

# EMeRG

Emergency Medicine Research Group, Department of Emergency Medicine

## 2021 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

Faculty of Medicine & Dentistry (FoMD), University of Alberta

College of Health Sciences, University of Alberta

Garneau Emergency Medicine Services (GEMS) Group

Patients and families who participate in emergency research

Alberta Health Services (AHS)

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Department of Emergency Medicine, University of Alberta

Edmonton Emergency Physicians' Association (EEPA)

Emergency Strategic Clinical Network (ESCN), Alberta Health Services

Faculty of Medicine & Dentistry (FoMD), University of Alberta

Northern Alberta Clinical Trials and Research Centre (NACTRC)

Kaye Edmonton Clinic, University Hospital Foundation

Respiratory Health Strategic Clinical Network, Alberta Health Services

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# EMERG

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## TABLE OF CONTENTS

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- 04** MESSAGE FROM THE DIRECTOR
- 06** MISSION, VISION, AND VALUES
- 07** RESEARCH TEAM
- 09** 2021 SUMMER STUDENTS
- 10** RESEARCH SCIENTISTS
- 12** RESIDENT SPOTLIGHT
- 13** WHERE ARE THEY NOW?
- 14** AREAS OF IMPACT
- 16** COLLABORATION WITH ICRH
- 17** 2021 BY THE NUMBERS
- 18** EMERG AT WORK
- 19** NON-RESEARCH ACTIVITIES
- 20** COLLABORATIONS
- 21** APPENDIX

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EMERGENCY MEDICINE RESEARCH GROUP (EMERG)

## MESSAGE FROM THE DIRECTOR

*Brian H. Rowe*

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Looking back on 2021, it would be fair to say few of us anticipated working from home and away from our routines for two full years during a pandemic. The year has seen starts and stops in our research plans due to the changing pandemic, especially with this year's Omicron surge in the Fall. During the year, science played an important role in the response to the pandemic, identifying interventions that were both effective and ineffective. In addition, optimism grew as the vaccines started to emerge as an effective strategy for preventing severe disease and keeping all of us, especially highly vulnerable groups, out of the hospital and the intensive care setting. Since vaccines aren't without side effects, we learned to be on the lookout for myocarditis, vaccine-induced thrombocytopenia and thrombosis (VITT), and other rare complications. By the end of the year, vaccines were available for all age groups except the very young, and third/booster doses were being administered. Clearly, the pandemic is in a new phase; however, we will need to remain vigilant and remain cautious as we move forward.

I continue to be impressed and extremely proud of the research staff within the Emergency Medicine Research Group (EMERG) in the Department of Emergency Medicine who have continued to work remotely and contribute to the generation of new evidence, knowledge synthesis, and capacity development within our field. 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 our important scientific priorities. There have been personnel changes, and I would like to officially welcome our two Junior Scientists (Drs. Kevin Skoblenick and Jaspreet Khangura), congratulate our student Britt Voaklander for being accepted into MD School, and thank our three excellent summer students (Jillian Meyer, Shaina Corrick, and Micaela Mauthner). In addition, over the course of the year, some staff departed (Natalie Runham, Sonia La Giorgia, Lynette Krebs) and we wanted to

thank them for their contributions and wish them well in their new endeavours. Finally, I'd like to extend my appreciation to those staff who have remained (Scott Kirkland, Stephanie Couperthwaite, Uira Wisnesky, Esther Yang, Jessica Poulin, and Cristina Villa-Roel). It has been an honour and privilege to work with all of you in 2021!

Despite the difficulties of 2021, the EMeRG achieved many important goals. For example, nationally, we have collaborated with the University of Calgary and other Emergency physicians across Canada in the COVID-19 ED study. Many important COVID-related papers are being produced from this collaboration. Locally, we continue to collaborate with key Respiratory (Drs. Mohit Bhutani, Michael Stickland, Harissios Vliagoftis, and Giovanni Ferrara), Cardiology (Drs. Michelle Graham, Sean Van Diepen), Laboratory Medicine (Dr. Albert Tsui), Neurology (Dr. Wasif Hussain), Pediatrics (Drs. Rhonda Rosychuk, Lawrence Richer), Public Health (Dr. Don Voaklander), and Woman's Health (Dr. Maria Ospina) staff at the University of Alberta. This year, we also welcomed Dr. Jef Franc as the new Research Director for the Department of Emergency Medicine. Dr. Franc has been here for many years; however, this is his first appointment to the Department and he brings a wealth of experience, interest in disaster and pre-hospital medicine, and innovative ideas. He received a grant from Alberta Health Services and the team completed two important collaborative projects on pre-hospital disaster triage. Finally, work-from-home has continued to drive innovation in communications (Zoom, Google Meet, MS Teams, etc.) and data management for the EMeRG team. Many of these changes will be retained as we emerge from the pandemic period.

In this report, I have tried to highlight some of the important research, education, and knowledge mobilization contributions made by our team in an effort to 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.

Stay well!



Brian H. Rowe, MD, MSc, CCFP(EM), FCCP, FCAHS  
Director, Emergency Medicine Research Group (EMeRG), University of Alberta  
Scientific Director, Institute of Circulatory and Respiratory Health, CIHR  
Professor, Department of Emergency Medicine and School of Public Health  
College of Health Sciences  
University of Alberta

# MISSION, VISION, AND VALUES

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## 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

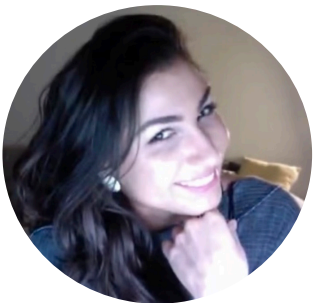
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**Brian H. Rowe, MD,  
MSc, CCFP(EM)**  
Director



**Stephanie  
Couperthwaite,  
BSc**  
Data Management  
Coordinator



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



**Sonia La Giorgia,  
BSc**  
Research Administra-  
tive Assistant



**Scott Kirkland,  
MSc**  
Research Coordinator



**Lynette Krebs,  
RSW, MPP, MSc**  
Research Coordinator



**Jessica Poulin,**  
BScN, MSc (c)

Clinical Research  
Assistant



**Natalie Runham,**  
BScN, RN, CRE,  
ARCP-CP

Lead Clinical Research  
Coordinator



**Cristina Villa-Roel,**  
MD, PhD

Research Associate



**Britt Voaklander,**  
MSc

Research Assistant



**Esther Yang, MSc**

Research Coordinator  
- AHS



# 2021 SUMMER STUDENTS

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## Jillian Meyer

Jillian spent the Summers of 2018, 2019, and 2021 with the EMeRG team and joined us full time in September 2019 after the completion of her BSc degree at the University of Alberta. This summer she continued her work on the treatment of migraines in the emergency department (ED). Jillian is patiently awaiting the end of the pandemic so she can go to Australia, the last continent on her list. In the meantime, she has completed her first year in the Faculty of Medicine & Dentistry at the University of Alberta and will graduate with an MD in June 2024.



## Micaela Mauthner

Over the summer Micaela worked on a scoping review seeking to better understand the values, feelings, and motivations of older people presenting to the ED. Micaela has degrees in Honours Neuroscience from the University of Calgary and will graduate with an MD from the University of Alberta in 2024. In her spare time, she enjoys hiking, climbing, and skiing in the mountains with her friends and family.



## Shaina Corrick

This summer Shaina worked on a systematic review which strived to identify the proportion of studies that reported sex and/or gender-based differences in the presentation or treatment of patients presenting to the ED with a concussion. She will be graduating in June 2022 with a BSc in Biological Sciences and Psychology at the University of Alberta. She was a member of the Pandas Intercollegiate Soccer team at the University of Alberta. A fun fact about Shaina is that she briefly spoke to Michelle Obama at one of her speaking events!

# RESEARCH SCIENTISTS

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## EQUITY



### Jaspreet Khangura, MD, MSc, FRCPC

Jaspreet joins the EMeRG group this year as research scientist with a focus on health equity.

Jaspreet completed her MD at the University of British Columbia and subsequently obtained an MSc in Evidence-Based Health Care, with distinction, and an MSc in Neuroscience at University of Oxford, on a Rhodes Scholarship. She is a graduate of the University of Alberta's Emergency Medicine residency program and completed enhanced competency training in social determinants of health and policy through the Jeanne Sauvé Fellowship at McGill. Her clinical home is now at the Royal Alexandra Hospital and the Northeast Community Health Centre.

Jaspreet is currently working on a systematic review examining outcomes for intensive case management programs in the emergency department for patients with high acute care use and unstable housing. She has also been engaging with Indigenous (Dr. W. Clarke from the Indigenous Health Initiatives program and Drs. J Makokis) and University partners (J. Yu and C. Hodgson) to co-create and evaluate a land-based Indigenous Health curricula for three post-graduate residency programs at the University of Alberta. This collaborative project has recently been awarded a Royal College Strategic Initiatives Grant.

Jaspreet is excited to join and work with the EMeRG group and to be collaborating with academic partners and community stakeholders to advance health equity focused research in emergency medicine.

**Fun facts:** 2022 is going to be busy for Jaspreet; she is moving homes and getting married.

## MENTAL HEALTH AND ADDICTION



### Kevin Skoblenick, MD, PhD, FRCPC

Kevin joins the EMeRG group this year as research scientist with a focus on neuroscience and mental health in the emergency department.

Kevin grew up on a vegetable farm in southern Ontario; however, after 17 years of post-graduate training, he now calls Edmonton home. Previously, Kevin completed his BSc and MSc at McMaster University in Hamilton, Ontario followed by a combined MD-PhD program at Western University, in London, Ontario. He completed his Emergency Medicine residency at the University of Alberta in June 2021. Currently, he works as an emergency physician at the Royal Alexandra Hospital, the Northeast Community Health Centre, and the Fort Saskatchewan Community Hospital.

Kevin is eager to engage in research projects in his area of interest. Strong collaborative links with researchers in the psychiatry department will result in a foundational manuscript that will change the way ketamine is used to treat patients with depression. A pilot randomized controlled trial is under development, which aims to use ketamine to treat patients with suicidality in emergency departments. Additionally, a study examining the care pathway and mortality of suicide presentations to Alberta emergency departments is nearing completion with the assistance of EMeRG member Esther Yang. Employing his neuropharmacology and neurophysiology training, he is collaborating with neuropharmacology researchers at McMaster University on potential rapid reversal agents for methamphetamine-induced psychosis.

Kevin feels the support and research expertise of the EMeRG team will be immensely helpful in facilitating his academic career. By bringing passion for brain and mind research to EMeRG, Kevin hopes to increase our understanding of common and perplexing areas of emergency medicine.

**Fun facts:** Kevin recently purchased a home and welcomed a busy baby boy to his family in July 2021.

# RESIDENT SPOTLIGHT

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**Erin Sachs** is a 3rd year emergency medicine resident at the University of Alberta. She is passionate about patient-centered care in the emergency department and is excited to be collaborating with Dr. Rowe and the EMERG team in the area of palliative care in the ED. Specifically, she is interested in improving the ways in which emergency clinicians can make decisions that align with patients' goals of care.

Originally from the wet west coast in Vancouver, Erin was first introduced to the world of research during her undergraduate degree at the University of Toronto where she was involved in a scoping review project examining variation in surgical weight bearing practices following hip surgery. In medical school at UBC, she became involved in multidisciplinary endeavours including a knowledge translation project between music therapists and primary care physicians, as well as qualitative research on the integration of

Indigenous traditional health practices with Western medicine.

Even more than ever, these past two years have demonstrated to Erin the critical role that the emergency department plays for patients of all backgrounds and states of mental and physical wellness. Ultimately, she hopes to practice high quality emergency medicine that is evidence-based and patient-centered.

When she's not in the emergency department, you can find Erin having fun on one of her four (yes, four!) bicycles, playing cello in Edmonton's Orchestra Borealis, or cooking for her friends.



# WHERE ARE THEY NOW?

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**Miriam Garrido Clua, former research assistant (Hamilton, ON):** Miriam is currently on her maternity leave enjoying her new full time job. However, she is looking forward to returning to her position at McMaster University in April. She is returning to do the thing she loves the most (next to her family): conducting research. Sergi spends most of his days training soccer coaches and making them understand the sport better. In the rest of their free time, they love playing and laughing with Max.

**Olga Krol, former Departmental Administrator (Poland):** Olga, Phillip, Victoria and Alexander have relocated to Poland. Olga and Phillip are both working remotely for international companies which allows them to continue speaking English on a daily basis. After work, they enjoy spending time with their children and watching them become more independent. Together, they have successfully overcome the challenges of their move to Poland and the pandemic. They are now looking forward to sharing more time with their family and friends.



**Laura Rodriguez, former PhD student (Colombia):** Laura has been instrumental in the pandemic response in her hometown in Colombia. She has worked with representatives from the government, academia, and the health care system to identify, implement and evaluate preventive public health strategies against the spread of the COVID-19 virus. In her spare time, she has supported her family during these challenging times.

# AREAS OF IMPACT

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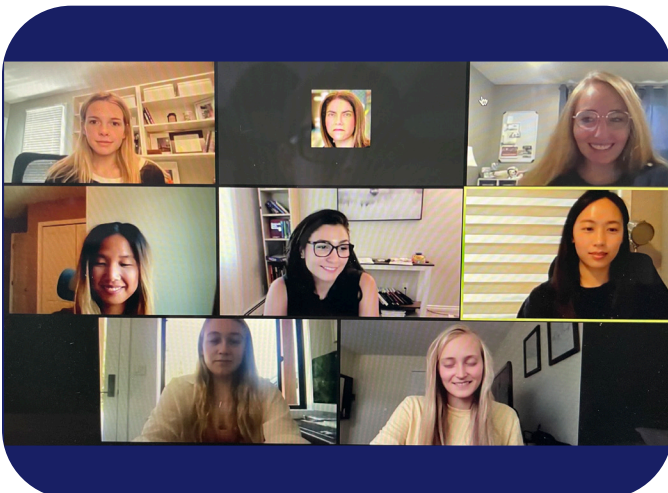
## COVID-19

In 2021, we completed our participation in the Canadian COVID-19 Emergency Department Rapid Response Network (CCEDRRN). This CIHR-funded study examined many aspects of the global pandemic that severely challenged our emergency departments. Edmonton Zone EDs collaborated with ~50 other research sites across the country to form CCEDRRN with the goal of informing evidence-based acute care decisions. Chart reviews collecting data from patients diagnosed with COVID-19 seen in EDs were completed. The network is deriving and validating clinical decision rules to support Emergency Department decision-making for patients with suspected and confirmed COVID-19. The sites involved included University Hospital (UAH; Site PI: Dr. Brian Rowe), the Royal Alexandra Hospital (RAH; Site PI: Dr. Jake Hayward) and the Northeast Community Health Centre (NEHC; Site PI: Dr. Jaspreet Khangura).



## ED Consults

Consultations with other specialists in the Emergency Department are important health care decisions and interventions. In all but the smallest hospitals, they are required for most hospital admissions. Moreover, they ensure appropriate transitions in care for patients with complex conditions requiring specialized investigations, procedures and/or treatment, including follow-up. Delays in consultation also impact overcrowding in the emergency setting and efforts to reduce consultation times are part of a multi-dimensional approach to improve patient flow. The EMeRG team has been conducting research on the accuracy, proportion, and unique features of consultations in the ED setting for many years. We are updating two systematic reviews currently which examine the proportions of consultations (Lead: Britt Voaklander) and interventions to reduce delays in consultation times (Lead: Scott Kirkland) in the ED setting.



## START Triage

Last year we started a program of research on the START tool for mass casualty triage. Despite being a widely used triage system, there was a lack of synthesized evidence on the accuracy of START to triage patients during a disaster event. The research was funded by the Emergency Strategic Clinical Network (ESCN) in Alberta Health Services and the team was led by Dr. Jef Franc. The program of research compared START to other systems in terms of several measurements including accuracy, over-triage, and under-triage. In 2021, two manuscripts were accepted for publication from this program of research in: the *Journal of Prehospital and Disaster Medicine* (2021; Dec 17:1-11) and *Frontiers* (in press). We are now exploring other factors that may affect the 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.



## E-Scooter Injuries

Within the Edmonton Zone, commercial electronic scooters (“E-scooters”) were introduced as a form of recreational travel in August 2019. Given the speed of these motorized vehicles, the lack of helmet use of most riders, and the dangers associated with interactions with other humans, stationary objects, poor road conditions, and moving vehicles, rider injuries were expected. Since their introduction, local emergency departments have anecdotally reported a range of E-scooter related injuries. Since E-scooters were not part of any previous trauma surveillance system, cataloging these injuries and determining the causes of injury is an important public health activity. Led by Dr. Erin Bristow, a research program on E-scooter injuries was established. Our research team collected prospective data on E-scooter injuries over the summer of 2021 from Edmonton Zone emergency departments and has used both Sports & Recreation codes as well as machine learning techniques to catalogue all E-scooter injuries over the past 3 summers.



# COLLABORATION WITH ICRH

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**Brian H. Rowe, MD,  
MSc, CCFP(EM)**

Scientific Director



**Kaylin Barnes, BEd**

Lead - Communications and Events, and Executive Assistant to Dr. Rowe



**Helen Coe, PhD**

Lead - Institute Initiatives and Partnerships



**Ryan Perry, PhD**

Associate Scientific Director



**Ebele  
Unaegbunam, MSc**

Project Lead, Strategic Initiatives

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.

In 2021, CIHR released its 10-year (2021-2031) strategic plan entitled *A Vision for a Healthier Future*. The five priority areas for CIHR include capacity development, advancing research excellence in all its diversity, knowledge mobilization,

enhancing Indigenous Health Research, and Equity, Diversity and Inclusion in all aspects of health research. At ICRH, much of 2021 was spent launching new networking opportunities in sleep (The Sleep Research Consortium) and heart failure (the Heart Failure Network). In addition, we are in the final stages of developing and releasing our own ICRH 2022-2025 Strategic Plan (Partnerships for Better Health). This priority setting exercise has helped the research community plan the next four years awaiting the appointment of a new Scientific Director. There is much left to do and we hope to be able to accomplish great things in our final two years at ICRH.



# 2021 BY THE NUMBERS

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34

MANUSCRIPTS PUBLISHED

6

MANUSCRIPT IN PRESS

8

ABSTRACTS PUBLISHED

1

NEW GRANT

> \$1M

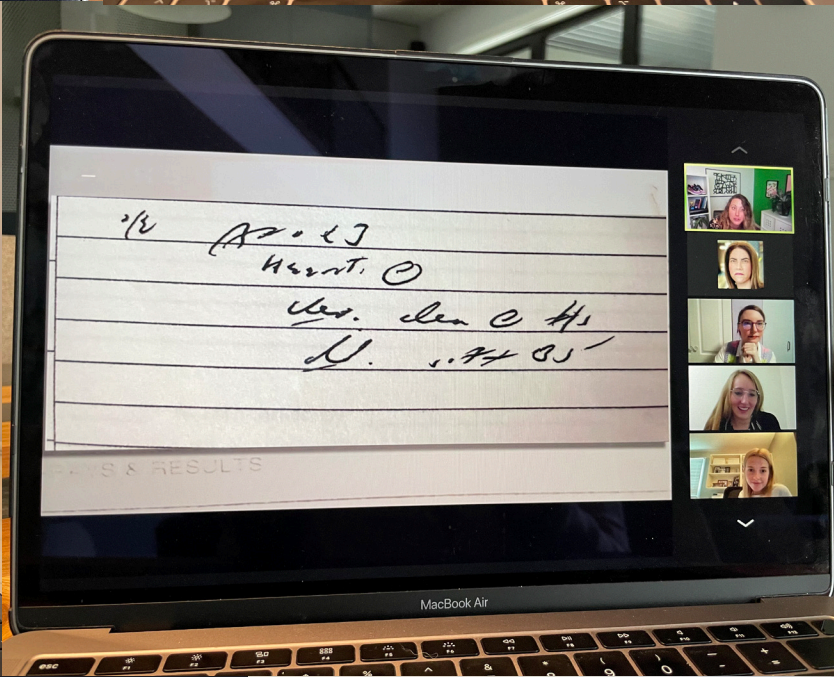
IN FUNDING



# PARTNERSHIPS



# EMERG AT WORK



# NON-RESEARCH ACTIVITIES



# COMING AND GOING



# APPENDIX

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## Published Papers (34)

1. 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*. 2021; 76(1):281-290.
2. 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*. 2021 Feb 9;S0196-0644(20)31363-9.
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- care communication form. *Can J Aging*. 2021; May:1-11 doi: 10.1017/S014980821000039.
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## In-Press Manuscripts at the end of 2021 (6)

1. McRae A, Rosychuk R, Rowe BH, Schull MJ, Lang E, Innes G. A comparative evaluation of the strengths of association between different emergency department crowding metrics and repeat visits within 72 hours. *Can J Emerg Med*. 2022 (In press).
2. Wisnesky UD, Kirkland SW, Rowe BH, Campbell S, Franc JM. A qualitative assessment of studies evaluating the accuracy of START in disaster triage: A scoping review. *Frontiers*. 2022 (In press).
3. Anwar M, Rowe BH, Metge C, Kreidnler S. A realist analysis of streaming interventions in emergency departments. 2022 (In press).
4. Jeyaraman MM, Alder RN, Copstein L, Al-Yousif N, Suss R, Zarychanski R, et al. The impact of employing primary healthcare professionals in emergency department triage on patient flow outcomes: A systematic review and meta-analysis. *BMJ Open*. 2022 (In press).
5. Rowe BH, Yang EH, Gaudet L, Lowes J, Eliyahu L, Villa-Roel C, Beach J, Mrazik M, Cummings G, Voaklander D. Sports-related concussions in adults presenting to Canadian emergency departments. *Clin J Sports Med*. 2021 (In press).
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1. Kirkland SW, Wisnesky UD, Meyer J, Campbell S, Rowe BH, Franc J. An assessment of the accuracy of the Simple Triage and Rapid Treatment method in the triage of patients in disaster and mass casualty incidents: a meta-analysis. *CJEM* 2021;23 (Sup 1): S13.
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7. Thiruganasambandamoorthy V, Mercier E, McRae A, Nemnom M, Rowe BH, Le Sage N, Hegdekar M, Finlayson A, Leafloor C, Huang P, Sivilotti M, Taljaard M, Yan J. Troponin for ED syncope evaluation: derivation and validation of the Canadian Syncope Risk Score ultra-low-risk criteria. *CJEM* 2021;23 (Sup 1): S25-26.
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