



UNIVERSITY OF SASKATCHEWAN 2024 EMERGENCY MEDICINE RESEARCH DAY



AGENDA AND ABSTRACTS



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Research Day Agenda

0930	OPENING REMARKS, HOUSEKEEPING, RESEARCH DIRECTOR REPORT, WELCOME FROM DEPARTMENT
1000	LIGHTNING ORALS <ul style="list-style-type: none">EFFECTIVITY OF PELVIC BINDER USE IN SASKATCHEWAN ON PATIENTS TRANSPORTED BY STARSIMPROVING THE RATE OF USE OF FASCIA ILIACA COMPARTMENT BLOCKS IN PATIENTS PRESENTING WITH HIP FRACTURES
1020	COFFEE BREAK
1030	LIGHTNING ORALS <ul style="list-style-type: none">A RETROSPECTIVE CHART AUDIT OF EMERGENCY DEPARTMENT ULTRASOUND (EDUS) DURING CARDIAC ARREST IN EMERGENCY DEPARTMENTS IN SASKATOON HEALTH REGIONIMPROVING COMMUNICATION BETWEEN EMERGENCY PHYSICIANS AND RADIOLOGISTS: A CASE-BASED SURVEYA SCOPING REVIEW OF THE CRIME PROTECTIVE AND PREVENTIVE ROLES OF THE EMERGENCY DEPARTMENTATTITUDES AND BARRIERS TO DISTRIBUTING TAKE-HOME NALOXONE KITS AMONG ER STAFF IN REGINA AND SWIFT CURRENT EMERGENCY DEPARTMENTS'HOW CAN I LEARN UNDER THESE CONDITIONS!?' A PROPOSAL FOR A QUALITATIVE DESCRIPTIVE CASE STUDY EXPLORING THE IMPACT OF EMERGENCY DEPARTMENT OVERCROWDING ON CANADIAN EMERGENCY MEDICINE RESIDENT DOCTORS' WORK-BASED LEARNING EXPERIENCES
1120	TEACHING AWARDS
1145	LUNCH (TO BE BROUGHT BACK AND EATEN DURING PLENARY SPEAKER)
1200	KEYNOTE SPEAKER – DR. JENNIFER THULL-FREEDMAN



	<ul style="list-style-type: none">• THE COMMITMENT TO COMFORT IN ALBERTA EDS: HOW A SMALL QI TEAM MADE A PROVINCIAL IMPACT ON CHILDREN'S PAIN WITH A SHOESTRING BUDGET
1300	<p>PLENARY ORALS</p> <ul style="list-style-type: none">• THE PAWSITIVE IMPACT OF VISITING THERAPY DOGS FOR PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT FOR MENTAL HEALTH AND SUBSTANCE USE CONCERNS• EMERGENCY DEPARTMENT EXPERIENCES AMONG PEOPLE WHO USE DRUGS: HONORING INDIGENOUS PERSPECTIVES IN DATA AND ANALYSIS• COMMUNITY PARAMEDICINE: IMPROVING CARE FOR PATIENTS WITH ALCOHOL USE DISORDER IN A REGIONAL CENTRE
1345	COFFEE BREAK
1355	<p>PLENARY ORALS</p> <ul style="list-style-type: none">• ASSESSING THE POTENTIAL PERFORMANCE OF PROBABILITY ADJUSTED D-DIMER ALGORITHMS FOR PULMONARY EMBOLISMS IN SASKATOON EMERGENCY DEPARTMENTS• I'LL TEXT YOU! A PILOT STUDY OF EMERGENCY DEPARTMENT DISCHARGE INSTRUCTIONS SENT VIA TEXT MESSAGE• COMPARING STANDARD VERSUS LEFT-SIDED CHEST COMPRESSIONS FOR THORACO-ABDOMINAL INJURIES AND COMPRESSION DYNAMICS: A CLINICAL-GRADE CADAVER STUDY
1440	<p>MODERATED POSTERS</p> <ul style="list-style-type: none">• 30 DAY POST OPERATIVE EMERGENCY DEPARTMENT USAGE AFTER GYNECOLOGICAL• FOLLOW YOUR HEART: ANALYSIS OF DISPOSITION DECISIONS, REFERRAL PATTERNS, AND RESOURCE UTILIZATION FOR PATIENTS PRESENTING WITH CHEST PAIN TO THE CYPRESS REGIONAL HOSPITAL EMERGENCY DEPARTMENT PRIOR TO IMPLEMENTATION OF A MODIFIED HEART PATHWAY• SASKATOON EARLY PREGNANCY ASSESSMENT CLINIC: A BEFORE AND AFTER REVIEW ON EMERGENCY DEPARTMENT UTILIZATION
1510	JUDGES FINAL DELIBERATIONS
1515	AWARDS AND CLOSING REMARKS



Keynote Speaker

THE COMMITMENT TO COMFORT IN ALBERTA EDs: HOW A SMALL QI TEAM MADE A PROVINCIAL IMPACT ON CHILDREN'S PAIN WITH A SHOESTRING BUDGET

Jennifer Thull-Freedman, MD, MSc

Dr. Jennifer Thull-Freedman, MD, MSc, is the Pediatric Emergency Medicine Quality Lead at the Alberta Children's Hospital and a Clinical Associate Professor of Pediatrics and Emergency Medicine at the University of Calgary. She leads, supervises, and collaborates in multiple quality improvement initiatives. She enjoys sharing her passion for QI with others through teaching as well as through her role on the editorial boards of the Canadian Journal of Emergency Medicine and Hospital Pediatrics. Originally from Minnesota, she received her pediatric and pediatric emergency medicine training through Baylor College of Medicine in Houston and Northwestern University in Chicago, and she completed additional training in quality improvement through the University of Toronto, Cincinnati Children's Medical Center, and the VA Quality Scholars Program. She now happily calls Calgary home, along with her husband, two teenagers, two cats, a horse, and a collection of musical instruments.



Lightning Orals

EFFECTIVITY OF PELVIC BINDER USE IN SASKATCHEWAN ON PATIENTS TRANSPORTED BY STARS

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INTRODUCTION

Early prehospital application of a pelvic binder to stabilise suspected pelvic fractures in trauma patients is critical to reduce haemorrhage resulting in improved mortality rate. However, its indiscriminate use can lead to increased pain, pressure ulcers, neurovascular compromise and potential displacement of isolated neck of femur fractures. Some pelvic binder decision tools exist but there is limited consensus of its use in clinical practice. The aim of the study was to investigate the association between pelvic binder use in a helicopter emergency medical service (HEMS) and the respective imaging outcomes.

METHODS

A retrospective medical records review of STARS HEMS was compared and analysed against a picture archiving and communications system (PACS) for all trauma patients transported in the province of Saskatchewan from 1 January 2022 to 31 December 2023. Summary statistics were used to describe all variables. Data distributions were presented via bar charts, histograms, and sensitivity/specificity/PPV/NPV ratios.

RESULTS

Of the 478 trauma patients transported by HEMS, 25 had pelvic fractures (incidence 5.2%) and 89 had pelvic binders applied (incidence 18.6%). For the pelvic binder patients, 18 had pelvic fractures (sens 72%, PPV 20.2%) and for the non-pelvic binder patients, 7 had pelvic fractures (spec 84.3%, NPV 98.2%). In the non-pelvic binder group, 2 (28.6%) had unstable pelvis fractures (Young and Burgess, excluding APC1 and LC1). In the pelvic binder group, none had Young and Burgess vertical shear fractures.

CONCLUSIONS

Pelvic binder use for trauma patients transported by HEMS over a two year period did not include all pelvic (stable and unstable) fractures subsequently identified on formal imaging. More research is necessary to identify possible causes and improve future decision-making in its use.



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IMPROVING THE RATE OF USE OF FASCIA ILIACA COMPARTMENT BLOCKS IN PATIENTS PRESENTING WITH HIP FRACTURES

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INTRODUCTION

Patients in the emergency department (ED) with hip fractures often present a challenge for pain management, due to advanced age and comorbidities. Under-treated pain increases risk for delirium,¹ however patients are susceptible to adverse effects of opioids. The fascia iliaca compartment block (FICB) is an analgesic method showing improved pain scores and decreased delirium.² FICBs have been infrequently used in Saskatoon EDs, performed on 3% of patients between July 2020 and January 2021. We aimed to have 50% of patients with hip fractures receive FICBs in 18 months.

METHODS

We utilized the Model for Improvement. Our primary outcome measure was the rate of FICBs performed. Our process measures were the number of ED physicians performing FICBs and their self-described comfort with the procedure; our balancing measure was adverse events. We performed three PDSA cycles designed in accordance with surveys sent to our physician group. Cycles consisted of educational material dissemination, equipment standardization, sessions on how to perform FICBs, as well Audit & Feedback and incentive programs. Measures were collected through retrospective chart review and survey response analysis.

RESULTS

The rate of FICBs performed increased from 3.0% to 20.9%. The number of physicians performing FICBs increased from 6 to 35. Initially 31.5% of physicians endorsed being able to independently perform or teach the FICB, rising to 53% after the project conclusion. One adverse event occurred, not causing significant patient harm. We plotted our results on a run chart, but did not meet any rules signifying non-random variation.

CONCLUSIONS

Through our aim was not achieved, our process substantially increased the number of FICBs performed and the number of physicians performing them. We moved closer to making FICBs part of our culture and standard of care for this patient population. Other EDs seeking to increase their FICB rates should consider this process.



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A RETROSPECTIVE CHART AUDIT OF EMERGENCY DEPARTMENT ULTRASOUND (EDUS) DURING CARDIAC ARREST IN EMERGENCY DEPARTMENTS IN SASKATOON HEALTH REGION

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INTRODUCTION

Identifying reversible causes of cardiac arrest can improve survival rates. Numerous articles provide guidance on the use of Emergency Department Ultrasound (EDUS) during cardiac arrest. Common applications include detection of pericardial effusion, organized cardiac activity (pseudo-PEA), and other causes of shock. It is also used to confirm cardiac standstill when resuscitation seem futile. We sought to describe EDUS use during cardiac arrests in Saskatoon's emergency departments from 2013 to 2019.

METHODS

This retrospective chart audit included adult cardiac arrest records from Royal University Hospital, St. Paul's Hospital, and Saskatoon City Hospital over the six-year period (target n=100). Initial screening revealed only 26 charts. We suspected that in some instance, EDUS was used but not charted in the correct field. Additional cardiac arrest charts were identified, with a random selection of 80 charts undergoing detailed analysis. We examined which EDUS applications were commonly used, when they were applied (during compressions or following return of spontaneous circulation), and its role in diagnosis or resuscitation cessation.

RESULTS

After additional screening of 80 random charts, EDUS documentation was found in 19 more, for a total of 45 charts. EDUS for cardiac contractility aided decision-making to terminate resuscitative efforts in 29/45 (64.4%) cases. EDUS was used after ROSC in 10 cases (22.2%), though the use varied significantly between practitioners. Finally, an additional 3/45 cases (6.66%) were identified that commented on detecting the presence or absence of pericardial effusion.

DISCUSSION

In non-ROSC scenarios, EDUS was often limited to assessments of cardiac activity, generally to inform termination of resuscitation and end-of-life decisions. Differences in use highlight the potential for the development of standardized protocols. Our analysis also highlights the need for consistent EDUS documentation, which would greatly benefit future quality improvement initiatives.



IMPROVING COMMUNICATION BETWEEN EMERGENCY PHYSICIANS AND RADIOLOGISTS: A CASE-BASED SURVEY

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INTRODUCTION

As emergency department presentations grow more complex, clinicians increasingly rely on computed tomography (CT) imaging for timely diagnosis and disposition. However, miscommunication of urgency, relevant clinical information, and indications for various scans strain both the Emergency and Radiology departments alike, resulting in potential time delays and suboptimal reporting of relevant findings. This study aimed to identify crucial details that must be communicated during the scan requisition phase for accurate image protocoling.

METHODS

An electronic cross-sectional survey including 5 intra-abdominal clinical cases were sent to Saskatchewan EM physicians and Calgary radiologists over a 6-week period from February to April 2024. Both groups were blinded from each other's participation and responses were anonymized. Relevant clinical history, preferred CT order(s), and urgency levels were compared via descriptive analysis to discern disparities and identify key details needed to optimize scan requisitions. The study was approved by the University of Saskatchewan REB (#4504).

RESULTS

Ten radiologists completed 48 cases and 34 EM physicians completed 161 cases. Combined responses from the 5 cases showed consistency in prioritizing the complaint (79% vs 75%), location of pain (53% vs 54%), and differential diagnosis (71% vs 89%) on clinical history. However, case specific analysis revealed nuanced differences. Radiologists attributed more significance to the presence of gross hematuria and hydronephrosis for renal cases, anemia and prior scope history for GI bleeds, and specific risk factors for malignancy or ischemia when protocoling scans. EM physicians indicated a willingness to call Radiology for complex cases (47% LGIB, 65% mesenteric ischemia) whereas radiologists only expected a call for emergent imaging requests like aortic dissection protocols (100%).

CONCLUSION

Aggregate data showed congruency between EM physicians and radiologists regarding the necessary information for ordering CT imaging. However, case-specific analysis revealed nuanced differences on details required to optimize correct protocoling and scan reporting.



A SCOPING REVIEW OF THE CRIME PROTECTIVE AND PREVENTIVE ROLES OF THE EMERGENCY DEPARTMENT

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INTRODUCTION

Individuals with criminal justice system (CJS) involvement frequently utilize the emergency department (ED) and are at a higher risk of hospitalization. This review explored the collaboration between components of CJS (police, courts, corrections) and the ED to promote community safety and to identify the key barriers and facilitators to collaboration between the CJS and ED.

METHODS

OID MEDLINE, OVID Embase, CINAHL (EBSCO), Web of Science, SocIndex and Criminal Justice Abstracts databases were searched for papers on ED and CJS from inception to 2022. Two authors independently performed title and abstract screening and a full-text review of the articles. A third reviewer resolved conflicts. Extracted data were iteratively analyzed and summarized thematically.

RESULTS

Initial search results yielded 2272 studies, and 43 were included in the final review. Most studies employed quantitative methodologies and were published in the United States. We categorized the nature of CJS and ED collaboration as follows: substance use, mental health crisis, sexual assault and intimate partner violence, youth and adolescent, trauma, technology/data sharing and education/training. Most studies focussed on trauma and technology/data sharing. Collaboration, mainly with the police, was facilitated by clear communication among team members and the establishment of comprehensive policies and procedures. Collaboration was further enhanced by committed leadership within both the CJS and the ED, as well as training to increase the ability of partners to process and utilize data. Significant barriers to collaboration included murky lines of demarcation between professional roles, obligations and authority. Lack of adequate training resulted in the lack of knowledge of relevant policies and reduced shared understanding of language, terminology and materials particular to each profession.

CONCLUSIONS

Successful collaboration between the CJS and ED requires clear communication, interdisciplinary training, and committed leadership. These elements are vital for realizing ED's potential to enhance community safety.



ATTITUDES AND BARRIERS TO DISTRIBUTING TAKE-HOME NALOXONE KITS AMONG ER STAFF IN REGINA AND SWIFT CURRENT EMERGENCY DEPARTMENTS

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INTRODUCTION

Opioid overdose deaths in Canada have been increasing since the 1990s with rapid increase since 2016 based on the data from the Public Health Agency of Canada. Saskatchewan initiated a program in 2015 to distribute Take Home Naloxone (THN) kits for free in attempt to mitigate the raising rates of fatal opioid overdoses. Our primary objective was to identify the attitudes and perceived barriers of THN kit distribution in Regina emergency departments. Our secondary objective was comparing our urban data with previously collected regional data.

METHODS

Potential physicians, nurses, and EMS personnel was contacted by email to complete a survey containing identical Likert-items to the previous study performed in Swift Current. Data obtained were summarized as counts and percentages with Likert-items summarized as median and interquartile range. Binary logistic analysis was performed to assess for statistically significant results.

RESULTS

A total of 89 surveys were completed by physicians (20.2%), nurses (47.2%) and EMS/dispatch (32.6%). Experience of staff varied from resident level to >30 years of experience with 11-20 years being the most common. Physicians were less likely to know where naloxone kits were compared to other healthcare workers (88.9% vs 97.3%). Perceived barriers to THN distribution included lack of ED administrative or allied health support for patient education around opioid use. Generally healthcare providers understood which populations would benefit from a THN kit. Lastly, results between Regina and Swift Current were similar but differed as Regina saw more frequent recreational drug use.

CONCLUSIONS

Healthcare staff in general have similar perspectives regarding THN kits. More patient centred education and clearer identification on where Naloxone kits are may help with uptake and distribution.



‘HOW CAN I LEARN UNDER THESE CONDITIONS!?’ A PROPOSAL FOR A QUALITATIVE DESCRIPTIVE CASE STUDY EXPLORING THE IMPACT OF EMERGENCY DEPARTMENT OVERCROWDING ON CANADIAN EMERGENCY MEDICINE RESIDENT DOCTORS’ WORK-BASED LEARNING EXPERIENCES

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INTRODUCTION

Emergency Department (ED) overcrowding, where “an [ED] is compromised primarily due to excessive patient numbers,”¹ is a healthcare crisis². Reciprocal determinism, a core aspect of social cognitive theory, states learning is impacted by the interaction between personal, social and environment factors.^{3,4} However, current literature only superficially outlines this interaction in overcrowded EDs. This research study aims to determine how ED overcrowding impacts EM residents’ education. Without this understanding, residents’ education is at risk of deterioration in a crumbling learning environment.

METHODS

Ethics approval will be sought from the University of Saskatchewan Behavioural Research Ethics Board. Residents and faculty from two tertiary care EDs will participate when the ED is overcrowded (NEDOCS score ≥ 100).⁵ Walking interviews will be performed by directly observing the resident for their entire shift, collecting field notes and audio-recording unstructured interviews.^{6,7} After each walking interview, audio-recorded semi-structured interviews will be conducted with the resident and their supervising faculty. Lastly, a qualitative systematic review narrative synthesis of literature will be performed.

RESULTS

Field notes and interview recordings will be de-identified, anonymized, and transcribed. Each transcript will undergo an iterative framework analysis until inductive thematic saturation is reached.⁸ The literature narrative synthesis will be analyzed in the same manner *after* all transcripts to supplement the collected data. Framework matrix charting using an online spreadsheet will be completed to organize and display all indexed data according to the analytical framework. The data interpretive strategy is not yet developed as a pre-emptive strategy could undermine the inductive and interpretivist study approach.⁹

CONCLUSIONS

This study has potential to generate a rich narrative description of how ED overcrowding impacts residents’ education which may prompt recommendations for intervention, identify



the need for additional competencies to be taught and learned, and/or serve as additional ammunition in the realm of advocacy for Canadian healthcare reform.

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Plenary Orals

THE PAWSITIVE IMPACT OF VISITING THERAPY DOGS FOR PATIENTS PRESENTING TO THE EMERGENCY DEPARTMENT FOR MENTAL HEALTH AND SUBSTANCE USE CONCERNS

Pavelich A, Dell CA, McKenzie H, Stempien J, Hozack A, Rowsell L, Smith J, & Patient Partners
TBD

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INTRODUCTION

Given that companion animals are known to benefit the health and well-being of individuals, animal-assisted interventions are a growing area of interest within emergency department (ED) medicine. In Saskatoon, the Royal University Hospital was the first ED in Canada to integrate therapy dog (TD) visitation in 2015. Our interdisciplinary team of physicians, researchers, and community partners has since conducted several studies on TDs as a complementary health practice. A high proportion of ED visits are for patients presenting with mental health and substance use concerns, so our latest, innovative project aimed to understand if and how TDs support this specific patient population.

METHODS

Using a mixed methods approach – 60+ hours of ethnographic observation, survey delivery, and semi-structured interviews – we conducted 28 TD visits with mental health patients. We used a One Health framework - specifically, zooeyia, which recognizes the benefits of pets in humans' lives - and an institutional ethnographic approach for analyzing our patient-oriented data, which included thematic coding to arrive at our findings.

RESULTS

Results showed that the TDs positively impacted the patient experience and provided a complementary social support service in an often chaotic and isolating environment. The patients explained that the TDs assisted with: decreasing feelings of distress; providing a perceived sense of support, connection, and hope; were a welcomed distraction from current stressors; and improved communication between patients and their care team.

CONCLUSIONS

Human-animal interactions provided a unique form of non-judgmental and non-stigmatizing support to patients that is distinct from human-human interactions offered by ED staff. There is much for the emergency medicine community to consider when it comes to how and why a



patient experiences an increased sense of hope regarding their mental health concern after interacting with a TD. What, possibly, do dogs offer that we as humans can learn from?



EMERGENCY DEPARTMENT EXPERIENCES AMONG PEOPLE WHO USE DRUGS: HONORING INDIGENOUS PERSPECTIVES IN DATA AND ANALYSIS

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INTRODUCTION

Emergency departments (ED) are often a first point of access to medical care for people who use substances, but these visits may not be due to substance use (SU) concerns. Emergency room staff may not always recognize SU, thus missing an opportunity to provide additional care aimed at substance use supports. Patient insights may help elucidate factors in the ED visits that help or hinder attention to overarching SU concerns.

METHODS

Virtual interviews with 26 participants (15 female; mean age 39.6 years) with first-hand experience with SU and ER visits were conducted by a trained community research partner who brought sensitivity around SU. Interviews were transcribed, and it was noted that the majority of participants (N=23) self-identified as Indigenous. A team of Indigenous researchers was therefore brought in to ensure data was analyzed using appropriate methods and lenses honoring Indigenous ways of knowing, being and doing, and to provide appropriate contextual insights into experiences shared by participants.

RESULTS

The collaborative analysis identified three intersecting and integrated layers or lenses key to understanding experiences of people with SU in the ED: *In situ* – understanding each person’s experience as an integrated whole including their spiritual, physical, emotional and mental self; *Patient Pathways* – tracing people’s experiences throughout ED visit phases to understand medical contexts and outcomes; and *Integrated Experiences and Impacts* – exploring the identified cycle of priming, encounters, outcomes and impacts that inform the ED experience of people who use drugs.

CONCLUSIONS

Results illuminated aspects of ED experiences related to interactions with the systems and structures of the ED environment, medical and support staff, and subsequent impacts these has on the patient. Key points for enhancing patient experiences and care for overarching SU concerns are being identified through a machine learning component of the project.



COMMUNITY PARAMEDICINE: IMPROVING CARE FOR PATIENTS WITH ALCOHOL USE DISORDER IN A REGIONAL CENTRE

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INTRODUCTION

Patients with Alcohol Use Disorder (AUD) have a significant burden of disease and disproportionately access emergency services. Currently, we lack the community resources necessary to support these patients. Community Paramedicine (CP) programs are an intervention with the unique ability to provide community based medical support and divert these patients from Emergency Departments (ED). This study demonstrates the impact of a regional centre CP program on patients with AUD.

METHODS

Patients with AUD enrolled in the Moose Jaw CP program were identified. Demographics, CP program usage, and number of ED diversions were collected. Retrospective chart reviews were conducted to determine ED visits from one year pre-implementation of the CP program thru December 2023. Data was analyzed using descriptive statistics (mean +/- SE).

RESULTS

Between 2021 and 2023, 815 patients accessed the CP program. 145 (18%) had a diagnosis of AUD and they accounted for 2149 of 4640 patient interactions with the CP program (43.6%). Complete data analysis and retrospective chart review was completed on 102 of the patients with AUD. The average age was 43.21 +/- 1.50 years with 54 (52.9%) males and 48 (47.1%) females. These patients had a total of 1769 interactions with the CP program (38% of all interactions) and mean CP visits were 17.34 +/- 2.86 per patient. There was a total of 504 ED visits with 5.2 +/- 0.60 ED visits per patient. The CP program identified 507 ED diversions because of CP interactions.

CONCLUSION

This regional CP program enrolled multiple patients with AUD, which accounted for a disproportionately large amount of CP interactions, suggesting there are unmet community needs. The CP program provided an impactful point of contact as ED visits would have doubled in the absence of this program. As CP programs grow, they can support the unmet community needs of AUD patients.



ASSESSING THE POTENTIAL PERFORMANCE OF PROBABILITY ADJUSTED D-DIMER ALGORITHMS FOR PULMONARY EMBOLISMS IN SASKATOON EMERGENCY DEPARTMENTS

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INTRODUCTION

Pulmonary embolism (PE) is a challenging diagnosis for emergency physicians, who balance the risks of missing a potentially dangerous diagnosis with the harms of over-imaging. In low-risk patients, D-Dimers can rule out PE without imaging, but thresholds are variable. In the conventional approach, PE is ruled out with a D-Dimer < 500 µg/L, whereas the “age-adjusted” approach allows a higher cut-off (D-Dimer = age * 10). Newer probability-adjusted strategies (YEARS and PEGeD), allow a higher threshold (D-Dimer < 1000) in select low-risk patients. As there is evolving controversy surrounding their performance, we aimed to assess the performance of these four algorithms in our local emergency departments (EDs).

METHODS

A historical cohort was generated that included all adults (age ≥ 18) with computed tomography pulmonary embolism (CTPE) or ventilation-perfusion (VQ) scans ordered in a Saskatoon ED in 2022. We excluded imaging ordered by inpatient providers, incomplete scans, and cardiac arrests. Electronic medical records were reviewed, and descriptive statistics were used to retrospectively assess four algorithms: i) Conventional, ii) Age-adjusted, iii) YEARS, and iv) PEGeD.

RESULTS

Of 1423 visits, there were 181 PEs (12.7%). D-Dimers were ordered in 1100 cases (77.4%). Of these, 424 D-Dimers (38.5%) were between 500-1000, the population where imaging recommendations vary amongst the four algorithms. Both conventional and age-adjusted cutoffs would have detected all PEs. There were 13 PEs with a D-Dimer < 1000; YEARS and PEGeD would have missed 8 and 10 of these PEs respectively. Of all cases deemed negative by YEARS, 2.64% had a PE, while 2.57% of those deemed negative by PEGeD had a PE. Imaging utilization would have been reduced compared to conventional cutoffs when using YEARS (19.3% decrease) and PEGeD (25.5% decrease).

CONCLUSIONS

YEARS and PEGeD can reduce imaging utilization but may miss PEs detectable by conventional and age-adjusted cutoffs. However, we only included patients who were imaged, which limits interpretation.



I'LL TEXT YOU! A PILOT STUDY OF EMERGENCY DEPARTMENT DISCHARGE INSTRUCTIONS SENT VIA TEXT MESSAGE

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INTRODUCTION

Patients discharged from the Emergency Department (ED) should be provided instructions to improve self-care, advise on return-to-care, and satisfy medicolegal requirements. Verbal instructions are often forgotten or misunderstood, and numerous barriers exist to providing written instructions. To increase the use of written instructions, we undertook a pilot study of providing instructions via text message.

METHODS

Physicians discharging adult patients from Saskatoon EDs were recruited through various means. Physicians could visit our website, select a condition, and enter a patient phone number to which a link pointing to condition-specific general discharge instructions would be texted. We collected cryptographically secured phone numbers and tracked when links were sent and accessed. At study end, we surveyed physicians for feedback.

RESULTS

During the two-month study period, 115 discharge instructions were texted. Of these, 83% were accessed, 43% multiple times. Accessed links were visited soon after sending: 57% within 1 minute, 81% within 1 hour, and 97% within 24 hours. Instructions sent covered 36 conditions, most commonly concussion (19%), abdominal pain (9%), laceration (7%), and renal colic (7%). Seventeen physicians responded to our survey, with 47% indicating they do not typically provide paper-based discharge instructions. 87% ranked our system $\geq 8/10$ in ease of use (0 = very difficult, 10 = very easy), 73% ranked it $\geq 7/10$ efficient compared to usual practice (0 = maximally inefficient, 10 = maximally efficient). 93% said they would use our system going forward.

CONCLUSIONS

In this pilot study, most patients accessed texted discharge instructions in a timely fashion, some multiple times. We also found many physicians do not typically provide paper-based discharge instructions, despite Canadian Medical Protective Association and other best-practice guidance. Based on positive survey feedback, we suggest a system such as ours has promise to improve discharge practice without adversely affecting ED discharge efficiency.



COMPARING STANDARD VERSUS LEFT-SIDED CHEST COMPRESSIONS FOR THORACO-ABDONIMAL INJURIES AND COMPRESSION DYNAMICS: A CLINICAL-GRADE CADAVER STUDY

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INTRODUCTION

The lower half of the sternum is currently recommended as the area of compression (AOC) in CPR. Amassing evidence has demonstrated that compressions over the current AOC often result in outflow obstruction and inadequate left ventricle (LV) compression. Recent cardiac to surface anatomy mapping reported that the intersection of the left sternal border and 5-7th ribs would overlie the LV in most patients. An alternate left-sided AOC may confer improved outcomes. However, little is known about the biomechanical effects and thoracoabdominal injuries associated with left-sided compressions.

METHODS

The objective of this study was to examine the thoracoabdominal injury patterns and compression biomechanics during standard (control) and left-sided (experimental; off sternum, patient left, 6th rib) chest compressions. N=6 clinical-grade cadavers (control n=2; experimental n=4) underwent six 2-minute rounds of chest compressions with intermittent fluoroscopy. Chest compression depth and rate were standardized (Zoll feedback device). Post-CPR dissection was used to evaluate thoracoabdominal injury patterns.

RESULTS

Compressions over the standard AOC resulted in rib fractures (n=1 [50%]). Compressions over the experimental AOC resulted in rib fractures (n=4 [100%]), flail chest segments (n=3 [75%]), and internal thoracic artery injury (n=1 [25%]). No abdominal organ (liver, spleen, stomach) injuries were identified (N=6 [0%]). During compression, isosceles trapezoid (midline, comparable left-right sides, flat top, and bottom) versus irregular trapezium (left sided, unequal sides, leftward sloped top) shaped deformities were observed during standard and experimental conditions, respectively.

CONCLUSION

Experimental left-sided compressions yielded more rib fractures and flail chest segments. Although biomechanical variations between standard and left-sided compressions demonstrated different thoracic injury patterns, the injuries observed herein may be countered by gains associated with alleviation of outflow obstruction and improved LV compression. The benefits and risks of this novel left-sided AOC warrant further investigation.



Moderated Posters

30 DAY POST OPERATIVE EMERGENCY DEPARTMENT USAGE AFTER GYNECOLOGICAL SURGERY

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INTRODUCTION

In Saskatoon, over 1000 gynecological surgeries are performed annually. It is standard for patients to follow up with their surgeons approximately 4-6 weeks post-operatively, however some patients may utilize the Emergency Department (ED) for post-operative complications before their follow-up appointments. Previous North American literature has indicated that poor coordination between specialists and primary care could be a contributing factor. Our project aims to identify the rates of ED utilization in Saskatoon.

METHODS

We are currently performing a retrospective chart review of all adult patients who underwent gynecological surgery in Saskatoon. While data collection is ongoing, we have completed approximately 1.5 years of data currently. All patients who utilized a Saskatoon ED within 30 days of surgery were identified. Obstetrical surgeries, and pregnant/postpartum patients were excluded. Patient characteristics, past medical history as well as surgical characteristics were collected. For those who attended ED within 30 days of their surgery: date of return, primary complaint, hospital readmission, and need for repeat surgery were noted.

RESULTS

In total, 2893 gynecological surgeries were performed in 2022, with 6.3% (n=183) utilizing the ED within 30 days of their procedure. Of these, 17% were readmitted or required a surgical takeback, while 83% were discharged the same day. Primary reasons for ED presentation included pain (26%), infection (22%), and vaginal bleeding (17%).

CONCLUSIONS

While most post-op gynecologic patients do not utilize the ED, our findings indicate that a significant amount of their ED visits are for minor complaints that do not result in readmission or surgery. Based on this finding, there may be some strategies to limit unnecessary ED usage and improve patient care. This includes proper counselling about post-operative expectations, as well as adequate pain management. Furthermore, we aim to collaborate with our gynecology colleagues to explore potential solutions and improve patient outcomes.



FOLLOW YOUR HEART: ANALYSIS OF DISPOSITION DECISIONS, REFERRAL PATTERNS, AND RESOURCE UTILIZATION FOR PATIENTS PRESENTING WITH CHEST PAIN TO THE CYPRESS REGIONAL HOSPITAL EMERGENCY DEPARTMENT PRIOR TO IMPLEMENTATION OF A MODIFIED HEART PATHWAY

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INTRODUCTION

Chest pain is a common presentation to the emergency department (ED) for which disposition decisions can be challenging in those patients not meeting criteria for an acute cardiopulmonary event. At Cypress Regional Hospital (CRH), there is currently no risk-stratification pathway in place for non-myocardial infarction chest pain. This study aims to identify current disposition decisions, referral patterns, and resource utilization for chest pain patients at CRH to establish baseline data prior to implementation of a modified HEART score pathway in the ED.

METHODS

This is a retrospective chart review of consecutive patients aged 18 and older who presented to CRH with chest pain from September 1, 2022 to February 28, 2024. Outcomes of interest included referral rate to local internal medicine, referral for outpatient studies, wait time to internal medicine outpatient visit, and incidence of major adverse cardiac event (MACE) within 30 days. MACE was a composite measure of acute coronary syndrome, coronary catheterization, coronary artery bypass graft, stroke, and death.

RESULTS

A total of 386 patients were included. Internal medicine was consulted for 5.7% (n = 22) patients in the ED, and outpatient referrals were requested for 9.6% (n = 37). The average wait time for outpatient referrals was 46 days. Outpatient stress tests, echocardiograms, and Holter studies were requested for 14.8% (n = 59), 6.7% (n = 26), and 2.0% (n = 8) patients, respectively. The incidence of MACE was 10.6% (n = 41).

CONCLUSIONS

This study provides baseline data on referral patterns, wait times, MACE rate, and test utilization for ED chest pain patients at CRH. A follow-up prospective study implementing a modified HEART score at the CRH ED is planned.



SASKATOON EARLY PREGNANCY ASSESSMENT CLINIC: A BEFORE AND AFTER REVIEW ON EMERGENCY DEPARTMENT UTILIZATION

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INTRODUCTION

Early Pregnancy Assessment Clinics (EPAC) are outpatient centers designed for patients experiencing first trimester pregnancy concerns. Existing literature has demonstrated better quality of care and improved patient satisfaction resulting from the EPAC model over Emergency Department (ED) based care. However, the EPAC model's direct effects on ED volumes have not been well studied.

METHODS

We sought to evaluate the impact of opening an EPAC on ED utilization. Secondary outcomes included measures of health care utilization such as the proportion of patients who are consulted to obstetrics, return to the ED, or have repeat imaging. We performed a retrospective chart review of visits to the ED with complications of early pregnancy in the 6-month period preceding and following the opening of the Saskatoon EPAC. Inclusion criteria consisted of adult patients presenting with complications of pregnancy within 16 weeks gestational age. Exclusion criteria included direct referral for specialist evaluation, admission, presentations not related to fetal concerns, procedural complications or patients who left prior to being seen. Data analysis was performed using STATA software. Descriptive statistics were compared with z-tests to assess for changes in ED utilization pre- and post- EPAC opening.

RESULTS

We identified 1242 charts, of which 757 met eligibility criteria. There were 393 visits pre-EPAC opening, and 364 visits post-EPAC opening. The percentage of patients who returned to the ED for the same pregnancy was 10.9% and 10.4% pre- and post-EPAC opening, respectively ($p=0.85$). Despite referring only 33% of eligible patients in the 6-month period after opening, direct referrals to obstetrics decreased 39.9% from 20.1% to 12.1% ($p=0.002$).

CONCLUSIONS

Analysis of Saskatoon's EPAC showed a reduction in ED usage and obstetrics consults. Future works will focus on improving the diversion of patients to EPAC, delivering more patient-centered care and improving resource allocation burdens.