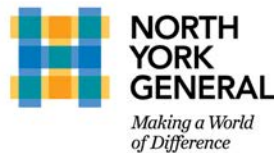


# ANNUAL REPORT 2024



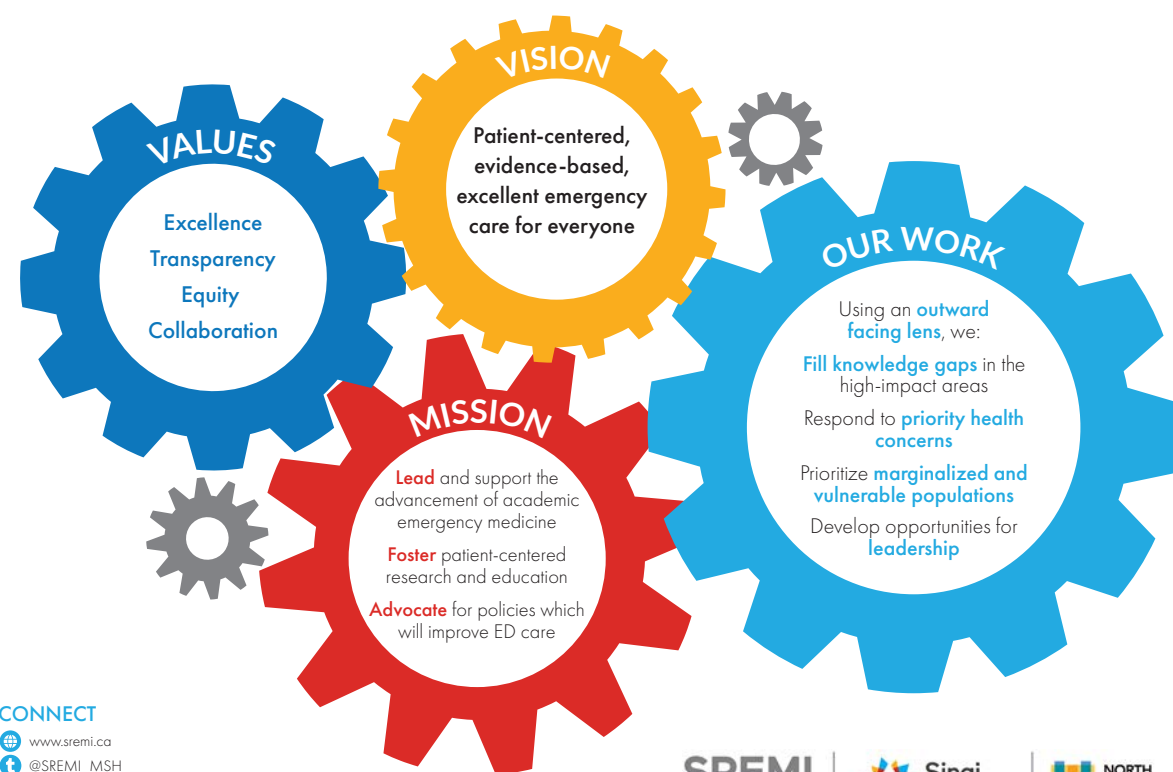
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SCHWARTZ/REISMAN  
EMERGENCY MEDICINE  
INSTITUTE



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 Anton Helman, MD  
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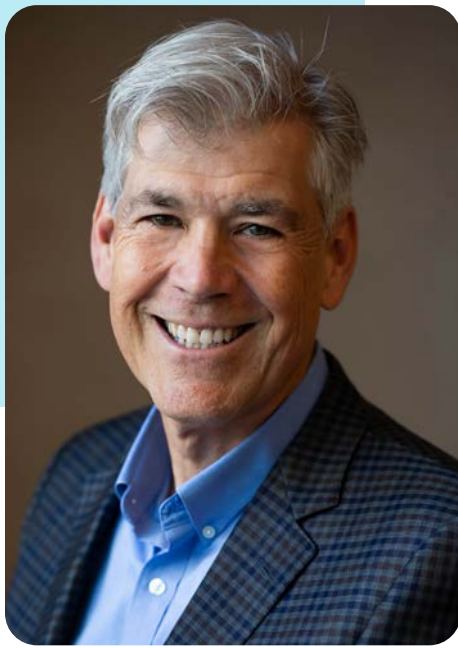
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**Administrative Assistant**  
 Mahima Sethi



## Welcome from the Director

SREMI's 10th anniversary was time to reflect on our success in building an institute that creates leaders who truly influence the way emergency care is delivered. Our vision was bold and ambitious: not merely to chip away at the margins, but to rewrite the pages entirely. As you will see throughout this report, what began as a visionary idea 10 years ago, is now a powerful reality.

Individually our faculty are impressive, but as you review their reports, I invite you to focus on impact. Dr. Shelley McLeod has become the "go to" person for the Government of Ontario trusted with evaluating the effectiveness of new initiatives across the province and how ED work should be funded. Dr. Catherine Varner has become THE international expert in understanding the experience of women with problems in the first trimester of pregnancy and the way they are cared for. Dr. Don Melady, a founding father of Geriatric Emergency Medicine literally wrote the book on creating geriatric friendly EDs and best practices for these vulnerable patients. Dr. Jacques Lee's work on preventing social isolation/loneliness and delirium has changed the way we

think about these issues in older patients. Dr. Anton Helman has created the most popular and respected international educational tool for emergency medicine worldwide. Dr. Keerat Grewal has identified a vital part of the care of patients with cancer – that which happens in the ED. Dr. Rohit Mohindra is working to improve the way newcomers to Canada receive care in EDs, the place they most often turn when they have nowhere else to go. Despite affecting such a large volume of patients, ten years ago the importance of these areas of interest was largely overlooked. Today they have become integral to mainstream discussions and practices.

SREMI's impact is undeniable. Our leaders chair local, national and international committees, garnering international press coverage of their work and invitations to speak internationally at large conference venues. Last year, Dr. McLeod and Dr. Varner both had multiple invitations to be Visiting Professors to emergency medicine programs across Canada. Visiting Professors are exemplars for trainees and staff physicians, celebrated for their knowledge and academic contributions - external validation that they are held in the highest esteem by our community. Combined, SREMI and the department of emergency medicine at Sinai Health hold two Sinai 100 Chairs honouring pioneers (Dr. Howard Ovens and Dr. Don Melady) who changed medicine at Sinai Health, one Research Chair, and will hopefully soon announce a fourth.

Many others have played a pivotal role in our success. Our research coordinator, Cam Thompson, has been with SREMI almost since the beginning (and is presently completing a PhD in ED Health Services Research). Our administrator Mahima Sethi keeps SREMI running smoothly and on schedule. Victoria Aziz brings our virtual wraparound care program to life and is a fantastic addition to our team. Our peer support program provides services to young adults with mental health and substance use problems which are not available in any other hospital in Canada. Our International EM Fellows who have returned home to become leaders in their own departments, and our countless medical student and resident mentees who have brought their energy and enthusiasm to us to harness, have all made important contributions towards over 300 peer reviewed publications and 65 research awards.

Our international advisory board provides invaluable guidance as we chart our course to success. We thank outgoing IAB Chair Dr. Jim Christensen for his leadership, and welcome longstanding IAB member Dr. Matthew Cooke as incoming Chair. Sinai Health and North York General's hospital leadership have created the environment necessary for a concept like SREMI to exist. Our respective foundations tell our story to our incredible donors whose generosity breathes life into our work.

It has been a privilege for me to play a role in this incredible journey, which has only been made possible with the support of our namesakes, Heather Reisman and Gerry Schwartz. As the first major benefactors to truly understand the central role of emergency departments and the critical importance of emergency medicine leadership, they are unparalleled visionaries in emergency medicine. The image of our team sitting around their dining room table, sharing our dreams for the future, will last a lifetime. To quote Gerry as our dinner discussion around our next 10 years concluded "we are going to need a much bigger table next time." For their trust, support and friendship, I am truly grateful.

Dr. Bjug Borgundvaag PhD, MD, CCFP(EM)  
Director, Schwartz/Reisman Emergency Medicine Institute

## COLLABORATION





# Chair's Report to the Board

Dr. Jim Christenson

Welcome to the 10th Annual Schwartz/Reisman Emergency Medicine Institute (SREMI) International Advisory Board (IAB) meeting and to this 2024 SREMI Report. Once again it highlights the important accomplishments and contributions to health science and education made by SREMI faculty over the past year to improve emergency care.

Emergency care is in crisis. The surge in patient numbers, combined with increasing complexity due to an underfunded primary care system, is overwhelming emergency departments. A lack of adequate acute hospital beds for patients requiring admission, as well as insufficient long-term care facilities and home support services, result in delays in patient discharge from both hospitals and emergency departments. These challenges are compounded by a shortage of physicians and nurses across the healthcare system. The cumulative strain creates a high-pressure environment, with emergency care providers bearing the brunt of this stress, often leading to burnout.

This environment of clinical and operational stress is even worse than last year, and adds to the challenge of conducting high quality emergency care research. It is equally important to generate new knowledge, understand current realities, and test innovative strategies to address this crisis. Just as the healthcare landscape evolves, so too must the programs that support it. SREMI's outstanding clinical support and education initiatives remain strong, adaptable, and forward-thinking and play a crucial role in meeting the evolving needs of both patients and practitioners.

This 2024 SREMI annual report highlights the many projects completed and underway, and the amazing number of publications and awards received by SREMI faculty. Once again, I am amazed at the academic output and by the talent of the SREMI team. Director Dr. Bjug Borgundvaag, Research Director Dr. Shelley McLeod, and Deputy Director Dr. Catherine Varner continue to provide inspiring leadership while also spearheading significant individual research initiatives.

## North York General Hospital and Sinai Health Collaboration

The collaboration of Sinai Health and North York General Hospital (NYGH) is a foundational strength of SREMI, combining a referral university-based hospital with a busy active community hospital. Most of the emergency care in Canada is provided in community settings that have different challenges and needs than urban academic sites. NYGH is a shining example of a community hospital dedicated to quality care and promoting relevant academic pursuits. Dr. Rohit Mohindra continues to lead the NYGH emergency academic activities and contribute to the overall SREMI academic output with his important projects. Dr. Anton Helman's FOAMed program of EM Cases and his very successful EM Cases Summit is the most highly regarded educational program in emergency medicine in the country and perhaps internationally.

## SREMI Research Activities

You can read more details of the research activities in Dr. McLeod's Research Report. The SREMI research output is once again remarkably successful. The programs combine to include important contributions to knowledge in very important aspects of emergency care. A large list of publications (42 in the past year) and the prominence that SREMI faculty play at the Canadian Association of Emergency Physicians is evidence of the important leadership role that SREMI carries in emergency research and knowledge translation in Canada. Some highlights. Dr. Bjug Borgundvaag is an international leader in state of the art care of alcohol use disorder and cannabis hyperemesis syndrome. Dr. Rohit Mohindra investigates the use of AI in diagnostic processes such as asthma. Drs. Keerat Grewal and Catherine Varner co-wrote an editorial that exposed and shared the difficulties and inappropriateness of a diagnosis of cancer in the ED. Dr. Varner co-wrote an editorial that promotes better strategies and support for early pregnancies and pregnancy loss. Dr. Jacques Lee continues his groundbreaking work on social isolation and loneliness in the elderly. Dr. Shelley McLeod



led the evaluation of the virtual urgent care pilot program in Ontario and published insightful findings that will help guide the integration of virtual care into health systems. She also completed the data collection for the Predictors of Workload in the Emergency Room (POWER III) study that is critical to workforce planning immediately and into the future.

## SREMI Education and Support Programs

Educational programs at SREMI are world renown. EM Cases, as mentioned, is famous across the western world. These programs not only elevate the quality of emergency care but also set a high standard for professional development. Additionally, SREMI's public and professional education initiatives—such as those focused on early pregnancy care and cancer diagnosis and treatment—serve as vital advocacy for improved clinical care. The Geriatric Fellowship program, developed and lead for many years by Dr. Don Melady, is a world authority and has trained fellows who are current leaders in geriatric care at centers around the world. Dr. Melady plays a leadership role in the International Federation of Emergency Medicine and CAEP and was promoted to full Professor at the University of Toronto this year in recognition of his contributions. Mount Sinai also announced the Don Melady Chair in Geriatric Medicine in 2024.

## International Advisory Board Chair Transition

It has been a great honor and privilege to serve as Chair for the IAB for the past 3 years. As an advisory board, it is essential to regularly renew membership and leadership. You can see in this report the breadth of experience and expertise across the members of the IAB. I am particularly grateful and enthused that Dr. Matthew Cooke from the UK has agreed to take over the Chair position after this year's meeting. Matthew is a recognized world authority in emergency care and its systems. We are lucky to have him on the board and look forward to his leadership. Our board aims to provide support and advice to the SREMI leadership team and enable local, national and international connections to expand collaborations.

## Reflections from the Chair

I am very grateful to the SREMI leadership team (Dr. Bjug Borgundvaag, Dr. Shelley McLeod and Dr. Catherine Varner) for their unwavering support and guidance of all faculty and their activities and the continuous support they provide to the IAB. Additionally, I would like to extend my heartfelt thanks to all the SREMI staff, whose dedication and hard work are absolutely essential to the success of the team and its endeavors.

Emergency care plays an ever more central role in our healthcare systems as well as carrying a disproportionate burden when our health systems are failing. I am hopeful that with commitment and resolve from individual care givers and continued leadership of organizations like SREMI, we can overcome the deficiencies in our current healthcare systems.

SREMI should be very proud of its local, national and international reputation in emergency medicine research and education and the influence it has and will continue to have.

Respectfully submitted,

Dr. Jim Christenson  
Professor, UBC Department of Emergency Medicine  
Senior Medical Advisor, Emergency Care BC  
Co-Director, BC Resuscitation Research Collaborative

*I acknowledge and am grateful to be able to live, work and play on the traditional, ancestral and unceded territory of the Coast Salish peoples, including the x̱məθḵəy̱əm (Musqueam), Səlilwataʔ (Tsleil-Watuth), and Skwxwú7mesh (Squamish) Nations.*

# International Advisory Board

The IAB acts in an advisory capacity to the Director of SREMI to:

- Generally engage interdisciplinary thinking, stimulate dialogue, provide advice on shaping the research agenda and catalyse research, education, consulting, advocacy and public policy initiatives
- Provide strategic advice on the activities and direction of the SREMI with the goal of making the SREMI the international leader in emergency medicine research and related teaching.

Service as an IAB member is voluntary. The Board reflects a diversity of interdisciplinary thinking and expertise in emergency medicine and related fields across the international health research community and society at large.

## Dr. Maaret Castrén

is a nurse, anesthesiologist, emergency physician and is working as the Head of the Department of Emergency Medicine and Services in Helsinki, Finland. Dr. Castrén is leading the prehospital and emergency care for the region of Uusimaa in Finland having over 800,000 patient contacts a year. She became the first professor of Emergency Medicine in Sweden at Karolinska Institutet 2007, and the first professor of Emergency Medicine in Finland at Turku University 2012 and at Helsinki University 2016. She has an international research group and is the past Chair of the European Resuscitation Council and the Honorary Secretary of ILCOR.



## Dr. Jim Christenson

is a recently retired emergency physician at St. Paul's Hospital and Professor and past Head of the Academic Department of Emergency Medicine in the Faculty of Medicine at the University of British Columbia. He has a wide range of experience in emergency care clinical research and is a Co-Lead for the Canadian Resuscitation Outcomes Consortium. He chairs the Resuscitation Advisory Committee for the Heart and Stroke Foundation of Canada and leads the Kwiis Hen Niip project to improve emergency care in remote Nuu-chah-nulth communities on the west coast of Vancouver Island. Dr. Christenson is a Senior Medical Advisor to Emergency Care BC, a health improvement network within the Provincial Health Services Authority.



## Dr. Luis Lobón

is Global Managing Principal for Mass General Brigham Global Advisory, Faculty at the Department of Emergency Medicine Mass General Brigham, and Assistant Professor of Emergency Medicine at Harvard Medical School. Dr. Lobón holds a Master's in Health Policy and Management from New York University, and is an alumnus of the Brigham Leadership Program, a joint program with Harvard Business School. With over 25 years of healthcare leadership and advisory expertise, Dr. Lobón currently leads the business organization aiming to expand the Mass General Brigham mission globally.



## Dr. Danielle Martin

is Professor and Chair of the Department of Family and Community Medicine (DFCM), University of Toronto. Dr. Martin is an active family physician and a respected leader in Canadian medicine. She holds a Masters of Public Policy from the School of Public Policy and Governance at the University of Toronto and teaches health policy and health system leadership. Dr. Martin spent eight years as a senior hospital executive, most recently as Executive Vice President and Lead Medical Executive at Women's College Hospital (WCH), where she was also medical lead of the hospital's COVID-19 pandemic response.



## Dr. John McLaughlin

is a Professor Emeritus of epidemiology in the Dalla Lana School of Public Health at the University of Toronto. He recently retired as Executive Director for the Canadian Partnership for Tomorrow's Health (CanPath), which is Canada's largest health study with over 330,000 participants being followed in a prospective cohort study. He previously served as the inaugural Chief Science Officer at Public Health Ontario, as Vice President at Cancer Care Ontario and other leadership roles across Ontario's research and health systems. His research focuses on advancing disease prevention, addressing disparities and improving health system performance, which has led to more than 345 publications.



## Dr. Matthew Cooke

is a recently retired emergency physician and Professor of Clinical Systems Design at Warwick Medical School. He is now an advisor to a range of NHS bodies and digital healthcare companies. Dr. Cooke was previously the NHS National Clinical Director for Emergency Care in England and a WHO advisor in emergency care. He was also Deputy Medical Director, and then Director of Strategy for a large NHS Hospital. He has extensive experience in supporting improvement and change in emergency care in the UK and internationally and has undertaken extensive research in emergency care.



## Dr. Kendall Ho

is an emergency physician, Professor at the University of British Columbia (UBC) Faculty of Medicine and Lead of the Digital Emergency Medicine Unit. He is the medical director of the BC Ministry of Health HealthLink BC virtual physician program, and collaborates with provincial partners on implementing and evaluating the BC Real Time Virtual Support provincial virtual care services. His research focuses on virtual care, wearables and sensors, and multicultural engagement in digital health literacy to support patient transitions. His research and education in digital health has received awards and recognition of the BC Medal of Good Citizenship.



## Dr. Ula Hwang

is an emergency physician and Professor in the Ronald O. Perelman Department of Emergency Medicine and Department of Population Health at New York University. She is the Medical Director for Geriatric Emergency Medicine. She co-led the development of the Geriatric ED Guidelines and serves on the Board of Governors for the American College of Emergency Physician's Geriatric ED Accreditation program. She is the co-PI of the Geriatric ED Collaborative, a national implementation program supported by the John A. Hartford Foundation and the West Health Institute and is the PI of the National Institute on Aging funded Geriatric Emergency care Applied Research Network.



## Dr. Judy Morris

is an emergency physician and trauma team leader at Hôpital du Sacré-Cœur de Montréal, and a member of the emergency department's research team. In this role, she has collaborated on numerous local and multicenter research projects in emergency medicine. She is the current president of Association des médecins d'urgence du Québec (AMUQ) and the chair of the leadership committee of the Canadian Association of Emergency Physicians (CAEP). Dr. Morris is an Associate Professor at University de Montréal's faculty of medicine. Since 2018, she has served as the Assistant Director of the Department of Family and Emergency Medicine.



## Dr. Peter Selby

is a Senior Scientist and Senior Medical Consultant at the Centre for Addiction and Mental Health. He is the Vice-Chair, Research and GIBLON Professor in Family Medicine Research at the University of Toronto. His research focuses on innovative methods to understand and treat addictive behaviours. He has received over 100 million dollars of grant funding from CIHR, NIH, and the Ontario Ministry of Health and has >200 peer reviewed publications. His most recent research program utilizes a Learning Health Systems approach to investigate how technology equitable collaborative care can enhance the delivery of evidence-based interventions to patients.



## Dr. Lynn Wilson

is the Vice Dean, Clinical and Faculty Affairs and Associate Vice Provost, Relations with Health Care Institutions, and Professor and past Chair of the Department of Family and Community Medicine at the University of Toronto. Dr. Wilson was the co-director of BRIDGES, an Ontario Ministry of Health funded project to support the design, implementation and assessment of innovative models of care that promote integration in the healthcare system. Dr. Wilson has practiced comprehensive family medicine for over 30 years. Her clinical interests have included substance use disorders, mental health, palliative care, primary care obstetrics, and care of the elderly.

# A Message from the Executive Liaison Committee

While this year continued to be challenging for emergency services across Canada, it was a very successful year for SREMI. The number of publications and grants continues to grow and are detailed elsewhere in this report. Dr. Rohit Mohindra, our Research Lead at North York General Hospital (NYGH), has contributed to SREMI productivity overall while bringing the perspective of a community ED to the research projects he leads and to the program in general. Emergency Medicine Cases, led by Dr. Anton Helman at NYGH continues to exceed expectations every year and has a global impact that is hard to describe!

Dr. Kevin Wasko and Andrea Ennis led the planning for this year's EDAC conference and will mark the return of an in-person, two day event for the first time since 2019. The agenda is exciting and at the time of this writing, the registration is far ahead of schedule – the venue will almost certainly be sold out.

Continuing SREMI's leadership in public policy related to emergency services, this year also featured the launch of the data gathering phase of the "POWER III" study led by Dr. Shelley McLeod and is certain to have an impact on physician coverage, wait times and care in Ontario EDs. It has generated great interest in the discipline and government. North York General ED was a participating study site. We look forward to the results and recommendations in the year ahead.

This year we also completed the funding for the endowment fund to support the Don Melady Sinai 100 Chair in Geriatric Emergency Medicine. This was celebrated by an event to thank his donors at Sinai and the University Divisions of Emergency Medicine recognized it as well at the evening where we also celebrated Don's academic promotion to Full Professor.

We also had an event celebrating the 10th anniversary of the founding of SREMI. It was a moment for all of us to step back and marvel at the growth and success achieved in only 10 years. As you read the research report, pay special attention to two key points. First, each of our clinician scientists has developed a focus, sometimes more than one, as recommended by the IAB in our early years. Each focus is directly relevant to the clinical populations we serve and builds expertise and credibility over time. Good advice taken to heart! Second, each researcher is also an advocate and leader for change in their respective areas, reinforcing our original SREMI vision of being more than a research institute. This synergy across research, knowledge translation and advocacy amplifies the impact of our work. This further validates our approach and reflects the exceptional quality of the staff we have recruited.

The memorandum of understanding between the founding partners – Sinai Health and NYGH – has expired. North York General Hospital is in the midst of leadership change and renewal under their new CEO, Dr. Everton Gooden. Dr. Gooden has indicated the value he places on academics in general and on the SREMI partnership and we look forward to renewing our relationship in the year ahead.

Respectfully submitted,



Howard Owens  
MD, FCFP (EM)  
Mount Sinai Hospital



Rick Penciner  
MD, MSc, CCFP (EM), FCFP  
North York General Hospital

## RESEARCH





# Research Report

Dr. Shelley McLeod

The past year has been defined by outstanding research accomplishments from our SREMI researchers and scholars, and I am very proud to highlight some of our recent successes and ongoing projects that exemplify our commitment to advancing the field of emergency medicine.

## Research Impact

SREMI is expanding its academic reputation both nationally and internationally. With 42 peer-reviewed publications in prestigious journals like Canadian Medical Association Journal, Academic Emergency Medicine, and Age and Ageing, our scientists are at the forefront of high-quality emergency medicine research. Many of our faculty were invited speakers and track chairs at the Canadian Association of Emergency Physicians (CAEP) 2024 conference and continue to be vital members of committees, working groups and panels, acknowledging the important contributions we are making towards emergency medicine.

Commissioned by the Society for Academic Emergency Medicine (SAEM), Dr. Bjug Borgundvaag led the development and publication of the Guidelines for Reasonable and Appropriate Care in the Emergency Department (GRACE-4) guidelines on alcohol use disorder and cannabis hyperemesis syndrome management in the ED. These guidelines aim to improve patient outcomes by standardizing care practices in the ED and serve as a resource for educating ED staff about the complexities of alcohol and cannabis-related conditions. Dr. Borgundvaag has been invited to present these findings at numerous provincial, national and international conferences, raising awareness of alcohol use disorder and cannabis hyperemesis syndrome and promoting best practices well beyond Canada.

Over the past year, SREMI clinician scientist Dr. Rohit Mohindra continued to build the emergency medicine research program at North York General Hospital (NYGH), successfully leading and participating in multiple on-going projects. One new study being led by Dr. Mohindra is using machine learning algorithms to improve the accuracy of asthma diagnosis in the ED. This innovative study is supported by a grant from the NYGH Exploration Fund and represents a forward-thinking approach to integrating technology in healthcare, paving the way for future research and applications of machine learning in various aspects of emergency medicine.

Dr. Keerat Grewal and Dr. Catherine Varner co-authored an extremely impactful editorial in the CMAJ entitled "The emergency department is no place to be told you have cancer." It emphasized the challenges and emotional distress associated with receiving a cancer diagnosis in the ED and outlined the need for dedicated resources and processes to ensure patients receive their diagnoses in a supportive and suitable setting. Dr. Grewal was interviewed by various media outlets, including CBC News, The Globe and Mail, Toronto Star, and CTV News.

Dr. Varner also published two additional editorials advocating for enhanced and streamlined access to early pregnancy care in Canada, which led to multiple media interviews with the CBC, CTV News, Toronto Star, The Globe and Mail, and National Post. In acknowledgment of her research and expertise in the care of pregnant patients in the ED, Dr. Varner was invited to be the Keynote Speaker and Visiting Professor at the emergency medicine research days at both the University of Alberta and the University of Ottawa.

Dr. Jacques Lee, our SREMI Research Chair in Geriatric Emergency Medicine, is actively enrolling patients in his trial on social isolation and loneliness. In addition to directly connecting over 135 seniors with volunteers, extensive media coverage of Dr. Lee's research, including features on The National, The Current radio show, Global News, and The Globe and Mail, has significantly raised awareness about the effects of social isolation and loneliness across the country.

Last year I completed the provincial evaluation of Ontario's virtual urgent care pilot program, which helped inform provincial policy decisions on how to structure virtual care services across the province. Findings highlighted the need to better understand the inherent limitations of virtual care and ensure future virtual providers have timely access to in person outpatient resources for follow up to reduce subsequent ED visits and ensure appropriate use of ED services. This work resulted in numerous publications, with the main findings published in the CMAJ with an accompanying editorial by Dr. Varner. The CMAJ article received 249 media mentions across 12 countries.

In September, we completed the on-site data collection for the third iteration of the Predictors of Workload in the Emergency Room (POWER) study, a prospective, time-and-motion study of physicians working in 14 EDs in Ontario to determine the distribution of physician time by activity during a shift. This study was commissioned by the Ontario Ministry of Health, and data derived from the POWER study will be used as the basis of a formula used to determine physician hours of coverage for the ED Alternate Funding Arrangement workload model used in Ontario and other provinces.

## An Outstanding Decade

Over the last decade, we have collaborated with researchers from across Canada to successfully secure 113 grants totaling more than \$35 million dollars in peer-reviewed funding. This funding has been instrumental in supporting our research initiatives and has allowed us to explore innovative solutions to improve emergency care. These resources have not only enhanced our research capabilities but have also positioned us as a leader in the field of emergency medicine.

Our dedication to advancing knowledge is reflected in our publication record. To date, we have published 318 manuscripts in reputable journals, contributing valuable insights to the emergency medicine community and influencing best practices in emergency care.

Our efforts have not gone unnoticed. We are proud to have received 65 research excellence awards, recognizing the quality and impact of our work. SREMI faculty have also received 146 academic and scholarly awards. These accolades affirm our position as a leading research institute and motivate us to continue striving for excellence in all our endeavors. An integral part of our mission is to nurture the next generation of emergency medicine leaders. Over the last decade, we have mentored more than 125 medical students, residents, and fellows. Through hands-on training and guidance, we have equipped these individuals with the skills and knowledge necessary to excel in emergency medicine and make meaningful contributions to the field's advancement.

I want to extend my heartfelt gratitude to our Director, Dr. Bjug Borgundvaag, for his steadfast leadership and thank our dedicated faculty and staff for their hard work and unwavering commitment to our shared mission. Additionally, I must give special recognition to our generous benefactors, as their support is the foundation of all our achievements. As we look ahead, we remain committed to advancing emergency medicine through innovative research, scholarship, and collaboration. I am excited to see what we achieve in the next 10 years.

Respectfully submitted,

Shelley McLeod, PhD, MSc, MSc, BSc(hons)  
Research Director, SREMI



**Emergency Medicine Research Day 2024**

Showcasing local EM research and featuring Keynote Speaker Dr. Shelley McLeod

*From Idea to Impact: Navigating the Path to Success in Emergency Medicine Research*

May 2, 2024 | 0800-1230 | Theatre 4 HSC

Scan registration link or [jill.vandenbrand@ahs.ca](mailto:jill.vandenbrand@ahs.ca)

# Academic Achievements & Awards

Sinai Health Foundation. Dr. Don Melady Chair in Geriatric Emergency Medicine. [Dr. Don Melady](#)

Promoted to Full Professor, Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto. [Dr. Don Melady](#)

The Eric Letovsky Award for Excellence in Emergency Medicine, Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto. [Dr. Anton Helman](#)

Anna Jarvis Award for Teaching Excellence in Emergency Medicine, Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto. [Dr. Nadia Primiani](#)

Appointment as Graduate Faculty Member, Institute of Medical Science, Temerty Faculty of Medicine, University of Toronto. [Dr. Rohit Mohindra](#)

Canadian Association of Emergency Physicians 2024 CAEP-CarVECTOR Research Abstract. The simplified pulmonary embolism severity index score as a predictor of hospitalization among emergency department patients with pulmonary embolism. [Pranav Tandon](#)

Canadian Association of Emergency Physicians 2024 Top 7 Research Moderated Posters. The relationship between delirium severity and patient outcomes classified by motor subtype: a systematic review. [Corvinelli SE](#), Luan A, [McLeod SL](#), Choi S, Kiss A, Walsh C, Hanna A, [Lee JS](#).

Associate Member of the College of Reviewers, Canadian Institutes of Health. [Dr. Keerat Grewal](#)

Re-Appointment as Research Co-Leads, Division of Emergency Medicine Executive, Department of Family and Community Medicine, Temerty Faculty of Medicine, University of Toronto. [Dr. Catherine Varner](#) and [Dr. Shelley McLeod](#)

Appointment as Research Lead, Division of Emergency Medicine Executive, Department of Medicine, Temerty Faculty of Medicine, University of Toronto. [Dr. Keerat Grewal](#)

Teaching Excellence Award, Temerty Faculty of Medicine, University of Toronto. [Dr. Rohit Mohindra](#)

Ontario Graduate Scholarship. [Cam Thompson](#)

The Research & Health Science Education Entrance Scholarship Institute of Medical Science, Temerty Faculty of Medicine, University of Toronto. [Sara Corvinelli](#)

Sinai Health Foundation. Rose Torno Bursary. [Cam Thompson](#)

PhD Graduate Stimulus Grant, Institute of Medical Science, Temerty Faculty of Medicine, University of Toronto. [Dr. Jacques Lee](#)



# SREMI by the Numbers

## GRANTS

**9** PEER REVIEWED  
(Nov 2023 - Oct 2024)

TOTAL AMOUNT  
**\$3.19** million



Research Excellence Awards



Ongoing Projects Collecting Data



Peer-Reviewed Publications



Academic & Scholarly Awards

## MENTORED

5 Medical Students

5 Graduate Students

4 Residents

3 MSH EM Fellows

1 Geri EM Fellow



Research abstracts presented at **National Meetings**



Research abstracts presented at **International Meetings**



Invited **National Presentations**



Invited **International Presentations**



# SREMI Team



Nana Asomaning  
Faculty



Victoria Aziz  
Research Nurse  
Specialist



Dr. Priyank  
Bhatnagar  
Geriatric EM Fellow



Dr. Bjug  
Borgundvaag  
Director



Chloe Chalmers  
Peer Support  
Worker



Dr. Don Melady  
Faculty



Dr. Rohit Mohindra  
Faculty



Mahfam Nikoo  
Peer Support Worker



Clotilde Ngwa  
Research  
Coordinator



Dr. Howard Ovens  
Executive Liaison



Dr. Yusef Darawsha  
MSH EM Fellow



Dr. Dave Dushenski  
Faculty



Andrea Ennis  
Faculty



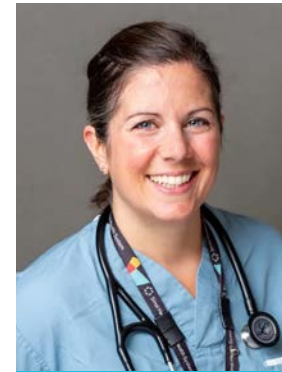
Jordyn Ethier  
Peer Support  
Worker



Stef Figueiredo  
Peer Support  
Worker



Dr. Rick Penciner  
Executive Liaison



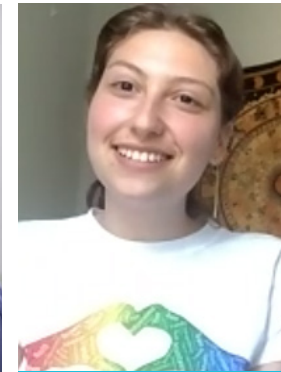
Dr. Nadia Primiani  
MSH EM Fellowship  
Director



Mahima Sethi  
Administrative  
Assistant



Dr. Tamar  
Shemesh-Lobl  
MSH EM Fellow



Bella Shulman  
Peer Support  
Worker



Dr. Keerat Grewal  
Faculty



Dr. Anton Helman  
Faculty



Dr. Shawn Lacombe  
MSH EM Fellowship  
Director



Dr. Jacques Lee  
Research Chair



Dr. Shelley McLeod  
Research Director



Rhiannon Thomas  
Project Manager



Cameron Thompson  
Research  
Coordinator



Dr. Catherine Varner  
Deputy Director



Dr. Kevin Wasko  
Faculty



Joanna Yeung  
Research  
Coordinator



# SREMI Research Chair

Dr. Jacques Lee

SREMI's support for the chair in Geriatric Emergency Medicine research has led to significant advancements in the past year translating into important impact for our community.

With innovative approaches such as using volunteers to reach out to socially isolated and lonely seniors, using powerful basic science techniques like metabolomics to better understand delirium, the use of technology and artificial intelligence to improve outcomes for older people who need emergency care and new national and international mentorship and collaborations, Dr. Jacques Lee is improving the lives of older Canadians.

## Social Isolation and Loneliness

Social isolation and loneliness contributes to 45,000 deaths per year in Canada – as much as smoking and diabetes. However, few interventions to address these incredibly important social determinants of health in older ED patients exist. Therefore, Dr. Lee's team has reached out to over 5,000 older people discharged from the ED to test the HOW RU intervention which matches older people with similar-aged hospital volunteers for weekly chats.

Scientifically, this allowed Dr. Lee to establish some of the first estimates of the impact of social isolation and loneliness among older Canadian ED patients. Aside from the direct impact of connecting over 135 older people with volunteers, extensive media coverage of Dr. Lee's research on The National, The Current radio show, Global News and The Globe and Mail among others has tremendously raised awareness of the impacts of social isolation and loneliness on a national level.

In addition, Dr. Lee's students have explored the use of additional innovative interventions including using younger volunteers and the Making Art, Making Change intervention. He has also made interesting discoveries about the experiences of older people with social isolation and loneliness. Specifically, Dr. Lee discovered that many older people with objective measurements of loneliness do not identify as lonely, perhaps due to stigma. He is also developing a simple, quick screening question to help busy front line ED staff identify loneliness.



## Femoral (Hip) Fractures and Delirium

Dr. Lee's research on delirium remains at the forefront of efforts to understand this complex condition. Despite over 400 years of study, the underlying brain processes leading to delirium are still not fully understood. To address this gap, Dr. Lee is using an innovative approach, focusing on older patients with hip fractures who present to the ED. While factors known to prevent delirium - such as mobility, proper nutrition, and avoiding psychoactive medications like opioids - are typically unavailable to these patients, this presents a unique challenge. Although 95% of patients with hip fractures are delirium-free upon arrival, up to 30% will develop delirium within seven days. Dr. Lee's program aims to identify biomarkers that emerge after delirium onset. By collecting biosamples on arrival and daily thereafter, he is working to uncover early indicators and develop new diagnostic tests. This research could also reveal the underlying mechanisms of delirium and guide new drug therapies to prevent or reverse the condition. To date, Dr. Lee has enrolled over 140 out of 604 patients across Toronto, Ottawa, and Quebec City, with 40 developing delirium. Enrollment in Quebec City will begin next month. While these discoveries may take two to three years to fully materialize, their potential to transform delirium diagnosis and treatment is immense.

Working with the biostatistical support of Dr. Shelley McLeod, Dr. Lee completed an in-depth analysis of a trial where over 200 emergency physicians from 3 provinces were trained to perform ultrasound guided regional anesthesia or "nerve-blocks". This trial, currently being submitted to JAMA, demonstrated that the blocks were safe, effective, and could be performed quickly. Significantly this trial found that delirium was reduced by 58% in those randomized to the treatment group. This trial has significant promise to influence clinical practice and improve outcomes in older people with hip fractures.

## Training the Next Generation of Leaders

Sara Corvinnelli, who completed her MSc thesis in July 2023, has started her PhD under Dr. Lee's supervision. She will be exploring innovative ways of recognizing delirium in the busy ED.

Dr. Shari Li, a recently graduated Emergency Physician with MSc training, is starting her fellowship in Geriatric Emergency Medicine research. With a focus on goals of care discussions in older people needing ED care, over the next year, Dr. Li will develop skills in qualitative and quantitative research methodology, program management, grant writing, and other essential skills necessary as an independent young investigator.

## International Collaboration & Mentorship

The SREMI Research Chair has allowed Dr. Lee to serve as a global resource to foster research in older people needing ED care. With mentees and collaborators in Australia, the US, Ireland, Singapore and Ethiopia, Dr. Lee is guiding new investigators to help develop important and feasible research projects that will have local and global impact.





# SREMI Deputy Director

Dr. Catherine Varner

Emergency departments (EDs) play a critical role in pregnancy care in Canada, which is SREMI's Deputy Director Dr. Catherine Varner's main focus of research. She is regarded as an international expert on the care of pregnant patients in the ED and has published foundational studies describing healthcare utilization and patient ED experiences during pregnancy.

She and co-authors have found that 4 in 5 people with threatened or spontaneous pregnancy loss visited an ED in Ontario. Although the ED is the safest and most expeditious place for a pregnant person to be treated for massive uterine hemorrhage or a suspected ruptured ectopic pregnancy, they have described that pregnant patients who are not critically ill often receive suboptimal care in emergency settings. Patients that experience early pregnancy loss have longer-than-average lengths of stay, sitting in chairs in non-private locations, and describe being made to feel as though they are "wasting the emergency department providers' time," given space constraints and relative stability compared with sicker patients. Continuity of care is also a concern, according to their studies, with many discharged without a follow-up plan or physician responsible for ongoing care, which contributes to high rates of return visits and puts patients at risk of preventable complications, such as ruptured ectopic pregnancy and massive hemorrhage.

Recognizing the care gap, Dr. Varner leads initiatives to improved care pathways for pregnant patients locally, provincially and nationally. In January 2023, Dr. Varner and the SREMI team launched a new care program to improve care for patients experiencing pregnancy loss in the Mount Sinai Hospital Emergency Department. Virtual Wraparound Care is a first-of-its-kind program that begins at the point of care in the ED and continues after discharge. Victoria Aziz, an advanced practice



ED nurse, has supported nearly 1000 patients through their loss, has provided education and support as the loss progressed, and ensured timely follow-up care. The program has been an incredible addition to the ED, and more importantly, to the care of this vulnerable and frequent ED patient population. The research evaluation of the program has shown this program has been a win-win for all involved: the patients receive more attentive and comprehensive care, and the ED has established more efficient follow-up care pathways with our gynaecology colleagues.

Dr. Varner is also an expert advisor for the Provincial Council for Maternal Child Health (PCMCH) and the Better Outcomes Registry and Network (BORN), which are both organizations funded by the Government of Ontario. In October 2024, Dr. Varner was the invited keynote speaker at the Early Pregnancy Complications and Loss Workshop, organized by PCMCH and BORN. Dr. Varner led discussions highlighting innovative solutions and implementing care pathways, like Virtual Wraparound Care, to improve care of patients with early pregnancy complications and loss in Ontario.



In the last year, Dr. Varner has published three editorials in the Canadian Medical Association Journal, advocating for improved streamlined access to pregnancy care in Canada for patients in early pregnancy and the postpartum period and for patients experiencing symptoms of early pregnancy loss. Informed by her research in these areas, these pregnancy editorials led to multiple media interviews by journalists for the CBC, CTV News, Toronto Star, Globe and Mail, and National Post. As Deputy Editor of CMAJ, her editorials on pregnancy and other vulnerable populations seeking care in the ED are regularly included in briefings for health policy makers on topics related to emergency care in Canada.



Nulling emergency department providers away from the bedside needs to be avoided in virtual care, says Dr. Catherine Varner, deputy editor of Canadian Medical Association Journal. (Turgut Yeter/CBC)

She was welcomed by the University of Alberta and the University of Ottawa's Departments of Emergency Medicine as their visiting professor in June and October, respectively, this year, where she spoke about the joy of building a research program in pregnancy care in the ED. Having met and heard from emergency medical trainees who shared their interest in pregnancy research, she was proud of SREMI's lasting influence on this nascent field of study.



# SREMI Clinician Scientist

Dr. Keerat Grewal

Patients with cancer use the ED frequently throughout their cancer journey, from diagnosis to treatment and survivorship. However, very little is known about how these ED visits impact outcomes for patients with cancer. SREMI Clinician Scientist, Dr. Keerat Grewal, is studying the relationship between ED visits and patient outcomes throughout the cancer continuum. Her research aims to improve the care of patients with cancer in the ED.

Dr. Grewal is leading a Canadian Institutes of Health Research (CIHR) funded multidisciplinary, mixed-methods study examining the care of patients in Ontario who are diagnosed with cancer through the ED. Working with administrative data from ICES, Dr. Grewal's team recently reported that over one-third of patients diagnosed with cancer in Ontario used the ED in the 90 days prior to diagnosis. This highlights a tremendous opportunity to improve care for the many patients who receive a suspected cancer diagnosis in the ED, an often neglected route to cancer diagnosis. Drs. Grewal and Varner recently co-wrote an editorial in the Canadian Medical Association Journal discussing the need for better access to



care from EDs for patients with a suspected cancer diagnosis. This work was featured on the front page of the Toronto Star and multiple Canadian news outlets and is shedding light on this troubling trend. Locally, at Mount Sinai Hospital, Dr. Grewal is collaborating with physicians across the hospital to identify innovative ways to improve outpatient access to cancer diagnostics in order to avoid admission to hospital. The results of Dr. Grewal's research program will lay the foundation to improve access to cancer care from the ED and will help improve patient care for the many Canadians who will use the ED during the diagnostic phase of their cancer journey.

Dr. Grewal continues to study venous thromboembolism and anticoagulation in the ED. She has partnered with investigators and clinicians from Thrombosis Canada, CanVECTOR, and ICES on a grant submission to examine real-world data on anticoagulation for cancer-associated thrombosis by comparing newer anticoagulants to older anticoagulants. Given Dr. Grewal's experience with venous thromboembolism research

in the ED and administrative databases, this year she was invited to collaborate with the EARTH group, an international network of emergency researchers interested in venous thromboembolism. She is also working with an international group of physicians to examine the use of preemptive anticoagulation for suspected pulmonary embolism by emergency physicians around the world. Dr. Grewal was a co-investigator on a successful CIHR planning and dissemination grant to create Pulmonary Embolism Canada (PECAN), a Canadian consortium focusing on recognizing and managing intermediate and high risk pulmonary embolism, which left untreated has very high morbidity and mortality. She was invited to co-lead a talk at the PECAN inaugural meeting about how to leverage existing administrative databases in Ontario to study pulmonary embolism.

Dr. Grewal is active with various local and national emergency medicine and research initiatives. This year she was selected as the Research Lead for the Division of Emergency Medicine, Department of Medicine at the University of Toronto. She has been working with the tri-divisions to host emergency medicine research rounds for the university. Dr. Grewal continues to sit on the Emergency Medicine Resident Academic Project committee at the University of Toronto and the CAEP Scientific Planning Committee for continuing medical education webinars. Dr. Grewal has been a mentor for multiple medical students, residents and graduate students. Pranav Tandon, a medical student supervised by Dr. Grewal, won the CAEP-CanVECTOR award at this year's CAEP conference for a study conducted through SREMI that examined hospitalization for pulmonary embolism.



**Dr. Keerat Grewal pointed to Canada's** On a recent 12-hour shift, Dr. Kyle Vigilani diagnosed three patients with cancer. Like most evenings, it was busy in Michael Gerson Hospital's emergency department. A crowd of patients waiting to be seen. Physicians and nurses rushing between cases. Sick patients, some critical, waiting in hallways for a hospital bed. Amid the bustle, Vigilani, chief and medical director of the department, had to find the time — and the words — to tell each of the three patients that their tests pointed to cancer. One of the patients, a man who had no family doctor and who could no longer wait to get care for his symptoms, had metastatic disease — the cancer had already spread to other parts of his body. "You're looking at the CT scan and it doesn't say somebody has a treatable diagnosis like appendicitis," Vigilani said. "Then you're thinking, 'How do I sit down with this person and their family in this unbelievably busy space and provide them with a life-saving diagnosis?'" Across Canada, doctors are reporting a similar troubling trend, saying an increasing number of patients are receiving a cancer diagnosis in emergency departments in just another symptom of a health system under pressure. Patients, they say, are forced to go to emergency departments for help because a family doctor shortage means they cannot easily get care anywhere else. "We know the emergency department is a terrible place to receive this type of diagnosis," said Dr. Keerat Grewal, lead author of an editorial published Monday in the Canadian Medical Association Journal (CMAJ) that highlights the emerging trend. Class 2 investigations are typically completed within 600 days. As of Monday, it has been 652 days since the crash. MacDonnell said that while the safety board strives to meet target timelines, they can be exceeded due to the complexity of an investigation. Smith, who said she wouldn't let her family ride the ferries until the investigation is complete and changes are made to the way the fleet is managed and maintained, shared emails with the Star, dating back to 2016, in which he flagged issues of ferry safety. SEE HOSPITALS, A8



# NYGH Research Lead

Dr. Rohit Mohindra

## Machine Learning For Youth Presenting With Mental Health Concerns

The emergency department at NYGH identified a need to streamline finding appropriate services for young mental health patients. This process is often time-consuming due to the complexity of matching patients with the right programs based on their backgrounds.

Supported by a generous donation from the Slight Family Foundation, SREMI Clinician Scientist and NYGH Research Lead, Dr. Rohit Mohindra is working with the NYGH Research Chair in Artificial Intelligence (AI) and Patient Outcomes, Dr. Ervin Sejdic, to develop an AI tool to make this process more efficient. The goal is to simplify the process for the mental health team while offering tailored options for each patient. The AI tool will analyze patient charts, extracting relevant details like past treatments, demographic information, and preferences. It will then suggest services that best match the patient's needs. PhD candidate Fatemeh Bagheri has begun to design the algorithm under the guidance of Dr. Sejdic and Dr. Mohindra.

This project highlights the growth of research at NYGH and the considerable impact the SREMI partnership has had on Dr. Mohindra's ability to conduct innovative research. Five years ago, something like this wouldn't have been possible. Experts like Dr. Sejdic, with his AI expertise, and Dr. Mohindra, as a clinician-scientist, position North York General and SREMI to stay at the forefront of patient care and innovation.



## Refugee Patient Experience When Seeking ED Care

Refugees continue to face unique challenges when accessing healthcare in Canada. The strained primary care system, coupled with language barriers, past traumatic experiences, and healthcare system understanding, make it likely that these patients will seek care in our EDs. Dr. Mohindra has undertaken multiple studies to better understand how this patient population experiences ED care and what barriers providers face.

The results of his qualitative study were presented at the Canadian Association of Emergency Physicians (CAEP) conference in Saskatoon in June 2024. The findings described how refugee patients often delay seeking care and present with higher levels of acuity as a result. As well, patients noted a need to establish trust with care providers. They also appreciated when providers asked about their needs and expectations for the visit. Finally, patients expressed frustration about navigating the post-ED follow-up system. Dr. Mohindra also presented the results of his healthcare provider surveys. Providers identified challenges around translation services, understanding the financial burden of seeking care, concerns around meeting expectations and not appearing judgemental, and difficulty arranging follow-up as primary barriers to providing care to this population.

Dr. Mohindra and his research team are now working with EDs across the city and community partners to co-design interventions to improve the care experience for this vulnerable population.



## Opioid Overdose And Out-Of-Hospital Cardiac Arrest

Uncertainties persist around the benefits and risks of naloxone administration to patients with suspected opioid-induced cardiac arrest, as well as optimal dosages and administration routes.

In collaboration with the Prehospital, Trauma and Resuscitation Sciences group, the Ontario Poison Control Centre, and the Ontario Coroner's Office, Dr. Mohindra is working to develop a prehospital risk assessment tool to help paramedics and ED providers understand when a cardiac arrest has a high probability of being caused by an opioid overdose. This will be the first step to improve outcomes for OHCA patients and help to reduce the growing number of opioid-related deaths.

# SREMI Research Students



**Jacky Lee**

Jacky Lee is a third-year medical student from the University of Ottawa. He worked with Dr. Jacques Lee on the social isolation and loneliness trial. He conducted one-on-one telephone interviews with research participants to understand their experience and perspectives of isolation and loneliness, facilitators and barriers to accessing the intervention, and ideas for improvements in the trial. His SREMI summer studentship provided him with the opportunity to meet with leaders in emergency medicine and learn more about physician roles in advocacy and how to effect change.



**Simran Lohit**

Simran Lohit is a second-year medical student from the University of Toronto. She worked with Dr. Jacques Lee on a single-item validation trial for an instrument measuring social isolation and loneliness (SIL) in older patients. Over the summer, Simran organized data-collection procedures, trained a team of research volunteers, and conducted one-on-one telephone interviews to validate a single-item tool used to quickly screen for SIL for emergency department patients. Simran's SREMI summer studentship gave her the opportunity to work beside emergency physicians and researchers, learn research methodology, and gain valuable experience in the Toronto community.



**Carley Moore**

Carley Moore is a Masters of Public Health (MPH) student at Dalla Lana's School of Public Health at the University of Toronto. Earlier this year, she completed her practicum under the supervision of Dr. Keerat Grewal. As a part of a four-month practicum, she assisted with a qualitative research study where she interviewed emergency physicians across Ontario about their experiences managing patients with a suspected cancer diagnosis in the emergency department. Carley was also involved in the coding and analysis of interviews and drafting of the manuscript associated with this study.

## EDUCATION





# Geriatric Emergency Medicine

Dr. Don Melady

Dr. Don Melady continues his work with SREMI focussed on promoting excellent care of older ED patients in Mount Sinai's own ED and on disseminating and implementing the concept of the older person-friendly ED, nationally and internationally. His work was recognized this year by the Faculty of Medicine at University of Toronto when he was promoted to full Professor in the Department of Family and Community Medicine.

The Geriatric Emergency Medicine fellowship hosted its final fellow this year. Dr. Priyank Bhatnagar successfully completed the year with several publications with CJEM and more under review. He also joined the teaching core faculty for the national CAEP Geriatric EM Course. He developed expertise in delirium and in teaching skills with a number of provincial and national presentations.

SREMI now has eleven alumni of this fellowship program working in leadership positions in seven Canadian provinces and in Singapore. With no applicants for next year's fellowship and Dr. Melady reducing his teaching load, the fellowship will shift leadership to the new Daniels Seniors Emergency Centre at UHN under the leadership of Dr. Alice Gray, a graduate of the fellowship.

Dr. Melady is active on the international stage. He completed his three-year term as the chair of the Clinical Practice Committee at the International Federation of Emergency Medicine and is now leading its organizational re-structuring process. He was actively involved in planning the ICEM 2024 conference in Taiwan and is on the Oversight Committee for ICEM 2025 in Montreal. At the American grant-funded organization, The Geriatric ED Collaborative, he creates and hosts a widely attended bi-monthly webinar series on various topics in geriatric ED care. He creates content and support for the group's website <https://gedcollaborative.com>. He works with a team to disseminate and implement best practices in geriatric ED care in hospitals and health systems across the United States. He is on the Editorial Board of the new Journal of Geriatric Emergency Medicine which has developed a strategic plan that includes PubMed indexing over the next two years.



In June 2024, Mount Sinai Hospital announced the Dr. Don Melady Chair in Geriatric Emergency Medicine, one of 18 fully endowed academic chairs. This chair will allow SREMI to support an academic to continue work – research, education, system change, advocacy – in improving care of older ED patients.

Dr. Melady maintains a leadership role in the Geriatric EM committee of the Canadian Association of Emergency Physicians (CAEP). The Education group within that committee has developed and presented a Clinical Geriatric EM course seven times for Canadian emergency physicians. This year, the course was hosted by physician groups in Newfoundland and a live course at North York General Hospital. The group presented CAEP National Grand Rounds in November 2024 focussing on the impact of frailty in older ED patients. Dr. Melady continued leading the EM Learning Exposition at both CAEP and ICEM conferences, where over 450 conference participants interacted with clinical experts in "learning stalls" across the spectrum of emergency medicine.





# EM Cases

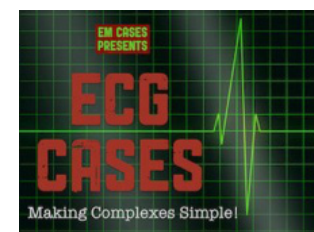
Dr. Anton Helman

Dr. Anton Helman's EM Cases, currently in its 14th year, is the most listened to Emergency Medicine podcast in the world and a leader in the Free, Open Access Medical Education movement, widely known as FOAMed. As an exemplar of this movement, EM Cases produces freely accessible, emergency medicine-related podcasts, written material, quizzes, push emails, and videos.

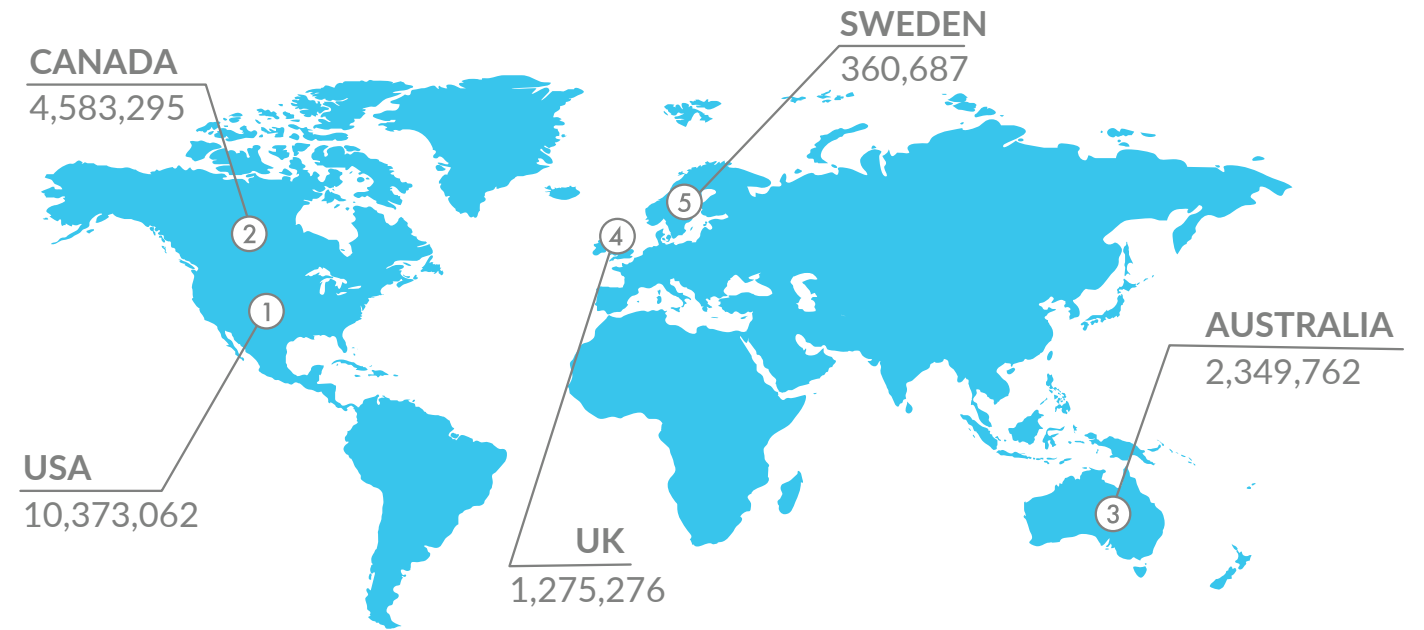
With almost 500 podcasts published, EM Cases has more than 23 million podcast listens and remains in the top 10 podcasts in medicine in Canada. The website has attracted nearly 3 million page views and 630,000 users in the past year.

Not surprisingly, the number of users of the website has increased over the past three years, as its multi-modal learning system attracts medical learners from all stages of training and beyond. EM Cases Quiz Vault, for example, is a growing bank of multiple-choice questions started three years ago and has been used by more than 10,000 people from around the world. More than 1000 multiple choice questions have also been made available for free on the most popular study aid tool used by medical residents and students, Anki.

Last year the 2nd ever virtual EM Cases Summit brought more than 500 EM providers from around the world (including 100 from resource-challenged countries) for a large-scale interactive conference that featured prominent EM speakers, virtual simulations, symposiums on wellness, rural EM and global EM, procedural demos and panel discussions. The Summit's success has fueled a third conference planned



## EM CASES NEW USERS - TOP 5 COUNTRIES




this November 2024 which already has 400 registrants that is again incorporating cutting edge virtual simulation sessions as well as a new ECG interpretation course.

Several projects are currently running including: curated videos to accompany some of the best EM Quick Hits podcasts, a rural EM podcast series, a global EM podcast series, a wilderness EM podcast series, a podcast series featuring the best of University of Toronto EM, the written summaries of the main episode podcasts translated into French and a Journal Club.

EM Cases continues to 'give back' to SREMI by generating tens of thousands of dollars annually through donations, advertising and registration to the EM Cases Summit to support SREMI's endeavors.

EM Cases, as a unique multi-modal learning system, continues to be the leader in podcast-based free open access emergency medicine education in the world.



Total Downloads Since Inception	<b>23,058,426</b>
Total Downloads (Nov 2023 – Oct 2024)	<b>1,523,483</b>
Total Downloads per Day	<b>~ 4,000</b>
Total Downloads per Month	<b>~ 120,000</b>
Website Users (Nov 2023 – Oct 2024)	<b>~ 50,000</b>





# MSH Emergency Medicine Fellowship

The Mount Sinai Emergency Medicine Fellowship continues to train fellows seeking experience in the Canadian Emergency Medicine environment with the direct support of SREMI, Mount Sinai Hospital, the Azrieli Foundation, and the Israeli Ministry of Health. This year saw the addition of a new fellow, Dr. Yusef Darawsha and the completion of Dr. Tamar Shemesh-Lobl's fellowship.



**Dr. Yusef Darawsha**

**2023**

Dr. Darawsha comes to us from the Bnai Zion Medical Center where he works full time as a staff Emergency Medicine physician. He has a specialty in Internal Medicine and chose to pursue the fellowship to further his exposure to comprehensive Emergency Medicine. We are thrilled to announce he has decided to pursue a second year of fellowship training with us, where he will concentrate on Emergency Medicine Leadership and the management of musculoskeletal injuries. In the new year we are excited to welcome Dr. Hilal Hurani for his first year of fellowship training with us. Dr. Hurani is a senior Emergency Medicine physician and Deputy Clinical Head at Carmel Medical Center in Haifa. He is eager to immerse himself in Canadian Emergency Medicine and refine his point-of-care ultrasound (POCUS) skills.



**Dr. Nana Maklada**

**(2021-2023)**

To say that Dr. Maklada has been a force since she returned home is an understatement. Upon returning to Israel, she became heavily involved in resident education, teaching hands-on procedural skills and advanced POCUS skills, leading her department in developing new protocols and educational roles, and working closely with her other colleagues to incorporate some of the traumatology she learned in Canada (e.g. roles, identification badges). Dr. Maklada has also been back to Canada to attend the Emergency Medicine Update conference held in Toronto.



**Dr. Tamar Shemesh-Lobl**

**(2021-2024)**

Dr. Shemesh-Lobl has been our longest standing fellow, completing two and a half years of training with us. During this time, she trained longitudinally in Emergency Medicine orthopedics training with Dr. Arun Sayal at North York General Hospital, multiple rotations at Collingwood General Hospital, and even completed a northern medicine rotation in Sioux Lookout. She has actively participated in academic Emergency Medicine by teaching postgraduate medical students at the University of Toronto and attended both local and national conferences. The culmination of her fellowship saw her working as a junior staff physician in the Mount Sinai Emergency Medicine department. Next steps for Dr. Shemesh-Lobl include participating in research and helping facilitate clinical trials with the SREMI group.

# EDAC 2023

Canada's leading Emergency Department Administration Conference (EDAC), presented by the Schwartz/Reisman Emergency Institute (SREMI), was held in-person and virtually on November 21st, 2023. The morning featured an in-person leadership session lead by Dr. Brian Golden from the Rotman School of Management, University of Toronto. This three-hour interactive session walked participants through topics such as leadership, system thinking and alignment, the psychology of persuasion and influence, and leading change.

The afternoon session was a virtual conference providing updates on issues of importance to leaders and administrators in emergency services, presented by internationally renowned speakers. Our Plenary Speaker this year gave "WEDOC Address" (Western ED Operations Conference) - Dr. Alecs Chochinov spoke on CAEP's National Advocacy Strategy and the future of emergency medicine in Canada. The focus of the other sessions was a variety of topics of interest to ED administrators in urban, community, and rural settings. Cathy Cattaruzza, Joy McCarron and Carolyn Farquharson discussed the Ontario Health Emergency Nursing Strategy. Dr. Kylie Booth and Dr. Michael Austin spoke on strategies and programs to offer remote help to emergency services providers in both the ED and EMS settings. Finally, Dr. David Dushenski, Dr. Rohit Mohindra, Dr. Tajinder Kaura and Marisa Vaglica discussed different models of care within the ED and their impact on departmental flow.

## Speakers:



Dr. Kylie Booth



Cathy Cattaruzza



Dr. Alecs Chochinov



Dr. Dave Dushenski



Brian Golden



Dr. Taj Kaura



Joy McCarron



Dr. Rohit Mohindra



Marisa Vaglica



**2023**



**78**  
Attendees

*"Great presentations! I really appreciated the subject matter experts you brought in to provide this valuable new information."*

*"The range of panel speakers and the representation of diverse perspectives were excellent."*

*"Engaging speaker with an excellent mix of media and interactions—very effective, and the incorporation of examples was great."*

*"The topics were highly relevant and up-to-date, fantastic conference!"*

# Dr. Paul Hannam Memorial Award

The Dr. Paul Hannam Memorial Award for Emerging Leadership in Emergency Medicine, established jointly through SREMI and the Canadian Association of Emergency Physicians (CAEP), honours Dr. Hannam's legacy and values, including leadership, mentorship and commitment to equity.



## Meet the 2024 Hannam Award Winner

### Dr. Ava Butler

Cowichan District Hospital, Duncan, British Columbia

When the world was hit with the COVID-19 pandemic, Dr. Ava Butler created innovative, educational videos and intensive simulations for both the emergency department and ICU staff at Cowichan District Hospital to ensure the Hospital's COVID precautions were evidence-based. She developed a protocol on how to intubate COVID-19 patients and made it possible for the department to enter the pandemic prepared and safe. Her videos and intubation plan were shared among all the local health region's (Island Health) emergency departments as a resource. She was nominated by a colleague for a College Coin award from the BC College of Family Physicians for this work.

Dr. Butler has been a keystone participant in bringing antiracism and culturally safe care within the Cowichan District emergency department. In 2023, she was invited by Cowichan Elders to brainstorm healthcare improvements for Coast Salish Indigenous patients who are undergoing cultural ceremonies in the traditional longhouse during the winter months after the emergency department was identified as a particularly non-culturally safe environment for these individuals. This collaboration led to the development of a daily on-call physician available on-site to treat urgent but non-emergent medical conditions that have come up at the longhouse. Dr. Butler also implemented an interdisciplinary Blanket Exercise for the Cowichan District Hospital emergency department, aimed at combatting racism against Indigenous patients.

Dr. Butler has played a key role within staff recruitment for the Cowichan Emergency Physician Association. She is the official "welcome wagon", introducing potential staff to the local community. Through this role of recruitment and engagement, she has also been a mentor to new staff in the department. Through her efforts, she has been successful in recruiting several physicians, which has allowed the emergency department to continue to provide quality care to the community.

One last example of community building and building physician resilience, is the emergency department yearly retreat that Dr. Butler created. She ensured that as many possible emergency physicians could attend this retreat, which is a unique opportunity for not only shared dialogue but identifying and taking first steps to dealing with communal issues. Not only did she organize relevant and practical lectures, she ensured the lecturers provided community-specific input that met the needs of the emergency physicians and subsequently the needs of patients.

Dr. Butler's dedication has profoundly enhanced the Cowichan emergency department and the community it serves. Her contributions to emergency medicine and her commitment to patient care are truly invaluable. She is an exceptionally deserving candidate for the Paul Hamman Leadership Award which was presented at the annual CAEP meeting in Saskatoon, Saskatchewan in June 2024.

# INNOVATION





# RBC Pathway to Peers

Rhiannon Thomas

The RBC Pathway to Peers (P2P) program is focused on supporting young adults aged 16 to 29 years presenting to Mount Sinai Hospital's emergency department (ED) with mental health, substance use or chronic health challenges. Many young people have difficulty feeling understood by clinicians with whom they have little in common, often lack trust in the healthcare system, and are unfamiliar with resources and hospital procedures. Deteriorating mental health post-pandemic, combined with increasingly unaffordable housing, and on-going systemic barriers for newcomer, racialized, 2SLGBTQIA+ and other marginalized communities have meant that young people are struggling more, and with less resources available than ever before.

Our team of peer support workers bring their lived experience to patient care with a trauma-informed and inclusive harm reduction approach to support them during their ED visit, and to connect them with community-based resources for their long-term health. Our part-time peer workers - Mahf Nikoo, Stef Figueiredo, Chloe Chalmers and Bella Shulman - help bridge the gap between traditional ED staff and younger patients by providing emotional support, self-advocacy education, coping strategies and practical resources. This clinically complementary care has not only improved patient experience by allowing them time and opportunity to discuss concerns that may not come up in triage, but has also reduced the need for behavioural interventions in some cases.



This year has been a time of change for the team. One of our long-time peer staff members moved on to work in the community, while others returned to universities and colleges to pursue academic endeavours. This September, the P2P and SREMI teams kindly welcomed Rhiannon Thomas as our new RBC P2P program manager. She comes from a community-based and research background, with expertise in stimulant harm reduction, overdose prevention and substance use criminalization. Rhiannon has worked extensively with multi-disciplinary teams, supporting staff with lived experience, with a focus on substance use, mental health, the social determinants of health, and gender-responsive programming. This fall we have also begun recruitment to expand the peer support team and look forward to welcoming new staff by year end.

Our team continues to engage in committee work to build relationships within the ED and across the hospital. We have joined the monthly ED Safety and Security Workgroup to bring a peer lens to reviewing behavioural incidents where intervention was required, and work toward proactively reducing such events and increasing staff, patient and visitor safety. Rhiannon and Chloe joined the Clinical Nurse Specialist in orientation to introduce new nursing staff to the RBC P2P program. We have also joined the Substance Use Disorder Community of Practice to bring a lived experience perspective to Sinai Health's shared learning group.

Sharing our work and connecting with community organizations is a priority. Mahf Nikoo successfully submitted an abstract to the Children's Mental Health Ontario conference and will be presenting a poster in November. The presentation highlights how using a trauma-informed harm reduction approach in our work creates space for patients to feel safer about opening up about their substance use, which provides the team with opportunities to locate appropriate on-site or community resources and safer use strategies. Mahf also attended the Addictions and Mental Health Ontario conference, and gained insight into the drug toxicity crisis and made connections with culturally-inclusive and youth-focused mental health programs. Rhiannon submitted a proposal to the 2025 ICEM conference to share the program benefits globally and offer insight how to rapidly scale it up in other regions. Rhiannon was also invited to join the 'Our City, Our Health: A Mental Health, Substance Use, Harm Reduction & Treatment Strategy for Toronto' Implementation Panel, whose work began at the end of October. This City of Toronto panel, led by Deputy Mayor Ausma Malik and Dr. Eileen de Villa, brings together people with lived experience of mental health and/or substance use and representatives from the mental health and substance use sector, and leadership from key City divisions. The panel will work to advance policies, programs and partnerships in the City of Toronto that reduce inequities and increase access to the social determinants of health to improve mental health and wellbeing and reduce the health and social impacts of substance use related harms.

Thanks to a generous donation by the Slight Family Foundation, Pathway to Peers will be expanding to a new ED in the greater Toronto area. In October, the SREMI team met with ED leadership and program champions at Michael Garron Hospital to explore building a partnership to provide ED-based peer support in the east end of the city.

Four proud years into operationalization in at Mount Sinai Hospital's ED, the RBC Pathway to Peers program has supported over 6500 young adults. Our team works 7 days a week to not only help young people in ED navigate their hospital care and find community-based support, but they also bring a sense of hope to patients in a time and place that can be very dark. We look forward to continuing and expanding this work, and want to thank the RBC Foundation for the generous ongoing support of our program.



# Research Publications: Nov 2023 – Oct 2024



## COVID-19 (n=5)

1. Mondoux S, Battaglia F, Gayowsky A, Clayton N, Langmann C, Miller P, Pardhan A, Mathews J, Drossos A, Grewal K. Was Virtual Care as Safe as In-Person Care? Analyzing Patient Outcomes at Seven and Thirty Days in Ontario during the COVID-19 Pandemic. *Healthc Q*. 2023 Oct;26(3):31-36.
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3. Morgan G, Casalino S, Chowdhary S, Frangione E, Fung CYJ, Lapadula E, Arnoldo S, Bearss E, Binnie A, Borgundvaag B, Briollais L, Dagher M, Devine L, Friedman SM, Khan Z, Mighton C, Nirmalanathan K, Richardson D, Stern S, Taher A, Wolday D, Lerner-Ellis J, Taher J. COVID-19 vaccine reactivity among participants enrolled in the GENCOV study. *Vaccine*. 2024 Apr 19;42(11):2733-2739.
4. Lordly K, Karataş AE, Lin S, Umapathy K, Mohindra R. Effectiveness of a suction device for containment of pathogenic aerosols and droplets. *PLoS One*. 2024 Jul 24;19(7):e0305842.
5. Casalino S, Mighton C, Clausen M, Frangione E, Aujla N, MacDonald G, Young J, Jordan Fung CY, Morgan G, Arnoldo S, Bearss E, Binnie A, Borgundvaag B, Chowdhary S, Dagher M, Devine L, Friedman SM, Hao L, Khan Z, Lane W, Lapadula E, Lebo M, Richardson D, Stern S, Strug L, Taher A, Greenfeld E, Noor A, Faghfoury H, Taher J, Bombard Y, Lerner-Ellis J; GENCOV Study Workgroup. A Genomic Counseling Model for Population-Based Sequencing: A Pre-Post Intervention Study. *Genet Med*. 2024 Sep 17;101272. doi: 10.1016/j.gim.2024.101272. Epub ahead of print.



## ED Administration (n=8)

1. McLeod SL, Tarride JE, Mondoux S, Paterson JM, Plumtre L, Borgundvaag E, Dainty KN, McCarron J, Ovens H, Hall JN. Health care utilization and outcomes of patients seen by virtual urgent care versus in-person emergency department care. *CMAJ*. 2023 Nov 6;195(43):E1463-E1474. doi: 10.1503/cmaj.230492.
2. Varner C. Critical evaluation of novel health system interventions is essential. *CMAJ*. 2023 Nov 6;195(43):E1483-E1484. doi: 10.1503/cmaj.231496.
3. Nasser L, McLeod SL, Hall JN. Evaluating the Reliability of a Remote Acuity Prediction Tool in a Canadian Academic Emergency Department. *Ann Emerg Med*. 2024 Apr;83(4):373-379.
4. Leeies M, Mohindra R, Hrymak C, McColl T, Ratana P, Hayward J, Davis P, Primavesi R, Archambault P, Meyer T, LeBlanc C, Sibley A, Mcilveen-Brown E, Henderson B, D'Cunha G, Bryan J, Grunau B. Enhanced sociodemographic variable collection in emergency departments. *CJEM*. 2024 Jun;26(6):371-376.
5. Varner C, Boozary A, Laupacis A. "Social admissions" to hospital are not personal failures but policy ones. *CMAJ*. 2024 May 5;196(17):E597-E598.
6. Tarride JE, Hall JN, Mondoux S, Dainty KN, McCarron J, Paterson JM, Plumtre L, Borgundvaag E, Ovens H, McLeod SL. Cost Evaluation of the Ontario Virtual Urgent Care Pilot Program: Population-Based, Matched Cohort Study. *J Med Internet Res*. 2024 Jul 15;26:e50483.
7. Petrie D, Ovens H. Tell me why, I don't like Mondays. *CJEM*. 2024 Sep;26(9):585-586.
8. Petrie S, McLeod SL, Ho K. From fragmentation to functionality: Enhancing coherence of digital health integration in health systems. *Healthc Manage Forum*. 2024 Oct 28;8404704241294255. doi: 10.1177/08404704241294255. Epub ahead of print.



## Cardiovascular (n=5)

1. Liu S, Stiell I, Eagles D, Borgundvaag B, Grewal K. Hypotension and respiratory events related to electrical cardioversion for atrial fibrillation or atrial flutter in the emergency department. *CJEM*. 2024 Feb;26(2):103-110.
2. Drennan IR, McLeod SL, Cheskes S. Randomized controlled trials in resuscitation. *Resusc Plus*. 2024 Feb 29;18:100582. doi: 10.1016/j.resplu.2024.100582.
3. Stiell IG, Perry JJ, Eagles D, Yadav K, Clement CM, McRae AD, Yan JW, Mielniczuk L, Rowe BH, Borgundvaag B, Dreyer J, Brown EL, Nemnom MJ, Taljaard M. The HEARTRISK6 Scale: Predicting Short-Term Serious Outcomes in Emergency Department Acute Heart Failure Patients. *JACC Adv*. 2024 May 24;3(7):100988.
4. Mohindra R. The heart must go on: can we use heart rate variability to improve neuro-prognostication after cardiac arrest? *Resuscitation*. 2024 Sep;202:110334.
5. Abdulaziz KE, Taljaard M, Dowlatshahi D, Stiell IG, Wells GA, Sivilotti MLA, Émond M, Sharma M, Stotts G, Lee J, Worster A, Morris J, Cheung KW, Jin AY, Sahlas DJ, Murray HE, MacKey A, Verreault S, Camden MC, Yip S, Teal P, Gladstone DJ, Boulos MI, Chagnon N, Shouldice E, Atzema CL, Slaoui T, Teitelbaum J, Perry JJ. Derivation of a clinical prediction score for the diagnosis of clinically significant symptomatic carotid artery disease. *CJEM*. 2024 Oct;26(10):741-750.



## Early Pregnancy (n=3)

1. Varner CE, Ray JG. Addressing fragmented early pregnancy care in Canada. *CMAJ*. 2023 Nov 20;195(45):E1555-E1556. doi: 10.1503/cmaj.231568.
2. Varner C. Optimizing postpartum care in Canada as rates of comorbidity in pregnancy rise. *CMAJ*. 2024 Jul 28;196(26):E908-E909.
3. Varner C. Investing in streamlined care for patients experiencing early pregnancy loss in Canada would reduce substantial suffering. *CMAJ*. 2024 Oct 14;196(34):E1171-E1172.



## Geriatric EM (n=12)

1. Hanna A, Jirsch J, Alain C, Corvini S, Lee JS. Electroencephalogram measured functional connectivity for delirium detection: a systematic review. *Front Neurosci*. 2023 Nov 16;17:1274837.

2. de Wit K, Mercuri M, Clayton N, Mercier É, Morris J, Jeanmonod R, Eagles D, Varner C, Barbic D, Buchanan IM, Ali M, Kagoma YK, Shoamanesh A, Engels P, Sharma S, Worster A, McLeod S, Émond M, Stiell I, Papaioannou A, Parpia S; Network of Canadian Emergency Researchers. Derivation of the Falls Decision Rule to exclude intracranial bleeding without head CT in older adults who have fallen. *CMAJ*. 2023 Dec 3;195(47):E1614-E1621.
3. Couture V, Germain N, Côté É, Lavoie L, Robitaille J, Morin M, Chouinard J, Couturier Y, Légaré F, Hardy MS, Chartier LB, Brousseau AA, Sourial N, Mercier É, Dallaire C, Fleet R, Leblanc A, Melady D, Roy D, Sinha S, Sirois MJ, Wittman HO, Émond M, Rivard J, Pelletier I, Turcotte S, Samb R, Giguère R, Abrougui L, Smith PY, Archambault PM; Network of Canadian Emergency Researchers. Transitions of care for older adults discharged home from the emergency department: an inductive thematic content analysis of patient comments. *BMC Geriatr*. 2024 Jan 3;24(1):8.
4. Lee JS, Rose L, Borgundvaag B, McLeod SL, Melady D, Mohindra R, Sinha SK, Wesson V, Wiesenfeld L, Kolker S, Kiss A, Lowthian J. Impact of a peer-support programme to improve loneliness and social isolation due to COVID-19: does adding a secure, user friendly video-conference solution work better than telephone support alone? Protocol for a three-arm randomised clinical trial. *BMJ Open*. 2024 Jan 9;14(1):e056839. doi: 10.1136/bmjopen-2021-056839.
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6. Zheng D, Rose L, Borgundvaag B, McLeod SL, Melady D, Mohindra R, Sinha S, Wesson V, Wiesenfeld L, Kolker S, Kiss A, Lowthian JA, Lee JS. Impact of an intergenerational program to improve loneliness and social isolation in older adults initiated at the time of emergency department discharge: study protocol for a three-arm randomized clinical trial. *Trials*. 2024 Jun 28;25(1):425.
7. Lee JS, Eagles D, Brousseau AA. Ensuring excellent care for frail and complex older patients in the ED by controlling what we can control. *CJEM*. 2024 Aug;26(8):511-512.
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## General EM (n=7)

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6. Perry JJ, Alsadoon A, Nemnom MJ, Sivilotti MLA, Émond M, Stiell IG, Stotts G, Lee JS, Worster A, Morris J, Cheung KW, Jin AY, Sahlas DJ, Murray HE, Mackey A, Verreault S, Camden MC, Yip S, Teal P, Gladstone DJ, Boulos MI, Chagnon N, Shouldice E, Atzema C, Slaoui T, Teitelbaum J, Giannakakis SM, Thiruganasambandamoorthy V, Dowlatshahi D, Wells GA, Sharma M. A Multicentre Prospective Cohort Study to Identify High-Risk Transient Ischemic Attack/Minor Stroke Patients Benefiting from Echocardiography. *Can J Cardiol*. 2024 Sep 12;S0828-282X(24)00946-2. doi: 10.1016/j.cjca.2024.09.008. Epub ahead of print.
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## Cancer Care (n=2)

1. Grewal K, Varner C. The emergency department is no place to be told you have cancer. *CMAJ*. 2024 May 12;196(18):E626-E627. doi: 10.1503/cmaj.240612.
2. Grewal K, Thompson C, Ovens H, Sutradhar R, Savage DW, Borgundvaag B, Cheskes S, de Wit K, Eskander A, Irish J, Bender JL, Krzyzanowska M, Mohindra R, Thiruganasambandamoorthy V, McLeod SL. Pathways to cancer care after a suspected cancer diagnosis in the emergency department: a survey of emergency physicians across Ontario. *CJEM*. 2024 Oct 7. doi: 10.1007/s43678-024-00787-0. Epub ahead of print.



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