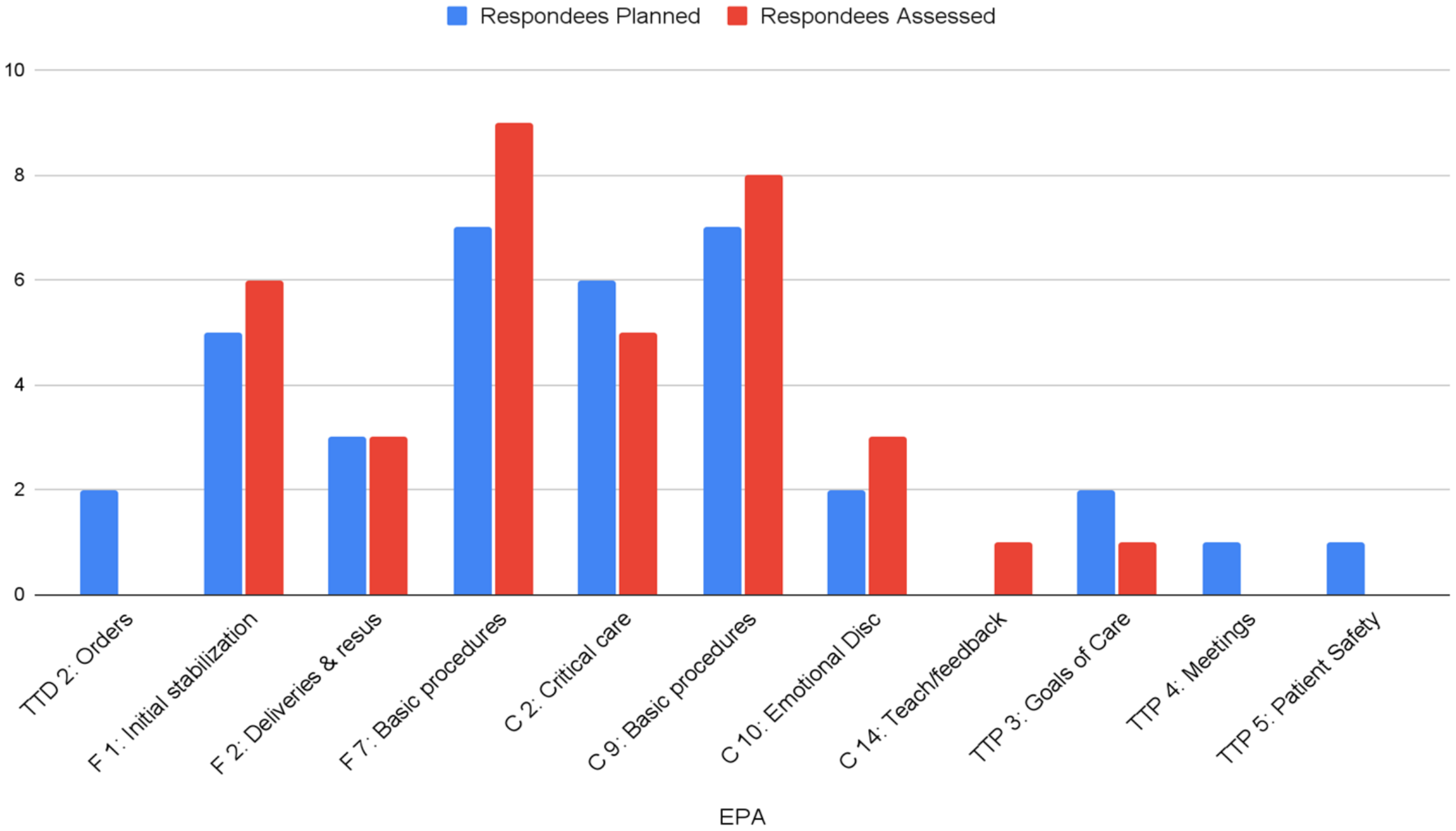
- 9/10 performed SBA of EPAs
- 6/9 developed specific simulation sessions for dedicated EPA assessment

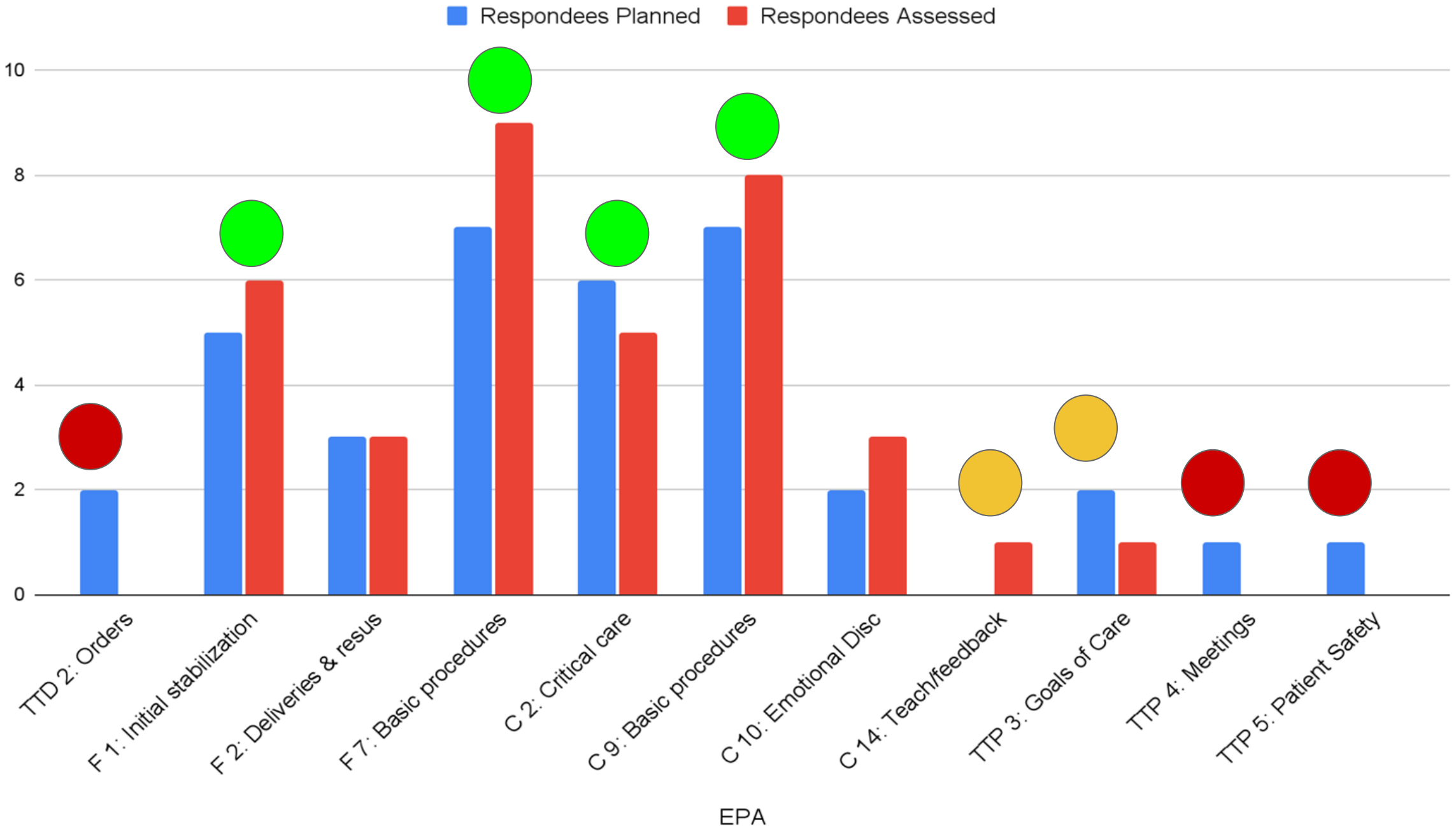


Results

Survey 2

- 5/9 had a separate facilitator present to be assessor; 2/5 provided specific training
- 1/9 used standardized patients


Respondees Planned
Respondees Assessed
10
8
6
4
2
0
TTD 2: Orders
F 1: Initial stabilization
F 2: Deliveries & resus
F 7: Basic procedures
C 2: Critical care
C 9: Basic procedures
C 10: Emotional Disc
C 14: Teach/feedback
TTP 3: Goals of Care
TTP 4: Meetings
TTP 5: Patient Safety
EPA


Respondees Planned
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F 7: Basic procedures
C 2: Critical care
C 9: Basic procedures
C 10: Emotional Disc
C 14: Teach/feedback
TTP 3: Goals of Care
TTP 4: Meetings
TTP 5: Patient Safety
EPA

“Hard skills”

Procedural

- Foundation 7: Performing basic procedures (BMV, tracheostomy change, CPR, IO)
- Core 9: Performing basic procedures (injections, chest tube, G-tube, port-a-cath, etc)

Resuscitation

- Foundation 1: Recognizing deteriorating/ critically ill patients and initiating stabilization & management
- Core 2: Resuscitating and stabilizing critically ill patients

“Soft skills”

Communication and critical thinking

- Core 14: Providing teaching and feedback
- TTP 3: Leading discussions about goals of care
- TTP 4: Leading family and interprofessional team meetings
- TTP 5: Analyzing patient safety events to improve quality of care
- (TTD 2: Documenting orders for pediatric patients)
  - Suspected due to ample clinical opportunity for completion

Results Survey 2

What was successful about the incorporation of EPA assessments into simulation curriculum?

- **Procedural** exposure and assessment (6/9)

Results Survey 2

What challenges or impacts to your curriculum did you encounter?

- **Increased resource requirements** (8/8)

"[Need for] **curriculum** designed around sim-amenable EPAs"

"**Takes more time** than expected."

"Required **rearranging** the timing of courses, building in **extra time** to complete the EPAs on the online system, **faculty training**"

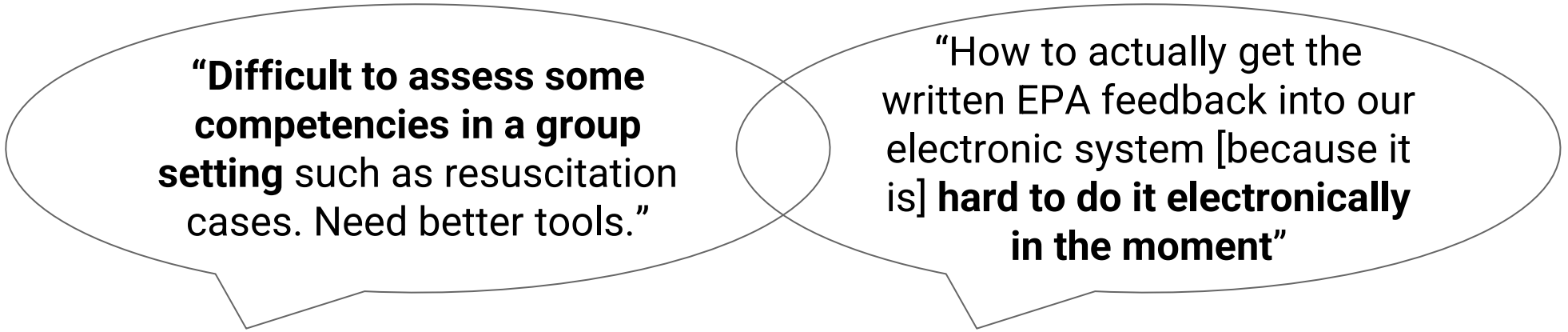
"**Dedicated evaluators** to provide meaningful feedback."

"Finding **time and facilitators** to sign off"

"We have **tailored our curriculum** to ensure that we hit some of the harder to hit procedures"

Results Survey 2

- **Assessment tool limitations**



2 programs indicated they used print-outs of EPAs, written on by evaluators, and submitted to program admin to upload online

Results Survey 2

- **Resident expectations, frustrations and welfare**

"Residents are looking to get EPAs during simulation and are sometimes **frustrated** that this cannot be routinely done"

"Positive [resident feedback], but **want many many more**"

"[Resident] concern that they won't be **scoring high enough**"

"***Should*** **sim have EPAs**?"

Discussion

Discussion

Increased resource burden associated with SBA of EPAs

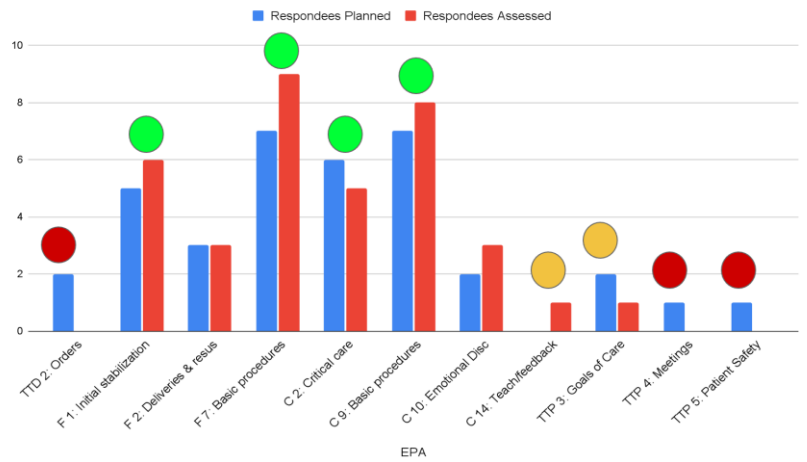
curriculum

assessors

assessment tools & strategies

1. Curriculum

- Simulation scenarios & sessions
  - “mapped” alongside residents’ timelines as they progress through stages
  - ? standardized patients
- Certain EPAs more readily assessed than others…
  - “hard skills” vs “soft skills”



2. Assessors

- Shift from sim for learning → sim for assessment
- Assessor availability, time, training, compensation

3. Assessment tools and strategies

- Shift from group evaluation → individual evaluation
- Need for better tools
- Need for more practical assessment; is the present format of EPAs the right fit for simulation as its currently structured?

Future directions

- Resident perspective
- Psychological impact of SBA of EPAs
- Targeting “soft skill” assessment
- Workshopping tools for completing assessments more effectively & practically
- Knowledge sharing between Peds and non-Peds CBD programs

Acknowledgements

- Dr. Mel Chan
- Dr. Mia Remington
- Participating Canadian pediatric program directors & simulation leads

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Dr. Radhika Shankar

The Evaluation of the Live 5 2 1 0 Healthcare Provider Toolkit in the General Pediatrics Clinic at BC Children's Hospital

Radhika Shankar, MSc, MD, Kimberley Charbonneau, MPH, Christina Tang, MA, Molly Sweeney Magee, PhD, Selina Suleman, MPH, Shazhan Amed, MSc, MD, FRCPC

Land Acknowledgement

I respectfully acknowledge the land on which we work, live, and play is the traditional territory of the Coast Salish peoples, including the unceded homelands of the xʷməθkwəy̓əm (Musqueam), Skwxwú7mesh (Squamish), and səl̓ílwətaʔ (Tsleil-Waututh) Nations.

LIVE 5-2-1-0 Initiative

Enjoy-
FIVE or more vegetables
& fruits every day

Power down-
no more than TWO hours
of screen time a day

Play actively-
at least ONE hour each day

Choose healthy-
ZERO sugar-sweetened drinks

Background

- Increase in childhood obesity over the past 4 decades in Canada
- Health care providers (HCPs) play a critical role in addressing childhood obesity
- Physical activity counseling & incorporating questions about weight management into patient visits in health care settings has been shown to improve physical activity levels amongst patients

Rodd C, Sharma AK. Recent trends in the prevalence of overweight and obesity among Canadian children. CMAJ 20, 2016 vol. 188 no. 13, (E313-E320).

Barlow SE. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics*

Background

- Study showed that less than 1/3 pediatricians understood physical activity guidelines for kids
- HCPs can be supported by providing a clear framework and easy-to-use tools for them to learn the basics of motivational interviewing and healthy living counselling (HLC) recommendations to encourage healthy behaviours in their patient population

Tripp SB, Perry JT, Romney S, et al. Providers as weight coaches: Using practice guides and motivational interview to treat obesity in the pediatric office. J Pediatr Nurs 2011;26:474–479.

Objective of Overall Project

- To collaborate with HCPs and families to create a LIVE 5-2-1-0 HCP Toolkit that can be used in the outpatient pediatric setting

Objective of my Research

- To determine whether the implementation of the LIVE 5-2-1-0 HCP Toolkit improves HLC to patient and families in the General Pediatrics Clinic at BCCH

Methods

Methods: Needs Assessment

- Needs Assessment Survey distributed to **HCPs**

  - **50%** had lack of confidence discussing issues around weight
  - **81%** thought healthy behaviours should be addressed in their clinical area
  - **80%** thought they could improve their counselling

- Needs Assessment Survey distributed to **families**

  - **68%** agreed or strongly agreed that discussing healthy living habits with HCP at BCCH would help their child improve healthy behaviours
  - **80%** thought it was important or very important to get information about healthy living habits while visiting BCCH

Methods: Intervention (LIVE 5-2-1-0 Toolkit)

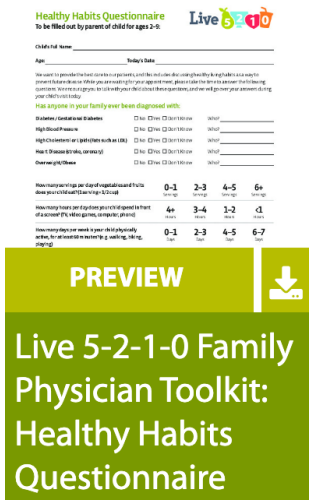
1. Training

MOTIVATIONAL INTERVIEWING

Live 5 2 1 0

A healthcare provider's guide to respectfully discuss weight with pediatric patients and their families

2. Printed Resources & Tools



3. Training in the Appropriate Use of Printed Resources and Tools

Methods: Study Design

Retrospective chart review of 350 randomized patient visits between January 2018 – December 2018 (Pre-Toolkit Implementation Period) & May 2019 - March 2020 (Post-Toolkit Implementation Period)

Methods: Inclusion/Exclusion Criteria

Inclusion Criteria:

- In-person patient visits in the General Pediatrics outpatient clinic at BCCH before and after the implementation of the toolkit between January – December 2018 and
  May 2019 – March 2020, respectively
- Paper or online documentation for medical visits

Exclusion Criteria:

- Phone or virtual visit
- Absence of online and paper chart documentation of visit
- Patient absent during visit
- Patient participation in the intervention arm of the LIVE 5-2-1-0 App Pilot Study

Methods: Data Collected

Growth Tracking

Documentation of Healthy Living Discussions

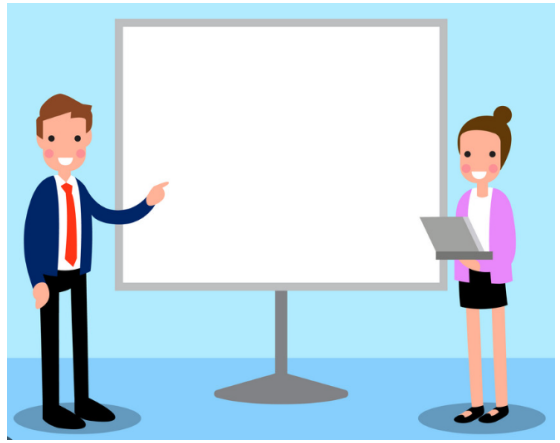
Documentation of Healthy Living Recommendations

Referrals to Support Healthy Living Recommendations

Methods: Statistical Analysis

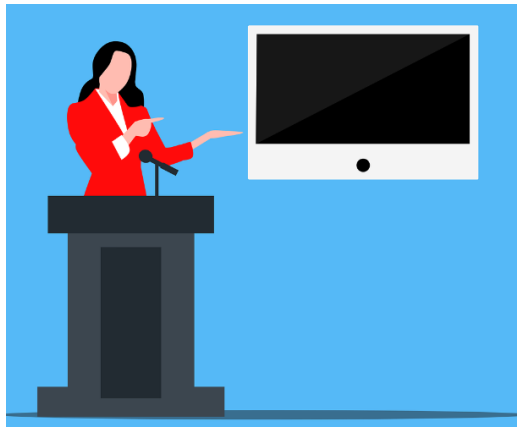
- Collection of data on REDCap
- Used Wilcoxon Signed-Rank Test and Chi-Squared test

Needs Assessment



LIVE 5-2-1-0 Toolkit Implementation

Pre & Post-Toolkit Implementation Retrospective Chart Review

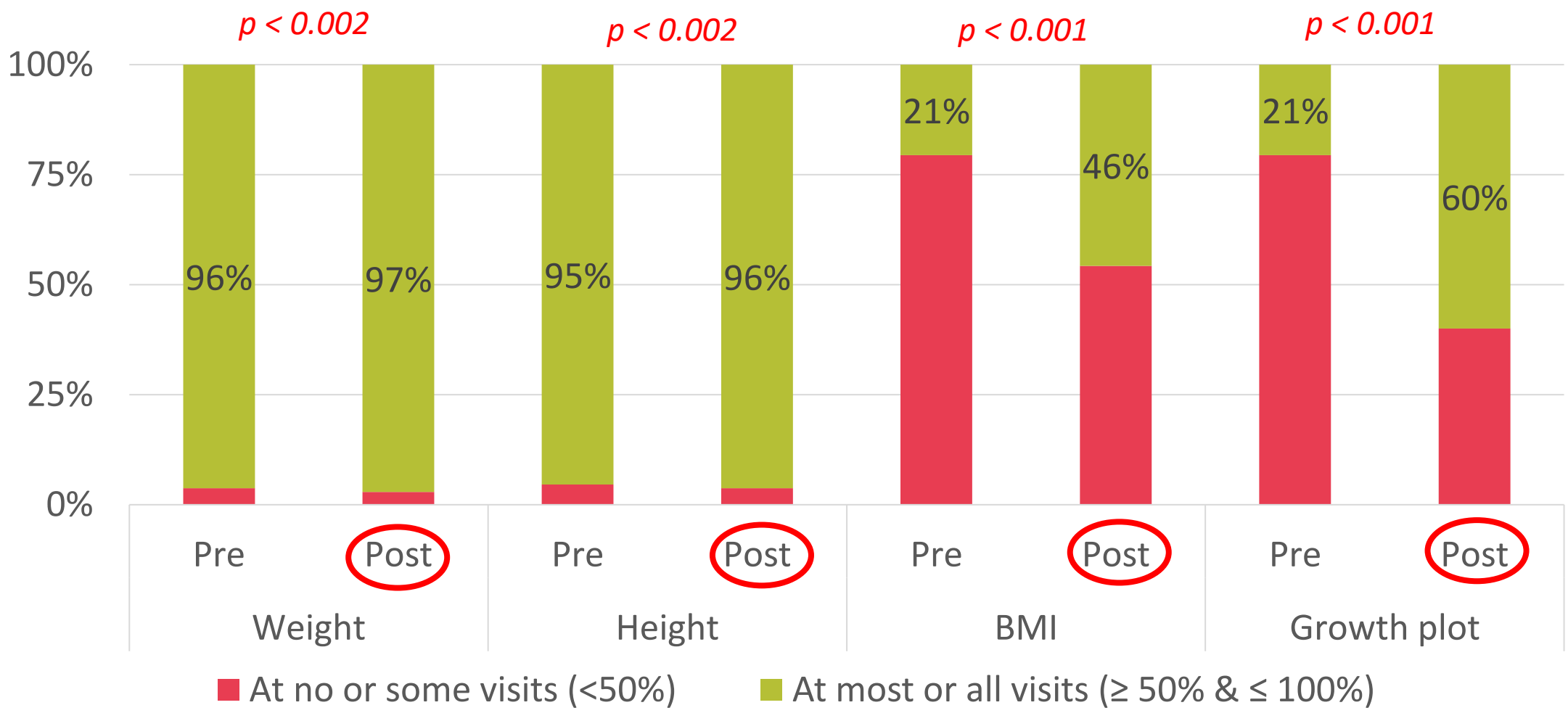


Celebrate Research Day!

Overview of Results

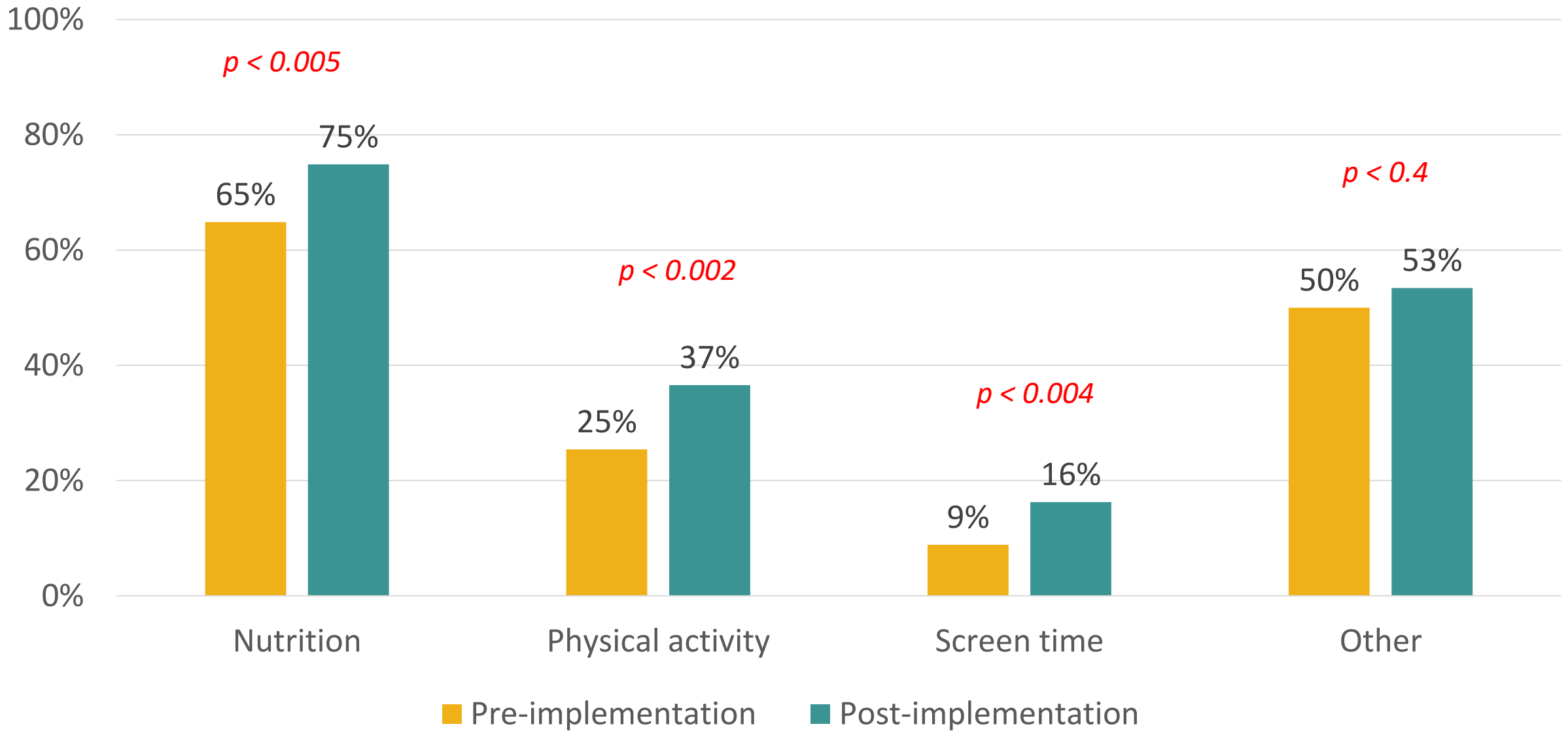
Anthropometric Measurements

Frequency of Anthropometric Measurements
Pre vs Post Toolkit Implementation



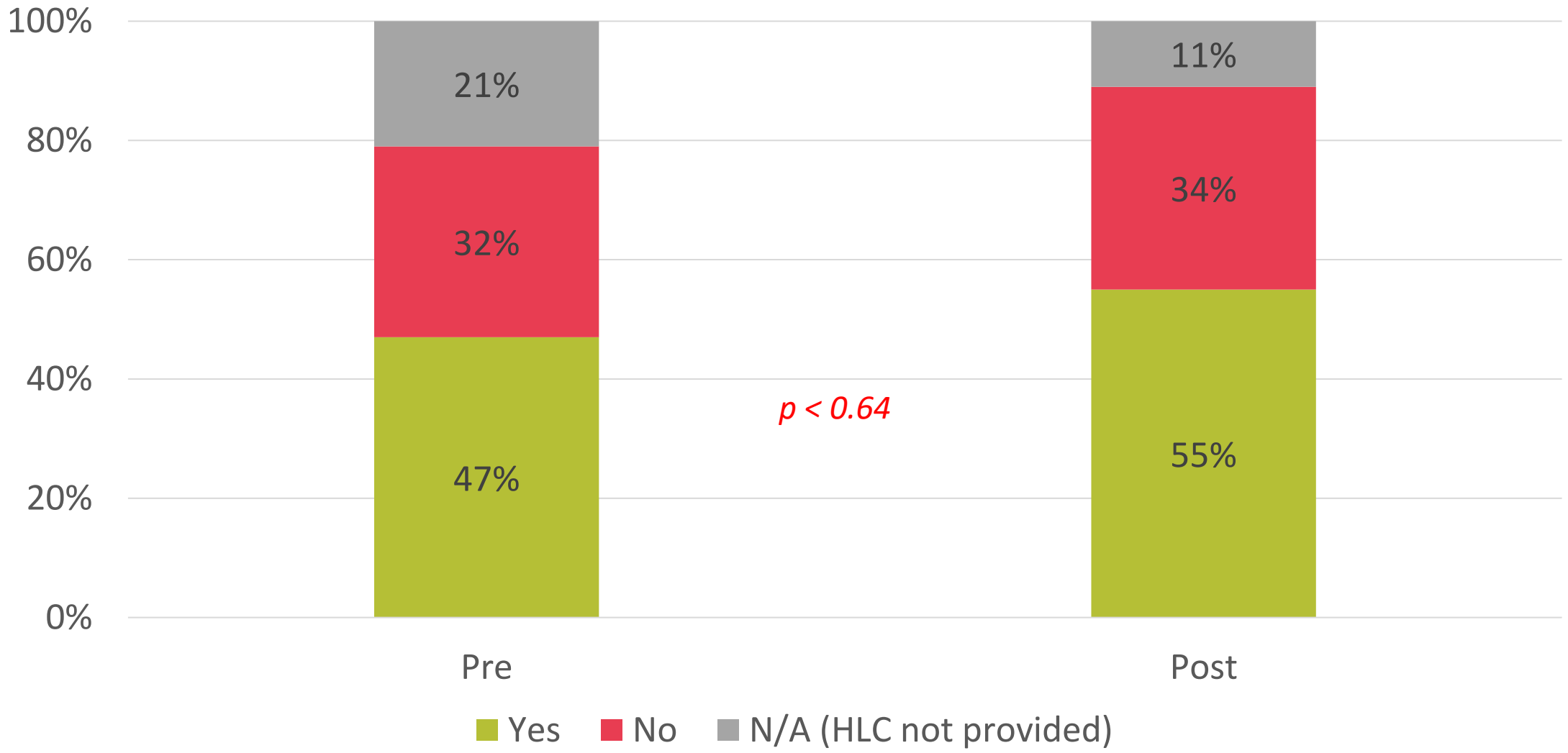
Documentation of Healthy Living Discussions

HLC Topics Discussed Pre vs Post Toolkit Implementation



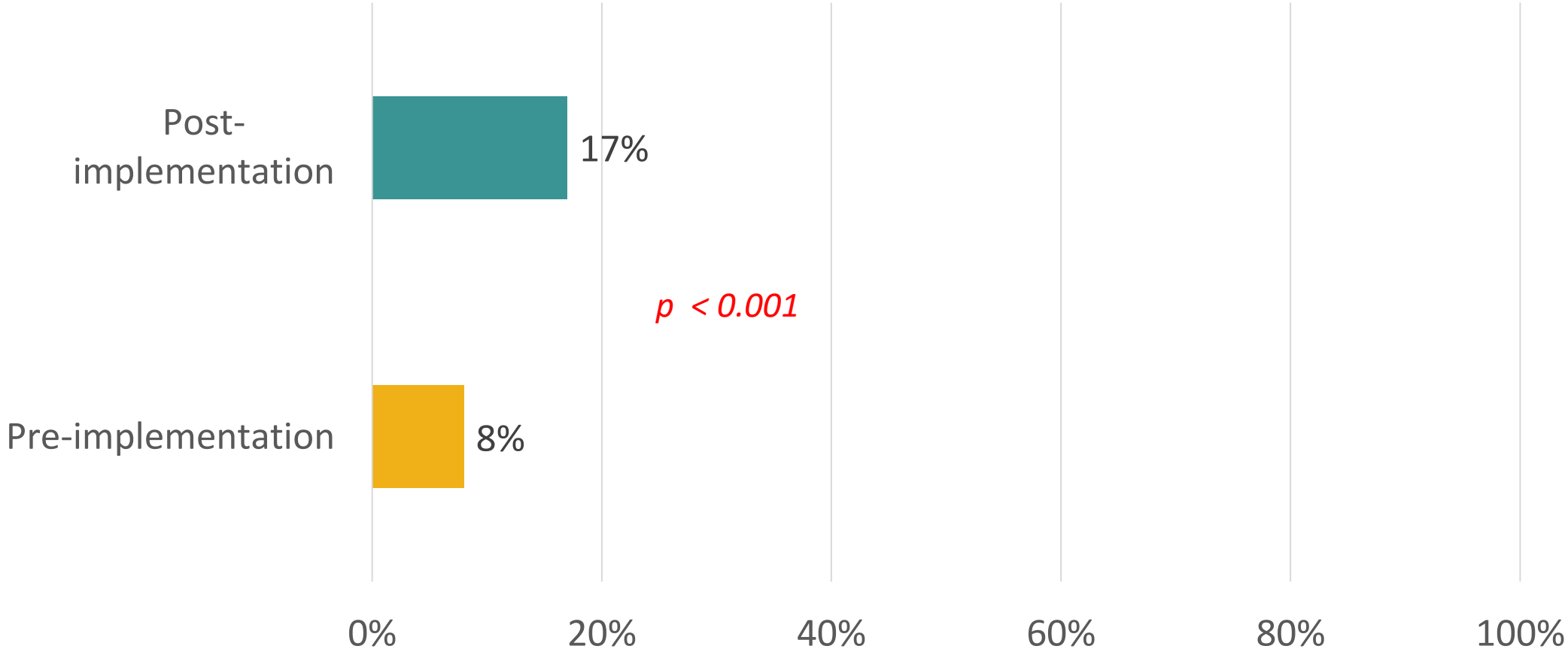
Documentation of Healthy Living Recommendations

Documentation of Healthy Living Recommendations Pre vs Post Toolkit Implementation



Referrals to Support Healthy Living Recommendations

Referrals to Support Healthy Living Recommendations
Pre vs Post Toolkit Implementation



Conclusion & Take aways

- Empowering pediatricians with the appropriate tools, training and education has shown to increase:
  - Growth tracking
  - Healthy living counseling
  - Referrals made to support healthy living recommendations

- Great potential of LIVE 5-2-1-0 HCP Toolkit to enhance HCP abilities to reassess patients' health behaviours, and intervene to support change in these behaviours when necessary

References

- Rodd C, Sharma AK. Recent trends in the prevalence of overweight and obesity among Canadian children. CMAJ 20, 2016 vol. 188 no. 13, (E313-E320).
- Barlow SE. Expert committee recommendations regarding the prevention, assessment, and treatment of child and adolescent overweight and obesity: Summary report. *Pediatrics*
- Tripp SB, Perry JT, Romney S, et al. Providers as weight coaches: Using practice guides and motivational interview to treat obesity in the pediatric office. J Pediatr Nurs 2011; 26:474–479.

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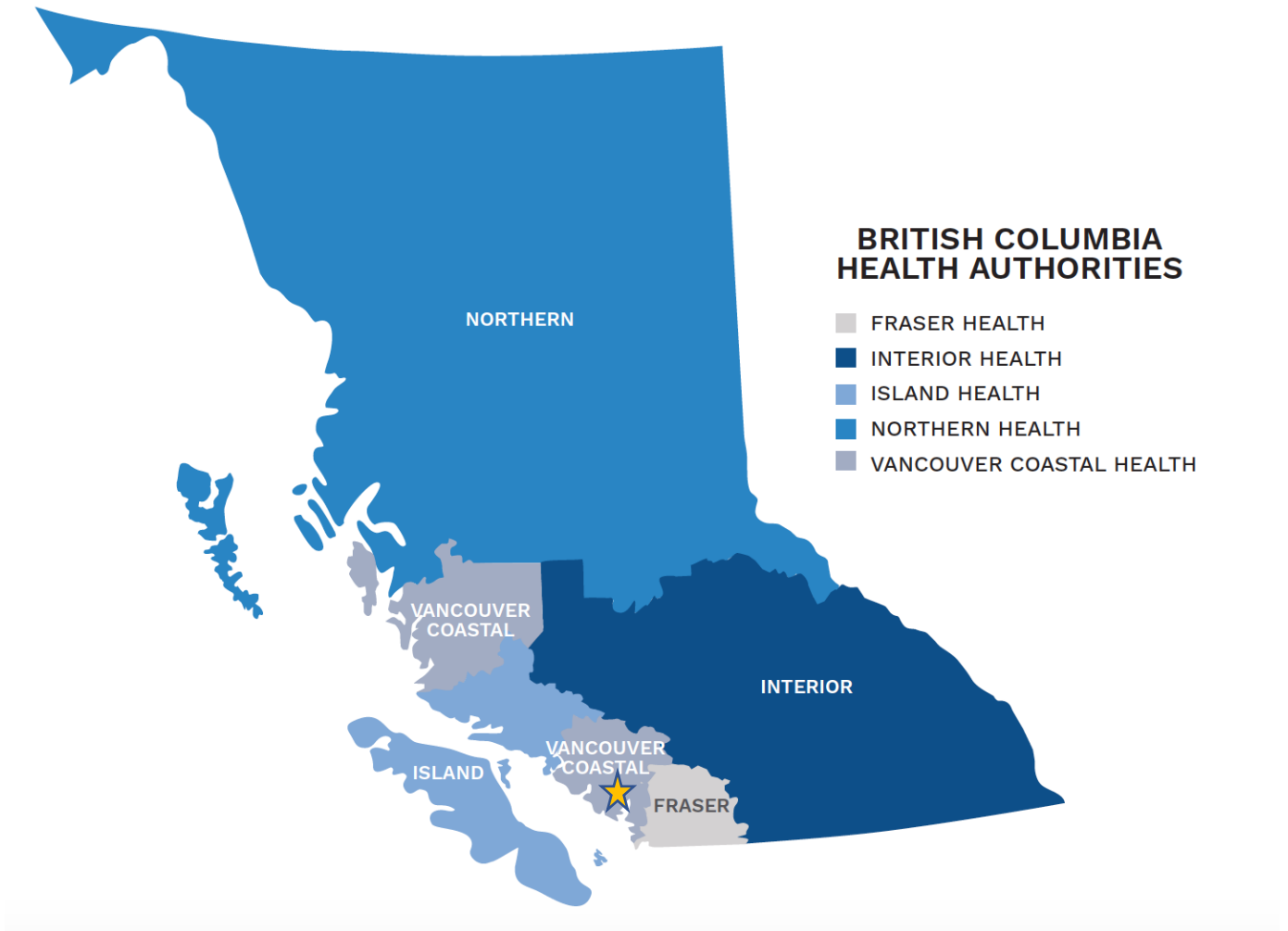
Dr. Asia van Buuren

Far from home: The impact of geographic distance from tertiary pediatric hospitals on family expenses and experiences

Celebrate Research Day 2024

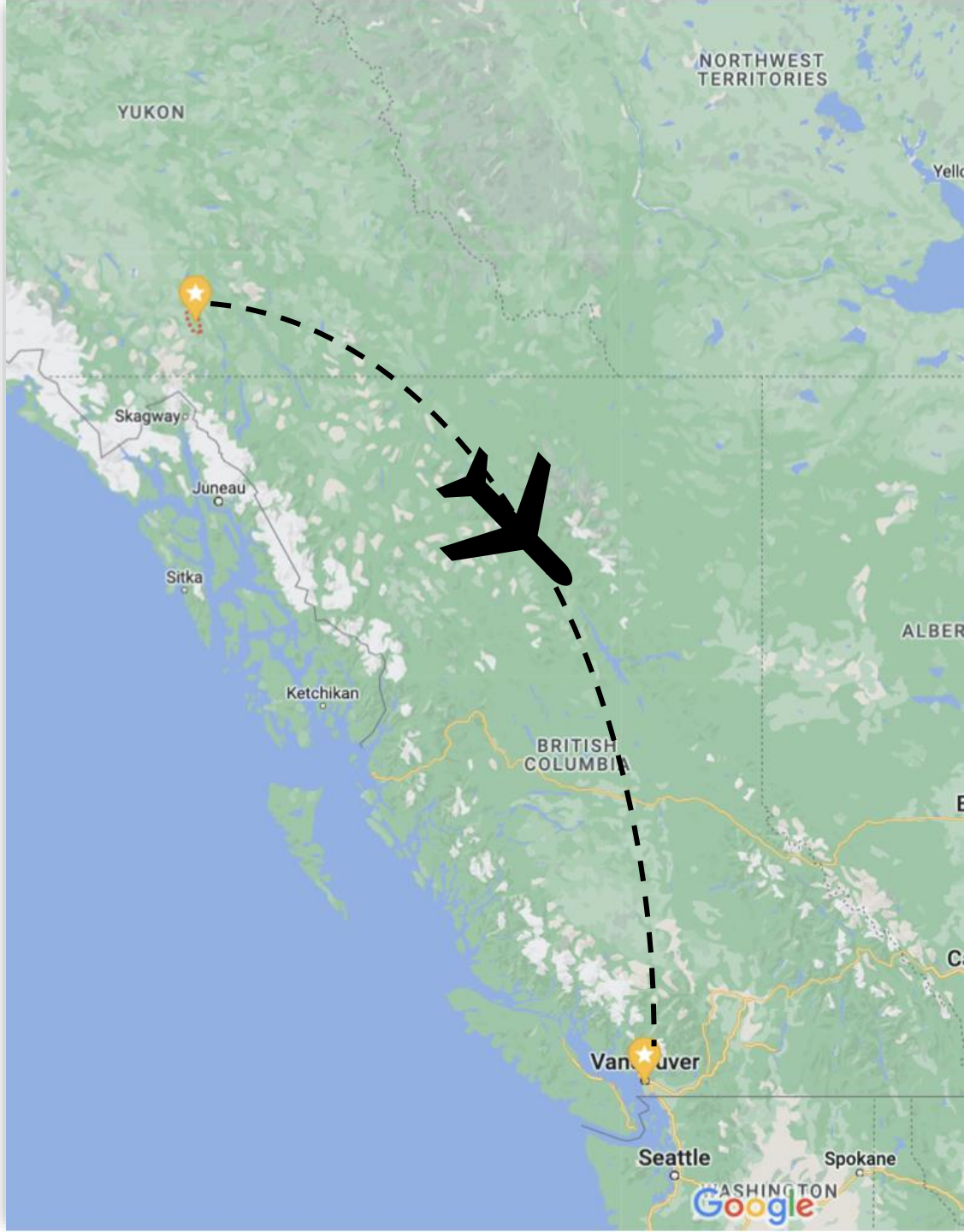
Research Team:

Asia van Buuren, Adam Sage, Adam Sernoskie, Brittney Udall, Matthew Carwana



Background

- Canada's **expansive geography** creates barriers for children requiring tertiary pediatric care
- **Significant barrier** to achieving health equity for these patients
- International literature shows traveling to receive care causes **emotional distress** and **financial burden** for rural families (Cohn 2003; Tarnasky et al. 2021; Zucca et al. 2011; Kornelsen et al. 2021)
- **Lack of available literature** on the experiences of Canadian children and their families despite them being a **significant proportion** of who we care for



Project Overview

Ethics approval obtained through the UBC C&W REB

Mixed-methods study design grounded in patient-centered research principles through involvement of family partners

Part 1: Administrative Data ☑

- Analysis of data set describing length of stay and home community of patients admission to CTU in 2021
- *Objective: Describe the population*

Part 2: Survey Data ☑

- Descriptive, self-administered, 15-20 minute survey administered to CTU families
- *Objective: Capture costs and psychosocial impacts of hospitalization*

Part 3: Qualitative Data ☑

- Semi-structured, one-on-one, qualitative interviews to gain in-depth understanding
- *Objective: Understand barriers encountered and potential solutions*

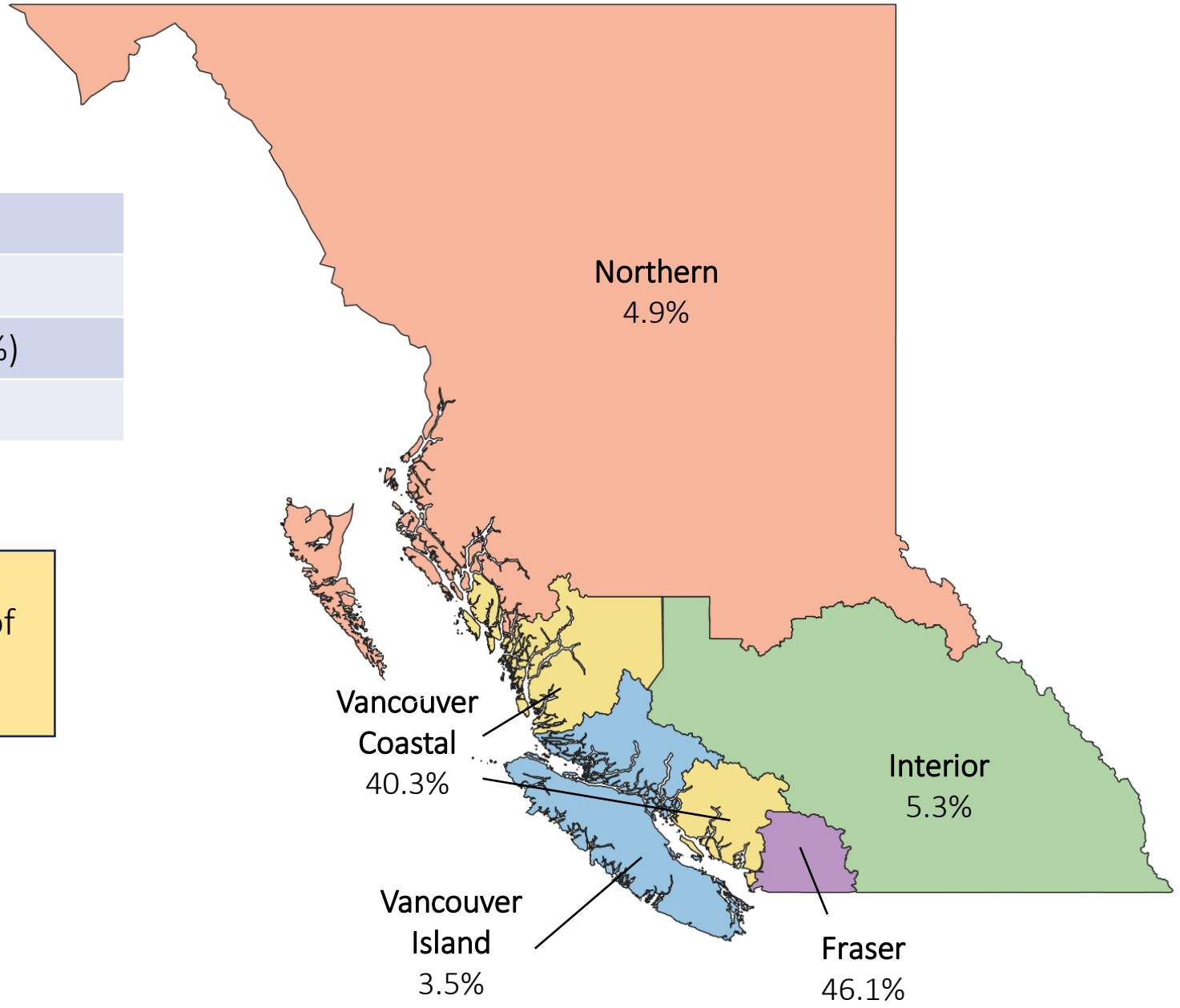
Part 4: Knowledge Mobilization

- *Targeted solutions implemented in collaboration with family partners*
- *Objective: Meaningful change!*

Administrative Data

Total Admissions to CTU	2759
Average Distance to BCCH	78.1 km
Patients < 50 km (“Local”)	2119 (77%)
Patients > 50 km (“Away”)	618 (23%)

As distance from BCCH increases, length of stay increases ($p < 0.001$)



Survey Data

Demographics

Characteristic	No. of Participants (%), n = 147
Household Income	
$0-49,000	26 (18%)
$50,000-$99,000	47 (32%)
$100,000-149,000	27 (18%)
> $150,000	30 (20%)
Prefer not to answer	17 (12%)
Education Level	
High school or less	29 (20%)
College/Undergraduate	68 (46%)
Post-grad/Professional	43 (29%)
Prefer not to answer	7 (5%)
Average Distance from BCCH (km)	145.4 (min: 1.4, max: 1897.6)
< 50 km ("local")	94 (64%)
> 50 km ("away")	51 (35%)

Univariable Analysis

Distance from home >50 km and total costs accrued by family during hospitalization

Variable	Beta-coefficient	p-value	95% CI
>50km from home	1128.77	0.006	331.34 – 1926.19

Distance from home >50 km and average daily costs accrued by family during hospitalization

Variable	Beta-coefficient	p-value	95% CI
>50km from home	139.09	0.001	57.31 – 220.88

Across both ”local” and “away” groups, participants spent on average $100 per day on out-of-pocket costs

Other Important Takeaways

- 48% of participants took **unpaid** time off work
- Of those who reported out-of-pocket costs:
  - 26% reported **difficulty paying** these costs
  - 19% had to **borrow money** to do so
- Families from > 50 km away had **higher stress levels** compared to local families in the following areas:
  - Travel-related stress, $p < 0.001$
  - Cost-related stress, $p < 0.001$

RECRUITING CTU FAMILIES!

Help us learn about

The impact of geographic distance on families travelling to receive care at BCCH!

Families and caregivers of patients are invited to share their experience in a **20 minute survey** which will help us better understand the financial and social complexities facing our families admitted to CTU/ General Pediatrics.

All families and caregivers of patients admitted under CTU/ General Pediatrics are eligible regardless of distance. Participants will be offered a $20 gift card.

To learn more about the study, please speak to your medical care team (eg. nurse, physician, discharge nurse).

For questions about the study, please contact Dr. Matthew Carwana (matthew.carwana@cw.bc.ca) or Dr. Asia van Buuren (asia.vanbuuren@phsa.ca). This project has been reviewed by the Research Ethics Board (REB #H22-00353).

Interview Data

Methodology

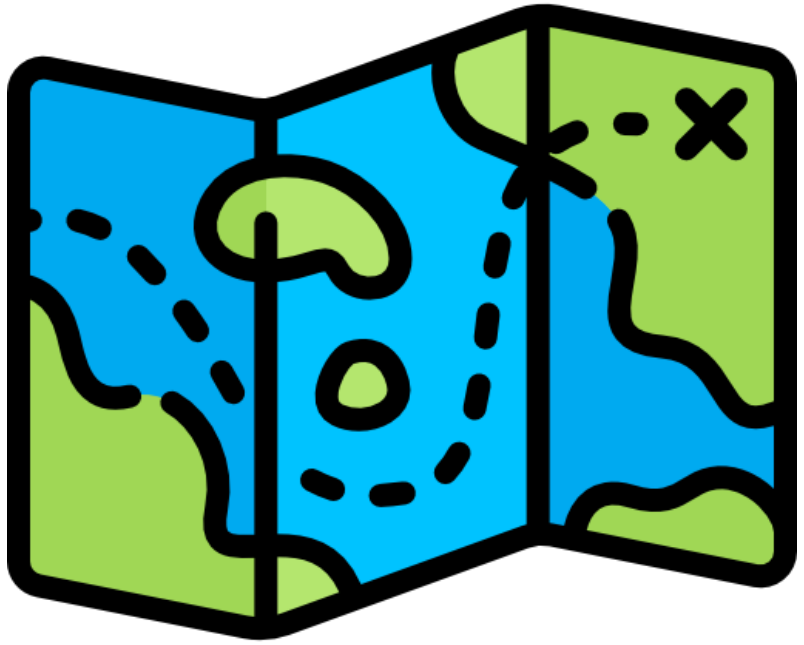
- Qualitative descriptive approach (Doyle et al, 2020; Braun & Clark, 2006)
- Combination of convenience and purposive sampling techniques
- 15 caregivers participated in semi-structured interviews via Zoom
- Interviews transcribed verbatim → coded using NVivo software → themes/patterns identified
- Concurrent analysis and data collection until theoretical saturation achieved

Demographics

Characteristic	No. of Participants (%), n = 15
Age, year	
Mean	39.2
Health Authority	
Northern	5 (33%)
Interior	3 (20%)
Island	2 (13%)
Vancouver Coastal	1 (7%)
Yukon	4 (27%)
Household Income	
30-49	2 (13%)
50-99	3 (20%)
100-149	6 (40%)
150+	4 (27%)
Indigenous	
Yes	3 (20%)
No	12 (80%)

Far from home families…

1. …experience heightened overwhelm and uncertainty when admitted to our hospital
2. …described a geographical tension, where physical separation from their community is challenging and discharge planning is complex
3. …identify self-advocacy as critical to having their needs met
4. …have unique resource challenges and propose a wealth of innovative solutions to address these challenges



1. Far from home families experience heightened overwhelm and uncertainty when admitted to our hospital

When families arrive, they are adjusting to a new hospital and a new city they may not have visited before

Uncertainty, **overwhelm**, and **fear** were key emotions described by interview participants

Some described a tension between being present for their sick child and being **overwhelmed by the logistical aspects** of admission

1. Far from home families experience heightened overwhelm and uncertainty when admitted to our hospital

Q2: “So there's always the craziness of dealing with the medical condition. But like we have the added complication of like, how far we've just had to come, and the fact that we've had to abandon like our home and any support networks that we have…**Which means, like, we're starting behind**….”

2. Far from home families described a geographical tension, where physical separation from their community is challenging and discharge planning is complex

- Many families described feeling **socially isolated** during admission
- Despite physical separation, **community-based care** models were key supports for families
- Discharge was often **complex** for these families
  - Discharge often **heightens financial stressors** – many pay out-of-pocket for flights and hotels to bridge them home
  - There is a tension between wanting to return home and knowing families will be far away from acute care resources
  - Families appreciated when discharges were **collaborative**, **family-centered**, and **considerate of logistical barriers**

2. Far from home families described a geographical tension, where physical separation from their community is challenging and discharge planning is complex

88: “the hardest parts were like being away from like your community of people…it really felt like I was…on my own in this place…**it almost felt like I was like putting a strain on a medical system that I wasn't really a part of**.”

Q6: “We lucked out in **our village really came together**. Our parents both ended up like giving us some money, for…whatever we needed it for. [Without that]…**we would’ve been worse off**.”

77: “I hope it doesn't come to a point when we don't get lucky, because…**we have been re-evaluating…where we live** and stuff…We don't want to move.”

3. Far from home families identify self-advocacy as critical to having their needs met

Participants described **advocating** for their child and their family's unique needs

Longitudinal relationships with care providers were supportive in navigating the self-advocate role

When unexpected barriers to accessing resources arose, families implemented **creative solutions**

3. Far from home families identify self-advocacy as critical to having their needs met

77: “We're very vocal. We're very squeaky...But we…come from a, a background of relative privilege…**we talk about how fortunate we are to be able to show up in this way**.”

4. Far from home families experience unique resource challenges and propose a wealth of innovative solutions to address these challenges

- Families learn how to navigate resource challenges **through lived experience** and are eager to share that knowledge with other families
- 100% (n=15) of participants agreed **immediate connection to social work** for those who travelled should be put in place
- 87% (n=13) of participants shared a **preference for investment in targeted resources** rather than being given cash or a stipend
- 87% (n=13) of participants felt that **formal acknowledgement** by their medical teams of the distance they had travelled was helpful

4. Far from home families have unique resource challenges and propose a wealth of innovative solutions to address these challenges

Q6: “And you don't even know what you need for the first little while, right? Because you're so just jacked up on emotion. And and **you're sort of not too sure where to begin** even so, **to have those people meet you right at the door** and say…these are the people that are gonna help you…”

Conclusions & Next Steps

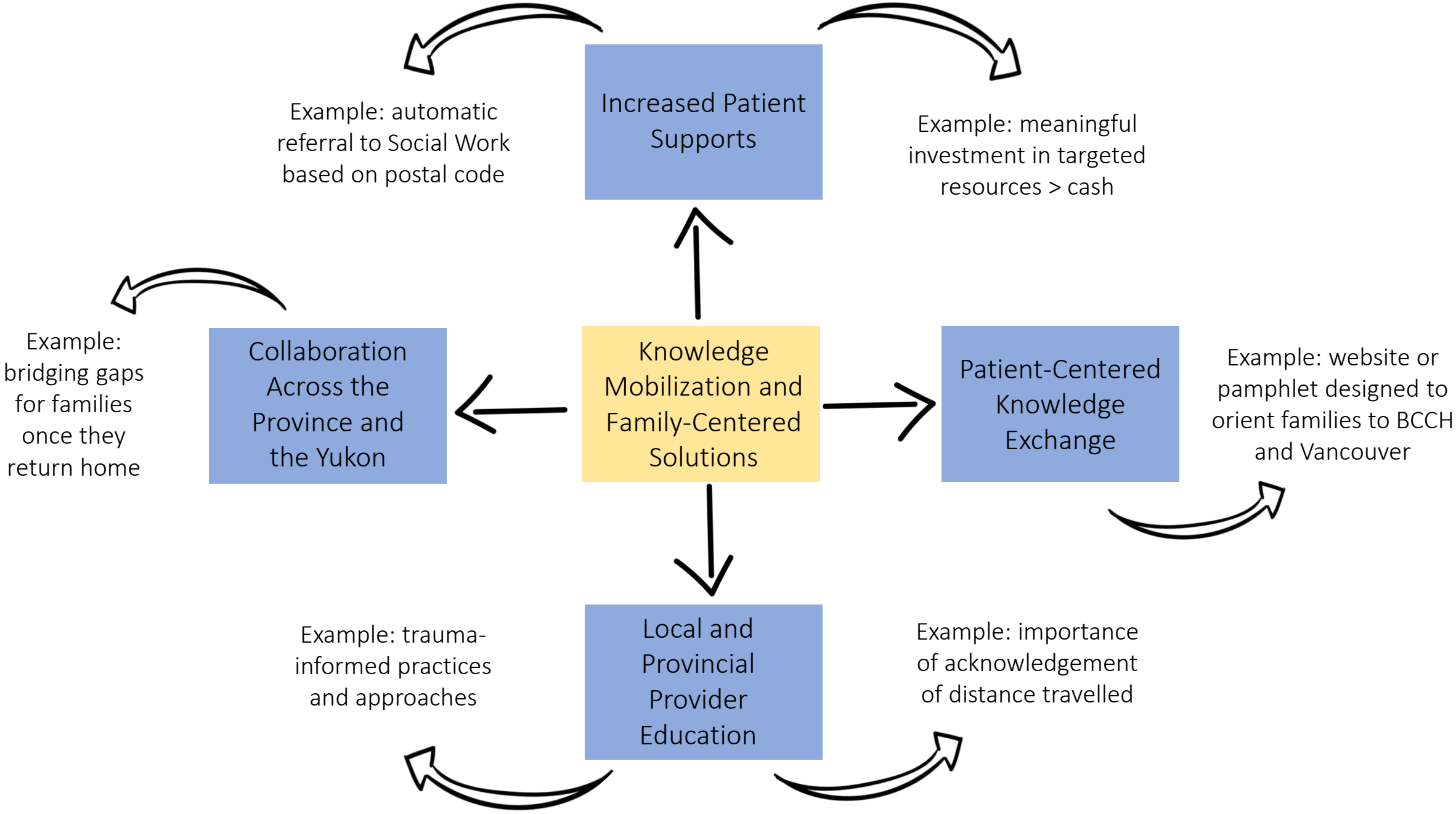
Key Takeaways

Far from home families admitted to hospital spend an average of **$140 per day** on out-of-pocket costs and have **significantly higher costs** than local families

Many families reported **difficulty paying** these costs, with families from away reporting **higher stress levels** than local families

Families face **overwhelming uncertainty** while admitted, often interfering with their capacity to be present for their child and navigate logistics

Self-advocacy is important to these families - **they know what they need** and have described tangible solutions to barriers faced


Increased Patient Supports
Example: automatic referral to Social Work based on postal code
Example: meaningful investment in targeted resources > cash
Collaboration Across the Province and the Yukon
Example: bridging gaps for families once they return home
Knowledge Mobilization and Family-Centered Solutions
Patient-Centered Knowledge Exchange
Example: website or pamphlet designed to orient families to BCCH and Vancouver
Local and Provincial Provider Education
Example: trauma-informed practices and approaches
Example: importance of acknowledgement of distance travelled

Acknowledgements

Research Team Members:

- Brittney Udall (Research Manager – RICHER Initiative)
- Dr. Matthew Carwana (Principal Investigator)
- Adam Sernoskie (Parent Partner)
- Michelle Kim, Adam Sage, Rosa Balleny, Ria Sandhu, Nathan Chang, Henry Okpaladigbo (Research Assistants)

Funding:

- Clinical Research Support Unit Grant
- Department of Pediatrics Resident Research Mini Grant
- Canadian Paediatric Society Hospital Paediatrics Resident Grant

Support and Mentorship:

- Pediatric Inpatient Research Network
- Clinical Teaching Unit Research Committee
- BC Children's Hospital Research Institute

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