

EMeRG



Emergency Medicine Research Group

2019 Annual Report

Acknowledgements

The EMeRG team would like to thank the following partners for their continued support:

Emergency Department, University of Alberta Hospital

Department of Emergency Medicine, University of Alberta

Garneau Emergency Medicine Services (GEMS) Group

Patients and families who participate in research

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Faculty of Medicine & Dentistry, University of Alberta

Kaye Edmonton Clinic, University Hospital Foundation

Respiratory Health Strategic Clinical Network, Alberta Health Services

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EMERG

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COMPANY NAME

MESSAGE FROM THE DIRECTOR



Brian H. Rowe



We are excited to share our 2019 Annual Report for the Emergency Medicine Research Group (EMeRG) based within the Department of Emergency Medicine, at the University of Alberta. Our group was founded at the University of Alberta in 1997 and since then, we have been pursuing our goal of contributing research results to the body of emergency medicine evidence. For over 20 years, a dedicated team of past and present staff have worked to produce high-quality research, build long-lasting partnerships, and disseminate our findings to promote evidence-based practice. We often address important, albeit complex, research questions that are best answered using a mixed-methods approach. Our team has experience conducting qualitative studies, systematic reviews, and interventional studies among many other designs. Our diverse group includes methodological, clinical, and administrative teams, this diversity is what allows us to successfully manage multiple projects with various different methodologies.

An important part of our research and contribution to emergency medicine is the training of students. In the past, we have developed educational tools for the training of both clinicians and researchers. We have also conducted research projects with many residents and have a well-established summer student program that introduces medical and undergraduate students to the field of emergency medicine research. With us, students learn the importance of evidence based medicine and how its theory is put into practice through the translation of primary research into clinical practice. The students we train will guide healthcare into the new decade; we value this investment in our future and hope to continue working with students at every level of their training. From

the graduating MD classes in 2019 three former research students have successfully matched to residency programs: Shashwat Desai (Emergency Medicine, Dalhousie University); Harry Liu (Dermatology, University of British Columbia – Vancouver); and Sean Patrick (Emergency Medicine, University of British Columbia – Victoria).

Our research partnerships are also critically important to our success. In the "other half of my life", I am the Scientific Director of the Institute of Circulatory and Respiratory Health (ICRH) at the Canadian Institutes of Health research (CIHR). I am proud to say that we received a renewal for the next four years (2020-2023) from CIHR in Fall of 2019. I have highlighted the ICRH team in this year's report. While my team and I are not permitted to apply for funding from Federal agencies, we participate in multi-centered trials, provide advice to Alberta Health Services and continue our research through support from CIHR.

In addition to our work on long-established healthcare goals, we pride ourselves on being at the forefront of emerging health trends. Medicine is a dynamic field that is changing at an ever growing rate, and we are committed to identifying and investigating novel issues in our healthcare system. Properly addressing new healthcare concerns can be difficult for clinicians; however, acting quickly to conduct research on these topics can inform evidence-based practice and help mitigate these challenges. This year we have engaged in pioneering work surrounding lung health and the vaping epidemic in the hopes of helping emergency departments better manage these new phenomena. In addition, the economy and changing health care delivery exert influences on the ED, and we have continued to explore the reasons patients present to the ED. We hope that this report highlights the importance of research, education, and innovation in providing top-quality care in the emergency department.

Thank you for your participation in our program and we look forward to future partnerships. Please contact me if you have any questions.



Brian H. Rowe, MD, MSc, CCFP(EM)
Director, Emergency Medicine Research Group (EMeRG)
Professor, Department of Emergency Medicine, University of Alberta

Scientific Director, Institute of Circulatory and Respiratory Health (ICRH),
Canadian Institutes of Health Research (CIHR)

MISSION, VISION, AND VALUES

Mission



EMeRG promotes evidence-based medicine by bridging the gap between research and clinical practice. Through partnerships and community involvement, we build an environment rich with opportunities to teach, learn and contribute to the ongoing development of research in our field. Through engaged scholarship and practice, we are committed to treating and preventing illness and injury by encouraging best practices in acute clinical care and health promotion.

Vision



EMeRG strives to be a world leader in creating new knowledge for evidence-based practice in Emergency Medicine. Through primary and secondary research, publications (including journals and books), and teaching activities, we promote the development of clinical support systems (such as clinical practice guidelines and informatics) to advance the field of Emergency Medicine.

Values



- Excellence
- Engagement
- Diversity
- Scholarship

RESEARCH TEAM



Brian H. Rowe

Director
MD, MSc, CCFP(EM)



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Data Entry
BSc



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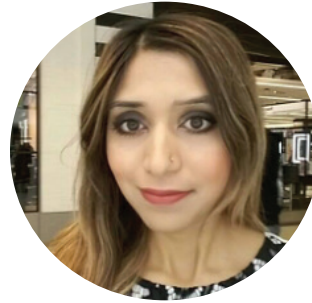


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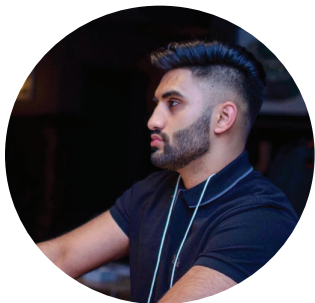


Hannah Ruske
Research Assistant
BScN, RN



Nazia Shaikh
Clinical Research
Assistant
BScN, RN

STUDENTS:



Gurpreet Sandhar
BSc(c)



Kevin Skoblenick
MD, MSc, PhD



Fiona Tran
BScN, MD(c)



Kevin Zhou
BMSc, MD(c)

IN 2020 WE ARE PLEASED TO BE WELCOMING:



**Uirá Duarte
Wisnesky**
Postdoctoral Fellow
MA, MSSc, PhD



Esther Yang
Research Coordinator
MSc

AREAS OF IMPACT

Headache

As a sub-theme of the PRIHS-2 project, we studied the current state of ED management of benign headaches and explored gaps in practice in Alberta. We also performed a systematic review comparing the various treatments available for migraines in the ED. Finally, the photovoice project allowed us to better understand the impact living with chronic headaches can have on patients (see photovoice gallery pictured).



Concussions

Studying the presentation and management of concussions in the ED has been a major focus for EMeRG in 2019, involving investigations about various groups of patients suffering concussions. Furthermore, we have advocated to develop a novel concussion clinic, investigated the impact policy change has had in hockey-related concussions, and worked to design and assess the usefulness of an informational handout for concussion patients.



Work-related concussions



Sports-related concussions



Discharge recommendations



Concussion clinic

Respiratory

With the recent legalization of cannabis and under the PRIHS-2 project we have contributed to diverse research projects examining asthma diagnosis and treatment in the ED. Furthermore, we have investigated the relationship between cannabis use, e-cigarette use, and lung health of ED patients. Finally, we have collaborated with others to study asthma exacerbations and the detection of tuberculosis.



Overcrowding

Overcrowding has long been recognized as a major concern in the healthcare system. To help address this, EMeRG has been a long-time advocate for the issue of ED overcrowding; this year we conducted research on implementing transition coordinators in the ED to improve outcomes for seniors and argued against diverting low acuity patients from the ED as a strategy to mitigate overcrowding.



Atrial Fibrillation

Studying atrial fibrillation has been a key focus of EMeRG research this year. To facilitate the evidence based treatment of atrial fibrillation in the ED, we collaborated on an RCT comparing chemical and electrical cardioversion, an analysis of administrative data assessing the relative costs of procainamide and electrical cardioversion, and a systematic review of different atrial fibrillation treatments.

End of Life Care

Patients with end of life care needs who present to the ED often do not receive the comprehensive care they need. To address this, we have conducted various studies including qualitative interviews with ED staff, a pilot study to document unmet palliative care needs, and systematic reviews to summarize the screening tools used to identify ED patients with end of life needs and interventions to improve outcomes for those patients.

Other projects undertaken this year:



Practice recommendations for syncope



MRI Assessment of Pulmonary Edema in Acute Heart Failure



Preventing ED visits in cancer patients



Variation in drug-impaired driving



RESEARCHER SPOTLIGHT



“In the future I hope to partner with both psychiatry and basic science researchers to find more effective interventions for mental health presentations in the emergency department.”

This year, we were excited to welcome Kevin Skoblenick, a 4th year emergency medicine resident doing his research year. With EMeRG he has focused on learning how to conduct robust systematic reviews, how to mix clinical medicine with research, and learning the broad skill set involved in being a clinician-scientist. He is working on a province-wide study exploring suicide mortality and the emergency department, as well as a systematic review assessing a new pharmacological ED intervention for suicide.

Kevin completed his master's degree at McMaster University where he worked on understanding the cellular pathways behind side-effects of anti-psychotic drugs and testing a novel drug for schizophrenia that acts at a new receptor

site. Kevin then went on to obtain his MD/PhD at Western University with his PhD research completed in a non-human primate cognition lab. There, he used a ketamine model of schizophrenia to understand how some neurons may be misfiring in patients with the disease.

Kevin recently completed a retrospective review of cannabis-induced psychosis cases in Edmonton, the first review of its kind in Canada. He hopes to bring his basic science background in psychiatric diseases to the emergency department in the form of mental health research. By merging these two fields the patient in an acute mental health crisis should receive the best emergency care when it is needed most.

COLLABORATION WITH ICRH



Brian H. Rowe

Scientific Director
MD, MSc, CCFP(EM)



Kaylin Barnes

Executive Assistant to Dr.
Brian H. Rowe
BEd



Helen Coe

Lead - Institute Initiatives
and Partnerships
PhD



Ryan Perry

Associate Scientific
Director
PhD

Not pictured: Tarannum Tarannum, project assistant

In addition to EMeRG, Dr. Rowe also leads the Institute of Circulatory and Respiratory Health (ICRH), one of 13 virtual institutes of the Canadian Institutes of Health Research (CIHR), Canada's federal health research granting agency. ICRH supports diverse research initiatives related to heart, lung, brain (stroke), blood, blood vessels, critical care and sleep/circadian rhythm. Their mission, however, goes beyond funding primary research. Since ICRH's mandate encompasses a broad spectrum of health concerns, much effort goes into encouraging the formation of research networks, training and career development for researchers, supporting Indigenous Health Research, and facilitating the ICRH community's contribution to multi-institute initiatives.

Dr. Rowe's experience as a practicing emergency



**Ebele
Unaegbunam**

Project Coordinator
MSc

physician informs his work with ICRH. In his clinical experience he has seen firsthand the impact circulatory and respiratory diseases have on patients' quality of life. With his extensive background in research, Dr. Rowe leads the ICRH team in identifying gaps in knowledge and utilizing CIHR resources to address those gaps that fall within the ICRH mandate. His involvement with both ICRH and EMeRG benefits both groups as it provides exciting opportunities for future collaboration.

2019 BY THE NUMBERS

28

MANUSCRIPTS PUBLISHED

1

MANUSCRIPT IN PRESS

29

ABSTRACTS PUBLISHED

7

GRANTS HELD



PARTNERSHIPS

International

- Harvard University (Boston, USA)
- St. George's Hospital Medical School (London, UK)
- Universidad Industrial de Santander (Bucaramanga, Colombia)



APPENDIX

Published Papers (28)

1. Arrotta N, Hill J, Villa-Roel, Dennett E, Harries M, Rowe BH. Factors associated with hospital admission in adult patients with asthma exacerbations: A systematic review. *J Asthma*. 2019; 56(1):34-41.
2. Thiruganasambandamoorthy V, Rowe BH, Sivilotti MLA, McRae AD, Arcot K, Nemnom M-J, et al. Duration of electrocardiographic monitoring of emergency department patients with syncope. *Circulation*. 2019; 139(11):1396-1406.
3. Thiruganasambandamoorthy V, Sivilotti MLA, Rowe BH, McRae AD, Mukarram M, et al. Prevalence of pulmonary embolism among emergency department patients with syncope: A multicenter prospective cohort study. *Ann Emerg Med*. 2019; 73(5):500-510.
4. Kirkland AW, Soleimani A, Rowe BH, Newton A. A systematic review examining the impact of redirecting low acuity patients who seek emergency department care: Is the juice worth the squeeze? *Emerg Med J*. 2019; 36(2):97-106.
5. McAlister FA, Ye C, Beaupre LA, Rowe BH, Johnson JA, Bellerose D, Hassan I, Majumdar SR. Adherence to bisphosphonates after an upper extremity fracture: A pre-specified substudy of the C-STOP randomized controlled trial. *Osteoporosis International*. 2019; 30(1):127-134.
6. Wozniak LA, Rowe BH, Ingstrup M, Johnson JA, McAlister FA, Bellerose D, Beaupre LA*, Majumdar SR*. Patients' experiences of nurse case-managed osteoporosis care: A qualitative study. *Journal of Patient Experience*. 2019; 1-7.
7. Tsuyuki RT, Lockwood EE, Shibata MC, Simpson SH, Tweden KL, Gutierre R, Reddy MC, Rowe BH, Villa-Roel C, Fradette M. A randomized controlled trials of video-based education in patients with heart failure: The Congestive Heart Failure Outreach Program of Education (COPE). *CJC Open*. 2019; 1:62-68.
8. Rowe BH, Villa-Roel C, Krebs L. Just the facts: How to diagnose and treat acute asthma. *Can J Emerg Med*. 2019; 21(3):339-342.
9. Majumdar SR, Lier DA, McAlister FA, Johnson JA, Rowe BH, Beaupre LA. Cost-effectiveness of osteoporosis interventions to improve quality of care after upper extremity fracture: results from a randomized trial (C-STOP Trial). *J Bone and Mineral Research*. 2019; 34(7):1220-1228.
10. Kirkland S, Vandermeer B, Campbell S, Villa-Roel C, Newton A, Ducharme F, Rowe BH. Evaluating the effectiveness of systemic corticosteroids to mitigate relapse in children with acute asthma: a network meta-analysis. *J Asthma*. 2019; 56(5):522-533.
11. Pitt TM, Aucoin J, Graff P, Nettel-Aguirre A, McCormack GR, Howard AW, Rowe BH, Hagel BE. Adaptation of a Canadian culpability scoring tool to Alberta police traffic collision report data. *Traffic Inj Prev*. 2019; 20(3):270-275.
12. Sephehrvand N, Alemayehu W, Rowe BH, McAlister FM, van Diepen S, Stickland M, Ezekowitz JA. High versus Low oxygen therapy in patients with acute Heart Failure: HiLo-HF Pilot trial. *ESC Heart Failure*. 2019; 6(4):667-677.
13. Campbell S, Innes G, Magee KD, Elnenaei MO, Rowe BH. A five-step program for disagnostic test addiction. *Can J Emerg Med*. 2019; 21(5):576-579.
14. Clark S, Boggs KM, Balekian DS, Hasegawa K, Vo P, Rowe BH, Camargo CA. Changes in emergency department concordance with guidelines for the management of food-induced anaphylaxis: 1999-2001 versus 2013-2015. *J Allergy Clin Immunol Pract*. 2019; 7(7):2262-2269.

15. Moe J, Camargo CA Jr, Davis RB, Jelinski S, Rowe BH. Frequent emergency department use as an independent factor associated with mortality in substance misuse: A population-based retrospective cohort study. *CJEM*. 2019; 21(14):482-491.
16. Hachinski V, Einhaupl K, Ganten D, Alladi S, Brayne C, Stephan BCM, Khachaturian Z, Sweeney M, Zlokovic B, Iturria-Medina Y, Iadecola C, Nishimura N, Schaffer CB, Whitehead SN, Black SE, Østergaard L, Wardlaw J, Greenberg S, Friberg L, Norrving B, Rowe B, Joannette Y, Hacke W, Kuller L, Dichgans M, Endres M. Preventing dementia by preventing stroke: The Berlin Manifesto. *Alzheimer's & Dementia*. 2019; 15:961-984.
17. Hachinski V, Einhaupl K, Ganten D, Alladi S, Brayne C, Stephan BCM, Sweeney M, Zlokovic B, Iturria-Medina Y, Iadecola C, Nishimura N, Schaffer CB, Whitehead SN, Black SE, Østergaard L, Wardlaw J, Greenberg S, Friberg L, Norrving B, Rowe B, Joannette Y, Hacke W, Kuller L, Dichgans M, Endres M, Khachaturian Z. Special topic section: linkages among cerebrovascular, cardiovascular, and cognitive disorders: Preventing dementia by preventing stroke: The Berlin Manifesto. *Int J Stroke*. 2019 Sep 22:1747493019871915.
18. Yau L, Mukarram MA, Kim S-M, Arcot K, Thavorn K, Stiell IG, Taljaard M, Rowe BH, Sivilotti MLA, Thiruganasambandamoorthy V. Outcomes and emergency medical services resource utilization among patients with syncope arriving to the emergency department by ambulance. *CJEM*. 2019; 21(14):499-504.
19. Villa-Roel C, Borgundvaag B, Majumdar SR, Emond M, Campbell S, Sivilotti M, Abu-Laban RB, Stiell IG, Aaron SD, Senthilselvan A, Rowe BH. Reasons and outcomes for patients receiving ICS/LABA agents prior to, and one month after, emergency department presentations for acute asthma. *J Asthma*. 2019; 56(9):985-994. Published online: 12 Oct 2018
20. Pitt TM, Nettel-Aguirre A, McCormack GR, Howard AW, Piatkowski C, Rowe BH, Hagel BE. Child and adolescent bicycling injuries involving motor vehicle collisions. *Injury Epidemiology*. 2019; Mar 4:6:7, doi: 10.1186/s40621-019-0185-z. eCollection 2019.
21. Rowe BH, Villa-Roel C, Krebs L. Just the facts: How to diagnose and treat benign headaches. *Can J Emerg Med*. 2019; 21(5):587-590.
22. Lefebvre D, Dong K, Dance E, Rosychuk RJ, Yarema M, Blouin D, Rowe BH. Resident physician wellness curriculum: a study of efficacy and satisfaction. *Cureus*. 2019; 11(8): e5314. DOI 10.7759/cureus.5314. Published 03 August 2019
23. Scheuermeyer FX, Andolfatto G, Christenson J, Villa-Roel C, Rowe BH. A multicenter randomized trial to evaluate a chemical-first or electrical-first cardioversion strategy for patients with uncomplicated acute atrial fibrillation. *Academ Emerg Med*. 2019; 26(9):969-981.
24. Pitt TM, Nettel-Aguirre A, McCormack GR, Howard AW, Rowe BH, Hagel BE. Identifying motorist risk factors for youth bicycle-motor vehicle collisions. *Traffic Inj Prev*. 2019; 20(7):744-748.
25. Fernandes RM, Wingert A, Vandermeer B, Featherstone R, Ali S, Plint AC, Stang AS, Rowe BH, Johnson DW, Allain D, Klassen TP, Hartling L. Safety of corticosteroids in young children with acute respiratory conditions: a systematic review and meta-analysis. *BMJ Open*. 2019; 9(8):e028511.
26. Cheng AHY, Campbell S, Chartier L, Dowling S, Gosselin S, Goddard T, Holroyd BR, Kapur AK, Magee K, McEwan J, Thiruganasambandamoorthy V, Upadhye S, Rowe BH. Choosing Wisely Canada's emergency medicine recommendations: Time for a revision. *Can J Emerg Med*. 2019; 21(6):717-720.
27. Gaudet L, Eliyahu L, Beach J, Mrazik M, Cummings G, Voaklander D, Rowe BH. Workers' recovery from concussions presenting to the emergency department. *Occupational Medicine*. 2019; 69:419-427.
28. Gilbertson J, Moghrabi R, Kirkland SW, Tate K, Sevcik W, Lam N, Villa-Roel C, Rowe BH. Clinical Reviews in Emergency Medicine: Interventions to improve emergency department-related transitions in care for adult patients with atrial fibrillation and flutter. *J Emerg Med*. 2019; 57(4):501-516.

In-Press Manuscripts at the end of 2019 (1)

1. McLeod S, McCarron J, Ahmen T, Grewal K, Mittmann N, Scott S. et al. Interrater reliability, accuracy, and triage time pre- and post-implementation of a real-time electronic triage decision-support tool. *Ann Emerg Med.* 2019 Sep 26. pii: S0196-0644(19)30665-1. doi: 10.1016/j.annemergmed.2019.07.048.

Published Abstracts (29)

1. Stickland M, et al. Effect of a Standardized COPD discharge bundle on patient care, 30-day readmissions and length of stay. *Can J Resp, Crit Care, and Sleep.* 2019 (In press)
2. Krebs LD, Hill N, Villa-Roel C, Ospina MB, Holroyd BR, Rowe BH. Piloting a "chest x-ray for acute asthma" knowledge dissemination tool in Alberta emergency departments. *Can J Resp, Crit Care, and Sleep.* 2019; 3(S1), S44.
3. Krebs LD, Villa-Roel C, Alexiu CJ, Holroyd BR, Ospina MB, Rowe BH. An epidemiological exploration of acute asthma presentations to emergency departments and physician imaging practices in Alberta. *Can J Resp, Crit Care, and Sleep.* 2019; 3(S1), S5.
4. Krebs LD, Villa-Roel C, Ospina MB, Holroyd BR, Rowe BH. Exploring emergency physicians' self-reported management of acute asthma in the emergency department. *Can J Resp, Crit Care, and Sleep.* 2019; 3(S1), S6.
5. Brubacher J, Chan H, Lee J, Rowe B, Koger K, Davis P, Vaillancourt C, Wishart I. The prevalence and pattern of drugs detected in injured drivers in four Canadian provinces. *Can J Emerg Med.* 2019;21(S1):S62–S62.
6. Gaudet L, Eliyahu L, Mrazik M, Beach J, Cummings G, Voaklander D, Rowe BH. Similarities and differences between sports and recreation-related concussions and concussions from non-sport activities. *Can J Emerg Med.* 2019;21(S1):S24–S25.
7. Gaudet L, Eliyahu L, Mrazik M, Beach J, Cummings G, Voaklander D, Rowe BH. Mismatches in pre-injury activities and return-to-activity advice received by concussion patients presenting to the emergency department. *Can J Emerg Med.* 2019;21(S1):S82–S82.
8. Gaudet L, Kirkland S, Keto-Lambert D, Rowe BH. Interventions to improve emergency department consultation processes: a systematic review. *Can J Emerg Med.* 2019;21(S1):S81–S81.
9. Gaudet L, Krebs L, Carr M, Kruhlak M, Hall A, Mahoney K, Sevcik B, Rowe BH. Breaking down the pieces: A scoping review exploring the components of image ordering interventions and trends in their outcomes in pediatric emergency medicine. *Can J Emerg Med.* 2019;21(S1):S81–S82.
10. Ghalab A, Kruhlak M, Kirkland S, Ruske H, Campbell S, Villa-Roel C, Rowe BH. The effectiveness of emergency department-based interventions for patients with advanced or end-stage illness: a systematic review. *Can J Emerg Med.* 2019;21(S1):S82–S82.
11. Gouda J, Runham N, Krebs L, Couperthwaite S, Rowe BH. Benign headache management in Alberta emergency departments: a chart review study to explore gaps in practice. *Can J Emerg Med.* 2019;21(S1):S118–S118.
12. Junqueira D, Kirkland S, Clua M, Campbell S, Rowe BH. Scoping reviews to inform stakeholders and policy makers: an initiative on how to prevent visits to the Emergency Department (ED) among patients with cancer. In: Abstracts of the 26th Cochrane Colloquium, Santiago, Chile. *Cochrane Database of Systematic Reviews* 2020;(1 Suppl 1):15]
13. Kirkland S, Garrido Clua M, Kruhlak M, Campbell S, Villa-Roel C, Rowe BH. Assessing screening tools to identify patients with palliative care needs in the emergency department: a systematic review. *Can J Emerg Med.* 2019;21(S1):S18–S18.
14. Kirkland S, Gaudet L, Keto-Lambert D, Rowe BH. Consultations in the emergency department: a

- systematic review. *Can J Emerg Med.* 2019;21(S1):S89–S89.
15. Krebs L, Hill N, Villa-Roel C, Couperthwaite S, Ospina M, Holroyd B, Rowe BH. Piloting imaging-focused knowledge dissemination tools in Alberta emergency departments. *Can J Emerg Med.* 2019;21(S1):S91–S91.
 16. Krebs L, Villa-Roel C, Couperthwaite S, Holroyd B, Ospina M, Rowe BH. Emergency physicians' perception on engaging patients in their emergency department care. *Can J Emerg Med.* 2019;21(S1):S117–S118.
 17. Krebs L, Villa-Roel C, Couperthwaite S, Ospina M, Holroyd B, Rowe BH. Emergency physicians' self-reported management of benign headache in Alberta emergency departments. *Can J Emerg Med.* 2019;21(S1):S90–S90.
 18. Loewen N, Gaudet L, Franczak B, Rowe BH. Concussions in minor hockey players before and after implementation of a policy to limit body checking. *Can J Emerg Med.* 2019;21(S1):S24–S24.
 19. McRae A, Innes G, Schull M, Lang E, Grafstein E, Rowe BH, Rosychuk R. Associations between ED crowding metrics and 72h-hour ED re-visits: Which crowding metrics are most highly associated with patient-oriented adverse outcomes? *Can J Emerg Med.* 2019;21(S1):S10–S10.
 20. Meyer J, Visser L, Kirkland S, Villa-Roel C, Junqueira D, Campbell S, Rowe BH. The effectiveness of parenteral agents to reduce relapse in patients with acute migraine in emergency settings: a systematic review. *Can J Emerg Med.* 2019;21(S1):S13–S13.
 21. Meyer J, Visser L, Kirkland S, Junqueira DR, Villa-Roel C, Campbell S, Rowe B. Systematic review for the treatment of acute migraine in the emergency department. *Festival of Undergraduate Research & Creative Activities (FURCA).* 2019. P48.
 22. Visser L, Meyer J, Kirkland S, Villa-Roel C, Junqueira D, Campbell S, Rowe BH. Should emergency physicians bother offering triptans to patients with acute migraine? A systematic review of parenteral agents. *Can J Emerg Med.* 2019;21(S1):S13–S14.
 23. Garrido Clua M, Kruhlak M, Kirkland S, Villa-Roel C, Elwi A, O'Neill B, Brisebois A, Duggan S, Rowe BH. Comparing met vs. unmet palliative care needs in patients with end-stage conditions presenting to two Canadian emergency departments. *Can J Emerg Med.* 2019;21(S1):S89–S89.
 24. Jiang A, Godwin J, Moe J, Buxton J, Crabtree A, Kestler A, Scheuermeyer F, Erdelyi S, Slaunwhite A, Rowe BH, et al. One-year mortality of patients treated in the emergency department for an opioid overdose: a single-centre retrospective cohort study. *Can J Emerg Med.* 2019;21(S1):S14–S14.
 25. Kirkland S, Kruhlak M, Garrido Clua M, Villa-Roel C, Couperthwaite S, Brisebois A, Elwi A, O'Neil B, Duggan S, Rowe BH. The frequency of emergency departments visits for patients with end-of-life conditions: a call for action. *Can J Emerg Med.* 2019;21(S1):S44–S45.
 26. Krebs L, Villa-Roel C, Ushko D, Sandhar G, Ruske H, Couperthwaite S, Holroyd B, Ospina M, Rowe BH. Do QR codes effectively engage patients in research while visiting the emergency department? *Can J Emerg Med.* 2019;21(S1):S90–S91.
 27. Krebs L, Villa-Roel C, Ushko D, Sandhar G, Ruske H, Couperthwaite S, Holroyd B, Ospina M, Rowe BH. Your emergency department journey: piloting a patient poster explaining the emergency department care process. *Can J Emerg Med.* 2019;21(S1):S117–S117.
 28. Stiell I, McRae A, Rowe BH, Dreyer J, Mielniczuk L, et al. Development of the HEARTRISK6 Scale for emergency department patients with acute heart failure. *Can J Emerg Med.* 2019;21(S1):S7–S7.
 29. Stiell I, Perry J, Birnie D, Macle L, Vadeboncoeur A, Thiruganasambandamoorthy V, Borgundvaag B, Brison R, Hohl C, McRae A, Rowe BH, et al. A randomized, controlled comparison of electrical versus pharmacological cardioversion for emergency department patients with recent-onset atrial fibrillation. *Can J Emerg Med.* 2019;21(S1):S5–S5.



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