Department of Emergency Medicine





Calgary Zone

2020 Annual Report



Contents

Message from the Department Leadership	4
Visions & Mission Statement	6
Department Structure & Organization	10
Accomplishments	11
Workforce Planning	16
Committees	17
Site Updates	18
Locums	32

- **Clinical Informatics** 38
- **Medical Education** 60
- Research 70
- Leadership Group 81
- Annual Operational (LOS) Data 92
- Grants 100
- **Publications** 102
- 112 **Abstracts**



Message from the Department Leadership



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



Karen Foudy RN BN MST
Executive Director
Program Lead for Emergency Departments,
Calgary Zone

Early in 2020, the Department of Emergency Medicine in Calgary faced a silent and deadly killer. Not only was the COVID-19 pandemic a serious threat to Albertans and our health care system but the dangers of working on the front lines of COVID care were also evident. Within weeks of the declaration of emergency measures it became clear that rapid and dramatic changes we're going to be required to meet the requirements of the new normal.

Emergency department staff rose magnificently to the unprecedented challenges posed by the global pandemic. The transformation in emergency care spanned a number of dimensions and achieved remarkable adaptation on very short notice. These changes included but were not limited to the following:

- 1. A complete reorganization of patient flow and care in all emergency departments through the creation of hot-zones designated for patients suspected of COVID-19 infection.
- 2. Rapid adaptation to exhaustive personal protective equipment and infection prevention and control protocols designed to ensure the safety of staff and patients.
- 3. Finding novel ways to ascertain collateral history from patients and hold family discussions given the strains relating to the required visitation policies.
- 4. A transformation in how information and education are disseminated to a large department consisting of over 220 emergency medicine faculty, over 1000 nurses and many allied health and supporting departmental staff.
- 5. A shift in departmental culture emphasizing generosity, gratefulness and kindness exemplified in this video. https://www.youtube.com/watch?v=NtcPsBnxomY&feature=youtu.be
- 6. While all of our MDs stepped up in remarkable ways as part of the pandemic response, 30 of our emergency MDs stepped up and volunteered to work and support our ICU and COVID unit Internal Medicine colleagues in a time of great need.



Our pandemic response was led by Dr. Neil Collins, Deputy Department Head and Operational Lead, whose commitment to staff safety, prompt and clear communications was exceptional. All of our operational leaders stepped up in extraordinary ways, keeping our department members aware and on top of frequent changes in policies related to the testing an isolation of suspected COVID 19 patients. The successful Emergency Department response to COVID-19 was in many ways made possible by the support of entire Zone's efforts. Early in the pandemic while our colleagues in other Canadian cities were being over-run with patients seeking COVID tests, the rapid deployment of assessment centers allowed us to focus on our mission of emergency care. Constant vigilance and support from Calgary Zone Emergency Operations Committee (ZEOC) allowed our departments to navigate the pandemic response safely and effectively.

Emergency department operations saw extensive improvements early in the pandemic with changes driven by reduced Emergency Inpatients (EIPs) and improved hospital capacity seen mostly in the months of April and May. https://focus.hqca.ca/emergencydepartments/patients-time-to-see-an-emergencydoctor/ highlighting how ED functioning is fundamentally a function of the integrity of downstream capacity.

Despite the pandemic or perhaps because of it, our department completed a strategic plan that will be set for unveiling early in 2021. It highlights a vision for Calgary Emergency Departments providing world class care and missions highlighting, equity, diversity and inclusion as well as anti-racism priorities. Physician wellness and innovation also feature prominently in the plan which achieved wide engagement despite the challenges we faced in meeting face to face.

In summary, 2020 posed extraordinary challenges for our department but also allowed us to transform the crisis into opportunities and innovations that highlight and cement the critical role that our department plays in providing care for all Calgarians with emergency healthcare needs.

Values



Our

Healthy Albertans. Healthy Communities.

Vision

Together.

Our Mission

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

Our Values compassion accountability

We are honest, principled and transparent.

care, and for each other.

We show kindness and empathy for all in our

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.



U of C Strategy

The University of Calgary is a global intellectual hub located in Canada's most enterprising city. In this spirited, high-quality learning environment, students will thrive in programs made rich by research, hands-on experiences and entrepreneurial thinking. By 2022, we will be recognized as one of Canada's top five research universities, fully engaging the communities we both serve and lead.

Our Eyes High strategic plan drives our institution at the highest level, and we report on our progress to our community every year through our Community Report. Whether it's our overall direction, our foundational commitments or areas important to our community, such as sustainability and mental health, we have well-articulated plans developed through consultation with our community that help us progress towards our goals.

U of C **Values**

- Balance
- Collaboration

Excellence

- Curiosity
- Globalization
- Support
- Sustainability



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

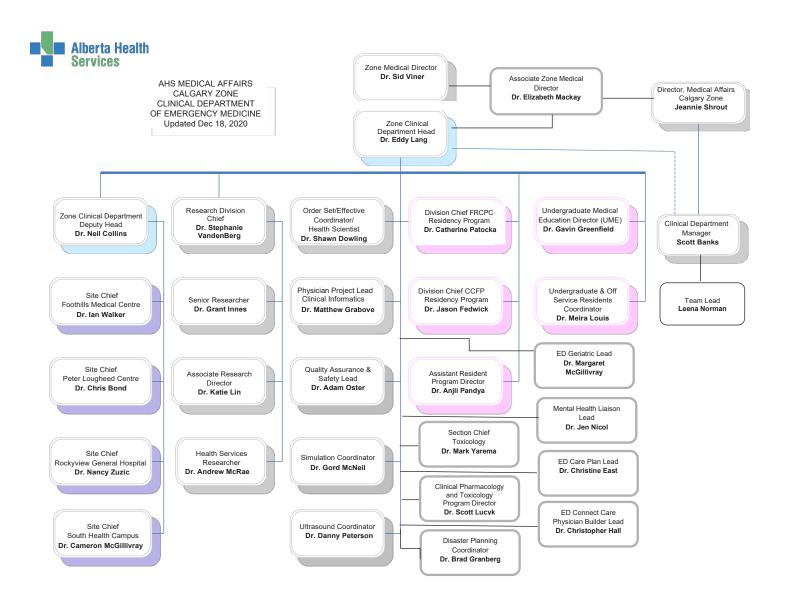
Strategic Goals

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

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

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

Structure & Organization



Accomplishments

Academic Appointment Promotions

Clinical Associate Professor

Dr. Gavin J Greenfield

Dr. Ryan Chuang

Clinical Assistant Professor

Dr. Andrew W Battison

Dr. Bilal T Mir

Dr. Carrie A Hiscock

Dr. Michael G Szava-Kovats

Dr. Marc N. Francis

Associate Professor

Dr. Andrew McRae

Adjunct Professor Dr. Mark Yarema (U of Alberta)

Recruitment

Read more about the new members in the Leadership Group.

Royal College Residency Program Competence by Design (CBD) Lead - Dr. Fareen Zaver

The EM education leadership team would like to announce the appointment of Dr. Fareen Zaver as the Royal College Residency Program Competence by Design (CBD) Lead. Fareen has extensive experience in medical education at a National and International level. She has been a key part of our program's CBD implementation over the past 2 years as a member of the CBD implementation committee and the FR program Competence Committee. Fareen will be focusing primarily on our strategy to implement Transition of Practice (which incidentally is also the topic of her Master's thesis in medical education).

Retirement

Congratulations to the following physicians on your retirement! Thank you for being a tireless professional, a helpful coworker, and a good friend. You will be remembered for the things that you did here. We'll miss you! Best wishes for your future.

- Dr. Bryan Young
- Dr. Sam Backlin
- Dr. Rob Abernethy
- Dr. Jane Clarkson

Awards

AMA Long-Service Awards

Dr. Arun Abbi

AMA LONG-SERVICE Awards recognize physicians with 10 years of AMA service who contribute their knowledge, skill and time to the advancement of their profession. Their work, whether on the Board of Directors, its committees or service within their sections of medicine, supports and encourages the Association's development.

CPSA Council Electee

Dr. Ian Walker

ED Treatment Plan Committee

Dr. Christine East RGH Charge RN Ken Mont Kudos to Dr Christine East and RGH Charge RN Ken Mont for their fabulous ongoing work with the ED Treatment Plan committee. This fantastic project addresses complex medical and social needs of patients identified as high users of the emergency department. Cases are reviewed and plans developed to ensure more consistent and appropriate ED care. This frequently results in a dramatic drop in ED visits while care needs are better met through other channels.

Poster and Oral Presentations in ACH Annual Residents & Fellows Virtual Research Day

Virtual Research Day

Dr. Cody Dunne Dr. Jason Elzinga Dr. Dana Stewart Congratulations to our residents Dana Stewart, Cody Dunne and Jason Elzinga. They are among the winners of Poster and Oral Presentations in ACH Annual Residents & Fellows Virtual Research Day. Nov 12. 2020.

Poster Presentations:

Cody Dunne, Adult Emergency Medicine

Title: A qualitative assessment of the barriers and facilitators to implementing a novel resuscitation device in long-term care facilities

Jason Elzinga, Adult Emergency Medicine

Title: The cost of convenience: healthcare costs associated with caring for over-the-counter medication poisonings in Alberta

Oral Presentation:

Winner: Dana Stewart, Pediatric Emergency Medicine

Title: Antibiotic Prescription Patterns for Suspected Urinary Tract Infections in the

Alberta Children's Hospital Emergency Department

Richard Kohn Memorial Award for Mentorship in Emergency Medicine

Dr. Marc Francis

Star Educators

Dr. Laurie- Ann Baker Dr. Marta Broniewska Dr. Ayesha Khory

Dr. Charles Wong

12 | Annual Report 2020

Congratulations to our "Star Educators". They are recognized by the University of Calgary/ PGY-1 Program Residents at the Rockyview General Hospital (2020).

UME Awards

To our physicians who received the following awards for their teaching in the Undergraduate Medical Education Program (UME) at the University of Calgary during the 2019-2020 academic year. Thank you all for your contribution to the UME program.

The Platinum Award

Awarded for contributing ≥40 hours in direct teaching time.

Dr. Erik Saude Dr. David Fu

The Silver Award

Awarded for contributing 20 hours - 29.9 hours in direct teaching time.

Dr. Kari McFarlane

The Gold Award

Awarded for contributing 30 hours - 39.9 hours in direct teaching time.

Dr. Marta Broniewska Dr. Marcie Veitch

The Bronze Award

Awarded for contributing 10 hours - 19.9 hours in direct teaching time.

Dr. Jesse Kao Dr. Stanley Mayer Dr. David Dyck Dr. Jonathan Lubin Dr. Stan Bernbaum Dr. Paul McKenna Dr. Kelli Sherlock Dr. Sujiva Heyn

The Associate Dean's Letter of **Excellence for Clerkship Teaching**

Awarded for teachers who must receive an average rating ≥4.6 (outstanding) from student feedback on 3 or more evaluations.

Dr. Ping-Wei Chen Dr. Christopher (Chris) Lipp

Dr. Daniel Joo Dr. Justin Wong Dr. Daniel Peterson Dr. Stuart Rose Dr. Fareen Zaver Dr. Eddy Lang

Dr. Mandeep Sran Dr. Harsimranjit Singh Dr. Ian Wishart Dr. Katherine Bateman

Dr. Richard Morris Dr. Ryan Deedo Dr. Andrew Battison Dr. Kasia Lenz

Dr. Mark Scott

Awards

Annual Resident BBQ
Award Recipients

On behalf of the resident group, thank you to the award winners and all emergency physicians in the zone for your continued mentorship, support, and investment in our education in and out of the department.

Dr. Bryan Young Award of Gratitude (Lifetime Achievement Award): Dr. Marc Francis

FR Preceptor of the Year: Dr. Cathy Dorrington EM Preceptor of the Year: Dr. Margriet Greidanus

FR Junior Preceptor of the Year (Rookie of the year): Dr. Katie Lin

EM Coffee Award: Dr. Colleen Carey FR Coffee Award: Dr. Patty Lee

Pediatric EM Preceptor of the Year: Dr. Ping Chen

Behind the Scenes Award

Dr. Sean Crooks Dr. Cody Dunne Pre-Clerkship's Introduction to Clinical Practice- Awarded to those who have made significant "behind the scenes" contributions to Pre-Clerkship, such as coordination of curriculum innovation, re-development of examinations, or other invaluable assistance that exceeds expectations and requirements.

Helios Post-Fellowship Award Winner

Dr. Tahara Bhate

The Helios Post-Fellowship awards, funded by The Dean's office in the Cumming School of Medicine, are awarded to outstanding graduating residents to pursue additional training in an area of their choice.

This year, Dr. Tahara Bhate, a current CCFP-EM resident, joins previous winners in our department in receiving this prestigious award. Her funding will be used to support her completion of advanced academic training in QI with the EQUIP program at the University of Toronto.

Public Health Advocacy

Congratulations to Dr. Vipond for his public health advocacy.

Dr. Joe Vipond

Mask4All Debate

International Award

Naloxone Kit and Harm Reduction Covid Materials:

Our ED health design research team received for our work re-designing the instructional material for take home naloxone kits. It was a collaboration between emergency providers, harm reduction nurses, public health, AHS human factors and the University if Alberta's design department.

The 1) Naloxone Kit instructions and the 2) Harm Reduction Covid Materials have won silver in the Institute for Information Design (IIID) Awards (https://www.iiid.net/iiid-award-2/). These are international information design awards, awarded in Vienna Austria.

Two AHS hospitals named among Canada's 10 best

https://www.newsweek.com/best-hospitals-2020/canada

Two Alberta hospitals have been named to the Canadian section of the 2020 list of the World's Best Hospitals. Rockyview General Hospital in Calgary has been named No. 6 out of a total of 41 on the short list of best Canadian hospitals. Foothills Medical Centre, also in Calgary, is No. 8. Newsweek magazine, insurance provider GeoBlue and Statista, a global online data provider, created the list as a way to identify and celebrate the best hospitals around the globe.

"This is certainly welcome recognition for the two Alberta hospitals on the list," says Alberta Health Services President and CEO Dr. Verna Yiu. "Of course, we do amazing things every day in all of our facilities. So I see this recognition as a tribute to the hard work, innovation and compassion within all of our hospitals across the province."

Alberta is the only prairie province with hospitals in the top 10.





Workforce Planning

We currently have 203 MD's (as of December 2020) 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.

COVID 19 strongly influences physician resources in 2020. Few if any physicians travelled, mat/pat leaves were down. We have currently entered a period where we are at capacity, or even slightly over hired. A 1.0 FTE currently works 12 shifts per 28 day period, which is at the lower end of the FTE scale.

We have currently 5 locums working to fill short term shortages in manpower during the period July 2020 to July 2021. Some of those physicians may continue to work in the Calgary zone as permanent members when their locum period expires, expanding our permanent group further.

We also hired 11 locums for temporary work in the summer of 2020.

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 4 new permanent Emergency Physicians per year.



Photo from: Heather Patterson

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 resources, 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 2020 year included strategic planning towards short term and long-term academic goals, faculty development and educational programming.

The Promotions Committee

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

The Physician Resources Committee

The Physician Resources Committee is a subcommittee of the Physician Executive Committee. It provides leadership and makes decisions with respect to physician resource 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 emergency physicians representing each site 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 maximum emergency physician contributes \$1,800 annually to this fund.

Department Membership

The Department of Emergency Medicine currently employs 200+ 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.



Department

As with the health care system generally, 2020 in the Foothills ED was dominated by our response to the COVID-19 pandemic and the need to be perpetually flexible in adjusting staffing, layout and care practices. Notwithstanding the profound impact of the pandemic on our department, there were also a few other areas of growth that are worth mentioning.

Leadership

Leadership within our department remained unchanged this year, which provided some degree of stability amidst the near constant procedural changes. We have been very fortunate to be led by an exceptionally skilled and committed nursing team of Sharleen Luzny (PCM), Erin Bugbee and Julie Meyer (Unit Managers), Jennifer Jordan (QI consultant), and Jennifer Evangelista, Leanne Norrena, and Trent Moser (CNEs). On the physician side, Ian Walker and David Lendrum continue to work as part of this team as site chief and deputy site chief respectively.

With the arrival of the pandemic to Alberta, several physicians stepped up to play specific roles, and are deserving of acknowledgement:

- COVID Resuscitation / Intubation procedures and processes Dr. Andrea Boone
- ICU Liaison Dr. Natalie Cram
- COVID Service / IM / Hospitalist Liaison Dr. Kasia Lenz

Manpower

2020 saw some minor changes in physician staffing with a few new physicians joining our group, and a few switching to other sites. Review of administrative data, and physician surveys were supportive of the continuation of a third night shift, such that three overnight MD's has become a permanent feature of our staffing model. Early in the year, a voluntary early afternoon shift was added to address surges in patient volumes that frequently occur at this time. The pandemic has been sufficiently disruptive to patient flow that it remains unclear whether or not this will remain a permanent change.

COVID-19 Pandemic Highlights

2020 brought with it an unprecedented rate of change in our clinical practice and departmental operations, with the need to respond to changing public health and policy demands on a sometimes daily basis. Amid this uncertain background, some of the innovations and adjustments made within the ED are worthy of specific mention.

1. Establishment of Pre-triage

Early in the pandemic response, we were able to create a "pre-triage" area in the department specifically to identify patients at risk of having COVID-19 and thus to create processes to keep potential COVID-19 patients physically separate from the rest of the ED patient population.

2. Opening of D-Pod

We were fortunate to have had strong support from site leadership in adjusting our departmental layout to accommodate the need for greater physical separation between patients. As part of this support, we were allocated the space previously known as D-pod, which had just the year prior been transitioned to a short stay medical unit.

3. Re-designation of A18-21 as Medical Resuscitation Rooms

FMC is fortunate to have the most negative pressure rooms of any ED in Calgary. As such, we were able to designate specific rooms for the care of our most unstable medical patients in an effort to minimize the potential for contagion amongst uninvolved patients and health care workers. Extensive work went into developing the processes for resuscitation in these closed spaces. This work has been tremendously successful and likely one of the things that will be held over long after the end of the current pandemic.

4. COVID Intubation Sim Program

Led by Dr. Boone, Leanne Norrena and Jennifer Jordan, the FMC ED developed a detailed simulation program focused on the issues involved in caring for the sickest COVID-19 patients, with particular attention to the safest means of intubating these patients while mitigating the risks associated with attendant aerosolization.

5. Inter-departmental Collaboration

The COVID pandemic has made clear that no department within the hospital functions in isolation, and the FMC ED has been very fortunate to benefit from the collaborative efforts of site leadership, and particularly our Internal Medicine, Critical Care, Pulmonary and Hospitalist colleagues to streamline the care and disposition of admitted patients during times of high ED occupancy.

6. Changes to Patient Volumes and Acuity

As with virtually all affected health care systems worldwide, the pandemic has brought with it a reduction in our overall patient visit numbers. At the peak of the "first wave" we experienced a decrease in our total patient volumes of ~30%, with a persistent decrease of 10-15% in our daily patient census throughout the remainder of the year. This is balanced out by the fact that admission rates have actually increased, suggesting that the patients are, on average, sicker than they were prior to the pandemic, and the fact that PPE use and infection protocols have significantly increased the work demands on medical and nursing staff. The net effect is that despite diminished patient volumes, staff are generally more busy during clinical shifts than they were prior to the February 2020.

Continued on next page...

Level 1 Trauma Revisions

Extensive multidisciplinary work which had been ongoing for the previous 1-2 years came to fruition this year with the development and implementation of a revised process for the management of the highest acuity, "Level 1" trauma patients. Key features of this process change include marked decreases in the number of staff members involved in these cases, an increased emphasis on role clarity and an increased use of checklists / treatment algorithms

Improvements in the Care of Mental Health Patients

Led by our nursing team, emergency physician Dr. Jen Nicol and our colleagues in psychiatric emergency services, a detailed review has been ongoing regarding our process's vis a vis the shared management of mental health patients. Particular focus has been on adjusting to recent changes in the provincial Mental Health Act, the ongoing challenges of long-term boarding of MH EIP's in the ED, and the introduction of a clinical assessment tool for determining the appropriate time for referral of intoxicated patients with mental health concerns.

First Activations of the FERA-Trauma Process

Over the previous year, extensive work had been done on the development of the "Foothills Extended Response Activation for Trauma" process which was designed to mobilize extra resources in the event that ED resources were to become saturated, but prior to becoming overwhelmed. This was seen as a lower threshold than that required to declare a true Code Orange in response to a multi-casualty incident. The FERA Trauma process was activated a few times, but most prominently when a tour bus overturned near the Icefields Parkway during the summer. The process worked as expected and was widely regarded as a successful example of interdepartmental collaboration (ED, ICU, Trauma, Anesthesia and others).

Triage Area Project

Over the course of the year, an engaged group of staff, including members of the nursing leadership undertook a thorough review of the current and ideal usage of the triage area, with a goal of creating an environment that would better support assessing, documenting, and treating patients upon arrival. This includes increasing visualization of the EMS arrivals, and decreasing the amount of noise, distraction and workflow interruptions that take place in this high traffic, high-risk area of our department. We look forward to implementation of their recommendations in 2021.

Plans for 2020

Major priorities for the coming year include:

- Continually re-evaluate the most efficient and effective use of the clinical treatment spaces in the face of an ever-changing pandemic
- Further refinements to our trauma and mental health processes in conjunction with our consulting service colleagues.





COVID-19

2020 was certainly a special year for our ED, as we encountered the lovely virus known as COVID-19. Our site has seen an enormous number of COVID cases, which has led to multiple changes in department design, flow, scheduling and the erection of a field hospital in our parking lot. We also encountered our first ED COVID outbreak near then end of 2020, although it appears to have stabilized and most of our docs and nurses have now returned to work. There is some good news on the horizon in that most ED staff have now had at least one (or in some cases both) doses of their vaccine. Unfortunately our department will continue to operate in its current state for the foreseeable future, although hopefully there will be far fewer sick health care workers.

Our Pandemic Response Unit (PRU) has truly been a savior in managing department flow and seeing our high patient volumes. It is currently operating at approximately 50% capacity, but we envision that will move to 100% over the coming months and years, particularly as the PRU will have a role in allowing us to expedite the development of our new department.

Through this pandemic we have seen the best from our ED staff and colleagues who have stepped up to cover countless sick calls, surge callouts and have stepped up to help with ICU coverage, disaster planning and much more. The list of individualized thank you's is nearly endless at this point, so I will just say thanks to every one of you who has stepped up during such a trying time.

New Department Design

This year we received funding for a 137 million dollar upgrade to our existing ED. This has been in the design phase for months and we anticipate the design will be complete by April. As mentioned above, using the PRU structure will likely reduce the time for completion of our new department by 1-2 years and it should hopefully be fully operational by 2024. A big thank you to James Andruchow, Stan Bernbaum, Mike Kenney and Haley Cochrane for their help with this.

New Additions to our ED Team

There have been many great additions to our team over the past year, including Dave Mainprize, Steve Liu, Nick Packer, Geordon Avery-Cooper, Katie Lin, Chase Krook, Allison Foran and Haley Cochrane. Geo has initiated quarterly physician meetings which have provided great suggestions for department operations.

Connect Care

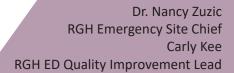
The Connect Care rollout has been postponed several times due to COVID. The planned launch date for the PLC is October-November, 2021. We are currently training super users, and many of our PLC docs have stepped up for this training.

Care plans

Thanks to Dr. Christine East at the Rockyview, care plans have become an integral and extremely helpful part of our daily practice. Jackie Miller is the RN coordinator of care plans done at the PLC and a big thank you to all of the docs who have participated in the development of these plans over the past year. To date we have completed 17 care plans at the PLC.

Looking forward

Certainly 2020 has been one of the most trying years in our history. Despite this, we have much to look forward to with most staff having been vaccinated, a new emergency department on the horizon and an excellent group of staff that we have the privilege of working alongside each day.





Capacity

Rockyview Emergency Department (RGH ED) volumes have fluctuated throughout the year amidst COVID-19. Overall volume has decreased from 82,734 in 2019 to 72,659 in 2020. RGH ED saw a daily average of 199 patients including an average of 56 EMS visits per day. Distribution of patients throughout the RGH ED remains consistent with 34% treated in the Main Department, 42% in Intake and 24% in the Minor Treatment Area. We continue to monitor capacity and flow within the department and adjust processes accordingly.

Accreditation

In the fall of 2020, Urban Emergency Departments across the province participated in Accreditation Canada's program which allows health service organizations to embed practical and effective quality improvement and patient safety initiatives into their daily operations. Accreditation Canada is part of the Quality and Healthcare Improvement portfolio and aims to ensure that AHS is providing the best possible patient care.

The Emergency Department program survey focused on six system wide priority processes (People-Centered Care, Infection Prevention and Control, Emergency Preparedness, Medication Management and Patient Flow) as well as five service level priority processes (Clinical Leadership, Competency, Decision Support, Episode of Care, Impact on Outcomes, and Organ and Tissue Donation).

Each site participated in a method of self-assessment called Attestation which requires site based teams to conduct a self-assessment against the specified standards and provide declaration that the information is reliable and accurate. In addition to attestation, there was an unannounced visit to the RGH ED to complete the onsite evaluation of specific Accreditation Canada Standards. Our Surveyors had the opportunity to speak with staff, patients, family members, pharmacy, protective services, infection prevention and control and our leadership team. The surveyor was extremely complimentary of RGH ED staff engagement and resiliency as well as our ongoing commitment to staff education and quality improvement.

Overall areas of excellence for all of the Urban Emergency Departments in the province include:

- Staff resiliency and adaptation to change
- 2. Teamwork and collaboration, 3) Connection to community and partnerships
- 3. Intake, Triage, Screening
- 4. Infection Prevention and Control. Congratulations to all of the emergency departments for your commitment to providing safe and quality care.

Communicable Disease Emergency Response Plan Update

In response to the COVID-19 global pandemic our Communicable Disease Emergency Response Plan (CDERP) was created. The plan and accompanying document are dynamic, reflecting the rapidly changing AHS clinical guidance for the management of patients presenting with suspected COVID-19/Influenza Like Illness (ILI). The CDERP incorporates four levels of triage and four phases of cohorting and includes the expansion of our geographical footprint into the adjacent Crisis Assessment Unit as well as our Ambulance Bay. Mobilization to each subsequent triage level or cohorting phase is determined by RGH ED capacity, volume and acuity of arriving patients, as well as the current AHS Surge phase.

COVID-19 Initiatives: Expansion into Non-Clinical Space within the ED

The creation of a contact droplet specific waiting room, assessment alcove and treatment area within the helipad entrance and C-area. This space, along with the reallocation of two negative pressure treatment rooms in C Area, facilitated the development of an intake care model designated for patients who screen positive for COVID-19 Core GI and Respiratory symptoms.

COVID-19 Initiatives: Dedicated Negative Pressure Isolation Rooms

Current treatment locations were dedicated for performing Aerosol Generating Medical Procedures (AGMPs) and for patients arriving in respiratory distress who require contact droplet isolation. Targeted education included multidisciplinary simulation sessions for resuscitation scenarios.

COVID-19 Initiatives: EMS Hallway

Three separate EMS hallway locations were created in order to accommodate the safe cohorting of EMS patients requiring contact and droplet isolation precautions within the ED. Plexi-glass dividers were installed in the EMS Contact Droplet Zone to separate each dedicated treatment space. Standardized multi-disciplinary communication processes were developed to ensure patient and staff safety in isolation areas

COVID-19 Initiatives: COVID Support RN

The COVID Support RN role is staffed during peaks hours and is focused on supporting the CDERP plan. Roles include assisting at Triage with the screening of patients, communication with family, assisting in the designated COVID-19 treatment areas and managing patient flow in EMS isolation locations. This role has been very effective in providing additional support to nursing staff heavily burdened with managing PPE and COVID-19 screening requirements.

Continued on next page...

COVID-19 Initiatives: ED/Mental Health Shared Staffing Model

A collaborative patient care model was developed between RGH ED, Psychiatric Emergency Services and Inpatient Mental Health in order to support the care of admitted mental health patients held in the RGH ED during the COVID-19 pandemic. The addition of a dedicated mental health professional, allows the flexibility to reassign the RGH ED RN, ensuring that we connect all patients with the most appropriate care provider.

Other COVID-19 Initiatives

In partnership with the Calgary West Central Primary Care Network, RGH ED accesses the COVID-19 Discharge Follow-Up Pathway Program for those patients who are suspected or confirmed positive for COVID-19 and require follow up care from a primary care physician. This pathway utilizes established community resources and provides a safe discharge process for emergency department patients.

Safety Committee

Staff and patient safety continues to be an important area of concern in the department. Safety concerns that staff face include increasing incidents of workplace aggression/violence, environmental concerns such as management of hazardous medications and exposures, as well as equipment and supply concerns. RGH ED has initiated a new multi-disciplinary Safety Committee to assist with identifying and addressing any safety concerns within the department. As a result of this committee, we have been able to reinforce our Code White process (violent incident), offer additional department-specific Non-Violent Crisis Intervention sessions, and have informative discussions with our CPS liaison officer.

Lumbar Back Brace Research Program

In collaboration with the University of Alberta, RGH ED has initiated a new low-back pain study. This study evaluates lumbar brace deployment in the RGH ED for benign low back pain and assesses the effectiveness and impact on pain, spine function, analgesia use and community resources. We have had successful enrollment in this study and hope to continue to optimize treatment options for patients who present to the RGH ED with low back pain.

OT/PT in the ED

The recommencement of Occupational Therapy and/or Physiotherapy in the RGH ED has provided a valuable service which has been an integral part of safe discharge planning. This service is available in the RGH ED Monday to Friday from 0800-1615 and continues to improve service and flow within the department, as well as decreases barriers to safe and effective patient discharge.

ED Treatment Plan

The ED Treatment Plan team continues to develop consistent and supportive care plans for vulnerable patients who have a high volume of ED visits. The project is overseen jointly by Dr. Christine East and Ken Mont, RGH ED Nurse Clinician. Ken brings a wealth of experience to this role, having previously served on the Calgary Case Management Group, a multi-agency collective that involved AHS, police, and multiple social agencies. He is a tireless advocate for our most vulnerable patients. Ken's ability to identify gaps in care, match patients with needed resources, and connect with patients in moments of crisis makes him an enormous asset to this project.

In September 2020, a 0.1 FTE leadership role was developed to further support this project, with Dr. Christine East being selected for the role of Physician Lead. The Physician Support Fund has, for the second year, provided \$6000 funding for authorship honoraria which is used to facilitate development of particularly challenging and complex treatment plans. Since its inception, more than 25 ED physicians from across the zone have been involved in this project as authors. Physicians representing all adult sites sit on the committee. In addition to physicians, this multidisciplinary team has dedicated members from nursing, social work, EMS, pharmacy, and other disciplines. The team continues to develop linkages with resources and services in the community, including the Chronic Pain Centre, Opioid Dependency Program, CUPS/C2C, and many others.

There are currently 45 active ED Treatment Plans, and a further 13 plans previously created through a parallel process at PLC, overseen by Jackie Miller (QI RN).

Jackie has overseen the development of ED Treatment Plans for some of PLC's most complex and challenging patients, in collaboration with multiple community partners and specialists. She has joined efforts with the Zone-wide committee, and all plans will be overseen on a zone-wide basis moving forward.

Results of an ongoing QI project show a significant reduction in average monthly visits and hospital admissions after treatment plan implementation (results to be presented at CAEP 2021). Future studies will assess impacts on ED and inpatient length of stay, advanced imaging, and administration of medications with risk and abuse potential (opioids, benzodiazepines).



2020 was the year of COVID-19. The world seemed to adopt a "learning as we go" mentality and a "build the plane as we fly it" approach to the new demands of the environment and the SHC Emergency Department was able to embrace this mindset. COVID created many new challenges and exposed several deficiencies within our system. New processes were developed to compensate for the demands of the COVID situation, often relying on volumes of rapidly changing information, much of which was speculative in the initial phases. Adaptations were made to almost every process within the SHC Emergency Department. There was a different look and approach to triage and registration. Patients experienced a secure cohorting system within the department. Appropriate safe distancing for all patient movement and interactions with healthcare providers was ensured. In 2020, we were fortunate to not have any COVID transmissions within our department to patients or healthcare providers as everyone adjusted to our new way of doing business.

Admitted patient capacity has been an ongoing issue at the South Health Campus and COVID added more strain by preventing the utilization of previously deployed mitigation techniques. The patient wards within the hospital experienced added pressures leading to an increase of admitted patients temporarily housed in the emergency department. These effects were compounded when room sharing and the use of "high density" chairs in ED patient intake and treatment areas needed to be disbanded due to the background risk of COVID exposures. As one could predict, this led to a decrease in the effective footprint of the emergency department, impaired patient flow, created longer wait times, and diminished the ability to offload ambulances in a timely fashion.

The Emergency Department at the South Health Campus has continued to support its four foundational pillars of collaborative practice, innovation, patient and family centered care, and wellness. Several key strategies were initiated by the emergency department with the support of hospital administration and zone administration over the past year with the intent of improving healthcare delivery and developing collaborative partnerships between stakeholders.

SHC Emergency Department Achievements of 2020

- 1. In January of 2020, we had a changeover of our nursing leadership. Heather Battle took over as the ED Manager and Veronica Henkel joined the Emergency Department as our Unit Manager. Both brought depth of experience in management with strong resumes and established, lengthy leadership roles in other areas of the South Health Campus. Steve Mape is a recent addition to our nursing leadership team and has brought additional experience to the department from several important leadership positions within SHC that he has previously held.
- 2. SHC Peak Capacity Escalation Plan. A characteristic essential to a 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 (EIPs), the SHC Administration in partnership with the Emergency Department Administration has 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 improved its capability to deliver uncompromised patient care at all times. The SHC Capacity Committee meets monthly and has revised its escalation triggers over the year to better mitigate the negative effects of EIP burden. COVID has brought about many revisions to this plan.
- 3. COVID has either slowed or put several of the SHC Emergency Department's QI Initiatives on hold. The SHC STEMI and Acute Stroke projects have significantly improved the door to intervention times for SHC patients and are currently in maintenance phase. The oral vs iv medication and the EMS Rapid Patient exchange projects have led to improved delivery of health care to SHC ED patients. Five new QI initiatives underway are the resus room revision, the equipment bundle project, an initiative focused on reducing delays from bed-assignment to departure from the ED, the Antimicrobial Stewardship in Asymptomatic Bactiuria (ASAB) project, and a discharge teaching project.
- 4. Super Volunteers are experienced volunteers with specialized training in geriatrics. Their target patients are unaccompanied seniors. They spend time with these patients socializing, reorienting, providing nutritional, mobility and toileting assistance. The goals of this program are to minimize the risks of developing an incident delirium, and improving patient, family and health care provider experiences. We have continued to train this valuable group in order to extend the hours that they are available.

5. In 2020 our Geriatrics Emergency MD lead, in collaboration with specialized seniors' health educators Jennifer Leung and Katelyn Flaws developed an ER Specific "See the Person" workshop. The objective of the workshop will be to teach evidence-based communication skills that will optimize the ED health care practitioner's ability to avoid triggering, to successfully de-escalate, redirect and reassure patients with challenging behaviours.

This SHC pilot project hopes to have all HCWs in the ED complete the workshop by April 2021.

- 6. The SHC ED with the support of SHC administration, was successful in hiring a Geriatrics NP. GEM nurses help identify, assess, and link frail older adults to appropriate services, in an effort to reduce adverse outcomes. These skilled nurses conduct targeted geriatric assessments in the ED, and make relevant recommendations and referrals to community services. In addition to being a valuable resource to the emergency department, we anticipate potential, wide ranging benefits including but not limited to: reduced geriatric admission rates, reduced repeat visits to the ED, reduced hospital LOS by reducing risks factors for delirium development, reduced ED LOS for admitted seniors, increased ED staff job satisfaction, and improved patient and family ED experience.
- 7. One of the resuscitation bays has been retrofitted and equipped to facilitate virtual Pediatric ICU consultations. MD's and staff have taken additional training in 2020 and been offered SIMs to ease the transition to a visual, interactive specialist presence versus consultation and direction over phone lines only.
- 8. The SHC ED COVID Working Group was initiated in February of 2020. It was a multidisciplinary collaborative group composed of several members of the emergency department, an Infectious Disease specialist, a member of IP&C, members from Protective Services, Laboratory Services, DI, and the Volunteer Group. Having an engaged group with diverse backgrounds and common goals enabled the initiation of COVID safety policies and processes as well a consistent rapid adaptation to the changing environment. This group ensured that SHC was anticipating and mitigating potential hazards before they occurred.



- With the support of SHC administration and the support of SHC FM&E, three of our six ambulance bays were converted into an internal multipurpose, four season healthcare delivery space. This multipurpose area has been intermittently utilized over the course of the year to meet the varied demands seen in the emergency department.
- 10. Our SHC ED Wellness Committee is a joint collaborative partnership between physicians, nurses, ancillary care staff, and paramedicals meant to improve working conditions, the emergency environment, and promote care giver wellness. During COVID, they have inherited an even more paramount role supporting our group's wellbeing and have provided us with several innovative initiatives including the offering of virtual gatherings over the course of the year.

Our staff continues to self-describe as a young, exciting, innovative, and supportive group to be a part of.



Photo from: Heather Patterson



Locums

Summer 2020



Dr. Greg Beller

Originally from Vancouver I did medical school in Winnipeg followed by a Family Medicine residency at the University of Alberta. After a year of doing rural Alberta locums in places like Jasper, Whitecourt, Drayton Valley, and Cold Lake I returned to school in Calgary for the EM program during 2019-20. My activities outside of medicine include hiking the mountains, gym, hockey, tennis, and playing piano. I'm excited to be working at the PLC this summer!



Dr. Tahara Bhate

Born and raised in Vancouver, I completed 3 degrees at UBC (Undergrad (Biochemistry), Masters (Clinical Epidemiology) and Medical School) before finally joining the migration across the Rockies for family medicine residency. I worked for 2 vears in Calgary in ICU outreach and as a hospitalist before completing my EM year here. I'm very passionate about health systems improvement, with an interest in health policy and QI, and am excited to be completing further training in QI next year through U of T (virtually of course!). I also love anything/everything to with simulation, and have been involved with UME education. Outside of work, I love to travel, and am very into arts and culture type stuff, particularly live music. I'm thrilled to be continuing on in the Department after such a great EM Residency year, and look forward to working with everyone this summer!



Dr. Mike Dussault

Looking forward to meeting and working with you all soon at the Rockyview! I was born and raised in Fort McMurray back when it half the size it is now. From there, I completed my medical school in Edmonton and then family medicine residency in Calgary. I then completed my EM year in Saskatchewan and had been working in Regina as an Emergency Physician for the last two years. I have a special interest in point of care US and spent three months in Saskatoon going through and helping to create an ultrasound training program before COVID hit. I spent all my free time growing up on the local ski hill in Fort Mac snowboarding, and Calgary could not be a better place to for it. I spend my other time bouldering, hiking and camping in and around the mountains. Looking forward to working and exploring what Calgary offers with everyone in Calgary!



Dr. Jasdeep Gill

My name is Jasdeep Gill but most people call me Jag (long childhood story behind it that deserves its own section). I grew up and did my EM training in Calgary where I spent my days pretending to be Tim Duncan and Michael Jordan on the basketball court. Recently I decided to take up golf where my height provides me no advantage, so I am terrible at the sport. Outside of sports and fitness I spend most of my time with my friends and extended family. N95 mask compliance has forced me to trade my beard in for a mustache I wish to model after Tom Selleck. My clinical interests include toxicology and medical education particularly involving simulation and high-acuity procedures. Very excited to



Dr. Ana Maria Gomez

Hi! My name is Ana Gomez, I have just moved to Calgary with my hunny and I am excited to join the Rockyview team. I was born and raised in Colombia (where I had a pet monkey!) and after doing undergrad in California on a swimming scholarship, I did my medical training at UBC. I enjoy reading, meditating, mixed martial arts and reggae music. I also like trying loads of different wines so I can pretend I'm a sommelier. I'm a soon to be dog-mom to a Great Dane puppy, so come find me around the department if you have any dog tips!



Dr. Asad Hanif

I was born in Pakistan and grew up in Toronto, Ontario. I went to University of Alberta for medical school and McMaster University for family medicine residency. Outside of medicine, I like to spend time with my wife and two kids. I also enjoy watching basketball and cricket, and reading about new electronic gadgets.

Summer 2020



Dr. Leia Hoffman

Leia Hoffman grew up in Kamloops, BC and bounced around western Canada completing her medical training. She attended medical school at UBC followed by residency at the University of Calgary for Family Medicine and the University of Saskatchewan for Emergency Medicine. Last summer she completed her first Ironman in Whistler, BC and enjoys training for triathlon to help keep her fit. Leia also likes playing soccer and taking her dog, Lando, for long walks and hikes. In her spare time she likes to cook and especially eat.



Dr. Herman Johal

Born on the mean streets of Prince George, BC. I stayed out of trouble by playing sports year-round including basketball, soccer and boxing.
Being too attached to mom's home cooking, I stuck around Northern BC to complete my undergrad in Biochemistry as well as medical school at UBC's Northern Medical Program. When it came time to leave the nest, I took my talents to southern Alberta in order to complete my rural family medicine residency at U of C and Lethbridge before entering the EM program in Calgary.



Dr. Daniel Metcalf

Hi! I'm Dan. I grew up in the Okanagan, skiing Silver Star in the winter and working on my sunburn in the summer. I moved to the We(s)t Coast to do my medical degree at UBC and my Family Medicine residency in Abbotsford. I have spent the last year in Calgary completing the CCFP (EM) program. I am very excited to join the Calgary EM team! When I'm not working, I try to get outside to hike, bike, and camp or ski as much as I can.



Dr. Ben Sheppard

Ben was born and raised in North Vancouver between the ocean and the coastal mountains. He completed his undergraduate degree at the University of Victoria and medical education at the University of British Columbia, followed by CCFP-EM residency here in Calgary. When the stethoscope is off, Ben is an avid outdoor adventurer and traveller. He is endlessly in search of the next powder day and has been known to plan his winter destinations at the last minute based on the snow forecast. He also enjoys surfing, hiking and camping, true crime documentaries, travelling the world, and occasionally pulling out residual gymnastic talents at opportune moments. He will be locuming at the PLC this summer and looks forward to continuing to get to know this amazing group of docs and nurses.



Dr. Harmandeep Sidhu

Hi team! I grew up working on a berry farm in Abbotsford BC and found my escape out of the field through UBC medicine. I became an Albertan after moving to Edmonton for my FM residency and went on to complete my EM year with the wonderful Edmonton emergency team as well. Travel and food bring me immense pleasure in life and I plan to integrate those pleasures with my global health interest in the near future. Look forward to working with you all!

Locums

One-Year 2020



Dr. Claire Acton

I grew up in the beautiful Annapolis Valley in Nova Scotia, before moving to Dublin for medical school at the Royal College of Surgeons in Ireland. I returned to Canada in 2013 after matching to FRCP-EM at University of Toronto. During my PGY4 year, I completed a POCUS fellowship at NOSM, and a teaching elective in Ethiopia. I developed a formal POCUS curriculum for the Addis Ababa University EM residency program, with 21 residents now certified as Independent Practitioners. For the past two years, I worked full-time clinically at the University Health Network in Toronto, while continuing to pursue my extra-clinical interests of POCUS, global health and inner city health.

I have always wanted to move West to the mountains to nurture my novice hobbies of hiking, cycling and skiing — anything to get outside! I also love travelling, and am looking forward to getting to know the Rockies and Alberta more intimately. When the weather is bad, you can find me inside cooking with wine (open to interpretation!).



Dr. Ken Chan

Calgary for his FRCPC-EM residency. During residency, he completed his MPH degree and focused on his areas of special interest which include ED administration and academic research.

Outside of the hospital, you will find him enjoying scotch on his deck, playing volleyball, going on hikes, building and collecting Lego models, or kicking butt on his Nintendo Switch/PS4. Ken and his wife, Ruby, are excited to spend their summer here in Calgary before moving back to Vancouver in the fall!



Dr. Steve Liu

Steve Liu has been living in Calgary since he moved to Canada from China as a teenager with his parents. He completed his medical school and Emergency Medicine training in Calgary. He is continuing his fellowship training in Clinical Pharmacology and Toxicology with PADIS while working part time as an emergency physician in Calgary. He is interested in Medical Education and hopes to contribute back to his residency program and medical school as an educator in the future. During his spare times, he enjoys hiking and camping in the summer as well as downhill skiing during the winter.



Dr. Dave Maniprize

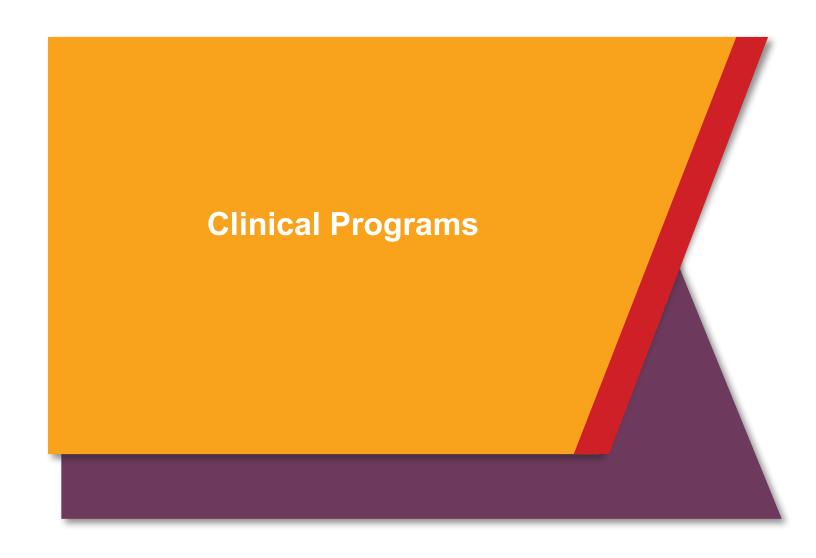
Dave left to Schulich School of Medicine & Dentistry after completing an Honours bachelor's degree in Zoology at the University of Calgary. Returning to Calgary for his Emergency Medicine residency he concurrently completed a Diploma in Healthcare Patient Safety and Simulation from the National University of Ireland as well as a Prehospital Retrieval and Transport Medicine Fellowship through Canada's STARS and the NZ Auckland HEMS services. On his off-time Dave enjoys hiking with his wife, Kendra and mountain biking with his long-time friend Nick.



Dr. Nick Packer

Hi, I am Nick Packer, a graduate of Calgary's emergency medicine program. Thank you all for your support over the last 5 years. It has been a privilege to train here. For those of you who don't know me, I grew up on a farm in southwestern Ontario, but I always knew my heart belonged near the mountains. After completing my undergrad and masters at the University of Waterloo, and my undergraduate medical training at Western University, I was lucky enough to have the oracle (CaRMS) send me west to Alberta. Over the last 5 years I have enjoyed all that the city of Calgary and the Rockies can provide as my wife (Seema), my son (Sahil) and I take every chance to get out and explore our backyard.

I am very excited to be joining the Emergency Medicine team in July!



Clinical Informatics

Due to the many challenges presented by the Covid-19 pandemic, 2020 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 ED Order Set Lead and Dr. Ashlea Wilmott as Peds ED Informatics Lead and Provincial ED Connect Care Physician Training Lead.

Notable events from 2020

Connect Care:

- Connect Care wave 2 was delayed due to Covid-19 but launched successfully in October.
- Our group leads by example and remains actively engaged in the Connect Care project. Thanks to everyone who has signed up for various roles including Super User and Area Trainer for the upcoming waves.
- SEC
- Creation of an ED specific note template in SEC called the 'ED History and Physical'. This allows users to do full documentation in SEC if they wish. The notes are also uploaded to Netcare for improved visibility to primary care and specialists.
- Ongoing optimization of order sets and alignment with Connect Care. In particular, there has been cross-platform development of Covid-19 order sets with our inpatient and lab colleagues.
- Various changes to support workflows during the pandemic
- CTAS complaints list was updated along with the addition of a triage frailty modifier
- Miscellaneous
- We began using the 'My Emergency Department' website which will allow our department to centralize its clinical pathways and resources, amongst other features.

Looking forward to 2021

- Connect Care will begin deployment in the Calgary zone with Waves 3 and 4, the timeline of which is currently under review.
- The department maintains a commitment to the further configuration and development of Connect Care.
- Recruitment of Connect Care Super Users and Area Trainers for ED will continue in order to support waves 3-6.
- Pediatric sedation order set in SEC will be available at all sites. This change was made to improve safety since this order set contains valuable decision support and medication doses.
- Due to limited staffing and resources, the focus in SEC will continue to be maintenance and critical break-fixes until Connect Care arrives at all Calgary sites.

Airway Management Pause

Use of, and interest in the Airway Management Pause (AMP) continued to grow through 2020. As with many things, the COVID-19 pandemic was the primary stimulus for changes and innovations. The AMP tool was updated to reflect ILI-COVID-19 considerations within weeks of the first cases being reported in Canada (current version released in September 2020). Further to this, a cognitive aid outlining airway management best practices for highly infectious respiratory pathogens was developed and added to the reverse side of the AMP tool.

A direct link to the updated tool (with ILI -COVID-19 Considerations) is included in the My-Emergency-Department app and portal.

Another important development is that all of our Airway Management resources have been posted to Insite on a single page. This includes the AMP tool, all of the associated learning materials as well as the difficult airway algorithms, information about the updated DAM carts and other available airway resources.

This one-stop shop for everything related to airway management can be round on the Airway Management Resources page on Insite: Teams > Clinical Teams > More > Search "Respiratory Services - Calgary Zone" > Education > Airway Management Resources.

Airway Management Pause on Insite:



Anti-Racism, Diversity, Equity and Inclusion Working Group

The first steps for our working group are to make a commitment to meaningful change to our culture. Anti-racism, diversity, equity, and inclusion will be a priority of our department.

The idea of this working group was born on June 8, 2020, when the Canadian Association of Emergency Physicians (CAEP) released an official statement condemning the acts of violence and underlying systemic racism that disproportionately affect Black, Indigenous and People of Color (BIPOC). CAEP challenged the Emergency departments (EDs) in Canada to reflect on the ways in which our own practices contribute to discrimination and advocate for change. From this statement, I was inspired to reach out to leadership to see if and how the Department of Emergency Medicine in Calgary plans to address these issues.

The idea and creation of this working group was presented to the physician executive committee in June 2020.

The current members include Kelsey MacLeod, Patricia Lee, Tayo Dawodu, Chris Bond, Sarah McPherson, Tash Wright, Mandeep Sran, Huma Ali, Fareen Zaver, and Jennifer Puddy.

Our accomplishments in 2020 include developing a department statement and presenting this to the physician executive. Several members participated in Implicit Bias training, Bystander Intervention training and Implicit Bias train-a-trainer sessions. In 2021, we will be offering implicit bias training courses to our emergency department leaders and colleagues involved in file reviews, hiring, interviews and evaluations.

Our group was instrumental in organizing grand rounds October 15, 2020, "Responding to Microaggressions in Medicine". We plan to create "Equity" rounds, grand rounds that will focus on topics of equity, diversity and inclusion topics twice per year.

We reached out to the emergency medicine managers of our departments to encourage all housekeeping staff to wear name tags so that they can feel they are part of our team as well as be recognized for their hard work. We also reached out to ensure that appropriate PPE is available to all patients and staff, for example, masks with two straps to allow for head coverings.

The working group has liased with the residency training programs and will help with a residency equity, inclusion and diversity group.

Our first steps will hopefully help us to make change in a meaningful way.

We look forward to 2021.

Calgary Disaster Report

COVID-19

COVID-19 has been one of the largest challenges our health system has faced in recent memory. It reminds us of the importance of emergency preparedness in our systems to respond to any and all types of disasters. We as a disaster group continue to support our ED MD site leadership (who have done a remarkable job) in an advisory role and will continue to advocate for ongoing training and preparedness for



Calgary FRCPC and EM residents in Level A hazmat suits training for MCI events

Disaster Communication System (DCS)

The Disaster Communication System, which replaces the old fan-out procedures in the event of a Code Orange has now been in place for over a year. The app is a custom two-way text communication system that significantly improves system efficiency and patient safety during an external disaster. Several other clinical groups (ICU, Trauma etc) have shown interest in the application and are looking at ways to support their Code Orange process as well.

Recently, we have been asked by the Alberta South Zone to support implementation of our DCS system into their Code Orange processes. We are currently supporting implementation and training of the app, and aim for a February 2021 completion.

Disaster Medicine **Fellowship** We are pleased to graduate both Dr. Robyn Rodger (Winnipeg FRCPC R5) and Dr. Kelsey Ragan (Calgary FRCPC R5) as Disaster Medicine Fellows. While their focus includes Hospital emergency preparedness, Simulation, HUSAR search and rescue, International Health and disaster relief, Mass gathering medicine, and resident disaster day training among others, both were put to work during COVID crisis to support the health system. We wish them well and success in their exams.

Intake for the disaster program 2021 has been put on hold during the COVID-19 pandemic and will look to resume again in 2022 (if possible).

CODE ORANGE **Duty MD Cheat Sheet**

The ED MD Duty MD Cheat Sheet was created to support ED physicians in the event of a mass casualty event at work. After the Code Orange simulation in 2016, it was uncovered that our current process was overly cumbersome and confusing. As a result we have created a new 1-page checklist of ED MD responsibilities during a Code Orange. This sheet has been tested and reviewed by AHS Human Factors to ensure efficiency and clarity. Training and roll-out of the sheet was cut short by the COVID-19 pandemic.

Simulations/ **Table Tops**

Due to the ongoing COVID-19 pandemic there are no current plans for a large-scale exercise in the near future.

However, to date, 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.

Mass Gathering Medicine

Limited events caused by the COVID-19 Pandemic. Will be looking forward to returning in 2021 (if possible).

Canada Task Force 2 (CANTF2)

Drs. Hanrahan, Granberg, Seadon, Fedwick and Bateman continue to be involved with the Provincial Disaster Team, Canada Task Force 2 (CANTF2), with various exercises and preparedness initiatives including the week-long Disaster Medical Specialist Course in October. Both Dr. Ragan and Dr. Rodgers are also members on this team as a component of their Disaster Medicine training.



Resident Training

"Disaster Days" for our Emergency Residents were cancelled in March 2020 due to the ongoing COVID Pandemic. We continue to support residents learning in didactic and table top education simulations in June 2021.

Physician staff N95

Due to the COVID-19 pandemic - Testing is at 100% for the first time in history.

Disaster Planning Groups

ED MD Disaster Planning Group:

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 (Dr. Granberg), MD and RN representatives from each Calgary ED (Dr. Brulotte RGH, Dr. Rodger PLC, Dr. Cram FMC, Dr. Rebus SHC) a representative from E/DM, ED Administration and Medical Affairs.

EDM Disaster Working Group:

COVID-19 has been the primary focus over the past year and will continue well into 2021. 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 an ongoing challenge. We continue to advocate for a clear and concise call out that allows front line staff (ED MD and RN) to have input in the decision to active a Code Orange. We continue to work with and push AHS E/DM regarding the improvement of this critical piece of disaster preparedness.

FERA TRAUMA Activation Group:

Completed project between Trauma, ICU and the FMC ED that is a specific foothills trauma response to multiple Level 1 activations at any given time. The idea being that the "FERA trauma" activation will occur when multiple level 1 patients present simultaneously requiring additional surgeons, anesthetists and ORs. This has been used numerous times over the past few months with great success.

Emergency

Response Codes

Clinical Pharmacology & Toxicology

The year 2020 was a year of constant change, and the Poison and Drug Information Service (PADIS) and Section of Clinical Pharmacology and Toxicology (CPT) in Calgary were no exception.

Despite the COVID-19 pandemic, PADIS continued to host residents from Emergency Medicine (Adult and Pediatric), Internal Medicine, Anesthesia, Family Medicine, Psychiatry, 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 continued to have Saskatchewan RCPSC and CCFP-EM residents take call from Regina and Saskatoon, and held our annual "Toxicology Skills Day" with the University of Saskatchewan Emergency Medicine residents virtually via Zoom. Given the ease with which our rotation can convert to virtual-only, we welcomed several residents and students from multiple programs on short notice in March and April when restrictions on bedside consultations were initiated.

In July, we welcomed back Dr. Steve Liu for his second year of the CPT fellowship. The program also successfully passed its internal accreditation in the spring of 2020.

PADIS hosted a successful virtual clinical toxicology conference on November 7th. Our keynote speakers were Drs. Dan Rusyniak and Howard Greller from the Dantastic Mr. Tox and Howard Show podcast. 187 people registered for the conference.

Finally, the Section completed its 2021-2025 Strategic Planning in the spring of 2020. This process resulted in our Section revising its goals and objectives to reflect our partnership with both AHS and the University of Calgary. The strategic plan and its key elements can be found on our CPT website.

As part of the Strategic Planning process, we developed a series of metrics to help us determine our success in meeting our goals and objectives. What follows are some of the annual metrics we will be measuring. All data are for the 2020 calendar year.

Dr. Mark Yarema Section Chief Clinical Pharmacology and Toxicology Department of Emergency Medicine

Number of...

•	Medical Toxicology bedside consults:	41
•	PADIS Medical Toxicologists:	6
•	Physicians on Clinical Pharmacology consult service:	4
•	Toxicology Clinic patients seen:	20
•	Research projects published by Section members:	11
•	Section of CPT members:	8
•	Section members who are also members of University of Calgary research institutes:	3
•	Residents and/or students mentored	10
	by Section members:	19 2
•	Publications by CPT fellows:	_
•	CPT lectures given by Section members to Undergraduate Medical Education students:	27
•	CPT lectures given by Section members at Postgraduate Medical Education academic half days:	38
•	CPT lectures given by Section members at CME events:	8
•	Inquiries about Calgary CPT program:	6
•	Applicants to Calgary CPT program:	2
•	Residents rotating at PADIS:	75
•	Residents rotating on CP consult service:	4

Distributed Learning & Rural Initiatives

The Office of Distributed Learning and Rural Initiatives (DLRI) 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 two 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 that 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 a range of conferences and Faculty Development opportunities

COVID has had important impacts on the DLRI office. Our staff has transitioned to working remotely and we have focused on continuing to support medical learners and rural preceptors during this challenging time. We continue to connect through our website: https://cumming.ucalgary.ca/ruralmedicine social media and newsletter. We have pivoted to online webinars for our preceptors focusing on timely topics such as virtual care, teaching online, online presentations and adolescent mental health in the time of COVID. We successfully ran our autumn Faculty Development South conference virtually with over 60 registered participants.

DLRI research activities continue and this past year have focused on the connection between rural preceptors and University Medical Schools through the 'Currencies of Recognition' project and novel ways for students to connect with rural physicians through 'The Human Library' project.

Over the upcoming year we plan to transition our Cabin Fever conference and our Foundational Skills for Medical Teachers curriculum to virtual offerings. Widespread adoption of distance and virtual learning technologies has opened many doors for rural physicians to be involved in new aspects of medical education and DLRI will continue to support this involvement.

At DLRI we make the links between learners and interesting rural opportunities, and support rural physicians as cutting edge medical educators. We believe that exposing learners to rural practice, and supporting rural physicians in a clinical faculty is an important part of the future of rural healthcare in our province.

Global Health Hub

The Global EM (GEM) hub is dedicated to enhancing opportunities for engagement, collaboration, and education in emergency medicine worldwide. 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 far, more than 50 emergency physicians in Calgary have joined the GEM hub.

After the success of our GEM grand rounds in 2019 with Dr. Megan Landes, we are grateful to have received an ongoing grant from the Physician Support Fund towards our annual GEM speaker series. We were thrilled to welcome emergency physician and acclaimed author Dr. James Maskalyk via Zoom to Calgary on December 3, 2020. Using his decades of experience as a humanitarian physician, Dr. Maskalyk drew parallels between the Covid-19 pandemic, the ongoing health crises that preceded it, and the necessity of "healing on the fly" when confronting them. He also discussed his recent experiences with personal illness and related that to his time spent treating patients in Darfur and Ethiopia.

Much of the international work that the hub had underway has been delayed due to Covid-19. We received grant funding through the U of C Indigenous, Local, and Global Health Office and the McLaughlin Travelling Medical Education Fund to start a project with the Mbarara University of Science and Technology (MUST) in Mbarara, Uganda. The goal of the Calgary-Mbarara Emergency Medicine Collaboration (CMEM) is to support the development of EM through faculty development, trainee support, and clinical exchange experiences. Specifically, this collaboration is designed to be bilateral with opportunities for our faculty to go there and senior Ugandan EM residents to come to Calgary. U of C faculty would be integrated



into an educational role in the MUST Dept of EM for their visit. Visiting Ugandan residents would be integrated into the academic activities of the residency program, undertake observerships in the hospital, give rounds, and complete a short course in medical education and teaching techniques based on the Master Teacher curriculum (now known as TEMEP). There is a precedent for this type of project at U of C with cardiology, IM, and pediatrics having brought foreign residents to Calgary for in-hospital observerships.

The funding we have will predominantly be used to fund the cost of two Ugandan residents visiting us annually, but we will also be able to fund travel and some ancillary costs for U of C faculty visiting Mbarara as well.

Dr. Ian Wishart was in Mbarara this March performing a needs assessment and cementing our relationship with MUST for several days before he was evacuated prior to the borders closing. Fortunately, despite limited time on the ground, he was able to determine that the partnership was worth proceeding with. Dr. Margriet Greidanus was also scheduled to go to MUST as a visiting faculty member for 3 months this fall. I truly hope we can re-schedule them both soon, and I thank them for their dedication to this venture.

I am not sure yet when we will be able to invite a Ugandan resident here but we will need assistance coordinating the delivery of their "course" here with help from faculty. We will need preceptors for clinical observerships and mentors for rounds etc. Also, to save money we plan to homestay the residents with medical families in Calgary. One of the benefits of this project is that faculty and residents in Calgary can be involved in global EM without needing to leave home, but the option is there for those able and willing.

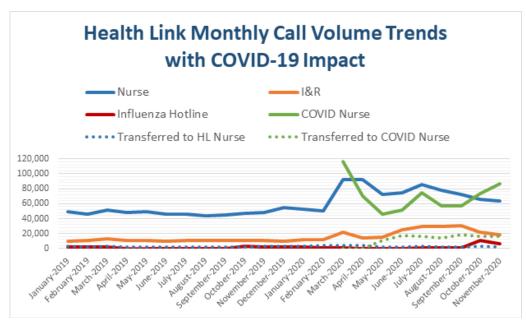
A package of donated airway supplies was put together by myself, Dr. Wishart, and Suzanne Boyd (PLC RT) and shipped to MUST this fall. It included BVMs, oral/nasal airways, ETTs and other vital equipment. The staff and residents were extremely grateful and we will look to continue this type of initiative in the future.

The COVID-19 pandemic has had a significant impact on Health Link services. The daily call volume to 811 has been consistently about 300% higher (see graph). In the past 9 months, Health Link has received 1,500,000 calls, compared with the usual annual call volume of 700,000. At the outset of the pandemic, Health Link quickly implemented new services, technology and staffing models to respond to the surge in calls. Staffing at Health Link has tripled since pre-COVID.

As part of AHS' response to COVID-19, Health Link has implemented a number of new services including:

- COVID-19 Response Line to respond to calls about COVID, test booking, and symptom triage.
 Staffed initially by redeployed RNs, this service now has a mix of permanent + regular casual nurses.
- Coordinated Early Identification & Response (CEIR) 844 Line. Support line for congregate care settings to manage cases and outbreaks.
- Notification of Negative COVID-19 Test Results for patients who select the callback option or when SMS Text/Autodial attempts are unsuccessful (average 1000 calls/day).
- Rehabilitation Advice Line in partnership with Physio and Occupational Therapy to meet rehab needs and connect with services.
- Addiction and Mental Health Helpline 24/7 service staffed by Mental Health Specialists including psychologists, SWs and RNs.
- Outbound calls to Albertans potentially exposed or associated with outbreak sites such as schools, daycares and businesses
- COVID vaccine booking, information and reactions line

The proportion of callers to the 811 nursing advice line referred to the ED was slightly lower in 2020 compared with 2019 (20% vs. 23%). Follow-through with Health Link advice to go the ED has been stable or slightly higher since the pandemic started, about 61% excluding those advised to call 911. This is despite a significant overall decrease in ED utilization, which speaks to the public's trust in Health Link advice. The additional focus over the next few months will be assisting Albertans with accessing the COVID-19 vaccine and responding to vaccine-related concerns.



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 sixth annual lecture took place March 12, 2020 in the Foothills Auditorium. The event was well attended by clinical clerks, emergency medicine residents, physicians, nurses, pediatric emergency physicians, and psychiatry residents and staff. Our keynote speaker was Dr. Gregory Luke Larkin from the Northeast Ohio Medical University. He spoke on Suicidality in the ED: Opportunities to Make a Difference. Complementary speakers included Dr. Stephan Freedman who spoke on Pediatric Mental Health initiatives and a panel composed of Dr. Jen Nicol, Dr. Valerie Taylor, Dr. Lisa Harpur, and Dr. Rachel Grimminck who discussed Key Calgary Zone ED Mental Health Initiatives. Approximately 64 people attended the lecture live with an additional seven telehealth sites.

The evening prior to the event, Dr. Larkin, emergency physicians and psychiatry were invited to enjoy a casual catered dinner at the home of Dr. Colleen Carey. Following the lecture, Dr. Larkin joined our emergency medicine residents and program directors for lunch.

This event was funded through the Physician Support Fund and the resident and clerk electives account.

There was widespread positive feedback from the event.

OPIOID Crisis & Harm Reduction

Opioid use disorder is a chronic, relapsing illness/condition that continues to be a major public health crisis affecting many Albertans. In the first six months of 2020, an average of 2.5 individuals died every day in Alberta from an apparent accidental opioid poisoning (Alberta Health, p. 3). 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 2020, stress and pressures from the COVID-19 pandemic appear to have further intensified the impact of the opioid crisis on individuals, families, and communities.

- Across the province, the number of fentanyl deaths in the first half of 2020 was 43% higher than the first half of 2019 (Alberta Health, p. 10).
- The provincial rate of ED visits related to opioids and other drug use increased by 22% from the first quarter of 2020 to the second (Alberta Health, p. 21)

Initiation of Buprenorphine/Naloxone in Emergency Departments and Urgent Care Centres (UCCs) in Alberta Program

For many individuals who live with opioid use disorder, there are prescription medications available that can help, such as buprenorphine/naloxone (brand name: Suboxone®, generics also available). When taken as prescribed, this medication reduces cravings for opioids 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 ED/ UCCs because of an overdose, withdrawal symptoms, or for other reasons. By October 2019, all adult ED/UCCs in the Calgary Zone had worked with the Emergency Strategic Clinical Network™ to implement the initiation of buprenorphine/ naloxone program. Additionally, in August 2020, the Alberta Children's Hospital ED also went live. The program is a patient-centered, evidence-based care approach to screen and initiate buprenorphine/naloxone for eligible patients followed by rapid transfers to specialized community clinics or primary care. Across the province, from 2018 up to the first half of 2020, there were 2,325 ED visits tracked in which buprenorphine/naloxone was given.

Alberta Health. (2020) COVID-19 Opioid Response Surveillance Report, Q2, 2020. September.

Patient Safety & Quality Improvement

Direct Referral Patient Process Improvement

This project continues to iterate towards a goal of closed loop communication between referring MD the receiving site ED MD and when necessary the Consultant. We continue to work with RAAPID and Consultants on this. ED MD accountabilities at the receiving ED sites has been excellent.

ePCR Delivery Project

This co-project with EMS has established a process for installing dedicated card accessed printers for EMS to print their ePCRs. EMS is expected to deliver the ePCR to the patients chart following this.

RN ordered ECG Disposition Pathway

This ED process improvement project will establish a simple work flow for RNs to follow with regarding to ECGs ordered by them prior to MD assessment. These ECGs are typically helpful to us and establishing a reliable work flow for RNs to follow for these ECGs will make it safer for patients and staff.

LWBS Project

This continuous QA project will examine this high risk population for patterns of higher risk. The goal will be to determine LWBS patients at higher risk of adverse event and create mitigation strategies.

Quality Assurance and Educational Rounds

This Patient Safety endorsed educational activity will continue to bring senior resident driven QA rounds to our clinical group. To date these rounds have been of very high quality and are unique in their focus on system risks and risk mitigation as well as highlighting challenging cognitive scenarios.



Photo from: Heather Patterson



Photo from: Heather Patterson

Pharmacy

This year, the Calgary Zone ED pharmacists and pharmacy technicians took part in a number of initiatives aimed at addressing the medication needs of patients in the ED. Pharmacists continue to play a large role, collaborating with the ED results physician, in the review of microbiology results (Ab Labs). This collaboration provides timely review and management of Ab Labs, in addition to promoting antimicrobial stewardship practices. With the continued strain on our healthcare system created by COVID-19, pharmacists aided physicians in developing a follow-up processes, enabling more efficient and consistent notification of COVID-19 results for ED patients. Another highlight includes South Health Campus (SHC) pharmacist's collaborating with our Infectious Disease colleagues in the implementation of the Appropriateness and Stewardship in Asymptomatic Bacteriuria (ASAB) project. This tool aims to help prescribers reduce antibiotic overuse. Though delayed due to COVID-19, the project is expected to move forward later in the year.

Pharmacists at the Rockyview General Hospital (RGH) are working hand in hand with the ED patient care planning committee, to create medication reviews and help draft treatment plans for patients with higher complex needs, streamlining the patient's ED stay and experience. This committee was formed at RGH, and is now in the process of being implemented at other sites.

The RGH team, in collaboration with our physiotherapist colleagues, began a pilot project in 2018 for the treatment of lower back pain. The goal of the project was twofold, to help reduce opioid use, as well as reduce patient length of stay in the ED. This project completed in 2020. The project demonstrated when a pharmacist intervention was completed, a reduction in opioid utilization (49.2% to 16.7%) and a reduction in length of stay (4hrs to 3hrs) was noted. Unfortunately, the project was not selected for grant funding but it did highlight the benefits of pharmacists' interventions in the ED in lower back pain.

Pharmacy technicians also continue to work at some sites, assisting with BPMH for admitted patients. As sites begin to prepare for Connect Care, the pharmacy teams are instrumental in helping to standardize medication use and ward stock in the ED. The ED pharmacy team has seen a number of changes in staffing at various Calgary centers, with some familiar faces returning from temporary positions. As part of expanding practices within the ED, we are now accepting more students and resident rotations through our ED's. In the past year, ED pharmacists have precepted one pharmacy resident, one military resident, 6 PharmD students as well two medical residents on their toxicology rotations, providing valuable training and experience for future ED practitioners.

The pharmacy ED team continues to proudly support patients within the Calgary region and looks forward to another year of collaboration with the ED team.

PERT: ACH Pediatric Emergency Research Team

Over the past 12 months the emergency department (ED) at the Alberta Children's Hospital (ACH) cared for over 75,000 ill and injured children. 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. Team members contributed to the science of COVID-19 epidemiology and pandemic response, resuscitation, precision medicine, quality improvement and simulation. In the past year we published 68 peer reviewed articles and received over 12 million dollars in peer reviewed funding from local, national and international sources.



PERT Team Physicians:

- Antonia Stang, Section Chief, Pediatric Emergency Medicine
- Graham Thompson, Research Lead, PERT
- **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 in Child Health and Wellness
- Jennifer Thull-Freedman, Medical Director for Quality and Safety, Alberta Children's Hospital
- 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
- Rebecca Emerton
- Kassi Shave
- **Ashley Jones**
- Myka Estes
- Joy Gobran
- Larisia Hladun
- Ellena Kim
- Nidhi Lodha
- Beata Mickiewicz
- 50+ Volunteer Research Assistants (Pediatric **Emergency Medicine** Research Assistant Program (PEMRAP)

Research Nurses:

- Kristen Kersey
- Jelena Komanchuk
- Ruza Goulden
- Karla Jansen

Administration:

- Jenny Godden
- Shayla Baier
- Gertrud VanDerMey

Research Trainees:

- Anna Funk, Post-Doctoral Fellow
- Kaden Lam, Summer Student
- Madison Riddell, Pediatric Resident
- Sarah Tougas, Medical Student

PERT Annual Report

https://cumming.ucalgary.ca/research/pediatric-emergency-research-team/about-us

PERT Website

https://cumming.ucalgary.ca/research/pediatric-emergency-research-team

PSF: Physician Support Fund

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.

Some of the projects that have been fully or partially funded by the PSF in 2020 are as follows:

Annual projects:

- Residency program Funding
- Top-Up funding for Program Directors
- EM Staff Interdisciplinary Simulation Session
- 2021 Research Day
- PLC Emergency Physician Quaterly Meetings
- Grand Rounds Support
- SHC Case Rounds
- Staff ultrasound
- 2021 The Legacy lecture (Hodsman)

New Projects:

- ED Treatment Plan
- PPE Insurance and Reimbursement plan (COVID)
- Pandemic Physician Lead
- Site Chiefs COVID stipends
- Assistant Site Chiefs COVID stipends
- Staff Simulation Sessions COVID Process
- FMC Level 1 Trauma Sim
- ED App
- COVID Cadaver Airway Skills Sessions
- Care Packages for COVID + physicians

Social Media

The departmental website (https://cumming.ucalgary.ca/departments/emergencymedicine/home) 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.

One of the many adaptations the residency program has addressed this year, thanks to a completely virtual CaRMS cycle which will take place in March, is a revamp and revitalization of our social media presence. There is a brand new website (www. <u>calgaryem.com</u>), along with an Instagram page featuring resident profiles, program updates, and pre-covid memories (@Calgaryemresidents), as well as TWO twitter profiles (<u>@UCalgaryem</u> and <u>@Calgaryemres</u>), run by the program directors and the residents respectively. With visiting electives cancelled, these platforms allow further

reach across the country to prospective applicants, with the hopes of continuing to attract a diverse group of the brightest applicants to join our program. Special thanks to Natasha Goumeniouk (R2) for managing the Instagram account, Cara McCulloch (R2) as her role as medical school representative, which has required gargantuan efforts this year, as well as to Sean Crooks (R3) who has been the mastermind behind the new website and promotional video





Photo from: Heather Patterson

Dr. Jamin Mulvey Medical Director, STARS Calgary Base

STARS: Shock Trauma Air Rescue Society

2020, like for many of us in health care, has been a busy, turbulent and dynamic year for STARS.

COVID has been front and foremost of discussions since WHO declared the pandemic early in 2020. Our policies, procedures and education have matched the rapid evolution of information related COVID19, and will continue to do so into 2021. These educational resources are publically available through https://stars.ca/covid19clinical/.

Just like all healthcare workers, our pilots, aeromedical crew and transport physicians have had to adapt to work during the pandemic, doing prolonged missions in full PPE. Each season has had its own challenges in PPE; long, hot days in the summer with heat fatigue; and now colder temperatures with freezing/fogging of masks and eye protection. Since March 2020, approximately 9% of all missions require ILI precautions (confirmed or presumptive COVID19 cases).

2020 has seen a change of guard, with myself taking over the Medical Director role from Dr. Mike Betzner. In addition, we have had four of our long-serving Transport Physician's retire from the service. The Transport Physician group continues to remains as strong as ever. We continue to provide critical care advice and manage a variety of complex medical and trauma patients, coordinating critical care patient transports from all over Alberta and Eastern British Columbia. Although we typically cover the Calgary Base, many of the TP's cover bases in Edmonton, Grande Prairie, and more recently Winnipeg, MB.

The Pre-Hospital Medicine Fellowship and Residency program remains strong; supporting trainees in various Emergency Medicine, Intensive Care and Anesthesia. Of note, our Fellows have continued to travel to New Zealand during the pandemic, with 6-month rotations with Auckland HEMS. This has proved to be a nice respite from COVID, as cases in New Zealand are almost non-existent.

Some other highlights from the year

- From January 1st, 2020 till the 31st December, we have flown on 571 missions with, 85% of those missions having patient contact and transfer.
- 38% Scene calls
- 62% Inter-facility Transfers
- 5% of missions required blood (20 patients; 42 units administered)
- 30% of patient's required ventilation
- 10% of patient intubated by the STARS team.
- Finger thoracostomy equipment uploaded onto the aircraft for Physician-based procedures
- July 2020, Mass Casualty Incident response to the Columbia Icefields with all three Alberta STARS helicopters deployed for one of the largest multi-agency responses in Jasper National Park
- PICU Isolette based missions recommenced with H145
- Upgrades of Heliports throughout Alberta and British Columbia to support H145 operations.
- December sees the retirement of the aging BK117 from the Calgary base, with two Airbus H145's being permanently located here for missions.

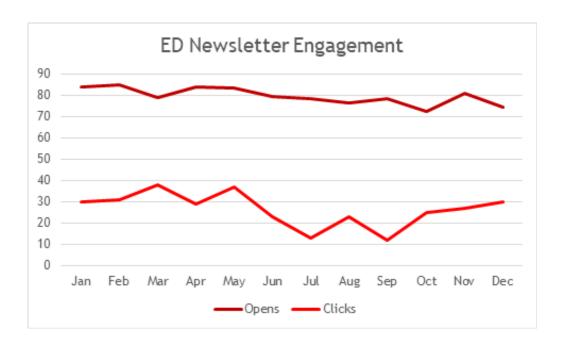
As 2021 kicks off, we will continue to explore innovation and advancement in prehospital care, providing high quality critical care to those in need.

Tuesday Newsletter

The Emergency Department weekly newsletter played a significant role in keeping physicians and administration up-to-date on the latest COVID-19 information this year as the pandemic developed. A COVID-19 section was added to prioritize this critical information. The newsletter remains well-received with an average of 79.58% of recipients opening the email every week.

The content of the newsletters varies week by week, but generally contains topics such as:

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



Wellness Hub

The wellness hub has been actively involved promoting the well-being of members and advocating for wellness principles to be integrated into department process and policy over the past year. We are particularly grateful to the Physician Executive Committee who approved the addition of a member of the Wellness Hub to be a voting member of the PEC. Also, we are extremely grateful for the advocacy of our Department Head, Dr. Eddy Lang, to search for and secure funding to support a Director of Wellness position for the department.

Over the year the work of the Hub has primarily focused on supporting the wellbeing of members through the pandemic response.

This has included:

- 1. Training and providing peer to peer support resources
- 2. Adding wellness resources and opportunities to the weekly department newsletter
- 3. Contacting and offering support to members in isolation due to the COVID-19 pandemic
- 4. Providing education on core wellness content regularly at Department Grand Rounds
- 5. Conducting a needs assessment via one-on-one interviews of randomly selected members representing all ED sites

At the Wellness Hub we believe that one of the greatest resources of our department is an engaged, thriving membership group. Our goal is to develop a departmental strategy to maximize physician wellness by fostering engagement and mitigating the drivers of burnout within our organization.



Point of Care Ultrasound (POCUS) continues to be active in Calgary. As with everything else this year, the pandemic has resulted in some changes to how we use POCUS in the ED. Enhanced cleaning measures have been instituted with emphasis on using single use gel packets and minimizing items brought into patient rooms.

We are currently collaborating with UBC in providing data for a large national Canadian ED COVID-19 registry. Moving forward, we will be collecting data on POCUS in patients with suspected COVID-19. Data collection will occur at PLC and SHC. Stay tuned in the new year for details.

The Physician Support Fund (PSF) has continued its support of the ED staff POCUS sessions. Given the pandemic, we've deferred these sessions until the new year. Stay tuned as we'll likely be able to offer four or more smaller sessions in the winter/spring. Thanks to Dr. Claire Acton who will be organizing these sessions moving forward.

Thanks again to Dr. Kasia Lenz who has been doing an excellent job in her role as the residency POCUS education lead. We now have junior and senior POCUS blocks in addition to the annual introductory course.

Just a reminder that we have two endocavitary probes at FMC for those interested and trained in using it. We will provide refresher training in the use of this probe during the upcoming PSF funded staff ED sessions in the new year.

Please remember to keep the machines plugged in and cleaned after each use!

Thanks everyone.

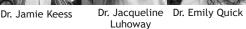


CCFP-EM Program

As program director, I am obviously biased, but I think Calgary offers one of the best EM training programs in the country. I feel so lucky to work with such a great team and would like to take the opportunity to thank some of those involved in making the program a success. I am amazed at the value the Calgary Emergency Department places on resident education. The leadership team considers residents and their unique needs in every decision. Our administration team goes above and beyond every single day. The FR and EM programs enjoy close collaboration and have created an outstanding academic program. Most importantly our clinical team is incredibly invested in education. Every shift, I see staff going out of their way to discuss cases with residents, include them in patient care and procedures, and look out for their wellness. To run the program takes hundreds of volunteer hours (to review CaRMS files, take part in committees, and put on academic sessions). And our clinicians selflessly give their time, expertise and experience to make this program great. This culture of excellence in education has become so ingrained in Calgary it can be easy to forget that this does not exist everywhere. By having the best clinical educators in the country, we can recruit, train and retain the best future emergency physicians.

CCFP-EM Residents (PGY-3)







Dr. Kyle Ricord Dr. Jenny Strong



Program Director: Jason Fedwick, MD, CCFP-EM





Dr. Ryan Chadwick

Please welcome our 2020/2021 resident team, if you see one of these hard working residents on shift, please feel free to include them in any and all cases.

Residency and COVID-19

COVID-19 has exposed many of the weaknesses in our society. Healthcare systems, already operating above capacity, are being overwhelmed. Vulnerable populations are at higher risk of infections, complications, and death from the virus. Lockdowns have disproportionality affected the poor and marginalized. And healthcare workers (including residents), caring for those infected with COVID-19, have shown the highest levels of burnout. This pandemic has disrupted exams, clinical rotations and the academic schedule. Despite the interference and the personal risk residents continue to rise to every challenge. I am amazed at the strength and resiliency of our emergency residents. They are an amazing group, well on their way to being excellent emergency physicians.

Continued on next page...

The CCFP-EM program

Administration

Madhavi Talasila, Tris Malasani

These amazing administrators are the key to the success of the program.

Simulation

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

Mike Wolf, Bryan Weber, Gavin Greenfield, Stefan DaSilva, Rob Hall, Colleen Carey, Paul Tourigny, Kasia Lenz

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.

Competency Committee

Todd Peterson, Leigh Morris, Eileen Kabaroff, Marge McGillivray, Justin LeBlanc, Christine East, Jamie McLellan, Dave Fu

These wonderful staff physicians are involved in reviewing evaluations and making sure residents are on track for success in the program.

Research

Kathryn Crowder

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

Longitudinal Preceptors

Stuart Rose, Ping Chen, Neil Collins, Eileen Kabaroff, Jamie McLellan, Scott Seadon, Colleen Carey, Gavin Greenfield

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

CaRMS

Kyle Ricord, Jenny Strong, Rob Lafreniere, Carrie Hiscock, Rick Morris, Margriet Greidanus, Jamie McLellan, Todd Peterson, Anoop Manocha, Kathryn Crowder The program continues to attract talented residents from across the country and received 120 applications for 8 spots this year. This tireless group volunteered to review files and interview our future EM residents.

Exam Preparation

Verlyn Leopatra

To prepare for the final exams a large group of staff volunteer to administer practice oral and written exams throughout the year.

The FRCPC Program

Catherine Patocka, Anjali Pandya

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.

FRCPC Program

This year, Dr. Marc Francis completed his tenure as Assistant Program Director and we welcomed Dr. Anjali Pandya into the role. Marc did an outstanding job leading and supporting the program over his 5 years in the role and has received a National Award from the Canadian Association of Emergency Physicians (The Richard Kohn Mentorship Award) for his contributions. As always, the education administrative support team Madhavi Talasila and Tris Malasani have done an exceptional job ensuring a seamless transition. In particular, we thank Tris Malasani for accepting to act as program administrator to the CCFP-EM program while Madhavi Talasila focuses more on the FRCPC program.

In the 2020 CaRMS match, we recruited four excellent candidates: Kira Genise, Bobby Johnston, Duncan Simmons, and Scott Wakeham. The program is already busy preparing for a novel and busy virtual CaRMS season as Emergency Medicine in Calgary continues to be a highly desired postgraduate training program among medical students from across the country. Given the inability to host learners during the COVID-19 pandemic, we have committed a great deal of time and resources to optimizing our online and social media presence. Consistent with some of the initiatives going on in the ED, AHS, and the University of Calgary we are in the early stages of examining our policies and procedures from the perspective of equity and diversity.

The program continues to address day to day challenges efficiently and effectively. The ongoing COVID-19 pandemic has been particularly disruptive to our educational and team building activities. We have moved most teaching activities online, have adjusted in-person events to comply with constantly evolving social distancing guidelines, and have moved around rotations to ensure residents continue to get the appropriate breadth of experience required to be exceptional emergency physicians. We are grateful to the Emergency Department Operations and Leadership team for their ongoing commitment to our resident's education prior to and throughout the pandemic.

Having launched our first cohort of Competence by Design (CBD) residents in 2018, we continue to work on the progressive implementation of this major curricular change. Our newly appointed CBD lead, Dr. Fareen Zaver, and the CBD committee continue to work to implement necessary curricular and assessment changes including stage-based simulation, new assessment tools, updated rotation templates, and faculty development. We are tremendously fortunate to have an incredible group of educators who have been engaged and interested in making this complete curricular overhaul successful. CBD aims to ensure that all trainees have the opportunity to develop and demonstrate competence in the skills necessary to function as specialist in emergency medicine. Because it can be difficult to ensure consistent access to low-frequency, high-stakes events such as resuscitations and Level 1 traumas our program has had to dramatically increase our use of simulation for formative and summative assessment. We have a team of highly skilled team of simulation educators who high quality simulation and debriefing experiences. We express continued thanks to the nursing operations and educator leads at the FMC for their enthusiasm and commitment to helping organize interprofessional, in-situ simulation for our residents at the FMC. These are incredibly valuable experiences for our residents and contribute substantially to their learning.

The Residency Training Committee – meets monthly to review the program and to develop improvements and policy.

Members: Catherine Patocka (chair) Meira Louis, Lisa Campfens, David Fu, Bryan Weber, Conor McKaigney, Andrew Robinson, Bela Sztukowski, Tyson Savage, Jamie Keese, Ryan Chadwick, Sarah McPherson, Natasha Goumeniouk, Jen Puddy, Anoop Manocha, Geordon Avery-Cooper, Anjali Pandya, Jason Fedwick, Stephanie VandenBerg, Naminder Sandhu

The CBD Committee – meets monthly to design and implement changes required for CBD Members: Fareen Zaver (chair), Anjali Pandya, Catherine Patocka, Carly Hagel, Geoff Lampard, Marc Francis, Kira Genise, Kelsey Ragan, Katie Anker, Sean Fair, Sean Crooks, Natasha Goumeniouk

The Clinical Competency Committee - Meets quarterly to provide a transparent review of resident performance and to make promotions decisions.

Members: Aaron Johnston (chair), Geoff Lampard, Ian Rigby, Jason Lord, Heather Patterson, Fareen Zaver, Andrea Boone and Brad Granberg (Resident advocate)

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

Junior simulation – Patricia Lee-Nobbee

Senior simulation – Jen Puddy

CBD stage specific simulation - Anjali Pandya

Ultrasound and procedural skills:

Includes annual basic ultrasound training, certification of beginner and advanced ultrasound skills, 2 annual airway workshops, annual CVC workshop, casting and splinting workshops and an annual advanced procedures cadaver lab session.

FRCP US Lead: Kasia Lenz

Members: Danny Peterson, Kasia Lenz, Rob Hall, Bryan Weber, Gavin Greenfield, Stefan DaSilva

EMS and disaster medicine – redesign of the EMS rotation

Members: Katherine Bateman, Brad Granberg

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: Art Tse, Arun Abbi, Geoff Lampard, Cathy Dorrington, James Andruchow, Patty Lee, Karl Phillips, Adam Oster, Alyssa Morris, Marc Francis, Chris Hall, Mike Szava-Kovats, Chris Bond, Bryan Weber, Dave Fu, Chris Lipp, Kasia Lenz, Kat Bateman, Hannah Park, Ian Walker, Allison Foran, Eric McGillis

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.

Grand Rounds

2020 has seen a successful year for Grand Rounds presentations. Emergency Medicine Department Grand Rounds are normally held weekly on Thursday at 9:00am in the Coombs theatre of the Foothills Medical Centre. We have switched to a virtual ZoomTM platform since March 2020 due to the COVID-19 pandemic. We have seen a significant uptake in attendance since moving to the virtual platform. 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."

45

Grand Rounds Presentations in 2020

"We have continued the Quality Assurance & Educational Rounds (QAER) now pairing residents with staff mentors for QI mentorship. The virtual format has allowed us to recruit international speakers and increased the breadth of topics covered. We have continued recording the weekly grand rounds to allow staff to watch presentations they were unable to attend in person. We continue to host content experts from other specialties to ensure the highest quality content. We have also sent a survey to all residents and staff to better inform our future direction of grand rounds."

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

Schwartz Rounds

Schwartz Rounds have been held monthly since October 2020, specifically tailored to the needs of SHC ED. These rounds focus on the social, emotional and ethical aspects of providing healthcare, a dialogue that is desperately needed while working the frontlines of the pandemic. Rounds topics included: the Patient I Will Never Forget, Let's Talk Covid, and Caring for Each Other. Panelists included: ED Physicians, Pharmacists, Nurses and Unit Clerks. Schwartz Rounds have been very well received. Shanafelt et al (2020) endorses these rounds as a specific tactic and deliberate approach to promote collegiality and community at work in order to promote healthcare worker wellbeing.

Dr. Meira Louis Under Graduate Student and Off – Service Resident Coordinator

Off-Service & Elective

We all know 2020 was a challenging year, and elective medical education was hit hard. We had to cancel all of our elective learners from mid-March until the summer. At that point we were able to adjust and accommodate learners again in the department. In the initial period of the pandemic, we had to cancel 29 learners who had booked electives in our department. Luckily, we were able to rebook the majority of those students, as Calgary remains a very popular place to experience Emergency Medicine.

Despite the challenges of 2020, the Department of Emergency Medicine hosted 123 mandatory off-service learners during the 2018-2019 academic year. This represents approximately 11,000 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, while the remainder came from programs as diverse as plastic surgery, orthopedic surgery, general surgery, neurology, dermatology, pathology, internal medicine, cardiac surgery, vascular surgery, and psychiatry. Our Department continues to handle this demand while maintaining a 1:1 preceptor to learner ratio for most shifts.

Since emergency medicine remains popular among Canadian medical students and family practice residents, the demand for medical student and resident electives in our Department remains strong. In the 2019-2020 academic year, the Department of Emergency Medicine received elective requests from 84 residents (mostly family medicine) and 77% of these residents were offered electives. We hosted 36 elective residents with requests from the University of Calgary (39 residents), UBC (12 residents), U of A (3 residents), U of T (6 residents), McMaster (4 residents), and other Canadian schools. Notably, we hosted 4 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.

On the medical student side, in the 2019-2020 academic year the Department of Emergency Medicine received elective requests from 173 medical students and 72% of these students were offered electives. We hosted 77 elective students with requests from the University of Calgary (48 clerks), UBC (20 clerks), U of A (12 clerks), U of T (18 clerks), UWO (12 clerks), U of O (12 clerks), McMaster (9 clerks), Queens (6 clerks), U of M (10 clerks), U of S (9 clerks), NOSM (4 clerks), as well as a few requests from the other Canadian schools. The 113 elective learners we hosted in 2019-2020 represent over 7,000 hours of direct 1:1 learner supervision by our teaching faculty.

Unfortunately, due to travel and exposure restrictions, there has been no resumption of electives for medical students from other schools. We will have to see how 2021 changes our ability to host medical students from other sites. In the meantime, we have had significant demand from local students for ER electives and continue to offer a safe and highly sought-after elective experience.

We were also able to host multiple students from the U of C for their "med 440" block, despite the ongoing challenges of the COVID-19 pandemic. 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.

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 2019-2020 academic year, and this figure does not include the hundreds of hours our faculty spent on the direct supervision of preclerkship 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.

Simulation

The Emergency Medicine Simulation Program at the University of Calgary includes simulation education for medical students, Emergency Medicine residents from both the CCFP-EM program and the FRCPC program and the Staff Simulation programs. The Simulation Education Advisory Committee (SEAC) helps oversee the simulation activity for all of these groups.

SEAC consists of:

Medical Director: Gord McNeil Medical Student Lead: Kevin Haley

FRCP Junior Residents Lead: Patty Lee and Andrea Boone CCFP-EM Resident Leads: Scott Seadon and Stuart Rose

FRCP Residents Lead: Jen Puddy Staff Simulation Lead: Gord McNeil

Nurse Educators from 4 Adult Emergency Departments

STARS representative: James Huffman

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

The Emergency Medicine Staff Interdisciplinary Simulation Program consists of weekly sessions gathering physicians, nurses, respiratory therapists and pharmacists to participate in sessions that focus on teamwork skills, practicing procedural skills and expanding knowledge bases. Over the past 10 years, the program has completed more than 350 sessions which include a team of 2 physicians, 4 nurses and 1 RT leading to over 2000 participants. The team is exposed to critical care scenarios and is encouraged to practice, in real time, the skills they will need for their daily practice in Emergency Medicine. Our team of facilitators are now well recognized as valuable teachers for a variety of simulation courses and have become speakers at international conferences. In March 2020, the Staff Simulation team was able to assist in the COVID pandemic response. In approximately 3 weeks, the team ran over 300 COVID scenarios and airway training sessions for our Emergency department staff and was integral in developing the management plan of the critically ill COVID patient.

Dr. Gavin Greenfield **Undergraduate Medical** Education (UME)

University of Calgary Emergency Medicine Clerkship

150 students from The Class of 2020 were scheduled to complete their Emergency Medicine mandatory Clerkship rotation in Calgary. The remainder were scheduled through their UCLIC sites. In mid-March 2020, because of COVID-19 the clerkship was cut short and 14 of the 150 students were unable to complete their mandatory Emergency Medicine Clerkship rotation. For those that did complete their rotation they worked 3 shifts at the FMC plus 4 shifts at one of the other adult sites. The overall ranking for the mandatory Calgary based Emergency Medicine rotation was 4.1. There are 8 mandatory rotations and the three that finished higher than Emergency Medicine were ranked 4.3, 4.3, 4.2. For perspective, the Class of 2019's ranking was 4.5, the Class of 2018 (4.0) and the Class of 2017 (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 95%.

Students now use their proximity cards to access SCM/SEC and other resources.

The Class of 2020 saw the continuation of the highly successful "Observed History and Physical" teaching session. An improvement made to this session for the Class of 2020 involved the change to match the session preceptor to the student's shift preceptor. Essentially this patient becomes the first patient seen on shift and the staff and student continue to care for this patient through to the patient's final disposition. While previously at the FMC only, these sessions are now taking place at the RGH, PLC and SHC. The session involves a staff preceptor observing (and ultimately providing feedback) the performance of a history and physical exam by the clerk on an actual emergency department patient. The duration is usually about 45 minutes. This activity has been very well received by both staff and students alike.

The "Nursing Block" teaching session was introduced for the Class of 2020. This involves 3 hours where the student works directly with nurses. The purpose is to gain a better understanding of other roles in the Department. In addition, students gain experience inserting intravenous lines, taking vital signs, attaching patients to monitors, delivering oxygen therapy, as well as any other procedures the nurses may need to perform. This session has been well received by nursing and students alike and we will look for ways to further improve the session for the Class of 2021.

A major Student identified strength of the rotation was the quality of on-shift teaching (the vast majority of shifts involve working directly with the staff physician with no other team members). Out of 5, the scores for the following were second only to one rotation. Demonstrated enthusiasm for teaching (4.713). Provided direction and regular feedback (4.695). Ensured the presence of a non-threatening and supportive learning environment (4.776). Is the type of physician I would strive to emulate (4.715). The quality of scheduled teaching sessions and the balance of responsibility and supervision were also identified as strengths. The most frequently cited weakness was that the 2-week rotation was too short.

With the addition of the "Nursing Block" 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 2021. The Undergraduate Medical Education Hub and the Emergency Department Clerkship Committee are continuing to look for ways to improve the rotation.



Dr. Stephanie Vandenberg Research Director

Research Update

The 2020 academic year has been a period of change and collaboration. We welcomed Jillian VandenBrand as our Research Administrator, taking over from Katrina Koger. Jill has a wealth of experience, having previously worked with the Department of Obstetrics and Gynecology. Hina Walia returned to our team as Research Coordinator and we were grateful to have the expertise of Stacy Ruddell as a new addition to our team in the role of Research Coordinator. Together, the team worked in their new space on the 11th floor of FMC, successfully guiding the transition of studies from a pre-COVID period into the era of COVID.

The first big change with COVID was the hosting of our first virtual Research Day. We hosted 9 research presentations via Zoom platform with a great online audience turnout. We followed Research Day up with a Grand Rounds presentation by our keynote speakers, Dr. Kathryn Dong and Chris Cardinal, Addictions medicine specialist and Peer worker with the Addiction Recovery and Community Health (ARCH) Team at the Royal Alexandra Hospital in Edmonton. Their talk, entitled "A Turning Point? "The Critical Interface of Substance Use, the ED and Research" focused on the role or research to generate evidence based strategies to advocate for people who use substances as a subset of our emergency department patient population. The event drew 160 online audience members and received great feedback. It can be viewed on the Department of Emergency Medicine's webpage under Grand Rounds.

Our research team was also pleased to announce the creation of the Research webpage hosted within the Department of Emergency Medicine's larger webpage. This resource lists our team members and ED researchers and also acts as a way for colleagues both in emergency medicine and other specialties to collaborate on research work with us.

The Emergency Medicine Research Advisory Committee (EMRAC) continues to meet the second Thursday of each month to discuss new study protocols and operational aspects of conducting research within our Department. We are pleased that many other Departments at the Cumming School of Medicine have approached us to collaborate on research projects by recruiting patients out of the Emergency Department.

Research in Development (RID) Rounds is an innovative and novel way to discuss research project ideas and receive feedback on projects that are in their infancy or are a work in progress. It is also a way we support our Residents and Medical students who engage in Emergency Medicine Research. These rounds are hosted via Zoom the fourth Thursday of every month.

While many of the studies that recruited out the FMC ED were put on hold, we were pleased to be invited to participate in a large, multi-centre COVID Registry study. Please see a detailed description of the study below. We also continue to screen and collect data on the University of British Columbia's Drug Impaired Driving (DID) study, with Dr. Ian Wishart being the principle investigator at our site.

With the start of the COVID registry, our research team introduced a volunteer research assistant program, under the direction of Hina Walia. The Calgary Emergency Research Associate Program (CERAP) was approved through Alberta Health Services. Through the support of volunteer services, we were able to survey the existing volunteers for potential interest. The response was overwhelming with 54 candidates who expressed interest. Each candidate required a background check, submission of a cover letter along with CV and acknowledgment to comply with the requirements of the program (by completing TCPS 2 core and CITI- Canada Good Clinical Practice (GCP) training modules). We worked closely with AHS and U of C to gain system, ethics and email access. Despite several restrictions, we were able to onboard and train our first 5 volunteers in September who have been a wonderful asset to the department. These volunteers each contribute roughly 8 hours a week working on the various research studies that we are able to continue to do remotely. With the success of our first group, we were encouraged us to bring on 6 additional volunteers. Currently we have a total of 11 volunteers working in the program. They are able to work independently and cover day, evening and weekend shifts.

We were happy to 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. Our researchers continue to contribute to evidence and knowledge translation practices around Choosing Wisely, Audit & Feedback practices, and Quality Improvement, in addition to supporting the work of the Emergency Strategic Clinical Networks focus on opioid misuse and opioid replacement therapies (suboxone) and the Patient Experience of the ED using principles of Health Design. Ongoing partnerships within the University of Calgary with the Divisions of Cardiology, Neuro-radiology, Neurology, Gastro-enterology, Hematology and Orthopedics and Spinal Surgery allows us to participate in timely, relevant, patient centred research that aims to improve the health of Albertans.

Current Studies

COVID-19 Related Studies

Learning in a Time of Crisis: Creating a Canadian Emergency Department COVID-19 Registry

The national ED COVID-19 registry addresses critical knowledge gaps in emergency care and operations by prospectively and retrospectively gathering data on COVID-19 patients seen in EDs across Canada, and follows patients by telephone after discharge from hospital to ask standard quality of life questions and determine long-term outcomes.

The vision of "Learning in a Time of Crisis" is to create a robust national ED dataset to answer multiple emerging research questions, and inform early acute care decisions that are currently being made without any or minimal evidence to inform them.

AIMS

Our overarching aim is to create a national population-based ED registry of consecutive suspected and confirmed COVID-19 patients who present to Canadian EDs (urban and rural) to generate research capacity and initiate a rapid knowledge-to-action cycle to inform our response to the evolving pandemic, and to help us plan for the next pandemic.

Specific aims are:

- 1. To enable standardized prospective and retrospective data collection on patient and treatment characteristics of suspected and confirmed COVID-19 patients presenting to EDs, and their associated resource utilization and outcomes. This includes vulnerable populations commonly served in EDs who often decline admission to hospital or are excluded from randomized trials.
- 2. To identify risk factors for poor patient outcomes including non-invasive ventilation strategies (i.e. CPAP and BIPAP), intubation, ICU admission, mechanical ventilation, need for prolonged mechanical ventilation, cardiac arrest and death.
- 3. To derive clinical decision rules to predict which ventilation strategy should be used, the need for intubation and critical care admission, cardiac arrest and death among patients presenting to acute care hospitals with suspected or confirmed COVID-19 to guide early decision-making in the ED.
- 4. To prospectively validate the derived clinical decision rules.
- 5. To determine the clinical decision rules' long-term potential impact on clinical practice and resource utilization
- 6. To evaluate the health outcomes among patients with confirmed COVID-19 identified in the ED who were discharged or declined hospital admission.
- 7. To evaluate the association of outpatient ACE inhibitor and non-steroidal anti-inflammatory medication use with health outcomes among patients with confirmed COVID-19.
- 8. To evaluate COVID-19 patients' long-term health outcomes, and quality of life regardless of admission status.

Impact of the COVID-19 Pandemic on the Incidence of Traumatic Injuries Presenting to Adult ED's in an Urban Center PI: Lang/Chisholm

Where did all the patients go? The effect of the COVID-19 pandemic on Calgary ED Volume PI: Lang/Killam

COVID-19 Impacts on Emergency Mental Health Presentations

PI: Lang/Matsivic, Riveria, George

Intubation of COVID 10 Patients PI: Fedwik/McRae/Chopra

COVID lung POCUS PI: McRae/Petterson

Clinical Characteristics of Emergency Department Patients with Suspected CV19 infection and risk to emergency care providers

PI: McRae



NON-COVID-19 Related Studies

Drug Impaired Driving (DID)

PI: Wishart/ Herb Chan (UBC)

Demographic and Regional Variation of Drug Impaired Driving in Canada

Total Recruited: 895 Goal:300 patients

E-Scooter (City of Calgary Collaboration)

Background: The introduction of electronic scooters (e-scooters) in Calgary as of July 13, 2019 has prompted investigation into the health impact of this new mode of transportation. Preliminary ED data in Calgary reveals up to 700 scooter related injuries in the period of July 10-August 13, 2019 and May 2020-September 2020, as inferred from instances where the term scooter appeared on the ED triage note.

Aim: This study aims to quantify the incidence and characteristics of moderate to severe injuries associated with the use of e-scooters in Calgary between June 2019 – October 2019 and May 2020 – September 2020.

Methods: Retrospective review of paper medical records of all patients presenting to Foothills Medical Centre Emergency Departments who arrive via emergency medical services (EMS) to with the term "scooter" included in the triage note.

Sample Size: 75

Studies on Hold

Age-Adjusted D-dimer cut-off levels to rule out deep vein thrombosis: A prospective outcome study (Adjust-DVT)

Start Date: July 2017 End Date: July 2021

Number Enrolled: 40

Utilization of age-adjusted d-dimer (10 ug/L x age in years) to guide DVT care pathway. Patients with a Wells <2 will only have an ultrasound if d-dimer exceeds age-adjusted cutoff. Patients 50 and over with Wells ≥2 will receive an initial ultrasound at ED visit. If initial ultrasound is negative, patients will only receive a serial ultrasound if d-dimer exceeds age-adjusted cutoff.

Plastic cling wrap as an interim burn dressing

Start Date: August 2017 End Date: August 2021

Number Enrolled: 1

Standardized questionnaires will be used to measure both patient and ED staff/Outpatient Burn Unit staff impressions on plastic wrap, such as the ease of plastic wrap removal, pain scores, and healing time. Training for plastic wrap application and removal will be provided. Follow-up within 24h will be provided by the burn clinic.

LEAD study - Paul (gibsonp@ucalgary.ca)

LEAD. FMC Site. Validation of clinical prediction rule for investigation of suspected DVT in pregnant patients. Lead site is McMaster University. Calgary PI Dr. P Wilson (Internal Medicine). Eligible patients are referred to LEAD study coordinator/team. ED RAs can complete enrolments on weekends.

74 | Annual Report 2020

Ongoing Partnerships/Collaborations

Partnership for Research and Innovation in Health System (PRIHS)

Evaluation of the Connect 2 Care (C2C) Team for Vulnerable Patients with Complex Needs Researchers at the University of Calgary's O'Brien Institute for Public Health have partnered with Calgary Urban Project Society (CUPS) and Alpha House to evaluate the Connect 2 Care (C2C) intervention for socially vulnerable patients with complex health needs. Socially vulnerable individuals, including those experiencing homelessness, have higher acute care utilization compared with the general population. Despite available primary care and social services, many have significant challenges accessing the services they need in the community. The C2C (formerly the Coordinated Care Team [CCT]) intervention aims to improve care coordination for socially vulnerable patients by bridging the gap between acute care and community services. This novel intervention combines elements of intensive case management with community outreach and navigation.

Initially launched November 1, 2015, C2C consists of 2 registered nurses, to be supplemented by first 2, then 4 navigators. Referrals are accepted from emergency departments, hospital units and community partners. The team will have expertise in chronic disease management, mental health and addictions, and extensive knowledge around social programs, community health, housing, and financial, transportation and legal resources.

Population

Referrals are accepted from emergency departments (ED), hospital units and community partners, for patients meeting the following criteria:

- 1. ≥18 years of age AND
- 2. Homeless or unstably housed AND
- 3. ≥ 3 ED/Urgent Care (UC) presentations, or ≥ 2 hospitalizations within the past year, AND
- 4. A history of one or more high-risk conditions (used by partner Anansi Health):

Substance use disorder; mental illness with functional impairment (depression, anxiety disorder, bipolar disorder, psychotic disorder); congestive heart failure; diabetes with HbA1c>9%; chronic obstructive pulmonary disease; asthma; cardiovascular disease; uncontrolled hypertension with end-organ damage; end-stage liver disease; end-stage kidney disease

Evaluation/Objectives

We will evaluate the C2C intervention using the Donabedian framework of structure, process, and outcome. To assess structure, we will document the program's context, resources, and partner supports. Process indicators include: referrals to primary care, housing, addiction and mental health programs. Outcome measures include: ED visits, hospitalizations, costs, quality of life, self-reported health status, patient, staff, and partner experiences.

The objectives of this evaluation are:

- To document the structure and process of the C2C model of care throughout the phases of implementation.
- To determine the effectiveness of the C2C program in reducing acute care utilization and improving patient-reported outcomes.
- 3. To assess patient, staff, and partner experience with the C2C.
- To explore the links among structure and processes that lead to health and program outcomes, both positive and negative.

Continued on next page...

Improving Acute Care for Long-Term Care Residents: A Better Way to Care for the Frail Elderly in Times of Medical Urgency

The aim of this PRIHS application to is improve the care provided to long-term care (LTC) residents who develop an acute health issue, focusing on a patient-centered approach that provides the appropriate treatment in the right location. Specifically, we will optimize, standardize and evaluate the current processes followed when considering transfer of residents from LTC to an emergency department (ED). Our proposed solution is evidence-informed and aims to better optimize and integrate the use of current healthcare resources.

Methodology

This is an integrated knowledge translation (iKT) project that has been informed by the knowledge to action (KTA) cycle <37>. Specifically, we have identified an evidence-informed solution to address a care gap and have engaged with relevant 2. To scale and spread the standardized stakeholders. We will implement this change initiative, considering both local LTC context and barriers to implementation. The implementation strategy can be modified to address these identified barriers. Although the INTERACT® tools used will remain consistent, the care and referral pathway can also be adapted to address contextual factors unique to each AHS zone. We will evaluate the initial implementation in the Calgary zone using a rigorous evaluation plan, and continue to monitor the sustainability and provincial spread using a provincial LTC-ED transfer dashboard developed as part of this initiative.

Objectives

- 1. To implement and evaluate an evidenceinformed standardized care process for the care of LTC residents experiencing an acute change in health status
- care process for the care of LTC residents experiencing an acute change in health status

Emergency Medicine Strategic Clinical Network (ESCN) Collaborations

- ED Buprenorphine/Naloxone (Suboxone) Initiation: a province wide strategy to improve access to opioid replacement therapy for patients with substance misuse disorder
- Improving the patient intake experience: a patient centred partnership with AHS Human Factors and Wayfinding experts to improve the experience of patients in the emergency department intake areas.
- **ESCN Systematic Review Awards Competition** Shawn Dowling "What are the most effective strategies to reduce computed tomography usage in the **Emergency Department?**

ESCN Summer Studentship Awards Competition

Student: Kate Ukrainetz

Supervisor: Dr. Shawn Dowling

Project Title: CTAP Usage in the Emergency Department at the Foothills Medical Centre

Renal Colic Project

Based on Calgary EM research recently published in the Journal of Urology, we collaborated with the Division of Urology to develop a revised protocol recommending a diagnostic and treatment approach to ED renal colic patients, including recommendations which patients are most likely to benefit from early stone intervention and which are most likely to do better with spontaneous passage.

Publications

Innes GD, Scheuermeyer FX, McRae AD, et al. Which patients should have early surgical intervention for acute ureteric colic. J Urol. 2020 Jul doi: 10.1097/JU.00000000001318. Online ahead of print.

Innes GD, Teichman JMH, Scheuermeyer FX, et al. Does early intervention improve outcomes for patients with acute ureteral colic? Can J Emerg Med 2020;22: in press.

Grant K, Bayley C, Lang E, Innes GD. Systematic Review of throughput innovations for emergency departments. Can J Emerg Med 2020;22: in press.

Scheuermeyer FX, Norena M, Innes GD, et al. Decision aid for early identification of acute underlying illness in emergency department patients with atrial fibrillation or flutter. Can J Emerg Med. 2020;22:301-10. doi: 10.1017/cem.2019.454.

Andruchow J, Boyne T, Vatanpour S, Innes, GD, et al. Prospective comparative evaluation of the European Society of Cardiology (ESC) 1-hour and a 2-hour rapid diagnostic algorithm for myocardial infarction using high-sensitivity troponin-T. Can J Emerg Med. 2020;22:712-20. doi:10.1017/cem.2020.349

Scheuermeyer FX, Miles I... Innes GD. Lorazepam vs. diazepam in the management of emergency department patients with alcohol withdrawal. Ann Emerg Med. 2020. In press. doi: 10.1016/j. annemergmed.2020.05.029.

Innes GD, Lane D, Scheuermeyer FX, et al. Diagnostic and prognostic value of hydronephrosis in patients with acute ureteral colic. Submitted to Journal of Urology

Gourlay K, Splinter G, Hayward J, Innes GD. Prognostic value of patient reported pain in patients with acute ureteric colic. Submitted to American Journal of Emergency Medicine.

Lau T, Hayward J, Vatanpour S, Innes GD. Sex-related differences in opioid administration in the emergency department: a population-based study. Under revision at Emerg Med J 2020;xx:xxx

Grants

<u>Principal Investigator (with Drs. Katherine Dong, Eddy Lang, Andrew McRae and others):</u> Impact of Emergency Department Opioid Prescribing on Substance Misuse & Health Outcomes. CIHR Project Grant. Not funded in the Spring 2019 competition. Rated 4.05 (ranked 13 of 51 reviewed). Now revised and resubmitted to Fall 2019 competition.

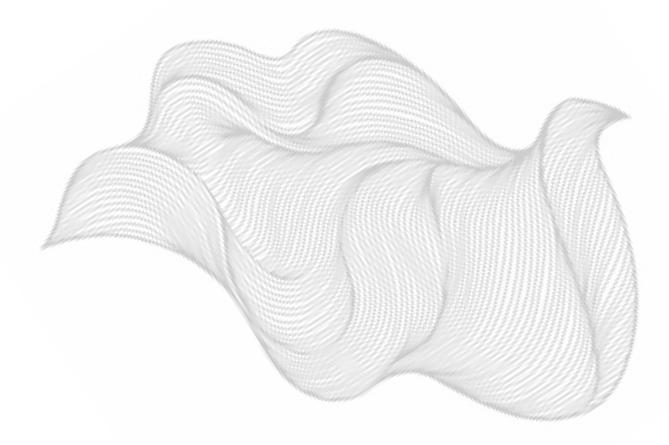
<u>Co-Principal Investigator (with Dr. Jake Hayward):</u> Impact of Emergency Department Opioid Prescribing on Substance Misuse and Health Outcomes. Canadian Association of Emergency Physicians EM Advancement Fund grant funded at \$10,000 (2019).

<u>Co-Principal Investigator (with Dr. Brian Holroyd):</u> Understanding and predicting the effect of COVID-19 on Emergency Department (ED) utilization for mental health and substance use disorders. CIHR Fall 2019 Project grant \$440,000. SUBMITTED.

<u>Co-Principal Investigator:</u> Alberta Innovates PRIHS 2019/2020 Competition. The Alberta Back Care Pathway (ABCp) for Low Back Pain. Selected as a finalist for Dragons Den presentation but not funded.

Member, National Covid-19 ED Registry Project Steering Committee (2020).

<u>Co-Principal Investigator</u>, CIHR Seed grant application (2020). Project Title: Understanding and predicting the effect of COVID-19 on Emergency Department (ED) utilization for mental health and substance use disorders. Hayward J, Holroyd B, Innes G et al.



PRIHS Project

PRIHS IV: Improving Acute Care for Long Term Care Residents: A Better Way to Care for the Frail Elderly in Times of Medical Urgency.

This is a 3 year PRIHS (Partnership for Research and Innovation in the Health System) project funded by Alberta Innovates and Alberta Health Services. The original project started in the Calgary Zone as a CMO quality improvement seed grant in which the care and referral pathway was successfully implemented on a limited scale. Led by Dr. Jayna Holroyd-Leduc (Principal Investigator), in partnership with the Emergency Strategic Clinical Network (SCN), and in collaboration with the Seniors Health SCN, RAAPID (Referral, Access, Advice, Placement, Information, Destination) and MIH (Mobile Integrated Health, previously known as Community Paramedics), the main goal of this PRIHS project is to reduce the rate of resident/patient transfers from Long Term Care (LTC) facilities to emergency departments (ED).

The Problem

This initiative intends to optimize the care for LTC residents in times of medical urgency, and reduce unnecessary risks associated with transfers to ED and hospital admissions. Transfers to ED and hospital admissions are associated with increased risk of hospital-acquired infections, falls, delirium, and functional decline. Additionally, evidence indicates that LTC residents and families would prefer to receive care for acute issues at the LTC site where possible.

The Proposed Solution

A centralized and standardized LTC-ED care and referral pathway is being implemented with support from RAAPID and MIH. RAAPID will arrange a conversation between the LTC site and the ED (and with Community Paramedics as required) to discuss the best plan of care, and to facilitate direct communication between relevant physicians if transfer to ED is appropriate. Additionally, if appropriate and able, MIH will support treatment of the medical concern at the LTC site, thus avoiding an ED transfer.

Two tools from INTERACT® (Interventions to Reduce Acute Care Transfers) are supporting LTC staff (i.e. HCAs and nurses) to detect, communicate and address acute changes in residents' health sooner. Identifying changes in a resident's condition sooner better enables LTC staff and physicians to manage these health issues onsite.

Outcomes Expected

Overall, this project is focused on ensuring the right care at the right time in the right place for LTC residents. In addition to reducing transfers to the ED, there are a number of secondary outcomes expected from this intervention:

- Change the rate of admissions of LTC residents to hospital
- More LTC residents will be cared for at their LTC sites, with the support of MIH (community paramedicine) when needed
- To improve the outcomes and quality of life of LTC residents in times of medical urgency by detecting issues sooner and managing them at the LTC site if possible, instead of transferring them to the ED
- To improve communication between the LTC site and the emergency department when a transfer to the emergency department is required

Continued on next page...

The Plan

Using a randomized step-wedge design, 4-5 Calgary-zone LTC sites are supported every 3 months to implement this LTC-ED pathway and the INTERACT® tools. Implementation is well over half-way complete in Calgary. Plans are coming together to begin to spread the interventions into Central Zone in spring of 2021.

The COVID-19 pandemic obviously upset the plan and implementation routine. Restrictions of visitors in LTC sites has put the qualitative evaluation on hold, although plans for future focus groups and interviews are moving forward.

Implementation of the interventions, however, was able to pivot to virtual formats if needed. As LTC sites were able, through outbreaks and directions from Public Health, implementation sessions were completed. Consequently, as of the end of 2020, implementation is on schedule, if not slightly ahead.

Results to date have been very promising. Downward trends in the number of transfers from LTC to emergency departments and in hospital admissions from emergency departments have been noted. Use of RAAPID and MIH has increased overall since late 2019. Anecdotal evidence from emergency department physicians indicates that the pre-transfer conversation with the LTC site has been very beneficial in helping care for LTC residents when they arrive in the ED. Anticipated barriers related to accessing RAAPID, the time required, and technology have been either mitigated or unfounded.





Leadership Group

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 translation, evidence-based medicine and operations research. 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 Club and the International Journal of Emergency Medicine. In addition, he is a member of the Canadian Task Force on Preventive Health Care (CTFPHC). Dr. Lang has served as the chair of the Canadian Association of Emergency Physicians Conference



(CAEP) Leadership Committee from 2017 to 2020 and was appointed as the Scientific Director of the Emergency Strategic Clinical Network ESCN in Alberta.

Dr. Neil Collins Zone Clinical Deputy Department 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 23 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 has been Site Chief at Foothills Medical Centre since 2018, and was assistant site chief for two years prior to that. 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 a prolonged term as Director of Admissions. He will be starting a three-year term as councilor at the CPSA in Jan 2021.



Dr. David Lendrum Assistant FMC 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. Chris Bond PLC Site Chief

Chris is the site chief at the Peter Lougheed Hospital. He completed medical school at the University of Alberta, Family Medicine training in Calgary and EM training in Saskatoon. His interests include medical education, physician performance improvement and podcasting/knowledge translation. Outside of medicine you can find him re-enacting 80s movies, traveling and entertaining others at some level of risk to himself.



Dr. Alyssa Morris

PLC Assistant Site Chief

Dr Alyssa Morris completed her medical degree at the University of Calgary in 2007 and Emergency Medicine residency at the University of Calgary in 2012. She joined the department, working at both FMC and PLC in 2012. Dr Morris worked in a temporary assistant site chief role at the Foothills for six months prior to becoming the assistant site chief at the PLC. She is also a transport physician for STARS.

Dr. Nancy ZuzicRGH 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.



Dr. Grant KennedyRGH 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 spending time with his wife and three kids. He also enjoys writing and performing music.



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.



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.



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 RichAssociate 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 25 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 now 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.



Dr. Jason FedwickDivision Chief CCFP(EM) Calgary Zone ED

Dr. Jason Fedwick graduated from the University of British Columbia in Family Medicine after starting residency in General Surgery. He then completed the EM program in Calgary where he has since worked in the Calgary Zone Emergency Departments. He was the South Health Campus site chief from 2014 to 2016. Currently he is the CCFP-EM Program Director, a Transport Physician for STARS and a member of Canada Task Force 2. In his spare time, Dr. Fedwick enjoys mountain biking, snowboarding and climbing.



Dr. Catherine Patocka

FRCPC (ED) Medical Education Program Director

Born and raised in Edmonton, Catherine came to Calgary in 2013 after completing medical school and FRCP residency training at McGill University. She works clinically at the FMC and PLC and has a special interest in medical education. She became the FRCPC residency program director in April 2019 and continues to have a strong interest in medical education scholarship and research. Outside of medicine she likes to hike, ski and spend time in the mountains with her husband Stephane and 3 children Juliette, Samuel and Dominic.



Dr. Marc N. Francis MD

FRCPC-EM, Assistant Program Director FRCPC **Emergency Medicine**

Dr. Marc Francis was born at the Foothills Hospital (and may die there too) He was raised in Calgary. He completed his undergraduate and his medical school training at Queen's University in Kingston Ontario. He returned home to Calgary to complete his FRCPC Emergency Medicine in 2008 with a special focus in Pediatric Emergency Medicine. Currently Marc splits clinical time between the FMC and the ACH and works as a STARS Transport Physician. Marc has been the Assistant Program Director for the last 5 years and loves connecting with the resident group. Marc and his wife Jennifer have 3 children and in what little spare time he has, Marc plays basketball, drives kids to activities, and goofs around on the guitar.



Dr. Meira Louis

Under Graduate Student and Off – Service **Resident Coordinator**

Originally from Toronto, I finished an undergraduate and masters in Ontario before moving to Calgary for my MD and FR residency in emergency medicine. I have worked as a staff physician at the PLC and FMC since graduating in 2014. Soon after starting work, I took over as the coordinator of Elective and Off Service Education. Recently I have also taken over as course chair for electives in the Undergraduate Medical Education program. In my spare time I help my amazing husband juggle our four kids.



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.



Dr. Stephanie VandenbergResearch 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. Gavin is a Clinical Associate Professor at the Cumming School of Medicine, University of Calgary. 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.



Dr. Scott Lucyk

Program Director, Royal College Clinical Pharmacology and Toxicology Program

Scott Lucyk is a Clinical Assistant Professor and works as an Emergency physician with AHS-Calgary Zone and as a Medical Toxicologist with PADIS. He is the Associate Medical Director at PADIS and the Program Director of the RCPSC Clinical Pharmacology and Toxicology subspecialty program. He obtained his FRCPC in Emergency Medicine from the University of Alberta, followed by a Medical Toxicology fellowship at the New York City Poison Control Centre.



Dr. Jennifer Nicol

Emergency Physician Mental Health Liaison Lead

Dr. Jennifer Nicol is a Clinical Lecturer in the Department of Emergency Medicine at the University of Calgary. She has a Masters of Public Health, and works as an Emergency Physician at Foothills Medical Center and Peter Lougheed Centre. She holds an extra-clinical administrative role of Emergency Physician Mental Health Liaison within the Department of Emergency Medicine, with the purpose of improving interdepartmental collaboration and communication, and forwarding agendas and initiatives to improve the care of mental health patients in Calgary Emergency Departments. She is involved with teaching and medical education at the undergraduate and postgraduate levels. Research interests include work with



marginalized populations and their interface with the Emergency Department, and has also published in the field of toxicology. In addition to her clinical work in the ED and extra clinical endeavours, she is also a transport physician with STARS. Outside of work she is a busy mom to 3 girls aged 1, 3, and 5 years old, and her young family takes any opportunity to spend time outdoors, whether it be biking, hiking, camping, or a stroll in the park.

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 seven and ten year old boys. He enjoys spending quality time with his family, his French bulldog, jogging, travelling, and volunteering with World Vision.

New Members

Dr. Christine EastEmergency Care Plan Lead

Christine East is an Emergency Physician at Rockyview General Hospital, having completed the CCFP(EM) program in Calgary in 2017. Prior to her medical training, she worked as a Technical Writer for AHS and brings a unique skillset to her extraclinical roles. She has been involved in a number of activities and initiatives, including redesigning the CCFP(EM) practice exam curriculum in 2017-2019, assisting with monthly RGH Rounds, and sitting on the CCFP(EM) Competency Committee. Her main area of extraclinical interest is frequent ED visitors, and she has co-chaired the ED Treatment Planning Committee since 2018, continuing the work that Dr. Scott Farquharson started several years prior. In this role, Christine works with co-chair Ken Mont (Nurse Clinician, RGH) and a multidisciplinary team including EMS, social work, nursing leadership, physicians and others to identify frequent ED visitors and



develop individualized care plans to improve safety and redirect care into the community whenever possible. This role has recently been formalized as a new leadership position (Physician Lead, ED Treatment Plans). Outside of work, Christine loves getting outdoors with her husband Scott and son Cooper.—

Dr. David FuRGH Assistant Site Chief

David is from Edmonton and obtained his MD from the University of Alberta. He then ventured to Ontario where he trained in Emergency Medicine at Western University and completed a Masters of Science in medical education at the University of Toronto. David enjoys listening to podcasts, going to the gym and smoking meats on his kamado grill.



Dr. Chris HallConnect Care and Physician Builder Lead

Chris is a 12-year member of the Calgary Zone Emergency Medicine team. Since moving here after completing his residency in Hamilton, he has dabbled in a number of roles over the years, including contributions to the residency training committee, various hospital and zonal quality improvement initiatives, and the Clinical Knowledge and Content Management division of AHS. His latest role will involve optimizing the interface between clinical order sets within Connect Care and existing Calgary Zone clinical pathways. In his spare time he enjoys skiing, mountain / road biking, and spending time with his wife and 3 kids.



Dr. Katie Lin

Associate Research Director

Dr. Katie Lin is a recent graduate of the Calgary FRCPC Emergency Medicine residency program. She has taken on a new role as Associate Research Director and continues to work clinically at both the FMC and PLC ED sites as well as with the Calgary Stroke Program. In her spare time, Dr. Lin enjoys reading, painting, and trying out various adventure sports with friends whilst inevitably realizing that she needs to up her cardio game.



Dr. Marge McGillivrayGeriatric Care Lead

Dr. Margaret McGillivray graduated with her MD from UBC in 2002. She subsequently completed her family practice residency at the UBC Prince George site and her EM fellowship at St.Paul's Hospital in Vancouver graduating in 2005. Since then she has worked in various Emergency Departments and Urgent Care Centres across Canada including Nanaimo Regional General Hospital, Thunder Bay Health Sciences Centre and Sheldon Chumir Urgent Care. Dr. McGillivray has worked at the SHC ED since 2018 where she has been involved with various geriatric initiatives including the development and implementation of the SUPER (SUPporting seniors in the ER) volunteers.



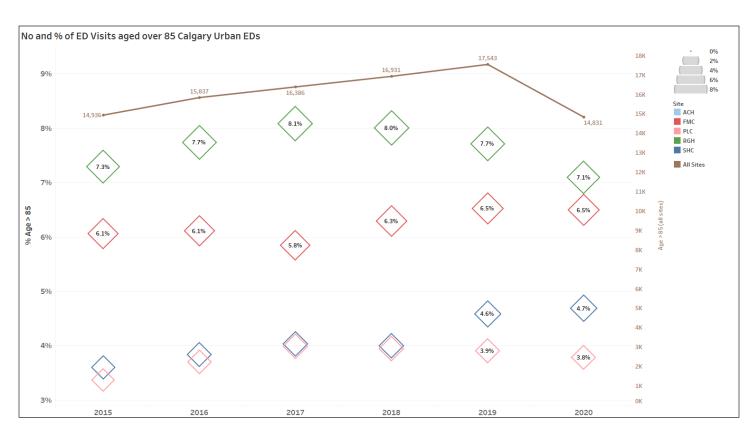
Dr. Anjali PandyaAssistant FRCP Director

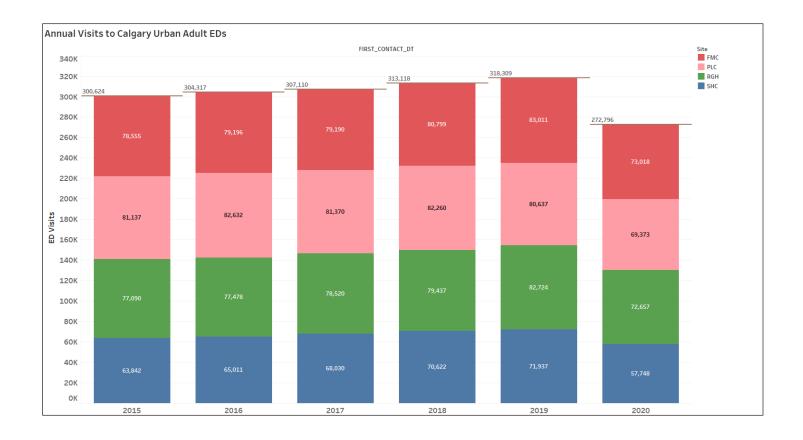
After completing her undergraduate degree at Queen's University, Anjali returned to Calgary for medical school and residency training. She received her FRCPC in Emergency Medicine in 2017 and has since been working as a full time staff physician at the PLC and FMC. Prior to becoming Assistant Program Director, Anjali worked on helping the program transition to Competency-by-Design by designing an introductory curriculum for incoming residents and acting first as Competency-by-Design Assessment Lead and subsequently stepping into the role of Competency-by-Design Lead. She has also pursued further training in Global Health Policy and obtained her Diploma in Global Health Policy from the London School of Hygiene and Tropical Medicine in 2018. Anjali is passionate about constantly improving the quality of residency training and education in Calgary, and is grateful to be part of such an innovative and dedicated team of educators, who are privileged to work with an excellent group of residents.

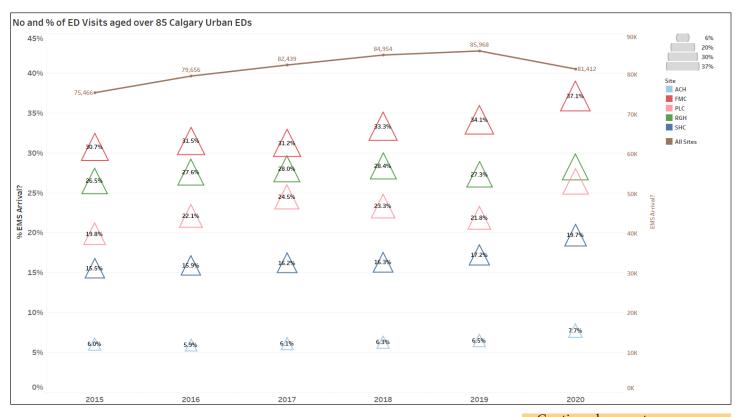


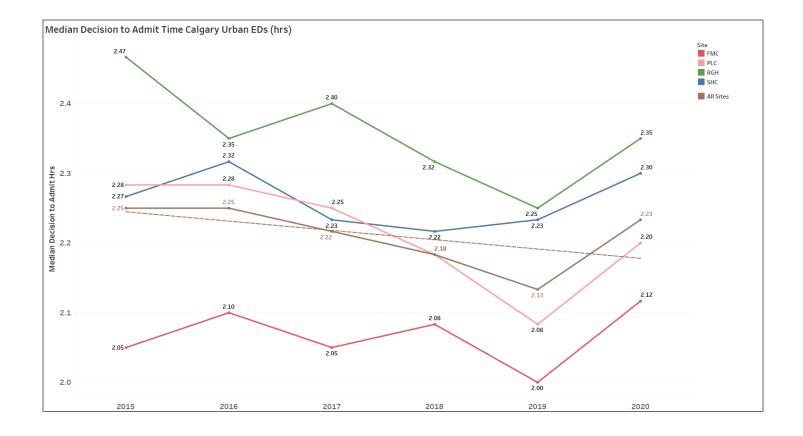
LOS: Annual Operational Data

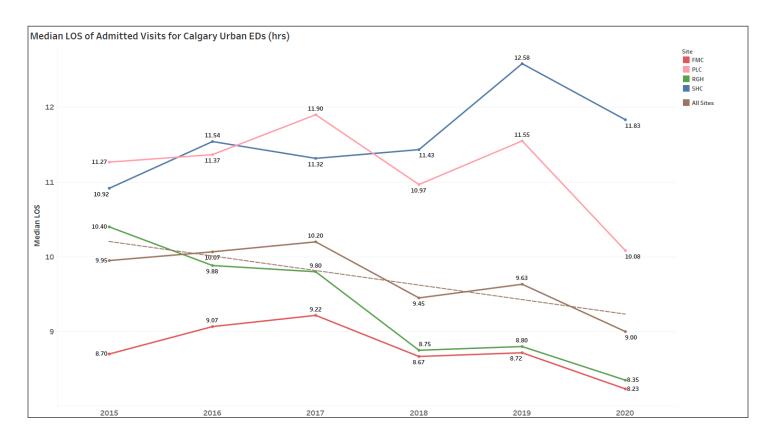


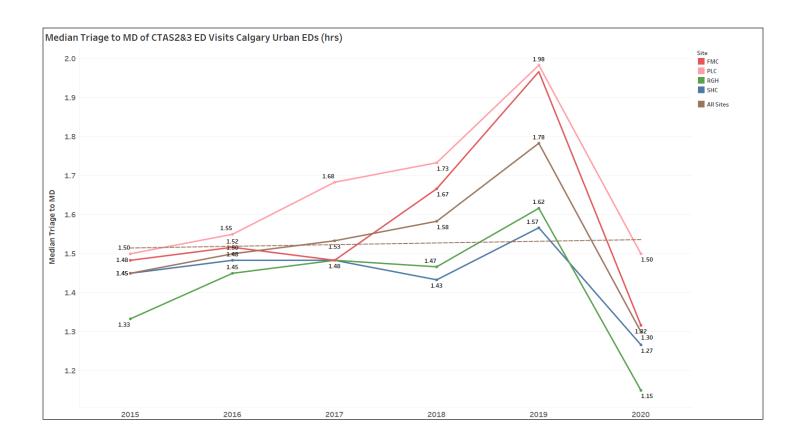






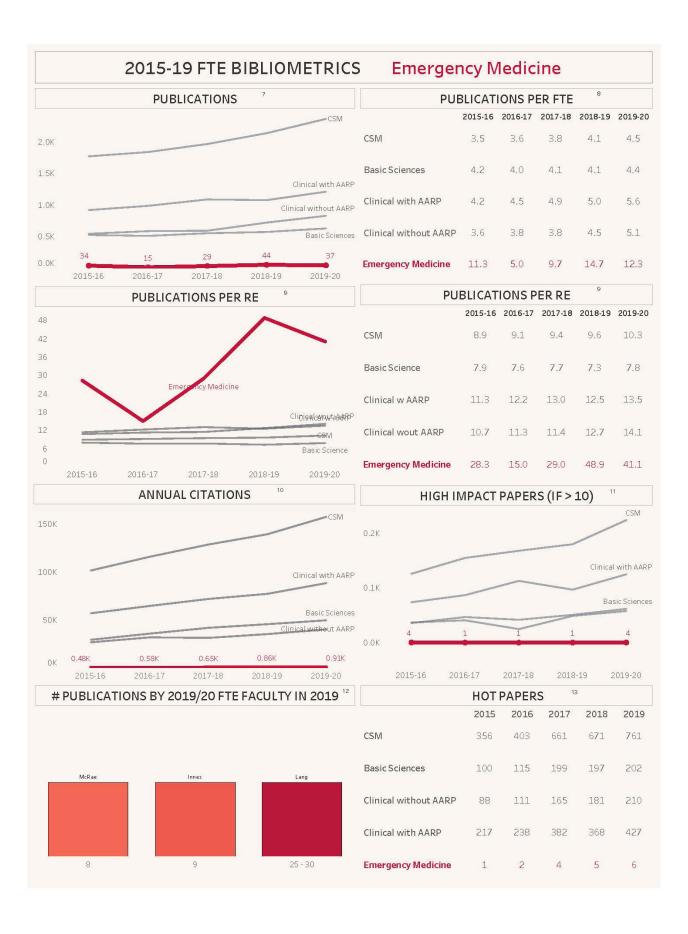






Cumming School of Medicine Activity Profile





NOTES and Definitions

1.1

Year 2020-21

Snapshot of Faculty Counts, as of June 30 2020. 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. 2020 FTEs are as of June 30 2019)

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)

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 CSM

- Revenue is assigned to a Department/Comparator Group based on the Project Department.
- CSM total includes Project Departments not part of the 20 CSM Departments (e.g. Dean's Department Operations)
- *Of the \sim \$34 million dollar increase in CSM Research Revenue from 2016-17 to 2017-18, \sim \$21.5 million is grant revenue and \sim \$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)

* For the CSM Total, Revenue assigned to Project Departments not part of the 20 CSM Departments is excluded (e.g. Dean's Department - Operations revenue is excluded)

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)

* For the CSM Total, CIHR Revenue assigned to Project Departments not part of the 20 CSM Departments is excluded (e.g. Dean's Department - Operations revenue is excluded)

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

NOTES and Definitions Cont'd

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)

* For the CSM Total, Revenue assigned to Project Departments not part of the 20 CSM Departments is excluded (e.g. Dean's Department - Operations revenue is excluded)

7 Publications

The number of unique papers published by FTE Faculty (see note 2) in the same publication year. (e.g. 2019-20 refers to the number of unique papers published by 2019/20 FTE faculty in the 2019 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 2015-20

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. 2018-19 refers to the number of times unique papers published by 2018/19 FTE Faculty were cited in 2018)

- 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 2015-20

11 High Impact Publications

Annual publications (see note 7) in journals with an Impact Factor >=10 in a given publication year **Source**:

http://webofknowledge.com/jcr

of Publications by 2019-20 Faculty in 2019

Histogram of the number of papers published by 2019-20 FTE Faculty in 2019

13 Immediate Impact Papers

Unique publications cited > 49 times in a 5 year publication date window (e.g. For 2018-19, sum of unique publications published between 2014-18 by 2018/19 FTE Faculty that were cited in 2014-18 greater than 49 times)

Research Support Fund

2016-20 UCalgary Research Support Fund Contribution (Portion of Credits) / (Total UCalgary Credits) * (Annual UCalgary RSF)

- RSF is credited to a Faculty/Department based on the the Primary Appointment of June 2020 UCalgary Faculty, or the oldest start date of UCalgary Faculty who only have multiple Secondary Appointments

Background:

In 2019-20 the University of Calgary was awarded a total of \$13,581,364 in Research Support Funds. Research Support Funds (RSF) are awarded annually by the Tri-council Agencies to cover a portion of the indirect costs of research incurred by the University of Calgary (UC). The RSF amount awarded is based on the amount of CIHR/NSERC/SSHRC funding received by UC researchers. This dashboard shows the total RSF dollars given to the University for grants awarded to the named researchers in comparison to the RSF generated by other department/institute researchers. The table shows the awarding Tri-Council Agency and what role the researcher has on the grant. The information provided demonstrates that RSF earnings are generated for both the role of Principal Investigator and the role of Co-Investigator and highlights the benefit of being included as Co-Investigators on grant applications where the PI is external to the UC (because of the RSF dollars that will flow to UC) as well as being selective about who to include as Co-Investigators (if Co-Investigators are from the UC, the associated RSF dollars will remain at the UC; if Co-Investigators are from other institutions, a portion of the RSF dollars associated with the grant will be shared with these institutions).

Research Support Fund per RE

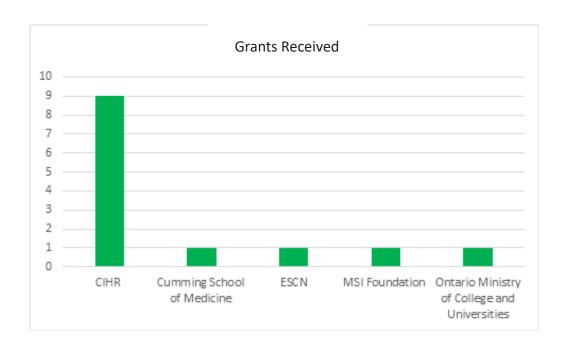
14.1

2016-20 Research Support Fund (see note 14) divided by the annual sum of Research Equivalents (see note 3)



The Department of Emergency Medicine received Grant funding of \$6,451,586.00 in 2020, with total funding held of \$7,421,930.00 between **2015-2022**. (Some grants awarded in 2015 expiring in 2020)

Grants were received and reported from five individual institutions, with the Canadian Institute of Health Research being the main source of Grant funding for Emergency Medicine in 2020.



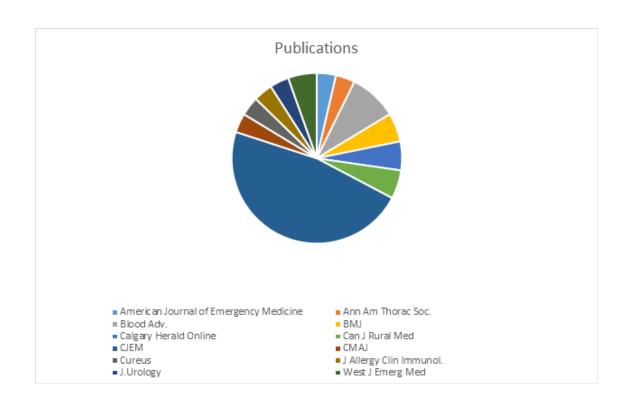


101 Publications were reported in the

2019-2020 reporting period

Unique publications were submitted and accepted for 2020 alone

The majority of EM publications circulated in the Canadian Journal of Emergency Medicine with 26 published articles for 2020, with 35 different journals, academic sources and online outlets sources publishing EM content in 2020.



- 1. Andruchow JE, Boyne T, Seiden-Long I, Wang D, Vatanpour S, Innes G, et al. Prospective comparative evaluation of the European Society of Cardiology (ESC) 1-hour and a 2-hour rapid diagnostic algorithm for myocardial infarction using high-sensitivity troponin-T. CJEM. 2020;22(5):712-20.
- 2. Atkinson P, French J, Lang E, McColl T, Mazurik L. Just the Facts: Protecting frontline clinicians during the COVID-19 pandemic. CJEM. 2020;22(4):435-9.
- 3. Ball C, Hall A, Wagner N, Rang L, Newbigging J, McKaigney C. The Ultrasound Competency Assessment Tool (UCAT): Developing and Evaluation of a Novel Competency-based Assessment Tool for Point-of-care Ultrasound.2020.
- 4. Barber CEH, Mosher D, Dowling S, Bohm V, Solbak NM, MacMullan P, et al. Implementation and Evaluation of Audit and Feedback for Monitoring Treat-to-Target (T2T) Strategies in Rheumatoid Arthritis Using Performance Measures. Rheumatol Ther. 2020;7(4):909-25.
- 5. Bhatt M, Braun C, Patel P, Begum H, Wiercioch W, Varghese J, et al. Diagnosis of deep vein thrombosis of the lower extremity: a systematic review and meta-analysis of test accuracy. Blood Adv. 2020;4(7):1250-64.
- 6. Boucher E, Rosgen B, Lang E. Efficacy of calcitonin for treating acute pain associated with osteoporotic vertebral compression fracture: an updated systematic review. CJEM. 2020;22(3):359-67.
- 7. Brandow AM, Carroll CP, Creary S, Edwards-Elliott R, Glassberg J, Hurley RW, et al. American Society of Hematology 2020 guidelines for sickle cell disease: management of acute and chronic pain. Blood Adv. 2020;4(12):2656-701.
- 8. Brannan V, Dunne C, Dubrowski A, Parsons M. Development and validation of a novel three-dimensional printed thorax model simulator for the simulation-based training of tube thoracostomy. Can J Emerg Med. 2020.
- 9. Chan TM PQ, Hall AK, Zaver F, Woods, RA HS, Thoma B. Competency-Based Medical Education: Recommendations for EM training in Canada from the 2019 Symposium of Academic Emergecny Phsycians. Canadian Journal of Emergency Medicine. 2020;22:204-11.
- 10. Chan KK, Joo DA, McRae AD, Takwoingi Y, Premji ZA, Lang E, et al. Chest ultrasonography versus supine chest radiography for diagnosis of pneumothorax in trauma patients in the emergency department. Cochrane Database Syst Rev. 2020;7:CD013031.
- 11. Charlton NP, Swain JM, Brozek JL, Ludwikowska M, Singletary E, Zideman D, et al. Control of Severe, Life-Threatening External Bleeding in the Out-of-Hospital Setting: A Systematic Review. Prehosp Emerg Care. 2020:1-33.
- 12. Dowling SK, Gjata I, Solbak NM, Weaver CGW, Smart K, Buna R, et al. Group-facilitated audit and feedback to improve bronchiolitis care in the emergency department. CJEM. 2020;22(5):678-86.
- 13. Dowling SK, Mondoux S, Bond CM, Cheng AHY, Kwok E, Lang E. Audit and feedback for individual practitioners in the emergency department: an evidence-based and practical approach. CJEM. 2020;22(4):528-33.

- 14. Dunne CL, Peden AE, Queiroga AC, Gomez Gonzalez C, Valesco B, Szpilman D. A systematic review on the effectiveness of anti-choking suction devices and identification of research gaps. Resuscitation. 2020;153:219-26.
- 15. Elliott MJ, Love S, Donald M, Manns B, Donald T, Premji Z, et al. Outpatient Interventions for Managing Acute Complications of Chronic Diseases: A Scoping Review and Implications for Patients With CKD. Am J Kidney Dis. 2020;76(6):794-805.
- 16. Elzinga JL, Dunne CL, Vorobeichik A, Keto-Lambert D, Grigat D, Lang E, et al. A Systematic Review Protocol to Determine the Most Effective Strategies to Reduce Computed Tomography Usage in the Emergency Department. Cureus. 2020;12(8):e9509.
- 17. Gibson C, Vipond J, Hakes J. We urgently need to start making more masks in Canada and wear them [Wepage]. CBC News2020 [updated April 5, 2020. Opinion]. Available from: https://www.cbc.ca/ news/opinion/opinion-masks-covid-19-coronavirus-1.5517912.
- 18. Gourlay K, Splinter G, Hayward J, Innes G. Prognostic value of patient reported pain in patients with acute ureteric colic. 2020.
- 19. Grant K, Bayley C, Lang E, Innes G. Systematic Review of throughput innovations for emergency departments. 2020.
- 20. Greenhawt M, Shaker M, Wang J, Oppenheimer JJ, Sicherer S, Keet C, et al. Peanut allergy diagnosis: A 2020 practice parameter update, systematic review, and GRADE analysis. J Allergy Clin Immunol. 2020;146(6):1302-34.
- 21. Grimshaw JM, Patey AM, Kirkham KR, Hall A, Dowling SK, Rodondi N, et al. De-implementing wisely: developing the evidence base to reduce low-value care. BMJ Qual Saf. 2020;29(5):409-17.
- 22. Grock A, Jordan J, Zaver F, Colmers-Gray I, Krishnan K, Chan T, et al. "Qualitative Feedback and a Revised AIR Score: An improved Quality Evaluation Tool for Online Educational Resources." J Emerg Med. 2020(4):S25.
- 23. Hartmann R, Pradhan S, Bylyku D, Markieta K, Scozzafava J, Lucyk S, et al. Cerebral edema and death following intravenous N-acetylcysteine overdose. Clinical Toxicology. 2020:69-70.
- 24. Hunter M, Packer N, Dowling S. Does the CATCH clinical decision rule adequately determine which children with minor head injury require computed tomography (CT) imaging? CJEM. 2020;22(1):33-5.
- 25. Husain, A RZ, Singh M, Ankel F, Beck-Esmay J, Cabrera D, Chan T, Cooney, R GM, Gottlieb M, Khadpe J,, Mason J PD, Repanshek J, Riddell J, Trueger S, Zaver F,, E. B. Scholarship in Academic Promotion: Guidelines from a 2019 International Consensus Conference. WestJem. 2020.
- 26. Innes G, Teichman J, Scheuermeyer F, al e. Does early intervention improve outcomes for patients with acute ureteral colic? 2020.
- 27. Innes G, Teichman J, McRae A, Scheuermeyer F. Re: Which Patients Should Have Early Surgical Intervention for Acute Ureteric Colic. J Urol. 2020:101097JU000000000001480.

- 28. Innes G, Lane D, Scheuermeyer F, al. e. Diagnostic and prognostic value of hydronephrosis in patients with acute ureteral colic. J Urology. 2020(Submitted).
- 29. Islam A, Koger K, VandenBerg S, Wang D, Lang E. P081: The summer of the e-scooter: a multi-center evaluation of the emergency department impact of rentable motorized scooters in Calgary. Canadian Journal of Emergency Medicine. 2020:93.
- 30. Johal H, McRae A, Beller G. Is conservative management noninferior to interventional treatment for moderate to large primary spontaneous pneumothoraces? CJEM. 2020:1-2.
- 31. Johnston A, Haber J, Malhi R, Nichols D, Williamson R. Defining rural teaching hospitals in Canada: Developing and testing a new definition. Can J Rural Med. 2020;25(4):145-9.
- 32. Kamal N, Jeerakathil T, Stang J, Liu M, Rogers E, Smith EE, et al. Provincial Door-to-Needle Improvement Initiative Results in Improved Patient Outcomes Across an Entire Population. Stroke. 2020;51(8):2339-46.
- 33. Lang E, Ovens H, Schull MJ, Rosenberg H, Snider C. Authentic emergency department leadership during a pandemic. CJEM. 2020;22(4):400-3.
- 34. Lau T, Hayward J, Vatanpour S, Innes G. Sex-related differences in opioid administration in the emergency department: a population-based study. 2020.
- 35. Li SS, Trajkovski A, Siarkowski M, Santiago C, Eng KA, Kishibe T, et al. Patient Outcomes With Use of Computed Tomography Angiography in Acute Ischemic Stroke and Transient Ischemic Attack: A Systematic Review and Meta-Analysis. Cureus. 2020;12(5):e8187.
- 36. Liu S, Lin K, Masur J, al. e. Outcomes After Recurrent Intentional Methanol Exposures Not Treated with Alcohol Dehydrogenase Inhibitors or Hemodialysis. JEM. 2020.
- 37. Mackenzie M, Stewart D, Hall C. Electrical or pharmacologic cardioversion for atrial fibrillation in the ED? . Can J Emerg Med. 2020.
- 38. Mahajan A, Kemp A, Hawkins TL, Metcalfe A, Dowling S, Nerenberg K. Postpartum hypertensive disorders in the Emergency Department A retrospective review of local practice in Calgary, Alberta. Pregnancy Hypertens. 2020;19:212-7.
- 39. Major D, VandenBerg S. Exploring adverse events in boarded psychiatric patients in Calgary zone adult emergency departments. Canadian Journal of Emergency Medicine. 2020;22.
- 40. Mazurik L, Javidan AP, Higginson I, Judkins S, Petrie D, Graham CA, et al. Early lessons from COVID-19 that may reduce future emergency department crowding. Emerg Med Australas. 2020;32(6):1077-9.
- 41. McGillis ES, Olives TD, Cole JB. Reply: Matching Minute Ventilation in the Hypermetabolic State of Dinitrophenol Poisoning. Ann Am Thorac Soc. 2020;17(11):1498.
- 42. McGillis ES, Olives TD, Love SA, Cole JB. A Young Man with Accelerated Hyperthermia, Hypercapnia, and Profound Muscle Rigidity after Ingestion of a Weight Loss Agent. Ann Am Thorac Soc. 2020;17(3):361-6.

- 43. McGillis E, Baunmann T, LeRoy J. Death Associated with Nadolol for Infantile Hemangioma: A Case for Improving Safety. Pediatrics. 2020;1(145).
- 44. McGillis E, Sztajnkrycer M. 'Beta-blockers', in Wolfson, A.B. In: Health/Lippincott WK, editor. Harwood-Nuss' clinical practice of emergency medicine, 7th edition. 7th ed: Philadelphia. p. 1435-7.
- 45. McLane P, Scott K, Suleman Z, Yee K, Holroyd BR, Dong K, et al. Multi-site intervention to improve emergency department care for patients who live with opioid use disorder: A quantitative evaluation. CJEM. 2020:1-9.
- 46. McRae A, Andruchow J, al. e. CJEM Debate: #TropandGo—Negative high-sensitivity troponin test is safe as a final test for most emergency departments patients with chest pain. CJEM. 2020;22:14-8.
- 47. Milne WK, Lang E, Ting DK, Atkinson P. Debate Series: #TPA should be the initial treatment in eligible patients presenting with an acute ischemic stroke. CJEM. 2020;22(2):142-8.
- 48. Mondoux S, Thull-Freedman J, Dowling S, Gardner K, Taher A, Gupta R, et al. Quality improvement in the time of coronavirus disease 2019 A change strategy well suited to pandemic response. CJEM. 2020;22(4):422-5.
- 49. Moreira RC, Mendonca-Filho HT, Farias AM, Sznejder H, Lang E, Wilson MM. Development and Implementation of a Clinical Pathway to Reduce Inappropriate Admissions Among Patients with Community-Acquired Pneumonia in a Private Health System in Brazil: An Observational Cohort Study and a Promising Tool for Efficiency Improvement. Open Access Emerg Med. 2020;12:181-91.
- 50. Moynihan R, Johansson M, Maybee A, Lang E, Légaré F. Covid-19: an opportunity to reduce unnecessary healthcare. BMJ. 2020;370:m2752.
- 51. Ohle R, Yan JW, Yadav K, Cournoyer A, Savage DW, Jetty P, et al. Diagnosing acute aortic syndrome: a Canadian clinical practice guideline. CMAJ. 2020;192(29):E832-E43.
- 52. Olives T, Willhite LA, Lee SC, Evans DK, Jensen A, Regelman HT, et al. Point-of-sale Naloxone: Novel Community-based Research to Identify Naloxone Availability. West J Emerg Med. 2020;21(5):1188-94.
- 53. Packer N, Hunter M, Dowling S. Does the tonicity or rate of intravenous fluid infusion affect neurologic outcomes in children with diabetic ketoacidosis? Canadian Journal of Emergency Medicine. 2020;21(6):710-12.
- 54. Patel P, Bhatt M, Braun C, Begum H, Nieuwlaat R, Khatib R, et al. Systematic review and metaanalysis of outcomes in patients with suspected deep vein thrombosis. Blood Adv. 2020;4(12):2779-88.
- 55. Patel P, Bhatt M, Braun C, Begum H, Wiercioch W, Varghese J, et al. Systematic review and meta-analysis of test accuracy for the diagnosis of suspected pulmonary embolism. Blood Adv. 2020;4(18):4296-311.
- 56. Patel P, Braun C, Bhatt M, Begum H, Wiercioch W, Varghese J, et al. Diagnosis of deep vein thrombosis of the upper extremity: a systematic review and meta-analysis of test accuracy. Blood Adv. 2020;4(11):2516-22.

- 57. Polsky Z, Dowling SK, Jacobs WB. Just the Facts: Risk stratifying non-traumatic back pain for spinal epidural abscess in the emergency department. CJEM. 2020:1-3.
- 58. Pritchard C, Ness A, Symonds N, Siarkowski M, Broadfoot M, McBrien KA, et al. Effectiveness of hospital avoidance interventions among elderly patients: A systematic review. CJEM. 2020;22(4):504-13.
- 59. Ragan K, Lin K. Can the Canadian Syncope Risk Score (CSRS) help to risk stratify emergency department patients presenting with syncope without an evident serious cause? CJEM. 2020.
- 60. Ronskley P, Wick J, Elliott M, et al. Derivation and internal validation of a clinical risk prediction tool for hyperkaemia-related Emergency Department encounters among hemodialysis patients. 2020.
- 61. Rowe BH, McRae A, Rosychuk RJ. Temporal trends in emergency department volumes and crowding metrics in a western Canadian province: a population-based, administrative data study. BMC Health Serv Res. 2020;20(1):356.
- 62. Scheuermeyer F, Miles I, Innes G, al. e. Lorazepam vs. diazepam in the management of emergency department patients with alcohol withdrawal. Ann Emerg Med2020.
- 63. Scheuermeyer F, Norena M, Innes G, et a. Decision aid for early identification of acute underlying illness in emergency department patients with atrial fibrillation or flutter. Can J Emerg Med. 2020;22:301-10.
- 64. Shaker MS, Oppenheimer J, Wallace DV, Golden DBK, Lang DM, Lang ES, et al. Making the GRADE in anaphylaxis management: Toward recommendations integrating values, preferences, context, and shared decision making. Ann Allergy Asthma Immunol. 2020;124(6):526-35.e2.
- 65. Shaker MS, Wallace DV, Golden DBK, Oppenheimer J, Bernstein JA, Campbell RL, et al. Anaphylaxis-a 2020 practice parameter update, systematic review, and Grading of Recommendations, Assessment, Development and Evaluation (GRADE) analysis. J Allergy Clin Immunol. 2020;145(4):1082-123.
- 66. Siarkowski M, Lin K, Li SS, Al Sultan A, Ganshorn H, Kamal N, et al. Meta-analysis of interventions to reduce door to needle times in acute ischaemic stroke patients. BMJ Open Qual. 2020;9(3).
- 67. Stiell IG, Atkinson P, Lang E. A special thank you to our authors for their responses to the coronavirus disease pandemic. CJEM. 2020;22(4):399.
- 68. Stiell IG, Sivilotti MLA, Taljaard M, Birnie D, Vadeboncoeur A, Hohl CM, et al. Electrical versus pharmacological cardioversion for emergency department patients with acute atrial fibrillation (RAFF2): a partial factorial randomized trial. Lancet. 2020;395(10221):339-49.
- 69. Teitge BD, Vukadinovic T, Pritchard JS. Hypoxia in the rural emergency department: Discussion and case report. Can J Rural Med. 2020;25(2):82-6.
- 70. Thiruganasambandamoorthy V, Sivilotti MLA, Le Sage N, Yan JW, Huang P, Hegdekar M, et al. Multicenter Emergency Department Validation of the Canadian Syncope Risk Score. JAMA Intern Med. 2020;180(5):737-44.

- 71. Thiruganasambandamoorthy V, McRae A, Rowe B, al. e. Does N-termina Pro-B-Type natriuretic Peptide improve the risk stratification of emergency department patients with syncope? Ann Int Med. 2020(172):648-55.
- 72. Turner S, Lang ES, Brown K, Franke J, Workun-Hill M, Jackson C, et al. Systematic Review of Evidence-Based Guidelines for Prehospital Care. Prehosp Emerg Care. 2020:1-14.
- 73. Vipond J. Opinion: Alberta's cities can lead job recovery by buying renewable energy calgaryherald. com: Calgary Herald; 2020 [Available from: https://calgaryherald.com/opinion/columnists/opinionalbertas-cities-can-lead-job-recovery-by-buying-renewable-energy.
- 74. Vipond j. Opinion: Enmax should declare a net-zero emissions target for 2020 calgaryherald.com: calgaryherald.com; 2020 [Available from: https://calgaryherald.com/opinion/columnists/opinionenmax-should-declare-a-net-zero-emissions-target-for-2050.
- 75. Vipond J. Opinion: Want to save lives and the economy? We need mandatory masks laws Calgary Herald Online: calgaryhearld.com; 2020 [Available from: https://calgaryherald.com/opinion/ columnists/opinion-want-to-save-lives-and-the-economy-we-need-mandatory-masks-laws.
- 76. Vipond J. The case for mandatory mask-wearing in Canada MacLean's online: MacLean's; 2020 [April 20, 2020:[Health]. Available from: https://www.macleans.ca/society/health/the-case-formandatory-mask-wearing-in-canada/.
- 77. Wein T, Lindsay MP, Gladstone DJ, Poppe A, Bell A, Casaubon LK, et al. Canadian Stroke Best Practice Recommendations, seventh edition: acetylsalicylic acid for prevention of vascular events. CMAJ. 2020;192(12):E302-E11.
- 78. Wong CK, O'Rielly CM, Teitge BD, Sutherland RL, Farquharson S, Ghosh M, et al. The Characteristics and Effectiveness of Interventions for Frequent Emergency Department Utilizing Patients With Chronic Noncancer Pain: A Systematic Review. Acad Emerg Med. 2020;27(8):742-52.
- 79. Yeung MEM, Weaver CG, Janz K, Haines-Saah R, Lang E. Clearing the air: A study of cannabis-related presentations to urban Alberta emergency departments following legalization. CJEM. 2020:1-8.
- 80. Yeung M, Schweitzer C, Wang D, Weaver C, Lang E. Orthomageddon: A retrospective cohort study of weather-dependent variations in emergency department volume in a Canadian city. Am J Emerg Med. 2020;38(4):815-8.
- 81. Zaerpour F, Bischak DP, Menezes MBC, McRae A, Lang ES. Patient classification based on volume and case-mix in the emergency department and their association with performance. Health Care Manag Sci. 2020;23(3):387-400.
- 82. Andruchow JE, Boyne T, Innes G, Vatanpour S, Seiden-Long I, Wang D, et al. Low High-Sensitivity Troponin Thresholds Identify Low-Risk Patients With Chest Pain Unlikely to Benefit From Further Risk Stratification. CJC Open. 2019;1(6):289-96.
- 83. Arora N, Hjalmarsson C, Lang E, Boyle A, Atkinson P. Debate Series: #DomesticViolence We should routinely screen for domestic violence (intimate partner violence) in the emergency department. CJEM. 2019;21(6):701-5.

- 84. Campbell SG, Innes GD, Magee KD, Elnenaei MO, Rowe BH. A five-step program for diagnostic test addiction. CJEM. 2019;21(5):576-9.
- 85. Chartier LB, Mondoux SE, Stang AS, Dukelow AM, Dowling SK, Kwok ESH, et al. How do emergency departments and emergency leaders catalyze positive change through quality improvement collaborations? CJEM. 2019;21(4):542-9.
- 86. Collier A, Marton G, Chun S, Nijssen-Jordan C, Bartels SA, Pulfrey S, et al. CAEP 2018 Academic Symposium: Recommendations for developing and supporting Global Emergency Medicine in Canadian academic emergency departments and divisions. CJEM. 2019;21(5):600-6.
- 87. Colmers-Gray IN, Krishnan K, Chan TM, Seth Trueger N, Paddock M, Grock A, et al. The Revised METRIQ Score: A Quality Evaluation Tool for Online Educational Resources. AEM Educ Train. 2019;3(4):387-92.
- 88. Helman A, Ovens H, Campbell S, Innes G. Overcrowding and Access Block Causes and Solutions [Internet]; 2019. Podcast. Available from: https://emergencymedicinecases.com/ed-overcrowding-access-block-causes-solutions/
- 89. Innes G, Pauls M, Campbell S, Atkinson P. Our responsibility to assess patients is not limited to those in beds. 2019. p. 580-86.
- 90. Innes G, Sivilotti M, Ovens H, McLelland K, al. e. Emergency Department Access Block: A Smaller Problem Than We Thought. Can J Emerg Med. 2019;21(2):177-85.
- 91. Innes GD. Can a HEART Pathway Improve Safety and Diagnostic Efficiency for Patients With Chest Pain? Ann Emerg Med. 2019;74(2):181-4.
- 92. Johnston A, Booth K, Christenson J, Fu D, Lee S, Mawji Y, et al. Building and strengthening relationships between academic departments/divisions of emergency medicine and rural and regional emergency departments. CJEM. 2019;21(5):595-9.
- 93. McLane P, Holroyd BR, Lang E, Network ESC. Emergency Strategic Clinical Network: Advancing emergency care in Alberta through collaborative evidence-informed approaches. CMAJ. 2019;191(Suppl):S24-S6.
- 94. McRae A, Graham M, Lang E, Innes G, al. e. Sex-specific, high-sensitivity cardiac troponin T cutoff concentrations for ruling out acute myocardial infarction with a single measurement. Can J Emerg Med 2019;21(1):26-33.
- 95. Murad MH, Liem RI, Lang ES, Akl EA, Meerpohl JJ, DeBaun MR, et al. 2019 sickle cell disease guidelines by the American Society of Hematology: methodology, challenges, and innovations. Blood Adv. 2019;3(23):3945-50.
- 96. Samuel S, Dimitropoulos G, Schraeder K, Klarenbach S, Nettel-Aguirre A, Guilcher G, et al. Pragmatic trial evaluating the effectiveness of a patient navigator to decrease emergency room utilisation in transition age youth with chronic conditions: the Transition Navigator Trial protocol. BMJ Open. 2019;9(12):e034309.

- 97. Scheuermeyer F, Innes G, Grafstein E, al. e. Emergency Department patients with a prolonged corrected QT interval do not have increased thirty-day mortality. . Acad Emerg Med [Internet]. 2019.
- 98. Scheuermeyer F, Wong H, Barrett T, Christenson J, Grafstein E, Grunau B, et al. Active management of atrial fibrillation or flutter in ED patients with renal impairment is associated with a higher risk of adverse events and treatment failure. Can J Emerg Med. 2019;21(3):352-61.
- 99. Soar J, Maconochie I, Wyckoff MH, Olasveengen TM, Singletary EM, Greif R, et al. 2019 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations: Summary From the Basic Life Support; Advanced Life Support; Pediatric Life Support; Neonatal Life Support; Education, Implementation, and Teams; and First Aid Task Forces. Circulation. 2019;140(24):e826-e80.
- 100. Stewart D, Lang E, Wang D, Innes G. Are emergency medical services offload delay patients at increased risk of adverse outcomes? CJEM. 2019;21(4):505-12.
- 101. Thoma B, Turnquist A, Zaver F, Hall AK, Chan TM. Communication, learning and assessment: Exploring the dimensions of the digital learning environment. Med Teach. 2019;41(4):385-90.

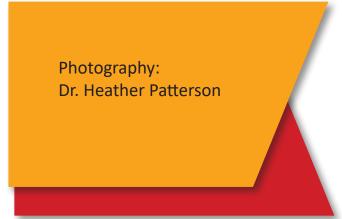


- 1.) Stiell I, Perry J, Clement C, Sibley S, McRae A, Rowe B, et al. PL01: Creation of a risk scoring system for emergency department patients with acute heart failure. CJEM. Cambridge University Press; 2020;22(S1):S5–S5.
- 2.) Andruchow J, Boyne T, Seiden-Long I, Wang D, Vatanpour S, Innes G, et al. LO03: Prospective comparative evaluation of the ESC 1-hour and a 2-hour rapid diagnostic algorithm for myocardial infarction using high-sensitivity troponin-T. CJEM. Cambridge University Press; 2020;22(S1):S7–S7.
- 3.) Thiruganasambandamoorthy V, Taljaard M, Hudek N, Brehaut J, Ghaedi B, Nguyen P, et al. LO06: Development of practice recommendations for ED management of syncope by mixed methods. CJEM. Cambridge University Press; 2020;22(S1):S8-S9.
- 4.) Stiell I, Sivilotti M, Taljaard M, Birnie D, Vadeboncoeur A, Hohl C, et al. LO08: A randomized, controlled comparison of electrical versus pharmacological cardioversion for emergency department patients with atrial flutter. CJEM. Cambridge University Press; 2020;22(S1):S9–S9.
- 5.) Krishnan R, Mukarram M, Ghaedi B, Sivilotti M, Le Sage N, Yan J, et al. LO09: Role of hospitalization for detection of serious adverse events among emergency department patients with syncope: a propensity-score matched analysis of a multicenter prospective cohort. CJEM. Cambridge University Press; 2020;22(S1):S10-S10.
- 6.) Andruchow J, Boyne T, Innes G, Vatanpour S, Seiden-Long I, Wang D, et al. LO10: Low high-sensitivity troponin concentrations identify low-risk chest pain patients unlikely to benefit from further risk stratification. CJEM. Cambridge University Press; 2020;22(S1):S10-S10.
- 7.) O'Rielly C, Andruchow J, McRae A. LO17: Major adverse cardiac events in patients ruled-out by a validated high-sensitivity troponin algorithm for acute myocardial infarction. CJEM. Cambridge University Press; 2020;22(S1):S13–S13.
- 8.) Enwere E, Wang D, Guo M, Naugler C, Lang E. LO26: The mean abnormal response rates of laboratory tests ordered in the emergency department: shooting percentage insights from a multicentre study. CJEM. Cambridge University Press; 2020;22(S1):S16-S16.
- 9.) Green-Harrison L, Polsky Z, Fung T, Lang E, Patocka C. LO28: Innovating for overcrowding: analyzing the impact of a novel emergency physician role on patient flow. CJEM. Cambridge University Press; 2020;22(S1):S17–S17.
- 10.) Grant K, Bayley C, Lang E, Innes G. LO29: Interventions at triage to improve emergency department throughput: a systematic review. CJEM. Cambridge University Press; 2020;22(S1):S17–S17.
- 11.) Grant K, Bayley C, Lang E, Innes G. LO30: Optimizing diagnostic testing processes to improve emergency department throughput: a systematic review. CJEM. Cambridge University Press; 2020;22(S1):S18-S18.

- 12.) McLane P, Barnabe C, Holroyd B, Colquhoun A, Bill L, Fitzpatrick K, et al. LO43: First Nations emergency care visits in Alberta: Descriptive results of a retrospective cohort study. CJEM. Cambridge University Press; 2020;22(S1):S22–S22.
- 13.) Sheppard B, Beller G, O'Rielly C, Wong C. LO54: Emergency department prevalence of intracranial aneurysm on computed tomography angiography (EPICACT). CJEM. Cambridge University Press; 2020;22(S1):S26–S27.
- 14.) Lane D, Lang E, Roberts L. LO71: The effect of boarding time in ED on length of stay for psychiatric patients. CJEM. Cambridge University Press; 2020;22(S1):S33–S33.
- 15.) Ouellet V, Boucher V, Beauchamp F, Neveu X, Archambault P, Berthelot S, et al. LO87: Influence of co-injuries on post-concussion symptoms after a mild traumatic brain injury. CJEM. Cambridge University Press; 2020;22(S1):S39–S39.
- 16.) Blais-L'Écuyer J, Blais-L'Écuyer J, Mercier É, Tardif P, Archambault P, Chauny J, et al. LO88: S100B serum protein level for the detection of clinically significant intracranial hemorrhage in patients with mild traumatic brain injury: a prospective cohort study. CJEM. Cambridge University Press; 2020;22(S1):S39–S39.
- 17.) Beauchamp F, Boucher V, Neveu X, Ouellet V, Archambault P, Berthelot S, et al. LO89: Describing the evolution of post-concussion symptoms after sports-related mTBI. CJEM. Cambridge University Press; 2020;22(S1):S40–S40.
- 18.) Tarraf R, Stiphout M, Fraser A, Hair H, Lang E, Holroyd B, et al. MP01: Just another day on the job: Workforce experience with violence in emergency departments and urgent care centres. CJEM. Cambridge University Press; 2020;22(S1):S42–S42.
- 19.) Yeung M, Weaver C, Lang E, Saah-Haines R, Janz K. MP03: Clearing the air: A retrospective cohort study of cannabis-related harms in urban Alberta emergency departments following legalization. CJEM. Cambridge University Press; 2020;22(S1):S43–S43.
- 20.) Hudek N, Rowe B, Brehaut J, Ghaedi B, Nguyen P, Presseau J, et al. MP07: Identification of barriers and facilitators for implementation of the Canadian Syncope Risk Score. CJEM. Cambridge University Press; 2020;22(S1):S44–S45.
- 21.) Splinter G, Gourlay K, Hayward J, Innes G. MP10: Does arrival pain severity predict stone characteristics or short-term outcomes in emergency department patients with acute renal colic? CJEM. Cambridge University Press; 2020;22(S1):S45—S46.
- 22.) Lau T, Hayward J, Innes G. MP15: Predictors of emergency department opioid use and variability of prescribing practices in a large multicenter Canadian cohort. CJEM. Cambridge University Press; 2020;22(S1):S47–S48.
- 23.) Thoma B, Hall A, Clark K, Meshkat N, Cheung W, Desaulniers P, et al. MP17: Evaluation of a national competency-based assessment system in emergency medicine: A CanDREAM study. CJEM. Cambridge University Press; 2020;22(S1):S48–S48.

- 24.) Dowling S, Peterson A, Wong C, Cooke L, Bond C. MP29: Using the Calgary audit and feedback framework to get the most out of physician practice reports. CJEM. Cambridge University Press; 2020;22(S1):S52-S53.
- 25.) Dowling S, Johal H, Morris R, Nobbee D, Wang D, Lang E. MP30: Reducing unnecessary oral contrast in patients undergoing enhanced abdomen/pelvis computed tomography in the emergency department: A multicentre project. CJEM. Cambridge University Press; 2020;22(S1):S53–S53.
- 26.) Pompa N, Bond C, Wang D, Dowling S. MP31: Optimizing ketorolac dosing by leveraging computerized order entry. CJEM. Cambridge University Press; 2020;22(S1):S53-S54.
- 27.) Dowling S, Gjata I, Solbak N, Weaver C, Smart K, Buna R, et al. MP32: Using physician practice reports and feedback sessions to reduce low value care in bronchiolitis. CJEM. Cambridge University Press; 2020;22(S1):S54-S54.
- 28.) McLane P, Scott K, Yee K, Suleman Z, Dong K, Lang E, et al. MP33: Provincial spread of buprenorphine/naloxone initiation in emergency departments for opioid agonist treatment: a quality improvement initiative. CJEM. Cambridge University Press; 2020;22(S1):S54-S54.
- 29.) Hegg S, Sirois M, Carmichael P, Perry J, Lee J, Daoust R, et al. MP57: Effect of grip strength measured in the emergency department on the risk of functional decline following a minor trauma in robust elderly: a pan-Canadian study. CJEM. Cambridge University Press; 2020;22(S1):S63–S63.
- 30.) Major D, VandenBerg S. MP59: Exploring adverse events in boarded psychiatric patients in Calgary zone adult emergency departments. CJEM. Cambridge University Press; 2020;22(S1):S64–S64.
- 31.) Wong C, Lu S, Wang D, Dowling S, Lang E. P003: Productivity patterns in early-career physicians: a multi-center analysis of administrative emergency department operations data. CJEM. Cambridge University Press; 2020;22(S1):S65-S65.
- 32.) Szava-Kovats M, Andruchow J, Boiteau P, Herget E, Solverson K. P020: Development and early experience with the Foothills Medical Center Pulmonary Embolism Response Team (PERT). CJEM. Cambridge University Press; 2020;22(S1):S71-S72.
- 33.) Islam A, Koger K, VandenBerg S, Wang D, Lang E. P081: The summer of the e-scooter: a multicenter evaluation of the emergency department impact of rentable motorized scooters in Calgary. CJEM. Cambridge University Press; 2020;22(S1):S93–S93.
- 34.) Crowder K, Domm E, Lipp R, Robinson O, Vatanpour S, Wang D, et al. P117: A multicenter analysis of an emergency physician lead on department flow and the provider experience. CJEM. Cambridge University Press; 2020;22(S1):S107–S107.
- 35.) Bhate T, Dowling S, Collins N. P132: Optimizing a physician surge protocol to address emergency department wait times during times of increased patient demand. CJEM. Cambridge University Press; 2020;22(S1):S112-S112.







Acknowledgements:

The Department of Emergency Medicine gratefully acknowledges and thanks everyone for their contributions to this report.

Foothills Medical Centre

Main Building, Room C231 1403 – 29th ST NW Calgary AB T2N 2T9

https://insite.albertahealthservices.ca/edc/Page9145.aspx

RGH Holy Cross Ambulatory Care Centre

Room 5A105 1007 – 14th St SW Calgary AB T2V 1P9

https://cumming.ucalgary.ca/departments/emergency-medicine