2019 Review

2018-19
ANNUAL REPORT

Department of Medicine

Alberta Health Services | UNIVERSITY OF CALGARY

Find out about the new ARCH Calgary program at PLC.

PAGE 5

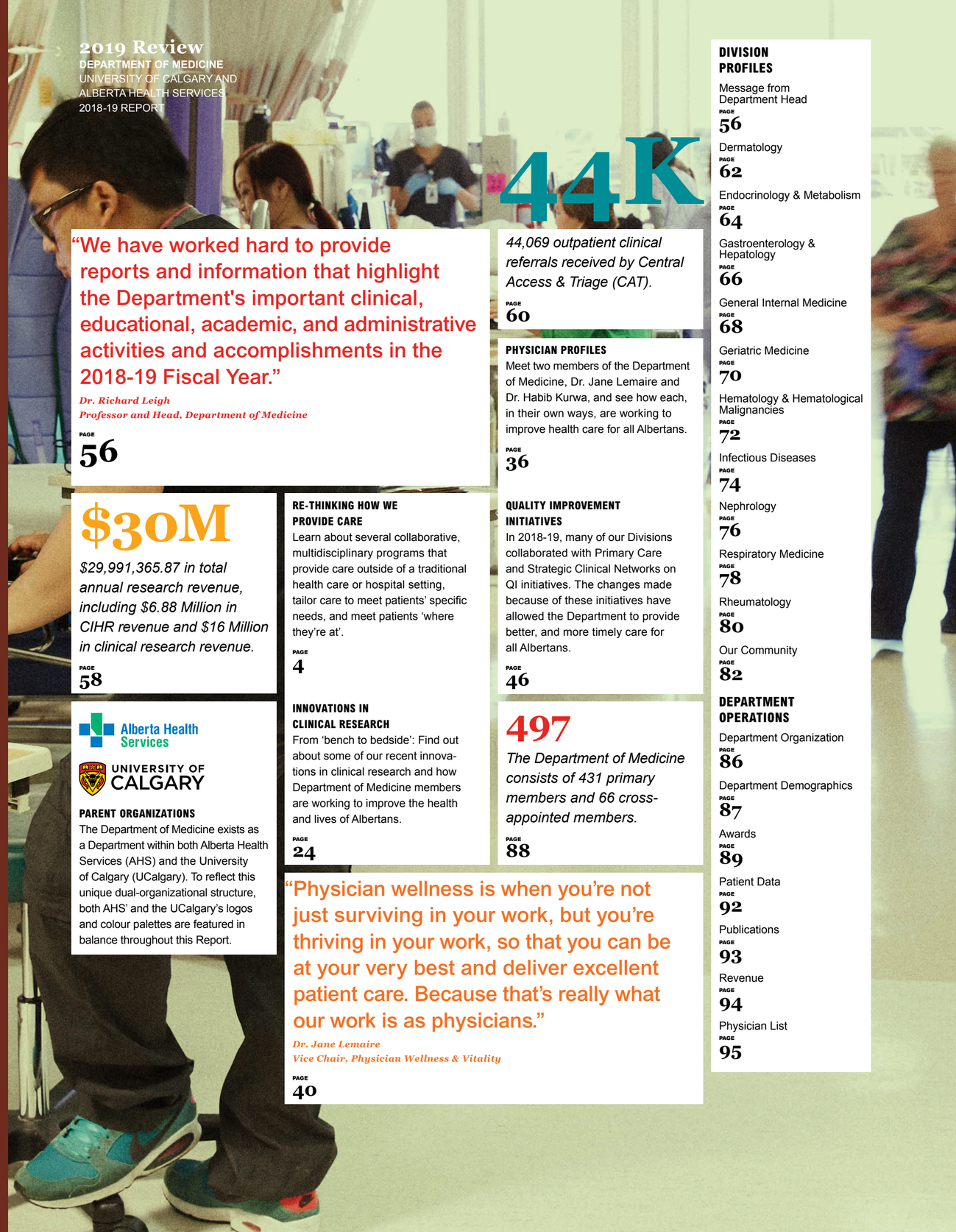
Department of Medicine

geographic scope

The Department of Medicine is located in the Alberta Health Services – Calgary Zone and at the Cumming School of Medicine, University of Calgary. The Department serves a catchment of 2.4 million residents of Southern Alberta, Southeastern British Columbia and Southwestern Saskatchewan. Department Members are located at 7 medical sites across Calgary, including the Foothills Medical Centre (FMC) and UCalgary Foothills Campus, Peter Lougheed Centre (PLC) and Sunridge Landing, Rockyview General Hospital (RGH), South Health Campus (SHC), Richmond Road Diagnostic and Treatment Centre (RRDTC), Sheldon M. Chumir Health Centre, and the Associate Clinic, Gulf Canada Square.

2019 Review

DEPARTMENT OF MEDICINE
UNIVERSITY OF CALGARY AND ALBERTA HEALTH SERVICES
2018-19 REPORT



"We have worked hard to provide reports and information that highlight the Department's important clinical, educational, academic, and administrative activities and accomplishments in the 2018-19 Fiscal Year."

Dr. Richard Leigh
Professor and Head, Department of Medicine

PAGE 56

$30M

$29,991,365.87 in total annual research revenue, including $6.88 Million in CIHR revenue and $16 Million in clinical research revenue.

PAGE 58

Alberta Health Services

UNIVERSITY OF CALGARY

PARENT ORGANIZATIONS

The Department of Medicine exists as a Department within both Alberta Health Services (AHS) and the University of Calgary (UCalgary). To reflect this unique dual-organizational structure, both AHS' and the UCalgary's logos and colour palettes are featured in balance throughout this Report.

RE-THINKING HOW WE PROVIDE CARE

Learn about several collaborative, multidisciplinary programs that provide care outside of a traditional health care or hospital setting, tailor care to meet patients' specific needs, and meet patients 'where they're at'.

PAGE 4

INNOVATIONS IN CLINICAL RESEARCH

From 'bench to bedside': Find out about some of our recent innovations in clinical research and how Department of Medicine members are working to improve the health and lives of Albertans.

PAGE 24

44K

44,069 outpatient clinical referrals received by Central Access & Triage (CAT).

PAGE 60

PHYSICIAN PROFILES

Meet two members of the Department of Medicine, Dr. Jane Lemaire and Dr. Habib Kurwa, and see how each, in their own ways, are working to improve health care for all Albertans.

PAGE 36

QUALITY IMPROVEMENT INITIATIVES

In 2018-19, many of our Divisions collaborated with Primary Care and Strategic Clinical Networks on QI initiatives. The changes made because of these initiatives have allowed the Department to provide better, and more timely care for all Albertans.

PAGE 46

497

The Department of Medicine consists of 431 primary members and 66 cross-appointed members.

PAGE 88

"Physician wellness is when you're not just surviving in your work, but you're thriving in your work, so that you can be at your very best and deliver excellent patient care. Because that's really what our work is as physicians."

Dr. Jane Lemaire
Vice Chair, Physician Wellness & Vitality

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DIVISION PROFILES

Message from Department Head — PAGE 56
Dermatology — PAGE 62
Endocrinology & Metabolism — PAGE 64
Gastroenterology & Hepatology — PAGE 66
General Internal Medicine — PAGE 68
Geriatric Medicine — PAGE 70
Hematology & Hematological Malignancies — PAGE 72
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DEPARTMENT OPERATIONS

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Awards — PAGE 89
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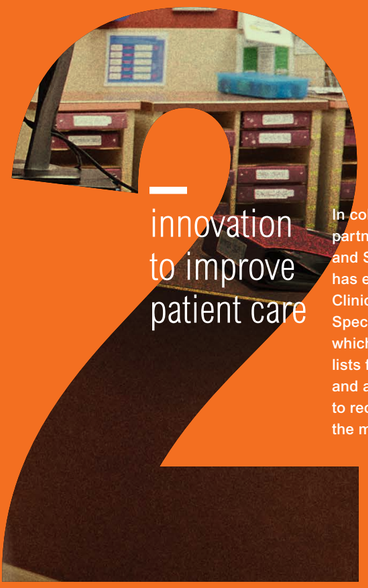
Physician List — PAGE 95

6 THINGS YOU SHOULD KNOW ABOUT THE DEPARTMENT OF MEDICINE

1 powerful partnerships

One of the core tenets of the Department of Medicine is that collaborative, multidisciplinary teams are essential for providing outstanding medical care to all Albertans. We have close working relationships with other Departments, including Community Health, Cardiac Sciences, and Oncology, as well as with the six Calgary and Area Primary Care Networks (PCNs). Our members are also extensively involved within Alberta Health Services' sixteen provincial Strategic Clinical Networks (SCNs).

2 innovation to improve patient care



In collaboration and partnership with PCNs and SCNs, the Department has established numerous Clinical Care Pathways and Specialist Link services, which have reduced wait lists for specialist services and allowed more patients to receive quality care in the medical home.

Other innovative programs we have developed include the Geriatrics Fracture Liaison Service, COPD Initiative, Lung Cancer Screening Program, Home Dialysis Program, Diabetes in Pregnancy Clinic, Health Analytics Working Group (HAWG), and the Calgary Zone Medical Services Clinical Safety Committee (MSCSC).

3 improving public health

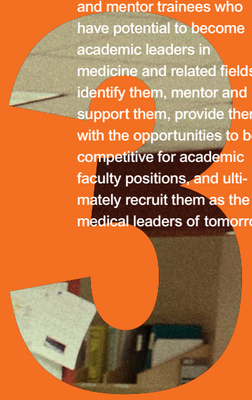
Our members are committed to improving Public Health for the benefit of all Albertans. Dr. John Conly, who is the current Medical Director for W21C and former Head of the Department of Medicine, conducts groundbreaking research on antimicrobial resistance and stewardship. Dr. William Ghali is the Institute Director for the O'Brien Institute for Public Health. Drs. Gabriel Fabreau and Prabh Lail both lead innovative clinical and research programs to improve patient care for vulnerable populations, including refugees and patients with substance use disorders. Dr. Cheryl Barnabe, Vice Chair of Indigenous Health in the Department of Medicine, is helping to drive work to improve health outcomes for Indigenous patients.

4 impactful research

Department Members conduct world-class translational and health outcomes research within all seven Research Institutes at the University of Calgary's Cumming School of Medicine as well as within W21C, a research and innovation initiative based in the University of Calgary and Calgary Zone of Alberta Health Services.

5 educating the next generation

Our Mandate is to identify and mentor trainees who have potential to become academic leaders in medicine and related fields: identify them, mentor and support them, provide them with the opportunities to be competitive for academic faculty positions, and ultimately recruit them as the medical leaders of tomorrow.



6 our membership

We are one of the largest Departments in the Cumming School of Medicine and Calgary Zone, and have grown to just under 500 members in 2018-19, including 431 members with primary appointments in the Department of Medicine or Division of Cardiology (Cardiac Sciences), and 66 members with cross-appointments to the Department of Medicine.

RE-THINKING HOW WE PROVIDE CARE

Providing health care to thousands of Calgarians is a huge and complex undertaking. The Department of Medicine, AHS, and UCalgary are constantly working together to find ways to improve how to provide better care.

CONTRIBUTORS

Dr. Parabdheep (Prabh) Lail
Dr. Karmon Helmie
Dr. Julie McKeen
Dr. Michelle Grinman
Olive Wiley (patient)
Winnie Smith (patient)

DIVISION INVOLVEMENT

Endocrinology & Metabolism
General Internal Medicine

In some cases, change starts when one individual person who is paying close attention notices a gap in care for their patients. In this chapter you will read about how a resident in the Department started asking questions that led, eventually, to scores of people from the Department, AHS and UCalgary working together to close that gap and dramatically improve care for people with diabetes who are admitted to hospital.

Sometimes we start to re-think the way we've always done things when we see colleagues outside our jurisdiction making changes and improving care by finding new ways to tackle old problems. In this chapter we also bring you a story about a new team that's emulating a program that began in Edmonton to provide wraparound care to people with addictions who are admitted to the Peter Lougheed Centre.

And you'll read about a program that serves to bridge acute care hospitals with people in the community who need lower acuity care, by bringing hospital-quality care home.

We are dedicated to providing health care that supports the entire person—not just a single illness or condition. To ensure we do this we work collaboratively; bringing different disciplines and partners together to develop new programs that provide better care in the hospital and beyond into the community.

Dr. Parabhdeep (Prabh) Lail
General Internal Medicine Specialist, Medical Director, Addiction Recovery and Community Health (ARCH) Calgary

ADDICTION RECOVERY AND COMMUNITY HEALTH (ARCH) AT PLC

Delivering front-line acute care is demanding work, and it's an extra challenge to provide support for the many patients who suffer from addictions. Now, a special team at the Peter Lougheed Center is helping give wraparound care to patients with addictions.

THE PATIENT NEARLY DIES. He or she is admitted to hospital with complications from liver disease. They have gastrointestinal bleeding with massive varices—veins that are enlarged and swollen. The patient is resuscitated, the varices are banded and appropriate medication is administered.

When the clinician digs deeper to explore the cause of the liver disease, they may find the patient has longstanding alcohol use disorder. In that case, the doctor will likely tell the patient to stop drinking or face certain death. But Dr. Prabh Lail says the patient needs more than a directive, they need counselling and information on treatment options in order to stop drinking.

That's where the new Addiction Recovery and Community Health (ARCH) consultation service comes in.

"Often the reason for admission or a hospital visit is a consequence of or directly because of a substance use disorder. There has been very little being offered in acute care for these patients, so there certainly was a gap," says Lail, the medical director of the ARCH program at Calgary's Peter Lougheed Centre, a specialist in substance use disorders and a former Canada Addiction Medicine Research Fellow.

ARCH has operated at the Royal Alexandra Hospital in Edmonton since 2014 as part of the Inner City Health and Wellness Program. It launched in Calgary in November 2018 and has a team of 12 physicians on rotation, two social workers, two addictions counsellors, two peer support workers, an outreach worker, a nurse practitioner, a registered nurse, a clinical nurse educator, an administrative assistant, and a pharmacist.

Demand for the ARCH's services has been steady. "We have seen close to 1,000 patients at our site alone. It motivates me to think that we certainly need to expand this to other sites as well," she says. "When we think of the visits to emergency rooms, on average one-third of patients—maybe more—also have addiction issues."

ARCH sees people with addictions from every walk of life; focusing on harm reduction and creating efficiencies in the system by improving health outcomes and health care access. "Addiction is a disease that doesn't discriminate," says Lail. "Anyone from any socio-economic background can have a substance use disorder and they can end up being very vulnerable." ARCH patients may also be socially vulnerable; many are homeless.

ARCH provides what Lail calls "full wrap-around care." It starts with ensuring basic patient needs are met: food, clothing and shelter. The next step is inquiring about housing status and testing for sexually transmitted infections, diabetes and dyslipidemia (abnormal levels of lipids in the blood), screening for colon cancer and pap smears for women.

Intake forms are completed along with full assessments of substances, primarily alcohol, tobacco, opioids, cannabis, stimulants and benzodiazapines—depressant drugs that include sleeping pills and tranquilizers. This assessment helps the ARCH team know what they're dealing with in terms of intoxication and withdrawal symptoms.

Nurses initiate many of the consultations because they're on the front line and recognize when patients with substance use issues would benefit from ARCH services. Addictions counsellors become involved as do social workers, especially in cases where a patient's immediate needs are housing and food. Many patients don't even have photo identification.

Lail says many of her colleagues are eager to learn more about ARCH while others may be critical of the service and its patients. "We try to have open and honest conversations, no matter how difficult they are, with the goal of educating and working towards a culture change that needs to happen in acute care." Lail and her team are working on breaking down the considerable stigma surrounding addictions, one patient and one conversation at a time.

ARCH has become a vital resource in Alberta, particularly in light of the rising fentanyl crisis—front-line staff are seeing cases of opioid use disorder and related issues more frequently than ever before. Lail is hoping to dedicate time to training more clinicians in addictions so ARCH is able to expand across Calgary and help more patients once they leave the hospital; preventing readmissions and medical complications.

"The philosophy of our program is to meet patients where they're at," says Lail. "We don't set the goal for the patient. We work with patients to set their goals and we support them in achieving those goals."

PREVIOUS PAGE
Peer Support Worker Catherine MacAllister takes Kari High, a patient in the ARCH Calgary program, outside for a coffee and conversation in the sunshine – part of the "full wrap-around care" that ARCH provides.

PAGE 6
Top left:
Dr. Prabh Lail, the Medical Director for the ARCH Calgary program, speaks with Catherine MacAllister. The ARCH Team meets for rounds every day to review patients currently in the program.

Bottom left:
All patients in the ARCH Program receive Naloxone Kits. These kits are available free of charge to anyone at risk of opioid overdose. Family and friends can also get a kit.

"In terms of emergency room visits, one-third of patients—if not more—have some sort of substance use disorder."

Dr. Prabh Lail

PROVIDING SUPPORT

Brad Morrison is one of the ARCH support workers who meets with and helps people who have addictions when they're admitted to the Peter Lougheed Centre in Calgary.

Brad Morrison has a deep understanding of the ten or so people he meets every day in his role as ARCH peer support worker at the PLC. Morrison struggled with his own addiction issues for decades and spent years trying to get clean and sober. He started working with ARCH when it launched in November, 2018 and so far, the program has helped more than 1,500 people.

One of them really stands out in his memory—a 60 year old man with alcoholism who had been admitted to the emergency department about 80 times in the year prior. "He couldn't stop drinking," says Morrison. "He would do his best. He'd come to emerg, they would rehydrate him, hold him for four to six hours and then discharge him." The man would be sent on his way with advice to go to detox and quit drinking.

When inevitably, the man came back to the hospital, Morrison sat with him and shared a bit about his own story before telling him how ARCH was going to help him. "He held his blanket to his face and started crying. He felt, for the first time, that somebody finally got it, and that he wasn't going to be stigmatized and sent away without any help or understanding."

Instead, everyone who comes through the ARCH program receives wrap-around care. And the peer support workers play a pivotal role in that care; acting as a trusted bridge between the person with addictions and the health care professionals and provide "a warm handover."

"He felt, for the first time, that somebody finally got it, and that he wasn't going to be stigmatized and sent away without any help or under-standing."

Brad Morrison

"Typically with the way these patients have been treated, they don't really trust the staff in any health care setting," he says. "I reassure the patient that we are there for them. Then I go to the staff and let them know what the patient's going through, what their fears are and why they're here."

Morrison sees a bit of himself in every patient he meets. And he's thrilled he can help them.

"You know, some Sundays I can't wait to get here Monday morning because I love my job that much."

PREVIOUS PAGE
Top right:
In the Emergency Department, Dr. Kate Colizza, ARCH Assistant Medical Director, speaks with Brad Morrison, the program's other Peer Support Worker, while Kai Johnson, RN prepares a Naloxone Kit.

Bottom right:
Drs. Prabh Lail and Kate Colizza review the list of consult requests for patients with substance use issues who would benefit from ARCH services. Many of these consult requests are initiated by nurses in the Emergency Department.

PAGE 8 AND 9
Brad Johnson and Dr. Prabh Lail visit with James Galant, another patient who is bene-fitting from the ARCH Calgary program.

"Addiction is a disease that doesn't discriminate."

Dr. Prabh Lail

"There was very little being offered in acute care for these patients so there certainly was a gap."

Dr. Prabh Lail

Dr. Karmon Helmle
Clinical Assistant Professor,
Department of Medicine
Physician Champion, Provincial Diabetes Inpatient Management Initiative,
Diabetes Obesity Nutrition Strategic Clinical Network

Dr. Julie McKeen
Clinical Assistant Professor,
Department of Medicine
Physician Lead, Provincial Diabetes Inpatient Management Initiative, Diabetes Obesity Nutrition Strategic Clinical Network

USING KNOWLEDGE TRANSLATION TO IMPROVE INPATIENT DIABETES MANAGEMENT

In 2007, a medical resident in Calgary started asking questions about how people with diabetes receive care in the hospital. Those initial questions have informed a province-wide initiative that's standardizing and improving care for patients with diabetes.

ONE OF FIVE adults admitted to the hospital in Alberta has diabetes. These patients are usually admitted for a different medical reason but their diabetes creates complex issues and can dramatically slow their recovery.

People with diabetes are often experts in managing their chronic condition day-to-day, but that becomes difficult when they're in the hospital and they have little control over their diet, physical activity and other factors.

Basal bolus insulin therapy (BBIT) is a proactive way to give insulin that mimics the body's natural production of the hormone. Research shows that BBIT is a better way to treat people with diabetes while they're in the hospital than using sliding scale insulin (SSI), where a patient is administered insulin depending on their blood sugar levels. SSI is not individualized to the patient, can result in large blood glucose fluctuations over the day which can increase morbidity, mortality and length of stay.

The BBIT program was developed to make it easier for clinicians to follow the necessary steps of ordering insulin for their patients with paper order sets, or in Calgary hospitals within the Sunrise Clinical Manager (SCM) software.

INITIAL OBSERVATION

Dr. Karmon Helmle, clinical assistant professor, Department of Medicine, was in her first year of residency in Calgary when she noticed the care given to patients with diabetes on the medical teaching unit didn't always line up with the guidelines that suggest doctors use BBIT.

So, for her first year resident's research project, she surveyed her colleagues about diabetes management. She asked clinicians to fill out a questionnaire about how they order insulin for their patients and manage a variety of complex scenarios.

The questions asked about the clinicians' comfort level with managing patients' diabetes and whether they felt they needed more training or information.

The results of the survey—"We are very comfortable treating diabetes. We're very comfortable with different insulins in different complex scenarios. We know that we should be treating people with BBIT strategies and not using the sliding scale"—did not line up with what Dr. Helmle was observing in the hospital.

Dr. Helmle decided to dive in further

DIGGING DEEPER

For her second year residency research project, Dr. Helmle looked at old electronic health records to see whether the records aligned with the results from her first-year survey. The records supported her observation that clinicians were not, in fact, using BBIT to treat their patients with diabetes in hospital.

When Dr. Helmle started asking her colleagues why they didn't use BBIT, they told her it was really difficult to actually order the sequence of insulin in Calgary's hospital's software system, Sunrise Clinical Manager (SCM). They needed an order set—a group of pre-packaged instructions that allow clinicians to order BBIT for their patients in just a few clicks. Dr. Helmle worked with a few colleagues in IT to develop an order set and they saw an uptake in clinicians in Calgary using BBIT.

> "Residents knew how to best treat diabetes in hospital, but in reality, actual treatment didn't match with what we knew we should be doing."
>
> *Dr. Karmon Helmle*

5%

DIABETES AFFECTS AN ESTIMATED 1 IN 20 CANADIANS.

WHAT IS BBIT?

BASAL INSULIN
Basal insulin is intermediate or long acting and mimics the background insulin typically produced by the pancreas in people without diabetes.

BOLUS INSULIN
Bolus insulin is short or rapid acting and it balances the carbohydrates consumed at meals.

INSULIN CORRECTION
Insulin correction is another short-acting insulin that makes small corrections and brings blood glucose back to target, if needed.

TITRATE
Ensure blood glucose is monitored four times daily and insulin doses are adjusted regularly to meet Diabetes Canada targets.

$13b

CANADA'S HEALTH CARE BUDGET CONTRIBUTES $13 BILLION A YEAR FOR 2 MILLION PEOPLE WITH DIABETES.

"It became a question of how to take best evidence and translate it into practice—the knowledge translation piece."

Dr. Julie McKeen

Dr. Helmle had identified a care gap for people with diabetes in hospital

The DON SCN core committee identified diabetes management in hospitals as a priority for Alberta

ASKING PATIENTS

Meanwhile, the Diabetes, Obesity and Nutrition Strategic Clinical Network (DON SCN) did a patient survey evaluating patient perceptions of diabetes care in hospital. DON SCN, one of 16 SCNs in Alberta, is a network of health care providers, patients, researchers and policy makers with expertise in specific areas. SCNs identify care gaps and find innovative ways to deliver care and provide better outcomes for Albertans.

DON SCN received feedback from 672 patients who have diabetes and were admitted to an Alberta hospital in 2014. Those patients with diabetes were less satisfied with their care in hospital than people without the disease. The patients with diabetes identified three areas of less satisfaction: blood sugar control, nutrition and finally their relationships with their care providers and the relationship between hospital care providers.

An Improved Glycemic Management core team was assembled. And it quickly identified that about a third of patients with diabetes had blood sugar levels that were well above the recommended guidelines. Further, the team found patients with diabetes stayed in hospital about 40 per cent longer compared to those without. The team also verified, provincially, that the use of BBIT was low and clinicians were using outdated SSI to treat their patients, confirming a widespread, complex problem.

PAGE 10 AND 11
Dr. Karmon Helmle and Dr. Julie McKeen review analytical data for the BBIT.ca and KTToolkit.ca websites.

PAGE 13
The Improved Glycemic Management core team meets at the Richmond Road Diagnostic and Treatment Centre (RRDTC) to review the status of the Provincial In-Patient Diabetes Management Initiative.

20%

ABOUT 20% OF ADULTS ADMITTED TO ALBERTA HOSPITALS HAVE DIABETES.

4th

DIABETES IS THE FOURTH MOST COMMON CO-MORBIDITY IN PATIENT CHARTS.

Identifying initiatives

MAPPING A STRATEGY

Implementing BBIT order sets and basic diabetes education was only one piece of a complex puzzle to improve the care of patients with diabetes in hospital. The team developed a comprehensive strategy that included nine other supporting initiatives, identified their internal AHS sponsors and set out timelines.

These other collaborative initiatives included everything from developing appropriate nutritional support, ways to manage patient-specific dispensing of insulin as well as policies and guidelines for highlighting not only the importance of hypoglycemia and its management, but equally important, the recognition and treatment of hyperglycemia.

Together, the transformative project was called the Provincial In-Patient Diabetes Management Initiative. The overall goal was to improve glycemic management in hospital, better aligning with guidelines, available literature and how patients are taught to manage their diabetes outside of hospital.

Team members identified a number of outcomes and pulled together to reach them.

Research begins into how other sites implemented BBIT

40%

IN ALBERTA, PATIENTS WITH DIABETES STAY IN HOSPITAL 40% LONGER THAN THOSE WITHOUT.

IDENTIFYING BARRIERS

The core team undertook a national environmental scan, collecting information from dozens of acute care sites across Canada that had implemented order sets for BBIT. The Alberta team focused on the barriers the hospitals had encountered and what helped implementation of BBIT order sets at each site.

The core team found that while each site had its own unique culture, many barriers and facilitators were shared amongst sites. The Alberta team concluded that to overcome these many shared barriers, an organized, evidence-informed approach was required.

Revising order sets when needed

DEVELOPING ORDER SETS

When it came to developing the order sets—the specific instructions about ordering BBIT for a patient—the team looked at all the order sets available in the published and unpublished literature across Canada as well as hospitals and jurisdictions across the country that had already implemented order sets for BBIT.

Leveraging insights from those that had already implemented BBIT order sets, a unified provincial BBIT order set was developed. AHS Human Factors supported a usability assessment and the order set was revised where needed. The SCM BBIT Order Set was updated to align with the provincial order set. Once implemented, feedback was sought from early adopter sites, and further revisions were made. The order set is now on its sixth iteration.

Moving from best practices to common practice

450%

IMPLEMENTING PROGRAMS FOCUSED ON TREATING HYPERGLYCEMIA SAW A 450% RETURN ON INVESTMENT.

KNOWLEDGE TRANSLATION

Identifying best practice is one thing. Having people adopt them is another matter altogether. Even when there's ample evidence and wholehearted support for changing a clinical practice, the process of establishing and sustaining the new patterns of care can be challenging.

That's where the science of knowledge translation comes in. It closes the gap between 'what we know' and 'what we do'—so called 'knowledge to action gaps' or K2A. These gaps can be responsible for variations in practice and big discrepancies in patient outcomes, quality and safety of care, efficiency and cost.

The Improved Glycemic Management team worked with knowledge translation experts and the Alberta SPOR Support Unit (SUPPORT = Support for People and Patient-Oriented Research and Trials) to develop a three stage knowledge translation plan to promote the change to BBIT. It identified and addressed barriers and offered a deliberate approach to help teams adopt BBIT into their daily routines.

EARLY ADOPTER SITES

Beginning in early 2016, ten early adopter sites started implementing the knowledge translation plan toward changing clinical practice from SSI to BBIT. After a few months, the sites gave feedback around what was working well to address their barriers, and what new barriers had emerged. The early adopter sites implemented in a staggered fashion, with each site contributing to the knowledge and tools available to the next site.

At each of the early adopter sites, physician, nursing, pharmacy and administrative champions led the change, mindful of the barriers at that specific site and armed with specific tools to overcome them. While initial education was important, tools to promote and sustain change involved much more than just ongoing education. Champions worked to influence their peers and share successes while on the lookout for emerging barriers. With support from their administrators, audit data was collected and shared to support and sustain the change from SSI to BBIT. The early adopter sites collaborated and solved problems together.

The DON SCN group facilitated baseline and audit data for 18 months. The group gave the sites targeted feedback, provided information and knowledge translation tools to share with frontline staff and helped re-evaluate barriers to address any practice drift, quickly and early.

There was consistent and sustained increase in ordering of BBIT which led to improved glycemic control, decreased episodes of hyperglycemia and no increase in hypoglycemia.

DON SCN IMPROVED GLYCEMIC MANAGEMENT TEAM

Dr. Julie McKeen
Physician Lead

Dr. Karmon Helmle
Physician Champion

Leta Philp
Clinical Practice Lead

Glenda Moore
Past Project Lead

Rhonda Roedler
Provincial Pharmacy Lead

Edwin Rogers
AHS, Analytics

Naomi Popeski
Assistant Scientific Director, DON SCN

Gabreille Zimmerman
Program Coordinator, Knowledge Translation and Implementation Science, AB SPOR Support

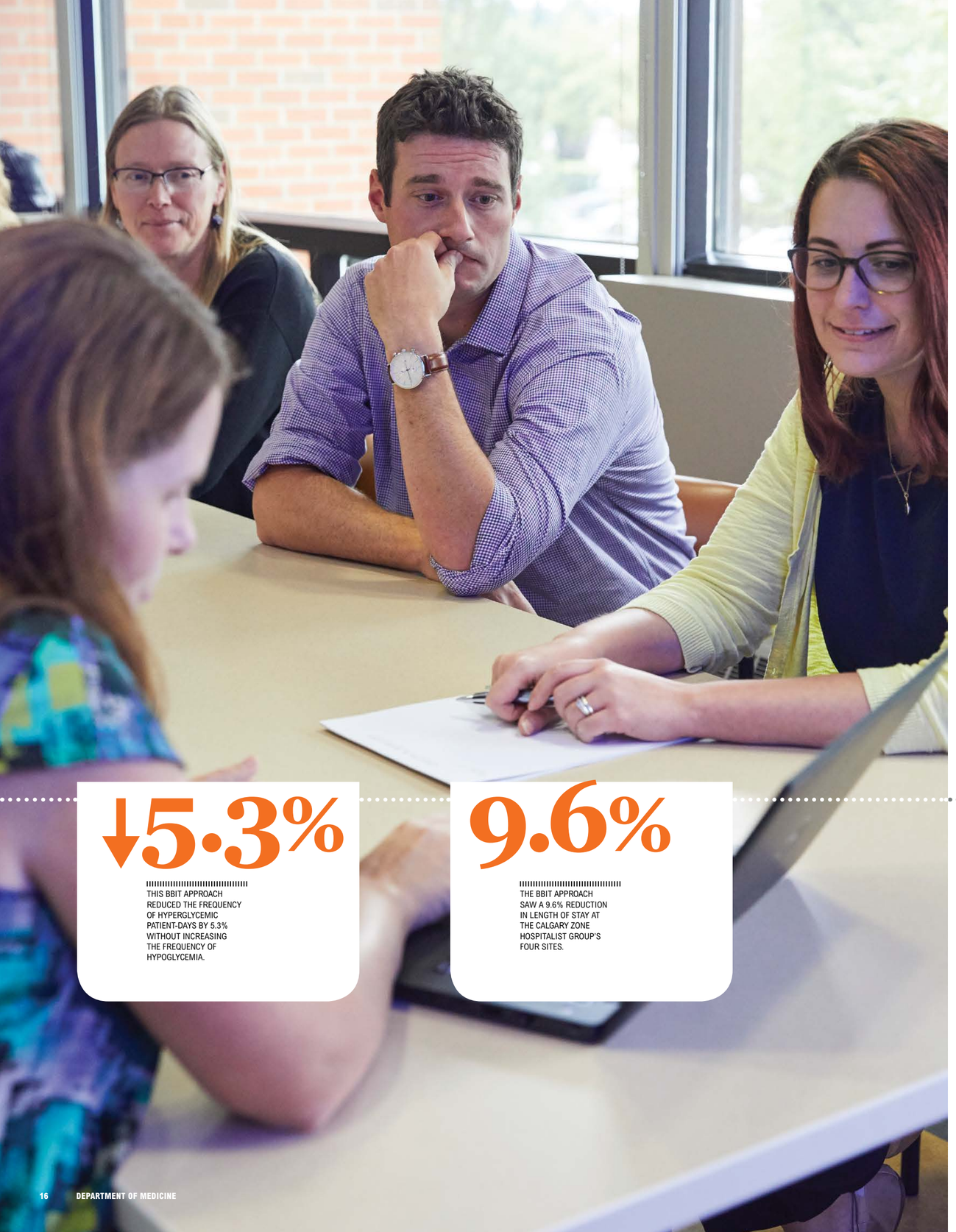
DON SCN LEADERSHIP

Petra O'Connell
Senior Provincial Director

Dr. Peter Sargious
Senior Medical Director

TEN EARLY ADOPTER SITES

- Chinook Regional Hospital
- Canmore General Hospital
- Oilfields General Hospital
- Calgary Urban Hospitalist Program at Foothills Medical Centre, Peter Lougheed Centre, Rockyview General Hospital, and South Health Campus
- University of Alberta Hospital
- Grey Nuns Community Hospital
- Queen Elizabeth II Hospital



PAGE 16
Dr. Karmon Helmle reviews data on the BBIT website with Core Team members Gabrielle Zimmerman, Edwin Rogers, and Leta Philp.

↓5.3%

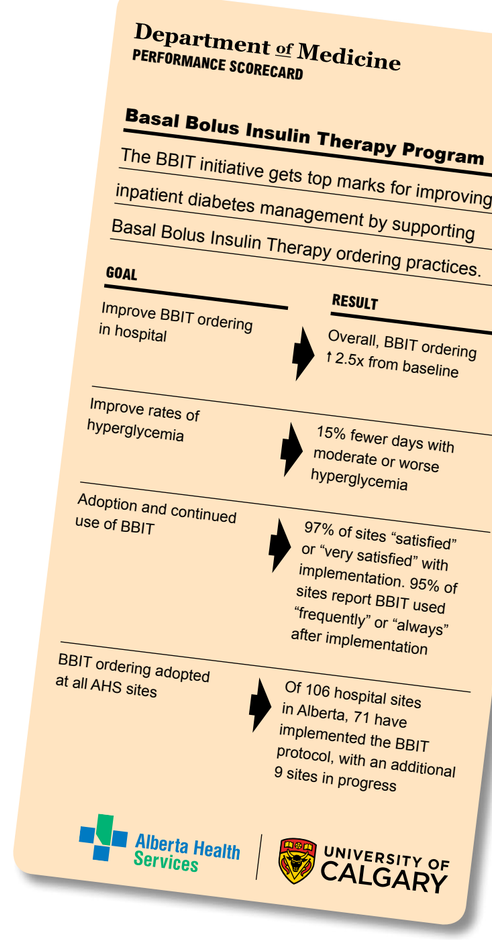
THIS BBIT APPROACH REDUCED THE FREQUENCY OF HYPERGLYCEMIC PATIENT-DAYS BY 5.3% WITHOUT INCREASING THE FREQUENCY OF HYPOGLYCEMIA.

9.6%

THE BBIT APPROACH SAW A 9.6% REDUCTION IN LENGTH OF STAY AT THE CALGARY ZONE HOSPITALIST GROUP'S FOUR SITES.

"This is a road map now. We've created a process of how to implement this complex practice change. BBIT site implementation guidelines have been created and are shared on our BBIT website."

Dr. Julie McKeen



BBIT IMPLEMENTED ACROSS ALBERTA

There are 106 acute care sites in Alberta. And most of them are either in the process of implementing BBIT order sets or have already done so. Well beyond Alberta's borders, other acute care sites are contacting the people who were involved in the project to gain insights to lend to their own BBIT implementation.

A website, www.BBIT.ca, containing all of the education and implementation guidelines has been developed to help other sites provincially, nationally, and internationally move to BBIT and improve their patient care. Anyone can access the "BBIT Site Implementation Guidelines" at BBIT.ca and tailor them to work in their own specific site.

A second website, www.KTToolkit.ca, guides users through the process of identifying cultural, awareness and capability, communication, system, resource, and patient-related barriers to BBIT implementation, and links to the evidence-informed tools targeted to each. All tools have been made publicly available.

As well as improving care for patients with diabetes in Alberta hospitals, the whole process of implementing a change in practice to BBIT may serve as a road map for other complex interventions in the province.

Dr. Michelle Grinman
Medical Lead, Complex Care Hub
Division of General Internal Medicine

COMPLEX CARE HUB BRINGS THE HOSPITAL HOME

Patients enjoy the benefits of home with hospital-quality care.

FOR 89 OF HER 90 YEARS, Olive Willey had never spent a night in hospital. Even after her visit to the emergency department at Rockyview General Hospital (RGH) last spring, she spent just one day in a hospital bed thanks to the new Complex Care Hub (CCH) program.

This innovative program is a "virtual inpatient unit that allows eligible patients to receive the same kind of care and treatment they would in hospital, but within the comfort of their own home." Says Dr. Michelle Grinman, a General Internal Medicine specialist at RGH and originator of CCH in the Calgary Zone.

It serves as a bridge between acute care sites and the community, she adds. Patients who come into the emergency department or who are admitted to inpatient wards at RGH or South Health Campus (SHC) requiring lower acuity care that would otherwise require hospitalization are admitted to the CCH program. These patients receive daily, sometimes twice daily, visits to manage their acute issues as they would under a conventional hospital admission. But unlike traditional inpatients, CCH patients aren't transferred to a unit in the hospital to recover – instead they sleep at home.

Patients who meet the program's criteria are given a choice – participate in CCH or stay as an inpatient at the hospital. Those who choose CCH are sent home where they receive daily care and monitoring from a team that is overseen by a General Internist/ Hospitalist, Clinical Assistant and Nurse Navigators. The team collaborates with the Mobile Integrated Health Service, also known as the Community Paramedics in the Calgary Zone who serve as the eyes and ears of the physicians in patients' homes. Rigorous safety protocols ensure patients have a direct line to their care team should questions or concerns arise while they're at home. Tests and lab work can be ordered with the same priority as inpatients. The CCH Nurse Navigators report to Transition Services and are able to access home care services, which enables them to leverage existing pathways for comprehensive geriatric assessments provided by the Geriatric Consult team, physiotherapy, occupational therapy and social work.

Dr. Grinman and her team have also fostered relationships with Primary Care in order to enhance transitions of care from CCH to the health home.

The Calgary West Primary Care Network (PCN) has hired two nurses to liaise with the CCH Nurse Navigators in order to expedite transition of patients back to the PCN and to support them in implementing their complex care plan.

PAGE 18
Top Left:
Dr. Michelle Grinman meets with the Complex Care Hub team at RGH.

Bottom Left:
Dr. Michelle Grinman and Kirsten Proceviat, Manager of Transition Services for Rockyview General Hospital (RGH) and South Health Campus (SHC).

Centre:
Barb Leteta, Nurse Navigator, and Dr. Azadeh Motehayerarani, Clinical Assistant – members of the Complex Care Hub (CCH) team – review a CCH patient's chart.

PAGE 19
Drs. Grinman and Motehayerarani see Benjamin Predella at the Rockyview General Hospital, a patient who is also participating in the Complex Care Hub program.

The East Family Care Centre has also partnered with CCH to re-roster patients that require home visits or intensive primary care services upon discharge from the program. This comprehensive team approach not only benefits patients by allowing them to recover within the comfort of their home, it also improves the healthcare system through more efficient use of resources.

"We know that hospital-at-home services have been shown to reduce visits to emergency departments and provide flexibility during crises or surge situations," says Dr. Grinman. "Older adults treated within this model are also less likely to have functional decline and need long-term care or assisted living one year later.

"Multiple systematic reviews and meta-analyses of Hospital at Home programs around the world have shown reduced morbidity and mortality when hospital-level care is delivered for the right population of patients," she says.

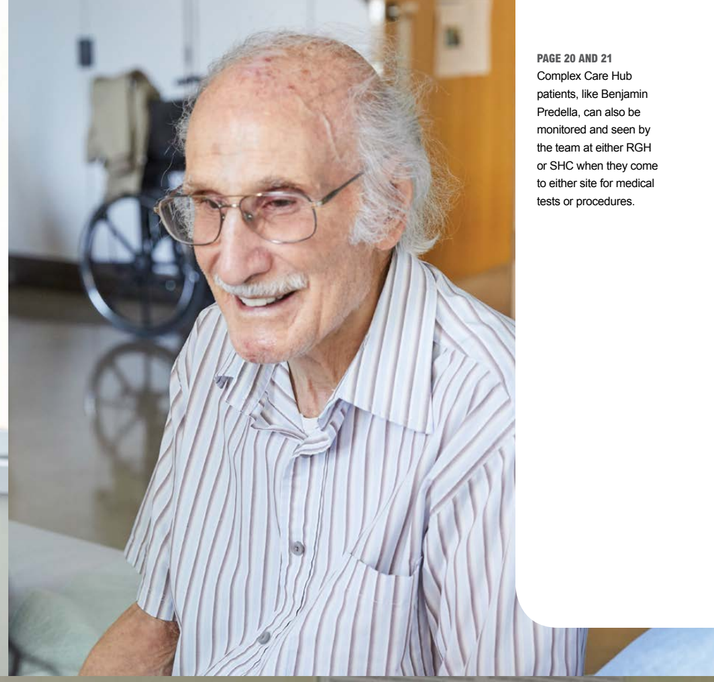
"When a senior comes to the hospital and receives meals in bed and isn't walking around, they're more likely to deteriorate quicker than patients being treated at home who remain active and independent."

For Willey and her family, the CCH means quality of life isn't sacrificed for quality of care.

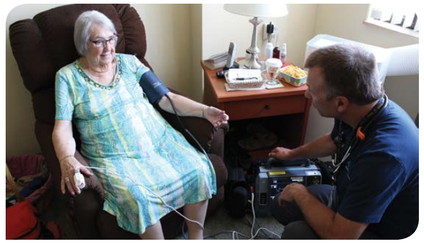
"You're in your own bed, you can go have coffee with friends – you're not stuck in a hospital bed the whole time," say Willey. "When the doctor gave me the option to stay in hospital or go home, it was an easy decision to make."

Daughter Dianne Arnott says she felt confident about her mom's choice: "There were no concerns for mom's care whatsoever. It was a logical choice, really. She wasn't sick enough to stay in hospital, but she's still getting the care she needs when she needs it, whether it's from her community paramedic or the doctor at Rockyview. The attention has been very fast and thorough. We're very impressed."

Winnie Smith, another patient in the program, also shared why she made the decision to receive hospital-level care at home through the Complex Care Hub. "Privacy. Like having somebody else next to you moaning and crooning and everything you know. I [would] rather be at home where I have peace and quiet," says Winnie.



PAGE 20 AND 21
Complex Care Hub patients, like Benjamin Predella, can also be monitored and seen by the team at either RGH or SHC when they come to either site for medical tests or procedures.



PRELIMINARY PROGRAM ANALYSIS

Preliminary economic analyses of the beginning of the program suggest that providing care for CCH patients may cost less than for inpatients matched by age, gender and diagnosis. Responses from both patients and staff to date have been very positive.

Data collected by CCH staff over a 17-month period show the program is a hit with patients:

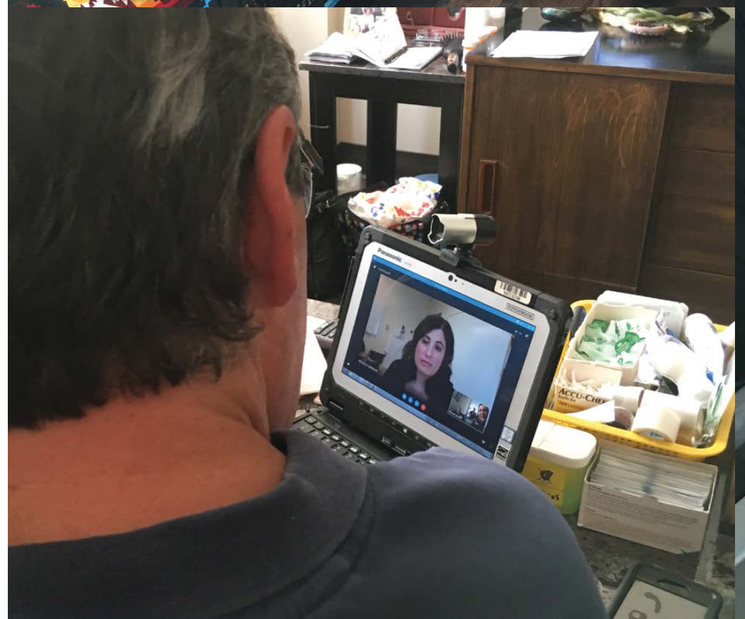
- On average, patients rated their overall experience of the care they received on the Complex Care Hub 9.5 out of 10
- 96% of patients reported that the care they received from the Complex Care Hub staff was good or excellent
- 84% of patients reported always or usually being involved as much as they wanted to be in decisions about their care and treatment
- 81% of patients reported that the Complex Care Hub helped them regain their function and independence quite a bit or completely

An anonymous CCH physician remarked, "After going through this program, I realized how much I never knew about my patients and that my care was never complete. I feel this program is wonderful and gives us an opportunity to help people in what they actually need."

While these are early positive signals, the team is embarking on a rigorous evaluation of the program as it is maturing.

"After going through this program, I realized how much I never knew about my patients and that my care was never complete. I feel this program is wonderful and gives us an opportunity to help people in what they actually need."

Anonymous Complex Care Hub physician



PAGES 22 AND 23
The Complex Care Hub allowed Olive Willey (page 22, top) and Winnie Smith (page 22, bottom; page 23) the opportunity to remain at home while receiving hospital-level care from a comprehensive team including physicians, nurses, and community paramedics like Lou Labrash.

"Privacy. Like having somebody else next to you moaning and crooning and everything you know. I [would] rather be at home where I have peace and quiet."

Winnie Smith, CCH patient

Department of Medicine
PERFORMANCE SCORECARD

Complex Care Hub Program

Data collected by Complex Care Hub staff over a 17-month period (Feb 2018 – July 2019) confirms the considerable success of the program to date:

PROGRAM MEASURES	RESULTS
QUALITY OF CARE Percentage of patients (n=66) who reported that the care they received from the Complex Care Hub staff was good or excellent	96%
REGAINING FUNCTION AND INDEPENDENCE Percentage of patients (n=68) who reported that Complex Care Hub had helped them regain their function and independence quite a bit or completely	81%
PATIENT INVOLVEMENT Percentage of patients (n=69) who reported always or usually being involved as much as they wanted to be in decisions about their care and treatment	84%
DAYS OF ACUTE CARE PROVIDED From Feb 2018 – July 2019, 141 patients received care through the Complex Care Hub, resulting in an estimated 1,593.3 days of acute care provided	1,593.3 Days

Alberta Health Services | UNIVERSITY OF CALGARY

Medical research and innovation are fundamental to the Department of Medicine, UCalgary, and AHS. Researchers acquire evidence and improve—or discover—treatments that help people here in Alberta and around the world.

CONTRIBUTORS

Dr. Andrew Daly

Dr. Kara Nerenberg

Liz Deneer

Sandra Burk (patient)

DIVISIONS INVOLVED

Hematology & Hematological Malignancies

General Internal Medicine

Every year, UCalgary and AHS support thousands of new and ongoing studies that use UCalgary and AHS facilities, patient data and systems. In fact, Alberta has a higher clinical trial enrolment rate than the national average.

In this chapter you will read about new clinical trials that are testing an innovative and exciting immunotherapy to treat some types of cancer. Chimeric Antigen Receptor T-Cell therapy is a type of "living drug" that is able to strengthen the patient's own immune system, pushing it to work harder and target certain blood cancers.

Women who have high blood pressure when they're pregnant often think their issues go away after their baby is born. But researchers have determined that they're likely to continue to have problems long after they've had their babies.

These mothers are at a higher risk for heart attack and even premature death. In this chapter you will read about an innovative research, new clinics and telephone health coaching program that is helping reduce women's long-term risk factors of having high blood pressure during pregnancy.

As members of the Department pursue their research and perform clinical trials, the Department, UCalgary and AHS work with them, helping these world-class researchers translate their discoveries from 'bench to bedside' and improve the health and lives of people who live in Alberta and around the world.

Dr. Andrew Daly
Division Head and Zone Clinical Section Chief for Hematology & Hematological Malignancies
Former Director of the Alberta Blood and Bone Marrow Transplant Program
Clinical Associate Professor, Cumming School of Medicine

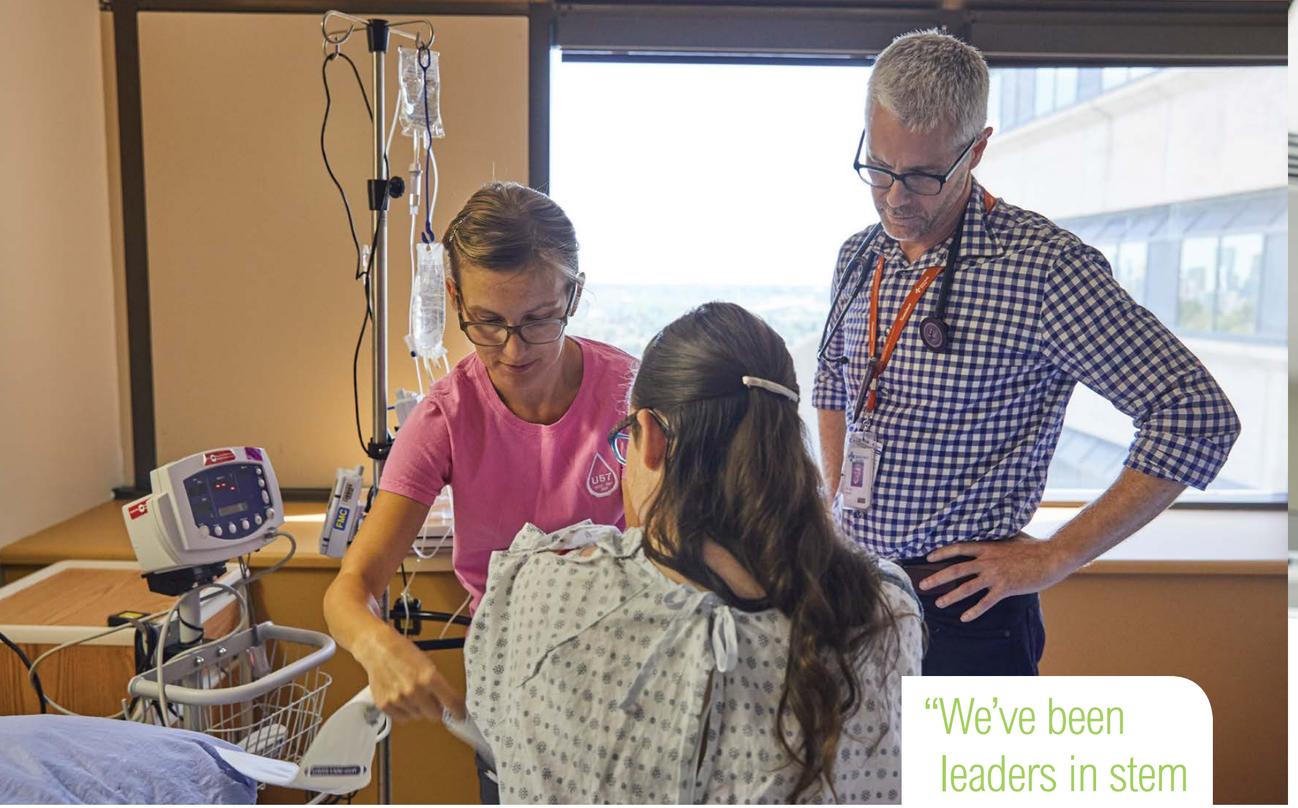
CHIMERIC ANTIGEN RECEPTOR T-CELL (CAR T-CELL) THERAPY

Clinical trials are underway in Calgary to use immunotherapy, a sort of "living drug," to target certain blood cancers.

AN EXCITING NEW cancer treatment, chimeric antigen receptor (CAR) T-cell therapy, is opening up a world of potential for treating certain forms of cancer and providing hope for people where, in many cases, there was little before. Essentially, CAR T-cell therapy strengthens the body's immune system and pushes it harder to fight cancer cells.

The type of genetic immunotherapy re-engineers a patient's own cells from their immune system, giving them instructions to attack cancer cells, and injects them back into the body. The process creates what is essentially a living drug—one that's individually customized for each patient.

The first CAR T-cells were developed in the 1980s but it has taken tremendous time and effort to make them work says Dr. Andrew Daly, Division Head and Zone Clinical Section Chief for Hematology and Hematological Malignancies in the Department of Medicine, former director of the Alberta Blood and Bone Marrow Transplant Program and Clinical Associate Professor with the Cumming School of Medicine and Arnie Charbonneau Cancer Institute at the University of Calgary.



PREVIOUS PAGE
Dr. Andrew Daly discusses CAR T-cells with a patient on the Hematology Unit at the Foothills Medical Centre. Dr. Daly and his team have started clinical trials that will help advance CAR T-cell therapy.

PAGE 26:
Jillian de Groot, a Registered Nurse on Unit 57 at the Foothills Hospital, begins to prepare a patient for an infusion of CAR T-cells, a process similar to a blood transfusion.

PAGE 27:
After the CAR T-cells are created and multiplied in Alberta Public Laboratory's Cellular Therapy Lab, they are cryopreserved in liquid nitrogen.

Clinical trials have been happening in various locations for the past few years. Now, Daly and his team have started clinical trials that will help advance CAR T-cell therapy and provide renewed hope and improve the lives of Albertans. "There are two established indications for CAR T-cells right now," he says. "One is relapsed, or refractory, acute lymphoblastic leukemia, or ALL. That's the childhood type of leukemia, and then the indication in adults is relapsed or refractory aggressive non-Hodgkin lymphoma."

Daly and his colleagues at Alberta Children's Hospital have begun clinical trials treating children who have ALL and he hopes to treat adults with non-Hodgkin lymphoma on similar trials. "My estimate is thirty or forty patients per year would have a disease that is eligible for CAR T-cells. Not every patient is going to be well enough to get them," he says.

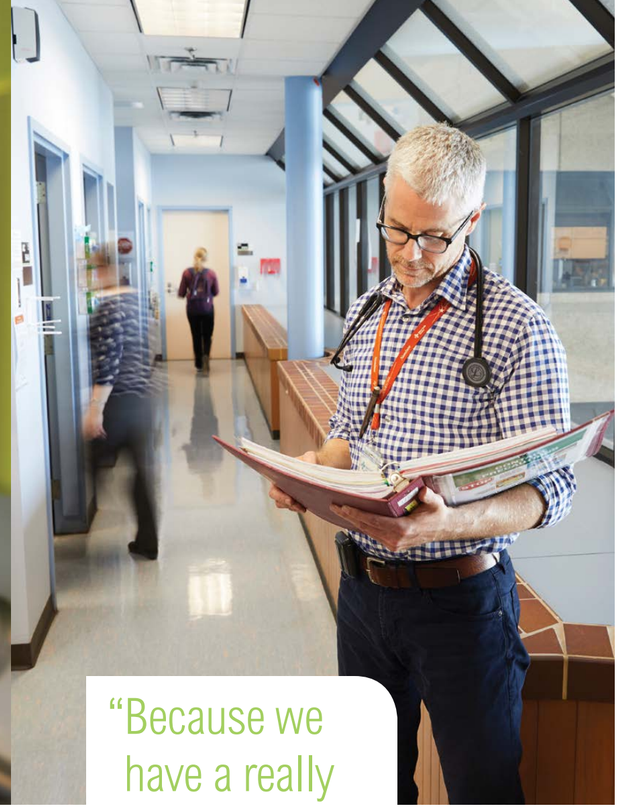
Daly specializes in the transplantation of hematopoietic stem cells – bone marrow cells that have the remarkable ability to develop into white blood cells, red blood cells or platelets. "We have an improved understanding of how to engineer cells plus an improved understanding of how the immune system works," he says. "Those are two very powerful tools that are coming together and leading to better treatments for patients."

Daly is a recognized leader in stem cell therapy and transplantation. He made headlines in May 2019 after performing a stem cell transplant for Revée Agyepong. She was the first adult in Alberta whose sickle cell anemia was cured with this treatment, freeing her from the debilitating disease that caused excruciating pain and was slowing killing her major organs. This success was the latest to reinforce Alberta's leadership in stem cell research and cancer treatment. Now, Daly is applying the expertise to CAR T-cell research, making advancements that will open the doors to more "firsts" in Alberta health care.

PUSHING THE BOUNDARIES OF MEDICAL SCIENCE

In addition to trials in leukemia and lymphoma, Daly is collaborating on a clinical trial in a different blood cancer, multiple myeloma. "In multiple myeloma, the CAR T-cell actually targets something different compared to what's being targeted in the other two diseases that are treated." His colleague Dr. Nizar Bahlis, Clinical Associate Professor with the Cumming School of Medicine and member of the Division of Hematology & Hematological Malignancies, is principal investigator of the multiple myeloma project.

> "We've been leaders in stem cell transplants for years, and so this is a new opportunity to look at a different type of transplant product."
>
> *Dr. Andrew Daly*



“Making CAR T-cells work clinically took a lot of work. They’ve been doing clinical trials with CAR T-cells for the last five or six years.”

Dr. Andrew Daly

Daly and his team are also looking to take part in another study that involves manufacturing CAR T-cells “in house”. Due to the complexity of the CAR T-cell manufacturing process, most of these products are manufactured by the pharmaceutical industry, which adds to the cost of treating patients. Daly’s team has joined forces with researchers at the University of Alberta and the University of Ottawa in order to develop the expertise necessary to manufacture CAR T-cells in Alberta Public Laboratory’s Cellular Therapy Lab, located in Calgary. The Calgary team was approached to take part because of the existing equipment and expertise made possible by the strength of the research partnership of Alberta Health Services, Alberta Public Laboratories, Cumming School of Medicine and the University of Calgary.

Alberta’s international reputation as a leader in cancer clinical trials makes this province a logical place for this sort of cutting edge research. “We have a fairly small population and we’re really spread out,” he says. “But what we’ve done is we’ve really gotten out there, sold ourselves, developed the infrastructure, developed the standard operating procedures, and because we have a really good name in cancer clinical trials in general, people are starting to look at us now as a place to do CAR T-cell studies.”

Daly is excited to think of a day when CAR T-cell therapy may even be applied to cancers in which the immune system doesn’t play such a central role, such as cancer of the colon or kidney. He points out that while these are challenging to treat with immunotherapy, “people are trying to develop CAR T-cells that actually function in those environments, and when that happens this field will explode.”

THE CHALLENGES

While the potential for living drug therapy is very exciting, CAR T-cells have an unfortunate element in common with other cancer treatments: it can make patients extremely ill. Daly says some patients may even turn away the treatment. “Not every patient is going to want to receive them because of the toxicity and because of the unpredictable journey,” he says.

“Some people may look at the prospect of a two week hospitalization, being away from home, possibly ending up with really serious toxicity and say, ‘You know, that’s not for me.’”

That’s because roughly one-third of those who receive CAR T-cells require hospitalization in intensive care for a week or more. Because of this consideration, Daly estimates their capacity will be 26 to 30 patients per year to begin with. “We’re planning to keep people in hospital for about two weeks, and in order to be respectful of the other areas of the hospital, and the other resources in the hospital, we’re going to start off by treating one patient every two weeks,” he says. “So we will try not to have more than one patient getting CAR T-cells in the hospital at any one time.”

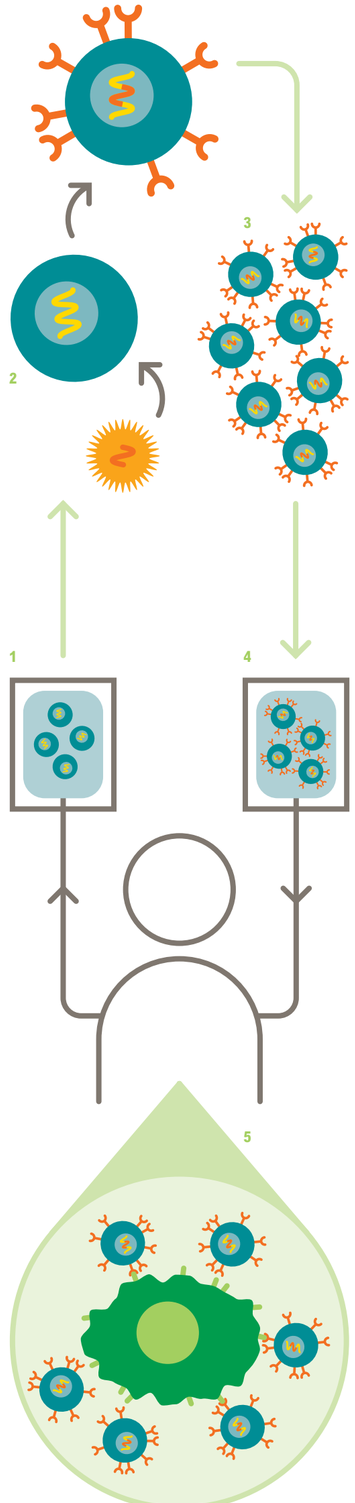
Over the years, Daly and other researchers have made tremendous progress exploring the intricacy and complexity of the human body to understand how CAR T-cell therapies can work and they are continuing to push the boundaries and learn new knowledge that will save lives.

“Because we have a really good name in cancer clinical trials in general, people are starting to look at us now as a place to do CAR T-cell studies as well.”

Dr. Andrew Daly

PAGE 28
Once the patient’s T-cells have been collected, the chimeric antigen receptor (CAR) is loaded onto the surface of the T-cells, creating the CAR T-cells, on this machine in the Alberta Public Laboratory’s Cellular Therapy Lab at the Foothills Medical Centre.

PAGE 29
Dr. Andrew Daly on Hematology Unit 57 at the Foothills Medical Centre.



CAR T-CELL THERAPY: HOW IT WORKS

Chimeric antigen receptor (CAR) T-cell therapy is a new, individualized cancer treatment that boosts the patient’s own immune system to fight cancer cells. Here’s how it works:

STEP 1
Collect the patient’s T-cells from their immune system.

STEP 2
Load the chimeric antigen receptor (CAR) onto the surface of the T-cells creating CAR T-cells with instructions to look for certain cancer cells.

STEP 3
Multiply the CAR T-cells in the lab.

STEP 4
Give the patient chemotherapy to reduce the number of cancer cells in their body.

Put millions of CAR T-cells into the patient’s blood stream.

The CAR T-cells will continue to multiply in the blood stream.

STEP 5
The CAR T-cells look for and set out to destroy cancer cells that have a specific antigen.

After receiving CAR T-cell therapy, patients stay in the hospital and are monitored and treated for any side effects.

CAR T-cells may stay active in the body and prevent the cancer from returning.

Dr. Kara Nerenberg
Associate Professor,
Division of General Internal Medicine
Cumming School of Medicine

PROGRAM TO IMPROVE THE HEART AND BRAIN HEALTH OF POST-PARTUM CANADIAN WOMEN

Research, new clinics and a telephone health coaching program for new moms are helping to reduce women's long-term risk factors of having high blood pressure during pregnancy.

UP TO ONE IN 10 Canadian women will experience a high blood pressure disorder in pregnancy (HDP), making them two to five times more likely to have a heart attack or stroke before the age of 40 and die before they reach 60. Even more troubling is that roughly half of Canadian physicians are not aware of this risk, so they aren't able to inform their patients.

Dr. Kara Nerenberg is determined to give young women the tools they need to take charge of their health through the new clinic IMPROVE (Identifying Methods for Postpartum Reduction Of Vascular Events). She focuses on finding the best ways to prevent heart attacks and strokes in young women who were diagnosed with high blood pressure in pregnancy—roughly seven per cent of all pregnancies in Alberta. For example, preeclampsia, a condition which includes high blood pressure, disappears shortly after a woman delivers her baby. But new research shows that the blood vessel damage that occurred during pregnancy, causing stiffening can lead to accelerated atherosclerosis—hardening of the arteries.

"Women in Canada are starting to have heart attacks and stroke even in their 30s and they're dying in their 50s," says Nerenberg. "So we can't wait until they're 40 to 50 to start treatments. We have to start in their 30s."

She received funding through Heart and Stroke and CIHR as one of the recipients of the Women's Heart and Brain Health Chairs awards, a program designed to generate new knowledge that improves awareness, prevention and understanding of how biology and socio-cultural factors affect women's heart and brain health. The funding also allowed Nerenberg to bring together 17 other post-partum clinics from across the country and form a national network that's developing best practices for managing women's cardiovascular health after pregnancy.

"Specialized follow-up clinics for women after pregnancy across Canada have started working together to share clinic information so we can find out if specialty clinics work better than usual care clinics at finding and treating the heart and stroke risk factors," says Nerenberg. "These specialists will also help us develop and test tools to help doctors take better care of their patients. If these tools work, we can test these tools in different clinics across Alberta as another starting point."

Nerenberg is leading the very first study to examine where, when and why women visit their doctors after pregnancy. This involves accessing health databases that already collect information on women in Alberta and indicate how many women have their cholesterol and diabetes blood tests and the results.

> "Women in Canada are starting to have heart attacks and stroke even in their 30s and they're dying in their 50s. We can't wait until they're 40 to 50 to start treatments."
>
> *Dr. Kara Nerenberg*

This information will provide vital insight into the best ways to reach women after they've had their babies. It begins with improving clinic attendance.

Nerenberg's research indicates 25 per cent of new moms don't show up for their first post-partum visit and that grows to 50 per cent for later follow-up visits. "There's quite a big gap for these women in terms of follow-up because it falls between the fields of obstetrics, primary care and internal medicine," says Nerenberg. "To bridge that gap we've done a couple things here in Calgary such as starting a clinic called PreVASC, a post-partum cardiovascular risk reduction clinic, as well as our IMPROVE post-partum clinic."

But these clinics can't help if women aren't showing up for their appointments. New moms can face a number of challenges to get to the clinic—caring for a little child can make it difficult to travel to a medical appointment and they may not have the money to pay for child care or the additional expenses associated with travelling such as fuel and parking.

After conducting surveys of new moms, it made sense to create a program that would bring help to them.

PAGE 30
Dr. Kara Nerenberg, who received funding from the Heart and Stroke Foundation and CIHR as one of the recipients of the Mid-Career Women's Heart and Brain Health Chair awards, leads the IMPROVE program.

PAGE 31
Calgary mom Sandra Burke was referred to the IMPROVE clinic in June, 2018.

"We piloted a health coaching program where we have coaches who help women stay on track with their lifestyle to prevent developing high blood pressure, diabetes, heart attacks and stroke," says Nerenberg.

Becoming a new mother is often overwhelming and it can be difficult for women to find the time and energy to exercise and prepare healthy meals. The IMPROVE coaches work with the participants in the areas of weight management, nutrition, stress reduction and mental health. Coaches touch base with the new moms over the phone about 18 times over the course of a year.

"The only time we need to see them in person is at their check-ins every six months for blood work," says one of the IMPROVE coaches, Liz Deneer. "Depending on what their blood work shows, some of them need more exercise, some of them need to lose weight, some of them need better stress management. I work with them to see which areas they want to improve."

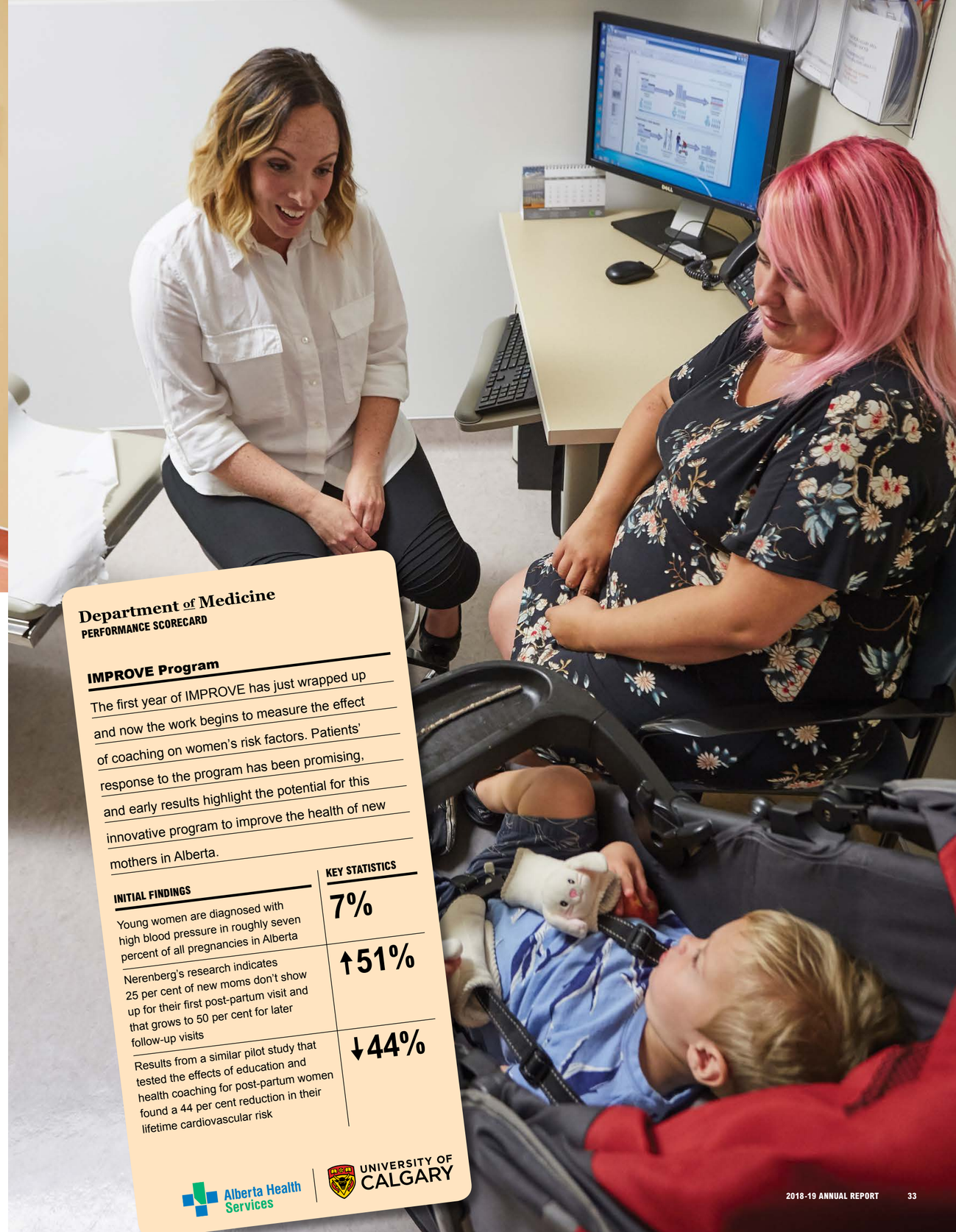
The process begins with a phone call to check-in every week. Deneer's first few phone calls with a new mom could last up to 45 minutes as they work together to set the mom's goals and discuss how to introduce basic but significant changes into their lives. "At that point we're trying to set the stage for why the health change needs to happen, like what mom's risk factors are," she says. "Then we try to get a feel for what her goals might be. It's also about tinkering with the plan, because at that point we don't know what's going to work and what's not going to work."

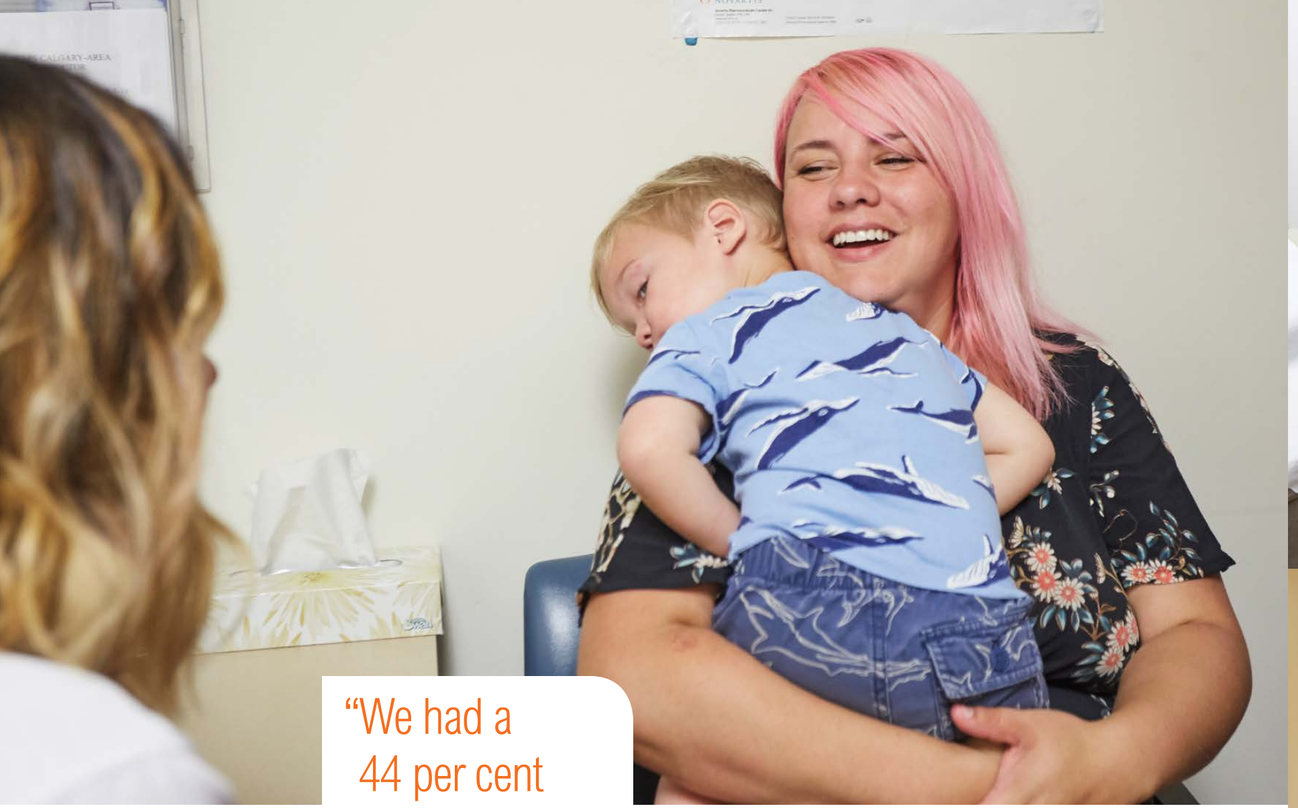
She likes to "set new moms up for success" by starting with small goals and building from there. They talk about small lifestyle changes, such as drinking water instead of pop or sweet coffees with meals and getting outside for brisk walks with their babies a few times a week. "We try to make the goals really concrete," says Deneer. "So instead of saying 'I'm going to go for a walk a few times a week,' the goal will be to walk Monday, Wednesday and Friday for half an hour each time or walking two and a half kilometres at 10 in the morning, whatever the case may be. The goal is really concrete and easy to follow."

During the phone calls, they also talk a lot about general life skills and healthy choices. "Some people don't understand how foods like veggies and fibre can impact their overall health," says Deneer. "So I give them some information about healthy eating—some of it they already know—and my goal is just to help them put a plan in place."

> "They can be at home with their babies and they're happy to chat over the phone and just work through some of the areas that they're hoping to improve."
>
> *Liz Deneer*
> *IMPROVE coach*

PAGE 32 AND 33
Health Coach Liz Deneer and Dr. Nerenberg see new mom Sandra Burke and her son Ravi for a final visit at the IMPROVE clinic.





PAGE 34 AND 35
Left:
Sandra Burk, holding her son Ravi, updates Liz on the progress she's made towards her goals. Sandra graduated from the coaching program in August, 2019, when her son was almost two years old.

Top Right:
Health coach Liz Deener says it makes a big difference for new moms to have regular conversations with someone who understands.

Bottom Right:
Sandra notes that the program has helped her make her family's diet healthier. "Without the program I wouldn't have as many good [healthy eating] tips. I eat a lot more vegetables now. I have a lot more creative solutions for how to get vegetables into my boy too."

"We had a 44 per cent reduction in their lifetime cardiovascular risk, which is really impressive. It's more than any drug or any other study has shown, so we have to really see if that's real."

Dr. Kara Nerenberg

As coaching progresses, phone calls become shorter and less frequent because they become more about just touching base and maintenance of their plans. Women generally have their plans in place and coaches are there to ensure everything stays on track. "It's about checking in to make sure it's still working as life changes, maybe as mom goes back to work or baby's nap schedule changes, whatever the case may be," Deneer says. "It seems to be working well. They can be at home with their babies and they're happy to chat over the phone and just work through some of the areas that they're hoping to improve."

The first year of IMPROVE has just wrapped up and now the work begins to measure the effect of coaching on women's risk factors. Nerenberg says the response to the program is promising. "So far women are really liking the program and we're seeing good reports of them being interested, signing up and participating," she says. "Our patients are very appreciative. Even when we offer a health coaching program to a woman who's had weight management struggles her whole life, we often get a lot of emotion and a lot of tears. They're very thankful that someone is helping them with little things that make a big difference to them."

Nerenberg was part of a previous research team for a similar pilot study at the University of Ottawa that tested the effects of education and health coaching for post-partum women. The results were astounding: "What we found from our pilot study in Ottawa was that we had a 44 per cent reduction in their lifetime cardiovascular risk, which is really impressive. It's more than any drug or any other study has shown, so we have to really see if that's real." To further evaluate the effect of coaching, Nerenberg will oversee a randomized control trial in the coming months in which half the women will receive coaching and half will not.

As for Deneer, she says it makes a big difference for new moms to have regular conversations with someone who understands. "A lot of them are so excited to call and say I made it and I did this all week long and I feel great. I feel healthier and I feel proud of what I did, and they just want to have someone to report that to."

A Q+A WITH NEW MOM SANDRA BURK

Calgary mom Sandra Burke, 31, had her son Ravi in October 2017 and was referred to the IMPROVE clinic in June, 2018. She graduated from the coaching program in August, 2019, when her son was almost two years old.

HOW DID THE IMPROVE CLINIC HELP YOU?

Oh man. It's actually so helpful. It makes you accountable. You work to set goals, self-determined goals. That is really important and you want to meet them the best you can. After I started a program I fell and hurt my wrist. I messed up my wrist pretty badly and so we modified what we were doing.

YOU HAD TO CHANGE YOUR GOALS?

Yes, and they were really accommodating of that and really encouraging me to get back it when I was feeling better.

NOW THAT YOU'VE GRADUATED, HOW WOULD YOU SAY THE PROGRAM HAS MADE A DIFFERENCE IN YOUR LIFE?

I would say specifically diet wise. I add in a lot more vegetables to our meals. We talked a lot about trying to do meals that were healthy, not just for me but for my son as well. Without the program I wouldn't have as many good tips. I eat a lot more vegetables now. I have a lot more creative solutions for how to get vegetables into my boy too.

The program looks at the whole body. I started to take care of my mental health. I got help with mental health as well as learning how to fit in exercise with a baby or toddler. It's the whole body. It's everything. There is great support. As well as being accountable, if I needed anything I was able to contact my coach and get other referrals. There are lots of community programs I got linked up with, so that's also a really good aspect of the program.

Scores of passionate, driven and curious physicians in the Department of Medicine work within AHS and UCalgary to provide excellent patient care and improve the quality of life for thousands of Albertans.

CONTRIBUTORS

Dr. Habib Kurwa

Harold Lemieux (patient)

Dr. Jane Lemaire

DIVISION INVOLVEMENT

Dermatology

General Internal Medicine

Some of those Albertans are the doctors themselves. In this chapter we bring you the story of a doctor that's championed recognition of the importance of physician wellness. That's when doctors are not just "surviving" but rather, they are "thriving" and able to work at their very best and subsequently be able to deliver the very best patient care. You will also read about the impetus behind Well Doc Alberta, a comprehensive program that's aiming to improve physician wellness.

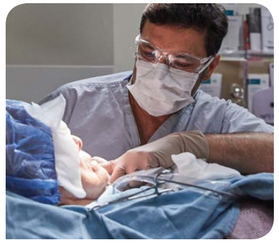
In this chapter, we also bring you a profile of a clinician who is one of only a handful in the country with the expertise to perform Mohs micrographic surgery. The technique is highly effective in treating a few different types of skin cancer but it requires a surgeon with a number of other highly specialized medical skills. We also hear from one of the doctor's many grateful patients in Calgary.

Dr. Habib A. Kurwa, MD, MB BCH., FRCP (UK), FACMS
Clinical Professor and Director
of Dermatologic Surgery,
Department of Medicine, Dermatology

MOHS MICRO-GRAPHIC SURGERY

Mohs micrographic surgery, an effective technique that combines a number of highly specialized medical skills, is being used to treat more patients with skin cancer.

DR. HABIB KURWA is a Clinical Professor in the Department of Medicine who specializes in dermatologic surgery, skin cancer, procedural dermatology and Mohs micrographic surgery. He trained in the UK in dermatology, had a fellowship position in London, and completed an American College of Mohs surgery fellowship in San Francisco. He was lead for dermatologic surgery at St. Thomas' Hospital in the UK, before moving to Calgary in 2008 and helping set up a residency program in dermatology. Kurwa and his colleagues have published extensively about Mohs, including examining quality assurance, technique improvements and how to manage unusual and difficult cases of skin cancer.



WHAT IS MOHS MICROGRAPHIC SURGERY?

It's a more precise way of removing skin cancer.

We are used to removing skin cancers with what we call predetermined margins. You say 'This is the edge of what I see as abnormal. I am going to remove this with a margin of five millimeters, four millimeters depending what the diagnosis is.' You can't see under the skin, but you look at the peripheral margin. Then you have a substantial chance of removing it—usually a 90 per cent chance. You repair the wound without knowing if you have cleared the tumour until you get the pathologist report on the tissue.

The tissue is cut like a bread loaf and the pathologist looks at certain sections to see if there's been full removal of the tumor. They're not looking at the whole interface of the tumor. They're looking at snapshots.

With Mohs surgery, you're taking less of a margin, usually it's a couple of millimeters, but you're not cutting the tissue like a bread loaf. You incise the skin at an angle so the shape of the tissue is more like a bowl shape. It can be flattened so that the outer edge can be placed on the same plane on the slide.

You examine it more entirely to see if it's clear. You can look at the periphery, meaning the deep margin and the lateral margin and carefully examine the tissue under the microscope. And when you can do it the same day, you can identify more carefully if and where you need to take more tissue. Then you check it again. And once it's clear, you can repair the wound knowing you have clear margins.

WHY ISN'T MOHS USED FOR ALL SKIN CANCER?

Not all skin cancers are suitable or appropriate to treat in this intensive way. You need both a surgeon and a technician to prepare the tissue, and you've got to look at the tissue and all those steps take time. Plus in some sites on the body, like the limbs and usually the chest and back, you can take more skin and remove a tumor effectively. But if it's on the face, if it's on an area close to an eye or on the nose, or in an area we call an embryonal fusion plane (there are different planes that come together as we develop) it's more likely the tumor will be more irregular in its outline.

HOW LONG HAVE SURGEONS BEEN USING THIS TECHNIQUE?

It was first described by Fred Mohs in 1938. In the 70s a frozen technique was developed and that sped up the process so that tissues could be examined under a microscope in a day. Over the decades the techniques have improved, but it has still stayed with the same principle.

WHAT KIND OF TRAINING DO SURGEONS NEED FOR MOHS?

It takes a lot of training because the difference in the surgical approach is both in the way the tissue is removed and the way it is processed so that it can be read very quickly. You also need the skills of a dermatologist to be able to recognize the tumors that are suitable. Some specialist training in Mohs surgery is done as a fellowship after you finish your dermatology training. You need to see a good volume of cases and also learn how to read the tissue. The way the tissue is prepared with frozen sections means you are looking at the slides in a slightly different way than conventional histology. It's not that bread loaf, you can see the whole interface of the tumor. You need to learn how to recognize normal and abnormal, recognize different tumor types. And then of course once you've removed the cancer, you reconstruct the area and if it's on the face, you need the skills in reconstruction that are going to minimize the morbidity for the patient.

During the residency program, we teach about the management of skin cancer as a whole and not just Mohs, but Mohs is part of the range of skills that are needed to identify and manage skin cancer. It's important to know the different treatment options so that you're not treating every disease as a nail because you have a hammer to hit it with.

> "It's important to know the different treatment options so that you're not treating every disease as a nail because you have a hammer to hit it with."
>
> *Dr. Habib Kurwa*

PREVIOUS PAGE
Dr. Kurwa performs a reconstructive wound repair on Mohs surgery patient Elizabeth Watt.

PAGES 38 AND 39
During a Mohs surgery, the dermatologic surgeon removes a section of skin cancer tissue (top left). After the tissue is removed, the outer edges are dyed. The tissue is then frozen and thin sections are cut and loaded onto microscopic slides (bottom left, top right). The surgeon then examines the tissues under a microscope (bottom right). This procedure is then repeated until the surgeon has confirmed that the margins are clear and the entire tumour has been removed.

A PATIENT'S STORY

After two previous attempts to get rid of the skin cancer on his face, Harold Lemieux was treated with Mohs surgery on his right cheek in June, 2019.

The cancer on Harold Lemieux's face was more severe than expected. "It turned out to be an all-day event," he says. "They started at 9:00 and finished at 9:30 at night." Dr. Habib Kurwa, a resident and team of nurses removed tissue from his right cheek four times over 12 and a half hours.

Lemieux was awake for each stage of the procedure, his cheek frozen with a local anesthetic. "They did a shot inside the mouth just like a dentist would do to freeze the main nerve and then they do little shots all around where they're doing the surgery," he says. "As the day went on he gave me a second shot because he knew it would be wearing off."

In between the surgeries, Lemieux was moved to a waiting area with his wife while the tissue from his cheek was analyzed in the lab. As the afternoon wore on, he was moved to a quiet room so he could nap for a few hours. "They realized it was going to be longer and it was starting to get a little bit much on me," he says.

By the end of the very long day Dr. Kurwa and his team had removed most of Lemieux's cheek and have reconstructed the wound with other facial skin.

The patient was sent home with pressure bandages over the right side of his face, including his eye, and instructions to call the nurse with any concerns. Home care nurses changed the bandages for the next several days and Lemieux came in to see Kurwa every week for several weeks to "make sure it was coming along fine." It was.

"I couldn't have received better care, that's for sure," he says. Lemieux had had two earlier non-Mohs surgeries to try to treat the skin cancer on his face before he came to see Kurwa for Mohs surgery.

> **"He's a very nice man but if I never see him again that would be fine."**
>
> ***Harold Lemieux***

He's confident this time the cancer has been removed and he won't have to head back to see Kurwa in the operating room. "He's a marvelous person and very calm. He explains things," says Lemieux. "He's a very nice man but if I never see him again that would be fine."

Dr. Jane Lemaire
Clinical Professor, Division of General Internal Medicine
Vice Chair, Physician Wellness & Vitality

THE IMPORTANCE OF PHYSICIAN WELLNESS

The new science of physician wellness is focused on gaining a deeper understanding of what causes physician unwellness, and what individual and system-level changes can be made to support physicians so they can thrive in their work and deliver excellent patient care.

DR. JANE LEMAIRE is a champion of physician wellness; she and her research colleagues have passionately advocated for recognition of physician wellness as a quality indicator of healthcare systems, and a shared responsibility for physician wellness that lies within individual physicians, the medical profession, and healthcare systems.

Dr. Lemaire is also the Director of Wellness at the Office of Professionalism, Equity, and Diversity, as well as the Wellness Lead at the W21C Research and Innovation Centre at the Cumming School of Medicine, University of Calgary, and the Physician Lead for the Well Doc Alberta initiative.

PHYSICIAN ADVOCATE
Established Well Doc Alberta, a pan provincial initiative

DEPARTMENT CHAMPION
Received $1.6 million over 3 years for Well Doc Alberta

PROGRESSIVE THINKING
First official physician wellness appointment in Canada

CUTTING COSTS
A study found that physician burnout costs $7600 per doctor per year

DRIVING CHANGE
70-80% of factors that drive burnout are at the system level

WHAT IS PHYSICIAN WELLNESS, AND WHY IS IT IMPORTANT TO THE MEDICAL PROFESSION?

That's a really good question. There's no actual formal definition of what physician wellness means, although burnout was recently formally recognized by the World Health Organization as a work-related syndrome in the ICD-11. Physician wellness isn't about not having any stress and challenges at work, or your profession not being hard, or only working when you feel like it. Sadly, there's a bit of misguided thinking that physician wellness means that your job should be perfect and that you should be well remunerated, but that you shouldn't have to do any of the tough stuff during times when you don't want to do it. That's not physician wellness; that's not what we're targeting.

A common definition that several of my colleagues and I use is: physician wellness is when you're not just surviving in your work, but you're thriving in your work, so that you can be at your very best and deliver excellent patient care. Because that's really what our work is as physicians. If you're in a good place and you're healthy, you're going to be better at your work.

Physician wellness is important to the medical profession because there's really good science that supports that it not only affects us as individuals, but it also affects the care we deliver to patients, and the health systems that we work in. On a personal level, physicians tend to have more substance use disorders, more relationship difficulties, more maladaptive coping strategies, more suicidal ideation, and more untreated mental health issues leading to suicide. Physicians have very high suicide rates – the highest of any profession.

Many studies show that physicians who are unwell, for example, spend less time with patients and don't have good conversations with them. Patients feel distrustful of physicians who are unwell, or who they sense are unwell. Unwell physicians order more unnecessary tests. They might prescribe medications that patients don't need, or prescribe them at the wrong dose. They are less productive and report that they make more errors. There is science to support that, if we're unwell, we make mistakes and we do a poor job.

Looking at the impact on the health systems that we work in, physicians who are unwell cost the system. A landmark article published in the Annals of Internal Medicine in June 2019 used an economic model to estimate the attributable financial costs of burnout, which is one aspect of physician unwellness.

> "Physician wellness is when you're not just surviving in your work, but you're thriving in your work, so that you can be at your very best and deliver excellent patient care."
>
> *Well Doc Alberta team*

PAGE 40 AND 41
Left:
Dr. Jane Lemaire and the Well Doc Alberta team meet regularly to review the progress of this new provincial initiative. The Well Doc Alberta team consists of Dr. Jane Lemaire, Alicia Polachek, Dr. Nishan Sharma, Garielle Brown, Alissa Kazakoff, and Julia MacGregor.

Right:
Dr. Lemaire and Alicia Polachek, Program Manager for Well Doc Alberta, practice physician wellness by taking a short walking coffee break outside in the sunshine.

The authors estimated that physician burnout costs the US health care system approximately $4.6 billion, or about $7,600 per physician, per year, every year. These costs are related to early physician retirement, physician replacement, and low productivity. This is a US study, but if we extrapolate these figures to the Department of Medicine, physician burnout may cost us in the range of $2.8 million per year.

WHEN DID YOU BECOME INTERESTED IN PHYSICIAN WELLNESS, AND HOW DID YOU GET INTO THIS FIELD?

In 2004, Dr. John Conly, the Department Head of Internal Medicine, gave me the formal appointment of Vice Chair of Physician Wellness & Vitality for the Department of Medicine. At the time, physician wellness was being talked about a little bit, but nothing like what it's evolved to now. When I was first appointed, we were the only Department of Medicine in Canada that had a formal physician wellness appointment and portfolio. So it was really progressive. And I want to acknowledge that both subsequent Department Heads, Drs. Subrata Gosh and Richard Leigh, have continued to support physician wellness at the system level through this portfolio.

Thinking back, it's so funny because one of my colleagues said, "You know, you've always kind of did the wellness thing anyways. You would take a half day off sometimes to take your kid to the park, and we'd say, 'Why did she do that? She's supposed to be working'. And you'd tell us, 'Well, I just need to get my head back on straight so that I can come back and be more productive'." Some of the former internal medicine residents I worked with told me that, even before I started focusing on this field, I would ask them, "Did you eat? Did you pee? Did you sleep?" I thought I was just being motherly, but physician wellness must have been in my thoughts even then.

To be able to sustain yourself in a profession like this is really challenging. And then to be an Academic physician just ups the ante. And to be in internal medicine in a hospital-based specialty, like General Internal Medicine where we do service on the Medical Teaching Unit (MTU), ups the ante even more. You just can't function unless you put some boundaries around what you do and find ways to restore yourself. It's a marathon, not a sprint. We feel like we're sprinting all of the time, but if you don't take time to step back and restore yourself, you'll be physically unwell and emotionally unwell and unable to deal with the stresses and challenges of the job. And instead of something healthy like going for a run, you might turn to maladaptive coping strategies like drinking more, and then you can see the slippery slope.

"Physician wellness is important to the medical profession because there's really good science that supports that it not only affects us as individuals, but it also affects the care we deliver to patients, and the health systems that we work in."

Dr. Jane Lemaire

HOW HAVE YOU SEEN THE PERCEPTION OF PHYSICIAN WELLNESS CHANGE SINCE YOU STARTED DOING YOUR INCREDIBLE WORK FIFTEEN YEARS AGO?

That's a really important question if you want to talk about the evolution of physician wellness as a science, because everything we do is about gaining more knowledge and having a deeper understanding and then things grow.

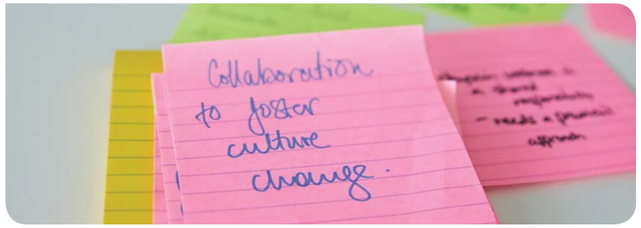
Physician wellness came from recognizing that some people who were in this profession ended up in trouble. So, at the beginning, it was all around caring for physicians with substance use disorders, major depression, boundary issues around patient care, such as inappropriate sexual relationships with patients, and 'disruptive' physicians who would yell and scream at their colleagues, throw things in the operating room, and so on. At first, these physicians were disciplined and given the message that they were all bad people and bad doctors. And some clearly had psychiatric diagnoses like personality disorders or other psychopathy that drove the unprofessionalism. Some of these physicians were having a bad day, week, month because they were depressed or burnt out, and that was not necessarily recognized at the time. But physicians started to understand that some of these issues were coming from the chronic stress of the work that we do. And so, in the early days, they developed doctors caring for doctors, because the doctors understood that it wasn't just 'doctors behaving badly'; these doctors were in trouble. And that's how it started.

And then gradually people started to tease out the fact that the substance use and all that, were maladaptive coping strategies. We started to ask, what led to that? What are the driving factors? Why did this happen? And physician wellness evolved into a science. And I'm going to say that now so many times over and over again – physician wellness is a science.

The first type of drivers can come from within. For example, if you're predisposed to obsessive behaviours, obsessive compulsions, or if you're a perfectionist – as many physicians are – that puts you at a really high risk for poor mental health outcomes, including suicide. Obsessive compulsive disorder and perfectionism can make it difficult for physicians to complete their work. It becomes the vicious cycle of you can't get your work done because you can't finish anything because it's not perfect enough. So you have a hundred incomplete charts in medical records because you just can't face it because it's going to be too hard to do. So we started to understand that individual personality traits or actual personality disorders could influence physician wellness.

The culture of medicine can be a driver as well. In general, our culture is really good, but there's some things, like you work until you drop, and patients come before anything else, that no matter how hard you work, you should be contributing more, that aren't so good. We valorize dysfunctional behaviors as commitment to the profession. You feel like you can't even eat because you're letting the patient down. That's distorted. Yes, you can stop and take time to eat. And yes, you can stop and go to the bathroom. Because the work never ends, so you need to stop and do that fueling – it's like the analogy that you put on your own oxygen mask before helping others.

Drivers can also come from the health systems that we work in and include things like workload, scheduling, and electronic health records that don't work properly or create more work. In fact, some researchers suggest that 70-80% of factors that drive burnout are at the systems level. I can be the best and most efficient doctor in the world, but if I'm supposed to see 40 patients in clinic and only have 5 minutes for each of them, but they're all really complicated cases, and I can't even run through the problem list in 5 minutes, I'm going to fail. The patient will be poorly cared for. I'm going to do a crappy job because I'm just going to be rushing. The patient will feel badly about the encounter. I'm going to be yelling at people to bring the next patient in because we have 40 patients to see. And then the whole team is affected. And then there isn't a quiet place for me to recharge, nor healthy food to access. All of this is compounded by the "leanness" and productivity of health care systems – where we are continually asked to do more with less. So all the work is compressed, and none of that productivity benefit is actually cycled back to health care providers. Workloads and intensity of work continue to increase – where is the ceiling to that for human beings?



PAGES 42 AND 43

Top left:
Julia MacGregor, Well Doc Alberta team member and Communications Advisor at W21C, discusses physician wellness with Garielle Brown, Evaluation and Measures Specialist for Well Doc Alberta.

Bottom left:
Dr. Jane Lemaire and Alicia Polachek.

Top right:
Garielle Brown and Alicia Polachek review upcoming Well Doc Alberta initiatives and events.

Bottom right:
Some of the colourful post-it notes from one of Well Doc Alberta's early brainstorming sessions.

PAGE 44
The Team is located in the Ward of the 21st Century (W21C) in Calgary, but Well Doc Alberta is a province-wide initiative.

PAGE 45
Top Left:
Dr. Nishan Sharma is a member of the Well Doc Alberta Team and the Education Lead at W21C.

Top Right:
Well Doc Alberta's letterhead and logo.

Bottom:
Alissa Kazakoff is the Program Assistant for Well Doc Alberta.

WHERE WOULD YOU LIKE TO SEE THE FIELD OF PHYSICIAN WELLNESS GO IN THE NEXT FIVE YEARS? WHAT DO YOU NEED TO MAKE THAT HAPPEN?

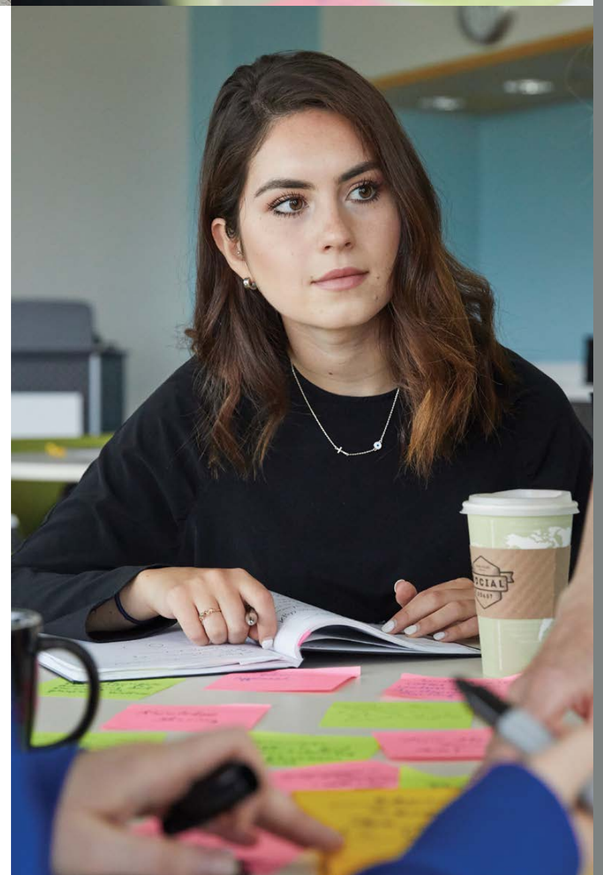
We're beyond enhanced literacy and awareness. There's so much good science around what's causing physician unwellness. Our work will always be stressful and unpredictable, often chaotic. We just have to have that paradigm shift where people say that physician wellness is really important and we need to target people being well to the extent that we can. We know what the drivers are, so let's fix the ones that we can.

We're not going to make it perfect. But there are some things that we can mitigate and dampen. And some of them are so basic. For example, I know when I am rotating on the consult service, I'm probably going to work 90 hours on site for seven days in a row. Previously, I was also at risk of being up, being awakened, for seven nights in a row. And just the stress of it, when I'd be so exhausted day five or six, just thinking that my beeper might go off made it so I couldn't sleep. So our Division initiated a system-level change where the person on the Urgent Assessment Clinic rotation will take call for two nights for the consult service person who then knows that they can be protected and sleep those two nights. A seemingly simple example of a change that is actually really practical and helpful.

So I think in the next five years, we're looking to concretely build change around the science. Teaching the science of physician wellness so that we can coach physicians and leadership how to make change at the individual and the system level. That's what we want to do. Can we do it in five years? I don't know, but we're going to give it a good try.

"We just have to have that paradigm shift where people say that physician wellness is really important and we need to target people being well to the extent that we can."

Dr. Jane Lemaire



WELL DOC ALBERTA: SHAPING THE FUTURE OF PHYSICIAN WELLNESS, TOGETHER

Well Doc Alberta is a collaborative, co-operative pan-provincial initiative driven by need and supported by science.

Dr. Lemaire realized that, while several individuals and groups across Alberta were focusing on physician wellness, a comprehensive pan-provincial approach was lacking, and the existing resources weren't enough to meet the needs of the province.

"Physician wellness is now in the spotlight as an important goal for healthcare systems. The asks for help are so huge," remarks Dr. Lemaire, "and there simply aren't enough people with expertise in the field the meet the need. There's no systematic approach to how we are going to improve physician wellness. There are people with expertise, often working on their own here or there. But there's no cohesiveness. There's no provincial approach. There's no roadmap."

"So, if you want to talk about cardiovascular disease, there's a roadmap. We understand not only how to treat it, but what the causes are, and how to prevent it. We actually have a continuum of services within the health care system that includes education and prevention. You don't have that in physician wellness. You don't have that anywhere because it's such a new science. I think there's a huge unmet need for education and prevention."

To help address this need, Dr. Lemaire and the wellness team are establishing Well Doc Alberta, a pan-provincial initiative driven by need and supported by science.

Well Doc Alberta promotes a collaborative, co-operative pan-provincial approach to physician wellness. Its purpose is to foster culture change, and ultimately drive systems-level change in support of physician wellness through prevention.

The vision of Well Doc Alberta is "shaping the future of physician wellness, together" and the mission is to:

- Create a forum for those involved in physician wellness to collaborate, enhance expertise, and augment resources
- Connect relevant people, programs, and organizations at the provincial and national levels
- Advance a provincial approach to physician wellness across all career stages
- Grow the culture of physician wellness as integral to professionalism and excellence in patient care, and
- Endorse both individual and systems-level approaches as vital to physician wellness

The initiative is building a pyramid of resources; the base of the pyramid is Enhancing Literacy and Awareness; the middle is Self-Reflection – activities and resources to help physicians identify what individual or system-level factors might be driving unwellness with their group; and the top level is Coaching for Change. "Sometimes we coach for change by doing a little thing, like a workshop where we teach people how to do self-care through mindfulness. Or, we might coach a Department to build a Peer Support Team – which we did with the Emergency Department based on materials piloted in the Department of Medicine.

The coaching for change includes working with the Departments to build the program from scratch – from concept, to how they were going to operationalize it and who the people were, to holding a workshop to train the peer support workers," Dr. Lemaire elaborates.

While its stakeholders include Alberta Health Services, Covenant Health, the Alberta Medical Association and the Physician and Family Support Program, the College of Physicians and Surgeons of Alberta, the Health Quality Council of Alberta, the University of Alberta, the University of Calgary, Primary Care Networks, and patients, Well Doc Alberta is a separate, independent organization. The initiative received startup funding in 2018 from the College of Physicians and Surgeons of Alberta to support their first year, and in May of 2019 received an investment contribution of $1.6 million over three years with the combined support of the Canadian Medical Association, Scotiabank, and MD Financial Management. This funding will allow Dr. Lemaire and Well Doc Alberta to work towards their vision and goal to connect people with expertise in physician wellness, upskill their expertise as needed based on the science, and then train others so that they are able to meet the needs and asks of people across the province.

QUALITY IMPROVEMENT INITIATIVES

The Department of Medicine, UCalgary, and AHS are wholly committed to constantly improving the quality of care for Albertans. Working together, we have completed a number of successful initiatives.

CONTRIBUTORS

Dr. Daniel Muruve

Dr. Matthew James

Sam Hannon (patient)

Elisabeth Fowler (Kidney Foundation of Canada)

Dr. Norman Rosenblum (CIHR Institute of Nutrition, Metabolism and Diabetes)

Dr. Erika Dempsey

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Kelly McDonald

Lynette Fritzke

DIVISION INVOLVEMENT

Nephrology

Geriatric Medicine

Every year, the Department of Medicine works in collaboration with both Primary Care Networks and Strategic Clinical Networks to identify and undertake a number of quality improvement (QI) initiatives. The changes that are implemented as a result of these QI initiatives have long lasting and wide ranging positive effects across the health care system in the province.

In this chapter, you will read about an initiative that is making imaging procedures safer and protecting the kidneys of people who are at risk of acute kidney injury (AKI). The injury can occur in about 8 per cent of people who undergo medical tests and procedures, such as coronary angiography, which use large amounts of intravascular contrast dyes.

You'll also learn how three Seniors Health Clinics in Calgary were able to streamline some processes and standardize a few procedures in order to improve access and care. The clinics worked with an AHS Quality Improvement Consultant to identify and implement the changes, which allowed the clinics to see more frail seniors and give them the care they need.

Finally, we bring you the story of a number of doctors in Southern Alberta who were concerned about the global problem of over diagnosis and over treatment of thyroid cancer. The physicians came together from a number of different fields to collaborate on developing a clinical pathway that reduces over diagnosis and over treatment of thyroid cancer and prevents patients from receiving unnecessary surgeries.

Daniel Muruve, MD
Professor and Nephrology Division Head, Department of Medicine
Member, Snyder Institute for Chronic Diseases

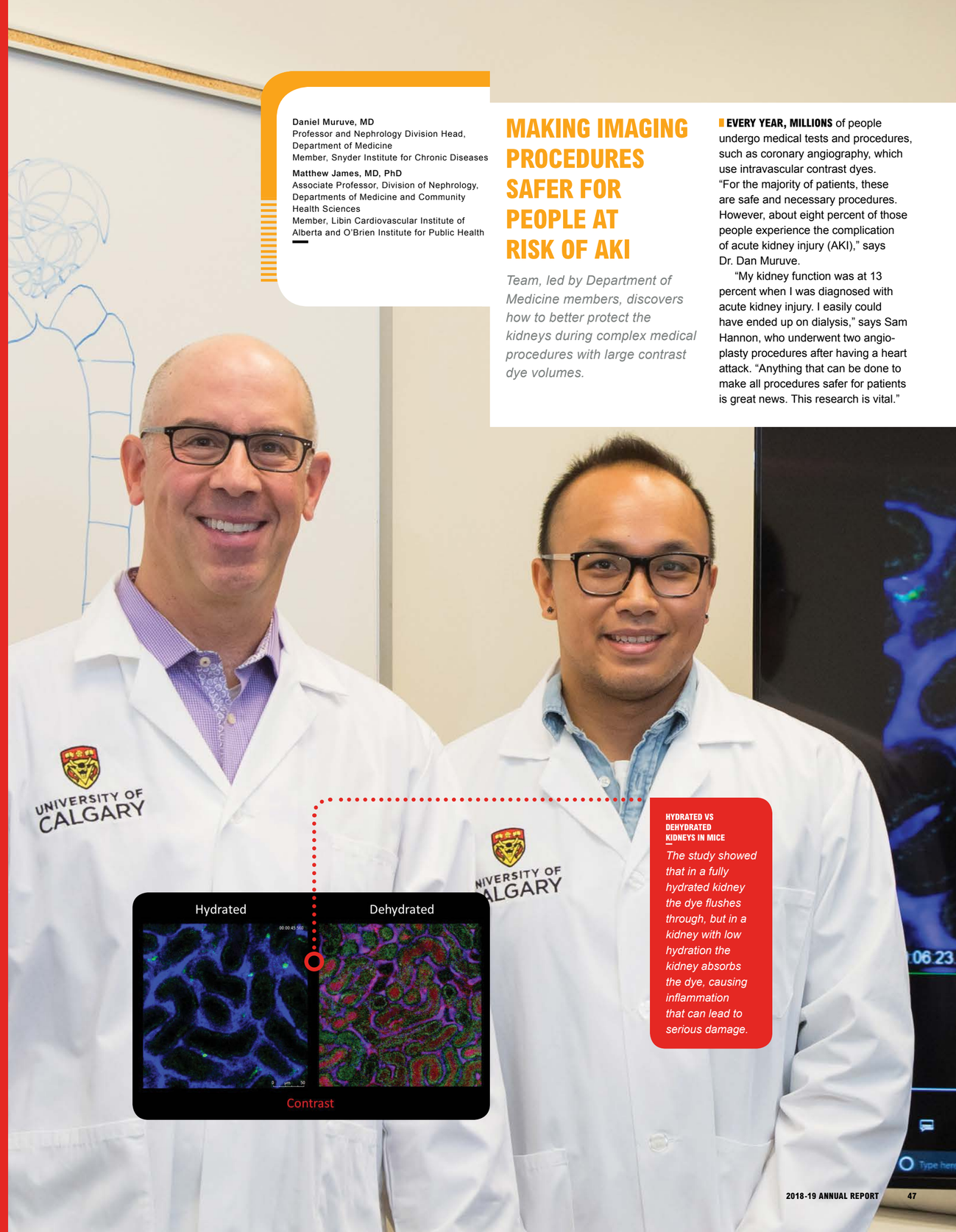
Matthew James, MD, PhD
Associate Professor, Division of Nephrology, Departments of Medicine and Community Health Sciences
Member, Libin Cardiovascular Institute of Alberta and O'Brien Institute for Public Health

MAKING IMAGING PROCEDURES SAFER FOR PEOPLE AT RISK OF AKI

Team, led by Department of Medicine members, discovers how to better protect the kidneys during complex medical procedures with large contrast dye volumes.

EVERY YEAR, MILLIONS of people undergo medical tests and procedures, such as coronary angiography, which use intravascular contrast dyes. "For the majority of patients, these are safe and necessary procedures. However, about eight percent of those people experience the complication of acute kidney injury (AKI)," says Dr. Dan Muruve.

"My kidney function was at 13 percent when I was diagnosed with acute kidney injury. I easily could have ended up on dialysis," says Sam Hannon, who underwent two angioplasty procedures after having a heart attack. "Anything that can be done to make all procedures safer for patients is great news. This research is vital."



HYDRATED VS DEHYDRATED KIDNEYS IN MICE

The study showed that in a fully hydrated kidney the dye flushes through, but in a kidney with low hydration the kidney absorbs the dye, causing inflammation that can lead to serious damage.

PROBLEM

"People like Sam, who require complex procedures with large contrast dye volumes, or those with pre-existing diabetes or chronic kidney disease, have a much higher risk of acute kidney injury following these procedures," says Dr. Matthew James. "We have effective protocols to minimize that risk, but occasionally, in some high-risk patients, these measures are insufficient to completely prevent kidney damage."

Dr. Muruve and Dr. James are collaborators on a Canadian Institute of Health Research (CIHR) team focused on inflammation and kidney disease. This research is supported by CIHR and The Kidney Foundation of Canada.

In a study published in the Journal of Clinical Investigation in July 2018, the team showed for the first time how contrast dye injures the kidney. Using specialized high-powered microscopes, the Department of Medicine clinician-scientists were able to map out in real time the dye's progression through the kidney.

"This research has shown how the kidney responds to the contrast dye, and reveals new ways we could better protect the kidneys," says Dr. James.

INSIGHT

The study, using mice, showed that in a fully hydrated kidney the dye flushes through, but in a kidney with low hydration the kidney absorbs the dye, causing inflammation that can lead to serious damage. The new knowledge from this study is already translating to work with people.

"This study… increases our understanding of how we might intervene to prevent acute renal injury or interrupt the progression of acute kidney injury to chronic kidney disease thereby reducing the burden of kidney disease among Canadians."

Dr. Norman Rosenblum MD

SOLUTION

"We did a small study testing human urine after contrast dye exposure. We saw the same markers in people as we do in mice. These results can help us add to the steps we currently emphasize to reduce the amount of contrast dye used and to hydrate the patient," says Dr. James. "Despite this, some patients with kidney disease currently avoid these medical tests because of the concern about possible injury to their kidneys. This research could help make these tests even a safer for them."

The research team is already working on a therapeutic intervention to help those patients who cannot be hydrated easily.

"For some patients with weak hearts, extra fluids are not recommended," says Dr. Muruve. "Through this research we've discovered a drug that stops the kidney from absorbing the dye to prevent possible injury. We've tested a medication that is showing promising results."

RESULTS

"The next step is to translate these findings into therapeutic clinical trials, which will hopefully occur in the next 5 years." Dr. Muruve has since founded a spinoff company to design new medications for AKI.

"These findings are a great step forward for people living with kidney failure caused by injury," says Elisabeth Fowler, national director of research, The Kidney Foundation of Canada. "Our goal in funding research is to work toward finding a cure, and to help translate fundamental discoveries from the lab bench into clinics and hospitals to ease the burden of kidney disease. We look forward to upcoming results of this promising work."

"This study is important because it increases our understanding of how we might intervene to prevent acute renal injury or interrupt the progression of acute kidney injury to chronic kidney disease thereby reducing the burden of kidney disease among Canadians. As a practicing nephrologist, I look forward to learning more about how this research will be applied in clinical settings," says Dr. Norman Rosenblum, MD, scientific director of the CIHR Institute of Nutrition, Metabolism and Diabetes.

STUDY FINDINGS

"These findings are a great step forward for people living with kidney failure caused by [acute kidney] injury," says Elisabeth Fowler, national director of research, The Kidney Foundation of Canada.

PATIENT SAM HANNON

"Anything that can be done to make all procedures safer for patients is great news. This research is vital."

Dr. Erika Dempsey
Clinical Assistant Professor,
Cumming School of Medicine
Geriatric Medicine physician, AHS

Dr. Jayna Holroyd-Leduc
Deputy Department Head-Academic,
Cumming School of Medicine
Division Head and Zone Clinical
Section Chief, Geriatric Medicine
Medical Director, Specialized Geriatric
Services, AHS Calgary Zone

Kelly McDonald
Director, Specialized Geriatric Services,
AHS Calgary Zone

Lynnette Fritzke
Program Manager, Specialized Geriatric
Services, AHS Calgary Zone

IMPROVING ACCESS AND CARE AT SENIORS HEALTH CLINICS

Quality improvement work at three Calgary clinics means more seniors are getting the geriatric care they need.

SENIORS HEALTH CLINICS in Calgary—South Health, Rockyview, and Bridgeland—are running with far more capacity to treat frail older adults in the city after a number of changes were implemented over two years. Staff, clinic managers, and geriatricians at the clinics worked collaboratively with an AHS Quality Improvement Consultant using the Alberta Improvement Way methodology, which helped design a detailed quality improvement program for the clinics. Now, more frail older adults are being seen earlier, their issues are identified and treated and they have a better likelihood of continuing to live in their homes.

"We had to address our wait list as the primary issue, but we needed to make some other changes in the clinics. That process took about two years from where we are now."

Dr. Jayna Holroyd-Leduc

PROBLEM

It was taking far too long for people to get in to see a geriatrician at one of Calgary's three Seniors Health Clinics. In some cases patients were asked to wait nine months before getting an appointment, which, for some, was a significant part of their remaining lifespan. Often by the time the day of the appointment arrived the older adult had been admitted to acute care or moved into assisted living or long term care.

It was taking as long as six months for the clinics to even triage the mountain of referrals. Many referrals were too vague, and nurses had to search electronic records and follow up with referring doctors to get more information.

The long wait was causing a lot of problems—for the patients and their families as well as for the family doctors that had referred the patients to a clinic in the first place. Clinic staff fielded calls from doctors wondering what was going on and in some cases sending repeat referrals for patients already on the wait list. Some administrative challenges, such as different processes in different clinics and lack of practice consistency of geriatrician and nursing partners, were also adding to the backlog.

INSIGHT

Change management throughout the process was crucial and complex. Constant communication, adjustments and recalibration was really important as the culture in the three clinics shifted from being reactive to adopting a more proactive approach.

DR. ERIKA DEMPSEY
Dr. Erika Dempsey led the quality improvement work at Calgary's three Seniors Health Clinics.

Before the changes to the clinics, nearly a third of patients cancelled their appointments many because they had been admitted to hospital or moved into supported living or long term care.

SOLUTION

The first step was making a number of small changes in the operations of the clinics to align their processes. Each clinic would run for four hours, at the same time of day, and follow up procedures were also standardized. The expectations and schedules for geriatricians shifted so they could see double the number of new patients.

The clinics also narrowed their focus from seeing any older adult whose doctor had a question about their cognitive ability to seeing only frail older adults with complex issues. The clinics' mission statement was tweaked to better reflect this, triaging referrals focused more on frailty and complexity over cognition.

The criteria for family doctors to refer a patient were also tightened to reflect provincial guidelines for diagnosing and managing cognitive impairments. Instead of taking "everybody," the clinics would no longer take patients with early dementia without complications. This meant family doctors were asked to do an initial cognitive assessment, based on AMA TOP guidelines, and then only refer to the clinic if clear questions or issues remained.

This was a "huge change in decades of practice," says Holroyd-Leduc. Geriatricians supported the family doctors by offering continuing education about common dementia issues and information about available local resources for their patients. They also worked with primary care to develop a QuRE (Quality Referral) checklist for Seniors Health clinic referrals. The Division offered physician-to-physician phone consultations to support the referring physicians around the diagnoses and management of early dementia.

RESULTS

While there was significant anxiety around the changes, in the end "we improved in pretty much every measure that we had said we wanted to look at," says Holroyd-Leduc. The clinics are triaging referrals far more quickly, seeing more frail older patients, declining fewer referrals and having fewer people cancel their appointments. The changes "have affected things pretty phenomenally," says Dr. Dempsey.

With the clinics running more efficiently, they have more capacity to begin to target other seniors in the city, including vulnerable seniors living with addiction and frail older adults considering surgery. One of the Division's geriatricians is already working with people with Movement Disorders who are very frail. Another is working with people who have become frail as the result of HIV, a population that can become very frail very quickly.

> "We spent a lot of time at the beginning figuring out what our meaningful measures were so that we could see whether we were making a change."
>
> *Dr. Erika Dempsey*

Department of Medicine
PERFORMANCE SCORECARD

Senior Health Clinics

With nine geriatricians at three clinics and about 170,000 older adults in Calgary, efficiency is important. Changes to the Seniors Health Clinics were difficult, and were met with resistance, but the result is increased quality of care for frail seniors.

OBJECTIVES	RESULT
Improve patients and families access to Specialized Geriatric Services (SGS)	Wait time targets of ≤2 weeks for eligibility confirmation and ≤3 months for clinic access
Understand and connect patients and families to appropriate resources	Consultation letters sent ≤30 days after visit 100% of the time. Referrals sent ≤1 week after visit or ≤30 days after visit (if consult letter required)
Engage patients and families in ACP/GCD Conversations	100% of patients are asked about GCD/ personal directive
Support primary care providers in addressing care needs and integrating community resources for seniors with complex medical issues	Number of referrals declined due to not meeting criteria (52%, November 2018 to 33%, January 2019)

Alberta Health Services | UNIVERSITY OF CALGARY

Evidence shows frail older adults can avoid emergency department visits and being admitted to hospital if they have a comprehensive geriatric assessment completed by an interdisciplinary team led by a geriatrician in the community.

Within a decade, about one in four Albertans will be over 65. A quarter of them will be frail.

PATIENT IRENE GOODISON

Irene Goodison works on her balance with physiotherapist Helen Frankow at the Fall Prevention Class in the Seniors Health Clinic.

Dr. Ralf Paschke
Professor, Division of Endocrinology and Metabolism,
Cumming School of Medicine
Chair, Provincial Endocrine Tumour Team

Dr. Christopher Symonds
Clinical Associate Professor,
Division of Endocrinology and Metabolism

THYROID NODULE AND THYROID CANCER CLINICAL PATHWAY

Developing a coordinated new way to risk stratify and treat thyroid nodules that are often benign.

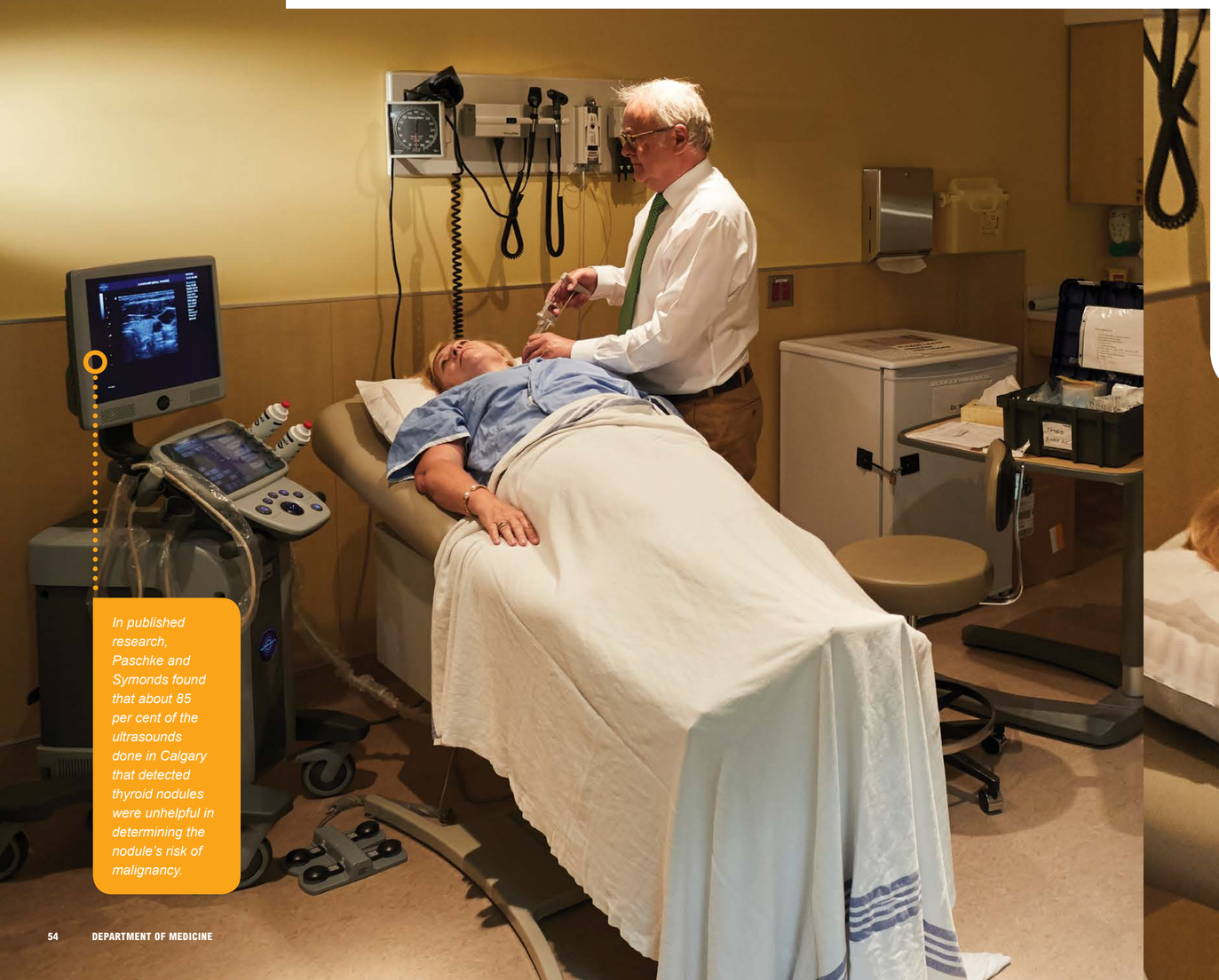
A GLOBAL PROBLEM is over-diagnosis and over-treatment of thyroid cancer. In Southern Alberta, Dr. Ralf Paschke and Dr. Chris Symonds and their colleagues in endocrinology, surgery, pathology, radiology, medical and radiation oncology have developed a clinical pathway that reduces over-diagnosis and over-treatment of thyroid cancer.

PROBLEM

Quite often, when someone gets a diagnostic imaging study of the neck or chest for a non-thyroid reason, incidental thyroid nodules may be detected. Often the patient hasn't noticed any symptoms or lumps in their neck. Because some thyroid nodules can be malignant, the patient is often sent for more tests or even diagnostic surgery. However, most nodules are benign which may expose the patient to the unnecessary stress and expense of further diagnostic procedures.

INSIGHT

Every year in Calgary, about 6,000 neck ultrasounds detect thyroid nodules and about 250 new cases of thyroid cancer are diagnosed. In published research, Paschke and Symonds found that about 85 per cent of the ultra-sounds done in Calgary that detected thyroid nodules were unhelpful in determining the nodule's risk of malignancy.



In published research, Paschke and Symonds found that about 85 per cent of the ultrasounds done in Calgary that detected thyroid nodules were unhelpful in determining the nodule's risk of malignancy.

"It's important to have a pathway in place which can reliably distinguish benign from malignant nodules to reduce the number of unneces-sary thyroid surgeries."

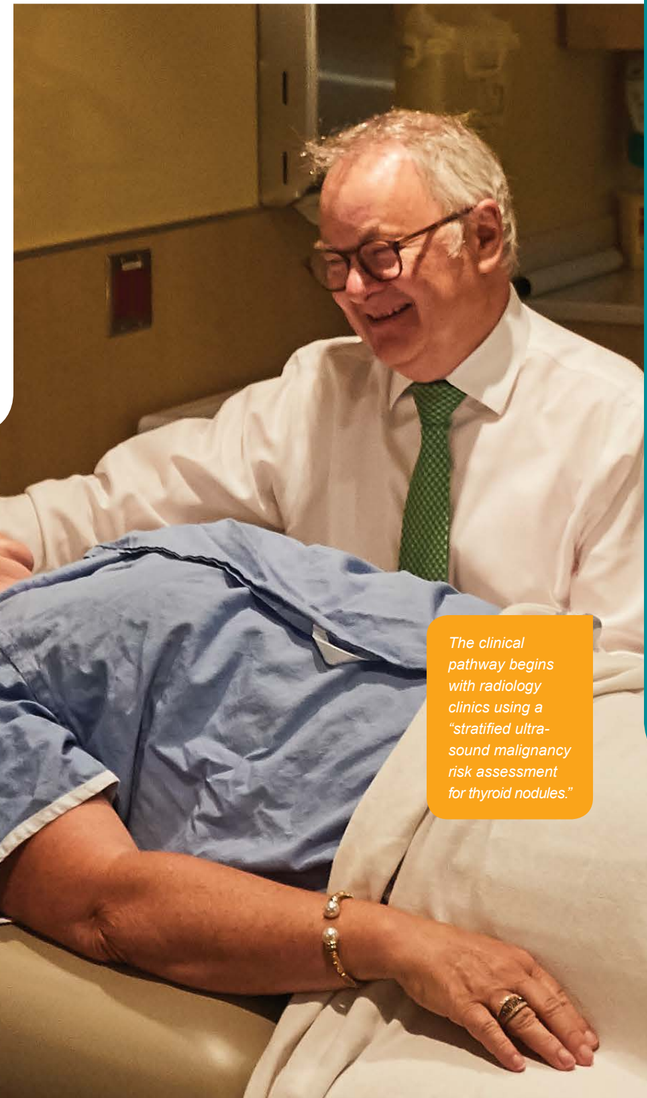
Dr. Ralf Paschke

SOLUTION

The clinical pathway begins with radiology clinics using a "stratified ultrasound malignancy risk assessment for thyroid nodules." This standardized assessment excludes 50 per cent of new thyroid nodules as "most likely benign." The next level of testing involves a biopsy of the thyroid nodule – fine needle aspiration biopsy (FNAB). However, about 20 per cent of FNAB's cannot reliably rule out or rule in malig-nancy and whether a patient needs surgery. A molecular test developed by Paschke and Dr. Markus Eszlinger—ThyroSPEC—helps determine the risk of malignancy from the residual FNA material and provide better information for physicians and patients.

RESULTS

Before the routine introduction of molecular testing, only about 20 per cent of diagnostic surgeries exploring thyroid nodules with an indeterminate FNA cytology resulted in a cancer diagnosis. The clinical pathway can reduce the number of diagnostic surgeries in Calgary. The pathway has increased the number of thyroid cancer patients that may now be treated with a lobectomy, removing one lobe from the thyroid, instead of a total thyroidectomy, removing the whole thyroid. Partial but still effective surgery can reduce harm and surgical complications as well as reducing the chance that the patient must take lifelong thyroid hormone replacement therapy.



The clinical pathway begins with radiology clinics using a "stratified ultra-sound malignancy risk assessment for thyroid nodules."

INDIVIDUALS INVOLVED

ENDOCRINOLOGY THYROID CANCER TRIAGE GROUP
Drs. Ghaznavi, Grundy, Kinnear, Parkins, Paschke, and Symonds

ASSESSMENT OF THYROID NODULE ULTRASOUND QUALITY IN CALGARY
Drs. Symonds, Seal (Radiology, EFW), Ghaznavi, and Paschke

IMPLEMENTATION OF GUIDELINE BASED THYROID NODULE ULTRASOUND MALIGNANCY RISK ASSESSMENT AND GUIDELINE BASED POST-OPERATIVE NECK ULTRASOUND
Drs. Seal (Radiology, EFW), Symonds, and Paschke

THYROID NODULE ENHANCED PRIMARY CARE PATHWAY
Drs. Bhayana and Paschke with Calgary PCNs and HSS

LOBECTOMY PROPOSAL
Endocrine and ENT surgeons, Drs. Harvey, Chandarana, Pasieka, Deutschman, Warshawski, Randall, Hart, and Pabbies with the Endocrinology Thyroid Cancer Triage Group

DETERMINATION OF MALIGNANCY RISKS FOR THYROID NODULE FNA CYTOLOGY BETHESDA CATEGORIES
Drs. Ghaznavi, Khalil (Pathology/CLS), Eszlinger, Symonds, and Paschke

MOLECULAR FNA DIAGNOSTICS
Drs. Eszlinger, Demetrick (Head, Molecular Pathology Laboratory), and Paschke

CONTRIBUTOR
Dr. Richard Leigh
Professor and Head, Department of Medicine, Cumming School of Medicine

The Department of Medicine's Mission is "to be widely recognized for advancing health and wellness, attracting the best doctors, leading innovation, creating technologies, and disseminating knowledge."

It is my privilege, as Department Head, to present the Department of Medicine's 2019 Annual Report. Our eleven Division Heads, six Vice-Chairs, and members of the Department's Finance, Analytics, Research Office, and Administrative Teams have worked hard to provide reports and information that highlight the Department's important clinical, educational, academic, and administrative activities and accomplishments in the 2018-19 Fiscal Year. I thank them for their contributions. I also want to thank Angela Hunter for collating these reports into a cohesive, visually engaging Annual Report.

Among my foundational principles for the Department of Medicine are that patient care is at the centre of everything we do, and that excellence in patient care is not negotiable. As an academic Department, our mandate is to strive for clinical and academic excellence, and we are privileged to be able to teach and mentor clinical trainees and conduct healthcare research. For us to fulfill those mandates and our mission, we aspire to create a Departmental culture and environment of inclusivity, integrity, and equity; where Department Members feel that they are a part of a meritocracy in which excellence, intellectual curiosity, continuous learning, diverse opinions, and teamwork are not only expected, but rewarded. We are not there yet, but great work continues to be done in the Department, as evidenced by the outstanding work and achievements featured in this report. I hope that you enjoy reading our 2019 Annual Report.

Dr. Richard Leigh, MBChB, MSc, PhD, FCP (SA), FRCPC
Professor and Head, Department of Medicine
Cumming School of Medicine
University of Calgary and Alberta Health Services

LOOKING BACK ON THE PAST YEAR, WHAT STANDS OUT AS MAJOR ACCOMPLISHMENTS FOR THE DEPARTMENT?

The Department has continued to implement quality improvement initiatives with the aim of improving delivery of health care for patients with complex chronic disease. Many Divisions within the Department of Medicine have continued to enhance interaction and collaboration with their colleagues in other Departments as well as Primary Care physicians, predominantly through Calgary's Primary Care Networks, to develop evidence-based Clinical Care Pathways and Specialist Link services to improve quality and access to care by offering real-time access to specialist advice and, in so doing, reducing the number of specialist referrals and overall wait times while also ensuring that those patients who most need to see a specialist are prioritized to do so.

Several of our Divisions, including Dermatology, General Internal Medicine, and Geriatric Medicine, have also developed innovative interdisciplinary clinical programs to improve patient care outcomes and access to care. To illustrate, the Division of General Internal Medicine helped to launch the Addiction Recovery and Community Health (ARCH) Calgary Program at the Peter Lougheed Centre in November 2018. The ARCH Calgary Program consists of an interdisciplinary team, including physicians, social workers, addiction counsellors, peer support workers, an outreach worker, nurses and nurse practitioners, and a pharmacist. The Program focuses on harm reduction and improving health outcomes and health care access for patients with substance use disorders, including opioid dependence. Many of these patients are socially vulnerable members of our Calgary community, and the ARCH program has already seen close to 1,000 patients since its launch less than a year ago.

I'd also like to highlight several of our Department Members who received several prestigious awards in 2018-19. Dr. John Conly was invested into the Order of Canada on May 8, 2019 by Her Excellency the Right Honourable Julie Payette, Governor General of Canada. Dr. Cheryl Barnabe was awarded the Canada Research Chair in Rheumatoid Arthritis and Autoimmune Diseases (Tier 2, 2018-2023) from the Canadian Institutes of Health Research (CIHR). Dr. Matthew James' outstanding scholarship was recognized by his receiving a Killam Emerging Leader Research Award. Dr. Kara Nerenberg was awarded the Womens' Heart and Brain Health Mid-Career Research Chair, funded by CIHR and the Heart & Stroke Foundation of Canada, and Dr. Irene Ma was awarded the Canadian Society of Internal Medicine Osler Award for overall excellence in General Internal Medicine.

I would add a third major accomplishment as the fact that the Department continues to provide outstanding clinical care, despite a continually increasing patient load. In 2018-19, the Department oversaw 15,292 inpatient admissions and provided 34,709 inpatient consultations. To put those numbers into context, that's a 3% increase in inpatient admissions and a 5% increase in inpatient consultations from 2017-18. Despite these increases, the average length of stay (LOS) decreased from 9.5 days in 2017-18 to 9.08 days in 2018-19, a net 4.4% reduction.

YOU'VE NOTED THAT, COMPARED TO 2017-18, THE DEPARTMENT PROVIDED MORE INPATIENT ADMISSIONS AND CONSULTATIONS, AND REDUCED THE AVERAGE INPATIENT HOSPITAL LENGTH OF STAY. LOOKING AT OTHER DEPARTMENTAL MEASURES, HOW DOES 2018-19 COMPARE TO LAST YEAR?

First, our Department is now larger than it was in 2017-18. We have continued to grow throughout 2018-19, reaching a total of 497 Department Members. Our Membership consists of 238 Academic Medical Health Services Plan (AMHSP) members, 172 Fee-For-Service (FFS) members, 66 cross-appointed Members, and 25 Locum Tenens physicians.

Compared to 2017-18, the Department has seen increases to both total research revenue and publications. Total research revenue within the Department was $30M in 2019 compared to $28.5M in 2018, an increase of 5.3%. The total revenue includes $6.88M in CIHR revenue (compared to $6.46M in 2018). Primary Department Members authored 478 unique publications, and cross-appointed members authored 327 unique publications for a combined total of 805 publications. Compared to 785 unique publications in 2017, this is an increase of 2.5%.

"The Department has seen significant divisional and managerial leadership changes in the past year. Going into 2019-20, the Divisions of Endocrinology, Hematology, Infectious Diseases, and Rheumatology all have new Divisional leadership."

Dr. Richard Leigh

WHAT CHALLENGES DID THE DEPARTMENT FACE IN 2018-19, AND WHAT DO YOU ENVISION FOR THE DEPARTMENT OF MEDICINE IN 2019-20?

The Department has seen significant divisional and managerial leadership changes in the past year. The terms for several Division Head positions ended in 2018-19. Going into 2019-20, the Divisions of Endocrinology, Hematology, Infectious Diseases, and Rheumatology have new Divisional leadership. After a 30 year career with the Department of Medicine, Christine Blinn retired from her position as Administrative Services Manager for RRDTC, RGH & SHC. Louise Kosmack took over as Administrative Manager for these sites, and we have been fortunate to welcome Chelsea Clark as the new Administrative Manager for FMC, PLC & Sunridge Landing. Andrew Jenkins is serving as the interim Department Manager until such a time as a permanent appointment is made. I look forward to working with the new leadership teams in the coming year.

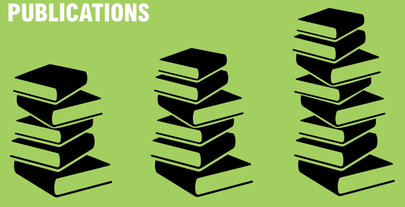
In 2019-20, the Department will be re-examining our Strategic Priorities and developing our 2021-2025 Strategic Plan. A few of the initiatives the Department will start to undertake in 2019-20 are the release and implementation of the Department of Medicine's 2019 Gender Equity Report and accompanying Gender Equity Action Plan, the implementation of Career Adaptation Guidelines, and establishing a Department Medical Services Clinical Safety Committee under the leadership of Drs. Anshula Ambasta and Ward Flemons.

"Our mandate is to strive for clinical and academic excellence, and we are privileged to be able to teach and mentor clinical trainees and conduct health-care research."

Dr. Richard Leigh

In 2018-19, the Department of Medicine saw continued growth and improvement across all areas.

PUBLICATIONS



769
in 2016-17

785
2017-18

805
in 2018-19

PUBLICATIONS

805 publications

2018-19 ↑2.5%

2018-19 805
2017-18 785
2016-17 769

Primary and cross-appointed Department Members produced a combined total of 805 publications in 2018-19.

478 publications by Primary Department Members

2018-19 -6.5%

2018-19 478
2017-18 511
2016-17 486

63.4%

GFT: 335 publications

Clinical AMHSP
Non-GFT: 193 publications
63.4% of the publications in the Department of Medicine were published by Full-Time Academic (GFT) Members.

226 members published

2018-19 226
2017-18 225
2016-17 233

226 Department Members authored one or more publications in 2018-19.

RESEARCH REVENUE

$890,025.90 per RE

2018-19 ↑1.4%

2018-19 $890,025.90
2017-18 $878,069.55
2016-17 $887,440.82

Basic Sciences Revenue per RE: $750,610.91
Clinical with AMHSP Revenue per RE: $889,411.12
Clinical without AMHSP Revenue per RE: $604,682.26
CSM Revenue per RE: $956,349.21
The Total Research Revenue per Research Equivalent (RE) in the Department of Medicine is $890,025.90, which is higher than the Revenue per RE in either the Basic Sciences or Clinical Department groups.

$6.88 million in CIHR revenue

2018-19 ↑6.4%

2018-19 $6,875,404.56
2017-18 $6,460,251.23
2016-17 $5,552,921.84

22.9% of Total Revenue

$16 million in clinical research revenue

2018-19 ↓8%

2018-19 $16,038,451.24
2017-18 $17,433,744.56
2016-17 $14,045,125.63

53.3% of Total Revenue

39% of clinical w/ AMHSP research revenue

DoM: $29,991,365.87

Clinical with AMHSP: $76,833,046.82
CSM: $213,356,627.49
Research Revenue from the Department of Medicine accounted for 39% of the revenue for all Clinical with AMHSP Departments, and 14.1% of revenue from the entire CSM.

"The Department continues to provide outstanding clinical care, despite a continually increasing patient load."

Dr. Richard Leigh

431

MEMBERS

2018-19 431
2017-18 389
2016-17 349

The Department of Medicine consisted of 431 primary members in 2018-19.

66

CROSS-APPOINTED MEMBERS

Primary Appointment: 431
Cross-Appointment: 66

66 Members hold cross-appointments in the Department of Medicine. Combined, there are 497 Primary and Cross-Appointed Members in the Department of Medicine.

93

93 FULL-TIME ACADEMIC (GFT) MEMBERS

2018-19 93
2017-18 78
2016-17 79

The Department had 93 Members with Full-Time Academic (GFT) appointments.

238

AMHSP MEMBERS

2018-19 238
2017-18 210
2016-17 206

238 Department Members were part of the Academic Medicine and Health Services Plan (AMHSP).

16

SENIOR LEADERSHIP POSITIONS

ZMD: 1
AZMD: 1
Dean: 1
Sr. Assoc. Dean: 2
Assoc. Dean: 4
Asst. Dean: 1
Dept Head-Other: 6

16 Primary and Joint-Appointed Department Members held Senior Leadership positions at the Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone in 2018-19.

RESEARCH REVENUE

CLINICAL STATS

9.08 days in hospital

2018-19 ↓4.4%

2018-19 9.08
2017-18 9.5
2016-17 9.75

The average hospital length of stay (LOS) in the Department of Medicine was 9.08, a reduction of 4.4% from 2017-18.

34,709 inpatient consults

2018-19 ↑5%

2018-19 34,709
2017-18 32,965
2016-17 30,751

Department Members provided a total of 34,709 inpatient consults in Calgary hospitals, an increase of 5% from 2017-18.

15,292 inpatients admitted

2018-19 ↑3%

2018-19 15,292
2017-18 14,904
2016-17 14,410

Department Members were the attending physicians for 15,292 inpatients in the four Calgary Adult Hospitals in 2018-19, an increase of 3% from 2017-18.

44,069 outpatient clinic referrals

2018-19 ↑2%

2018-19 44,069
2017-18 43,300
2016-17 39,021

Central Access & Triage for Gastroenterology, General Internal Medicine, Hematology, Respiratory Medicine, and Rheumatology received a total of 44,069 outpatient referrals, an increase of 2% from 2017-18.

22,825 GI outpatient clinic referrals

Gastroenterology: 22,825 referrals
General Internal Medicine: 4,425 referrals
Hematology: 5,177 referrals
Respiratory Medicine: 4,370 referrals
Rheumatology: 7,272 referrals
Gastroenterology & Hepatology Central Access & Triage alone received 22,825 outpatient clinic referrals in 2018-19.

AVERAGE HOSPITAL STAY

(Number of Days)

9.75

9.50

9.08

EDUCATION

158 Residents

102 Internal Medicine Residency Program (IMRP) Residents
56 Subspecialty Program Residents
In 2018-19, there were a total of 158 Residents in the Department's Core and Subspecialty Residency Training Programs, with 102 Residents in our core IMRP Program (PGY1 – PGY4) and 56 Residents in our ten Subspecialty Training Programs (PGY4 – PGY6).

total annual revenue

2018-19 ↑5.3% increase

2018-19 $29,991,365.87
2017-18 $28,485,731.60
2016-17 $27,090,929.94

Research revenue in the Department of Medicine continues to increase year on year, with our total revenue for 2018-19 reaching $30 Million. Of the total revenue, 53.5% was from Clinical Research funding and 22.9% was from CIHR funding.

30

DERMATOLOGY

The vision of our section is to become a world-class leader in Dermatology and Skin Science, to the benefit of Albertans and beyond. Our mission is to provide exemplary care for patients with skin disease by fostering education, research and public awareness.

SKIN MICROBIOME

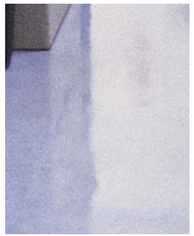
Our microbiome – often termed the "forgotten organ" – exerts key functions that are relevant to human health. Disruption of the microbiome is linked to chronic inflammatory skin diseases, including eczema, psoriasis, rosacea and acne. Altered microbial floras are also observed in a number of malignancies, including breast, colorectal and gastric cancers. Yet studies are lacking on non-melanoma skin cancer (NMSC), the most common form of cancer worldwide.

Affecting nearly 80,000 Canadians annually, NMSC is on the rise. Though many skin cancers are cured by surgery and/or radiotherapy, effective treatments for aggressive NMSCs are limited. To understand the mechanisms by which the bacterial flora contributes to the development of skin cancer, the Skin Microbiome Group employed modern sequencing techniques to study the microbiome of NMSC tumours.

By studying the interplay between the microbiome, inflammation and cancer, the University of Calgary's SRG hopes to develop novel approaches for the prevention and treatment of skin cancer and other inflammatory skin diseases.

CLINICAL CARE

The academic site serves as a tertiary referral center for complex medical and surgical dermatology patients. Specialized clinics provide a multi-disciplinary approach to care for patients with immunobullous disease, connective tissue disease, contact dermatitis, solid organ transplants, wounds, pediatric dermatology, high-risk pigmented lesions, non-melanoma and melanoma skin cancers, and lymphomas. During this reporting period, Dermatology launched an Indigenous health and vulnerable population initiative.



"In order to improve access to dermatologic services for vulnerable populations, outreach clinics have been established at the Siksika Nation. Discussions are underway to open dermatology clinics at the Elbow River Healing Lodge, the Alex Community Health Centre and the Refugee Health Services."

Dr. Jori Hardin, Dr. Régine Mydlarski, and Dr. Richard Haber

DR. P. RÉGINE MYDLARSKI
Division Head

Dr. P. Régine Mydlarski is an Associate Professor, Division Head and Zone Clinical Section Chief of Dermatology, and the Director for the Translational Research Program in Dermatology, Immunodermatology Clinic, and Transplant Dermatology Clinic. Her research focuses on the microbiome of non-melanoma skin cancer, and the genetic basis of pemphigus vulgaris (PV), a potentially life-threatening autoimmune blistering disease of the skin and mucous membranes.

55

The Dermatology Residency Training Program received 55 applications from prospective Residents in 2018-19.

SKIN RESEARCH GROUP (SRG)

The Division developed a Skin Research Group (SRG) to support knowledge translation between clinicians, lab scientists and patient advocacy groups. With the ultimate goal of improving care for patients with inflammatory and malignant skin disease, the SRG will launch an annual Research Day to facilitate the exchange of knowledge between clinicians, researchers and allied health care professionals dedicated to the advancement of skin health.

A broad range of topics are studied, including inflammatory skin diseases (i.e. psoriasis, atopic dermatitis and urticaria), cutaneous oncology, wound healing, alopecia and host-parasite interactions. However, a major focus of research for the SRG is the skin microbiome.

RESEARCH & EDUCATION

Dermatology members are actively involved in both basic science and clinical research, including cutting edge clinical trials. The Division is committed to training the next generation of dermatologists. The Dermatology Residency Program at the University of Calgary, recognized nationally for its quality in education, rigorous assessments and its cordial learning environment, is highly coveted in the country.

During their training, dermatology residents have rotations which ensure exposure to rural and vulnerable populations. They also gain insight on the necessity, importance and limitations of telehealth services to the future of Dermatology by being exposed to telehealth in both the delivery of curriculum and clinical practice.

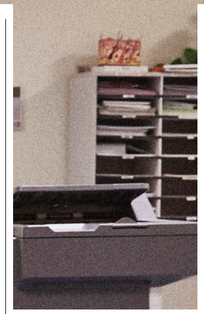
As part of Dermatology's educational mandate, cutaneous oncology fellowships will be created. Dermatology has also hosted a number of continuing medical education initiatives, including a highly successful lymphoma conference focusing on extracorporeal photopheresis.

"The Division of Dermatology will continue to work toward integrating the care of our high-risk skin cancer patients into a single center to ensure the provision of a comprehensive, multi-disciplinary patient care approach."

Dr. Habib Kurwa, Dr. Régine Mydlarski, Dr. Lynne Robertson, Dr. Jori Hardin, and Dr. Claire Temple Oberle

5

We welcomed 2 PGY4 and 3 PGY5 Residents to the Dermatology Residency Training Program in 2018-19.



80,000

nearly 80,000 Canadians are affected by non-melanoma skin cancer (NMSC) annually.

CUTANEOUS ONCOLOGY PROGRAM

The aim of a cutaneous oncology program is to achieve integrated care for patients diagnosed with melanoma, non-melanoma skin cancer, and cutaneous lymphoma. The University of Calgary and Alberta Health Services are home to some of the nation's top skin cancer specialists. A multidisciplinary team (MDT) of professionals work together to diagnose and treat the various forms of skin cancer. This team includes dermatologists, radiation oncologists, medical oncologists, surgical oncologists, reconstructive surgeons, dermatopathologists, oncology nurses and allied health care professionals.

Specialized clinics at RRDTC assess and treat patients with non-melanoma skin cancers, melanoma, cutaneous lymphoma, high-risk pigmented lesions and dermatological manifestations of oncological treatments. Procedural services include photodynamic therapy, pre-determined margin excisions, and Mohs' micrographic surgery.

The ultimate goal of an integrative program is to further the development of diagnostics, prognostic and therapeutic tools essential for the management of skin cancer patients.

DERMATOLOGIC CARE FOR VULNERABLE POPULATIONS

The Indigenous population is affected by distinct conditions and social determinants of health (for example, social barriers, housing, education, employment, food and environmental security), which place them at an increased risk of adverse health outcomes as compared to the broader population of Canada. Other patient groups, such as newcomers to Canada (including those with refugee status), individuals with substance use, and people experiencing homelessness, have unique dermatologic needs.

In order to improve access to dermatologic services for vulnerable populations, outreach clinics have been established at the Siksika Nation. Discussions are underway to open dermatology clinics at the Elbow River Healing Lodge, the Alex Community Health Centre and the Refugee Health Services. Teledermatology clinics are also conducted at several rural sites to improve access to dermatologic care.

This program supports clinical, educational and research initiatives that facilitate equitable access to dermatologic care. It will enable care transformation, discovery and innovation, and patient partnerships.

CHALLENGES

Dermatology, as all other specialties, is faced with challenges in the provision of and access to care. The gaps and unmet needs resulting from these challenges are, at least in part, driven by an increased demand, a diverse populace and population density imbalances. These demographic challenges are important considerations for ensuring all those living in Canada have access to dermatologic services.

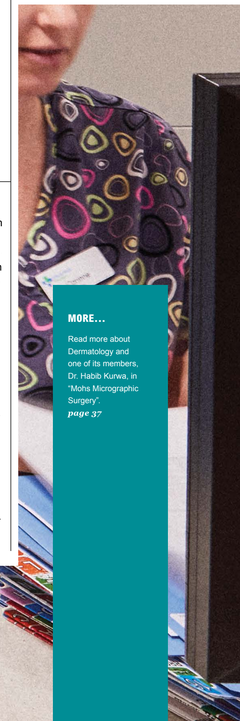
The Division of Dermatology has a phototherapy unit which cannot be used due to budgetary constraints. Phototherapy is an important therapeutic modality for various inflammatory skin disorders (i.e. psoriasis, eczema) and cutaneous lymphomas. A multidisciplinary cutaneous lymphoma clinic is conducted at RRDTC, and the lack of phototherapy at the site makes it difficult to provide comprehensive management for these high-risk patients.

OUR MEMBERS

The Division of Dermatology consists of 7 full-time AMHSP members and 32 community-based dermatologists. 34 members hold an academic appointment within the Department of Medicine at the University of Calgary. Dermatologists, nursing staff and allied health care professionals provide a collaborative care model for patients with skin disease.

DERMATOLOGIC CARE FOR VULNERABLE POPULATIONS – PROGRAM OUTCOMES

1. To provide timely access to exemplary care;
2. To increase awareness of the unique dermatologic needs of vulnerable populations;
3. To develop clinical, educational and research initiatives which support the advancement of health care for vulnerable populations;
4. To create a business plan that ensures long-term sustainability of the program.



MORE...

Read more about Dermatology and one of its members, Dr. Habib Kurwa, in "Mohs Micrographic Surgery". *page 37*

ENDOCRINOLOGY & METABOLISM

The Division includes a team of 9 GFT and 18 Major Clinical and community physician members who maintain offices at Richmond Road Diagnostic and Treatment Centre (RRDTC), Foothills Medical Centre (FMC), Peter Lougheed Centre (PLC), South Health Campus (SHC), and at the Associate Clinic, Gulf Canada Square.

EDUCATION

The Endocrinology & Metabolism Residency Training Program is well respected and receives many competitive applications each year. Division members contribute significantly to Undergraduate and Post-graduate Medical Education and curriculum development.

RESEARCH

The Division has several academic and clinical members that are highly engaged in research. Currently, Division members are leading or collaborating on over 40 studies supported by competitive peer-reviewed funding from Canadian Institutes of Health Research, National Institutes of Health, Alberta Innovates-Health Solutions, Diabetes Canada, Hypertension Canada or industry.

25

In 2018-19, the Endocrinology Residency Training Program received 25 applications from prospective Residents.

> "Early outcome data suggests nearly 100% adherence to the chosen therapy for patients in the Self-Consult Program."
>
> ***Dr. Greg Kline, Dr. Emma Billington, and the Dr. David Hanley Osteoporosis Center Allied Health team***

1 in 5

1 in 5 patients admitted to hospital has diabetes.

SELF-CONSULT PROGRAM FOR OSTEOPOROSIS PATIENTS

Many post-menopausal women and older men (the at-risk population) are avid health information consumers and desire both education and informed decision making processes around the decision to take or not take anti-fracture medications. A full consultation that covers all such aspects and options may take 30 to 45 minutes and is increasingly unrealistic in a primary care environment. Specialist consultation is available, but has lengthy wait lists (14+ months). The Self Consult Program is a 2-hour osteoporosis-oriented group medical visit of 6 to 10 patients, conducted by an osteoporosis specialist team, which includes Dr. Greg Kline, Dr. Emma Billington, and the Dr. David Hanley Osteoporosis Center Allied Health team.

SELF-CONSULT PROGRAM GOALS

The Goals of the Self-Consult Program are to:

1. Develop a novel, patient-oriented care model for osteoporosis that favors autonomy and education,
2. Foster better disease-based education in a small group setting, and
3. Increase access to osteoporosis services, and correspondingly decrease wait times for routine consultations.

SELF-CONSULT PROGRAM EARLY OUTCOME DATA

Early outcome data (12 month follow up) suggests nearly 100% adherence to the chosen therapy for patients in the Self-Consult Program. In contrast, the reported adherence rates in populations being treated for osteoporosis is less than 50%. The program is highly successful, with patient approval ratings higher than 95%. The first report of the program has been accepted for publication in the Journal of General Internal Medicine (JGIM; in press).

DR. DOREEN RABI
Division Head

Dr. Doreen Rabi is the incoming Division Head and Zone Clinical Section Chief for the Division of Endocrinology & Metabolism. She is an Associate Professor in the Department of Medicine and has cross-appointments with the Departments of Community Health and Cardiac Sciences. Dr. Rabi is a diabetes health services researcher and a member of the O'Brien Institute for Public Health at the University of Calgary.

BASAL BOLUS INSULIN THERAPY (BBIT)

BBIT is a highly recommended (by the Diabetes Canada Clinical Practice Guidelines) approach to in-hospital management of diabetes. However, provincial data suggested a concerning care gap existed with a continued heavy use of subcutaneous sliding scale insulin (SSI) protocols. This persistent use of these outdated and unsafe SSI protocols contributed to over one third of recorded blood glucose values being above the recommended target and significantly longer hospital admissions. The Diabetes, Obesity, and Nutrition Strategic Clinical Network (DON SCN) Inpatient Diabetes Team created and led a multifaceted provincial initiative to address this significant and complex care gap. The goal of the provincial initiative was to promote patient-centred and evidence-based inpatient diabetes management. By extension, this initiative would improve glycemic management of hospitalized patients and reduce unnecessary health resources use.

Read more about the BBIT initiative in the feature story, "Using Knowledge Translation to Improve Inpatient Diabetes Management" on page 10.

> "Patients with diabetes had a 40% longer stay in hospital than compared to patients without diabetes."
>
> ***Dr. Karmon Helmle, Dr. Julie McKeen, and the DON SCN In-Patient Glycemic Management Initiative Team***

INITIAL OUTCOMES OF BBIT PROVINCIAL INITIATIVE

1. Creation of a BBIT Implementation Guide and Knowledge Translation Toolkit (www.KTToolkit.ca), linking to multiple resources available on the www.BBIT.ca website
2. All early adopter sites have shown sustained practice change over 18 months:
   - Significant increase in BBIT use (1.3-2.5x above baseline/ an average absolute increase +21.5%+/-10%)
   - Significant decrease in patient days with hyperglycemia and no increase in hypoglycemia
   - The Calgary Zone Hospitalist group: significant 9.6% reduction in LOS
   - Implementation has spread to all acute care sites in South Zone, Calgary Zone, Central Zone, Edmonton Zone and several sites in North Zone are in the planning stages or have fully implemented
   - Sites reported overall satisfaction with the intervention
3. The learnings from this initiative are highly generalizable:
   - May inform BBIT implementation outside of Alberta
   - May serve as a road map for other complex interventions
4. Presented at local, provincial, national and international level. Calgary Hospitalist group data was published.

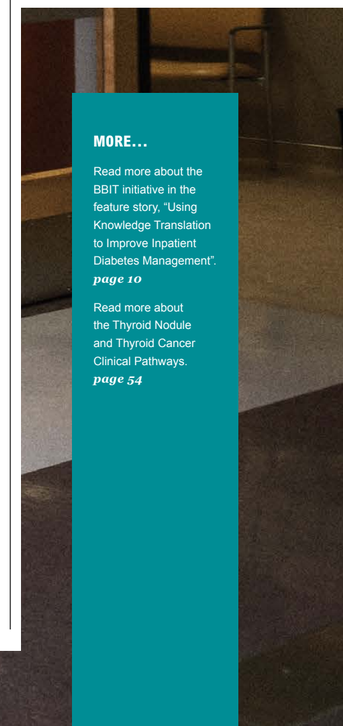
40

There are approximately 40 ongoing research studies in the Division of Endocrinology & Metabolism.

CHALLENGES

Over the past calendar year, Alberta Health Services and the Cumming School of Medicine have recognized the importance of equity, diversity and inclusivity (EDI) in Medicine and acknowledged that systemic and implicit biases can adversely affect the care patients receive and the professional experiences of our colleagues. The Division has reflected on our processes and programs and has made several efforts to encourage the principles of EDI and ensure wellness within the Division. These efforts include:

1. A more accessible city-wide rounds program;
2. Establishment of a Divisional Wellness Committee;
3. Robust representation on Departmental and Faculty EDI committees and
4. Use of Implicit Bias training during selection processes.



MORE...

Read more about the BBIT initiative in the feature story, "Using Knowledge Translation to Improve Inpatient Diabetes Management". *page 10*

Read more about the Thyroid Nodule and Thyroid Cancer Clinical Pathways. *page 54*

5

We welcomed 2 PGY4, 2 PGY5, and 1 PGY6 Residents to the Endocrinology Residency Training Program in 2018-19.

CORE STRENGTHS

The Division of Endocrinology & Metabolism has distinguished itself with strong clinical and academic performance in several sub-specialty areas including diabetes, diabetes in pregnancy, hypertension, osteoporosis, neuroendocrine disease, thyroid cancer and thyroid nodule assessment. The Division has a high performing Central Access and Triage process that is a tribute to the Division's interdisciplinary and collaborative approach to ensuring expedient an appropriate care to Calgarians with endocrine disease.

THYROID NODULE AND THYROID CANCER CLINICAL PROGRAMS

The Thyroid Nodule and Thyroid Cancer Clinical Care programs have been revised to improve clinical care for adults with thyroid nodules. The overarching goal of this change is to make assessment of thyroid nodules and diagnosis and treatment of thyroid cancer more standardized, risk-specific and efficient. In collaboration with EFW Radiology, we have implemented standards of reporting of thyroid nodules to facilitate the identification of nodules at greatest risk of malignancy (and by extension identify nodules that are of lower clinical concern and do not require biopsy). We have also implemented a centralized and specialized thyroid cancer triage system that allows for expedited and comprehensive case review by a team of thyroid cancer physicians to delineate care plans. Lastly, our team (including our thyroid surgery colleagues) has developed recommendations for type of surgical procedure based on thyroid cancer characteristic to ensure consistency in surgical care and optimize clinical outcome for patient (i.e. optimize chance for thyroid sparing surgery and increase chance of curative procedure). We are currently conducting a comprehensive evaluation of our program.

GASTROENTEROLOGY & HEPATOLOGY

The Calgary Division of Gastroenterology & Hepatology (Calgary GI and Liver Division) spans four acute care medical sites across Calgary with a team of almost 60 members. We are dedicated to helping patients achieve gastrointestinal and liver health and wellness by providing outstanding clinical care, as well as striving to achieve excellence in research and education.

CHALLENGES OF INCREASING CLINICAL DEMAND

Referrals to Calgary GI and Liver Division are over 2,000 per month and growing at 3% per year; by far the highest demand medical subspecialty in the Calgary Zone. Because of this demand, the GI service has become essentially an urgent care service – essentially with capacity to look after patients with the most pressing medical needs (i.e. seeing sickest patients first) and with challenges associated with seeing and treating referred patients with less urgent needs.

With the massive demand for GI specialty care that is growing yearly, the Central Access and Triage (CAT) program of central referral processing is stretched to its' limits. There is urgent need for additional resources to support this vital program.

DR. MARK SWAIN
Division Head

Dr. Mark Swain is the Division Head and Zone Clinical Section Chief of Gastroenterology and Hepatology in the Department of Medicine. He also holds the positions of the Head of the Translational Research Core in the Snyder Institute of Chronic Diseases, University of Calgary and the Cal Wenzel Family Foundation Chair in Hepatology. He has published widely in the areas of liver disease and autoimmunity, publishing more than 110 peer-reviewed articles to date.

$2M

The Division received funding of two Health Implementation Innovation Spread (HIIS) grants through AHS for almost $2 Million.

CIRRHOSIS CARE CLINIC

A Cirrhosis Care Clinic has been established in the FMC University of Calgary Medical Clinics (UCMC) to address the huge and growing disease burden and readmission rates of ~30% at 90 days. The Clinic is run by two Nurse Practitioners dedicated to cirrhosis care, and currently follows ~1,200 cirrhosis patients. All referrals to the Cirrhosis Care Clinic are processed through Hepatology Central Access & Triage (CAT), including patients being discharged from acute care wards. The goal of the Clinic is to reduce the 90 day cirrhosis readmission rate at FMC to ~50% of other acute care sites.

4

We welcomed 2 PGY4 and 2 PGY5 Residents to the Gastroenterology Residency Training Program in 2018-19.

COLLABORATION WITH PRIMARY CARE

The Division successfully implemented the Hepatology non-alcoholic fatty liver disease (NAFLD) Clinical Care Pathway in Calgary. To date, almost 5,000 people have been screened through Primary Care, and 92% of patients who previously would have been referred to Hepatology have been able to receive care in the medical home by their Primary Care physicians.

The Cirrhosis Care Clinic is run by two Nurse Practitioners dedicated to cirrhosis care, and currently follows ~1,200 cirrhosis patients.

3%

Referrals to GI are over 2,000 per month and growing at 3% per year; by far the highest demand medical subspecialty in the Calgary Zone.

NEW ENDOSCOPIC PROCEDURES

The GI Division established Endoscopic Mucosal Resection (ESD) and POEM endoscopic procedures in the Calgary Zone, resulting in the avoidance of major surgery and morbidity/mortality associated with previous surgical approaches for colorectal, stomach and esophageal pathology. POEM endoscopic procedures launched in collaboration with Thoracic Surgery at FMC.

RESEARCH

The Division received funding of two Health Implementation Innovation Spread (HIIS) grants through AHS for almost $2 Million: a grant to spread the Calgary GI Pathways Provincially (PI: Dr. Kerri Novak), and a grant for HCV outreach via telehealth for First Nations and disadvantaged groups in Alberta (PI: Dr. Sam Lee).

34

The Gastroenterology Residency Training Program received 32 applications from prospective Residents for the 2 available PGY4 spots in 2018-19.

PHYSICIAN LEARNING PROGRAM

In collaboration with Dr. Kelly Burak in the Physician Learning Program office at the University of Calgary, Dr. Kerri Novak and the Calgary GI Division created a Physician Learning Program for endoscopy appropriateness of upper endoscopy for dyspepsia in patients under the age of 50 without red flags. The Program was completed and presented to the GI Division in 2018-19. A one year follow-up will be conducted to determine the longer-term impact on physician practice. Dr. Novak submitted a CWC application and received funding to take the PLP for endoscopy appropriateness provincially.

ENDOSCOPY CENTER OF EXCELLENCE

Following over a year of discussions and negotiations, the GI Division, in partnership with Alberta Health Services and Pentax, established an Endoscopy Centre of Excellence in Calgary in early 2019. The tripartite agreement enables access to advanced endoscopy equipment and devices, access to research protocols and studies, educational opportunities, and courses as a Center of Therapeutics Excellence.

"Because of this demand, the GI service has become essentially an urgent care service – essentially with capacity to look after patients with the most pressing medical needs (i.e. seeing sickest patients first) and with challenges associated with seeing and treating referred patients with less urgent needs."

Dr. Mark Swain

MORE...

Gastroenterology receives the highest number of outpatient referrals of all Divisions in the Department of Medicine. Find out more details in the key Departmental statistics. ***page 60***

GENERAL INTERNAL MEDICINE

General Internists are specialist physicians who provide medical (as opposed to surgical) care to adult patients. A general internist may be called upon to provide care when a patient has several often-chronic co-existing medical conditions, when the nature of a medical problem is not yet defined, when a patient is acutely unwell, or when a patient with medical conditions requires surgery.

GENERAL INTERNISTS
Some general internists have a broad scope of medical practice and in less populated areas where physicians are few, the general internist may serve several subspecialist roles. Other general internists have developed specialized clinical skills such as providing medical care to pregnant patients. Because general internists work throughout the health care system, many serve in education or leadership roles. And some general internists are highly productive researchers. In Calgary, there are approximately 100 general internists that provide clinical care, medical education, research, and medical leadership.

100

There are approximately 100 general internists in Calgary that provide clinical care, medical education, research, and medical leadership.

"In Calgary, there are approximately 100 general internists that provide clinical care, medical education, research, and medical leadership."
Dr. Jeffrey Schaefer

CHALLENGES
The two biggest challenges that the Division faces are:

1. Responding to the increased demand for clinical services within a growing population in which the prevalence of chronic disease and incidence of acute disease is growing
2. Responding to the medical complications association with addictions, poverty, lack of education, as well as the trauma experienced by refugees and victims of abuse and discrimination.

10

We welcomed 5 PGY4 and 5 PGY5 Residents to the General Internal Medicine Residency Program in 2018-19.

RESEARCH
The PaCES (Palliative Care Early and Systematic: Impact on patients and health system outcomes) research project, funded by a CIHR PHSI grant and co-led by Dr. Jessica Simon, is integrating palliative care with oncological care and has yielded resources that are readily adaptable and useful for primary care physicians and non-oncology specialists. These resources can be found under "Palliative & Supportive Care" on Alberta Health Services' Cancer Guidelines: Guideline Resource Unit (GURU), Information for Health Professionals website (ahs.ca/guru).

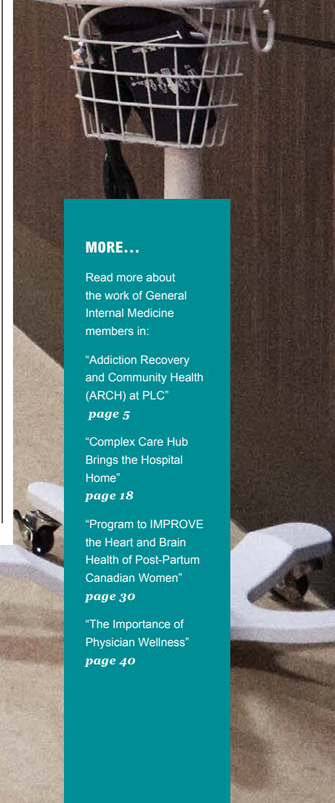
EXPANDING EXPERTISE
In 2018-19, the Division of General Internal Medicine developed and expanded expertise in the areas of Addictions Medicine, Refugee Health, Complex Chronic Care, Obesity, Clinical Pharmacology and Toxicology, Point of Care Ultrasound, Simulation-based Education, Vascular Health, Perioperative Care, Information Technology, and Palliative Care.

COMPLEX CARE HUB
The Division has developed a Complex Care Hub at Rockyview General Hospital and South Health Campus, in which patients can be discharged early from hospital with ongoing care provided collaboratively by the Calgary Paramedic Service and General Internal Medicine. Find out more in the feature story, "Complex Care Hub Brings the Hospital Home", on page 18.

SERIOUS ILLNESS CARE PROGRAM
Dr. Fiona Dunne successfully spearheaded the Serious Illness Care Program on the Medical Teaching Unit (MTU, Unit 36) at the Foothills Medical Centre. The Program is now being implemented by South Health Campus and Foothills Medical Centre hospitalist groups.

"The PaCES research project is integrating palliative care with oncological care and has yielded resources that are readily adaptable and useful for primary care physicians and non-oncology specialists."
Dr. Jessica Simon

PALLIATIVE CARE
The Palliative Care Team in the Department of Medicine has done some amazing work in the past year. In 2018, Drs. Chandra Thomas, Tara Lohmann, Mike Slawnych, and Jessica Simon provided workshop at both CSIM and at the Canadian Society of Palliative Care Physicians (CSPCP) Conferences on integrating palliative care in the care of people living with chronic diseases. Following on from that, the team was invited back to do separate workshops on different aspects of non-cancer palliative care and advance care planning at the 2019 CSPCP Conference. The team has presented internationally, has regularly provided other Undergraduate Medical Education (UME), Post-Graduate Medical Education (PGME), and Continuing Medical Education (CME) sessions, published book chapters, and supported colleagues in collaborative practice efforts.



MORE...

Read more about the work of General Internal Medicine members in:

"Addiction Recovery and Community Health (ARCH) at PLC"
page 5

"Complex Care Hub Brings the Hospital Home"
page 18

"Program to IMPROVE the Heart and Brain Health of Post-Partum Canadian Women"
page 30

"The Importance of Physician Wellness"
page 40

40

The General Internal Medicine Residency Program received 40 applications from prospective Residents in 2018-19.

DR. JEFFREY SCHAEFER
Division Head
Dr. Jeffrey Schaefer is a General Internist, Clinical Professor, Division Head and Zone Clinical Section Chief for General Internal Medicine, and Clinical Deputy Department Head for the Department of Medicine. Dr. Schaefer is known for his pragmatism, sense of fairness, and fidelity to doing what is in the best interest of our patients and society that we serve.

GERIATRIC MEDICINE

The Division of Geriatric Medicine has 16 geriatrician members. Although we are a small Division, we contribute substantially to the mandate of the Department of Medicine through our contributions to education, administration, research and clinical service.

19

The Geriatric Medicine Residency Program received 19 applications from prospective Residents in 2018-19.

LAUNCH OF COMPETENCY BY DESIGN (CBD)

The RCPSC launched competency by design (CBD) for Geriatric Medicine in July 2019. The Division of Geriatric Medicine, under the guidance of Drs. Pearce and Dempsey, was well prepared for this change. In 2018-19, we completed a full pilot of all EPAs (entrustable professional activities) and established our Competency Committee. We were the only Geriatric Medicine Training program in the country to pilot CBD.

The main goal was to ensure a successful official launch of CBD within our training program in July 2019. Many lessons were learned during the pilot, which have allowed for a smoother launch of CBD in 2019. This has included the development of stage-specific rotation goals and objectives, creation of new rotations, changes in the provision of the academic curriculum including implementing a Geriatric Boot Camp, and the development of a tool to enable easy identification of the correct EPA (now informally called the "Calgary Card" by other programs).

There was a high level of engagement in the pilot from both residents and faculty, with 213 observations completed by 7 residents in the first 6 months. Every Division member involved in residency training completed EPAs.

"We were the only Geriatric Medicine Training program in the country to pilot CBD."

Dr. Paula Pearce and Dr. Erika Dempsey

DR. JAYNA HOLROYD-LEDUC
Division Head

Dr. Jayna Holroyd-Leduc is a Professor, Division Head and Zone Clinical Section Chief for Geriatric Medicine, Medical Director of the Specialized Geriatric Services (AHS Calgary Zone), and Academic Deputy Department Head in the Department of Medicine. Dr. Holroyd-Leduc holds the Brenda Strafford Foundation Chair in Geriatric Medicine, a joint appointment in the Department of Community Health Sciences and is also a member of the Hotchkiss Brain Institute and the O'Brien Institute for Public Health at the University of Calgary.

INTEGRATING GERIATRIC ASSESSMENTS INTO SUBSPECIALTY CLINICS

Dr. Zahra Goodarzi and Dr. Jacqueline McMillan have recently partnered with two subspecialty clinics in Calgary that provide care for sub-populations of vulnerable frail older adults: the Movement Disorders Clinic (MDC) which cares for persons with Parkinson's disease and other movement disorders, and the Southern Alberta Clinic (SAC) which provides care to persons with HIV. By housing the geriatrician directly within these clinics, the resulting improved communication and collaboration across disciplines has helped to optimize care. These partnerships have focused on improving care to vulnerable frail older adults through the provision of geriatric consultations and applied research activities.

7

We welcomed 4 PGY4 and 3 PGY5 Residents to the Geriatric Medicine Residency Program in 2018-2019.

30

Division Members authored a total of 30 publications in 2018-2019.

MD-MD PHONE CONSULTATIONS

During the Seniors Health Clinic QI initiative, it was determined that, although patients presenting with signs and symptoms suggestive of Alzheimer's dementia without associated complexity do not usually need to be seen in Seniors Health clinic, the referring physicians still need support in making this diagnosis and managing early symptoms. Therefore, the Division launched an MD-MD phone consultation service where uncomplicated referrals for cognitive assessment were triaged. Drs. Schmaltz, Dempsey and Silvius support this new consultation service. This new service has helped us to manage our clinic wait times and prioritize the timely assessment of frail complex older adults within the clinic, all while still supporting our primary care colleagues. We have also incorporated the learning needs identified during the MD-MD phone consults regarding dementia in to the UCalgary Geriatric Update course and other CME events. Given the success of this service, we have expanded it to include other clinical issues that could be potentially addressed via a phone consultation, and have added the option of requesting a phone consultation to our referral form. We currently conduct about 25 MD-MD phone consults per month.

DR. JACQUELINE MCMILLAN

Dr. McMillan's research within the Southern Alberta Clinic (SAC) began during her Master's Degree, which focused on evaluating the prevalence and risk factors for frailty in individuals living with HIV. As a result of this work, patients ≥50 years living with HIV now undergo annual frailty screening at SAC, and those who are identified as frail are referred for further assessment by Dr. McMillan.

Dr. McMillan is currently involved in the CIHR-funded CHAMPS study, led by Dr. C. Power, investigating the neurological conditions associated with HIV as well as the role that frailty and aging play in these conditions. Dr. McMillan is also leading an interdisciplinary team in grant applications to both the CIHR and the Canadian Frailty Network for funding to develop a clinical care pathway for frail, older adults living with HIV. The goal is to create a systematic method of identifying frailty in persons living with HIV, followed by a standardized assessment of and screening for factors associated with frailty. Ultimately, the research goal is to improve the provision of holistic and patient-centered care for older adults in whom HIV infection is well-managed but contributing to frailty and advanced aging.

25

The Division currently conducts about 25 MD-MD phone consults per month.

CHALLENGES

We have been very appreciative of the Department of Medicine and AHS support in recruiting geriatricians. Over the past few years, we have also been successful in training a number of geriatricians through our residency training program. However, SGS has not seen any increase in operational dollars to support additional recruitment. While there is clinical need for more geriatricians, in order to grow the programs and services to meet the needs of an aging population, SGS will struggle to support more physicians without additional operation support or a clinical ARP. To help address this issue, we have submitted a proposal for a clinical ARP to Alberta Health, which would support both geriatricians and care-of-the-elderly family physicians within the Calgary zone.

"Many of our members are award-winning educators and teachers, supporting educational activities within our Division, the Department, and the University."

Dr. Jayna Holroyd-Leduc

CLINICAL CARE

We provide a comprehensive range of clinical services, which are administered through AHS Calgary Zone Specialized Geriatric Services (SGS). Our clinical services include Seniors Health clinics both in Calgary and at rural sites, Falls Prevention program, Day Hospital, Seniors Health Outreach Program (SHOP) to continuing care facilities, Acute Geriatric Unit (AGU), and inpatient hospital consultations. Other clinical activities we support include the Hospital Elder Life Program (HELP), the Fracture Liaison Service (FLS), wound care consultations, geriatric assessments within subspecialty clinics, home visits and consultations to RCTP.

RESEARCH & EDUCATION

Four of our members are clinician researchers with a focus on health services and applied research, which includes leading a number of local, provincial and national research grants and authoring 30 publications during this reporting year. Many of our members are award-winning educators and teachers, supporting educational activities within our Division, the Department, and the University.

213

213 observations were completed by 7 residents in the first 6 months of the CBD pilot.

EDUCATIONAL EVALUATION MATRIX

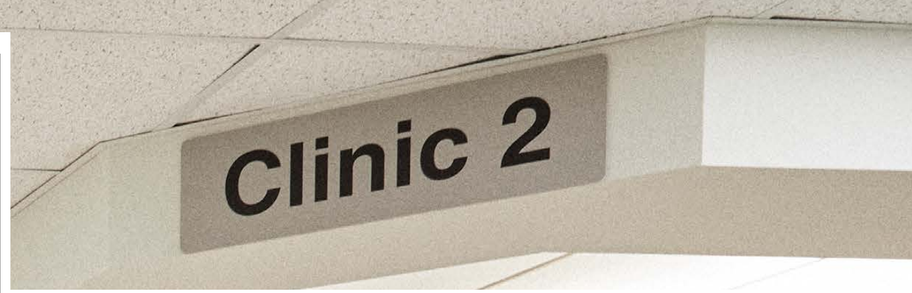
Dr. Karen Fruetel, with input from key stakeholders, has developed and launched the first educational evaluation matrix for the Department of Medicine. This evaluation matrix and the associated educational accountability grid were piloted by many divisions, including the Division of Geriatric Medicine, during the 2018-19 annual review process.

LEADING INNOVATION IN THE CARE OF FRAIL OLDER ADULTS WITHIN THE CALGARY ZONE AND ACROSS THE PROVINCE

Members of the division continue to lead and support a number of change initiatives targeted at improving the care provided to vulnerable frail older adults. This includes leadership roles within the AHS Seniors Health SCN (Dr. Silvius), the AHS Calgary zone Seniors, Palliative and Continuing Care portfolio (Drs. Holroyd-Leduc and Kwan), and the UCalgary Brenda Strafford Foundation Centre on Aging (Dr. Hogan). We continue to provide leadership on the Calgary zone Elder Friendly Care Advisory committee and the four Acute Care Site Elder Friendly Care working groups, as well Dr. Holroyd-Leduc is currently leading two PRIHS (Partnership for Research and Innovation in Health Systems) grants focused on improving the care provided to frail older Albertans experiencing acute on chronic medical issues.

MORE...

Read more about Geriatric Medicine and the quality improvement work being done in the Division in "Improving Access and Care at Seniors Health Clinics".
page 50



HEMATOLOGY & HEMATOLOGICAL MALIGNANCIES

The Division provides care for people in Southern Alberta with blood and bone marrow cancers as well as benign blood disorders. Our specialized programs include the Calgary thrombosis program, the Rare Blood and Bleeding Disorders clinic, Immunodeficiency clinics, Alberta Blood and Bone Marrow Transplant Program, and specialized clinics for those with cancers such as leukemia, myeloma, and lymphoma.

CALGARY THROMBOSIS PROGRAM
The Calgary Thrombosis Program provides rapid specialist consultation in thrombosis, with most consultations completed within 24 hours of referral. The Academic Medicine and Health Services Plan (AMHSP) supports central triage, coordination of care, streamlining of investigations and improved access.

"AMHSP support for physicians' non-clinical time has allowed the Division to provide low-volume, high-complexity care, as well as develop new clinical care pathways and the Clinical Practice Guidelines in Hematological Malignancy and Bone Marrow Transplant."

Dr. Peter Duggan

CAR T-CELL THERAPY
Dr. Andrew Daly and his team have started clinical trials that will help advance CAR T-cell therapy and provide renewed hope and improve the lives of Albertans. Dr. Daly and his colleagues at Alberta Children's Hospital have begun clinical trials treating children who have acute lymphoblastic leukemia (ALL) and he hopes to treat adults with non-Hodgkin lymphoma on similar trials.

In addition to Dr. Daly's current and upcoming clinical trials in leukemia and lymphoma, Dr. Nizar Bahlis, Clinical Associate Professor and member of the Division of Hematology & Hematological Malignancies, is also the principal investigator of a clinical trial in a different blood cancer, multiple myeloma.

Find out more about how CAR T-Cell Therapy works in the feature story, "Chimeric Antigen Receptor T-Cell (CAR T-Cell) Therapy" on page 25.

DR. PETER DUGGAN
Division Head
Dr. Peter Duggan is a Clinical Associate Professor and the former Division Head and Zone Clinical Section Chief for the Division of Hematology and Hematological Malignancies in the Department of Medicine. At the end of 2018-19, Dr. Peter Duggan's appointment as the Division Head and Zone Clinical Section Chief came to an end.

After a successful search and selection process to replace Dr. Duggan as Division Head, Dr. Andrew Daly was appointed as the Division Head and Zone Clinical Section Chief for the Division of Hematology and Hematological Malignancies, effective July 1, 2019. Dr. Daly is currently a Clinical Associate Professor in the Department of Medicine and the former Director of the Alberta Blood and Bone Marrow Transplant Program. He is also a member of the Arnie Charbonneau Cancer Institute at the Cumming School of Medicine, University of Calgary.

21

The Hematology Residency Training Program received applications from 25 prospective Residents in 2018-19.

STEM CELL TRANSPLANTATION
Dr. Andrew Daly is a recognized leader in stem cell therapy and transplantation. He made headlines in May 2019 after performing a stem cell transplant for Revée Agyepong. She was the first adult in Alberta whose sickle cell anemia was cured with this treatment, freeing her from the debilitating disease that caused excruciating pain and was slowing killing her major organs.

AMHSP SUPPORT
Academic Medicine and Health Services Plan (AMHSP) support for physicians' non-clinical time has allowed the Division to provide low-volume, high-complexity care, as well as develop new clinical care pathways and the Clinical Practice Guidelines in Hematological Malignancy and Bone Marrow Transplant.

ALBERTA BLOOD AND BONE MARROW TRANSPLANT PROGRAM
Dr. Mona Shafey was appointed as the Director of the Alberta Blood and Bone Marrow Transplant Program, effective August 6, 2019. She was selected by a Search and Selection Committee made up of representatives of the Divisions of Hematology of the University of Calgary and the University of Alberta as well as clinical and operational leaders at FMC and TBCC. Mona brings a decade of experience in stem cell transplantation to the position and is well respected as the level-headed voice of reason. She has won numerous local and national awards, including the Leukemia and Lymphoma Society Health Professional of the Year Award of 2019.

MORE...
Find out more about incoming Hematology Division Head, Dr. Andrew Daly, and how CAR T-Cell Therapy works in the feature story, "Chimeric Antigen Receptor T-Cell (CAR T-Cell) Therapy". ***page 25***

4

We welcomed 2 PGY4 and 2 PGY5 Residents into the Hematology Residency Training Program in 2018-19.

BONE MARROW TRANSPLANT LONG-TERM FOLLOW-UP
The Bone Marrow Transplant clinic specializes in early detection of the serious late complications of stem cell transplant. Areas of focus include prevention second primary malignancy, cardiovascular disease and endocrine diseases; these patients can be difficult to manage in primary care due to the large number of complications and complex medical needs.

"In addition to Dr. Daly's current and upcoming clinical trials in leukemia and lymphoma, Dr. Nizar Bahlis is also the principal investigator of a clinical trial in a different blood cancer, multiple myeloma."

Jennifer Allford (adapted from CAR T-Cell Therapy feature story)

INFECTIOUS DISEASES

The Division of Infectious Diseases (ID) sees adult patients in both acute care and ambulatory care settings. ID physicians only see patients referred to us by other physicians. Patients cannot self-refer. Family physicians and physicians working in other specialties are trained to treat most common infections in their area. ID sees complex cases.

RECOGNITION OF EDUCATION

The Division of Infectious Diseases (ID) has a long-standing commitment to Education but this commitment has been poorly documented. This initiative will document the contribution of AMSHP members to all aspects of Education: UME, PGME, International, Graduate UCalgary, Interdisciplinary and other contributions. It will further document the contribution of AMHSP members to Direct Teaching, Evaluation, Program leadership, Program Development and Educational Scholarship. Discussion with AMHSP members revealed underreporting of a variety of activities such as mentoring and time spent advising trainees about research projects.

5

We welcomed 2 PGY4 and 3 PGY5 Residents to the Infectious Diseases Residency Training Program in 2018-19.

CHALLENGES

The four outpatient antimicrobial clinics (HPTP) each average seeing 16-18 patients/clinic (4-6 new patients). All Emergency Department referrals are seen within 24 hours which can cause clinics to have > 30 patients and/or > 20 new patients. The physician has 4.5 hours/clinic. HPTP monitors 350 patients/day. Need: more space, physician and nursing time.

No non-locum tenens positions have been recruited since February 2013. The inpatient consulting services has increased in patient load and complexity. The Section outpatient clinics (HPTP, General Infectious Diseases, HIV, Sexually Transmitted Infections, Tropical Infections and Cystic Fibrosis) have increased patient numbers. Need: more physicians.

"ID consultation (for S. aureus Bacteremia) resulted in improved attainment of targeted quality of care determinants and reduced mortality rate (11.6% vs 34.6%)."

Drs. John Lam, Daniel Gregson, Stephen Robinson, Ranjani Somayaji, John Conly, and Michael Parkins

350

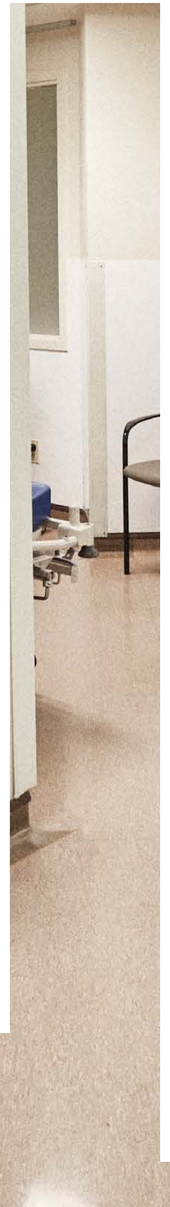
HPTP monitors 350 patients per day.

CLINICAL CARE

ID focuses on infections such as those involving:

- Multiple parts of the body (ICU patients with life threatening infections, cystic fibrosis);
- Patients with a damaged immune system (HIV, organ transplant recipients);
- Foreign material (artificial joints, heart valves);
- Infections found in organs or special sites;
- Tropical diseases (malaria, dengue, etc.);
- Diabetic patients with foot infections that could result in the loss of toe(s) or leg;
- Giving antibiotics through a vein (intravenous) in an outpatient setting

Infectious Disease operates several outpatient clinics including the outpatient intravenous treatment program (HPTP), the HIV program, the Sexually Transmitted Infection program, a General Infectious Diseases Clinic, a Tropical Diseases Clinic, and Cystic Fibrosis Program.



21

The Infectious Diseases Residency Training Program received 21 applications from prospective Residents in 2018-19.

S. AUREUS BACTEREMIA STUDY

Staphylococcus aureus bacteremia (SAB) is associated with significant morbidity and mortality throughout the world. Laupland et al (2008) performed a study in Calgary from 2000-2006 which documented the clinical outcome of patients with S. aureus bacteremia. Since that time the epidemiology of S. aureus bacteremia has changed in Calgary. Most notably the percentage of Methicillin Resistant S. aureus (MRSA) bacteremia increased from <5% to 30%.

The retrospective population-based cohort study was designed to answer three specific questions.

1. What is the burden and the nature of S. aureus bacteremia within the Calgary Urban area from January 1, 2012 – Dec 31, 2014?
2. How does the involvement of an Infectious Diseases consultant influence the investigation and treatment of patients with S. aureus bacteremia?
3. What patient outcomes, if any, are improved when ID consultants are involved in S. aureus bacteremia?

In this study, a systematic chart review of all patients with a positive blood culture for either Methicillin susceptible S. aureus (MSSA) or MRSA bacteria from January 1, 2012 to December 31, 2014 was performed. The anonymized data of 961 episodes of SAB occurring in 892 patients was then analyzed to answer the primary questions.

891

ID members taught a total of 891 half days, exceeding the expected 726 half days of teaching.

DR. DONNA HOLTON
Division Head

Dr. Donna Holton is the Division Head and Zone Clinical Section Chief of Infectious Diseases in the Department of Medicine, and a Clinical Associate Professor in the Cumming School of Medicine at the University of Calgary.

Dr. Michael Parkins is the incoming Division Head and Zone Clinical Section Chief of Infectious Diseases in the Department of Medicine, effective November 1, 2019. Dr. Parkins is currently an Associate Professor, with tenure, in the Department of Medicine with a joint-appointment in the Department of Microbiology, Immunology, and Infectious Diseases. He is also a primary member of the Snyder Institute for Chronic Diseases in the Cumming School of Medicine at the University of Calgary.

COLLABORATION WITH THE UNIVERSITY OF GONDAR, ETHIOPIA

The Gondar School of Medicine has expressed interest in expanding our collaboration to include clinical infectious diseases (ID) education and research endeavors. The collaborative course in ID medical education was established in 2016 as a way to build capacity with respect to clinical ID knowledge among post-graduate medical trainees and staff. The course is a 4-day intensive program taught using interactive case-based methodology, small group exercises and laboratory demonstrations. Course design and instruction is provided by experts from both the Universities of Calgary and Gondar.

To date, approximately 45 medical trainees from the University of Gondar have participated in this course. Significant short and long-term ID knowledge gain/retention was seen among participants. The course was rated very highly by participants who also expressed strong interest in participating in further ID medical education and PSQI opportunities in the future.

Results of this education initiative will be presented at AMEE in August, 2019. Formal accreditation of this course by the Ethiopian Ministry of Health is currently being pursued.

RESEARCH & EDUCATION

By Royal College and Department of Medicine mandate, the Section accommodates all trainees in Adult ID, GIM, Dermatology, Pediatric ID, Medical Microbiology, Community and Public Health. This makes the Section unusual in the number of different trainee programs that require ID acute care rotations.

The Section exceeded the required 726 half days of education teaching. The actual half days were 891 without ward teaching and with the inclusion of a low estimate of ward teaching 1149 half days.

13

The Division received 11 UME teaching awards and 2 PGME teaching awards.

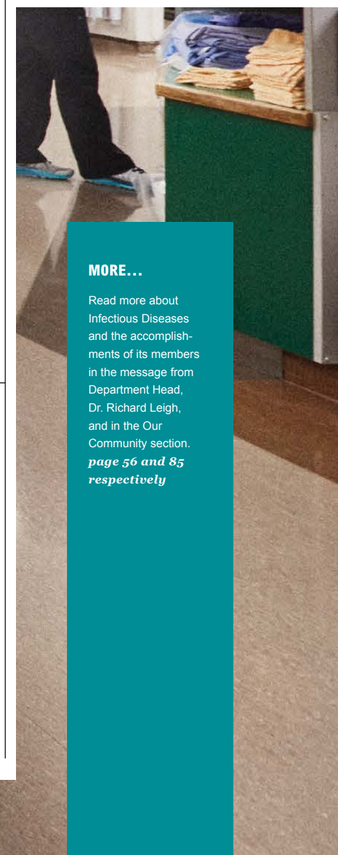
"To date, approximately 45 medical trainees from the University of Gondar have participated in this course. Significant short and long-term ID knowledge gain/retention was seen among participants. The course was rated very highly by participants who also expressed strong interest in participating in further medical education and PSQI opportunities."

Drs. Bonnie Meatherall, Bayan Missaghi, Dylan Pillai, William Stokes, and Candace Rypien

S. AUREUS BACTEREMIA STUDY RESULTS

The study found increasing incidence rates of community acquired MSSA and MRSA bacteremia compared with Laupland's study. Age distribution and comorbidities risks factors of SAB have also changed compared to Laupland's study. Clinical outcomes associated with SAB remain poor; study mortality was 20%. The treatments and investigations of SAB often fell short of the optimal recommended management. ID consultation resulted in improved attainment of targeted quality of care determinants and reduced mortality rate (11.6% vs 34.6%).

The results of the study were published in Infection in July 2019: https://doi.org/10.1007/s15010-019-01330-5 (Epub ahead of print)



MORE...

Read more about Infectious Diseases and the accomplishments of its members in the message from Department Head, Dr. Richard Leigh, and in the Our Community section. *page 56 and 85 respectively*

NEPHROLOGY

The Division of Nephrology provides specialized services and programs for chronic kidney disease, end-stage kidney disease, genetic kidney diseases, acute kidney injury and glomerulonephritis. The Division of Nephrology is also a research-intensive group that is internationally renowned for its work in health services, patient oriented research, chronic disease management, acute kidney injury and precision medicine.

"The demographic of 35- to 55-year-old women is the only one that has not experienced a decline in cardiovascular disease over the past several decades."

Drs. Sofia Ahmed and Sandi Dumanski

4

We welcomed 3 PGY4 and 1 PGY5 Residents to the Nephrology Residency Training Program in 2018-19.

CHALLENGES

The Division's two greatest challenges in 2018-19 were our growing patient population and limited resources to develop new innovative programs.

INDIGENOUS OUTREACH CLINICS

The Division of Nephrology implemented an outreach nephropathy prevention clinic on Siksika Nation in 2006/2007. The goal of our clinic/program was to work closely with patients who have type 2 diabetes, hypertension and/or dyslipidemia and who are at high risk of developing kidney disease. We worked to increase awareness and bring urban services to this rural First Nation and our outcomes were positive; we focused on early intervention of diabetes and hypertension management to reach glycemic and blood pressure targets. Our findings were clinically significant and we were able to show improvements in glycemic control and blood pressure.

We continue to hold our nephropathy prevention clinic in Siksika and, based on the data collected and success here, we have grown to hold clinics for the Kainai First Nation on the Blood Reserve in Stand Off, at the Elbow River Healing Lodge located in downtown Calgary serving a population of urban Indigenous people, and as well at CUPS (Calgary Urban Project Society) serving marginalized, homeless people at risk of developing kidney disease.

Ellen Novak is a family nurse practitioner who holds the clinics and closely collaborates with Dr. Hemmelgarn for Siksika Nation, Kainai Nation and Elbow River Healing Lodge and with Dr. Mathew James for the CUPS clinic.

DR. DAN MURUVE
Division Head

Dr. Dan Muruve is a Professor of Medicine, Division Head and Zone Clinical Section Chief of Nephrology in the Department of Medicine, and a member of the Snyder Institute for Chronic Diseases. Dr. Muruve is a certified kidney specialist and basic scientist with expertise in the biology of kidney disease and the molecular basis of inflammation and the immune system. Dr. Muruve holds a Canada Research Chair in Inflammation, Personalized Medicine, and Kidney Disease.

"At the completion of [the EMPATHY] project, we will understand whether routinely measuring and reporting PROMs to care providers improves patient experience, particularly patient-clinician communication in individuals undergoing hemodialysis in AKC-S. Other health outcomes, including the perspectives and experience of patients and providers will be measured. This information will guide how patient-reported outcome measures are used in AKC-S."

Drs. Natalie Ilkiw, Braden Manns, and Chandra Thomas

PREVENT AKI

This initiative aims to improve the understanding and outcomes of patients receiving contrast dyes as part of their medical procedures, and to prevent contrast-induced acute kidney injury (AKI) in high risk patients. The initiative includes:

- Translational research to better understand the pathophysiology of acute kidney injury;
- Clinical research to risk stratify patients and minimize AKI risk in patients undergoing coronary angiography; and
- Health services research to optimize medical care and follow up for patients who have experienced acute kidney injury during their hospitalization.

This study was designed to better understand the pathogenesis of contrast-induced acute kidney injury in patients undergoing cardiac catheterization. The study included a biomarker arm in subjects pre and post coronary angiogram. A new understanding of the mechanism of AKI in this population was uncovered and published in the Journal of Clinical Investigation in 2018. New drug targets were identified that could be used to prevent contrast-induced AKI in the future. The next steps are therapeutic clinical trials, which will hopefully occur in the next 5 years.

Read more about this initiative in the feature story, "Researchers make essential imaging tests safer for people at risk of acute kidney injury", on page 47.

31

There are 31 nephrologists in the Division of Nephrology.

EMPATHY PROJECT

The EMPATHY Initiative involves implementing and evaluating the use of patient reported outcome measures (PROMs) in clinical practice, specifically within all hemodialysis units in Alberta Kidney Care-South(AKC-S). The implementation of the intervention will be rolled out across all in-centre hemodialysis units within AKC-S over 18 months.

At the completion of this project, we will understand whether routinely measuring and reporting PROMs to care providers improves patient experience, particularly patient-clinician communication in individuals undergoing hemodialysis in AKC-S. Other health outcomes, including the perspectives and experience of patients and providers will be measured. This information will guide how patient-reported outcome measures are used in AKC-S.

SEX AND GENDER DIFFERENCES IN CARDIOVASCULAR DISEASE

Our translational laboratory, led by Drs. Sofia Ahmed and Sandi Dumanski, aims to examine sex-specific factors that may be impacting the risk of kidney and cardiovascular disease. We are looking at different types of sex hormones, both naturally occurring in the body and also taken in the form of birth control and postmenopausal hormone therapy, to see the impact this has, if any, on risk for kidney or cardiovascular disease. Our lab ensures we recruit both women and men in our studies and, in the case of women, times our studies with the woman's menstrual cycle. These are important factors to consider when interpreting results.

Kidney disease progresses at different rates in women and men, and menopause likely also plays a role in how quickly a person loses kidney function. The demographic of 35- to 55-year-old women is the only one that has not experienced a decline in cardiovascular disease over the past several decades. Finally, both women and men with kidney disease are at an extremely high risk for cardiovascular disease despite maximal conventional treatment.

The outcome of this research is to develop gender specific treatment approaches for patients with kidney and cardiovascular disease.

"We are looking at different types of sex hormones, both naturally occurring in the body and also taken in the form of birth control and postmenopausal hormone therapy, to see the impact this has, if any, on risk for kidney or cardiovascular disease."

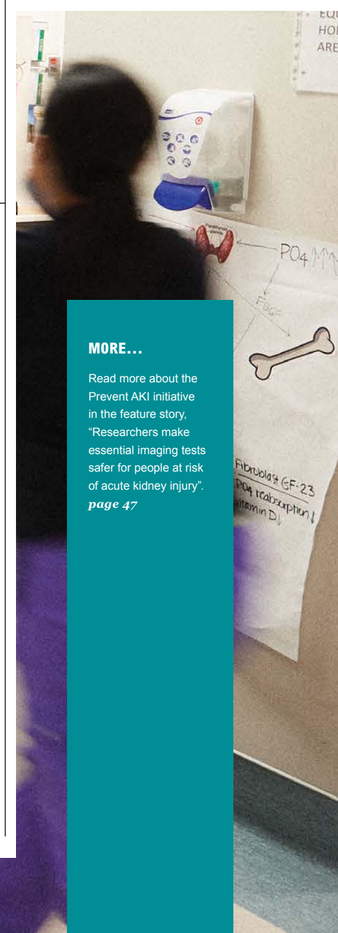
Drs. Sofia Ahmed and Sandi Dumanski

5

The Nephrology Residency Training Program received 5 applications from prospective Residents in 2018-19.

OUR TEAM

The Division of Nephrology provides kidney care to the city of Calgary and is the referral centre for Southern Alberta and Eastern BC. The group consists of 31 nephrologists who provide clinical services at all hospitals and clinics in Calgary.



MORE...

Read more about the Prevent AKI initiative in the feature story, "Researchers make essential imaging tests safer for people at risk of acute kidney injury". *page 47*

RESPIRATORY MEDICINE

The Division of Respiratory Medicine is based out of all four acute care sites providing comprehensive consultative care and inpatient care to patients in Southern Alberta. The Division has nine on call inpatient services and assists with a tenth service (cystic fibrosis).

CARE CLINIC AT SHC

In 2018, Dr. Tara Lohmann started the CARE (Calgary Advanced REspiratory disease) Clinic at South Health Campus. It is a multidisciplinary clinic aimed at providing early palliative care for patients with advanced, life-limiting, and primarily non-cancer respiratory disease and their caregivers. It also serves to educate trainees and consulting physicians about how to support patients and their families when lung disease progresses despite optimal medical therapy. The clinic now includes support from Palliative Medicine, pulmonary clinic nurses with expertise and interest in Palliative Care, social workers, and homecare teams. The goals of the CARE Clinic are to:

- Improve end-of-life care by decreasing symptom burden
- Facilitate early advanced care planning and goals of care discussions
- Reduce ER visits and hospitalizations
- Reduce unhelpful therapies at the end of life

6

We welcomed 3 PGY4 and 3 PGY5 Residents to the Respiratory Medicine Residency Training Program in 2018-19.

"The CARE Clinic also serves to educate trainees and consulting physicians about how to support patients and their families when lung disease progresses despite optimal medical therapy."

Dr. Tara Lohmann

EREFERRAL

The Division was the first to move its Central Access and Triage (CAT) service to eReferral. To date there has been very little uptake of this referral option by primary care. By being an early adopter of technology designed to enhance the referral process, the Division and PCAT (including its dedicated AHS management) have spent a large amount of time adapting. Several eReferral limitations have been identified as part of this transition.

CHALLENGES

For many years the Division had five inpatient services in the Calgary Zone; four combined admitting and consult services (one at each acute care site) and an interventional pulmonary medicine (IPM) service at the FMC. In the past three years the Division has expanded to nine inpatient consult/admission services:

- Increasing volume of referrals at FMC and PLC created the need to develop a separate service for inpatient consults
- A sharp increase in the volume of TB inpatient consults and management has necessitated a separate 24/7 call schedule for TB physicians
- A distinct inpatient service at the PLC has been created for lung transplant/pulmonary hypertension
- The Division also participates in the cystic fibrosis inpatient service/call schedule at FMC

The Division currently has a deficit of 8 to 10 respirologists, in part due to increased inpatient volume/complexity. With an expected 4 to 6 retirements in the next five years the Division will need to recruit 15 respirologists over that time frame.

9

The Division has nine on call inpatient services and assists with a tenth service (cystic fibrosis).

DR. WARD FLEMONS
Division Head

Ward Flemons, MD, is a respirologist and sleep medicine specialist at FMC and a Professor of Medicine at the University of Calgary's Cumming School of Medicine. He holds the positions of Division Head and Zone Clinical Section Chief of Respiratory Medicine in the Department of Medicine, Quality and Safety Education Lead for the Ward of the 21st Century (W21C), and Medical Director for the Health Quality Council of Alberta.

IMPROVING ACCESS FOR PRIMARY CARE

Respiratory Medicine worked successfully with the Health Systems Supports Task Group (PCNs) to improve access for primary care. This included:

- Creating pathways for the management of sleep apnea and COPD
- Being a strong advocate for and supporter of Specialist Link
- Enhancing Central Access and Triage finalizing referral pathways
- Developing eReferral advice and eReferral consult options through NetCare

LUNG TRANSPLANT/PULMONARY HYPERTENSION INPATIENT SERVICE

The Division developed a separate lung transplant/pulmonary hypertension inpatient service at the PLC that was facilitated by the successful recruitment of two young respirologists who have done extended training in lung transplant medicine: Dr. Jon Liu (pulmonary fellowship at U of A, lung transplant training at UCSF) and Dr. Lea Harper (pulmonary fellowship at UBC, lung transplant training at U of Toronto).

CLINICAL

In addition to seeing general respiratory and asthma/COPD outpatients at all four sites, Division members have established many subspecialty clinics including:

- SHC – interstitial lung disease, hereditary hemorrhagic telangectasia, dyspnea (malignant pleural effusion), Alberta Thoracic Oncology Program (ATOP)/Interventional Pulmonary Medicine (IPM); participates in the ALS clinic
- PLC – pulmonary hypertension, nontuberculous mycobacteria (NTM), TB (at Sunridge), cough, chronic ventilation/neuromuscular clinic
- RGH – complex airway inflammation
- FMC – lung transplant, sleep, cough, bronchiectasis, complex airway inflammation, dyspnea (malignant pleural effusion), Alberta Thoracic Oncology Program (ATOP)/Interventional Pulmonary Medicine (IPM), supports the cystic fibrosis clinic and the bone marrow transplant clinic

FMC – Foothills Medical Centre
PLC – Peter Lougheed Centre
SHC – South Health Campus
RGH – Rockyview General Hospital

COPD/HF IMPROVEMENT PROJECT

The Chronic Obstructive Pulmonary Disease and Heart Failure (COPD/HF) improvement project in Calgary is one of the largest multiyear improvement projects ever undertaken by the Zone. It commenced in 2018 and, in total, will include five phases over two to three years. The COPD/ HF project aims to build collaborative practice and standardize care initially in acute care and then expand the project to include primary care, emergency department care, supportive living care and eventually spread to rural locations.

Dr. Ward Flemons is co-medical lead, along with Dr. Jonathan Howlett from the Division of Cardiology. Work at the acute care sites is supported by Dr. Brandie Walker (FMC), Dr. John Chan (RGH), Dr. Tara Lohmann (SHC), and Dr. Naushad Hirani (PLC). The project also involves a large contribution from hospital administration (Virginia Meyers, Executive Director for Medicine, Cardiology, Neurology, and Acute Geriatrics, is a co-lead), nursing, allied health and hospitalists. It has received incredible support and coordination from Integrated Quality Management (Carmella Steinke, Executive Director) and the Calgary Zone's Health Analytics team. As Phase 2 starts, Primary Care has become involved, with Dr. Rick Ward as lead.

"The COPD/HF improvement project in Calgary is one of the largest multiyear improvement projects ever undertaken by the Zone."

Dr. Ward Flemons

30

The Respiratory Medicine Residency Training Program received 30 applications from prospective Residents in 2018-19.

RHEUMATOLOGY

Our vision is: "Providing patients with the opportunity for optimal outcomes by getting them to the RIGHT provider at the RIGHT time for the RIGHT management." Our mission is: "Improving the lives of people with arthritis and rheumatic diseases through education, research innovation and timely care."

RHEUMATOLOGY DIVISION HEAD

Dr. Dianne Mosher is a Professor and the former Division Head and Zone Clinical Section Chief of Rheumatology in the Department of Medicine. She is also a member of the McCaig Institute for Bone and Joint Health at the University of Calgary. On February 1, 2019, Dr. Mosher was appointed Associate Dean, Strategic Partnerships and Community Engagement (SPaCE) in the Cumming School of Medicine, University of Calgary.

After a successful search and selection process to replace Dr. Mosher as Division Head, Dr. Paul MacMullan was appointed to the role of Division Head and Zone Clinical Section Chief of Rheumatology on July 1, 2019. In addition to his new role, Dr. MacMullan is also a Clinical Associate Professor and the Site Chief for the Richmond Road Diagnostic & Treatment Centre in the Department of Medicine. He is also a member of the McCaig Institute for Bone and Joint Health.

6

We welcomed 3 PGY4 and 3 PGY5 Residents to the Rheumatology Residency Training Program in 2018-19.

GROWTH OF DIVISION

Over the last year, the Division has continued to grow, and we successfully recruited a number of young members into FFS positions. This will help the Division greatly as we have had or will have a number of retirements.

We successfully recruited Dr. Michelle Jung to an AMHSP Major Clinical position. Her areas of interest are in education and lupus research and we anticipate that she will be an excellent fit within the Division of Rheumatology.

"Our thriving training program again successfully matched our full quota of residents for 2019. Feedback from our outgoing residents continues to be positive and in 2018, all our PGY5 residents successfully passed their Royal College exams."

Dr. Gary Morris

2019 EXTERNAL REVIEW

In February of 2019, the Division of Rheumatology had an external review conducted by Dr. Kam Shojania (Clinical Professor and Head of the Division of Rheumatology, UBC) and Dr. Paul Fortin (Professor of Medicine and Chaire de recherche du Canada sur les maladies rhumatismales autoimmunes systémiques, Université Laval). The external review confirmed over the last ten years, our Division has expanded excellence in clinical care and become a national leader in clinical research.

RESEARCH & EDUCATION

Members of the division are affiliated with the McCaig Institute. The division is fortunate to have in their membership 2 research chairs and a strong group of clinical outcome researchers. The division believes in raising a top residency program to train the next generation of rheumatologists, and currently has a full cohort of residents in the program.

OUR MEMBERS

The Section of Rheumatology's membership consists of 17 AMHSP members and 12 Fee-For-Service members who provide an integrated musculoskeletal program of clinical care using a patient centered collaborative care model with rheumatologists, nursing and Allied Health professional staff in Southern Alberta.

23

The Rheumatology Residency Training Program received applications from 23 prospective Residents in 2018-19.

CLINICAL CARE

We need innovative models of care and this is supported through collaborations with the provincial Strategic Clinical Networks and the Pan-PCN Health Systems Support Working Group. Over the past year the Division has worked on a large project to overhaul our triage process and align this with the needs of family practice and the Primary Care Networks. We have worked with the pan PCN Heath Systems Support Working Group to improve the time from referral to seeing the patient, to providing tools to manage patients in primary care and have fully supported Specialist Link.

Rheumatology has provided 791 telephone consults for Specialist Link over April 2018 to March 2019. Use of this service has steadily increased. In the second half of 2018, an average of 61 consults were provided per month. In the first half of 2019, this average has increased to 82 consults per month.

We have also developed two Clinical Care Pathways: the Gout Care Pathway, and the Osteoarthritis vs Inflammatory Arthritis Pathway.

"The external review confirmed over the last ten years, our Division has expanded excellence in clinical care and become a national leader in clinical research."

Dr. Dianne Mosher

RHEUM4U PROGRAM

Rheum4U is the Division's clinical data collection platform to collect patient reported outcomes and track patient progress along the continuum of care. At the current time, there are 16 physicians and 1 nurse practitioner using Rheum4U at two rheumatology clinics located at RRDTC and SHC. Between April 2017 and May 2019, over 950 patients have consented to participate in the CIHR-funded study: Development and Testing of a Balanced Scorecard Approach to Improve Quality of Care in Adult and Pediatric Arthritis Patients led by Dr. Claire Barber using Rheum4U to provide their reported outcomes. This has enabled us to support recruitment and data collection efforts for 8 additional research studies led by 5 researchers in the areas of Rheumatology, Community Health Sciences, Radiology, and Gastroenterology.

82

In the first half of 2019, the average number of Specialist Link consults provided by Rhematology increased to 82 consults per month.

FUTURE PLANS FOR R4U

Three major versions of Rheum4U have been implemented since R4U's inception and a 4th implementation was planned for early 2019. This implementation will enable better medication capture and monitoring, introduce new modules for vaccinations, cardiovascular risk, fracture risk and provide new reporting functionality to users. Future plans for R4U include supporting the study, An Integrated Precision Health Registry for Inflammatory Arthritis. This study will enable continuous data collection and reporting through R4U on an ongoing basis.

AWARDS & RECOGNITION

Young researchers in our Division continue to receive accolades and recognition, both nationally and internationally. Highlights include:

- Dr. Cheryl Barnabe: appointment to the Royal Society of Canada (the first rheumatologist in the history of Canada), recipient of a Killam Research and Teaching Award and the CIHR Emerging Research Leader Award from the U of C, 5-year Tier II Canada Research Chair from the Canadian Institutes of Health Research
- Dr. Claire Barber: recipient of the Arthritis Alliance of Canada 2018 Early Career Researcher Award
- Dr. Glen Hazlewood: recipient of the Canadian Rheumatology Association 2019 Emerging Investigator Award and listed as top 40 under 40 in Calgary's Avenue magazine

CHALLENGES

The Division of Rheumatology has a number of members with large practices who will retire in the next few years. Though fortunate to have a number of young staff join the Division in recent years, there is a lack of mid-career members to mentor young staff and fill leadership positions.

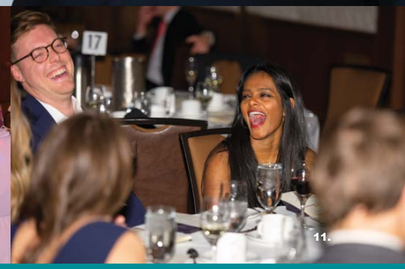
Increasing interest from rheumatologists from outside of Calgary in joining our group and setting up their practices at the UCMG Outpatient Clinics are hampered by lack of AMHSP positions and clinic space which continues to hinder recruitment.

791

From April 2018 to March 2019, Rheumatology provided 791 Specialist Link telephone consults.

We aspire to create a positive Departmental culture and environment of inclusiveness, integrity, and equity; where Department Members feel that they are part of a meritocracy in which excellence, intellectual curiosity, continuous learning, diverse opinions, and teamwork are not only expected, but are rewarded."

Dr. Richard Leigh, Professor and Head, Department of Medicine



1.
Dr. Rachel Ellaway, guest speaker at the Department of Medicine's Senior Leadership Retreat, discusses Medical Education Scholarship with Dr. Janeve Desy and Dr. Caley Shukaluk.

2.
Department of Medicine Senior Leadership Retreat. The 2018 Retreat focused on Medical Education, and was led by Dr. Karen Fruetel.

3.
Dr. Marcy Mintz with the IMRP Chief Residents. From left to right: Dr. Michael Walsh, Dr. Kwadwo Mponponsuo, Dr. Marcy Mintz, Dr. Adam Amlani, and Dr. Nadine Qureshi.

4.
Dr. Jayna Holroyd-Leduc presents Dr. Chandra Thomas with the Department's Quality Improvement and Patient Safety Award.

5.
Dr. Kelly Zarnke and Tara Miller at the Department of Medicine's Senior Leadership Retreat.

6.
IMRP Chief Residents, Dr. Adam Amlani and Dr. Nadine Qureshi, present Dr. Janeve Desy with the IMRP Work Life Balance Award.

7.
Dr. Habib Kurwa presents Dr. Gregory Kline with the Dr. Martin Atkinson Award for Clinical Excellence at RRDTC.

8.
Dr. Richard Leigh presents Dr. Jose Ferraz with the Dr. John Dawson Award for Clinical Excellence at FMC.

9.
Dr. John Conly was invested into the Order of Canada on May 8, 2019 by Her Excellency the Right Honourable Julie Payette, Governor General of Canada.

10.
Dance and social following the Department of Medicine's 2018 Annual Awards Banquet at the Hyatt Regency Calgary.

11.
Department Members and IMRP Residents enjoying themselves at the Department of Medicine's 2018 Annual Awards Banquet.

12.
Dance and social following the Department of Medicine's 2018 Annual Awards Banquet. Dr. Terry Groves dances with an IMRP Resident, and Dr. Richard Leigh dances with Dr. Margaret Kelly.

13.
Dr. Mike Fisher and Dr. Ian Scott, recipients of the Internal Medicine Residency Program (IMRP) Golden Bull Faculty Award.

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14.
The Department of Medicine Administrative Team. Left to right: Camille Baguio, Stacey Dickinson, Craig Day, Tina Wang, Jenna Young, Charlene Poikonen, Louise Kosmack, Stormy Marshall, Sandy Hafez, Tara Miller, Nathan Porter, Angela Hunter, Dr. Richard Leigh, Brandy Schreyer, Dale Rashleigh, Christopher Jappert, Dr. Marcy Mintz, Edwin Enns, Christine Blinn.

15.
Dr. Darren Burback presents Dr. Leanne Reimche with the South Health Campus Award for Clinical Excellence.

16.
Dr. Richard Leigh presents Dr. Peter Grundy with the Dr. Tom Enta Community Award for Clinical Excellence.

17.
Department Members enjoying themselves at the Department of Medicine's 2018 Annual Awards Banquet.

18.
Dr. Jayna Holroyd-Leduc presents Dr. Marcy Mintz with the Department's Professionalism Award.

19.
Chief Residents with the IMRP Team. (from left to right) Front: Dr. Marcy Mintz, Trudi Jersak, Dr. Nadine Qureshi, Tana McPhee, Stacey Dickinson, Renee Ryan | Back: Brennan Leslie, Dr. Kwadwo Mponponsuo, Dr. Michael Walsh, Dr. Adam Amlani.

20.
Dr. Christina Thornton (Resident), Dr. Lee-Ann Hawkins, and Dr. Natasha Qureshi (accepted by Dr. Nadine Qureshi); recipients of the 2018 Excellence in Clerkship Teaching Awards.

21.
Members of the Department of Medicine Senior Leadership Team: (from left to right) Dr. Régine Mydlarski, Dr. Kelly Zarnke, Dr. Jayna Holroyd-Leduc, Dr. Richard Leigh, Dr. Donna Holton, Dr. Ian Scott, and Dr. Peter Duggan.

22.
Dr. Terry Groves and Dr. Oliver Haw For Chin present Dr. Jennifer Williams with the Dr. Terry Groves Award for Clinical Excellence at RGH.

23.
Department of Medicine's 2018 Administrative Professionals Day Appreciation Event. From left to right: Tracie Van Roon, Amy Mahon, Lynette Lipinski, Freda Cook, Catherine Mangahas, and Amaninder Grewal.

24.
IMRP Chief Resident, Dr. Adam Amlani, presents Dr. Andre Ferland with the IMRP Ectopic Faculty Award.

25.
Small tokens of appreciation from the Administrative Managers, Christine Blinn and Louise Kosmack, given to the Administrative Support Staff at the Department's 2018 Administrative Professionals Day Appreciation Event.

26.
Dr. John Gill, and Dr. Man-Chiu Poon at the Department of Medicine's 2018 Annual Awards Banquet.

27.
Dr. Irene Ma presents Dr. Louis Girard with the Dr. John Conly Innovation Award.

28.
Dr. Richard Leigh presents Dr. Paul LeBlanc with the Dr. Howard McEwen Award for Clinical Excellence at PLC.

29.
Dr. Ian Scott presents Dr. Cheryl Barnabe with the Department's Team Builder of the Year Award.

ORGANIZATION

AS OF MARCH 31, 2019
UNLESS OTHERWISE NOTED

Zone Medical Director
Dr. Sid Viner

Associate Zone Medical Director
Dr. Elizabeth MacKay

Zone Clinical & Academic Department Head
Dr. Richard Leigh

Director, Medical Affairs
Jeannie Shrout

(Acting) Zone Clinical Department Manager
Andrew Jenkins

DIVISION HEAD

Dermatology
Dr. Régine Mydlarski

Endocrinology
(Interim)
Dr. Peter Grundy
Dr. Doreen Rabi

Gastroenterology
Dr. Mark Swain

General Internal Medicine
Dr. Jeffrey Schaefer

Geriatric Medicine
Dr. Jayna Holroyd-Leduc

Hematology
Dr. Peter Duggan

Infectious Diseases
Dr. Donna Holton

Nephrology
Dr. Daniel Muruve

Respiratory Medicine
Dr. Ward Flemmons

Rheumatology
Dr. Dianne Mosher

VICE CHAIR

Education
Dr. Karen Fruetel

Health Analytics & Safety
Dr. Ward Flemons

Indigenous Health
Dr. Cheryl Barnabe

Physician Wellness & Vitality
Dr. Jane Lemaire

Research
Vacant

Strategic Affairs
Dr. Aleem Bharwani

Workforce Planning
Dr. Kelly Zarnke

DIRECTOR

Internal Medicine Residency Program
Dr. Marcy Mintz

ASSOCIATE MEDICAL DIRECTOR

Health Analytics & Safety
Dr. Anshula Ambasta

Physician Wellness & Vitality
Dr. Shannon Ruzycki

DEPUTY HEAD

Clinical
Dr. Jeffrey Schaefer

Academic
Dr. Jayna Holroyd-Leduc

SITE CHIEF

Foothills Medical Centre
Dr. Kelly Zarnke

Peter Lougheed Centre
Dr. Ian Scott

Rockyview General Hospital
Dr. Anna Purdy

Richmond Road Diagnostic & Treatment Centre
Dr. Paul MacMullan

South Health Campus
Dr. Leanne Reimche

Analyst/ Informatics
Tina Wang

Analytics Team Lead
Edwin Enns

Administrative Services Manager, FMC/PLC/SRL
Louise Kosmack

Administrative Support Staff
AS III: 2
AS IV: 44
AS V: 7
AS VI: 0

Administrative Services Manager, RGH/RRDTC/SHC
Christine Blinn

Administrative Support Staff
AS III: 4
AS IV: 40
AS V: 5
AS VI: 4

Internal Medicine Residency Program Team Lead
Stacey Dickinson

Internal Medicine Program Administrators
Camille Baguio
Carla Camac
Trudi Jersak

IMRP MTU Scheduler
Robert Ovenden

Senior Financial Consultant
Craig Day

AMHSP Financial Coordinator
Dale Rashleigh

Contract & Finance Assistant
Brandy Schreyer

Contract & Finance Coordinator
Blake Farion

Web Administrator
Nathan Porter

Physician Recruitment Coordinator
Sandy Hafez

Recruitment Assistant
Jenna Young

ZCDH Executive Assistant
Tara Miller

Project Coordinator
Angela Hunter

ZCDM Administrative Assistant
Lanza D'Silva

Direct Reporting Relationship
Unofficial Reporting Relationship

DEMOGRAPHICS

FUNDING SOURCES [1]	CARDI	DERM	ENDO	GERI	GI	GIM	HEMO	ID	NEPH	RESP	RHEUM	TOTAL
FFS	–	20	9	3	31	45	9	8	12	17	12	**166**
FFS-GFT	–	–	2	–	–	–	1	1	1	–	1	**6**
GFT	15	2	7	4	14	11	6	4	11	6	7	**87**
LTA	–	1	–	–	1	1	–	–	–	–	1	**4**
LTF	–	–	1	–	5	1	1	5	3	4	1	**21**
MC	15	4	12	9	14	27	16	11	11	21	7	**147**
TOTAL	**30**	**27**	**31**	**16**	**65**	**85**	**33**	**29**	**38**	**48**	**29**	**431**

DIVISION MEMBERS [1]	FEMALE	PERCENT	MALE	PERCENT	TOTAL
Cardiology (Cardiac Sciences)	6	20	24	80	**30**
Dermatology	12	44	15	56	**27**
Endocrinology	18	58	13	42	**31**
Geriatric Medicine	12	75	4	25	**16**
Gastroenterology & Hepatology	24	37	41	63	**65**
General Internal Medicine	39	46	46	54	**85**
Hematology & Hematological Malignancies	17	52	16	48	**33**
Infectious Diseases	10	34	19	66	**29**
Nephrology	16	42	22	58	**38**
Respiratory Medicine	18	37.5	30	62.5	**48**
Rheumatology	17	59	12	41	**29**
TOTAL	**189**	**44**	**242**	**56**	**431**

AGE GROUP [1]	FEMALE	PERCENT	MALE	PERCENT	TOTAL
30 and under	1	33	2	67	**3**
31-40	79	56	63	44	**142**
41-50	65	51	62	49	**127**
51-60	28	35	51	65	**79**
61-70	15	24	47	76	**62**
71-80	1	6	16	94	**17**
Over 80	0	0	1	100	**1**
TOTAL	**189**	**44**	**242**	**56**	**431**

DEPARTMENT OF MEDICINE AHS ADMINISTRATIVE STAFF	NUMBER OF EMPLOYEES	AMHSP FTE	AHS FTE
Administrative Support III	4	3	0.7
Administrative Support III(CAS)	2	–	–
Administrative Support IV	67	46.5	17.7
Administrative Support IV(CAS)	17	–	–
Administrative Support V	13	7	6
Administrative Support V(CAS)	2	–	–
Administrative Support VI	6	1	4.6
Analyst	3	3	–
Coordinator	4	2	2
Manager	3	1	2
Web Administrator	1	1	–
Analyst Team Lead	1	1	–
TOTAL	**123**	**65.5**	**33**

1. Source: Department of Medicine Gizmo

DEMOGRAPHICS
CONTINUED

FACULTY RANKS BY GENDER [1]	FEMALE	PERCENT	MALE	PERCENT	TOTAL
CLINICAL					
Lecturer	40	55	32	44	**72**
Assistant Professor	73	50	72	50	**145**
Associate Professor	36	47	40	53	**76**
Professor	3	17	15	83	**18**
PROFESSORSHIP					
Adjunct Assistant	1	100	–	0	**1**
Adjunct	–	0	1	100	**1**
Assistant	5	50	5	50	**10**
Associate	14	52	13	48	**27**
Professor	8	14	50	86	**58**
Locum	9	39	14	61	**23**
TOTAL	**189**	**44**	**242**	**56**	**431**

FACULTY RANKS BY DIVISION [1]	CARDI	DERM	ENDO	GERI	GI	GIM	HEMO	ID	NEPH	RESP	RHEUM	TOTAL
CLINICAL												
Lecturer	5	4	–	6	27	2	3	9	7	9	–	**72**
Assistant Professor	7	9	10	10	27	30	12	10	8	18	4	**145**
Associate Professor	5	6	2	2	10	14	9	4	8	10	6	**76**
Professor	3	2	2	1	1	3	1	1	–	4	–	**18**
PROFESSORSHIP												
Adjunct Assistant	–	–	–	1	–	–	–	–	–	–	–	**1**
Adjunct	–	–	–	–	–	–	–	1	–	–	–	**1**
Assistant	1	–	2	–	2	1	1	1	–	–	2	**10**
Associate	4	1	1	1	2	6	3	2	4	1	2	**27**
Professor	9	1	6	2	10	3	4	4	8	5	6	**58**
Locum	1	3	4	–	6	1	1	3	1	3	–	**23**
TOTAL	**30**	**27**	**31**	**16**	**65**	**85**	**33**	**29**	**38**	**48**	**29**	**431**

AVERAGE GFT FTE – COMPARISON TO DEPARTMENT/FACULTY GROUPS [3]	CLINICAL	EDUCATION	RESEARCH	ADMIN
Clinical with AMHSP	30%	11%	54%	5%
CSM	20%	15%	57%	9%
Department of Medicine	34%	7%	46%	13%

ACTIVITY PROFILE (AVERAGE FTE ACROSS CARE PILLARS) FOR ALL DEPARTMENT MEMBERS [1]	AVERAGE OF C%	AVERAGE OF A%	AVERAGE OF R%	AVERAGE OF E%
	65.7	8.4	16.3	9.6

PRIMARY & CROSS-APPOINTED DEPARTMENT MEMBERS	TOTAL
Members with primary appointment in Department of Medicine and Division of Cardiology (Cardiac Sciences)	**431**
Members with joint appointment in Department of Medicine	**66**
TOTAL	**497**

JOINT-APPOINTED MEMBERS BY PRIMARY DEPARTMENT [2,4]	BIO-CHEM	CARDIAC*	CELL BIO & ANAT	CLIN NEURO	COMM HEALTH	CRIT CARE	EMERG MED	MIID	OB GYN	ONC	PAEDS	LAB MED	PHYS PHARM	PSYCH	RAD	TOTAL
TOTAL	**1**	**14**	**1**	**1**	**4**	**11**	**3**	**2**	**1**	**13**	**7**	**3**	**3**	**1**	**1**	**66**

1. Source: Department of Medicine Gizmo
2. Source: Department of Medicine Clinical Appointment Tracker
3. Source: Faculty Analytics, Office of Faculty Development, Cumming School of Medicine, University of Calgary
4. Members in the Division of Cardiology are included with primary Department Members

AWARDS

DERMATOLOGY

Dr. Jori Hardin
- Canadian Dermatology Association Excellence in Resident Teaching Award
- Honourable Mention, 2018 PARA Clinical Teaching Award, Professional Association of Resident Physicians of Alberta (PARA)

ENDOCRINOLOGY & METABOLISM

Dr. Hanan Bassyouni
- Taylor Institute Award for Excellence in Medical Education for Assistant Professor Position, University of Calgary. Awarded April 2018
- Adele Myers Annual Award for Excellence in Teaching in the Undergraduate Medical Education Program, Cumming School of Medicine, University of Calgary. Presented during the 2018 graduating class convocation ceremony

Dr. Shelly Bhayana
- Associate Dean's Letter of Excellence, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Emma Billington
- Robert Heaney Young Investigator Award for Most Outstanding Abstract in Nutrition Research, American Society for Bone & Mineral Research
- Nominated for President's Excellence Award for Outstanding Achievement in Quality Improvement (for the David Hanley Osteoporosis Centre Self Consult Program), Alberta Health Services

Dr. Sonia Butalia
- National New Investigator Award, Diabetes Canada

Dr. Peter Grundy
- 2018 Community Practice Clinical Service Award, Department of Medicine

Dr. Gregory Kline
- Long Term Teaching Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Ranked #2 out of 1,235 teaching physicians evaluated between 2013-2018
- 2018 Martin Atkinson Award for Clinical Excellence, Cumming School of Medicine, University of Calgary
- 2018 Honour Roll for Teaching in Course 4, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Alexander Leung
- Honour Roll for Pre-Clerkship Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by the Class of 2020, Boops Boops, in acknowledgement of excellent contribution to Undergraduate Medical Education
- New Teacher of the Year Award, Continuing Medical Education & Professional Development (CME & PD), Cumming School of Medicine, University of Calgary. Awarded for being the top-rated new teacher at a continuing medical education event during preceding academic year. Awarded by the Associate Dean of Continuing Medical Education & Professional Development

Dr. Christopher Symonds
- Honour Roll for Excellent Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020

GASTROENTEROLOGY & HEPATOLOGY

Dr. Paul Belletrutti
- Poster of Distinction at Canadian Digestive Diseases Week 2019

Dr. Kelly Burak
- Honour Roll in recognition of Outstanding Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020

Dr. Sylvain Coderre
- Gold Star Award for MDCN 350, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020
- Lifetime Achievement Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020

Dr. Carla Coffin
- Researcher of the Year Award, Alberta Society of Gastroenterology
- Dr. Coffin's MSc student, Aaron Lucko, was awarded Best Poster Presentation at the 2018 International HBV Meeting, Taormina, Italy. The International Meeting for Molecular Biology of Hepatitis B Virus is the seminal meeting for experts in the field of HBV research

Dr. Jose Ferraz
- Dr. John Dawson Award for Clinical Excellence, Department of Medicine, University of Calgary and Alberta Health Services – Calgary Zone

Dr. Nauzer Forbes
- Excellence in Research Mentorship Award, Division of Gastroenterology, Department of Medicine, University of Calgary and Alberta Health Services – Calgary Zone
- Certificate of Merit, Journal of the Canadian Association of Gastroenterology (JCAG)

Dr. Steven Heitman
- Excellence in Formal Teaching Award for overall teaching excellence in formal teaching. Presented by the University of Calgary Gastroenterology Residents, Department of Medicine, University of Calgary
- Associate Dean's Letter of Excellence for Clinical Core, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- 2018 Certificate of Merit, Journal of the Canadian Association of Gastroenterology (JCAG). The award recognizes the paper (which Dr. Heitman is the senior author) "Prophylactic endoscopic clipping is not efficacious in the prevention of delayed polypectomy bleeding: A systematic review and meta-analysis of randomized trials" as the runner up to the 2018 Thomson-Williams Award, which recognizes the best paper published in JCAG in 2018

Dr. Maitreyi Raman
- Visiting Clinical Professor Award, Canadian Association of Gastroenterology
- Tenet i2c – Innovation to Commercialization Finalist, Hunter Hub for Entrepreneurial Thinking, University of Calgary
- CAG Fellow (CAGF) Designation awarded by the CAG Board of Directors. This award is to acknowledge continuing service to CAG and to Canadian gastroenterology

Dr. Cathy Lu
- 2018 Ferring Scholarship Grant Award with Ye Seul (Angela) Kim. Title: "Ultrasound Elastography and NR4A1: Novel Biomarkers in Crohn's Disease". Amount: $5,000 CAD

Dr. Yasmin Nasser
- Koopmans Memorial Research Fund Award. Amount:$19,500; Jan 2019-Jan 2020

Dr. Abdel Aziz Shaheen
- UToday press release of Dr. Shaheen's discovery of antidepressant effect on immune liver disease survival, University of Calgary. https://www.ucalgary.ca/utoday/issue/2018-06-29/antidepressant-could-be-promising-treatment-serious-liver-disease-ucalgary-research

Dr. Melanie Stapleton
- Award for Excellence in Residency Teaching. Presented by Gastroenterology Residents, Department of Medicine, University of Calgary
- Honour Roll, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2019

GENERAL INTERNAL MEDICINE (39)

Dr. Ghazwan Altabbaa
- Nominated for 2018 Star Educator Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Aleem Bharwani
- 2019 Cumming School of Medicine (CSM) Alumni of Distinction Award for Excellence in Education, University of Calgary
- 2017-2018 Lynn McIntyre Award for Service to the O'Brien Institute for Public Health, Cumming School of Medicine, University of Calgary. Award recognizes significant service to the O'Brien Institute for Public Health; e.g. strategy, diplomacy, negotiations, on behalf or in service to the institute

Dr. Janeve Desy
- Undergraduate Medical Education Award for Clinical, Adjunct, and Research Faculty, Cumming School of Medicine, University of Calgary
- Award of Excellence in recognition of outstanding dedication and support of students while in the role of Clerkship Course Chair for Course 8, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- Work Life Balance Award, Internal Medicine Residency Program (IMRP), Department of Medicine, University of Calgary. This award recognizes a faculty member who teaches residents the importance of work life balance and is exceptional at balancing work, family, and life
- 2018 Bronze Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded for providing 17.5 hours of direct teaching time during the 2017-2018 Academic Year

Dr. Gabriel Fabreau
- AHS "Doc of the Week", Alberta Health Services, April 2018. Recognized for providing high quality healthcare in Alberta
- Invited Featured Plenary Presentation: 2017-2018 Top 5 Papers in GIM – Canadian Society of General Internal Medicine Annual Meeting, Banff, Alberta, October 2018
- Refugee Health YYC Featured Story, "Healthcare for New Canadians", in 2018 Department of Medicine Annual Report, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone
- Honour Roll for Excellence in Pre-Clerkship Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2019
- Invited Keynote Speaker, Global, Calgary AB
- Invited Speaker, Department of Medicine Medical Grand Rounds, University of Calgary and Alberta Health Services – Calgary Zone

Dr. Michelle Grinman
- AHS "Doc of the Week", Alberta Health Services. Profile on Insite website highlighting accomplishments and work-life balance
- "Complex Care Hub brings the hospital to the home" article featured on Insite website, Alberta Health Services
- "Home is Where the Health Is" article featuring the Complex Care Hub as part of a series of programs in Alberta Health Services providing Hospital-at-Home-type services, Apple Magazine, Alberta Health Services

AWARDS
CONTINUED

Dr. Lee-Ann Hawkins
- 2018 Clerkship Faculty Award, Department of Medicine, University of Calgary
- Gold Star Faculty Teaching Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2018

Dr. Rahim Kachra
- 2019 APEX Friend of Pharmacy Award Recipient
- 2019 Gold Star Teaching Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- Featured "In Our Community", OHMES December 2018 Newsletter, Office of Health and Medical Education Scholarship (OHMES), Cumming School of Medicine, University of Calgary
- 2018 Repeat Offender Award, Department of Medicine, University of Calgary and Alberta Health Services – Calgary Zone
- Award for Excellence in Clerkship Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- 2018 PARA Clinical Teaching Award, Professional Association of Resident Physicians of Alberta (PARA)
- Award for Resident Mentorship, Internal Medicine, 2-4 Year Program, 2018 PGME Appreciation Awards, Post-Graduate Medical Education (PGME), Cumming School of Medicine, University of Calgary

Dr. Jane Lemaire
- 2018 Advocacy Award, Calgary and Area Medical Staff Society (CAMSS). Awarded at the CAMSS Annual General Meeting, Foothills Medical Centre, Calgary, Alberta
- Stanford Medicine WellMD Center 2018 Physician Well-Being Article Award. The award recognized the wellness team's publication titled, "Understanding How Patients Perceive Physician Wellness and its Links to Patient Care: A Qualitative Study" as the most impactful paper in the field of physician wellness in 2018. The paper was authored by Dr. Jane Lemaire, Dr. Darby Ewashina, Alicia Polachek, Jayna Dixit, and Dr. Verna Yiu. Awarded at the Stanford Medicine Reception, CMA/AMA/BMA International Conference on Physician Health, Toronto, Ontario
- 2017-2018 Associate Dean's Letter of Excellence for Clerkship Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Irene Ma
- Nominated and chosen as a finalist for the 2018 Specialist Physician of the Year Award, Department of Family Medicine, Alberta Health Services – Calgary Zone
- Clerkship Teaching Award: Honourable Mention Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by the Class of 2018 for contributions and teaching in Internal Medicine Clerkship
- 2018 Osler Award, Canadian Society of Internal Medicine. This award is presented annually to individuals demonstrating excellence in achievement in the field of General Internal Medicine
- Peak Scholar in Entrepreneurship, Innovation & Knowledge Engagement, University of Calgary Awarded for demonstrated excellence in entrepreneurship, innovation and/or knowledge engagement, where the individual's academic has had a proven impact outside of the academy
- Top Grade Reviewer Letter of Recognition, Annals of Internal Medicine

Dr. Marcy Mintz
- 2018 PGME Appreciation Awards: Outstanding Commitment to Residency Education Award, Post-Graduate Medical Education (PGME), Cumming School of Medicine, University of Calgary. This award recognizes the outstanding contributions made by an individual to Residency Education through teaching, administration, program development and/or contributions to educational research which benefit residency education
- 2018 Professionalism Award, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone

Dr. Kara Nerenberg
- Nominated for Canadian Women's Heart Health Advocacy Award at the 2018 Canadian Women's Heart Health Summit. Dr. Nerenberg was the only clinician nominated, and she was recognized at the meeting for being a strong advocate for the promotion of cardiovascular disease prevention in women after hypertensive disorders of pregnancy, as she led the changes to several national clinical practice guidelines and also advocated for this clinical gap to be a top national research and clinical care priority
- PARA Resident Physician Well-Being Award, Professional Association of Resident Physicians of Alberta (PARA)

Dr. Shannon Ruzycki
- Chief Medical Officer/Calgary Zone Medical Affairs Quality Improvement Project Grant. Title: "Improving Proportion of Missed Recommendations from Pre-admission Clinic at the Foothills Medical Centre". Amount: $15,172.50

Dr. Jeffrey Schaefer
- Nominee, Physician of the Year, Foothills Medical Centre Medical Staff Association

GERIATRIC MEDICINE

Dr. Darren Burback
- Platinum Award for Teaching for 2017-2018, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- Associate Dean's Letter of Excellence for Small Group Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Erika Dempsey
- Honour Roll, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020
- Platinum Award for Teaching for 2017-2018, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Karen Fruetel
- Honour Roll, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020, Boops Boops, in acknowledgement of excellent contribution to Undergraduate Medical Education
- Associate Dean's Letter of Excellence for Small Group Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- Platinum Award, Undergraduate Medical Education (UME), University of Calgary. Awarded for contributing >125 hours of direct teaching time
- 2018 President's Excellence Award for Outstanding Achievement in Innovation and Research Excellence for the Fracture Liaison Service, Alberta Health Services. Team Award

Dr. Zahra Goodarzi
- 2018 President's Excellence Award for Innovation and Research for the Fracture Liaison Service, Alberta Health Services. Team Award

Dr. David Hogan
- 2018 President's Excellence Award for Innovation and Research for the Fracture Liaison Service, Alberta Health Services. Team Award
- 2018 O'Brien Institute Research Excellence Award, Cumming School of Medicine, University of Calgary

Dr. Jayna Holroyd-Leduc
- 2018 President's Excellence Award for Innovation and Research for the Fracture Liaison Service, Alberta Health Services. Team Award

Dr. Emily Kwan
- Rockyview General Hospital Physician Recognition Award, Alberta Health Services
- Honour Roll, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Jacqueline McMillan
- 2018 President's Excellence Award for Innovation and Research for the Fracture Liaison Service, Alberta Health Services. Team Award
- University of Calgary Medical Group (UCMG) Clinical Faculty Renewal Fund Travel Grant recipient

Dr. Paula Pearce
- Honourable Mention, 2018 PARA Clinical Teaching Award, Professional Association of Resident Physicians of Alberta (PARA)
- Award for Recognition of Outstanding Teaching in the Master Teacher Program, Cumming School of Medicine, University of Calgary. Awarded by the Class of 2020

HEMATOLOGY & HEMATOLOGICAL MALIGNANCIES

Dr. Sonia Cerquozzi
- Associate Dean's Letter of Excellence for Clinical Core, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Michelle Geddes
- Honour Roll, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by the Class of 2020 for contributions to the 2017-2018 Blood Course

Dr. Marilyn Dawn Goodyear
- Faculty Appreciation Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020

Dr. Russell Hull
- Kakkar Lectureship, In Recognition of the Outstanding Contributions for the Safety of Vulnerable Patient Population. XXVIII World Congress of the International Union of Angiology 14th Chinese Capital Vascular Symposium (CCVS)
- Advances in the Management of Venous Disorders. Impact of Dr. Russell hull's Contributions on the Management of Thrombosis. The "Seminal Contributions in the Management of Thrombotic and Cardiovascular Diseases" program is organized under the Auspices of the International Union of Angiology (IUA) to recognize the outstanding contributions of Dr. Hull. Presented by PROVOST, Loyola University, Health Sciences Division

Dr. Deirdre Jenkins
- Jersey Award for Excellence in Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Man-Chiu Poon
- Honorary Professor, Department of Pathology, University of Hong Kong. Renewed 2018–2020
- Honorary Professor, Tianjin Institute of Hematology, Peking Union Medical College, Chinese Academy of Medical Sciences. Renewed 2018-2020
- Visiting Professor, Institute of Hematology, The Second Hospital of Shanxi Medical University, Taiyuan, Shanxi, China
- Commendation Plaque for 25 Years Volunteer Service to Promote Hemophilia Care in China, Hemophilia Treatment Centers Collaborative National Network of China (HTCCNC)

Dr. Mona Shafey
- 10 Year Service Award, Alberta Health Services

Dr. Lesley Street
- Letter of Commendation from Dr. Ian Walker, Site Chief for Emergency Medicine, Foothills Medical Centre, following their collaboration and Grand Rounds presentation on Fever in the Hematology Patient Population focusing on quality improvement initiatives

Dr. Deepa Suryanarayan
- Recipient, 2018 CIHR Early Career Investigator Observership Program, Canadian Institutes of Health Research (CIHR)

INFECTIOUS DISEASES

Dr. John Conly
- Member, Order of Canada, Chancellery of Honors, Office of the Governor General of Canada Dr. Conly was invested into the Order of Canada on May 8, 2019

Dr. John Gill
- Invited Member, Scientific Committee EACS Meeting Epidemiology, Basel, Switzerland
- Invited Member, Conference Scientific Sub Committee EACS SOC, Bucharest, Romania

Dr. Bonnie Meatherall
- Honour Roll for UME Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020

Dr. David Megran
- Workplace Teaching Evaluations by Postgraduate Internal Medicine Trainees (PGY 1-3) averaged 4.8 out of 5.0 as an overall score during the 18 month period July 1, 2017 to December 31, 2018

Dr. Stephen Vaughan
- Quality Improvement Nominee for Outstanding Achievement in Service Excellence (Corporate and Non-Clinical Support Services), 2018 President's Excellence Award, Alberta Health Services. Repeat nomination for ongoing contribution, Infectious Diseases Team Lead for SHC Ebola Virus Disease Preparedness, Alberta Health Services, Calgary
- Honour Roll for UME Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

NEPHROLOGY

Dr. Sofia Ahmed
- 2018 Van de Sande Award for Mentorship, CSM Distinguished Achievement Awards, Cumming School of Medicine, University of Calgary
- Nominated for 2019 American Society of Nephrology Distinguished Mentor Award (results pending)

Dr. Adam Bass
- Gold Star Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Louis Girard
- Honour Roll for UME Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary
- Dr. John M. Conly Innovation Award, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone

Dr. Matthew James
- O'Brien Institute of Public Health Mid-Career Research Leader Award, Cumming School of Medicine, University of Calgary

Dr. Kevin McLaughlin
- 2018 Award of Excellence in Recognition of Outstanding Dedication and Support of Students, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

RESPIRATORY MEDICINE

Dr. Ward Flemons
- Associate Dean's Letter of Excellence for Clinical Core, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Patrick Hanly
- $25,000 donation from a private donor made to the FMC Sleep Centre to support academic activities
- $40,000 donation from a private donor made to the Respiratory Unit and ICU

Dr. Douglas Helmersen
- 2018 Bob Cowie Award, Division of Respiratory Medicine, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone

Dr. Christopher Hergott
- Acknowledgement and Thanks from Undergraduate Medical Education Program, Cumming School of Medicine, University of Calgary. 2017 – 2018 Year
- Associate Dean's Letter of Excellence for Clinical Core, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Julie Jarand
- Associate Dean's Letter of Excellence for Clinical Core, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary

Dr. Kerri Johannson
- "Boop Whoop Award" for Teaching Excellence in Course 3, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020
- Dr. David Stather Award for Excellence in Clinical Core Teaching, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020
- 2018 Research Preceptor of the Year Award for Research Mentorship in the Internal Medicine Residency Program, Department of Medicine, Cumming School of Medicine, University of Calgary

Dr. Karen Rimmer
- Physician of Merit Award, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone. Recognition of Clinical Excellence and Contribution to the Department of Medicine at the Peter Lougheed Hospital
- Clarence Guenther Award, Division of Respiratory Medicine, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone. Recognition of Academic Excellence in a Senior Respiratory Division Member

Dr. Kate Skolnik
- University of Calgary Graduate Travel Award, Cumming School of Medicine, University of Calgary. Amount: $500 towards presentation at CRC Conference
- Achievement Award, Community Health Sciences Graduate Program, Cumming School of Medicine, University of Calgary. Amount: $800

Dr. Mitesh Thakrar
- Outstanding Contribution in Reviewing, Journal of Heart and Lung Transplant

Dr. Rhea Varughese
- Clinical Teaching Award, Peter Lougheed Centre Medical Staff Association

RHEUMATOLOGY

Dr. Claire Barber
- Early Career Researcher in Health Sciences Research Award, Arthritis Alliance Canada/ Arthritis Research Canada. Awarded for the development, testing, and implementation of quality measures for arthritis care to inform healthcare delivery and support better outcomes for patients

Dr. Cheryl Barnabe
- Best Abstract on Quality Care Initiatives in Rheumatology, Canadian Rheumatology Association Annual Scientific Meeting
- Exceptional Reviewer (Top 7), Journal of Rheumatology
- Canadian Research Chair (Tier 2), Rheumatoid Arthritis and Autoimmune Diseases, Canadian Institutes of Health Research (CIHR)
- Killam Emerging Research Leader Award, Canadian Institutes of Health Research (CIHR). Amount: $10,000
- 2018 Team Builder of the Year Award, Department of Medicine, Cumming School of Medicine, University of Calgary and Alberta Health Services – Calgary Zone
- College of New Scholars, Artists and Scientists, The Royal Society of Canada
- CIHR New Investigator, Community-based Primary Health Care, Canadian Institutes of Health Research (CIHR)

Dr. Ann Clarke
- Outstanding Contribution and Leadership in Lupus, McGill University Health Centre Lupus Clinic

Dr. Marvin Fritzler
- Le Prix Rogers Demers, International Contributions to Rheumatology
- Canadian Society Clinical Chemists Research Excellence Award
- Rogers Demers Award Lecture, Laurentian Conference of Rheumatology Distinguished Lectureship

Dr. Glen Hazlewood
- 2019 Emerging Investigator's Award, Canadian Rheumatology Association (CRA). Award recognizes a young Canadian Investigator who has contributed significant original research in rheumatology as faculty with fewer than seven years from appointment to the Division

Dr. Paul MacMullan
- Nominated for and completed the Cumming School of Medicine Executive Leadership Program, Haskayne School of Business, University of Calgary
- 2018 Teaching Excellence Award, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary; Second consecutive year

Dr. William (Liam) Martin
- Honour Roll for Teaching in Course 2, Undergraduate Medical Education (UME), Cumming School of Medicine, University of Calgary. Awarded by Class of 2020

Dr. Gary Morris
- Honour Roll for Teaching in the MSK Course, Undergraduate Medical Education (UME), Cumming School of Medicine

Department of Medicine
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INPATIENT

INPATIENT CONSULTS IN CALGARY HOSPITALS [1,4,5,7]	DERM	ENDO	GERI	GI	GIM	HEM	ID	NEPH	RESP	RHEUM	TOTAL
2016-17	276	900	1,111	7,053	7,877	1,411	4,267	2,307	5,069	480	**30,751**
2017-18	296	862	1,155	7,469	8,208	1,568	4,870	2,475	5,474	588	**32,965**
2018-19	367	949	1,162	7,827	8,451	1,667	5,033	2,635	5,920	698	**34,709**
CHANGE: 2016-17 TO 2018-19	**+33%**	**+5%**	**+5%**	**+11%**	**+7%**	**+18%**	**+18%**	**+14%**	**+17%**	**+45%**	**+13%**
CHANGE: 2017-18 TO 2018-19	**+24%**	**+10%**	**+1%**	**+5%**	**+3%**	**+6%**	**+3%**	**+6%**	**+8%**	**+19%**	**+5%**

2017-18 FACE TO FACE PATIENT ENCOUNTERS PER SCM PATIENT CONSULTED [2,4,5]	DERM	ENDO	GERI	GI	GIM	HEM	ID	NEPH	RESP	RHEUM
Foothills Medical Centre	1	5.2	3.1	3.1	3.8	5.5	3.6	7.8	2.9	1.6
Peter Lougheed Centre	1	1.5	1.9	1.6	4.2	2.6	4.7	7.5	4.7	1.2
Rockyview General Hospital	1	1.7	3.6	1.8	2.1	1.6	2.7	4.9	2.5	1.3
South Health Campus	1	1.2	2.2	2.2	3.6	1.4	4.2	3.6	3.7	1.3

PATIENTS ADMITTED TO CALGARY ADULT HOSPITALS [1,6]	DERM	ENDO	GERI	GI	GIM	HEM	ID	NEPH	RESP	RHEUM	TOTAL
2016-17	2	34	77	1,025	9,223	1,129	69	1,171	1,680	–	**14,410**
2017-18	–	29	116	935	9,543	1,258	68	1,182	1,772	1	**14,904**
2018-19	1	16	185	781	9,959	1,165	103	1,260	1,821	1	**15,292**
CHANGE: 2016-17 TO 2018-19	**-50%**	**-53%**	**+140%**	**-24%**	**+8%**	**+3%**	**+49%**	**+8%**	**+8%**	**+100%**	**+6%**
CHANGE: 2017-18 TO 2018-19	**+100%**	**-45%**	**+59%**	**-16%**	**+4%**	**-7%**	**+51%**	**+7%**	**+3%**	**0%**	**+3%**

PATIENTS ADMITTED [1]	DERM	ENDO	GERI	GI	GIM	HEM	ID	NEPH	RESP	RHEUM	TOTAL
2017-18	–	28	885	33	8,619	934	60	1,067	1,495	1	**13,122**
2018-19	1	16	748	73	8,927	954	55	1,158	1,579	–	**13,511**
CHANGE: 2017-18 TO 2018-19	**+100%**	**-43%**	**-15%**	**+121%**	**+4%**	**+2%**	**-8%**	**+9%**	**+6%**	**-100%**	**+3%**

1. Source: Sunrise Clinical Manager
2. Source: Physician Billing
4. Consults ordered for inpatients are as per Sunrise Clinical Manager data. Usually, the consult is ordered with a physician's name attached. However, sometimes the order includes only a group name (e.g. SHC GIM Medical Teaching Unit). Either are accepted but restricted so that there is no double counting
5. Consults ordered do not reflect how many patient encounters occurred. The rate table (above) is based on Physician Billing data and shows, for each consult ordered, how many face-to-face encounters are likely to occur.
6. Patients will have consecutive attending physicians during their hospital stay. The 'attending' is the physician responsible for the patient during the attending period.
This table captures all the patients for which any Division physician was an attending physician during the patients' stay
7. Consult numbers do not reflect consults seen by the geriatrician in partnership with a geriatric nurse practitioner (NP), where the consult was entered on Sunrise Clinical Manager under the NP.

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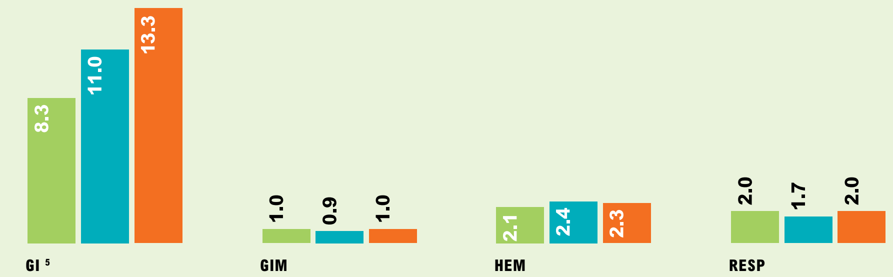
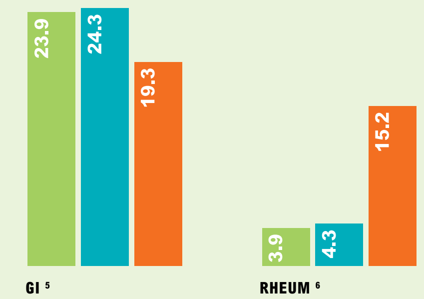
OUTPATIENT

WAIT TIMES DIVISION [1,3,4]

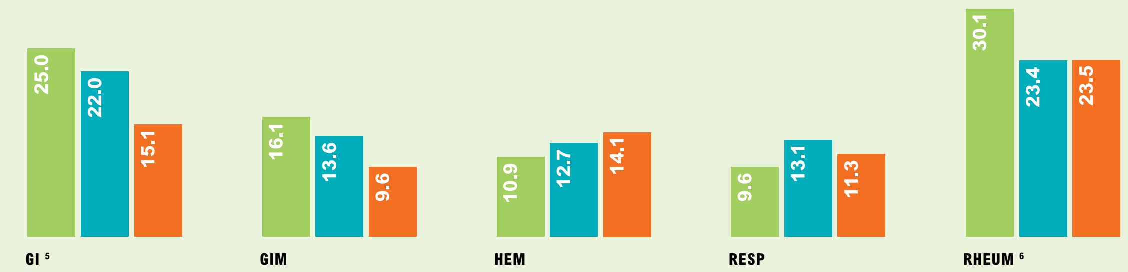
Urgent referrals by week
- 2016-17
- 2017-18
- 2018-19



Moderate (semi-urgent) referrals by week
- 2016-17
- 2017-18
- 2018-19

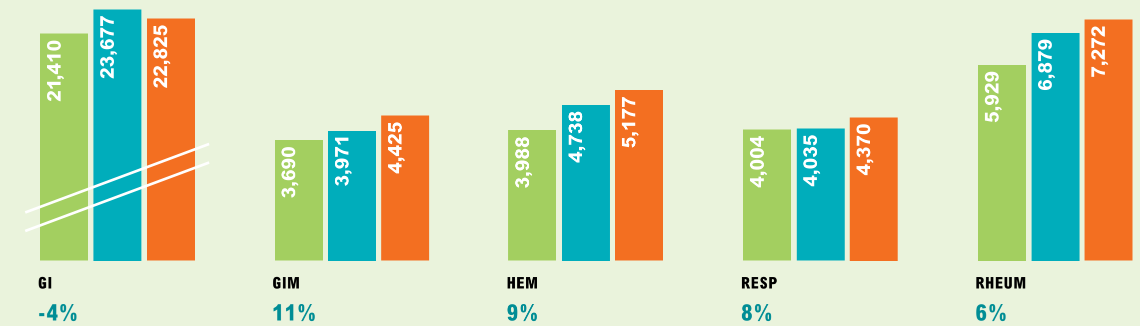


Routine referrals by week
- 2016-17
- 2017-18
- 2018-19



REFERRALS [1,3,4]

Outpatient clinic referrals
- 2016-17
- 2017-18
- 2018-19
- Change: 2017-18 to 2018-19



PUBLICATIONS

UNIQUE PUBLICATIONS [2,7]	2016	2017	2018
Primary Department of Medicine Members	486	511	478
Cross-Appointed Department Members	283	274	327
TOTAL	**769**	**785**	**805**

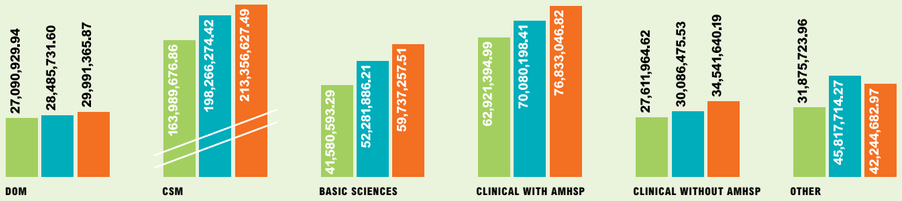
1. Source: Central Access & Triage
2. Source: Faculty Analytics, Office of Faculty Development, University of Calgary
3. Wait times are median wait time, the time in weeks between the referral and the initial appointment
4. Data is not available for all Divisions. Also, data is not included for physicians who do not participate in the Central Triage process.
5. Gastroenterology (GI): reports <Moderate (Semi-Urgent)> and <Routine> referral wait times separately. <Urgent Priority> is excluded from wait time calculations.
6. Rheumatology: <Urgent Referrals> wait time was replaced by <Semi-Urgent Referrals>. <Routine Referrals> wait times include <Moderate Referrals>.
7. For the 2018 Calendar Year

REVENUE

TOTAL [1]

By Project Department – Comparison to Department/ Faculty Groups

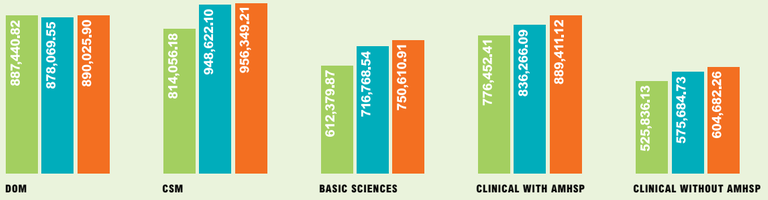
2017
2018
2019



TOTAL PER RE [1,2,3,4]

Comparison to Department/ Faculty Groups

2017
2018
2019



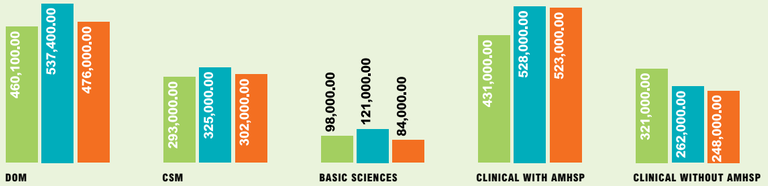
TOTAL CLINICAL [1]

2017
2018
2019

CLINICAL PER RE [1,2,3,4]

Comparison to Department/ Faculty Groups

2017
2018
2019



TOTAL CIHR [1]

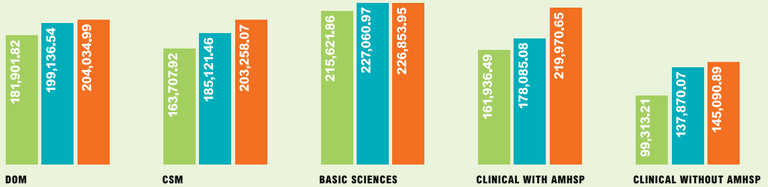
Comparison to Department/ Faculty Groups

2017
2018
2019

CIHR PER RE [1,2,3,4]

Comparison to Department/ Faculty Groups

2017
2018
2019



1. Source: University of Calgary Enterprise Reporting/Research & Trust Accounting Datamart
2. Source: Time Allocation Data acquired from Academic Report Online (ARO)
3. Note: Research Equivalents: Annual Sum of %Time for Research (as reported in ARO)/100, for GFT Faculty
4. 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.

PHYSICIANS

DIVISION OF CARDIOLOGY (CARDIAC SCIENCES) MEMBERS

CARDIOLOGY

Anderson, Todd [15,18]
Clarke, Brian [9]
Duff, Henry [18]
Exner, Derek [6,18]
Fine, Nowell [9]
Gillis, Anne [18]
Grant, Andrew [9]
Heydari, Bobby [9]
Howarth, Andrew [5]
Howlett, Jonathan [12]
Isaac, Debra [12]
Kavanagh, Katherine [7]
Keir, Michelle [17]
Knudtson, Merril [18]
Kuriachan, Vikas [10]
McMeekin, James [12]
Mitchell, Brent [18]
Morillo, Carlos [18]
O'Brien, Edward [18]
Quinn, Russell [10]
Raj, Satish [7]
Rizkallah, Jacques [9]
Sheldon, Robert [18]
Slawnych, Michael [9]
Sumner, Glen [10]
Veenhuyzen, George [9]
Weeks, Sarah [10]
Welikovitch, Lisa [6,7]
White, James [10]
Wilton, Stephen [7]

PRIMARY DEPARTMENT MEMBERS

DERMATOLOGY

Barber, Kirk [12]
Behm, Allan [10]
Chia, Justin [9]
Dupuis, Elaine [9]
Gili, Adrian [17]
Haber, Richard [18]
Hardin, Jori [9]
Kellner, Barbara [10]
Kurwa, Habib [12]
Metelitsa, Andrei [10]
Mydlarski, Regine [7]
Parsons, Laurie [10]
Poelman, Susan [9]
Prajapati, Vimal [9]
Redding, Keith [11]
Remington, Barry [11]
Remington, Todd [9]
Robertson, Lynne [10]
Sander, Megan [11]
Shoimer, Ilya [17]
Storwick, Gregory [9]
Ting, Patricia [9]
Wong, Joyce [11]
Woo, Tom [17]
Woolner, Derek [9]
Zhang, Connie [11]
Zip, Catherine [10]

ENDOCRINOLOGY & METABOLISM

Bassyouni, Hanan [9]
Bhayana, Shelly [9]
Billington, Emma [9]
Butalia, Sonia [5]
Corenblum, Bernard [18]
Donovan, Lois [10]
Edwards, Alun [18]
Ghaznavi, Sana [17]
Grundy, Peter [9]
Helmle, Karmon [9]
Hinz, Laura [11]
Kallas-Koeman, Melissa [9]
Khosla, Munish [17]
Kinnear, Susan [9]
Kline, Gregory [12]
Lau, David [18]
Leung, Alexander [5]
Lithgow, Kirstie [17]
McKeen, Julie [9]
Parkins, Vicky [9]
Paschke, Ralf [18]
Pedersen, Susie [17]
Rabi, Doreen [7]
Rorstad, Otto [12]
Saad, Nathalie [11]
Sigal, Ronald [18]
Sinclair, Caitlin [11]
Symonds, Christopher [10]
Venos, Erik [11]
Wong, Norman [18]
Yamamoto, Jennifer [9]

GERIATRIC MEDICINE

Arnold, Jilian [9]
Burback, Darren [10]
Cohen, Adrienne [9]
Dempsey, Erika [9]
Fruetel, Karen [7]
Goodarzi, Zahra [9]
Hall, Stacey [9]
Hogan, David [18]
Holroyd-Leduc, Jayna [18]
Kwan, Emily [9]
Kwok, Jimmy [9]
McMillan, Jacqueline [9]
Pearce, Paula [10]
Persaud, Michelle [9]
Schmaltz, Heidi [9]
Silvius, James [12]

GASTROENTEROLOGY & HEPATOLOGY

Adams, Fatin [9]
Andrews, Christopher [10]
Aspinall, Alexander [9]
Bailey, Jennifer [11]
Bass, Sydney [10]
Beck, Paul [18]
Belletrutti, Paul [9]
Blustein, Philip [10]
Borman, Meredith [9]
Bridges, Ronald [18,19 (Faculty Affairs)]
Burak, Kelly [6,18 (CME)]
Buresi, Michelle [9]
Chan, Yin [17]
Cheng, Edwin [11]
Cleary, Cynthia [11]
Coderre, Sylvain [6,18 (UME)]
Coffin, Carla [7]
Cole, Martin [11]
Congly, Stephen [9]
Curley, Michael [9]
Devlin, Shane [9]
Eksteen, Johannes [17]
Ferraz, Jose [10]
Forbes, Nauzer [9]
Gupta, Milli [9]
Haussmann, Jessica [9]
Heitman, Steven [7]
Hilsden, Robert [18]
Jayakumar, Saumya [1]
Jijon, Humberto [9]
Kaplan, Gilaad [18]
Kayal, Ahmed [17]
Khaliq-Kareemi, Mani [10]
Kothandaraman, Maitreyi [10]
Kumar, Puja [9]
Lam, Mindy [10]
Lee, Samuel [18]
Li, Dorothy [9]
Lu, Cathy [9]
Ma, Christopher [9]
Ma, Michael [9]
Mathivanan, Meena [11]
Mazurek, Matthew [11]
Meddings, Jonathan [13,18]
Meddings, Liisa [9]
Misra, Tarun [9]
Mohamed, Rachid [9]
Nasser, Yasmin [9]
Nguyen, Henry [17]
Novak, Kerri [10]
Panaccione, Remo [18]
Poon, Tiffany [9]
Price, Lawrence [12]
Ross, Erin [17]
Sadler, Matthew [9]
Seow, Cynthia [5]
Shaheen, Abdel Aziz [5]
Soo, Isaac [9]
Stapleton, Melanie [10]
Stewart, Michael [9]
Stinton, Laura [9]
Swain, Mark [18]
Turbide, Christian [9]
Williams, Jennifer [10]
Woo, Matthew [17]

GENERAL INTERNAL MEDICINE

Ali, Khan [11]
Altabbaa, Ghazwan [10]
Ambasta, Anshula [9]
Bacchus, Maria [7]
Banage, Christine [9]
Baylis, Barry [10]
Bharwani, Aleem [10]
Boscan, Alejandra [9]
Burns, Michele [9]
Cabaj, Jason [9]
Castillo, Eliana [10]
Colizza, Kate [11]
Conradie, Johan [11]
Cotton, Darrel [9]
Cruikshank, Jack [11]
Davis, Paul [9]
Dear, Richard [10]
Deol, Sandeep [11]
Desreux, Michelle [11]
Desy, Janeve [11]
Duncan, Stephen [11]
Dunne, Fiona [9]
Fabreau, Gabriel [5]
Feng, Xiumei [9]
Fisher, Michael [9]
Fripp, Amber [11]
Ghali, William [18]
Gibson, Paul [7]
Gilmour, Janet [10]
Grinman, Michelle [9]
Grinman, Susana [9]
Groshaus, Horacio [11]
Hamilton, Douglas [10]
Haw For Chin, Oliver [9]
Hawkins, Lee-Ann [9]
Hawkins, Ralph [10]
Haws, Jolene [11]
Herman, Robert [18]
Huan, Susan [10]
Ionescu, Andreea [11]
Kachra, Rahim [10]
Kennah, Erin [11]
Kerr, Brendan [11]
Lail, Parabhdeep [17]
Lambert, Lynn [9]
Landry, Jennifer [9]
Lauzon, Matthew [11]
LeBlanc, Paul [9]
Lemaire, Jane [12]
Lenz, Ryan [11]
Li, Pin [9]
Low, David [11]
Ma, Irene [7]
MacKay, Elizabeth [8,10]
Malebranche, Mary [11]
Minty, Evan [9]
Mintz, Marcy [10]
Nerenberg, Kara [7]
Ngo, Jennifer [9]
Pederson, Troy [9]
Pollak, Paul [18]
Purdy, Anna [9]
Ramji, Qahir [11]
Rannelli, Luke [11]
Reimche, Leanne [9]
Ross, Stuart [12]
Ruzycki, Shannon [11]
Rye, Peter [11]
Sam, David [10]
Sargious, Peter [7]
Sarna, Magdalena [11]
Schaefer, Jeffrey [12]
Scott, Ian [9]
Shrum, Jeffrey [11]
Sporina, Jan [11]
Tang, Karen [11]
Tien, Julia [11]
Vlasschaert, Meghan [9]
Walsh, John [9]
Walter, Michaela [9]
Walzak, Alison [9]
Wilson, Ben [9]
Wu, Caren [9]
Yau, Jonathan [10]
Zarnke, Kelly [7]

HEMATOLOGY & HEMATOLOGICAL MALIGNANCIES

Bahlis, Nizar [7]
Blahey, Walter [10]
Brown, Christopher [18]
Cerquozzi, Sonia [9]
Colbert, Peter [9]
Daly, Andrew [10]
Drew-McKinstry, Meghan [9]
Duggan, Peter [10]
Geddes, Michelle [10]
Goodyear, Dawn [10]
Grossman, Jennifer [11]
Hull, Russell [18]
Jamani, Kareem [9]
Jenkins, Deirdre [10]
Jimenez-Zepeda, Victor [9]
Lee, Adrienne [10]
McCulloch, Sylvia [9]
Modi, Monica [9]
Owen, Carolyn [7]
Poon, Man-Chiu [12]
Rydz, Natalia [10]
Savoie, Lynn [10]
Shafey, Mona [9]
Skeith, Leslie [5]
Slaby, Jiri [9]
Stewart, Doug [18]
Storek, Jan [18]
Street, Lesley [9]
Suryanarayan, Deepa [11]
Tay, Jason [7]
Thaell, John [9]
Trottier, Amy [17]
Wong, Michael [9]

PHYSICIANS
CONTINUED

INFECTIOUS DISEASES
Brown, Kristen [9]
Chu, Angel [9]
Church, Deirdre [18]
Conly, John [18]
Cook, Douglas [9]
Gill, John [18]
Gillrie, Mark [11]
Gregson, Daniel [7]
Holton, Donna [10]
Janvier, Jack [9]
Johnson, Andrew [9]
Kim, Joseph [9]
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DEPARTMENT OF RADIOLOGY
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2 Adjunct Associate Professor
3 Adjunct Professor
4 Assistant Dean
5 Assistant Professor
6 Associate Dean
7 Associate Professor
8 Associate Zone Medical Director
9 Clinical Assistant Professor
10 Clinical Associate Professor
11 Clinical Lecturer
12 Clinical Professor
13 Dean, Cumming School of Medicine
14 Head, Department of Medicine
15 Department Head
16 Honorary Clinical Professor
17 Locum Tenens
18 Professor
19 Senior Associate Dean
20 Zone Medical Director
21 Associate VP (Health Research)

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LEGEND

Biochem	Biochemistry & Molecular Biology
Cardiac	Cardiac Sciences
Cell Bio & Anat	Cell Biology & Anatomy
Clin Neuro	Clinical Neurosciences
Comm Health	Community Health Sciences
Crit Care	Critical Care Medicine
Emerg Med	Emergency Medicine
MIID	Microbiology, Immunology & Infectious Diseases
Ob Gyn	Obstetrics & Gynaecology
Onc	Oncology
Paeds	Paediatrics
Lab Med	Pathology & Laboratory Medicine
Phys Pharm	Physiology & Pharmacology
Psych	Psychiatry
Rad	Radiology

AMHSP	Academic Medicine Health Services Plan
ADJ	Adjunct Member
Adj. Asst. Prof	Adjunct Assistant Professor
Adj. Prof	Adjunct Professor
Asst. Prof	Assistant Professor
Assoc. Prof	Associate Professor
Prof	Professor
Clin. Lecturer	Clinical Lecturer
Clin. Asst. Prof	Clinical Assistant Professor
Clin. Assoc. Prof	Clinical Associate Professor
Clin. Prof	Clinical Professor
FFS	Fee-For-Service Member
GFT	Geographic Full-Time (Full-Time Academic Faculty)
LTA	Locum Tenens – AMHSP funded
LTF	Locum Tenens – FFS funded
MC	Major Clinical AMHSP Member
DERM	Dermatology
ENDO	Endocrinology
GERI	Geriatric Medicine
GI	Gastroenterology & Hepatology
GIM	General Internal Medicine
HEMO	Hematology & Hematological Malignancies
ID	Infectious Diseases
NEPH	Nephrology
RESP	Respiratory Medicine
RHEUM	Rheumatology
RE	Research Equivalent

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