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

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

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Alberta Health
Canadian Institutes of Health Research (CIHR)
Department of Emergency Medicine, University of Alberta
Edmonton Emergency Physicians’ Association (EEPA)
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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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 (ICRHI), 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)

Emily Amprako  
Data Entry  
BSc

Babak Bohlouli  
Assistant Adjunct Professor  
MD, PhD

Stephanie Couperthwaite  
Data Management Coordinator  
BSc

Miriam Garrido Clua  
Research Coordinator  
MSc

Lindsay Gaudet  
Research Coordinator  
MSc
IN 2020 WE ARE PLEASED TO BE WELCOMING:

**Hannah Ruske**  
Research Assistant  
BScN, RN

**Nazia Shaikh**  
Clinical Research Assistant  
BScN, RN

**Gurpreet Sandhar**  
BSc(c)

**Kevin Skoblenick**  
MD, MSc, PhD

**Fiona Tran**  
BScN, MD(c)

**Kevin Zhou**  
BMSc, MD(c)

**Uiirá 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.

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

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 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)

**Calgary, AB**
- University of Calgary

**Vancouver, BC**
- St. Paul’s Hospital
- University of British Columbia
- Vancouver General Hospital

**Edmonton, AB**
- Alberta Respiratory Centre
- Alberta Strategy for Patient-Oriented Research Support Unit
- Canadian Vigour Centre
- Government of Alberta
- MacEwan University
- Respiratory Health SCN, AHS
- Royal Alexandra Hospital
- University of Alberta
- University of Alberta Hospital
- Women & Children’s Health Research Institute

**Quebec, QC**
- Laval University

**St. John’s, NL**
- Memorial University of Newfoundland

**Halifax, NS**
- Dalhousie University

**Ottawa, ON**
- CIHR
- Ottawa Hospital Research Institute

**Toronto, ON**
- Mt. Sinai Hospital
- Schwartz/Reisman Emergency Medicine Institute
- St. Michael’s Hospital
- Sunnybrook Hospital
- University of Toronto
- Women’s College Hospital
APPENDIX

Published Papers (28)


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


Published Abstracts (29)


