

DALHOUSIE
UNIVERSITY

Department of Anesthesia, Pain Management and Perioperative Medicine
ANNUAL REPORT 2014-2015



Contents

2	Message from the Head and Chief
4	Health Centres and Hospitals
8	Quality Improvement & Patient Safety
10	Patient Care by the Numbers
11	Clinical Academic Programs
20	Excellence in Patient Care, Education & Research
24	Education
27	Education by the Numbers
24	Education Programs
33	Research
36	A Snapshot of Research Excellence
38	Introducing Perioperative Care Research Collaborative
Appendices	
A	Research Projects and Funding
B	Publications
C	Department Organization
D	Faculty Roles, Academic Outreach and Scholarship





The Department of Anesthesia, Pain Management & Perioperative Medicine includes some of Canada's highest skilled, most dedicated health professionals who are also teachers and researchers. Many, in fact, are leaders in their fields here and around the world. They, as individuals and as a team, are committed to achieving excellence through continuous improvement. We believe this is how to best provide patient care, conduct ground-breaking research, and teach in a way that encourages learners to strive for their professional and personal best.

There is excellent work under way in all aspects of the Department, which is highlighted in this report, but I would like to bring your attention to a few initiatives and milestones.

Dalhousie University, particularly its Faculty of Medicine and the Department of Anesthesia, Pain Management & Perioperative Medicine, has a long history of leadership in pain research, treatment and management. This year, the Department successfully recruited for a Tier 2 Canada Research Chair in Pain. The nominated candidate has trained and worked with world-renowned pain researchers at the University of Toronto (PhD, neuroscience) and Northwestern University (postdoctoral fellow). She was most recently a research fellow at Harvard Medical School, Martinos Center for Biomedical Imaging.

The Department also has efforts underway to establish an Endowed Chair in Pain and a Dalhousie Pain Institute. The endowed chair in pain will enable funding of a leader in pain research, education and care in perpetuity. The Dalhousie Pain Institute initiative seeks to transform the understanding and management of pain – acute and chronic, across the lifespan and translate new knowledge into practice.

Also on the patient care front, the department's anesthesiologists perform more than 70,000 procedures annually at five main facilities in Nova Scotia and New Brunswick: QEII Health Sciences Centre, IWK Health Centre, Dartmouth General Hospital, Hants Community Hospital and Saint John Regional Hospital. Safe, vigilant patient care is the department's hallmark.

As a specialty that is inextricably linked to other clinical areas, particularly surgery, the Department of Anesthesia, Pain Management & Perioperative Medicine consistently demonstrates proactive leadership in improving efficiency and quality care. Through an annual strategic planning exercise, the department works to identify ways to innovate and improve care within its areas of focus (perioperative, pain management, etc.). The Department has consistently shown adaptability and a willingness to expand clinical care services into areas such as radiation oncology, diagnostic imaging, neuro-interventional radiology, perioperative medicine, and regional anesthesia, and continually strives to provide services where needed, through a variety of models of care delivery. In addition, departmental clinical leaders have been active members/chairs of various senior level health centre committees.

Message from the Head and Chief

Dr. Romesh Shukla

The Department of Anesthesia, Pain Management & Perioperative Medicine continues to foster a culture of research excellence, and this year, facilitated the establishment of the Perioperative Care Research Collaborative. The collaborative aims to create an environment that supports investigator led research collaborations in perioperative care, patient safety and quality improvement using traditional and Big Data analytic approaches.

The Department of Anesthesia, Pain Management & Perioperative Medicine is contributing to the establishment of the gold standard for postgraduate anesthesia education in Canada. The Department is well into the implementation of a revamped postgraduate curriculum that sets the stage for competency based medical education for residents. Building on this, the Department has applied to the Royal College of Physicians and Surgeons of Canada and received approval to begin offering a curriculum of competency based medical education in 2016.

An integral part of medical education at all levels is simulation. Anesthesia, Pain Management & Perioperative Medicine and the Dalhousie Department of Surgery, along with our colleagues in the Dalhousie Faculty of Health Professions and the Faculty of Medicine, established a SimEd Network, and have created an integrated simulation program at the QEII. These efforts will increase and improve simulation education at Dalhousie University, the QEII Health Sciences Centre and the IWK Health Centre.

Thank you for your interest in the Department of Anesthesia, Pain Management & Perioperative Medicine. I invite you to review the following pages and visit the department's website (nsanesthesia.ca) to learn more about the department's excellent work to improve patient care; to educate the health leaders of today and tomorrow at home and abroad; and to advance knowledge and understanding of the science and the practice of anesthesia.



Dr. Romesh C. Shukla, MBBS DABA FRCPC

Professor and Head, Dalhousie University Department of Anesthesia, Pain Management & Perioperative Medicine

Health centres and hospitals

Members of the Department of Anesthesia, Pain Management & Perioperative Medicine provide anesthesia care to adults and children in Halifax, Nova Scotia and the Atlantic provinces via five main health centres and hospitals: QEII Health Sciences Centre, IWK Health Centre, Hants Community Hospital, Dartmouth General Hospital and the Saint John Regional Hospital. All five health centres and hospitals serve as teaching sites where faculty members teach medical students and residents the latest in anesthesia care and skills. Faculty members conduct leading research at the QEII Health Sciences Centre, the IWK Health Centre and the Saint John Regional Hospital, as well as facilities at Dalhousie University.

Victoria General Site, QEII Health Sciences Centre

Dr. Ian Morris, site chief

Anesthesiologists provide anesthetic support to 15 operating rooms (ORs) and the lithotripsy unit on a daily basis (Monday – Friday) at the Victoria General (VG) site of the QEII Health Sciences Centre. They also provide anesthesia services in the brachytherapy unit, which has a fully equipped OR, and to the interventional radiology and endoscopy services on request. One or two anesthesiologists staff the pre-admission clinic Monday to Friday and inpatient consultations are seen within 24 hours. Two anesthesiologists are on call for emergency surgery 24/7. Subspecialty anesthesia services at the VG site include Thoracic, Liver Transplantation, and an Acute Pain Service.

There was a slight decrease in total cases this year, 15,871 (April 1, 2014 – March 31, 2015) as compared to 16,207 last year (April 1, 2013 – March 31, 2014). Accordingly, annual

workload decreased by 227 hours, down from 23,199 in 2013-2014. The changes reflect a decrease in the number of ophthalmology cases due to labour disruption and surgeon illness. The number of inpatient consultations remained steady, at 119 in 2014-2015 versus 120 in 2013-2014.

Although there was a decrease in ophthalmology cases this year, resulting in a reduction in anesthesia services overall, demand for general anesthetic support in this area is expected to increase due to a projected increase in oculoplastic cases. Anesthesia, Pain Management & Perioperative Medicine reviewed the preoperative assessment process for eye surgery and eliminated unnecessary testing which will reduce costs and improve efficiency.

The brachytherapy unit began providing service for carcinoma of the prostate in March 2014, and as a result, anesthetic support to this unit has increased. In 2014-2015, anesthesiologists supported 66 cervical carcinoma cases in addition to 36 prostate brachytherapy procedures, bringing the total number of brachytherapy cases to 102.

The post anesthesia care unit (PACU) caseload increased by 18 patients. One additional ICU patient and 48 fewer IMCU cases were housed in PACU in 2014-2015. The hours of ICU care provided in PACU decreased by 34 and the hours of IMCU care increased by 39.72 when compared to 2013-2014. Patient flow continues to be a challenge when the number of available appropriate unit beds is not adequate to meet the surgical demand and this can result in OR delays and cancellations.



Portable pulse oximeters were implemented for use during transport from the OR to PACU/IMCU in 2014-2015 and the team continues to use wireless monitoring of obstructive sleep apnea patients in the postoperative period, which relieves some of the demand for IMCU beds.

New equipment at the VG site also includes a temperature controlled storage unit for intravenous fluid and a disposable atomizer for topical airway anesthesia as an alternative to a reusable atomizer.

Halifax Infirmary Site, QEII Health Sciences Centre

Dr. J. Adam Law, site chief

Attending anesthesiologists provide weekday coverage to each of 15 operating rooms at the Halifax Infirmary (HI) site, which are dedicated to neurosurgery and orthopedic, plastic, vascular, general and cardiac surgery. Anesthesia support is provided outside of the operating rooms for electrophysiologic ablation procedures, transcatheter aortic valve implants, cardioversions, interventional neuro-radiologic procedures and the occasional general anesthetic for magnetic resonance imaging (MRI). Currently, up to four attending anesthesiologists are deployed out of the operating rooms daily to support transesophageal echocardiography (TEE), the preadmission clinic, and the regional/block room.

The caseload at the HI site remains relatively constant year after year. In 2014-2015, the total number of cases was 11,710 and the hours were 27,248. This represents a 1.8% decrease in cases and a .7% decrease in hours when compared to 2013-2014.

In terms of new initiatives in 2013-2014, split-shift first-call coverage was implemented on weekdays in addition to weekends. Thus, the overnight first call individual is now off the day before a night shift and assumes duties at 5 p.m., continuing through to 7 a.m. the next day. Thereafter, the individual is off for the day. Those doing first call have enthusiastically embraced the split-shift initiative because of its patient safety implications and work-life balance benefits.

Also, this year, patient flow to and from the post anesthesia care unit (PACU) improved. This can be attributed to the successful recruitment and retention of PACU nursing staff. The total number of holds decreased by 58%, while the hours on hold decreased by 55%, compared to the previous year.

New equipment at the HI site includes three anesthesia machines, an ultrasound machine, and five vital sign monitors, four of which were designated to the cardiac ORs.

In the upcoming year, the focus will be on minimizing surgical site infections in arthroplasty patients and consistent utilization of a surgical safety checklist. To minimize surgical site infections, three initiatives will be implemented: rational prophylactic antibiotic choice and timely administration; prevention of perioperative hypothermia; and correction of anemia pre-operatively. With regard to the surgical safety checklist, institutional policy dictates that the three-part checklist must always be performed. To reach that goal, the content will be re-examined and input into existing barriers to its use and how best to address the issues will be sought.

IWK HEALTH CENTRE

The Department of Anesthesia, Pain Management & Perioperative Medicine provides women's and obstetric and pediatric anesthesia care at the IWK Health Centre. Its members also lead the pediatric pain service. The number of ambulatory and inpatient surgical cases requiring anesthesia care was 11,427 in 2014-2015. This includes pediatric, adult gynecology, breast health and obstetric cases.

Women's & Obstetric Anesthesia

Dr. Rob Nunn, subspecialty chief

Sixteen core and non-core anesthesiologists provide comprehensive obstetric and non-obstetric anesthetic services at the IWK Health Centre, including, maternal, breast health and non-oncology gynecology anesthesia care.

The team provides labour analgesia/anesthesia for an average of 4,800 annual deliveries at the IWK birth unit. In 2014-2015, the total number of live births was 4,702, including 3,513 vaginal deliveries, 68.9% of which required labour epidural, and 1,189 cesarean deliveries. The time from request to insertion of epidural anesthesia is most often under 30 minutes, and cesarean deliveries are performed under regional block (spinal or epidural) 95% of the time, a rate that has been stable for several years.

Anesthesia services are also provided for elective and emergency gynecologic surgeries at the IWK Health Centre. In 2014-2015, there were 1,691 gynecologic cases, of which 194 were emergent. The IWK Health Centre includes two dedicated ORs and one shared OR for gynecologic cases, but the absence of an emergency room for adult women, results in the need for all unstable gynecology patients to be assessed and, at times, to have surgery at the neighbouring QEII Health Sciences Centre.

The IWK Health Centre houses a Breast Health Program, which requires routine and emergency anesthesia service for two or three ORs per week, 513 cases in 2014-2015.

Women's & Obstetric Anesthesia services also include an acute pain, consultation, same day ambulatory care clinic and cardiac arrest team.

Pediatric Anesthesia

Dr. Scott Drysdale, subspecialty chief

Pediatric Anesthesia provides care to children and youth in the Atlantic Provinces. While much of the pediatric anesthesia expertise supports surgical activity, the team is active outside of the OR where cases can also be complex and require extended support. This is especially true for radiotherapy and diagnostic imaging cases.

Demand for this expertise is increasing locally and regionally. Pediatric Anesthesia serves a large geographic area and thus maintains a comprehensive consultation service that includes regular telephone consultation and preoperative chart reviews.

Pediatric Anesthesia acts as a resource and referral centre for all pediatric specialty anesthesia in the Maritime provinces and administers a range of programs and services to respond to the varied needs of children, youth and their families:

- cardiac program
- pediatric pain service
- pediatric pain network
- preoperative assessments, telephone consults and chart reviews
- trauma team
- malignant hyperthermia consultation service and data base
- difficult airway consultation service and register
- cardiac arrest response team
- EHS Lifeflight medical control

In 2014-2015, Pediatric Anesthesia provided care for a total of 5,603 OR cases: 4,397 Nova Scotians; 904 from New Brunswick; 244 from Prince Edward Island; and 44 from Newfoundland. Fourteen patients were from outside of the Atlantic Provinces.

Hants Community Hospital

Dr. Alison Kelland, site chief

Anesthesia support at the Hants Community Hospital includes anesthesia care for day surgeries, and chronic pain treatment and management primarily. **Dr. Alison Kelland**, staff anesthesiologist, chronic pain specialist and assistant professor of anesthesia, leads anesthesia services, and provides the majority of anesthesia care at the hospital. Anesthesia coverage is also provided at least one day per week by anesthesiologists primarily based at the QEII Health Sciences Centre. In 2014-2015, 838 OR cases required anesthesia care.

Dartmouth General Hospital

Dr. Robert Paterson, site chief

Seven anesthesiologists provide anesthesia care supporting the operating room, an acute pain service, a chronic pain service, and a general consultative service at the Dartmouth General Hospital (24/7) and to The Nova Scotia Hospital. The team also maintains a preoperative assessment clinic function. Anesthesiologists provide academic teaching for undergraduate and postgraduate learners in many disciplines.

In 2014-2015, the anesthesia team at the Dartmouth General provided 1,212 perioperative consultations and delivered anesthesia care for 5,464 intraoperative cases. There were 407 acute pain consults and 2,228 visits to the chronic pain clinic.

Saint John Regional Hospital

Dr. John Chisholm, site chief

At the Saint John site, 18 anesthesiologists provide services at the Saint John Regional Hospital (SJRH) and St. Joseph's hospital. The SJRH provides surgical services to the Saint John region and tertiary services to New Brunswick and some areas of Prince Edward Island. St. Joseph's hospital is used for outpatient day surgery. The department also provides coverage for an acute pain service, chronic pain clinic, obstetrical anesthesia and preoperative assessment clinic.

There were 8,620 cases completed in the operating rooms at the SJRH this year, 835 of which were cardiac procedures including approximately 50 transcatheter aortic valve implants. At St. Joseph's hospital, 6,897 day surgery cases were completed.

The department provides daily anesthesia coverage for nine operating rooms at the SJRH including two cardiac operating rooms. Other services include neurosurgery, thoracic, vascular, orthopedics, general surgery, gynecology, urology, ENT and ophthalmology. Anesthesia services are also provided outside the operating room for cardiac electrophysiology procedures, interventional radiology, MRI and pediatric oncology.

Department members teach residents and undergraduate medical students as part of Dalhousie Medical School's undergraduate and postgraduate programs. Seven anesthesia residents and ten non-anesthesia residents and medical students rotated through the Saint John site in 2014-2015. **Dr. David Quinn** was the inaugural recipient of the Department of Anesthesia, Pain Management & Perioperative Medicine's Anesthesia New Brunswick Teacher of the Year Award.

Quality improvement and patient safety

Dr. Gregory Dobson, medical director

The Office of Quality Improvement & Patient Safety fulfills a number of important functions within the Department of Anesthesia, Pain Management & Perioperative Medicine. Primarily, however, it is tasked with systematically monitoring the quality and safety of the anesthesia care delivered within all aspects of the Department of Anesthesia, Pain Management & Perioperative Medicine's broad clinical portfolio.

After collection of data, analysis, review, investigation and communication with other perioperative health care team members, the Office of Quality Improvement & Patient Safety makes recommendations to the Department leadership with respect to any changes to standards, guidelines, policies, equipment, training or processes that are necessary to effect improvement.

A large part of the quality improvement and patient safety mandate remains clinical indicator monitoring, critical incident and mortality reviews, morbidity and mortality (M&M) rounds, and a patient safety reporting system. Another aspect is the critical role of communication with patients and families, and support of anesthesia and interdisciplinary staff regarding adverse events and other patient safety issues. Work to help tackle the challenging issues of drug supply, label changes and medication safety also continues.

Data collection and analysis is an integral part of the Office of Quality Improvement & Patient Safety, and over the last year, the office has expanded its data sources to ensure an accurate, detailed picture of all aspects of the anesthesia care provided. The data currently stems from a large number of systems, but the Office of Quality Improvement & Patient Safety is working to develop and implement more automated, systematic, ongoing data collection that will streamline some of the manual collection that is currently done. Further, the office continues to work closely with information management and is exploring opportunities to expand its research given the quality and quantity of data available.

Another focus is the improvement of information flow among Anesthesia, Pain Management & Perioperative Medicine Department members with regard to safety alerts and new and updated clinical guidelines and policies. As a result, the

office will expand the anesthesia information management system's dashboard to include the latest outcome data.

Also this year, the Office of Quality Improvement & Patient Safety began looking at ways to collect more accurate data on rates of case cancellations in the preadmission clinics and upon entrance to the OR. The preventable surgery cancellation rates are low but could be lower. With this aim, every case is reviewed in detail, and an audit of physician assessments in the preadmissions clinic was completed and will be done on a regular basis. Further, the Office of Quality Improvement & Patient Safety will complete a systematic audit of the quality of documentation of the intraoperative phase of care utilizing the AIMS system, Innovian.

Another patient safety initiative included improvements to patient handover and transfer of accountability from physicians to nursing in the post anesthesia care unit via policy and documentation changes. Phase two of the initiative will address intraoperative staff to staff handovers during anesthesia care.

Related to this, the Office of Quality Improvement & Patient Safety helped establish a perioperative quality committee, which is a joint committee of Anesthesia, Pain Management & Perioperative Medicine, Surgery and Nursing at the QEII Health Sciences Centre. The office expects to more easily implement collaborative initiatives to address quality and patient safety as a result of the committee's implementation.

Quality improvement and patient safety research

Law JA, Gu Y, Robert J, Hung O, Milne A, Morris I, MacQuarrie K, Kovacs G (2014 - 2015). Optimal laryngoscopic view to enable Glidescope-assisted tracheal intubation. A randomized clinical trial [Clinical]

Arora G, Brousseau P, Milne AD (2014). Determination of the minimum acceptable laryngoscope brightness [Clinical]

Brousseau C, Brousseau P, Milne AD (2014 - 2015). A Retrospective Review of Ventilation Settings Used During Laparoscopic Cholecystectomy Surgical Procedures [Clinical]

Forbes S, Dobson G, Milne AD (2014). Following up the difficult airway: A retrospective study to evaluate patient understanding and awareness after receiving a difficult airway diagnosis [Database]

Gilchrist A, Brady J, Goodday R, Milne AD (2014). Effect of orthognathic surgery on airway grade. A retrospective review [Database]

Tan E, Milne A (2014 - 2015). Impact of anesthesia residents on operating room times in a Canadian teaching hospital [Clinical]

Poole O, Hung OR, Vargo M (2014 - 2015). A comparison of three techniques for cricothyroidotomy in a manikin [Grant] – Dalhousie Department of Anesthesia – \$1,500.

Hung OR (2014). Anesthesia procedures and vascular access [Grant] – McGraw-Hill Book Grant (Editor Grant) – \$3,000.

Hung O. (2014 - 2015) Intravenous Fluid Administration Monitor “IV Tag”. Phase II Early Stage Commercialization Fund, Innovacorp, Nova Scotia (2014 - 2015) - \$44,500 [Industry]

Hung O (2013 - 2014). Intravenous fluid administration monitor [Industry Contract] – Innovacorp Early Stage Commercialization Fund - \$50,000.

Milne AD, M d'Entremont, OR Hung. Determination of the minimum light intensity required for lightwand intubation – a cadaveric study. Jan 2014. (\$2,500).

Forbes S, Dobson G, Milne AD (2014). Following up the difficult airway: A retrospective study to evaluate patient understanding and awareness after receiving a difficult airway diagnosis [Database]

Law JA, Milne A, Morris I, Brousseau P (2013 – present). A retrospective database review of methods used to achieve tracheal intubation in operative patients [Database]

Law JA, Morris I, Brousseau P, Milne A (2013 - 2014). The incidence, success rate and complications of awake tracheal intubation in 1554 patients over 12 years: an historical cohort study [Clinical]

Milne AD, Drapeau D (2010 - present). Design and Development of a Novel Blind Intubating Device [Clinical]

Milne AD, Pulella R, Valiant EM (2013 - 2014). Mechanical Strength Characteristics of Plastic Versus Metal Disposable Laryngoscope Blades [Clinical]

Schmidt M. Commercialization of CO2 removal device for anesthesia circuits [Grant] Atlantic Canada Opportunities Agency. Jun 2012 (ongoing.) (\$1,245,617)

Nantais J, Lehmann C. Methylene Blue Therapy in Experimental Septic Shock [Grant] CDHA Research Fund. Aug 2013 (ongoing.) (\$5,000)

Dumbarton T, Lehmann C (2014 - 2015). Tetrahydro-biopterin in the treatment of septic shock [Grant] - Department of Anesthesia, Pain Management & Perioperative Medicine – \$5,000

Lehmann C, Fisher N, Zhou J, Szczesniak A, Kelly M, Tugwell B (2014 - 2015). Cannabinoid for prevention of type 1 diabetes – an experimental study on pancreatic inflammation [Grant] - Department of Anesthesia, Pain Management and Perioperative Medicine – \$5,000.

Wafa K, Lehmann C (2013 - 2017). Cellular physiology of iron in inflammation and infection processes: novel Fe chelator responses in experimental model systems [Clinical]

Patient care by the numbers

2014-2015

In 2014-2015, anesthesiologists provided anesthesia care for more than 56,000 procedures at the QEII Health Sciences Centre and more than 16,000 women's & obstetric and pediatric procedures at the IWK Health Centre. Department members also provide anesthesia care at the Saint John Regional Hospital, the Dartmouth General Hospital and the Hants Community Hospital. ***Includes Out of Province (all procedures, all principal procedures, eg. ART lines, and Out of OR procedures.)*

Within the anesthesia specialty, there exists a number of subspecialties for which anesthesiologists receive extended training to provide the necessary anesthesia care.

Department of Anesthesia, Pain Management & Perioperative Medicine subspecialty areas include:

- Anesthesia for liver transplantation
- Blood management
- Cardiac anesthesia
- Neuroanesthesia
- Pain management
 - Chronic
 - Acute, including regional block
- Pediatric anesthesia
- Thoracic anesthesia
- Women's & Obstetric anesthesia

A great majority of the anesthesia care provided by department members was performed at the QEII Health Sciences Centre and IWK Health Centre. The following is a breakdown of OR procedures by anesthesia subspecialty area for the 2014-2015 fiscal year:

Anesthesia for liver, kidney and kidney pancreas transplantation

Cardiac anesthesia	1,799
Neuroanesthesia	1,081
Pediatric anesthesia	5,603
Thoracic anesthesia	917
Women's & Obstetric anesthesia	5,824

In addition to the surgical procedures represented above, tens of thousands of others performed during the 2014 – 2015 fiscal year required general anesthesia support. Those include orthopaedic surgeries (6,555), ENT (ear, nose, throat) surgeries (1,540), ophthalmological (eye) surgeries (7,050), urological surgeries (6,152), plastic surgeries (1,699) and others.

Outside of the OR, two of the Department of Anesthesia, Pain Management & Perioperative Medicine's largest services are Blood Management Services and Pain Management Services.

Blood Management Services

New patient consults, QEII Health Sciences Centre and IWK Health Centre (adults): **377**

Patient visits: **1,742**

Pain Management Services (adult services)

Acute inpatient consults at the QEII Health Sciences Centre **431** (HI site); **624** (VG site)

Regional blocks performed at the HI Site, QEII Health Sciences Centre **2,085**

Chronic pain clinic visits (including block procedures for chronic pain) **7,494**

New referrals to the chronic pain team **681**

Pediatric Pain Service

- New consultations
 - Acute pain **104**
 - Chronic pain **83**
- Visits
 - Acute pain **418**
 - Chronic pain **394**

Clinical academic programs

Acute Pain

Dr. Gord Launcelott, subspecialty chief (VG site)

Dr. Kwesi Kwofie, subspecialty chief (HI site)

Acute Pain Services is available at the Victoria General and Halifax Infirmary sites of the QEII Health Sciences Centre. In the last year, 431 patients were seen at the HI site and 624 at the VG site. The number of cases at both sites is lower than in 2013-2014 (581 and 659 respectively).

The acute pain team at the VG site, which added four anesthesiologists to its service this year, is now working with the bone marrow transplant unit and palliative care to enhance patient care in those areas.

Acute Pain Services submitted a proposal to the QEII Health Sciences Centre's drugs and therapeutics committee to begin the use of dexmedetomidine for patients who are highly opioid tolerant. This is part of our ongoing efforts to improve postoperative pain control for this group of patients.

The annual Acute Pain Management Workshop attracted a record 97 participants this year, demonstrating the quality of the programming and growing interest in treatment and management of acute pain.

Blood Management Services

Dr. Blaine Kent, medical director

Blood Management Services provides perioperative anemia screening and treatment for major surgeries at Capital Health and the IWK Health Centre. Team members also counsel

patients who decline blood products and coordinate intraoperative surgical and anesthetic blood management techniques.

Blood management services received 377 new referrals in 2014-2015 while total patient visits reached 1,742. Use of blood management services continues to grow as do its education and research efforts.

Cardiac Anesthesia

Dr. Blaine Kent, subspecialty chief

The cardiac anesthesia team of nine anesthesiologists supports a variety of cardiac procedures in the cath lab and electrophysiology lab, and all cardiac surgeries at the QEII Health Sciences Centre, most of which require cardiopulmonary bypass. The team also provides anesthesia care for patients with cardiac-related problems who require a variety of orthopaedic and general surgeries, routinely performs transesophageal echocardiograms (TEEs) and provides primary care to patients in the QEII Health Sciences Centre critical care units.

In 2014-2015, the cardiac anesthesia team provided care for 850+ cases requiring cardiopulmonary bypass (CPB), 882 perioperative TEEs, and 44 TAVI (trans arterial valve implantation) cases. There were 689 pacemakers / devices implanted during the calendar year. The number of OR cases has been stable over the last few years with a slight decline in CPB cases due to percutaneous coronary intervention. However, the group significantly increased its presence in the Cath / EP lab.



Use of a ROTEM device was introduced at the VG and HI sites and **Drs. Myron Kwapisz** and **Claudio DiQuinzio** developed an algorithm for its use. This point of care device allows for rapid assessment and diagnosis of patients who are bleeding. Funding was secured for new monitors in the cardiac ORs that are compatible with the new monitoring systems in the CVICU, CCU, MSNICU, and new specialized transport monitors. This will improve patient safety as the monitoring module can be moved seamlessly from the OR, to the ICUs and vice versa.

Education is provided for medical students, residents, fellows and staff anesthesiologists. The cardiac team also participates in the internationally recognized Blood & Beyond workshop and the annual Dalhousie Residents Blood Management Workshop which is attended by all first year residents in anesthesia, surgery, urology, emergency medicine, obstetrics & gynecology, and several medicine disciplines.

The cardiac anesthesia team is very active in both single centre and multicentre research projects; more than half of the team members have at least one research project ongoing and six articles were published in 2014-2015.

Cardiac anesthesia research

Kwapisz M, Kent B, Mingo H, Poranek A. (2013 - present) The use of Fibrinogen Concentrate in High-Risk Cardiac Surgery: A Prospective Double Blind Randomized Controlled Study [Grant] CSL Behring. Aug 2013. (\$453,674)

Schmidt M, Stoyek M, Wilfart F, Croll R, Smith F (2013 - 2014). A zebrafish model to investigate the cardiac effects of noble gases [Clinical]

Chronic Pain

Dr. A. John Clark, medical director,
Pain Management Services

Chronic pain care is provided at the QEII Health Sciences Centre, the Dartmouth General Hospital and the Hants Community Hospital. In 2014-2015, chronic pain services received 681 new referrals, saw 816 new patients and supported 7,494 clinic visits, an increase of 547 visits over 2013/2014.

Despite this increase and the fact that the chronic pain team saw 135 more new patients than referrals it received, the wait list is growing. The Pain Management Unit at the QEII Health Sciences Centre will continue to address this issue in the coming year through efforts to decrease the no show rate and improve efficiency. It is expected that additional anesthesiologist resources will also positively impact the length of time patients wait for appropriate assessment and care. Anes-

thesia, Pain Management & Perioperative Medicine recruited **Dr. Karim Mukhida** in 2014-2015. Dr. Mukhida is a clinician scientist with subspecialty training in neurosurgery whose expertise is an excellent complement to the pain team.

Many chronic pain team members are national and international leaders in their field, and research continues to be a major focus. The team delivered 42 presentations and published in nine journals in 2014-2015, and has four pending publications and 20 projects underway. Also, team members supervised the research of two fellows, 18 residents, and 12 medical students.

The chronic pain team delivered six continuing professional development events this year for faculty members and primary care providers. They included: Atlantic Interprofessional Pain Conference, Dalhousie Pain Research Day, Valley Pain Day, Dalhousie Pain Group Colloquium, Cornerbrook Pain Conference and the Atlantic Mentorship Annual Conference.

The chronic pain clinical, research and education efforts were recognized in 2014 through receipt of an Anesthesia, Pain Management & Perioperative Medicine award of excellence to the pain management unit at the QEII Health Sciences Centre, and two faculty, **Dr. John Fraser** and **Dr. Mary Lynch**, were more recently honoured with Gold Headed Cane Awards.

Dr. Fraser is the 2015 recipient of the Gold Headed Cane Award for Excellence in Medical Practice from the College of Physicians and Surgeons of Nova Scotia. The award honours an outstanding community-based physician who exemplifies professionalism in service to their patients, profession and community.

Dr. Lynch is this year's recipient of the Dr. G.W. Archibald Gold Headed Cane Award in Medical Humanities awarded by the Dalhousie Faculty of Medicine. The award is presented to a physician faculty member who combines scholarly attainments, humanism and professional skills; and who serves as an effective role model for students in the medical humanities.

Chronic Pain Research

Clark AJ, Mumford K, George RB, Davis D, Milne D, Langille L, Hammond P, Yazbeck S, Sernyk S (2014 - 2015). The highly opioid tolerant patient – will a new paradigm of care improve outcomes? [Grant] – Translating Research into Care (TRIC) - \$3,000.

George RB, Chambers C, MacDougall J, Clark AJ, Harman K (2014). 2014 Pain Research Day – Bringing People Together Grant [Grant] – IWK – \$1,000.

Kelly M, Lynch ME (2014 - 2015). Novel formulation for ocular pain [Industry Contract] – InNOVAcorp (Nova Scotia) - \$50,000.

Lavigne GJ, Lynch ME, Boulanger A, Cooper L, Laliberte J (2014 - 2015). Prevention of opioid analgesic misuse in Canada: pragmatic and innovative strategies? [Grant] – Université de Montreal – \$50,000.

Lynch ME (2014 - 2015). Testing toxicity and photosensitivity of a novel topical agent for treatment of neuropathic pain [Grant] – Dalhousie – \$5,150.

Lynch ME (2014 - 2016). Randomized, double blind, placebo controlled trial with open label extension of Delvra joint health cream in the treatment of pain caused by osteoarthritis of the knee [Industry Contract] – LivCorp, Inc – \$300,000.

McDougall JJ (2014). Preclinical Assessment of Antibe Formulation in the Control of Osteoarthritic Pain [Industry Contract] – Antibe Therapeutics Inc. – \$10,610.

McDougall JJ, Marshall J, Bezuhly M, Legare JF, Lin TJ (2014 - 2019). Restitution Enhancement in Arthritis and Chronic Heart Disease [Grant] – CIHR – \$2,337,154.

Sproule B, Lynch K, Robeson P, Spitzig D, Ulan S, MacDougall P (2014 - 2015). Developing a Canadian Research Network to Evaluate Prescription Monitoring Programs in Preventing/Reducing the Non-Medical Use of Pharmaceutical Drugs [Grant] – CIHR – \$50,000.

Clark AJ, George RB, Chambers C, McDougall J (2014 - 2015). DalPAIN: A multidisciplinary approach to clinical care and research [Clinical]

Clark AJ, Lynch ME (2012 - 2014). National Neuropathic Pain Database - Extension [Grant] – CPS NeP SIG – \$6,000.

Lynch ME, Clark AJ, Flowerdew G, Moulin D, Toth C. (2010 - present.) A double blind randomized controlled trial examining the efficacy of methadone in treatment of chronic neuropathic pain [Grant] CIHR NSHRF Dal. (\$502,633)

MacDougall P, Brousseau P, Milne, A. (2013 - present.) The Relationship Between Hip and Knee Replacement Surgery and Opioid Prescribing: A COAP Dataset Review [Grant] CDHA. (\$14,600)

McDougall J (2010 - 2014). Host-parasite interactions alter joint inflammation in mouse model systems [Grant] – Canadian Institutes of Health Research (CIHR) – \$424,248.

McDougall J (2011 - 2014). Therapeutic potential of lysophosphatidic acid antagonism to control OA pain [Industry Contract] - Canadian Arthritis Network/Eli Lilly & Company Industry Research Programme Grant – \$200,000.

McDougall J (2011 - 2016). The relationship between proteases, protease activated receptors and cytokines in mediating osteoarthritis pain [Grant] – Canadian Institutes of Health Research (CIHR) – \$601,280.

McDougall J (2012 - 2015). Effect of cannabinoids and opioids in the control of arthritis pain [Grant] – Nova Scotia Health Research Foundation (NSHRF) – \$149,790.

Foss M, Lynch ME (2013 - 2017). Patient-Controlled Analgesia versus Continuous Opioid Infusion for the Treatment of Pain Caused by Oral Mucositis Following Myeloablative Chemotherapy for Hematopoietic Stem Cell Transplantation: A Retrospective Review [Clinical]

Pike M, Lynch ME (2013 - 2017). Observational Trial of Qigong as a Complementary Therapy in a Chronic Pain Clinic [Clinical]

Vargo M, Beauprie I, Chorney J (2013 - 2014). Evaluation of lumbar facet joint steroid injection in clinical practice, a retrospective cohort analysis [Clinical]

GLOBAL HEALTH

Dr. Patricia Livingston, medical director

Anesthesia, Pain Management & Perioperative Medicine continues to build on its commitment to global engagement and outreach this year. Three faculty anesthesiologists, **Drs. Patty Livingston, Tim Mullen and Jennifer Szerb**, travelled to Rwanda to provide anesthesia education. These efforts were part of the Canadian Anesthesiologists' Society International Education Foundation's (CAS IEF) mission in Rwanda.

Two third-year residents, **Drs. Amélie Pelland and Mike Vargo**, taught in Rwanda. Dr. Pelland also completed a two-week elective in Armenia, under the direction of **Dr. Ron George**, as part of a Women's & Obstetric Anesthesia rotation.

Drs. Egide Buregeya and Françoise Nizeyimana, third-year anesthesia residents at the University of Rwanda, completed a four-month educational elective in the Department. The two participated in the Dalhousie anesthesia clinical, academic and research curriculums. To date, Anesthesia, Pain Management & Perioperative Medicine has hosted eight Rwandan anesthesia residents as part of the CAS IEF program.

This year marked the first that the SAFE (**S**afer **A**nesthesia **F**rom **E**ducation) Obstetric Anesthesia Course was led by Rwandan faculty members. The course is a three-day refresher developed by the Ugandan Society of Anaesthesia, the Association of Anaesthetists of Great Britain and Ireland (AAGBI), and the World Federation of Societies of Anesthe-

siologists (WFSA) to improve the skills of anesthesia providers for management of obstetric patients in low-resource countries. The course was first offered in Rwanda in January 2013 by a Dalhousie team led by **Dr. Patty Livingston**, medical director of global health. The intent, upon establishment of the course in Rwanda, was to work with the University of Rwanda to support the sustainability of the course.

While in Rwanda, Dr. Livingston delivered the Teaching and Learning Course, which she and **Dr. Ruth Covert**, developed. The course was designed to help anesthesia staff and residents acquire skills for effective teaching and ongoing learning. The course, which includes four half-day tutorials, was first delivered in the Dalhousie Anesthesia, Pain Management & Perioperative Medicine residency program in June 2014. Topics include: learning theory, small group teaching, clinical teaching, presentations, teaching technical skills, simulation, feedback and mentorship.

GLOBAL HEALTH RESEARCH

Lehmann C (2014 - 2015). Innovative Non-Invasive Point-of-Care Monitoring of Nutritional Status and Critical Health Conditions in Low-Resource Environments [Grant] – Grand Challenges Canada – Rising Stars in Global Health – \$113,000.

NEUROANESTHESIA

Dr. Ian Beauprie, subspecialty chief

The neuroanesthesia team of core and non-core members provides high-level support, including care, education and research, of neurosurgical and neuroradiology services at the Halifax Infirmary site, QEII Health Sciences Centre.

This year, **Dr. Karim Mukhida** joined the neuroanesthesia group. With a PhD in neuroscience and more than four years of neurosurgery residency, Dr. Mukhida is an excellent addition to the neuroanesthesia service. A recent staffing review concluded that the neuroanesthesia staffing model and complement are now sufficient to support patient volumes.

The neuroanesthesia team developed and delivered a revised curriculum to anesthesia residents in 2014. **Dr. Genevieve McKinnon** will build on this as she leads work on development of the neuroanesthesia module of the Department of Anesthesia, Pain Management & Perioperative Medicine's competency based medical education curriculum. The neuroanesthesia education activities also included a nursing inservice, hosted by **Dr. André Bernard**, a journal club hosted by **Dr. Ian Beauprie**, and a presentation on spinal cord preservation and timing of surgery delivered by **Dr. Kit Turney** (PGY-3).

There are a number of neuroanesthesia and related research studies under way and interest in this area continues to grow.

NEUROANESTHESIA RESEARCH

Schmidt M, Roach D, Wilfart F (2014 - 2015). Neuro-protection using noble gases [Grant] – Brain Repair Centre – Knowledge Translation (BRC-KT) grant, Faculty of Medicine, Dalhousie University – \$30,000.

Schmidt M, Croll R, Wilfart F (2013 - 2014). Zebrafish learning as a model for investigating learning disabilities after exposure to toxic byproducts of anesthesia [Clinical]

Schmidt M, Croll R, Wilfart F (2013 - 2014). Zebrafish learning as a model for investigating learning disabilities after repeated anesthesia [Clinical]

Schmidt M, Nickerson P, Wilfart F (2013 - 2014). The mouse as model for the investigation of anaesthetics and its by-products on apoptosis and necrosis of the retina [Clinical]

Schmidt M, Stoyek M, Croll R, Wilfart F, Smith F (2013 - 2014). The isolated zebrafish heart as a model to investigate the basic mechanisms of cardiac side effects of modern anesthetics [Clinical]

Schmidt M, Wilfart F, Nickerson P, Christie S (2013 - 2014). Spinal injury in the pig as model for investigating anesthesia strategies and neuro-protective substances [Clinical]

Lehmann C (2012 - 2015). Modulation of the immune response after stroke by manipulation of cannabinoid receptor 2 signaling [Grant] – Clinician Scientist Program (CS) – \$19,120.

Lehmann C, Zhou J. (2013 - present.) Modulation of cannabinoid receptor 2 signaling – a new therapeutic approach in CNS injury-induced immune deficiency syndrome (CIDS) [Grant] CDHA Research Fund. (\$14,881)

Christian Lehmann, Juan Zhou, James Pius (2013 - 2014). Modulation of the immune response after stroke [Clinical]

PEDIATRIC ANESTHESIA

Dr. Scott Drysdale, subspecialty chief

Pediatric Anesthesia provides care to Maritime children and youth, education for medical, nursing and allied health students, and residents, and research focused mainly on the prevention, treatment and management of pediatric pain.

It also offers a pediatric anesthesia fellowship. The team includes 15 full- and part-time anesthesiologists, a psychologist, four anesthesia assistants, two clinical nurse specialists, a clinical fellow and an administrative assistant.

Pediatric Anesthesia acts as a resource and referral centre for all pediatric specialty anesthesia in the Maritime provinces and administers a range of programs and services to respond to the varied needs of children, youth and their families:

- cardiac program
- pediatric pain service
- pediatric pain network
- preoperative assessments, telephone consults and chart reviews
- trauma team
- malignant hyperthermia consultation service and data base
- difficult airway consultation service and register
- cardiac arrest response team
- EHS Lifeflight medical control

Because of a unique anesthesia experience with concentrated exposure to pediatric airway management and vascular access techniques, Pediatric Anesthesia attracts interest from a wide variety of learners. The education offerings also include highly regarded simulation sessions for anesthesia and surgery residents. In 2014-2015, **Dr. Arnim Vlaten** offered 20 simulation sessions, each three-hours in duration. **Dr. Sally Bird** serves as education coordinator, responsible for the educational needs and evaluation of all learners. She and **Dr. Stuart Wright** are leading the revision of the pediatric anesthesia rotation objectives to reflect a competency based medical education model.

Pediatric Pain Service

Members of the pediatric pain service work with children from birth to adolescence at the IWK Health Centre to help ease their pain. As part of a larger interdisciplinary team, members provide acute and chronic pain consultation and treatment/management options to children and youth, and their families.

In 2014-2015, the team provided 104 new patient consultations for acute pain and 83 new patient consultations for chronic pain. Subsequent visits totaled 418 and 394 respectively.

Pediatric Pain Research

Chambers C, Campbell-Yeo M, Barwick M, Chorney J, Finley A, Latimer M, McGrath P, Wittman H. (2014 - 2015). *It Doesn't Have to Hurt: Extending our Reach to Help Parents of Children* [Grant] – NSHRF – \$10,000.

Chorney J., d'Entremont C., Allen S., Smith I., Bird S., Latimer M., Martin C., Wright S. (2014 - 2015). *Identifying ways to improve the perioperative experience for children with Autism Spectrum Disorders* [Grant] – IWK – \$3,000.

Chorney J, Hong P, Curran J, McGrath P, Ritchie K (2014 - 2017). *Supporting Shared decisions in paediatric otolaryngology: Needs assessment and decision aid development* [Grant] – CIHR – \$159,816.

Curran J, Klassen T, Chorney J, Colwell J, Fitzpatrick E, Jabbour M, MacPhee S, Murphy A, Petrie D (2014 - 2017). *Understanding discharge communication in the context of paediatric emergency care in regional and community emergency departments in Nova Scotia* [Grant] – NSHRF – \$146,000.

Latimer MA, Rudderham SE, Hutt-McLeod D, Finley GA, Harman K (2014). *Creating a culturally relevant mechanism for Aboriginal children and youth to convey their pain to clinicians* [Grant] – Atlantic Aboriginal Health Research Program – \$15,000.

Latimer MA, Rudderham S, Finley GA, Harman K, Hutt-McLeod D, MacKinnon A, Paul K, Perley-Dutcher L (2014 - 2017). *Seeing Aboriginal children's pain – Weaving stories, art, and statistics to create ways to reduce the hurt and improve child well-being* [Grant – Pending] – CIHR – \$439,183.

Stinson J, Cafazzo J, Campbell F, Chorney J, Clark J, Dick B, Forgeron P, Gordon A, Jibb L, Lalloo C, McGillion M, Montgomery L, Palermo T, Rashid S, Ruskin D, Simmonds M, Tupper S, Victor C, Ware M. (2014 - 2017). *iCanCope: an Integrated Smartphone and Web Self-Management Program for Adolescents and Young Adults with Chronic Pain* [Grant] – CIHR – \$383,884.

Birnie KA, Chambers CT, McGrath PJ, Fernandez CV, Chorney J. (2013 - present.) *Catastrophizing and parenting during parent-child interactions about pain and conflict.* [Grant] Dalhousie University Department of Psychiatry Research Fund. (\$10,000)

Chorney J (2011 - 2016). *Pain in Children at Home Following Major Surgery: New Investigator Award* [Grant] – CIHR – \$300,000.

Chorney J (2013 - 2014). *Augmented reality MRI preparation game for kids* [Industry Contract] – Springboard Atlantic Innovation Mobilization Program – \$13,347.

Chorney J, Andreou Pantelis, El-Hawary Ron, Finley GA, Howard Jason, McGrath Patrick JA, Valois Teresa (2010 - 2015). *Pain at Home in Children following Major Surgery:*

Physical, Psychological, and Economic Consequences [Grant] – Canadian Institutes of Health Research – \$724,991.

Chorney J, Bird S, Bailey K (2013 - 2014). Preparing Parents to be Present at their Children's Anesthesia Induction [Grant] - IWK Health Centre – \$14,992.

Chorney J, Curren J, Hong P, McGrath P, Ritchie K (2013 - 2016). Understanding Shared Decisions in Pediatric Surgery [Grant] – NSHRF – \$147,246.

Curran J, Chorney J, et al. (2013 - present.) Closing the loop in pediatric emergency care: A narrative review of best practice for providing discharge instructions to caregivers in the emergency department. [Grant] Canadian Institutes of Health Research (CIHR). (\$99,339)

Curran J, Chorney J, MacPhee S, Murphy A, Plint A, McGrath P. (2013 - present.) Identifying Essential Content for Discharge Instructions for Caregivers in Pediatric Emergency Care: A Delphi Study [Grant] (\$14,516)

Curran J, Chorney J. (2013 - 2014). Closing the loop in pediatric emergency care: A narrative review of best practice for providing discharge instructions to caregivers in the emergency department [Grant] – Canadian Institutes of Health Research (CIHR) – \$99,339.

Curran J, Grimshaw J, McGrath P, Chorney J. (2013 - 2016). Understanding Discharge Instructions for Children and Caregivers in the Transition from Pediatric Emergency Care [Grant] – CIHR-NSHRF Regional Partnership Program Operating Grant – \$435,804.

Forgeron P, Chorney J, Dick B, Carlson T. (2013 - present.) To befriend or not: Naturally developing friendships amongst a group of adolescents with chronic pain. [Grant] University of Ottawa, Faculty of Health Sciences Initiative Grant. (\$4,085)

Hong P, Chorney J. Development of a Team to Study Decision Aids in Pediatric Otolaryngology [Grant] REDI Awards. Jan 2013. (\$9,952)

Kain ZN, Chorney J, Blount RL (2011 - 2016). Improving pain and anxiety in children undergoing surgery: Changing Healthcare Provider Behavior [Grant] – National Institutes of Health – \$2,730,034.

Latimer M, Rudderham S, Finley GA, Inglis S, Hutt-McLeod D (2011 - 2014). Understanding pediatric pain in aboriginal communities: Children's project [Grant] – Nova Scotia Health Research Foundation – \$150,000.

Latimer MA, Finley GA, Inglis S, Rudderham SE, Young S (2012 - 2014). Understanding pain in Aboriginal children:

moving forward in Central and Eastern Canada [Grant] – CIHR – \$22,369.

McGrath PJ, Craig KD, Finley GA, Grunau RE, Johnston C, Stevens BJ, von Baeyer CL, Chorney J (2009 - 2015). Pain in child health, an innovative, international, trans-disciplinary research training consortium – Phase II [Grant] – CIHR - \$1,950,000.

Maguire E, Chorney J (2013 - 2017). How does perceived parental involvement and actual involvement in decisions concerning ENT surgery for their child contribute to parental decisional conflict? [Clinical]

Schep L, Chorney J (2013 - 2017). Child and parent involvement in decision-making for otolaryngology procedures [Clinical]

Regional Anesthesia

Dr. Kwesi Kwofie, subspecialty chief

The regional anesthesia service welcomed a new subspecialty chief in 2015, **Dr. Kwesi Kwofie**. Dr. Kwofie graduated from the University of Ottawa with his medical degree, completed an anesthesia residency at Dalhousie and a regional fellowship at St. Luke's-Roosevelt Hospital in New York, NY. Upon completion of the fellowship, he joined the department's regional block specialty group.

The regional anesthesia service also expanded its PNB1 and PNB2 members in 2014-2015, adding one PNB1 member and increasing its PNB2 members to include eight anesthesiologists. Expanding the PNB2 membership has enabled more Department members to learn and maintain skills in ultrasound-guided procedures. The group also expanded its service to cancer patients with refractory pain and is enhancing its research capacity.

In 2014-2015, the regional anesthesia service produced the first edition of the Dalhousie Guidelines for Management of Antithrombotic Medications and Neuralaxial Anesthesia. Clinical fellow, **Dr. Chris Prabhakar**, led this work. The team also established a protocol with Orthopedic Surgery for patients who have joint manipulations under anesthesia in the block room.

Dr. Jennifer Szerb has provided visionary and tenacious leadership to the regional anesthesia service since its inception. Dr. Szerb is responsible for establishing the regional block service at the Halifax Infirmary site of the QEII Health Sciences Centre, for its exemplary patient outcomes, establishing it as a standard of care, and for offering a regional anesthesia and acute pain fellowship and regional anesthesia observership. She was also instrumental in ensuring educa-



Photo courtesy of Nova Scotia Health Authority Research Services

tion and research would be critical parts of the regional anesthesia service. Through her commitment to the highest quality patient care, Dr. Szerb has dramatically improved care of thousands of patients, and for this, the Department of Anesthesia, Pain Management & Perioperative Medicine would like to offer its utmost thanks and appreciation.

Regional Anesthesia Research

Kwofie K, Philip G (2014 - 2015). *A retrospective study of primary total knee arthroplasty and multimodal analgesic methods on postoperative opioid requirements and outcome* [Clinical]

Szerb J, M. Kwesi Kwofie. (2013 - present.) *Histological Confirmation of Ultrasound-Guided Needle Placement in Regional Anesthesia Intraplexus Versus Periplexus Approach* [Grant] CDHA. (\$15,000)

Preadmission Clinics

Dr. André Bernard, medical director

Anesthesia, Pain Management & Perioperative Medicine operates two preadmission clinics at the QEII Health Sciences Centre for the purpose of evaluating, risk stratifying and optimizing patients scheduled for same day admission. The team includes nurses, pharmacy technologists (pilot project noted below), anesthesiologists and clerical staff.

While the function of the clinics is to assess patients scheduled for admission following surgery, the clinics also see patients who are high risk or medically complex and require

ambulatory surgery. The average patient volume is 16 patients per day.

The preadmission clinics regularly receive anesthesia resident learners and occasionally medical and anesthesia assistant students whose roles are to learn how to effectively assess, risk stratify, and counsel patients preoperatively and better understand perioperative care. Beyond this academic function, the clinic also relates formally to the perioperative research work of the Department, with its medical director sitting on the leadership team of the Perioperative Care Research Collaborative.

In 2014-2015, the preadmission clinics collaborated with pharmacy, nursing and hospital leadership to add pharmacy technologists to its teams to better support medication reconciliation. A formal evaluation of this pilot is pending, however, there is widespread agreement that the pharmacy technologists have improved the quality of 'best possible medication histories.' Also, following a grand rounds presentation from the Division of Geriatric Medicine, the preadmission clinics collaborated with the Palliative and Therapeutic Harmonization (PATH) program to heighten the PATH program's role in assessing patients in the preadmission clinic and through the inpatient consultation process. Increasing collaboration and consultation with Geriatric Medicine has emerged as a result of this work.

Thoracic Anesthesia

Dr. George Kanellakos, subspecialty chief

Thoracic cases at the QEII Health Sciences Centre continue to provide a high volume of patients who require complex

anesthesia care. There was a 10.5% increase in cases in 2014-2015, with the total reaching 914 versus 827 in 2013-2014.

The thoracic anesthesia team includes five core and eight non-core members, all of whom are highly active within the Department of Anesthesia, Pain Management & Perioperative Medicine, with nearly every member either holding a leadership position or doing multiple other duties within the Department.

Transplantation Anesthesia

Dr. Kirk MacQuarrie, subspecialty chief

The transplantation anesthesia team delivered anesthesia support for 18 liver transplantations in 2014-2015 and provided 57 anesthetic consultations. Transplantation Anesthesia employs two dedicated anesthesiologists for each liver transplant case, which is consistent with the practice in most academic centres across North America. With the flexibility and cooperation of the Department of Anesthesia, Pain Management & Perioperative Medicine and the anesthesia coordinators, this practice works well and rarely necessitates disruption of scheduled anesthesia support to other operating rooms.

Liver transplant cases present numerous challenges to the anesthetic team, foremost of which is management of severe coagulopathy and severe hemodynamic instability. Advances have been made in both key areas. Fibrinogen concentrate (Riastap) is now consistently available and has essentially replaced the use of cryoprecipitate and produced noticeable improvements in intraoperative coagulation. A fluid warmer was recently installed which allows for storage of sterile water for mixing the Fibrinogen concentrate. Also, the TEG has been replaced with a ROTEM machine for real time assessment of coagulation status. The ROTEM is a significant improvement in terms of operator interface and quality of information produced.

Women's & Obstetric Anesthesia

Dr. Robert Nunn, subspecialty chief

Women's & Obstetric Anesthesia provides obstetric and non-obstetric anesthetic services at the IWK Health Centre primarily and the QEII Health Sciences Centre, including maternal, breast health and non-oncology gynecology anesthesia care, an acute pain service and consultation service. The team also provides undergraduate, postgraduate and continuing medical education, offers a clinical fellowship, and has an active research program.

The women's & obstetric anesthesia team provides labour analgesia/anesthesia for an average of 4,800 annual deliveries

at the IWK birth unit. In 2014-2015, the total number of live births was 4,702, including 3,513 vaginal deliveries and 1,189 cesarean deliveries.

Women's & Obstetric Anesthesia restructured its postgraduate education curriculum in 2014-2015 to encompass all aspects of women's anesthetic care. The curriculum includes a one-month introductory obstetric anesthesia rotation for PGY-1 residents and three-month rotations focused on various aspects of anesthesia care for obstetric, gynecology and breast health, for PGY-3 and PGY-4 residents. The goal of the curriculum change is to broaden knowledge of women's anesthesia considerations among graduate anesthesia residents.

Research efforts are led by **Drs. Ron George** and **Dolores McKeen**, and in 2014-2015, Women's & Obstetric Anesthesia added a full-time research coordinator. Recruitment of an academic staff clinician/researcher is under way.

Women's & Obstetric Anesthesia Research

Pelland A, George RB (2014 - 2015). Sidestream dark field imaging of the sublingual microcirculation to assess microvascular dysfunction in the preeclamptic patient [Grant] – Department of Anesthesia, Pain Management & Perioperative Medicine – \$5,000.

Rosen N, George RB, Chorney J, Snelgrove-Clarke E, Pirece M, Andreou P, Binik Y (2014 - 2015). A prospective study of the trajectory and biopsychosocial determinants of postpartum genitopelvic pain [Grant] – NSHRF – \$145,000.

Rosen N, George RB, Chorney J, Snelgrove-Clarke E, Pirece M, Andreou P, Binik Y (2014 - 2017). A Prospective Study of the Trajectory and Biopsychosocial Determinants of Postpartum Genito-pelvic Pain [Grant] – CIHR-NSHRF RPP – \$227,364.

George RB. (2012 - present.) Enhancing analgesia and anesthesia for women and high-risk pregnancies. [Grant] Canadian Anesthesiologists' Society. (\$120,000)

George RB, Abdo I, McKeen DM, Coolen J, Lehmann C (2013 - 2014). Maternal Microcirculation & SDF Imaging: A novel assessment of themicrocirculation during cesarean delivery with spinal anesthesia and the impact of phenylephrine prophylaxis in preventing spinal anesthesia-induced hypotension [Grant] – IWK Health Centre Category B Grant – \$15,000.

Scott J, George RB, Bird S (2013 - 2017). A systematic review in Pediatric Anesthesia. [Database]

Excellence in Patient Care, Education & Research

Anesthesia, Pain Management & Perioperative Medicine Awards of Excellence

The Awards of Excellence Program recognizes and celebrates the accomplishments of individuals and teams internal and external to the Department of Anesthesia, Pain Management & Perioperative Medicine.

The 2015 winners are:

Dr. Narendra Vakharia, Medical Director, Education & Simulation, Anesthesia, Pain Management & Perioperative Medicine – Winner of the Individual Award of Excellence (Internal)

Ms. Janet Gallant, Program Manager, Research Education, Capital Health Research Services – Winner of the Individual Award of Excellence (External)

Curriculum Renewal Committee, co-chaired by **Dr. Janice Chisholm**, Director, Postgraduate Education, and **Dr. Patty Livingston**, Medical Director, Global Health – Winner of the Team Award of Excellence (Internal)

The presentation of the Awards of Excellence was held April 8, 2015, with **Dr. Tom Marrie**, Dean of Medicine, as keynote speaker. The event represented the department's pursuit of excellence and desire to recognize those who demonstrate professional excellence. Congratulations to the award winners and to the Applause Committee, chaired by **Dr. Dolores McKeen**, for leading the successful program.

Awards:

Individual (internal) – Presented to an individual in the Department who has demonstrated a commitment to the department's vision and mission through concrete actions that are innovative, collaborative, forward-thinking and designed to position the Department as a centre of anesthesia excellence.

Team (internal) – Presented to a team in the Department who best exemplifies achievements as a result of an interprofessional team effort producing an outcome, product or service that is widely regarded as innovative, unique and superior as well as of benefit to the Department.

Individual (external) – Presented to an individual external to the Department who is making an outstanding contribution to the department's vision and mission via a joint initiative, an innovative clinical procedure, a collaborative research project, or an interdisciplinary educational initiative.

A bit more about the Awards of Excellence winners...

Dr. Narendra Vakharia – Dr. Vakharia's leadership in medical education has been instrumental to improving residency training, simulation, continuing professional development and fellowships within the Department of Anesthesia, Pain Management & Perioperative Medicine. *"Dr. Vakharia's vision for achieving the best simulation and medical education program in the country, and his mission to deliver simulation to various disciplines and backgrounds, are exemplified*



through his various leadership and personal mentorship roles, which makes him the perfect candidate for this award."

Ms. Janet Gallant – Ms. Gallant provides education to researchers and research teams in the Central Zone of the Nova Scotia Health Authority. In so doing for **Dr. Michael Schmidt** and his collaborators, Ms. Gallant enabled the successful ethics submission and subsequent trial of a medical device (CO2 filter for anesthesia circuits). The unique submission fulfilled ethics guidelines and the ISO 14155 Standards: Clinical investigations of medical devices for human subjects. Ms. Gallant went well beyond her role, *educating herself and the team on the requirements. "...having access to personnel as committed and collaborative as Ms. Gallant is absolutely fundamental to the department's mission to foster a strong culture of successful research."*

Curriculum Renewal Committee – The curriculum renewal committee and its efforts to revitalize the Department of Anesthesia, Pain Management & Perioperative Medicine's postgraduate curriculum have attracted accolades and much attention from the Dalhousie community, the Royal College of Physicians and Surgeons of Canada, and academic programs across the country. *"Ultimately, this committee is multi-dimensional, with one true vision, and has been instrumental in the success of the (curriculum renewal) project."* Committee members: Janice Chisholm (co-chair), Patty Livingston (co-chair), **Cathy Delbridge, David Quinn, Dolores McKeen, Genevieve McKinnon, Cyndi Lushman, Mathew Kiberd, Robyn Doucet, Rochelle MacLellan, Ruth Covert, Shannon Bradley, Stuart Wright, Tristan Dunbar-ton, Yugi Gu, Narendra Vakharia, and Megan Chipp.**

Dr. Fiona Roper Inaugural Winner of the Dr. Tom Marrie Leadership Award

The Department of Anesthesia, Pain Management & Perioperative Medicine introduced the Dr. Tom Marrie Leadership Award in 2015. The award honours **Dr. Marrie**, Dean, Dalhousie Faculty of Medicine, 2009 – 2015, and is awarded to the individual who best exemplifies Dr. Marrie's leadership qualities of integrity, patience, humility, compassion and vision.

Dr. Fiona Roper, staff anesthesiologist and assistant professor of anesthesia, pain management and perioperative medicine, is the inaugural winner of the prestigious award. Dr. Roper is a veteran member of the Department of Anesthesia, Pain Management & Perioperative Medicine who has served on committees and led initiatives ranging from resident selection and faculty recruitment to the Halifax Infirmary Clinical Thrust Committee and ASPENS. She is a favourite educator and respected mentor, having won the department's undergraduate teacher of the year award and resident advocate award, and is recognized for her devout commitment to patient care and safety.

Dr. Peter MacDougall Appointed Director of Interprofessional Education, Dalhousie Faculty of Medicine

Dr. Peter MacDougall was appointed director of interprofessional education (IPE) in the Dalhousie Faculty of Medicine on March 2, 2015. Dr. MacDougall is a professor of anesthesia and served as medical director of continuing professional development in Anesthesia, Pain Management & Perioperative Medicine for six years, 2008 - 2014.

As director of IPE, Dr. MacDougall's role spans the continuum of medical education at Dalhousie University, and includes designing, implementing and promoting IPE curriculum and activities, as well as providing expertise on collaborative clinical work that is internal and external to the medical school. Dr. MacDougall is a medical graduate and past family medicine resident of McMaster University. He continued his postgraduate education at the University of Toronto-focusing on family practice anesthesia-before completing an anesthesia residency at Dalhousie Medical School. In 2006, he finished a clinical fellowship in thoracic anesthesia and chronic pain.

Dr. Janice Chisholm Receives CAME Certificate of Merit Award

Dr. Janice Chisholm received a 2015 Canadian Association for Medical Education (CAME) Certificate of Merit Award, which recognizes faculty committed to medical education in Canadian medical schools. Dr. Chisholm is medical director of postgraduate education in Anesthesia, Pain Management & Perioperative Medicine and co-leads the department's curriculum renewal initiative with **Dr. Patty Livingston**, medical director, Global Health. The curriculum renewal initiative has received accolades from academic centres across Canada and the Royal College of Physicians and Surgeons of Canada.

Dr. Ron George joins Canadian Journal of Anesthesia Editorial Board

Dr. Ron George was appointed to the editorial board for the Canadian Journal of Anesthesia at the Canadian Anesthesiologists Society annual meeting in June 2014. Dr. George is associate medical director of research in Anesthesia, Pain Management & Perioperative Medicine and director of women's & obstetric anesthesia research. He will serve a three-year term.

Carl Stevens Named Collaborator of the Year

Carl Stevens, administrator, Anesthesia, Pain Management & Perioperative Medicine, received the Dalhousie Faculty of

Medicine Professional/Managerial Collaborator of the Year award in 2014. Mr. Stevens was recognized for his work on the 2013 Association of Canadian Clinical Academic Department Administrators annual conference in Halifax. The collaborator of the year award recognizes outstanding Dalhousie Professional/Managerial Group members who have made important, collaborative contributions to the success of the Faculty of Medicine. Mr. Stevens was presented with the award in September of 2014.

Dr. John Fraser and Dr. Mary Lynch Receive Gold Headed Cane Awards

Dr. John Fraser is the 2015 recipient of the Gold Headed Cane Award for Excellence in Medical Practice from the College of Physicians and Surgeons of Nova Scotia. The award honours an outstanding community-based physician who exemplifies professionalism in service to their patients, profession and community.

Dr. Mary Lynch is this year's recipient of the Dr. G.W. Archibald Gold Headed Cane Award in Medical Humanities awarded by the Dalhousie Faculty of Medicine. The award is presented to a physician faculty member who combines scholarly attainments, humanism and professional skills; and who serves as an effective role model for students in the medical humanities.

Ms. Kari Soubliere Receives Dale Morrison Award

Ms. Kari Soubliere, anesthesia technologist, is the 2015 recipient of the Dale Morrison Memorial Award. Ms. Soubliere is part of the new wave of anesthesia technologists who are significantly contributing to the anesthesia technologist team's long history of excellent anesthesia support and care of patients. Nominated by anesthesia staff members and chosen unanimously by the selection team of anesthesia staff, Ms. Soubliere brings enthusiasm, dedication and a love of learning to her profession and the Department of Anesthesia, Pain Management & Perioperative Medicine. *"Kari is kind and caring to patients, works well with teammates and is at her best in the operating room in an emergency situation."*

The Dale Morrison Memorial Award was established in 2011 by the Department and is awarded annually to a Department member who best exemplifies Dale's enthusiasm, dedication and professionalism.

Teaching awards

Faculty members are honoured with Department of Anesthesia, Pain Management & Perioperative Medicine teaching awards annually.

Teacher of the Year – Dr. Orlando Hung, medical director, research, professor of anesthesia

Undergraduate Teacher of the Year – Dr. André Bernard, medical director, Preadmission Clinics, assistant professor of anesthesia

New Brunswick Teacher of the Year – Dr. David Quinn, anesthesiologist, Saint John Regional Hospital

Resident Teacher of the Year – Dr. Tristan Dumbarton, PGY-3

Resident Advocate – Dr. Shannon Bradley, assistant professor of anesthesia

Resident Mentor – Dr. Prasad Bolledulla, associate professor of anesthesia

Robert Bortolussi Research Mentorship Award

Dr. Dolores McKeen, professor of anesthesia and associate director, postgraduate education, received the Robert Bortolussi Research Mentorship Award from the IWK Health Centre on Wednesday, April 29, 2015 as part of the health centre's STARS Week.

In more than 30 years at the IWK, **Bob Bortolussi** mentored many talented researchers, who now mentor their own bright young protégés. In 2010, IWK Health Centre Research Services created the Robert Bortolussi Research Mentorship Award to honour the spirit of mentorship that Bob embodies, and presented him with the inaugural award.

Promotions & Appointments

This year, the Dalhousie Faculty of Medicine replaced its appointment system, Continuing Appointment with Periodic Review, with Continuing Appointment with Annual Career Development. In this new system, all clinical faculty are required to maintain an up-to-date academic dossier (academic activities and goals for annual career development), and to ensure continuing appointment, the clinical faculty member is expected to establish a strong record of performance in teaching, research and/or leadership and administration, in accordance with his or her declared career path.

Two Anesthesia, Pain Management & Perioperative Medicine faculty members were promoted this year within the new appointment process. Congratulations to:

Dr. Dolores McKeen, professor of anesthesia

Dr. Andrew Milne, associate professor of anesthesia

Education Programs

Postgraduate, Undergraduate, Continuing Professional Development, Fellowship, Simulation and Global Health

Message from Medical Director

Dr. Narendra Vakharia

A number of highlights demonstrate Anesthesia, Pain Management & Perioperative Medicine's commitment to leadership in medical education. Demand for the department's undergraduate elective opportunities continues to grow, exceeding capacity and resulting in waitlists; the Department is among Canada's leaders in implementing competency based medical education at the postgraduate level; its continuing professional development activities reflect breadth and depth of perioperative care, and efforts to realize a interdisciplinary, advanced simulation network are well under way.

Anesthesia, Pain Management & Perioperative Medicine applied to the Royal College of Physicians and Surgeons of Canada to begin implementing competency based medical education at the postgraduate level in 2016. This work is a follow up to efforts to renew the anesthesia, pain management & perioperative medicine postgraduate curriculum, which began in 2012 and continue to attract significant attention from other academic centres across Canada. **Dr. Janice Chisholm**, director, postgraduate medical education, has been instrumental in these efforts, and was recently honoured with a 2015 Canadian Association for Medical Education (CAME) Certificate of Merit Award. The CAME merit awards recognize and reward faculty committed to medical education in Canadian medical schools.

The Office of Education released its second accountability report. The report communicates the education activities of faculty members with respect to targets established and

goals stated in the education accountability framework, which was released in 2010. The report reflects high learner satisfaction overall, increasing faculty involvement in education initiatives, and continued interest in international education opportunities. It also shows that the Office of Education needs to better encourage fourth-year medical students to apply for residency at Dalhousie, support faculty to assume leadership roles, and facilitate the completion of teaching dossiers. On this front, the Office of Education continues to work closely with the research and information management portfolios in the Department on an academic profile application, which makes it easier for faculty members to complete an academic dossier.

Also this year, the Office of Education made full use of an Anesthesia Learner Scheduling Application, which launched in July 2013. The database application enables activities of all learners in the Department to be recorded and tracked. As a result, the Office of Education is better able to manage teaching schedules, report on faculty members' complete teaching activities, and ensure all faculty and staff teachers are being utilized.

Dr. Bruce Macaulay assumed the role of medical director, Continuing Professional Development for Anesthesia, Pain Management & Perioperative Medicine on July 1, 2014. Dr. Macaulay is assistant professor and staff anesthesiologist at the IWK Health Centre and served as resident coordinator for anesthesia at the IWK Health Centre for five years (2005 - 2010) and grand rounds coordinator for the Dalhousie Department of Anesthesia from 2005 to 2008. Dr. Macaulay took over from **Dr. Peter MacDougall** who had served as medical director of CPD since 2008.



The Office of Education also welcomed **Ms. Jessie Dowell-Gullison** as education coordinator. Ms. Dowell-Gullison holds responsibility for coordinating the undergraduate education and postgraduate education portfolios.

Congratulations to **Dr. Peter MacDougall**, former director of continuing medical education, on his appointment as the Dalhousie Faculty of Medicine's director of inter-professional education (IPE). Dr. MacDougall's new role spans the continuum of medical education at Dalhousie University, and includes designing, implementing and promoting IPE curriculum and activities, as well as providing expertise on collaborative clinical work that is internal and external to the medical school.

Strategic Priorities

- Explore the possibility of a simulation fellowship
- Continue to advocate for education day
- Expand continuing professional development (CPD) sessions to meet the needs of the Department; ensure adequate resources are available to deliver sessions
- Enhance the delivery of Section 3 Maintenance of Certification and Peer Assessment
- Develop and implement effective evaluation tools of teaching/rotation within undergraduate, postgraduate, fellowship and CPD
- Continue to develop and implement Competency Based Medical Education (CBME) curriculum (based on success of Fundamental Innovations in Residency Education (FIRE) application to the Royal College)
- Explore opportunities to increase the department's presence within the Dalhousie Medical School undergraduate curriculum/activities
- Prepare for postgraduate accreditation
- Lead the planning/delivery of the Thomas & Alice Morgan Fear Conference

The CBD Competence Continuum

By introducing a competency-based medical education model to resident training and to specialty practice, this CBD initiative will break down specialist education into a series of integrated stages – starting at transition to discipline and moving through practice. The CBD Competence Continuum provides a quick look at the new stages which begin upon entry into a discipline-specific residency following the attainment of the MD designation.

CanMEDS 2015

Competence
by Design

 **ROYAL COLLEGE**
OF PHYSICIANS AND SURGEONS OF CANADA

Education by the Numbers

2014-2015 Academic Year

Undergraduate Learners 178

83 medical students in nine cities and towns: Halifax, Amherst, Kentville, Sydney, Moncton, Saint John, Fredericton, Miramichi and Charlottetown

Halifax	67
QEII	63
IWK	3
Dartmouth	1
Amherst	1
Kentville	1
Sydney	2
Miramichi	1
Moncton	7
Saint John	4
Fredericton	4
Charlottetown	1

95 learners from disciplines other than medicine, including nursing, paramedicine, respiratory therapy

Respiratory Therapy	13
Nursing	25
Advanced Care Paramedicine	6
Primary Care Paramedicine	28
Lifeflight	9
Dentistry	4
Anesthesia Assistants	3 x 3 months
Other	1

Anesthesia Elective Course Participation

Year 1 course	13 medical student participants
Year 2 course	13 medical student participants
Med 3 Selective	25
Dalhousie Medical Student Shadow Day Participants	6

Summer Medical Students 3

Number of Department Member Undergraduate Tutors at Dalhousie Medical School 18 (672 Hrs.)

Number of residents

PGY 1	5
PGY 2	7
PGY 3	5
PGY 4	4
PGY 5	5

Number of fellows 6

Postgraduate off-service/elective rotations

Halifax	
• QEII Health Sciences Centre	53 residents
Total weeks:	191
• Dartmouth General Hospital	2 residents
Total weeks	8
• IWK Health Centre	15 residents
Total weeks:	44
• Rwandan residents	2 residents
Saint John	
• Saint John Regional Hospital	4 residents
Total weeks:	16
Bridgewater	
• South Shore Regional Hospital	3 residents
Total weeks:	12

Number of Applicants to Residency Program Canadian Resident Matching System (CaRMS) 115

Continuing Professional Development

Number of Grand Rounds	28
• 6 faculty speakers, 9 resident speakers, 3 fellow speakers and 10 visiting professors	
Number of M&M Rounds	8
Number of Journal/Research Club	10
Number of other CPD and/or events	10

Education Programs

Postgraduate, Undergraduate, Continuing Professional Development, Fellowship, Simulation and Global Health

Undergraduate

Students in all four years of Dalhousie's medicine program have opportunities to gain exposure to and experience in Anesthesia, Pain Management & Perioperative Medicine. In 2014-2015, the Office of Education established an undergraduate student award to recognize a graduating medical student who, through academic achievement and clinical performance, has demonstrated outstanding capabilities in the field of anesthesia through their medical program. The inaugural recipient is **Dr. Matthew Walker**.

Department members participate in Case Based Learning (CBL) tutoring, Dalhousie's Communications Skills Program, PIER sessions and Anesthesia, Pain Management & Perioperative Medicine electives. They also supervise Dalhousie medical students who choose to fulfill their Research in Medicine (RIM) requirements within the Department of Anesthesia, Pain Management & Perioperative Medicine. Notably, this is a growing number of students, much to **Dr. Ron George's** credit. Dr. George has been the RIM unit director since the program's initiation in 2013.

RIM is the first program of its kind in Canada. It is a mandatory program that introduces medical students to research from the start of their medical training and aims to foster their research and critical thinking abilities. It includes several elements:

- core curriculum sessions
- translating research into practice sessions
- project selection and design
- conducting the research project

Anesthesia, Pain Management & Perioperative Medicine continues to attract an increasing number of medical students who wish to complete anesthesia electives. The Department offers elective opportunities to first- and second-year medical students enrolled in the Dalhousie University medicine program. These electives involve spending a half-day each week with an anesthesiologist in a clinical environment. Emphasis is on acquiring the technical skills involved in vascular access and airway management while reviewing pharmacology and pathophysiology relevant to the cases being managed.

Students from Dalhousie and other medical schools who are enrolled in their final year of study are also encouraged to complete an elective experience in Anesthesia, Pain Management and Perioperative Medicine. The Department currently offers two-week, full-time clinical electives designed for maximum case exposure in various areas of anesthesia, including pain services, gynecology, and general anesthesia.

Postgraduate

In 2014-2015 the postgraduate portfolio focused on implementing the final pieces of the renewed academic day curriculum and evaluating the resident mentorship program, which was launched in 2013-2014. The Office of Education also created a Resident Teacher Award to recognize demonstrated skills and interest in teaching, not only within anesthesia, but throughout the Faculty of Medicine. The inaugural winner is **Dr. Tristan Dumbarton**, PGY-3.

The Anesthesia, Pain Management & Perioperative Medicine curriculum renewal implementation continued with the review of core modules (PGY 3 – 5), including neuro, head & neck, abdominal, hemo, critical care, geriatrics and musculoskeletal, and implementing an online assessment tool for each module. The Department also introduced a CanNASC simulation session for PGY-4 residents, simulation sessions for PGY-1 residents, and a Teaching and Learning Course.

As a follow up to its curriculum renewal efforts, the Department of Anesthesia, Pain Management & Perioperative Medicine applied to the Royal College of Physicians and Surgeons of Canada (RCPSC) to begin offering competency based medical education (CBME). The application was successful and detailed planning to begin a competency based medical education curriculum is under way.

Resident Mentorship Program

The resident component of the Anesthesia, Pain Management & Perioperative Mentorship Program includes matching first-year (PGY-1) residents with clinical staff members, junior residents with senior residents, and senior residents with clinical staff members. The goal of the PGY1 clinical mentorship is to enable first-year residents to become familiar with the Department quickly and easily while gaining confidence. The intent of the senior/junior resident mentorship is to have the junior resident's questions answered by a resident with first-hand experience and to help build camaraderie within the resident group. The staff/resident mentorship aims to enable residents to ask questions about career choices and other professional considerations to someone with similar interests and related experience.

The following faculty and senior residents acted as mentors in 2014-2015

- Dr. Shawn Hicks
- Dr. André Bernard
- Dr. Cathy Delbridge
- Dr. Kirk MacQuarrie
- Dr. Ron George
- Dr. Narendra Vakharia
- Dr. Richard Hall
- Dr. Gordon Launcelott
- Dr. Austin Lamb
- Dr. George Philip
- Dr. Rob Rideout
- Dr. George Kanellakos
- Dr. Kwesi Kwofie
- Dr. Blaine Kent
- Dr. Orlando Hung
- Dr. Adam Law
- Dr. Ainslie Gilchrist
- Dr. Yuqi Gu
- Dr. Mathew Kiberd
- Dr. David MacDonald
- Dr. Edmund Tan
- Dr. Taraneh Sadrmomtaz

Teaching and Learning Course

The Teaching and Learning Course, developed by **Drs. Patty Livingston** and **Ruth Covert**, addresses the need for anesthesiologists to keep current with ever-changing knowledge and to be skilled at teaching peers, trainees, allied health professionals and patients.

The course includes seven modules on learning theory, small group teaching, clinical teaching, large-group presentation, teaching technical skills, simulation, feedback and mentorship.

As much as possible, course activities are relevant to what residents actually do. For example, residents currently teach small-group sessions to incoming residents in orientation. These sessions are planned during the small-group module of the course. When the residents teach during orientation, they are observed by staff and receive feedback on their teaching skills.

The Teaching and Learning Course will be shared with the anesthesia department at the University of Ottawa and, with other national anesthesia departments, as the need arises. This is in keeping with resource sharing among anesthesia programs as Canada adopts competency based medical education.

Graduating residents 2014-2015 academic year

Congratulations to the 2014-2015 PGY5s who successfully completed their anesthesia residency:

Dr. Austin Lamb
Dr. George Philip
Dr. Rob Rideout

Dr. Taraneh Sadrmomtaz
Dr. Edmund Tan

Residents by year

PGY 1

Dr. Margaret Casey
Dr. Charlotte Edwards
Dr. Richard Roda

Dr. Stewart Forbes
Dr. François Michaud

PGY 2

Dr. Jon Bailey
Dr. Liem Ho
Dr. Kyle Jewer
Dr. Ravi Pullela

Dr. Mallory Garza
Dr. Kitt Turney
Dr. David Watton

PGY 3

Dr. Tristan Dumbarton
Dr. Mike Konviser
Dr. Amélie Pelland

Dr. Joshua Robert
Dr. Michael Vargo

PGY 4

Dr. Ainslie Gilchrist
Dr. Yuqi Gu

Dr. Mathew Kiberd
Dr. David MacDonald

PGY 5

Dr. Austin Lamb
Dr. George Philip
Dr. Rob Rideout

Dr. Taraneh Sadmomtaz
Dr. Edmund Tan

Fellowships

Anesthesia, Pain Management & Perioperative Medicine offers fellowships in airway, cardiac, chronic pain, global health, regional anesthesia & acute pain, and women's & obstetric anesthesia. The fellowships are generally one year and emphasize clinical and academic skills and competencies. Faculty emphasize individualized fellowship experiences that take into account each fellow's clinical, research and overall professional goals while ensuring fellows complete their fellowships having gained exceptional clinical, education and research skills.

In 2014-2015, six fellows successfully completed fellowships in pediatric anesthesia, women's & obstetric anesthesia, chronic pain, and regional anesthesia & acute pain.

Our Fellowships

Airway fellowship – The airway fellowship offers the opportunity to learn all airway techniques, including surgical airway in pediatric, obstetric and adult populations, from diverse, experienced faculty, all of whom teach national and international airway courses and workshops. Fellows direct and supervise clinical care of patients with difficult airways at the QEII Health Sciences Centre and at the IWK Health Centre, as well as in the simulation centre.

Cardiac fellowship – Through the cardiac fellowship, fellows receive training in all aspects of cardiac surgical patient care, from preoperative assessment and optimization, through to intraoperative management and immediate post-operative care. The aim is to train outstanding clinical anesthesiologists to treat patients with a variety of complex cardiac problems, including valvular heart disease, critical coronary artery disease, severe ventricular dysfunction and aortic pathology.

The fellowship includes an intensive one-month rotation in intraoperative transesophageal echocardiography (TEE) and fellows also learn basic and advanced peri-operative blood management techniques during cardiac surgery.

Chronic pain management fellowship – The chronic pain fellowship offers training, teaching and research in a setting that annually sees 1,700 outpatients and completes an additional 1,400 injection and invasive procedures. Faculty members lead Canada's foremost clinical and research program in chronic pain.

Nationally and internationally renowned, the Pain Management Unit at the QEII Health Sciences Centre has an active clinical research program that works with basic scientists in pain research and with the pediatric pain research group at the IWK Health Centre.

Through the chronic pain fellowship, fellows participate in a wide range of experiences, including radio frequency facet denervation, spinal cord stimulation, intrathecal catheters and neurolytic blocks in cancer and palliative care, as well as access to a C-arm in the Pain Management Unit's dedicated block room.

Global health fellowship – The global health fellow learns from faculty and staff mentors who have extensive anesthesia experience in resource-poor countries. During the 12-month fellowship, the fellow has the opportunity to:

- Work for three to four months in Rwanda as part of the Canadian Anesthesiologists' Society International Education Foundation (CASIEF) program;
- Practise clinical anesthesia in Halifax;
- Supervise residents from a developing country; and
- Complete a scholarly project involving research, education or policy development.

After completing the program, the global health fellow will be well prepared for a career in global health work and will have skills to establish a global health program in an academic department.

Regional anesthesia and acute pain fellowship – Through the regional anesthesia and acute pain fellowship, fellows develop skills in peripheral and central neural blockade in the context of modern, integrated multimodal pain management, working and learning in a supportive and well-equipped environment. The fellow will be exposed to single-shot blocks, indwelling catheter techniques, ultrasound and traditional approaches.

The fellow is based primarily in the block room at the HI site of the QEII Health Sciences Centre, but will also have the opportunity to work with Acute Pain Services and the pain management unit at the VG site. The fellowship includes non-clinical time and provides mentors for clinical, education and research goals and projects.

Women's & obstetric anesthesia fellowship – The women's & obstetric anesthesia fellowship offers advanced clinical training, teaching and research in a setting that employs a full range of state-of-the-art obstetric and anesthetic services. As a tertiary care hospital that delivers more than 4,500 babies per year, the IWK Health Centre provides an interesting and challenging case mix that ensures exposure to all varieties of high-risk obstetric patients, as well as ample clinical exposure to normal pregnancies.

Continuing Professional Development

Anesthesia, Pain Management & Perioperative Medicine's Continuing Professional Development program provides education opportunities for clinical staff in the Department, colleagues in other clinical departments of Dalhousie University, and clinicians in the community, including primary care and emergency health.

This is accomplished by providing support, expertise and evidence-based educational content, and by adhering to guiding principles:

- Content will be unbiased by third party influences. To that end all external funding shall be in the form of unrestricted educational grants or similar format and accounted through Anesthesia, Pain Management & Perioperative Medicine.
- Content will reflect current best practices as determined by current evidence and relevant expertise.
- Education opportunities will be accredited to provide Royal College CME.
- Education opportunities will be available to all members of the Department, community partners and, whenever possible, to the anesthesia community at large.

Members of the Department of Anesthesia, Pain Management & Perioperative Medicine participate in organizing and presenting continuing professional development events at local, national and international levels. Regular activities within the Department include grand rounds, departmental and subspecialty journal clubs, workshops and seminars. All events are accredited by the Department of Continuing

Medical Education, Dalhousie University, the Royal College of Physicians and Surgeons of Canada Maintenance of Certification Program, and/or the College of Family Physicians.

Dr. Bruce Macaulay Named Medical Director, Continuing Professional Development

Dr. Bruce Macaulay assumed the role of Medical Director, Continuing Professional Development (CPD) for Anesthesia, Pain Management & Perioperative Medicine on July 1, 2014. Dr. Macaulay is assistant professor and staff anesthesiologist at the IWK Health Centre and served as resident coordinator for anesthesia at the IWK for five years (2005 – 2010) and grand rounds coordinator for the Dalhousie Department of Anesthesia from 2005 to 2008. He is a graduate of Dalhousie Faculty of Medicine and joined the Department in 2000.

Dr. Macaulay took over from **Dr. Peter MacDougall** who served as Medical Director of CPD since 2008. Dr. MacDougall led the CPD portfolio through an expansion resulting from directions set at the department's strategic planning sessions. The portfolio now includes journal club, grand rounds, mentorship, Interdisciplinary Professional Development Day and several subspecialty based events.

2014-2015 Continuing Professional Development Events

Oct 2014	Airway Management of an Ebola Patient
May 2015	Anesthesia for Global Outreach Course
Sept 2014	Atlantic Pain Conference
April 2014	Blood & Beyond: Issues in Trauma, Bleeding & Coagulation
Sept 2014	Canadian Anesthesiologists' Society Atlantic Regional Meeting
March 2015	Interdisciplinary Professional Development Day: OR efficiency and handover
Dec 2014	Regional Anesthesia & Acute Pain
May 2015	Observership
Feb 2015	Transthoracic Echocardiography Workshop

Visiting Speakers

- *Target Controlled Infusion Revisited*
Dr. Thomas M Hemmerling, associate professor, Department of Anesthesia, McGill University
- *Issues in Perioperative Bleeding, Transfusion and Hemostasis*
Dr. David Mazer, professor, Department of Anesthesia, University of Toronto
- *The History of Cardiac Surgery – Daring Young Heart Surgeons*
Dr. David K.C. Cooper, professor, Thomas E. Starzl Transplantation Institute, University of Pittsburgh
- *CDHA Ebola Virus Disease and Preparedness*
Dr. Ian Davis, assistant professor, Division of Infectious Diseases, Dalhousie Department of Medicine
- *Using Risk Models to Improve Decision Making & Outcomes*
Mike Lipsett, PhD, professor, Mechanical Engineering, University of Alberta
- *Palliative and Therapeutic Harmonization: Using frailty to inform outcomes that matter to patients*
Dr. Laurie Mallory, professor, Division of Geriatric Medicine, Dalhousie Department of Medicine, and
Dr. Paige Moorehouse, associate professor, Division of Geriatric Medicine, Dalhousie Department of Medicine
- *Frail Elderly Patient With a DNR Order Who Arrests in the Immediate Peri-op Period*
Dr. Chris MacKnight, associate professor, Division of Geriatric Medicine, Dalhousie Department of Medicine
- *Neural Basis For Anesthetic Loss Of Consciousness And Pain- Free Surgery*
Marshall Devor, PhD, Department of Cell and Animal Biology, Institute of Life Sciences, Hebrew University of Jerusalem
- *Neurobiological basis of Multimodal Analgesic Therapy*
Dr. Oscar Deleon, professor, Department of Anesthesiology & Pain Medicine, School of Medicine and Biomedical Sciences, State University of New York at Buffalo
- *Finding Balance in a Medical Life*
Dr. Carolyn Thompson, Doctors Nova Scotia

Simulation

Anesthesia, Pain Management & Perioperative Medicine and the Dalhousie Department of Surgery, recently established an integrated QEII simulation program. This program will increase, improve and coordinate simulation education at the QEII Health Sciences Centre and Dalhousie University. Operational funding is in place for the QEII Integrated Simulation Program, and the QEII Foundation has initiated a \$2.7M fundraising campaign for future growth. The Foundation aims to secure funds to renovate simulation space in the emergency department at the Halifax Infirmary site of the QEII, which would house a SimBay, and simulation space at the Victoria General site of the QEII to establish a simulation centre. The Surgical Skills Lab, built in 2007, continues to provide state-of-the-art surgical simulation learning experiences and is now part of an integrated simulation program.

Presentations

- *Curriculum design and mapping for the Anesthesia residency program: An ethnography*
Dumbarton T, Livingston P, McLeod A.
Anesthesia, Pain Management & Perioperative Medicine Research Day, April 2015
- *Assessments in competency-based education: Putting them together*
Chisholm, J., Sargeant, J.
Dalhousie Medical Education Institute: New Paradigms in Assessment
- *Dalhousie anesthesia competency by design – Where are we now?*
Chisholm, J.
Anesthesia, Pain Management & Perioperative Medicine Grand Rounds
- *Using an e-learning module to facilitate faculty development around competency based medical education (CBME) at Dalhousie University*
Acuna J, Epstein I, Chisholm J, Gubitzi G, Hazelton L, Warren A.
Canadian Conference on Medical Education, April 2015
- *CASIEF – University of Rwanda Educational Partnership*
Livingston, P.
Bethune Round Table, June 2014
- *CASIEF – University of Rwanda Educational Partnership*
Livingston, P.
Bethune Round Table, June 2014

Research

Message from the medical directors

Dr. Orlando Hung, medical director

Dr. Ronald George, associate medical director

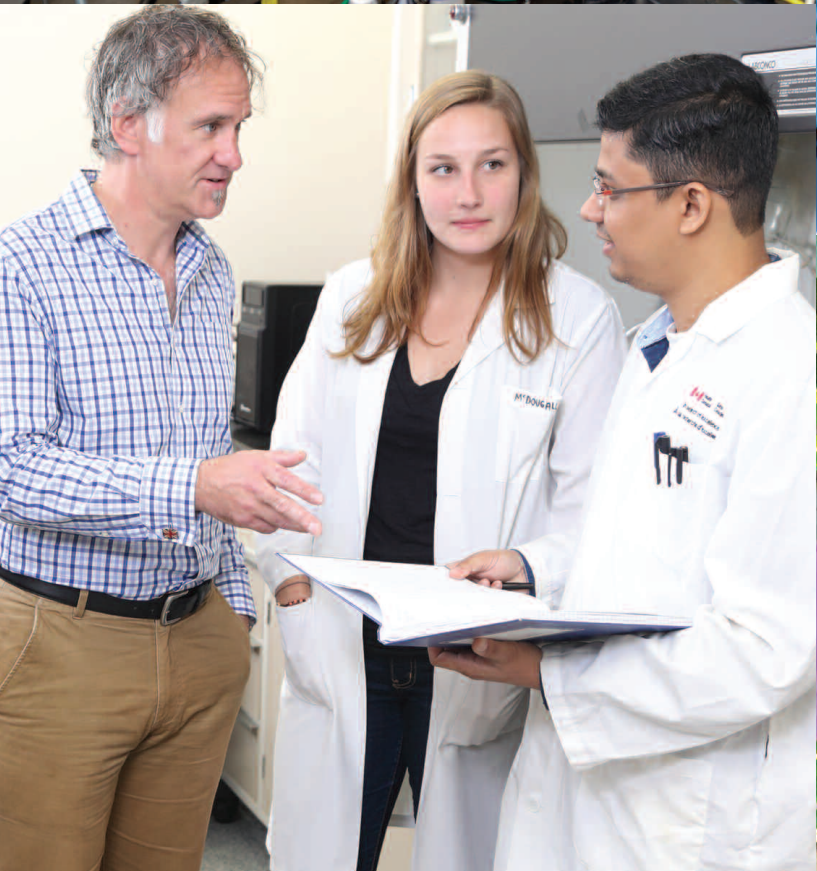
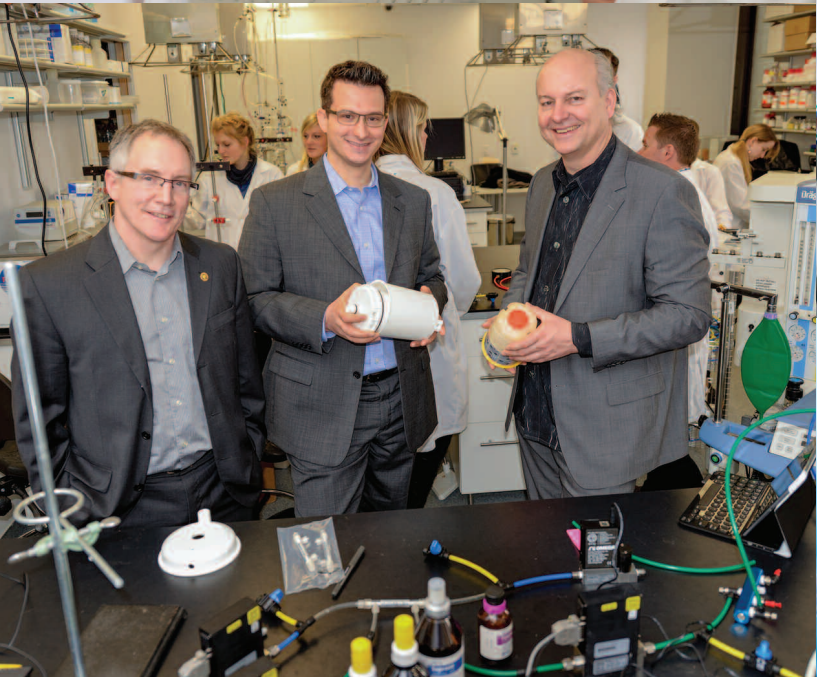
The Office of Research is successfully working towards its mission of engaging in the discovery of new knowledge to advance the science and practice of anesthesia through scholarly inquiry while at the same time contributing to the Department of Anesthesia, Pain Management & Perioperative Medicine vision of research excellence. This is accomplished by supporting the entire research process of scholarly curiosity (development, planning, evaluation and dissemination) leading to improved health practices, products and outcomes.

As a snapshot of research activity, in 2014-2015:

- The annual amount of *ongoing* funded projects (grants/contracts) totaled over \$4.8M with over half of the funding associated with a department member as the principal investigator. Success from peer-reviewed grant funded research agencies accounts for over \$4.3M and approximately \$535k in industry sponsored research contracts.
- A total of 57 manuscripts were published in peer reviewed journals; 76 abstracts were presented.
- There were 61 Department members invited to present their work to various audiences. The majority of these presentations were to local audiences.

In keeping with the department's strategic priority to create an environment that supports investigator-led research collaborations in perioperative care, the Office of Research facilitated the initiation of the Perioperative Care Research Collaborative. The purpose of this group is to create an environment that supports investigator led research collaborations in perioperative care, patient safety and quality improvement using traditional and Big Data analytic approaches. A recently funded project will explore whether perioperative variables influence cognitive changes in elderly surgical patients. **Dr. Michael Schmidt**, and the PCRC leadership group, hosted Anesthesia and Cognition at a Research Club and presented information related to quality improvement, preoperative assessment, information management, perioperative research and big data approaches – areas of growing interest in the Department and of growing relevance in the anesthesia discipline. An integral component to this new initiative of perioperative health outcome research is the strong relationship with Dr. Stan Matwin, Dalhousie Faculty of Computer Science, who is now cross-appointed with Anesthesia, Pain Management & Perioperative Medicine.

The Department also supports the Canadian Perioperative Anesthesia Clinical Trials (PACT) initiative, having provided human resources to the project for the last five years. The focus of PACT is to launch multi-site investigator-initiated studies of key anesthesia issues during and after surgery. This group has received more than \$3.6M in grant funding, and the Department is a research site for a number of these studies, including Transfusion Requirements in Cardiac Surgery (TRICS III).



Jill Chorney, PhD, associate professor, is the most recent department member to receive a translating research into care (TRIC) grant through a program of the QEII and IWK Health Centre Foundations. She and **Pamela Ellis**, manager of diagnostic imaging at the IWK Health Centre, are leading *Don't Stumble, Tumble: A motion detection videogame to reduce general anesthetics for MRIs in young children* with the goal of reducing the necessity of general anesthesia for children receiving MRIs. The investigators received a Level 3 grant of \$85,000. The QEII/IWK TRIC is a health care improvement research program to support research at the point of care that will yield strong evidence and facilitate the translation of clinical science into improved delivery of service and patient care. It is Dr. Chorney's second QEII/IWK TRIC grant and the fourth such grant to be awarded to a department faculty member. This success is testament to the Department of Anesthesia, Pain Management & Perioperative Medicine's commitment to research that directly improves patient care.

As a final note, the Office of Research would like to welcome **Dr. Karim Mukhida** to the Department and the research team. Dr. Mukhida is associate professor and staff anesthesiologist at the QEII Health Sciences Centre. He started the year with five grant submissions and has been awarded funding for "*GABAergic differentiation of human bone marrow-derived stem cells for use in a cell restoration strategy to treat neuropathic pain after spinal cord injury.*"

Dr. Orlando Hung, medical director

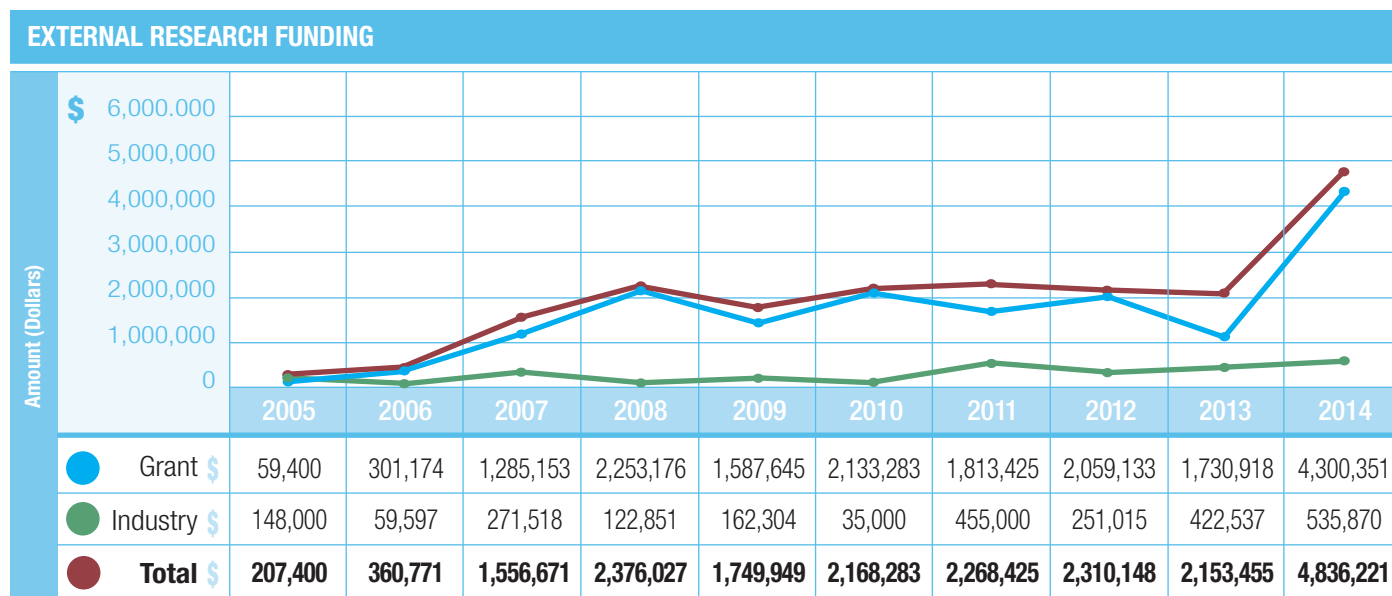
Dr. Ronald George, associate medical director

Strategic Priorities 2014-2015

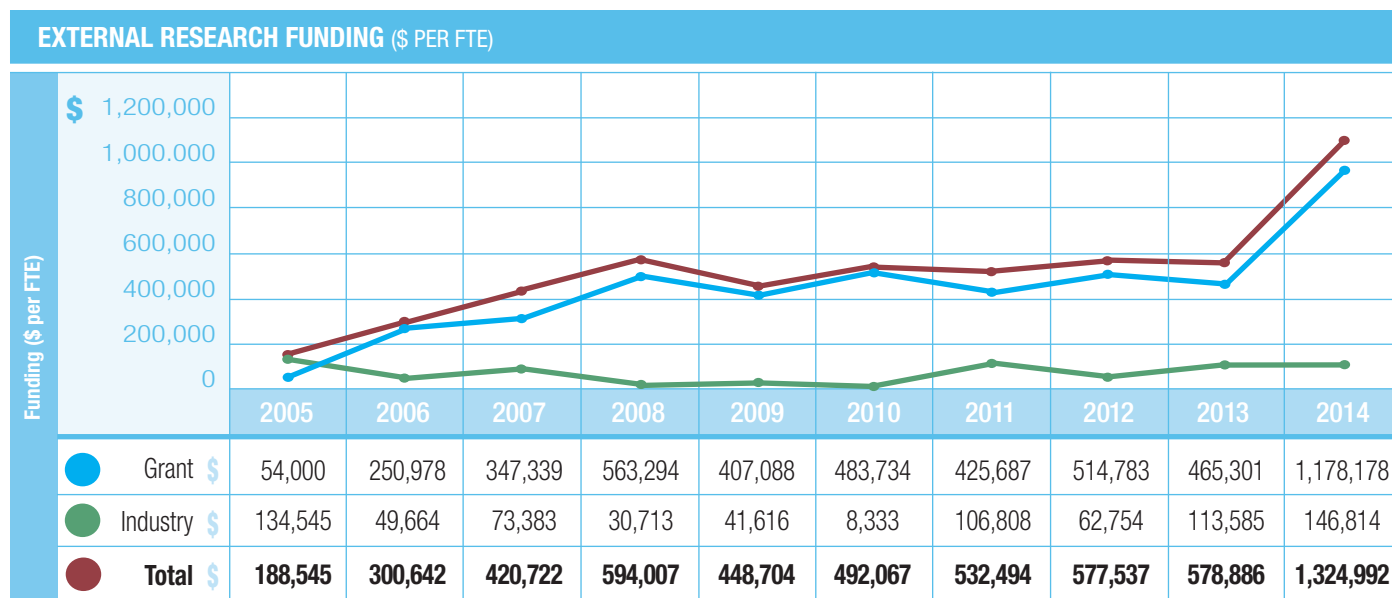
1. To create an environment that supports investigator-led research collaborations in perioperative care, patient safety and quality improvement using traditional and Big Data analytic approaches with the ultimate goal of developing a variety of perioperative outcome research programs in Anesthesia.
 - a. Create an infrastructure that supports big data research projects
 - b. Foster and strengthen research partnerships for sustainable relationships
 - c. Foster innovative research programs and partnerships that are strong and numerous
2. To integrate research inquiry in everyday experiences through the facilitation of clinical research questions, research communication and skill development.
 - a. Provide opportunities for faculty and staff to engage in collaborative research projects
 - b. Seek support for, develop and implement a program to recognize academic activities
 - c. Develop the infrastructure that engages new members to become involved in research
3. To actively seek support, develop and implement a program for recognizing academic activities.
 - a. Develop a recognition program for successful research activities
4. To foster interest and build capacity in postgraduate medical education (PGME) research skills to foster educational programs that are evidence-based and attract high-quality learners.
 - a. Cultivate PGME research champions that pursue development of research projects and programs
 - b. Build PGME research skill set that fosters collaboration among Education and Research Offices
5. Support the establishment of a Dalhousie University Pain Institute and Endowed Chair for Pain.

Excellence in Research

A Snapshot

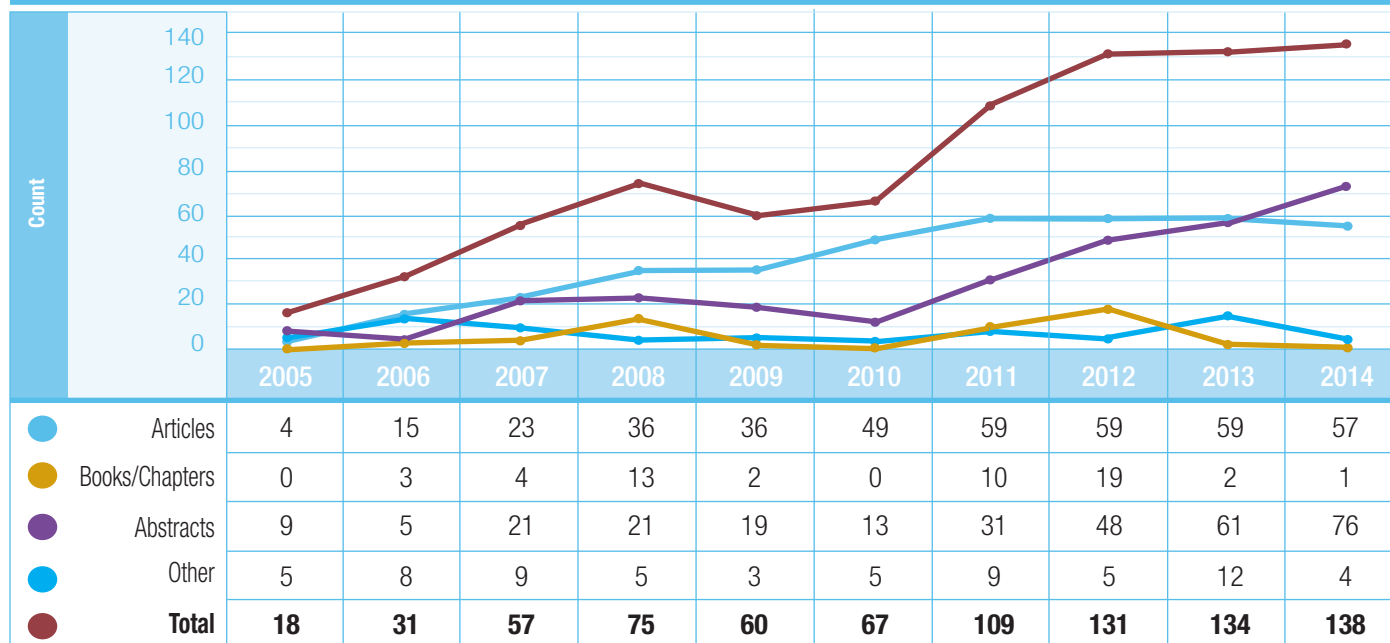


The value of research funding each year includes revenue from all research awards generating funds in that year (for multi-year awards, the revenue is reported in the year it is budgeted). All research projects in which a department researcher is a team member are included. Also, the number of grants received reflects the number of grants and contracts generating funds that year (which may be continuing from earlier years).



Given that the FTE has remained relatively stable since 2009, the notable increase in the total dollar amount relative to the FTE indicates that researchers are more successful in funding within the same amount of protected time.

PUBLICATIONS



PUBLICATIONS PER FTE PROTECTED RESEARCH TIME

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Articles	4	13	6	9	9	11	14	13	16	16
Book/Chapters	0	3	1	3	1	0	2	4	1	0
Abstracts	8	4	6	5	5	3	7	11	16	21
Other	5	7	2	1	1	1	2	1	3	1
Total	17	27	15	18	16	15	26	30	36	38

PROTECTED TIME (FTE) FOR RESEARCH ACTIVITIES

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Protected Time	1.4	1.5	3.8	4.2	4.2	4.2	4.2	4.0	3.7	3.7

Introducing the Perioperative Care Research Collaborative

The **Perioperative Care Research Collaborative (PCRC)** is a team of experts in perioperative care, research, big data analytics and quality improvement that encourages new research focused on perioperative care outcomes.

Supported by staff in the Department of Anesthesia, Pain Management & Perioperative Medicine, the PCRC collaborates with principal investigator (PI) teams to optimize the success of their research efforts. The PCRC connects investigators to help create research teams, facilitates peer review, streamlines recruitment processes and enables efficient data management procedures.

The PCRC aims to:

- Create a collaborative research environment for teams to investigate perioperative care outcomes using big data approaches
- Support research projects by providing feedback, guidance and expertise
- Provide more opportunities for faculty and staff to engage in collaborative research
- Promote research partnerships that explore health care information management
- Develop the Anesthesia, Pain Management & Perioperative Medicine Office of Research's capacity to help research teams develop and implement innovative perioperative care outcomes research projects

Its deliverables include:

- Perioperative research increasingly focused on how to the avoid, prevent and ameliorate adverse outcomes or injuries from surgery and anesthesia
- Strengthened internal and external relationships for the Department
- High quality research projects in perioperative care as the result of:
 - coordinated research protocol peer reviews
 - mentorship of junior researchers
 - improved methodological approaches
 - statistical consultations
 - standardized data collection
- Increased training/educational opportunities for perioperative outcomes research through visiting professorships, seminars and CPD events

- More grant and research ethics board submissions, presentations and publications
- Improved data query, transfer, storage and merging of electronic health data with other relevant databases
- Efficient use of shared resources that include a research coordinator, statistician, data analyst and IT support for perioperative care research projects
- A higher departmental profile for Anesthesia, Pain Management & Perioperative Medicine investigator-led research collaborations in perioperative outcomes research, patient safety and quality improvement, using big data

Leadership Team:

Ron George, MD, associate medical director, Office of Research, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University

Jill Chorney, PhD, RPsych, associate professor, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University

Stan Matwin, PhD, director, Big Data Analytics, Computer Science, Dalhousie University

André Bernard, MD, medical director, Preoperative Assessment Clinic, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University

Dennis Drapeau, MD, medical director, Information Management, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University

Andrew Milne, MD, associate medical director, Office of Quality Improvement, Department of Anesthesia, Pain Management & Perioperative Medicine, Dalhousie University



Pain Research

Pain relief should be a fundamental human right, yet pain is widely misunderstood and often poorly managed in Canada. We are working hard to change this.

Anesthesia, Pain Management & Perioperative Medicine clinicians and researchers have a long history of advocating for and advancing pain research and care. As national and international leaders in their fields, department members are integral to efforts to transform pain research and care in Canada and around the world. To enhance their efforts and those of their colleagues at Dalhousie University, the Department supports two primary initiatives: the establishment of a Dalhousie Pain Institute and the establishment of an Endowed Chair in Pain.

The Dalhousie Pain Institute initiative seeks to transform the understanding and management of pain – acute and chronic, across the lifespan and translate new knowledge into practice. The working group has developed a strategic plan, submitted funding applications, hosted visiting professors and established an annual research conference, Dal Pain Day, since 2013. The Department is working with Dalhousie University External Relations to raise more than \$5 million for an endowment that will enable the university to fund a pain research chair in perpetuity.

Anesthesia, Pain Management & Perioperative Medicine has a significant number of research studies and initiatives under way to improve pain care across the continuum. The following is a sample of current research:

Dr. Mary Lynch, professor and director of the QEII Pain Management Unit, is conducting a multi-site clinical trial, funded by the Canadian Institutes of Health Research (CIHR), to examine the use of methadone to treat neuropathic pain. She is also leading a transdisciplinary research team exploring how cannabinoids relieve intractable chronic pain from basic science models to new formulas and delivery systems, e.g. topical creams. The team includes international collaborator **Dr. Raphael Mechoulam**, Department for Medicinal Chemistry, Hebrew University, as well as Anesthesia, Pain Management & Perioperative Medicine members **Jason McDougall**, PhD, associate professor, and **Melanie Kelly**, PhD, professor, Dalhousie Department of Pharmacology. The team has received \$50,000 from the Early Commercialization Fund to develop the research program.

Jason McDougall, PhD, associate professor, is leading a CIHR-funded basic science research program that aims to discover mechanisms inside the joints as rheumatoid arthritis or osteoarthritis develops. He is targeting biological pathways that lead to both joint destruction and pain. This work will

result in new targets for arthritis therapies. Dr. McDougall also recently received a research grant from the Arthritis Society to explore whether cannabis compounds can help repair arthritic joints and relieve pain, and is co-leading an international CIHR – Arthritis Society \$2.4 million team grant investigating the role inflammation plays in rheumatoid arthritis and heart failure, Restitution Enhancement in Arthritis and Chronic Heart Disease (REACH).

Jill Chorney, PhD, associate professor, leads a CIHR-funded research program focused on improving children's post-operative pain by learning more about the pain that children experience and what they and their families are doing about it at home.

Dr. Ron George, associate professor and associate director of research, along with **Natalie Rosen**, PhD, Dalhousie Departments of Psychiatry, Psychology and Neuroscience, **Jill Chorney**, PhD, and **Erna Snelgrove-Clark**, PhD, Dalhousie School of Nursing, form the Women's Pain Group at the IWK Health Centre. This CIHR-funded group examines the impact of childbirth and postpartum pain on women's lifetime risk and experience of chronic pain.

Population Health

Aligned with the department's strategic direction of facilitating perioperative research, a number of population health research projects led by anesthesia faculty are related to perioperative care, specifically surrounding enhanced perioperative care for the elderly, children undergoing surgery and those in developing countries. As examples:

Dr. Michael Schmidt, professor, is actively pursuing funding to accurately assess cognitive changes in the elderly after surgery. Given there are current concerns regarding cognitive dysfunction after surgery and an expanding elderly population, there is a need for greater perioperative assessment and care of elderly patients. This research is timely given the current focus to establish health outcomes in surgical patients in order to optimize their recovery.

Jill Chorney, PhD, associate professor, has received numerous grants to advance the delivery of healthcare for children and their families. Dr. Chorney is actively developing practical clinical tools to assist healthcare providers and parents in the delivery of perioperative care including decision aids to improve informed consent procedures, screening tools to identify children and parents who are at risk of experiencing significant distress, interventions to deliver coping skills for surgery to children and families, and surveillance and support systems to identify and manage postoperative adverse events.

Dr. Ron George, associate professor and associate medical director of research, is part of a transdisciplinary group of researchers that focus on women's pain, the Women's Pain Group at the IWK Health Centre. A specific focus of interest for Dr. George is the examination of pain during childbirth and whether it is associated with long-term pelvic pain.

On a global scale, **Dr. Allen Finley**, professor, is a leader in pediatric pain with specific research collaborations examining marginalized children populations, including aboriginal children.

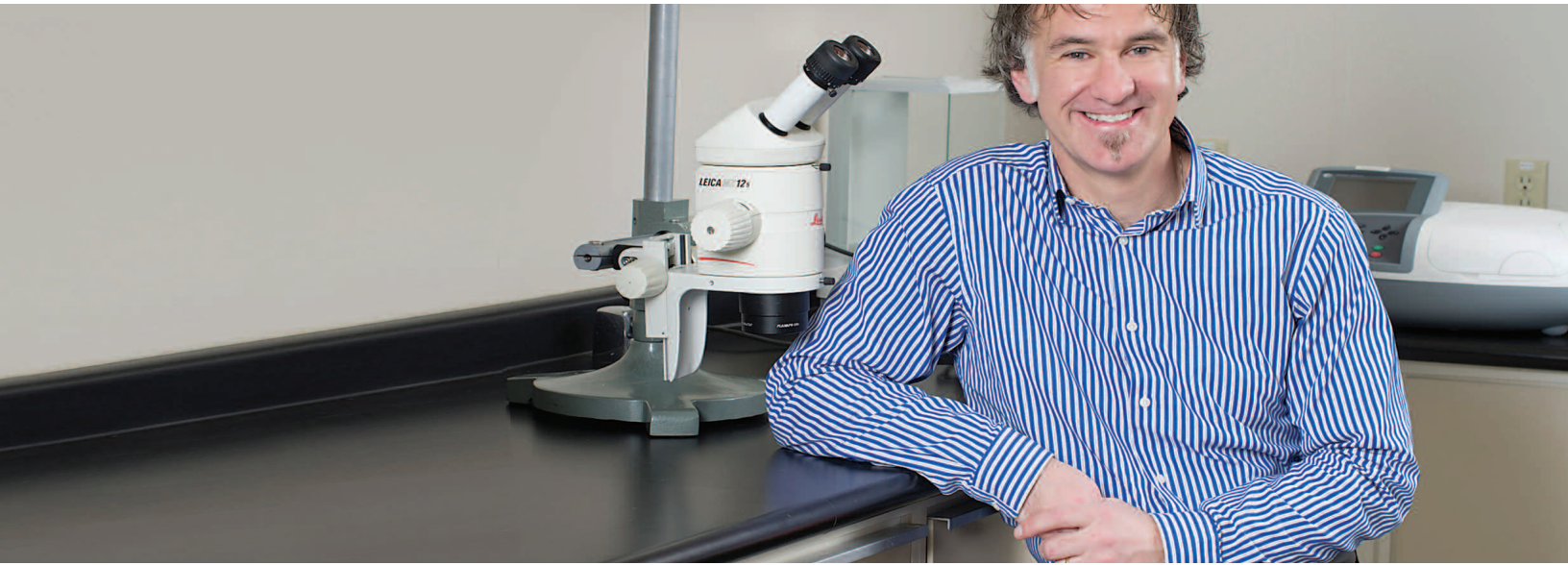
Dr. Christian Lehmann received funding from Grand Challenges Canada in 2014 to utilize a novel device (Sidestream Dark Field (SDF) imaging) to improve the quality of life of people, especially mothers and young children, and the therapy of critical ill patients in low-resource environments.

Dr. Patty Livingston launched a simulation and skills training centre at the National University of Rwanda in 2013 via a Grand Challenges Canada award. She is currently developing a mentorship network for anesthesia providers in Rwanda to improve obstetric anesthesia care and thereby reduce the numbers of maternal and infant deaths in that country.

INTERNAL FUND RECIPIENTS 2014 - 2015

The purpose of this funding model is to present a transparent and equitable model for requesting support for research purposes in the Department of Anesthesia, Pain Management & Perioperative Medicine. The model is based on three categories of support; **Activities, Projects, Programs/Research Time**. For Project and Program categories the Anesthesia Peer-Review Committee (APRC) reviews the applications and provides recommendations to the Head/Chief of the Department for final decisions.

PI	Title	Supervisor	\$
Dumbarton, Tristan	Tetrahydrobiopterin in the treatment of septic shock	Lehmann, C	\$ 4,879
Pelland, Amélie	Sidestream dark field imaging of the sublingual microcirculation to assess microvascular dysfunction in the preeclamptic patient	George, R	\$ 5,000
Gu, Yuqi	The Effect of Simulator Fidelity on Acquiring Non-Technical Skills. A Randomized Controlled Trial	Witter, T	\$ 5,000
Lehmann, Christian	Cannabidiol for prevention of type 1 diabetes – an experimental study on pancreatic inflammation		\$ 5,000
Mukhida, Karim	GABAergic differentiation of human bone marrow-derived mesenchymal stem cells for use in a cell restoration strategy to treat neuropathic pain after spinal cord injury		\$ 5,000
Munro, Alana	A retrospective cohort assessment of the impact of an anesthetic intervention during the second stage of labour	George, R	\$ 5,000



Research Day 2015

Dr. Beverly Orser, professor of anesthesia and physiology, University of Toronto, delivered Perioperative Cognitive Deficits: Mechanisms and Treatment Strategies to an audience of more than 120 at this year's Anesthesia Research Day.

Award Winners

Resident/Fellow Prizes

The Association Between Peri-Operative Factors and Healthcare Costs in Older Adults Undergoing Non-Elective Abdominal Surgery. **Jonathan Bailey, P Davis, A Levy, M Molinari, P Johnson**

Restricted vs. Full Video-Laryngoscopic View to Facilitate Glidescope-Assisted Tracheal Intubation: A randomized clinical trial. **Josh M Robert, Y Gu, G Kovacs, AD Milne, K MacQuarrie, O Hung, I Morris, JA Law**

Graduate Student Prizes

Cannabinoid 2 Receptor Modulation for Prevention and Therapy Of Cns Injury-Induced Immune Deficiency Syndrome. **Ian Burkovskiy, J Zhou, GS Robertson, C Lehmann**

Cannabinoid 2 Receptor, a Novel Therapeutic Target in The Treatment of Ocular Inflammation. **Richard (Ross) Porter, AM Szczesniak, J Borowska-Fielding, C Lehmann, MEM Kelly**

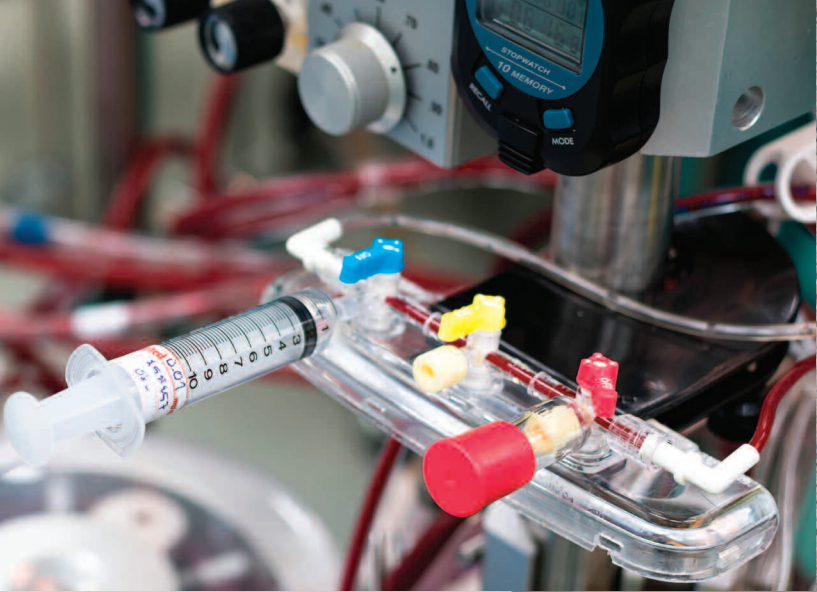
Undergrad Student Prizes

The Effect of Hydroxyethyl Starches and Crystalloid Fluids on Mortality and Need for Dialysis in Vascular Surgery Patients. **S Hicks, R Green, Michael Butler**

Putting on Our Thinking Caps: A review of the literature surrounding headwear in the operating room. **Alex Poulton, B Schelew**

Dr. Thomas Coonan Research Studentship

The Department's Dr. Thomas Coonan Summer Research Studentship in Anesthesia, Pain Management and Perioperative Medicine was awarded to **Karim Wafa** in 2015. The studentship provides funding for a student in first or second year medical school to participate in research projects being conducted by members of the Department. Dr. Wafa is working with **Dr. Christian Lehmann**, professor, investigating Iron Removal in Vivo Study.



Appendices

Appendix A

Anesthesia, Pain Management & Perioperative Medicine Research Projects & Funding

Funded Projects: Note that the bracketed dollar amount is the total value of the award whereby annual amounts are provided in *Figure 1*.

NEW Funded Projects in 2014

Chambers C, Campbell-Yeo M, Barwick M, Chorney J, Finley A, Latimer M, McGrath P, Witteman H. (2014 - 2015). It Doesn't Have to Hurt: Extending our Reach to Help Parents of Children [Grant] – NSHRF – \$10,000.

Chelation Partners Incorporated, Christian Lehmann, Maria Parquet, David Hoskin, Rusty Ritenour (2014 - 2016). Novel Iron Chelating Excipients (NICE) [Grant] – AIF – \$2,781,915.

Chorney J., d'Entremont C., Allen S., Smith I., Bird S., Latimer M., Martin C., Wright S. (2014 - 2015). Identifying ways to improve the perioperative experience for children with Autism Spectrum Disorders [Grant] – IWK – \$3,000.

Chorney J, Hong P, Curran J, McGrath P, Ritchie K, (2014 - 2017). Supporting Shared decisions in paediatric otolaryngology: Needs assessment and decision aid development [Grant] – NSHRF-RPP – \$159,816.

Chorney J, Hong P, Curran J, McGrath P, Ritchie K (2014 - 2017). Supporting Shared decisions in paediatric otolaryngology: Needs assessment and decision aid development [Grant] – CIHR – \$159,816.

Clark AJ, Mumford K, George RB, Davis D, Milne D, Langille L, Hammond P, Yazbeck S, Sernyk S (2014 - 2015). The highly opioid tolerant patient – will a new paradigm of care improve outcomes? [Grant] – Translating Research into Care (TRIC) – \$3,000.

Curran J, Klassen T, Chorney J, Colwell J, Fitzpatrick E, Jabbour M, MacPhee S, Murphy A, Petrie D (2014 - 2017). Understanding discharge communication in the context of paediatric emergency care in regional and community emergency Departments in Nova Scotia [Grant] – NSHRF – \$146,000.

Dumbarton T, Lehmann C (2014 - 2015). Tetrahydrobiopterin in the treatment of septic shock [Grant] – Department of Anesthesia, Pain Management and Perioperative Medicine – \$5,000.

George RB, Chambers C, MacDougall J, Clark AJ, Harman K (2014). 2014 Pain Research Day-Bringing People Together Grant [Grant] – IWK – \$1,000.

Hung OR (2014). Anesthesia procedures and vascular access [Grant] – McGraw-Hill Book Grant (Editor Grant) – \$3,000.

Hung O. (2014 - 2015) Intravenous Fluid Administration Monitor "IV Tag". Phase II Early Stage Commercialization Fund, InnovaCorp, Nova Scotia (2014 - 2015) – \$44,500 [Industry]

Kelly M, Lynch ME (2014 - 2015). Novel formulation for ocular pain [Industry Contract] – InNOVAcorp (Nova Scotia) – \$50,000.

Kiberd M, Wright S, Chorney J (2014 - 2015). Aromatherapy in children for the treatment of PONV [In-Kind] – IWK.

Latimer MA, Rudderham SE, Hutt-McLeod D, Finley GA, Harman K (2014). Creating a culturally relevant mechanism for Aboriginal children and youth to convey their pain to clinicians [Grant] – Atlantic Aboriginal Health Research Program – \$15,000.

Latimer MA, Rudderham S, Finley GA, Harman K, Hutt-MacLeod D, MacKinnon A, Paul K, Perley-Dutcher L (2014 - 2017). Seeing Aboriginal children's pain – Weaving stories, art, and statistics to create ways to reduce the hurt and improve child well-being [Grant – Pending] – CIHR – \$439,183.

Lavigne GJ, Lynch ME, Boulanger A, Cooper L, Laliberte J (2014 - 2015). Prevention of opioid analgesic misuse in Canada: pragmatic and innovative strategies? [Grant] – Universite de Montreal – \$50,000.

Lehmann C, Fisher N, Zhou J, Szczesniak A, Kelly M, Tugwell B (2014 - 2015). Cannabidiol for prevention of type 1 diabetes – an experimental study on pancreatic inflammation [Grant] – Department of Anesthesia, Pain Management and Perioperative Medicine – \$5,000.

Lehmann C (2014 - 2015). Innovative Non-Invasive Point-of-Care Monitoring of Nutritional Status and Critical Health Conditions in Low-Resource Environments [Grant] – Grand Challenges Canada – Rising Stars in Global Health – \$113,000.

Lehmann C (2014 - 2015). Innovations in Microcirculatory Sepsis Research – Mechanisms of new anti-inflammatory strategies in the intestinal microcirculation [Grant] – CFI – \$5,000.

Lynch ME (2014 - 2015). Testing toxicity and photosensitivity of a novel topical agent for treatment of neuropathic pain [Grant] – Dalhousie – \$5,150.

Lynch ME (2014 - 2016). Randomized, double blind, placebo controlled trial with open label extension of Delivra joint heal cream in the treatment of pain caused by osteoarthritis of the knee [Industry Contract] – LivCorp, Inc – \$300,000.

McDougall JJ (2014). Preclinical Assessment of Antibe Formulation in the Control of Osteoarthritic Pain [Industry Contract] – Antibe Therapeutics Inc. – \$10,610.

McDougall JJ, Marshall J, Bezuhly M, Legare JF, Lin TJ (2014 - 2019). Restitution Enhancement in Arthritis and Chronic Heart Disease [Grant] – CIHR – \$2,337,154.

Pelland A, George RB (2014 - 2015). Sidestream dark field imaging of the sublingual microcirculation to assess microvascular dysfunction in the preeclamptic patient [Grant] – Department of Anesthesia, Pain Management and Perioperative Medicine – \$5,000.

Poole O, Hung OR, Vargo M (2014 - 2015). A comparison of three techniques for cricothyroidotomy in a manikin [Grant] – Dalhousie Department of Anesthesia – \$1,500.

Rosen N, George RB, Chorney J, Snelgrove-Clarke E, Pirece M, Andreou P, Binik Y (2014 - 2015). A prospective study of the trajectory and biopsychosocial determinants of postpartum genitopelvic pain [Grant] – NSHRF – \$145,000.

Rosen N, George RB, Chorney J, Snelgrove-Clarke E, Pirece M, Andreou P, Binik Y (2014 - 2017). A Prospective Study of the Trajectory and Biopsychosocial Determinants of Postpartum Genito-pelvic Pain [Grant] – CIHR-NSHRF RPP – \$227,364.

Schmidt M, Roach D, Wilfart F (2014 - 2015). Neuro-protection using noble gases [Grant] – Brain Repair Centre-Knowledge Translation (BRC-KT) grant, Faculty of Medicine, Dalhousie University – \$30,000.

Sproule B, Lynch K, Robeson P, Spitzig D, Ulan S, MacDougall P (2014 - 2015). Developing a Canadian Research Network to Evaluate Prescription Monitoring Programs in Preventing/Reducing the Non-Medical Use of Pharmaceutical Drugs [Grant] – CIHR – \$50,000.

Stinson J, Cafazzo J, Campbell F, Chorney J, Clark J, Dick B, Forgeron P, Gordon A, Jibb L, Laloo C, McGillion M, Montgomery L, Palermo T, Rashid S, Ruskin D, Simmonds M, Tupper S, Victor C, Ware M. (2014 - 2017). iCanCope: an Integrated Smartphone and Web Self-Management Program for Adolescents and Young Adults with Chronic Pain [Grant] – CIHR – \$383,884.

NEW Scholarly Projects (unfunded)

Law JA, Gu Y, Robert J, Hung O, Milne A, Morris I, MacQuarrie K, Kovacs G (2014 - 2015). Optimal laryngoscopic view to enable Glidescope-assisted tracheal intubation. A randomized clinical trial [Clinical]

Arora G, Brousseau P, Milne AD (2014). Determination of the minimum acceptable laryngoscope brightness [Clinical]

Brousseau C, Brousseau P, Milne AD (2014 - 2015). A Retrospective Review of Ventilation Settings Used During Laparoscopic Cholecystectomy Surgical Procedures [Clinical]

Clark AJ, George RB, Chambers C, McDougall J (2014 - 2015). DalPAIN: A multidisciplinary approach to clinical care and research [Clinical]

Forbes S, Dobson G, Milne AD (2014). Following up the difficult airway: A retrospective study to evaluate patient understanding and awareness after receiving a difficult airway diagnosis [Database]

Gilchrist A, Brady J, Goodday R, Milne AD (2014). Effect of orthognathic surgery on airway grade. A retrospective review [Database]

Kwofie K, Philip G (2014 - 2015). A retrospective study of primary total knee arthroplasty and multimodal analgesic methods on postoperative opioid requirements and outcome [Clinical]

Tan E, Milne A (2014 - 2015). Impact of anesthesia residents on operating room times in a Canadian teaching hospital [Clinical]

CONTINUING Ongoing Funded Projects

Birnie KA, Chambers CT, McGrath PJ, Fernandez CV, Chorney J. Catastrophizing and parenting during parent-child interactions about pain and conflict. [Grant] Dalhousie University Department of Psychiatry Research Fund. Aug 2013 – \$10,000.

Chorney J (2011 - 2016). Pain in Children at Home Following Major Surgery: New Investigator Award [Grant] – CIHR – \$300,000.

Chorney J (2013 - 2014). Augmented reality MRI preparation game for kids [Industry Contract] – Springboard Atlantic Innovation Mobilization Program – \$13,347.

Chorney J, Andreou Pantelis, El-Hawary Ron, Finley GA, Howard Jason, McGrath Patrick JA, Valois Teresa (2010 - 2015). Pain at Home in Children following Major Surgery: Physical, Psychological, and Economic Consequences [Grant] – Canadian Institutes of Health Research – \$724,991.

Chorney J, Bird S, Bailey K (2013 - 2014). Preparing Parents to be Present at their Children's Anesthesia Induction [Grant] – IWK Health Centre – \$14,992.

Chorney J, Curren J, Hong P, McGrath P, Ritchie K (2013 - 2016). Understanding Shared Decisions in Pediatric Surgery [Grant] – NSHRF – \$147,246.

Chorney J, Bailey K, Schmit P, Taylor B (2013 - 2014). Using a web-based motion tracking game and information pamphlet to prepare children and their parents for scheduled MRI: A Feasibility study [Grant] – IWK Health Centre – \$3,960.

Chorney J. Establishment of the Child Health and Perioperative Care Laboratory [Grant] Canadian Foundation for Innovation (CFI). Jan 2012-2016 – \$312,177.

Curran J, Chorney J, et al. Closing the loop in pediatric emergency care: A narrative review of best practice for providing discharge instructions to caregivers in the emergency Department. [Grant] Canadian Institutes of Health Research (CIHR). Jan 2013 – \$99,339.

Clark AJ, Lynch ME (2012 - 2014). National Neuropathic Pain Database – Extension [Grant] – CPS NeP SIG – \$6,000.

Curran J, Chorney J, MacPhee S, Murphy A, Plint A, McGrath P. Identifying Essential Content for Discharge Instructions for Caregivers in Pediatric Emergency Care: A Delphi Study [Grant] Jan 2013 – \$14,516.

Curran J, Chorney J. (2013 - 2014). Closing the loop in pediatric emergency care: A narrative review of best practice for providing discharge instructions to caregivers in the emergency Department [Grant] – Canadian Institutes of Health Research (CIHR) - \$99,339.

Curran J, Grimshaw J, McGrath P, Chorney J. (2013 - 2016). Understanding Discharge Instructions for Children and Caregivers in the Transition from Pediatric Emergency Care [Grant] – CIHR-NSHRF Regional Partnership Program Operating Grant – \$435,804.

Forgeron P, Chorney J, Dick B, Carlson T. To befriend or not: Naturally developing friendships amongst a group of adolescents with chronic pain. [Grant] University of Ottawa, Faculty of Health Sciences Initiative Grant. Aug 2013 – \$4,085.

George RB. Enhancing analgesia and anesthesia for women and high-risk pregnancies. [Grant] Canadian Anesthesiologists' Society. Jul 2012 – \$120,000.

George RB, Abdo I, McKeen DM, Coolen J, Lehmann C (2013 - 2014). Maternal Microcirculation & SDF Imaging: A novel assessment of themicrocirculation during cesarean delivery with spinal anesthesia and the impact of phenylephrine prophylaxis in preventing spinal anesthesia-induced hypotension [Grant] – IWK Health Centre Category B Grant – \$15,000.

Hong P, Chorney J. Development of a Team to Study Decision Aids in Pediatric Otolaryngology [Grant] REDI Awards. Jan 2013 – \$9,952.

Hung O (2013 - 2014). Intravenous fluid administration monitor [Industry Contract] – Innovacorp Early Stage Commercialization Fund – \$50,000.

Kain ZN, Chorney J, Blount RL (2011 - 2016). Improving pain and anxiety in children undergoing surgery: Changing Healthcare Provider Behavior [Grant] – National Institutes of Health – \$2,730,034.

Kwapisz M, Kent B, Mingo H, Poranek A. The use of Fibrinogen Concentrate in High-Risk Cardiac Surgery: A Prospective Double Blind Randomized Controlled Study [Grant] CSL Behring. Aug 2013 – \$453,674.

Latimer M, Rudderham S, Finley GA, Inglis S, Hutt-McLeod D (2011 - 2014). Understanding pediatric pain in aboriginal communities: Children's project [Grant] – Nova Scotia Health Research Foundation – \$150,000.

Latimer MA, Finley GA, Inglis S, Rudderham SE, Young S (2012 - 2014). Understanding pain in Aboriginal children: moving forward in Central and Eastern Canada [Grant] – CIHR – \$22,369.

Lehmann C (2012 - 2014). Iron removal in vivo study (IRIS) [Industry Contract] – Mitacs – \$119,999.

Lehmann C (2012 - 2015). Modulation of the immune response after stroke by manipulation of cannabinoid receptor 2 signaling [Grant] – Clinician Scientist Program (CS) – \$19,120.

Lehmann C, Zhou J, Kelly Melanie (2013 - 2016). Manipulation of the Endocannabinoid System in Experimental Sepsis [Grant] – Nova Scotia Health Research Foundation – \$147,960.

Lehmann C, Zhou J. Modulation of cannabinoid receptor 2 signaling – a new therapeutic approach in CNS injury-induced immune deficiency syndrome (CIDS) [Grant] CDHA Research Fund. Aug 2013 – \$14,881.

Lehmann C (2010 - 2014). Innovations in Microcirculatory Sepsis Research – Mechanisms of new anti-inflammatory strategies in the intestinal microcirculation [Grant] – Canadian Foundation of Innovation, Leaders Opportunity Fund – \$416,361.

Lehmann, C (2012 - 2014). Iron Removal Study in Vivo Study (IRIS) [Industry Contract] – Chelation Partners – \$39,444.

Lynch ME, Clark AJ, Flowerdew G, Moulin D, Toth C. A double blind randomized controlled trial examining the efficacy of methadone in treatment of chronic neuropathic pain [Grant] CIHR NSHRF Dal. Oct 2010 – \$502,633.

Lynch ME. Clinical Scholar Program, Matching Funds, Dalhousie Faculty of Medicine [Grant] Dalhousie University. Jan 2012 – \$82,949.

Lynch ML, Clark, AJ, et al. Infrastructure Operating Fund (CFI): Canadian Pain Trials Network [Grant] CFI – IOF. Mar 2010 – \$105,580.

MacDougall P, Brousseau P, Milne, A. The Relationship Between Hip and Knee Replacement Surgery and Opioid Prescribing: A COAP Dataset Review [Grant] CDHA. Feb 2013 – \$14,600.

McDougall J (2010 - 2014). Host-parasite interactions alter joint inflammation in mouse model systems [Grant] – Canadian Institutes of Health Research (CIHR) – \$424,248.

McDougall J (2011 - 2014). Therapeutic potential of lysophosphatidic acid antagonism to control OA pain [Industry Contract] – Canadian Arthritis Network/Eli Lilly & Company Industry Research Programme Grant – \$200,000.

McDougall J (2011 - 2016). The relationship between proteases, protease activated receptors and cytokines in mediating osteoarthritis pain [Grant] – Canadian Institutes of Health Research (CIHR) – \$601,280.

McDougall J (2012 - 2015). Effect of cannabinoids and opioids in the control of arthritis pain [Grant] – Nova Scotia Health Research Foundation (NSHRF) – \$149,790.

McGrath PJ, Craig KD, Finley GA, Grunau RE, Johnston C, Stevens BJ, von Baeyer CL, Chorney J (2009 - 2015). Pain in child health, an innovative, international, trans-disciplinary research training consortium – Phase II [Grant] – CIHR – \$1,950,000.

Milne AD, M dEntremont, OR Hung. Determination of the minimum light intensity required for lightwand intubation – a cadaveric study. Jan 2014 – \$2,500.

Nantais J, Lehmann C. Methylene Blue Therapy in Experimental Septic Shock [Grant] CDHA Research Fund. Aug 2013. (\$5,000) Schmidt M. Commercialization of CO2 removal device for anesthesia circuits [Grant] Atlantic Canada Opportunities Agency. Jun 2012 – \$1,245,617.

Szerb J, M. Kwesi Kwofie. Histological Confirmation of Ultrasound-Guided Needle Placement in Regional Anesthesia Intraplexus Versus Periplexus Approach [Grant] CDHA. Aug 2013 – \$15,000.

CONTINUING Scholarly Projects (unfunded)

Christian Lehmann, Juan Zhou, James Pius (2013 - 2014). Modulation of the immune response after stroke [Clinical]

Forbes S, Dobson G, Milne AD (2014). Following up the difficult airway: A retrospective study to evaluate patient understanding and awareness after receiving a difficult airway diagnosis [Database]

Foss M, Lynch ME (2013 - 2017). Patient-Controlled Analgesia versus Continuous Opioid Infusion for the Treatment of Pain Caused by Oral Mucositis Following Myeloablative Chemotherapy for Hematopoietic Stem Cell Transplantation: A Retrospective Review [Clinical]

Juan Zhou, Christian Lehmann, Lizeth Orozco (2013 - 2014). Modulation of the immune response after stroke [Clinical]

Law JA, Milne A, Morris I, Brousseau P (2013 - present). A retrospective database review of methods used to achieve tracheal intubation in operative patients [Database]

Law JA, Morris I, Brousseau P, Milne A (2013 - 2014). The incidence, success rate and complications of awake tracheal intubation in 1554 patients over 12 years: an historical cohort study [Clinical]

Maguire E, Chorney J (2013 - 2017). How does perceived parental involvement and actual involvement in decisions concerning ENT surgery for their child contribute to parental decisional conflict? [Clinical]

Milne AD, Drapeau D (2010 - present). Design and Development of a Novel Blind Intubating Device [Clinical]

Milne AD, Pullela R, Valiant EM (2013 - 2014). Mechanical Strength Characteristics of Plastic Versus Metal Disposable Laryngoscope Blades [Clinical]

Pike M, Lynch ME (2013 - 2017). Observational Trial of Qigong as a Complementary Therapy in a Chronic Pain Clinic [Clinical]

Schep L, Chorney J (2013 - 2017). Child and parent involvement in decision-making for otolaryngology procedures [Clinical]

Schmidt M, Croll R, Wilfart F (2013 - 2014). Zebrafish learning as a model for investigating learning disabilities after exposure to toxic byproducts of anesthesia [Clinical]

Schmidt M, Croll R, Wilfart F (2013 - 2014). Zebrafish learning as a model for investigating learning disabilities after repeated anesthesia [Clinical]

Schmidt M, Nickerson P, Wilfart F (2013 - 2014). The mouse as model for the investigation of anaesthetics and its by-products on apoptosis and necrosis of the retina [Clinical]

Schmidt M, Stoyek M, Croll R, Wilfart F, Smith F (2013 - 2014). The isolated zebrafish heart as a model to investigate the basic mechanisms of cardiac side effects of modern anesthetics [Clinical]

Schmidt M, Stoyek M, Wilfart F, Croll R, Smith F (2013 - 2014). A zebrafish model to investigate the cardiac effects of noble gases [Clinical]

Schmidt M, Wilfart F, Nickerson P, Christie S (2013 - 2014). Spinal injury in the pig as model for investigating anesthesia strategies and neuro-protective substances [Clinical]

Scott J, George RB, Bird S (2013 - 2017). A systematic review in Pediatric Anesthesia (specific topic TBD) [Database]

Vargo M, Beauprie I, Chorney J (2013 - 2014). Evaluation of lumbar facet joint steroid injection in clinical practice, a retrospective cohort analysis [Clinical]

Wafa K, Lehmann C (2013 - 2017). Cellular physiology of iron in inflammation and infection processes: novel Fe chelator responses in experimental model systems [Clinical]

Appendix B

Anesthesia, Pain Management and Perioperative Medicine Publications 2014

Note that this list of publications only includes those peer-reviewed articles that are currently published and accessible online (50).

1. Abdo I, George RB, Farrag M, Cerny V, Lehmann C. Microcirculation in pregnancy. *Physiol Res*. 2014 Sept 4;63(4):395-408. PubMed PMID: [24702490](#).
2. Al-Banna N, Pavlovic D, Sharawi N, Bac VH, Jaskulski M, Balzer C, Weber S, Nedeljkov V, Lehmann C. Combination of dehydroepiandrosterone and orthovanadate administration reduces intestinal leukocyte recruitment in models of experimental sepsis. *Microvasc Res*. 2014 Jul 30;95C:82-87. doi: 10.1016/j.mvr.2014.07.010. [Epub ahead of print] PubMed PMID: [25086183](#).
3. Birnie KA, Chambers CT, Fernandez CV, Forgeron PA, Latimer MA, McGrath PJ, Cummings EA, Finley GA. Hospitalized children continue to report under-treated and preventable pain. *Pain Res Manage* 2014; 19(4): 198-204.
4. Brousseau CA, Dobson G, Milne AD (2014). Airway Management in Patients with OSA and its Effects on Post-Anesthesia Care Unit Length of Stay. *Canadian Journal of Respiratory Therapy*, 50, 23-26.
5. Brousseau CA, Dobson G, Milne AD. A retrospective analysis of airway management in patients with obstructive sleep apnea and its effects on post-anesthesia care unit length of stay. *Canadian Journal of Respiratory Therapy*, 2014; 50 (1):23-26.
6. Cairns BE, Kolta A, Whitney E, Craig K, Rei N, Lam DK, Lynch ME, Sessie B, Lavigne G (2014). The use of opioid analgesics in the management of acute and chronic orofacial pain in Canada: the need for further research. *J Can Dental Assoc*, 80, e49.
7. Chorney, J., Meghan McMurtry, Christine Chambers, Roger Bakeman (2014). Developing and Modifying Behavioral Coding Schemes in Pediatric Psychology: A Practical Guide. *Journal of Pediatric Psychology*. DOI: [10.1093/jpepsy/jsu099](#).
8. Chorney, J., Twycross, A., Mifflin, K., Archibald, K. (2014) Can we improve parents' management of the children's postoperative pain at home? *Pain Research and Management*, July/August, 18, 4, 115–123.
9. Clark AJ, Spanswick CC. Why anesthesiologists need to care about the way chronic pain is managed. *Can J Anesth*, 2014; 61:95-100 (Editorial). PubMed ID: [24198162](#).
10. Curran, A. J., Murphy, A., Newton, M., Zemek, R., Hartling, L., Plint, A., Chorney, J., MacPhee, S., Campbell, S., Jabbour, M., Boliver, D., Petrie, D., Colwell, R., MacWilliams, K., Nolan, A. (2014) Discharge instructions for caregivers in the context of pediatric emergency care: a narrative synthesis protocol. *Journal of Systematic Reviews*, March 3:26, DOI [10.1186/2046-4053-3-26](#), URL: <http://www.systematicreviewsjournal.com/content/3/1/26> PMID: [PMC 3995555](#)
11. Devereaux PJ, POISE-2 Investigators [Including George RB, McKeen DM] (2014). Rationale and design of the PeriOperative ISchemic Evaluation-2 (POISE-2) trial: an international 2 × 2 factorial randomized controlled trial of acetyl-salicylic acid vs. placebo and clonidine vs. placebo in patients undergoing noncardiac surgery. *American Heart Journal*, 167(6), 804-809. e4. PubMed ID: [24890528](#).
12. Fitzcharles MA, Ste-Marie PA, Clauw DJ, Jamal S, Karsh J, LeClercq S, McDougall JJ, Shir Y, Shojania K, Walsh Z. Rheumatologists lack confidence in their knowledge of cannabinoids pertaining to the management of rheumatic complaints. *BMC Musculoskelet Disord*. 2014 Jul 30;15:258. DOI: [10.1186/1471-2474-15-258](#). PubMed PMID: [25080153](#).
13. George RB, McKeen DM, Boyd JC, Porter GA (2014). Pregabalin Confers No Added Benefit to a Non-steroid Anti-inflammatory Drug and Acetaminophen Regimen in Outpatient Breast Cancer Surgery: A Randomized Controlled Trial. *Journal of Anesthesia & Clinical Research*, 5(2), 1-7. DOI: [10.4172/2155-6148.1000383](#).
14. George RB, McKeen DM, Andreou P, Habib A (2014). A randomized, placebo-controlled trial of two doses of pregabalin for post-operative analgesia in women undergoing abdominal hysterectomy. *Canadian Journal of Anesthesia*, 61(6), 551-557. PubMed ID: [24668315](#).
15. George RB, DesRoches J, Abdo I, Lehmann C. Maternal microcirculation and sidestream dark field imaging: A prospective assessment of the association between labour pain and analgesia on the microcirculation of pregnant women. *Clin Hemorheol Microcirc*. 2014 Jun 16. [Epub ahead of print] PubMed PMID: [24934438](#).
16. Glowacka, M., Rosen, N., Chorney, J., Snelgrove Clarke, E., George, R.B. (2014) Prevalence and Predictors of Genito-Pelvic Pain in Pregnancy and Postpartum: The Prospective Impact of Fear Avoidance. *Journal of Sexual Medicine*, August, DOI: [10.1111/jsm.12675](#). PMID: [25124648](#)

17. Hung O (2014). From the Journal archives: Early clinical evaluation of enflurane: the cost of progress. *Canadian Journal of Anesthesia*, 61(3), 269-72.
18. Hung O, Stewart R (2014). Remembering the famous and the forgotten in Medicine. *Anesth Analg*, 119(5), 1005-6. [Editorial].
19. Hung O. Mzungus in Rwanda. *Anesthesiology*, Mar 3, 2014. PubMed ID: [24595114](#).
20. Jarosch S, Lehmann C. Physical restraint in the ICU – does it prevent device removal? A critical appraisal. *Minerva Anesthesiol*. 2014 Dec 12. [Epub ahead of print] PubMed PMID: [25501845](#).
21. Krustev E, Reid A, McDougall JJ (2014). Tapping into the endocannabinoid system to ameliorate acute inflammatory flares and associated pain in mouse knee joints. *Arthritis Research & Therapy*, 437-449. PubMed ID: [25260980](#).
22. Latimer M, Finley GA, Rudderham S, Inglis SH, Francis J, Young SA, Hutt-McLeod D. Expression of pain in Mi'kmaq children from one Atlantic Canadian community: A qualitative study. *CMAJ Open* 2014; 2(3): E133-E138 [DOI: [10.9778/cmajo.20130086](#)]
23. Latimer M, Simandl D, Finley GA, Rudderham S, Harman K, Young SA, MacLeod E, Hutt-McLeod D, Francis J. Understanding the impact of the pain experience on Aboriginal Children's wellbeing: Viewing through a Two-Eyed Seeing lens. *First Nations Child Family Review* 2014; 9(1): 22-37
24. Lehmann C, Burkovskiy I, Kuethe J, Zhou J, Caldwell C, Kelly ME. Inhibition of the cannabinoid 2 receptor in CNS-injury induced immunodeficiency syndrome. *Medical Hypotheses*, 82(6) 2014; 736-9. PubMed ID: [24702836](#). [DOI: [10.1016/j.mehy.2014.03.015](#)].
25. Lehmann C, Sharawi N, Al-Banna N, Corbett N, Kuethe JW, Caldwell CC. Novel approaches to the development of anti-sepsis drugs. *Expert Opin Drug Discov*, 82(6) 2014; 736-9. PubMed ID: [24697209](#).
26. Lehmann C, Zhou J, Schuster L, Goetz F, Wegner A, Cerny V, Pavlovic D, Robertson GS (2014). Effect of Deletion of cIAP2 on Intestinal Microcirculation in Mouse Endotoxemia and Poly-bacterial Sepsis. *Shock*, 41(5), 454-7. PubMed ID: [24667612](#).
27. Linhares MBM, Oliveira NCAC, Doca FNP, Martinez FE, Carlotti APP, Finley GA. Assessment and management of pediatric pain based on the opinions of health professionals. *Psychology and Neuroscience*, 2014; 7(1):43-53. [DOI: [10.3922/j.psns.2014.1.07](#)].
28. McKeen DM, George RB, Boyd JC, Allen V, Pink A (2014). Transversus abdominis plane block does not improve early or late pain outcomes after cesarean delivery: a randomized controlled trial. *Canadian Journal of Anesthesia*, 61(7), 631-640. PubMed ID: [24764186](#).
29. Milne AD, Brousseau PA, Brousseau CA (2014). Effects of laryngoscope handle light source on the light intensity from disposable laryngoscope blades. *Anaesthesia*, 1331-6. PubMed ID: [25040627](#).
30. Moulin DE, Boulanger A, Clark AJ, Clarke H, Dao T, Finley GA, et al (2014). Pharmacological management of chronic neuropathic pain: Revised consensus statement from the Canadian Pain Society. *Pain Res Manag*, 19(6), 328-35. PubMed ID: [25479151](#).
31. Nantais J, Dumbarton TC, Farah N, Maxan A, Zhou J, Minor S, Lehmann C. Impact of methylene blue in addition to norepinephrine on the intestinal microcirculation in experimental septic shock. *Clin Hemorheol Microcirc*. 2014;58(1):97-105. [DOI: [10.3233/CH-141874](#)]. PubMed PMID: [25227191](#).
32. Papsin Emily, Rebecca Haworth, Jill Chorney, Michael Bezuhly, Paul Hong (2014). Pediatric otoplasty and informed consent: Do information handouts improve parental risk recall? *International Journal of Pediatric Otorhinolaryngology*, 78(12), 2528-2261. DOI: [10.1016/j.ijporl.2014.10.028](#).
33. Pavlovic D, Taras I. Usichenko, Christian Lehmann (2014). The last bite was deadly – About responsibility in scientific publishing. *Clinical Hemorheology and Microcirculation*. PubMed ID: [24595128](#).
34. Pavlovic D, Usichenko T, Lehmann C. Clash of confidence and responsibility in scientific publishing. *Dalhousie Medical Journal DMJ* 2014;40(2):30-32.
35. Sardinha J, Kelly ME, Zhou J, Lehmann C. Experimental cannabinoid 2 receptor-mediated immune modulation in sepsis. *Mediators Inflamm*. 2014;2014:978678. doi: [10.1155/2014/978678](#). Epub 2014 Apr 3. PubMed PMID: [24803745](#); PubMed Central PMCID: [PMC3997158](#).
36. Saveland C, Hawker L, Miedema B, MacDougall P. Abuse of family physician by patients seeking controlled substances. *Can Fam Physician*, 2014; 60(2):e131-6. PubMed ID: [24522691](#).
37. Sawynok J, Lynch ME, Qualitative analysis of a controlled trial of qigong for fibromyalgia: advancing understanding of an emerging health practice, *J Altern Complement Med*, 2014;20(8): 606-617.
38. Sawynok J, Lynch ME, Qigong and fibromyalgia: randomized controlled trials and beyond. *Evidence-Based Complementary and Alternative Medicine*, 2014: Article ID 379715 <http://www.hindawi.com/journals/ecam/2014/379715/>
39. Stevens BJ, Yamada J, Estabrooks CA, Stinson J, Campbell F, Scott SD, Cummings G, Finley GA, and the CIHR Team in Children's Pain. Pain in hospitalized children: Effect of a multidimensional knowledge translation strategy on pain process and clinical outcomes. *PAIN*, 2014; 155:60-68. PubMed ID: [24021861](#).

40. Stevens B, Yamada J, Promislow S, Stinson J, Harrison D, Victor JC, CIHR Team in Children's Pain [Including Finley GA]. Implementation of multidimensional knowledge translation strategies to improve procedural pain in hospitalized children. *Implementation Science* 2014; 9: 120
41. Tamburin S, Borg K, Caro XJ, Jann S, Clark AJ, Magrinelli F, Sobue G, Werhagen L, Zanette G, Koike H, Spath PJ, Vincent A, Goebel A. Immunoglobulin G for the treatment of chronic pain. Report of an expert workshop. *Pain Medicine*, 2014; 15(7):1072-82. PubMed ID: [24422915](#). [DOI: [10.1111/pme.12319](#)].
42. Troche SJ, Houlihan ME, Connolly JF, Dick BD, McGrath PJ, Finley GA, Stroink G. The effect of pain in involuntary and voluntary capture of attention. *Eur J Pain* 2014 Jul 23. [DOI: [10.1002/ejp.553](#) – epub before print]
43. Twycross AM, Williams AM, Finley GA. Surgeons' aims and pain assessment strategies when managing paediatric postoperative pain: A qualitative study. *J Child Health Care* 2014 [DOI: [10.1186/2051-5960-1-64](#)] <http://chc.sagepub.com/content/early/2014/04/09/1367493514527022>
44. Vargo M, Tan E, Hung O, Dobson G, Lehmann C. Unanticipated expanding neck mass under general anesthesia. *Can J anesth*, 2014; 61(7):678-9. PubMed ID: [24740311](#).
45. von Baeyer CL, Stevens BJ, Chambers CT, Craig KD, Finley GA, Grunau RE, Johnston CC, Pillai Riddell R, Stinson JN, Dol J, Campbell-Yeo M, McGrath PJ. Training highly qualified health research personnel: The Pain in Child Health consortium. *Pain Res Manage* 2014; 19(5): 267-74
46. Wafa K, Herrmann A, Kuhnert T, Wegner A, Gründling M, Pavlovic D, Lehmann C. Short time impact of different hydroxyethyl starch solutions on the mesenteric microcirculation in experimental sepsis in rats. *Microvasc Res*. 2014 Aug 5;95C:88-93. DOI: [10.1016/j.mvr.2014.07.012](#). (Epub ahead of print.) PubMed PMID: [25107457](#).
47. Wright KD, Stewart SH, Finley GA, Raazi M. A sequential examination of parent-child interactions at anesthetic induction. *J Clin Psychol Med Settings* 2014; 21(4): 374-385
48. Zaphiratos V, McKeen DM, Macaulay B, George RB (2014). Persistent paralysis after spinal anesthesia for cesarean delivery. *Journal of Clinical Anesthesia*, 27(1), 68-72. [Case Report] Epub 2014 Nov 26. PubMed ID: [25433726](#), DOI: [10.1016/j.jclinane.2014.08.003](#).
49. Zhang J, Lamb A, Hung O, Hung C, Hung D (2014). Blind nasal intubation – teaching a dying art. *Can J Anesth*, 60(11), 1089-1118.
50. Zhou J, Katrin Zimmermann, Thomas Krieg, Marieke Soltow, Dragan Pavlovic, Vladimir Cerny, Lehmann C. Adenosine receptor activation improves microcirculation in experimental intestinal ischemia/reperfusion. *Clin Hemorheol Microcirc*, 2014. PubMed ID: [24889778](#).

Appendix C

Department Organization 2014-2015

A sampling of the Anesthesia, Pain Management & Perioperative Medicine's primary committees

Executive Advisory Team

- Dr. Romesh Shukla, head/chief (chair)
- Dr. David Milne, managing director, Anesthesia Nova Scotia Inc.
- Dr. Janice Chisholm, director, postgraduate education
- Dr. Narendra Vakharia, medical director, Office of Education
- Dr. Jane Henderson, chair, human resource advisory committee
- Dr. Colin Audain, scheduler
- Dr. Ian Morris, site chief, VG Site
- Dr. J Adam Law, site chief, HI Site
- Marilyn Girouard, executive director, ex-officio
- Dr. Blaine Kent, chief, cardiac anesthesia, member-at-large
- Carl Stevens, administrator, ex-officio
- Dr. Orlando Hung, medical director, Office of Research
- Dr. André Bernard, medical director, preadmission clinics

Clinical Advisory Committee

(Central Zone, Nova Scotia Health Authority)

- Dr. Gregory Dobson, medical director, quality improvement/ patient safety (chair)
- Dr. Andrew Milne, assoc. medical director, quality improvement/ patient safety
- Dr. Adam Law, site chief, HI site
- Dr. Ian Morris, site chief, VG site
- Dr. Andre Bernard, medical director, preadmission clinics
- Dr. Romesh Shukla, head/chief (ex officio)
- Dr. Scott Drysdale, subspecialty chief, pediatric anesthesia
- Dr. Robert Paterson, site chief, Dartmouth General Hospital

Dalhousie Department Site Chiefs Committee

- Dr. Romesh Shukla, head/chief (chair)
- Dr. Ian Morris, VG site, QEII Health Sciences Centre
- Marilyn Girouard, executive director
- Carl Stevens, administrator
- Dr. J Adam Law, VG site, QEII Health Sciences Centre
- Dr. Orlando Hung, medical director, Office of Research
- Dr. Robert Nunn, IWK, women's & obstetric anesthesia
- Dr. Robert Paterson, Dartmouth General Hospital
- Dr. Scott Drysdale, IWK, pediatric anesthesia
- Dr. Alison Kelland, Hants Community Hospital
- Dr. Janice Chisholm, medical director, postgraduate education
- Dr. John Chisholm, Saint John Regional Hospital

Subspecialty Chiefs Committee

- Dr. Romesh Shukla, head/chief (chair)

- Dr. George Kanellakos (thoracic)
- Marilyn Girouard, executive director (admin)
- Dr. Scott Drysdale (pediatric)
- Carl Stevens (admin)
- Dr. Blaine Kent (cardiac)
- Dr. Ian Beauprie (neuro)
- Dr. Robert Nunn (women's & obstetrics)
- Dr. Gordon Launcelott (acute pain, VG site)
- Dr. Alexander Clark (chronic pain)
- Dr. Kwesi Kwofie (peripheral nerve block/acute pain, HI site)
- Dr. Kirk MacQuarrie (liver transplant)

Anesthesia Research Advisory Committee

- Dr. Orlando Hung, medical director, Office of Research (co-chair)
- Dr. Ronald George, assoc. medical director, Office of Research (co-chair)
- Mark Filiaggi, assoc. vice president, research, Dalhousie University
- Lisa Underwood, director, research services, NSHA
- Kathleen Leadon, director, research administration, IWK
- Heather Butler, PhD, managing director, Office of Research
- Jill Chorney, PhD
- Jason McDougall, PhD
- Marilyn Girouard, executive director
- Polly Moores, administrative assistant

Education Operational Committee

- Laura Harris Buffett, managing director, Office of Education (chair)
- Dr. Janice Chisholm, director, postgraduate education
- Dr. Bruce Macaulay, medical director, continuing professional development
- Dr. Patricia Livingston, medical director, global health
- Dr. Jane Henderson, medical director, fellowships
- Dr. Dolores McKeen, associate director, postgraduate education
- Dr. David MacDonald, chief resident
- Dr. Ben Schelew, medical director, undergraduate education
- Dr. Narendra Vakharia, medical director, education and simulation
- Cyndi Lushman, academic coordinator
- Marilyn Girouard, executive director
- Dr. Robyn Doucet, staff anesthesiologist
- Jessie Dowell-Gullison, education coordinator
- Megan Chipp, global health coordinator
- Dr. Romesh Shukla, head/chief

Appendix D

Faculty Roles, Academic Outreach & Scholarship

Sylvie Aucoin

Assistant Professor

Colin Audain

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Fellowship Advisory Committee

Ian Beauprie

Associate Professor

Sub-specialty Chief, Neuroanesthesia

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee
Member, Residency Program Committee
Presentations, Seminars, Workshops, Lectures:
Implantable Therapies: Spinal cord stimulation, Vancouver, BC.
Non-operative Interventional Treatment for the Spine: Complications, Halifax, NS.

Stephen Beed

Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee

Christopher Berger

Assistant Professor

André Bernard

Assistant Professor

Medical Director, Preadmissions Clinic

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee
Member, Applause Recognition Committee
Presentations, Seminars, Workshops, Lectures:
Physician Advocacy Through the World Medical Association: Is global health advocacy a choice or a responsibility?, World Health Organization General Assembly, Durban, South Africa

Sally Bird

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee
Member, Residency Curriculum Renewal Committee

John Blake

Associate Professor

Prasad Bolleddula

Associate Professor

David Bond

Assistant Professor

Shannon Bradley

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Curriculum Renewal Committee

Sandra Buckenham

Assistant Professor

Vladimir Cerny

Professor

Christine Chambers

Professor

Todd Chedore

Assistant Professor

Janice Chisholm

Associate Professor

Medical Director, Postgraduate Education, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Chair, Dalhousie Postgraduate Medical Education Resident Duty Hours Task Force
Member, Dalhousie Postgraduate Medical Education Competency Based Education Working Group
Member, Association of Canadian University Departments of Anesthesia (ACUDA) Postgraduate Education Committee
Member, Board of Directors, Anesthesia Nova Scotia Inc.
Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Site Chiefs Committee
Chair, Residency Program Committee
Co-Chair, Residency Curriculum Renewal Committee
Member, Education Operational Committee
Member, Continuing Professional Development Committee
Member, Fellowship Advisory Committee
Presentations, Seminars, Workshops, Lectures:
Acute Critical Events Simulation Course, RCPSC, Riyadh, Saudi Arabia
National Acute Critical Events Simulation (ACES), RCPSC National Course for Critical Care Fellows, Ottawa, ON
National Acute Critical Events Simulation (ACES) RCPSC, Edmonton, AB

John Chisholm

Assistant Professor

Site Chief, Saint John Regional Hospital, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Site Chiefs Committee

Kenneth Chisholm

Associate Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Promotions and Reappointment Committee
Member, Credentials Committee

Richard Chisholm

Assistant Professor

Jill Chorney

Associate Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Research Advisory Committee
Presentations, Seminars, Workshops, Lectures: Postoperative Recovery following Spinal Correction: Home Experiences (PORSCHÉ), Halifax, NS
Worry, Fear, and Phobia: A cross-contextual approach to child fear and anticipatory Distress to Painful Medical Procedures, Charlottetown, PE

A. John Clark

Professor

Medical Director, Pain Management Services

Committee Memberships:

Member, Cannabinoid Research Network Atlantic
Member, Canadian Consortium for the Investigation of Cannabinoids
Member, Tier 2 Canada Research Chair in Pain Search and Selection Committee
Member, Faculty Council, Dalhousie Faculty of Medicine
Member, Provincial Advisory Council for Chronic Pain Services
Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee
Member, Fellowship Advisory Committee
Presentations, Seminars, Workshops, Lectures:
Cannabinoids and Pain, Canadian Consortium for the Investigation of Cannabinoids, Toronto, ON
Central Triage and Improving the Consultation Process for Patients with Chronic Pain, Charlottetown, PEI

Andrew Clark

Associate Professor

Jennifer Cloutier

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Promotions and Reappointment Committee

Peter Coady

Assistant Professor

David Cohen

Assistant Professor

Thomas Coonan

Professor

Caroline (Ruth) Covert

Associate Professor

John Crompton

Assistant Professor

Cohn (Evan) Davies

Associate Professor

Raymonde DeGrace

Assistant Professor

Catherine Delbride

Assistant Professor

Committee Memberships:

Member, Dalhousie Medical School Admissions Committee

Anesthesia, Pain Management & Perioperative Medicine
Member, CaRMS Committee
Member, Residency Curriculum Renewal Committee

Claudio DiQuinzio

Assistant Professor

Committee Memberships:

Member, Executive Council, Anesthesia Nova Scotia Inc.
Anesthesia, Pain Management & Perioperative Medicine
Member, Human Resources Advisory Committee
Member, Residency Curriculum Renewal Committee

Gregory Dobson

Assistant Professor

Medical Director, Quality Assurance and Patient Safety, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Chair, Clinical Advisory Committee
Member, Residency Program Committee

Robyn Doucet

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Education Operation Committee
Member, Residency Curriculum Renewal Committee

Presentations, Seminars, Workshops, Lectures:
Panel on Common Oral Exam Problems, Toronto, ON
Panel on Common Oral Exam Problems: Making a mark review course, Toronto, ON

Dennis Drapeau

Assistant Professor

Committee Memberships:

Member, Capital Health Information Management Steering Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee

Scott Drysdale

Assistant Professor

Sub-specialty Chief, Pediatric Anesthesia

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee
Member, Site Chiefs Committee

Jean Yves Dubois

Assistant Professor

Kirk Duguay

Assistant Professor

Volker Eichhorn

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Curriculum Renewal Committee

George Ferrier

Assistant Professor

G. Allen Finley

Professor

Medical Director, Pediatric Pain Service

Committee Memberships:

Member, Global Initiative for Emergency and

Essential Surgical Care

Presentations, Seminars, Workshops, Lectures:

Building Global Partnerships in Pediatric Pain Management. Workshop: Pediatric Pain – What do we know and where do we go from here?, Universidade Federal de Sao Paulo/GRAACC, Sao Paulo, Brasil
But Doctor, It Still Hurts! Recognition and belief in pediatric chronic pain, Geneva, Geneva
ChildKind: Fostering change, Children's Hospital of Minneapolis, Minneapolis, MN, USA
Children's Pain Matters! Priority on pain in infants, children, and adolescents. Workshop: Pediatric Pain – What do we know and where do we go from here?, Universidade Federal de Sao Paulo GRAACC, Sao Paulo, Brasil
Flash: Opioides na criança: Sim o Nao?, IV Congresso Interdisciplinar de Dor, Porto, Portugal
Pain in Child Health (PICH) – An Innovative, International, Trans-disciplinary Research Training Consortium. Workshop: Pediatric Pain – What do we know and where do we go from here?, Universidade Federal de Sao Paulo/Grupo de Apoio ao Adolescente e a Crianca com Cancer (GRAACC), Sao Paulo, Brasil
Pediatric Acute and Chronic Pain Around the World: Lessons learned and moving towards the future., Hospital Joan XXIII, Tarragona, Catalunya, Spain
So You Want to Change the World?, Hospital das Clinicas, Faculdade de Medicina de Ribeirao Preto, Universidade de Sao Paulo, Ribeirao Preto, Brasil
Visceral pain, Children's Hospital of Minneapolis, Minneapolis, MN, USA

Timothy Fitzpatrick

Assistant Professor

Jocelyn Foran

Assistant Professor

Paula Forgeron

Assistant Professor

John Fraser

Assistant Professor

William Furey

Assistant Professor

William Gallacher

Professor

Member, Discipline Committee, Dalhousie Department of Medicine

Murray Geddes

Assistant Professor

Clinical Lead, Anaesthetic Pre-Assessment Clinic
St. John's Hospital, Livingston, UK

Ronald George

Associate Professor

Associate Medical Director, Research, Anesthesia, Pain Management & Perioperative Medicine
Program Director, Research in Medicine

Committee Memberships:

Member, Research Working Group, Dalhousie Research in Medicine Program
Member, Curriculum and Administration Working Group, Dalhousie Research in Medicine Program
Chair, Canadian Anesthesiologists' Society Obstetric Section
Member, IWK Health Centre Research Ethics Board
Member, Capital Health Research Fund Committee
Anesthesia, Pain Management & Perioperative Medicine
Co-Chair, Research Advisory Committee
Member, Continuing Professional Development Committee

Member, Fellowship Advisory Committee

Presentations, Seminars, Workshops, Lectures:

Canadian Obstetric Anesthesia Guidelines- What Should They Contain?, St. John's, NL
Epidural Ultrasound, St. John's, NL
Halothane and Ether, Christchurch, NZ
Neuraxial Anesthesia, Making a Mark, Toronto, ON
Neuraxial Anesthesia, Making a Mark, Toronto, ON
Obstetric Anesthesia in Low Resource Environments, Christchurch, NZ
Prevalence and Predictors of Chronic Pain in Childbirth, Colorado Springs, Colorado

Marilyn Girouard

Assistant Professor

Executive Director, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resource Advisory Committee
Member, Applause Recognition Committee
Member, Fellowship Advisory Committee
Member, Residency Program Committee
Member, Research Advisory Committee
Member, Education Operations Committee
Member, Continuing Professional Development Committee

Timothy Godkin

Assistant Professor

Allison Gray

Assistant Professor

Robert Green

Professor

Member, ICU Mobility Plan of Care Committee, Capital Health

Marie-Claude Gregoire

Assistant Professor

Michael Greschner

Assistant Professor

Thomas Hackmann

Assistant Professor

Richard Hall

Professor

Committee Memberships:

Chair, Ethics Committee, Canadian Anesthesiologists Society
Chair, Nova Scotia District Health Authorities Multisite Research Ethics Board
Member, Executive, Canadian Critical Care Trials Group
Member, Examination Board for Clinical Pharmacology, Royal College of Physicians & Surgeons of Canada
Member, Specialty Training Committee for Clinical Pharmacology and Toxicology, Royal College of Physicians & Surgeons of Canada
Chair, Data Safety Monitoring Board, The HALO Project
Anesthesia, Pain Management & Perioperative Medicine
Member, Promotions and Reappointment Committee
Presentations, Seminars, Workshops, Lectures:
Research Ethics Boards, Fellows Day, Canadian Critical Care Trials Group meeting, Montreal, QC

Brian Hamilton

Assistant Professor

Lynn Hansen

Assistant Professor

Christopher Hawkes

Assistant Professor

Jane HendersonAssociate Professor
Medical Director, Fellowships, Anesthesia, Pain Management & Perioperative Medicine**Committee Memberships:**Member, High Cost Drug Review Committee, Capital Health
Anesthesia, Pain Management & Perioperative Medicine
Chair, Human Resources Advisory Committee
Member, Executive Advisory Team
Member, Education Operational Committee
Co-Chair, Fellowship Advisory Committee**Ayman Hendy**

Assistant Professor

David Hughes

Assistant Professor

Orlando HungProfessor
Medical Director, Research, Anesthesia, Pain Management & Perioperative Medicine**Committee Memberships:**Member, IM Committee, Capital Health
Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Co-Chair, Research Advisory Committee
Member, Fellowship Advisory Committee
Member, Site Chiefs Committee
Member, Human Resource Advisory Committee
Presentations, Seminars, Workshops, Lectures:
Advances in Airway Management, Universiti Sains Malaysia, Kota Bharu, Malaysia
Airway Management, Difficult Airway Course, Baltimore, MA, USA
Airway Management Examination Review: Making a Mark, Royal College, Toronto, ON, CANADA
Airway management review., Making a Mark, Royal College Examination Review Course, Toronto, ON
Airway Workshop, Universiti Sains Malaysia, Kota Bharu, Malaysia
Basic and Advance Adult Fiberoptic Intubation Workshops, New Orleans, Louisiana
Current Concepts and Controversies in Airway Management, Difficult Airway Workshop, Singapore
Video-laryngoscopes: Which one should I use, Difficult Airway Workshop, Singapore**David Imrie**

Professor

Sergei Ivantchev

Assistant Professor

Andrew Jarvie

Assistant Professor

Committee Memberships:Member, Capital Health Research Ethics Board
Anesthesia, Pain Management & Perioperative Medicine
Member, Fellowship Advisory Committee**Kristine Johnson**

Assistant Professor

Liane Johnson

Associate Professor

George KanellakosAssistant Professor
Subspecialty Chief, Thoracic Anesthesia
Director, Nova Scotia Anesthesiologists Society**Committee Memberships:**Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee
Member, Residency Curriculum Renewal Committee
Member, Continuing Professional Development Committee**Presentations, Seminars, Workshops, Lectures:**EKG Changes during Thoracotomy, Society of Cardiovascular Anesthesiologists, New Orleans, LA, USA
Opioid Tolerant Patient for Thoracotomy, Society of Cardiovascular Anesthesiologists, New Orleans, LA, USA
Paravertebral Blocks, Society of Cardiovascular Anesthesiologists, Washington, DC, USA
Paravertebral Blocks, Society of Cardiovascular Anesthesiologists, New Orleans, LA, USA**Ian Keith**

Assistant Professor

Alison Kelland

Assistant Professor

Site Chief, Hants Community Hospital, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee
Member, Site Chiefs Committee**Melanie Kelly**

Professor

Blaine Kent

Associate Professor

Subspecialty Chief, Cardiac Anesthesia

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member at Large, Executive Advisory Team
Member, Subspecialty Chiefs Committee
Member, Fellowship Advisory Committee**Hartmut Kern**

Professor

Andrei Khorovets

Associate Professor

Tracy Kok

Assistant Professor

Committee Memberships:

Member, Dalhousie Medicine Admissions Committee

Paula Kolysher

Assistant Professor

George Kovacs

Professor

Justyna Kroll-Lass

Assistant Professor

Sutthirak Kuruhongsa

Lecturer

Myron Kwapisz

Associate Professor

Committee Memberships:

Member, Board of Directors, Anesthesia Nova Scotia Inc.

Presentations, Seminars, Workshops, Lectures:Fibrinogen and Friends: The Halifax Experience, Halifax, NS
TEG vs ROTEM Point of Care, Halifax, NS**Kwesie Kwofie**

Assistant Professor

Sub-specialty chief, Regional Anesthesia

Committee Memberships:Member, Faculty & Scientific Programme Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee**Gordon Launcelott**

Associate Professor

Subspecialty Chief, Acute Pain (VG Site)

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee**J. Adam Law**

Professor

Site Chief, HI Site, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:Chair, Canadian Airway Focus Group
Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Clinical Advisory Committee
Member, Site Chiefs Committee
Member, Applause Committee**Presentations, Seminars, Workshops, Lectures:**Difficult Airway Management: Best Evidence, Niagara Falls, ON
Pro-Con debate: The ASA algorithm is the gold standard for difficult airway management (Con), Seattle, WA, USA
Surgical Airway/TTJV hands-on, Seattle, WA
The Difficult Airway Course, Airway Management Education Inc, Baltimore, MD**Susan Lee**

Assistant Professor

Christian Lehmann

Professor

Presentations, Seminars, Workshops, Lectures:

Microcirculation in the Lab: What you see is what you get, Pisa, Italy

D. Sharon Litz

Assistant Professor

Patricia Livingston

Associate Professor

Medical Director, Global Health, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Co-Chair, Residency Curriculum Renewal Committee
Member, Education Operational Committee
Co-Chair, Fellowship Advisory Committee**Konstantin Lorenz**

Assistant Professor

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Promotions and Reappointment Committee**Mary Lynch**

Professor

Committee Memberships:Member, Working Group on Pain Medicine, Royal College of Physicians and Surgeons of Canada
Presentations, Seminars, Workshops, Lectures:
Cannabinoids in Clinical Pain Management – the Canadian experience, Brisbane, Australia
Prevention of Opioid Misuse, Analgesia and Risk, CIHR CRISM initiative funded CPS Study Day, Toronto, ON

Qigong and Tai Chi in the Management of Chronic Pain, Winnipeg, MB
The Opioid Wars – addressing the collateral damage, Brisbane, Australia
Update on the National Pain Strategy: Successes and failures in the implementation of best practices in pain care, Quebec City, QC

Bruce Macaulay

Assistant Professor
Medical Director, Continuing Professional Development, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Chair, Continuing Professional Development Committee
Member, Education Operational Committee
Member, Residency Curriculum Renewal Committee

Peter MacDougall

Professor
Director, Interprofessional Education, Dalhousie Faculty of Medicine
Founder and Director, Atlantic Mentorship Network – Pain and Addiction

Committee Memberships:

Chair, Canadian Anesthesiologists' Society Continuing Professional Development Committee Representative, Association of Canadian University Departments of Anesthesia (ACUDA) Continuing Education and Professional Development
Member, Methadone Maintenance Support Program, College of Physicians & Surgeons of Nova Scotia
Member, First Do No Harm, Health Canada
Anesthesia, Pain Management & Perioperative Medicine

Rochelle MacLellan

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Curriculum Renewal Committee

Brian MacManus

Assistant Professor

Robert MacNeill

Assistant Professor

Kirk MacQuarrie

Associate Professor
Subspecialty Chief, Transplantation Anesthesia

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee

Rachel Mallais

Assistant Professor

Avdhut Manerkar

Assistant Professor

Carlo Mariotti

Assistant Professor

Jason McDougall

Professor

Committee Memberships:

Member, CIHR Operating Grant Committee (Clinical Investigation B)
Member, Expert Advisory Committee on Information for Physicians on Marijuana for Medical Purposes, Health Canada
Anesthesia, Pain Management &

Perioperative Medicine

Member, Research Advisory Committee

Presentations, Seminars, Workshops, Lectures:

Identification of Neuropathic Elements in Osteoarthritic Pain, 15th World Congress of the International Association for the Study of Pain, Buenos Aires, Argentina
Joint Pain is a Moving Experience, The Arthritis Society Donor Cultivation Event, St. Andrews, NB
Neurophysiological Evidence of a Neuropathic Component of Osteoarthritis Pain, Charlottetown, PEI
Novel Pharmacotherapies for the Treatment of Arthritis Pain – Colloquium, Eli Lilly & Co., Toronto, ON
Pain Signalling by Proteolytic Enzymes, Charlottetown, PEI
Target Identification for Future Joint Pain Relief., Colloquium University of Western Ontario, London, ON
The Scientific and Clinical Use of Cannabinoids in Arthritis – A Joint Approach, Board of Directors Meeting, The Arthritis Society, Toronto, ON
Use of Cannabis-like Compounds to Manage Joint Pain, Halifax, NS

Dolores McKeen

Professor

Co-Medical Director, Anesthesia Resident Research Associate Director, Postgraduate Medical Education, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Vice Chair, Research Advisory Committee, Canadian Anesthesiologists' Society
Anesthesia, Pain Management & Perioperative Medicine
Chair, Applause Recognition Committee
Chair, Promotions and Reappointment Committee
Member, Residency Program Committee
Member, Residency Curriculum Renewal Committee
Member, Education Operational Committee

Genevieve McKinnon

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Curriculum Renewal Committee
Member at Large, Continuing Professional Development Committee

Robert McLean

Assistant Professor

Andrew Milne

Associate Professor

Associate Director, Quality Assurance and Patient Safety, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:

Member, Capital Health Research Ethics Board
Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee

David Milne

Assistant Professor

President, Doctors Nova Scotia

Committee Memberships:

Co-Chair, AFP Negotiations Committee
Chair, Doctors Nova Scotia Board of Directors
Member, Doctors Nova Scotia Fee Schedule Rewrite Committee
Member, Doctors Nova Scotia Master Agreement Negotiations Steering Committee
Member, Nova Scotia Physician Manual Review Committee
Member, Nova Scotia Physician Manual Modernization Project

Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Residency Program Committee

Joeseh Mir

Assistant Professor

Ian Morris

Professor
Site Chief, VG Site, Anesthesia, Pain Management and Perioperative Medicine

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Clinical Advisory Committee
Member, Site Chiefs Committee

Dagmar Moulton

Assistant Professor

John Muir

Professor

Karim Mukhida

Assistant Professor

Timothy Mullen

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Fellowship Advisory Committee
Member, Residency Curriculum Renewal Committee

John Murdoch

Assistant Professor

Johnson Ngan

Associate Professor

C. Andrew Nice

Assistant Professor

Site Coordinator, Postgraduate Anesthesia, Saint John Regional Hospital

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee
Member, Residency Curriculum Renewal Committee

Valerie Noel

Assistant Professor

James Norris

Assistant Professor

Robert Nunn

Associate Professor

Subspecialty Chief, Women's & Obstetric Anesthesia

Committee Memberships:

Member, Dalhousie Medical AFP Secretariat
Member, IWK Medical Advisory Committee
Member, IWK WNH Program Operations Committee
Member, IWK Childbirth Care Team Committee
Member, IWK Adult Surgery OR Committee
Member, IWK Women's and Newborn Mortality Review Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Site Chiefs Committee
Member, Subspecialty Chiefs Committee

Ashley O'Brien

Assistant Professor

Silke Opitz

Assistant Professor

Sean Orrell

Assistant Professor

Robert Paterson

Site Chief, Dartmouth General Hospital, Anesthesia, Pain Management & Perioperative Medicine

Dragan Pavlovic

Professor

David Petrie

Professor

Raissa Petriw

Assistant Professor

Brian Price

Assistant Professor

Arif Rafiq

Assistant Professor

Rick Retallick

Assistant Professor

Andrew Roberts

Assistant Professor

Fiona Roper

Assistant Professor

Zdzislaw Sadowski

Assistant Professor

Jana Sawynok

Professor

Matthias Scheffler

Assistant Professor

Presentations, Seminars, Workshops, Lectures:

International Survey on the Perioperative Management of Pulmonary Endarterectomy, Paris

Benjamin Schelew

Assistant Professor

Medical Director, Undergraduate Education, Anesthesia, Pain Management & Perioperative Medicine Coordinator, CBL Tutors, Dalhousie Medical School

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Education Operational Committee
Member, Human Resources Advisory Committee
Member, Residency Curriculum Renewal Committee**Michael Schmidt**

Professor

John Scovil

Assistant Professor

Tamara Seidmann

Assistant Professor

Romesh Shukla

Professor

Head/Chief, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:Member, Dalhousie University Senate
Member, QEII Foundation Board of Trustees
Anesthesia, Pain Management & Perioperative Medicine
Chair, Executive Advisory Team
Chair, Site Chiefs Committee
Chair, Subspecialty Chiefs Committee
Member, Human Resources Advisory Committee
Member, Clinical Advisory CommitteeMember, Residency Program Committee
Member, Education Operational Committee
Member, Fellowship Advisory Committee**Matthew Simms**

Assistant Professor

Treasurer, Nova Scotia Anesthesia Society

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member at Large, Continuing Professional Development Committee
Member, Promotions & Reappointment Committee**Ana Sjaus**

Assistant Professor

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee
Member, Residency Curriculum Renewal Committee
Member, Continuing Professional Development Committee
Member, Promotions and Reappointment Committee**Christian Soder**

Associate Professor

Parvinder Sodhi

Assistant Professor

Sarah Stevens

Assistant Professor

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Promotions and Reappointment Committee**Randolph Stone**

Assistant Professor

Jennifer Szerb

Associate Professor

Committee Memberships:

Member, Dalhousie Medical School Admissions Committee

Presentations, Seminars, Workshops, Lectures:Advanced Upper Limb Workshop, St John's, NL
Blocks above the clavicle, Auckland, New Zealand
Introductory Ultrasound, Auckland, New Zealand
Regional Anesthesia for Austere Environment, Halifax, NS
Year in Review 2013-2014. Trends in Regional Anesthesia, Canadian Anesthesia Society Symposium, St John's, NL
Year in Review-Top Articles in 2013/2014, University of Queensland, Brisbane, Australia**Geoffrey Thompson**

Assistant Professor

Fiona Turpie

Assistant Professor

Vishal Uppal

Assistant Professor

Narendra Vakharia

Associate Professor

Medical Director, Education, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Site Chiefs Committee
Member, Residency Program Committee
Member, Residency Curriculum Renewal

Committee

Member, Education Operational Committee
Member, Continuing Professional Development Committee

Member, Fellowship Advisory Committee

Presentations, Seminars, Workshops, Lectures:

The Difficult Airway Course: Anesthesia, Boston, MA

Arnim Vlaten

Associate Professor

Committee Memberships:Member, Simulation Planning Committee, Dalhousie/Capital Health
Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee**Gordon Whatley**

Associate Professor

Julie Williams

Assistant Professor

Peter Wilson

Assistant Professor

Tobias Witter

Associate Professor

Committee Memberships:Member, Board of Directors, Anesthesia Nova Scotia Inc.
Anesthesia, Pain Management & Perioperative Medicine
Member, Continuing Professional Development Committee
Member, Residency Curriculum Renewal Committee**Stuart Wright**

Assistant Professor

Committee Memberships:Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Curriculum Renewal Committee**Milton Wybenga**

Assistant Professor

Juan Zhou

Associate Professor



**DALHOUSIE
UNIVERSITY**

FACULTY OF MEDICINE
Department of Anesthesia,
Pain Management and
Perioperative Medicine