Alberta Health Services

UNIVERSITY OF CALGARY
CUMMING SCHOOL OF MEDICINE
Department of Emergency Medicine

DEPARTMENT OF EMERGENCY MEDICINE

2018 ANNUAL REPORT

Alberta Health Services

Our Vision

Healthy Albertans.
Healthy Communities.
Together.

Our Mission

To provide a patient-focused, quality health system that is accessible and sustainable for all Albertans.

Our Values

To provide a patient- focused quality health system that is accessible and sustainable for all Albertans.

compassion

We show kindness and empathy for all in our care, and for each other.

accountability

We are honest, principled and transparent.

respect

We treat others with respect and dignity.

excellence

We strive to be our best and give our best.

safety

We place safety and quality improvement at the centre of all our decisions.

AHS cares

Cumming School of Medicine
University of Calgary

UNIVERSITY OF CALGARY

VISION

We partner with University leaders to support the "Eyes High" vision.

"Eyes High" is the University of Calgary's bold and ambitious vision to become one of Canada's top five research universities, grounded in innovative learning and teaching and fully integrated with the community of Calgary, by the university's 50th anniversary in 2016.

MISSION

By creating and delivering exemplary human resources services, processes, and outcomes we contribute to and share in the University's mission and goals to:

- Sharpen focus on research and scholarship;
- Enrich the quality and breadth of learning;
- Fully integrate the university with the community.

VALUES

The strategy also articulates eight core values shared by the university community; curiosity; support; collaboration; communication; sustainability; globalization; balance and excellence.

DEAN'S OFFICE
CUMMING SCHOOL OF MEDICINE STRATEGIC PLAN 2015 – 2020

VISION

Creating the future of health

MISSION

We must fulfill our social responsibility to be a school in which the common goal of improved health guides service, education and research. We must foster the collective pursuit of knowledge and its translation, through education and application, to better the human condition.

VALUES

Excellence |Collaboration| Engagement| Respect

STRATEGIC GOALS

We are committed to maintaining the public's trust and respect as a premier academic health science centre by meeting the following goals:

- Serve our diverse communities by understanding and responding to their health needs and by effectively stewarding the resources entrusted to us by Albertans.
- Generate knowledge that has both local and global impact by fostering novel collaborative alignments among basic and clinical scientists, physicians and educators.
- Train the next generation of health-care pioneers and providers by rejuvenating the education and career development of biomedical innovators.

EMERGENCY DEPARTMENT MISSION STATEMENT

Calgary Emergency Medicine is committed to
Providing High Levels of Patient Care
that Involve Integrated Clinical and Academic Leadership.

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MEDICAL EDUCATION

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MESSAGE FROM DEPARTMENT HEAD & EXECUTIVE DIRECTOR

I have listed what I consider to be some of the key achievements and future challenges / threats based on the perspectives I have gained in this role. It is important to note that the achievements are the results of the hard work of many of the leaders that the department is lucky to have and are presented in no particular order of preference nor should it in any way be considered a complete list. Many of the achievements have been made possible through the support of Scott Banks, our department manager for the past 10 years.

General / Operations Achievements:

1. The creation of the Calgary Department of Emergency Medicine; we were previously a division of Family Medicine (Banks, Innes).
2. Dedicated and effective clinical leadership teams with the addition of assistant site chiefs for support and succession.
3. Successful rollout and ongoing use of a computerized physician order entry system (Rich, Grabove)
4. Creation of an Effectiveness Coordinator (Dowling) position to support order set development and currency
5. Creation of a Disaster Coordinator (Hanrahan) and Assistant Role (Granberg/Bateman)
6. Expanded clinical analytics and reporting to MDs (72-hour revisit resulting in admission alert and Tableau-based reports on numerous metrics mailed out to all MDs)
7. Enhanced and stable Intake Zone models at RGH/PLC and FMC despite need for ongoing improvements.
8. Physician retention strategies and leadership support (opt out of nights for >55 and self-scheduling for high FTE leadership roles, predominance of seven-hour shifts).
9. Most active Quality Committee in the Zone (Oster)
10. Improved practice patterns in these areas: near elimination of urine toxicology, coags in chest pain, renal colic imaging, probenecid use in soft tissue infections.
11. Favorable and improving operational metrics when compared to similar Alberta hospitals, especially time to MD, LWBS and 72 hour returns (see http://focus.hqca.ca)
12. Favorable EIP statistics compared to other Canadian jurisdictions (see: https://yourhealthsystem.cihi.ca/hsp/?lang=en
13. Creation of the Physician Support Fund with a number of high-value projects emerging.
14. Medical affairs support and funding secured for a potential Physician Navigator / Charge MD role.

Academic / Faculty Development / Recognition:

1. National research or teaching awards: Johnston, McRae, McPherson
2. Calgary ED MDs in CAEP/CJEM portfolios: Patocka, McRae
3. Highly successful and stable PGME with CBD introduced and running smoothly (McPherson, Francis, Johnston, Patocka)
4. Creation of the section of Toxicology within the Department of EM (Yarema)
5. Calgary ED MDs taking over/leading large zone, provincial or national mandates in health in Alberta and beyond: Collins (ED operational lead), Baker (AZMD), Rich (Associate CMIO), Patocka (CKCM lead), Dowling (Medical lead PLP/AMA), Abbi (AMA), Barkhurst (Calgary Zone EMS), Brulotte (EMS), DelCastilho (SHC FD), Moussadji (Medical Affairs – complaints/disaster), Johnston (Director of DLRI at the U of C), Yarema (PADIS), Head (CSART), Lazarenko (AHS Pharmacy). Vipond (CAPE).
6. Cross-appointment of all Peds EM GFT faculty to our department
7. Highest rated clerkship at the U of C (Langhan, Greenfield)
8. First international EMS fellow (Mitchell)

MESSAGE FROM DEPARTMENT HEAD & EXECUTIVE DIRECTOR

9. Locally hosted CAEP 2018: Highest attended CAEP meeting in history with many Calgary speakers
10. Expanding and increasingly stable research department with a number of CIHR (McRae) and PRIHS (Andruchow) grants held by departmental clinician scientists.
11. Over 30 faculty successfully promoted to Assistant and Associate Professor
12. Physician Wellness and recognition: MD gala now in its' fifth year
13. Innovation: AMP (Huffman), INFO Sessions (Rose)
14. Launch of the Calgary Health Trust Research Fund supporting the Grant Innes Resident Research award.
15. Vibrant Simulation and Ultrasound programs (McNeil, Peterson)
16. Mike Hodsman annual lecture series
17. Enhanced communications to the department via Friday newsletter
18. Launch of the Professional Development Hubs
19. ED Project "Improving Acute Care for Long-Term Residents: A Better Way to Care for the Frail Elderly in Times of Medical Urgency" (Hair, Zuzic, Baker, Collins, Grigat, Wang, Andruchow, Szava-Kovats, Lang, Holroyd-Leduc, Spackman) $1.2M

Challenges / Threats:

1. Unfavorable time to MD statistics compared to others in Canada (see: https://yourhealthsystem.cihi.ca/hsp/?lang=en
2. Strain on AHS and U of C funding envelopes – always asked to do more with less
3. Severe EIP issues and access block at key periods of the year i.e. flu and particularly severe at SHC at times.
4. No departmental "Academic Medicine Health Services Plan - AMHSP" (ARP) to support up and coming and some established leaders in our department.
5. Largely ineffective surge strategy
6. GFT position remains unfilled (new recruitment profile approved this month)
7. Variable support among MDs for the research / innovation mission of the department
8. Sustainability of research program given few GFTs and no ARP (AMHSP).
9. Limited dedicated support for resident and junior faculty research
10. Managing engagement in a very large physician group
11. No annual CME conference that we can call our own.
12. No Faculty Development leadership and minimal engagement with U of C offerings by our staff.
13. Dramatic increase in ED MD staff numbers which has added complexity and created challenges for coordination. While still reasonably cohesive some site-specific silos of activity and culture exist.
14. Operational Best Practice (OBP) and Activity Based Budgeting (ABB), is challenging for managers

Dr. Eddy Lang, MDCM CCFP(EM) CSPQ
Zone Clinical Department Head

Pam Holberton
Executive Director

EMERGENCY DEPARTMENT ACCOMPLISHMENTS

Academic Appointment Promotions (Clinical Associate Professor)

1. **Dr. Cathy Dorrington** who was presented for Clinical Assistant Professor but was unanimously felt to merit promotion to Clinical Associate Professor based on her accomplishments in leadership and residency education
2. **Dr. Tom Rich** for his extensive contributions in Clinical Informatics and research in CPOE and health IT.
3. **Dr. Shawn Dowling** for his leadership in order set development and electronic audit and feedback.
4. **Dr. Ian Wishart** for contributions in global health and numerous awards from the Cumming School of Medicine.

Academic Appointment Promotions (Clinical Assistant Professor)

1. **Dr. Meira Louis** for her educational leadership and interest and work with vulnerable populations
2. **Dr. Fareen Zaver** for her accomplishments in online medical education and her leadership role as our grand rounds coordinator
3. **Dr. Cory Brulotte** for his contributions in EMS and disaster preparedness
4. **Dr. Brad Granberg** for his contributions in global health disaster relief as well as disaster preparedness.
5. **Dr. Todd Peterson** for his service in educational leadership as a previous CCFP(EM) Program Director.

Clinician of the Year

1. Alberta Children's Hospital: **Dr. Angelo Mikrogianakis**
2. Foothills Medical Centre: **Dr. Shawn Dowling**
3. Peter Lougheed Centre: **Dr. James Andruchow**
4. Rockyview General Hospital: **Dr. Aaron Johnston**
5. South Health Campus: **Dr. Chris Rebus**

Rookies of the Year (Recognizes outstanding clinical skills and academic contributions to the Emergency Department)

1. Alberta Children's Hospital: **Dr. Erik Saude**
2. Foothills Medical Centre: **Dr. Anjali Pandya**
3. Peter Lougheed Centre: **Dr. Katherine Bateman**
4. Rockyview General Hospital: **Dr. Charles Wong**
5. South Health Campus: **Dr. Fareen Zaver**

Humanitarian Award

Dr. Scott Farquharson and Dr. Pauline Head

Mike Hodsman Lifelong Learning Award

Dr. Gord McNeil

Medical Education Travel Fund, Office of Health and Medical Education Scholarship, University of Calgary

Dr. Fareen Zaver

EMERGENCY MEDICINE DEPARTMENT OPERATIONS

Departmental Structure and Organization

Governance:

Physician leads within the Department of Emergency Medicine include a Department Head (Eddy Lang), and a Deputy Department Head & Operations Lead (Neil Collins).

Site Chief at each hospital (RGH – Nancy Zuzic; PLC – Richard Morris, SHC – Cameron McGillvray, and FMC – Ian Walker) Assistant Site Chief at each hospital (FMC – David Lendrum, PLC – Cathy Dorrington RGH – Grant Kennedy, SHC – Dan Joo).

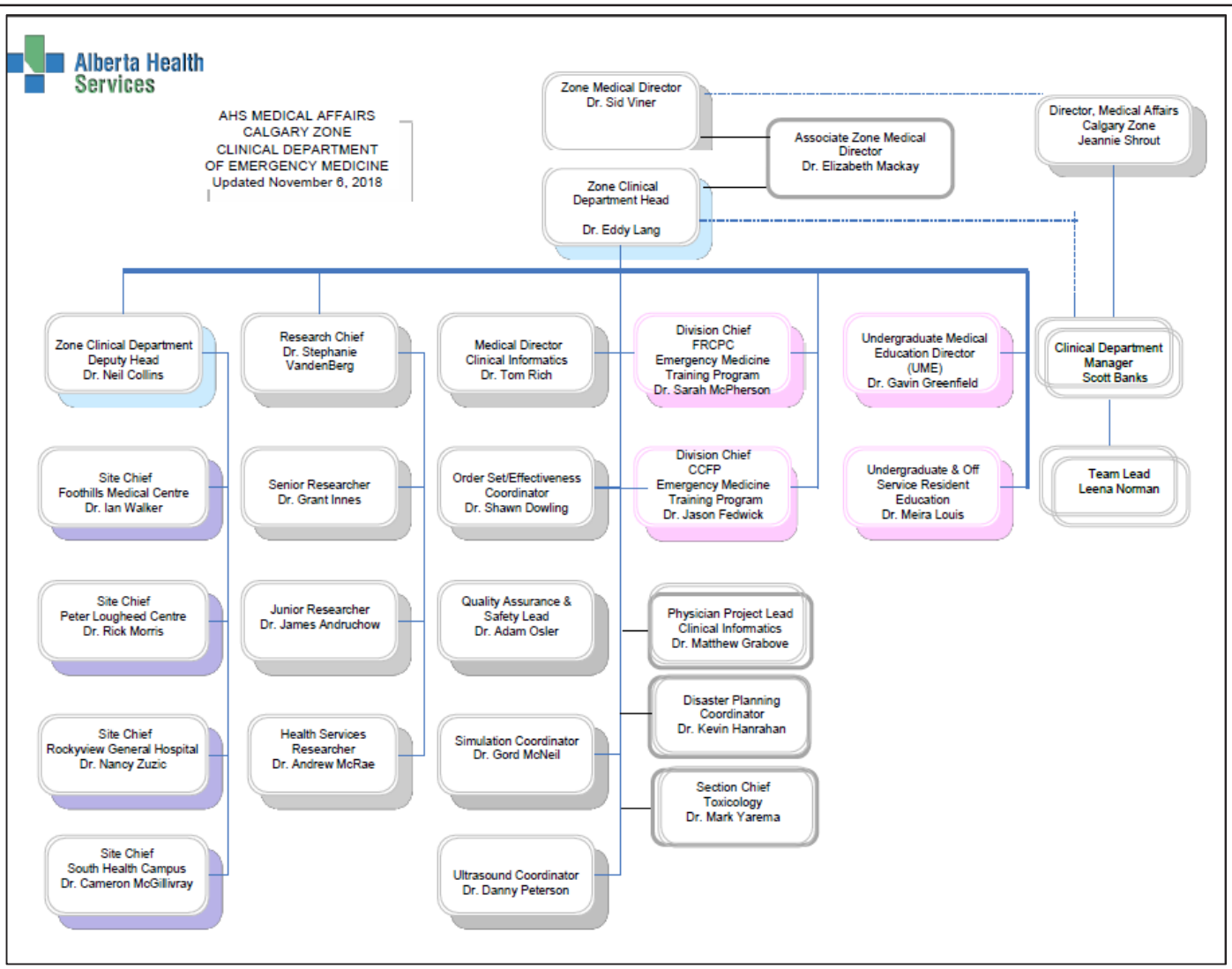
Royal College Residency Director (Sarah McPherson), FRCPC Residency Program (Marc Francis), CCFP-EM Residency Director (Jason Fedwick), a Clerkship Director (Gavin Greenfield), Director of Off Service Resident Education and Undergraduate Education (Meira Louis).

Senior Researcher (Dr. Grant Innes), Research Chief (Stephanie Vandenberg), Junior Researcher (James Andruchow).

ED Ultrasound Coordinator (Danny Pederson), Simulation Coordinator (Gord McNeil), an Informatics Lead (Matthew Grabove) an Effectiveness Coordinator (Shawn Dowling), Quality Improvement & Safety Lead (Adam Oster), Disaster Planning Coordinator (Kevin Hanrahan) and a new Department Section Chief of Toxicology (Mark Yarema).

Scott Banks, our Department Manager, oversees budget, physician recruitment and management.

EMERGENCY MEDICINE DEPARTMENT OPERATIONS



EMERGENCY MEDICINE DEPARTMENT OPERATIONS

EM Committees

Seven main DEM committees meet monthly or bi-monthly.

The Physician Executive Committee:

The Physician Executive Committee provides leadership, direction and support for all physician-related activities. The Committee is a decision-making body for physician manpower, scheduling, operational, and quality, safety and financial aspects of the Zone Department of Emergency Medicine (ZDEM).

The ZDEM Operations Committee:

The Operations Committee is a multi-disciplinary committee including Physician, Nursing and administrative representatives. Duties include strategic planning, prioritization, quality, safety, innovation and oversight of all ED systems and processes.

The Academic Steering Committee:

The Academic Steering Committee guides the development of the EM academic program. Primary agenda items for the 2018 year included strategic planning towards short term and long-term academic goals, faculty development, recruitment to academic positions and educational programming.

The Promotions Committee:

This committee processes faculty appointments and promotion requests for the Academic Department of Emergency Medicine.

The ZDEM Physician Manpower Committee:

The Physician Manpower Committee is a subcommittee of the Physician Executive Committee. It provides leadership and makes decisions with respect to manpower needs, search and selection, and physician hiring in the Department of Emergency Medicine.

The Quality Assurance Committee:

This committee reports to the ZDEM Operations Committee. It is one of the few departmental QAC's that have been allowed to continue within the new AHS Safety framework.

The Calgary Physician Support Fund Oversight Committee:

This committee is comprised of 6 emergency physicians who oversee a fund that was set up to support education, development and research in the Calgary Emergency Department. Funding for this committee is provided exclusively by emergency physicians who have agreed to support the fund. The average emergency physician contributes $1,800 annually to this fund.

EMERGENCY MEDICINE DEPARTMENT OPERATIONS

Department Membership

The Department of Emergency Medicine currently employs 190 plus active physician staff and treats approximately 300,000 patient visits per year (annualized value based on current and projected inflow volumes). Historically there were two main “practice-groups” (The Foothills-PLC group and the Rocky view group), but an increasingly zone focus and multi-site practice has changed this model. We now have extensive physician cross-coverage of sites, with a variety of site combinations. Currently all our Emergency Medicine physicians have academic appointments.

MANPOWER AND WORK FORCE PLANNING

191 current MDs in the Calgary Zone at four adult hospitals

8 physicians with locum status in their first year of practice

Seven one-year locums hired started July 2019 to July 2020 to fill anticipated manpower needs due to resignations, retirnement, leaves and added shifts

EPL resulted in 2 added shifts per day. Normally this would require 4 new hires to accommodate the workload but we have chosen not to hire for the roles

FTE has slightly increased for FMC and PLC MDs

Anticipating adding an MD at 0.5 to lead pre-hospital care in Alberta

One "off-cycle" hire was made in December 2018 to fill a manpower need at SHC

We are anticipating adding a call shift at FMC/PLC to accomodate physicians who are too ill to work their shift

We are revisitng the summer holiday schedule to make more physicians available

We are adding seniority benefits in the form of preferential scheduling, holday request preference, and amout of holiday available

MD RECRUITMENT AND TRAINING

- We currently have 191 MD's working in the Calgary Zone at four adult hospitals
- A full time equivalent (FTE) "line" is usually between 12 and 14 shifts per 28 days
- Physicians are scheduled between 0.5 and 1.0 of an FTE
- Manpower planning involves anticipating reductions in physician supply due to parental leaves, international medical work, sabbaticals, illness, retirement, resignation and reduction in FTE requested (both for personal reasons and to accommodate non-clinical work)
- Increased in operations created by the addition of shifts also requires adding new physicians. One new shift requires just over 2 new MD's to staff it.
- We have currently 10 locums working to fill short term shortages in manpower during the period July 2018 to July 2019. Some of those physicians may continue to work in the region as permanent members when their locum period expires, expanding our permanent group further
- We have also hired 10 locums for temporary work in the summer of 2019
- Hiring summer locums gives much needed tertiary care experience to new graduates and allows time off for permanent ED staff. We aim for no more than 20% of the shifts being covered by locums
- Turnover and expansion of operations usually results in the hiring of between 2 and 8 new permanent Emergency Physicians per year.

RETENTION STRATEGIES, GOALS, IMPACTS

Retention Strategies

AHS Calgary Zone Emergency Departments represent the largest single group of ED physicians in Canada. We have on staff 191 physicians with 0-46 years of service in the region. The Calgary Zone provides highly coordinated and well-organized care to a catchment area that includes 1.2 million patients.

Calgary Zone Emergency Physicians staff the Emergency Departments of 4 adult hospitals, and some are cross appointed at the tertiary care Alberta Children's Hospital. There is a wide variety of work available. Shifting is flexible with most physicians getting time off when they request it. Sabbaticals, parental leave and leaves for international medical work are usually accommodated.

Seniority is currently recognized with enhanced scheduling flexibility including exclusion from nights, or increased holiday time during the summer. Planning is in progress to provide further scheduling flexibility based on seniority, and to rationalize the scheduling process at Christmas and in the summer.

Job satisfaction is enhanced by a collegial atmosphere, and a robust academic program. High level Grand Rounds occur on a weekly basis and in-house procedural skills sessions are offered semi-annually. A robust simulation program is offered at all Calgary hospitals. Staff physicians have expert simulation sessions available to them where they can practice their resuscitation skills and crisis resource management in a non-threatening collegial atmosphere.

Goals and Strategies

Our underlying primary goal is to provide safe and efficient care to all patients that present to a Calgary Zone Emergency Department. We have increased manpower and continue to modify ED shift scheduled so that we can better match physician capacity to patient demand. This requires ongoing reassessment of demand, but it is also dependent on modifying operations so that added physicians are effective (i.e. able to examine patients in care spaces). Our "surge strategy" takes effect when patient demand exceeds physician manpower and a minimum number of assessment spaces are available, the departments proceed with a physician call out to assist in the department. This strategy has had some success and we anticipate that it will continue to be better utilized in 2019.

The increased number of admitted patients remaining in the ED because of a shortage of available inpatient beds in 2018 in the Calgary Zone, has been extremely challenging and has crippled many of our previously successful ED in-patient process changes (ie creation of intake area in all adult ED's; Over Capacity Plan (OCP) triggering and implementation to name a few).

ED overcrowding is not the root of the current crisis rather it is the result of the limited number of available inpatient beds stemming primarily from the province's shortage of long-term care beds. Although AHS and the province of Alberta continue to try and find measures to improve access, until more acute care and long-term beds are created, we anticipate the situation may worsen over the coming year.

Impact on other Departments and AHS Resources

Hiring Emergency Department physicians has an impact on the provincial physician budget (payments are fee for service billings though the Physician Services Branch), but minimal impact on other Calgary departments and the CMO (Medical Affairs) budget, as the physician are fee for service workers increasing in response to growing patient demand. We have required and will continue to require some additional financial resources for ongoing advertising and physician recruitment until this active initiative winds down in June 2018.

Scott Banks, Emergency Department Calgary Zone Manager

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Dr. Eddy Lang, Zone Clinical Department Head

Dr. Eddy Lang is a Professor and Department Head for Emergency Medicine at Cumming School of Medicine – University of Calgary and Alberta Health Services, Calgary Zone. His areas of interest are knowledge transition, evidence-based medicine and operations research. He is a member of the GRADE working group and has led the development of GRADE-based clinical practice guidelines in pre-hospital care in the US as well as with the International Liaison Committee for Resuscitation. Dr. Lang is also an award-winning educator having received recognition at both the university, national and international levels. He also serves as Senior Editor for the Canadian Journal of Emergency Medicine, Associate Editor for both ACP Journal Clun and the International Journal of Emergency Medicine. In addition, he is a member of the Canadian Task Force on Preventative Health Care (CTFPHC). He also writes a monthly column for the Calgary Herald on EBM as it related to the public. Dr. Lang chaired the Canadian Association of Emergency Physicians Conference (CAEP) 2018 and was appointed as the Scientific Director of the Emergency Strategic Clinical Network (ESCN) in Alberta.

Dr. Neil Collins, Zone Clinical Department Deputy Head

Dr. Neil Collins graduated from the University of Calgary in 1990, followed with Family Medicine in 1992. He practiced urban and rural family medicine in British Columbia and Alberta prior to completion of his CCFP(EM) training in Calgary in 1996, where he has been working clinically for 22 years. He has previously held the administrative positions of CCFP(EM) Residency Program Director and Peter Lougheed Centre Emergency Department Site Chief. Since November 2017 Dr. Collins has held the position of Calgary Zone Emergency Deputy Department Head. His administrative interests include ED Resource utilization, ED Flow and Physician Metrics and Evaluation.

Dr. Ian Walker, FMC Site Chief

Dr. Ian Walker is the Site Chief at Foothills Medical Centre. He completed medical school at the University of Calgary, Family Medicine training at the University of Ottawa and the CCFP (EM) program at University of Calgary. He has been a member of the department since 2001. The majority of his extra clinical roles have been educational in nature, including his current role as Director of Admissions for the MD program, a role which will come to a close in May 2019.

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Dr. Rick Morris, PLC Site Chief

Dr. Rick Morris is the site chief of Peter Lougheed Centre. He graduated from McMaster University in 1998, and obtained his certification through the CCFP program at the University of Calgary with a joint academic appointment in Family Medicine. He has been a department member since 2001. Past administrative positions have included RMES director and Regional Manpower Lead.

Dr. Nancy Zuzic, RGH Site Chief

Dr. Nancy Zuzic continues as the Site Chief at the Rockyview General Hospital. Dr. Zuzic received her MD at the University of Ottawa in 1997 and then completed her CCFP-EM residency in Calgary in 2000, working clinically at the Rockyview ED ever since. Nancy is fortunate to work with a cohesive and supportive administration team at the RGH ED that continues to find innovative ways to improve flow and patient care. She has been involved with the Long Term Care/RAAPID pilot which involved ED, LTC, RAAPID and the Community Paramedic Program in attempting to enhance communication between the ED and LTC facilities regarding potential transfer of LTC patients, and prevention of transfer if appropriate community resources can be utilized. The team was granted a CMO grant to analyze the results of the pilot. In her spare time Nancy can be found ferrying her children to various activities in the city of enjoying family time at her cabin on Columbia Lake boating, paddling and hiking in the summer or skiing and snowshoeing in the winter.

Dr. Cameron McGillivray, SHC Site Chief

Dr. Cameron McGillivray completed an undergraduate degree in Physics in 1996 from Whitworth University in Washington State while on an athletic scholarship. Prior to medical school, he worked as a Paramedic in Vancouver and taught for UBCO in their Adult Basic Education and Engineering Technology Programs. He attained his Medical Doctorate from the University of British Columbia in 2004, and proceeded through the CCFP Program with Family Medicine, graduating in 2006. He worked on Vancouver Island before returning to UBC to complete the CCFP-EM in 2008. He then worked in Ontario until coming to the Calgary Emergency Department in 2013. Dr. McGillivray has been the South Health Campus Site Chief since 2017 and was the Assistant Site Chief from 2015-2016.

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Dr. Cathy Dorrington, PLC Assistant Site Chief

Dr. Cathy Dorrington graduated from medical school in 1994 at McMaster University, and subsequently completed her FRCPC Emergency Medicine residency in 1999 at the University of Calgary. She has worked in Calgary since then, currently at the PLC and FMC sites.

Dr. Dorrington was the Emergency Department Site Chief at Foothills Medical Centre from 2012-2015 and has held the position of Emergency Department Assistant Site Chief at Peter Lougheed since 2017.

Dr. David Lendrum, FMC Assistant Site Chief, STARS Transport Physician

Dr. David Lendrum completed his medical degrees at the University of Calgary and Emergency Medicine residency and Masters of Medical Education at the University of Toronto. He has since worked in Calgary since graduating in 2008 and currently split his clinical time between Foothills Medical Centre and Alberta Children's Hospital. He took the role of Assistant Site Chief of FMC Emergency in early 2018. His extra clinical roles includes working as a transport physician for STARS, as an on-hill medical provider at Sunshine and Lake Louse with an urban search and rescue team known as CANTF2.

Dr. Grant Kennedy, RGH Assistant Site Chief

Dr. Grant Kennedy graduated from the University of Manitoba in 2006 followed by his doctorate in Emergency Medicine via the CCFP program in 2009. In his spare time Dr. Kennedy enjoys writing music and snowboarding.

Dr. Daniel Joo, SHC Assistant Site Chief

Dr. Daniel Joo completed his medical degree at the University of Calgary in 2008 and his Emergency Medicine Residency (CCFP-EM) in 2011. After working in emergency departments in Vancouver and Ottawa, he moved home and joined the department in Calgary in 2014. Dr. Joo took on a new role as Deputy Chief of the SHC Emergency Department in August 2018. His extra-clinical interests include residency education primarily in the areas of ultrasound and simulation. In his spare time, Dr. Joo enjoys spending time with his wife and kids, and stays active playing sports, running, and biking.

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Dr. Matthew Grabove, Medical Informatics Physician Lead

Dr. Matthew Grabove has been in the Calgary Zone ED Medical Informatics Physician Lead since 2017. He graduated from Memorial University of Newfoundland in 2004 and completed his residency training in family medicine in Toronto in 2006. He then worked as a family physician in Toronto and Yellowknife before completing his CCFP-EM certification. Dr. Grabove practiced as an ER physician in Saint John and Brampton before joining the department in Calgary in 2013.

Having a background in computer science, Dr. Grabove has a keen interest in the intersection of medicine and technology with a focus on the impacts of technology in the ED.

Dr. Adam Oster, Quality Improvement and Safety Lead

Dr. Adam Oster graduated from the RCPS EM Program via University of Calgary in 2006, through the FRCPC program. He enjoys cross-country skiing and biking in his spare time.

Dr. Tom Rich, Associate Chief Medical Information Officer

Dr. Tom Rich graduated from the University of British Columbia in 1991, then completed his inner city Family Practice Residency at St. Pauls Hospital in Vancouver. He then moved to Calgary to complete his CCFP-EM residency in 1994 and has been working in Calgary as an Emergency Physician ever since. Over the past 24 years he has been actively involved in numerous administrative interests such as Patient Safety and Quality Improvement. The last 10 years he has been focused on Clinical Informatics providing leadership roles within the Calgary Zone, and I snow on the provincial Connect Care project. His interests and involvements included STARS, CAEP, McMahon Stadium events, FIS World Cup Ski racing Lake Louise, and Vancouver Olympics 2010.

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Dr. Jason Fedwick, Division Chief CCFP(EM) Calgary Zone ED

Dr. Jason Fedwick graduated from the University of Calgary in 2010 through the Family Medicine CCFP Program where he has since worked in the Calgary Zone Emergency Departments. He was the South Health Campus site chief from 2014 to 2016, CCFP Program Director from 2014 to 2018, Evaluations Coordinator in EM Clerkship from 2016-2018, and currently is the Transport Physician for STARS and a current member of the Canadian Task Force 2.
In his spare time, Dr. Fedwick enjoys mountain biking, snowboarding and climbing.

Dr. Sarah McPherson, FRCPC (ED) Medical Education Program Director

Dr. Sarah McPherson is a fifth generation Calgary, and grew up on a farm that is currently Westhills shopping complex. Sarah worked on her BSc at the University of Calgary before moving on to graduate from Medicine at the University of Calgary in 1999, and then completing her FRCPC Emergency Medicine in 2004. Her non-clinical interest is in medical education, which she was the assistant program director of until 2015 when she became the Program Director. Outside of medicine, she loves to travel, learn anything new, read, hike, backpack, cross-country ski and work out.

Dr. Antonia Stang, Section Chief Pediatric Emergency Medicine

Dr. Antonia Stang completed her medical degree, pediatric residency and pediatric emergency medicine fellowship at McGill University in 2008. She joined the section of pediatric emergency medicine at the Alberta Children's Hospital in the same year as graduating. Her research interests are in health services research with a focus on quality improvement and patient safety. She is a member of Pediatric Emergency Research Canada (PERC), a national network of pediatric emergency researchers.

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Dr. Stephanie Vandenberg, Research Director

Dr. Stephanie Vandenberg is an emergency physician in the Calgary Zone, Research Director for the Department of Emergency Medicine (@uofcemresearch) and Clinical Lecturer at the Cumming School of Medicine. She received her MD from the University of Toronto and holds a Bachelor of Arts & Science from McMaster University with a Minor in Biochemistry and a thesis in Paediatric HIV. She completed a Master's of Science in Epidemiology at the London School of Hygiene and Tropical Medicine and performed a subgroup analysis of the WOMAN trial data (tranexamic acid in postpartum hemorrhage) for her graduate project.

Stephanie uses a "research for advocacy" framework to engage discussions on health systems, harm reduction, and ways to improve vulnerable populations' health outcomes using principles of social entrepreneurship and information design/visualization.

Dr. Gavin Greenfield, Emergency Medicine Clerkship Director Cumming School of Medicine, University of Calgary

Dr. Gavin Greenfield graduated from medical school at the University of Western Ontario in 1998. He completed his Family Medicine training (Calgary) in 2000 and after working in various places for a year completed his CCFP(EM) training in 2002 (also in Calgary). He was the Site Chief at the Foothills Medical Centre from 2006 to 2012. In addition to his current role as Clerkship Director he is also the Medical Director of Education at STARS where he has worked as a Transport Physician since 2005. He has a special interest in education around Airway, Mechanical Ventilation and Blood Gases. In addition to his Canadian career he enjoys International Medicine and has spent time in Haiti as well as the Philippines.

EMERGENCY MEDICINE PHYSICIAN EXECUTIVE MEMBERS

Scott Banks, Emergency Medicine Zone Department Manager

Scott is the Calgary Zone Department Manager for Emergency Medicine, Critical Care Medicine & Obstetrics & Gynecology. Scott assumed the Critical Care portfolio in Sept 2017, Obstetrics & Gynecology in July 2018 and has continued to serve as the Zone Manager in Emergency Medicine since 2008. Scott completed his Master of Business Administration degree (MBA) at the University of Calgary in 1993 specializing in Human Resources and International Management, and his Bachelor of Arts Honors degree in 1989 from the University of Regina. Scott is a 23 year Chartered Professional in Human Resources (CPHR) in Alberta, and holds a Certified International Trade Professional Designation (CITP) in Canada. Previously Scott served as the Vice President of Operations & Human Resources at The Brenda Strafford Foundation, and as Senior Vice President & Chief Operating Officer at a for profit healthcare college in Oahu, Hawaii. He has also served as an International Development Consultant with the Canadian International Development Agency in Guyana, Manager of the Mount Royal University Small Business Training Centre, and as a Market Intelligence Research Officer for the Canadian Federal Government at the Canadian High Commission in Trinidad. In addition, he served as the Manager of Business Training & Commercial Accounts with the Business Development Bank of Canada. Scott has lived and/or worked in Hawaii, Canada, Trinidad, Guyana, Haiti, and Dominica. Scott is married and has very active 5 and 8 year old boys. He enjoys spending quality time with his family, his French bulldog, jogging, travelling, and volunteering with World Vision.

SITE UPDATES – FOOTHILLS MEDICAL CENTRE

Department

2018 marked the opening of the entirely new B pod in the area previously occupied by the ICU and Diagnostic Imaging Department. As currently configured, B Pod houses our Intake area and 16 non-monitored stretcher spaces. Intake continues to provide the lion's share of our throughput, accounting for 40% of our total volume. Immediately subsequent to the B pod opening, the Monitored Area was renovated followed by the Trauma Bays in the summer. This acted as an opportunity for reconsideration of all equipment and processes that take place in these care spaces, with significant improvements in the physical layout and equipment organization in these areas used by our highest acuity patients.

Leadership

Dr. Andy Anton finished his term as the ED Site Chief in the spring of 2018 and we are grateful for his contributions to the department during his three-year tenure in the role. He has been succeeded by Dr. Ian Walker, and Dr. David Lendrum has been appointed as Assistant Site Chief. On the nursing front currently, Sharleen Luzny is the Patient Care Manager, and Erin Bugbee and Kym-Shae Goertzen are the Unit Managers.

Manpower

Several new physicians were added to the FMC physician group in 2018 secondary to both MD attrition and the increased number of shifts. In response to a noted sharp increase in the time patients wait in a care to see a physician between 1 am and 5 am, a third dedicated night physician was introduced on a trial basis in the summer of 2018. Formal assessment of the acceptability and effectiveness of this shift will be undertaken in the spring of 2019. For now, there are 18 shifts per day, for a total of 126 hours of scheduled physician coverage per day. Peak coverage occurs between 16:00 and 22:00 when there are either 7 or 8 physicians on duty. By comparison, in 2014, there were 14 shifts for a total of 108 of physician coverage. This represents not only an increase in coverage, but also a universal transition to 7-hour physician shifts on both days and nights in keeping with local consensus about ideal length of shifts vis a vis both productivity and physician wellness.

There are currently 114 physicians scheduled to work at the FMC, none of whom work exclusively at this site. While this provides excellent cross pollination with other sited, it has the deleterious effect of limiting the sense of "ownership" that physicians have vis a vis the department. This may have contributed to the significant number of shifts over the latter half of the year, which, while the result of individual medical emergencies and short-term leave, went unfilled.

There are currently 356 nursing and support staff working at FMC ED with minimal turn over in 2018. Upon completion of the construction, nursing baseline staffing was able to be decreased due to the geographical changes to layout of the department.

Occupational Therapist in the ED

As part of the enhanced patient flow initiatives across the zone having a dedicated Occupational Therapist in the ED was implemented in Nov. FMC received coverage 7 days a week, 10:00 -18:15 from Nov – March 31st, 2019.

HELO

Hospital **E**MS **L**iaison **O**fficer -The HELO medics work closely with the nursing staff and in particular the ED Flow liaison to facilitate the flow of EMS into and out of the dept. This role has also been key in communicating with triage about incoming CTAS 1 patients that EMS is unable to patch in on. This is a temporary role 07-1900, 7 days a week until March 31st, 2019.

The coordinated efforts between the HELO and ED Liaison role, and the extensive work occurring at a site and community level, have all contributed to the significant improvement of offloading EMS patients quicker in November and December.

EMS Park Initiative

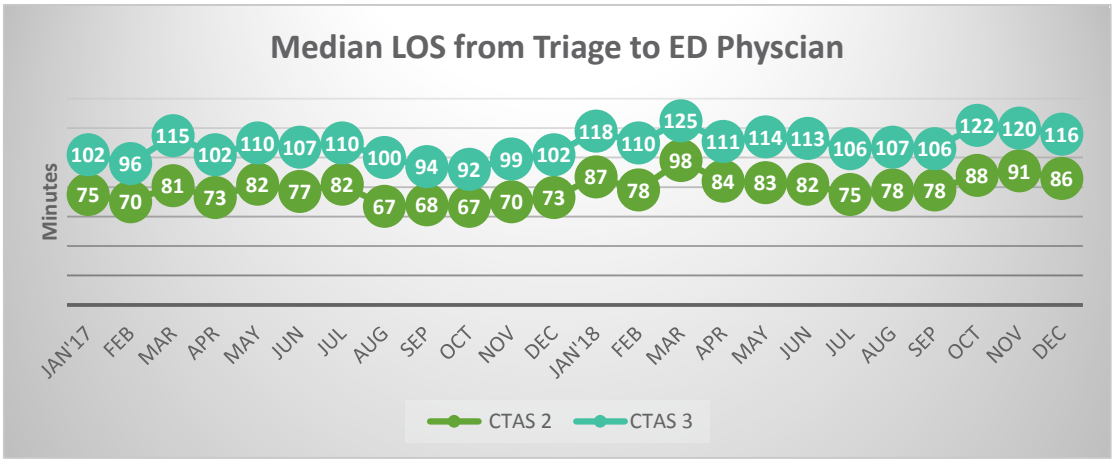
The *FMC ED EMS QI* project was initiated in the spring to address the quality assurance concerns that had occurred in the EMS Park location. This project is co-lead by Dr. Adam Oster and Jennifer Jordan, with FMC ED leadership sponsorship. The *Aim* of this project is to eliminate EMS Park, which will support the Zone strategies that were announced this past fall.

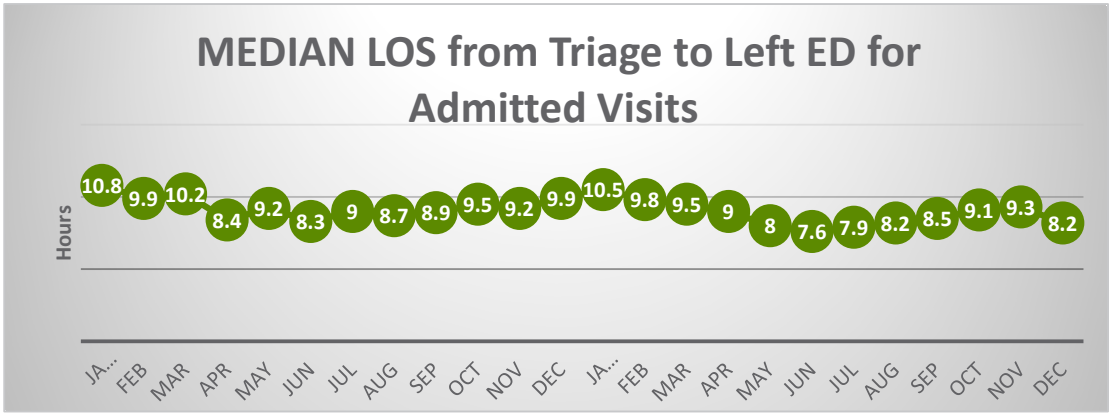
SITE UPDATES – FOOTHILLS MEDICAL CENTRE

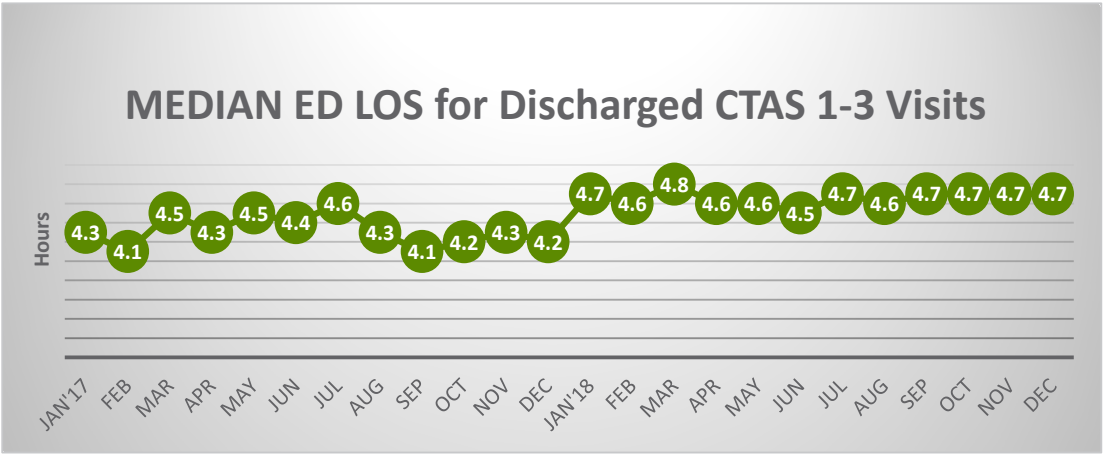
This FMC ED EMS QI project working group had identified a number of strategies, with one being the need to have a dedicated individual focusing on department flow. This new role is called ***"ED Flow Liaison"***. This was a temporarily funded role from Nov. 1st – March 31st, originally from 0700- 1900, 7 days a week.

Patient Care

Overall patient volumes increased by 2%, with a total of 80,797 patients registered, in comparison to 79,190 patient in 2017. Patient acuity at the FMC is the highest in the province, with CTAS 1 patients accounting for 5% of the patients seen. The admission rate is also highest in the city at 25%.
Markers of patient throughput remain relatively stable over the past 3 years.







CTAS 1 PHYSICIAN and RAAPID/EKG PROCESS Implemented

Developed to:

- Enhance the coordination and equitable distribution of incoming CTAS 1 patients by assigning them to a specific ED physician.
- Ensure Triage Nurses and Unit Clerks know who is responsible for both RAAPID/ EKG calls and CTAS 1 patients at any time of day
- Introduces back-up physician for all CTAS 1 patients
- Reduce the number of overhead pages requesting a physician to call triage

C Pod Redesign

Enhance patient care and flow by improving the utilization of the space, and access to supplies and equipment.

LPN/ROT working to full scope

This change of practice has significantly helped with flow, efficiency and enhanced patient care in minor treatment and Intake areas.

Plans for 2019

Major priorities for the coming year include:

- The integration of a three-month trial of an "Emergency Physician Lead" position. Such a role will consist of a supplementary physician, not directly responsible for patient care and not paid on the fee-for-service model who will be specifically responsible for enhancing patient throughput and EMS offloading in a timely manner.
- Evaluation of the new third night shift and subsequent optimization of physician staffing to patient volumes.
- Re-evaluation, in conjunction with Trauma Services, of our current level 1 trauma processes
- Evaluation of the ED Flow Liaison nursing position

Dr. Ian Walker, FMC Emergency Site Chief

SITE UPDATES – ROCKYVIEW GENERAL HOSPITAL

Capacity

RGH ED volume stayed consistent in comparison to 2017 with distribution of patients across areas of the ED also remaining similar. Total patients for the year was 79, 455 with the ED seeing an average of 218 patients per day. Average EMS visits was 62 per day and distribution of patients was 34.3% to the Main ED, 41.8% to Intake and 23.9% to the Minor Treatment area. Nursing and physicians continue to monitor patient arrivals and capacity adjusting or adding shifts to attempt to match arrival times and decrease patient wait times.

Chest Pain Process

In May 2018, RGH ED implemented a chest pain process, built upon the FMC ECG process, to improve Triage to ECG times for patients presenting with cardiac chest pain or cardiac type pain. Patients presenting with cardiac chest pain/type pain are triaged directly to a touch down ECG stretcher where the patient is simultaneously registered, assessed by a nurse and an ECG is completed. The ECG is reviewed by the RN and a physician is consulted if there is any question or abnormality noted on the ECG. The patient is then moved from the ECG touch down stretcher to an appropriate location within the ED. Prior to implementation, median triage to ECG time was 36 minutes and only 3% of patients received an ECG within the 10-minute target time. Since implementation, triage to ECG times have improved to a median of 7 minutes, with 76% of patients receiving an ECG within the 10-minute target. This has been effective, sustained process change at RGH ED.

Stat Stroke Process

In July, the Stat Stroke Process was implemented to expedite stroke identification, treatment and transfer for patients presenting with acute neurological deficits. Patients presenting with an acute neurological deficit are immediately triaged to a location and a physician is overhead paged to the bedside. This process was well received by nurses and physicians and is consistently utilized to expedite physician assessment for query stroke patients.

Suboxone Initiation Pilot Project

In July 2018, RGH ED was selected as a pilot site for the Initiation of Buprenorphine/Naloxone (Suboxone) in ED project. Patients with an opioid use disorder, who were willing to initiate Suboxone were either given Suboxone in the ED or given to take home depending on when they had last taken opioids. These patients were also referred to the Opioid Dependency Clinic at Sheldon Chumir for further follow up. During the pilot (July to September), 18 patients were given Suboxone; some of these patients received Suboxone as a new initiation, while others received as maintenance dosing. 11 patients were referred to the ODP Clinic. 36% of these patients (4) attended their first follow up appointment, which was a higher retention rate compared to 14-15% found in the literature. RGH ED continues to initiate patients on Suboxone and the project is being spread formally to the other adult sites in the city.

Capacity RN

As a part of the EMS Park initiatives and funding, RGH ED added a Capacity RN position to the staffing model. Funding for this position lasts from October 15, 2018 to March 31, 2019 and will then be reviewed and evaluated. The Capacity RN works during peak demand hours (100-2300) and is responsible for improving stretcher capacity and flow throughout the department.

Capacity RN

As a part of the EMS Park initiatives and funding, RGH ED received dedicated PT and OT coverage, 7 days per week. In addition to the existing role of completing functional assessments, a pathway for patients presenting with low back pain was implemented. This low back pain initiative aims to provide physiotherapy assessment and intervention for patients presenting with low back pain prior to physician assessment. When able, the ED pharmacist is also consulted to prescribe early non-opioid analgesic. The primary goal of this initiative is to assist with patient flow and reduce ED length of stay, therefore improving EMS offload. Secondary goals include reduced time to analgesic, reduced diagnostic imaging, decreased opioid use and improved patient care by providing condition specific education and access to community resources.

SITE UPDATES – ROCKYVIEW GENERAL HOSPITAL

ED Treatment Plan

The RGH ED Treatment Plan group continues to develop consistent and supportive care plans for vulnerable patients who have a high volume of ED visits. This multidisciplinary team has dedicated members from nursing, social work, information technology, EMS. Currently four ED physicians are involved, with one more physician planning to come on board. This team has created 10 care plans and has noted success to date. According to the ED Treatment Plan group there are approximately 100 prospective patients that have been referred "wait listed" to this team.

Dr. Nancy Zuzic, RGH Emergency Site Chief

SITE UPDATES – SOUTH HEALTH CAMPUS

The South Health Campus continued to experience an increase in Emergency Department visits in accordance with the incremental growth in population in Calgary's southeast. A large portion of the 7% year over year increase in ED visits (198 per day) was derived from patients over the age of 65, largely due to the opening of several seniors' lodges and assisted living facilities in the immediate vicinity to the hospital. There also continues to be a significant number of pediatric visits to the SHC ED, which is reflected by the large proportion of young families in the area.

Capacity

Admitted patient capacity has been an ongoing issue at the South Health Campus which has stressed the hospital's resources and led to many admitted patients being temporarily housed in the emergency department. This has resulted in longer ED wait times.

The South Health Campus has continued to support its four foundational pillars of collaborative practice, innovation, patient and family centered care, and wellness while attempting to mitigate the increased demands placed on the emergency department. Several key strategies were initiated by the emergency department, hospital administration, and zone administration over the past year, which have improved ED wait time and lowered EHS offload times (60% to >90% by 90 minutes) since their implementation.

Achievements of 2018

- SHC Peak Capacity Escalation Plan: A characteristic essential to functioning emergency department is the ability to be flexible and adaptable to variations in patient volume and acuity. In response to a significant increase in Emergency Boarded Inpatients (EIP's), the SHC Administration in partnership with the Emergency Department Administration have collaborated to develop an innovative and novel overcapacity protocol. A stepwise, integrated, laddered response to defined triggers allows the ED and hospital to anticipate and react early to offset potential higher demands on the SHC Emergency Department without disrupting care. Since implementation, the ED has been able to maintain its capacity to deliver uncompromised patient care at all times.
- Several Quality Improvement Initiatives including the SHC STEMI and Acute Stroke projects have significantly improved the door to intervention times for SHC patient. Also, the oral versus IV medication and the EMS Rapid Patient exchange projects have led to improved delivery of health care the SHC ED patients.
- Dedicated ER OT/PT: Early mobilization and resource allocation to shorten admissions and assist in preventing the need for admissions
- The Pediatrics Pod Development planning has been completed and the building of the area will be initiated in January with an expected completion date of the end of the summer of 2019.
- Updated and SHC site specific guidelines to the Emergency Fast Track. Developed specifically to optimize Fast Track and departmental flow and improve patient safety.
- Development and implementation of 2 – five bed holding/transition pods within the department to cohort patients with appropriate resources. Staff and patients have credited this innovation with improving patient care and leading to less negative outcomes experiences within the department.
- South Health Campus Emergency Department Wellness Committee: A joint, collaborative partnership between physicians, nurses, ancillary care staff, and paramedics to improve working conditions, the emergency environment, and promote care giver wellness.
- SHC ED monthly case rounds/modified M&M rounds.

Dr. Cameron McGillivray, SHC Emergency Site Chief

SITE UPDATES – PETER LOUGHEED CENTRE

Emergency InPatient (EIPs) Bed Block

Our department has struggled with increasing blockage of our 34 bedspace ED by large volumes of EIPs. As part of the Regional EMS Park alleviation strategies, this ED Issue was identified as a major contributor to the inability to offload EMS patients in a timely fashion. In the fall, our administrative hospital leadership re-instigated the hospital wide Surge plan which now is active 7 days a week, from 0700-2100 and is triggered when there are 20+ EIP in our ED. This plan, along with several other regional and local initiatives, will hopefully result significant improvement in our daily EIP volumes.

Physician Metric Discussion Group

After a planning meeting with all hospital site chiefs and their assistance chiefs led by Dr. Shawn Dowling in early 2018, the PLC ED MD group held the first "test meeting" for volunteer MD staff to discuss their individual practice patterns and to share ideas for practice change and improvement. The intent of these meetings is to provide a positive collegial environment for physicians to consider practice change and discuss opinions amongst their peers. Moving forward after this meeting, Drs. Wong, Dowling and Morris along with Dr. Chris Bond as the new Physician Metric meeting organizer have instigated further meeting opportunities for all adult sites in the region.

Mosaic PCN Clinic Link

A family medicine PCN group has now been closely linked to our ED providing the opportunity for rapid reliable followup as well as aiding those patients without GPs to obtain a permanent primary care physician. We were able to duplicate the process at the RGH where our outpatient ultrasound followups are now completed via this clinic at pre-booked times.

Addictions Recovery & Community Health Program

In November, ARCH launched its service at the PLC and has provided immediate benefit to our patient populations struggling with addictions related medical concerns. Their primary role has been to help initiate opiate against therapy along with addictions counselling, harm reduction education and peer support/outreach. Additionally, they have aided in all other addiction challenges and provide 7 days a week on-call availability. ARCH is seen as a tremendous addition to what we can provide for our patients both while they are in our department as well as through outpatient care.

Emergency Physician Lead position

A pilot program of an emergency physician being in the department acting as an department patient coordinator was implemented in late 2018. Most of the feedback from all members of the ED team has been positive. The project at the PLC will be completed by February 2019 when it will move to the FMC for 3 months. Patient outcome data is being tracked along with daily EPL shift activity summaries to aid in evaluation of the effectiveness of this new position.

Patient Care Plans

Patient care plans are designed for those patients who have complex psychiatric +/- medical needs resulting in frequent contact / usage of our emergency services (EMS, urgent care, EDs, InPatient services). Each plan has been carefully developed and reviewed by psychiatry and other pertinent specialists along with an ED MD. These patients are directed to only attend a defined specific ED for their care needs and will be re-directed via EMS to that site once a care plan is established.

We have completed 5 care plans at the PLC with the help of multiple PLC physicians including Drs. A Pandya, Dyck, Storck, Haley, Wong and Morris. This has resulted in stabilization of a large portion of these high needs patients.

New PLC Emergency Department Design

Regional funding was provided this year for functional planning meetings to lay out the needs of our future PLC ED patients and to develop initial ideas on what a new PLD ED space would look like. All ED team members were represented at these meetings (many thanks to Dr. Dorrington and Collins for attending) and the Functional Planning process has now been completed. Thus far, there has been no formal approval of provincial funding to proceed with formal design and build of a new ED. Hopefully, we will have positive news in 2019.

SITE UPDATES – PETER LOUGHEED CENTRE

Valuable additions to our ED team

Occupational Therapists have been added as an extremely valuable resource to our ED team. They have been averaging 6 avoided admissions / week. We continue to benefit from having Pharmacist who assist in medication reviews, pharmacy related questions and aid in patient follow-up. Our Homecare nursing staff has been increased to 2 staff on days and evenings in the department. Homecare and OT have improved their co-ordination between their services. We welcome the added manpower to allow pro-active evaluation of our elderly and vulnerable patient populations.

Dr. Richard Morris, PLC Site Chief

CLINICAL INFORMATICS

2018 has been another busy year for the ED Informatics team! Continuing their roles were:

Dr. Tom Rich as ACMIO for the Calgary Zone

Dr. Matthew Grabove as ED Informatics Physician Lead

Dr. Shawn Dowling as SEC Order Set Lead

Dr. Ashlea Wilmott as Pediatric Ed Informatics Lead and Provincial Ed ConnectCare Physician Training Lead

Notable Achievements of 2018

- Participating in provincial Connectcare Direction Setting and Adoption/Validation sessions that occurred monthly in Edmonton and Calgary for the first half of the year.
- Ongoing support for the Connectcare ED area council, Pediatrics area council, and various other working groups throughout the year.
- Discontinuing print DI reports and using the "My ED DI AVL" to follow up results in SEC.
- Support for the EMS Park project with addition of the EMS timer to the SEC tracking board at FMC.
- Highlighting the location type column on the SEC tracking board.
- Important order set updates.

Looking forward to 2019

- Deployment of the Sunray replacement (EDSP) solution in spring/summer. We experienced some technical delays, but the final product should improve the overall experience of users in the ED.
- Adding the ability for nursing to communicate with volunteers through SEC, primarily intended to assist the Senior Friendly ED project at SHC
- Maintenance of SEC/SCM until ConnectCare arrives. Due to limited staffing and resources, the only changes to SEC will be critical break fixes and order set updates but no new functionality
- Ongoing commitment to the configuration and development of the ConnectCare ED module (ASAP), order sets and other areas of the ConnectCare project
- Assistance with the ConnectCare launch at UAH in Edmonton November 2019 and preparations for the first Calgary sites to go live in 2020
- Presentation at the Annual ED Retreat and ED Grand Rounds to introduce ConnectCare to the Calgary Ed
- Engagement with site leads for ConnectCare training roll-out Calgary

Dr. Matthew Grabove, Physician Project Lead Clinical Informatics

CAEP 18 SUMMARY AND HIGHLIGHTS

The Department of Emergency Medicine Calgary hosted the 2018 Annual Meeting of the Canadian Association of Emergency Physicians (CAEP). The theme of the meeting was "Strengthening Connections" and highlighted the importance of alliances in delivery exceptional patient care in the emergency department setting. This years' CAEP meeting saw an attendance of 1,114 delegates, a 16% increase in attendance from 2017.

Amongst these attendees were:

- Allied health members: 70 persons (67% increase over 2017)
- Resident: 255 persons (11% increase over 2017)
- Student: 166 persons (16% increase over 2017)
- Speakers: 170 persons (38% increase over 2017)
- Sponsors & exhibitors: 50 booths (50% increase over 2017)

The event captured impressive social media attraction, involving:

- 16 million impressions
- 6 million tweets
- 1,084 participants

Research*:*

- Largest number of submissions to the abstract competition (401 total, compared to 335 in 2017)
- Presented 167 posters, 44 moderated posters, 92 lightning orals
- Compared to 2017 which had: 132 posters, 36 moderated posters, 98 lightning orals

Accreditation: Increased the accredited hours to 25.75 (17% over 2017)

Delegate feedback:

- 68% of survey respondents rated conference as "Very good" or "Excellent"
- 75% of survey respondents strongly agreed or agreed that the program content enhanced their knowledge

EMERGENCY PHYSICIAN LEAD (EPL) PROJECT

The implementation of the Emergency Physician Lead (EPL) is a six-month trial, working in a funded position independently arranged by AHS Medical Affairs. Two adult emergency department sites will be involved (PLC and FMC). There will be two EPL shifts per day: 0700 to 1400 and 1400 to 2100. Data comparison periods will be 90 days immediately prior to start of the pilot as well as a historical control during the same calendar period of the year prior.

A significant body of research evidence supports the value of physicians in leadership and coordinating roles in the emergency department (ED). The exact profile of this role has varied to some degree across the sites that have implemented and studied it, but at its essence, the role is perhaps best viewed as a dyad to the charge nurses so that collaboratively, they can manage patient flow in the ED by identifying situations related to staffing, matching of patient demand to resources and consulting service issues that need attention as a cause of access block. While boarding of admitted patients is the most significant determinant of ED access block and hence gives rise to the wasteful and dangerous practice of EMS park (a waiting area where paramedics often wait hours for an ED bed to offload their patients), throughput issues are also important contributors.

The fee-for-service model in Alberta used to remunerate physicians for patient care is effective at driving physician productivity, and there was no structure to support an emergency physician working in a supervisory and leadership capacity. Within the Calgary Zone at PLC and FMC Emergency Departments, there has been development of a structure to support an EPL working in a supervisory and leadership capacity. A senior emergency physician with direct accountability and oversight for ED throughput working with the charge nurse and in contact with other ED physicians, consulting physicians and admitting services can be an effective way to improve patient flow in the ED in the hopes of eliminating EMS park or at least mitigating the risk of known adverse outcomes previously experience in situations of long patient waits.

The emergency leadership team seeks to evaluate if the EPL role would contribute to an improvement in proportion of EMS offloaded in the ED by one hour and by ninety minutes (i.e. 90% offloaded by ninety minutes), decrease ED length of stay (LOS) by a goal of thirty minutes, as well as evaluating other ED-flow specific outcomes.

The additional process measures to be evaluated will be:

- Number of EMS park patients occupying the ED
- EMS offload times
- Time-to-physician initial assessment
- Total stretcher time occupied by admitted and discharged patients
- Flow of patients from assessment spaces to treatment chairs
- Time-to-ED physician reassessment request response
- Time from reassessment request to first order
- Ninety percentile times for consultant from request to disposition decision
- Feedback surveys for charge nurses, EPLs, ED nurses, EMS, consulting physicians

EMERGENCY PHYSICIAN LEAD (EPL) PROJECT

Adjustment and safety measures data that will be collected include:

- Number of emergency inpatients (EIP) at 1000 hrs daily
- EIP LOS
- ED daily patient volume
- ED patient revisits with 72 hours of discharge
- Left without being seen rates
- Total ED physician productivity (patients/hour)

The control comparison period was December 3, 2017 to May 31, 2018, pre-trial evaluation period was September 1 to December 1, 2018, and post is December 3, 2018- May 31, 2019. The EPL started working at the PLC ED on December 3, 2018. And then will be transitioning the EPL MD to work at the FMC ED by March 3, 2019.

Qualitative feedback will be elicited via electronic surveys with invitations sent via departmental email to eligible emergency physicians, RNs and consultant physicians working on admitting services. These survey responses will be categorized and analyzed statistically with comments also analyzed for themes. Qualitative data will be collected until June 30, 2019.

Dr. Kathryn Crowder

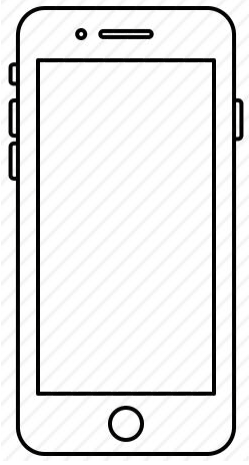
CALGARY EMERGENCY DEPARTMENT DISASTER REPORT

- Although there have been several small tabletop disaster exercises in Calgary, there has not been a City-wide event since June 2016. This is a significant challenge to disaster preparedness and the system will require a significant investment in resources by Alberta Health Services, at many levels, to fully realize the potential gains and hard work that our planners have undertaken. There are no current plans for a large-scale exercise in the near future to my knowledge.

- The ED MD/RN Disaster Planning group for all sites continues to meet quarterly to discuss the plans and approaches to Code Orange (external disaster) event management in the City. This group is comprised of the Disaster Coordinator, MD and RN representatives from each Calgary ED, a representative from E/DM, ED Administration and Medical Affairs.

- Regular meetings with EMS/RAAPID/Emergency Disaster Management (E/DM) in order to better manage the notification and activation of Code Orange between agencies has been, and continues to be a challenge, as many events which would have been classified as potential disasters, went without activation and all of the resources that this brings. This has been noted after every incident and although the lessons have been recognized we are yet to be in a place where they have been learned and improved upon. A discussion led by AHS E/DM is ongoing regarding the improvement of this critical piece of disaster preparedness.

- Work continues to be done with the Office of Medical Affairs to help integrate the other hospital medical services into the Code Orange plan. An agreement, in principle, has been reached that during a declared Code Orange whereby non-ED services will accept patients who are not fully dispositioned, by the traditional Emergency process, and continue the work up of those patients at sites physically separate from the ED.



- Physician fan out continues to be a challenge with existing plans and therefore AHS IT, under the leadership of Kim Jessen, is in the final stages of developing a computer program that will enable the ED to text physicians (and in time other groups) with real time feedback and tracking of personnel availability. The first exercise of this technology will take place on January 16th, 2019. As a back up to this system an ED Department owned, and operated cell phone uses text groupings to contact physicians. Currently this process differs by site but continues to evolve.

- Doctors: Hanrahan, Lendrum, Granberg, Seadon, Fedwick and Bateman continue to be involved with the Provincial Disaster Team, Canada Task Force 2 (CAN-TF2), with various exercises and preparedness initiatives including both taking and teaching the week-long Disaster Medical Specialist Course in October. The team also has new representation in Edmonton with Dr Joshua Bezanson (R4 FRCP) and Dr Jared Bly (Edmonton ED Staff) and Dirk Chisolm (2nd year UofA Medicine).

CALGARY EMERGENCY DEPARTMENT DISASTER REPORT

- A "Disaster Day" for our Emergency Residents was held in June 2018 involving EMS and CANTF2 and many faculty members. This learning opportunity was well received by all involved and will hopefully become an annual event.

- The University of Calgary's annual "Bermuda Shorts Day" was provided a field hospital. EMS staffing was assisted by Calgary Emergency Staff Physician and Residents. This initiative dramatically reduces the number of patients transferred to Calgary EDs. A similar facility has been in existence with the Calgary Stampede Parade, significantly assisting EMS, decreasing ED presentations and preparing for potential large-scale disasters at these venues.

- Planning is underway with E/DM, EMS and Alberta Public Health in order to better prepare and staff for Mass Gathering events (concerts, sporting, etc) to help to reduce the number of patients presenting to Calgary EDs. This process is now being shared with Residents in the FRCP program as comfort in the setting is clearly in their skill set.

- Physician staff N95 testing is near 100% and some members have taken the opportunity to do CBRNE training with our nursing colleagues. E/DM has helped to make this a regular occurrence. There is now a process in place to track this and the members of our department have been exceptional at maintaining their N95 compliance.

- Working group formed with ICU/Trauma to develop plans to deal with "sub-code orange" disasters at FMC. This process is now called Foothills Extended Response Activation-Trauma (FERA-Trauma) and the details will be rolled out to the affected departments in the next few months. There has been considerable work to ensure that this process roles into the Calgary Code Orange Process. There is optimism that this process can be extended to other services (e.g. FERA-ortho) for events that are specifically taxing to those parts of our system.

Dr. Kevin Hanrahan, ED Disaster Planning Coordinator

OPIOID CRISIS/HARM REDUCTION IN ALBERTA

Opioid use disorder is a chronic, relapsing illness/condition that continues to be a major public health crisis affecting many Albertans. In 2017, an average of nearly 2 people in Alberta died every day from an accidental overdose from opioids. Two of the main causes are the rise of potent illicit opioids (such as fentanyl), and the overuse and misuse of prescription opioids for the last few decades.

- In the second quarter of 2018, there were 2,972 emergency and urgent care visits related to opioid misuse
- Although the rate of admissions due to opioid misuse and overdose is still increasing per quarter, 2018 rates have steadily slowed down by 5%

Buprenorphine/Naloxone (Suboxone®) Initiative in Alberta Emergency Departments

For many individuals who live with opioid use disorder, there are prescription medications available that can help, such as buprenorphine/naloxone (Suboxone®). When taken properly, this medication reduces cravings and withdrawal symptoms. It helps people feel normal and use opioids less often and in smaller amounts. Once on a stable dose, some people can stop taking opioids altogether.

This crisis is complex and will continue to require more efforts from all areas of healthcare and society. Many individuals who live with opioid use disorder visit emergency departments because of an overdose, withdrawal symptoms, or other issues related to opioid use.

In 2018, Calgary Zone emergency departments played a major role in helping patients who live with opioid use disorder. Over the summer, Rockyview General Hospital emergency department was one of the provincial pilot sites to trial a program to:

- Appropriately screen patients for opioids use disorder
- Initiate Suboxone® for those who are eligible
- Provide rapid follow-up at a community clinic for continued dosing and care

In early December 2018, the program was also launched at Foothills Medical Centre, South Health Campus, and the Sheldon M. Chumir Urgent Care Centre. Further spread of the program in the Calgary Zone (and the rest of the province) will continue in 2019.

Dr. Kenneth Scott, Senior Project Manager

DEMENTIA ADVICE – HEALTH LINK

Next time you see a patient with dementia or undiagnosed cognitive decline, think about Health Link.

Health Link is a Dementia Advice telephone service that supports people living with dementia and their caregivers. It is available by calling 811 and being referred by a Health Link nurse. Service is delivered by Dementia Advice nurses who have specialized training and experience in dementia care. They conduct an assessment, provide short term psychosocial support, and facilitate linkages with resources for the person living with dementia and their caregivers. Resources include the Alzheimer's Society, Home Care, Geriatric Assessment, the patient's primary medical home and others. The nurses are also trained to assess for delirium.

Dementia Advice was developed in 2013 in partnership with the Seniors' Health Strategic Clinical Network (SCN) and Health link. Over 2000 patients and families have used this service with about 60 patients or caregivers referred each month. The outcome for this service is to positively impact Albertans and provide support.

The most common reasons for referral are:

- Caregiver stress
- Pre-diagnoses memory and confusion concerns
- Service navigation

The service provides timely support that can help avert crisis leading to an ED visit and acute care admission.

Dr. Denise Watt, Health Link Clinical Lecturer

PHARMACY UPDATE

In January 2018 the Alberta Children's Hospital has started a clinical pharmacist team, providing coverage Monday through Friday, 1000-1800. The role has grown immensely in only eight months as they are not part of the resuscitation team, supporting the abnormal microbiology follow up collaboration. The team is supported by four pharmacists who rotate through the department. With the start of clinical pharmacist coverage at the ACH ED, all emergency departments within the Calgary Zone now have pharmacist coverage.

The FMC ED team has also expanded by one new member this year. We are now a team of three with the hopes of expanding further in the future. We have been involved in many projects and committees, such as participating with the ESCN network on the Suboxone initiation program, CAEP, and quality improvement initiatives, to name a few.

Many of the ED physicians at both the PLC and RGH may have noticed new faces on their pharmacy teams. At RGH the ED team now cross covers between the ICU as well as the ED. At the PLC, many of the pharmacists will cross cover between another unit as well as ED. With that, both teams have now increased in size. You may see more technicians around as well, helping with Best Possible Medication Histories (BPMH), drug distribution.

We will be seeing a number of changes within the New Year at SHC as a number of changes have occurred, including changes in staffing to cover maternity leaves.

Dr. Philippe Boilard, Clinical Pharmacist

HEALTH LINK

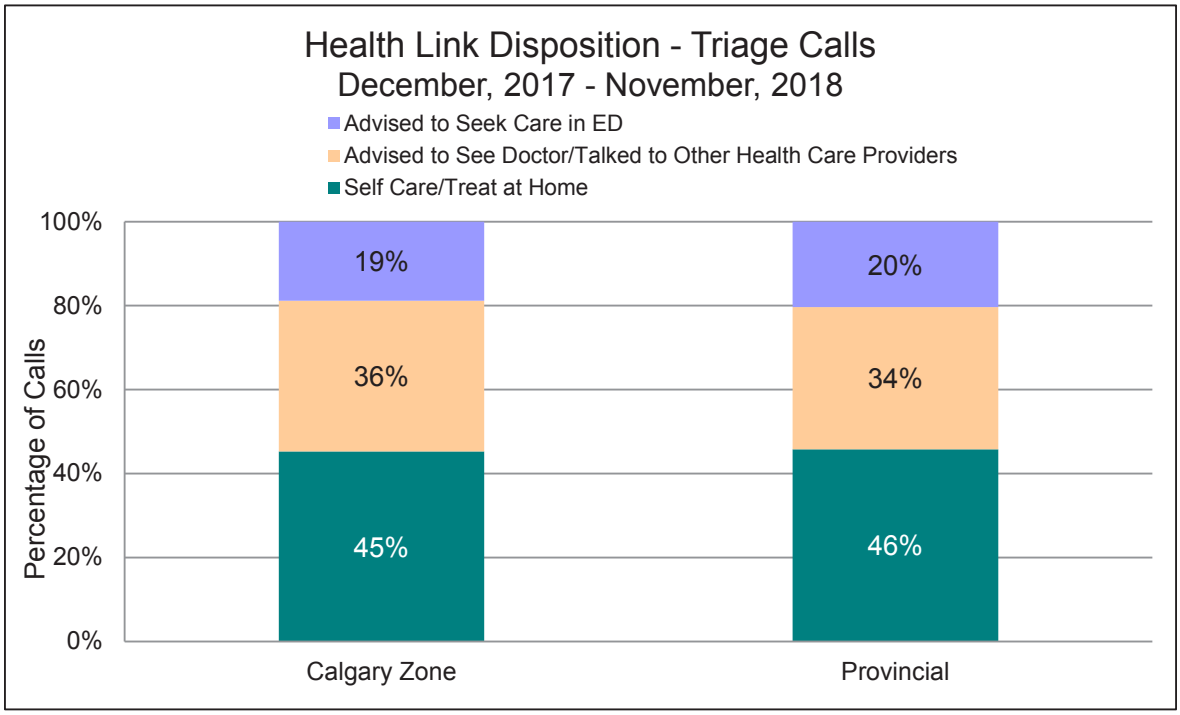
In 2018, Health Link answered 614,892 calls. Of those calls, 516,352 were answered by the nurse triage line. The remaining calls were answered by our other services, including health care navigation, addictions and mental health services and Alberta Quits smoking cessation line.

The breakdown of nursing triage advice is shown below for Calgary zone and provincially. 19% of callers from Calgary Zone were advised to seek care in an ED, whereas 45% were give advice to care for themselves at home without seeing a health care professional. The majority of nurse triage calls (63%) occurred outside of business hours. The most common symptoms were gastrointestinal and respiratory concerns.

Health Link has referral relationships with several Primary Care Networks in Alberta. Callers who are attached to a PCN, or unattached but live in the designated area, can be referred to a physician on-call or an After-Hours clinic where they receive a same-day appointment. In the past year, over 12,000 callers were referred to one of these services, potentially avoiding an ED visit.

Health Link has recently begun a partnership with UCMC Family Medicine clinics to refer high needs patients who frequently visit EDs to an on-call family physician. This initiative is being evaluated to determine if it will result in fewer ED and UCC visits by this patient population.

Dr. Denise Watt, Health Link Clinical Lecturer



OT/PT UPDATE

Objective 1: Pilot the presence of rehabilitation services (OT/PT) in adult urban and rural acute care ED's 7 days per week

Expected Outcomes:

- Influence timely EIP assessment to prevent functional decline
- Prevent avoidable admissions to the ED
- Support community Allied Health referrals

Objective 2: Develop tactics to optimize the utilization of rehab services on inpatient unites 7 days per week

Expected Outcomes:

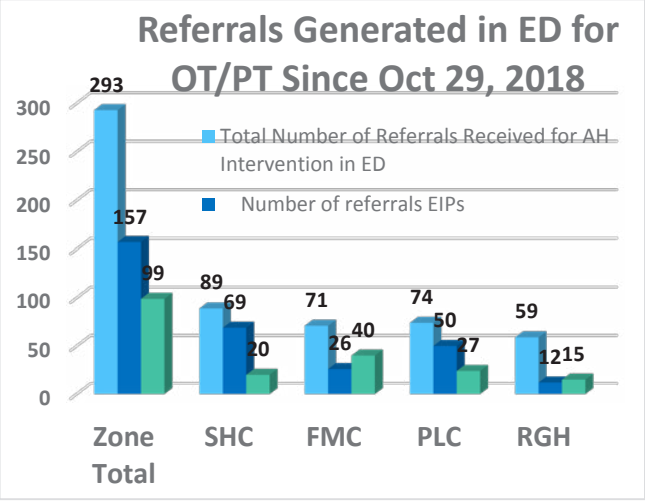
- Decrease overall patient LOS
- Support discharge planning and readiness for weekend discharge home/community

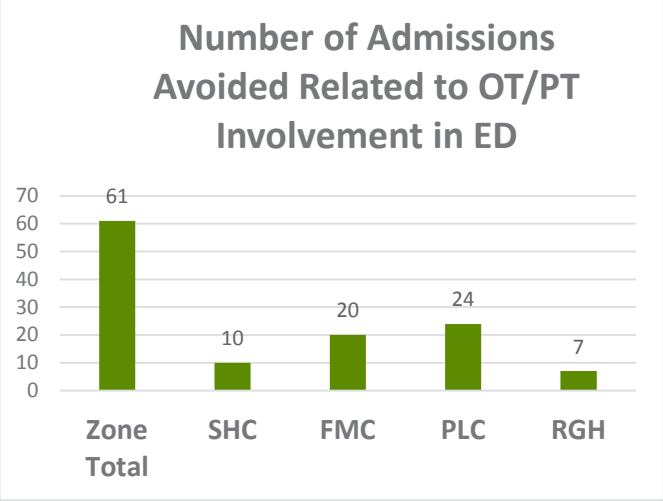
Objective 3: Optimize the return of Continuing Care clients home 7 days per week through improved communication linkages between Continuing Care Centres, Transition Services, and Acute Care

Actions and Accountable Leaders

- Implementation of ED Pilot at all 4 urban Acute Care sited on October 29, 2018 (With Allied Health Managers at each site). Recruitment for 1.4 FTE was successful, workflows established, education for rehab staff completed, engagement completed, education for ED physicians is ongoing
- In tandem; PLC/SHC participating in a 16-week AIW core project.
- Common and site-specific metrics established for ED Pilot and data collection is underway starting in December 2019.

Zone Data





Average of 11.3 referrals/day for the zone in first 26 days of OT/PT in ED
Each site is receiving between 2.3-3.4 referrals per day

Dr. Laurie-Ann Baker

OT/PT UPDATE

Measurable Successes

FMC

- OTs have prevented 15 unsafe discharges and 20 unnecessary admissions
- On weekends, OTs have increased the average number of inpatient discharges from 1.2 to 4.3 patients

RGH

- PTs have received 15 MSK lower back referrals in one week since pilot. As a result, pre-PT assessment lumbar DI has been avoided for non-specific pain, and face-to-face time with the ED physician has been reduced
- Functional screens of the frail elderly enables the early identification to subacute care and Community Services

PLC

- Successful implementation of daily interdisciplinary Discharge Rounds to identify patients who will benefit from OT
- Achieved first AIW CORE goal of contribution to 1 avoided admission/day on average within first 2 weeks of pilot

SHC

- ALL ED Inpatient OT/PT referrals have been assessed within 24 hours of entry, reducing workload for inpatient therapists
- 20 referrals within the first 26 days of pilot, resulting in the prevention of 10 unnecessary admissions and 6 unsafe discharges

DISTRIBUTED LEARNING AND RURAL INITIATIVES (DLRI) UPDATE

The Office of Distributed Learning and Rural Initiatives at the Cumming School of Medicine believes in providing quality healthcare to the people of rural Alberta. We strive to accomplish this goal through fostering meaningful relationships between medical educators, health-care professionals in training and individuals and families in rural Alberta. Our vision is to engage communities, inspire social accountability and create opportunities. We believe that our commitment to education and research in rural Alberta is a key part of developing skilled and dedicated rural physicians.

DLRI manages 2 large Government of Alberta grants that support rural education for medical students, clinical clerks, and residents. Our office coordinates rural placements for learners at all levels from pre-clinical medical students to residents. We support medical student placements can be as short as a single day of shadowing and as long the entire clerkship for our University of Calgary Longitudinal Integrated Clerkship. We support residency programs in both Family Medicine and wide variety of specialties to place resident physicians in rural training environments. DLRI also supports our rural preceptors and educators through our Faculty Development and Cabin Fever conferences.

Over the past year DLRI has seen a transition in leadership as Dr. Doug Myhre completed his term as Associate Dean and Dr. Aaron Johnston began as Director. The office has hired several new staff to support the various functions of the office and to enhance communication with students, residents and preceptors. Over the coming year we are looking forward to successful Faculty Development and Cabin Fever conferences. We continue to build on opportunities for community engagement and continue to recruit new preceptors and teaching sites. We have started a newsletter for our rural preceptors and students, 'The Rural Review' and are looking forward to roll out of a redesigned website in the New Year.
We are building on our past Foundational Skills offerings for preceptors new to teaching and will offer online modules as well as a focused one-day course to help excellent clinicians share that excellence through teaching.

It has been an eventful and successful 2018 at DLRI. With our excellent staff and many new and exciting initiatives we are looking forward to future successes in 2019.

Dr. Aaron Johnston, Director of DLRI

EMERGENCY DEPARTMENT GLOBAL HEALTH HUB

The global EM Hub is dedicated to enhancing opportunities for engagement, collaboration, and education in fields such as refugee, northern, tropical, wilderness, and disaster medicine as well as public health. Our goal is for Calgary to become a beacon for GEM by harnessing our collective experiences and offering a variety of ways to expand them.

Thus, more than 50 emergency physicians in Calgary have expressed interest in the new Global Emergency Medicine (GEM) Hub.

MARCH

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3	4	5	6	7	8	9
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17	18	19	20	21	22	23
24	25	26	27	**28**	29	30
31						

We were lucky enough to receive a grant for $2500 from the PSF and are excited to announce that Dr. Megan Landes is coming to Calgary. She will be giving a grand rounds presentation and attending a GEM social event March 28, 2019. She will be speaking on her experience with global emergency medicine as a founding member of the University of Toronto Global Emergency Medicine group and co-director of the Toronto-Addis Ababa University emergency medicine residency collaboration. She also researches vertical HIV transmission and the delivery of emergency care in low-resource settings.

We hope her visit will help galvanize further interest and collaboration for GEM here in Calgary.

We have been brainstorming different ideas to get emergency physicians involved in GEM closer to home as well. Discussions are occurring with stakeholders in Calgary and several northern communities regarding opportunities for partnerships. Stay tuned!

Dr. Andrew Battison

Dr. Megan Landes

Read her bio here:
http://www.dfcm.utoronto.ca/content/megan-landes

Dr. Megan Landes (MD, MSc, CCFP-EM) is an attending doctor in the ED of the University Health Network and an Assistant Professor in the Department of Family and Community Medicine.

FRIDAY NEWSLETTER STATISTICS

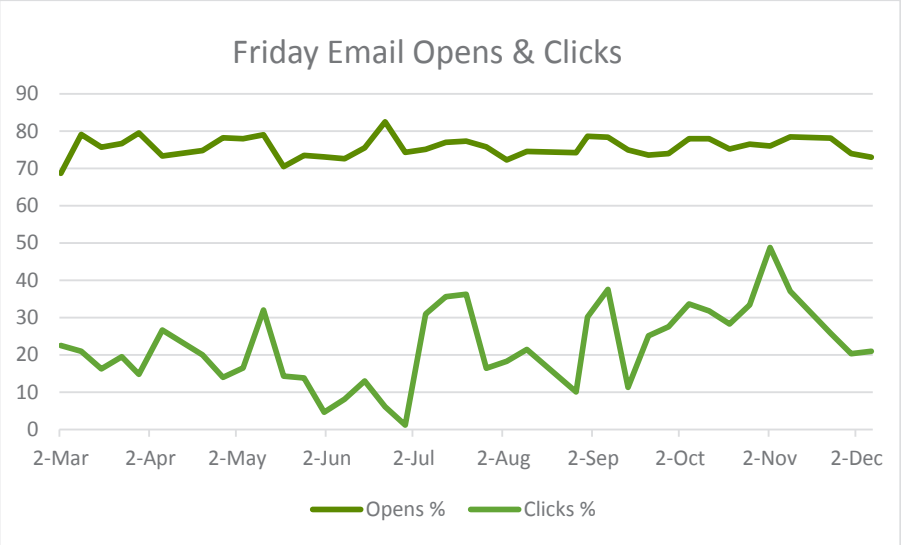
The Emergency Department administration department sends out weekly department newsletters on Fridays. This is an initiative to limit the number of emails physicians and other staff receive and has received excellent feedback for 2018. The content of the newsletters varies week by week, but generally contains topics such as:

- SCM Updates
- FMC Project Updates
- Clinic Updates
- Upcoming promotion/Awards/Grants
- Academic Appointment Updates
- Publications of Note
- Previous Grand Rounds Links
- Research News
- Upcoming events
- Teaching Sessions

With this initiative we have been able to keep track of data such as audience engagement, the Emergency Department has seen an overall excellent engagement with the newsletters.

Our statistics are really high numbers compared to most newsletter type emails, so we can be confident about the level of engagement the Friday Newsletters email is seeing. For instance, Family Medicine sends out a bi-weekly newsletter to our physicians (about 1300 staff) and received an average 40-45% readership. Our department sees an average of 75.74% newsletters being opened or read, and an average of 22.5% links within the newsletters being clicked to open.

Meghan Prevost



TRANSITION NAVIGATOR

The Transition Navigator Trial (TNT) is a province-wide initiative evaluating the effectiveness of a patient navigator service versus usual care and newsletters to improve outcomes for patients moving from pediatric to adult care. We are looking for youth aged 16-21 years old with a chronic health condition who will be transferring to adult specialty care within the next year to participate in the study.

The navigator is a social worker who will work with youth and their families for up to 24 months after the time of transfer. The navigator will support the youth and/or family during the transition to adult care following recommended clinical practice guidelines. The navigator will focus on:

- Preparing for transfer
- Reducing social and economic barriers to healthcare
- Serving as a health system broker
- Promoting self-management skills

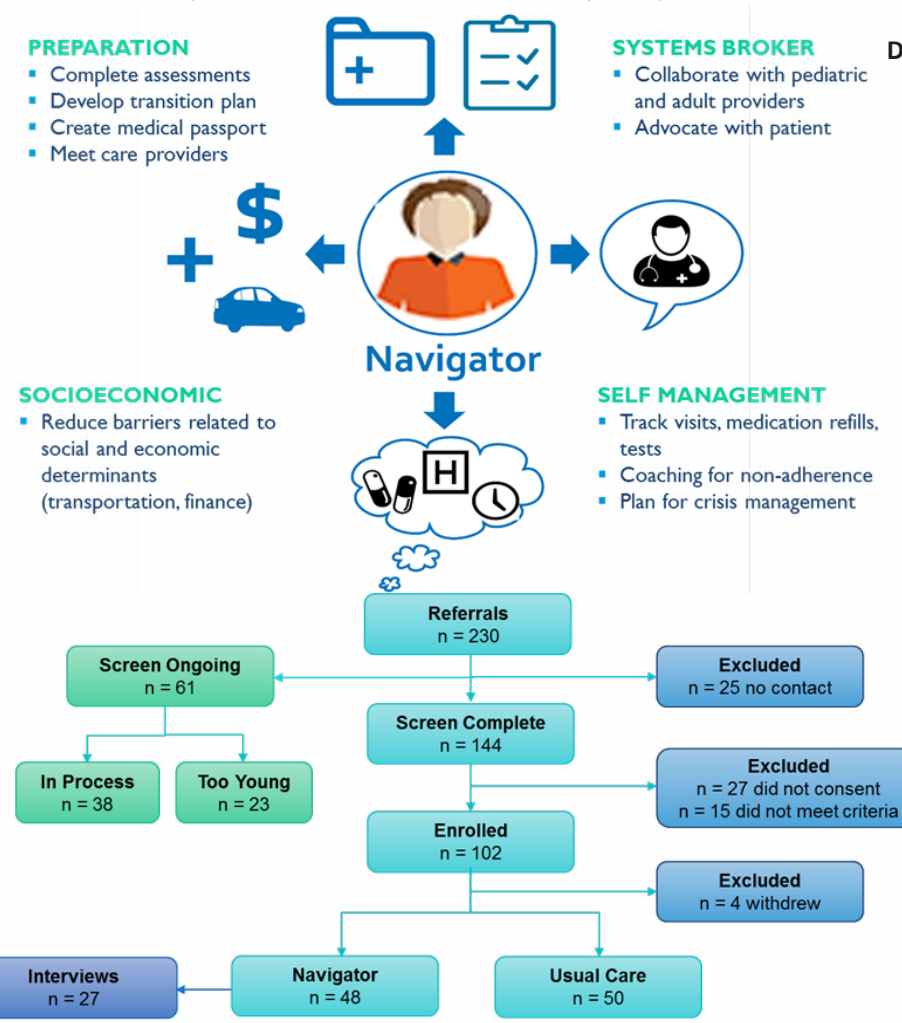
If you interested in learning more about this study,

Email: TNT@ucalgary.ca

Visit: www.tntrial.org

Since the initiative's launch in January 2018, over 200 referrals with 100 participants have been enrolled in the study.

Dr. Gurkeet Lalli



MIKE HODSMAN MEMORIAL LECTURE

The Mike Hodsman Memorial lecture celebrates the life of our late colleague, Dr. Mike Hodsman and his great love of learning. The fourth annual lecture took place May 31, 2018 in the Foothills Auditorium. The event was well attended by emergency medicine residents, physicians, and physician staff from several departments including internal medicine, hematology, respirology and radiology. Our featured speaker was Dr. Jeff Kline from the Indiana University School of Medicine. He spoke on the "Art and Science of PE Diagnosis"- how experienced physicians use their Gestalt to decide which patients need testing for pulmonary embolism. Complementary speakers included Dr. Kerstin De Wit from McMaster who spoke on shortfalls in emergency physician PE diagnostic testing behavior. Dr. Leslie Skeith, soon to join the University of Calgary department of hematology, spoke on diagnosing PE in pregnancy. Dr. Winston Ying from the Foothills Department of Nuclear Medicine spoke on VQ scans. Dr. James Andruchow from our department of emergency medicine spoke on clinical decision support for ordering of diagnostic testing for PE. All the speakers joined us for a panel discussion, question and answer period at the conclusion of their presentations. There was a great deal of interest and questions from the audience. Approximately 85 people attended the lecture live or by videoconference.

Dr. Kline joined our emergency medicine residents for lunch following the lecture to informally discuss how to develop a career in emergency medicine research.

This event was funded through the Physician Support Fund, remaining funds from Mike Hodsman memorial fundraising, and the resident and clerk electives account.

There was widespread positive feedback from the event. We look forward to the 2019 lecture featuring Dr. Christopher Hicks.

Dr. Colleen Carey

ULTRASOUND UPDATE

The ultrasound program in Calgary continues to be quite active again this year. We held a successful introductory course for the residents in July and the junior and senior resident ultrasound curriculums continue throughout the year. Dr. Nick Packer is our current ultrasound "fellow" and has just returned from two months of training in the ICU in London, ON.

There are several orders in for new ultrasound machines at RGH and FMC and upgrades to some existing machines have been made. We're also close to a solution that will enable the use of endocavitary probes again at FMC as they went missing for a time when they were re-introduced a couple years ago. The femoral nerve block study has kicked off at RGH and will be rolled out to the other sites in the future.

We have also developed an Emergency Department Ultrasound Hub here in Calgary with a group of several ultrasound interested individuals. One initiative in the works is organizing some ultrasound scanning sessions for ED staff to brush up on basic skills and learn and practice new skills. Stay tuned for more information!

Dr. Danny Peterson, ED Ultrasound Coordinator

CLINICAL PHARMACOLOGY AND TOXICOLOGY

The Poison and Drug Information Service (PADIS) and for Clinical Pharmacology and Toxicology (CPT) in Calgary had another successful year in 2018.

In July, our CPT residency program welcomed its first fellow, Dr. Steven Liu from U of C Emergency Medicine. We also participated in the CaRMS application process for the Medicine R4 subspecialty match in the summer and interviewed two applicants for one position. In November, we successfully matched Dr. Riley Hartmann to the program, who will start in July 2019. Riley is an Emergency Medicine resident from the University of Saskatchewan. A big congratulations and thanks go out to Dr. Scott Lucyk and Stephanie Schwartz for their hard work in coordinating the interview process.

In September we launched a new Clinical Pharmacology physician consultation service at the Foothills Medical Centre. The mandate of this service is to provide advice on Clinical Pharmacology patient scenarios such as adverse drug events, drug interactions, de-prescribing, and unusual responses to medications. Thus far we have seen 32 consultations, mostly from the FMC Medical Teaching Unit. We are pleased to welcome Dr. Kathryn Watson as one of the physicians taking call for this service starting in the spring of 2019.

In the 2018 academic year, PADIS welcomed 50 residents from Emergency Medicine, Internal Medicine, Anesthesia, Psychiatry, Pathology and Critical Care Medicine for our popular Medical Toxicology rotation. This rotation involves a combination of bedside medical toxicology consultations in Calgary hospitals and small-group teaching sessions on management of common poisonings. We also continue to have Saskatchewan RCPSC and CCFP-EM residents take call from Regina and Saskatoon, and our annual “Toxicology Skills Days” continued in Edmonton and Regina.

Our medical toxicology clinic continues to see patients monthly at the Holy Cross ambulatory care centre. This monthly clinic was developed to provide evaluation, diagnosis, and management of adult patients in Alberta with toxic exposures, adverse drug events, follow care after hospitalization for poisonings, and interpretation of toxicology tests performed in the community. Common exposures in 2018 included arsenic, mercury and carbon monoxide. We have also started providing telephone consultations to physicians in Saskatchewan regarding occupational toxicology cases.

PADIS toxicologists had three abstracts accepted for presentations at the annual North American Congress of Clinical Toxicology in Chicago (1 oral, 2 posters). All abstracts were published in the August 2018 issue of Clinical Toxicology.

Dr. Daniel Ovakim joined our PADIS toxicologist group in July 2018. Daniel is a medical toxicologist at DPIC in BC as well as an intensivist and internist in Victoria. He has been a welcome addition to our staff.

Dr. Mark Yarema
Section Chief of Clinical Pharmacology and Toxicology

SOCIAL MEDIA

One of the highlights this past year was hosting CAEP 2018, which featured numerous speakers from Calgary and had the highest attendance of any CAEP at over 1100 attendees. There was a huge amount of Twitter participation and conversation with over 11 million #CAEP18 mentions and thousands of tweets and re-tweets. This was done with the help of a number of our local physicians and was a massive success.

The departmental website contains details of previous Grand Rounds as well as summaries of journal clubs for those who were unable to attend. There is also information on QPath, departmental ultrasound and clinical cases. The resident website, Calgaryem.com, contains helpful information for prospective students, residents and schedule information. Also be sure to check out the Academic Life in Emergency Medicine (ALiEM) and CanadiEM blogs where Fareen Zaver and Catherine Patocka are amazing leaders and have contributed enormously.

The @UCalgaryEM Twitter account now has over 800 followers. Follow the account for details of departmental events as well as useful medical education links and sites. Other Calgary Twitter accounts to follow include:

Eddy Lang **@EddyLang1**

Nadim Lalani **@ERmentor**

Fareen Zaver **@FZaver**

Chris Bond **@socmobem**

Mark Yarema **@MCYarema**

James Huffman **@JamesLHuffman**

Stephanie Vandenberg **@StephVDBG**

Catherine Patocka **@PatockaEM**

Mike Betzner **@FlightMDStars**

Numerous department members continue to contribute to excellent podcasts, including:

Chris Bond - **The Skeptics Guide to Emergency Medicine**

Mike Betzner - **Emergency Medicine Cases**

Chris Lipp and Karl Philips **Crackcast**

Dr. Chris Bond

AIRWAY MANAGEMENT PAUSE

Departmental uptake of the Airway Management Pause (AMP) continued to increase over 2018. Data from the team-surveys and the research assistant intubation observation studies are very encouraging (will be submitted to CJEM in 2019) as are the testimonials from the physicians, RT's and RN's involved. Furthermore, the Department of Critical Care Medicine (DCCM) has been enthusiastic about the AMP tool. All of the adult critical care unites have now trained their staff and have begun to use the AMP clinically with formal study in the critical care environment in the planning stages. There has also been interest in the project from the ESCN with a second presentation made to that group in the fall. Several rural and regional sites around the province (and beyond) have inquired about the AMP and have provided them with educational materials and support. Groups that are currently moving toward implementation include the Canmore General Hospital and AHS EMS.

Dr. James Huffman

PHYSICIAN SUPPORT FUND (PSF)

The Physician Support Fund would like to thank all contributing members in good standing for their ongoing support. Your contributions make it possible for members of our department to pursue extra-clinical projects that benefit our department and our specialty.

Mandate:

- To support initiatives brought forward to the committee by individual members or departmental leadership which are likely to improve the intellectual, clinical and/or working environment of emergency physicians practicing within the Calgary area
- To provide top-up funding for the residency programs when appropriate other funding is not available. Both the Department of Emergency Medicine and the Support Fund committee group will continue to explore and advocate for appropriate level funding from the appropriate sources.

Projects

The following projects have been approved:

Dr. Huma Ali (on behalf of the Wellness Hub) - $2500

Project Title: Department of Emergency Medicine Peer Support Team Description of Project and Objective: Physicians are twice as likely as the general population to die from suicide. There are multiple factors that prevent physicians from seeking help in times of distress including the stigma around seeking help and fear of compromising their right to practice medicine. The project is modeled after the Department of Medicine's Peer Support Team Project. It would entail the following:

Departmental leaders would suggest individual ED MDs who would be appropriate candidates to be a Peer Support Team Member

These individuals are invited to attend a Peer Support Team Workshop where they begin to develop their skills in domains such as empathetic listening and debriefing. The workshop would be modelled similarly to that of the Department of Medicine's. Speakers would include experts on empathetic listening, identifying those at risk of self-harm; dealing with adverse events, including representatives from the Alberta Medical Association Physician and Family Support Team, Canadian Medical Protective Association, and psychiatry. Specific training will focus on how to ensure that encounters are safe and place neither party at excess risk.

A list of Peer Support Team members will be distributed to the Emergency Physicians in the Calgary Zone along with their personal contact information encouraging them to reach out in times where they face personal challenges. The Department of Medicine has had over a dozen such calls placed since launching the program six months ago.

PHYSICIAN SUPPORT FUND (PSF)

… Continued

The following projects have been approved:

Dr. Andrew Battison - $2500

Project Title: Introducing global emergency medicine to Calgary

Objective: To invite a Canadian leader in global EM to Calgary to give a grand rounds presentation and attend a social event. My goal is to galvanize interest and foster collaboration in the global EM hub.

Dr. Eddy Lang, Scott Banks, The Hodsman Lecture Planning Committee

Project Title: The 2019 Emergency Department Hodsman Lecture Series Description of Project and Rationale

Every year the Calgary Zone Emergency Department strives to honor the late Dr. Mike Hodsman by offering a leading-edge training session for the Emergency Department's physicians. High profile speakers with specific expertise are located and invited to deliver seminars. This year we are fortunate enough to have successfully secured Dr. Christopher Hicks on May 2, 2019. Dr. Hicks is an international leader in Simulation and Human Factors engineering and a Research Scientist in the Li Ka Shing Knowledge Institute of St. Michael's Hospital. Dr. Hicks is also an emergency physician and trauma team leader at St. Michael's, as well as a Clinician-Educator in the Department of Medicine at the University of Toronto. His program of research focuses on resuscitation team performance, including psychological skills training (PST), design ergonomics and knowledge translation.

Dr. Stephanie VandenBerg, Katrina Koger, Heidi Boyda (on behalf of the Emergency Medicine Research Advisory Committee EMRAC) - $1500.

Project Title: Physician Support Fund Resident Research Award (PSF-RR) Description of Project and Objective: The Physician Support Fund Resident Research Award will be awarded to one University of Calgary Emergency Medicine Resident (FRCP-EM or CCFP-EM) per year to fund resident-led, staff supported Emergency Medicine research. The objective of this award will be:

Foster the development of scholarly inquiry using research-based methodology among University of Calgary Emergency Medicine residents that would have a direct benefit to clinical staff in Calgary. This could include, but is not limited to, the domains of: Medical Education, Quality Improvement, Systematic or Scoping Reviews, Health Systems, and Knowledge Translation.

Support resident related research that benefits the Department of Emergency Medicine and encourages working relationships among residents and staff physicians

Encourage residents in research that may enhance their future career and act as a stepping stone to provincial and national research exposure.

Encourage timely research (could be designed, executed and reported within one year) with measurable outcomes applicable to the Calgary Emergency Medicine community.

PHYSICIAN SUPPORT FUND (PSF)

Application to the PSF for Project Funding:

Applications for funding will only be accepted from members of the Calgary Emergency PSF i.e. members who have provided financial contribution to the fund. Applications can be submitted anytime during the year and will be reviewed twice annually for approval. Deadlines for applications will be at the end of March and the end of September. Applications may be granted full approval or be returned with either additional requirements/information needed prior to decision. Applications declined approval will be provided reasons for refusal of funding. Applicants will have to provide a list of deliverables and a timeline of expected completion. Funding will be given in partial increments with full funding amounts given at completion of project, depending on the project outcome/expectation.

Oversight Committee Members:

Chair: Heather Patterson

Treasurer: Arun Abbi

Members: Andrew Fagan, Eileen Kabaroff, Marshall Ross, Bryan Young

Reporting to PSF Membership:

The Oversight Committee will report bi-annually on active projects, completed projects and financial status of the PSF to the membership via email after each round of funding decisions that will be released April 30 and October 31st each year. We will attempt to provide a transparent process of the distribution of funds along with reasons for application approval. Questions can be directed to any of the oversight committee members and will be discussed as needed by the committee. A list of members in good standing with the PSF will be released along with each bi-annual report.

Next Deadline for Submission:

March 29, 2019

Expected Response to Applications:

April 30, 2019

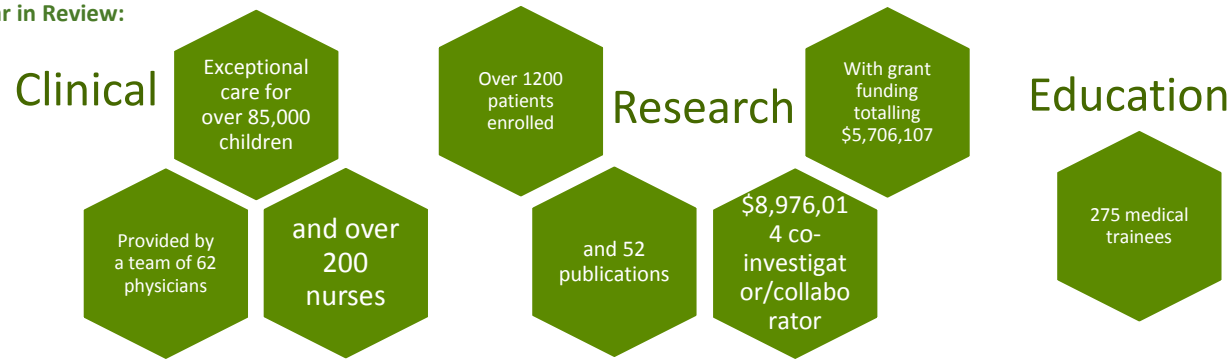
Applications can be sent to Lilian Prudencio (Lilian.Prudencio@ahs.ca)

ACH PEDIATRIC EMERGENCY RESEARCH TEAM (PERT)

Summary

Over the past 12 months the emergency department (ED) at the Alberta Children's Hospital (ACH) cared for over 85,000 ill and injured children. Children are cared for 24 hours a day, seven days a week. The high volume and diversity of patients seen in the ED provides a unique opportunity for generating new knowledge and improving the quality of pediatric care. Our research team is one of the largest pediatric emergency research teams in Canada. In the past year we generated new knowledge with the potential to improve the outcomes for patients with diarrheal illnesses, severe infections, trauma, abdominal pain, respiratory emergencies and painful injuries. Our team members contributed to the science of resuscitation, precision medicine, quality improvement and simulation. In the past year we have 52 peer reviewed publication and received substantial funding from local, national and international sources.

Year in Review:



PERT Team

Physicians:

Angelo Mikrogianakis *Section Lead*

Antonia Stang *Research Lead*

Graham Thompson *Medical Director PEMRAP*

David Johnson *Senior Medical Director, Alberta Health Services Maternal Newborn Child & Youth Strategic Clinical Network (MNCY SCN)*

Stephen Freedman *Alberta Children's Hospital Foundation Professor, Child Health and Wellness, ACHRI, Healthy Outcomes, Theme Lead*

Jennifer Thull-Freedman *Quality and Safety Lead*

Adam Cheng *Simulation Research Lead*

Kelly Millar *Education Lead*

Vincent Grant *Simulation Medical Director*

50+ Emergency Department Physicians

Coordinators/Research Assistants

Karen Lowerison

Jianling Xie

Sarah Williamson-Urquhart

Kelly Kim

Fady Dawoud

Tatum Mitra

Becky Emerton

Administration:

Trish Robinson

Gail Wright-Wilson

Brandy Schreyer

Julie Slinn

50+ Volunteer Research Assistants (Pediatric Emergency Medicine Research Assistant Program PEMRAP)

Research Nurses:

Clare Howland

Nikki Wilson

Jen Crotts*(PEMRAP Lead)*

Erin LaLande

Elisabeth Schuetzle

200+ Emergency Department

You can view the complete report at:
https://www.ucalgary.ca/paed/files/paed/pert-2017-annual-report.pdf

PATIENT SAFETY & QUALITY IMPROVEMENT

Patient Safety

2018 saw a record number of Quality Assurance reviews completed by our ED Quality Assurance Committee. Many recommendations have been made and many implemented to address system level vulnerabilities identified with the ED.

In addition, the ED QAC has been involved with the creation of many working groups that have addressed more complex areas of care delivery.

These working groups have completed or continue to work on topics such as:

- **The Difficult Airway Working Group** (Bryan Webber et al).
- **The Minor Treatment/Fast Track Working Group** (Adam Oster, Alexis Mageau and many others — this work now occurring at the Site Level)
- **Spontaneous Pneumothorax Working Group** (Jason Fedwick et al.)
- **The Unidentified Patient Working group** (Adam Oster, Brian Zarsky et al).
- **Educational Rounds Working Group** (James Andruchow, Katie Lin, et al.)
- **Transferred and Private/Specialty Patient Working Group** (Jason Fedwick, et al.)

These are groups of individuals who are doing the complex, behind the scenes work to make our department safer or enhance the educational content of rounds. Please continue to use the RLS system to report patient safety incidents.

Quality Assurance

The **FMC EMS Expedited Transfer of Care Quality Improvement** Project started on December 4, 2018 with it's primary aim being to substantially decrease the length of time patients remain with EMS awaiting a departmental space. Process changes included changes within SCM as well as the use of various EMS patient placement processes. This study also coincided with the implementation of the EMS HELO position and the RN Flow Liaison position. The preliminary results are very promising, and we will report back to the group at large in the beginning of 2019. This project has many key contributors including Jennifer Jordan, Sharleen Luzny as well as many FMC Nurse Clinicians.

A small project recently completed is a mostly descriptive analysis of non-traumatic cardiac arrest care at the FMC. There was a camera mounted at the back of the TBI which captured "CPR in-progress", non-traumatic cardiac arrest care. We digitally recorded the first 10 minutes of 20 cardiac arrest events and analyzed these for predefined instances of congestion amongst providers and/or equipment as well as certain CPR metrics, for example, instances of single-handed CPR as well as interruptions to CPR. The results will be presented at an upcoming round for the group.

A reminder to please continue to use the RLS system to report patient safety incidents. Every single RLS is reviewed to determine the need for further work.

Dr. Adam Oster, ED Safety Lead/Quality Improvement Lead

SHOCK TRAUMA AIR RESCUE SOCIETY (STARS)

2018 was a busy year for STARS as it has become the ever-increasing norm. We continue to be tasked with patients of increasing complexity both medically and logistically. Our cohort of 27 active Transport Physicians (composed of 25 emergency physicians and 2 anesthesiologists) have continued to do an outstanding job triaging, providing medical direction, as well as attending on the most complex of missions. In addition, out seasoned group of critical care RN's and paramedics continued to distinguish themselves in the procurement of outstanding care.

Below is a graphical representation of our activities medically through the course of 2018 at the Calgary base.

	Jan 1, 2018 – Dec 31, 2018
Total Interfacility missions	
- Adults	**286**
- Peds	**92 total** **53 PICU** **48 NICU**
Total Scene missions	
- Adult	**123**
- Peds	**18**
# Missions w/blood admin	**19 missions**
- Total # units administered	**29 units** **A-: 1** **A+: 8** **O-: 19** **O+: 1** **FFP:2** **PRBC: 27**
Airway attempts / successful placement rate	**Calgary: 46/46 = 100%** **45 were ETTs, 44/45 were successful on first pass (97.78%)**

The above missions represent a small portion of the cases our Transport Physicians provide medical advice on with a large number of Red Referral calls either being managed in the sending community after the provision of medical advice or being transferred to Calgary and other receiving sites like Red Deer, Lethbridge, or Medicine Hat in the south, by both ground and fixed wing resources. Many patients bypass the Emergency Departments entirely due to the excellent call flow systems we have through RAAPID and the STARS Emergency Link Centre, going direct to CCU, ICU, and surgical services at times. Flight call has become busier and busier with the huge variety of interesting challenges presented to us on a daily basis. My Transport Physician colleagues continue to do a superb job providing support to these patients and their sending medical providers.

Our Fellowship program thus far has been a resounding success with our 5th Transport Fellow now enrolled. Dr. Paul Tourigny and Dr. Andrew Fagan as well as our most recent fellow, Dr. Sean Fair, and Dr. Dave Mainprize have all been instrumental in the success of this international program. We have a great partnership with Auckland HEMS in New Zealand with our fellows spending 6 months rotating through various Canadian bases across 3 provinces and another 6 month in New Zealand. This cross has helped strengthen our programs with new ideas in the provision of how we provide care and educate our crews.

Michael Betzner, Medical Director STARS Calgary

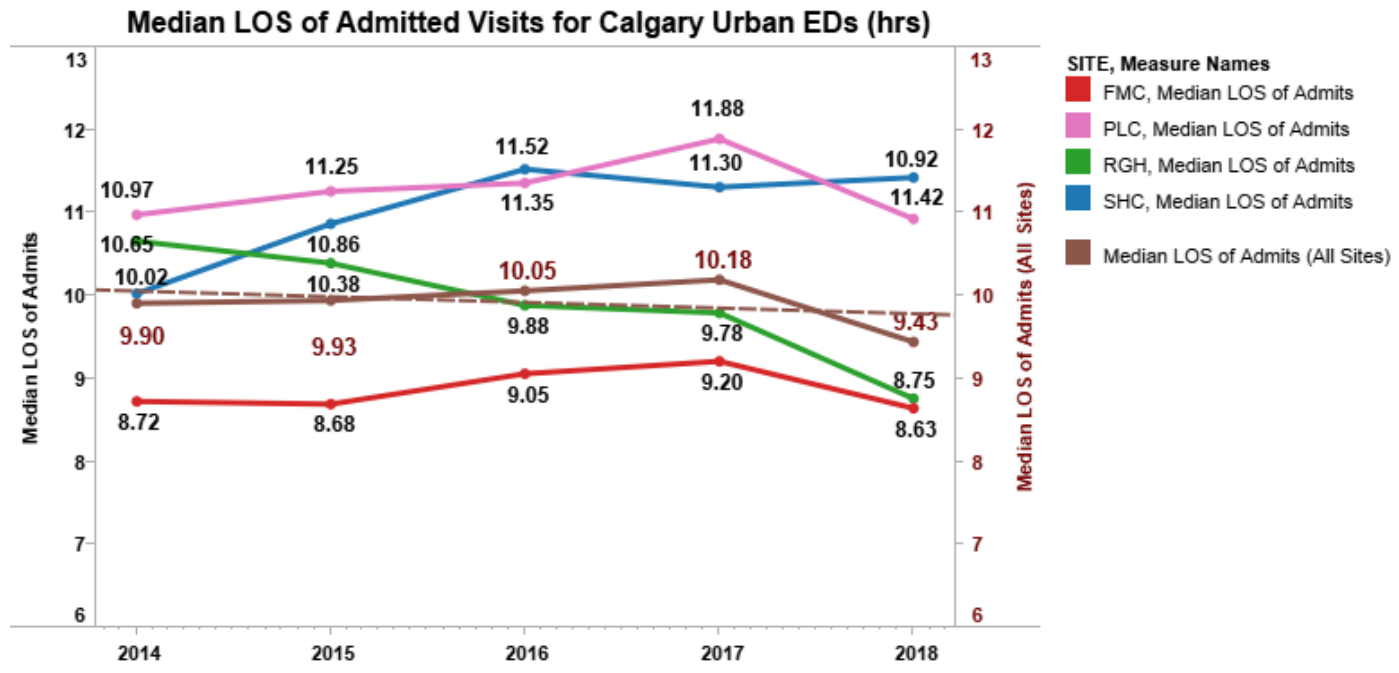
ED Gala 2018

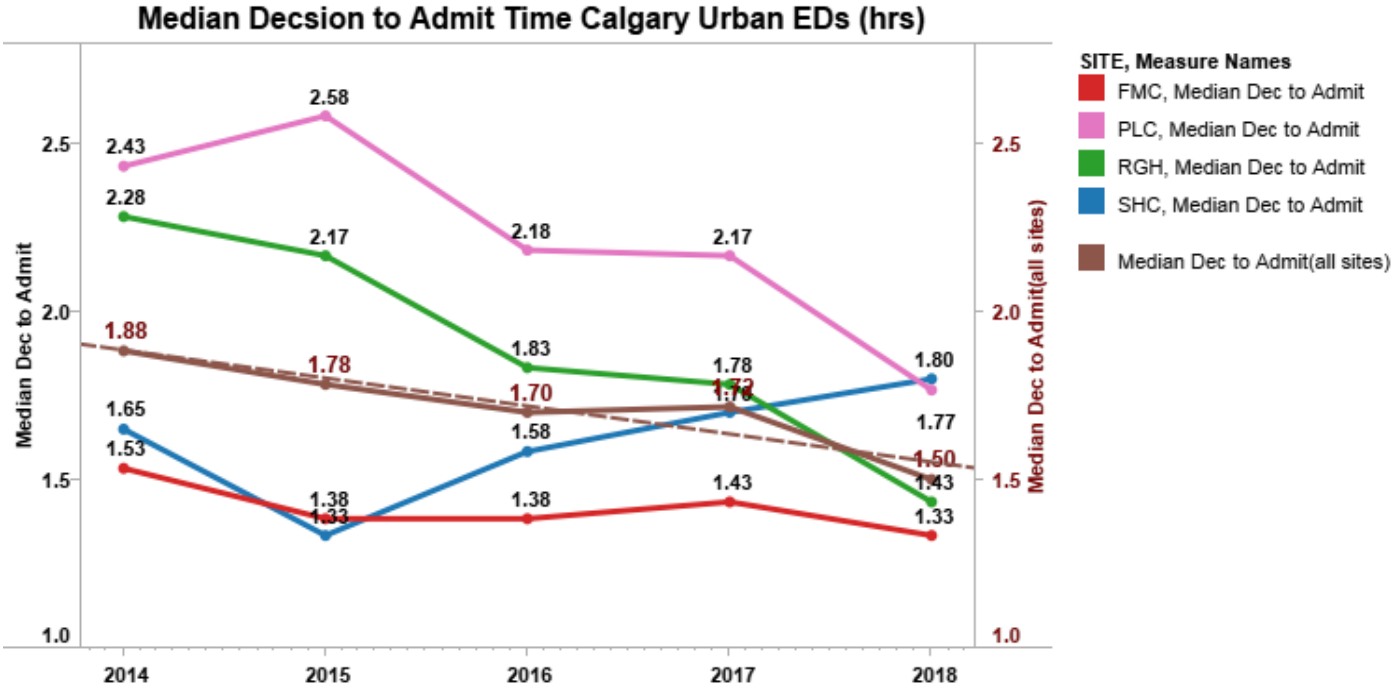
$7000 raised for the DOAP team

ED Gala 2018


Fairmont
PALLISER

ANNUAL OPERATIONAL (LOS) DATA





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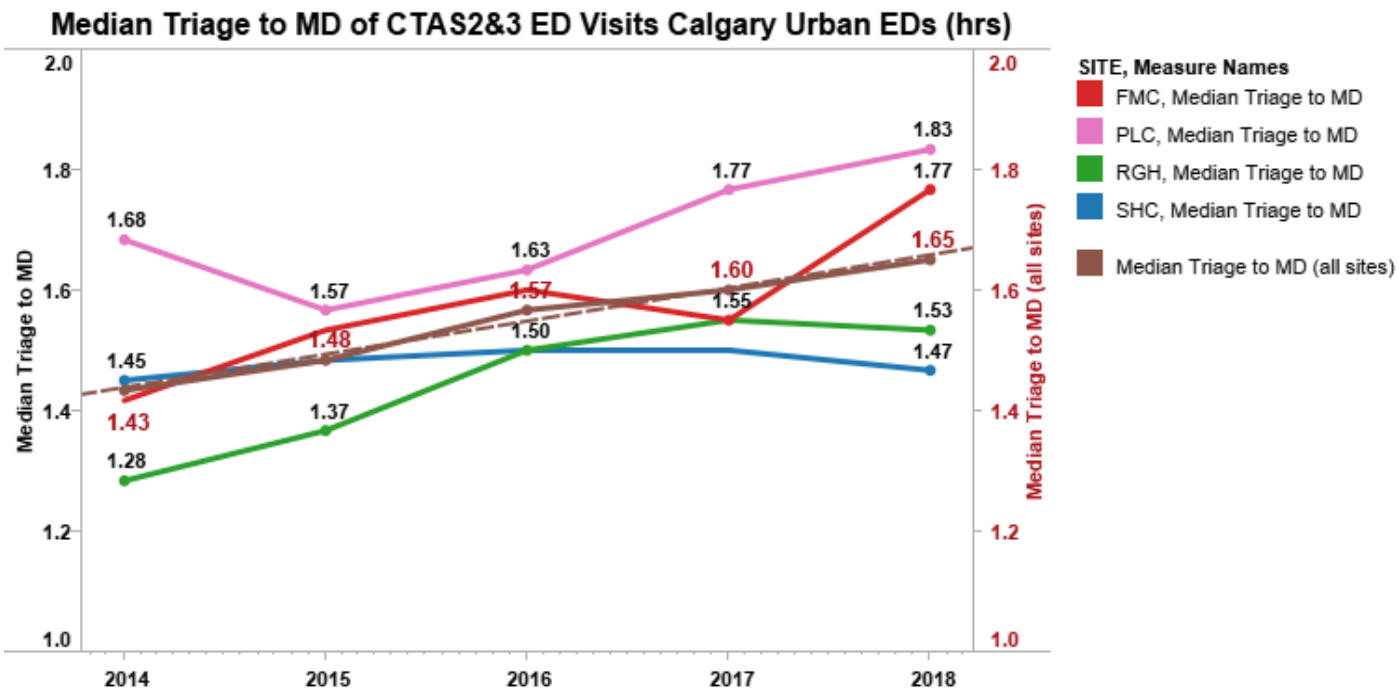

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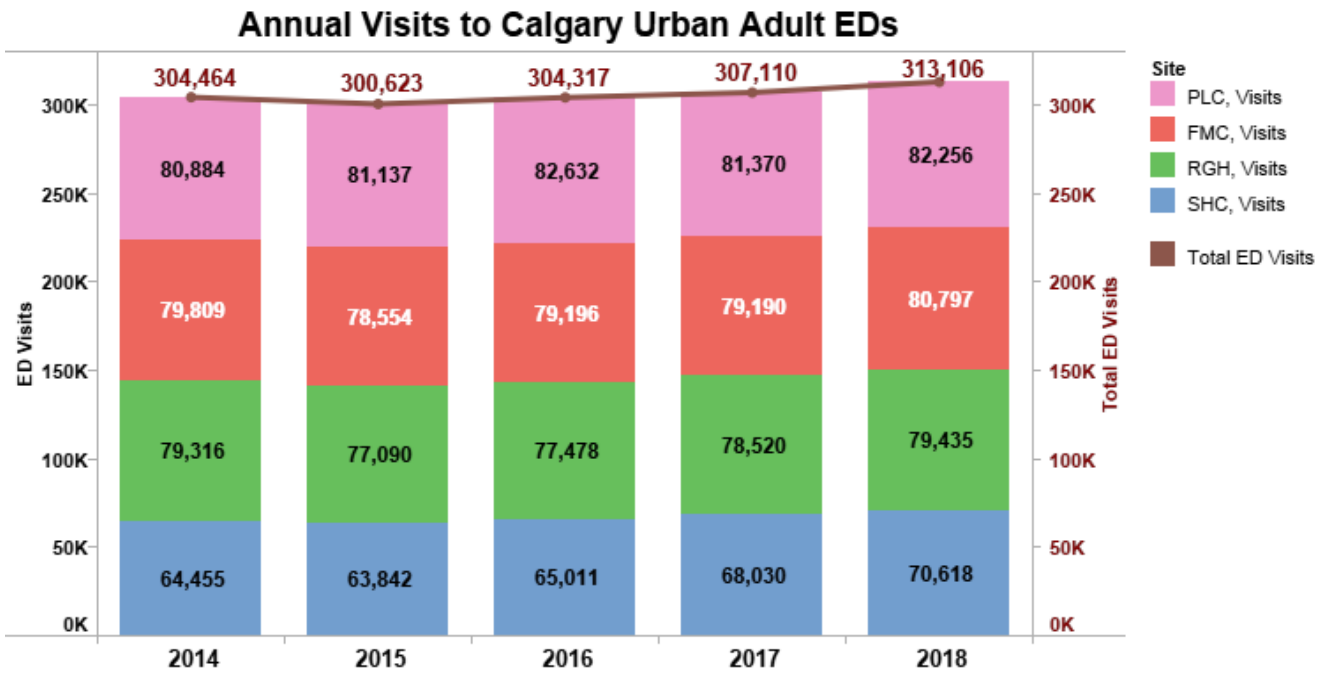

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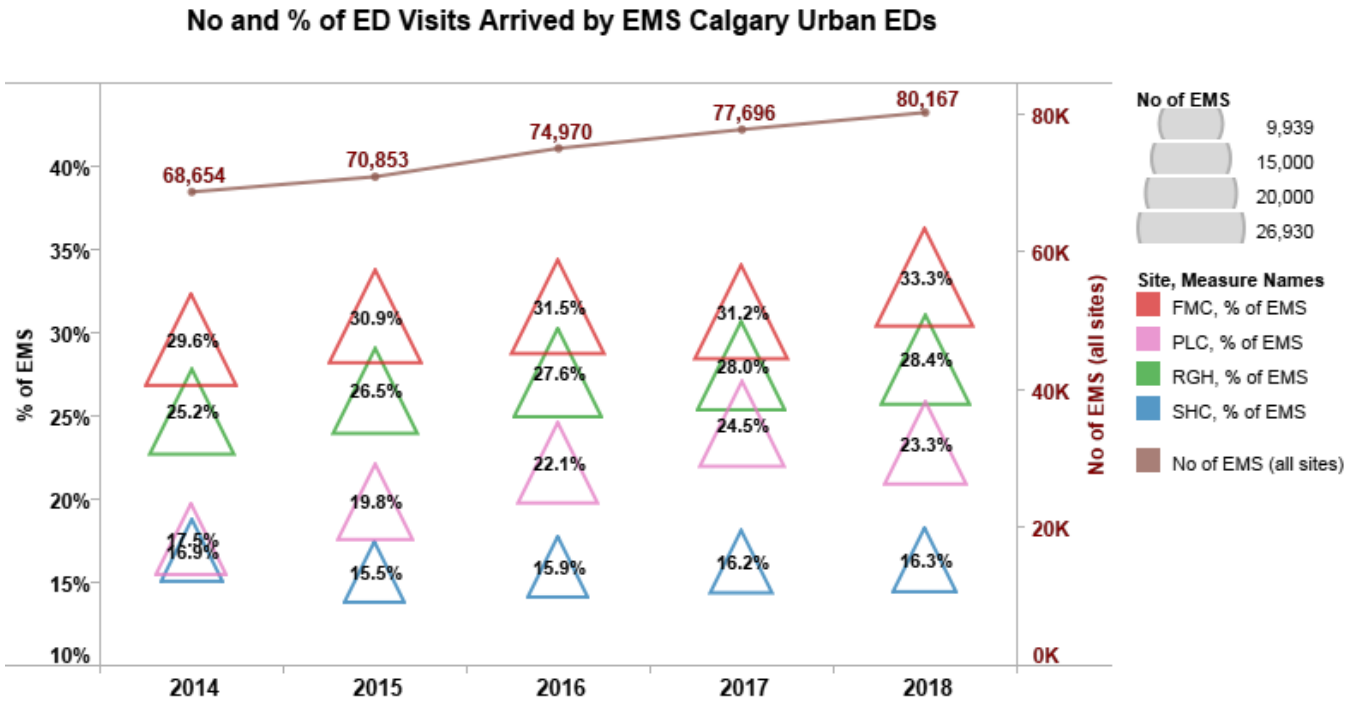
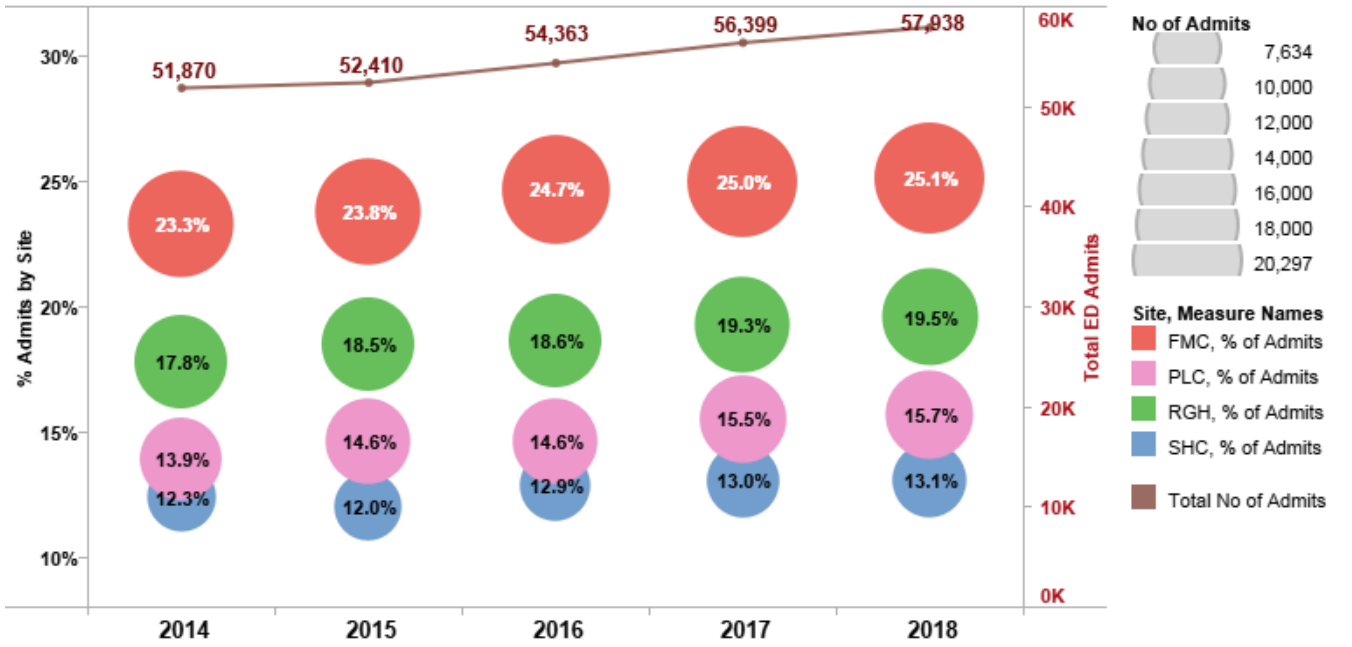
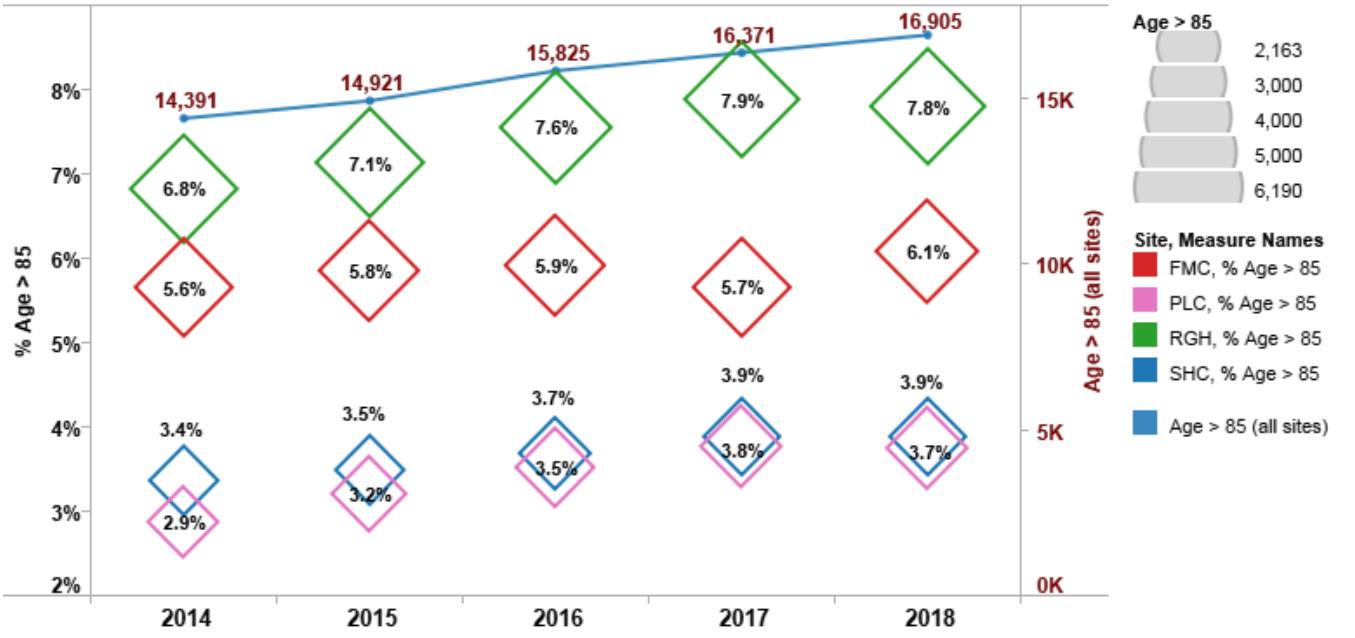


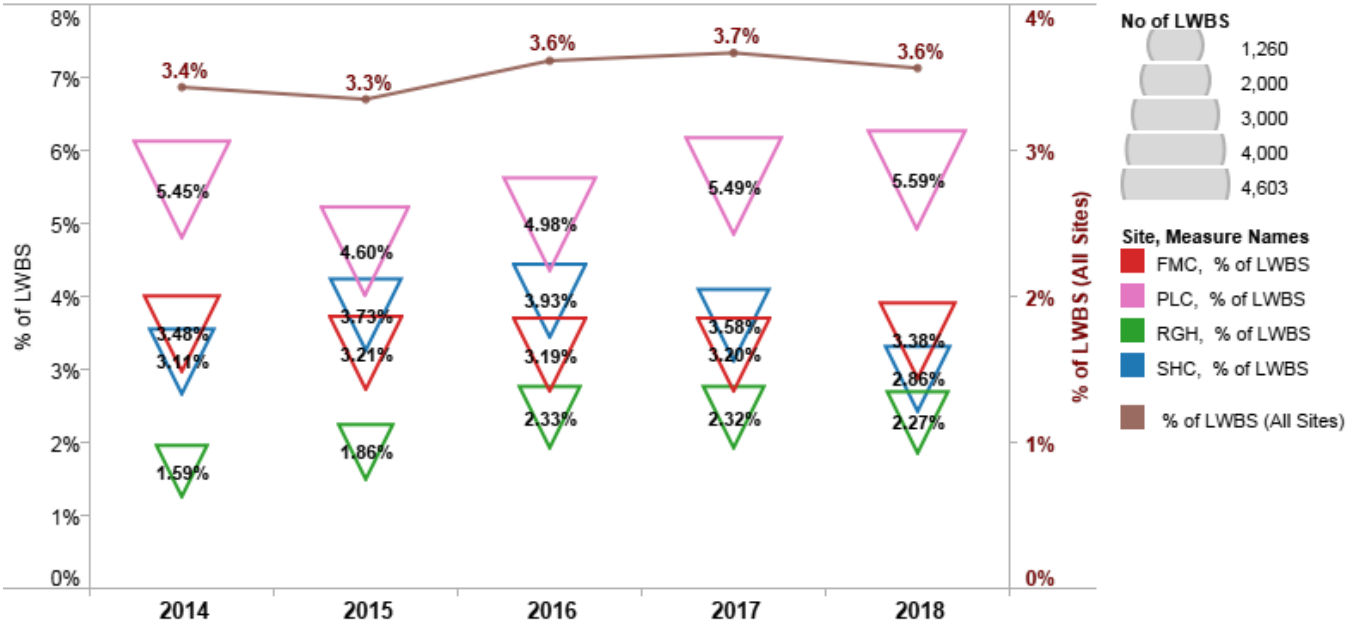


ANNUAL OPERATIONAL (LOS) DATA

No and % of ED Visits aged over 85 Calgary Urban EDs



No and % of ED Visits LWBS at Calgary Urban EDs



CCFP – EM PROGRAM

The CCFP-EM program continues to thrive thanks to the amazing support of staff and residents. In this annual report I would like to highlight some of these contributions with a caveat: so many contribute to our educational program that I will certainly miss some key individuals and for this I apologize, it truly takes a village.

The Current Resident Team


Dr. Geordon Avery-Cooper


Dr. Joline Bohne


Dr. Daniel Gold


Dr. Bretton Hari


Dr. Verlyn Leopatra


Dr. Josh Melegrito


Dr. Hart Stadnick


Dr. Alan Wilde

If, on shift, you see any of this dynamic and keen resident crew, please reach out, they are happy to be involved in all clinical cases in the ED and benefit from this tremendous teaching opportunity.

The CCFP-EM program is having a fantastic year thanks to the support of a huge group of educators. While writing this annual report I was overwhelmed and humbled to consider the number of people involved in resident education. It has been a privilege to be a part of this program and I want to extend a sincere thanks to all the dedicated educators working on shift, at academic day, and behind the scenes to train our future colleagues.

CCFP – EM PROGRAM

The Core EM Team

Madhavi Talasila, Tris Malasani, Lilian Prudencio

These amazing administrators go above and beyond on a daily basis to support the residents and are key to the success of the program.

Simulation

Stuart Rose, Scott Seadon

The simulation program continues to be a resident favorite involving countless hours of preparation and the contribution of many allied staff.

Ultrasound, Airway Skills, Central Line Course, Advanced Procedural Skills, ECG Rounds, Ventilator Workshop

Dan Joo, Danny Peterson, Bryan Weber, Gavin Greenfield, Stefan DaSilva, Rob Hall, Colleen Carey, Paul Tourigny

The CCFP-EM program is lucky to have a dedicated and talented group of educators that contribute to the curriculum and pass on the skills needed to become successful Emergency Physicians.

Longitudinal Preceptors

Dave Dyck, Jamie McLellan, Gavin Greenfield, Chris Bond, Kelli Sherlock, Charles Wong, Scott Seadon, Conor McKaigney

These dedicated physicians are paired with individual residents and act as mentors, teachers, colleagues and friends as the residents progress through the year.

CaRMS

Anoop Manocha, Christine East, Stefan DaSilva, Renie Traiforos, Jenn Puddy, Kelli Sherlock, Neil Collins, Margriet Greidanus, Dan Joo, Marge McGillivray, Phil Ukrainetz, Ayesha Khory, Dan Gold, Joline Bohne

The program continues to attract talented residents from across the country and received 116 applications for 8 spots. This tireless group volunteered to review files and interview our future EM class.

Research

Stephanie VandenBerg, Eddy Lang

The residents are involved in a variety of research projects facilitated by a great group of clinician-researchers.

Exam Preparation

Charles Wong, Christine East

To prepare for the final exams a large group of staff volunteer to administer practice oral and written exams throughout the year. These staff continually update the curriculum and exams to ensure the success of our residents.

The FRCPC Program

Sarah McPherson, Marc Francis, the FRCPC residents

The CCFP-EM program benefits immensely from a close relationship with the Royal College Program. From team building days to weekly academic sessions, the FRCP staff and residents work tirelessly to produce one of the most intense and well received educational programs in the country.

Dr. Jason Fedwick, Division Chief CCFP – EM Calgary Zone ED

FRCPC PROGRAM SUMMARY

The FRCPC program enjoyed another successful year under the leadership of Dr. Sarah McPherson and Dr. Marc Francis. Madhavi Talasila and Tris Malasani provide much appreciated administrative support to the team. There are currently 21 residents enrolled in the program.

In the 2018 CaRMS match, we recruited four candidates, Zoe Polsky, Dana Stewart, Meaghan Mackenzie and Sean Crooks. They are an excellent addition to the program. We are happy to report the 4 senior FRCPC residents were successful at their National Exams and are all practicing in Calgary.

The Royal College implemented its new initiative "Competency by Design", which aims to improve resident training, lifelong learning and enhance patient care. Emergency Medicine launched in July 2018. Dr. Catherine Patocka has been leading the CBD committee and has been hugely instrumental in helping us successfully transition to CBD. The CBD committee has done a tremendous amount of work redesigning curriculum, developing stage-based simulation, developing assessment tools, reworking our rotation template and with faculty development. A huge thank you to this team as well as to our larger faculty in helping make CBD a success.

The FRCP residency program continues to benefit from the overwhelming support and hours contributed by the staff group to teaching both at the bedside, in didactic and small group teaching session, in simulation and procedure workshops as well as 1:1 mentorship. Between February and September 2018, the EM faculty has provided more than 700 hours of nonclinical teaching to residents! We are so fortunate to have a faculty so supportive of our residents.

Dr. Hilary Ambrose R5 | Dr. Sean Fair R5 | Dr. Chase Krook R5 | Dr. Ion Leah R5 | Dr. Katie Lin R5 | Dr. Kenneth Chan R4 | Dr. Steve Liu R4

Dr. David Mainprize R4 | Dr. Nicholas Packer R4 | Dr. Ryan Allen R3 | Dr. Katie Anker R3 | Dr. Kelsey Ragan R3 | Dr. Ryan Wilkie R3 | Dr. Omar Damji R2

Dr. Miles Hunter R2 | Dr.Tyson Savage R2 | Dr. Brett Shaw R2 | Dr. Sean Crooks R1 | Dr. Meaghan Mackenzie R1 | Dr. Zoe Polsky R1 | Dr. Dana Stewart R1

FRCPC PROGRAM SUMMARY

Highlights

We would like to highlight some of our major programs and the people who have helped make them a success

The Residency Training Committee:
Meets monthly to review the program and to develop improvements & policies
Members: Meira Louis, Aaron Johnson, Dan Joo, Charles Wong, Lisa Campfens, Andrew Robinson, Alyssa Morris, Conor McKaigney, Bryan Weber, Bela Sztukowski, Ken Chan, Dave Mainprize, Brett Shaw, Verlyn Leopatra, Hart Stadnick

The CBD committee:
Meets monthly to design and implement changes required for CBD
Members: Catherine Patocka (lead), Geoff Lampard, Fareen Zaver, Anjali Pandya, Kelsey Ragan, Steve Liu, Ken Chan, Hilary Ambrose, Katie Anker, Sean Fair and Sean Crooks

The Clinical Competency Committee:
Meets quarterly to provide a transparent review of resident performance and to make promotion decisions
Members: Aaron Johnston, Geoff Lampard, Ryan Deedo, Jason Lord, Heather Patterson, Fareen Zaver & Andrea Boone

2019 Carms Committee:
Reviewed 131 files for our current Carms cycle
File reviewers: Rhonda Ness, Art Tse, Anita Lai, Mike Szava-Kovats, Natalie Cram, Russ Lam, Sarah McPherson, Marc Francis, Miles Hunter (R2), Omar Damji (R2), Tyson Savage (R2), Brett Shaw (R2), Katie Anker (R3), Ryan Wilkie (R3), Dave Mainprize (R4), Nick Packer (R4)

Interviewers: Sarah McPherson, Marc Francis, Lisa Campfens, Mike Szava-Kovats, Conor McKaigney, Jen Nicol, Ryan Allen and Kelsey Ragan.

Simulation programs:
Multidisciplinary simulation provided bimonthly for junior residents, monthly for senior residents and in modules for specific CBD teaching and assessment

Junior simulation – Andrea Boone
Senior simulation – Jen Puddy
CBD stage specific simulation – Anjali Pandya

Ultrasound and procedural skills:
Includes an annual EDE course, overseeing the certification of beginner and advanced US skills, 2 annual airway workshops, annual CVC workshop, biennial casting and splinting workshop & an annual advanced procedures cadaver lab session.
Members: Danny Peterson, Kasia Lenz, Rob Hall, Bryan Weber, Gavin Greenfield, Stephan DaSilva

FRCPC PROGRAM SUMMARY

Highlights

We would like to highlight some of our major programs and the people who have helped make them a success

EMS and disaster:
Redesign of the EMS rotation, development of a communication workshop for giving telephone advice and advice on EMS patch calls, development of a mass gathering training experience and developing and running a biennial city wide disaster simulation involving approximately 100 prehospital care providers

Members: Katerine Bateman, Brad Granberg

Research:
Ongoing mentorship by our research department and small group teaching during the annual resident research rotation

Members: Catherine Patocka, James Andruchow, Shawn Dowling, Eddy Lang, Stephanie Vandenberg

Wellness and Coaching: *faculty development of coaches for residents, wellness and resiliency training for the residents*

Members: Nadim Lalani, Mark Bromley

Longitudinal Preceptors:
Teachers and mentors who are paired with individual residents throughout the year

Members: Bryan Weber, Chris Hall, Natalie Cram, Rick Morris, Ian Rigby, Andrew Fagan, Cathy Dorrington, Arun Abbi, Mike Szava-Kovats, James Andruchow, Geoff Lampard, Lester Mercuur, Danny Peterson, Mark Bromley, Jen Nicol, Rob Hall, Phil Ukrainetz, Joe MacLellan, Erik Saude, Art Tse, Jeff Grant, Ashlea Wilmott, Ping Chen, Heather Patterson, James Huffman

The FRCP program is exceptionally grateful to have a fantastic group of hardworking residents and dedicated staff educators who continue to support and improve our training program.

Dr. Sarah McPherson, Division Chief Education – FRCP ED

OFF-SERVICE & ELECTIVE MEDICAL EDUCATION 2017-2018

Overall, both the mandatory and elective adult emergency medicine rotations are highly regarded by our learners, who appreciate the diversity of patients, high quality bedside teaching, and one-on-one direct staff supervision around the clock. In total, our teaching faculty provided well over 30,000 hours of direct 1:1 learner supervision in the 2017-2018 academic year, and this figure does not include the hundreds of hours our faculty spent on the direct supervision of pre-clerkship level students through the University of Calgary summer pre-clerkship elective program as well as the many U of C medical students who request informal shadowing of an emergency physician throughout the year. The SIM program we began as a trial last year has become a regular part of the rotation for elective clerks in the department and has been very well received.

Off-Service Learners by primary training program

The Rotations in the Calgary Zone adult emergency departments continue to be highly sought after by University of Calgary residents and their home training programs. The Department of Emergency Medicine hosted 103 mandatory off-service learners during the 2017-2018 academic year. This represents approximately 13,700 hours of direct 1:1 learner supervision by our teaching faculty.

- The majority of these resident physicians were from the family medicine residency training program (79 learners)
- plastic surgery (2 learners)
- orthopedic surgery (4 learners)
- general surgery (6 learners)
- neurology (3 learners)
- dermatology (3 learners)
- dental medicine (2 learners)
- internal medicine (3 learners)
- and cardiac surgery, vascular surgery, and psychiatry (1 from each)

Our Department continues to handle this demand while maintaining a 1:1 preceptor to learner ratio for most shifts.

Off-Service Learners by School

Since emergency medicine remains popular among Canadian medical students and family practice residents, the demand for medical student and resident electives in our Department continues to grow. In the 2017-2018 academic year, the Department of Emergency Medicine received elective requests from 87 residents (mostly family medicine) and 74% of these residents were offered electives. We hosted 43 elective residents (down from 45 in 2016-2017) with requests from:

- U of C (28 residents)
- UBC (11 residents), U of A (4 residents)
- U of T (7 residents)
- U of O (4 residents)

Notably, we hosted 10 senior residents from other FR training programs in Canada this year, showcasing the popularity of Calgary as a teaching site and possible future employment prospect.

Elective Medical Education Requests

On the medical student side, in the 2017-2018 academic year the Department of Emergency Medicine received elective requests from 176 medical students and 71% of these students were offered electives. We hosted 96 elective students (down from 98 in 2016-2017) with requests from:

- U of C (39 clerks)
- UBC (8 clerks)
- U of A (15 clerks)
- U of T (21 clerks)
- UWO (21 clerks)
- U of O (13 clerks)
- McMaster (6 clerks)
- Queens (11 clerks)
- U of M (9 clerks)
- U of S (6 clerks)
- Dalhousie (6)

We were also able to host 19 students from the U of C for their “med 440” block. Calgary emergency department has always been able to accommodate all interested 440 students due to the strong support our staff gives to these junior learners. The rotation continues to have strongly positive reviews from the students.

Dr. Meira Louise, Undergraduate & Off-Service Resident Education

UNIVERSITY OF CALGARY EMERGENCY MEDICINE CLERKSHIP

The Class of 2018 completed their Emergency Medicine mandatory clerkship rotation in April 2018. 135 students completed their mandatory Emergency Medicine rotation in Calgary. These students worked 3 shifts at the Foothills Medical Centre and then 4 shifts at one of the other adult sites. The remainder completed their Emergency Department rotations through their UCLIC sites. The overall ranking for the mandatory Calgary based emergency rotation was 4.0, slightly lower than the Class of 2017 ranking which was 4.1. The 4.0 resulted in a ranking of 4th out of the 8 mandatory clerkship rotations. We were slightly behind Obstetrics & Gynecology (4.2), Psychiatry (4.1) and Family Medicine (4.1).

We continued to use "One45" for the daily in-training evaluation reports (ITER). This allows more efficient completion of the final ITER and likely makes the final ITER more accurate. The completion rate for the in-training evaluation reports by our staff is greater than 90%.

Students have adopted the SunRay cards with enthusiasm and their use has enriched their rotation.

Strengths identified by the students of the rotation include:

- The quality of on-shift teaching (the vast majority of shifts involve working directly with the staff physician with no other team members),
- The quality of scheduled teaching sessions
- The balance of responsibility and supervision
- The administrative organization and the core document were seen as strengths.

There were no specifically identified weaknesses.

With the addition of the "Observed History and Physical" session along with the maintenance of the rest of the outstanding teaching sessions, we plan to further improve the educational experience for clerks in the Class of 2019.

Dr. Gavin Greenfield, Undergraduate Medical Education Director (UME)

GRAND ROUNDS

2018 has seen a successful year for Grand Rounds presentations. ” Emergency Medicine Department Grand Rounds are held weekly on Thursday at 9:00am in the Coombs theatre of the Foothills Medical Centre. This program meets the accreditation criteria of the College of Family Physicians of Canada and has been accredited for 1.0 MainPro-M1 credits. This program is also approved as an accredited group learning activity as defined by the maintenance of certification program of the Royal College of Physicians and Surgeons of Canada.”

“We have successfully started the Quality Assurance & Educational Rounds (QAER) with 5 of these special presentations scheduled through the year. We are now recording the weekly grand rounds to allow staff to watch presentations they were unable to attend in person and have also begun circulating weekly teaching points in the Friday Newsletters. We have improved the content of the grand rounds topics with stricter guidelines and more robust topic choices and guest speakers.”

53

Grand Rounds Presentations in 2018

Past Grand Round presentations can be found online at www.ucalgary/ermedicine

Past Grand Round recordings can be found as podcasts at www.albertaplp.ca/podcasts

Dr. Fareen Zaver

SIMULATION

The Emergency Medicine Simulation program has formed a new committee that oversees much EM Simulation in Calgary. The newly formed "Emergency Medicine Simulation Education Advisory Committee" consists of:

Medical Director – Gord McNeil
Educational Leads
Medical students – Kevin Haley, Rory Thompson
FRCP Junior residents – Andrea Boone
CCFP-EM – Scott Season, Stuart Rose
FRCP Senior residents – Jen Puddy
Staff Simulation – Gord McNeil
Nurse educators from the 4 adult sites
Start representative – James Huffman

This committee is bringing together the resources of each of these programs under one umbrella. All programs are continuing to develop more facilitators and new scenarios to enhance the education of medical students, residents and staff.

The Emergency Medicine Staff Interdisciplinary Simulation program continues to grow. The weekly sessions gather MDs, nurses, Rt's and pharmacists to participate in sessions that focus on team work skills, practicing procedural skills and expanding knowledge bases. Over 155 EM physicians and over 600 nurses participating in the weekly sessions in the last 8 years. We are closing in on our 300 Staff simulation session this year. The team is exposed to critical care scenarios and is encouraged to practice in real time, the skills they will need to use in their daily practice of EM. Our team facilitators are now well recognized as valuable teachers for a variety of simulation courses and have become speakers at international simulation events.

Dr. Gord McNeil,
Simulation Coordinator

EMERGENCY RESEARCH SUMMARY

The 2018 academic year has been a period of continued research excellence and transitions for the Department of Emergency Medicine Research Group. Dr. Stephanie VandenBerg transitioned into the role of Research Director in May 2018, preceding Dr. Andrew McRae, who subsequently went on to receive the Ian Stiell Researcher of the Year award at the 2018 CAEP Conference, here in Calgary.

We continue to employ four research assistants who work between two adult emergency sites (Foothills Medical Centre and Rockyview General Hospital), screening, consenting, and recruiting emergency medicine patients to national, provincial and local research studies. Our research coordinator, Dr. Heidi Boyda, commenced her maternity leave in November 2018. In her absence, we welcomed Ms. Hina Walia, a research coordinator with extensive experience in the area of anesthesia research at an academic centre in the USA, who will cover her position in the interim. Ms. Katrina Koger continues to provide exemplary support and leadership through these transition periods.

We are happy to award two Emergency Medicine Residents a total of $4500 in grants to further support and build the research capacity of our trainees and supported various emergency medicine researchers in applications to CIHR, PRIHS, ESCN, Alberta Health Innovates and other relevant funding opportunities.

Research Day 2018 took place on April 19th, 2018. 130 delegates attended and we were honored to have Dr. Jacques Lee, emergency medicine physician and scientist in the Department of Emergency & Critical Care, Sunnybrook Research Institute. His talk on geriatric emergency medicine introduced a multi-centre study that Calgary is participating in, PrEDDICT-PReV – a tablet based study with the aim of identifying patients at risk for developing delirium in the emergency department. For a full list of current research studies underway, please see the descriptions at the end of this report.

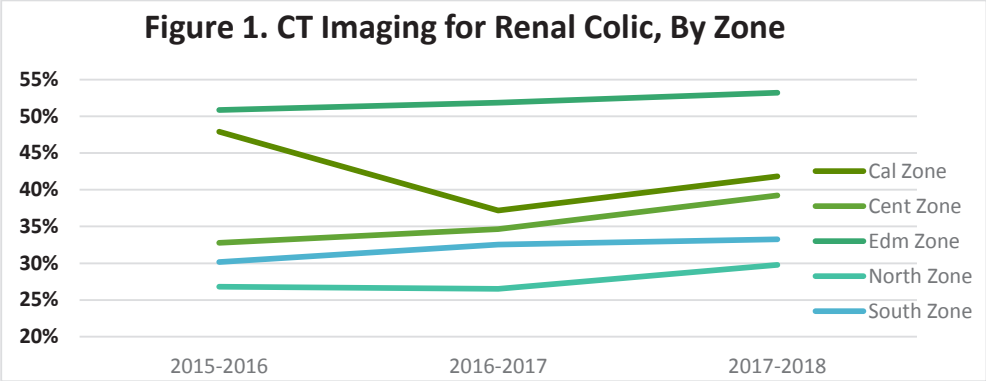
We are pleased to have a number of upcoming studies that will build on our current Calgary-based and Canada-wide partnerships. Out researchers continue to contribute to evidence and knowledge translation practices around Choosing Wisely, Audit & Feedback practices, Quality Improvement and cutting-edge studies evaluating the use of imaging for renal colic, concussion and pulmonary embolism; biomarkers in cardiac disease, in addition to supporting the work of Emergency Strategic Clinical Networks focus on opioid misuse and opioid replacement therapies (Suboxone). Ongoing partnerships within the University of Calgary with the Divisions of Cardiology, Neuro-radiology, Neurology, Gastroenterology, Hematology and Orthopedics and Spinal Surgery allows us to participate in timely, relevant, patient centered research that aims to improve the health of Albertans.

Dr. Stephanie VandenBerg, Division Chief Research

RENAL COLIC PROJECT

Protocol

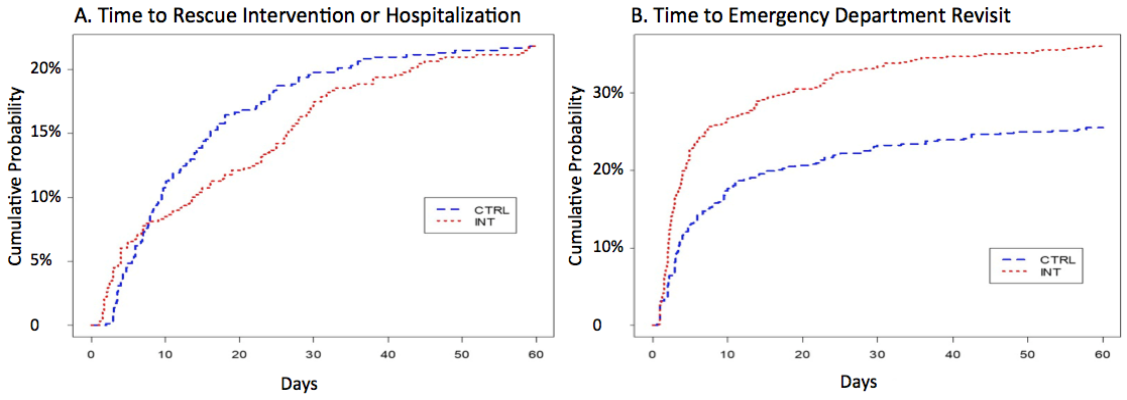
After implementing the renal colic project protocol; in 2016, we reduced CT imaging from 48% to 38% (for all renal colic visits) and from 64% to 46% for initial visits, an approximate 25% relative reduction. The figure below shows this may be the only time in history CT rates decreased for any reason. This reduction was accomplished with no apparent downside, at least in terms of patient revisit and readmission rates



Unfortunately, CT ordering is starting to increase in volume again, so we are reassessing the regional protocol, which suggests POCUS +/- Xray KUB, and consider not doing a CT for patients who respond well to ED treatment and have a low likelihood of an alternate bad diagnosis. We are now working with the Emergency SCN to consider a provincial protocol based on Calgary work.

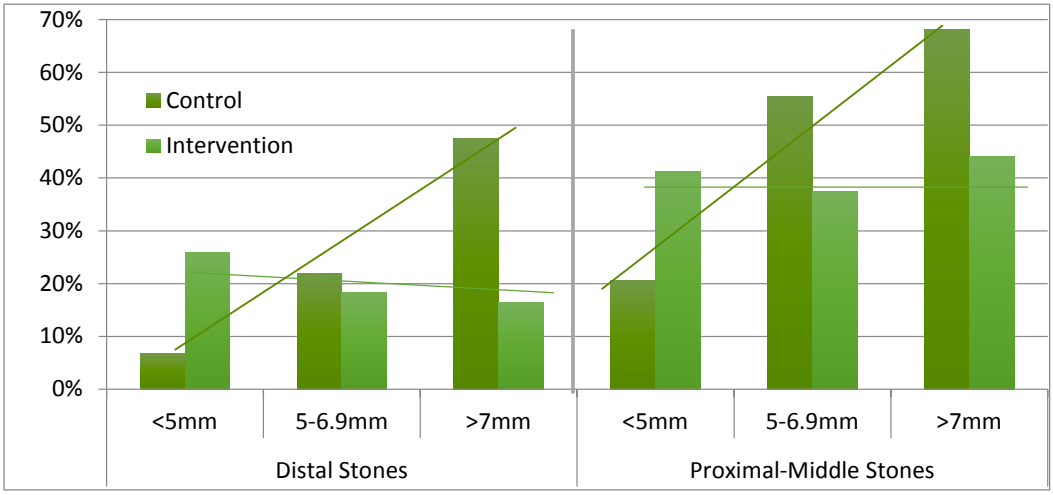
Research

Last year Renal Colic Project published research showing that Vancouver renal colic patients (low intervention rate) had better outcomes than Calgary patients. This year we completed two related projects; the first was a study of early intervention patients compared to propensity-matched controls offered spontaneous passage. This showed that overall, early intervention patients (red) had the same number of reasmissions/rescue interventions as controls (blue) but required more ED revisits. We know intervention benefits many, but the overall negative findings suggest some patients do worse because of their treatment, and we need to identify subgroups who do better with early intervention.



The second study was a subgroup analysis to answer this question. See next.

In this figure, the bottom line is that stone width and location nare the primary outcome determinants. The data suggests there is a low-risk group (all stones <5mm) who do better with spontaneous passage, a high-risk group (all stones >7mm and proximal or middle stones >5mm) who do better with early intervention, and an intermediate risk group (5.0-6.9mm distal stones) who have similar outcomes regardless of treatment. There are hopes that Dr. Grant Innes will present a Grand Rounds presentation in the future on this topic.



Other research

In a recently published paper,[1] we reported that the average level of ED access block in Canadian EDs (i.e. the cumulative number of hours that arriving high acuity patients are blocked from care because of overcrowding) is 46,000 hours per ED per year, but that this value is only ~1% of the available inpatient bed capacity at the corresponding hospitals. This means the size of the problem is very small relative to the size of the potential solution, and that, if access block was viewed as a 'whole hospital' problem, it could be solved by hospital capacity or efficiency improvements in the range of 1-2%.

In a recent collaborative study[2] looking at 1009 ED fentanyl overdoses (most who received prehospital naloxone), only 1.6% required repeat naloxone dosing after arrival. Among 752 low-risk patients with clear mentation and normal vital signs, only 3 (0.4%) required repeat naloxone, none were admitted, and median ED length of stay was 168 minutes. The bottom line: Fentanyl overdoses can be managed much like heroin overdoses: Patients who are clinically stable usually require only brief observation periods.

In another recent collaborative study[3] we followed 834 ED patients with prolonged QTc intervals (female>460 ms; male>440 ms) and compared these to 417 matched patients with normal QTc. 30-day mortality was 4.7% in the prolonged group and 5.0% in the normal group, with no patients suffering nonfatal cardiac arrest. Findings were similar in the subgroup with very prolonged QTc >500msec. This suggests that, in ED patients, current definitions of QT prolongation are not associated with measurable outcome differences and may not be appropriate for ED risk stratification purposes.

Some of our other recently published work suggested that physician payment mechanisms have little effect on ED operational performance,[4] and that the development of hospital accountability frameworks defining clear program operational expectations, along with demand-driven overcapacity protocols would go a long way to improving access to care. [5]

1. Emergency department overcrowding and access block: A smaller problem than we think. Can J Emerg Med 2018; Nov 8:1-9. doi: 10.1017/cem.2018.446. [Epub ahead of print].
2. Safety of a Brief Emergency Department Observation Protocol for Patients With Presumed Fentanyl Overdose. Ann Emerg Med 2018;72(1):1-8
3. Emergency department patients with a prolonged QT interval do not have increased thirty-day mortality. Ann Emerg Med 2019;73: in press
4. Impact of Physician Payment Mechanism on ED Operational Performance. Can J Emerg Med 2018:20(2):183-90
5. Accountability: A Magic Bullet for Emergency Care Delays and Healthcare Access Blocks. Healthcare Management Forum. 2018;3:172-77

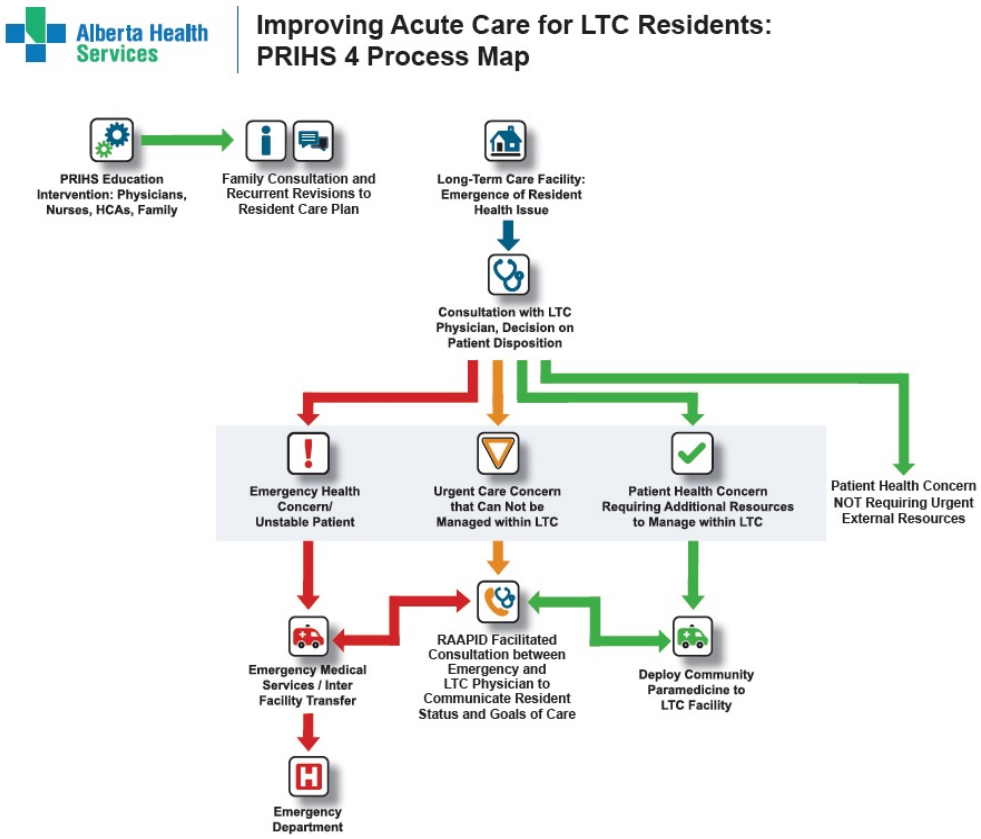
Dr. Grant Innes, Senior Researcher

PRIHS PROJECT

Over 15,000 Albertans live in Long Term Care (LTC) facilities, and every day approximately 28 residents are transferred to an Emergency Department (ED). In the Calgary and Central Zones 17% and 45% of transfers are CTAS 4-5 (less urgent to non-urgent), and 44% and 70% did not require admission to hospital. Many of these issues could potentially be addressed at the LTC facility if appropriate supports were available. Transfer to the ED and exposure to iatrogenic harms including infections, falls, delirium, and functional decline. Moreover, LTC to ED transfers can utilize significant EMS resources, as LTC residents transferred to the ED with non-emergent health issues often have prolonged waits for emergency physician assessment and are thus attending to by paramedics in ED hallways for hours. When ED visits are appropriate, poor communication between the ED and transferring facility can lead to a poor understanding of baseline functional and cognitive abilities, suboptimal problem delineation and management, inefficient resource utilization, patient and family dissatisfaction, and poor patient outcomes.

The Emergency Strategic Clinical Network has partnered with Long Term Care Facilities, Mobile Integrated Healthcare, the Senior Health Provincial Team, and additional stakeholders to propose a solution to improve acute care for LTC residents. Our proposed solutions is a centralized and standardized LTC-ED car and referral pathway through RAAPID (Referral, Access, Advice, Placement, Information and Destination) for LTC facilities seeking transfer to the ED. Assisted by INTER-ACT® (Interventions to Reduce Acute Care Transfers) and informed by the LTC residents Goals of Care Designation (GCD), RAAPID will identify cases suitable to be treated by the MIH program within LTC. This will help to better optimize use of both the ED and the MIH program, in a way that is patient-centered.

This initiative has been funded by a Partnership for Research and Innovation in the Health System (PRIHS 4) to implement the pathway in 36 LTC facilities in the Calgary Zone beginning in April 2019, and at 8 facilities in the Central Zone beginning in January 2021. Expected impacts include a reduction in LTC transfers to the ED per 1000 resident days, a reduction in inpatient admissions, a reduction in instanced of hospital acquired infections, delirium, and cognitive functional decline, and an annual efficiency saving of $7.44 million if implemented on a provincial scale



Daniel Grigat
Senior Project Manager, Partnerships for Research and Innovation in the Health System
Emergency Strategic Clinical Network (ESCN)

Annual Report 2017-18 *Emergency Medicine* [1]

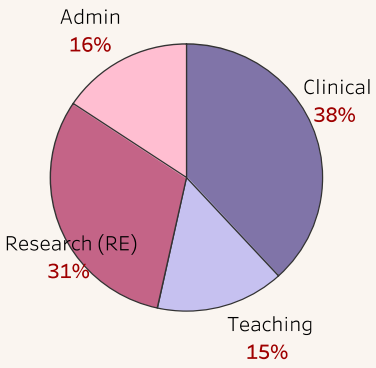
ANNUAL FTEs [2]

	2014-15	2015-16	2016-17	2017-18 [1.1]
CSM	512	500	508	518
Basic Sciences	131	126	129	136
Clinical w/out AARP	163	161	165	165
Clinical w. AARP	218	213	214	217
Emergency Medicine	11	11	11	11

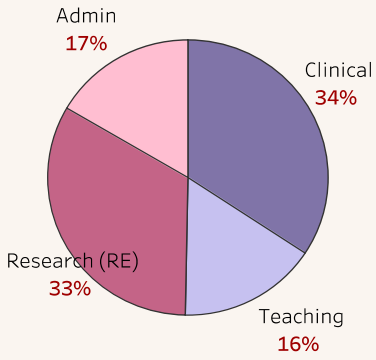
ANNUAL REs [3]

	2014-15	2015-16	2016-17	2017-18
CSM	200.7	199.6	201.4	209.0
Basic Sciences	69.4	66.8	67.9	72.9
Clinical with AARP	78.4	78.9	78.7	81.4
Clinical wout AARP	52.9	53.9	54.8	54.7
Emergency Medicine	3.5	3.9	3.3	3.4

Emergency Medicine [3.1]



Clinical without AARP [3.1]



TOTAL RESEARCH REVENUE [4]

	2014-15	2015-16	2016-17	2017-18
CSM	$131.8M	$128.5M	$121.2M	$145.2M
Basic Sciences	$41.6M	$40.4M	$35.4M	$49.2M
Clinical w AARP	$67.7M	$62.2M	$58.0M	$65.2M
Clinical w/out AARP	$22.6M	$25.8M	$27.8M	$30.7M
Emergency Medicine	$2.4M	$3.0M	$2.4M	$3.4M

RESEARCH REVENUE PER RE [4.1]

	2014-15	2015-16	2016-17	2017-18
CSM	$0.66M	$0.65M	$0.60M	$0.70M
Basic Sciences	$0.60M	$0.61M	$0.52M	$0.68M
Clinical with AARP	$0.86M	$0.79M	$0.74M	$0.80M
Clinical without AARP	$0.44M	$0.49M	$0.51M	$0.58M
Emergency Medicine	$0.68M	$0.79M	$0.74M	$1.00M

TOTAL CIHR REVENUE [5]

	2014-15	2015-16	2016-17	2017-18
CSM	$25.3M	$28.7M	$31.9M	$36.8M
Basic Sciences	$14.0M	$14.4M	$14.4M	$16.1M
Clinical w AARP	$7.9M	$10.6M	$11.6M	$13.2M
Clinical w/out AARP	$3.4M	$3.7M	$5.8M	$7.5M
Emergency Medicine	$1.18M	$1.01M	$0.57M	$0.51M

CIHR REVENUE PER RE [5.1]

	2014-15	2015-16	2016-17	2017-18
CSM	$0.13M	$0.14M	$0.16M	$0.18M
Basic Sciences	$0.20M	$0.22M	$0.21M	$0.22M
Clinical with AARP	$0.10M	$0.13M	$0.15M	$0.16M
Clinical without AARP	$0.07M	$0.07M	$0.11M	$0.14M
Emergency Medicine	$0.34M	$0.26M	$0.17M	$0.15M

TOTAL CLINICAL RESEARCH REVENUE [6]

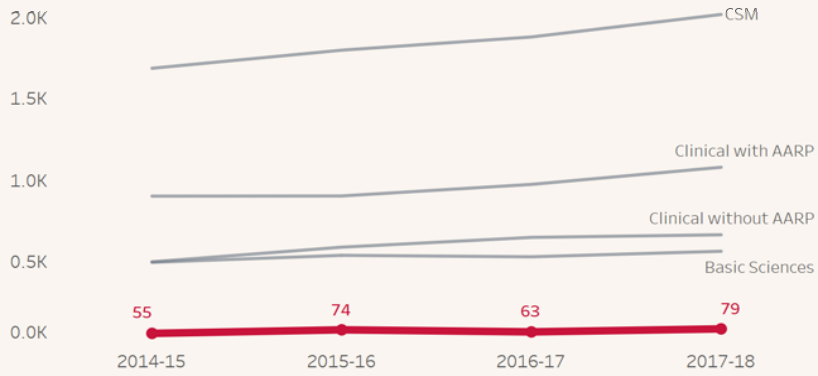
	2014-15	2015-16	2016-17	2017-18
CSM	$11.3M	$15.9M	$47.9M	$57.0M
Basic Sciences	$0.1M	$1.9M	$7.3M	$10.0M
Clinical w AARP	$9.1M	$10.6M	$25.2M	$33.3M
Clinical w/out AARP	$2.1M	$3.4M	$15.4M	$13.7M
Emergency Medicine	$0.27M	$0.87M	$2.22M	$2.34M

CLINICAL RESEARCH REVENUE PER RE [6.1]

	2014-15	2015-16	2016-17	2017-18
CSM	$0.07M	$0.08M	$0.24M	$0.27M
Basic Sciences	$0.00M	$0.03M	$0.11M	$0.14M
Clinical with AARP	$0.13M	$0.13M	$0.32M	$0.41M
Clinical without AARP	$0.04M	$0.07M	$0.29M	$0.26M
Emergency Medicine	$0.08M	$0.23M	$0.67M	$0.69M

2017-18 BIBLIOMETRICS *Emergency Medicine* [1]

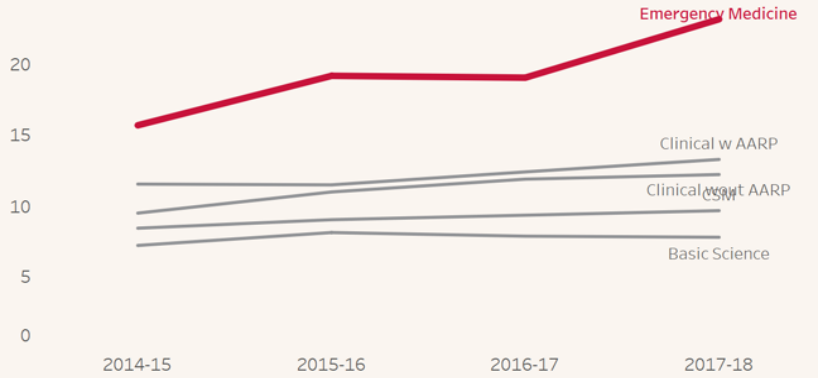
PUBLICATIONS [7]



PUBLICATIONS PER FTE [8]

	2014-15	2015-16	2016-17	2017-18
CSM	3.3	3.6	3.7	3.9
Basic Sciences	3.7	4.2	3.8	4.0
Clinical with AARP	4.0	4.1	3.8	4.8
Clinical without AARP	3.0	3.5	3.6	3.9
Emergency Medicine	5.0	6.7	5.7	7.2

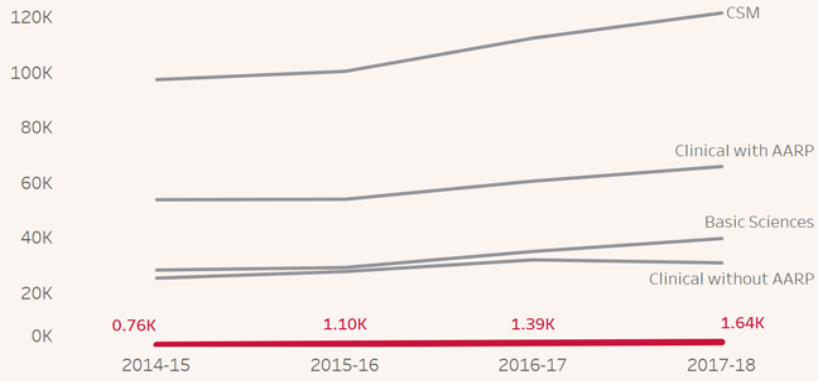
PUBLICATIONS PER RE [9]



PUBLICATIONS PER RE [9]

	2014-15	2015-16	2016-17	2017-18
CSM	8.4	9.0	9.3	9.7
Basic Science	7.2	8.1	7.8	7.8
Clinical w AARP	11.5	11.5	12.4	13.3
Clinical wout AARP	9.5	11.0	11.9	12.2
Emergency Medicine	15.7	19.2	19.1	23.2

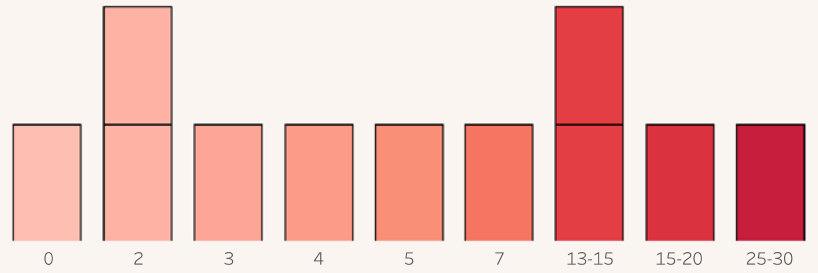
ANNUAL CITATIONS [10]



ANNUAL CITATIONS per FTE [11]

	2014-15	2015-16	2016-17	2017-18
CSM	191	201	222	237
Basic Sciences	216	232	272	297
Clinical with AARP	246	253	282	303
Clinical without AARP	155	172	194	189
Emergency Medicine	69	100	126	149

PUBLICATIONS BY 2017/18 FTE FACULTY IN 2017 [12]



HOT PAPERS [13]

	2014-15	2015-16	2016-17	2017-18
CSM	307	341	386	397
Basic Sciences	96	96	112	120
Clinical without AARP	74	88	110	97
Emergency Medicine	0	3	3	8

NOTES and Definitions

1 **201718 Emergency Medicine Annual Report**
This is the original Emergency Medicine annual report, with the following modifications:
a) Revenue is assigned to a Department based on the Department of the FTE Project Holder
b) Paediatric FTE Faculty that are cross appointed with Emergency Medicine have been considered as part of Emergency Medicine (see note 2 below for list of names)

1.1 **Year 2017-18**
Snapshot of Faculty Counts, as of June 30 2017.
This is the definition used by HR Systems and Reporting and the OIA Fact Books.

2 **FTEs**
Full-time Academic Staff with Ranks of Professor, Associate Professor or Assistant Professor, Instructor, Senior Instructor, as of June 30 of the previous year (e.g. 2018 FTEs are as of June 30 2017)

Department Groups Defined as Follows:
a) Basic Sciences (Biochemistry & Molecular Biology, Cell Biology & Anatomy, Community Health Sciences, Microbiology Immunology & Infectious Diseases, Physiology & Pharmacology)
b) Clinical with AARP (Cardiac Sciences, Clinical Neurosciences, Family Medicine, Medicine, Paediatrics)
c) Clinical without AARP (Anaesthesia, Critical Care Medicine, Emergency Medicine, Medical Genetics, Obstetrics & Gynaecology, Oncology, Pathology & Laboratory Medicine, Psychiatry, Radiology, Surgery)

The Department(s) of the following FTE Faculty have been changed to Emergency Medicine:
Adam Cheng, Antonia Stang, Stephen Freedman, Vincent Grant, Angelo Mikrogiannakis, David Johnson, Kelly Millar, Graham Thompson.

Source:
Annual Factbook by the UCalgary Office of Institutional Analysis

3 **REs**
Average Research Time Allocation, divided by 100 and multiplied by the number of FTE faculty (see Note 2).
Note: To account for CSM Academic Staff members with no time allocations reported in the ARO, the previous year's time allocation is used. If the previous year's time allocation is also blank, then the department average is assigned.

Source:
Academic Report Online

3.1 **Time Allocation**
Average Time Allocation (as reported in ARO) for FTE faculty (see Note 2).

Note: To account for CSM Academic Staff members with no time allocations reported in the ARO, the previous year's time allocation is used. If the previous year's time allocation is also blank, then the department average is assigned.

Source:
Academic Report Online

4 **Total Research Revenue**
Annual Research Revenue for Projects assigned to a CSM FTE Faculty Member
- Revenue is assigned to a Department/Comparator Group based on the Department of the FTE Project Holder
* Of the ~$34 million dollar increase in CSM Research Revenue from 2016-17 to 2017-18, ~$21.5 million is grant revenue and ~$10.5 million is donation related.

Source:
Enterprise Reporting\Research & Trust Accounting datamart

4.1 **Research Revenue per RE**
Annual Research Revenue (See note 4) divided by the number of Research Equivalents in the same year (See note 3)

5 **CIHR Revenue**
Research revenue export (see Note 4), where:
IF Account Description = ("CIHR Grants" OR "CIHR Authorized Transfers")
OR
Tri-Council Source = "CIHR" AND Account Description ("CIHR Grants" OR "CIHR Authorized Transfers")

5.1 **CIHR Revenue per RE**
Annual CIHR Research Revenue (See note 5) divided by the number of Research Equivalents in the same year (See note 3)

6 **Clinical Research Revenue**
Research revenue export (see Note 4), where" Purpose of Funds = "Clinical Trials" OR "Clinical Research"
- In 2016-17, all revenue assigned to projects involving 'Grant Sponsored Clinical Trials' was classified as 'Clinical Research'. In 2015-16, only 47% of revenue assigned to projects involving 'Grant Sponsored Clinical Trials' was classified as 'Clinical Research'. This led to a large increase in 'Clinical Research' revenue in 2016-17 from 2015-16

6.1 **Clinical Revenue per RE**
Annual Clinical Research Revenue (See note 6) divided by the number of Research Equivalents in the same year (See note 3)

NOTES and Definitions Cont'd

7 **Publications**
The number of unique papers published by FTE Faculty in the same publication year. (e.g. 2017-18 refers to the number of unique papers published by 2017/18 FTE faculty in the 2017 publication year)

- Only publications of Document Types "Article", "Review", "Editorial", "Case Report", "Clinical Trial" and "Book" are included;
- Papers co-authored by more than 1 FTE faculty member will be counted once within the same Group.

Source:
Web of Science; - CV from Authors sent to Office of Faculty Analysis (OFA) in 2014-18

8 **Publications per FTE**
Annual number of Unique Publications (see note 7) divided by the number of FTEs in the same year (see note 2)

9 **Annual Publications per RE**
- Annual number of unique Publications (see note 7) divided by the number of Research Equivalents in the same year (see note 3)

10 **Citations**
The number of times that unique publications by FTE Faculty of a given year have been cited in the same year
(e.g. 2017-18 refers to the number of times unique papers published by 2017/18 FTE Faculty were cited in 2017)

- Only publications of Document Types "Article", "Review", "Editorial", "Case Report", "Clinical Trial" and "Book" are included;
- Papers co-authored by more than 1 FTE faculty member will be counted once within the same Group.

Source:
Web of Science; - CVs from Authors sent to Office of Faculty Analysis (OFA) in 2014-18

11 **Citations per FTE**
Total citations in a year for all unique career publications by FTE faculty (see note 10) divided by the number of FTE Faculty in the same year (see note 3)

12 **# of Publications by 2017-18 Faculty in 2017**
Histogram of the number of papers published by 2017-18 FTE Faculty in 2017

13 **Immediate Impact Papers**
Unique publications cited > 49 times in a 5 year publication date window
(e.g. For 2017-18, sum of unique publications published between 2013-17 by 2017/18 FTE Faculty that were cited in 2013-17 greater than 49 times)

2018 LIST OF GRANTS AWARDED

1. **Project**: Optimal Care for Patients with mild Traumatic Brain Injury: Relevance of Biomarkers and CT Scan Use.

   Investigators: Principal Investigator: Natalie Le Sage Co-Investigators: Patrick Archambault, Simon Berthelot, Jean-Marc Chauny, Jérôme Frenette, Eddy Lang, Jacques Lee, Andrew McRae, Éric Mercier, Jeff Perry, Ian Stiell, Marcel Émond.

   Agency: Fondation du CHU de Québec

   Total Funds: $15,000

   Period: 2018-2019

2. **al**Families: Navigation to Community and Specialized Mental Health Services

   Investigators: Gina Dimitropoulous, Marni Bercov; Victoria Suen; Eddy Lang; Angelo Mikrogianakis; Linda Anderson M.; 'laureen Macneil; Lisa Androulidakis; Callum Ross; Brenda Vanderwal; Olivia Cullen; Kyleigh Schraeder; Heather Hair; Nancy Fraser; Aleta Ambrose

   Agency: Addiction and Mental Health Strategic Clinical Network

   Total Funds: $138,850

   Period: May 2018 – May 2020

3. **Project:** Predicting emergency department use among patients receiving hemodialysis care

   Investigators: Paul Ronksley, Adeera Levin, Brenda Hemmelgarn, Braden Manns, Marcello Tonelli, Matthew James, Pietro Ravani, Chandra Thomas, Eddy Lang

   Agency: The Kidney Foundation of Canada

   Total Funds: $50,000

   Period: 2018-2020

4. **Project:** Integrating Quality Improvement & Value-Base Healthcare in Emergency Department Processes

   Investigators: Shawn Dowling

   Agency: Campus Alberta Meeting Grant

   Total Funds: $4000

   Period: 2018

2018 LIST OF GRANTS AWARDED

5. **Project:** De-implementing Low Value Care: A Research Program of the Choosing Wisely Canada Implementation Research Network.

   Investigators: Shawn Dowling

   Agency: Canada Institutes of Health Research, Innovative Clinical Trials Stream

   Total Funds: $1,500,000 + $1,500,000 in matching funds.

6. **Project:** National Patient Advisor Coordinator

   Investigators: Shawn Dowling

   Agency: Alberta Innovates

   Total Funds: $240,000

7. **Project:** Joining Forces to Improve Acute Bronchiolitis Care at the Alberta Children's Hospital: An ED and Inpatient QI Collaborative.

   Investigators: Shawn Dowling, Lindsay Long

   Agency: CMO/MA Quality Improvement Initiative

   Total Funds: $21,538.10

8. **Project:** Decreasing hospital admissions from the emergency department for acute atrial fibrillation

   Investigators: Ian G Stiell, Andrew McRae

   Agency: Canadian Arrhythmia Network Strategic Research Grants

   Total Funds: $1,535,303

9. **Project:** Understanding frequent emergency department visitors in Alberta and Ontario through advanced statistical modelling techniques.

   Investigators: Scott David Fielding, Rhonda Rosychuk, Xiaogiong Hu, Patrick McLane, Andrew McRae, Maria Ospina, Howard Ovens

   Agency: Canadian Institutes of Health Research

   Total Funds: $1,535,303

   Period: 2018-2019

2018 LIST OF GRANTS AWARDED

10. **Project:** A Multimodal Evaluation of an Emergency Department Electronic Tracking Board Utility Designed to Improve Throughput by Optimizing Stretcher Utilization

    Investigators: Eddy Lang, Dirk Chisholm

    Agency: Alberta Innovates Summer Research Studentship Award

    Total Funds: $4,500

    Period: 2018

11. **Project:** Creating an Electronic Dashboard Comparing the use of RBC Transfusions and IV Iron orders in Calgary Emergency Departments to Facilitate Practice Reflection

    Investigators: Eddy Lang, Anwer Siddiqi

    Agency: ESCN Summer Studentship

    Total Funds: $6000

    Period: 2018

12. **Project:** Efficacy of calcitonin for treating acute pain associated with osteoporotic vertebral compression fracture: an updated systematic review

    Investigators: Eddy Lang, Emily Boucher

    Agency: ESCN Summer Studentship

    Total Funds: $1,500

    Period: 2018

13. **Project:** Robert Maudsley Fellowship for Studies in Medical Education

    Investigators: Fareen Zaver

    Agency: Royal College of Surgeons

    Total Funds: $40,000

    Period: 2018

PUBLICATIONS IN 2018

1. **Lang E,** Bell NR, Dickinson JA, Grad R, Kasperavicius D, Moore AE, Singh H, Thériault G, Wilson BJ, Stacey D. Clarifier les valeurs et préférences des patients pour éclairer la prise de décision partagée sur le dépistage préventif. Can Fam Physician. 2018 Jan;64(1):e13-e16. French.
2. **Lang E**, Bell NR, Dickinson JA, Grad R, Kasperavicius D, Moore AE, **Singh H**, Thériault G, Wilson BJ, Stacey D. Eliciting patient values and preferences to inform shared decision making in preventive screening. Can Fam Physician. 2018 Jan;64(1):28-31.
3. Stiell I**, Lang E**, Atkinson P. A New Chapter for CJEM. CJEM. 2018 Jan;20(1):1-2. doi: 10.1017/cem.2017.430
4. Martin-Gill C, Barger LK, Moore CG, Higgins JS, Teasley EM, Weiss PM, Condle JP, Flickinger KL, Coppler PJ, Sequeira DJ, Divecha AA, Matthews ME, **Lang ES, Patterson PD**. Effects of Napping During Shift Work on Sleepiness and Performance in Emergency Medical Services Personnel and Similar Shift Workers: A Systematic Review and Meta-Analysis. Prehosp Emerg Care. 2018 Feb 15;22(sup1):47-57. doi: 10.1080/10903127.2017.1376136. Epub 2018 Jan 11.
5. **Patterson PD,** Runyon MS, Higgins JS, Weaver MD, Teasley EM, Kroemer AJ, Matthews ME, Curtis BR, Flickinger KL, Xun X, Bizhanova Z, Weiss PM, Condle JP, Renn ML, Sequeira DJ, Coppler PJ, **Lang ES**, Martin-Gill C. Shorter Versus Longer Shift Durations to Mitigate Fatigue and Fatigue-Related Risks in Emergency Medical Services Personnel and Related Shift Workers: A Systematic Review. Prehosp Emerg Care. 2018 Feb 15;22(sup1):28-36. doi: 10.1080/10903127.2017.1376135. Epub 2018 Jan 11.
6. Studnek JR, Infinger AE, Renn ML, Weiss PM, Condle JP, Flickinger KL, Kroemer AJ, Curtis BR, Xun X, Divecha AA, Coppler PJ, Bizhanova Z, Sequeira DJ, **Lang E**, Higgins JS, Patterson PD. Effect of Task Load Interventions on Fatigue in Emergency Medical Services Personnel and Other Shift Workers: A Systematic Review. Prehosp Emerg Care. 2018 Feb 15;22(sup1):81-88. doi: 10.1080/10903127.2017.1384874. Epub 2018 Jan 11.
7. James FO, Waggoner LB, Weiss PM**, Patterson PD**, Higgins JS, **Lang ES**, Van Dongen HPA. Does Implementation of Biomathematical Models Mitigate Fatigue and Fatigue-related Risks in Emergency Medical Services Operations? A Systematic Review. Prehosp Emerg Care. 2018 Feb 15;22(sup1):69-80. doi: 10.1080/10903127.2017.1384875. Epub 2018 Jan 11.
8. **Patterson PD**, Higgins JS, Van Dongen HPA, Buysse DJ, Thackery RW, Kupas DF, Becker DS, Dean BE, Lindbeck GH, Guyette FX, Penner JH, Violanti JM, **Lang ES,** Martin-Gill C. Evidence-Based Guidelines for Fatigue Risk Management in Emergency Medical Services. Prehosp Emerg Care. 2018 Feb 15;22(sup1):89-101. doi: 10.1080/10903127.2017.1376137. Epub 2018 Jan 11.
9. Patterson PD, Weaver MD, Fabio A, Teasley EM, Renn ML, Curtis BR, Matthews ME, Kroemer AJ, Xun X, Bizhanova Z, Weiss PM, Sequeira DJ, Coppler PJ, **Lang ES**, Higgins JS. Reliability and Validity of Survey Instruments to Measure Work-Related Fatigue in the Emergency Medical Services Setting: A Systematic Review. Prehosp Emerg Care. 2018 Feb 15;22(sup1):17-27. doi: 10.1080/10903127.2017.1376134. Epub 2018 Jan 11.
10. Temple JL, Hostler D, Martin-Gill C, Moore CG, Weiss PM, Sequeira DJ, Condle JP, **Lang ES**, Higgins JS, Patterson PD. Systematic Review and Meta-analysis of the Effects of Caffeine in Fatigued Shift Workers: Implications for Emergency Medical Services Personnel. Prehosp Emerg Care. 2018 Feb 15;22(sup1):37-46. doi: 10.1080/10903127.2017.1382624. Epub 2018 Jan 11.
11. Martin-Gill C, Higgins JS, Van Dongen HPA, Buysse DJ, Thackery RW, Kupas DF, Becker DS, Dean BE, Lindbeck GH, Guyette FX, Penner JH, Violanti JM, **Lang ES,** Patterson PD. Proposed Performance Measures and Strategies for Implementation of the Fatigue Risk Management Guidelines for Emergency Medical Services. Prehosp Emerg Care. 2018 Feb 15;22(sup1):102-109. doi: 10.1080/10903127.2017.1381791. Epub 2018 Jan 11.
12. Barger LK, Runyon MS, Renn ML, Moore CG, Weiss PM, Condle JP, Flickinger KL, Divecha AA, Coppler PJ, Sequeira DJ**, Lang ES**, Higgins JS, Patterson PD. Effect of Fatigue Training on Safety, Fatigue, and Sleep in Emergency Medical Services Personnel and Other Shift Workers: A Systematic Review and Meta-Analysis. Prehosp Emerg Care. 2018 Feb 15;22(sup1):58-68. doi: 10.1080/10903127.2017.1362087. Epub 2018 Jan 11.
13. Patterson PD, Higgins JS, Weiss PM, **Lang E**, Martin-Gill C. Systematic Review Methodology for the Fatigue in Emergency Medical Services Project. Prehosp Emerg Care. 2018 Feb 15;22(sup1):9-16. doi: 10.1080/10903127.2017.1380096. Epub 2018 Jan 11.
14. De Wit K, Curran J, **Dowling SK**, **Morrison L** et al. Review of implementation strategies to change healthcare provider behaviour in the emergency department. Canadian Journal of Emergency Medicine. Feb 11, 2018. 1-8. Doi: 10.1017/cem.2017.432
15. Contemporary Emergency Department Management of Patients with Chest Pain: A Concise Review and Guide for the High-Sensitivity Troponin Era. **Andruchow JE**, Kavsak PA**, McRae AD**. Can J Cardiol. 2018 Feb;34(2):98-108. doi: 10.1016/j.cjca.2017.11.012. Epub 2017 Dec 2. Review. PMID: 29407013 [PubMed - in process]
16. Performance of high-sensitivity cardiac troponin in the emergency department for myocardial infarction and a composite cardiac outcome across different estimated glomerular filtration rates. Kavsak PA, Worster A, Shortt C, Ma J, Clayton N, Sherbino J, Hill SA, McQueen M, Griffith LE, Mehta SR, **McRae AD**, Devereaux PJ. Clin Chim Acta. 2018 Apr;479:166-170. doi: 10.1016/j.cca.2018.01.034. Epub 2018 Feb 3. PMID: 29366835 [PubMed - indexed for MEDLINE]
17. Ting DK**, Lang ES**. Apneic oxygenation provides incremental benefit during intubation of patients in the emergency medicine and critical care settings. CJEM. 2018 Sep;20(5):770-773. doi: 10.1017/cem.2018.29. Epub 2018 Mar 20.

PUBLICATIONS IN 2018

18. Atkinson P**, Lang E**, Mackenzie M, Hirandani R, Lys R, Laupacis M, Murray H. CJEM Debate Series: #ChoosingWisely - The Choosing Wisely campaign will not impact physician behaviour and choices. CJEM. 2018 Mar;20(2):170-175. doi: 10.1017/cem.2017.402.
19. **Wong C, Teitge B, Ross M,** Young P, Robertson HL**, Lang E.** The Accuracy and Prognostic Value of Point-of-care Ultrasound for Nephrolithiasis in the Emergency Department: A Systematic Review and Meta-analysis. Acad Emerg Med. 2018 Jun;25(6):684-698. doi: 10.1111/acem.13388. Epub 2018 Mar 25.
20. Rice C, Grigat D, Hair H, **Dowling SK, Lang E**. Choosing Wisely: Hemoglobin Transfusions and the Treatment of Iron Deficiency Anemia. Choosing Wisely Alberta Meeting. March 2018 AND May 2018. Canadian Journal of Emergency Medicine 20(S1):S83-84.
21. Scheuermeyer F, Dewitt C, Christenson J**, Innes GD**. Safety of a Brief Emergency Department Observation Protocol for Patients With Presumed Fentanyl Overdose. Ann Emerg Med 2018. Mar 9. pii: S0196-0644(18)30082-9. doi: 10.1016/j.annemergmed.2018.01.054. [Epub ahead of print]
22. **Innes GD, McRae A,** Grafstein E, Law M, Marsden J, Kalla D. Impact of Physician Payment Mechanism on Emergency Department Operational Performance. Can J Emerg Med 2018:20(2):183-90. doi: 10.1017/cem.2018.10.
23. **Yarema MC, Chopra P,** Sivilotti MLA, Johnson DW, Nettel-Aguirre A, Victorino C, Bailey B, Gosselin S, Purssell R, Thompson M, Spyker DA, Rumack BH. Anaphylactoid reactions to intravenous N-acetylcysteine during treatment of acute acetaminophen poisoning. J Med Toxicol 2018.14;120-127. DOI 10.1007/s13181-018-0653-9
24. **Damji O, Lang E**. In perfusion imaging-selected acute ischemic stroke, thrombectomy at 6 to 16 hours improved functional outcomes. Ann Intern Med. 2018 Apr 17;168(8):JC42. doi: 10.7326/ACPJC-2018-168-8-042.
25. de Wit K, Curran J, Thoma B, **Dowling S, Lang E**, Kuljic N, Perry JJ, **Morrison L.** Review of implementation strategies to change healthcare provider behaviour in the emergency department. CJEM. 2018 May;20(3):453-460. doi: 10.1017/cem.2017.432. Epub 2018 Feb 12.
26. Lin K, Wang D, Yiu K, Van Gaal S, Dickhoff P, **Dowling SK**. Filling in the Blanks: A Computerized Provider Order Entry Strategy to Improve the Quality of Clinical Information on Neuroimaging Requisitions from the Emergency Department. May 2018. Canadian Journal of Emergency Medicine 20(S1):S90
27. Curran J, **Dowling SK, de Wit K**. Implementation strategies to promote provider behaviour change in emergency departments. May 2018. Canadian Journal of Emergency Medicine 20(S1):S32
28. **Dowling SK**, Rivera L, Wang D, Lonergan K, **Rich T, Lang E**. Audit and feedback for emergency physicians - perceptions and opportunities for optimization. May 2018. Canadian Journal of Emergency Medicine 20(S1):S68-69.
29. **Lang E,** Kaplan G, Novak K, van Zanten S, Jelinski S, **Dowling SK**. Emergency department visits for upper gastrointestinal bleeding: a population-based Alberta cohort. May 2018. Canadian Journal of Emergency Medicine 20(S1):S87
30. Hawkins LA, **Dowling SK**, Wang D, Mahajan A, **Mageau A**, Musto R, Metcalfe A, Nerenberg K. Development and implementation of a postpartum hypertension recognition and management protocol for use in the emergency department. May 2018. Canadian Journal of Emergency Medicine 20(S1):S80
31. Lonergan K, **Lang E , Dowling SK**, Wang D, **Rich T**. Real-time 72 hour readmission alert. May 2018. Canadian Journal of Emergency Medicine 20(S1):S90-91
32. Profile of Roche's Elecsys Troponin T Gen 5 STAT blood test (a high-sensitivity cardiac troponin assay) for diagnosing myocardial infarction in the emergency department. Kavsak PA, **Andruchow JE, McRae AD,** Worster A. Expert Rev Mol Diagn. 2018 Jun;18(6):481-489. doi: 10.1080/14737159.2018.1476141. Epub 2018 May 18.
33. How to conduct implementation trials and multicentre studies in the emergency department. Stiell IG, Perry JJ, Brehaut J, Brown E, Curran JA, Emond M, Hohl C, Taljaard M, **McRae AD**. CJEM. 2018 May;20(3):448-452. doi: 10.1017/cem.2017.433. Epub 2018 Jan 30. PMID: 29378671 [PubMed - in process]
34. Engaging emergency clinicians in emergency department clinical research. **McRae AD,** Perry JJ, Brehaut J, Brown E, Curran J, Emond M, Hohl C, Taljaard M, Stiell IG. CJEM. 2018 May;20(3):443-447. doi: 10.1017/cem.2017.434. Epub 2018 Jan 30. PMID: 29378670 [PubMed - in process]
35. Between- and within-site variation in medication choices and adverse events during procedural sedation for electrical cardioversion of atrial fibrillation and flutter. Clinkard D, Stiell I**, Lang E, Rose S,** Clement C, Brison R, Rowe BH, Borgundvaag B, **Langhan T**, Magee K, Stenstrom R, Perry JJ, Birnie D, Wells G**, McRae A**. CJEM. 2018 May;20(3):370-376. doi: 10.1017/cem.2017.20. Epub 2017 Jun 7. PMID: 28587704 [PubMed - in process]
36. Hot Off the Press: Topical Tranexamic Acid Compared With Anterior Nasal Packing for Treatment of Epistaxis in Patients Taking Antiplatelet Drugs. Morgenstern J, Rangarajan S, Heitz C**, Bond C**, Milne WK. Acad Emerg Med. 2018 Sep;25(9):1062-1064. doi: 10.1111/acem.13422. Epub 2018 May 7. No abstract available. PMID: 29624770

PUBLICATIONS IN 2018

37. Senior K, Burles K, Wang D, Grigat D**, Innes GD, Andruchow JE, Lang ES, McRae AD**. Age-adjusted D-dimer thresholds in the investigation of suspected pulmonary embolism: A retrospective evaluation in patients ages 50 and older using administrative data. CJEM. 2018 Sep;20(5):725-731. doi: 10.1017/cem.2018.389. Epub 2018 Jun 5.
38. Edgerley, S., **McKaigney, C**., Boyne D., Ginsberg, D., Dagnone, D., and A. Hall. Impact of night shifts on emergency medicine resident resuscitation performance. Resuscitation. 2018. Volume 127, 26 - 30
39. Miller RJH, Chew DS, Rezazadeh S, Klassen S, Pournazari P, **Lang E**, Quinn FR. Factors Influencing Oral Anticoagulation Prescription for Patients Presenting to Emergency Departments With Atrial Fibrillation and Flutter. Can J Cardiol. 2018 Jun;34(6):804-807. doi: 10.1016/j.cjca.2018.03.009. Epub 2018 Mar 24.
40. Hot Off the Press: SGEM #218. Excited Delirium: A Systematic Review**. Bond C**, Morgenstern J, Heitz C, Milne WK. Acad Emerg Med. 2018 Jun 1. doi: 10.1111/acem.13487. [Epub ahead of print] PMID: 29858534
41. Hot Off the Press: SGEM #215 Aortic Dissection-Love Will Tear Us Apart. Heitz C, Morgenstern J**, Bond C,** Milne WK. Acad Emerg Med. 2018 Oct;25(10):1181-1183. doi: 10.1111/acem.13455. Epub 2018 Jun 19. PMID: 29781559
42. Hot Off the Press: A Novel Algorithm to Decrease Unnecessary Hospitalizations in Patients with Atrial Fibrillation. Morgenstern J, Heitz C**, Bond C**, Milne WK. Acad Emerg Med. 2018 Jul 12. doi: 10.1111/acem.13514. [Epub ahead of print] No abstract available. PMID: 30003641
43. Cooke L, Duncan D, Rivera L, **Dowling SK**, Symonds C, Armson H. (2018). How do physicians behave when they participate in audit and feedback activities in a group with their peers?. Implementation Science. 13. 10.1186/s13012-018-0796-8.
44. Powell J, Sanderson M**, Lang E**. CT HEAD? Reviewing the newest validation of the Ottawa Subarachnoid Hemorrhage Rule. CJEM. 2018 Jul 16:1-3. doi: 10.1017/cem.2018.411. [Epub ahead of print].
45. Cheng A, Duff JP, Kessler D, Tofil NM, Davidson J, Lin Y, Chatfield J, Brown, LL, Hunt EA; International Network for Simulation-based Pediatric Innovation Research and Education (INSPIRE) CPR. Optimizing CPR performance with CPR coaching for pediatric cardiac arrest: A randomized simulation-based clinical trial. Resuscitation. 2018 Nov;132:33-40. doi: 10.1016/j.resuscitation.2018.08.021. Epub 2018 Aug 24. PubMed PMID: 30149088.
46. Wendy Lim, Grégoire Le Gal, Shannon M. Bates, Marc Righini, Linda B. Haramati, **Eddy Lang**, Jeffrey A. Kline, Sonja Chasteen, Marcia Snyder, Payal Patel, Meha Bhatt, Parth Patel, Cody Braun, Housne Begum, Wojtek Wiercioch, Holger J. Schünemann and Reem A. Mustafa. American Society of Hematology 2018 guidelines for management of venous thromboembolism: diagnosis of venous thromboembolism. Blood Advances 2018 2:3226-3256; doi: https://doi.org/10.1182/bloodadvances.2018024828
47. Hot Off the Press: Validation of the Pediatric NEXUS II Head Computed Tomography Decision Instrument for Selective Imaging of Pediatric Patients with Blunt Head Trauma. Heitz C, Morgenstern J, **Bond C,** Milne WK. Acad Emerg Med. 2018 Aug 13. doi: 10.1111/acem.13549. [Epub ahead of print] PMID: 30102838
48. **Marc N. Francis, Ian M. Wishart,** Tyler Williamson, Ryan Iverach, Use of Pharmacologic Sleep Aids and Stimulants Among Emergency Medicine Staff Physicians in a Canadian Tertiary Care Setting: A Web-Based Survey, Annals of Emergency Medicine,2018,ISSN 0196-0644.
49. Lockey A, Lin Y, Cheng A. Impact of adult advanced cardiac life support course participation on patient outcomes-A systematic review and meta-analysis. Resuscitation. 2018 Aug;129:48-54. doi: 10.1016/j.resuscitation.2018.05.034. Epub 2018 Jun 11. PubMed PMID: 29902494.
50. Hiranandani R, Mackenzie MJ, Wang D, Fung T, **Lang E**. Emergency Physicians Choose Wisely When Ordering Plain Radiographs for Low Back Pain Patients. Cureus. 2018 Aug 10;10(8):e3126. doi: 10.7759/cureus.3126. PMID: 30345185
51. Selby S, Wang D, Murray E**, Lang E**. Emergency Departments as the Health Safety Nets of Society: A Descriptive and Multicenter Analysis of Social Worker Support in the Emergency Room. Cureus. 2018 Sep 4;10(9):e3247. doi: 10.7759/cureus.3247.
52. Graham TA, Ballermann M**, Lang E**, Bullard MJ, Parsons D, **Mercuur G**, San Agustin P, Ali S. Emergency Physician Use of the Alberta Netcare Portal, a Province-Wide Interoperable Electronic Health Record: Multi-Method Observational Study. JMIR Med Inform. 2018 Sep 25;6(3):e10184. doi: 10.2196/10184.
53. Thiruganasambandamoorthy V, Sivilotti M, Rowe B**, Mcrae A et al.** Prevalence of pulmonary embolism among emergency department patients with syncope: a multicenter prospective cohort study. Annals of Emergency Medicine. 2018; in press.
54. Thiruganasambandamoorthy V, Rowe B, Sivilotti M**, McRae A,** Arcot K, Nemnom MJ et al. Duration of electrocardiographic monitoring of emergency department patients with syncope. Circulation. 2018. In Press.
55. **Rose S**, Cheng A.Charge nurse facilitated clinical debriefing in the emergency department. CJEM. 2018. 20(5), 781-785. doi:10.1017/cem.2018.369
56. **Innes GD, McRae A**, Grafstein E, Law M, Teichman J, **Weber B**, Carlson K, **Boyda H, Andruchow J**. Variability of Renal Colic Management and Outcomes in Two Canadian Cities. Can J Emerg Med 2018; 20:702-11. doi:10.1017/cem.2018.31

PUBLICATIONS IN 2018

57. Senior K, Burles K, Grigat D, **Innes GD**, et al. Age-adjusted D-dimer thresholds in the investigation of suspected pulmonary embolism: A retrospective evaluation in patients ages 50 and older using administrative data. Can J Emerg Med 2018;20:725-31
58. **Innes GD**. Accountability: A Magic Bullet for Emergency Care Delays and Healthcare Access Blocks. Healthcare Management Forum. 2018;3:172-77
59. **McRae A**, Graham M, Abedin T, Ji Y, Yang H, Wang D, Southern D, **Andruchow J, Lang E**, **Innes G**, Seiden-Long I, DeKoning L, Kavsak P. Sex-specific, high-sensitivity cardiac troponin T cut-off concentrations for ruling out acute myocardial infarction with a single measurement. CJEM. 2018 Sep 28:1-8. doi: 10.1017/cem.2018.435. [Epub ahead of print]
60. Sanderson M, Powell J, **Lang E**. Topical tranexamic acid for the treatment of epistaxis in patients using antiplatelet agents. CJEM. 2018 Sep;20(5):774-776. doi: 10.1017/cem.2018.422.
61. Sex-specific, high-sensitivity cardiac troponin T cut-off concentrations for ruling out acute myocardial infarction with a single measurement. **McRae A,** Graham M, Abedin T, Ji Y, Yang H, Wang D, Southern D, **Andruchow J, Lang E, Innes G**, Seiden-Long I, DeKoning L, Kavsak P. CJEM. 2018 Sep 28:1-8. doi: 10.1017/cem.2018.435. [Epub ahead of print] PMID: 30261938 [PubMed - as supplied by publisher]
62. Rezazadeh S, Chew DS, Miller RJH, Klassen S, Pournazari P, Bennett G**, Lang E**, Quinn FR. Effects of a reminder to initiate oral anticoagulation in patients with atrial fibrillation/atrial flutter discharged from the emergency department: REMINDER study. CJEM. 2018 Oct 8:1-9. doi: 10.1017/cem.2018.415. [Epub ahead of print]
63. Atkinson P, **Lang E**, Mackenzie M, Hiranandani R, Lys R, Laupacis M, Murray H. CJEM Debate Series: #ChoosingWisely - The Choosing Wisely campaign will not impact physician behaviour and choices - CORRIGENDUM. CJEM. 2018 Oct 22:1. doi: 10.1017/cem.2018.443. [Epub ahead of print] No abstract available. PMID: 30343675.
64. Bell CR, **McKaigney, C**., Holden, M., Fichtinger, G. and L. Rang. Sonographic Accuracy as a Novel Tool for Point-of-care Ultrasound Competency Assessment. Academic Emergency Medicine. 2017 Oct 1(4):316-324
65. Cooke L, Duncan D, Rivera L, **Dowling SK**, Symonds C, Armson H. The Calgary Audit and Feedback Framework: A practical, evidence-informed approach for the design and implementation of socially constructed learning interventions using audit and group feedback. Implementation Science 2018 – 13:136. Published online Oct 30, 2018.
66. Murray B, Halasz J, Novak K, **Dowling SK**, Law S, Misra T, Williams J, Burak KW. Optimizing the Use of Gastroscopy in Otherwise
67. Age-adjusted D-dimer thresholds in the investigation of suspected pulmonary embolism: A retrospective evaluation in patients ages 50 and older using administrative data. Senior K, Burles K, Wang D, Grigat D, **Innes GD, Andruchow JE, Lang ES, McRae AD**. CJEM. 2018 Sep;20(5):725-731. doi: 10.1017/cem.2018.389. Epub 2018 Jun 5.
68. Variability of renal colic management and outcomes in two Canadian cities**. Innes G, McRae A**, Grafstein E, Law M, Teichman JMH, **Weber B**, Carlson K, **Boyda H, Andruchow J**. CJEM. 2018 Sep;20(5):702-712. doi: 10.1017/cem.2018.31. Epub 2018 Apr 4. PMID: 29615138 [PubMed - in process]
69. Prediction of Early Adverse Events in Emergency Department Patients With Acute Heart Failure: A Systematic Review. Michaud AM, Parker SIA, Ganshorn H, Ezekowitz JA**, McRae AD**. Can J Cardiol. 2018 Feb;34(2):168-179. doi: 10.1016/j.cjca.2017.09.004. Epub 2017 Sep 12. Review. PMID: 29287944 [PubMed - in process]
70. **McRae A**, Graham M, **Lang E, Andruchow J, Innes GD,** et al. "Sex-specific high-sensitivity cardiac Troponin T cut-off concentrations for ruling out acute myocardial infarction with a single measurement. Can J Emerg Med 2018; Sep 28:1-8. doi: 10.1017/cem.2018.435. [Epub ahead of print] PMID:30261938
71. Rosenfield D, Eltorki M1, **VandenBerg S**2, Allain D3, Freedman SB4, Beno S. Single-Use Detergent Sacs: A Retrospective Multicenter Canadian Review of Emergency Department Cases. Pediatr Emerg Care. 2018 Oct;34(10):736-739.
72. Dylan Tuckera , Adam Mutsaersb , Jay Greena , **Mark Yarema** , Marco Sivilottid , David Johnsone , Daniel A. Spykerf and Barry Rumackg. Changing nomogram risk zone classification with serial testing following acute acetaminophen overdose. North American Congress of Clinical Toxicology (NACCT) Abstracts 2018. Pages 912-1092. Published online: 21 Sep 2018. https://doi.org/10.1080/15563650.2018.1506610.
73. Hot Off the Press: Comparison of Emergency Medicine Malpractice Cases Involving Residents to Nonresident Cases. Morgenstern J, Heitz C, **Bond C**, Milne WK. Acad Emerg Med. 2018 Oct 11. doi: 10.1111/acem.13626. [Epub ahead of print] PMID: 30307082
74. Stein AT, **Lang E**, Migowski A. Implementing clinical guidelines: a need to follow recommendations based on the best evidence available. Rev Bras Epidemiol 2018; 21: e180021. DOI: 10.1590/1980-549720180021.
75. Rosenfield D, Eltorki M**, VandenBerg S,** Allain D, Freedman SB, Beno S. Single-Use Detergent Sacs: A Retrospective Multicenter Canadian Review of Emergency Department Cases. Pediatr Emerg Care. 2018 Oct;34(10):736-739. doi:10.1097/PEC.0000000000000835. PubMed PMID: 27387970.
76. Hot off the Press: SGEM #226. I Want a New Drug-One That Doesn't Cause an Adverse Drug Event.Bond C, Morgenstern J, Heitz C, Milne WK.Acad Emerg Med. 2018 Sep 12. doi: 10.1111/acem.13566. [Epub ahead of print]PMID: 30207622

PUBLICATIONS IN 2018

77. **Innes GD**, Sivilotti M, Ovens H, **McLelland K**, et al. Emergency Department Access Block: A Smaller Problem Than We Thought. Can J Emerg Med 2018; Nov 8:1-9. doi: 10.1017/cem.2018.446. [Epub ahead of print].
78. Heitz C, Morgenstern J**, Bond C**, Milne WK. Hot Off the Press: A Systematic Review And Meta-analysis of Ketamine as an Alternative to Opioids for Acute Pain in the Emergency Department. Acad Emerg Med. 2018 Nov 27. doi: 10.1111/acem.13658. [Epub ahead of print] PubMed PMID: 30480346.
79. Hot Off the Press: A Systematic Review And Meta-analysis of Ketamine as an Alternative to Opioids for Acute Pain in the Emergency Department. Heitz C, Morgenstern J, B**ond C**, Milne WK. Acad Emerg Med. 2018 Nov 27. doi: 10.1111/acem.13658. [Epub ahead of print] PMID: 30480346
80. Stiell IG, Perry JJ, Clement CM, Brison RJ, Rowe BH, Aaron SD, **Mcrae AD et al.** Clinical validation of a risk scale for serious outcomes among patients with chronic obstructive pulmonary disease managed in the emergency department. CMAJ. 2018;190(48):e1406-e1413.
81. Stiell IG, Scheuermeyer FX, Vadeboncoeur A et al. CAEP Acute Atrial Fibrillation/Flutter Best Practices Checklist. CJEM. 2018;20(3):334-342.
82. **Ryan Chuang**, Farah Saleh & Bader Alyahya (2018) Pediatric cardiac toxicity associated with fentanyl ingestion, Toxicology Communications, 2:1, 39-41, DOI: 10.1080/24734306.2018.1459108
83. Waller R, and **VandenBerg S** A one-day transformation project for overdose emergency kits Information Design Journal, 23(3), 319-333, 2018
84. Ting D, Thoma B, Luckett-Gatopoulos S, Thomas AD, Syed AS, Bravo M, **Zaver F**, Purdy E, Kwok E, Chan TM. CanadiEM: Accessing an online community of practice to create a Canadian national medical education institution. AEM Education & Training. Accepted September 26, 2018. Online first October 3, 2018. DOI: 10.1002/aet2.10199
85. **Zaver F**, Gisondi M, Chou A, Sheehy M, Lin M. The Chief Resident Incubator - A virtual community of practice. Canadian Journal of Emergency Medicine. May 11, 2018. Volume 20, Supp S1
86. Colmers-Gray, Krishnan K, Chan T, Trueger S, Paddock M, Grock A, **Zaver F**, Thoma B. The revised METRIQ Score: An international, social-media based usability analysis of a quality evaluation instrument for medical education blogs. Canadian Journal of Emergency Medicine. May 11, 2018. Volume 20, Supp S1
87. **Zaver F**, Battaglioli N, Denq W, Messman A, Chung A, Lin M, Liu EL. Identifying Gaps and Launching Resident Wellness Initiatives: The 2017 Resident Wellness Consensus Summit. Western Journal of Emergency Medicine. 2018 Mar:19(2): 342-345.
88. Paetow G, **Zaver F**, Gottlieb M, Chan T, Lin M, Gisondi M. A Non-hierarchical Mentorship Model for Professional Development. Cureus 10(7): e3013. Doi:10.7759/cureus.3013

ABSTRACTS IN 2018

1. **Dowling SK**, **Stang A,** Gjata I, Law S, Burak K, Buna R, Duncan D, Smart K. Bronchiolitis management in Calgary emergency departments. May 2018. Canadian Journal of Emergency Medicine 20(S1):S38 AND Choosing Wisely Alberta Meeting. March 2018.
2. **VandenBerg S**, Rivera L**, Dowling SK**, Ruhl G. Advancing knowledge translation of emergency medicine messaging through a collaboration between health and information design professionals (accepted) Choosing Wisely Alberta Meeting. March 2018.
3. Law S, Mehta A, Train A, Patterson E, Cooper J, Lester J**, Dowling SK**, Nicholson T, Cooke L, Burak K. Using data and partnerships to support primary care physicians. Choosing Wisely Alberta Symposium, Calgary; poster presentation March 7, 2018.
4. **Stang A**, Law S, Gjata I, Burak K, **Dowling SK.** The role of audit and feedback in the ED setting: are physicians able to accurately predict their own practice?May 2018. Canadian Journal of Emergency Medicine 20(S1):S108-9, Choosing Wisely Canada National meeting. Toronto, ON. April 23rd, 2018, CPD Research Symposium, Canadian Conference on Medical Education, Halifax; oral presentation April 29, 2018.
5. Cooke LJ, Duncan D, **Dowling SK**, Rivera L, **Stang A**, Burak K, Armson H. CAFF-einating Audit and Feedback for Professional Development: The Calgary Audit and Feedback Framework (CAFF) increased physician action planning for change. Canadian Conference on Medical Education, Halifax 2018; oral presentation April 30, 2018.
6. **Koger KK**, **Andruchow JE, McRae AD**, Wang D**, Innes G, Lang E**. ICD-10 coding of free text diagnoses is not reliable for the diagnosis of PE in the Calgary zone emergency department patients. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.279. Published online: 11 May 2018.
7. **Innes GD, McRae A, Andruchow J, Lang E.** Predictors of adverse self-reported 10-day outcomes in emergency department patients with acute ureteral colic. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018.
8. **Innes GD, McRae A, Andruchow J, Lang E**. Patient presenting complaint is a strong determinant of ED wait time. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018.
9. **GD Innes, J. Andruchow, A. D. McRae, E. Lang**. Do doctors cherry pick? Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.194 Published online: 11 May 2018, p. S55
10. S. Stackhouse, **GD Innes,** E. Grafstein. Variability in triage performance for chest pain patients in two Canadian cities. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.124. Published online: 11 May 2018, pp. S28-S29
11. Phillips K, Thorpe L**, Innes GD**. Eye care in the emergency department: What proportion of patients presenting to the emergency department with isolated eye related complaints could alternatively be seen by an optometrist? Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018.
12. Holroyd BH**, Innes GD**, Bullard M, et al. Variation in Alberta emergency department patient populations. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. Can J Emerg Med 2018;20:S1
13. **Watt, GD Innes, J.** Brubacher, L. Cuthbertson, R. Stenstrom**, J. E. Andruchow**. Emergency department initiated drug therapy and patient compliance in acute renal colic. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.82. Published online: 11 May 2018, p. S13
14. **J.E. Andruchow**, D. Grigat, **A.D. McRae,** T. Abedin, **GD. Innes**, et al. A randomized controlled trial of electronic clinical decision support to reduce unnecessary CT imaging for patients with suspected pulmonary embolism. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.135 Published online: 11 May 2018, pp. S32-S33
15. **J.E. Andruchow**, D. Grigat**, A.D. McRae, GD Innes,** et al. A randomized controlled trial of electronic clinical decision support to reduce unnecessary CT imaging for patients with mild traumatic brain injury. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.134. Published online: 11 May 2018, p. S32.
16. **D. McRae**, S. Vatanpour, J. Ji, H. Yang, D. Southern, D. Wang, I. Seiden-Long, **, E. Lang, GD Innes,** et al. Test characteristics of high sensitivity troponin T performed at emergency department arrival for acute myocardial infarction in patients with reduced kidney function. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.123. Published online: May 2018, p. S28

17. S. Arnold, D. Grigat**, J. E. Andruchow, A. D. McRae, GD Innes,** et al. Barriers and facilitators to physician use of computerized clinical decision support for mild traumatic brain injury and suspected pulmonary embolism. Can J Emerg Med 2018;20:S1. Presented at the Canadian Association of Emergency Physicians Annual Scientific Symposium, Calgary, AB, May 2018. https://doi.org/10.1017/cem.2018.192. Published online: 11 May 2018, p. S54
18. **Lang E,** Kasperavicius D, Buckland D, Scoleri R, Moore J, Thombs B, Straus S. PODIUM PRESENTATION: Decision support and knowledge translation tools to highlight the benefits and downstream harms of screening: Resources from the Canadian task force for preventive healthcare. Too Much Medicine. Helinski, 15-17 Aug 2018.
19. **Lang E,** Craigie S. PreventionPLUS: A free access literature awareness portal that surveilles high quality research and guidelines to inform benefits and downstream harms of screening and prevention strategies in healthcare. Too Much Medicine. Helinski, 15-17 Aug 2018.
20. **Lang E,** Kasperavicius D, Buckland D, Scoleri R, Moore JE, Thombs B, Straus S. Decision Support and Knowledge Translation Tools to Highlight the Benefits and Harms of Screening: An Analysis of Online Access and Dissemination of the Canadian Task Force for Preventive Healthcare Resources. Preventing Overdiagnosis 2018. Denmark 20-22 August 2018.
21. Healthy Patients with Dyspepsia. Quality & Safety Summit 2018; Fishbowl Oral Presentation October 18, 2018.
22. **Innes GD**, Sivilotti M, Ovens H, McLelland K, et al. Emergency Department Access Block: A Smaller Problem Than We Thought. at Western ED Operations Conference, Victoria, BC.
23. **Andruchow J**, Grigat G**, McRae A, Innes GD, Lang E.** Implementing Choosing Wisely recommendations in the emergency department through electronic decision support. Choose Wisely Alberta Symposium, Edmonton, AB.
24. Dowsett L, Grigat G, Lorenzetti D, **McRae A, Innes GD, Andruchow J, Lang E,** Clement C. Use of Clinical Decision Support Tools in the Emergency Department, at Health Technology Assessment international Conference, Vancouver, BC.