Critical Moments: Humanizing the ICU Research Journey

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BACKGROUND

Participation in intensive care unit (ICU) research occurs in complex and emotionally charged environments. Critically ill patient often lack decision making capacity, requiring family members or substitute decision makers to navigate research during periods of uncertainty or distress.

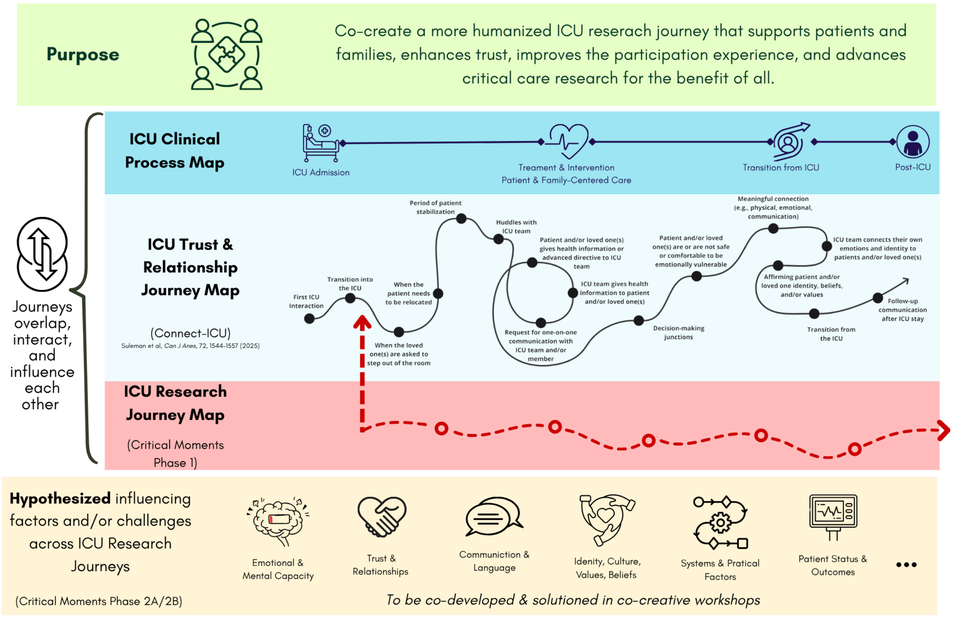
Existing literature highlights disparities in trial participation.[1-5] However, prior research has largely focused on discrete components of research participation, particularly consent and enrollment, with limited attention to the broader, evolving experience of patients and families across the entire research trajectory.

OBJECTIVES

To explore the lived experiences and perceptions of ICU patients and family who are approached for participation in ICU clinical trials, regardless of enrollment outcome.

Specifically, we will examine the research journey from the perspective of patients and families, moving beyond procedural steps such as approach, consent, enrollment, and follow-up to understand how these moments are experienced. This includes exploring how patients and families process information, feel able to ask questions, review and sign consent forms, make decisions under uncertainty, participate or decline participation, and reflect on the experience afterward.

Figure 1. Project Overview



MATERIALS & METHODS

Study Framework:
Mixed-methods (sequential qualitative and quantitative methods). Human-centered design with focus on real-world ICU research experiences

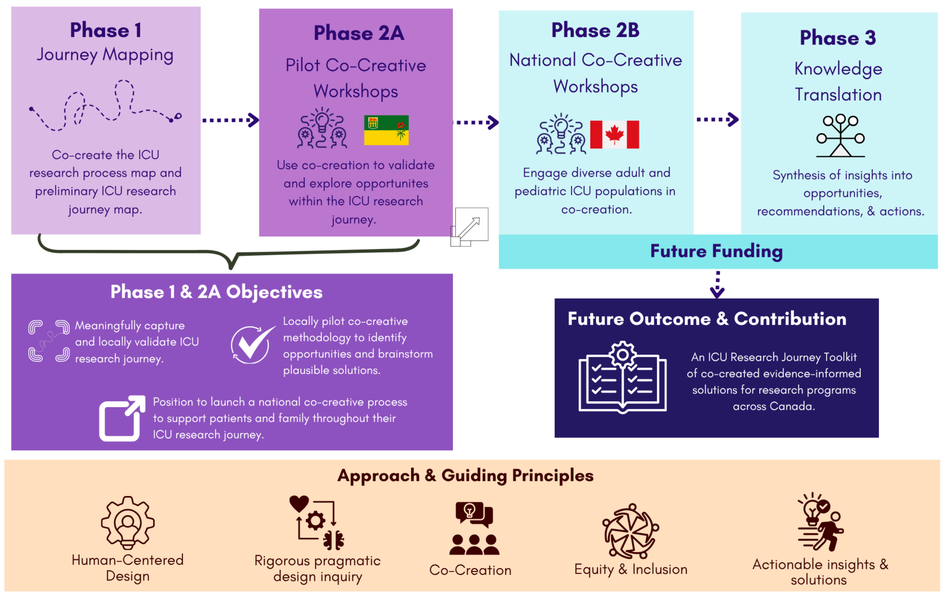
Preliminary Journey Mapping:

- Co-created with up to 24 research coordinators and patient family partners affiliated with the Canadian Critical Care Trials Group
- Preliminary findings will be further validated with a national workshop of patients and families approached to consent in ICU clinical trials. Findings captured via virtual whiteboard.

Qualitative Analysis:

- Inductive thematic analysis
- Identification of key patterns across the research journey

Figure 2. Project Methods At-A-Glance



EXPECTED OUTCOMES

We will co-create a journey map of ICU research participation, including ICU admission, research approach, decision-making, participation, and post-ICU reflection.

Key themes are expected to extend beyond consent to encompass emotional burden, evolving perceptions, and relational dynamics over time.

Trust, communication, and timing are anticipated to remain important. Potential differences in experiences across sociodemographic groups may also emerge.

EXPECTED CONCLUSIONS

This study is expected to demonstrate that ICU clinical trial participation is a dynamic and evolving experience shaped by emotional, relational, and contextual factors across the patient and family journey, and that understanding this trajectory is essential for improving patient-centered and equitable research practices.

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Bringing Pain Reprocessing Therapy to Saskatchewan: A Knowledge Mobilization Study

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INTRODUCTION

Chronic pain affects nearly 8 million Canadians and is often resistant to treatment such as surgery or medications.[1]

A significant component of chronic pain is due to to central sensitization and nociplastic mechanisms that involve thought processes, cognition and emotional states.[2]

Pain Reprocessing Therapy (PRT) has shown early efficacy with dramatic reductions of chronic pain suffering, that appears to be sustained long term.[3,4]

There are sixteen registered providers of PRT in Saskatchewan. Many healthcare providers and patients have not yet heard of this new treatment.[5]

OBJECTIVES

1. A multidisciplinary team, including PRT providers and a Patient Partner, will co-create a knowledge mobilization campaign.

2. Distribute campaign materials to two target audiences: Healthcare providers who treat patients with chronic pain, and patients living with chronic pain.
   - Subpage on SaskPain.ca website.
   - Podcast
   - Educational video
   - Practitioner Webinars
   - Interactive outreach visits

3. Assess campaign reach, engagement and impact on knowledge uptake and practice change in Saskatchewan.

4. Identify areas of improvement within the campaign.

MATERIALS & METHODS

Will our knowledge mobilization campaign be well received and serve as an effective way to reach and engage with healthcare providers and patients living with chronic pain in the province of Saskatchewan to increase the awareness of PRT and increase self-reported uptake of PRT?

- This is a multi-method study assessing our knowledge mobilization campaign. It will evaluate both the measurable reach trends as well as the subjective attitudes and ideas regarding the campaign materials.

- Campaign reach will be evaluated based on number of video views, video shares, podcast listeners and newsletter views.

- Engagement, improvement areas and interest in PRT uptake will be evaluated via surveys available to providers (medicine, nursing, physical therapy, psychology, and others) and patients living with chronic pain (Figure 1.).

- Surveys will collect respondent demographics, and a mix of qualitative open-ended questions and Likert-scale questions.

- Patient webpage survey results (n=100) will be compared to an unbiased group of patient partners (n=14) to adjust for self-selection bias.

- This study will employ surveys that have not previously been validated. After survey development and refinement by the research team, surveys will be submitted to the University of Saskatchewan Biomedical Research Ethics Board for approval.

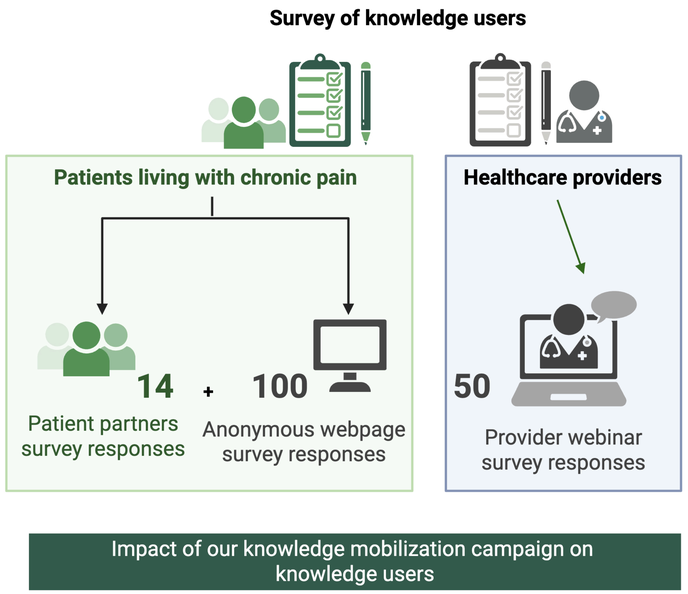

Figure 1. Survey distribution and prospective sample sizes for evaluation of campaign materials. Figure created with BioRender.com.

EXPECTED RESULTS

- This project is actively in progress and currently there are no preliminary results to share.
- We anticipate that feedback from surveys will offer areas for improvement of campaign materials.
- Additionally, we expect survey results to demonstrate knowledge user interest in pursuing PRT therapy or provider training and will show overall engagement with the campaign.

CONCLUSION

- PRT is an emerging treatment for chronic pain yet many healthcare providers and patients with chronic pain in Saskatchewan are unaware of it.
- Our present knowledge mobilization campaign will aim to increase awareness among healthcare providers and patients.
- Campaign materials will be modified based on feedback from participants.
- This is an important step for improving access and future research determining PRT efficacy and feasibility in Saskatchewan.

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Implementing and Evaluating a Multidisciplinary Delirium Prevention Pathway to Reduce Postoperative Delirium in Older Adults with Cognitive Decline

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INTRODUCTION

- Postoperative delirium (POD) is a common complication in older surgical patients and is associated with longer hospital stays and increased mortality.[1]
- POD impacts patients, their families, and the Saskatchewan healthcare system.
- Multimodal POD prevention pathways have been shown to reduce delirium incidence, duration, and healthcare costs.[2-7]
- No standardized POD prevention pathway currently exists in Saskatchewan.[8-9]
- A multidisciplinary POD prevention pathway has been co-developed with healthcare managers, physicians, nurses, and patient and family partners through a series of facilitated workshops.
- This study aims to implement and evaluate the multidisciplinary POD prevention pathway with 100 older surgical patients.

OBJECTIVES

- To pilot a locally informed, multidisciplinary POD prevention pathway with 100 older surgical patients undergoing arthroplasties at Royal University Hospital and Saskatoon City Hospital.
- To evaluate the pathway using clinical, health system, and patient-reported experience and outcome measures.

RESEARCH QUESTIONS

1. Is a program to reduce the risk of POD **feasible** using the co-developed pathway?
2. Does a co-developed pathway **improve identification** of patients at risk for POD?
3. Are patients, caregivers, and healthcare providers **satisfied** with the multidisciplinary, patient-oriented pathway?

METHODOLOGY

Study Design. This is a prospective study that will be piloted at Saskatoon City Hospital and Royal University Hospital.

Sample. We aim to recruit 100 patients and 30 healthcare personnel. Eligible patients will be identified by Preoperative Admission Clinic staff, and meet three of the following criteria:

a. 70 years or older
b. History of stroke/transient ischemic attack and/or pre-existing dementia and/or cognitive impairment
c. Advanced chronic kidney disease and/or cirrhosis/liver dysfunction and/or diabetes
d. Sensory deficits (hearing and/or vision)
e. History of falls.

Data Collection. Consenting patients will have their medical charts reviewed. Patients will be invited to complete a questionnaire to assess satisfaction and other patient-oriented outcomes.
All healthcare personnel who partake in the POD pathway will be invited to complete the healthcare personnel satisfaction questionnaire.

Expected Outcomes. We will evaluate adherence to the pathway and its impact on predefined clinical, health system, and patient-oriented outcomes, such as proportion of Geriatric Evaluation and Management (GEM) assessments, medication optimization, delirium assessments q12h, and any Geriatric Psychiatry referrals (Figure 1).

Analysis. Study outcomes will be reported with descriptive statistics. Likert items and scales will be described by medians and interquartile ranges. Categorical values will be reported as counts and percentages.

Figure 1. Selection of Primary Outcomes

CONCLUSIONS

- We hope the information gained from this study can be used to improve the surgical experience for future patients, their families, and caregivers.
- We hope that sharing our study's significant findings with provincial policymakers will ensure ongoing support for the adoption of a POD prevention pathway across all Saskatchewan hospitals.

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ACKNOWLEDGEMENTS

- We gratefully acknowledge the support of the Saskatchewan Health Research Foundation Innovation Grant, the Saskatchewan Health Authority, and the Provincial Department of Anesthesiology.

Improving Documentation and Follow-Up of Perioperative Atrial Fibrillation After Noncardiac Surgery: A Quality Improvement Project

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INTRODUCTION

- Perioperative atrial fibrillation (POAF) is new-onset AF ≥30 seconds within 30 days of noncardiac surgery in a patient without prior AF
- Affects 2–3% of surgical patients; up to 20% after thoracic procedures
- Confers a 3.43-fold increased one-year stroke risk; long-term thromboembolic risk equivalent to non-valvular AF
- Fewer than 1 in 4 POAF patients receive oral anticoagulation at discharge
- ESC and ACC/AHA guidelines recommend systematic CHA_2DS_2-VASc stratification and OAC evaluation
- No structured POAF identification or referral pathway exists at Regina General Hospital (RGH) or Pasqua Hospital (PH)

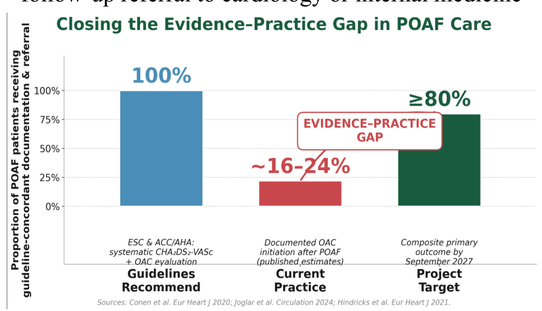
OBJECTIVES

Research Question At RGH and PH, can an electronic health record (EHR)–based alert system, refined through sequential Plan-Do-Study-Act (PDSA) cycles, increase the proportion of adult noncardiac surgical patients with new-onset POAF who receive both a documented CHA_2DS_2-VASc score and a documented referral to cardiology or internal medicine to ≥80% within 18 months?

AIM Statement By 30 September 2027, increase the proportion of eligible POAF patients with both a documented CHA_2DS_2-VASc score and a documented cardiology or internal medicine referral from current baseline to ≥80%, informed by a baseline practice survey targeting ≥80% response among RGH and PH attending anesthesiologists.

Specific Objectives

1. Establish baseline POAF detection, documentation, and referral practices among attending anesthesiologists at RGH and PH
2. Develop and iteratively refine an EHR-based alert system for real-time POAF identification using PDSA methodology
3. Increase the proportion of POAF patients receiving systematic CHA_2DS_2-VASc risk stratification and follow-up referral to cardiology or internal medicine



MATERIALS & METHODS

Design: Two-site QI project; IHI Model for Improvement with sequential PDSA cycles (SQUIRE 2.0 reporting)

Sites: RGH and PH (~12,000 noncardiac cases/year combined)

Eligible patients: Adults ≥18 yrs with new-onset POAF within 35 days of noncardiac surgery (ASPIRE-AF criteria)

Timeline: April 2026 – September 2027 (18 months)

Phase 1 — Baseline (months 1–3)

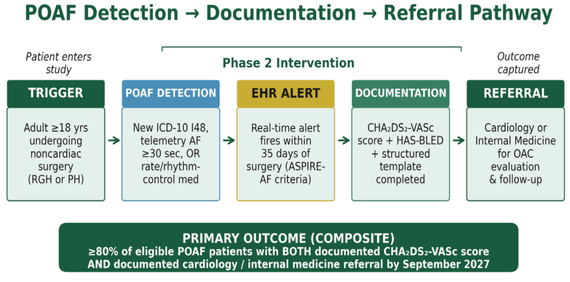
- Anonymous REDCap survey of ~45 attending anesthesiologists (target ≥80% response)
- 12-month retrospective chart review of ICD-10 I48 admissions

Phase 2 — EHR Alert Intervention (months 4–18)

- Real-time alert triggered by ICD-10 I48, telemetry AF ≥30s, or rate/rhythm-control medication
- Structured documentation template: CHA_2DS_2-VASc, HAS-BLED, referral checkbox
- Three PDSA cycles: (1) alert logic, (2) workflow integration, (3) referral pathway optimization

Outcomes & Analysis

- Primary (composite): proportion with documented CHA_2DS_2-VASc AND cardiology/internal medicine referral (target ≥80%)
- Secondary: alert PPV, survey response rate, POAF capture rate (≥90%)
- Run charts and Shewhart control charts across PDSA cycles
- Anticipated SHA REB exemption under TCPS 2 Article 2.5



RESULTS

- Baseline survey is expected to reveal substantial practice variation and low rates of systematic CHA_2DS_2-VASc documentation and referral, consistent with published estimates of 16–24% OAC uptake after POAF
- Iterative PDSA refinement is anticipated to improve alert positive predictive value across successive cycles, with stepwise reductions in false-positive rate and improvements in clinician acceptability
- A standardized referral pathway is expected to increase documented risk stratification and follow-up referral to ≥80% by the end of Cycle 3
- A reduction is anticipated in the proportion of POAF patients lost between surgical, anesthesiology, and medical services
- Refined POAF identification may also facilitate future patient access to ongoing trials such as ASPIRE-AF (NCT03968393) and successor studies

CONCLUSION

A pragmatic, EHR-embedded QI intervention informed by baseline practice characterization and refined through iterative PDSA cycles is expected to improve the documentation and guideline-concordant follow-up of new-onset POAF among noncardiac surgical patients at RGH and PH.

Successful implementation will narrow a well-defined evidence-practice gap in the Saskatchewan perioperative context, offer a replicable model for other Canadian institutions, and position participating sites for future involvement in definitive randomized POAF anticoagulation trials.

Key Limitations

- Reliance on retrospective ICD-10 coding (known to underestimate true POAF incidence)
- Two-site design constrains external generalizability beyond southern Saskatchewan
- Potential Hawthorne effects on documentation behaviour following alert deployment
- Distal endpoints (stroke, bleeding, mortality) require trial-level evidence such as ASPIRE-AF and are beyond this project's scope

RECOMMENDATIONS

- Institutions caring for surgical patients should develop systematic processes for POAF identification, documentation, and follow-up referral after noncardiac surgery
- Integration of EHR-based alerts with clinical trial enrollment pathways may simultaneously improve patient care and research participation

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How Fresh Is Your Doctor? Recovery of Anesthesiologists' Cognitive Function After Night Call Shifts

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Background

- There is robust evidence that sleep deprivation impairs cognitive function[1-4]
- Anesthesiologists face high-stakes decision-making and must maintain vigilance despite fatigue
- Studies on alternative healthcare schedules (night float, max 12-hour shifts) show mixed effects on cognitive function and clinical performance[5-8]
- Post-call days are intended to recover sleep debt accumulated during call, though recovery may not always be complete[9]
- Gaps in research:
  - –Time course of cognitive recovery after call
  - –Accuracy of self-assessed cognitive recovery
  - –Factors influencing cognitive recovery

Objectives

Objective 1 (Primary): Quantify cognitive changes after overnight call and characterize recovery time

Objective 2: Assess the association between call intensity and cognitive changes

Objective 3: Evaluate the relationship between pre- and post-call behaviours and recovery

Objective 4: Compare subjective and objective recovery

Research Question

Among Saskatchewan anesthesiologists and anesthesia residents working overnight call shifts, how does cognitive performance change following overnight call, and how long does it take to return to baseline?

Secondary questions:
- Does subjective recovery match objective performance?
- How do sleep, workload, and recovery behaviours influence cognitive recovery?

Methodology and Outcomes

Prospective longitudinal repeated-measures study

Baseline (rested control)	Pre-call (before shift)	Post-call (end of shift)	Recovery follow-up
• Baseline characteristics • Objective cognitive test - Cambridge Cognition Spatial Working Memory (CANTAB SWM)	• Pre-call routines (sleep/activity logging with Fitbit) • Karolinska sleepiness scale (KSS) • Mood scales	• CANTAB SWM • Call intensity metrics • KSS • Mood scales	• CANTAB SWM • KSS • Sleepiness visual analog scale • Mood scales

- **Primary outcome: change in CANTAB SWM (pre- to post-call) and time to return to baseline**
- **Secondary outcomes:**
  - **Association between subjective and objective recovery**
  - **Impact of sleep, exercise, nutrition, caffeine, baseline characteristics, and call-intensity metrics on recovery**

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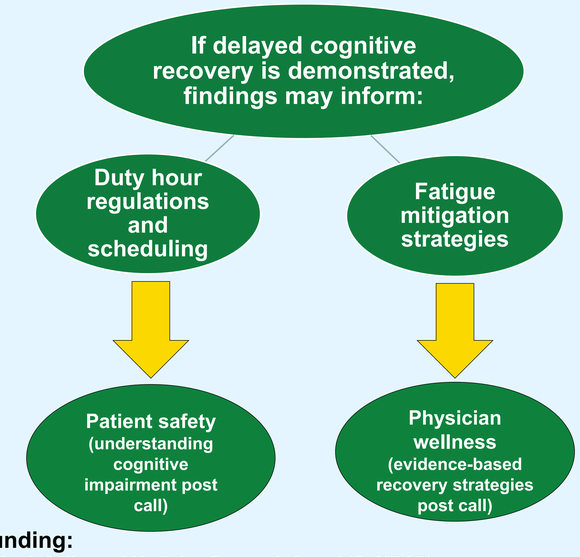
Expected Results

1 Primary hypothesis:

Cognitive performance will significantly decline after overnight call

2 Secondary hypotheses:
- Cognitive scores will recover towards baseline over time
- Call intensity and sleep may influence recovery
- Subjective and objective recovery may differ
- Pre/post-call routines may influence recovery

Potential Practice Implications



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Implementing TEG-Guided Algorithm for Management of Bleeding in Cardiac Surgery Patients

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Background

- Postoperative bleeding is the most common complication of cardiac surgery and is associated with increased morbidity and mortality. The bleeding can be multifactorial and often involves a coagulopathy.
- Thromboelastography (TEG) enables rapid, functional assessment of coagulation and can be utilized to guide management of bleeding.

Objectives

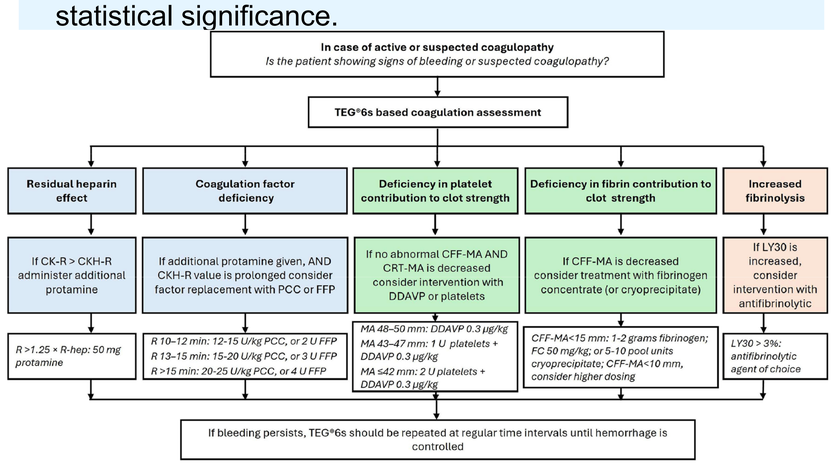
- To evaluate the use of a TEG-guided management algorithm and its effects on utilization of PCCs in operating room and ICU.
- To examine associated clinical outcomes including chest tube output, surgical re-explorations, thromboembolic events, acute kidney injuries, length of ICU stay, and other transfusions required.

Research Question

- In adult cardiac surgery patients with moderate bleeding, does implementing a TEG-guided management algorithm reduce PCC transfusion rates?

Methodology

- **Retrospective cohort study** of adult cardiac surgery patients with coagulopathic bleeding at Royal University Hospital.
- **Exclusion criteria**: pre-existing coagulopathy, intraoperative mass transfusion, and patients with prior cardiac surgery operations.
- **Intervention:** TEG-guided management algorithm will be posted in cardiac OR and ICU.
- **Data Collection**: Retrospective review of medical charts and transfusion laboratory data.
- **Statistical Analysis**: Pre- and post-algorithm implementation data of outcome variables described in objectives will be analyzed via t-test and chi-square test for statistical significance.



Results/Findings

- We expect that the number of PCC administrations and plasma transfusions per patient will decrease after implementation of TEG algorithm.
- We expect that there will be no differences between chest tube output, surgical re-explorations, length of ICU admissions between pre- and post-algorithm implementation.
- We expect there will be less thromboembolic events in post-algorithm group.

Conclusions

These results would demonstrate that TEG guided algorithms are beneficial for managing the complex coagulopathic bleeding that can arise during cardiac surgery. While providing better outcomes for our patients, we also recognize the benefits of preserving the blood bank reserves, saving healthcare costs, and improving efficiency in the OR without compromising hemostasis.

Geographic Inequity in Pediatric Appendectomy Care in Saskatchewan

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BACKGROUND

- Pediatric appendicitis is the most common surgical emergency in children.[1]
- Pediatric appendectomies are performed at various sites across Saskatchewan, but there are no clear data on how many are performed at each site and how far patients travel to have this surgery.
- It is well documented that traveling for pediatric surgical care causes significant burdens for rural families.[2] Anecdotally, families who have traveled to Saskatoon from out-of-town for pediatric appendectomy have reported significant anxiety and financial difficulty with travel, accommodation, and lost wages.
- There is currently no clear provincial data on the number of pediatric appendectomies performed in different centers across Saskatchewan.

OBJECTIVES

- The first objective of this research project is to determine how many pediatric appendectomies are occurring at various sites across Saskatchewan and how far on average families travel for this surgery.
- The second objective of the project is to qualitatively identify the financial, psychological, and social impacts on families of children who need to travel from out-of-town to an urban center to have this surgery performed.
- Research Questions
  - Where are pediatric appendectomies being performed in Saskatchewan?
  - How far are patients having to travel to have this procedure performed?
  - What are the patient and family impacts of out-of-town travel to JPCH for pediatric appendectomy?

METHODS

This will be a multi-methods study involving two parts:

1. Retrospective analysis of all pediatric appendectomies that occurred in Saskatchewan between 2024 and 2025.
   - Obtain surgical data from SHA Analytics.
   - Evaluate age, postal code, site of surgery, and travel distances.
   - Use descriptive analysis to compare number of surgeries in major urban centers (Saskatoon and Regina) vs rural and regional centers (Prince Albert, Moose Jaw, Yorkton, etc.) and average travel distance to surgery for each site.

2. Prospective semi-structured interviews with families of pediatric appendectomy patients at JPCH who traveled from out-of-town for this surgery.
   - Recruitment and consenting of patient caregivers for interview at time of surgery beginning in 2027.
   - 30-minute phone interviews conducted 2-3 weeks after surgery.
   - Use a grounded-theory paradigm and inductive analysis, continuing recruitment of participants until thematic saturation is reached.

EXPECTED RESULTS

- It is expected that most pediatric appendectomies occurred in Saskatoon between 2024 and 2025, and that a significant number of patients traveled a long distance to have this procedure performed.
- Data will be depicted in table showing the number of surgeries performed by site and the average travel distance for in-town versus out-of-town patients, and a map of Saskatchewan showing the distance between patients' home postal code and the site of their surgery.

Pediatric appendectomies by surgical site, Saskatchewan 2024–2025

Patient volume and mean travel distance stratified by local vs. out-of-town origin

Surgical site	Local patients (n)	Avg distance, local (km)	Out-of-town patients (n)	Avg distance, out-of-town (km)	Total (n)
	Local patients		Out-of-town patients		
JPCH (Saskatoon)	62	8	22	312	84
RGH (Regina)	9	11	14	187	23
Victoria Hospital (Prince Albert)	7	7	3	143	10
Yorkton Regional Health Centre	4	9	2	201	6
Moose Jaw Union Hospital	5	10	1	134	6
Cypress Regional Hospital (Swift Current)	4	6	0	—	4
NRHC (North Battleford)	3	12	1	98	4
Overall	**94**	**9**	**43**	**248**	**137**

Local = patient postal code within the same Saskatchewan Health Authority zone as the surgical site. Out-of-town = patient travelled from outside that zone. Mean distance estimated by straight-line (Haversine) calculation between patient FSA centroid and surgical site. — indicates no out-of-town cases recorded. Data are illustrative examples.

Figure 1: Number of Pediatric Appendectomies Performed and Average Distance Traveled to Surgical Site, Saskatchewan 2024-2025

- The expected themes that will be identified in interviews with caregivers who traveled for pediatric appendectomy care are:
  - Significant stress due to travel, accommodation, and lost wages.
  - Complex decision making about where and when to seek help based on perceived symptom severity and hospital proximity.

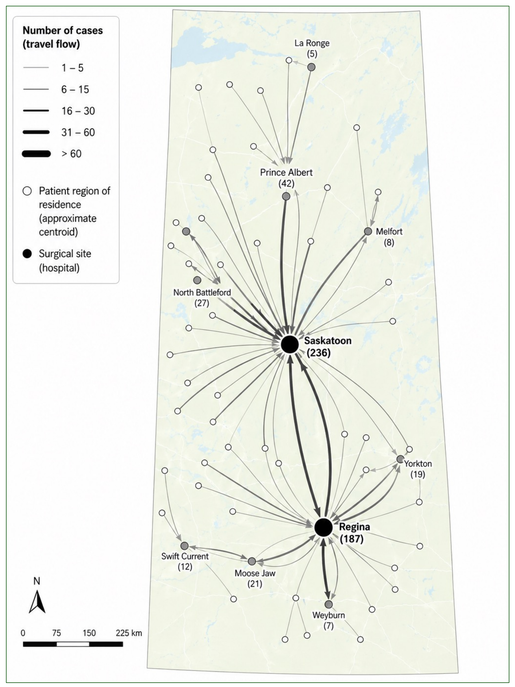

Figure 2: Patient Travel Flows to Surgical Site

EXPECTED CONCLUSIONS

It is expected that:

- The majority of pediatric appendectomies in Saskatchewan between 2024-2025 were performed in Saskatoon or Regina.
- Patients frequently traveled long distances to Saskatoon to have this surgery, often bypassing closer sites which offer this surgery.
- Families will report significant financial and psychosocial stress from having to travel for care.

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Connect-ICU: Implementing human-centered communication solutions to improve patient and family-centered care in the ICU

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Introduction

- **Patient- and family-centred care (PFCC)** is an approach to health-care delivery grounded in a collaborative partnership among patients, their families, and health-care providers (HCPs).[1]

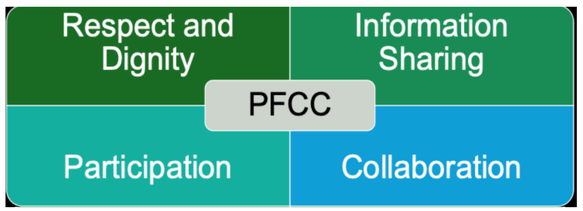

Fig 1. The four foundational principles of PFCC.

- This framework is relevant in the intensive care unit (ICU), where effective communication is essential for building trust, understanding patients' goals and values, and supporting families through an emotionally challenging experience.[2,3]
- Numerous studies have demonstrated that communication with ICU clinicians is among the most highly valued aspects of care for patients and their family members, yet communication in this setting remains inconsistent.[4,5]
- Research has been conducted by a team at the University of Saskatchewan, which developed a journey map of the ICU experience to identify both opportunities to enhance PFCC and potential threats to its delivery.[6,7]

Objectives

1. Develop and implement a communication strategy in the Royal University Hospital (RUH) intensive care unit (ICU).
2. Evaluate the impact of this communication strategy on PFCC.
3. Evaluate the impact of this communication strategy on healthcare providers.

Methods

- This study uses a **Design Thinking** and human-centered design framework, focusing on stages 3 ("What Wows?") and 4 ("What Works?").
- Stage 3:
  - A multidisciplinary ICU will use participatory action research principles to evaluate and refine co-created communication solutions.
  - Selected interventions will be prototyped, tested at the bedside, and iteratively improved based on feedback, with emphasis on low-resource, workload-neutral tools.
  - Meeting minutes and reflective journals will be analyzed using the Consolidated Framework for Implementation Research (CFIR) to identify barriers and facilitators.
- Stage 4:
  - A pilot study will evaluate the impact of the communication strategy on PFCC and HCP outcomes. Data will be collected over four-week periods at four distinct time points: baseline, immediately post-implementation, 6 months post-implementation, and 12 months post-implementation.
  - Recruitment of HCP participants will occur via ICU manager communication and the RUH ICU Facebook page. The ICU social worker or bedside nurse will introduce the research team to the patient and/or their loved ones to offer direct invitation.
  - Data will include:

Unit Level	Patient/Family	HCP	Feasibility	Sustainability
ICU capacity, admissions, mortality, acuity	Demographics, ICU stay details, validated surveys*	Demographics, work history, and validated surveys**	Implementation uptake and cost	Tool utilization audits

Fig 2. Types of data to be collected during the study. *1) Family-Satisfaction-ICU (FS-ICU 24) informational needs and decision-making sections; 2) Quality of Communication; 3) revised Perception of Patient-Centeredness; and 4) Family Engagement Tool.19-21. **1) The Measure of Moral Distress-Healthcare Provider, 2) the Maslach Burnout Inventory, 3) the Barriers to Care Questionnaire, and 4) the communication and administrative tasks within the Nursing Activities Score.22-25

- Data will be collected via REDCap and analyzed using ANOVA with appropriate post-hoc testing.
- Ethics approval has been submitted.

Expected Results

- As a pilot study, there will be insufficient power to demonstrate statistically significant effects on PFCC and healthcare provider wellness and workload. However, we expect the communication strategy will show a positive trend toward improving PFCC without compromising HCP well-being or workload. Solutions showing positive effects will be used to establish a **communication toolkit** that can be applied in ICU settings and beyond. Results will be important for guiding future studies to form the basis of communication strategies in ICUs across Canada, thereby making RUH ICU a leader in PFCC.

Expected Conclusions

- It is expected that the study will demonstrate feasibility and sustainability of a **low-resource, high impact communication** in the ICU to improve PFCC without increasing burden on HCP workload or wellness.

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Improving Aseptic Technique Compliance During Medication Preparation Among Anesthesiologists in Saskatoon: A Quality Improvement Initiative

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INTRODUCTION

The Problem: HAIs are preventable. Bacterial contamination in the anesthesia work area (AWA) occurs within 4 minutes of patient care. OR contamination rates (1–21%) are ~100× higher than pharmacy standards.[1,2]

Patient Harm: Contaminated propofol caused 20 outbreaks, 144 affected patients, and 10 deaths (1989–2014).[3] Bacterial transmission in the AWA occurs in up to 16% of surgical cases.[4]

Compliance Gap: Overservational studies reveal hand hygiene compliance of 8.1% overall and 2.2% before aseptic tasks.[5] Surveys suggest 83% of Canadian anesthesiologists share vials between patients.[6]

Barriers: High task density, cost pressures, prolonged glove use, and knowledge deficits.[5, 7-9]

Evidence Gap: No Canadian quasi-experimental quality improvement study using PDSA methodology of OR aseptic technique compliance currently exists.

OBJECTIVES

- Establish a baseline of aseptic technique compliance via direct observation and anonymous survey.
- Identify practice barriers and knowledge gaps through focus group and survey.
- Deliver a low-resource educational intervention (workstation posters + reference sheets).
- Evaluate improvement across PDSA cycles

AIM: Within 12 months, increase the proportion of staff anesthesiologists and anesthesiology residents at Royal University Hospital, St. Paul's Hospital, and Saskatoon City Hospital demonstrating compliance with recommended aseptic technique during medication preparation from an established baseline to ≥70%, measured by observational audits and surveys, using a PDSA framework.

MATERIALS AND METHODS

Setting: Operating rooms at RUH, SPH, SCH.

Participants: Anesthesiology staff and residents.

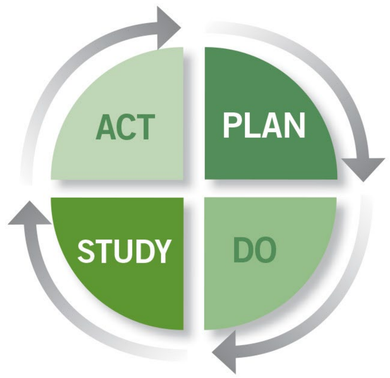
Baseline: Focus group (fishbone diagram); anonymous online survey (vial cleaning, glove use, guideline familiarity, barriers) with possible CAS-wide distribution via DARE award; direct observational audit by trained medical students using standardized checklist. Medical student observers funded via Dean's Award.

Intervention: Educational posters and laminated reference sheets at anesthesia workstations summarizing aseptic medication preparation guidelines. Departmental and CAS-wide survey distribution with end-of-survey debrief will share aggregate baseline data and patient safety implications.

Analysis: Descriptive statistics; χ^2/Fisher's exact (pre/post); run charts across PDSA cycles; thematic analysis of qualitative data.

Timeline: Compliance will be measured at baseline (Months 1–2), with iterative PDSA cycles. Follow-up will occur at 2-month intervals or sooner. Final assessment will occur at Month 12.

Ethics: Anonymous surveys; group-level audit data only; no patient data. REB review will be sought.



RESULTS

- Baseline compliance is anticipated to be <50%, consistent with international data.
- The primary expected outcome is an increase from a baseline below 50% to ≥70% observed compliance, with upward compliance trend is across PDSA cycles.
- Secondary outcomes include improved provider guideline knowledge and medication preparation consistency.
- This project will generate a Canadian observational benchmark to inform CAS policy, and the low-cost materials offer a scalable model for other Canadian anaesthesia departments.

CONCLUSIONS

- This project will have answered its aim if run charts show a significant improvement and ≥70% of providers meet targeted steps at Month 12, confirming that a low-cost intervention produces measurable, sustained improvement in a Canadian academic centre.

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