

EMeRG



Emergency Medicine Research Group

2020 Annual Report



UNIVERSITY OF
ALBERTA

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 emergency research

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

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Alberta Health

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Department of Emergency Medicine, University of Alberta

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Emergency Strategic Clinical Network, Alberta Health Services

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



As I reflect back on 2020, I concur with many of the descriptors applied to this period by others: unprecedented, tragic, surreal, unique, etc. From the start of the year when Ukrainian Airlines Flight 742 was shot down just after liftoff by an Iran military missile, to the emerging global pandemic, the lockdowns on campuses and in everyday life, and the morbidity and mortality associated with the pandemic spread, this is a year none of us will ever forget. I am proud to say that the Emergency Medicine Research Group (EMeRG) in the Department of Emergency Medicine has continued to work remotely and contribute to the generation of new evidence, knowledge synthesis, and capacity development within our field.

Like many other clinical research ours, EMeRG staff members have had to adapt to the new normal. Entering our 10th month of being off campus, working from home has not been easy, it has been lonely, and the novelty seems to have work off! I am gratified by the accomplishments of the research team over the past year, and want to personally thank them for their patience, dedication and commitment to the important scientific activities. There has been personnel changes, and I would like to officially welcome our new staff (Uira Wisnesky, Esther Yang, Britt Voaklander, and Jessica Poulin), congratulate our students who have been accepted into professional training programs (Gurpreet Sandhar, Jillian Meyer, Maureen Kruhlak, Emily Amprako), thank our lone

summer student (Jacob Rabuka), and thank the departing staff (Daniela Junqueira, Nicole Hill) for their contributions. A special appreciation goes to those staff who have remained (Lynette Krebs, Scott Kirkland, Stephanie Couperthwaite, Natalie Runham, and Sonia La Giorgia). It has been an honour and privilege to work with you all!

Despite the hardships of 2020, there were also many positives. For example, globally there was a re-emergence of science and evidence to the forefront of decision-making. Many will recall the initial optimism of hydroxychloroquine (HQ) therapy for COVID-19, the rush to gather more evidence (see Junqueira 2020 in our publication list), and the adaptive trial that proved the initial optimism for HQ was misguided. Provincially, we have collaborated with the University of Calgary and others across Canada to participate in the COVID-19 ED study. Locally, we welcomed the first fulltime female Dean of the Faculty of Medicine & Dentistry in January. Dr. Brenda Hemmelgarn has not had an easy first year; however, we are making progress as a Faculty and appreciate her leadership. Finally, work-from-home has driven innovation in research (e.g., electronic consents, data harmonization, and paperless chart options through the electronic medical record and CONNECT Care) and communications (Zoom, Google Meets, MS Teams, etc). Many of the changes that have occurred will be retained after the pandemic is over.

We hope this report of some of the important research, education, and innovation contributions made by our team highlight the critical role of research in providing high-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), FCCP, FCAHS
Director, Emergency Medicine Research Group, University of Alberta
Scientific Director, Institute of Circulatory and Respiratory Health, CIHR
Professor, Department of Emergency Medicine
University of Alberta

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



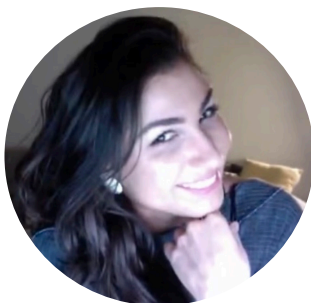
Brian H. Rowe

Director
MD, MSc, CCFP(EM)



**Stephanie
Couperthwaite**

Data Management
Coordinator
BSc



**Uirá Duarte
Wisnesky**

Postdoctoral Fellow
MA, MSc, PhD



Sonia La Giorgia

Research Administra-
tive Assistant
BSc



Daniela Junqueira

Research Associate
Pharm. D, MSc, PhD



Scott Kirkland

Research Coordinator
MSc



Lynette Krebs

Research Coordinator
RSW, MPP, MSc



Natalie Runham

Lead Clinical Research
Coordinator
BScN, RN, CRE,
ARCP-CP



Kevin Skoblenick

Resident
MD, MSc, PhD



Esther Yang

Research Coordinator
MSc



Nicole Hill

Research Assistant
MA, PhD (c)

IN 2021 WE ARE PLEASED TO BE WELCOMING:



Jessica Poulin

Clinical Research Assistant
BScN, MSc (c)



Cristina Villa-Roel

Research Associate
MD, PhD



Britt Voaklander

Research Assistant
MSc



Jesse Hill

Resident, Graduate Student
MD, MSc (c)

STUDENTS: NEW THIS YEAR



Jason Rabuka

Jacob spent the Summer of 2020 with the EMeRG team as the inaugural COVID-019 pandemic summer student. He worked on a scoping review involving geriatric emergency medicine with Dr. Uira Wisnesky. He is in the process of completing a Bachelor of Fine Arts degree at MacEwan University in Edmonton. Jacob is a member of a jazz quartet and performs concerts for money (hint, hint)! He has aspirations of entering medicine; however, that's only if he isn't selected to replace John Batiste on The Late Show with Stephen Colbert. If he does that, we'll be able to say we knew him when...

STUDENTS: MOVING ON TO FUTURE CAREER TRAINING



Emily Amprako

Emily joined the EMeRG research team in the Fall of 2019 as a data entry clerk following the completion of her Bachelor of Science degree at the University of Alberta in May 2020. She was accepted into the Doctor of Pharmacy (PharmD) program in the Department of Pharmacy and Pharmaceutical Sciences at the University of Alberta and started classes in September 2020. She will graduate with a PharmD in June 2024. Congratulations to Emily and best wishes for continued success!



Maureen Kruhlak

Maureen joined the EMeRG research team in the Fall of 2017 as a data entry clerk following the completion of her Honours Bachelor of Science degree at the University of Victoria in May 2016. She was instrumental in the prospective study conducted at the University of Alberta Hospital Emergency Department involving patients with Palliative Care/end-of-life needs. She was accepted into the Doctor of Veterinary Medicine (DVM) program at St. George's University in Grenada, West Indies. She began her virtual classes in August 2020, will graduate with a DVM in May 2024, and will be licensed to practice throughout North America and Europe. Congratulations to Maureen and we wish her success in vet school!



Jillian Meyer

Jillian spent the Summers of 2018 and 2019 with the EMeRG team and then joined us full time in September 2019 after the completion of her Bachelor of Science degree at the University of Alberta. She was accepted into medical school in the Faculty of Medicine & Dentistry at the University of Alberta. She started in August 2020 and will graduate with an MD in June 2024. Congratulations to Jillian and we look forward to your continued involvement in EMeRG!



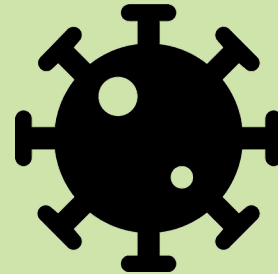
Gurpreet Sandhar

"Gary" spent the Summers of 2018 and 2019 with the EMeRG team. He completed three-years of a Bachelor of Science degree at the University of Alberta in May 2020. He was accepted into medical school in the Faculty of Medicine at the University of Calgary and started in August 2020. He will graduate with an MD in June 2023. Congratulations to Gary and we wish him success in medical school!

AREAS OF IMPACT

COVID-19

This year we experienced a global pandemic that severely challenged our healthcare system. To address this, we have partnered with 50 other research sites across the country to form the Canadian COVID-19 Emergency Department Rapid Response Network (CCEDRRN) with the goal of informing evidence-based acute care decisions. Aiming to examine treatment, risk factors, and prognosis; our team works vigorously to collect data and examine charts of patients diagnosed with COVID-19. The network will derive, validate, and implement clinical decision rules to support Emergency Department decision-making for patients with suspected and confirmed COVID-19. Through our COVID-19 efforts, we have worked on a national COVID-19 registry, established electronic collection and consent protocols, and published a review of the efficacy and safety of hydroxychloroquine. We are supporting two other CCEDRRN sites in Edmonton, the Royal Alexandra Hospital (RAH; Site PI: Dr. Jake Hayward) and the Northeast Community Health Centre (NECHC; Site PI: Dr. Jaspreet Khangura).



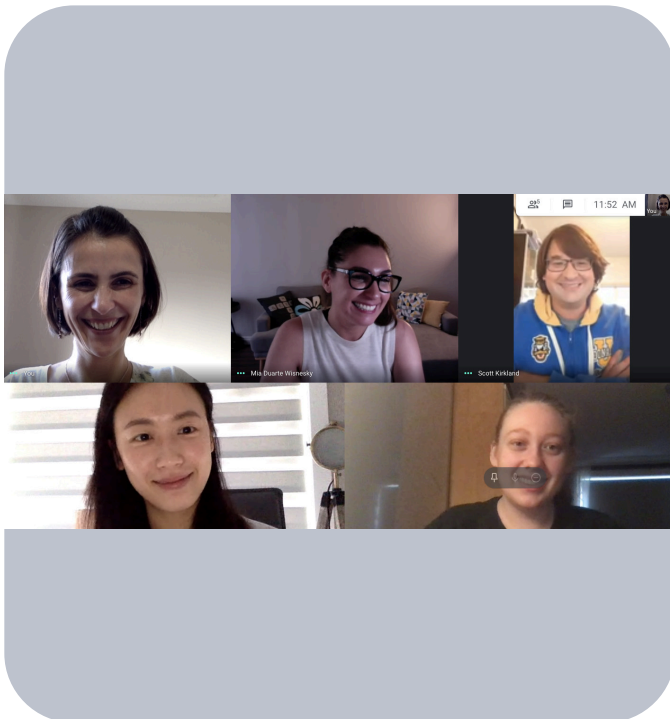
Cannabis

The legalization of cannabis in Canada has increased the demand for further research investigating its safety and relevance to emergency department (ED) presentations. To contribute to this, we conducted a scoping review exploring cannabis-related ED visits looking at prevalence, emesis, vehicle collisions, trauma, and mental health. Furthermore, the recent legalization gave us the opportunity to conduct a study comparing the prevalence of cannabis-induced psychosis in the pre- and post- legalization periods. Additionally, we conducted a cross-sectional study assessing vaping, tobacco and cannabis use among ED patients and their association with lung health in ED patients. Finally, we continued to work on the multi-center "Demographic and Regional Variation of Drug-Impaired Driving in Canada" (PI: Dr. Jeff Brubaker; UBC) which seeks to describe the prevalence of drug-impaired driving in several Canadian provinces.



Palliative Care

End-of-life patients have a specific set of care needs which are not always met when they present to the ED. This year we continued our work on multiple projects relating to multiple facets of palliative care in the ED. We assessed the effectiveness of screening tools in the ED in order to properly identify patients in need of end-of-life care. We also wrote abstracts and articles relating to the ED management of cancer in comparison to other end-stage conditions, interventions for palliative patients presenting to the ED, and clinician's experiences on providing end of life care. We continued work on a pilot study documenting met versus unmet palliative care needs in two Canadian emergency departments.



START Triage

An exciting initiative that we began this year is a systematic review assessing the accuracy of the START tool for mass casualty triage. Despite being a widely used triage system, there is a lack of synthesized evidence on the efficacy of START to accurately triage patients in a disaster setting. We compared START to other systems in terms of several measurements including accuracy, over-triage, and under-triage. We also looked at other factors that may affect the proper implementation or comparison of START including who was conducting the triage, the training participants received, and the type of simulation used to mimic the mass casualty scenario.

RESIDENT SPOTLIGHT



Last year, we welcomed Dr. Kevin Skoblenick, who spent the 4th year of his residency with our research program conducting research in neuroscience, mental health and addiction (NMHA). The pandemic created new challenges; however, it was a successful experience for both the team and Kevin.

This year, we are excited to highlight Dr. Jesse Hill, a 4th year emergency medicine resident who is currently pursuing his master's degree. Jesse has seen firsthand the difficulties patients face with extended wait times and therefore decided to focus his research on the important problem of ED efficiency. More specifically, he will focus on evaluating the recently introduced high sensitivity cardiac troponin implementation strategy.

Jesse completed his undergraduate degree and MD at the University of Alberta where he was awarded the Dean's Gold Medal in Science. Jesse

has a deep and eclectic research background; his work looking at the effect of flea beetles on canola crops first fostered his love of research. He continued doing ecological studies for his senior undergraduate project where he examined the increasing prevalence of negative urban encounters between people and coyotes in Edmonton.

Jesse further diversified his research background in medical school where he pursued prostate cancer research and was first introduced to the role of clinician-scientist. After his second year of medical school, Jesse joined the EMeRG team as a summer student where he contributed to systematic reviews looking at asthma exacerbations in the ED. During residency, Jesse has also studied the gender disparity within

“I love emergency medicine because of the breadth of what I am able to see on any given shift.”

emergency medicine editorial boards and written a systematic review on the impact trauma systems have on mortality at a nationwide level.

In addition to his passion for research, Jesse has many diverse areas of interest outside of medicine. As a previous varsity track athlete, Jesse still enjoys cross-country runs in the beautiful river valley. To regain his energy after a long run, Jesse likes to bake and relax with a good fantasy novel.

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



**Ebele
Unaegbunam**

Project Lead, Strategic
Initiatives
MSc

In addition to functioning as the Scientific Director of EMeRG, Dr. Rowe is also the Scientific Director of the Institute of Circulatory and Respiratory Health (ICRH), one of 13 virtual institutes of the Canadian Institutes of Health Research (CIHR). Like the National Institutes of Health (NIH) in the USA, CIHR is Canada's federal health research granting agency. More so than most, CIHR has also been dealing with the pandemic, working from home and helping to maintain a fragile ecosystem of partners who participate in funding research. The

ICRH supports diverse research initiatives related to heart, lung, brain (stroke), blood, blood vessels, critical care and sleep/circadian rhythm. Our mission, however, extends beyond funding primary research. Since ICRH's mandate encompasses a broad spectrum of health concerns, much effort goes into encouraging the formation of research collaborations (e.g., consortia, networks, teams); training and career development for researchers; supporting Indigenous Health Research; addressing equity diversity and inclusion (EDI) in research; and facilitating the ICRH community's contribution to multi-institute initiatives.

During the pandemic, CIHR has been responsible for launching Phase I (\$54M) and Phase II (\$109M) Pandemic Response funding opportunities, the Mental Health Initiative (\$10M), completing the Spring and Fall Project competitions (>\$700M), and launching grants for a Network of Clinical Trials Networks (\$6.4M), the SOLIDARITY Trial (\$3.5M), addiction guidelines (\$1M), knowledge translation (\$1M), and Long-Term Care (\$1.5M).

During the pandemic, ICRH has led the Vaping Catalyst initiative (\$2.7M), Sepsis Network funding (\$5.2M), and directed grants for critical care and venous thrombo-embolism networks (\$300K).

More pandemic funding will be launched to explore viral variants, vaccine effectiveness, and vaccine hesitancy, and the so-called unintended consequences of COVID-19 (e.g., surgical delays, health system changes, and long-haul COVID) in 2021. Overall, the pandemic response represents

well over \$1 billion in research funding to address this health crisis.

Dr. Rowe's experience as a practicing emergency 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, especially during the pandemic. With his extensive background in acute care research and methods, 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.

Dr. Rowe wishes to thank the ICRH staff (shown above), partners and the Ottawa-based CIHR staff for their commitment to support Institute-led and national research funding initiatives.

2020 BY THE NUMBERS

24

MANUSCRIPTS PUBLISHED

10

MANUSCRIPT IN PRESS

12

ABSTRACTS PUBLISHED

3

NEW GRANTS

> \$5.5M

IN FUNDING



PARTNERSHIPS

International

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



APPENDIX

Published Papers (24)

1. Stiell IG, Sivilotti MLA, Taljaard M, Birnie D, Vadeboncoeur A, Hohl CM, McRae AD, Rowe BH, et al. Electrical versus pharmacological cardioversion for emergency department patients with acute atrial fibrillation (RAFF2): A partial factorial randomised trial. *Lancet*. 2020; 395:339–49.
2. Cummings GG, McLane P, Reid RC, Tate K, Cooper S, Rowe BH, Estabrooks CA, Cummings GE, Abel S, Lee J, Robinson C, Wagg A. Fractured care: A window into emergency transitions in care for long term care residents with complex health needs. *J Aging Health*. 2020; 32(3-4):119-133.
3. 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*. 2020; 75(4):524-531.
4. Michas M, Deucha L, Leigh R, Bhutani M, Rowe BH, Stickland MK, Ospina MB. Factors influencing the implementation and uptake of a discharge care bundle for patients with acute exacerbation of chronic obstructive pulmonary disease: A qualitative focus group study. *Implementation Science Communications*. 2020; 1:3 (pp: 1-12).
5. Thiruganasambandamoorthy V, Sivilotti, MLA, Lesage N, Yan JW, Huang P, Hegdekar M, Mercier E, Mukarram M, Nemnom M-J, McRae AD, Rowe BH, et al. Does N-Terminal Pro-B-Type Natriuretic Peptide Improve the Risk Stratification of Emergency Department Patients With Syncope? *Ann Intern Med*. 2020; 172(10):648–655.
6. Rowe BH, McRae A, Rosychuk RJ. Temporal trends in emergency department volumes and crowding metrics in a western Canadian province: a population-based, administrative data study. *BMC Health Services Research*. 2020; 20:356.
7. Sepehrvand N, Youngson E, Bakal JA, McAlister FM, Rowe BH, Ezekowitz JA. External validation and refinement of EHMRG risk model in patients with heart failure in the emergency department. *CJC Open*. 2019; 1(3):123-130.
8. Sagaidak S, Rowe BH, Ospina MO, Rosychuk RJ. Emergency department crowding negatively influences outcomes for children presenting with asthma: A population-based retrospective cohort study. *Pediatr Res*. 2020 Apr 28. doi: 10.1038/s41390-020-0918-2. [Epub ahead of print]
9. Kirkland S, Garrido-Clua M, Junquiera DR, Rezende D, Campbell S, Rowe BH. Preventing emergency department visits among patients with cancer: A scoping review. *Supportive Care in Cancer*. 2020; 28(9):4077-4094
10. Thiruganasambandamoorthy V, Sivilotti, MLA, Lesage N, Yan JW, Huang P, Hegdekar M, Mercier E, Mukarram M, Nemnom M-J, McRae AD, Rowe BH, et al. Multicenter prospective validation of the Canadian syncope risk score. *JAMA Int Med*. 2020; 180(5):1-8.
11. Kirkland S, Garrido-Clua M, Junquiera DR, Rezende D, Campbell S, Rowe BH. Correction to: Preventing emergency department visits among patients with cancer: A scoping review. *Support Care Cancer*. 2020 Sep; 28(9):4077-4094.
12. Tate K, Reid RC, McLane P, Cummings GE, Rowe BH, Estabrooks CA, Norton P, Lee JS, Wagg A, Robinson C, Cummings GG. Who doesn't come home? Factors influencing mortality among long-term care residents transitioning to and from emergency departments. *J Appl Gerontol*. 2020; Oct 7:733464820962638. doi:

13. Tsuyuki R, Midodzi W, Villa-Roel C, Marciniuk D, Mayers I, Vethanayagam D, Chan M, Rowe BH. Diagnostic practices for patients with shortness of breath and presumed obstructive airway disorders: A cross-sectional analysis. *CMAJ Open*. 2020; 8(3):E605-E612.
14. Rowe BH, Ovens H, Schull MJ. CJEM Debate Series: Diverting low-acuity patients from the emergency department: Stop blaming the patients! *Can J Emerg Med*. 2020 Sep; 22(5):641-643.
15. Palikhe NS, Wu Y, Konrad E, Gandhi VD, Rowe BH, Vliagoftis H, Cameron L. Th2 cell markers in peripheral blood increase during an acute asthma exacerbation. *Allergy*. 2020 Aug 4. doi: 10.1111.
16. Rowe BH, McAlister FM, Holroyd BR, Graham M, Rosychuk R. Despite having worse risk profiles, northern Albertans wait longer for specialist follow-up after emergency department visits for atrial fibrillation. *CJC Open*. 2020; 2(6): 610–618.
17. Luchak A, Solomon LA, Kanagalingam T, Rowe BH, Cameron L. Comparative efficacy of glucocorticoid receptor agonists on Th2 cell function and attenuation by progesterone. *BMC Immunology*. *BMC Immunol*. 2020 Oct 19;21(1):54. doi: 10.1186/s12865-020-00383-8.
18. Junquiera DR, Rowe BH. Efficacy and safety outcomes of proposed randomized controlled trials investigating hydroxychloroquine and chloroquine during the early stages of the COVID-19 pandemic. *British J Clin Pharm*. 2020 Oct 13. doi: 10.1111
19. Rosychuk R, Rowe BH. Type of facility influences lengths of stay of children presenting to high volume emergency departments. *BMC Pediatr*. 2020 Nov 2;20(1):500. doi: 10.1186/s12887-020-02400-6.
20. Krishnan R, Mukarram M, Ghaedi B, Sivilotti M, Le Sage N, Yan J, Huang P, Hegdekar M, Mercier E, Nemnom M, Calder L, McRae A, Rowe BH, Wells G, Thiruganasambandamoorthy V. Role of hospitalization for detection of serious adverse events among emergency department patients with syncope: A propensity-score matched analysis of a multicenter prospective cohort. *Can Med Assoc J*. 2020; 13;192(41):E1198-E1205.
21. Villas B, Wisnesky UD, Campbell S, Slavik L, Mevawala A, Handl MN, & Guptill C. (2020). The role of occupational therapy in musicians' health: A scoping review protocol. *BMJ Open*, 10:e040922. doi: <http://dx.doi.org/10.1136/bmjopen-2020-040922>
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23. Duarte Wisnesky U, Olson J, Paul P, Dahlke S, Slaughter SE, de Figueiredo Lopes V. (2020). Sit-to-stand activity to improve mobility in older people: A scoping review. *International Journal of Older People Nursing*, 15(3). <https://doi.org/10.1111/opn.12319>
24. Barboza VS, Azevedo SL, Lindolpho LC, Reis LB, Chaves WB, Chrizóstimo MM, Wisnesky UD, Silva JVL (2020). Website in the teaching-learning process of physical examination: The construction of knowledge in undergraduate nursing. *Brazilian Journal of Health Review*. doi: 10.34119/bjhrv3n2-47

In-Press Manuscripts at the end of 2019 (10)

1. Tate K, Lee S, Rowe BH, Cummings GE, Holroyd-Leduc J, Reid RC, El-Bialy R, Bakal J, Estabrooks CA, Anderson C, Cummings GG. Identifying quality indicators for older persons' transitions in care: A Delphi process. *Canadian Journal on Aging*. 2020 (In press).
2. Lee SK, Rowe BH, Mahl S. Increased private healthcare for Canada – the right question? *Health Policy Report*. 2020 (In press).
3. McAlister FA, Youngson E, Rowe BH. Elevated blood pressures are common in the emergency department but are they important? A retrospective cohort study of 30,278 adults? *Ann Emerg Med*. 2020 (In press).
4. McLane P, Tate K, Reid CR, Cummings GE, Rowe BH, Estabrooks CA, Norton P, Lee JS, Cummings GG. Addressing communication breakdowns during aged care transitions: Evaluation of a quality improvement intervention. *Can J Aging*. 2020 (In press).
5. Stiell IG, Sivilotti MLA, Taljaard M, Birnie D, et al. Electrical versus pharmacological cardioversion for emergency department patients with acute atrial flutter (RAFF2): A partial factorial randomised trial. *CJEM*. 2020 (In press).
6. Kirkland S, Ghalab A, Kruhlak M, Ruske H, Campbell S, Yang E, Villa-Roel C, Rowe BH. An assessment of emergency department-based interventions for patients with advanced or end-stage illness: a systematic review. *J Palliative Medicine*. 2020 (In press).
7. Rowe BH, Yang EH, Gaudet L, Eliyahu L, Janquiera D, Beach J, Mrazik M, Cummings G, Voaklander D. Sex-based differences in outcomes for adult patients presenting to the emergency department with a concussion. *J Neurosurgery*. 2020 (In press).
8. Hohl C, Rosychuk RJ, McRae A, Brooks S, et al. Protocol for a Canadian Population-based registry of suspect and confirmed COVID-19 cases from the Canadian COVID-19 emergency department rapid response network (CCEDRRN). *CMAJ Open*. 2021 (In press).
9. Anwar M, Rowe BH, Metge C, Kreidnler S. A realist analysis of streaming interventions in emergency departments. *BMJ Lead*. 2021 (In press).
10. Lee SK, Rowe BH, Flood CM, Mahl S. Canada's system of liability coverage in the event of medical harm – time for no-fault reform? *Can J Pub Health*. 2020 (In press).

Published Abstracts (12)

1. Kirkland S, Clua MG, Junqueira D, Campbell S, Rowe BH. Preventing emergency department visits among patients with cancer: a scoping review. *Can J Emerg Med*. 2020; 22(S1):S90
2. Tran F, Junqueira D, Tan M, Rowe BH. Procainamide for the acute management of atrial fibrillation and flutter in the emergency department: a systematic review. *Can J Emerg Med*. 2020; 22(S1):S9.
3. Zhou K, Junqueira D, Couperthwaite S, Meyer J, Rowe BH. Vaping, tobacco and cannabis among patients presenting to the emergency department: a cross-sectional study. *Can J Emerg Med*. 2020; 22(S1):S60-S61.
4. Sandhar G, Kruhlak M, Krebs L, Gaudet L, Couperthwaite S, Rowe BH. Improving emergency department outcomes for Alberta seniors. *Can J Emerg Med*. 2020; 22(S1):S77.
5. Stiell I, Sivilotti M, Taljaard M, Birnie D, Vadeboncoeur A, Hohl C, McRae A, Rowe BH, Brison R, Thiruganasambandamoorthy V, Macle L, Borgundvaag B, Morris J, Mercier E, Clement C, Brinkhurst J, Brown E, Nemnom M, Wells G, Perry J. A randomized, controlled comparison of electrical versus pharmacological cardioversion for emergency department patients with atrial flutter. *Can J Emerg Med*. 2020; 22(S1):S9.

6. Stiell I, Perry J, Clement C, Sibley S, McRae A, Rowe BH, Borgundvaag B, McLeod S, Mielniczuk L, Dreyer J, Yan J, Brown E, Brinkhurst J, Nemnom M, Taljaard M. Creation of a risk scoring system for emergency department patients with acute heart failure. *Can J Emerg Med.* 2020; 22(S1):S5 (plenary presentation at CAEP).
7. Rowe BH, Bohlouli B, Villa-Roel C. Using administrative data to explore emergency department management of patients presenting with acute atrial fibrillation/flutter: Is Shock-First a more effective strategy than Drug-Shock? *Can J Emerg Med.* 2020; 22(S1):S45.
8. Hudek N, Rowe BH, Brehaut J, Ghaedi B, Nguyen P, Presseau J, McRae A, Yan J, Ohle R, Fabian C, Le Sage N, Mercier E, Hegdekar M, Archambault P, Sivilotti M, Thiruganasambandamoorthy V. Identification of barriers and facilitators for implementation of the Canadian Syncope Risk Score. *Can J Emerg Med.* 2020; (S1):S44.
9. Thiruganasambandamoorthy V, Taljaard M, Hudek N, Brehaut J, Ghaedi B, Nguyen P, Sivilotti M, McRae A, Yan J, Ohle R, Fabian C, Le Sage N, Mercier E, Hegdekar M, Huang P, Nemnom M, Krahn A, Archambault P, Presseau J, Graham I, Rowe BH. Development of practice recommendations for ED management of syncope by mixed methods. *Can J Emerg Med.* 2020; 22(S1):S8-S9.
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