

EMeRG



Emergency Medicine Research Group

2016 Annual Report

ACRONYMS

ED = Emergency Department

CIHR = Canadian Institutes of Health Research

ESCN = Emergency Strategic Clinical Network

Emergency Medicine Research Group (EMeRG)
Department of Emergency Medicine

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Director's Message



We are proud to share with you the 2016 Annual Report for the Emergency Medicine Research Group (EMeRG). Our group, located within the Department of Emergency Medicine at the University of Alberta, has been in existence since 1997. The purpose of EMeRG is to conduct high quality emergency medicine research and disseminate and implement findings to facilitate evidence-based practice. To support this goal, the research team has expanded to encompass a methodological and epidemiological team as well as a clinical and administrative team. This report is an opportunity to introduce our diverse and talented research staff and their work.

Our research projects, which involve a range of Canadian Institutes of Health Research (CIHR) pillars, span from clinical studies conducted within the emergency department (ED) to population and public health issues that influence acute care service needs. Research questions within these areas are examined using mixed methods, often including: systematic reviews, administrative data analyses, qualitative narratives (e.g., interviews and focus groups), observational and intervention-based clinical studies. We apply these methods to study a diverse range of topics in emergency medicine, including: cardiac, respiratory, and neurological conditions, ED operations and health service delivery, and health promotion. As a part of our health service delivery research we are focused on improving transitions in care for patients, particularly for those with complex conditions.

Over the years, our team has demonstrated their commitment to our core values (excellence, engagement, diversity, and scholarship) by supporting the training and career development of affiliated students and researchers. Our commitment to excellence is exemplified in our productivity and dedication to the highest ethical and quality standards in all our research. Additionally, EMeRG benefits from engagement with the Scientific Offices for the Institute of Circulatory and Respiratory Health at CIHR and the Emergency Strategic Clinical Network (ESCN) of Alberta Health Services. We look forward to expanding our partnerships across Canada and beyond.

We hope this report offers you a glimpse into EMeRG and excites you about our teams' contributions to the field of emergency medicine research.

Sincerely,

A handwritten signature in black ink that reads "Brian H. Rowe." The signature is written in a cursive, professional style.

Brian H. Rowe, MD, MSc, CCFP(EM), FCCP, FCAHS

Scientific Director | Directeur scientifique

Institute of Circulatory and Respiratory Health (ICRH) | Institut de la santé circulatoire et respiratoire (ISCR).

Canadian Institutes of Health Research | Instituts de recherche en santé du Canada

Scientific Director, Emergency Strategic Clinical Network, AHS

Tier I Canada Research Chair in Evidence-based Emergency Medicine

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 effective treatment and prevention of 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, and teaching activities, we promote the development of clinical support systems to advance the field of emergency medicine.



Values

- Excellence
- Engagement
- Diversity
- Scholarship

Research Team



Brian H. Rowe, MD, MSc, CCFP(EM), FCCP, FCAHS
Director

Brian is a Professor in the Department of Emergency Medicine at the University of Alberta. He has practiced clinical emergency medicine for the past 30 years and currently works at the University of Alberta Hospital Emergency Department. He holds a Tier I Canada Research Chair in Evidence-Based Emergency Medicine from CIHR. He has published extensively in the field of emergency medicine (470 peer reviewed publications; 31 book chapters) and is a leader in respiratory health research. At the University of Alberta, Brian has previously held the position of Research Director for the Department of Emergency Medicine (1997-2012) and Associate Dean (Clinical Research) for the Faculty of Medicine & Dentistry (2010-2014). He is currently the Scientific Director of the ICRH at CIHR and the Scientific Director of the ESCN, for Alberta Health Services. In his spare time, he likes to spend time with his wife, two sons and extended family across Canada and New Zealand. When taking a break, Brian likes to bike, hike and ski.



Cristina Villa-Roel, MD, MSc, PhD
Research Associate

Cristina is a Medical Doctor from Colombia, South America. She joined the EMeRG team as a project coordinator in 2007 and will be assuming a Research Associate position within the group in January 2017. She is looking forward to applying the experience obtained during her PhD training to design and evaluate novel research initiatives aimed to improve the care provided to patients presenting to the ED. She is interested in designing strategies to coordinate the transitions between the ED and several levels of care. Cristina spends her free time with her husband and toddlers.



Lynette Krebs, MPP, MSc
Research Coordinator

Lynette has a Master of Public Policy from Simon Fraser University and a Master of Science in Clinical Epidemiology from McMaster University. Prior to joining the EMeRG team in 2015, she worked in health policy at the national and provincial levels. Lynette joined EMeRG as a project coordinator focusing on reducing unnecessary tests, treatments and procedures in EDs across Alberta. In her free time, she is pursuing a degree in social work from Dalhousie University and volunteers at the Zebra Child Protection Centre, supporting children who have been abused through their police disclosure and court process.



Scott Kirkland, MSc
Research Coordinator

Scott has a Masters of Science from the University of Lethbridge, where he studied the effects of stress on motor recovery and compensation after stroke. In 2009, Scott joined the EMeRG team, conducting chart reviews and patient recruitment for clinical research studies. Scott was also a research assistant with the Edmonton Inner City Health Research and Education Network, assisting with research projects aimed at improving the care received by unstably housed or substance using populations. Since 2012, Scott has been involved in conducting and publishing systematic reviews. In his free time, Scott enjoys music and podcasts, as well as spending time with his wife and young daughter.



Lindsay A. Gaudet, MSc
Research Coordinator

Lindsay has a Master of Science in Epidemiology from the University of Alberta. She spent part of 2009 in the UK working in the NHS at the Sheffield Children's Hospital, where she developed her interest in public health and health systems. When she returned to Canada, she joined EMeRG as a research administrator, before pursuing her MSc. studying severe and fatal bicycle injuries in Alberta. Currently, she coordinates projects relating to injury prevention and ED operations. Outside of the office, she spends her spare time learning about the behaviour, cognition, and training of dogs, both with the Edmonton Humane Society as a behaviour evaluator and at home with her own two dogs.



Stephanie Couperthwaite, BSc
Data Coordinator

Stephanie joined the EMeRG team in 2009, while in the midst of completing her Bachelor of Science at the University of Alberta. Upon graduation she joined the team full-time and is now responsible for database management. She collaborates with both the clinical and academic staff to develop and maintain both databases and surveys. Stephanie is also a sports enthusiast who loves a well-made spreadsheet, and is never happier than when she can combine her two interests.



Pamela Chow, BScN, RN
Clinical Research Nurse

Pamela has a Physical Therapy Assistant diploma from Grant MacEwan College, a Bachelor of Community Rehabilitation from the University of Calgary, and a Bachelor of Science in Nursing from MacEwan University. Prior to joining the EMeRG team in 2014, she worked at the Stollery Children's Hospital in the rehabilitation department. Pamela is a research coordinator and registered nurse with the EMeRG team. Her research position has given her the opportunity to work in the ED at the Sturgeon Community Hospital, Northeast Community Health Centre, and University of Alberta Hospital. In her free time, Pamela loves to read and quilt.



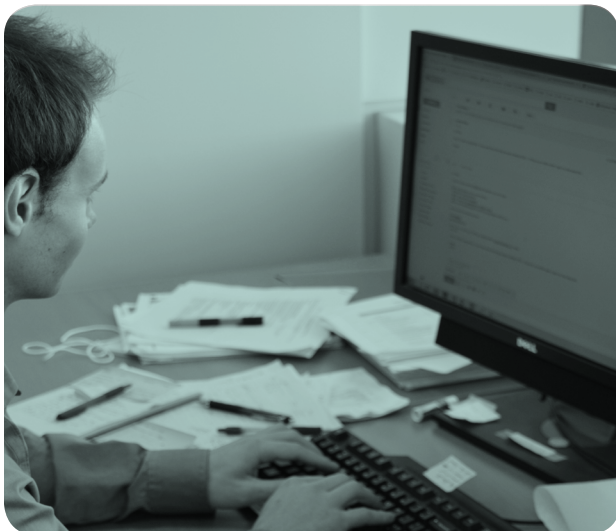
Diana Keto-Lambert, MLIS
Administrative Assistant/Librarian

Diana has a Master of Library and Information Studies from the University of Alberta. Diana has worked in research libraries since 2006, when she started her career working as a Research Specialist for the library at the Defense Advanced Research Projects Agency, the research and development arm of the US Department of Defense. Upon receiving her MLIS, she worked as a Public Services Librarian at the University of Alberta's Rutherford Library and later as a Research Librarian for an engineering company. Diana joined the EMeRG team as a Research Administrative Assistant in 2016, where she helps run the research office and executes literature searches for systematic reviews.



Natalie Runham, BScN, RN, CRE
Lead Clinical Research Coordinator

Natalie started her career with Alberta Health Services after graduating with a Diploma of Psychiatric Nursing from MacEwan University. She enjoyed working with the child and adolescent mental health population while obtaining her Bachelor of Science in Nursing from the University of Alberta. After graduation, Natalie worked at the Mazankowski Heart Institute and continues to do so. She joined the EMeRG team as the Lead Clinical Research Coordinator three years ago and has had the pleasure of organizing many clinical trials and studies since. You may have difficulty finding Natalie outside of the office as she loves hiking in the wilderness and adventuring to remote corners of the earth with her husband.



Justin Lowes, BSc
Research Assistant

Justin obtained his Bachelor of Science from the University of Alberta in 2006, and immediately began his career in research by joining a nephrology research group studying quality of life care in patients with end-stage renal disease. After a few years of experience in various other areas of research, he joined the EMeRG team in 2009 assisting with studies relating to head injury, airway diseases, ED crowding, and heart failure. In his free time, Justin tries to stay as far away from the ED as possible.



ADDITIONAL EMeRG MEMBERS:

Chris Alexiu, BSc
Research Assistant

Pamela Pang, RN
Clinical Research Assistant

Researcher Spotlight



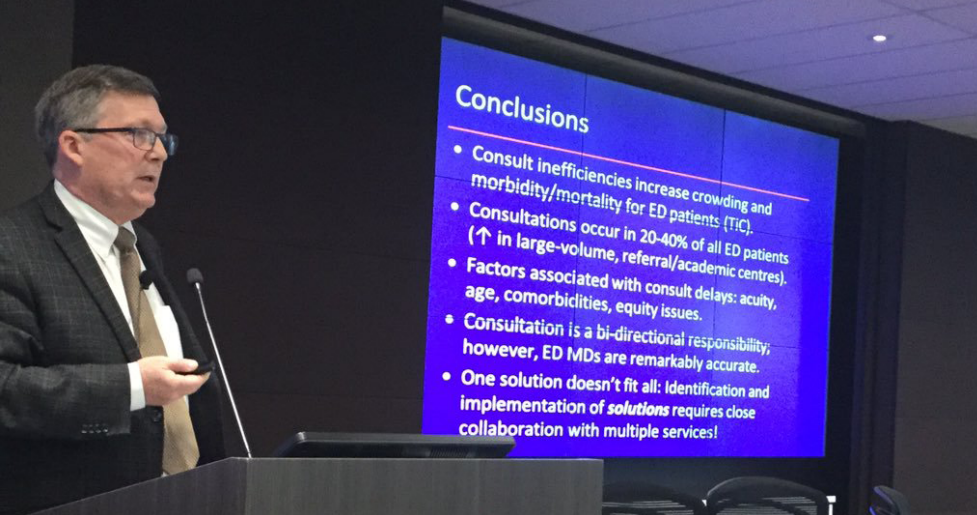
MY RESEARCH HIGHLIGHTS THE VALUE OF CONSIDERING KNOWLEDGE TO ACTION FRAMEWORKS, ENGAGING POTENTIAL KNOWLEDGE USERS, AND USING MIXED METHODS IN COMPARATIVE EFFECTIVENESS STUDIES OF INTERVENTIONS DIRECTED FROM EDS.

Cristina Villa-Roel is an active researcher and Research Associate with EMeRG. She has been involved in prospective observational studies and clinical trials conducted within a network of EDs across Canada. She has also participated in operations management research and systematic reviews in the acute care setting.

Cristina recently completed her PhD and her thesis project consisted of the adaptation of a knowledge to action cycle to support the design, evaluation, and guide the potential implementation of opinion leader and care manager-based interventions directed from the ED to improve outcomes after asthma exacerbations. Through a dynamic, theory-based and stepped-approach, using integrated knowledge

translation principles and high-quality research methods, she explored a novel attempt to bridge the gap between knowledge generation and its adoption into ED practice. Her research was supported by CIHR in partnership with the Knowledge Translation branch (Fellowship 2010-2016).

During the next several years, she intends to develop an in-depth understanding of the possible causes of the most common ED presentations, and to evaluate strategies for education and future prevention of undesired outcomes. Cristina is particularly interested in improving transitions in care among pre-ED, ED and post-ED settings through the delivery of comprehensive and evidence-based interventions.



A GLIMPSE OF EMeRG



Productivity & Projects

QUICK FACTS

24 published manuscripts

17 (in press) manuscripts

28 published abstracts

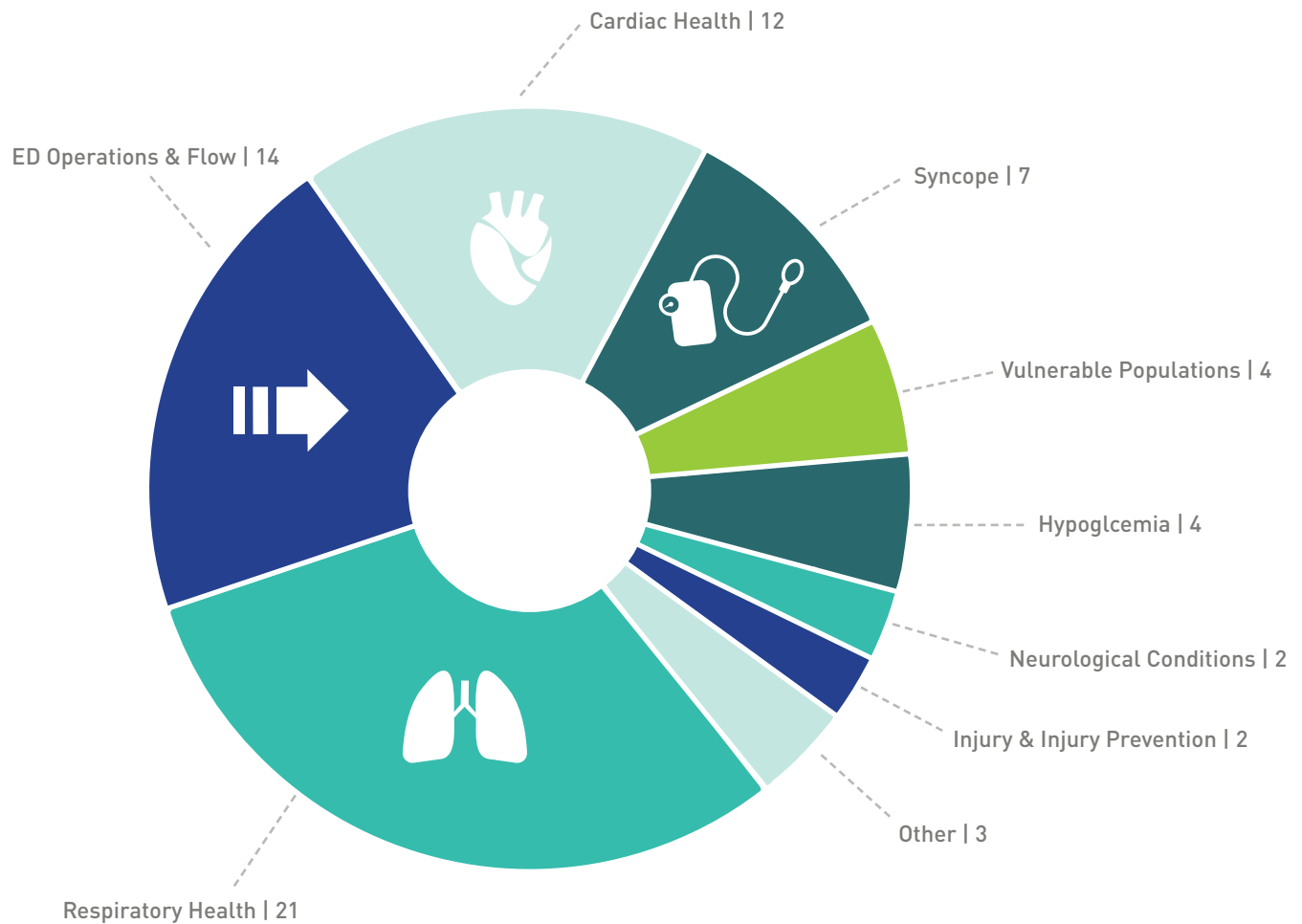
01 graduate research award

14 current projects

02 grants held by EMeRG

01 Editor's Choice podcast feature

PRODUCTIVITY: OUR PUBLICATIONS



* Numbers represent number of manuscripts and abstracts



INTERNATIONAL COLLABORATIONS

Boston, MA, USA
Harvard University
ED Management of Food or Insect Sting Allergies

London, UK
St. George's Hospital Medical School
Cochrane Airways Review Group

PROJECT SPOTLIGHT: CHOOSING WISELY IN EMERGENCY MEDICINE

In Alberta, more than 2 million visits to EDs occur every year. This volume contributes to crowding and often overwhelms the system and staffs' ability to provide timely, effective and efficient care. Selecting appropriate tests, treatments and procedures is an important part of providing quality care and improving ED flow. Under the national umbrella of Choosing Wisely Canada®, our Alberta project is focusing on areas of emergency medicine where diagnostic imaging rates are high and variation across the province is large, but diagnostic yield is low.

“ PROVIDE THE DATA TO DRIVE AN EVIDENCE-BASED, PROVIDER-INFORMED AND PATIENT-ORIENTED INTERVENTION... ”

Supported by a Partnership for Research and Innovation in the Health System (PRIHS-II) grant from Alberta Innovates, we are focusing on: 1) chest radiographs performed on acute asthma presentations and 2) computed tomography scans performed on benign headache presentations. These areas of focus have guided our teams work this past year, which included:

- Systematic reviews of imaging proportions for these conditions as well as reviews of interventions to safely and effectively reduce imaging;
- Administrative data analysis to better understand the image ordering patterns for these conditions across Alberta EDs; and
- Patient surveys and chart reviews to explore their care expectations and their ED management.

The systematic reviews and administrative data work have provided the foundation for our next steps and demonstrated that significant variation in image ordering exists within Alberta for both conditions. Addressing this variation has the potential to improve quality of care in the ED for these patients.

As we look forward to the next year, we are planning for our physician surveys as well as our patient and physician focus groups. Physician data on typical patient management and perceptions of patient expectation will provide complementary provider data to the patient perspectives. Cumulatively, these research activities will provide the data to drive an evidence-based, provider-informed and patient-oriented intervention to improve the appropriateness of image ordering for two frequent ED presentations in Alberta. This intervention will be rolled out across Alberta over the next two years.



Lynette Krebs, PRIHS-II Coordinator

We look forward to continuing to develop this work and building strong collaborative networks with research groups supporting the adoption of “choosing wisely” in emergency medicine.

Education & Training

QUICK FACTS

09 students supervised by EMeRG

03 PhD Students **04** Masters students **02** Undergraduate students

04 graduations

FUNDERS | Alberta Innovates, Canadian Institutes of Health Research, Colciencias, Colombia, Edmonton Emergency Physicians Association, Emergency Strategic Clinical Network, Knowledge Translation Canada

STUDENTS

Scholarship is a core value of EMeRG demonstrated by the number and calibre of the students furthering their education with EMeRG. Under the supervision of Dr. Rowe, these students make important contributions to emergency medicine research. Currently, our students' areas of focus range from regional epidemiological studies on air pollution and asthma presentations to the ED to the development and implementation of interventions in the ED setting.

THIS YEAR WAS A SPECIAL YEAR FOR EMeRG WITH THE GRADUATION OF FOUR STUDENTS: CRISTINA VILLA-ROEL, FERDINARD OKPERE, LAURA RODRIGUEZ AND LINDSAY GAUDET



Cristina Villa-Roel, PhD
School of Public Health, University of Alberta

Ferdinard Okpere, MSc
School of Public Health, University of Alberta

Jessica Moe, MPH (Candidate)
School of Public Health, Harvard University

Katelynn Crick, PhD (Candidate)
School of Public Health, University of Alberta

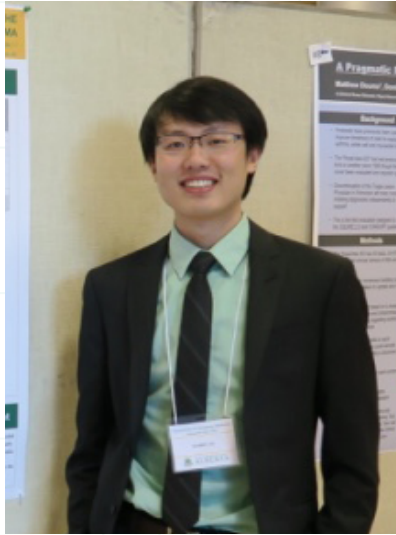
Laura Andrea Rodriguez, PhD
School of Public Health, University of Alberta

Lindsay A. Gaudet, MSc
School of Public Health, University of Alberta

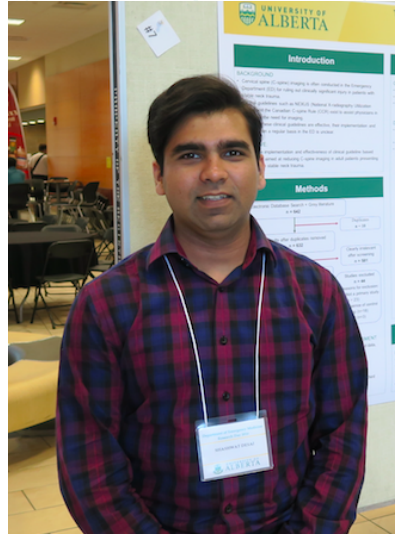
Molly Harries, BScN (Candidate)
Faculty of Nursing, University of Alberta

Rajiv Chetram, BScN (Candidate)
Faculty of Nursing, MacEwan University

Tony Soeyonggo, MPH (Candidate)
School of Public Health, Harvard University



Harry Liu, BSc, MD (Candidate)
University of Alberta
Funding: ESCN



Shashwat Desai, BSc, MD (Candidate)
University of Alberta
Funding: ESCN



Sean Patrick, BSc, MD (Candidate)
University of Ottawa
Funding: EMeRG

STUDENTSHIP RESEARCH TRAINING

Training future researchers is a priority for the EMeRG team. Our team provides evidence-based medicine and epidemiological research training opportunities for highly motivated students who excel in their academic career and have an interest in health research. During this time, students contribute to ongoing studies in EMeRG, participate in a series of methodological workshops from guest lecturers, and are given the opportunity to present their work. Our relationship with these students lasts long after their studentship as they are supported throughout the publication process.

This year, the EMeRG team accepted four studentship applicants. Harry Liu and Shashwat Desai joined the team for four months and collaboratively completed two systematic reviews. The reviews explored the effectiveness and safety of interventions to reduce imaging in the ED. Rory Lepage completed a six-month term with the team. His work focused on the use of CT imaging in the management of benign headaches. Sean Patrick completed an eight-week studentship with EMeRG during which he contributed to two pieces of ongoing work: a systematic review on concussion education and an atrial fibrillation and flutter study.

ADDITIONAL STUDENTS:

Rory Lepage, MA
Funding: Edmonton Emergency Physicians Association (EEPA)

APPENDIX 1.0 | MANUSCRIPTS IN REFEREED JOURNALS

(LISTED IN ORDER OF PUBLICATION DATE)

- Villa-Roel C, Nikel T, Ospina M, Voaklander B, Campbell S, Rowe BH. Effectiveness of educational interventions to increase primary care follow-up for adults seen in the emergency department for acute asthma: A systematic review and meta-analysis. *Acad Emerg Med*. 2016; 23:5–13.
- McAlister FA, Bakal JA, Rosychuk RJ, Rowe BH. Does reducing inpatient length of stay have upstream effects on the emergency room: Exploring the impact of the general internal medicine care transformation initiative. *Acad Emerg Med*. 2016; 23: 711-7.
- Eliyahu L, Kirkland S, Campbell S, Rowe BH. The effectiveness of early educational interventions in the Emergency Department to reduce incidence or severity of post-concussion syndrome following a concussion: A systematic review. *Acad Emerg Med*. 2016; 23:531–542.
- Barrera C, Mykietiak A, Metev H, Nitu MF, Karimjee N, Doreski A, Mitha I, Mihaela K, Tanaseanu CM, Molina JM, Antonovsky Y, Van Rensburg DJ, Rowe BH, et al. Efficacy and Safety of Oral Solithromycin versus Oral Moxifloxacin for Treatment of Community Acquired Bacterial Pneumonia: a global, double-blind, multicentre randomized, active-controlled non-inferiority trials (SOLITAIRE-ORAL). *Lancet Inf Dis*. 2016; 16:421-30.
- Moe J, Kirkland S, Ospina M, Campbell S, Long R, Davidson A, Duke P, Tamura T, Trahan L, Rowe BH. Mortality, admissions and outpatient outcomes of frequent users of emergency departments: A systematic review. *Emerg Med J*. 2016; 33:230-6.
- McAlister FA, Rowe BH. Variations in the emergency department management of atrial fibrillation: lessons to be learned. *Amer Heart J*. 2016; 3:159-160.
- Gouda P, Brown P, Rowe BH, McAlister FA, Armstrong PW, Ezekowitz JA. Insights into the importance of the electrocardiogram in patients with acute heart failure. *European J Heart Card*. 2016; 18:1032-40.
- Thiruganasambandamoorthy V, Kwong K, Wells GA, Sivilotti MLA, Mukarram M, Rowe BH, et al. The development of the Canadian syncope risk score to predict adverse events after emergency department assessment of syncope. *Can Med Assoc J*. 2016; 188:877.
- Wozniak LA, Johnson JA, McAlister FA, Beaupre LA, Bellerose D, Rowe BH, Majumdar SR. Understanding fragility fracture patients' decision-making process regarding bisphosphonate treatment. *Osteoporosis International*. 2016; July 16 [published ahead of print].
- Golonka RP, Dobbs BM, Rowe BH, Voaklander D. Prevalence and predictors of booster seat use in Alberta, Canada. *Can J Pub Health*. 2016; 107:e155-160.
- Ospina MB, Voaklander D, Sentilselvan A, Stickland SK, King M, Rowe BH. Emergency department visits after diagnosed chronic obstructive pulmonary disease in Aboriginal Peoples in Alberta, Canada. *CJEM*. 2016 May 16: 1-9.
- Rosychuk RJ, Youngson E, Rowe BH. Presentations to Alberta emergency departments for COPD: A time series analysis. *Can Resp J*. 2016; Epub 2016 Apr 4 [1382434].
- McIntyre L, Rowe BH, Walsh TS, Gray A, Arabi Y, et al. An international survey of emergency and critical care medicine physicians' fluid resuscitation practices for adult patients with early septic shock. *BMJ Open*. 2016; 6:e010041.
- Gioia LC, Zewude RT, Mahesh KP, Liss K, Rowe BH, Buck B, Jeerakathil T, Butcher K. Prehospital systolic blood pressure is higher in acute stroke compared with stroke mimics. *Neurology*. 2016; 86:2146-53.
- Lee JS, Verbeek PR, Schull MJ, Calder L, Stiell IG, Trickett J, Morrison LJ, Nolan M, Rowe BH, et al. Paramedics assessing elders at risk for independence loss (PERIL): derivation, reliability and comparative effectiveness of a clinical prediction rule. *Can J Emerg Med*. 2016; 18:121-32.
- Alagiakrishnan K, Brokop M, Cave A, Rowe BH, Wong E, Senthilselvan A. Resting and post-exercise ankle-brachial index (ABI) measurements to diagnose asymptomatic peripheral arterial disease in middle-aged and elderly patients with Chronic Obstructive Pulmonary Disease: A pilot study. *J Clin Med Research*. 2016; 8:312-316.
- Senthilselvan A, Nurban J, King M, Majaesic C, Veugelers P, Laing L, Rowe BH. Prevalence and risk factors of asthma in First Nations children living on reserves in Canada. *Can J Pub Health*. 2016; 106:e483-8.
- Cave A, Sharoe H, Anselmo M, Befus D, Currie G, Davey C, Drummond N, Graham J, Green L, Grimshaw J, Kam K, Manca DP, Nettel-Aguirre A, Potestio M, Rowe BH, et al. Primary care pathway for childhood asthma: Protocol for a randomized cluster-controlled trial. *JMIR Research Protocols*. 2016; 5:e37. doi: 10.2196/resprot.5261.
- Rodriguez-Villamizar L, Berney C, Villa-Roel C, Ospina M, Osornio-Vargas A, Rowe BH. The role of socioeconomic position as an effect-modifier of the association between outdoor air pollution and children's asthma exacerbations: An equity-focused systematic review. *Environ Health*. 2016; 23: 297-309
- Vermeulen MJ, Guttman A, Stukel TA, Kachra A, Sivilotti MLA, Rowe BH, Dreyer J, Bell R, Schull MJ, for the ED Investigator Team. Are reductions in emergency department length of stay associated with improvements in quality of care? A difference-in-differences analysis. *BMJ Quality & Safety*. 2016; 25:489-98.
- Scheuermeyer FX, Grunau BE, Findlay T, Grafstein E, Christenson J, Lang E, Rowe BH, Ho K. Speed and accuracy of text-messaging emergency department electrocardiograms from a small community hospital to a provincial referral center. *J Telemed Telecare*. 2016; 22:105-13.
- Rosychuk RJ, Graham M, Holroyd BR, Rowe BH. Volume matters: improved outcomes for patients presenting to emergency departments with atrial flutter and fibrillation. *PLoS ONE*. 2016; 11:e0165894 [doi:10.1371/journal.pone.0165894].
- Krebs LD, Kirkland SW, Chetram R, Nikel T, Voaklander B, Davidson A, Holroyd B, Villa-Roel C, Crick K, Couperthwaite S, Alexiu C, Cummings G, Rowe BH. Low-acuity presentation to the Emergency Department in Canada: Exploring the alternative attempts to avoid presentation. *Emerg Med J*. 2016; 0:1-7.
- Rowe BH, Kirkland SW, Vandermeer B, Campbell S, Newton A, Ducharme FM, Villa-Roel C. Prioritizing systemic corticosteroid treatments to mitigate relapse in adults with acute asthma. A systematic review and network meta-analysis. *Acad Emerg Med*. 2016 Sep 24. doi: 10.1111/acem.13107. [Epub ahead of print]

APPENDIX 2.0 | ACCEPTED (IN PRESS) PUBLICATIONS

- Szyszkowicz M, Colman I, Wickham M, Rowe BH. Ambient sulfur dioxide and emergency department visits for migraine and depression. *International Neuropsychiatric Disease Journal*. 2016 (In press).
- Szyszkowicz M, Rowe BH. Respiratory health conditions and ambient ozone: A case-crossover study. *iMedPub: Insights in Chest Diseases*. 2016 (In press).
- Cook O, Mukarram M, Rahman O, Kim S-M, Arcot K, Thavorn K, Taljaad M, Sivilotti MLA, Rowe BH, Thiruganasambandamoorthy V. Reasons for hospitalization among emergency department patients with syncope. *Acad Emerg Med*. 2016 (In press).
- Moe J, Rawe E, Kirkland SW, Ospina M, Campbell S, Long R, Hegstrom A, Velmurugiah N, Sran M, Khangura JK, Rowe BH. Effectiveness of interventions to decrease emergency department visits by adult frequent users: A systematic review. *Acad Emerg Med*. 2016 (In press).
- Claret P-G, Stiell I, Yan J, Borgundvaag B, Clement C, McRae A, Forster A, Calder L, Perry J, Rowe BH. Characteristics and outcomes for acute heart failure in elderly patients presenting to the emergency department. *Amer J Emerg Med*. 2016 (In press).
- Ospina MB, Mrklas K, Deuchar L, Rowe BH, Leigh R, Bhutani M, Stickland MK. A systematic review of the effectiveness of discharge care bundles for patients with chronic obstructive pulmonary disease. *Thorax*. 2016 (In press).
- Pollack M, Sinha I, Hartling L, Rowe BH, Schreiber A, Fernandez RM. Inhaled short-acting bronchodilators for the emergency department management of asthma and wheeze exacerbations in children: an overview of reviews. *Euro J Allergy Clin Immunol*. 2016 (In press).
- Cheng AHY, Campbell S, Goddard T, Magee K, McEwan J, Chartier L, Kumar AK, Holroyd BR, Upadhye S, Couperthwaite S, Rowe BH. Choosing Wisely Canada®: Five tests, procedures and treatments to question in Emergency. *Can J Emerg Med*. 2016 (In press).
- Rowe BH, Kirkland SW, Vandermeer B, Campbell S, Newton A, Ducharme FM, Villa-Roel C. Prioritizing systemic corticosteroid treatments to mitigate relapse in adults with acute asthma. A systematic review and network meta-analysis. *Acad Emerg Med*. 2016 (In press).
- Stiell IG, Clement CM, Rowe BH, Brison RJ, Wyse DG, Birnie D, Dorian P, Lang E, Perry JJ, Borgundvaag B, Eagles D, Redfearn D, Brinkhurst J, Wells GA. Outcomes for ED patients with recent-onset atrial fibrillation and flutter (RAFF) treated in Canadian hospitals. *Annals Emerg Med*. 2016 (In press).
- Claret PG, Calder L, Stiell I, Yan J, Clement C, Borgundvaag B, Forster A, Perry J, Rowe BH. Rates and predictive factors of relapse following emergency department discharge for acute heart failure. *Can J Emerg Med*. 2016 (In press).
- Krebs LD, Kirkland SW, Villa-Roel C, Davidson A, Voaklander B, Nickel T, Chetram R, Couperthwaite S, Cummings G, Rowe BH. Emergency department use: Influence of connection to a family physician on ED use and attempts to avoid presentation. *Healthcare Quarterly*. 2016 (In press).
- Basu R, Hazra S, Paul M, Yogasundaram H, Poglitsch M, Thomas J, Rowe BH, Oudit GY. Dynamic Network of plasma and myocardial angiotensin peptides in heart failure: Role of angiotensin 1-7 and recombinant human ACE2. *J Amer Coll Card*. 2016 (In press).
- Hill J, Arrotta N, Villa-Roel, Dennett E, Harries M, Rowe BH. Factors associated with relapse following asthma exacerbations: A systematic review. *BMJ Open Respiratory Research*. 2016 (In press).
- Stiell IS, Perry JJ, Clement C, Brison R, Rowe BH, Aaron, S, et al. Prospective and explicit clinical validation of the Ottawa heart failure risk scale, with and without use of quantitative NT-proBNP. *Acad Emerg Med*. 2016 (AEMJ-16-699.R2; In press).
- Kawano T, Scheuermeyer FX, Stenstrom R, Rowe BH, Grafstein E, Grunau B. H1-antihistamines reduce progression to anaphylaxis among emergency department patients with allergic reactions. *Acad Emerg Med*. 2016 (In press).

APPENDIX 3.0 | PUBLISHED ABSTRACTS

- Thiruganasambandamoorthy V, Mukarram M, Arcot K, Sivilotti MLA, Rowe BH, Stiell IG, Wells GA, Taljaard M. Predicting short-term arrhythmia or death among emergency department patients with syncope: The Canadian Syncope Arrhythmia Risk Score. *Acad Emerg Med*. 2016; 23 (S1):S37-38.
- Thiruganasambandamoorthy V, Cook OG, Mukarram M, Rahman OM, Arcot K, Thavorn K, Rowe BH, Sivilotti MLA. Reasons for referral and hospitalization among emergency department patients with syncope. *Acad Emerg Med*. 2016; 23 (S1):S189-190.
- Rowe BH, Cheng A, Campbell S, Goddard T, Magee K, Chartier L, Kapur A, Holroyd BR, Upadhye S, Couperthwaite S. Choosing Wisely Canada®: Five tests, procedures and treatments to question in emergency medicine. *Acad Emerg Med*. 2016; 23 (S1):132.
- Krebs L, Chetram R, Kirkland S, Nickel T, Voaklander B, Davidson A, Holroyd B, Cross E, Villa-Roel C, Crick K, Couperthwaite S, Alexiu C, Voaklander D, Rowe BH. Emergency department overcrowding: Exploring the attempts to avoid presentation. *Acad Emerg Med*. 2016; 23 (S1):S144.
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