

2014-2015 ANNUAL REPORT

DIVISION OF EMS

DEPARTMENT OF EMERGENCY MEDICINE

DALHOUSIE UNIVERSITY

**“INQUIRY WITH INTEGRITY”**



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**Division of EMS**

**Mission**

***To advance the scientific knowledge of EMS by advocating for, facilitating and performing world class research, knowledge translation, education and leadership.***

**Vision**

***To be recognized as a centre of excellence for Knowledge Translation in EMS through measurable impact on national health policy.***

## HISTORY

The Division of Emergency Medical Services (EMS) of the Department of Emergency Medicine a part of the Dalhousie Medical School, and was established under the leadership of Dr. David Petrie, from 2001-2007 with the vision to:

- Encourage and participate in EHS/EMS research.
- Provide education regarding all aspects of EHS/EMS to students, clinical clerks and residents.
- Establish a fellowship program to educate the next generation of EMS medical directors.

Dr. Ed Cain lead the Division as Director from 2007-2013. Under Dr. Cain's leadership the Prehospital Evidence-based Practice (PEP) database and Prehospital Evidence-Based Practice (P-EBP) critical appraisal course for paramedics become nationally known; and an EMS Fellowship to train future EMS physicians was established.

Beginning January 2014, Dr. Alix Carter became the Director of the Division. Dr. Carter continues the daunting work started by her predecessors; and, with a growing and talented team, seeks to expand the capacity and quality of the work which the Division of EMS provides in education, knowledge translation, and research.



## **DIRECTOR'S MESSAGE**

It is a pleasure and an honour to present to you the work of the Dalhousie University, Department of Emergency Medicine's, Division of Emergency Medical Service (EMS), for the 2014-2015 fiscal year. While compiling this report, I've had the opportunity to review our accomplishments; I feel humbled by the amazing work done by our team of dedicated people, and I'm inspired to think of what is yet to come.

This past year, we have continued to strengthening aspects of our core programs:

- the Medical Trainee Rotations,
- the Prehospital Evidence-based Practice database (PEP), and
- the Paramedic Evidence Based Practice course (P-EBP).

The Division of EMS is positioned as a national leader in physician education in Emergency Medical Services. This past year we welcomed our second post-residency fellow in EMS (Dr. Kirstin Moritz), and have put the finishing touches on two new EMS rotations (an elective for first year medical students and an EMS rotation for our group of CCFP- EMs). Ironically, Dr. Jolene Cook, our first EMS Fellow, has been instrumental in this.

The PEP project made some great strides this year. With the help of a medical librarian, the rigor of the searches has been improved, two-party appraisals are now the norm, and the definitions of level and direction of evidence have been refined, (including efforts to incorporate the quality of the evidence and not simply the intended methodology). PEP still strives to maintain the approachable simplicity of the 3x3 table, while providing a meaningful resource to decision makers. In the next year we hope to see the knowledge gap close further as the interventions lacking recommendation will be filled and also the addition of primary outcomes of each study will be included. We presented "The Knowledge Gap for Respiratory Distress Interventions" as a peer-reviewed abstract at both a national and an international scientific meeting. It is through the efforts of Jennifer Greene, the team of senior editors and senior appraisers, and of course the ongoing work of the team that makes these accomplishments possible.

The P-EBP course became even more accessible this year. In response to requests and the growing use of online and distance learning modalities from across the country and the United States, P-EBP is now offered (at an introductory level) through an online self-directed format. Congratulations to Jennifer Greene and the P-EBP team on this accomplishment.

The paramedicine journal club continues to be a success in bringing evidence-based practice to the field thanks to the guidance of Ryan Brown. And thanks to Judah Goldstein and the EMS Research Day committee for another great Pitch your Proposal and Research Day.

A welcoming development for the Division of EMS is the collaboration with the Dalhousie New Brunswick Medicine campus; we look forward to enriching the Division's mission and vision through this collaboration.

The Division continues to actively promote EMS research in Nova Scotia through the chairmanship of the EMS Research Steering Committee. In addition, the Division has won seed funding for the foundation of a national EMS research network; the Canadian EMS Research Network (CERN) will be developed as the Division continues to provide the secretariat and in-kind support for this promising network.

As always, the Director's Message would not be complete without thanking Corinne DeMone and Dave Urquhart, and to Lisa Young's support, whose contributions behind the scenes make all things seem possible.

A handwritten signature in cursive script, appearing to read 'Alix Carter'.

Dr Alix Carter MD MPH FRCPC  
Director, Dalhousie Division of EMS  
Department of Emergency Medicine

# STRATEGIC PLAN

In 2013, the Division of EMS undertook a strategic planning exercise in conjunction with the Department of Emergency Medicine’s strategic planning efforts. The Division’s strategic plan and core directions mirror (in the context of EMS) those of the Department.

CORE Strategic Directions 2014-2019 Five Year Goals			
<b>Improving Patient Care and Population Health Through Knowledge Translation</b> National leadership in evidence based practice in Emergency Medical Services			
<b>Educating EMS Leaders</b> A nationally recognized centre for education of leaders in Emergency Medical Services	<b>Advancing EMS Research</b> A research enterprise continually striving for multi-site interprofessional collaboration to advance the science of Emergency Medical Services		
<b>Strengthening our People and Organizational Governance</b> An engaged and mutually supportive team, focused on the execution of shared goals and the pursuit of excellence			
Values And Guiding Principles			
*these values we share with the Department of Emergency Medicine			
Innovation	We constantly seek the most current evidence to ensure optimal practice and we are not bound by past practice	Evidence-Based Practice*	We effectively retrieve, evaluate, integrate, weight and apply knowledge to patient care and system design in the context of patient and social/cultural values.
Capacity-Building	We undertake activities and methods which ensure we continuously expand the capacity of the overall research enterprise	Advocacy*	We speak up for patient and population interests. Pushing for effective change from providers and policy makers.
Mentorship	We are committed to offering our time and energy to build and hone the talents of those who seek to learn	Critical Thinking*	We systematically and continually assess our thinking for clarity, accuracy, bias, precision, logic, and relevance.
Inter-professional collaboration*	We work together and value different experience and perspectives to better understand and find solutions to complex problems.	Professionalism*	We are committed to the health and well being of individuals and society through ethical practice, respect, collegiality, and high personal standards of behaviour.
EMS is:			
The provision of primary, acute and critical care and the interfaces between community, out of hospital and in-hospital systems of care			

## Enhancing Patient Care and Population Health Through Knowledge Translation

- C1. PEP: Prehospital Evidence-Based Practice Project
- C2. Journal Club
- C3. Evidence synthesis
- C4. KT Cycle
- C5. Research day/week

### Educating EMS Leaders

- E1. Take a leadership role in evidence-based EMS practice.
  - E1.1 Educating paramedics in EBP.
  - E1.2 Educating management in EBP.
  - E1.3 Educating physicians in EBP.
  - E1.4 Educating nursing, inter-professional groups in EBP.
- E2. Develop exemplary EMS leaders.
  - E2.1 EMS Fellowship.
  - E2.2 Peds EM and Critical Care trainees.
  - E2.3 Undergraduate and postgraduate medical trainees.
  - E2.4 Paramedic bursary for post-graduate education.
- E3. Advocate for and support the development of a university based paramedic education.
- E4. Enable education of new investigators in best practices for research.

### Advancing EMS Research

- R1. Ensure adequate resources for EMS researchers (time, funds, mentorship).
- R2. Foster a clear and shared vision for priority research in Nova Scotia.
- R3. Chair an active and engaged Nova Scotia EMS Research Steering Committee.
- R4. Promote and support inter-professional research.
- R5. Work to reduce systematic challenges in EMS research (eg. REB, data linkage, privacy legislation etc.).
- R6. Further the work of the National EMS Research Agenda.
- R7. Increase critical mass/reach of Division.
- R8. Foster undergraduate and postgraduate medicine interest in EMS research.
- R9. Encourage and support paramedics to publish and present EMS research.

## Strengthening our People and Organizational Governance

- O1. Entrench a governance model that ensures appropriate leadership, committee structure, team members and administrative support.
- O2. Ensure sustainability of administrative structure and process.
- O3. Maintain and fund physical resources
- O4. Strengthen staff and faculty mentorship, career path and leadership development.
- O5. Ensure ongoing fiscal responsibility through transparent and priority-based budgeting, cost recovery, future funding sources.
- O6. Advocate for the mission, vision and values of the Division.
- O7. Ensure day to day activities of the Division continue to embody mission, vision and values.
- O8. Ensure activities of Division are effectively fulfilling mission, vision and values.



**CURRENT MEMBERS of the Division of EMS**  
2014-2015

**Director:**

Dr. Alix Carter

**Members:**

Dr. Stacy Ackroyd

Dr. Jolene Cook

Susan Dugas

Dr. James French

Jennifer Greene

Jan Jensen

Dr. Kirk Magee

Dr. David Petrie

Dr. Aaron Sibley

Dr. Andrew Travers

Lisa Young

Ryan Brown

Corinne DeMone

Patrick Froese

Dr Judah Goldstein

Dr. Carl Jarvis

Dr. George Kovacs

Dr. Jennifer McVey

Dr. Tushar Piche

Dr. Ron Stewart

Jay Walker

Dr. Kirstin Moritz (current EMS Fellow)

**NB:**

Membership in the Division of EMS does not equate with having a faculty position at Dalhousie University.

Note: To hold the title of Lecturer, Assistant Professor, Associate Professor or Professor and become a member of the Department of Emergency Medicine at Dalhousie, one must have a graduate degree or an MD and complete a different application process, with final approval by the Dalhousie Board of Governors.

## **KNOWLEDGE TRANSLATION:**

### **THE CANADIAN PREHOSPITAL EVIDENCE-BASED PRACTICE (PEP) PROJECT**

PEP is a freely available online repository of appraised EMS evidence that is constantly changing as research indicates. We conduct systematic searches on EMS interventions with a team of appraisers across Canada. This evidence is published on the PEP website (<https://emspep.cdha.nshealth.ca>) and is used to create the 3x3 recommendations. These are in the form of a table based on the overall level and direction of the evidence body for each topic.

In this past year, the PEP project has been presented several times at a variety of events, for example, updates were given at CAEP in Ottawa on June 3, 2014; and at NAEMSP in New Orleans on Jan 21, 2015. “State of the Evidence of Care for Respiratory Distress in PEP” was presented at the Halifax EMS Research Day on Oct 21, 2014 and in the research track at NAEMSP in New Orleans on Jan 23, 2015. PEP was also given special mention in the Research Update section of the August/Sept 2014 issue of Canadian Paramedicine.

#### **Highlights of Project changes:**

Though work is ongoing to update the field for primary outcome of each study, a variety of upgrades have been made to the database in order to improve the flow of studies and the clarity of the recommendation. As well, a field for “Date Last Updated” has been added and a process to reassign pending critical appraisals after 30 days was further refined in order to improve timeliness of recommendation updates. An appraisal “quick reference sheet” was developed and distributed. A refinement of the definition of each Level of Evidence was made, to take into account the influence of study power. Each study has a second-party appraisal conducted by a senior appraiser, and all direction and level of evidence recommendations made by the primary appraiser are reviewed by a senior appraiser. Any disagreement or controversy is reviewed by the senior appraisal team and resolved by consensus. We worked closely with a health sciences librarian to help improve the methodology of our searches.

<b>Intervention</b>	<b>Nature of Complaint</b>	<b>New Recommendation</b>	<b>Old Recommendation</b>
Chest compression devices	Cardiac Arrest - General Cardiac Arrest Care	Strong Neutral	Strong Against
Surgical Cricothyrotomy	Advanced Airway Management - Alternative Rescue Airway Management	Strong Supportive	Weak Neutral
Oxygen	Respiratory Distress (SOB) - Pulmonary Edema (CHF)	Weak Against	Weak Neutral
Oxygen-high flow	Respiratory Distress (SOB) - COPD	Strong Against	Moderate Against
Epinephrine	Cardiac Arrest - General Cardiac Arrest Care	Strong Neutral	Moderate Neutral
Spinal Immobilization	Trauma - Spinal Injury	Strong Neutral	Moderate Neutral
MAST	Shock - Hemorrhagic Shock	Strong Neutral	Strong Against
RSI (CCT)	Trauma - Head Injury	Strong Supportive	Moderate Neutral
Nitrates	Chest Pain - Suspected Cardiac Origin	Strong Supportive	Weak Supportive
Nitrous Oxide	Acute Pain - Analgesia	Strong Supportive	Weak Supportive

## RESEARCH

This year, Division members participated in 24 studies of those a Division member was Principal Investigator (PI) on 14.

11 active grants were held by Division members this year, totaling \$1,123,746.76. Funding sources included: Capital District Health Authority, Dalhousie University Faculty of Medicine, Canadian Partnership Against Cancer, Nova Scotia Health Research Foundation, and Canadian Institutes of Health Research. Division members were (PI) on 7 of these active grants.

During this fiscal year, members of the Division published 16 peer reviewed abstracts and 7 peer-reviewed journal manuscripts. In the tables that follow, Division authors are indicated with physician in **bold** and paramedics in **blue**. Division members were first author on 13 of these documents.

With regard to presentations, members of the Division presented 17 studies locally, 7 nationally and 4 internationally. Of note are the presentations to the Canadian Association of Emergency Physicians (CAEP) in Ottawa, National Association of EMS Physicians (NAEMSP) in New Orleans, Louisiana, USA and International Liaison Committee on Resuscitation (ILCOR) in Dallas, Texas, USA.

### ***Active Studies***

A cross-sectional study evaluating the impact of a novel care delivery mobile Care team (MCT) on the prevalence of ambulatory care sensitive conditions presenting to Emergency Medical Services in Nova Scotia.	<b>Carter A</b> , Cosgrove P, <b>Brown R</b> .
Alternatives to traditional EMS dispatch and transport - a scoping review of research outcomes.	<b>Jensen J</b> , <b>Travers A</b> , <b>Rose J</b> , Visintini S, <b>McVey J</b> , <b>Brown R</b> , <b>Bourdon E</b> , <b>Carter A</b> .
Assessment of extremity injuries by advanced care paramedics to determine the need for diagnostic imaging.	<b>Froese P</b> , <b>MacKinley R</b> , <b>Magee K</b> , <b>Campbell S</b> .
Blade tip location to facilitate endotracheal intubation using the king vision video laryngoscope: a randomized trial using mannequins and lightly embalmed cadavers.	Myers T, <b>Froese P</b> , Law A, <b>Kovacs G</b> .
Cardiac Arrest Systems of Care in an Integrated Provincial Emergency Medical System.	<b>Travers A</b> , <b>Carter A</b> , <b>Jensen J</b> .
Collaborative emergency centres in Nova Scotia: patient population, outcomes and development of a model.	<b>Carter A</b> , White C, Latta R, Northcott C, <b>Dobson T</b> , <b>Carrigan S</b> , Vanberkel P, <b>Cook J</b> , <b>Travers A</b> , <b>Jensen J</b> , <b>Johnston T</b> .
Does PSA for cardioversion in the ED differ from that performed for other reasons?	Butler M, <b>MacKinley R</b> , <b>Watson ML</b> , <b>Kovacs G</b> , <b>Magee K</b> , <b>Campbell S</b> .
Effect of education on staff familiarity with an emergency department disaster plan.	<b>Jarvis C</b> , MacDonalD D, <b>MacKinley R</b> , <b>Cain E</b> .
Epidemiology of prehospital geriatric emergency responses in a Provincial EMS	<b>Goldstein J</b> , <b>Travers A</b> ,

System.	<b>Jensen J, Carter A,</b> Rockwood K.
Experiential and rational decision making: a survey to determine decision making styles of paramedics.	<b>Jensen J,</b> Bienkowski A, Calder L, Croskerry P, <b>Tavares W, Walker M,</b> <b>Travers A.</b>
Feasibility of a novel prehospital geriatric frailty assessment.	Rockwood K, <b>Goldstein J,</b> <b>Travers A.</b>
Ground ambulance paramedic clinical consults with a clinical support paramedic or nurse in an EMS communications centre compared to traditional ems physician consults.	<b>Jensen J, Travers A,</b> <b>Hawco T, Butts F, Rose P,</b> <b>McVey J, Rose J,</b> <b>Carter A,</b> Al-Dahlaan F.
Identification of ST elevation myocardial infarction by paramedics: a systematic review.	<b>Loubani O, Travers A,</b> <b>Jensen J, Deveau B,</b> <b>McVey J.</b>
Insights into the Implementation and Operation of a Novel Paramedic-Long Term Care Program.	<b>Jensen J, Travers A,</b> Bassett R, <b>Cain E, Carter A,</b> <b>Leadley S.</b>
Integrating emergency health services and palliative care to enhance the end of life experience for Nova Scotia and Prince Edward Island Cancer Patients and their families.	<b>Carter A,</b> Arab M, Sullivan J.
Learning style preferences in continuing medical education activities of nova scotia paramedics: a pilot study.	<b>Staple L, Carter A,</b> <b>Walker M, Jensen J.</b>
Outcomes of Provincial cardiac reperfusion strategy: a population-based, retrospective cohort study.	<b>Cook J, Swain J, Jensen J,</b> <b>Carter A, Brown R,</b> <b>Cain E, Travers A.</b>
Rater-based assessment: factors influencing the perceptions of trainee performance.	<b>Tavares W, Cain E,</b> <b>Jensen J.</b>
Temperature and humidity of medications stored in EMS ambulances and bases throughout the Province.	<b>Stewart P, Jensen J,</b> <b>Deveau B,</b> Agu R.
The impact of collaborative emergency centres on ambulatory care sensitive condition emergency department visits in Cumberland County.	Conrad J, <b>Carter A.</b>
The offload zone as a solution to EMS offload delay in the emergency department.	<b>Carter A,</b> Vanberkel P, <b>Jensen J, Fraser J,</b> <b>Wheatley M, Cook J,</b> <b>Carrigan S, Petrie DA,</b> <b>Travers A.</b>
The prevalence and characteristics of non-transported patients in Nova Scotia.	<b>Carrigan S, Travers A,</b> <b>Carter A, Goldstein J,</b> Asada Y.
The use of machine learning algorithms to aid in clinical diagnosis.	Butler M, <b>Carter A.</b>
Understanding offload delay: an exploration of the role of delivery and recovery intervals, and environmental factors.	<b>Carter A,</b> Terashima M, <b>Wheatley M, Travers A,</b> <b>Carrigan S.</b>

## ***Closed Studies***

(closed within April 1 2014 – March 31, 2015)

Cardiac arrest systems of care in an integrated provincial emergency medical system.	<b>Travers A, Carter A, Jensen J.</b>
Experiential and rational decision making: a survey to determine decision making styles of paramedics.	<b>Jensen J, Bienkowski A, Calder L, Croskerry P, Tavares W, Walker M, Travers A.</b>
Insights into the implementation and operation of a novel paramedic-long term care program.	<b>Jensen J, Travers A, Bassett R, Cain E, Carter A, Leadley S.</b>
Rater-based assessment: factors influencing the perceptions of trainee performance.	<b>Tavares W, Cain E, Jensen J.</b>

## Grants

Granting Agency	Project Title	Research Team Members	Amount
CDHA	Assessment of extremity injuries by advanced care paramedics to determine the need for diagnostic imaging.	<b>Froese P, MacKinley R, Magee K, Campbell S.</b>	\$7,440
CDHA	Blade tip location to facilitate endotracheal intubation using the king vision video laryngoscope: a randomized trial using mannequins and lightly embalmed cadavers.	Myers T, <b>Froese P</b> , Law A, <b>Kovacs G.</b>	\$4,980
Dalhousie FOM	Ground ambulance paramedic clinical consults with a clinical support paramedic or nurse in an EMS communications centre compared to traditional EMS physician consults.	<b>Jensen J, Travers A, Hawco T, Butts F, Rose P, McVey J, Rose J, Carter A,</b> Al-Dahlaan F.	\$5,000
Canadian Partnership Against Cancer	Integrating emergency health services and palliative care to enhance the end of life experience for Nova Scotia and Prince Edward Island cancer patients and their families.	<b>Carter A</b> , Arab M, Sullivan J.	\$1,019,325
NSHRF	Local implementation of the recommendations from the Canadian National EMS Research Agenda	<b>Jensen J, Carter A.</b>	\$9,662.50
CDHA	Outcomes of provincial cardiac reperfusion strategy: a population-based, retrospective cohort study.	<b>Cook J, Swain J, Jensen J, Carter A, Brown R, Cain E, Travers A.</b>	\$14,830
NSHRF	Paramedic clinical decision making workshop: thinking about thinking.	<b>Walker M, Jensen J, Travers A.</b>	\$9,794.26
CIHR	The Canadian EMS Data Project (Cardiac Arrest)	<b>Carter A</b> , Morrison L, <b>Jensen J, Blanchard I</b> , Segal E.	\$24,920
Dalhousie RIM	The impact of collaborative emergency centres on ambulatory care sensitive condition emergency department visits in Cumberland County.	Conrad J, <b>Carter A.</b>	\$5,000
CDHA	The offload zone as a solution to EMS offload delay in the emergency department.	<b>Carter A</b> , Vanberkel P, <b>Jensen J, Fraser J, Wheatley M, Cook J, Carrigan S, Petrie DA, Travers A.</b>	\$14,995
CDHA	The use of machine learning algorithms to aid in clinical diagnosis	Butler M, <b>Carter A.</b>	\$4,800
<b>TOTAL*</b>			<b>\$1,123,746.76</b>

\*since Annual Report of 2012-13

## PUBLICATIONS

### *Peer-Reviewed Abstracts*

**Jensen J, Carter A, Rose J, Visintini S, McVey J, Bourdon E, Brown R, Travers A.** Alternatives to traditional EMS dispatch or transport to ED: a scoping review of published outcomes. CJEM 2014; 16(S1):S75.

**Goldstein J, Jensen J, Carter A, Travers A, Rockwood K.** An epidemiological profile of emergency medical services use by older adults with cognitive impairment in a Provincial EMS System. PEC 2015; 19(1):160.

**Carter A, Jensen J, Greene J, Goldstein J, Swain J, Fidgen D, Richardson L, Cain E.** State of the evidence for EMS care of respiratory distress: an analysis of appraised research from the canadian prehospital evidence-based practice project. PEC 2015; 19(1):166.

**Jensen J, Al-Dahlaan F, Rose J, Carter A, McVey J, Butts F, Hawco T, Rose P, Travers A.** Ground ambulance paramedic clinical consults with a clinical support paramedic or nurse in an EMS communications center compared to traditional EMS physician consults. PEC 2015; 19(1):174.

**Carter A, Bohrer M, Jensen J.** The use of medic alert notifications by paramedics and medical communication officers. CJEM 2014; 16(S1):S25.

**Jensen J, Marshall E, Carter A, Boudreau M, McVey J, Bardua D, Burge F, Travers A.** The impact of a novel collaborative long term care - EMS model: a before-and-after cohort analysis. CJEM 2014; 16(S1):S26.

**Carter A, Gould J, Vanberkel P, Jensen J, Cook J, Carrigan S, Wheatley M, Travers A.** Offload zones in the emergency department to mitigate emergency medical services (EMS) offload delay: a process map and hazard analysis. CJEM 2014; 16(S1):S80.

**Deveau B, Jensen J, Greene J, Stewart P, Agu R.** Temperature control of medications in an EMS setting: a scoping review. PEC 2015; 19(1):160.

**Deveau B, Stewart P, Jensen J, Agu R.** The Feasibility of monitoring the temperature of medication storage in a ground ambulance system: a pilot study. PEC 2015; 19(1):160

**Jarvis C.** Can a focused education program increase staff familiarity with an emergency department disaster plan? CJEM 2014; 16(S1):S93.

**Kovacs G, Murray M, Sandeski R, Vair B, Ross J.** Using clinical grade cadavers for high-fidelity simulation. CJEM 2014; 16(S1):S95.

**Campbell S, Magee K, Cajee I, Field S, Butler M, Campbell C.** The utility of measuring international normalized ratio (INR) as part of the investigation of patients with cardiac-type chest pain. CJEM 2014; S30 .

**Campbell S, Cajee I, Field S, Magee K, Butler M, Campbell C.** The utility of chest x-ray as part of the investigation of patients with chest pain suspected to be cardiac in origin. CJEM 2014; 16(S1):S73.

**Campbell S, Field S, Magee K, Cajee I, Butler M, Campbell C.** The utility of routinely measuring serum



electrolytes as part of the investigation of patients with cardiac-type chest pain. CJEM 2014; 16(S1):S80.

**Jensen J, Tavares W**, Calder L, Bienkowski A, **Walker M**, **Travers A**, Croskerry P. Experiential and rational decision-making: a survey to determine decision-making styles of paramedics and paramedic students. CJEM 2014; 16(S1):S53

**Loubani O, McVey J, Deveau B, Jensen J, LeRoux Y, Travers A**. Paramedic diagnostic accuracy of ST-elevation myocardial infarction on 12-lead ECG: a systematic review. CJEM 2014; 16(S1):S54

## **Articles**

**Jensen J, Carter A, Rose J**, Visintini S, **McVey J, Bourdon E, Brown R, Travers A**. Alternatives to traditional EMS dispatch and transport: a scoping review of reported outcomes. CJEM 2015; 0(0):online1-19.

Hayden J, Killian L, Zygmunt A, Babineau J, Martin-Misener R, **Jensen J, Carter A**. Methods of a multi-faceted rapid knowledge synthesis project to inform the implementation of a new health service model: Collaborative Emergency Centres. Syst Rev 2015; 4(7).

**Goldstein J**, Hubbard R, Moorhouse P, Andrew M, Mitnitski A, Rockwood K. The validation of a care partner-derived frailty index based upon comprehensive geriatric assessment (CP-FI-CGA) in emergency medical services and geriatric ambulatory care. Age and Ageing 2014; 44(2):327-30.

**Goldstein J, Travers A**, Hubbard R, Moorhouse P, Andrew MK, Rockwood K. (2014). Assessment of older adults by emergency medical services: Methodology and feasibility of a care partner – comprehensive geriatric assessment (CP-CGA). CJEM 2014; 16(5): 370-7.

Marshall EG, Clarke B, Peddle S, **Jensen JL**. Care by Design: new model of coordinated on-site primary and acute care in long-term care facilities. Canadian Family Physician 2015; 61: e129-34.

**Bigham BL, Jensen JL, Tavares W**, Drennan IR, Saleem H, Dainty KN, **Munro G**. Paramedic self-reported exposure to violence in the emergency medical services (EMS) workplace: a mixed-methods cross-sectional survey. Prehosp Emerg Care 2014; 18(4): 489-94.

Murphy L, **Kovacs G**, Reardon P, Law A. Comparison of the king vision video laryngoscope with the macintosh laryngoscope. J Emer Med 2014; 47(2):239-46.

## PRESENTATIONS

### *Local*

16-Apr-2014	Geriatric Medicine in the ED-What Should We Do Now? <i>Dalhousie Geriatric Medicine Academic Rounds</i>	Goldstein J, Rockwood K.
16-Apr-2014	Geriatric Medicine in the ED-What Should We Do Now? <i>Dalhousie Emergency Medicine Academic Rounds</i>	Goldstein J, Rockwood K.
01-May-2014	Validation of a Care Partner Derived Frailty Index. <i>Dalhousie Faculty of Medicine Research Day</i>	Goldstein J.
14-May-2014	Learning Style Preferences and Continuing Medical Education Activities of Nova Scotia Paramedics: A Pilot Study. <i>19th Annual Dalhousie University Emergency Medicine Research Day</i>	(Staple L), Carter A.
14-May-2014	The Impact of a Novel Collaborative Long Term Care-EMS Model: A Before-and-After Cohort Analysis. <i>19th Annual Dalhousie University Emergency Medicine Research Day</i>	Jensen J.
14-May-2014	The Validation of a Care Partner Derived Frailty Index Based Upon Comprehensive Geriatric Assessment. <i>19th Annual Dalhousie University Emergency Medicine Research Day</i>	Goldstein, J.
28-Sep-2014	The Great Debate II: Top EMS Research of the Year. <i>Cape Breton Paramedic Conference, St Anne, NS</i>	Jensen J.
21-Oct-2014	An Epidemiological Profile of Emergency Medical Services Use by Older Adults with Cognitive Impairment in a Provincial EMS System. <i>6th Annual EMS Research Day</i>	Goldstein J.
21-Oct-2014	Ground Ambulance Paramedic Clinical Consults with a Clinical Support Paramedic or Nurse in an EMS Communications Centre Compared to Traditional MS Physician Consults. <i>6th Annual EMS Research Day</i>	(Al-Dahlaan F), Jensen J.
21-Oct-2014	Hemostatic Dressings for External Bleeding: An Evidence Review Using GRADE Methodology. <i>6th Annual EMS Research Day</i>	Jensen J.
21-Oct-2014	Methodology of a Cross-sectional Study Evaluating the Impact of a Novel Care Delivery Mobile Care Team (MCT) on the Prevalence of Ambulatory Care Sensitive Conditions. Presenting to Emergency Medical Services in Nova Scotia. <i>6th Annual EMS Research Day</i>	Brown R.
21-Oct-2014	State of the Evidence for Emergency Medical Services (EMS) Care of Respiratory Distress: An Analysis of Appraised Research from the Canadian Prehospital Evidence-based Practice (PEP) Project. <i>6th Annual EMS Research Day</i>	Greene J.
21-Oct-2014	Temperature Control of Medications in the EMS Setting: A Scoping Review. <i>6th Annual EMS Research Day</i>	(Deveau B.), Jensen J.

21-Oct-2014	The Feasibility of Monitoring the Temperature of Medication Storage in a Ground Ambulance: A Pilot Study. <i>6th Annual EMS Research Day</i>	(Stewart P), Jensen, J.
06-Nov-2014	Frailty Screening and Assessment by Paramedics. <i>Dalhousie Faculty of Medicine Research Evening</i>	Goldstein J.
07-Nov-2014	Keynote Address. <i>Holland College Advanced Care Paramedic Graduation Ceremony, Charlottetown, PE</i>	Jensen J.
25-Feb-2015	Paramedic Clinical Decision Making. <i>Ontario Base Hospital Conference, Ajax, ON</i>	Jensen J.

## ***National***

01-Jun-2014	The use of medic alert notification by paramedics and medical communication officers. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	<b>Carter A.</b>
01-Jun-2014	The impact of a novel collaborative long term care - EMS model: a before-and-after cohort analysis. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	Jensen J.
03-Jun-2014	Offload zones in the emergency department to mitigate emergency medical services (EMS) offload delay: a process map and hazard analysis. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	<b>Carter A.</b>
03-Jun-2014	Can a focused education program increase staff familiarity with an emergency department. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	<b>Jarvis C.</b>
03-Jun-2014	Using clinical grade cadavers for high-fidelity simulation. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	<b>Kovacs G.</b>
03-Jun-2014	Alternatives to traditional EMS dispatch or transport to ED: a scoping review of published outcomes. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	Jensen J.
03-Jun-2014	Experiential and rational decision-making: a survey to determine decision-making styles of paramedics and paramedic students. <i>Canadian Association of Emergency Physicians annual scientific conference, Ottawa ON</i>	Jensen J.

## ***International***

22-Jan-2015	State of the Evidence for EMS Care of Respiratory Distress: An Analysis of Appraised Research From the Canadian Prehospital Evidence-Based Practice Project. <i>National Association of EMS Physicians Annual Conference New Orleans LA USA</i>	<a href="#">Greene J.</a>
22-Jan-2015	Ground Ambulance Paramedic Clinical Consults with a Clinical Support Paramedic or Nurse in an EMS Communications Center Compared to Traditional EMS Physician Consults. <i>National Association of EMS Physicians Annual Conference New Orleans LA USA</i>	<a href="#">Jensen J.</a>
31-Jan-2015	First Aid Task Force, Use of Tourniquet. <i>International Liason Committee on Resuscitation (ILCOR), Dallas TX, USA</i>	<a href="#">Jensen J.</a>
01-Feb-2015	Plenary Presentation, Use of Tourniquet. <i>International Liaison Committee on Resuscitation (ILCOR), Dallas TX, USA</i>	<a href="#">Jensen J.</a>

## DIVISION OF EMS ANNUAL RESEARCH DAY

The **6<sup>th</sup> Annual EMS Research Day** was held on Tuesday October 21<sup>st</sup>, 2014. Thank you to the presenters, attendees and organizers for making this such a successful event. Eighty-six people attended EMS Research Day, which brought professionals from Alberta, Ontario, Quebec, New Brunswick, Prince Edward Island and Newfoundland & Labrador! The day began with the keynote address by Dr. Lawrence Brown from Austin, Texas. Dr. Brown focused on the history of EMS research, identifying key contributors within the international EMS community, and this included the big contributions made by Canadians and especially Nova Scotians. The day then continued with 12 research presentations (10 by paramedics). Each research presentation was judged by a panel of four judges, and two awards were handed out:

- The Top EMS Research Award went to Justin Mausz of Centennial College with “Exploring the Role of Hospital-based Paramedic Education”.
- The Ron Stewart Top Paramedic EMS Research Award went to Phil Stewart with “The Feasibility of Monitoring the Temperature of Medication Storage in a Ground Ambulance: A Pilot Study”.



### ***Pitch your Proposal***

On Monday, October 20<sup>th</sup>, 2014 the 2<sup>nd</sup> Annual Pitch your Proposal was held. There were 10 presenters, including 8 paramedic/nurse presentations. This session was an opportunity for those with a research idea to present their plan to an interested and supportive group. About 30 people attended, (some of whom were experienced researchers and EMS leaders) to give advice on how to improve study plans. This event highlighted the diverse array of research interests within our EMS community. Some of the topics presented included: dispatcher recognition of agonal breathing, critical care airway management, how paramedics think, youth with mental health complaints, and novel approaches to no-transport. Thanks to everyone who participated and to those who pitched such great ideas!

### ***Sponsors***

The Division of EMS would like to thank the sponsors of these events including Medusa Medical Technology (Pitch your Proposal Sponsor), EMC, EHS, Tri-Star Industries, Canadian Paramedicine, Nova Scotia Health Research Foundation, the Dalhousie Bookstore, and Jones & Bartlett.

## **CANADIAN EMS RESEARCH NETWORK (CERN)**

The Division of EMS was one of the founding supporters of the Canadian EMS Research Network, and continues to provide in-kind support to the development of a National EMS Research Network. CERN was born out of the Canadian National EMS Research Agenda, (led by members of the Division of EMS), through a recommendation that a network of researchers should be formed across the country to further develop the Canadian EMS research enterprise.

The Division hosted a meeting in October 2013 as part of the EMS Research Day activities, and since then has been serving as secretariat for CERN. In the 2014-2015 year, the Division secured \$25,000 in funds from Capital District Health Authority/IWK Research Services to support the development of this network. In addition, members of the Division, with other members of CERN across Canada, have been successful in winning a \$25,000 CIHR Meetings, Planning and Dissemination Grant to support the development of a National Cardiac Arrest Registry.

# EDUCATION

## *Paramedic Education*

### **Paramedic P-EBP Courses**

P-EBP is now delivered in two formats. Previously the Division offered only an 8-hour in-person course, meeting the Paramedic Association of Canada National Occupational Competency Profile (NOCP) research requirements for the advanced care paramedic level. In January of 2015, in response to demand from across Canada and a few requests for travel to the USA to deliver the course, an online delivery format was launched. The online course meets the Paramedic Association of Canada NOCP research requirements for the primary care paramedic.

There were 5 in-person courses taught during the 2014-2015 time period, with a total of 43 students. These were a mix of independent courses requested by interested paramedics, and courses taught for the Medavie HealthEd paramedic program to satisfy the requirements for graduation.

The online P-EBP course has a fluctuating enrollment, with 10 students having enrolled for the course by the end of the fiscal year.

### **Paramedic Journal Club**

Ryan Brown assumed the Journal Club coordinator role from Jan Jensen in December of 2013. Ryan works closely with Jen Greene (Division of EMS Knowledge Translation Coordinator) and Judah Goldstein (EHS Research Coordinator) to organize the meetings and select articles for review.

Meetings are held in the Central Region (for in person) and linked via WebEx to the rest of the province. When available, the Sydney boardroom is linked with Redstone/Wilkinson via video conference utilizing EMC's tele-presence resources. Attendees are typically those in the EHS system in Nova Scotia however there have been attendees link in from New Brunswick, British Columbia, Quebec, the US and Australia. Advertisements are sent out approximately 1 month prior to the Journal Club on the EMC internal website (Pulse) and on social media through the P-EBP Facebook page.

2014 fiscal year Journal Club summary:

<b>DATE</b>	<b>TOPIC</b>	<b>ATTENDANCE (#)</b>
Apr. 17/14	EMS Dispatch Studies	9
Oct. 20/14	EMS Alternatives to Transport	9
Dec. 17/14	Adverse Effects of Prehospital Difficult Laryngoscopy	8
Feb. 17/15	Prehospital Tourniquet Use	7

Planned 2015 Journal Clubs:

May 26<sup>th</sup> – Prehospital Use of Opioids in the Dyspneic Palliative Patient

June 21<sup>st</sup> – TBA (Mental Health Focus, Liverpool Ed Day)

## ***Medical/ Postgraduate Education***

### **MED I Student EMS Elective**

In response to a student-led proposal, work is ongoing to launch a longitudinal EMS elective for MED I students. This should be online for the 2015-2016 academic year.

### **MED IV Student EMS Elective**

This was not filled during this fiscal year.

### **RIM (Research in Medicine) Students**

The Division supported the following Med I RIM students:

in NS: Janet Conrad,

in NB: Colin Rouse and Jefferson Hayre, and

SSRP Med Student, Fahad Al- Dahlaan in the cross-over year, as RIM begins and SSRP concludes.

Fahad presented his project “Ground Ambulance Paramedic Clinical Consults with a Clinical Support Paramedic or Nurse in an EMS Communications Centre Compared to Traditional Medical Services Physician Consults” at the Nova Scotia EMS Research Day in 2014, as well as at last year’s NAEMSP.

Janet will work to submit her project on “The Impact of Collaborative Emergency Centres on Access to Primary Care” for presentation next year.

The Division of EMS committed in January 2015 to the following RIM students for the next academic year

in NS: Madeleine Bohrer (Pediatric Palliative Care Utilization of an EMS Special Patient Program)

Stewart Whalen (Impact of Working in a Collaborative Emergency Centre on Paramedic Professional Identity), and

in NB: Nicole Beckett, Matt Kenney and Devon McLean.

### **CCFP-EM EMS Elective**

Work began to develop an EMS rotation for the CCFP-EM residents. It will debut in June 2015.



## **FRCP EMS Core Rotation**

Royal College Residents (Phil Davis, Jason Emsley & Yves Leroux) completed their EMS rotation with us between August 27-Sept 23. They were all able to experience ground transportation, Lifeflight field experience, Extended Care Paramedic, and Collaborative Emergency Centre observation . All enjoyed their rotations and provided insightful feedback for PEP and clinical practice guidelines in their case presentations.

## **Pediatric Emergency Resident EMS Rotation**

There were no Peds EM residents to take the rotation this year.

## **EMS Fellows & Subspecialty Residents**

This year's EMS Fellow comes to us from Edmonton, Alberta. Dr Kirstin Moritz graduated from her FRCP EM residency and following graduation joined us in Sept 2014 for a 1 year fellowship. Kirstin is our second post-residency fellow.

## **Graduate Students**

Andy Muise: Dr. Alix Carter and Jan Jensen served on Andy's Master of Health Administration thesis committee. (Expected graduation: Spring 2015)

Ben Wedge: Dr. Alix Carter serves on Ben's Master of Engineering thesis committee. (Expected graduation: Fall 2015)

Aaron DeRosa: Dr. Carl Jarvis and Dr. Judah Goldstein are mentoring Aaron with regards to the research for his Masters in Applied Health Services. (Expected graduation: Spring 2016)

Steve Carrigan: Dr. Alix Carter and Dr. Judah Goldstein are serving on his research team and thesis committee for his MSc in Epidemiology. (Expected graduation: Spring 2016)

Ryan Brown: Dr. Alix Carter, Dr. Judah Goldstein and Jan Jensen are serving on Ryan's research team for his Masters in Public Health from Liverpool University. (Expected graduation: November 2015)

## **Post Doctoral Fellowship**

Dr. Judah Goldstein joined the Division of EMS as a post-doctoral fellow in February 2014 after completing his PhD under the supervision of Dr Ken Rockwood at Dalhousie University in the Department of Medicine, Geriatrics. Following completion, Dr. Goldstein decided to accept a permanent position with EHS as the Research Coordinator, and continues his program of research in frailty.

## **DIVISION OF EMS BURSARIES AND THE DR. NIGEL MERCHANT ALLIED HEALTH BURSARY**

### ***Division of EMS Bursaries***

The Division of EMS bursaries were developed in 2010. The purpose of the bursaries is to support the mission of the Division. In particular, the bursaries are to be used to encourage and support research and knowledge translation in EHS/EMS practice, education, systems and safety. There are three types of bursaries offered by the Division of EMS:

#### **The Division of EMS Research Postgraduate Education Bursary:**

This bursary is awarded once yearly to a paramedic accepted in a Masters or PhD program at a recognized institution. An amount up to \$3,000 per year for a maximum of two years is available to assist with tuition costs.

- Awarded to Aaron DeRosa, Primary Care Paramedic; towards his Masters of Applied Health Research, University of New Brunswick.

#### **The Division of EMS Research Performance Bursary:**

Two of these bursaries will be awarded annually to offset direct costs of conducting EMS research. A Performance Bursary can be up to \$5,000 and can be renewed once after submission of a progress report to the Division of EMS.

- Not awarded in this cycle

#### **The Division of EMS Research Knowledge Translation Bursary:**

The Knowledge Translation Bursary is awarded to assist with the costs of presenting original research at a research-based meeting or conference. The presentation may be oral or a poster. The applicant can be the principal investigator or co-investigator of the project. The EMS Research Knowledge Translation Bursary is worth up to \$3,000. A maximum of \$6,000 can be awarded annually (two Bursaries of \$3,000 each or three bursaries of \$2,000 each, etc.).

- The Division of EMS awarded Brent Deveau, Primary Care Paramedic, to attend and present at the CAEP Conference in Ottawa and NAEMSP Conference in New Orleans, Louisiana, USA. \$2860.00

## ***Dr. Nigel Merchant Allied Health Bursary***

Dr. Nigel Merchant was an Emergency Physician at the Victoria General Hospital in Halifax, and later the QEII Health Sciences Centre, from 1975 until 2002. He served as Chief of the Emergency Department from 1977-1980. Nigel lost his life in a car crash at the age of 58 in 2002. Nigel was a colleague, a business associate but most of all, he was a friend. He is survived by his wife Joyce and their three children – Clark, Sara and Lee.

Nigel was a laboratory technician before entering Dalhousie Medical School. During his career, Nigel was very active in the education of paramedics and medical first responders. Following the wishes of his family, a bursary was established in his name at Dalhousie University. Each year, two bursaries are awarded, one to a student enrolled in Medical Laboratory Technology and one to a student enrolled in Paramedicine. The awards are based on financial need and each recipient is awarded \$500.

- As there were no Medical Laboratory technician applicants, the recipients of the 2014 Nigel Merchant Bursary were presented to Nathan Blackstock and Joshua Chafe, both enrolled in the Advanced Care Paramedic program at Holland College in PEI.

## COMMITTEES

### *Nova Scotia EMS Research Steering Committee*

The Division of EMS chairs and serves as secretariat, for the Nova Scotia EMS Research Steering Committee. The purpose of the committee is to facilitate and co-ordinate EMS Research in Nova Scotia.

#### Members

- Medical Director, Provincial Critical Care Transport Program: **George Kovacs**
- Medical Director, Provincial Trauma Program: **Rob Green**
- Medical Director of Research, EHS: **Alix Carter**
- Director, Division of EMS: **Alix Carter**
- Research Director, Department of Emergency Medicine, Dalhousie University: **Kirk Magee**
- Research Manager, Department of Emergency Medicine, Dalhousie University: **Corinne DeMone**
- Paramedic Research Leader, EHS/EMC: **Judah Goldstein**
- Research Knowledge Translation Paramedic Coordinator, Division of EMS: **Jennifer Greene**
- Clinical Quality, Risk Management and Air Medical Transport for EMC: **Paula Martell/Wilma Crowell**
- Medical Director, Emergency Department Disaster Preparedness, CDHA: **Carl Jarvis**
- Paramedic School Representatives (Medavie/Holland College): **Karl Kowalchuk/Brent Nicholson**
- Recording Secretary: **Lisa Young**

#### Objectives:

1. To centralize the submission, evaluation and feedback processes of EMS research proposals by bringing together representatives of EHS, EMS, LifeFlight, the Provincial Trauma Program, the Dalhousie Department of EM and the Division of EMS.
2. To maintain transparency.
3. To annually update the EMS Research Agenda for Nova Scotia.

#### Functions:

1. Review study protocols to evaluate their impact on the representatives' respective organizations.
2. Discuss the study proposal at the next committee meeting or forward comments to the committee chair.
3. Advise on prioritization of research projects competing for the same resources.
4. Promote prehospital research involving paramedics.

## ***Division of EMS Operations Committee***

The Division of EMS Operations Committee advises on the operation of the Division of EMS, and serves as the meeting point for members of the Division.

### **Members**

- Chair and Director, Division of EMS: ***Alix Carter***
  - Research Manager, Department of Emergency Medicine, Dalhousie University: ***Corinne DeMone***
  - EHS Research Coordinator, EHS/EMC: ***Judah Goldstein***
  - Research Knowledge Translation Paramedic, Division of EMS: ***Jennifer Greene***
- Members at Large: **Aaron Sibley, Andrew Travers, Carl Jarvis, David Petrie, James French, George Kovacs, Jay Walker, Jan Jensen, Jen McVey, Jolene Cook, Kirstin Moritz, Pat Froese, Ryan Brown, Susan Dugas, Tushar Piche.**
- Recording Secretary: ***Lisa Young***

### **Objectives:**

Still being developed

### **Functions:**

Still being developed

## EXPENDITURES REPORT

Dalhousie University Division of EMS Expenditures Report	April 1, 2014 – March 31, 2015
<b>Expenditures</b>	<b>Amount</b>
PEP Database	\$1000.00
Infrastructure:	\$30669.25
• Computer Leases	
• Printing Services	
• Telephones	
• Stationery	
• Admin Support	
Research Day	\$1000.00
Research Dissemination Bursary	\$2126.02
Education Post Grad Bursary	\$3000.00
EMS Research Performance Bursary	\$2395.40
Discretionary Fund	\$849.83
<b>Total Expenditures</b>	<b>\$43607.70</b>