

Department Of Anesthesia

Annual Report

September 2016 – September 2017



Submitted by
Dr. G. Dobson
Zone Clinical Department Head
Department of Anesthesia
Alberta Health Services

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EXECUTIVE REPORT

The 2016 – 2017 year has brought further changes to the administrative structure of the Department of Anesthesia. Bryan Peffers has assumed Holly Mackin's role as the Department's Operational Dyad and the operational lead. Michael Coutts has become the Manager for Calgary Zone Anesthesia / Acute Pain Services and Manager of Respiratory Care, FMC. Michelle Lohman is now the Zone Unit Manager, Anesthesia. I appreciate the work done by Ms. Mackin and look forward to working with Mr. Peffers.

There were also administrative changes within medical affairs. Dr. Morrow stepped down as Section Chief at the South Health Campus, with Dr. Olivieri assuming the role as Interim Chief until a search is complete. Dr. Chong has left the post of Clerkship Director having developed one of the most popular and successful clerkship rotations within the Cumming School of Medicine. Dr. Wood has resigned from his role as Program Director of our FPA program, having served for over a decade. Dr. Eschun finished his two- year term as Deputy Department Head and chose not to renew. The contribution of these individuals to the Department cannot be overstated and I wish them well as they pursue new interests. We welcome Dr. Davis as our new Clerkship Director, Dr. Trinh as the new Program Director for the FPA program and Dr. Fox as the Deputy Department Head.

Despite concerns expressed at a national level regarding the implementation of Competency by Design within our specialty training, the roll-out in Calgary this summer was a quiet success. This can be attributed to the hard work and preparation by the Residency Training Committee (RTC); as well as, the willingness of the consultant anesthesiologists to adapt to the change. The RTC benefitted from the support of both Alberta Health Services and the Cumming School of Medicine during this transition, to the envy of many other centres, and on behalf of the department I express our sincere thanks. Hard work still lies ahead but congratulations to the RTC on the good start.

Quality Improvement in the department received a substantial boost this year as analytic support has been provided through AHS. A pilot project, led by Dr. Finegan, looking at specific indices associated with the provision of anesthesia will be expanded on a voluntary basis to consultant anesthesiologists throughout the city. For those who participated, the pilot project provided confidential report cards regarding their individual management in comparison to their peers. It was both instructive and interesting. As we learn to take advantage of our EMR, opportunities for similar QI initiatives and research should present themselves.

There were two new Anesthesia Fellowships introduced in July with more expected in 2018. The development and maintenance of these training positions requires a considerable amount of work, balancing the need to provide a solid education with the

demand for clinical services. The introduction of these Fellowships has been a learning experience and our approach will be refined over time.

An Expression of Interest for the Academic Medical Health Services Program will be submitted later this fall. The application is based upon the Optimal Perioperative Care model (Surgical Home) where the perioperative period encompasses pre-habilitation prior to surgery, the hospital admission, and transition back to the community. Dr. Shaw, the new Department Head for Anesthesiology and Pain Medicine in Edmonton, is collaborating in this effort. Information sessions regarding this opportunity will be advertised well in advance.

Finally, I ask that you take some time to browse through the report. An incredible amount of good work is being done within our Department and until our web page is up and running this effort will remain largely unsung. Thank you to everyone for your commitment to providing excellence in patient care and your support of the Department's academic mission.

Sincerely,

A handwritten signature in blue ink, consisting of several loops and a long horizontal stroke at the end.

Head, Department of Anesthesia

DEPARTMENTAL

STRUCTURE AND ORGANIZATION

The Department of Anesthesia has five sections; approximately 190 physicians, and 2 city wide locums, 11 administrative support staff, about 100 Anesthesia Respiratory Therapists, 6 site-specific Anesthesia Respiratory Therapist site leads, and Service Workers. In addition, 14 RNs work in the Acute Pain Service and Peri-Operative Blood Conservation Program. The total annual operating budget is approximately \$16 million.

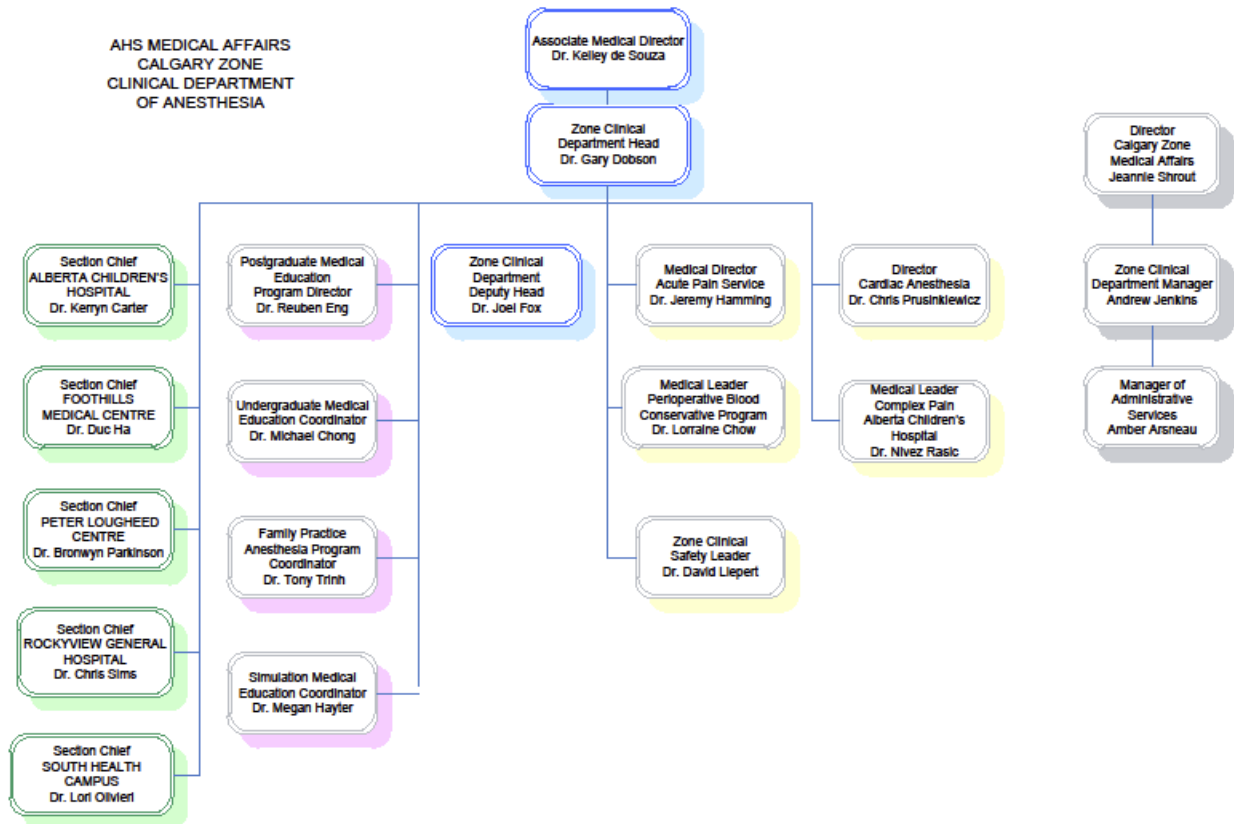
Department medical staff are faculty members at the Cumming School of Medicine, University of Calgary. Academic appointments include five geographic full time and ten major clinical positions, including Post Graduate Medical Education, Family Practice Anesthesia, and Undergraduate Medical Education program directors. Staff anesthesiologists work a range from 0.4 to 1.0 clinical FTE, with many working in a variety of part-time or job sharing arrangements.

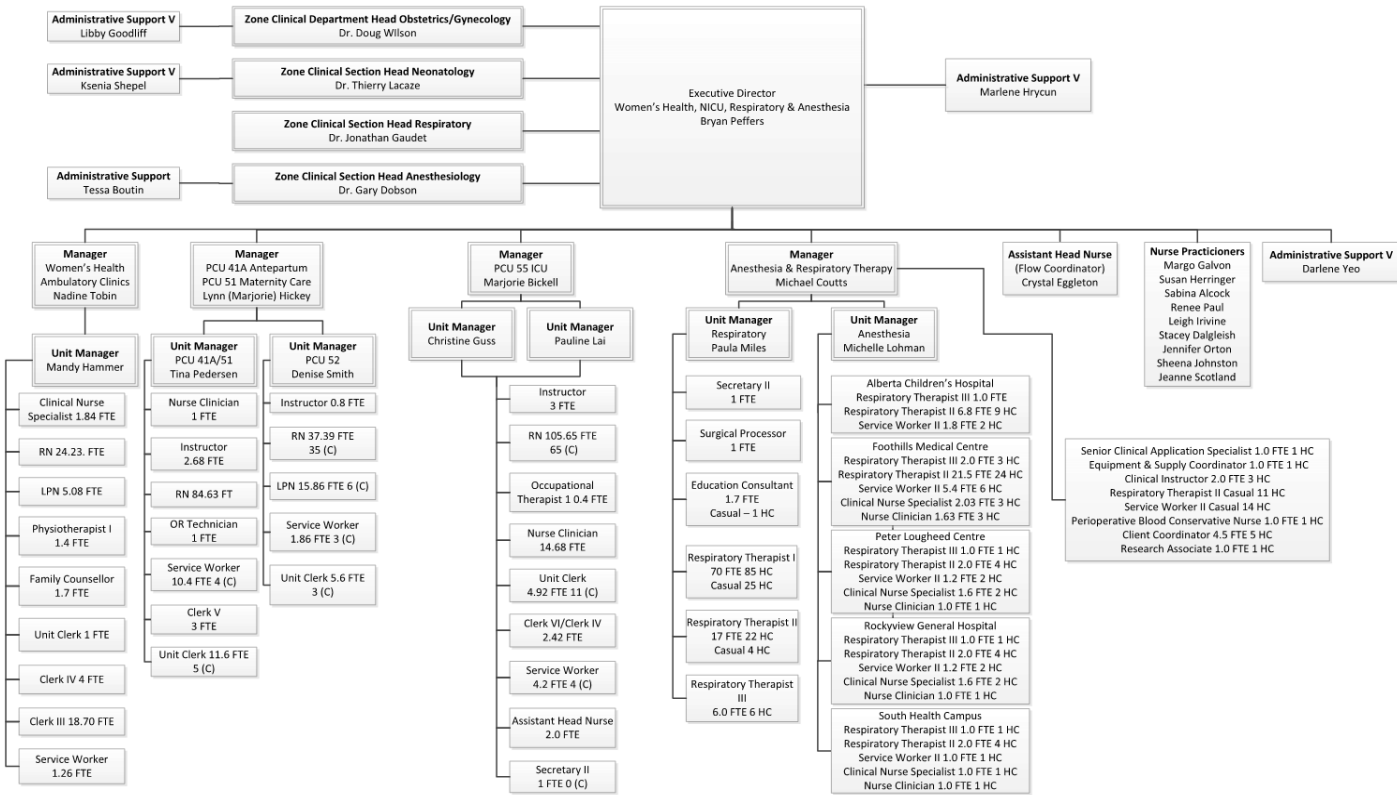
Anesthetic services are also provided at several AHS contracted non-hospital surgical facilities for ophthalmology, podiatry, oral maxillofacial surgery and pediatric dental surgery. Anesthesia service continues to be provided in Yellowknife, NWT by some members of our department as well as throughout Alberta as needed. Annually anesthesia provides manpower, preceptorship, and organizational support to the Banff Family Practice Anesthesia conference.

Subspecialty clinical services and programs are provided for Pediatric Anesthesia, Cardiac Anesthesia, Obstetrical Anesthesia, Acute Pain, Chronic Pain, Cancer Pain, Neuroanesthesia, Regional Anesthesia, Thoracic Anesthesia, Vascular Anesthesia, Preadmission Clinics, Trauma Anesthesia, Palliative Care, and the Perioperative Blood Conservation Program.

In 2016 – 2017, the Department provided anesthetic care for over 80,000 in-patient and outpatient surgical procedures, more than 10,000 deliveries, and treated many patients through the Acute and Chronic Pain Services.

ZONE ORGANIZATION CHARTS





Zone Anesthesia Executive Committee	
ZCDH & Academic Head, U of C	Dr. G. Dobson
Deputy ZCDH	Dr. J. Fox
FMC Section Chief	Dr. D. Ha
FMC Deputy Section Chief	Dr. K. Anderson
PLC Section Chief	Dr. B. Parkinson
PLC Deputy Section Chief	Dr. D. Jordan
RGH Section Chief	Dr. C. Sims
RGH Deputy Section Chief	Dr. R. Schultz
ACH Section Chief	Dr. K. Carter
ACH Deputy Section Chief	Dr. M. Letal
SHC Section Chief	Dr. L. Olivieri
SHC Deputy Section Chief	Dr. J. Stephan
Director, Residency Training Program	Dr. R. Eng
Clinical Safety Lead	Dr. D. Liepert
Acute Pain Service Medical Director	Dr. J. Hamming
Zone Clinical Department Manager	Mr. A. Jenkins
ZCDH and Head, Department of Surgery	Dr. S. Grondin
Director of Cardiac Anesthesia	Dr. C. Prusinkiewicz
Medical Lead, Calgary Chronic Pain Program	Dr. C. Spanswick
Executive Director Women's Health, NICU, Anesthesia, and Respiratory	Mr. B. Peffers
Associate Zone Medical Director (Acting) and Facility Medical Director, RGH	Dr. K. De Souza
Simulation Medical Education Coordinator	Dr. M. Hayter

Anesthesia Academic Council	
Zone Clinical Department Head (Chair)	Dr. G. Dobson
Assistant Residency Program Director, FMC	Dr. D. Archer
ACH and GFT Representative	Dr. R. Cox
Residency Training Program Director, RGH	Dr. R. Eng
Resident Representative	Dr. J. Moser
RGH and CI/SIM Representative	Dr. M. Hayter
FMC Representative	Dr. K. Duttchen
PLC Representative	Dr. C. Pearce
SHC Representative	Dr. L. Baghirzada
ACH Representative	Dr. D. Lardner
Senior Research Associate	Mr. A. Walker
ACUDA Representative	Dr. R. Chun
Co-Resident Scholarly Project Coordinator	Dr. A. Spencer
Medical Leader, Calgary Chronic Pain Program	Dr. C. Spanswick
Zone Director	Mr. B. Peffers
Zone Clinical Department Manager	Mr. A. Jenkins

Anesthesia Residency Training Committee	
Program Director (Chair)	Dr. R. Eng
Associate Program Directors	Drs. G. Bishop & M. Davis
ZCDH/ Head, University Department	Dr. G. Dobson
FMC Site Coordinator	Dr. A. Todd
FMC Associate Site Coordinator	Dr. D. Fermor
PLC Site Coordinator	Dr. K. Darcus
PLC Associate Site Coordinator	Dr. S. Rabuka
ACH Site Coordinator	Dr. A. Ewen
ACH Associate Site Coordinator	Dr. M. Livingstone
RGH Site Coordinator	Dr. Y. Babyak
RGH Associate Site Coordinator	Dr. K. Torsher
SHC Site Coordinator	Dr. A. Chu
SHC Associate Site Coordinator	Dr. N. Brown
Education Coordinator – PGY 2-4	Dr. J. Haber
Education Coordinator – PGY 1	Dr. K. Santosham
Scholarly Project Coordinators	Drs. L. Chow & A. Spencer
Simulation Coordinator	Drs. M. Hayter & D. McLuckie
Quality & Safety Coordinators	Drs. J. Davies & D. Finegan
Chief Residents	Drs. P. Dawson, M. Hutton, N. Morrison
Senior Resident Representatives	Dr. C. Young
Junior Resident Representative	Dr. K. Drohomirecki
Clerkship Director	Dr. M. Davis
CAS Resident Representative	Dr. C. Allen
Fellowship Director	Drs. A. Gregory & M. Hayter
Family Practice Anesthesia Program Director	Dr. T. Trinh

University of Calgary Faculty

Dr. G. Dobson	Zone Clinical Department Head, Department Of Anesthesia	Associate Professor	GFT
Dr. R. Cox	Pediatric Anesthesia And Pediatric ICU	Professor	GFT
Dr. J. Davies	Anesthesia And System Safety	Professor	GFT
Dr. D. Archer	Neuro-Anesthesia	Professor	GFT
Dr. J.N. Armstrong	Anesthesia, Stars	Associate Professor	GFT
Dr. R. Eng	Residency Program Director	Clinical Assistant Professor	MPT
Dr. J. Hamming	Medical Director, Acute Pain Service	Clinical Assistant Professor	MPT
Dr. M. Davis	Clerkship Director	Clinical Assistant Professor	MPT
Dr. T. Trinh	Gpa Residency Program Director	Clinical Assistant Professor	MPT
Dr. C. Prusinkiewicz	Chief, Cardiac Anesthesia	Clinical Assistant Professor	MPT
Dr. M. Kostash	Anesthesia Clinical Educator	Clinical Assistant Professor	MPT
Dr. D. Lardner	Clinical Pediatric Anesthesia Researcher	Clinical Assistant Professor	MPT
Dr. K. Shinkaruk	Pain Medicine Residency Program Director	Clinical Assistant Professor	MPT
Dr. K. Darcus	Clerkship Evaluation Coordinator	Clinical Assistant Professor	MPT
Dr. M. Hayter	Simulation Medical Education Coordinator	Clinical Assistant Professor	MPT

SECTION REPORTS



FMC
Section Chief
Dr. D. Ha

The Foothills Medical Centre Section of Anesthesia provides quaternary anesthesia care encompassing trauma, critical care, surgery, cardiac surgery, obstetrics, interventional radiology and both acute and chronic pain for Southern Alberta and adjacent geographical areas. At present there are 53 anesthesiologists in the Section. Subspecialty interests in all aspects of adult anesthesia practice are fully represented within the Section.

Prominent clinical and administrative roles for the Section are:

Dr. Chris Prusinkiewicz – Director, Cardiac Anesthesia
Dr. Richard Falkenstein – Clinical Lead, Neuroanesthesia
Dr. Jeremy Hamming – Clinical Lead Acute Pain Service and Medical Director,
Acute Pain Services, Calgary Zone
Dr. Jennifer Froelich - Clinical Lead, Trauma Anesthesia
Dr. Lorraine Chow - Clinical Lead, Thoracic Anesthesia
Dr. Rob Thompson - Director, Obstetrical Anesthesia
Dr. Andrea Todd - Site Coordinator, Residency Training Program
Dr. Desiree Teoh - Site Coordinator, Clerkship Program
Dr. Melinda Davis – Director, Pre Admission Clinic
Dr. Lorraine Chow – Medical Lead, Perioperative Blood Conservation, Calgary Zone
Dr. Melinda Davis - University of Calgary Anesthesia Clerkship Director

Anesthesia Services

The FMC performed over 20,941 surgeries for the 2016 – 2017 year, of which 1,306 were Cardiac Open Heart surgeries. FMC delivered 5,668 total births, of which 1,635 were via C-section. FMC Anesthesia provides services to operating theatres on the third floor of the McCaig building, and on the first and seventh floor in the FMC main building. In addition, there are separate cardiac operating theatres, a MRI neurosurgical

operating theatre, obstetrical operating theatres and a radiation oncology theatre. There are three PACU areas and two satellite recovery rooms for obstetrics and radiation oncology postoperative patients, respectively.

This year FMC saw the advancement of ERAS program from Colorectal Cancer surgeries and Gynecological Oncology surgeries to Head and Neck Cancer, Hepatobiliary Cancer and Breast Cancer. FMC anesthesiologists have been instrumental in ERAS to promote quality care with consideration for earlier discharge from hospital.

Future growth continues with Anesthesia services requests from Cardiac Sciences and Neurosciences - specifically for Cardiac devices, Electrophysiology procedures, and awake neurosurgical procedures for movement disorders.

Accomplishments and Highlights

The Section remains very successful in attracting highly desirable candidates both from within the University of Calgary Residency Program and nationally. It is expected that there will be no difficulty in hiring exceptional anesthesiologists to address workload growth at the Foothills Medical Centre site.

This year, FMC section of anesthesia was successful in attracting two additional anesthesiologists. Dr. Christopher Noss has completed his Anesthesiology training from the University of Calgary. Thereafter, he completed a Cardiac Anesthesia Fellowship at the University of Calgary. Dr. Nicole Webb has completed her Anesthesiology training from McGill University. Thereafter, she completed a Cardiac Anesthesia Fellowship at the University of Alberta.

Dr. Melinda Davis has successfully achieved academic promotion to Associate Professor from University of Calgary.

The FMC section of anesthesia bid a warm farewell to Dr. Michael Beriault.

Looking Forward

FMC section of anesthesia continues to find ways to improve our delivery of anesthesia services. Future endeavors include anesthesia for Prostate Cancer High Dose Radiation therapy at the existing TBCC. However, planning proceeds for the future cancer centre on FMC campus site.



PLC Section Chief **Dr. B. Parkinson**

Similar to previous years, our site provided anesthetic care for 5,365 obstetric deliveries and over 14,000 surgeries in the main operating theatres, the new vascular hybrid operating rooms, and to other services in separate locations within the hospital including gastroenterology, interventional radiology, women's health clinic, acute pain management and preoperative assessment clinic at the Peter Lougheed Centre.

Ongoing construction on the Women's Health unit has resulted in provision of care in a temporary unit on the 5th floor in a smaller setting though the unit managed to accommodate the same number of patients. The operating theatres were relocated to the main floor and; although this change of practice required much discussion and planning, it has been a smooth transition. We look forward to the opening of the renovated unit in the spring of 2018.

During the summer, necessary ventilation renovations in the operating theatres resulted a drastic reduction in surgical numbers for the month of August. Fortunately the impact on patient access was minimized by nursing, surgical, and anesthetic teams graciously giving up vacation plans to provide increased access during June and July.

Manpower

The group has expanded to 35 anesthesiologists with the welcome addition of two new staff anesthesiologists Dr. Linda Hung who is currently completing a fellowship in acute pain management and Regional Anesthesia at the Massachusetts General Hospital in Boston; and Dr. Lindsay MacKenzie who will be returning soon from her fellowship in obstetrical anesthesiology at Oxford University in the UK.



Dr. Linda Hung received her BSc degree from the University of Toronto and her MD in her hometown of Edmonton at the University of Alberta. Her excellence in academics as a Dean's List Scholar for both degrees continued during her residency years at the University of Calgary anesthesiology post graduate program receiving awards for high achievement on in-training examinations. Dr. Hung also was the recipient of awards for excellence in teaching and demonstrated her leadership ability as Chief Resident. Dr. Hung most recent activity included clinical research with her colleague Dr. Afra Moazeni on *Comparison of Intrathecal Opioids and Local Analgesia in Total Hip and Knee Arthroplasties* with supervision by our longtime staff member Dr. Sandy Shysh. They were honoured to present a resident research poster presentation on this research at the Canadian Anesthesiology Society conference in 2016. She has continued to follow this interest in pain management during her fellowship in acute pain management and regional anesthesia in Boston. We look forward to her additional expertise to lend to our growing ultrasound-guided regional anesthesia practice in July 2018.



Dr. Lindsay MacKenzie completed her BSc in Life Sciences and MSc in Pharmacology & Toxicology at Queen's university. Her successes in academics also resulted in awards, scholarships, and Dean's Honour list achievement and led her to the University of Toronto for her Medical Doctorate. Similar to her colleague Dr. Hung, Dr. MacKenzie continued to demonstrate academic and clinical skill receiving awards for outstanding clinical performance and resident teaching during her post graduate years as an anesthesiology resident in the University of Calgary. Dr. MacKenzie's many publications range from systematic reviews for practice guideline implementation for healthcare teams to more recent research and obstetrical anesthesia practice interest with Dr. L Chow et al. *The effect of low-molecular weight heparin on thromboelastography in pregnancy - an in vitro study*. Published in the International Journal of Obstetrical Anesthesia, September 2016. Her overseas experience and obstetrical skill will be an asset to our department upon her return in March 2018.

Lead Educational, Clinical and Provincial Roles

A debt of gratitude is extended to Dr. Neal Maher for his effort and dedication as a mentor, colleague, and assistant during his time as Deputy Section Chief. Dr. Maher is planning to focus his efforts on his ongoing success of Point of Care Ultrasound (POCUS) workshops as Chief Instructor and clinical lead for echocardiography and POCUS at the PLC. I welcome the assistance of Dr. Dean Jordan into the deputy chief position and look forward to working with him. Dr. Jordan has been a member of our department since 2013.

The willingness to volunteer personal time and energy to provide education, clinical expertise and assist in the administrative tasks for the many moving parts of the health care system beyond clinical duties often goes unnoticed but it is a pillar of strength of this section. The following list is not exhaustive but a mention of some recent changes and prominent roles in the department.

Dr. Dean Jordan	Deputy Section Chief
Dr. Graeme Bishop	Associate Residency Program Director - Competency by Design, Chair of Competence Committee
Dr. Karl Darcus PLC Site	Clerkship Evaluation Coordinator for Anesthesia Clerkship, Coordinator for the Residency Training Program
Dr. Shannon Rabuka Program, Acute	Assistant Site Representative for the Residency Training Pain Service Medical Director PLC
Dr. Kristi Santosham	Resident Education Coordinator RTC Member, Simulation Committee Member
Dr. Marelise Kruger	Vice Chair, Royal College of Physicians & Surgeons Examination Committee, Section of Anesthesiology, PLC Site Rep Simulation Training
Dr. Curt Pitter	Clinical Director Obstetrical Anesthesia
Dr. Phil Donais	Clinical Lead for Preoperative Assessment Clinic PLC
Dr. Michelle Hokanson	Department of Anesthesia Quality Assurance Committee Site Lead, PLC
Dr. Dan Wood Anesthesia	President, Alberta Medical Association, Section of
Dr. Craig Pearce	Secretary and Treasurer, Alberta Medical Association, Section of Anesthesia
Dr. JN Armstrong	Chief Medical Officer STARS



ACH Section Chief **Dr. K. Carter**

The September 2016 to September 2017 year in the Alberta Children's Hospital Section has rewarded us with new staff members, expanding programs and lots of continued work satisfaction. As a Section, our priorities continue to be leading pediatric anesthesia care, excellence of clinical care, and our relationships with each other the wider hospital community. We provided anesthesia services for 10,701 OR cases including 1,822 emergency cases, 50 less than the previous April 2015 to March 2016 fiscal period. The work volume remains stable even though for the first time ACH site capacity has been lower than previous years. These numbers do not capture the anesthesia case work we do outside of the OR in MRI/DI, the induction room, HOT clinic, and off site procedures including NHSFs.

We continue to provide service for:
Seven daily operating room lists

- Three Non-Hospital Surgical Facility dental lists per week
- A comprehensive ARP-funded Acute Pain Service at all times
- A two day per week physician led Complex Pain Service supported by five day a week nursing support and an intensive pain rehabilitation program
- An Out of OR ARP that covers pre-operative assessment clinic (POAC) one day per week, MRI, DI, IR, (daily lists), intermittent induction room anesthesia coverage and off-site procedures up to 3.2 FTE

We are the only site with ARPs, which continue to successfully support the APS, CPS, and out of OR pediatric anesthesia activities. These ARPs are felt to be beneficial for our patients and continue to be supported by AHS and AHW.

At ACH we have many exciting, new and ongoing initiatives many of which impact the anesthesia section. These include master site planning, re-designing of how minor procedures are managed at the site, implementation of Solution for Patient Safety (SPS – an international collaboration of pediatric hospitals with zero harm mandate). Aligned with SPS is ongoing committee and quality assurance work for central line complications. The ACH site has also implemented ACHEWS. ACHEWS is an early

warning system aimed at identifying and escalating care of at risk patients. More specific to the surgical environment we are involved in: rewriting the ACH OR guidelines, design of the site-wide sedation protocol, the use of the induction room for minor procedures, streamlining of discharge planning and postoperative surgical pain pathways for ambulatory surgery, review of pre-op topical anesthesia, and perioperative Tylenol and Advil use. The ACH site has been part of the implementation of Donation after Cardiac Death (DCD) protocol with potential for increasing the availability of organs for donation and hope for families facing life without a loved one or life with organ failure. We continue to collaborate with PICU around airway management across the site and managing the transport of the critically ill child.

On August 23rd we had a visit from the Surgery SCN including: Dr. Jonathon White, Jill Robert, Stacey Litvinchuk, Tim Baron. Topics discussed included: Adults ACATs, Surgical Safety Checklist, ERAS, NSQIP. We shared: EQUIS, SPS, ACHEWS, PCATS, and a desire for Peds NSQIP.

Staffing

There are a total of 24 anesthesiologists on permanent staff at ACH. We have hired 2.4 FTE of new staff who started in the fall and winter of 2016.

Dr. Michelle Theam completed her anesthesia residency in Edmonton at the University of Alberta and then finished a one-year Pediatric Anesthesia Fellowship here at ACH in June 2016. She has a keen interest in Q/A. Dr. Duncan McLuckie finished his residency at the University of Calgary and joined us after a one-year Pediatric Anesthesia Fellowship at Children's Hospital of Eastern Ontario in Ottawa. With a strong interest in medical education, Dr. McLuckie is contributing to the simulation and residency programs. Dr. Livingstone completed her Pediatric Anesthesia Fellowship at Seattle Children's Hospital after her residency at UofC. Dr. Margaret Livingstone has variety of interests including ultrasound. Dr. Tiffany Rice started as a staff member in January 2017 after completing a fellowship with us. She



has a special interest in neurosciences and anesthesia. Dr. Brian McIntyre moved to a 0.0 FTE in late 2016. We celebrated this milestone with a Section dinner in September. Dr. Daniela Goldie started her Fellowship in August 2016 and she has enjoyed three months of pediatric cardiac anesthesia training in Edmonton and has recently returned to ACH to complete her last four months of training.



The Section was overjoyed to help welcome a new family member for Dr. Nancy Ghazar in December 2016.



We continue to have support from 11 fantastic anesthesia RTs, some of whom are cross trained between here and FMC and PICU/NICU. This helps with offsite and critical care continuity. This year we sadly bid farewell to our long serving Anesthesia aide, Lucy Naprawski, who retired in July. Lucy kept us supplied, organized and welcomed for the last 25 years. We were so fortunate to have this hard-working and humble woman work with us.

We need to continue to thank the AHS and physician schedulers, who support both our Section and the Department, for their ENDLESS work and patience which allows us to work and care for patients, teach, learn, volunteer, be involved in other Sections locally and around Canada and balance our busy lives.

Equipment

During this period, after trialing the available anesthesia platforms, the ACH Section was fortunate to receive 11 new GE Aysis and two Aestive Anesthesia machines as well as 14 Phillips MX800 patient care monitors.

The Alberta Children's Hospital has received a generous donation for a new portable ultrasound system – the Sonosite IViz. Dr. Adam Spencer appeared at the 2016 Caring for Kids Country 105 Radiothon fundraiser alongside country music star, Paul Brandt, who helped promote our cause and raise the necessary funds for the system. The ultrasound system offers a linear transducer allowing us to use it when starting more difficult peripheral intravenous lines on the units and also gives us the opportunity to complete a number of other point of care ultrasound techniques both in and out of the operating room. To date the unit has been used in a number of point of care ultrasound procedures that could have otherwise been a challenge to perform such as PIVs and regional blocks.



Conferences / Retreats

A highlight of the year for our Section was hosting the 2016 Annual Meeting of the Canadian Pediatric Anesthesia Society (CPAS) at the Banff Park Lodge September 30 to October 2, 2016. The themes of the meeting included: Pediatric Trauma, Pediatric Regional Anesthesia, Quality Improvement, and Neurotoxicity. As well, there was a session on General Pediatric Anesthesia Issues. Professor Adrian Bosenberg from Seattle Children's Hospital presented the key-note address on "Pediatric Anesthesia around the Globe." Overall, 24 speakers contributed to the program including faculty from eight Canadian centres; as well as, one each from the USA and the UK. Six anesthesiologists acted as session moderators. 92 individuals registered for the meeting, including some trainees, which was considered an excellent turnout for this meeting. 24 abstracts were accepted for presentation – the best 10 were presented as an oral competition and the remainder were poster presentations. Dr. Desigen Reddy and the CPAS Scientific Affairs Committee reviewed and judged the abstracts. The winner of the oral competition was Dr. Clyde Matava from the Hospital for Sick Children, Toronto, for his paper entitled: "A low cost 3D printed flexible bronchial tree models to teach techniques for single lung ventilation in infants and children: a pilot study." Three industry partners provided support and exhibits, namely Abbvie, Masimo, and Merck. With this support and the generous waiving of honoraria by Canadian anesthesiologist speakers, the meeting was able to be held without a financial deficit. Meeting evaluations were analyzed and showed high scores in all domains. We were pleased to be able to provide plenty of convivial social entertainment for our out of area guests. The 2017 CPAS meeting will be held in Toronto and the 2018 meeting in Halifax.

Local speakers were:

Dr. Nivez Rasic – Chronic Pain Following Major Surgery
Dr. Jamin Mulvey – Resuscitation and Transport of the Injured Child
Dr. Mark Bromley – Use of Ultrasound in Trauma
Dr. Naweed Syed – Neurotoxicity from Bench to Bedside
Dr. Robin Cox – Optimizing Outcomes after Tonsillectomy
Dr. Nina Hardcastle – Head and Neck Injury
Dr. Adam Spencer – Regional Pro/Con Debate: Caudal versus Ilioinguinal Block for Hernia Repair in a 2 year old

Since our previous report we have held two section retreats. The May 2016 retreat was a facilitated, focused Section strategic planning exercise. We looked at four key areas: excellence in clinical care, research, simulation and education, and our culture. The Strategic plan was developed and was followed up with action plans in December 2016. Our May 2017 retreat was held at the Grand Rockies Resort in Canmore, right next door to the Canmore hospital which was called upon to provide care, fortunately, for only minor watersliding injuries. We invited members of the PSFP from AMA and enjoyed facilitated sessions about recognizing and coping with burnout in physicians, challenges for the aging physician, and dealing with bad clinical outcomes. We also discussed the utility of clinical care pathways, brainstormed about what a clinical care pathway might look like for a tonsillectomy. We also had a BLS/PALS update and plenty of eating, drinking, biking, bowling, and watersliding.



Humanitarian Work

The ACH Section of Anesthesia has contributed many hours of overseas volunteer humanitarian work. In the last year, Drs. Hardcastle, Cox, Farran, Gale, Stewart, and Connors have been as far and wide as Dominican Republic, Guatemala, Ecuador, Vietnam, and Peru. Project Outreach continues to be expertly co-ordinated by Dr. Connors. Dr. McLuckie is involved in writing guidelines for teaching developing-world doctors how to educate. Dr. Hardcastle is a pediatric anesthesia educator for Operation Smile, and Dr. Cox serves on the anesthesia committee and quality improvement committee of Resurge International.

Pain Programs

Complex Pain Program and Vi Riddell Pain and Rehabilitation Program

The Vi Riddell Pain Program has continued to evolve and expand over the last 12 months. The capacity within the clinic has increased. The intensive stream of the pain program is being modified to improve accessibility and timeliness of care for our most compromised patients, and ensure program sustainability.

The research arm of the pain program, led by Drs. Noel, Rice and Vinall has enjoyed an extremely successful year with ongoing robust recruitment of patients into multiple clinical pain studies, the acquisition of external research funding and numerous awards, and extensive media coverage. With our involvement with the nationwide pain CIHR SPOR (Strategy for Patient-Oriented Research), we have welcomed Allison McPeak (MPH) into our group as a research coordinator.

The Vi Riddell Pain Program also hosted the inaugural Pain in Child Health (PICH2GO) Conference on November 24 & 25, 2016. We welcomed world-renowned international pain scientists and local experts that spoke to an overcapacity crowd at ACH. Pain patients and families also told their stories to ACH staff and media that covered the event.

In addition, our pain program is involved with broader ACH and AHS initiatives, ensuring that all practitioners follow a "Commitment to Comfort" (C2C) approach with our young patients. We are also in the process of obtaining the "ChildKind International" designation which recognizes our "standardized, institution-wide, collaborative approach to reducing pain and suffering in children."

APS Program

Our acute pain service comprises of Rachel Slomp and Sarah Shantz who are currently sharing the APS Nurse Practitioner role as well as 16 members of our department

currently involved in the service. We are looking forward to Leah Foster's, NP return from her maternity leave to the service this upcoming October.

Our goal is to provide evidence-based pain and symptom management to postoperative and medical patients including patients with pain secondary to haematological and oncological issues, medical patients such as those who suffer from complications related to sickle cell disease, and complex pain patients. We offer general anesthesia and sedation to oncology, hematology and burn patients requiring painful procedures. We continue to be engaged in research and education to help implement best practices related to pain management throughout our hospital.

A new initiative over the last year has been the continuous peripheral nerve blocks (CPNBs). While single shot regional anesthetic techniques can provide excellent postoperative pain control, there are a number of surgical procedures where our pediatric patients experience significant discomfort following block resolution. In order to provide longer duration of comfort, we have successfully completed an in-hospital trial using E-catheters combined with an elastomeric pumps to infuse local anesthetic for a number of days. We conducted an audit including 24 patients and presented the results at the Canadian Pediatric Anesthesia Society meeting and results indicated the practice to be safe, effective, and well tolerated while in-hospital. From there, we have developed and implemented an ambulatory CPNB program. To date, 17 patients have gone home with a nerve block catheter. Patients have indicated excellent pain control, decreased opioid requirements and families as a whole are very satisfied with program, preferring to be recuperating at home rather than in-hospital.

Simulation

Dr Mark Gale has handed over the Simulation reins to Dr Duncan McLuckie. We continue to run many successful programs including POCM, TPAC and Simulation Outreach and JITS.

- Perioperative Crisis Management Course (POCM) is an all-day simulation course designed and developed at the ACH to improve crisis management in our operating rooms. POCM is a multidisciplinary, inter-professional course involving OR RNs, PACU RNs, Pediatric Anesthesiologists, Pediatric Surgeons, and RTs. The course involves four simulated crises scenarios based on our last one year experience in the perioperative environment. Cases which have been reviewed at our Quality Improvement / Quality Assurance rounds are used as a foundation for scenario development. Lead: Mark Gale, Support: Elisabeth Dobereiner, Dr D McLuckie.
- The Pediatric Airway Course (TPAC) is an all-day simulation based airway course hosted at KIDSIM at ACH and facilitated by a multidisciplinary group from PICU, Peds Emerg, Ped Anesthesia and RTs. The target audience is practicing

physicians, outside of anesthesia, that may be required to manage pediatric airways. TPAC has a focus on maintaining oxygenation using simple techniques. Lead: David Lardner.

- Simulation Outreach both out of the operating room at Alberta Children's Hospital and in community hospitals in Central and Southern Alberta. Lead: Jerry Luntley Support: Mark Gale.
- Just-in-time simulation (JITS) is an educational strategy where simulation occurs in close temporal proximity to a clinical encounter. This will take place in the operating room at a scheduled time on a scheduled list. Lead: Ruth Connors.
- Managing Emergencies in Pediatric Anesthesia (MEPA) for residents. This full day simulation course aims to give all anesthesia trainees the opportunity to develop management strategies for emergencies in pediatric anesthesia through the use of high fidelity simulation. Lead: Mark Gale

Research

The ACH sections research is committed to expanding our research platform, building research infrastructure and expanding the body of knowledge within the areas of pediatric pain and anesthesia. Professor Robin Cox (GFT), Dr David Lardner (MPT), along with Dr Nivez Rasic, Dr Tiffany Rice, Dr Adam Spencer and Dr Debbie McAllister lead collaborations within ACH, The University of Calgary, and ACHRI.

The area of pain and translational research has seen the greatest growth. We have been joined by Dr. Jillian Vinall (PhD) as a post-doctoral researcher. She is a neuroscientist who studies acute and chronic pain in children from birth to adolescence, with a special interest in neuroimaging. Dr. Melanie Noel has been appointed an adjunct professor of anesthesiology and is a prolific researcher in the area of developmental psychology, studying both acute and chronic pain in children and adolescents. She has an outstanding record of research productivity, demonstrated success in the acquisition of external research funding and numerous awards during her two years here at U of C. Dr Rice (MD, PhD) has recently started with our section and will be heading up the translational research component of the program and has established collaboration with basic science researchers at the U of C, Dr. Syed and Dr. Trang. Drs. Noel, Vinall, Rasic and Rice make up the Vi Riddell pain research team and have numerous projects underway including the following:

- "Sociolinguistic context of pain memory development in young children." Vinall J, Rasic N, Pavlova M, McCallum L, Graham S, Noel M.

- "Mutual maintaining mechanisms underlying the co-occurrence of PTSD and chronic pain in youth: An integrative examination (PATH Study).": Vinall J, Rasic N, Arnold P, Sears C, Noel M.

- "Neurobiological, cognitive-affective and behavioural changes following exposure to either sevoflurane or propofol-based anesthesia in children undergoing MRI." Vinall J, Rasic N, Spencer A, Noel M, Walker A, MacMaster F, Syed N, Rice T.

- "Effects of anesthetic agents on neuronal viability, neurite outgrowth and mitochondrial integrity." Rice T, Armstrong R, Hasan S, Iqbal F, Syed N.

- "Neurobiological changes associated with improvements in function following intensive pain rehabilitation in youth." Vinall J, Noel M, Harris A, Bray S, Carter K, Rasic N.

- "Establishing a pain outcome database for children and adolescents with headaches, functional abdominal pain and other complex pain disorders". Noel M, Rasic N, Vinall J, et al.

In addition, our pain program has had the opportunity to be part of the national pain SPOR, and is one of the lead pediatric pain sites. Drs. Noel, Rice and Rasic are the local PIs, and, as part of the SPOR, we have welcomed Ms. Alison McPeak (MPH) as a SPOR coordinator for these projects.

Dr. Spencer is spearheading research involving regional anesthesia and is involved in various studies with our surgical colleagues; one example being small children having orchidopexy surgery. Dr. Mary Brindle (pediatric surgery) has recently received a Research Chair in surgery, and we are collaborating with her group on a variety of EQUIS projects.

From a research standpoint, the section of pediatric anesthesiology has made substantial gains building its research program, but more importantly fostering a culture of research within the section and the hospital. Even staff who are not directly involved in research are willing to facilitate these projects, and follow the clinical research protocols to facilitate recruitment and data collection. Furthermore, our section also gives personal monetary donations to support the research efforts of the members in the group who are conducting research. We excited about these efforts and look forward to further growth and development of this aspect of our section.

Residency Education

The Alberta Children's Hospital is dedicated to providing residents with exposure to perioperative care and pain management of children from birth to 18 years of age. This includes neonatal surgery, scoliosis surgery, laparoscopic/thoroscopic surgery, airway surgery, neurosurgery and diagnostic and interventional procedures. Resident rotations at ACH are now divided between the PGY-2 and PGY-3 years to allow for experience with pediatric patients early on and solidify learning points as they progress through their residency. Residents are active participants in departmental rounds and morning

educational sessions. A total of eight grand rounds sessions were resident-lead in the previous academic year. ACH also is dedicated to the education of Family Practice Anesthesia in pediatric anesthesia. We continue to work as a team to learn new educational knowledge and skills as we anticipate the arrival of competency by design.

Quality Assurance/Quality Improvement

During this report period, we have had six intra-operative code events submitted for review. One AHS QAR was completed around a CVC complication. As a site initiative we are having, at least, quarterly rounds presentations based on QA/QI Sheets. Drs. Theam and Mulvey have been very successful at creating an atmosphere of safety for our team and visiting teams with careful focus on system improvements. The feedback from staff is that these rounds are invaluable.

Based on the sheets and these rounds we have initiated changes in:

1. Information dissemination regarding QAR code sheets for nurses and support staff- increased involvement among nursing colleagues with regard to submitting QAR sheets
2. Sick Cell Trait Hospital amendment- for major surgeries, recognition of the reversibility of hemoglobin in patients with sickle cell trait resulting in enhanced patient safety- supplemental O₂, blood bank for phenotypes-matched blood, Bair-Hugger in holding area.

We have a number of ongoing QI Projects including:

1. Idiopathic Spine- Peri-operative protocol for posterior instrumentation for patients with idiopathic scoliosis. Ethics approved. In data collection- project completion projected: 3rd quarter 2018.
2. Tonsillectomy and Adenoidectomy Care Plan Protocol- in planning stages

2016 – 2017 Staff Administrative Roles

Dr. Carter	Chief, Manpower Committee, Research Committee, ACH Quality Assurance Committee, ARPs, Fellowship Committee, ACH Site Leadership Committee, ACH Health Quality Council, ZAEC, ACH Pain Committee, ACH Line Project Team, ACH OR Committee, Day Medicine Working Group, Zone Clinical Pediatric Executive Committee, Surgical Services Meeting, ACH Child Health Quality Council, Master Planning Steering Committee, staff periodic reviews, various recruitment meetings and interviews
Dr. Connors	Research Committee, Anesthesia Economic Committee (AMA), Audit/QA, Simulation

Dr. Cox	PICU Liaison, Manpower Committee, Academic Council, Audit/QA, CaRMS
Dr. Dobereiner	Rounds Co-ordinator, Simulation
Dr. Ewen	RTC Committee, Resident Site Lead, Audit/QA
Dr. Farran	CPC co-lead, OR Recycling Committee, ARPs, SCM Lead
Dr. Gale	Fellowship Director, Simulation, Transfusion Lead
Dr. Ghazar	SCM Lead, NICU Liaison
Dr. Hardcastle	Scheduler, Retreat Lead, Off-site Lead, Manpower Committee, Research Committee, CaRMS, Making the Mark, POAC Lead
Dr. Kuwahara	Ultrasound co-lead
Dr. Lardner	PACU Liaison, Academic Council, ARPs, Simulation, Faculty Council, Research Committee
Dr. Letal	Treasurer, Deputy Chief, Audit/QA, Simulation, ZAEC, Research Committee
Dr. Livingstone	Core Program, RTC back up, APS co-lead
Dr. Luntley	Simulation, Trauma and Trauma Safety Committees, DI Liaison, CPAS Vice President
Dr. McAllister	AARP Planning Committee, Pediatric Pain and Palliative Care Royal College Fellowship Development Committee
Dr. McLuckie	Site Simulation Lead, RTC Committee, CaRMS, Retreat 2018 Lead
Dr. McMann	Fellowship Committee, Fellow Rounds, OR Recycling Committee, Equipment, AMA Economics Committee
Dr. Mulvey	Audit/QA, Transport Liaison, Equipment, Trauma and Trauma Safety Committees, Medical Director Sunshine Village, STARS
Dr. Rasic	Complex Pain Clinic Lead, Manpower Committee

Dr. Rice	Local Co-PI SPOR Chronic Pain Network, HealthPRO IV Subcommittee
Dr. Spencer	APS Lead, Academic Council, Scholarly Project Co-ordinator, CARMs, Ultrasound Lead
Dr. Stewart	Deputy Treasurer
M. Theam	Audit/QA Lead



RGH Section Chief **Dr. C. Sims**

Section Description

The RGH Anesthesia section currently includes 35 practicing anesthesiologists 23 of whom work full time, and 12 of whom work various degrees of part time, from FTE 0.2 to 0.8. The cumulative FTE of our department is 30.1, not including our new fellow. In addition to providing service to the Rockyview General Hospital, this section provides two or three anesthesiologists per day to serve six non-hospital surgical facilities in Calgary, in a shared arrangement with the other Calgary anesthesia sections.

This anesthesia section provides service to 15 surgical lists per day; as well as, the labour and delivery ward where one anaesthesiologist covers both the epidural analgesia service and surgical obstetrical cases. One anesthetist covers the pre-assessment clinic as well as the acute pain service, Monday to Friday.

Also, the surgical lists of two privately funded facilities, Canadian Surgical Solutions and South Calgary Oral and Maxillofacial Surgery, are included in the anesthesia schedule of RGH. These facilities' anaesthesia services are covered by sub-groups of Rockyview anesthesiologists. Workload fluctuations of these facilities are the responsibility of these sub-groups.

All RGH anesthesiologists have University of Calgary appointments and all function as clinical and/or academic teachers to residents, medical students, as well as non-physician learners.

Service Model changes

Starting in January 2017 the after-hours service model changed significantly. The overnight nursing and nursing attendants shift was eliminated at that time. OR staff have been providing after-midnight service on an on-call basis only. The acuity threshold to do cases after midnight has increased significantly; such that only cases which cannot safely be deferred to the day shift are done during the night.

This change has been considered a success. The timely performance of staff returning to the hospital when necessary has been sufficient. Also, the number of overtime call-backs of staff during the night has been infrequent enough to make it cost-effective to have cancelled the regular night shift.

The overnight staffing of RNs and MDs to the labour and operating rooms of the obstetrical unit has remained unchanged as a 24/7 in-house service.

Another service model change was added to the operating room in January 2017. During the evening period, in addition to the 1st call operating room and the 2nd call operating room, a 3rd team was added. This 3rd team initially had a two-pronged goal. Firstly, this team did scheduled non-emergency oncology cases from 3:45 PM until about 8:00 PM, in order to improve surgical access for this patient population. Secondly, this team was available until about 11:00 PM to do emergency cases, in order to help avoid the 1st call team having to work after midnight.

After a few months it was determined the extra emergency time was unnecessary and this 3rd OR team began fully scheduling this time with oncology surgery from 3:45 PM until about 10:00 PM. It became purely an 'elective surgery' list, with no extended call responsibility.

This scheduled evening surgery list model encountered a lot of opposition. Staff found that while starting an evening call shift at 3:45 PM to do emergency surgery is necessary and justifiable, doing so for non-emergency surgery was harder to justify, given the extra challenge this timeframe places on physician and nursing performance.

The anesthesia department has been working closely with the rest of the OR administration to find other ways to keep up this improved surgical access performance for cancer patients. Thankfully, creative OR booking has allowed us to find daytime OR resources for these cancer patients three days per week, starting in January 2018. This

extra daytime OR access will allow us to cancel the scheduled 3rd evening surgical list at that time.

Developing world philanthropy

RGH anesthesiologists have a tradition of providing medical service in the developing world. Some of the contributions of our staff members during the past year include Dr. Miriam Berchuk, who worked in Guatemala in January 2017 with Medicos en Accion, Dr. Reuben Eng who worked in China in the spring of 2017, and Dr. Karrie Yont who did a repeat trip to Guatemala with Health 4 Humanity in November 2016.

Recognitions

The medical staff association of the Rockyview Hospital hosts an annual awards ceremony at its AGM every June. Physician recognition awards are included in this meeting. This year we were pleased to posthumously honour Dr. Marion Dobberthein with the 2017 Physician Recognition Award for the Rockyview General Hospital Anesthesia Section. Sadly, Dr. Dobberthein passed away in early 2017.

At the University of Calgary Anesthesia department awards dinner in June 2017 we honoured recent retirees Dr. Sean Thomas, Dr. Jill Yemen, Dr. Myrna Dusevic, and Dr. Colin Dodd.

New staff

Our section was very lucky to attract new talent in 2017. We hired two new anesthesiologists, Dr. Erin Bruce and Dr. Farrah Morrow.

Dr. Bruce is a 2017 graduate of our own residency program. Prior to joining the U of C Anesthesia residency program she completed a bachelor's degree in biology at the University of Waterloo, a Master's degree in Community Health and Epidemiology from the University of Toronto, and she earned her M.D. at the U of T. She was a very highly regarded resident in our program and brings special expertise and interest in perioperative medicine to our group.

We also welcome Dr. Morrow, who has transferred her section affiliation from Calgary's South Health Campus. She has been the Section Chief there since 2014. She came to the SHC department when it opened, from her practice at Royal Inlands Hospital in Kamloops, BC. She completed her residency training at McGill University. Prior to that she earned a BSc in Chemistry at Brandon University, and her M.D. at McMaster University. Dr. Morrow brings a collegial spirit, a proven track record in leadership, and valuable experience to RGH.

Fellowship

We are pleased to now have an anesthesia fellowship program based at RGH. In August 2017, we welcomed Dr. Roy Khalaf who will do a one-year fellowship in Anesthesia Simulation under the supervision of Dr. Megan Hayter. In addition to his academic work, he will be working independently three days per week in the operating room.

While we said goodbye to some excellent colleagues last year, the future remains very bright at RGH.

Submitted by:
C.Sims, MD, FRCPC
Site Chief, Rockyview General Hospital Anesthesia



SHC
Section Chief
Dr. L. Olivieri

2016 – 2017 was the fourth fully operational year for surgical services at South Health Campus. The hospital's fifth birthday took place in February 2016. The past year saw SHC continue to expand its surgical services and to participate as both a clinical and academic arm of Calgary's Department of Anesthesiology, Perioperative and Pain Medicine.

The Section of Anesthesia at South Health Campus continues to work towards being a Zone leader in Regional Anesthesia and Pain Management, Obstetrics, Simulation and Education, and Quality Assurance. The Section's mission statement remains, "to providing superior, innovative anesthetic and perioperative care for our patients, and enhancing the knowledge and skills of ourselves, our colleagues and our trainees through excellence in teaching, research and ongoing professional development."

General Surgery maintains expanded bariatric and colorectal programs. ENT continues to support advanced auditory programs, including the implantation of cochlear devices. Plastics and Orthopaedics boast extensive hand programs, which enable advanced Regional Anesthesia outpatient programs in both the operating room and minor surgery. SHC continues to appreciate the opportunity to work alongside a prominent Orthopaedic department. Collaborative projects with Orthopaedic Surgery have included the development of comprehensive patient education materials, standardized postoperative pain management care paths, and quality assurance audits.

The SHC transitional pain service, led by Drs. Stephan and Joo, is scheduled to open in the SHC Pre-Admission clinic in later in the fall of 2017. This outpatient clinic will service patients identified at risk for challenging pain management in the perioperative period, such as those patients with opioid tolerance and/or complex pain syndromes. This exciting new endeavour will complement SHC's Pre-Admission Clinic services. Surgeons, as well as Anesthesiologists in PAC, will have the opportunity involve this service in patient care planning prior to surgery. And then, prior to discharge from hospital, Surgeons and/or APS will be able to consult this same service for patients with complex hospital pain management plans (e.g. for outpatient opioid weaning). This clinic will add to our department's goal of creating a comprehensive "perioperative surgical home".

This site is home to several forward thinking quality assurance initiatives. Dr. Olivieri, Endersby, Baghir-Zeda, and the Physician Learning Program are organizing a follow up evaluation of the site's use of tranexamic acid in total hip and knee arthroplasty procedures. Under the leadership of Dr. Ryan Endersby, the site is also currently in the development of integrated postoperative pain pathways to expedite recovery from adult shoulder surgery and pediatric orthopaedic surgery, in collaboration with orthopaedic surgeons, Drs. Justin LeBlanc and Carmen Brauer.

The citywide POCUS course was held on April 22 –23, 2017. This was the inaugural year for this course, spearheaded by Arash Fard at the PLC. It was conceived as a regional block focused ultrasound course to complement the FATE/FAST course already offered by the PLC echo group. Drs. Kostash, Montgomery, Endersby, Spencer, and Brown created most of the curriculum. The course included scanning stations at the PLC and a cadaver session the following day. There was also a special resident session in the cadaver lab on April 20th, and a session for the citywide Emergency Department following the anesthesiologists' cadaver session on April 20th.

The department held a very successful Strategic Planning Retreat in January 2016. Drs. Marcia Clark and Claire Temple-Oberon organized and facilitated a series of interactive, "liberating structures" group exercises that challenged members to identify department values and goals for 2017. As part of the retreat, we also enjoyed a dinner at Starbelly Restaurant in Seton.

We are pleased to support several SHC staff in continuing to improve education, research and clinical care at through various initiatives:

- Drs. Leyla Baghir-Zada, Ryan Endersby, and Shaylyn Montgomery have each participated in peer-reviewed publications this year (see Research section).
- Dr. Lori Olivieri has revised the postoperative PACU management order sets for patients with known or suspected OSA. The collaboration with Bone and Joint to screen for and treat patients with OSA prior to their assessment in the SHC Pre-Admission Clinic has been effective in decreasing the number of “urgent” sleep study requests from PAC and delayed surgery dates for the work up of patients with multiple risk factors for OSA.
- Dr. Tony Trinh accepted the role of Program Director for the Family Medicine Anesthesia program at University of Calgary.
- Dr. Alan Chu is helping our Residency Program transition to Competency-by-Design (CBD). This year he accepted a leadership role within the Anesthesiology Residency Program as Lead of Academic Coach Program for CBD and is also the inaugural lead of the new Mentorship Teams Program in the residency program. These programs have been accompanied by a series of training sessions on topics such as academic and professional coaching, mentorship, burnout, resilience, and emotional intelligence.
- Dr. Olivieri has accepted the role of Coach for one of the in-coming PGY1s, as part of the CBD Residency Program stream. Drs. Jarad Stephan and Melissa Jack have volunteered to act as secondary (back up) coaches for incoming PGY1s. Dr. Jack is also a Residency Program Mentor for a team of five residents.
- Dr. Ryan Endersby either taught or presented at several conferences this year, including the ASA, CAS, and Banff GP-Anesthesia conferences and was honoured with an award for his work in teaching residents Regional Anesthesia at SHC.
- Drs. Kostash and Endersby have been a key players in the recent rollout of the site’s first rotation in the city’s Perioperative Ultrasound Fellowship.
- Drs. Esther Ho and Lori Olivieri continue facilitating SHC OR team training and education. This multidisciplinary program engages Anesthesia, PACU nursing, OR nursing, Health Care Aids, and RTs in practicing high stakes clinical situations using in situ, high fidelity simulation.
- Dr. Mark Cheesman has also lead in situ simulation sessions but for obstetrical nurse education, with the focus on “STAT GA for c-section” scenarios. Drs. Fayaz Bharwani, and Ulyana Nemish have been providing anesthesia orientation sessions to new nursing staff on our obstetrical unit.
- Dr. Nemish participated on the AIMG Program Interview Developing Committee.
- Drs. Baghir-Zada and Nemish worked with the trauma surgery section as ATLS instructors.
- Dr. Chu has continued his global health work with trips to Haiti with Broken Earth and this next year, will be working with CASIEF in Guyana.
- Dr. Lou Fraser became a delegate with the Canadian Red Cross International Response Unit this past year. In February-March, Dr. Fraser deployed with the International Committee of the Red Cross (Geneva) to Iraq as part of a Surgical

Casualty Relief Team for the fight against ISIS in Mosul. He was on standby for Harvey and Irma. Most recently, he remains on standby for Bangladesh (Myanmar).

- Dr. Lou Fraser has been actively organizing social events for SHC physicians (from all specialties) in his capacity as Medical Staff President. This year was Dr. Fraser's last in his term as MSA President (since 2013). Dr. Melissa Jack has accepted to be the next President of the SHC MSA.
- Dr. Lori Olivieri has collaborated with orthopaedic surgeons Drs. Miller and White to attain REB approval and AHS / University of Calgary institutional contract negotiations for "HIP ATTACK" study. This multi-centre, PHRI study will seek to compare accelerated operative care of hip fractures (less than six hours from time of diagnosis in the ER) versus standard of care.
- Dr. Farrah Morrow has successfully begun recruitment for a study examining mindfulness meditation as a means to reduce anxiety and pain in postoperative arthroplasty patients, in conjunction with the University of Calgary's Department of Psychology.

Site Leadership

Dr. Farrah Morrow	Outgoing Section Chief, SHARP Committee, Search and Selection Committee (Out-going Chair)
Dr. Lori Olivieri	In-coming Interim Section Chief, PAC Liaison, SHARP Committee, Search and Selection Committee (In-coming Chair), Residency Coach
Dr. Jarad Stephan	Deputy Section Chief, Search and Selection Committee, Transitional Pain Services Lead
Dr. Fayaz Bharwani	Obstetrics Lead, SHARP Committee (Chair), Search and Selection Committee
Dr. Ryan Endersby	Acute Pain/Regional Anesthesia Lead, SHARP Committee, Perioperative Ultrasound Fellowship Site Co-Lead
Dr. Mark Kostash	Perioperative Ultrasound Fellowship Site Co-Lead
Dr. Tony Trinh	Outgoing PACU & Day Surgery Liaison; Family Medicine Anesthesia Program Director
Dr. Alan Chu	Residency Training Committee, Residency Site Coordinator, Clerkship/Elective Student Site Coordinator, SHARP Committee, CaRMS Committee, CBD Committee
Dr. Nathan Brown	Residency Training Committee, Regional Anesthesia Rotation Coordinator, RTC Assistant Site Coordinator, OR SMART Committee, Search and Selection Committee, RTC Journal Club Coordinator, Minor Surgery Block Program Lead, EBP Program Lead, CaRMS Committee, CBD Committee
Dr. Mark Cheesman	Section Scheduler, SHARP Committee
Dr. Leyla Baghir-Zada	Quality/Safety Liaison, South Health Campus Quality Council, ER-ICU Liaison
Dr. Esther Ho	Treasurer/Secretary, CME Rounds Coordinator, OR SMART Committee

Dr. Shaylyn Montgomery	PACU-DSU-SSU-Ward Liaison
Dr. Ted Schubert	Sedation and Non-OR Anesthesia Liaison
Dr. Lou Fraser	SHC Medical Staff President (Out-going)
Dr. Melissa Jack	OR SMART Committee, SHC MSA President (In-coming), CBD Committee, Residency Mentor
Dr. Ulyana Nemish	Choosing Wisely Lead
Dr. Dean Swedlo	AMA/CMA Liaison

*SHARP (**S**trategic **H**uman and **R**esource **P**lanning Committee, formerly called the Manpower Committee)

New Recruitment and Departures

SHC was pleased to welcome on staff Drs. Shayln Montgomery, Jenni Joo, Ulyana Nemish, Ted Schubert, and Dr. Adam Spencer (the also works with ACH and is part-time at SHC). This recruitment took place after Dr. Morrow worked tirelessly to completely overhaul the SHC hiring process to meet AHS standards.



Dr. Jennifer Joo completed her undergraduate medical education at the University of Calgary then returned home to Vancouver, BC for residency training in anesthesiology. After a chronic pain fellowship in Ottawa in 2013 – 2014, she returned to a mixed practice of outpatient chronic pain management and anesthesia clinical practice in Calgary. Dr. Joo is particularly interested in examining and optimizing outcomes for complex pain patients in the peri-operative period. She and her husband, Dr. Daniel Joo, a local emergency department physician, have two young children and enjoy living in southeast Calgary and playing in the Rockies.

Dr. Schubert completed undergraduate studies and medical school at the University of

Calgary prior to anesthesia residency at the University of Saskatchewan – completing Royal College Certification in 2009. In broad-based practice in Saskatoon for eight years, Dr. Schubert has an interest in total intravenous anesthesia, preoperative ultrasound and regional anesthesia. He has joined the Department of Anesthesia at SHC beginning in July 2017 and has accepted the role of Departmental Lead for Sedation and non-OR Anesthesia.



Dr. Ted Schubert, Dr. Adam Spencer

Dr. Adam Spencer completed his anesthesia residency at University of Calgary and a Pediatric Anesthesia fellowship with a focus on ultrasound guided regional anesthesia in Montpellier, France. He is a staff at the Alberta Children's Hospital since 2011, where he continues to work as a pediatric anesthesiologist and acute and complex pain physician. For the last few years, he has taught many regional anesthesia and POCUS workshops at a local and international level alongside such great teachers as Drs. Mark Kostash and Ryan Endersby. He also brings a background in research and education in the fields of pain and perioperative ultrasound. He is very excited to join the SHC perioperative team!

Sadly, at the end of this year, we said farewell to our Section Chief, Dr. Farrah Morrow. Dr. Morrow accepted a staff position at the RGH for September 2017. SHC greatly flourished under the leadership of Dr. Morrow, in terms of the development of two new hiring committees and advanced hiring policies and procedures, the implementation of a “360” evaluation for staff reviews, the support for a transparent and equitable staff scheduling program, and the implementation of Robert’s Rules at our Section’s business meetings.

Surgical Services

The site has up to eight elective operating rooms, plus one access room, running daily. The section staffs two on-call anesthesiologists per day, one for the main operating room and one dedicated to obstetrical care.

One staff person is assigned to an off-site, NHSF list, up to four days a week. SHC continues to support placing peripheral nerve blocks for patients booked for minor surgery, expanding the scope of procedures done in minor surgery. SHC also routinely provides anesthesia services for the outpatient gynecology clinic, DI (for imaging investigations and kyphoplasty procedures), ECTs, and endoscopy. Epidural blood patches for spontaneous intracranial hypotension are offered to outpatients (in PACU, via minor surgery), in conjunction with the Neurology Department's Calgary Headache Assessment & Management Program. South Health Campus remains dedicated to providing excellent and innovative ambulatory anesthesia for our community.

The Section staffs an on-site pre-operative assessment clinic that continues to manage increasing demands for patient assessments as our surgical programs develop in complexity and volume. The pre-admission clinic has successfully revised its screening protocols to decrease the volume of standard preoperative investigations, in the spirit of the national "Choosing Wisely" campaign. Furthermore, the pre-admission clinic has started to formally screen for and appropriately apply preoperative ERAS care paths in the colorectal, plastics/reconstruction and arthroplasty programs at SHC.

Family Maternity Place (FMP)

South Health Campus continues to see approximately 250 deliveries a month, with a labour epidural rate of approximately 75 percent. Two operating rooms in the main OR area support elective and emergency obstetrical operative management. This past year, in his role as OB lead, Dr. Fayaz Bharwani introduced a standardized approach for urgent CBC orders for patients requesting (or deemed by nursing likely to request) labour epidurals, in hopes of decreasing the number of CBC labs being routinely drawn by the FMP unit. Dr. Bharwani also participated in the citywide epidural pump programming initiative for labour epidurals and is in the process of developing a remifentanyl order set for labour and delivery at SHC.

CLINICAL SERVICE

ANESTHESIA ASSISTANTS

Michael Coutts, RRT

Michelle Lohman, RRT HBS

Over the past year we have had some structure changes to our clinical service model. Michael Coutts has acquired another department under his management (FMC Respiratory Services). As a result, the Department of Anesthesia was able to create a Zone Unit Manager position which was filled by Michelle Lohman. This is a one year

pilot for this service model which will be reassessed in the spring of 2018. Operational handover from Michael to Michelle has been very seamless and is ongoing.

There are 75 Anesthesia Assistants (Respiratory Therapist IIs) and 7 Anesthesia Respiratory Therapist site leads. There are 26 Anesthesia Aides and relief staff distributed among the five sites. To provide efficient service coverage at all sites we have many staff that work at multiple sites.

Anesthesia Respiratory Therapists continue to provide high level service delivery to all areas that require an Anesthesiologist. This service delivery involves clinical and technical support of anesthesia equipment. Respiratory Therapists are located at the five acute care centres within the Calgary Zone and provide consultative support for the rural sites (Canmore, High River, and Banff) as well.

Many experienced staff have been returning this year from leaves of absence which has thereby displaced other temporary staff back to casual status. Although we do have more staff venturing into parenthood (maternity leaves) which the displaced casuals will fill the upcoming openings. We have added a few new Anesthesia RT staff to our team and therefore there will be some new faces at the bedsides.

Continuing education and policy/procedure development and updating continues. Continuing competency audits for advanced skill sets occur annually.

Within Anesthesia, several staff provide zone wide support to clinical applications including Anesthesia Electronic Record (AER) and anesthesia scheduling software and other clinical applications. There are two senior analysts, three clinical educators and one zone equipment and supply coordinator.

ACUTE PAIN SERVICE

Dr. J. Hamming

Overview: APS, the acronym for Acute Pain Service or Anesthesia Pain Service (depending on the hospital), is a consultant service run by the Department of Anesthesia. This consultant service provides analgesic care and expertise across the Calgary hospitals. Our primary focus is for post-operative patients with moderate to severe pain but also for select patient cohorts with acute or acute on chronic pain. Our service volume continues to increase from year to year. For 2016 – 2017 year it was above 3,500 patients.

Administrative Structure: Each hospital has an APS Medical Director that coordinates the APS service at their respective hospital. The 2016 – 2017 site medical leads were Dr. Jeremy Hamming (FMC), Dr. Karl Simon (RGH), Dr. Ryan Endersby (SHC), Dr. Shannon Rabuka (PLC), and Dr. Adam Spencer (ACH). Each site has a number of APS nurses, who are critical to the smooth functioning of the APS service on a day-to-

day basis. APS nurses run the spectrum from RNs to CNS to NPs depending on the site needs. Over the 2016 – 2017 year, Patrycja and Laura, two nurses at FMC, were off on maternity leave and their positions were filled by Gordon and Sumeeta. Patrycja will be returning this autumn to work at RGH, while Sumeeta will fill her position permanently at FMC. Pat Halliday will be retiring this year from RGH after many years of service at RGH. Our thanks and best wishes go out to her.

Education: APS is responsible for the education of Anesthesia residents for post-operative pain issues and management. This is primarily conducted as a month long rotation in their senior year. However, given the importance of APS to the residents' understanding of complete peri-operative care, junior residents participate in the service at various times. This includes mandatory days at FMC, ACH, SHC, and PLC as part of general rotations or specific sub-specialty rotations like regional anesthesia. APS patients are also included as part of their on-call responsibilities, depending on the hospital site.

The APS nurses are very active in the provision of education. This occurs in many forms. In addition to their help with the Anesthesia Residency program, the nurses from all the sites run the citywide Basic Pain Workshop for ward nurses across the city. There are also various in-services and updates required. The APS nurses also organize the Pain Awareness Day. This is a day-long information and academic lecture series with a number of renowned presenters which is always well reviewed and attended.

Activities: Clinical patient care is the primary responsibility of APS. Our primary patient cohort is post-operative patients expected to suffer moderate to severe pain. The patients are offered a number of advanced modalities, including epidural catheter infusion, intrathecal narcotics, peripheral regional block or catheter infusions, ketamine infusions, lidocaine infusions, and narcotic infusions/PCA. Other patient cohorts include trauma, intracranial hypotension syndrome, refractory cancer pain, post-dural puncture headaches, severe burns, sickle cell crisis, and select acute on chronic pain cases.

During 2016 – 2017, there have been a number of new programs and initiatives across the various hospitals. At ACH, a peripheral nerve catheter program was started culminating with a highly successful extension to out-patient therapy. At PLC, Michelle Volhoffer has done extensive research into the growing use of medical cannabis and is developing guidelines for care of these patients in the peri-operative period. Additionally, at PLC, work continues on care guidelines, anti-coagulation considerations, and other clinical considerations for vascular patients undergoing amputation. At SHC, the groundwork for a new Transition Pain Service is nearly finished and should be initiated this autumn. This pilot program is aimed towards identifying and providing care for patients at risk for developing narcotic issues in the post-operative period. APS at SHC continues their work at streamlining post-operative analgesic care for arthroplasty patients and for starting up an outpatient peripheral nerve catheter program. FMC, in conjunction with APS specialists in Edmonton, is developing and testing provincial Clinical Knowledge topics on ketamine and lidocaine infusions.

Historically, research by APS has been somewhat lacking. Fortunately we are making progress in this area. SHC has been presenting their research on pain treatment pathways for arthroplasty patients at both the Canadian Pain Society and Canadian Anesthesia Society meetings. ACH presented their research on peripheral nerve catheters in pediatric patients at the Canadian Pediatric Anesthesia Society annual meeting. Dr. Hamming was a co-author on the ERAS recommendations for Breast Surgery, published this year in the Journal of Plastic and Reconstructive Surgery. Dr. Endersby was co-author for the Anesthesia for Hip Arthroscopy published in Canadian Journal of Anesthesia and for Adductor Canal Block trial published in Anesthesiology (both published in 2016/2017).

CARDIAC ANESTHESIA

Dr. C. Prusinkiewicz

Overview and Administrative Structure

The Cardiac Anesthesia Group (CAG) strives for excellence in clinical care, education, and research. Cardiac anesthesiologists hold primary appointments in the Department of Anesthesiology (Foothills Medical Centre Section) with joint appointments in the Department of Cardiac Sciences. Additionally, all CAG members hold clinical appointments with the University of Calgary. The current Director of Cardiac Anesthesia is Dr. Chris Prusinkiewicz. Dr. Prusinkiewicz sits on the Executive Committees of both the Department of Anesthesia and the Department of Cardiac Sciences. Dr. Duc Ha, the FMC Section Chief, is a member of the CAG. Dr. Alex Gregory serves as both the Director of Cardiac Anesthesia Research and the Cardiac Anesthesia Fellowship Program Director. Dr. Doug Seal is the Cardiac Anesthesia Lead for perioperative blood conservation.

All cardiac anesthesiologists are trained in transesophageal echocardiography, have successfully completed the National Board of Echocardiography Perioperative Examination, and have received certification in perioperative TEE as level II echocardiographers from the College of Physicians and Surgeons of Alberta.

The CAG is pleased to welcome two new members this year: Drs. Chris Noss and Nicole Webb. Dr. Noss practiced as a physiotherapist from 2001-2007 after completing his degree from the University of Alberta. Dr. Noss obtained his medical degree from Queen's University in 2011, completed anesthesia residency at the University of Calgary in 2016, and completed fellowship training in cardiac anesthesia in 2017, also at the University of Calgary. His research interests include preoperative pain management, enhanced recovery in cardiac surgery, and simulation. Dr. Webb

completed her Bachelor of Science in 2007 and her Doctor of Medicine in 2011, both at the University of Saskatchewan. She went on to residency training at McGill; which she finished in 2016. In 2017, Dr. Webb completed fellowship training in cardiac anesthesia in Edmonton at the Mazankowski Heart Institute of Alberta. She is currently pursuing further training in research, focusing on the area of cardiac anesthesia and transesophageal echocardiography. The addition of Drs. Noss and Webb brings the group size up to ten anesthesiologists.



Dr. Chris Noss



Dr. Nicole Webb

Clinical Practice

Members of the CAG work in a multidisciplinary environment to provide anesthetic care for a complex variety of cases in an increasingly elderly population of patients. Anesthesia services are provided for procedures such as open-heart surgery, off-pump coronary artery bypass grafting, aortic reconstruction with deep hypothermic circulatory arrest, mechanical assist device support, total endovascular aortic repair, transcatheter aortic valve implantation (TAVI), minimally invasive valve surgery, and complex pacemaker/implantable defibrillator lead extractions. Outside the cardiac operating rooms, the CAG provides anesthetics for percutaneous cardiac laboratory procedures such as atrial septal defect closures, perivalvular leak closures, valvuloplasties, left atrial occlusion device insertion, and complex electrophysiology cases; as well as, for select procedures in interventional radiology, such as procedures involving the AngioVac cannula and circuit for the removal of large thrombi from the central venous circulation. Upon request, the CAG also provides care to patients with complex cardiac disease undergoing non-cardiac surgery.

Anesthesiology Workload

The CAG provides services for over 1,300 cardiac surgical cases per year and provides additional support for percutaneous cardiac procedures. Three open heart operating rooms run Monday to Thursday and two open heart rooms run on Fridays. The CAG covers the Preadmission Clinic on Tuesdays and is available for inpatient consultations every day. Anesthetic support for complex lead extractions is provided on Wednesdays and Fridays. TAVI cases are done two days per month. In the cardiology procedure rooms, cardiac anesthesiologists provide care for complex electrophysiology cases, while general anesthesiologists provide services for non-complex electrophysiology cases. Over the last year, the demand for anesthesia services in electrophysiology has increased, with further growth anticipated.

Education and Cardiac Anesthesia Fellowship

The CAG provides a high standard of clinical education. Anesthesia residents rotate through the cardiac operating room in their PYG 4 year for two blocks. Off-service trainees rotating with the CAG include fellows from critical care medicine and cardiology. In the past academic year, CAG members have also been responsible for didactic teaching during the anesthesia residency cardiovascular core program. Of note, Dr. Doug Seal was a recipient of an Excellence in Postgraduate Education Award from the anesthesia residency program for the 2016 – 2017 academic year.

The TEE Simulator by Heartworks is located at the Peter Lougheed Centre and is being used to teach anesthesia residents basic TEE prior to their CV Anesthesia and Vascular Anesthesia rotations. An additional educational opportunity is available through the TeachingMedicine.com website, which includes modules on transthoracic and transesophageal echocardiography designed by CAG member Dr. Jason Waechter.

The Cardiac Anesthesia Fellowship Program continues to enjoy success. In addition to Dr. Noss, Dr. Maxime Thibault also completed a fellowship with the CAG in the 2016 – 2017 academic year. Upon completing his training, Dr. Thibault joined the Anesthesia Department at the Montreal Heart Institute. In August 2017, the CAG welcomed Dr. Nadeem Jadavji to the cardiac anesthesia fellowship, and the group will welcome Dr. Justin Byers in January 2018.

Research

Dr. Alex Gregory is a recipient of the 2017 Dr. Earl Wynands Research Award in Cardiovascular Anesthesia from the Canadian Anesthesiologists' Society. He has also received multiple local grants.

Dr. Doug Seal is the project holder of the Foothills Medical Centre Staff Anesthesia Research Fund. The fund was established through the generosity of Dr. Tim Tang, a former CAG member. It was developed to promote research in the areas of Cardiac Anesthesia, Patient Outcomes and Quality Improvement.

The Transfusion Requirements in Cardiac Surgery (TRICS III) trial, a large randomized international study has been completed. With the help of research nurse Karen Meier, Calgary was among the top recruitment sites in the world.

The CAG will be involved with the Canadian Mitral Research Alliance Trial, a multicentre, randomized controlled trial designed to compare mitral valve leaflet resection versus leaflet preservation with regards to the development of functional mitral stenosis following surgical repair of mitral valve prolapse. Members of the CAG also continue to pursue multiple local research projects.

Recent abstracts and publications by members of the CAG include the following:

- Appoo JJ, **Gregory AJ**, Fichadiya A, Kotha VK, Herget EJ. Zone 2 Arch Replacement and Staged Thoracic Endovascular Aortic Repair for Acute Type A Aortic Dissection. *The Annals of Thoracic Surgery*. 2017 Sep 1;104(3):e299-301.
- Campbell E, Miller RJ, **Gregory A**, Weeks SG. Cardiogenic shock as a complication of Takotsubo cardiomyopathy in a patient with incarcerated bowel. *Journal of cardiothoracic and vascular anesthesia*. 2017 Feb 1;31(1):243-7.
- **Chun R**, Duttchen K, Davis M, Haber J, Lockyer J. Mentorship in a Canadian residency program: faculty and resident needs and experiences. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*. 2017 Jul:1-3.
- Gaudet J, **Waechter J**, McLaughlin K, Ferland A, Godinez T, **Bands C**, Boucher P, Lockyer J. Focused Critical Care Echocardiography: Development and Evaluation of an Image Acquisition Assessment Tool. *Critical care medicine*. 2016 Jun 1;44(6):e329-35.
- Guo M, Smith H, Ouzounian M, Boodhwani M, **Gregory AJ**, Herget EJ, Saczkowski R, Appoo J. How robust are the natural history data of ascending aortic aneurysm? A systematic review and failed meta-analysis. *Canadian Journal of Cardiology*. 2016 Oct 1;32(10):S270.
- Haber JA, Ellaway RH, **Chun R**, Lockyer JM. Exploring anesthesiologists' understanding of situational awareness: a qualitative study. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*. 2017 Jun 1:1-0
- Miller RJ, Campbell E, **Gregory A**, Weeks SG. Response: Electrocardiographic Markers in Patients with Takotsubo Cardiomyopathy. *Journal of cardiothoracic and vascular anesthesia*. 2017 Apr 1;31(2):e31-2.
- Smith HN, Boodhwani M, Ouzounian M, Saczkowski R, **Gregory AJ**, Herget EJ, Appoo JJ. Classification and outcomes of extended arch repair for acute Type A aortic dissection: a systematic review and meta-analysis. *Interactive cardiovascular and thoracic surgery*. 2017 Mar 1;24(3):450-9.
- **Waechter J**. Competency by design: when opportunity stops knocking. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*. 2017 Mar 1;64(3):325-6.
- **Waechter J**. In reply: Further considerations on competence by design: when opportunity stops knocking. *Canadian Journal of Anesthesia/Journal canadien d'anesthésie*. 2017 Apr 1;64(4):431.

Calgary Pain Program

Dr. C. Spanswick

The past year has been busy and challenging, with a number of important changes and plans for continued development in the next year.

Clinical

The Calgary Pain Program continues to work on addressing both access and quality improvement. The waiting list continues to be a challenge, in part due to an increasing referral rate related to the opioid crisis which affects a number of patients with chronic pain. We are working closely with our colleagues in primary care to find solutions closer to the medical home, including collaborations with Primary Care Networks to provide secondary level multidisciplinary pain services.

In addition to addressing the need for improving efficiency within the Pain Centre itself, the Pain Program has increased the number of telephone consults with referring Family Physicians and in addition recently joined the “Specialist Link” offering telephone advice within 15-30 minutes of a request from a FP. The initial response is via our Nurse Practitioners and is supported by Pain Physicians within the Pain Program as necessary. Many of these interactions have been directly in response to the issues arising from the opioid crisis.

We are currently developing closer working relationships with Addictions to facilitate the use of Suboxone to help patients who struggle with opioid use. We are also working with public health to address the wider issue of high opioid use within both Primary and Secondary care. The Calgary Zone Coalition for Opioid Prescribing Safety is co-chaired by the medical director of public health and the medical director of the Calgary Chronic Pain Centre.

Academic

Pain Medicine Residency Program

- The Pain Program was recognized as a training centre for the Royal College residency program in Pain Medicine, and the first resident commenced training in July.
- Admission to the pain medicine residency program is administered by CARMs, and has received six applications this year.

Teaching

- Clinical Clerks. Clerks are attached to the Hospital Consult Service under the supervision of the Nurse Practitioners and receive teaching also from Pain Physicians.
- A large number of off-service residents (approximately 180 per year) from a wide variety of specialties pass through the Pain Centre shadowing all healthcare

providers. The rotation is mandatory for residents in urban Family Medicine, Anesthesiology (Calgary and Saskatchewan), Physiatry (R1 and R3) and palliative medicine. We also host elective residents from Neurology, Gynecology, and psychiatry, in addition to trainees from allied health professions.

- Undergraduate Medical Education (Course 5): five lectures (multi-professional presenters) and two small group sessions on Acute and Chronic Pain.
- Our Main Pro+ program “Essential Strategies for Chronic Pain Management” received approval from the CFPC for 3 credits per hour (the highest level of accreditation) and continues to train FPs and other healthcare professionals from Primary and secondary care, offering 6 or more training programs per year and shadowing in the Pain Centre. We have received a grant from the CPSA to co-develop a Mainpro+ course in opioid tapering together with the Office of Continuing Medical Education and Professional Development in the Cumming School of Medicine. That course is scheduled for completion by the end of this year.
- The Pain Program continues its “Pain Education Day” which attracts up to 100 delegates 3 to 4 times per year. This is primarily aimed at allied healthcare providers in secondary and tertiary care.
- The Pain Program’s quarterly Symposia (formerly “grand rounds”) continue to be successful and address the education needs of the Pain Centre.

Publications

- Members of the Pain Program have a significant number of publications in peer reviews journals in the last year. These are mainly on pain related topics and involve members of the writer’s base speciality.
- Headache related papers - 4
- Pelvic Pain - 7
- Primary Care -2

Collaboration with Basic Science

- A presentation to the Spinal Cord/Nerve Injury and Pain Neuro Team was made and further collaboration is anticipated. Twelve basic scientists have asked to spend some time in the Pain Centre to help understand the impact of chronic neuropathic pain.
- A number of the clinical team have been working with Dr. Tuan Trang at the Hotchkiss Brain Institute to plan a phase one study on a medication to reduce withdrawal symptoms during tapering of opioids.

Operations

- The Pain Program has welcomed Vanessa Swanson as Program Manager following the departure of Connie Burkart.
- The Pain Program continues its close collaboration with Primary Care Networks as we jointly address the large population of patients with persistent pain. This

has primarily been aimed at helping PCNs establish their own system of pain care to support their FPs in the Medical Home.

- The Pain program is represented on the Health System Supports Task Group which is a collaborative working group including primary and tertiary care. It is through this group that the Pain program were able to take part in the Specialist Link program. Much work has been done to help smooth the change in the clinical service provided for patients with headache. This is now shared between Neurology and the Calgary Pain Program and access is via Central Access Triage. The goal is to direct the patient more efficiently into appropriate care when these clinical pathways are complete.
- The Pain Program continues to be represented at the level of the Strategic Clinical Networks and has members on the core group of the Bone and Joint SCN. This group is actively involved in the “Spine Access” collaboration and the new venture of Osteoarthritis care for all Albertans.
- The Quality Governance structure within the Pain program has been completely changed and two working groups set up to address “clinical improvement” and “access”.
- A number of potential IT solutions to data collection and recording have been examined to help monitor both individual clinical outcomes and performance of the Pain program in general.
- Efforts are underway, spearheaded by several SCNs, to develop a provincial pain strategy. A first meeting of stakeholders will happen this fall.
- The last several months have been spent collating data and ideas from the whole team prior to a “retreat” in order to plan and execute some step changes in the program to improve: patient outcomes and experience, quality of care, access and the health of the caring staff.
- Members of the Pain Program sit on a significant number of local, national and international committees.

In conclusion, a lot of work continues in the Pain Program to address the major current and ongoing issues of patients with persistent pain in the community, the teaching and training of all healthcare professionals and the efficacy and efficiency of the Pain Centre.

PATIENT BLOOD MANAGEMENT PROGRAM

Dr. R. Rock

Patient Blood Management (PBM) is a multi-modal and multi-disciplinary approach to managing patient blood with the overarching goal of *improving patient outcomes*. Medical and surgical techniques are applied throughout the perioperative experience to support the 3 ‘Pillars of PBM’:

- 1) Improving hematopoiesis
- 2) Optimizing coagulation (minimizing blood loss & bleeding)
- 3) Anemia tolerance: harnessing patient ability to tolerate anemia; includes patient-centered, evidence-based transfusion decisions.

INTRODUCTION

Over the past year, the PBMP continued its work in developing a multi-faceted PBM program utilizing the help of multiple partners, including the Transfusion Safety Office, CLS Transfusion Medicine, the CZ Transfusion Committee and others. The PBMP's participation in ad-hoc groups and task-forces related to anemia & iron-deficiency was aimed at helping to develop better resources for clinicians and to address the issue in a more system-wide approach.

ACTIVITIES

1. Preoperative Anemia Management

Anemia Referrals

The PBMP continues to receive referrals for management of preoperative anemia from various sources, including Pre-Admission Clinic (PAC), Alberta Hip & Knee Clinic (AHKC), Cardiac Surgery Referral Office, and other surgical intake sources.

The PBMP & AHKC anemia process has been in practice for over eight years. Regular feedback processes have enabled consistent referrals despite AHKC staffing changes.

Resource Tool: *"Preoperative Anemia Management & Hgb Optimization"*

See Addendum

FMC Pre-Admission Clinic (PAC) Anemia Referral Project & Process

The PBMP and the Foothills PAC partnered to address incidence of anemia and investigate possible opportunities to improve management; including raising awareness among surgeons as to ideal timing to treat preoperative anemia. The trial confirmed earlier assumptions that:

- Anemia is largely untreated among preoperative patients
- Lab results are often not ordered and/or completed prior to PAC to enable timely assessment
- Time interval between PAC and surgery day is much too short to enable timely treatment. Ideal timing for anemia management is at surgery INTAKE (decision to treat) or Primary Care.

After the first month of trial referral criteria was changed to the following (for either male or female patients):

- a) Day Surgery: Hgb <110g/L; or,
- b) ADOP: Hgb <130g/L

FMC PAC staff continue to refer patients identified as 'high-risk' and having preop anemia to the PBMP for treatment and/or communication with surgeons regarding issue of anemia.

Next steps: PBMP plans to refine anemia management strategies at the surgical intake level to reduce the incidence of patients arriving with anemia at any CZ PAC.

PAC Improvement Event

Along with Dr. Melinda Davis (PAC Anesthesia Lead), the PBMP participated in a two-day LEAN/Kaizen event with the following objectives:

1. Eliminate same-day surgical postponements
2. Reduce number of late charts arriving to PAC to within <7days prior to elective surgery
3. Increase efficiency within the Pre-Op phase related to PAC & Day Surgery
4. Improve patient experience during Pre-Op phase

The various stakeholders identified many opportunities for improvement; including the use of a standardized PAC request form which will include a focus on preoperative anemia management.

“Anemia Summit”

The PBMP is participating in the 'Anemia Summit': A half-day conference dedicated to improving management & treatment of IDA patients in the CZ, including usage of IV iron therapy; the 'Summit' will occur November 1st, 2018 and include stakeholders such as physicians, pharmacists, RNs, and NPs.

Summit objectives will include:

1. Improving appropriateness and efficiency with IV iron ordering
2. Reducing transfusion by improving IDA care with safer treatments
3. Developing a CZ multi-disciplinary & collaborative clinical pathway for IDA treatment
4. Disseminate & implement Toward Optimized Practice pathway for IDA
5. Build groundwork for potential out-patient IV iron clinic

1. Toward Optimized Practice (TOP): Iron Deficiency Anemia

The PBMP has been providing input in the development of the evidence-based TOP document for managing IDA. Task-Force group includes representatives from Primary Care, Emergency, Transfusion Medicine, Pharmacy, and others.

2. Coagulation Management & Minimization of Blood Loss

Resource Tool: Updated “*Protocol for Tranexamic Acid (TXA) in Arthroplasty Surgery*”

See Addendum

The current protocol for Bone & Joint surgery was updated to include more safety information, clearer parameters surrounding IV versus Topical use, and includes dosing strategies for Spine and Pediatric Spine. The protocol is approved by CZ Transfusion Committee and it has been brought forward to the Alberta Bone & Joint Health Institute for review and incorporation into the Hip & Knee Care Pathway.

South Health Campus TXA in Bone & Joint Surgery

The PBMP partnered with the Physician Learning Program in a project aimed at assessing the utilization of Tranexamic Acid by Surgeons & Anesthesia in Bone & Joint surgery including barriers to usage, impact on patient outcomes, and impact on transfusion practice. The project culminated with joint Grand Rounds between Surgery and Anesthesia with commitment to address various practice challenges and improve utilization.

See Addendum.

This project is now being launched at FMC with the added goal of improving physician reporting surrounding transfusion and Tranexamic Acid utilization.

Cardiac Surgery Direct-acting Oral Anti-Coagulant (DOAC) database

The PBMP works with Cardiac Anesthesia to collect data on DOAC patients booked for elective cardiac surgery.

3. Anemia Tolerance & Patient-Centered Transfusion Decisions

Re-development: ‘CZ Transfusion Guidelines’

PBMP will assist with review & revision of existing guidelines into a more practical document for clinicians; project will include relocating guide from Calgary Lab Services (CLS) website to more-accessible AHS website.

In-Development: ‘Treatment Guideline for ‘NO-BLOOD’ Patients’

See Addendum: *DRAFT ‘Bloodless Patient Management ADULT’*

DATA

Surgical Blood Utilization Reporting – Statit piMD Database

See Addendum: Surgical Blood Utilization Reports 2016/17

Created in collaboration with Data Integration Management & Reporting (DIMR), the PBMP distributes annual reports to Department Heads.

Individual Surgeon Reports

Blinded, Individual Surgeon data is provided to surgeons performing THA, TKA, Hysterectomy, TRAM-Flap Breast Reconstruction, and Cardiac Surgery. Surgeons are provided their unblinded result in confidence.

- Overall rate of transfusion has trended down for most surgeons since introduction of Individual Surgeon Reporting

Surgical Blood Costing Analysis

The PBMP did a costing analysis to determine healthcare savings attributed to lower RBC transfusion use over the past 10 years. Using data from the Surgical Blood Utilization reports (overall patient numbers, volumes of RBCs given and average number of units given per patient) and using costing models specific to Alberta for both product and activity-related use of RBCs, the PBMP demonstrated that significant savings have been achieved over the past 10 years, and are projected to be achieved, if practice trends continue.

See Addendum:

CLINICAL SERVICE

Calgary Zone Transfusion Committee (CZTC)

PBMP participates in and contributes to CZTC activities/projects

Hematology Fellows & Anesthesia Residents Teaching Sessions

Two hour seminars are provided for residents and fellows during their rotations in Transfusion Medicine; approx. 2-3x/year. These include provision of reference material and teaching sessions on massive transfusion and blood conservation.

Alberta Provincial Blood Coordinating Office: Advisory Committee

Participation in committee tasked with addressing efficiencies in utilization of blood components and products.



Patient Blood Management (PBM) Program

Foothills Medical Centre: McCaig Tower 7th Floor
3280 Hospital Drive NW Calgary, AB T2N 4Z6

Phone: (403) 944-4710
Fax: (403) 944-4571
Regional Paging: #00050

Surgical Blood Utilization and Patient Blood Management (PBM) Innovations in AHS Calgary Zone—A Ten-Year Analysis of Cost Impact

Background

This report will focus on the utilization and costs of RBCs in AHS—Calgary Zone.

- Surgical volume: AHS Data Integration Measurement & Reporting (DIMR) analysis of the Discharge Abstract Database (DAD)
- Transfusion information is mined from the Laboratory Information System (LIS) of Calgary Laboratory Services (CLS)
- Red Blood Cell (RBC) costing information is obtained from Canadian Blood Services (CBS) and AHS/CLS analysis.

Product Costs and Activity-Based Costs

Product: \$425/unit [cost to produce one (1) unit RBCs from one (1) Whole Blood donation]

Activity*: \$483/unit [cost estimated to administer one (1) unit RBCs—AHS facilities]

TOTAL: \$908/unit

*Activity: transportation (blood units between CBS and AHS sites), laboratory (ABO-testing, inventory, etc.), equipment (IV supplies, etc.), and personnel (physician: assessment/ordering; laboratory: inventory, testing, preparation, etc.; Distribution Portering: delivery; and, nursing: administration, safety checks, monitoring, etc.).

Note: TOTAL costs do not include management of transfusion-associated complication or adverse reactions.

Analysis

From 2005-2015, surgical volume across the areas measured increased, but incidence of RBC transfusion decreased, resulting in significantly lower transfusion costs overall (\$10.4M). At current pace, cost savings over the next 10 years is projected to be \$30.1M.

From 2005-2015, surgical volume has increased steadily for Total Hip Arthroplasty (THA) and Total Knee Arthroplasty (TKA) surgery and significant declines in RBC utilization are noted:

- RBC utilization has changed from 20% to 5% in THA and from 19% to 3% in TKA
- Reduction in RBC usage has resulted in cumulative cost savings of \$1.5M in THA and \$2.6M in TKA
- Savings estimated to occur over the next 10 years for both THA and TKA is \$12.7M

Decline in overall RBC transfusion rate can likely be attributed to a number of factors, including improved surgical technique, more restrictive transfusion practice among prescribers, elimination of routine Preoperative Autologous Donation (PAD) and PBM Innovations.

DRAFT_Bloodless Patient Management: ADULT

Hemoglobin <5 to 7.9 g/dL

Patient Care

- ☐ Elevate Head of Bed (HOB) 30°
- ☐ Neuro checks
- ☐ Bed Rest

Goal: maximize oxygenation, monitor tissue dysoxia

Every 4 hours

Medications

- ☐ Epoetin alpha (Procrit®, Eprex®)

Goal: optimize Hemoglobin

*20,000 units subcutaneous (SC), every 12 hours, x10 doses

Notify provider/physician for:

1. chest pain, dyspnea, seizures, severe headache, fever, nausea, vomiting, diarrhea.

2. increase blood pressure >20 mmHg above baseline; or systolic BP >180mmHg or diastolic BP >100mmHg

*If Reticulocyte Count <6% on day #7 of therapy, increase dose to 40,000 units SC, q12hrs, x10 doses

100mg IVPB, once daily, x10 doses

- ☐ iron sucrose (Venofer®)

OR,

- ☐ iron dextran (Infed®)

100mg IVPB, once daily, x10 doses

First time iron dextran patients:

1. Give 25mg IVPB test dose, observe x30 minutes

2. If no reaction, give remaining 75mg IVPB

1mg IVPB, once daily

500mg, PO, twice daily

1mg, IM, x1 dose

- ☐ Folic Acid

- ☐ Vitamin C

- ☐ Vitamin B12

Adjunct Medications

- ☐ non selective beta-blocker
propranolol (Inderal®) 150 mcg
(0.15mg) IV, q4hrs, prn

Goal: control blood pressure, GI stress prophylaxis

Goal: HR 90-100bpm, or reduction of HR by 10% baseline tachycardia (but not more than 15% of baseline tachycardia)

Laboratory

Principles:

See SCHEDULE at APPENDIX A

1. Use minimal sampling, to minimize waste (e.g.: micro-sampling, neonatal tubes, Point-of-Care, in-line devices)

2. Eliminate 'standing order' or 'routine' daily-order draws

Exception: daily arterial blood gas for ventilated patients

Tests/Procedures

- ☐ Electrocardiogram (EKG) 12 Lead

Goal: monitor signs tissue dysoxia

One time daily

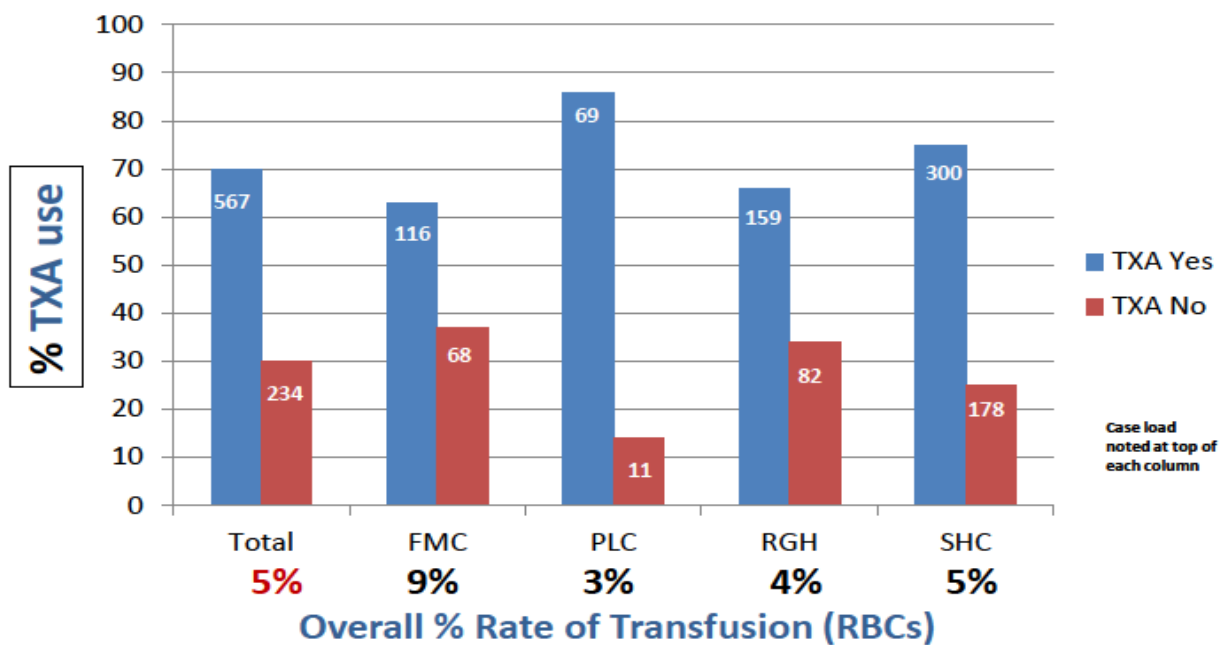
Respiratory

- ☐ Supplemental Oxygen

Goal: maximize oxygenation

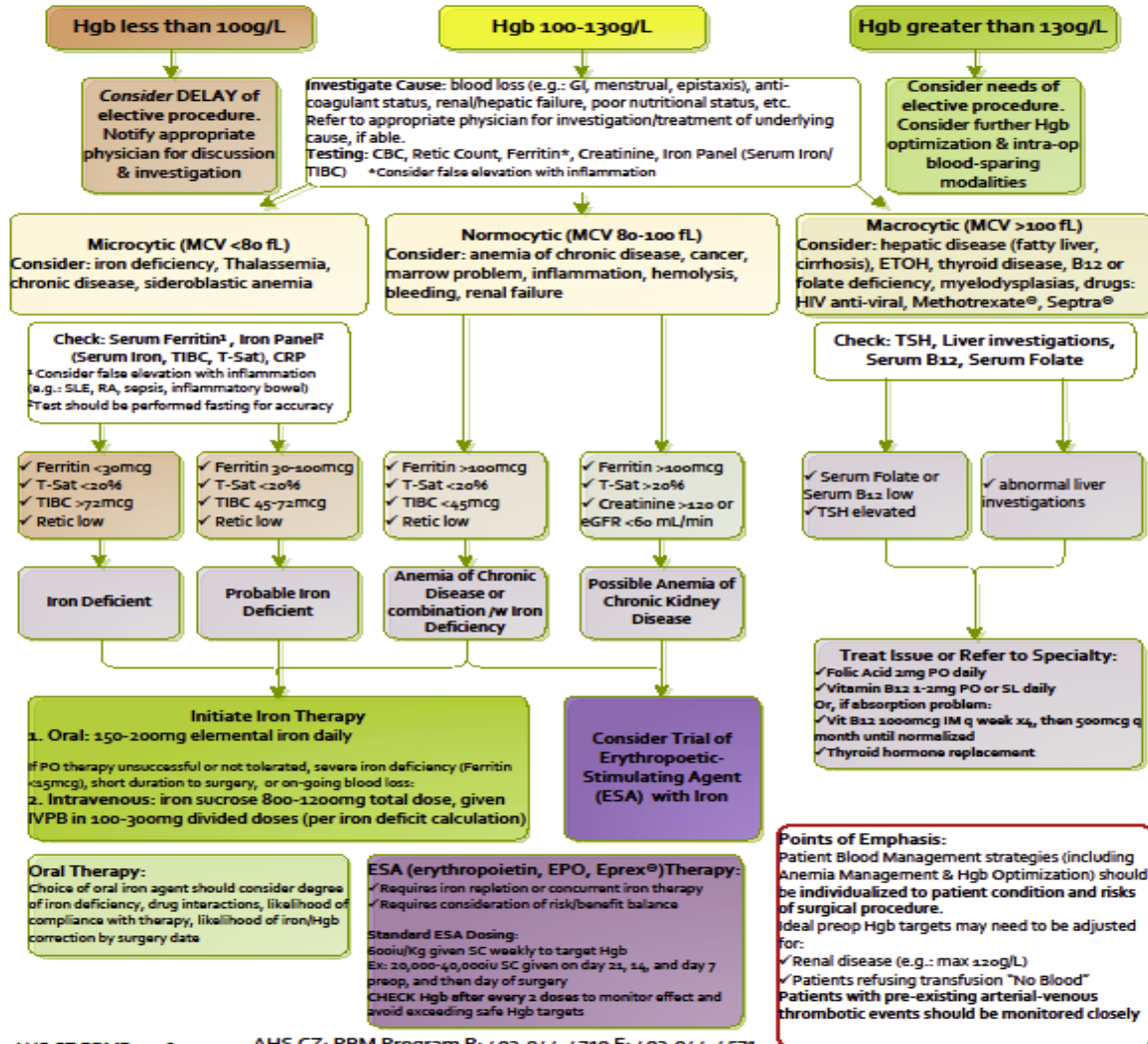
Nasal Cannula or Non-Rebreather Mask, prn

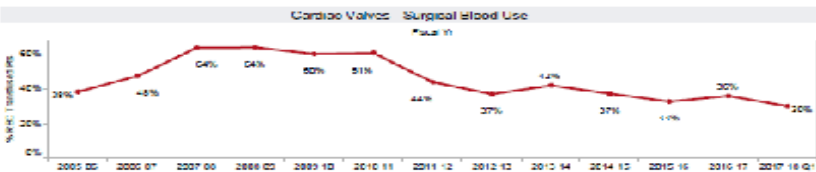
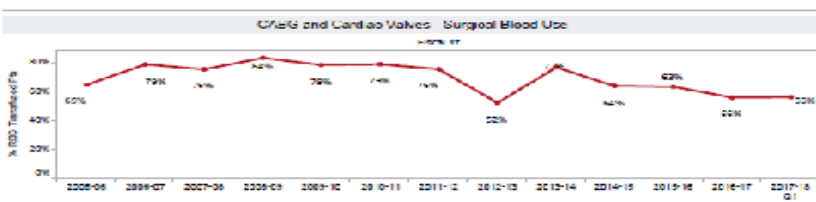
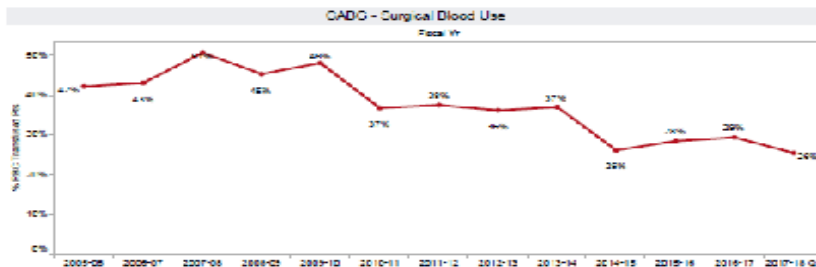
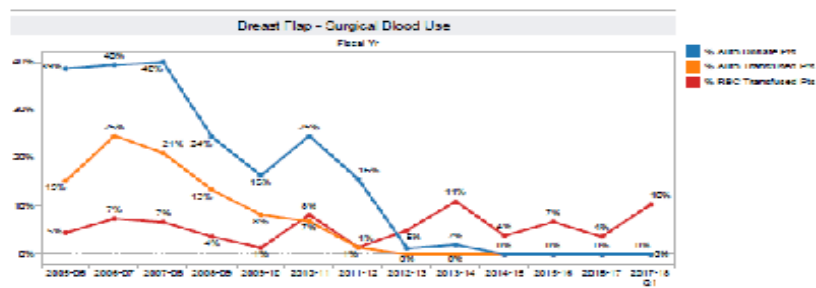
Incidence TXA use: THA



Preoperative Anemia Management & Hemoglobin (Hgb) Optimization

At-Risk Patient Populations: Hgb <130g/L (male or female), weight <65kg, female gender, complex or revision surgery, renal disease, anti-platelet and/or anti-coagulant therapy, hematologic conditions (i.e.: Thalassemia), 'No Blood'/transfusion-refusal
Ideal Timeline for Assessment: Ideally at surgical INTAKE, at time of acceptance for surgery; at least 30 days preop





Human Factors in ANESTHESIA

Dr. J.M. Davies & Mario I. Pehar

2017 update about the 2014 Canadian Standards Association (CSA) standard, Z314.8-14, “Decontamination of reusable medical devices.”

Recap: The part of this CSA standard of importance to Department members relates to the cleaning and storage of flexible bronchoscopes used by anesthesiologists to secure their patients’ airways. Review of this standard led some Department members to become concerned about the lack of evidence on which it appeared to be based with respect to flexible bronchoscopes. The standard’s content was such that a strong argument could be made for resultant Human Factors (HF) usability problems with respect to the availability and assembly of the bronchoscopes. Last year, AHS supported our decision not to follow that CSA standard.

Update: More recently, Infection Prevention & Control (IP&C) invoked its ‘standards’, which we are required to follow, i.e., IP&C now follow the CSA standard. We have therefore had to make changes in the way we store bronchoscopes kept with our Emergency Airway Carts (Difficult Airway Carts) in the OR. Previously, bronchoscopes were pre-assembled with all connectors, adapters, camera, and light piece on the scope, tested for function, and then hung within a clean but not sterile, protective tube at the side of a cart. However, IP&C standards dictate that this arrangement is unacceptable. Bronchoscopes must remain and be kept sterile in the containers in which they come from the Medical Device Reprocessing Department (MDRD).

This forced us to make changes in the way we store scopes, because of the lack of room on the carts for sterile bronchoscope containers. At the same time, scopes must be immediately available in the OR for use by an anesthesiologist. Our Department therefore added disposable bronchoscopes to our inventory at all hospitals in the Calgary Zone (five sites). These scopes are designated for use when the Anesthesia RRT is on call and not on site or immediately available and only for emergency airway access cases, not routine cases. The FMC also purchased scopes this past year because there is only one Anesthesia RRT available (in-house) overnight. If an emergency patient were to present with a difficult airway and the Anesthesia RRT were to be in a different room; which could be a building away, then these scopes would be immediately available. The total start-up costs for all sites to date are close to \$20,000.

In 2016, Andrew Walker, Michael Coutts, and Jan Davies sent a letter to the Editor of the Canadian Journal of Anesthesia, about the 2014 Canadian Standards Association (CSA) standard: “*Anesthesia bronchoscopes and CSA Standard Z314.8-14.*” Canadian Journal of Anesthesia 2017; 64: 773-4. doi: 10.1007/s12630-017-0890-4. In that letter they described conducting literature searches but could not find any studies supporting the CSA statements. However, they did find publications supporting our previous practice. A response from a CSA representative was published in the same issue

(Schultz G. In reply: Anesthesia bronchoscopes and CSA Standard Z314.8.14. CJA 2017; 64:773-4), about which readers may form their own opinion. There has been no response from IPC at AHS.

An update on standardization of anesthetic drug drawer contents and layout

Recap

Starting in 2008, the Department of Anesthesia standardized its anesthetic drug drawer contents and layout, based on a Human Factors evaluation. (See: Shultz J et al. standardizing anesthesia medication drawers using human factors and quality assurance methods. Canadian Journal of Anesthesia 2010; 57: 490-9.)

Update: In 2016, several members of the Department joined a province-wide committee organized by Dr. Mike Murphy, previously Head of the Zone Department of Anesthesia in Edmonton. The aim of the committee was to identify safety hazards related to anesthesia throughout the province. A survey was undertaken and a decision made to focus on standardizing the anesthetic drug drawer (or tray) contents and layout. After Dr. Murphy left his position, the project was on hold for several months until restarted by Lenore Page from the AHS Human Factors group. The project will involve determining the anesthetic contents and layouts currently used in AHS facilities, with the aim of developing a province-wide template. The template used in the Calgary Zone has been adopted in private clinics throughout Calgary; as well as, by the Banff Mineral Springs Hospital and the Misericordia and Royal Alexandra Hospitals in Edmonton. There is ongoing review to ensure that this template is as optimal as possible and might serve as the standard.

An update on standardization of a single platform for physiologic monitoring

Recap

In 2015, the Department of Anesthesia started to institute another standardization project – that of a single platform for physiologic monitoring. This project is designed to help maintain and improve the anesthetic safety through standardization, incorporating certain Human Factors heuristics; such as, improved consistency and standards, increased recognition of system status, and greater flexibility and efficiency of use. In addition, standardization allows for seamless transfer of patient data when patients are transported from the OR to the ICU or vice versa. Standardization also facilitates networking, whereby anesthesiologists have the ability to view their patients remotely; for example, when in the OR being able to view physiological measurement of previous patients in the PACU.

Standardization also has safety implications because of the Department of Anesthesia's Zone-wide staffing models for staff anesthesiologists, resident anesthesiologists, and anesthesia respiratory therapists. This staffing model; which also provides flexibility should there be specific site shortages, means that any individual anesthetic care provider could work at any of the four adult acute care sites. While it is possible to use any monitoring system, case study lessons and best practices from aviation have taught

us that reversion to old actions and behaviours related to interacting with specific equipment can occur at times of high workload. Thus, minimizing variation between individual pieces of equipment is safer with respect to usability.

Update: The Section of Pediatric Anesthesia at ACH has standardized its physiological monitors, thus outfitting each ACH operating room with the same platform as in the ACH PACU, PICU, and NICU units. Similar 'networked' systems are now also in place at the FMC and SHC ORs and PACUs to allow for full viewing between the various connected areas, using the General Electric Healthcare (GEHC) Clinical Information Center (CIC Pro) network. From a support perspective, the Clinical Engineers looking after this equipment will be able to address ongoing issues, troubleshoot, and effect repairs via remote access due to this networking ability.

An update on standardization of anesthetic machines

New: During the first two quarters of 2017, the Calgary Zone purchased 49 new anesthesia machines, which included three different, new platforms introduced into four sites.

ACH – After a thorough clinical evaluation of two anesthesia platforms, clinicians chose the GEHC Aisys Carestation, after more than 10 years of clinical work with the Dräger Primus gas machines. This change was in addition to the Department having updated to the Philips MX800 physiological monitors less than six months previously. The anesthesiologists were successful in undertaking these major changes which required learning and adapting to the new 'man-machine' interfaces in a relatively short time.

RGH – This group chose the Dräger Perseus gas machine. The criteria for replacement qualified this group to purchase nine Dräger Perseus gas machines which is not fully their complete fleet, having 16+ ORs on site. The remainder of the fleet are newer model (< six years old) Dräger Fabius Premium machines.

FMC – This group qualified for major software and hardware upgrades to their aging fleet of GEHC Aisys machines. The upgrades included a touchscreen with a 'flatter' interface, meaning access to data/applications is more readily available in comparison to previously having to go into several submenus to get to the desired information or command.

PLC – Finally, this group added 11 Dräger Zeus Carestations to their fleet of one machine of that type. This is the company's flagship gas machine and demands a steep learning curve for navigation through its multitude of menus and screens. The single Zeus was acquired just over a year ago and was placed into a high-use OR to allow as many of the PLC's 36+ anesthesiologists as possible to intermittently use this elaborate machine. Unfortunately, the addition of 11 machines does not put a Zeus in every OR at the PLC. There are still Dräger Fabius machines in the remaining five operating rooms.

An update on anesthetic machine CO₂ absorbent

After several years of working through the logistics, the Calgary Zone Department of Anesthesia will be moving away from using CO₂ absorbent purchased in bulk and towards using prefilled cartridges to be incorporated into every anesthetic machine patient circuit. The reason for this important move is twofold: (1) the prefilled cartridges are more suited to low flow (< 1 LPM) anesthetic gas delivery; and (2) the introduction of prefilled cartridges almost eliminates the occupational exposure to the corrosive and irritating properties of handling bulk calcium hydroxide based products. When filling and changing the CO₂ canisters personnel needed to don protective gear (eye goggles, gloves, dust mask), open the CO₂ canisters containing the desiccated absorbent, empty the dusty absorbent into a specified disposal container, wash out the canister, and; following the policy and procedure, fill the canister with new bulk absorbent. Using prefilled canisters with the absorbent in a sealed container drastically reduces direct exposure of personnel to these irritating granules and reduces secondary exposure of other personnel through inadvertent local environmental contamination.

An update on environmental waste

The move to standardization of a single platform for physiologic monitoring has also meant that accessory devices; such as ECG lead sets, SpO₂ monitors, and Invasive Blood Pressure monitor cabling are also standardized and therefore readily available, for example, in the ORs and PACU. Because non-standardized devices will no longer need to be 'swapped out' and then binned there is the additional advantage of generating less waste.

EDUCATION

ANESTHESIA RESIDENCY PROGRAM

Dr. R. Eng

Competence By Design (CBD)

Contributions by Dr. Graeme Bishop (Associate Program Director (CBD)), and Dr. Alan Chu (CBD Academic Coach Lead)

July 2017 marked the start of the national implementation of CBD by the Royal College of Physicians and Surgeons of Canada (RCPSC). All anesthesiology and otolaryngology programs in the country have embarked on this change. Over the summer months, the Rockyview General Hospital faculty welcomed our PGY-1 cohort – Drs. Ahn, Hatheway, Phillips, Williams, and Woo – for their 'Transition to Discipline' stage of training. Their initial response was generally positive. However, we as a

Residency Training Committee (RTC) are working hard to ensure staff and resident feedback is utilized in a timely matter, and to ensure we change our program in a manner which meets the Royal College requirements while not ignoring the existing strengths of our program. To this end, we plan to launch a website www.calgaryanesthesiatraining.com this fall aimed at easing our transition to CBD.

Residents are promoted from one stage of CBD training to the next based on the recommendations of the Competence Committee, which ultimately require the ratification of the Residency Training Committee (RTC). The members of the Competence Committee include: Drs. Graeme Bishop (Chair), Robin Cox, Reuben Eng, Heather Hurdle, Marelise Kruger, and Shean Stacey.

While Academic Advisors (locally known as Academic Coaches) are suggested to be part of a residency training program by the RCPSC, concerns about faculty demands caused the RCPSC to not require all CBD programs to have these faculty positions. Fortunately, our Academic Coach program has officially been inaugurated under the direction of Drs. Alan Chu. In this program, all CBD residents have a staff physician who provides goal-directed coaching toward residency success. Eight staff anesthesiologists – Drs. Michael Chong, Melinda Davis, Peter Farran, Melissa Jack, Alan Lee, Lori Olivieri, Marc Soska, and Jared Stephan – are either Primary or Secondary Coach to one of our CBD residents. These staff have received additional training in mentorship, professional coaching, and educational coaching via the R2C2 model; along with topics such as burnout, resiliency, and emotional intelligence. Recruitment is ongoing as each new cohort of CBD residents mandates another cohort of staff coaches. Please contact Dr. Chu at aycchu@ucalgary.ca if you are interested in participating as a coach.

Residency Training Committee (RTC)

We are grateful for the support of the following individuals in helping to lead the residency training program. It is a significant amount of work and our program would not be as successful as it is without the efforts of these members:

Claire Allen – CAS Resident Representative

Erin Bruce – Scholarly Project Co-Coordinator

Yara Babyak – Rockyview General Hospital Site Coordinator

Lorraine Chow – Scholarly Project Co-Coordinator, CBD Curriculum Programming Lead

Graeme Bishop – Associate Program Director (CBD)

Alan Chu – South Health Campus Site Coordinator, CBD Academic Coach Lead, Mentorship Teams Program Lead

Nathan Brown – South Health Campus Associate Site Coordinator, Journal Club Coordinator

Karl Darcus – Peter Lougheed Centre
Site Coordinator

Jan Davies – Quality & Safety Co-
Coordinator

Melinda Davis – Associate Program
Director, UME Director

Paul Dawson – Chief Resident

Gary Dobson – Head, University
Department

Katrina Drohomirecki – Junior Resident
Representative

Reuben Eng – Program Director

Alastair Ewen – Alberta Children's
Hospital Site Coordinator

David Fermor – Foothills Medical Centre
Associate Site Coordinator

Donal Finegan – Quality & Safety Co-
Coordinator

Alex Gregory – Fellowship Director

Julia Haber – Education Co-Coordinator

Megan Hayter – Simulation Co-
Coordinator

Heather Hurdle – CBD Assessment
Lead

Meredith Hutton – Chief Resident

Meggie Livingstone– Alberta Children's
Hospital Associate Site Coordinator

Duncan McLuckie – Simulation Co-
Coordinator

Nicky Morrison – Chief Resident

Shannon Rabuka – Peter Lougheed
Centre Associate Site Coordinator

Kristi Santosham – Education Co-
Coordinator

Andrea Todd – Foothills Medical Centre
Site Coordinator

Kevin Torsher – Rockyview General
Hospital Associate Site Coordinator

Tony Trinh – Family Practice Anesthesia
Program Director

Christopher Young – Senior Resident
Representative

In addition to the usual affairs of the RTC, the RTC supported two residents through Remediation Programs in the past year.

The RTC also welcomed back Ms. Carla Camac as Program Administrator and Ms. Lisa Raymundo as our new Program Secretary. The RTC is grateful for all the administrative support that has been provided by the Department's administrative leaders Mr. Andrew Jenkins and Ms. Amber Arsneau. There is no doubt that the endeavours of the RTC would not be successful without the continuing outstanding support from our Department Head Dr. Gary Dobson.

The following members either resigned from the RTC or completed their term of service on the RTC: Drs. David Archer, Edward Choi, Michael Chong, Danae Krahn, Debbie McAllister, Kyle Rogan, Peter Samuels, Adam Spencer, and Dan Wood.

Rotation Coordinators

Our program is also tremendously grateful for the efforts of our Rotation Coordinators. These faculty members enable us to provide the best clinical training possible with the resources that we have.

Yara Babyak – Adult Anesthesia (RGH),
Urologic Anesthesia

Chris Prusinkiewicz – Cardiac
Anesthesia

Nathan Brown – Regional Anesthesia

Saul Pytko – Airway Anesthesia

Lorraine Chow – Thoracic Anesthesia

Rod Schultz – Obstetric Anesthesia
(RGH)

Alan Chu – Adult Anesthesia (SHC)

Melissa Setiawan – Community
Anesthesia

Karl Darcus – Adult Anesthesia (PLC)

Alastair Ewen – Pediatric Anesthesia

Kelly Shinkaruk – Chronic Pain

Richard Falkenstein – Neuroanesthesia

Andrea Todd – Adult Anesthesia (FMC),
Complex Anesthesia

Arash Fard – Perioperative Ultrasound

Jeremy Hamming – Acute Pain Service

Rob Thompson – Obstetric Anesthesia
(FMC)

Curt Pitter – Obstetric Anesthesia (PLC)

TBD – Vascular Anesthesia

The following Rotation Coordinators have stepped down from their position, and our program is tremendously grateful for their prior support: Drs. Graeme Bishop, David Fermor, Peter Samuels, and Theresa Yang.

Chief Residents

The Chief Residents for the 2017 – 2018 academic year are: Drs. Paul Dawson, Meredith Hutton, and Nicky Morrison.

Clinical Teaching Sites

Alberta Children's Hospital

Contribution by Dr. Meggie Livingstone (Associate Site Coordinator)

The Alberta Children's Hospital provides residents with exposure to perioperative care and pain management of children from birth to 18 years of age. This includes neonatal surgery, scoliosis surgery, laparoscopic/thoroscopic surgery, airway surgery, neurosurgery, and diagnostic and interventional procedures. Resident rotations at ACH are now divided between the PGY-2 and PGY-3 years to allow for experience with pediatric patients early on and solidify learning points as they progress through their residency. Residents are active participants in departmental rounds and morning educational sessions. A total of eight grand rounds sessions were resident-led in the previous academic year. ACH also is dedicated to the education of Family Practice Anesthesia in pediatric anesthesia.

Peter Lougheed Centre

Contribution by Dr. Karl Darcus (Site Coordinator)

The Peter Lougheed Centre continued its commitment to resident education over the last year. All the staff members at the PLC are involved in resident teaching in the OR. Many participate in Thursday morning teaching rounds and Royal College exam preparation. There are several members of the group that need to be acknowledged:

- Dr. Arash Azmayesh-Fard continued in his role as the Rotation Coordinator for the Perioperative Ultrasound Rotation
- Dr. Graeme Bishop transitioned from his role as Site Coordinator to Associate Program Director over the last year. Special mention should be made of the changes that he spearheaded to the PGY-1 Adult Anesthesia resident rotations: First year residents now spend most of their time with a small group of volunteer preceptors which allows them to hone their skills without the added challenge of working with a new preceptor each day. This change has been very well received by the residents
- Dr. Karl Darcus transitioned from his role as Associate Site Coordinator to that of Site Coordinator

- Dr. Marelise Kruger continued to devote many hours to simulation education for the residents in addition to her role as English Vice Chair of the RCPSC Anesthesiology Examination Committee
- Dr. Neal Maher continued to be instrumental in providing residents training in FATE (Focus Assessed Transthoracic Echocardiography), FAST (Focused Assessment with Sonography in Trauma), and emergency lung ultrasound
- Dr. Curt Pitter continued in his role as Obstetrical Anesthesia Rotation Site Coordinator
- Dr. Shannon Rabuka joined the RTC as Associate Site coordinator
- Dr. Kristi Santosham continued in her role as Education Co-Coordinator for Core Program
- Dr. Theresa Yang continued in her role as the Vascular Anesthesia rotation coordinator

South Health Campus

Contribution by Dr. Alan Chu (Site Coordinator)

The SHC continues to grow and this coming year promises another expansion of SHC educational activities! This past year we hosted all PGY-2 residents for an adult anesthesia rotation, PGY-3 residents for a regional anesthesia, and often had a PGY-5 resident on a regional anesthesia elective. This coming year, we are also hosting the new CBD residents in their PGY-1 year and will be hosting all PGY-5 residents for their second mandatory regional anesthesia rotation. All junior anesthesia rotations will continue with the use of longitudinal preceptors, along with time in regional anesthesia, APS, OB, and PAC. The SHC is well positioned and prepared for the initiation of CBD in our residency program! We continue to train off-service residents. SHC has also nearly doubled the number medical students it trains; many of whom are elective clerks who participate in a longitudinal preceptor rotation.

Core Program

Contribution by Dr. Kristi Santosham (Education Co-Coordinator)

In anticipation of the changes with CBD, the Core Program schedule transitioned to a three year cycle this year. This will allow CBD residents to participate in each core unit once over the three years before beginning their exam preparations in fourth year.

In response to resident feedback, we assigned two residents (one junior and one senior) to each Core Program session for some of the core units this year. This allowed for the division of objectives to residents of different levels, increased exposure to

topics, and increased opportunities for communication and presentation development. Feedback on this trial was mixed and as such this strategy is something that will be utilized intermittently depending on the topic.

The education team continued to utilize simulation scenarios routinely during Core Program as a means of solidifying knowledge, practicing unusual scenarios, and improving leadership and communication skills. This tool will continue to be used in the upcoming year.

For the 2017 – 2018 academic year, the primary objectives are to support resident education in a classroom setting, increase staff engagement in teaching, and assess the evolving educational needs in a CBD setting. Given the dynamic nature of implementing a new CBD program, the Educational Coordinators (Drs. Julia Haber and Kristi Santosham) will keep the Core Program sessions running in a fashion similar to previous years with ongoing assessment and development as needed.

Faculty members who taught in Core Program in the 2016 – 2017 academic year include:

Keith Anderson	Melinda Davis	Robert McTaggart-Cowen
David Archer	Richard Falkenstein	
John Balaton	Alex Gregory	Chris Prusinkiewicz
Colin Bands	Duc Ha	Sandy Shysh
Nathan Brown	Mark Kostash	Marc Soska
Rosaleen Chun	Rydzard Kowalewski	Shean Stacey
Jan Davies	Alan Lee	Jason Waechter
		Bing Wang

Journal Club

Contribution by Dr. Nathan Brown (Journal Club Coordinator)

Two journal clubs were held in the 2016 – 2017 academic year while Dr. Brown ensured that funding aligned appropriately with accreditation rules from the University of Calgary and the RCPSC. We now have funding from Merck, in the form of an unrestricted educational grant, which requires an annual application. There are also reserve funds from the “Calgary Anesthesiologists’ Society” - an organization set up with the private donations of staff anesthesiologists in the city to be used for resident education. Four journal club meetings are scheduled for the 2017 – 2018 academic year.

Issues moving forward include:

- 1) Sustainability regarding funding. Currently Merck provides \$2,000 per year. We spend \$550 to \$600 on food and beverage per meeting. Any shortfall is made up by the funds in the CAS bank account or by donation of the hosting staff. Without the Merck funding, we would rely on the donated funds in the bank account, which is finite. In the current situation, we have funding for a few years.
- 2) Staff attendance. This continues to be highly variable.



Scholarly Projects

Contribution by Dr. Lorraine Chow (Scholarly Project Co-Coordinator)

Our annual Scholarly Project Evening to showcase resident (and staff) research took place on March 9, 2017, at the University of Calgary. This year, our keynote speaker

was Dr. Megan Hayter from the Rockyview General Hospital, who spoke to us about Simulation for Medical Education. Once again, we had excellent turn-out from staff and residents from across the city. We sincerely thank Dr. Andrea Todd (FMC), Dr. Melissa Jack (SHC), and Dr. Tiffany Rice (ACH) for serving as our adjudicators for the evening. We had six oral presentations by Dr. Jenny Thompson, Dr. Joanna Moser, Dr. Carlos Yu, Dr. Shabnam Azimi, Dr. Kyle Rogan, and Dr. Meredith Hutton. Dr. Moser was the winner for the best oral presentation for the evening, with runner-up Dr. Hutton. Dr. Moser also presented her project at the final resident oral competition at the Canadian Anesthesiologists' Society (CAS) Annual Meeting this year. Congratulations to all our residents for a job well done! We would like to thank Dr. Adam Spencer (ACH) for his years of service as the scholarly project coordinator and we welcome Dr. Erin Bruce (RGH) as the new scholarly project coordinator along with Dr. Lorraine Chow (FMC).

Simulation Program

Drs. Megan Hayter and Duncan McLuckie and the Simulation Committee continue to help administer various simulation training experiences for our residents including: ACRM (Anesthesia Crisis Resource Management), MEPA (Managing Emergencies in Pediatric Anesthesia), and CanNASC (Canadian National Anesthesia Simulation Curriculum). They also created a new OSCE curriculum for our residents in response to the RCPSC's inclusion of an OSCE as part of the anesthesiology oral examinations.

Faculty members who taught simulation sessions in the 2016 – 2017 academic year included:

Niamh Donnelly-Warner	Megan Hayter	Duncan McLuckie
Mark Gale	Esther Ho	Kristi Santosham
Julia Haber	Dean Jordan	

Safety and Quality Report

Contributions by Dr. Jan Davies (Quality & Safety Co-Coordinator) and Dr. Donal Finegan (Quality & Safety Co-Coordinator)

Over the past year, the Safety & Quality Section has focused on refining the outline for Safety & Quality (S & Q) education and training for residents in the FRCPC programme. Although the S & Q education and training is also open to residents in the CFPC, Chronic Pain Fellowship, and other Fellowship programmes, the design of the S & Q education and training has been aligned with the requirements of the new Competence by Design educational requirements for FRCPC residents. To that end, several steps were undertaken.

Dr. JM Davies presented a poster, "Formal Incorporation of Safety & Quality into an Anesthetic Residency Curriculum", at the 75th National Scientific Congress, Australian Society of Anaesthetists, Melbourne, Australia, September 17 – 20, 2016. Co-authors were Dr. Donal Finegan, Dr. Reuben Eng and Margot Harvie RN BN MED, Director, Collaborative Learning & Education, Health Quality Council of Alberta (HQCA). The poster received positive feedback and comments included endorsement of teaching the details of safety and quality theories.

Formal Incorporation of Safety & Quality into an Anaesthetic Residency Curriculum

Jan M Davies, Donal Finegan & Reuben Eng, Department of Anesthesia, University of Calgary
jan.davies@ucalgary.ca, Department of Anesthesia, Foothills Medical Centre Calgary, AB T2N 2T5
Margot Harvie, Health Quality Council of Alberta

Introduction

Although anesthesiologists have always considered safety and quality to be important, recently these concepts have been more formally incorporated into Canadian residency training requirements. CanMEDS 2015 now details "key competencies" a learner must acquire to meet "performance based expectations".¹ For example, a resident should "actively contribute, as an individual and as a member of a team providing care, to the continuous improvement of health care quality and patient safety".¹

Aims

When we started to design our Safety and Quality education, while CanMEDS 2015 resources were available, no specific curriculum detailed how safety and quality should be included throughout the five-year anesthesiology residency training. We therefore adopted a model that could guide and frame curriculum development. We present our resulting concepts for the Post-Graduate Year (PGY)-1 curriculum.

Methods

We used the Quality & Safety Education Framework that is being developed by the Health Quality Council of Alberta (HQCA) as the curriculum's model. The Framework identifies 20 learning topics answering the question: "How can health care be made safer?". Of these learning topics, six are identified as fundamental Patient Safety Principles defining the basic requirements for safe, quality care.²



Fleming W, Davies JM, Hank M, Reid G, Wright D. The patient safety curriculum. Calgary: Health Quality Council of Alberta; 2014. https://www.hqca.ca/~/media/HQCA/Assets/2014/04/2014-Patient-Safety-Curriculum_Apr-14-2014.pdf

Results

The curriculum outline for PGY 1-5 is aligned with CanMEDS 2015 and meets or exceeds all CanMEDS Quality & Safety requirements. PGY-1 residents are introduced to safety and quality in the first month of residency. This focus of this part of the curriculum is based on the Patient Safety Principles. Anesthetic concepts and examples are provided for each Principle: for example, 'Patient engagement' at all levels of healthcare delivery includes concepts around partnering with patients and families' and 'The important role of patients and families in patient safety & quality management'. These concepts in turn are illustrated by the discussion point of shared decision-making, using Choosing Wisely (www.choosingwiselycanada.org) and Enhanced Recovery After Surgery (www.erassociety.org) as examples.

The PGY-1 residents receive six blocks of four hours education, including four hours devoted to the Disclosure of Unanticipated Medical Outcomes (DUMOC).³ This is now the second year of the Safety & Quality Curriculum, revised after last year's resident evaluations and faculty assessment. Last year, the focus of the education we provided was a detailed examination of one component of the model (Analysis of the System). This was based on the rationale that being able to take a system-level view is foundational to providing care that is safer and of improved quality. We have modified this year's focus because we learned that those who are in their earliest days of specialty training generally have a limited understanding of the healthcare system and limited clinical exposure to provide a foundation on which to build a deep exploration of one concept. What they needed and wanted was more of an overview, which is what the revised curriculum will provide. Then, as the PGY-1 residents of 2015 progress through residency, their safety and quality education will be built on the previous years' curriculum.

Conclusions

We have found using the HQCA's model for safety and quality has been helpful in developing a safety and quality curriculum for anesthesiology residents.

References

1. Teaching Quality Improvement in Residency Education. <http://www.canadameds.ca/assets/pdfs/2015canmeds/2015canmedsqualityimprovementinresidencyeducation.pdf>
2. Quality & Safety Education Framework. https://www.hqca.ca/~/media/HQCA/Assets/2014/04/2014-Patient-Safety-Curriculum_Apr-14-2014.pdf
3. Disclosure of Unanticipated Medical Outcomes. http://www.hqca.ca/~/media/HQCA/Assets/2014/04/2014-Patient-Safety-Curriculum_Apr-14-2014.pdf

Dr. JM Davies and Margot Harvie met over the autumn and winter 2016 – 2017 to review the previous S & Q educational outlines and determine the required changes. They also reviewed the previous evaluations to assess what the residents had found useful, liked and wanted changed. With respect to presentation of the programme, they accepted that they would not be able to continue to offer the high ratio of educators to participants that they had in the past (one year the ratio was about 1:1, thanks to the volunteer efforts of Dr. Ward Flemons, Margot Harvie, Carmella Steinke, Donna Macfarlane, and all of the HQCA.) As a result, this reduction in teaching staff meant that some of the content would need to be modified to match the changes required in style of presentation.

In March 2017, Dr. JM Davies and Margot Harvie had an opportunity to teach two blocks of the Core Programme. They decided to use this time to ask the then R2-R4 residents about what they had found useful, liked and wanted changed, given that some of them had received their S & Q education and training three years previously. On the first day, the residents were taken through both what they wanted to learn and needed to learn about S & Q, using the Transition to Practice EPAs & Milestones as the demonstration. The residents then parsed the EPAs & Milestones into terms and phrases, which were then used to generate themes. These themes were then used as the basis for a modified outline for the July teaching. Additionally, the residents reviewed the Institute for Health Improvement (IHI) on-line Patient Safety 101, Introduction to Patient Safety Course and completed two modules. This course offering was not met with any enthusiasm. As a take-home exercise, residents were asked to craft their own S & Q learning objectives. On the second day the terms and phrases, and themes were reviewed and discussed as was the draft revised outline for the July teaching.

Following this, Dr. JM Davies then reworked the course outline several times, integrating the EPAs and Milestones for the Transition of Discipline and Foundations; as well as, developing PowerPoint presentations for most of the two and a half course days.

Unfortunately, Margot Harvie was unable to participate in the July teaching. Drs. D. Finegan and M. Theam had already offered and agreed to teach the last half day; which was devoted to Quality Management, including Quality Assurance, Quality Improvement and Information Management. Dr. JM Davies was able to recruit a volunteer educator from Alberta Health Services to teach the Disclosure of Unwanted Medical Events (DUMO) Course. The DUMO Course was taught by David Chakravorty from the Calgary Zone, AHS. All S & Q education and training participants completed the course and received a certificate.

At the end of the course, the S & Q Course participants were assigned a 'take home' exam of completing an evaluation of the course, to cover everything from venue to course content and presentation to refreshments. All FRCPC residents completed the assignment; although some were late in submission of their responses. One of the two CFPC residents submitted a response.

Finally, course participants were also given a handout of an updated S & Q education & training outline, integrating all the CBD Milestones and EPAs; as well as, the HQCA Education Framework components. This outline will be used to shape ongoing S & Q teaching in the Department of Anesthesia and should provide the participants with an outline to assist them in their S & Q studies over the next few years.

Morning Teaching Sessions

Throughout the week, faculty members around the city provide morning teaching sessions to our residents, including the following staff anesthesiologists in the 2016 – 2017 academic year:

Keith Anderson	Esther Ho	Saul Pytko	
Arash Azmayesh-Fard	Michelle Hokanson	Marius Saayman	
Fayaz Bharwani	Heather Hurdle	Peter Samuels	
Graeme Bishop	Kim Illing	Rodney Schultz	
Nathan Brown	Leigh Illing	Kelly Shinkaruk	
Tommy Chan	Dean Jordan	Karl Simon	
Michael Chong	David Kent	Dean Swedlo	
Lorraine Chow	Mark Kostash	Desiree Teoh	
Melinda Davis	Udell Larsen	Robert Thompson	
Kaylene Duttchen	David Liepert	Andrea Todd	
Ryan Endersby	Bruno Ligier	Kevin Torsher	
Reuben Eng	Ulyana Nemish	Tony Trinh	
Donal Finegan	Christopher Noss	Vanessa Wong	
Julia Haber	Lori Olivieri	Theresa Yang	
Wendy Hall	Craig Pearce	Karrie	Yont
Megan Hayter	Curt Pitter		

Practice Oral Exam Sessions

The following faculty members were recognized by last year's PGY-5 residents for their dedicated assistance in helping this cohort of residents prepare for the RCPSC Anesthesiology Oral Examinations:

Lorraine Chow	Heather Hurdle	Rod Schultz
Alan Chu	Melissa Jack	Kelly Shinkaruk
Melinda Davis	Dean Jordan	Adam Spencer
Niamh Donnelly-Warner	Duncan McLuckie	Michelle Theam
Reuben Eng	Jon McMann	Jason Waechter
Donal Finegan	Christopher Noss	
Julia Haber	Kristi Santosham	

The following faculty members conducted the annual oral examination practice sessions with the residents in the 2016 – 2017 academic year:

Dave Hardy	Marius Saayman	Kelly Shinkaruk
Udell Larsen	Rod Schultz	

Calgary Anesthesia Resident Retreat (CARR)

The CARR Planning Committee consisted of Drs. Zahid Sunderani (Chair), Meredith Hutton, and David Nguyen. They did an excellent job planning a retreat that was well received by all who attended, and on budget. The residents were particularly grateful for the presence of the faculty members who joined the resident-staff social cooking class.

Mentorship Program

Contribution by Dr. Alan Chu (Mentorship Teams Program Lead)

Our residency's peer mentorship program has been expanded to a new Mentorship Teams Program; in which mentorship teams are comprised of junior and senior residents (approximately one resident from each year), a recently graduated "junior staff" member, and a staff anesthesiologist. This longitudinal program provides each resident with a very close web of collegial support to help navigate the multi-faceted and often meandering path of residency. It was developed after resident and staff

consultation. Staff participants include Drs. Michael Chong, Alan Chu, Melinda Davis, Melissa Jack, Peter Farran, along with our recent graduates Drs. Erin Bruce, Chris Dyte, Afra Moazeni, and Jenny Thompson.

Graduating Residents

The following residents successfully passed their RCPSC examinations in anesthesiology and graduated from our residency program this past year:

- Dr. Erin Bruce – now a Staff Anesthesiologist at the Rockyview General Hospital
- Dr. Chris Dyte – now a locum in Calgary, AB
- Dr. Linda Hung – currently completing a fellowship in Acute Pain and Regional Anesthesia at Massachusetts General Hospital in Boston, MA, USA
- Dr. Afra Moazeni – currently completing a fellowship in Perioperative Ultrasound in Calgary, AB



New Residents and CaRMS (Canadian Resident Matching Service)

Our program had a very strong and successful CaRMS match, and we are delighted to welcome the following residents to our program:

- Dr. Joseph Ahn (University of Calgary)
- Dr. Oliver Hatheway (Dalhousie University)
- Dr. Courtney Phillips (University of Calgary)
- Dr. Cameron Williams (University of Toronto)
- Dr. Evan Woo (University of British Columbia)



The CaRMS Selection Committee is instrumental in helping us select the best candidates, and the following individuals currently serve on the committee:

Graeme Bishop

Alan Chu

Paul Dawson

Nathan Brown

Karl Darcus

Niamh Donnelly-Warner

Lorraine Chow

Melinda Davis

Katrina Drohomirecki

Reuben Eng	Duncan McLuckie	Andrea Todd
Alastair Ewen	Shaylyn Montgomery	Vanessa Wong
Michael Gysel	Nicky Morrison	Christopher Young
Julia Haber	Chris Noss	
Meggie Livingstone	Shannon Rabuka	

Our residents and faculty members continue to work hard representing the specialty in undergraduate medical education and helping us recruit the best medical students into our specialty and our program. Examples of such endeavours include supporting the Anesthesia Interest Group, providing Career Day presentations, and serving as preceptors in courses such as Procedural Skills, Simulation, small group sessions, and physical exam.

Our program strives to provide medical students the opportunity to learn about our city and training program by approving as many elective requests as possible. We are grateful to all the sites for accommodating these extra medical students. Under the leadership of Drs. Melinda Davis, Claire Allen, and Katrina Drohomirecki, our program has implemented a new shadowing program for elective students whereby they have the opportunity to shadow our residents during their two-week elective in our city. Thus far, this program has received tremendously positive feedback from the elective students.

Funding

The overall budget allocated to the RTC from the Office of Postgraduate Medical Education in the 2016 – 2017 academic year was \$36,110.50. The budget for the 2017 – 2018 academic year is anticipated to be \$36,175.70 pending approval from the Government of Alberta.

2017 Award Winners

The Awards & Graduation Dinner was held on June 20, 2017 and it was well attended by almost 100 faculty members and residents. We hope that attendance is even higher next year! Dr. Roger Maltby was our commencement speaker.

The Top Junior Resident Award was awarded to Dr. Nadine Lam, while the Top Senior Resident Award was awarded to Dr. Kyle Rogan.

Dr. Marisa Webster was the recipient of the Undergraduate Medical Education Award.

Dr. Kim Illing was the recipient of the Leo Strunin Award.

The following faculty members were selected by the residents to receive the Outstanding Educator Award at their respective sites:

Ryan Endersby (SHC)	Neal Maher (PLC)	Marius Saayman (RGH)
Kim Illing (FMC)	Nivez Rasic (ACH)	

The following faculty members received an Excellence in Postgraduate Medical Education Award:

Arash Azmayesh-Fard	Megan Hayter	Saul Pytka
Graeme Bishop	Heather Hurdle	Nivez Rasic
Nathan Brown	Kim Illing	Marius Saayman
Michael Chong	Melissa Jack	Kristi Santosham
Lorraine Chow	Nadeem Jadavji	Rod Schultz
Alan Chu	Dean Jordan	Doug Seal
Melinda Davis	Mark Kostash	Adam Spencer
Ryan Endersby	Marelise Kruger	Jarad Stephan
Mark Gale	Udell Larsen	Kevin Torsher
Julia Haber	Neal Maher	Bing Wang
David Halpenny	Duncan McLuckie	Theresa Yang
Dave Hardy	Jon McMann	
Geoff Hawboldt	Lori Olivieri	

Future Directions

The RTC's strategic plan for the upcoming academic year is centred on two foci:

1. Improve resident resilience and success through the effective implementation of the resident mentorship teams; and
2. Improve faculty development for:
 - a. daily clinical teaching;
 - b. CBD implementation; and
 - c. novel faculty requirements (e.g. new Academic Coaches).

This will primarily be accomplished in three ways:

1. Firmly establish the resident mentorship teams in extracurricular activities and other aspects of the program when the opportunity arises;
2. Develop a new website for the residency training program (www.calgaryanesthesiatraining.com); and
3. Efficiently fund Academic Coach Initiatives with constant re-evaluation of efficacy.

The RTC members are currently considering other possibilities to implement this strategic plan in the upcoming academic year.



Reuben Eng, MD, FRCPC
Director, Anesthesiology Residency Training Program
Cumming School of Medicine, University of Calgary
Alberta Health Services, Calgary Zone



FAMILY PRACTICE

Dr. T. Trinh

Dr. Dan Wood has stepped down as Family Practice Anesthesia Program Director as of June 30, 2017. Dr. Wood has made tremendous contributions to the program over the years and has overseen the completion of FPA training for many residents. We thank him for all of his years of service and wish him the best in his future endeavors. I have assumed the role of Program Director as of July 1, 2017.

The program continues its tradition of training family physicians to provide excellent anesthesia care in rural, remote, and underserved areas. The FPA program is run in coordination with the Royal College Anesthesia Program. Our residents share in many of the same excellent learning opportunities as their specialty anesthesia colleagues.

Manpower, recruitment and staffing

The current residents are Dr. Emilie Bousquet and Dr. Reid Hosford. Dr. Bousquet completed a Rural Family Medicine Residency at the University of British Columbia in Kelowna. Dr. Hosford completed a Rural Family Medicine Residency at the University of Calgary, based out of Lethbridge.

Section/Program educational and academic activities

Staff anesthesiologists in Calgary continue to contribute greatly to the success of the FP-Anesthesia program through their dedication and passion towards teaching. Though the majority of their time is spent in the operating room, our residents also benefit from resident teaching rounds, grand rounds, and academic half day. I have also reintroduced journal club as part of the learning opportunities for our residents. FPA residents also have protected time for the Anesthesia Bootcamp program in Ontario, a course dedicated to simulation programs that are particularly pertinent to family practice anesthesia. Residents are also encouraged to attend the Rural Anesthesia Conference in Banff each year.

Program accomplishments and highlights

This year, the FPA program will be undergoing an internal review in conjunction with the other Family Practice Enhanced Skills programs. Our program has been formally accredited since 2009 by the College of Family Physicians (CFPC) and has successfully trained residents for a number of years.

This year, we will be introducing an online system for new applicants to the program. Deadlines will be more in keeping with programs from across the country. The goal is to streamline the application process.

The South Health Campus in Calgary has been introduced as a formal teaching site for FPA residents for two blocks out of the year. In addition to providing clinical learning opportunities in general surgery, orthopedics, plastic surgery, ENT, and obstetrics, the SHC also provides opportunities for residents to gain regular exposure to regional anesthesia.

ANESTHESIA CLERKSHIP PROGRAM

Dr. M. Davis

The anesthesia clerkship remains a strong, well supported program, and very well received by the 160+ mandatory, core rotation students. We continue to rate as one of the most popular clerkship rotations, “the best” in fact as student recently emailed to me. In addition to the mandatory rotation students we see 70+ elective clerkship students from Calgary and across the country, plus pre-clerkship students shadowing, completing med 440, and doing electives.

After five years of successfully leading the program, Dr. Michael Chong stepped down as clerkship director in July. His tireless efforts were recognized at this year’s awards ceremony with the inaugural “Exceptional Service to Clerkship Award”. I’m grateful to Dr. Chong for handing over a program to me that is in such great shape.

We have had some additional personnel changes in the last year. Dr. Karl Darcus has taken on the role of clerkship evaluations coordinator. Dr. Kaylene Duttchen and Dr. Heather Hurdle are the new site coordinators at FMC. Dr. Chris Young has joined the clerkship committee as our resident representative, bringing with him valuable ideas and initiatives to involve our residents in clerkship education. Rounding out the physician representation on the clerkship committee are Dr. Alan Chu, Dr. Niamh Donnelly, and Dr. Vanessa Wong, the site coordinators at SHC, RGH, and PLC respectively. Our site coordinators are a strength of the program, actively involved in scheduling and trouble-shooting any day to day concerns. Lynda Pedersen continues as our program coordinator, keeping the whole show on the road. Feedback from the students tells us that our program is considered one of the best organized and supported – a testament to Lynda’s work.

Our core rotation students spend a day of orientation and education on the first day of their rotation. This would not be possible without the efforts of the residents, who spend the afternoon with the students covering IV and airway skills and case based discussions. Dr. Marisa Webster was recognized at this year’s awards ceremony for

her highly rated teaching at these sessions. We are also incredibly fortunate to have such engaged APS nurses, Humeira Dhanji and Janice Rae, who between them spend up to two hours with these clerks during each two week block. The skills and information the students receive from them are invaluable no matter what career they ultimately choose. It should be noted that I owe Janice a year of lattes for her coming in on her day off to teach this summer.

We recognize the importance of recruiting the best possible physicians to our specialty and to our program. As such, the clerkship committee has begun looking at measures to raise our profile with pre-clerkship students and to augment the experiences of elective clerks coming to our program. We have an active, well-subscribed Anesthesia Interest Group, made up of roughly 50 first and second year medical students. These students have an excellent lunch time lecture series designed during Dr. Chong's leadership and delivered by the residents. Plans are in place to establish a mentorship initiative between these interested pre-clerkship students and our residents. Dr. Kaylene Duttchen will now also be a liaison between interested medical students and any research projects in the department suitable for student input. The residents have been instrumental in setting up a process for connecting elective clerks to a resident point of contact. They have also designed an opportunity for clerks to complete a "buddy call" shift with a resident if they wish. I'm grateful for the interest and enthusiasm of Drs. Young, Allen, Drohomirecki, and Yu in getting all of these new initiatives off the ground; and to all the residents who have been so generous with their time on call and as mentors.

There is no doubt that an enormous strength of our clerkship program is our faculty. Our department consistently receives very positive feedback about the high quality of bedside teaching. For most clerks, this will be the one and only chance they have to understand anesthesia as a specialty. We have heard many stories of clerks who have come our rotation and "discover" anesthesia for the first time, in no small part due to the interactions with, and role modelling of, our staff. Even those students who have no plans to pursue a career in anesthesia leave the rotation with a new understanding of the unique role of the anesthesiologist as a perioperative physician and with technical skills and knowledge that round them out as physicians. There are few opportunities in clerkship for students to have one on one access to teachers and especially those with such broad knowledge – they definitely tell us they appreciate it. Clerkship teaching was recognized at this year's awards with Drs. Heather Smith, Jill Partridge, Wendy Hall, and Tony Trinh all receiving awards.

On behalf of the clerkship committee, and of the students, I want to thank all the anesthesia faculty for their commitment and patience. Scheduling learners in the OR can be difficult, especially during the summer months, and I realize that means some staff may see a lot of learners. I also acknowledge the additional energy required to have a clerk. We are beginning to come up with plans to shift the focus back to learner driven education in the OR. Stay tuned for exciting online learning developments in collaboration with UME.

I feel very proud of the experience we are offering clerks and I look forward to another successful year and beyond.

CONTINUING MEDICAL EDUCATION

Dr. Robin Cox

2016 – 2017 saw the continuation of significant departmental activity in the area of Continuing Medical Education and Professional Development (CME/PD). All five clinical sites continue to conduct anesthesia rounds at a Section 1 level of MOC, on a weekly basis throughout the academic year. A proportion of these rounds are for journal article review and case discussions. Rounds are given by guest speakers, staff anesthesiologists, fellows, or residents under supervision. On occasion, joint rounds are held with other clinical departments and programs, e.g. surgery, critical care, trauma. Other teaching rounds, for example at the Alberta Children's Hospital, are aimed more towards residents and fellows. These may have staff anesthesiologists attending or presenting, so provide CME as a Section 2 MOC event if a Personal Learning Project ensues.

At the Departmental level, we continue to run a citywide Anesthesiology Journal Club, chaired by Dr. Nathan Brown. These are conducted several times per academic year. Each journal club session takes the form of critical review of two to three key journal articles following a specific theme. These events are held in one of the staff anesthesiologists' homes or in a hospital venue.

Other CME/PD initiatives have included regular participation in the Rural Anesthesia for GP-Anesthetists Course in Banff, Alberta Anesthesia Summits, and participation in Canada-wide Pediatric Anesthesia Rounds. Several faculty members and residents presented at the Canadian Anesthesiologists' Society Annual Meeting in Niagara Falls, ON, in June 2017.

Dr. Robin Cox and the Section of Pediatric Anesthesia were the planners and organizers for the 2016 Annual Meeting of the Canadian Pediatric Anesthesia Society, held in Banff on September 30 – October 2, 2016. Themes of the meeting included: Pediatric Trauma, Pediatric Regional Anesthesia, Quality Improvement, and Neurotoxicity. Overall, 24 speakers contributed to the program and 92 attendees registered for the meeting. 24 abstracts were accepted for presentation – the best 10 were presented as an oral competition and the remainder were poster presentations. Meeting evaluations were analyzed and showed high scores in all domains.

Dr. Nivez Rasic and the Vi Riddell Pain Program also hosted the inaugural Pain in Child Health (PICH2GO) Conference on November 24 & 25, 2016. World-renowned international pain scientists and local experts spoke to an overcapacity crowd at the Alberta Children's Hospital. Pain patients and families also told their stories to attendees and media that covered the event.

Other specific CME courses have been developed by our faculty and have been undertaken or are in development, for example: Dr. Arash Fard held the "PLC Regional Anesthesia Course and POCUS Primer" in April 2017. Dr. Mark Kostash has organized the "Ultrasound-Guided Regional Anesthesia for ER Workshop"; Dr. Neal Maher at PLC continues to hold regular point of care ultrasound workshops, and specifically Basic FATE (Focus Assessed Transthoracic Echocardiography) and Basic Lung/FAST (Focused Assessment with Sonography for Trauma), an airway component was added in 2017; Dr. Mark Gale and colleagues at ACH continue to run the POCM "Perioperative Management Course", which is fully accredited for Section 3 MOC credits.

At an administrative level, each site continues to have an identified leader for CME/PD. These are Dr. Elisabeth Dobereiner (ACH), Dr. Steve Jacyna (RGH), Dr. Tad Cherry (PLC), Dr. Colin Bands (FMC), and Dr. Esther Ho (SHC). Dr. Robin Cox is the departmental representative on the Faculty of Medicine's CME and PD Committee. He sits nationally on the Continuing Education and Professional Development (CEPD) Committee of the Association of Canadian University Departments of Anesthesia (ACUDA) and as Chair of the Professional Learning and Development Committee of the Royal College of Physicians and Surgeons of Canada; as well as, being a council member of the Royal College. There is no specific citywide Anesthesia CME/PD Committee as the Zone Anesthesia Executive Committee, the Academic Council of the Department, and the Journal Club planners serve this function.

The future of CME in the Department will include a further emphasis on developing assessment tools, such as simulation, for faculty. Individual patient outcome studies, such as those supported by the Physician Learning Program, should also allow us to tailor our learning needs to providing the best care for our patients.

SIMULATION Fellowship Program

Dr. M. Hayter

The Alberta Health Services Calgary Zone Department of Anesthesia now has an established a formal Simulation Committee, chaired by Dr. Megan Hayter, who is the Anesthesia Simulation Coordinator. All existing department programs have been maintained and improved in most respects. All simulation activities are organized and run by members of the simulation committee (Drs. McLuckie, Haber, Gale, Donnelly-Warner, Jordan, Santosham, E. Ho, Olivieri).

Resident Simulation

- A. Crisis Resource Management - The Anesthesia Crisis Resource Management (ACRM) course continues to be an integral part of the simulation curriculum at the University of Calgary. This is a high fidelity simulation session for four of our residents (PGY 1-4) focusing on crisis resource management skills. Each simulation scenario is followed by an individualized debrief by one of our simulation staff. In the 2017 – 2018 academic year we plan to double the number of these sessions.
- B. Core Program Simulation Integration - Several simulation sessions have been added to each core block. These simulation sessions are developed with a content expert and focus on the medical expert role.
- C. Managing Emergencies in Pediatric Anesthesia - Our residents participate in several high fidelity simulation sessions at KidSIM focusing on managing common peri-operative pediatric emergencies. These sessions are developed by the pediatric simulation team (Drs. Gale and McLuckie).
- D. CanNASC Simulation Milestones - Our PGY 4 and 5 residents continue to complete their CanNASC simulation milestone scenarios. These milestones are a National undertaking. This year the 5 residents completed two of these standardized scenarios. In the 2017-18 academic year our PGY 4 and 5 residents will complete these scenarios in preparation for CBD.
- E. Simulation Bootcamp - During the first week of PGY 1, our first year residents participated in a simulation bootcamp where they focus on common intraoperative emergencies and review some technical skills.
- F. Part-task trainers - Our residents have access to and participate in various sessions with different part-task trainers. These sessions include: cardiac ultrasound, respiratory bronchoscopy, and airway trainers.
- G. Inter-disciplinary simulations - Our residents participate in simulations with other health care teams such as obstetrics, trauma, and intensive care.
- H. OSCE station – In 2017, our PGY 5 residents participated in a standardized patient OSCE examination in preparation for a station that was added to their Royal College examination.

Hospital Based Simulation

- A. Foothills Medical Centre - Various in-situ simulation activities in both the recovery and operating rooms. These sessions are inter-disciplinary and include anesthesiologists, nurses, respiratory therapists, and positioning aides.

- B. Peter Lougheed Centre -The PLC continues doing interdisciplinary simulations including staff anesthesiologists, nursing and respiratory therapy. Hopefully, surgery will be included in the future. These sessions run every one to two months. The department was involved with the L&D "blitz week" in mid-November. Blitz week was an educational week for the L&D nurses.
- C. Rockyview General Hospital - Staff anesthesiologists participated in in-situ simulations in the operating room and recovery room. These sessions include anesthesia, nurses, and respiratory therapy. High fidelity in-situ obstetrical team training exercises occur with obstetrics throughout the year. We had a simulation grand rounds in June 2016 covering various common perioperative crises.
- D. Alberta Children's Hospital - Perioperative Crisis Management Course (POCM) is an all-day simulation course designed to improve crisis management in our operating rooms. POCM is a multidisciplinary, inter-professional course involving operating room RNs, post-operative recovery room RNs, Pediatric Anesthesiologists, Pediatric Surgeons, and Respiratory Therapists. Those cases which have been reviewed at our Quality Improvement/Quality Assurance rounds are used as a foundation for scenario development. The Pediatric Airway Course (TPAC) is an all-day simulation based airway course hosted at KIDSIM at ACH and facilitated by a multidisciplinary group from PICU, Peds Emerg, Ped Anesthesia, and RTs. The target audience is practicing physicians, outside of anesthesia, that may be required to manage pediatric airways. Just-in-time simulation (JITS) is an educational strategy where simulation occurs in close temporal proximity to a clinical encounter. This will take place in the operating room at a scheduled time on a scheduled list.
- E. South Health Campus - Currently, the SHC does high-fidelity in-situ team training exercises which focus on allied health team learning needs (OR and PACU nurses, desk clerks, respiratory therapists, health care aides, and surgical processors). They hope to include anesthesiologists and surgeons in the future. Anesthesiologists are intermittently involved in high fidelity obstetrical simulations which are led by the OB nurse educators.

Simulation Fellowship

A simulation fellowship has been developed over the past year and our first simulation fellow began in August 2017. The focus for the fellow will be on reviewing the literature on simulation techniques and practical hands on simulation experience. The fellow will be expected to participate in a research project around medical education and gain a sound understanding of the literature in clinical education.

Cardiac Anesthesia Fellowship Program

Dr. A. Gregory

The Cardiovascular Anesthesia Fellowship program offers postgraduate education in perioperative anesthetic management for open-heart surgery, associated cardiovascular procedures (such as transcatheter aortic valve replacement, EP procedures, complex lead extractions, etc.), patients with cardiac disease undergoing non-cardiac surgery, and advanced training in perioperative transesophageal echocardiography.

The fellowship is a 12-month program which relies on the hard work and excellent teaching of the entire CV operating room team. Fellows work intensely in a one-on-one environment with one of the attending cardiac anesthesiologists. They are intimately involved in the preoperative evaluation, patient optimization, intraoperative management, and transition to postoperative CVICU care. The year is made up of 13 blocks which are generally divided into nine blocks of CVOR and one block each of Echo Lab, CVICU, thoracic/vascular anesthesia, and elective time. Most of the rotations take place at the Foothills Medical Centre.

This year we moved to a new funding strategy for the fellows. This new strategy has the advantages of being in line with fellowships in other specialties, aiming to be accountable and transparent, while focusing on an optimal educational experience. Fellows are provided a yearly salary which is funded by them receiving a one-year temporary locum position within the Department of Anesthesia. Approximately 50 to 60 days of the year each fellow is assigned a room in the main OR where the fellow acts as an attending anesthesiologist. Billings from the locum assignments are pooled into an AHS account from which their salary is paid. A portion of any income generated above the yearly salary is paid as a bonus payment to the fellows each quarter. The portion not paid back to the fellows is used to pay for billing services and the rest is kept in a University of Calgary Research Account. These funds are used solely for the purpose of improving the educational experience of the current and future fellows. Decisions on use of these funds will be made through a Fellowship Committee which is currently being assembled and will have a fellow representative.

I would like to thank the members of the cardiac anesthesia group, cardiac OR team, the members of the Department of Anesthesia and the administrative staff. Without the hard work, support, and dedication of all of these people the fellowship program could not exist.

Graduating Fellows

This past year we had two fellows training with our group. Maxime Thibault came to us from Montréal. He finished his residency in 2015 and completed a three-month fellowship in echocardiography at Montréal Heart Institute. He was practising independently and decided to pursue additional training as his home hospital (CHUM) was developing a cardiac surgery program. Chris Noss is well known to our department. He successfully completed his residency in 2016 and joined us for fellowship in the fall.

Both Max and Chris were excellent fellows. They worked very hard during the year provided excellent care to the patients, while generating new knowledge for the attendings and overall contributing to the CV operating room team. We were sad to see Max returned to Montréal, but we wish him well as he pursues his career in anesthesiology. It is to our great fortune that we are able to welcome Chris as a new member of our cardiac anesthesia group and we all look forward to working with him as a colleague.

Incoming Fellows

This year we will again be training to fellows in our program. Nadeem Jadavji has been in independent practice for a few years. Most recently he has been working at the Peter Lougheed Centre. He felt the desire to augment his training which is what led him to pursue a fellowship with us this year. Justin Byers is a recent resident graduate from the University of Alberta. He will be starting with us in January and is planning on returning to Edmonton to be a member of their liver transplant team as well as facilitate education in perioperative echocardiography.

Perioperative Ultrasound Fellowship Program

This past year has been very busy as it team of department members have worked hard in developing the fundamental structure and curriculum of a brand-new fellowship program. The Perioperative Ultrasound Fellowship Program is the first of its kind in Canada. The overall goal of the program is to provide postgraduate training in the use of ultrasound technology across a broad spectrum of clinical applications. These clinical applications are grossly divided into three main sections: transesophageal echocardiography, point-of-care ultrasound (including transthoracic echocardiography), and regional anesthesia. There is also a strong academic component which includes mandatory research participation and a comprehensive course on the physics of ultrasound.

The fellowship is a one-year program which is divided into 13 blocks. The training is divided amongst three sites: Foothills Medical Centre, Peter Lougheed Centre, and South Health Campus. There is a combination of one-on-one teaching; as well as, independent practice with ultrasound scanning (with images being reviewed and feedback given by an attending post-acquisition).

As one can imagine constructing a fellowship as expansive as this, covering multiple sites and areas of expertise, is a daunting task. Fortunately, there is an incredible team of anesthesiologists representing all sites who are collaborating on the design and implementation of the fellowship. This team includes:

Alex Gregory (FMC-TEE)
Heather Hurdle (FMC-POCUS/TEE)
Andrew Walker (FMC-Physics of Ultrasound Course)
Gary Dobson (PLC-POCUS/TEE)
Marelise Kruger (PLC-POCUS/TEE)
Neal Maher ((PLC-POCUS/TEE))
Bronwyn Parkinson (PLC/Regional)
Theresa Yang (PLC-POCUS/TEE)
Ryan Endersby (SHC/Regional)
Mark Kostash (SHC/Regional)

I would like to thank the members of this group for all their hard work over the past year, and their continuing efforts in the success of the program. I would additionally like to express my appreciation to the other members of the department for helping us out by providing learning opportunities for our fellow. Finally, this has been a very busy year for the Department of Anesthesia administrative team getting all the paper work required to create a fellowship from scratch. Thank you very much for your help.

Incoming Fellows

As mentioned, this is our inaugural fellowship year. Our fellow for this year is Afra Moazeni, who recently completed her anesthesia residency here in Calgary. Fortunately, Afra has been very patient as we have been ironing out the multiple wrinkles in the fellowship program.

Zone-Wide Quality Assurance / Quality Improvement Committee Report

Dr. D. Liepert

Your QA/QI committee has spent an exceptional 2016 – 2017 year developing our citywide Anesthesia Department's vision for a citywide coordinated QA/QI system. Thanks to the profoundly effective and appreciated efforts of our site-leads, including Dr. Leyla Bhagirzada at the South Health Campus, Dr. Michelle Hokanson at the Peter Lougheed Hospital, Dr. Michelle Theam at the Alberta Children's Hospital (with great appreciation to Dr. Jamin Mulvey for his inaugural efforts and mentorship), Dr. Donal Finegan at the Foothills Medical Centre, Dr. David Liepert at the Rockyview General Hospital and Dr. Gary Dobson for his guidance and support, that is now our functioning reality. Special congratulations are in order to everyone for successful completion of certification in the Investigation and Management of Patient Safety Events from the Health Quality Council of Alberta!

Meanwhile our entire AHS system (specifically through the participation of the Patient Safety Department) has been well represented by the ongoing services of Anne Chang and her Patient Safety team, and we have enjoyed the ongoing interest and encouragement of Dr. Sid Viner and the support and coordinated participation of the Calgary Surgical Services Quality Assurance Committee as well.

Finally, we could not have done so without the administrative support of Soline Isliarik and Natasha Waters and the rest of the Anesthesia administrative team.

Our Anesthesia Services Quality Assurance Sub-Committee now functions alongside, but independent of, the Surgical Services Quality Assurance Committee, although we continue our representation there. As such, any Quality Assurance questions or concerns that pertain to anesthesia are now addressed directly through our committee, and so dealt with in a more timely and practice-appropriate fashion. We meet formally on a quarterly basis with two consecutive meetings, with Quality Assurance followed by Quality Improvement after a formal adjournment. In addition, our team members are in regular communication regarding all related issues, both with each other and the rest of the AHS Patient Safety system.

In addition to our intended QAR and Patient Safety responsibilities, our team has also been pleased to inaugurate a system for the ongoing review of Code Blues in both the OR and recovery rooms for all our sites. I am pleased to report that although one

citywide standard of care for Code Blues require that therapy be initiated within five minutes, it has become apparent that the anesthesia specific Code Blue standard of care is for five minutes to have achieved full and effective resolution of the entire inciting situation. Furthermore, it appears that a similar standard pertains to most other areas of anesthesia care as compared to more general care citywide as well.

On a site-by-site basis, at ACH Dr. Theam reviewed six Code Blues, participated in one central line related care QAR and reports that she has been coordinating closely with her nursing colleagues, improving the entire QAR process. In addition, the Anesthesia Department has made significant amendments to the Sickle Cell Trait protocols for enhanced patient safety (in recognition of the reversibility of sickle hemoglobin), improving oxygen, warmth and blood bank resource management, while also pursuing a QI project for idiopathic scoliosis that should be completed by this time next year.

Meanwhile at FMC our team, led by Dr. Donal Finegan, has participated in completion of a surgical QAR, contributed to an improvement in the Code Blue activation process site-wide, and have been successful developing a pilot project for continuous quality improvement and feedback for anesthesia care: more on that later.

At PLC the team has completed one Anesthesia QAR and begun another one, reviewed 15 codes (the number of codes at that site has prompted the addition of Dr. Patterson to the review team- welcome Steven!).

At the South Health Campus, Dr. Bhagirzada has completed one QAR, presented a QA rounds based upon three Code Blue reviews, and also sits on the SHC QA committee.

At Rockyview General Hospital, we have completed one Anesthesia QAR and reviewed ten Code Blues; as well as, participating in the site-wide roll out of both the National Surgical Quality Improvement Program and site-wide QA/QI program; as well as, two program specific Enhanced Recovery After Surgery QI protocols.

Furthermore, we welcome the participation of Dr. Megan Hayter, with whom we are looking forward to developing Calgary Anesthesia specific Simulations based on both our QA and our QI experience.

Finally, we are pleased to share the exciting news that in the coming year, now that our system is well in place, we are well positioned to begin to welcome the support of already existing QA and QI programs throughout the AHS system. In conjunction with DIMER and the Health Quality Council of Alberta and under the leadership of Dr. Sid Viner and the Quality Council, we are pleased to announce that, through the support of

Dr. Gary Dobson, Dr. Donal Finegan has received committed support and funding for the citywide rollout and implementation of his Anesthesia Continuous Feedback Quality Improvement System, through which interested Anesthesia Department members will be able to access information from a validated quality and safety database providing physician specific reports and feedback regarding a number of specific and appropriate anesthesia care metrics. Our Department's support of Dr. Finegan's work well demonstrates our commitment to both Quality Assurance and Quality Improvement and the high standard of care that we both already achieve and look forward to maintaining in the future.

Congratulations to you all!

APPENDICES

- A. Department Membership
- B. Administrative Committees
- C. Publications
 - Published
 - Submitted
 - Ongoing
 - Abstracts/Conference Proceedings
- D. Research Funding
- E. Presentations
 - Presentations & Invited Addresses
 - Education (CME/UME/PGME)

Appendices A – Department Membership

FMC

Anderson, Keith	Froelich, Jennifer	Norrie, Bill
Arraf, John	Gregory Alex	Noss, Christopher
Balaton, John	Guglielmin, Darryl	Organowski, Slawomir
Bands, Colin	Ha, Duc	Pash, Michael
Beriault, Michael	Haber, Julia	Prusinkiewicz, Chris
Caveno, Jordan	Hamming, Jeremy	Seal, Douglas D.
Cheung, Kenneth	Hawboldt, Geoffrey S.	Shing, Molly
Chong, Michael	Hiew, Moo-Khon	Shinkaruk, Kelly
Chow, Lorraine	Hurdle, Heather	Smith, M Heather
Chun, Rosaleen	Illing, Kim	Stacey, Shean
Davis, Melinda	Illing, Leigh H.G.	Teoh, Desiree
Diserens, Monique	Jungen, David	Thompson, Robert
Duttchen, Kaylene	Korzeniewski, Peter	Todd, Andrea
Eschun, Gerald	Kowalewski, RJ	Waechter, Jason
Falkenstein, Richard	Lee, Alan	Wahba, Raouf S
Fermor, David	Ligier, Bruno	Wang, Bing
Finegan, Donal	McTaggart-Cowan,	Watson, Neil C
Fox, Joel	Robert	Wilson, Joshua

ACH

Carter, Kerry	Hardcastle, Nina	McLuckie, Duncan
Connors, M. Ruth	Kuwahara, Brian	McMann, Jon
Cox, Robin	Lardner, David	Mulvey, Jamin
Dobereiner, Elisabeth	Letal, Mike	Rasic, Nivez
Ewen, Alastair	Livingstone, Margaret	Rice, Tiffany
Farran, R. Peter	Luntley, Jeremy	Spencer, Adam
Gale, Mark	McAllister, Debbie L	Stewart, Terry
Ghazar, Nancy	McIntyre, Brian	Theam, Michelle

SCH

Baghirzada, Leyla	Fraser, Louis	Nemish, Ulyana
Bharwani, Fayaz	French, Susan	Olivieri, Lori
Brown, Nathan	Ho, Esther	Stephan, Jarad
Cheesman, Mark	Jack, Melissa	Swedlo, Dean
Chu, Alan	Joo, Jenny	Trinh, Tony
Demarty, Jennifer	Kostash, Mark	Wollach, Barry
Endersby, Ryan	Morrow, Farrah	

PLC

Armstrong, JN	Cassidy, Michael	Darcus, Karl
Azmaysh-Fard, Arash	Cherry, Tadd	Dobson, Gary
Bishop, Graeme	Cuk, Aleksander	Donais, Philip

Downie, Joseph
Halpenny, David
Hokanson, Michelle
Jadavji, Nadeem
Jordan, Dean
Kozody, Raymon
Kruger, Marelise
Lim, Beatriz
Maher, Neal

Mensink, Fred
Parkinson, Bronwyn
Patterson, Steven
Pearce, Craig
Pitter, Curt A
Priddy, Richard
Rabuka, Shannon
Sandhu, Manjot
Sandhu, Sabrina
Santosham, Kristi

Shysh, Alexander
Stilling, Lee
Tiessen, Alan
Wassill, Diane
Wheeler, Steven
Wong, Vanessa
Wood, Daniel
Yang, Theresa

RGH

Babyak, Yaryna
Bart, Bevan
Berchuk, Miriam
Chan, Tommy
Dodd, Colin
Donnelly-Warner, N
Eng, Reuben
Hall, Wendy
Hardy, C. David
Hayter, Megan
Hopper, Gordon
Jacyna, Stephen
Janzen, James

Kent, David
Larsen, Udell
Lee, Brenda
Liepert, David
Olson, Brian
Partridge, Jill
Patel, Kiran
Phillips, Steven
Pytko, Saul
Rubin, Yair
Saayman, Marius
Samuels, Peter
Scanlon, M

Schultz, Rod
Shah, Misbah
Simon, Karl
Sims, Christopher
Soska, Mark
Sweet, Blythe
Thomas, Sean
Torsher, Kevin
Tsai, Lin
Wasserman, Paula
Willsie, Robert
Yemen, D. Jill
Yont, Karrie

Additional Members – Community

Archer, David
Davies, Jan
Eagle, Chris
Latour, John
Nanji, G. Mohammed
Reddy, Neville
Sachedina, Gulzar
Young, Dale – Canadian Blood Services

Calgary Chronic Pain Centre

Braithwaite, Philip
Montgomery, Lori
Spanswick, Chris
Shah, Misbah

Appendices B – ADMINISTRATIVE

Committees

N.J. Armstrong

Medical Mission to Cuenca Ecuador providing Clinical Anesthesia services and teaching February 24, 2017- March 5, 2017

Chief Medical Officer STARS - Chief Medical Officer for STARS responsible for all clinical, research, and educational activities around critical care transport for Alberta, Saskatchewan, and Manitoba November 1, 2014 - ongoing

Canadian Anesthesiologists' Society Alberta Division Past President November 5, 2016 - ongoing

Committee - Canadian Anesthesiologists' Society Alberta Division Past President November 5, 2016- ongoing

Committee - Alberta Medical Association Section of Anesthesia Past President November 5, 2016 - ongoing

Canadian Air Medical Transport Conference May 26, 2017- May 27, 2017

Participation in peer reviewing a concept map for Transport and Disposition as part of The Royal College of Physicians and Surgeons Canada curriculum renewal of its Acute Critical Events Simulation (ACES) program May 16, 2016 - ongoing

Consultant and Liaison with the Stanton Yellowknife Hospital and NWT for anesthesia July 1, 1993 - ongoing

Anesthesia Consultant and Liaison with the Riverside Health Center Fort Frances Ontario March 25, 2017 - ongoing

College of Physicians and Surgeons of Alberta Taskforce on Addictions in Anesthesia July 1, 2013 - January 1, 2017

College of Physicians and Surgeons of Alberta Physician Achievement Review Program; Program Review and development January 1, 2013- January 1, 2017

Member of the "Clinical Operations Panel" with membership from Manitoba Health, the University of Manitoba, the Winnipeg Regional Health Authority and STARS, responsible for the integration of aeromedical transport into health care delivery in Manitoba January 1, 2014- ongoing

STARS Medical Officer, Pilot April 1 1991- ongoing

Nathan Brown

Residency Training Committee May 27, 2015 – ongoing

RTC Regional Training Coordinator May 27, 2015 – ongoing

CBD Committee 2016 – Present

SHC Search and Selection Committee February – July 2017

RTC Journal Club Coordinator late 2013 – present

Michael Cassidy

Alberta Medical Association Rep Forum 2 or 3 meetings per year- Sept 2009 ongoing Calgary or Edmonton.

Canadian Anesthesiologists' society Board of Directors- Sept 2011 - on going 1 or 2 meetings per year- CAS meeting site & Toronto

Robin Cox

RCPSC Council 2010-2019, 1 meeting per year, Ottawa

RCPSC Committee on Specialty Education 2016-2018, 2 meetings per year, Ottawa

RCPSC Professional Learning and Development Committee, 2010-2018, 2 meetings per year, Ottawa

RCPSC Governance Committee, 2017-2019, 1 meeting per year, Ottawa

RCPSC Nominating Committee, 2013-2017, 2 meetings per year, Ottawa

HQCA Board, 2011-2017, 8 meetings per year, Calgary/Edmonton

AMA Board, 2014-2018, 10 meetings per year, Calgary/Edmonton

AMA Compensation Committee, 2016-ongoing, 5 meetings per year, Calgary/Edmonton
 ACUDA Continuing Education and Professional Development Committee, 2009-ongoing, 1 meeting per year, CAS
 Cumming School of Medicine CME and PD Committee, 2007-ongoing, 8 meetings per year, CSM
 Resurge International Anesthesia Committee, 2012-ongoing, 4 meetings per year, Sunnyvale, CA
 Resurge International Quality Improvement Committee, 2014-ongoing, 4 meetings per year, Sunnyvale, CA
 Associate Editor, Pediatric Anesthesia, 2017-ongoing, 1 meeting per year, usually with ASA

Ryan Endersby

Perioperative Ultrasound Fellowship-ongoing multiple meetings per year; held in Calgary
 Education in Regional Anesthesia Special Interest Group-ongoing- 1 meeting per year- ASRA Regional Anesthesia Conference in San Francisco
 Perioperative Ultrasound Special Interest Group- ongoing-1 meeting per year- ASRA Regional Anesthesia Conference in San Francisco
 Strategic Human Resource Planning Committee (SHARPE)/ Manpower Committee South Health Campus- ongoing- multiple meetings per year-held in Calgary
 Physician Learning Project- ongoing- multiple meetings per year, meetings held in Calgary
 SMART Committee South Health Campus- ongoing
 Multiple meetings per year- held in Calgary
 Acute Pain Service South Health Campus- ongoing- multiple meetings- held in Calgary
 Calgary City Wide Acute Pain Service- ongoing- multiple meetings per year- held in Calgary

Julia Haber

Residency Training Committee. Oct 2013 – Present

Dean Jordan	<p>Assistant Chief- ongoing- meetings are variable</p> <p>ERAS Anesthesia Liaison PLC- ongoing - 20 meetings per year</p> <p>Simulations committee, meetings are variable</p>
Marelise Kruger	<p>Resident competence committee- ongoing- 2 meeting per year in Calgary</p> <p>PLC Simulation committee –ongoing- 2 meetings per year- out of hospital- in Calgary</p> <p>English vice chair of the anesthesia RCPSC exam board- 2 meetings per year- in Ottawa</p>
Jeremy Luntley	<p>Trauma Committee ACH. Aug 2016- ongoing - 10 meetings a year - ACH</p> <p>Trauma Safety Committee. Aug 2016 – ongoing - 4 meetings a year - ACH</p> <p>Canadian Pediatric anesthesiology society - Sept 2016 - 4 meetings ongoing - 4 meetings a year - National</p>
Neal Maher	<p>Clinical lead Perioperative, Echocardiography and Point of Car, Ultrasound PLC section of Anesthesia; 3-4 meetings per year, held in Calgary</p>
Duncan McLuckie	<p>RTC 2016-07-01-ongoing - 4 meetings per year</p> <p>Simulation 2016-07-01 - ongoing - 4 meetings per year</p>
Lori Olivieri	<p>CARMS Committee- November 2015 - February 2017, approx. 2 meetings per year</p>
Steve Patterson	<p>President PLC Medical Staff</p> <p>Editorial Board Vital Signs Magazine for Medical Staff -on going</p> <p>Associations across Province</p> <p>Calgary Health Trust Committee Member – publication of CAMSS- on going</p> <p>Member of the AHS Calgary Zone Hearing Committee Pool</p>

Member of the Non Hospital Surgical Faculty (NHSF)
Advisory committee for the College of Physicians and
Surgeons of Alberta (CPSA)

Assist Dr, Hokanson with Quality Assurance within the PLC
Dept of Anesthesia

Shannon Rabuka

APS January 2017-ongoing, 4 meetings per year, FMC
RTC May 2017- ongoing, 10 meetings per year, FMC

Nivez Rasic
2016-

Manpower Committee, Section of Pediatric Anesthesia
present. ~6 meetings per year, held at ACH

Pain Advisory Committee 2016- present. ~12 meetings per
year, held at ACH.

Kristi Santosham

Residency Training Committee- ongoing- 10 meetings per
year- FMC

CaRMS Selection Committee- ongoing- 5 meetings per year-
FMC and U of C

PLC OR Simulation Committee- ongoing- 4 meeting per
year- PLC

Anesthesia Residency Education Coordinator- ongoing- 4
meetings per year- FMC

Appendices C – PUBLICATIONS

Published

J.N. Armstrong

Acute exposure to volatile anesthetics impairs synaptic, but not cytoskeletal,
architecture. Ryden Armstrong*, Fenglian Xu*, Daniela Urrego, Munir Qazzaz, Mario
Pehar, J. N. Armstrong, Naweed I. Syed- Co- Author. Peer Reviewed.

Rat cortical neurons exposed to sevoflurane and desflurane exhibit decreased synaptic development. Ryden Armstrong*, Fenglian Xu*, Daniela Urrego, Munir Qazzaz, Mario Pehar, J. N. Armstrong, Naweed I. Syed.

Sevoflurane and desflurane inhibit synaptic strength of newly developed synapses between lymnaea neurons. Ryden Armstrong*, Fenglian Xu*, Daniela Urrego, Munir Qazzaz, Mario Pehar, J. N. Armstrong, Naweed I. Syed. Citation: International Anesthesia Research Society Annual Meeting Conference Proceedings. 2015 Jul 01. Impact Factor.

Book Chapter Title: Anesthesia

Book Publisher: Thomson Reuters

Book Publish Location: Australia

Book Editor: Freckelton I and Selby H (Eds) -Armstrong JN, Davies J, Anderson K, and Pysyk C

Cerebral Oximetry Monitoring to Maintain Normal Cerebral Oxygen Saturation during High-risk Cardiac Surgery: A Randomized Controlled Feasibility Trial. Deschamps A, Hall R, Grocott H, Mazer CD, Choi PT, Turgeon AF, de Medicis E, Bussi res JS, Hudson C, Syed S, Seal D, Herd S, Lambert J, Denault A, Deschamps A, Mutch A, Turgeon A, Denault A, Todd A, Jerath A, Fayad A, Finnegan B, Kent B, Kennedy B, Cuthbertson BH, Kavanagh B, Warriner B, MacAdams C, Lehmann C, Fudorow C, Hudson C, McCartney C, Mclsaac D, Dubois D, Campbell D, Mazer D, Neilpovitz D, Rosen D, Cheng D, Drapeau D, Dillane D, Tran D, Mckeen D, Wijesundera D, Jacobsohn E, Couture E, de Medicis E, Alam F, Abdallah F, Ralley FE, Chung F, Lellouche F, Dobson G, Germain G, Djaiani G, Gilron I, Hare G, Bryson G, Clarke H, McDonald H, Roman-Smith H, Grocott H, Yang H, Douketis J, Paul J, Beaubien J, Bussi res J, Pridham J, Armstrong JN, Parlow J, Murkin J, Gamble J, Duttchen K, Karkouti K, Turner K, Baghirzada L, Szabo L, Lalu M, Wasowicz M, Bautista M, Jacka M, Murphy M, Schmidt M, Verret M, Perrault MA, Beaudet N, Buckley N, Choi P, MacDougall P, Jones P, Drolet P, Beaulieu P, Taneja R, Martin R, Hall R, George R, Chun R, McMullen S, Beattie S, Sampson S, Choi S, Kowalski S, McCluskey S, Syed S, Boet S, Ramsay T, Saha T, Mutter T, Chowdhury T, Uppal V, Mckay W; Canadian Perioperative Anesthesia Clinical Trials Group. Citation: Anesthesiology. 2016 Apr 01;124(4):826-836.

Impact Factor: 5.0000

The mitochondrial division inhibitor Mdivi-1 rescues mammalian neurons from anesthetic-induced cytotoxicity. Xu F, Armstrong R, Urrego D, Qazzaz M, Pehar M,

Armstrong JN, Shutt T, Syed N. Citation: Mol Brain. 2016 Mar 26;9:35.
Impact Factor: 4.9000

Leyla Baghirzada

Foglia J, Archer D, Pytko S, **Baghirzada L**, Duttchen K. Does laryngoscopic view after intubation predict laryngoscopic view before intubation? Journal of Clinical Anesthesia 2016, 33: 469-75

Ohashi Y, **Baghirzada L**, Sumikura H, Balki M. Remifentanyl for labor analgesia: a comprehensive review. J Anesth. 2016 December, Volume 30, Issue 6, pp 1020-1030.

Yu HC, Al-Shehri M, Johnston K, Endersby R, **Baghirzada L**. Anesthesia for hip arthroscopy: a narrative review. Can J Anaesth. 2016 Nov;63(11):1277-90

Balki M¹, Liu S, León JA, Baghirzada L. Epidemiology of Cardiac Arrest During Hospitalization for Delivery in Canada: A Nationwide Study. Anesth Analg. 2017 Mar;124(3):890-897.

Robin Cox

Alternative therapies and postoperative vomiting. Pediatric Anesthesia 2016; 26: 782-3

Anesthesia for Post-Tonsillectomy and Adenoidectomy Hemorrhage; Internet publication, Society for Pediatric Anesthesia; July 2017

Ryan Endersby

Hip Attack Trial. PI: Dr. P.J. Deveraux and Dr. Mohit Bhandari- ongoing

Efficacy of Ultrasound-guided Transversalis Fascia Plane Blocks for Post-Caesarean Section Analgesia: A randomized Double Blinded Control Study. PI: Dr. Leyla Baghirzada- ongoing

Development of Perioperative Surgical home for Shoulder Arthroplasty. PI: **Dr. Ryan Endersby**-ongoing

Development of Perioperative Surgical home for Pediatric Upper Extremity surgery. PI: **Dr. Ryan Endersby**- ongoing

Home Peripheral Nerve Block Catheter Progra. PI: **Dr. Ryan Endersby**- ongoing

Tranexamic acid use during total knee and hip replacements and blood transfusions following surgery: An audit and feedback intervention.PI: Dr. Martin Shields- ongoing

Use of Peripheral (Femoral) Nerve Blocks in Alberta for Acute Hip Fracture Patients
Findings of a literature review and environmental scan. PI: Dr. Ania Kania- Richmond-ongoing

Defining a list of core outcomes relating to the perioperative management of patients with a hip fracture. PI: Dr. Martin Shields- ongoing

Low Dose dexamethasone as an adjuvant to supraclavicalr brachial plexus blocks: a postspective randomized, double blinded, control study. PI: Dr. Nathan Brown- ongoing- Yu HC, Al-Shehri M, Johnston KD, Endersby R, Baghirzada L. Anesthesia for Hip Arthroscopy: A Narrative Review. Canadian Journal of Anesthesia. 2016. Nov;63(11): 1277-90

Yu HC, Al-Shehri M, Johnston KD, Endersby R, Baghirzada L. Anesthesia for Hip Arthroscopy: A Narrative Review. Canadian Journal of Anesthesia. 2016. Nov;63(11): 1277-90

Abdallah, FW, Whelan, DB, Chan, VW, Prasad, GA, **Endersby, RV**, Theodoropolous J, Oldfield, S, Oh, J, Brull, R. Adductor Canal Block Provides Noninferior Analgesia and Superior Quadriceps Strength Compared with Femoral Nerve Block in Anterior Cruciate Ligament Reconstruction. **Anesthesiology**. 2016 May;124(5): 1053-64

Endersby, R, Baghirzada L, Walker, A, Denness, K, Reyes, R, and Ansell, A. Perioperative surgical home for joint replacement. Abstract and Oral Poster Presentation. Canadian Anesthesia Society Annual Meeting 2017, Niagara Falls, Ontario

Gjata, I, Dowling, S, Rivera, L, Duncan, D, Law, S, Talavera, R, Rice, C, Cooke, L, Baghirzada, L, **Endersby, R**, and Olivieri, L. Tranexamic acid use during total knee and hip replacements and blood transfusions following surgery: An audit and feedback intervention. Abstract and Poster presentation. Choosing Wisely Conference 2017. Calgary Alberta

Neal Maher

Nutley M, **Maher N**, Moore R, Petrasek P, Wond J, Samis G, Guimond M, Clark J, Macdonald M, Peti N, Bakshi D. Short Stay Endovascular and Percutaneous Endovascular Aneurysm Repair (EVAR and PEVAR) Pathway- ongoing

Hurdle, H. Krahn, D. Roganm K. Walker, A,urbaneja, G. Hamilton, M. Prusinkiewicz, C. **Mahner, N**. Ventrículoatrail Shunt Insertion using Transesophageal Echocardiography vs fluoroscopy- ongoing

Duncan McLuckie

Z Friedman, V Perelman, D McLuckie, M Andrews, LMK Noble, A Malavade, MD Bould. Challenging Authority During an Emergency—the Effect of a Teaching Intervention. *Critical Care Medicine* 45 (8), e814-e820

Nivez Filipa Rasic

Vinall, J, Pavlova M, Asmundson G, Rasic N, Noel M. Mental health comorbidities in pediatric chronic pain: A Narrative Review of Epidemiology, Models, Neurobiological Mechanisms and Treatment. *Children* 2016 Dec 2;3(4):1-31.

Armstrong R, Xu F, Arora A, Rasic NF, Syed NI. General Anesthetics and cytotoxicity: Possible implications for brain health. *Drug and Chemical Toxicology*. 2017 Apr;40(2)241-249.

What it's like to use your mind to combat chronic pain. *Reader's Digest*. March 2016. Interviewed and cited Rasic NF for this article.

Peng Z, Xu WW, Sham Y, Lam H, Sun D, Li C, Rasic NF, Guan Q, James AA, Simons FE. Mosquito salivary allergen Aed a 3: cloning, comprehensive molecular analysis, and clinical evaluation. *Allergy* 2016 May;71(5):621-8.

Ongoing

Jeremy Luntley

Holmes E, Singh K, Kirk V, Brindle M, **LuntleyJ**, Weber B, Yunker W,. Incidence of children at risk for obstructive sleep apnea undergoing common day surgery procedures
Research

Abstracts/Conference Proceedings

Neal Maher

Roberts, D. MacDonald, M. Guimond, M. Samis, G. Clark, J. aher, N. Findlay, C. Nutley, M. "Development and Initial Evaluation of a Same- Day Discharge Percutaneous Endovascular Aneurysm repair Pathway" *Journal of Vascular Surgery*, 2016 vol 64(5) pp 1538-39- Published Abstract

Lee Stilling

Department of Anesthesia rounds – Jan- December 3, 2016 23 credits, CME-
Accredited activity

Protective Ventilation during anesthesia - presented rounds 48 credits (CME)

ACLS and BCLS May 2016- 16 Credits (CME)

Appendices D – RESEARCH FUNDING

Lori Olivieri

HIP ATTACK

Date: TBD

PHRI Study Sponsor

Per patient funding going to Dept Ortho SHC

Nivez Filipa Rasic

“Identification of risk factors for chronic pain and disability in youth: An integrative approach.” Shaikh Family Research Award, ACHRI. \$192,000 over 3 years. **Co-Investigator**. M. Noel (PI); J Katz, T Palermo, P Arnold, C Sears, Y Griep (Co-Investigators). 2017.

“The Role of Parent-Child Narratives in Children’s Pain Memory Development.” Maternal Newborn Child & Youth Strategic Clinical Network (MNCY SCN) Health Outcomes Improvement (HOI) Fund. (\$50,000) **Co-investigator**. 2017.

“The Roles of Mother- and Father-Child Narratives in Children’s Pain Memory Development.” Targeted Research Program Committee of the Society of Pediatric Psychology (SPP) Grant (\$20,000). **Co-investigator**. 2016.

The role of parent mental health in pediatric chronic pain. CIHR SPOR Chronic Pain Network (\$222,000). **Co- Investigator**. 2016-2018

“The Sociolinguistic Context of Pain Memory Development in Young Children”. American Pain Society Future Leaders in Pain Research Grant (\$25, 000 USD). **Co-investigator**. 2016.

Education (CME/UME/PGME)

Nathan Brown

- NSAIDS: Clinical Food for Thought June 27, 2017 CME
- PLC POCUS Course- adductor canal blocks (presentation+demonstration) April 22, 2017
- Clinical Applications of regional anaesthesia (half day presentation) May 5, 2016
- Volatile Agents (academic half day session) January 19, 2017

Robin Cox

- Chair and Speaker, Canadian Pediatric Anesthesia Society annual Meeting, Banff, Alberta. Sept 30 – Oct 2, 2016. (CME)

Ryan Endersby

- Canadian Anesthesia Society 2017 workshop: Essential upper and lower extremity Blocks, Niagara Falls, Ontario, June 2017. CME
- South Health Campus Home Catheter Program, Calgary, Alberta. June 2017. CME
- PLC Regional Anesthesia Course and POCUS Primer. University of Calgary, Calgary, Alberta. April 2017- CME
- Ultrasound-Guided Anesthesia Procedures Resident Cadaver Workshop. University of Calgary, Calgary, Alberta April 2017.
- Post Course Comprehensive Workshop in Ultrasound Guided Regional Anesthesia Rural Anesthesia for GP Anesthesiologists Conference, Banff, Alberta, January 2017-CME
- Introduction to POCUS for the Undifferentiated Hypotensive Patient. Rural Anesthesia for GP Anesthesiologists Conference, Banff, Alberta, January 2017-CME
- How to Optimize your Block and Rescue Blocks. Rural Anesthesia for GP Anesthesiologists. Anesthesiologists Conference, Banff, Alberta, January 2017-CME
- Basic Ultrasound Guided regional Anesthesia Workshop- Trunk Blocks. American Society of Anesthesia Annual Meeting. Chicago Illinois. October 2016-CME
- Tranexamic Acid and Dexamethasone use during anesthesia for Total Joint Replacements in Calgary. Calgary, Alberta. October 2017- CME
- Orthopedics and Anesthesia Joint Rounds: THA and TKA quality improvement study result. Calgary. Calgary, Alberta. October 2016-CME

- Basics of Ultrasound Guided regional Anesthesia. Introductory Tutorial Session with University of Calgary Regional Anesthesia Rotation Residents. South Health Campus. University of Calgary. 2016-2017(Monthly) PGME
- Regional Anesthesia Lecture-Pain Awareness Day. University of Calgary. November 2016- CME allied health

Richard Falkenstein

- Neuro core Program sessions

Arash Fard

- Thursday morning resident teaching. 4-6 Thursday mornings through 2016-2017 year. PGME
- Director- PLC Regional Anesthesia course and POCUS Primer April 22 2017- CME

Jeremy Luntley

- Teaching excellence course at UofC, Sept 2017 – May 2018, PGME

Neal Maher

- Point of Care Ultrasound Workshop (Course Director and Chief Instructor. Oct 1 & 2 2016, CME/PGME)
- Point of Care Ultrasound from Snowstorm to Clarity - Anesthesia Alberta Annual Meeting, Nov 5 2016, CME
- Canadian Anesthesiology Society Annual Meeting Preconference Point of Care Ultrasound Workshop- Instructor, Niagara Falls Ontario- June 2017 (CME)
- Excellence in Postgraduate Medical Education Award Department of Anesthesiology Perioperative and Pain Medicine- June 2017 (PGME)
- Outstanding Educator Award Department of Anesthesiology Perioperative and Pain Management June 2017 (PGME)

Lori Olivieri

- PCA In-service SHC (for nursing staff) June 2017- CME
- Physician Learning Program- Tranexamic Acid in Total joints feedback session, Oct 14 2016- CME

- Physician Learning Program- Combined Anesthesia/Ortho Rounds- Implementing a standard approach to the use of Tranexamic Acid in Total Joints- January 27, 2017- CME
- Combined Anesthesia/PACU rounds on Updating the PACU OSA Order sets. March 31 2017-CME
- Residency coaching for PGY! (C. Phillips)- July 2017 onwards- PGME
- Acute Pain Management- Anesthesia Resident Half Day Teaching- May 26 2016- PGME

Nivez Filipa Rasic

- “Understanding the adolescent in pain: Aren’t they just little adults?” Chronic Pain Symposium, Calgary.
- “Chronic Pain: Managing the epidemic of this invisible disease.” PICH2GH Conference. Alberta Children’s Hospital
- Chronic pain after surgery: “What do I need to know?” Canadian Pediatric Anesthesia Society conference. Sept 2016. Banff, AB

Shannon Rabuka

- APS Rounds Oct 20, 2017

Kristi Santosham

- Difficult Airway Workshop Preceptor May 11 2017- PGME
- Anesthesia Residency Simulation session July 6 2017- PGME
- Multi-disciplinary Simulation session February 3 2017- PGME
- Grand Rounds—BNP for peri-op cardiac risk assessment January 27 2017- CME