

SREMI

SCHWARTZ/REISMAN
EMERGENCY MEDICINE
INSTITUTE

Mount Sinai Hospital
North York General Hospital



ANNUAL REPORT 2017

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Director

Dr. Bjug Borgundvaag

Executive Liaison Committee

Dr. Howard Ovens
Dr. Kuldeep Sidhu

Research Director

Shelley McLeod

Faculty

Dr. Audrey Brousseau
Dr. Sean Caine
Dr. Dave Dushenski
Dr. Brittany Ellis
Dr. Anton Helman
Dr. Don Melady
Dr. Aaron Orkin
Dr. Rick Penciner
Dr. Catherine Varner

Research Coordinator

Cameron Thompson

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Emergency Medicine Institute
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Mission, Vision & Values

MISSION

To lead and support a community of researchers and educators to improve emergency care in Canada and around the world.

To conduct and apply rigorous research that addresses patient-centred outcomes and priority community health concerns.

To create, refine, and apply health research methods for emergency medicine.

To foster a culture of teaching and learning by translating knowledge, educating future practitioners, and implementing best practices in emergency medicine.

VISION

The Outward Facing Emergency Department: Innovation in emergency medicine, enhancing patient and population health within and beyond the emergency department.



VALUES

To foster and promote the highest standards of professionalism and integrity by upholding the following values:

- Patient-centred care
- Research, education and administrative excellence
- Foster a learning health system
- Collaboration – locally, nationally and internationally
- Encourage equity in research, education and clinical care
- Transparency

Back Row: Cameron Thompson, Howard Ovens, Shelley McLeod, Aaron Orkin, Catherine Varner, Kuldeep Sidhu, Bjug Borgundvaag
Front Row: Audrey Brousseau, Don Melady, Sean Caine, Jane Park, Anton Helman
Missing: Rick Penciner, Brittany Ellis, Dave Dushenski

Welcome from the Director



It's hard to believe that another year has gone by so quickly. As you will discover in our 2017 annual report, the SREMI Team have had a busy and productive year.

I'd like to begin by extending my most heartfelt thanks and gratitude to our outgoing IAB Chair, Dr. Brian Rowe. He has provided outstanding leadership for our IAB, setting the tone for the friendly and productive meetings we have enjoyed over the last 3 years. Speaking personally, he has been generous in sharing his time and experience, and has been an outstanding mentor. Thank you Brian, for helping SREMI get off on the right foot.

My top priority over the last year has been to grow the number of SREMI investigators and increase our capacity. I am happy to report that we have made important progress in this area, and have recruited a new Junior Investigator, Dr. Keerat Grewal, who will join our team in July 2018. Dr. Grewal has just completed her MSc in Clinical Epidemiology, and is a health services researcher with a specific interest in the care of cancer patients in the emergency department. Dr. Grewal will consolidate her training as a fellow, following which she will apply for a Faculty appointment. We are excited to welcome her to the team.

Attracting mid-career and senior scientists to SREMI has been a significant challenge, but we have made progress. In recognition of the important contributions such scientists will make to our mission, we are in the process of establishing our first Chair in Emergency Medicine Research. Through the continued support and generosity of our benefactors, Gerry Schwartz and Heather Reisman, we have secured funding to support a Chair for a 10 year term. The process of arranging the administrative details of the appointment is underway, and we hope to begin a search in the near future. The creation of a Chair represents a big step forward, and will greatly expand our impact.

Second only to recruiting new staff, establishing a strategic plan for SREMI has been a key focus over the last year. Establishing a thoughtful, coherent roadmap to guide our work will allow us to focus our efforts and maximize the impact of our projects. As a group, we have invested considerable time capturing what it is that we want to accomplish, how we plan to get there, and how we will evaluate our progress. I am grateful to the group for their enthusiastic participation in this process, and our plan will guide our growth in the coming years.

In addition to our efforts to grow SREMI locally, we have been looking for opportunities to collaborate and foster the growth of academic emergency medicine provincially, and across the country. Our Research Director, Shelley McLeod, will highlight our projects at the IAB meeting, but one of the most exciting opportunities is the development of two SREMI Collaboration Grants. Intended to provide seed funding for larger projects, these grants are an opportunity to identify and support emergency physician researchers and educators working in areas of mutual interest, and hopefully build meaningful collaborations. We know from experience that these grants often pay large dividends and give an initial start to young academic leaders.

Finally, I would like thank our benefactors, Gerald Schwartz and Heather Reisman, along with our other supporters Linda Frum and Howard Sokolowski, Miles and Kelly Nadal, and Judy Wells, the hospital leadership at North York General Hospital and Sinai Health System, the members of our International Advisory Board, and our staff and partners, for their support, guidance and ongoing commitment to making SREMI a vital and important center for academic emergency medicine.

A handwritten signature in black ink, appearing to read 'Bjug Borgundvaag', with a long horizontal line extending to the right.

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

COLLABORATION



Chair's Report to the Board



Welcome to the Third Annual Schwartz/Reisman Emergency Medicine Institute (SREMI) International Advisory Board (IAB) Meeting. Once again, 2017 has been a very busy year for the leadership team and staff of SREMI and I would like to provide an overview of these accomplishments.

LEADERSHIP CHANGES

Last year, we announced the Re-Appointment of Dr. Bjug Borgundvaag as the Director of SREMI for a five-year period. This followed a rigorous process of feedback from SREMI staff and collaborators, leadership from Mount Sinai and North York General Hospital (NYGH) Departments of Emergency Medicine, SREMI IAB members and external stakeholders from the hospital and university.

This year, Dr. Howard Ovens ended his term as the Chief of the Schwartz-Reisman Emergency Medicine Centre at Mount Sinai Hospital after 30 years of impressive accomplishments, program expansion and academic leadership. His career was recently celebrated (but none of you were invited) at University of Toronto's Hart House. This hasn't meant he is just biking, sipping wine in Provence, and relaxing (although he is doing more of those things now). He is now the Chief Medical Strategy Officer for Sinai Health System and Medical Advisor for the Sinai Health Foundation. Howard will remain on the IAB, and his skills will continue to be needed and valued on the SREMI IAB.

IAB MEMBERSHIP

On behalf of the Board and SREMI, I am pleased to say that the IAB membership remains stable. This role is critically important to the function and the accountability of SREMI and we greatly appreciate their contributions. To paraphrase the comments made by our benefactor, Gerry Schwartz, after our first IAB meeting, *'we have an excellent IAB that's already providing important contributions to SREMI.'*

NYGH ENGAGEMENT

Building on the strong NYGH brand in continuing medical education, a very successful two-day conference was held in November 2016, co-chaired by Dr. Kuldeep Sidhu and Dr. Howard Ovens. The conference featured several members of the IAB, and was a successful summit of national and international leaders in emergency medicine. Using the same format, the 2017 conference (November 28 and 29) is planned to follow the IAB meeting and will focus on current issues facing emergency department administration. A second full day dedicated to "managing risk while driving improvement" will occur on November 29, which will cover medical-legal and quality improvement issues in emergency department operations. Kuldeep will be providing an update from the NYGH perspective at the IAB meeting.

SREMI KNOWLEDGE TRANSLATION ACTIVITIES

Another important activity of the SREMI team is the continued success of EM Cases (emergencymedicinecases.com). Under the leadership of Dr. Anton Helman of NYGH and with SREMI support, EM Cases has had widespread dissemination within the EM community, with literally millions of global downloads of their monthly podcasts. Anton will be providing an update of EM Cases at the IAB meeting.

SREMI RESEARCH ACTIVITIES

SREMI has had a busy year of research activities for the SREMI scientists and their collaborators. The focus areas include geriatrics and the ageing population, alcohol and other substance use disorders, mental health, shared decision-making, transitions of care and emergency care equity. SREMI's Research Director, Ms. Shelley McLeod will be providing an update of research activities at the IAB meeting. We will also hear from two of SREMI's clinician scientists, Dr. Catherine Varner and Dr. Aaron Orkin.

STRATEGIC PLAN

The leadership of SREMI has worked hard to develop a Strategic Plan for the Institute. I feel confident the direction is innovative and will expand the SREMI brand. Most importantly, it has a robust plan for career development, recruitment, research focus and knowledge translation that will help direct activities over the next five years. We look forward to discussing this document with you at the IAB meeting.

REFLECTIONS FROM THE CHAIR

I have been in contact with the SREMI team and met with Dr. Ovens, Dr. Borgundvaag and Ms. McLeod throughout the year, and I am impressed with the progress achieved to date. Now entering its fourth year, SREMI continues to make major contributions to emergency medicine science and medical education, career development and knowledge translation. Following the second SREMI IAB meeting, I was able to participate in the EDAC meeting, and attend the mental health and addictions workshop, led by Dr. Ovens and Dr. Sidhu.

I am participating on the eCTAS Research Subcommittee where SREMI staff are taking leadership roles and the project has important national implications. I was witness to the productivity of SREMI at the Canadian Association of Emergency Physicians (CAEP) and other research meetings in 2017. The SREMI staff and products are rapidly becoming recognized as authoritative and trusted research partners in the national and international community.

My first appointment as the Chair of the Board has come to an end and I am saddened to inform the Board that I will not be seeking re-appointment to the Chair position. My appointment to the Canadian Institutes of Health Research (CIHR) has consumed more of my time than expected, I have moved away from active emergency medicine research, and conflict of interest guidelines at CIHR preclude my further involvement. As you will see, SREMI has strong leadership, increasing prominence and excellent pipeline activity, so this is a good time to seek new leadership. Innovative thoughts, networking, and skills are needed now more than ever.

On behalf of the Board, I'd like to thank Dr. Ovens, Dr. Borgundvaag, Ms. McLeod, and the entire SREMI team for their hard work, dedication and commitment to improving the lives of patients seeking care for acute illness, injury and mental health problems in emergency departments around the globe. It's hard to communicate how important this work is, especially in these times of severe emergency department overcrowding, the emerging federal health issues (e.g., opioid crisis, pending cannabis legislation, suicide epidemic) and the special populations we serve (e.g., disadvantaged, new immigrant, and Indigenous people). The IAB members look forward to working with the leadership team to accomplish the important goals ahead.

Thank you for your participation in the third SREMI International Advisory Board Meeting!

Respectfully submitted,



Brian H. Rowe, MD, MSc, CCFP(EM), FCCP, FCAHS
Chair, SREMI International Advisory Board
Scientific Director, Institute of Circulatory and Respiratory, CIHR
Scientific Director, Emergency Strategic Clinical Network, AHS
Tier I Canada Research Chair in Evidence-based Emergency Medicine
Professor, Department of Emergency Medicine
University of Alberta

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 SREMI with the goal of making SREMI the international leader in emergency medicine research and related teaching.

Service as an IAB member is voluntary. The committee 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. Brian Rowe is an emergency physician and senior scientist at the University of Alberta in Edmonton, Alberta. Dr. Rowe is a Professor within the Department of Emergency Medicine in the Faculty of Medicine & Dentistry and is cross appointed in the School of Public Health. He holds a Tier I Canada Research Chair in evidence based Emergency Medicine (2011-2018). In 2016, he was appointed the Scientific Director for the Institute of Circulatory and Respiratory Health (ICRH) in the Canadian Institutes of Health Research. He holds the position of Scientific Director within the Emergency Strategic Clinical Network for Alberta Health Services. Dr. Rowe is the Editor of a textbook entitled “Evidence-based Emergency Medicine”, is a Co-Editor for the Cochrane Airways Group and a Fellow of the Canadian Academy of Health Sciences (CAHS).

DR. BRIAN ROWE



Dr. Chris Carpenter is an emergency physician and an Associate Professor for the Washington University School of Medicine in St. Louis, Missouri, United States. He serves as the Deputy Editor-in-Chief of Academic Emergency Medicine and Emergency Medicine Section Head for both the Annals of Internal Medicine ACP Journal Club and the Journal of the American Geriatrics Society. He is the co-PI for the National Institute of Health (NIH) Grants for Early Medical/Surgical (GEMSSTAR) Specialists Transition to Aging Research U13 program, and co-led the 2016 Academic Emergency Medicine Consensus Conference on Shared Decision Making. He has co-authored over 130 peer-reviewed manuscripts and two textbooks while developing a consumer-driven Evidence-Based Diagnostics series for Academic Emergency Medicine.

DR. CHRISTOPHER CARPENTER



Dr. Jim Christenson is an emergency physician at St. Paul's Hospital in Vancouver. He is a Professor and Head of the Academic Department of Emergency Medicine in the Faculty of Medicine at the University of British Columbia and has a wide range of experience in emergency care clinical research. He currently is a Co-Principal Investigator for the Canadian Resuscitation Outcomes Consortium which aims to improve care through early interventions in cardiac arrest and trauma. He is also the Principal Investigator of a neuro-protective intervention given by paramedics to patients with severe stroke. Dr. Christenson leads a team that has just launched the BC Emergency Medicine Network to facilitate knowledge sharing and clinical support for all emergency practitioners in British Columbia.

DR. JIM CHRISTENSON



Dr. Matthew Cooke is regional clinical director for London at the NHS Improvement Emergency Care Improvement Programme. He is Professor of Clinical Systems Design at Warwick Medical School and also honorary Professor at Brunel University. He is an expert in emergency care systems design and clinical human factors. Dr. Cooke was Deputy Medical Director, and then Director of Strategy at Heart of England NHS Foundation Trust. He was in the Health Service Journal top 100 most influential clinical leaders in the NHS in 2013 and 2014 and has previously been in the Times top 100 UK doctors. He is a member of the Nuffield Trust Health Leaders' Panel. In 2015 he was chosen as a WHO advisor in emergency care.

DR. MATTHEW COOKE



Dr. Eva Grunfeld is a physician scientist and Director of the Knowledge Translation Research Network, Health Services Research Program at the Ontario Institute for Cancer Research. She is the Giblon Professor and Vice Chair (Research) in the Department of Family and Community Medicine and Professor at the Institute for Health Policy, Management and Evaluation at the University of Toronto. Dr. Grunfeld's research focuses on evaluation and knowledge translation of cancer health services, covering the entire spectrum of cancer control activities. She is internationally recognized for research on cancer survivorship. Recently, Dr. Grunfeld was appointed Chair of the Chronic Conditions Institute Advisory Board (IABs) for The Canadian Institutes of Health Research (CIHR).

DR. EVA GRUNFELD



Dr. John McLaughlin is Chief Science Officer and a Senior Scientist at Public Health Ontario, and is Professor in the Dalla Lana School of Public Health at the University of Toronto. As an epidemiologist, he leads research that integrates diverse disciplines in studies of environmental and biological determinants of health, which has led to more than 290 publications. As a health system executive, he steers research and services to have high impact by focusing on addressing disparities, improving system performance and disease prevention.

DR. JOHN MCLAUGHLIN



Dr. Michael Schull is President, CEO and Senior Scientist at the Institute for Clinical Evaluative Sciences, and Professor in the Department of Medicine at the University of Toronto. His research focuses on health service utilization, quality of care, health system integration and patient outcomes, and the evaluation of health policy. His studies use administrative health datasets and linkages with clinical data, and he works closely with health system decision and policy makers. Dr. Schull practices as an Emergency Medicine specialist at Sunnybrook Health Sciences Centre in Toronto.

DR. MICHAEL SCHULL



Dr. Frank Sullivan is the Professor of Primary care Medicine, at St. Andrew's University Scotland. He is a general practitioner in Fife and an honorary professor in the Department of Family & Community Medicine and Dalla Lana School of Public Health at the University of Toronto. Dr. Sullivan is also an Adjunct Scientist for the Institute for Clinical Evaluative Sciences (ICES) and an honorary professor in the medical school at the University of Dundee. He has published over 150 peer-reviewed manuscripts and was the previous Gordon F. Cheesbrough Chair at North York general Hospital and director of the University of Toronto's Practice based Research Network (UTOPIAN).

DR. FRANK SULLIVAN



Dr. Lynn Wilson is the Vice Dean, Partnerships at the University of Toronto. Prior to this role, Dr. Wilson served as Chair of the Department of Family and Community Medicine. As a member of the Physician Services Committee for the Ontario Ministry of Health and Long-term Care, she helped to lead primary care renewal in Ontario (2002-2007). Dr. Wilson was the co-director of BRIDGES, an Ontario Ministry of Health funded project to support the design and implementation of innovative models of care that promote integration in the healthcare system (2011-2016). She is currently the primary care co-lead for Choosing Wisely Canada. Dr. Wilson currently practices family medicine at the Women's College Hospital Family Health Team in Toronto.

DR. LYNN WILSON

A Message from the Executive Liaison Committee



The Schwartz/Reisman Emergency Medicine Institute was established in November 2013 by a founding gift from our patrons, Gerald Schwartz and Heather Reisman. The Institute is a partnership of Mount Sinai Hospital (now part of the Sinai Health System) and North York General Hospital and our Departments of Emergency Medicine in Toronto. Our vision is to advance the discipline of emergency medicine through the development of new knowledge (research) and translating that knowledge into practice (knowledge translation) as well as advocating for system improvement through better public policy.

We held our first International Advisory Board (IAB) meeting in November 2015 and met again in November last year and it's been a busy and productive year since!

In conjunction with the IAB meeting the last two years, we have hosted a very stimulating 2-day international leadership conference. Many of our IAB members have spoken and participated in the conference. Last year we partnered with the Ontario Hospital Association and hosted the conference at their beautiful education centre on Front Street in Toronto. The partnership and venue allowed the event to be offered via webinar and attracted a North American wide audience. Last year, day 2 focused on Mental Health and Addictions issues. This year we will follow the same format and location and day 2 will focus on medical-legal issues; "Managing Risk and Driving Improvement."

The reports that follow will detail a busy and successful year including: the appointment of a third research chair based at North York; the appointment of Dr. Don Melady as our Care of the Elderly Lead; the recruitment of a new clinician-scientist focused on Health Systems Research (Dr. Keerat Grewal, commencing July 2018); the recruitment of a clinician to North York with research ambitions (Dr. Rohit Mohindra); as well as details of publications, grants, abstracts, and the stunning impact statistics from our "FOAMed" initiative (Free Online Access to Medical Education) "Emergency Medicine Cases" – literally millions of global downloads (and another sold-out, in-person course in January, to be repeated again this winter).

North York now has appointed a total of three Research Chairs; Monika Kastner, Chair in Knowledge Translation and Implementation Science; Patricia Trbovich, Chair in Patient Safety and Quality Improvement; and most recently Katie Dainty, Research Chair in Patient Centered Outcomes. All are cross-appointed to SREMI and together they are a formidable resource for consultation on methodology and collaboration.

In response to challenges and advice from our IAB meeting last year, under the leadership of our Director, Dr. Bjug Borgundvaag and our Research Director, Shelley McLeod, SREMI has developed an exciting Strategic Plan to focus our efforts and continue the stunning growth and impact we have had already. Of course, all of this is only possible through the gracious support of our colleagues, hospitals and donors.

Howard and Kuldeep

A handwritten signature in black ink, appearing to read "Howard Ovens".

Howard Ovens MD FCFP (EM)
Mount Sinai Hospital

A handwritten signature in black ink, appearing to read "Kuldeep Sidhu".

Kuldeep Sidhu MD CCFP (EM)
North York General Hospital

RESEARCH



Research Report



This past year has been a successful and productive year for the SREMI research program.

CONTRIBUTIONS TO THE SCIENTIFIC EMERGENCY MEDICINE COMMUNITY

SREMI continues to make valuable contributions to the scientific emergency medicine community. Dr. Borgundvaag and I have taken leadership roles with the research committee tasked to evaluate the implementation of “eCTAS”; an electronic intelligent decision support tool for triage nurses, an Ontario provincial project which will have national implications. Many of our faculty were invited speakers and program track chairs at the 2017 annual meeting of the Canadian Association of Emergency Physicians (CAEP) and are vital members of international, national and provincial committees, working groups and panels. We continue to participate in important randomized controlled trials with our colleagues across the country and remain committed to fostering the research of our own medical students, residents, nurses and junior faculty.



EXTERNAL COLLABORATIONS

In February, Dr. Bjug Borgundvaag, Dr. Catherine Varner and I went to the 2nd annual NCER (Network of Canadian Emergency Researchers) meeting in Mont Tremblant, Quebec. The goal of this network is to enable emergency care researchers to conduct multicenter research and education studies, provide mentorship, and ultimately improve emergency patient care for all Canadians. Dr. Varner presented the protocol for our randomized controlled trial comparing prescribed light exercise to standard management for emergency department patients with acute mild traumatic brain injury, and the trial was unanimously endorsed by NCER.

Resulting from discussions initiating at NCER, we have formed a new collaboration with Dr. Kerstin de Wit, an emergency physician at McMaster University. Dr. Varner is the site lead for 2 of Dr. de Wit's multicenter studies, and Dr. de Wit will be the site lead at McMaster for Dr. Varner's head injury trial.

We have also partnered with scientists from across the country to form the Canadian Collaborative of Chest Pain Investigators, with the goal of producing multicenter research studies that will inform best practices for the emergency department evaluation of patients with suspected acute coronary syndromes. We have submitted our first team grant to CIHR and should hear results of the competition in the spring.

SREMI continues to have a strong collaboration with our colleagues at the Mayo Clinic. In October 2017, I was invited to the Mayo Clinic in Rochester, Minnesota where I participated in a 2-day Minimally Disruptive Medicine workshop and subsequently met with Dr. Victor Montori, Dr. Fernanda Bellolio, Dr. Molly Jeffery and Dr. Erik Hess to discuss our international collaboration in shared decision making and patient centered care. As part of my PhD work with Dr. Gordon Guyatt at McMaster University, I will be leading an international randomized controlled trial on the use of electronic clinical decision aids to facilitate shared decision making in the emergency department, with patients being recruited from Canada, Switzerland and the US.



RESEARCH IMPACT

SREMI continues to grow our academic profile locally, nationally and internationally. This year, our research team presented 9 abstracts at CAEP in Whistler, British Columbia and published 25 peer-reviewed journal articles. SREMI faculty have won numerous national awards, recognizing the important contributions we are making towards the advancement of emergency medicine research.

- In 2017, Dr. Varner was awarded 3 research grants totaling over \$200,000. Dr. Varner won the Inaugural CAEP Grizzly Den Competition to fund a randomized controlled trial of opioid analgesics for the management of acute fracture pain in older adults discharged from the emergency department, and also received funding from the Workplace Safety and Insurance Board and was awarded another CAEP grant to continue her research in mild traumatic brain injury.
- Dr. Audrey-Anne Brousseau, our recent graduate of the Geriatric Emergency Medicine Fellowship, won the top research abstract at the Global Acute Care Excellence Forum 2017 in Brisbane, Australia and was also a top 3 plenary presenter at CAEP 2017.
- Dr. Bjug Borgundvaag received the 2017 Award for Research Mentorship from the Department of Family & Community Medicine at the University of Toronto.
- Dr. Howard Ovens is proud of the recognition for our innovative work with the eCTAS project reflected by the Information Technology Association of Canada's 2017 Ingenious Award.

We are very excited to announce that SREMI will be partnering with CAEP to fund 2 new grants in 2018/19 to help foster Canadian emergency medicine research:

- 1 x \$5,000 grant for research pertaining to the evaluation of an innovative educational program of relevance to emergency medicine
- 1 x \$5,000 grant for research aligned with the SREMI Pillars of Inquiry

The competition for this funding will be peer reviewed and administered through the CAEP annual grant competition.

The success of this past year is a direct reflection of the hard work, dedication and enthusiasm of our SREMI team. We will continue to develop and collaborate on innovative projects that will have meaningful impact on advancing the discipline of emergency medicine. Our focus for the upcoming year is to strategically and systematically scale up our research efforts.

I would like to thank our Director, Dr. Borgundvaag for his leadership, the SREMI research faculty, our research coordinator Cameron Thompson, Linda Frum and Howard Sokolowski, Miles and Kelly Nadal and Judy Wells for their funding contributions, and our generous benefactors, Gerald Schwartz and Heather Reisman, for their ongoing patronage and support.

Respectfully submitted,

Shelley McLeod PhD(c) MSc MSc BScHons
Research Director
Schwartz/Reisman Emergency Medicine Institute

Academic Achievements & Awards

SREMI BY THE NUMBERS



Peer-Reviewed Grants (since inception) – Collaborator: >\$3 million

Peer-Reviewed Grants (since inception) – Primary Investigator: \$512,038



Peer-Reviewed Grants (Nov 2016 – Oct 2017) – Primary Investigator: \$237,476

Non Peer-Reviewed Grants (since inception) – Primary Investigator: \$50,000



Number of Peer-Reviewed Grants under consideration – 3 (\$2.1 million)

6 research excellence awards

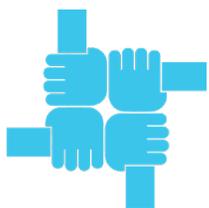
15 on-going projects

25 peer-reviewed journal publications (Nov 2016 – Oct 2017)



9 research abstracts presented at National meetings

3 research abstracts presented at International meetings



Mentored 4 residents, 5 medical students, 2 geri-EM fellows

2 new SREMI appointments and 1 new executive assistant

Award for Research Mentorship, Department of Family & Community Medicine, University of Toronto

[Dr. Bjug Borgundvaag](#)

Information Technology Association of Canada's 2017 Ingenious Award – eCTAS project

[Dr. Howard Ovens, Dr. Bjug Borgundvaag and Shelley McLeod](#)

Outstanding Peer-Reviewed Publication Award, Department of Health Research Methods, Evidence, and Impact, McMaster University

[Shelley McLeod](#)

Emergency Medicine Advancement Fund grant winner, Canadian Association of Emergency Physicians

[Dr. Catherine Varner](#)

Graduate Studies Award, Department of Family & Community Medicine, University of Toronto

[Dr. Aaron Orkin](#)

Appointment to Chief Medical Strategy Officer for Sinai Health System and Medical Advisor for the Sinai Health Foundation

[Dr. Howard Ovens](#)

Award for Excellence in Leadership, Department of Family & Community Medicine, University of Toronto

[Dr. Bjug Borgundvaag](#)

Top Research Abstract, Global Acute Care Excellence Forum 2017, Brisbane Australia

[Dr. Audrey-Anne Brousseau, Dr. Don Melady](#)

Dr. Helen Karounis Memorial Award for Professionalism in Emergency Medicine, Canadian Association of Emergency Physicians

[Dr. Bjug Borgundvaag](#)

Research Publication Fee Award, Department of Family & Community Medicine, University of Toronto

[Shelley McLeod](#)

Inaugural Grizzly Den Grant Winner, Canadian Association of Emergency Physicians

[Dr. Catherine Varner](#)

Top Four Research Abstracts, Canadian Association of Emergency Physicians

[Dr. Audrey-Anne Brousseau, Dr. Don Melady](#)

Research Publication Fee Award, Department of Family & Community Medicine, University of Toronto

[Dr. Aaron Orkin](#)

Workplace Safety and Insurance Board grant winner

[Dr. Catherine Varner](#)

PhD Comprehensive Examination Award, Department of Health Research Methods, Evidence, and Impact, McMaster University

[Shelley McLeod](#)

SREMI Team



Director
Dr. Bjug Borgundvaag



Executive Liaison Committee
Dr. Howard Ovens



Executive Liaison Committee
Dr. Kuldeep Sidhu



Research Director
Shelley McLeod



Faculty
Dr. Audrey Brousseau



Faculty
Dr. Sean Caine



Faculty
Dr. Dave Dushenski



Faculty
Dr. Brittany Ellis



Faculty
Dr. Anton Helman



Faculty
Dr. Don Melady



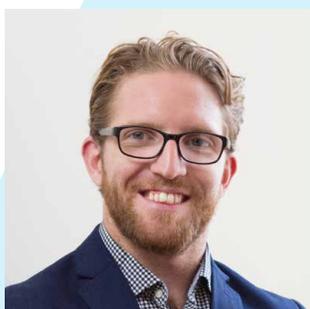
Faculty
Dr. Aaron Orkin



Faculty
Dr. Rick Penciner



Faculty
Dr. Catherine Varner



Research Coordinator
Cameron Thompson



Research Student
Reaves Houston



Research Student
Krista Hawrylyshyn

SREMI Clinician Scientist Profile

DR. CATHERINE VARNER



SREMI scientist and emergency physician, Dr. Catherine Varner has continued her successful early research career trajectory. In 2017, Dr. Varner received 3 research grants as principal investigator, including being the winner of the Inaugural Grizzly Den Competition at the Canadian Association of Emergency Physician's Annual Meeting in Whistler, BC. This grant is the result of a collaboration of SREMI scientists and will support a study entitled, "A blinded, randomized controlled trial of opioid analgesics for the management of acute fracture pain in older adults discharged from the emergency department." Launching in early 2018, this study will compare the efficacy of codeine, oxycodone and hydromorphone for acute fracture pain in older patients discharged from the emergency department and seeks to inform emergency care providers of opioid efficacy, side effects and patient-important, functional outcomes in this growing patient population.

Continuing her work in minor traumatic brain injury (MTBI), in June 2017, Dr. Varner launched a randomized control trial that challenges the current 'sit in a dark room' treatment dogma following MTBI. This study evaluates the impact of prescribing mild, daily exercise (e.g., 30 minutes of daily walking) compared to avoidance of exercise until symptom free. This study received pilot funding from a 2017 Canadian Association of Emergency Physicians Investigator Award and has recently received Workplace Safety and Insurance Board funding to continue the 330 participant multi-site randomized trial.

Due to her growing reputation in the field of MTBI research, Dr. Varner was an invited member of the Ontario Neurotrauma Foundation Guidelines for Concussion /MTBI & Persistent Symptoms -3rd edition and has been invited for multiple media appearances on the topic. The MTBI guidelines will be published in early 2018.





Dr. Varner also continues to pursue research in early pregnancy care in the emergency department. Dr. Varner supervised Krista Hawrylyshyn, a 3rd year University of Toronto medical student funded by the Comprehensive Research Experience for Medical Students (CREMS) Program, during her project entitled “Ectopic pregnancy outcomes in patients discharged from the emergency department.” The objective of this study was to determine the clinical outcomes of pregnant women discharged from the ED where ectopic pregnancy had not yet been excluded. Currently, 2 manuscripts from this study are under review. For her work in this area, Dr. Varner was an invited member of the 2017 Ontario Early Pregnancy Loss Project Expert Advisory Panel, convened by the Provincial Council for Maternal and Child Health.

Finally, Dr. Varner developed a new collaboration with Dr. Kerstin de Wit, and emergency physician and scientist at McMaster University following their research protocol presentations at the 2017 Network of Canadian Emergency Researchers meeting. Dr. Varner is the Mount Sinai Hospital site lead for 2 multi-centre studies. The first study entitled, “Making clinical decisions in the era of clinical decision rules” was completed in 2017, with data forthcoming. “The Falls Study” launched in October 2017, seeks to develop a decision rule for emergency physicians to inform which patients older than 65 years should have a CT scan of the head following a fall.

SREMI Researcher Profile

DR. AARON ORKIN



Dr. Aaron Orkin is a SREMI fellow and doctoral student in Clinical Epidemiology and Health Care Research at the University of Toronto. Dr. Orkin's research focuses on involving laypeople in the delivery of essential and emergency health care services, especially among vulnerable and underserved populations. Dr. Orkin uses community-based and collaborative strategies that involve patients in every step of the research process.

Opioid overdose is now a global crisis, and among the leading causes of accidental death in Ontario. People dealing with drug-related emergencies can face barriers that distance them from emergency services, with tragic and often fatal results. In partnership with researchers at St. Michael's Hospital and OCAD University, Dr. Orkin leads the Surviving Opioid Overdose with Naloxone Education and Resuscitation (SOONER) Project, a CIHR-funded design initiative and randomized trial. In 2017, the SOONER investigators spearheaded a new design and training tool for naloxone kits, and designed a feasibility trial to assess whether people who are likely to witness overdose can be recruited into a randomized trial. With a variety of other health care and community partners — including public health agencies, family practices, and addictions clinics — the SOONER trial positions emergency medicine and emergency

research as leading disciplines in addressing the opioid crisis. In partnership with Toronto Public Health, Dr. Orkin is also working to enhance and evaluate emergency care education in supervised injection sites.



In 2017 Dr. Orkin launched two reviews on engaging laypeople in health care delivery. The first review will describe the health equity effects of involving lay providers in health care services. The second is a large systematic review on the health effects of first aid and lay responder initiatives, especially among vulnerable and underserved populations. Findings from these reviews are already informing the development of new programs to enhance access to emergency care in low-resource settings and among marginalized populations.

Dr. Orkin's research is reshaping how laypeople respond to everyday emergencies, enhancing the way emergency providers engage with vulnerable communities, and activating the public to respond to complex community health problems. His work is supported by a Fellowship Award from the Canadian Institutes of Health Research, the University of Toronto Department of Family and Community Medicine, and the Schwartz/Reisman Emergency Medicine Institute.

SREMI Summer Student Report

REAVES HOUSTON



This summer, SREMI hosted Reaves Houston, an undergraduate student from the University of North Carolina at Chapel Hill. Reaves is a Morehead-Cain Scholar and a chemistry major, who spent 10 weeks at SREMI working with Dr. Varner as well as observing her while on shifts in the emergency department. The Morehead-Cain Scholarship is four-year merit scholarship at the University of North Carolina at Chapel Hill which supports summer enrichment programs, including Reaves' time in Toronto.

During her time at SREMI, Reaves was instrumental in the organization and launch of Dr. Varner's randomized controlled trial comparing prescribed light exercise to standard management for emergency department patients with acute mild traumatic brain injury and developed sophisticated follow-up procedures which have been integral to the study's success. Reaves also scheduled and completed fifteen physician interviews as part of our McMaster collaboration making clinical decisions in the era of clinical decision rules, which completed our contribution to this study.

Reaves also joined the SREMI team at the Canadian Association of Emergency Physicians Conference in Whistler, British Columbia. It was a wonderful opportunity for her to see the best of Canadian emergency medicine research, while taking in the spectacular vistas of the Canadian Rockies. She was a fantastic, productive member of the research team and will be the first of many Morehead-Cain Scholars to spend their summer with SREMI.



SREMI Summer Student Report

KRISTA HAWRYLYSHYN



This summer, Krista Hawrylyshyn a 3rd year University of Toronto medical student joined the SREMI team as a summer research student, funded by the Comprehensive Research Experience for Medical Students (CREMS) Program. Supervised by Dr. Catherine Varner and Shelley McLeod, Krista completed a retrospective chart review to determine the clinical outcomes of over 660 pregnant women discharged from the ED where ectopic pregnancy had not yet been excluded. Our results showed that 41.8% of patients discharged from the ED with a suspected ectopic pregnancy are subsequently diagnosed and managed for an ectopic pregnancy, and 5.1% ruptured after their index ED visit. These results may be useful for ED physicians counselling women with symptomatic early pregnancies about the risk of ectopic pregnancy after they are discharged from the ED. Currently, 2 manuscripts from this study are under review and these results will be presented nationally at CAEP 2018.



Research Publications

NOVEMBER 2016 – OCTOBER 2017

1. **McLeod SL**, Brignardello-Petersen R, Worster A, You J, Iansavichene A, Guyatt G, Cheskes S. Comparative effectiveness of antiarrhythmics for out-of-hospital cardiac arrest: A systematic review and network meta-analysis. *Resuscitation*. 2017;121:90-97. ★★
2. **Varner CE, McLeod S**, Nahiddi N, Loughheed RE, Dear TE, **Borgundvaag B**. Cognitive rest and graduated return to usual activities versus usual care for minor traumatic brain injury: A randomized controlled trial of emergency department discharge instructions. *Acad Emerg Med*. 2017;24(1):75-82. ★★
3. Jeffery MM, Hooten WM, Hess EP, Meara ER, Ross JS, Henk HJ, **Borgundvaag B**, Shah ND, Bellolio MF. Opioid Prescribing for Opioid-Naive Patients in Emergency Departments and Other Settings: Characteristics of Prescriptions and Association With Long-Term Use. *Ann Emerg Med*. 2017 Sep 21. [Epub ahead of print] ★
4. **McLeod SL**, Iansavichene A, Cheskes S. Remote ischemic pre-conditioning to reduce reperfusion injury during acute STEMI: A systematic review and meta-analysis. *J Am Heart Assoc*. 2017;6(5). ★★
5. **Orkin AM**, Bharmal A, Cram J, Kouyoumdjian FG, Pinto AD, Upshur R. Clinical Population Medicine: Integrating Clinical Medicine and Population Health in Practice. *Ann Fam Med*. 2017;(5):405-409. ★★
6. **Varner C, McLeod SL**, Nahiddi N, **Borgundvaag B**. Text messaging research participants as a follow-up strategy to decrease emergency department study attrition. *CJEM*. 2017; 9:1-6. ★
7. Lacroix L, Thurgur L, **Orkin AM**, Perry JJ, Stiell IG. Emergency physicians' attitudes and perceived barriers to the implementation of take-home naloxone programs in Canadian emergency departments. *CJEM*. 2017 Sep 18:1-7. ★
8. Chen KJ, Klingel M, **McLeod SL**, Mindra S, Ng V. Presentation and Outcomes of Necrotizing Soft Tissue Infections. *Int J Gen Med* 2017;10: 215-220.
9. Poon E, Self L, **McLeod SL, Caine S, Borgundvaag B**. Uncomplicated urinary tract infections in the emergency department: a review of local practice patterns. *CJEM*. 2017 Jun 7:1-6. doi: 10.1017/cem.2017.39. [Epub ahead of print] ★
10. Hu T, Dattani ND, Cox KA, Au B, Xu L, **Melady D**, Jaakkimainen L, Jain R, Charles J. Effect of comorbidities and medications on frequency of primary care visits among older patients. *Can Fam Physician*. 2017;63(1):45-50. ★
11. Mew EJ, Ritchie SD, VanderBurgh D, Beardy JL, Gordon J, Fortune M, Mamakwa S, **Orkin AM**. An environmental scan of emergency response systems and services in remote First Nations communities in Northern Ontario. *Int J Circumpolar Health*. 2017;76(1):1320208. ★★
12. Parashar R, **McLeod SL, Melady D**. Discrepancy between information provided and information required by emergency physicians for long-term care patients. *CJEM*. 2017 Jul 17:1-6. doi: 10.1017/cem.2017.353. [Epub ahead of print] ★
13. **Orkin AM**, Zhan C, Buick JE, Drennan IR, Klaiman M, Leece P, Morrison LJ. Out-of-hospital cardiac arrest survival in drug-related versus cardiac causes in Ontario: A retrospective cohort study. *PLoS One*. 2017;12(4):e0176441. ★★
14. Leggatt L, Van Aarsen K, Columbus M, Dukelow A, Lewell M, Davis M, **McLeod S**. Morbidity and mortality associated with prehospital "lift-assist" calls. *Prehosp Emerg Care*. 2017; 19:1-7. ★
15. Bullard MJ, **Melady D**, Emond M; members of the CTAS National working group.; Musgrave E, Unger B, van der Linde E, Grierson R, Skeldon T, Warren D, Swain J. Guidance when Applying the Canadian Triage and Acuity Scale (CTAS) to the Geriatric Patient: Executive Summary. *CJEM*. 2017 Jul;19(S2):S28-S37. ★
16. Stiell IG, Perry JJ, Clement CM, Brison RJ, Rowe BH, Aaron SD, McRae AD, **Borgundvaag B**, Calder LA, Forster AJ, Wells GA. Prospective and Explicit Clinical Validation of the Ottawa Heart Failure Risk Scale, With and Without Use of Quantitative NT-proBNP. *Acad Emerg Med*. 2017;24(3):316-327. ★★

Research Publications cont.

17. Stiell IG, Clement CM, Rowe BH, Brison RJ, Wyse DG, Birnie D, Dorian P, Lang E, Perry JJ, **Borgundvaag B**, Eagles D, Redfearn D, Brinkhurst J, Wells GA. Outcomes for Emergency Department Patients With Recent-Onset Atrial Fibrillation and Flutter Treated in Canadian Hospitals. *Ann Emerg Med.* 2017;69(5):562-571 ★★
18. Snider T, **Melady D**, Costa AP. A national survey of Canadian emergency medicine residents' comfort with geriatric emergency medicine. *CJEM.* 2017;19(1):9-17. ★
19. Claret PG, Calder LA, Stiell IG, Yan JW, Clement CM, **Borgundvaag B**, Forster AJ, Perry JJ, Rowe BH. Rates and predictive factors of return to the emergency department following an initial release by the emergency department for acute heart failure. *CJEM.* 2017 Apr 3:1-8. ★★
20. Clinkard D, Stiell I, Lang E, Rose S, Clement C, Brison R, Rowe BH, **Borgundvaag B**, Langan T, Magee K, Stenstrom R, Perry JJ, Birnie D, Wells G, McRae A. Between- and within-site variation in medication choices and adverse events during procedural sedation for electrical cardioversion of atrial fibrillation and flutter. *CJEM.* 2017 Jun 7:1-7. [Epub ahead of print] ★
21. Porcino AJ, Punja S, Chan AW, Kravitz R, **Orkin A**, Ravaud P, Schmid CH, Vohra S. Protocol for a systematic review of N-of-1 trial protocol guidelines and protocol reporting guidelines. *Syst Rev.* 2017;6(1):132. ★
22. Alexander P, Heels-Ansdell D, Siemieniuk R, Bhatnagar N, Chang Y, Fei Y, Zhang Y, **McLeod S**, Prasad K, Guyatt G. Hemicraniectomy versus medical treatment with large MCA infarct: a review and meta-analysis. *BMJ Open.* 2016;6(11):e014390. ★★
23. Kouyoumdjian FG, Lai W, **Orkin A**, Pek B. A 25-year-old woman with diabetes in custody. *CMAJ.* 2016;188(17-18):1249-1250. ★
24. **Orkin AM**, Phillips WR, Stange KC. Research Reporting Guidelines and the New Annals Instructions for Authors. *Ann Fam Med.* 2016;14(6):500-501. ★
25. Lam PP, Coleman BL, Green K, Powis J, Richardson D, Katz K, **Borgundvaag B**, Smith-Gorvie T, Kwong JC, Bondy SJ, McGeer A. Predictors of influenza among older adults in the emergency department. *BMC Infect Dis.* 2016;16(1):615. ★★

PILLARS OF INQUIRY

- ★ **Rigour and Quality:** We pursue scholarly rigour and quality in the development and implementation of robust and impactful emergency medicine research and education.
- ★ **Patient-centred Care:** We hear patient voices and change emergency care to improve patient outcomes and health.
- ★ **Priority Community Health Concerns:** We focus on the health and health system concerns that are the greatest challenge to our patients, communities, and populations. We recognize emergency medicine as a leader in addressing these concerns.

EDUCATION



Geriatric Emergency Medicine

DR. DON MELADY

CANADA'S FIRST GERIATRIC EMERGENCY MEDICINE FELLOWSHIP

2017 has been quite the year for Dr. Don Melady, our Geriatric Lead at SREMI. Dr. Melady is the Founder and Director of Canada's **first geriatric emergency medicine (GEM) fellowship**. **Dr. Audrey-Anne Brousseau** was the inaugural fellow, graduating from the program in June 2017. Her research project on a frailty assessment strategy in the emergency department (ED) was one of the top three research abstracts at CAEP 2017, and was also awarded the top research abstract at the Global Acute Care Excellence Forum 2017 in Brisbane, Australia.



The GEM fellowship continues this year with **Dr. Brittany Ellis** from University of Ottawa. She is using her background in policy and advocacy to support Dr. Melady in creating an international policy framework on minimum standards for care of older people in the ED through the International Federation of EM (IFEM); and in implementing an innovative volunteer program to support older patients in Mount Sinai Hospital's ED. There is one national candidate confirmed for next year's fellowship and several international candidates in the application process.



DISSEMINATING INNOVATIVE MODELS OF GERIATRIC ED CARE ACROSS NORTH AMERICA

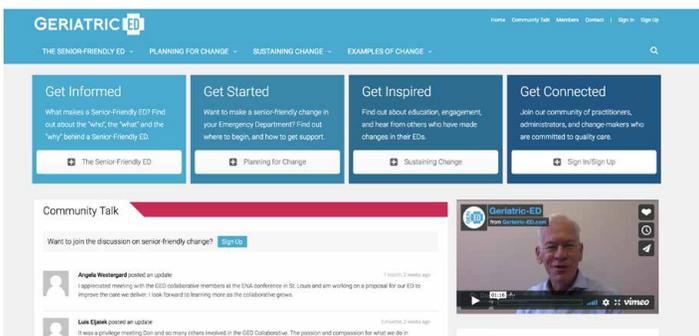
Dr. Melady continues to be involved with the Hartford and West Health supported Geriatric ED Collaborative, an interdisciplinary team committed to implementing and researching the implementation of Geriatric ED Guidelines in nine American health care systems. Dr. Melady has been involved in creating half-day workshops at both the Society of Academic EM and the Emergency Nurses Association, as well as on-site developmental work with the Aurora Health System, Milwaukee; Northwestern University, Chicago; and the University of Chicago. These activities include education for interdisciplinary staff, quality improvement project implementation, capacity development with hospital executives, as well as developing a research network. With Dr. Adam Perry, he led the delivery of six workshops at InnovatED at ACEP 2017, to disseminate innovative models of geriatric ED care. The Canadian version of this project, the Senior-friendly ED Course, will be a full-day pre-conference course at CAEP 2018 in Calgary in May.



The American College of Emergency Physicians has launched a three-level accreditation process for geriatric EDs. Dr. Melady is a member of the ten-person board of governors for this project and helped develop the criteria as well as the online process for accreditation. This initiative was announced at ACEP 2017 and will be ready to consider its first applicants in January 2018. This has been received as a significant transformation in the area of Geriatric EM, with the American Board of EM now expressing interest in developing a sub-specialty certification process in Geriatric EM.



In his capacity as chair of the IFEM Geri EM Special Interest Group, Dr. Melady coordinated the geriatric content at the Inter-American EM conference, attended by 1500 Latin American emergency physicians. In October, Dr. Melady was invited to be the keynote speaker for the Hong Kong College of EM annual conference which was entirely focused on geriatric care. At the October meeting of IFEM in Washington, the Board approved a statement written by a working group which Dr. Melady chaired on International Minimum Standards for Care of Older ED Patients. Planning is underway for a half-day of didactic content on geriatric EM at ICEM 2018 in Mexico City.



Finally, a website to provide support to ED administrators and hospital planners, www.geriatric-ed.com, went live in May 2017 and has had steady growth in users since then.

Dr. Melady would like to thank Ms. Penny Rubinoff for her generous support towards the Geriatric Emergency Medicine Program at SREMI.

EM Cases

DR. ANTON HELMAN



EMERGENCY MEDICINE CASES

Bringing you Canada's brightest
minds in Emergency Medicine

Emergency Medicine (EM) Cases is a free, online, medical education podcast, medical blog and website dedicated to providing emergency medicine education and continuing medical education for physicians, residents, students, nurses and paramedics. In each Main Episode Podcast, two or more experts in a particular emergency medicine topic join Dr. Anton Helman in a round-table, case-based, discussion on key practice changing clinical topics, which are then carefully edited to maximize learning.

CANADA'S MOST LISTENED TO EMERGENCY MEDICINE PODCAST

2017 has been a tremendously successful year for EM Cases with a growing content team of 22 emergency physicians and residents. EM Cases is Canada's most listened to emergency medicine podcast with thousands of subscribers, well over 5 million podcast downloads since 2010, with an average of approximately 200,000 podcast downloads per month. Page views on the website have surpassed 2 million. The number of users of the website has increased more than 100% over the past 2 years.



5.6
MILLION
Total downloads
since inception
(2010)

2.3
MILLION
Total downloads
11/2016-10/2017

45
THOUSAND
Average
downloads per
main episode
podcast

38
THOUSAND
Average
downloads per
BCE podcast

289
THOUSAND
Website users
01/2017-10/2017

776
THOUSAND
Page views
01/2017-10/2017

MULTIMODAL LEARNING

2017 marked the release of two new projects to augment EM Cases' multimodal learning system: The **Just the Nuggets** project in which learners receive the take home points of the main episode podcasts in a spaced repetitive manner to enhance learning, and the Rapid Review Videos which review the take home points of the main episode podcasts in short video segments. Dr. Helman and colleagues also hosted the **2nd annual EM Cases Course**, a sold out conference, where participants got a chance to talk face-to-face with EM Cases guest experts about cases, questions, controversies, pearls and pitfalls. The course allowed the participants to be engaged in their learning in small groups with a flipped-classroom model: they listened to the podcasts related to each workshop prior to the course.

EM 
CASES
rapid reviews

In an effort to bundle information for learners and allow for self-testing of knowledge, there are two new EM Cases projects being developed: A searchable EM Cases Q & A databank that will include questions and answers related to the main episode podcasts, and an eBook that bundles all the written summaries of the EM Cases main episode podcasts together in one easy to navigate location.

Dr. Helman's incredible vision and execution of EM Cases goes way beyond just a novel development of an innovative instructional method. He has contributed to innovative change in how emergency physicians learn and interact.



EM Cases' **Journal Jam Podcast** brings together world-renowned researchers

and educators to keep learners up to date on key research publications in emergency medicine.

EM CASES NEW USERS - TOP 5 COUNTRIES



Best Case Ever Podcast has guest experts sharing their tacit knowledge on particularly interesting cases. EM Cases also offers the **CritCases Blog** with challenging emergency critical care cases and **Waiting to Be Seen Blog** covering important administration topics in emergency medicine.



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