



Vision

A culture of excellence in anesthesia clinical practice and programs, research, and education.

Mission

To deliver anesthesia services through up-to-date clinical care based on the latest evidence (research) and knowledge (education).

The Department of Anesthesia, Pain Management and Perioperative Medicine believes that:

- Patients are entitled to safe, evidence informed, humanistic care
- Staff and faculty wellbeing is foundational to the department's success
- Life-long learning is a pre-requisite to safe, competent care and professional, compassionate clinicians
- Scholarly curiosity is fundamental to the improvement and enhancement of patient care
- Stewardship of local and global resources is a departmental responsibility
- Transparency, accountability in combination with creative thinking and leadership are imperative to the department's quest for excellence

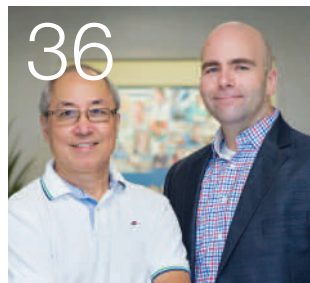
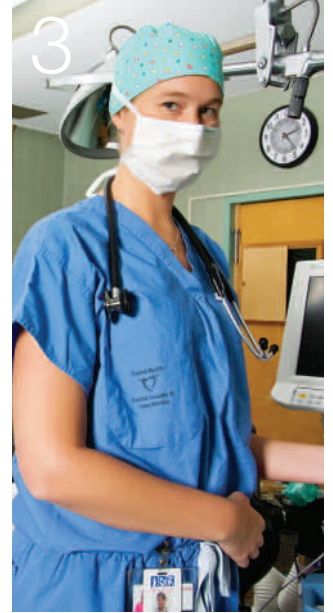


**DALHOUSIE
UNIVERSITY**

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

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Message from the Head and Chief

Dr. Romesh Shukla



The **Department of Anesthesia, Pain Management and Perioperative Medicine** has a four-fold mandate encompassing safe, quality patient care, education, research and stewardship of people's health at home and abroad. The department provides a full spectrum of acute care and general clinical services and administers leading edge programs in blood management, pain management and regional anesthesia. It subspecializes in cardiac surgery, neurosurgery, obstetrics, pediatrics, thoracic surgery and transplantation.

We recognize that collaboration within and external to the department is instrumental to moving toward our vision of excellence and being among the top academic anesthesia departments in Canada. Many, in fact, are leaders in their fields here and around the world. They, as individuals and as a team of department members, 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.

Our department 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.

There is excellent work underway in all aspects of the department, much of which you will read about on the following pages, but there are a few items that deserve special mention.

A Culture of Excellence

Many department members were honoured this year by local and national organizations for their patient care, research and education efforts. Of note, **Dr. Orlando Hung**, medical director, Office of Research, and professor of anesthesia, received the prestigious Canadian Anesthesiologists Society Research Recognition Award, and **Dr. Patty Livingston**, medical director of global health and associate professor of anesthesia, received a 2014 Canadian Association for Medical Education (CAME) Certificate of Merit Award.

In the patient care portfolio, the department continues to increase the number of regional blocks preformed at the QEII Health Sciences Centre and to work with surgical services to explore opportunities to further expand the use of peripheral nerve blocks.

We have also increased our quality and patient safety efforts this year, reaching out beyond the QEII and expanding research in this area.

Safe, vigilant patient care is the department's hallmark. Over one hundred anesthesiologists perform more than **49,000** 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**.

One of this year's highlights is the implementation of changes to our postgraduate curriculum resulting from the department's curriculum mapping and renewal initiative. A committee of faculty, residents and education experts from Dalhousie and Acadia universities leads the project, which has so far garnered significant interest from departments and areas at Dalhousie and other academic centres in Canada.

With more than **70** undergraduate students each year; **100 applicants** annually for five residency positions; and an ongoing commitment to continuous learning for department members, our education program is among the most robust in Canada. Feedback on the implementation of *Multiple Mini Interviews (MMI)* as part of the resident matching process has been very positive. The *MMIs* add further rigour to the resident selection process.

We launched both an academic profile application and an internal funding model for research this year. The academic profile captures the full extent of department members' academic activities and addresses the need for accurate information necessary to the completion of the department's various accountability reports. The internal funding model defines the process through which we assess and award financial support for research within the department.

Anesthesia, Pain Management and Perioperative Medicine concentrates its research efforts primarily on pain, airway management, perioperative inflammation and organ protection. Outcomes research and device development have also been identified as areas of concentration. A major focus for the department and by extension the Office of Research is embedding research into all aspects of the department from pre-, peri- and post-operative care to education.

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



Dr. Romesh C. Shukla, MBBS DABA FRCPC

Professor and Head, Dalhousie University Department of Anesthesia, Pain Management and 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 Maritime provinces via five 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

Attending anesthesiologists provide anesthetic services to 15 operating rooms (ORs) and the lithotripsy unit on a daily basis, Monday to Friday, at the Victoria General (VG) site during periods of full OR activity.

There was a slight increase in total cases this year, 16,207 (April 1, 2013 – March 31, 2014) as compared to 15,912 last year (April 1, 2012 – March 31, 2013). Annual workload also increased to 23,199 hours in 2013-2014, up from 22,664 in 2012-2013. Notably, the number of inpatient consults increased to 120 in 2013-2014, which is an increase of almost 30 percent over 2012-2013.

We implemented changes in a number of services and conducted reviews on various processes and procedures in the last year.

The brachytherapy service, which had been limited to carcinoma of the cervix, expanded to include carcinoma of the prostate in March 2014. Anesthesia support to the brachytherapy service has increased as a result and is expected to continue to do so as the service expands.

Anesthesiologists provided anesthetic support for magnetic resonance imaging (MRI) services in 2013-2014 at the VG site. This practice was discontinued in early 2014 with a decision to have MRIs done exclusively at the Halifax Infirmary site.

We have begun to implement end tidal carbon dioxide (ETCO₂) measurement and monitoring in the post anesthesia care unit (PACU). Though it is not a required monitor, it facilitates early recognition of apnea and low respiratory rates.

Round the clock airway coverage by anesthesia assistants implemented at the VG site in 2013.

In 2013-2014, AAs responded to 52 calls including 15 cardiac arrests, and performed 15 emergency endotracheal intubations during resuscitations outside the OR. The anesthesia assistants maintain their airway skills in the OR where, on average, each anesthesia assistant performs 12 endotracheal intubations per month in addition to laryngeal mask placement and other procedures. The availability of personnel with advanced airway skills outside of the OR 24/7 has had a very positive effect on patient care.

Halifax Infirmary Site, QEII Health Sciences Centre

Dr. J. Adam Law, site chief

At the Halifax Infirmary (HI) site department members provide anesthetic support for tertiary and quaternary surgical procedures for the population of Nova Scotia and the Maritime provinces. The caseload at the HI rose slightly this year: 11,710 cases (April 1, 2013 – March 31, 2014) as compared to 11,525 last year (April 1, 2012 – March 31, 2013).

Attending anesthesiologists provide weekday coverage to each of 15 operating rooms, 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 same-day admission clinic, and the regional/block room.

An anesthesia resident provides 24/7 coverage. In addition to operating room responsibilities, the resident typically initially evaluates all inpatient anesthesia consults, and responds to trauma-team activations in the emergency department and cardiac arrests elsewhere in the hospital.

On occasion, the resident is also contacted for airway emergencies. Attending anesthesiologist support and backup for all of the foregoing resident activities is arranged by the anesthesia coordinator during weekday daytime hours, and by the first call anesthesiologist out-of-hours. Anesthesia coordinators help with the smooth running of the operating room lists, often acting as troubleshooters.



Attending anesthesiologists are also primarily responsible for patients recovering from anesthesia in the Post Anesthesia Care Unit (PACU). A major focus this year was improving the flow of patients into and out of the PACU so as to reduce the number of patients waiting for transfer from the operating rooms to the PACU and the length of time they spent waiting, both of which improved significantly during the 2014 fiscal year. This can be attributed at least in part to the successful recruitment of additional PACU nursing staff and to the implementation of oximetry monitoring.

Oximetry monitoring is being used initially to monitor patients with obstructive sleep apnea, but their use will be expanded in time to other indications, such as monitoring patients who are highly tolerant of opioids.

IWK Health Centre

The Department of Anesthesia, Pain Management and Perioperative Medicine provides women's & 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 rose slightly in 2013-2014 to 9,038 from 8,857 in 2012-2013. This includes pediatric, adult gynecology, breast health and obstetric cases.



Women's & Obstetric Anesthesia

Dr. Robert Nunn, subspecialty chief

Women's & Obstetric Anesthesia provides comprehensive anesthesia services for maternal, breast health and non-oncology gynecology patients, including tertiary high-risk obstetric and neonatal referrals for the Maritime provinces.

The team provides labour analgesia/anesthesia for an average of 4,800 annual deliveries at the IWK.

This year we participated in a number of continuous improvement initiatives. They include acquiring a *Kyoto Lumbar Simulator Model* and installing *Pyxis Intraop Dispensing Machines* in all of the IWK's operating rooms, which keeps track of intraop medication dispensing, but not necessarily patient administration. Individual narcotic control (by physician and patient) is recorded. We also received capital funding for epidural infusion pumps, which have a new capability for programmable infused bolusing. We are working with information management to modify the anesthesia information system, *Innovian*, for a novel use on the birth unit for labour epidural analgesia.

Of note, **Dr. Dolores McKeen**, associate director of postgraduate education and associate professor of anesthesia, was named associate chief of Women's & Obstetric Anesthesia; **Dr. Ron George**, associate medical director of research and associate professor of anesthesia, was named director of research, Women's & Obstetric Anesthesia; and **Dr. Harold Yazer**, staff anesthesiologist and assistant professor of anesthesia, retired after 35 years of service.

Pediatric Anesthesia

Dr. Allison Gray, subspecialty chief

Pediatric Anesthesia provides anesthesia care to Maritime children and youth. While much of their expertise supports surgical activity, the team is active outside of the OR where cases can also be complex and require extended support. Demand for the pediatric anesthesia team's expertise is increasing locally and regionally.

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
- pre-operative 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



Hants Community Hospital

Dr. Alison Kelland, site chief

Anesthesia support at the Hants Community Hospital constitutes primarily anesthesia care for day surgeries, and chronic pain treatment and management via the on-site chronic pain clinic. **Dr. Alison Kelland**, staff anesthesiologist, chronic pain specialist and assistant professor of anesthesia leads anesthesia services, and provides the vast majority of anesthesia care at the hospital. In 2013-2014, 672 OR cases required anesthesia care and 1,053 patients were seen at the chronic pain clinic.

Dartmouth General Hospital

Dr. Robert Paterson, site chief

We provided anesthesia care for more than 8,500 cases in 2013-2014. For the chronic pain service, the caseload was just above 2,300.

Seven anesthesiologists provide anesthesia care supporting the operating room, an acute pain service, a chronic pain service, and general consultative services within our spectrum to the Dartmouth General Hospital (24/7) and to The Nova Scotia Hospital. We also maintain a preoperative assessment clinic function. Each anesthesiologist holds teaching responsibilities in many disciplines as well.

Saint John Regional Hospital

Dr. John Chisholm, site chief

Successful recruitment efforts have resulted in the addition of three new anesthesiologists to our department at the Saint John Regional Hospital. We intend to add one additional team member in the coming months, which would bring the total complement of anesthesiologists to 18. With the additional manpower we will be in a good position to allow the surgical program to work at the desired number of ORs on a consistent basis. New department members include: **Dr. Jennifer Landry, Dr. Tim Maxwell and Dr. David Quinn.**

Department members teach residents and undergraduate medical students as part of Dalhousie Medical School's undergraduate and postgraduate programs. Anesthesia and emergency residents rotate through the department on a variable basis and the department continues to host an oral exam weekend for PGY5 anesthesia residents in late January each year. This was once again well attended by the residents. Dr. David Hughes became a Royal College examiner in 2013 and took part in the Royal College exam in June.



The Dalhousie Medicine New Brunswick program has resulted in increased demand for anesthesia experiences for medical students in all four years of training. Some department members are serving as preceptors for Med 1 and Med 2 electives and there are multiple requests for electives from Med 3 and Med 4 students from Dalhousie and elsewhere. Department members also teach respiratory therapy students from the New Brunswick Community College.

Quality & Patient Safety

Dr. Gregory Dobson, medical director



It was an exciting year for the quality office. The addition of **Dr. Andrew Milne**, staff anesthesiologist and assistant professor of anesthesia, as associate director of quality and patient safety in 2013 continues to pay rewards with improved quality and patient outcome monitoring and new ideas for quality projects.

We continue to work closely with information management and are exploring opportunities to expand our research given the quality and quantity of data available to us via our anesthesia information system, Innovian. Also, we received confirmation this year of access to all laboratory data. As a result, we will be moving forward with new outcome data measurements.

A large part of our mandate remains clinical indicator monitoring, critical incident and mortality reviews, M and M rounds, and the 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. Our work to help tackle the challenging issues of drug supply, label changes and medication safety also continues.

We are now participating in a number of quality initiatives, including the clinical advisory committee, at Hants Community Hospital and the Dartmouth General Hospital. In the last year, we have also been working closely with the newly appointed medical director of the same day admission clinic at the QEII, **Dr. André Bernard**, staff anesthesiologist and assistant professor of anesthesia. Together, we conducted a staff survey and detailed chart audit, the results of which will soon be available.

We continue to look for ways to improve information flow among Anesthesia, Pain Management & Perioperative Medicine department members with regard to safety alerts and new and updated clinical guidelines and policies. The *Innovian* dashboard will be expanded and populated with the latest outcome data to help staff see how they fit in to the department's overall performance on various key measurements.

Quality and Patient Safety Snapshot:

- 10 M and M Rounds
- 2 District Medical Advisory Committee reviews

New or updated guidelines and policies:

- PACU temperature control – a study of reliability of data and increased awareness of routine monitoring in the OR
- Innovian charting improvements for airway and unexpected events
- OSA guidelines and the release of pre-printed orders
- Guidelines for a rational approach to surgical patients taking Ace/ARB antihypertensives and for a rational approach to hypertensive patients having topical /retrobulbar Anesthesia
- Guidelines for the use of our new capnography equipment in PACU and oxygen delivery to intubated patients
- Practice alert and recommendations for the safe use of muscle relaxants emphasizing proper dosing, timing and use of reversal and the use of neuromuscular monitoring

Priority anesthesia performance indicators:

- Deaths within 48 hrs of Anesthesia care
- Unplanned, preventable cancellations on day of surgery
- Regular pre-operative assessment quality auditing
- PONV rates
- Cases cancelled after anesthesia started
- Awareness under anesthesia
- Cardiac arrest in OR/PACU
- Reintubations in the OR and PACU
- Unplanned ICU admissions
- Complication rates related to invasive vascular procedures
- Perioperative MI rates
- Hypothermia in PACU
- Unanticipated airways and failed airways
- Dental/oropharyngeal/laryngotracheal trauma
- Major anesthesia equipment failures
- PACU admission pain and somnolence scores

Patient Care by the Numbers: 2013-2014

In 2013-2014, anesthesiologists provided anesthesia care for more than 49,000 procedures at the QEII Health Sciences Centre, the IWK Health Centre, the Saint John Regional Hospital, the Dartmouth General Hospital and the Hants Community Hospital.

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

Department of Anesthesia 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 for the 49,000 annual procedures was performed at the QEII Health Sciences Centre and IWK Health Centre.

OR procedures by anesthesia subspecialty area for the 2013-2014 fiscal year:

Anesthesia for liver, kidney and kidney pancreas transplantation	94
Cardiac anesthesia	2,019
Neuroanesthesia	1,148
Pediatric anesthesia	5,153
Thoracic anesthesia	831
Women's & Obstetric anesthesia	3,885

In addition to the surgical procedures represented above, tens of thousands of others performed during the 2013- 2014 fiscal year required general anesthesia support. Those include orthopaedic surgeries (6,684), ENT (ear, nose, throat) surgeries (1,585), ophthalmological (eye) surgeries (7,400), urological surgeries (6,350) and others.

Outside of the OR, two of the Department of Anesthesia'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) **302**

Patient visits **1,510**



Pain Management Services (adult services)

Acute inpatient consults at the QEII Health Sciences Centre HI site **581**, VG site **659**

Regional blocks performed at the HI Site, QEII Health Sciences Centre **2,040**

Chronic pain inpatient consults at the QEII Health Sciences Centre **75**

Chronic pain clinic visits (including block procedures for chronic pain) **6,947**
QEII **3,665**, DGH **2,197**, Hants **1,085**

New referrals to the chronic pain team **766**

Clinical Academic Programs



Acute Pain

Dr. Gordon Launcelott, subspecialty chief (VG site) and Dr. Jennifer Szerb, 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 581 patients were seen at the HI site and 659 at the VG site. A major issue for Acute Pain Services continues to be the number of highly opioid tolerant patients requiring surgery and the challenges they present in post-operative pain management. Comprehensive pain assessments and patient education in the pre-assessment clinic occurs at both sites with the aim of a customized approach to postoperative analgesia and improved pain control. We are also investigating options to provide better perioperative pain care, for example, adding *sufentanil* as an opioid option to the patient controlled analgesic.

Working collaboratively with the hematology service at the VG site, Acute Pain Services is now involved with the management of oral mucositis pain.

Also, we have a study underway that compares PCA to continuous opioid infusions for the treatment of pain following myeloablative chemotherapy for hematopoietic stem cell transplantation.

Acting as a model for other hospitals and health centres in Nova Scotia, Acute Pain Services is assisting with the development of an acute pain service at Cumberland County Hospital. **Lynn Langille**, case manager in Acute Pain Services, visited the hospital to teach about pain management and PCA's. She also provided feedback on policy development, patient education materials, and physician orders related to PCA.

Kudos go to **Lynn Langille** who received an Anesthesia, Pain Management & Perioperative Medicine Award of Excellence in March 2014.

This year, four residents completed one-month acute pain rotations at the VG site. On the continuing education front, Acute Pain Services hosts an annual inter-professional workshop. More than 90 clinicians at Capital Health and across Nova Scotia attended this year's event.

Blood Management Services

Dr. Blaine Kent, medical director

Use of our service continues to grow as do our education and research efforts.

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 intra-operative surgical and anesthetic blood management techniques.

Blood management services received 302 new referrals in 2013-2014 while total patient visits reached 1,510.



In early 2014, we updated our consent to treatment policy and a number of our patient consent forms to make them both more comprehensive and easier to understand. They include a new blood transfusion consent; consent to treatment, investigation and surgical procedure; and refusal of blood transfusion consent. To properly obtain informed consent for the transfusion of blood and/or blood products, the authorized prescriber (usually the treating physician or nurse practitioner) must ensure the patient understands the risks, benefits and available alternatives, and has the opportunity to ask questions of the treating healthcare provider. The informed consent to the transfusion of blood and/or blood products must then be documented.

On the education front, blood management services hosted the 10th annual Resident Blood Management Workshop as well as Blood and Beyond: Issues in Perioperative Medicine, which attracted 110 attendees from across Canada.

We have seen the most growth in our research activity in the last year:

- Three summer students joined our team to look at blood component and product use in three chart reviews of cardiac surgery patients and endocarditis patients. The students have presented their work at national and international conferences and are currently writing a manuscript of their findings.
- We received ethics approval for the use of *RiaSTAP* in elective high risk cardiac surgery and we are currently recruiting patients at Capital Health. The study will enroll 220 participants.
- Our scientific advisory committee received funding for a randomized controlled trial using *Haemocomplettan® P* in elective high risk cardiac surgery, which is awaiting ethics approval.
- We are currently participating in two large scale multi-centre trials, including the national *NiaStase* registry and a comparison of *Volulyte* and *Albumin*. We are also awaiting ethics approval for a multi centre *TRICC 3* trial in cardiac surgery.

Cardiac Anesthesia

Dr. Blaine Kent, subspecialty chief

The cardiac anesthesia team 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's critical care units.



Cardiac Anesthesia Research Projects

- 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)
- Kwapisz M. Retrospective Chart Review on the use of Fibrinogen Concentrate in Cardiac Surgery Patients [Grant] CSL Behring. Jun 2013. (\$9,000)
- Kwapisz M. Retrospective Chart Review on the use of Fibrinogen Concentrate in Jehovah's Witness Cardiac Surgery Patients. [Grant] CSL Behring. Jun 2013. (\$9,000)
- Gallacher W, Kwofie K, Doucette R, Kiberd M. Perioperative echocardiographic evaluation of the aortic valve by anesthesiologist: Can we be taught? [Unfunded] CDHA. Jun 2013.

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 2013-2014, chronic pain services received 766 new referrals and supported 6,947 clinic visits, a slight increase of 57 visits over 2012/2013. New inpatient consults at the QEII totaled 75.

We have initiated a number of changes in the past few years to ensure patients receive chronic pain care sooner. These changes are having an impact but long wait times are still our greatest challenge. Most recently, we expanded the Pain Self-Management Group to offer an eight-week program at the Dartmouth General Hospital in addition to the 12 self-management group programs at the QEII.

We hosted a number of continuing professional development events for faculty members and primary care providers to support patients living with chronic pain. They include the 4th annual Atlantic Provinces Inter-professional Pain Conference, provincial pain rounds, the 2nd annual Pain Research Day, and the Dalhousie Pain Network Speaker Series, which featured Professor **Celeste Johnston**, Dalhousie University/ McGill University, *The Myth of Pain Measurement*; **Dr. Christiane Hermann**, Justus-Liebig-Universität, Giessen Germany, *When Pain Leaves its Mark, a Psychobiological Perspective*; and **Dr. Pat Morley-Forster**, Western University, *The New Pain Medicine Residency*.

Also on the education front, chronic pain fellow, **Dr. Kirstin Derdall**, completed her fellowship training, and team members supported ongoing training of anesthesia residents (8), family medicine/psychiatry/ICU residents (9), medical students (10), nurse practitioner and nursing trainees (2), and psychology interns (2).

Faculty members are currently supervising seven students from Dalhousie University (6) and Sherbrook University (1), and one critical care fellow.

Our research activities continue to grow. Our current funded and non-funded projects range from clinical trials of drugs for the treatment of neuropathic pain stemming from chemotherapy to studies of alternative therapies, including the practice of Qigong to manage fibromyalgia, and mentorship as a method of chronic pain knowledge transfer and exchange. A complete list of current studies follows.

Our research and education efforts include supervision of medical and graduate students, residents & fellows.

Chronic Pain Research

- Clark AJ, Chambers C, Harman K, George R, McDougall J. Dalhousie Pain Group [Grant] Faculty of Medicine, Dalhousie University. May 2013. (\$23,000)
- d'Entremont M-A, Lynch ME, Clark AJ. Urine Drug Screening in the Management of Chronic Pain [Grant] Pain Management Unit CDHA. Jul 2013. (\$2,500)
- 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)
- 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)

Global Health

Dr. Patty Livingston, medical director

Anesthesia, Pain Management and Perioperative Medicine faculty members have a strong history of global engagement and outreach.



Ours was one of the first departments in North America to offer education and training to anesthesia professionals practicing in resource-challenged countries. Faculty members have participated in training missions to Africa and conducted research in Asia, Africa, and the Middle East.



Through the Canadian Anesthesiologists Society International Education Foundation (CASIEF) program in Rwanda, staff anesthesiologists and residents from the department travel to Rwanda annually to provide education, training and support to postgraduate residents and nurse anesthetists.

Most recently, faculty members and residents have been in Rwanda to establish and help teach the SAFE (Safer Anesthesia From Education) Obstetric Anesthesia Course, a three-day refresher course developed by the Ugandan Society of Anaesthesia, the Association of Anaesthetists of Great Britain and Ireland (AAGBI), and the World Federation of Societies of Anaesthesiologists (WFSA) to improve the skills of anesthesia providers for management of obstetric patients in low-resource countries. It was specifically designed to equip anesthesia providers, many of whom work in isolated and under-resourced environments, with a systematic approach to routine and emergent obstetrical anesthesia challenges.

The Dalhousie team, led by **Dr. Patty Livingston**, medical director, global health, coordinated with partners at University Rwanda to hold the first SAFE Obstetric Anesthesia Course in Rwanda in January 2013. This course trained over 120 anesthesia providers. The course was subsequently held in November 2013 and in April 2014. We are continuing to work with University Rwanda to support the sustainability of the course.

The following faculty, residents and staff members taught in the SAFE Obstetric Anesthesia Course in Rwanda in 2013-2014:

- **Dr. Patty Livingston**, medical director, global health, and associate professor of anesthesia
- **Megan Chipp**, coordinator, global health
- **Dr. André Bernard**, medical director, same day admissions clinic, and assistant professor of anesthesia
- **Dr. Janice Chisholm**, director, postgraduate education, and associate professor of anesthesia
- **Dr. Ruth Covert**, assistant professor of anesthesia
- **Dr. Ron George**, associate medical director, Office of Research, and associate professor of anesthesia
- **Dr. Fiona Turple**, fellow, women's & obstetric anesthesia
- **Dr. Yugi Gu**, PGY-3

Neuroanesthesia

Dr. Ian Beauprie, medical director

The neuroanesthesia team of 11 anesthesiologists provided services for 1,148 adult neurosurgical procedures in calendar 2013, including 138 functional neurosurgical procedures (spinal cord, vagus nerve, and deep brain stimulation) and 393 spine cases.

Our team supports members of the Division of Neurosurgery who provide sophisticated levels of care with intraoperative stereotactic navigation, electrophysiological monitoring, intraoperative MR and CT (O-arm), and minimally invasive spine surgery. We also support neuroradiology for endovascular aneurysm protection and provide anesthesia for magnetic resonance imaging (MRI).

We continue to offer integrated clinics with anesthesia/pain management and both spine and functional neuro surgery. This allows interdisciplinary assessment as well as improved travel convenience and wait times for patients.

Dr. Genvieve MacKinnon joined our team this year as a non-core member while **Dr. Shawn Hicks** will move from non-core to core membership, giving us greater access to his neuro-critical care expertise. Dr. Hicks presented several talks this June for the neuroanesthesia section at the Canadian Anesthesiologists Society annual meeting in St. John's Newfoundland.

Neuroanesthesia Research

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

See specific projects below.

- a. Schmidt M, Stoyek M., Wilfart F., Croll R., Smith F. A zebrafish model to investigate the cardiac effects of noble gases.
- b. Schmidt M, Stoyek M, Croll R, Wilfart F, Smith F. The isolated zebrafish heart as a model to investigate the basic mechanisms of cardiac side effects of modern anesthetics.
- c. Schmidt M, Croll R, Wilfart F. Zebrafish learning as a model for investigating learning disabilities after repeated anesthesia.
- d. Schmidt M, Croll R, Wilfart F. Zebrafish learning as a model for investigating learning disabilities after exposure to toxic byproducts of anesthesia.
- e. Schmidt M, Nickerson P, Wilfart F. The mouse as model for the investigation of anaesthetics and its by-products on apoptosis and necrosis of the retina.



Pediatric Anesthesia

Dr. Allison Gray, subspecialty chief

The pediatric anesthesia team provides anesthesia care for about 6,500 cases annually.



At full capacity, we support six operating rooms three days per week and five operating rooms two days per week. We provide a pre-operative assessment and consult service in conjunction with the pre-operative clinic. There were more than 800 patients seen through the program in the last year. We are developing and streamlining this program and expect this number to increase.

Our acute pain service had more than 200 consults, the majority of which were for post-operative pain management. The chronic pain service currently has a caseload of 125 patients.

The majority of our research efforts are focused on pediatric pain and led by international leaders in this field including **Dr. Allen Finley** and **Jill Chorney, PhD**. Our team includes a coordinator who serves to facilitate the quantity and quality of our research.

Team members provide education to undergraduate learners in many disciplines, including medicine, dentistry and paramedicine, and to residents in anesthesia, emergency medicine and pediatrics.

Pediatric Pain Service

Members of the pediatric anesthesia team 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.



The average number of children and youth referred for acute pain treatment and management stays relatively constant, at just over 100 annually.

Annual referrals for chronic pain consultation and management are on the rise. In the last few years, the number has grown by about 30 each year, now reaching well over 200 annual referrals.

Pediatric Pain Research

- 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, Curren J, Hong P, McGrath P, Ritchie K. Understanding Shared Decisions in Pediatric Surgery [Grant] NSHRF. Aug 2013. (\$147,246)
- Chorney J, Bailey K, Schmit P, Taylor B. 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. Jan 2013. (\$3,000)
- Chorney J, Bird S, Bailey K. Preparing Parents to be Present at their Children's Anesthesia Induction [Grant] IWK Health Centre. Jan 2013. (\$14,992)
- Chorney J. Augmented reality MRI preparation game for kids. [Industry] Springboard Atlantic Innovation Mobilization Program. Aug 2013. (\$13,347)
- 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)
- Curran J, Grimshaw J, McGrath P, Chorney J, et al.. Understanding Discharge Instructions for Children and Caregivers in the Transition from Pediatric Emergency Care [Grant] CIHR-NSHRF Regional Partnership Program Operating Grant. Jul 2013. (\$435,804)
- 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)
- 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)
- Chorney J, Andreou Pantelis, El-Hawary Ron, Finley GA, Howard Jason, McGrath Patrick JA, Valois Teresa. Pain at Home in Children following Major Surgery: Physical, Psychological, and Economic Consequences [Grant] Canadian Institutes of Health Research. Jun 2010. (\$724,991)
- Chorney J. Establishment of the Child Health and Perioperative Care Laboratory [Grant] Canadian Foundation for Innovation (CFI). Jan 2012. (\$312,177)
- Chorney J. Pain in Children at Home Following Major Surgery: New Investigator Award [Grant] CIHR. Jul 2012. (\$300,000)
- Kain ZN, Chorney J, Blount RL. Improving pain and anxiety in children undergoing surgery: Changing Healthcare Provider Behavior [Grant] National Institutes of Health. Jan 2012. (\$2,730,034)

- Latimer M, Rudderham S, Finley GA, Inglis S, Hutt-McLeod D. Understanding pediatric pain in aboriginal communities: Children's project [Grant] Nova Scotia Health Research Foundation. Jan 2011. (\$150,000)
- Latimer MA, Finley GA, Inglis S, Rudderham SE, Young S. Understanding pain in Aboriginal children: moving forward in Central and Eastern Canada [Grant] CIHR. Sep 2012. (\$22,369)
- McGrath PJ, Craig KD, Finley GA, Grunau RE, Johnston C, Stevens BJ, von Baeyer CL. Pain in child health, an innovative, international, trans-disciplinary research training consortium – Phase II [Grant] CIHR. May 2009. (\$1,950,000)

Regional Anesthesia

Dr. Jennifer Szerb, subspecialty chief



A total of 2,040 regional procedures were completed in 2013-2014.

This is in part due to the fact that it is a free standing block room area, in close proximity to the operating rooms, the only such set up in Canada east of Montreal. The majority of these procedures were surbarachnoid, interscalene, supraclavicular and femoral blocks.

In an attempt to comply with the *Subspecialization Document* 2.7, effective January 1, 2013, a number of new staff are becoming increasingly proficient with regional anesthesia.

This allows the regional anesthesia skill set to proliferate within the department, and to improve job satisfaction in an educational and interactive environment. There are 8 core members, and 6 non-core members

Our complement also includes a regional anesthesia fellow (**Dr. Justin Greenberg** will complete a fellowship in June 2014 while **Dr. Chris Prabhakar** will begin a fellowship in July 2014). A second fellow, **Dr. Vishal Uppal**, who has an interest in regional anesthesia research, will soon join the regional anesthesia team for a six-month period. He will be fulfilling the role of PNB1, while completing his many research projects.

In terms of the day to day running of the block room, we continue to maintain one nurse and one anesthesia assistant. This has recently been supplemented with a part-time ward aid. Our communication system with the OR has been enhanced with a tracking board.

Regional anesthesiologists are actively involved in research and program development.

Their commitment to these activities is evidenced by their work on undergraduate and postgraduate curriculum development, participation in teaching, conference attendance, and the growing number of funded and non-funded research projects underway.

Residents continue to get exposure to regional anesthesia. As an example, one of our recent second year residents logged a total of 92 blocks in a one-month rotation: 6 axillary, 1 epidural blood patch, 25 femoral blocks, 11 interscalene, 1 lumbar epidural, 2 sciatic blocks, 36 spinals, 1 superficial cervical plexus, 8 supraclavicular. Given that, prior to 2003, a resident may have done two peripheral blocks in a five-year residency, this is a remarkable achievement, and allows the residents to incorporate regional anesthesia into their practice on graduation without necessitating a fellowship.

There is interest in training anesthesiologists outside of the regional pain service in the use of trans-thoracic ultrasound. Some training has occurred to date, but with the constant use of the block room, the training has so far been limited. Notably, a Regional Observership Course at the QEII is planned for the fall given increasing expressions of interest.

Regional Anesthesia Research

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



Pre-Anesthetic Clinic

Dr. André Bernard, medical director

The two same day admission (SDA) clinics at the QEII Health Sciences Centre have been a priority focus of the department in 2014.

The long-term goal is to consolidate both sites into a unified clinic. With the forthcoming decommissioning of the Centennial Building, VG Site, this goal is now within a broader mandate to rationalize space across the QEII Health Sciences Centre.

The following activities are among those undertaken through the leadership of the medical director:

- **Improvement of patient flow and efficiency**
 - A major initiative is underway to improve the quality of the Best Possible Medication History (BPMH) for patients presenting in clinic. Beginning in late 2014, pharmacy technologists will take over the role of collecting the Best Possible Medication History (BPMH) in order to improve accuracy and reduce

errors. This pilot initiative is being guided by the principles of improving efficiency, enhancing the ease and speed of documentation for all members of the health care team, including anesthesiologists, and improving patient care.

- **Communication**

- **Quality**

- Under the lead of the quality team, the department surveyed anesthesiologists to solicit feedback on what areas most need improvement. This data is presently being analyzed. The Quality Team has also undertaken a preoperative assessment chart audit.

- **Towards an improved perioperative medicine role**

- Initial discussions are underway with members of the divisions of cardiology and general internal medicine in the Dalhousie Department of Medicine to discuss possible models and collaborative perioperative care.

Medical Director, Pre-Anesthetic Clinic



On January 1, 2014 **Dr. André Bernard** assumed the role of medical director, pre-anesthetic clinic. Dr. Bernard joined the department as full time staff in July 2012 after completing his anesthesia residency at Dalhousie and a Master of Science (Health Policy) at the London School of Economics and Political Science. He has been active in international relations and global health for a number of years and is currently the Canadian Medical Association's representative on the World Medical Association's Council.

Thoracic Anesthesia

Dr. George Kanellakos, subspecialty chief

The thoracic surgery service was managed over the past year with more and more patients having significant pulmonary hypertension or complex mediastinal masses. The work of the thoracic anesthesia members has been exemplary in providing safe and reliable care for this patient population, often done quietly in the background.



Thoracic anesthesia team members have continued to be 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. Given anticipated changes to the thoracic surgery service at the QEII, the next year will see a push to recruit new fellowship trained thoracic anesthesiologists and explore ways to further train interested Anesthesia, Pain Management & Perioperative Medicine members.

This year saw the development and execution of a new curriculum for the thoracic anesthesia block.

From an education perspective, the thoracic anesthesia block was appropriately combined with respirology and a lot of time was spent developing new, innovated teaching sessions for residents. On the undergraduate front, thoracic anesthesiologists continue to teach and supervise clinical clerks.

Research development within thoracic anesthesia continues to be challenged by the lack of time to do the job well. Thoracic anesthesiologists are involved in many research projects but these are often in other disciplines or departments. Paravertebral analgesia for thoracotomy is one area that is ripe for research within our department and in this regard we are clinical leaders in Canada. In the upcoming year a more concerted effort to study the outcomes of this clinical work will be undertaken in an attempt to produce a high quality research paper.

Transplantation Anesthesia

Dr. Kirk MacQuarrie, subspecialty chief

The transplantation anesthesia team provided anesthesia support for 23 liver transplantations in 2013-2014. We employ two dedicated anesthesiologists for each liver transplant case, this is consistent with the practice in most academic centers across North America. With the flexibility and cooperation of the department and 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 this has essentially replaced the use of cryoprecipitate. Its use has produced noticeable improvements in intra-operative coagulation. We are slowly increasing the use of TEE monitoring for liver transplantation. TEE is commonly employed in high volume transplant centers. We have been hampered by lack of trained personnel and availability of equipment, however progress is being made in both these areas.

Women's & Obstetric Anesthesia

Dr. Robert Nunn, subspecialty chief

Women's & Obstetric Anesthesia provides comprehensive anesthesia services for maternal, breast health and non-oncology gynecology patients, including tertiary high-risk obstetric and neonatal referrals for the Maritime provinces. The team provides labour analgesia/anesthesia for an average of 4,800 annual deliveries at the IWK birth unit. Seventy per cent of these cases require epidural; 28 per cent require cesarean section.



Gynecological anesthesia is also a large part of the Women's & Obstetric Anesthesia mandate.

The team provides anesthesia services for gynecologic surgeries, and consultation for patients who require gynecological and obstetric pre-operative assessment. Other patient care activities include non-obstetric anesthesia for pregnant patients requiring surgery, obstetric anesthesia for pregnant patients who are critically ill or have complicated health issues, acute pain anesthesia for women and anesthesia for breast surgeries.

We have a robust research program led by **Dr. Ron George**, associate medical director of research and associate professor of anesthesia, who was appointed director of research, Women's & Obstetric Anesthesia in 2014 and also leads a women's pain research group. Current studies focus on the relationship between microcirculation and development of

pre-eclampsia, complications following elective surgery and predictors and consequences of childbirth related pain.



Dr. Fiona Turple began a fellowship in women's & obstetric anesthesia with us in 2013 and we have accepted another fellow, **Dr. Alana Munro**, who will begin the one-year fellowship in July 2014.

Women's & Obstetric Anesthesia Research

- George RB, Islam Saleh Abdo, Dolores McKeen, Jillian Coolen, Christian Lehmann. Maternal Microcirculation & SDF Imaging: A novel assessment of the microcirculation 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. Mar 2013. (\$15,000)
- McKeen DM. The RECITE Study: Residual Curarization and its Incidence at Tracheal Extubation. [Overhead Award] IWK Health Centre. Jan 2013. (\$18,677.18)

Excellence in Patient Care, Education & Research



Anesthesia, Pain Management and Perioperative Medicine Awards of Excellence

The Department's Awards of Excellence Program, which it launched in 2012 as part of the Applause recognition strategy, recognizes and celebrates the accomplishments of individuals and teams internal and external to the Department.

The 2014 winners are:

- **Individual (internal)** **Ms. Lynn Langille**, Acute Pain Services case management coordinator
- **Team (internal)** **QEII Pain Management Unit**
- **Individual (external)** **Ms. Michelle Murray**, coordinator, Skills Centre for Health Sciences, QEII Health Sciences Centre
- **Team (external)** **Women's Pain Multidisciplinary Research Group** (Natalie Rosen, PhD, Jill Chorney, PhD, Dr. Ron George, Erna Snelgrove-Clarke, PhD)

The presentation of the Awards of Excellence was held April 3, 2014. The event represented the department's pursuit of excellence and desire to recognize those who demonstrate

professional excellence. The evening also included remarks by Dalhousie University president, **Richard Florizone, PhD**, who provided his perspectives on recognition and its value to Dalhousie. In his address, he acknowledged not only the contributions of the department and its members but also how events such as the Awards of Excellence are pivotal to establishing a culture of recognition within the university.

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 inter-professional 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.

Team (external) – Presented to a team external to the department that 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.

Awards of Excellence Recipients

In addition to her exceptional clinical skills for which **Ms. Lynn Langille** receives high praise, she is recognized for compassionate and caring patient care and for being a joy to work with. *"Lynn is knowledgeable, an excellent clinician, personable, cheerful, caring and organized – a pleasure to work with."*

The **Pain Management Unit** is recognized as one of Canada's leading multidisciplinary programs for the care of individuals with pain. It has led the way in clinical care with long established group programs, referral triage, provincial accountability, inpatient consultation program, and interdepartmental program development. It was also one of the first in Canada to become active in clinical research, a mandate it has expanded to now supporting the development of an institute in pain research at Dalhousie and an endowed chair in pain medicine. *"The team has demonstrated its excellence through its commitment to teaching, research and clinical care. Members play important leadership roles at Dalhousie and are nationally and internationally known advocates in the area of pain management."*

Ms. Michelle Murray is best known at Capital Health and Dalhousie for expertly managing the Skills Centre and for artfully teaching residents' surgical skills through expertise, patience and role modeling. Recently she played a leading role in establishing the Faculty of Medicine Simulation and Skills Centre in Rwanda. *"Michelle has made a phenomenal commitment to the Department's global health activities. She dedicated countless hours of time to help with decision-making, strategy, planning and, especially, teaching."*

In a span of just two years, the **Women's Pain Multidisciplinary Research Group** of **Natalie Rosen, PhD, Jill Chorney, PhD, Dr. Ron George, and Erna Snelgrove-Clarke, PhD**, has initiated Women's Pain Journal Club, integrated women's pain into development of the Dalhousie Institute for the Study

of Pain, completed an unfunded pilot project assessing the predictors and consequences of childbirth related pain, and garnered funding from the Canadian Institutes of Health Research and the Nova Scotia Health Research Foundation. *"There is no doubt this group will prosper in coming years and be a national leader in women's pain."*

Dr. Orlando Hung Wins CAS Research Recognition Award



Dr. Orlando Hung, medical director of research and professor of anesthesia, joins a distinguished group of researchers as the recipient of the Canadian Anesthesiologists' Society 2014 Research Recognition Award. The prestigious award honours a senior investigator who has made major contributions in anesthesia research in Canada over an extended period of time. Dr. Hung is the first Dalhousie University faculty member to receive the award. The Research Recognition Award was presented at the CAS Annual Meeting in June 2014 in St. John's, Newfoundland and Labrador.

Dr. Hung was nominated for the Research Recognition Award through the Anesthesia, Pain Management and Perioperative Medicine Applause program, a unique program established to recognize and honour department members' professional contributions.

Dr. Christian Lehmann Receives \$100K Grand Challenges Canada Grant

Anesthesia, Pain Management & Perioperative Medicine is home to its second successful Grand Challenges Canada applicant. **Dr. Christian Lehmann**, professor of anesthesia, received a \$100,000 grant to improve the potential for a video microscope to be used in developing countries to help

diagnose conditions such as pre-eclampsia, anemia, malnutrition and conditions associated with trauma.



The video microscope records images of small blood vessels under the tongue. It can replace the need for blood work and imaging which are not as readily available in developing countries especially in rural areas. The videos are analyzed to determine blood flow, capillary density and other factors pertinent to diagnoses.

The funds from Grand Challenges Canada will be directed to improve the current software so the video can be processed faster, leading to a quicker diagnosis and earlier treatment.

Dr. André Bernard Named One of Halifax's Power People



Halifax Magazine says **Dr. André Bernard**, medical director of the pre-anesthetic clinic, QEII Health Sciences Centre, and assistant professor of anesthesia, is among Halifax's "power people" thriving in their chosen fields and shaping Halifax's future.

"André Bernard spends his days as a busy doctor at the QEII Health Sciences Centre, but that's just the start of it. His deep and abiding commitment to global justice drives him to work overtime to share some of Canada's wealth with people around the world." – Halifax Magazine, halifaxmag.com/features/power-people/

Dr. David Milne, President-Elect, DoctorsNS

Dr. David Milne, assistant professor of anesthesia, was appointed President-elect of DoctorsNS at its 2014 annual general meeting. Dr. Milne has served as a member of the DoctorsNS Board of Directors for the past three years, and is a member of the Master Agreement Negotiations Steering Committee, co-chair of the Capital Health Academic Funding Plan Negotiations Committee, and a member of the Physicians' Manual Modernization Project Steering Committee.



Dr. Milne is just as active at Capital Health having served as Director of the Same Day Admissions Clinic for five years (2008-2013), clinical lead for its H1N1 response, and a member of several emergency planning initiatives, including labour disruption planning.

Dr. Milne is recognized among colleagues and peers for being a leader with an innate ability to work effectively among many teams with varying mandates and interests, often negotiating and mediating change initiatives. He is an exceptional role model for young anesthesiologists and well represents Anesthesia, Pain Management and Perioperative Medicine.

Dr. Patty Livingston Receives CAME Certificate of Merit



Dr. Patty Livingston, medical director of global health and associate professor of anesthesia, received a 2014 Canadian Association for Medical Education (CAME) Certificate of Merit Award in Ottawa on April 27th. The CAME merit awards recognize and reward faculty committed to medical education in Canadian medical schools. Dr. Livingston co-leads the Anesthesia, Pain Management & Perioperative Medicine curriculum renewal initiative with **Dr. Janice Chisholm**, director of postgraduate education and associate professor of anesthesia, and has been instrumental in improving simulation education in Rwanda.

Dr. Narendra Vakharia Appointed Medical Director, Education

Dr. Narendra Vakharia, medical director of simulation and associate professor of anesthesia, assumed the role of medical director of education on July 1, 2013. In this co-leadership position, Dr. Vakharia is responsible for providing the medical leadership necessary to a smooth functioning, productive Office of Education. In conjunction with the managing director of the Office of Education, the medical director implements, and evaluates departmental education activities and initiatives. Dr. Vakharia also engages in and supports the strategic planning of the department specifically as it relates to education and assists the managing director in operationalizing the plan.

Teaching Awards

Four faculty members are honoured with Department of Anesthesia, Pain Management & Perioperative Medicine teaching awards annually. This year's winners include:

Resident Advocate – **Dr. Dolores McKeen**, assistant director, postgraduate medical education, and associate professor of anesthesia

Resident Mentor – **Dr. Patty Livingston**, medical director, global health, and associate professor of anesthesia

Clinical Teacher of the Year – **Dr. Ben Schelew**, medical director, undergraduate medical education, associate professor of anesthesia

Undergraduate Teacher of the Year – **Dr. Tim Mullen**, assistant professor of anesthesia

Three faculty members were promoted this year within the current CAPR appointment process.

Promotions & Appointments

The Dalhousie Faculty of Medicine is working through revisions to its clinical promotion criteria and changes to its faculty appointment processes. The department began to implement some of the resulting changes over the last year to prepare for 2014-2015. New promotion criteria will be implemented in 2014-2015 and the Continuing Appointment with Periodic Review (CAPR) appointment system will be replaced by a system of Continuing Appointment with Annual Career Development. All clinical faculty will be required to maintain an up to date academic dossier (academic activities and goals for annual career development). 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.

Congratulations to:

Peter MacDougall, MD, PhD, professor of anesthesia

Jill Chorney, PhD, associate professor of anesthesia and psychology

Jason McDougall, PhD, professor of anesthesia and pharmacology

Education Programs

Postgraduate, Undergraduate, Continuing Professional Development, and Fellowship



Message from Medical Director

Dr. Narendra Vakharia, medical director, education



This year our focus has been on continuous quality improvement as Anesthesia, Pain Management & Perioperative Medicine strives for continued excellence in all facets of its operations. The Office of Education released its first accountability report in 2013-2014. The report communicates the education activities of faculty members with respect to targets established and goals stated in the education accountability framework, which we released in 2010. The information in the report highlights educational activities and achievements from July 2012 to June 2013, and data from previous academic years for comparative purposes.

The accountability report shows that learner satisfaction overall is high as are our Royal College of Physicians and Surgeons final exam success rates. It also shows that demand for and satisfaction with student and resident electives are high and continuing to grow. As for our opportunities, we are working to best support faculty members to achieve academic promotion.

We are also working closely with others from 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, we made full use of our *Anesthesia Learner Scheduling Application*, which launched in July 2013. The database application enables us to easily record and track the activities of all learners in the department. As a result, we are better able to manage teaching schedules, report on faculty members' complete teaching activities, and ensure all faculty and staff teachers are being utilized.

We continue to renew our postgraduate curriculum, an initiative that is attracting attention from educators across Dalhousie University and other academic centres in Canada. This is important work as we look to be one of the first anesthesia residency programs in the country to implement the Royal College of Physicians and Surgeons' competency based medicine model.

Our department believes in the merits of lifelong learning and has one of the most robust continuing professional development programs among clinical departments at Dalhousie.

As medical director of continuing professional development (2008 – 2014), **Dr. Peter MacDougall**, was a key player in helping to grow our activities. **Dr. Bruce Macaulay**, staff anesthesiologist, will take over the role as of July 1, 2014. Dr. Macaulay has a long-held interest in education and has been a very active faculty member, teaching students and residents, for many years. Thanks and appreciation go to Dr. MacDougall for his many contributions and a warm welcome to Dr. Macaulay as he assumes his responsibilities.

As a final note, congratulations also go to each of our teaching award winners, **Drs. Dolores McKeen** (resident advocate), **Patty Livingston** (resident mentor), **Ben Schelew** (clinical teacher of the year), and **Tim Mullen** (undergraduate teacher of the year). Dr. Patty Livingston, medical director, global health, received a second honour this year as the recipient of the 2014 Canadian Association for Medical Education (CAME) Certificate of Merit Award. Congratulations!

Dr. Narendra Vakharia
Medical Director, Education

Strategic Priorities

- Evaluate the success of the Med-3 anesthesia selective and continue to advocate for additional time within the third-year curriculum
- Continue with the evaluation, mapping and implementation of the postgraduate curriculum leading towards a competency based curriculum
- Develop and implement an effective evaluation tool of teaching/rotation



- Participate in Capital Health fellowship renewal committee and ensure our program meets recommendations
- Continue to advocate for education day
- Expand continuing professional development sessions to meet the needs of the department; ensure adequate resources are available to deliver sessions
- Participate in the development of the Capital Health simulation centre
- Implement revised promotion criteria
- Continue to build capacity with Rwandan partners through volunteer teaching placements for Dalhousie staff and residents, the newly established simulation and skills centre, a second offering of the SAFE Obstetric Anesthesia Course, and the development and implementation of National University of Rwanda's Department of Anesthesia strategic plan

Education by the Numbers 2013-2014



Undergraduate Learners 207

101 medical students in eight cities and towns: Halifax, Sydney, Amherst, Windsor, Moncton, Saint John, Fredericton and Charlottetown.

QEII	73	Windsor	1
IWK	2	Moncton	3
Dartmouth	3	Saint John	2
Amherst	5	Fredericton	3
Sydney	7	Charlottetown	2

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

Respiratory Therapy	13	Lifeflight	9
Nursing	13	Dentistry	3
Advanced Care	63	Other	5
Paramedicine			

Anesthesia Elective Course Participation

Year 1 course	9 medical student participants
Year 2 course	7 medical student participants
Med 3 Selective	20
Dalhousie Medical Student Shadow Day Participants	10

Summer Medical Students

Halifax	4
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Number of Department Member Undergraduate Tutors at Dalhousie Medical School

24 tutors	892 hours
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Number of residents

PGY – 1	6	PGY – 4	5
PGY – 2	5	PGY – 5	6
PGY – 3	4		

Number of fellows 3**Postgraduate off-service/elective rotations**

Halifax

QEII Health Sciences Centre 48 residents Total weeks 177

IWK Health Centre 4 residents Total weeks 14

Saint John 4 residents Total weeks 16

Rwandan residents 2 residents

Number of Applicants to Residency Program

Canadian Resident Matching System (CaRMS) 101

Continuing Professional Development

Number of Grand Rounds 26

12 faculty speakers, 5 resident speakers, 2 fellow speakers and 7 visiting professors

Number of M&M Rounds 10

Number of Research Journal Club 8

Number of other CPD and/or events 9

Undergraduate*Dr. Ben Schelew, medical director*

In the 2013-2014 academic year, anesthesia was added to the Dalhousie Faculty of Medicine undergraduate curriculum. Anesthesia, Pain Management & Perioperative Medicine is involved in all four years of the Dalhousie University medical degree program but most prominently in Case Based Learning (CBL) tutoring, the Communication Skills Program and elective experiences.



Med III students could choose one of three options for the critical care rotation: four weeks of ICU, four weeks of anesthesia, or two weeks of each. In response to a proposal submitted by the Office of Education on behalf of the department, Dalhousie's undergraduate medical education office approved an anesthesia selective in the Med III curriculum. The selective will draw one to two medical students into the department at any given time, enabling students to be exposed to anesthesia before fourth year, and helping to increase the number of students who consider anesthesia as a specialty of choice.

We continue to attract a growing 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 medical 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 the Dalhousie Department of Anesthesia, Pain Management and Perioperative Medicine.

In 2013-2014 46 medical students from Dalhousie and other medical schools in Canada chose to do electives with faculty members in our department.

We currently offer two-week, full-time clinical electives designed for maximum case exposure in various areas of anesthesia, including pain services, gynecology, obstetrics and pediatrics.

Postgraduate

Dr. Janice Chisholm, medical director

The Anesthesia, Pain Management & Perioperative Medicine postgraduate program instituted significant changes in the last year resulting from two main initiatives: the department's mentorship program and curriculum renewal and the Canada-wide push for shorter call periods for residents.

Resident Mentorship

In 2013-2014, Anesthesia, Pain Management & Perioperative Medicine rolled out the resident component of its department-wide mentorship program. Mentorship programs at various institutions both public and private have been found to have a positive effect on staff engagement, assist in the professional development of staff, and improve organizational recruitment and retention. As such, in 2012, the department determined that a formalized mentorship program covering employees of all classifications would be desirable in achieving the departmental vision of fostering a culture of excellence in anesthesia clinical practice, and programs, research and education.

The resident component of the 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.



Foundation Course in Anesthesia Postgraduate Curriculum

We launched a new foundations course for second-year residents in July 2013 as part of ongoing efforts to redesign our postgraduate curriculum so that its outcomes better align with those prescribed by the Royal College of Physicians and Surgeons of Canada and assist in the transition to competency based medicine.

The foundations course provides junior residents with the opportunity to learn the fundamentals of anesthesia in sessions designed and delivered for their level of knowledge and learning needs.

The modules offer building blocks that help to establish a foundation upon which junior residents will build their anesthesia skills.

The one-year course includes the following modules, each of which includes an online open book exam:

- Management of Anesthesia Perioperative Problems
- Preoperative Assessment
- Pharmacology and Physiology

- Anesthesia Equipment
- Anesthesia Practice

Academic half days are now organized separately for junior and senior residents. For the first two hours junior residents attend the foundations course and senior residents study core curriculum. Following these sessions, the residents gather together for problem rounds. Notably, the department enables residents to access the foundations course session objectives and materials in advance, which encourages more and better resident participation in the sessions. In turn, junior residents can then apply that knowledge and participate more fully in problem rounds.

In addition to creation of the foundations course, the curriculum renewal initiative has also included revisions to the first year of core curriculum for senior residents and improved definition of objectives and format for problem rounds.

Anesthesia, Pain Management & Perioperative Medicine continues to attract attention with its curriculum mapping and renewal initiative. The project, led by **Drs. Janice Chisholm**, director of the postgraduate program and associate professor of anesthesia, and **Patty Livingston**, medical director of global health and associate professor of anesthesia, has been presented at:

- 14th Annual Symposium on Medical/Health Professions Education Research and Interprofessional Education, Dalhousie Faculty of Medicine (March 2013)
- Dalhousie Academic Innovation Funding (\$20,000)
 - Online Poster Presentation
 - Dalhousie Newsletter Article
- 2014 Canadian Conference on Medical Education (Spring 2014)
- International Conference on Residency Education (Fall 2013)

Graduating Residents 2013-2014 Academic Year

Congratulations to the 2013-2014 PGY5s who have now successfully completed their anesthesia residency:

- | | |
|---------------------|---------------------|
| • Dr. Tomas Kuca | • Dr. Ada Poranek |
| • Dr. Karim Mukhida | • Dr. David Quinn |
| • Dr. Allana Munro | • Dr. Lauren Zolpys |

Residents by Year

PGY 1

Dr. Liem Ho
Dr. Kyle Jewer
Dr. Ravi Puella
Dr. Mallory Garza
Dr. Kitt Turney
Dr. David Watton

PGY 2

Dr. Tristan Dumbarton
Dr. Mike Konviser
Dr. Amélie Pelland
Dr. Joshua Roebert
Dr. Michael Vargo

PGY 3

Dr. Ainslie Gilchrist
Dr. Yuqi Gu

Fellowships

Dr. Jane Henderson, medical director

Anesthesia, Pain Management & Perioperative Medicine offers fellowships in airway, cardiac, chronic pain, global health, regional, and women's & obstetric anesthesia. The fellowships are generally one year and emphasize clinical and academic skills and competencies. Given the size of our department and the age of our fellowship program (we're relatively young and growing), faculty members especially emphasize individualized fellowships that take into account each fellow's clinical, research and overall professional experience goals while ensuring fellows complete their programs having gained exceptional clinical, education and research skills.

In 2013-2014, three fellows successfully completed fellowships in women's & obstetric anesthesia, chronic pain, and regional anesthesia.

Dr. Mathew Kiberd

Dr. David MacDonald

PGY 4

Dr. Austin Lamb
Dr. George Philip
Dr. Rob Rideout
Dr. Taraneh Sadmomtaz
Dr. Edmund Tan

PGY 5

Dr. Tomas Kuca
Dr. Karim Mukhida
Dr. Allana Munro
Dr. Ada Poranek
Dr. David Quinn
Dr. Lauren Zolpys

Airway Fellowship

Our 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 our state-of-the-art simulation centre. Additionally, the fellow is encouraged and supported to teach airway courses and workshops.

The airway fellow participates in local, national and international teaching forums and is involved in or conducts research studies in clinical and simulated settings. The fellow is also supported in submitting manuscripts and abstracts for publication and scientific meetings.



Cardiac Fellowship

Our fellowship program offers training in all aspects of cardiac surgical patient care, from pre-operative assessment and optimization, through to intra-operative management and immediate post-operative care. Our goal 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.

Our cardiac anesthesia fellowship offers many opportunities to develop skills in clinical care, judgment, teaching and research. The fellow provides progressively independent

anesthesia care to mid- to high-risk patients for a wide spectrum of cardiac surgical problems.

The fellowship includes an intensive one-month rotation in intraoperative transesophageal echocardiography (TEE) and also basic and advanced peri-operative blood management techniques during cardiac surgery. The fellowship includes completion of a clinical research project for presentation at a major meeting (CSA, ASA, or CAS) or publication in a peer-reviewed journal.

Chronic Pain Management Fellowship

At least six months of the year-long chronic pain management fellowship will take place in our multidisciplinary unit. CanMEDS core competencies will be provided in palliative care, psychiatry and addiction medicine, rehabilitation and musculoskeletal medicine, acute pain, pediatric pain, neurology and neurosurgery.

Our chronic pain management fellowship offers you many opportunities to develop skills in clinical care, judgment, teaching and research. The fellowship offers training, teaching and research in a setting that annually sees 1,700 outpatients per year and completes an additional 1,400 injection and invasive procedures. Nationally and internationally renowned, the Pain Management Unit 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.

The fellow's pain practice will evolve throughout the year, growing to include a rapid-consult clinic up to one day per week with increasing autonomy. The fellow will enjoy access to 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

Our global health fellowship offers many opportunities to develop skills in clinical care, judgment, teaching and research in Canada and abroad.



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

- Participate in two unique courses that prepare anesthesiologists for work in developing countries: “Anesthesia for Developing Countries” in Kampala, Uganda, and the “Anesthesia for Global Outreach Course” in Halifax;
- Work for three to four months in Rwanda as part of the Canadian Anesthesiologists’ Society International Education Foundation (CASIEF) program;
- Provide obstetrical anesthesia care in Ghana as part of the Kybele team;
- Practise clinical anesthesia in Halifax;
- Supervise residents from a developing country;
- Undertake an elective in the area of your interest (e.g. tropical disease, health policy); and
- Prepare an abstract and/or attend the Canadian Society for International Health’s global health conference in Ottawa.

After completing the program, the global health fellow is well prepared for a career in global health work and fully understands exactly what is needed to establish an anesthesia training program in a developing country.

Regional Anesthesia and Acute Pain Fellowship

Our fellowship offers the opportunity to 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. In addition to spending three out of five days per week in the block room, the fellow provides anesthesia care in related areas such as orthopedic, plastic and vascular surgery. The fellow designs, initiates and performs at least one research project while in the program, with the goal of publication and/or presentation at a recognized anesthesia or regional anesthesia meeting. The fellowship includes non-clinical time and provides mentors for clinical, education and research goals and projects. The fellow participates in departmental teaching activities and is encouraged to attend academic conferences to further develop skills.



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 5,000 babies per year, the IWK 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.

The fellowship program is structured to ensure optimal patient care while offering plentiful opportunities for the fellow to develop skills in clinical care and judgment, teaching, and research.



The fellow provides anesthesia care for a vast range of obstetric cases, for non-obstetric surgery during pregnancy, for non-operative diagnostic and interventional procedures requiring anesthesia, and for assisted reproductive technologies.

The fellow designs and performs, with appropriate support, at least one research project or quality assurance exercise. The program allocates non-clinical time and provides mentors for clinical, education and research goals and projects.

Continuing Professional Development

Dr. Peter MacDougall, medical director

Anesthesia, Pain Management and Perioperative Medicine's Continuing Professional Development program is designed to provide education opportunities for clinical and support staff in the department, our clinical colleagues in other academic departments at Dalhousie University and in areas of Capital Health and the IWK Health Centre, and clinicians in the community, including primary care and emergency health. We accomplish this by providing support, expertise and evidence-based educational content, and by adhering to our 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 the Department of 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, our community partners and, whenever possible, to the anesthesia community at large.

Members of the department 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. As well, physicians and allied health professionals from other departments partake in many of our continuing professional development activities. 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.

This year we added a Regional Anesthesia and Acute Pain Observership to our continuing professional development offerings.

The observership, which was developed with the regional anesthesia team, offers FRCP anesthesiologists as well as nurses an observership experience in which they will learn how to set up and run a successful block room and acute pain service. The observership is a two-day course during which participants refresh their ultrasound guided regional anesthesia skills, observe blocks in real patients, practice needling techniques in cadavers, and make acute pain rounds. Participants also learn how to deal with regional complications and deliver acute pain management for complex patients.

We also celebrated the 10th year of the Blood Management Residents' Workshop. This workshop continues to be positively received by Dalhousie residents in all disciplines.

2013-2014 Continuing Professional Development Events

Atlantic Pain Conference	September 2013
Blood & Beyond: Issues in Perioperative Medicine	April 2013
Canadian Anesthesiologists' Society Atlantic Regional Meeting	September 2013
Interdisciplinary Professional Development Day	November 2013
Anesthesia for Global Outreach Course	April 2014
Valley Pain Day	
Crisis Management training for the Practicing Anesthesiologist	February 2014

Visiting Speakers

- When Pain Leaves its Mark: A psychobiological perspective*
Dr. Christiane Hermann, Professor, Justus Liebig University Giessen
- Human Error in the Cardiac Operating Room: The AHA statement and FOCUS efforts for teamwork*
Dr. Bruce Spiess, Virginia Commonwealth University
- Treating Non-Canadian Patients: Medical/legal issues (combined Department of Anesthesia, Pain Management & Perioperative Medicine and Department of Surgery grand rounds)*
Dr. Steven Bellemare, physician risk manager, Canadian Medical Protective Association
Catherine Gaulton, general counsel, Capital Health
- Pain Medicine: A new royal college subspecialty program*
Dr. Pat Morley-Forster, Schulich School of Medicine & Dentistry, University of Western Ontario
- Learning and Working in an Intergenerational Context*
Suzanne Le-May Sheffield, PhD, director, Centre for Learning & Teaching, Dalhousie University
- Neutrophil-Derived Microparticle Generation and Immune Impact During Sepsis*
Charles Caldwell, PhD, Associate Professor of Surgery, University of Cincinnati
- Introductory Overview of Hyperbaric Medicine*
Dr. Debbie Pestell, consultant in diving and submarine medicine, Canadian Forces

- Current Concept of Trauma Management: Stopping the bleeding*
Dr. Matthias Helm, Military Hospital Ulm Abt. Anästhesie
- Over and Above Clinical Medicine*
Dr. Gus Grant, registrar and CEO, College of Physicians & Surgeons of Nova Scotia

Simulation

Dr. Narendra Vakharia, medical director



Development of a simulation network got underway this year with the completion of the network's business plan. The SimEd Network to be established by the Dalhousie Faculty of Medicine, Dalhousie Faculty of Health Professions, the IWK Health Centre and Capital Health encompasses the ten (10) different sites that comprise simulation within the local area. The network will provide a structure that allows the four organizations to share simulation resources and equipment, partner in curriculum development and research activities, expand course offerings, and jointly procure major pieces of capital equipment.

Marilyn Girouard, executive director in the Department of Anesthesia, Pain Management & Perioperative Medicine leads the development of the SimEd Network alongside **Dr. Brock Vair**, Department of Surgery, Capital Health, as co-chair of the network.

Instrumental in the success of securing the operational funding necessary to the establishment of the Network were **Chris Power**, CEO, **Anne McGuire**, CEO, **Dr. W. Webster**, Dean and **Dr. Tom Marrie**, Dean.

Research



Message From the Medical Directors

Much of our focus this year has been on cultivating research activity in all areas of anesthesia by supporting the research interests of faculty members from the development of research ideas through funding submissions. This includes help with refining ideas and scope, identifying collaborators, partners and funding opportunities and developing and editing applications and proposals. Policy and program initiatives, such as the introduction of the Academic Profile and the formalization of our internal funding program, support our hands-on approach to growing the quantity and quality of the department's research activity. The results are encouraging.

Many faculty are initiating research projects for the first time, resulting in growth of research activity beyond our traditional areas of strength.

Over the last year, we have had a number of faculty members – junior and senior – initiate research projects for the first time. Subsequent to this, we are seeing growth of research activity beyond the department's traditional areas of research strength.

The change to the department's annual report this year wherein we embed reporting on academic activities throughout is indicative of a move by the department to better integrate research and education into all aspects of the department's operations. We believe this is a solid approach to spur research excellence.

With regard to our strategic priorities for the year, they too recognize we must look beyond the department's research portfolio to foster research growth.

We are working closely with the Office of Education on resident research, supporting a national initiative of one of our faculty members to strengthen perioperative anesthesia clinical trials in Canada, assisting the department's human resources committee to recruit clinician scientists, and liaising with the department's scheduler to ensure appropriate time and flexibility for faculty members to conduct research. The Office of Research has also been helping to lay the foundation for more integration of research in the perioperative portfolio together with representatives of quality assurance/patient



safety, the same day admissions clinic and information management.

As a final note, we welcomed **Lorraine Chiasson** as research manager of women's and obstetric anesthesia research and **Leah Wood** as research facilitator in the department. Lorraine joined the department in April 2013, replacing **Faye Jacobsen** upon her retirement. Leah joined the department in July 2014 beginning an 11-month term. As research facilitator, Leah will manage, coordinate and administer all aspects of departmental research projects inclusive of grant and ethics submission, and will be responsible for project management, budget administration, and compliance with regulatory and institutional guidelines.

Dr. Orlando Hung
Medical Director, Research

Dr. Ron George
Associate Medical Director, Research

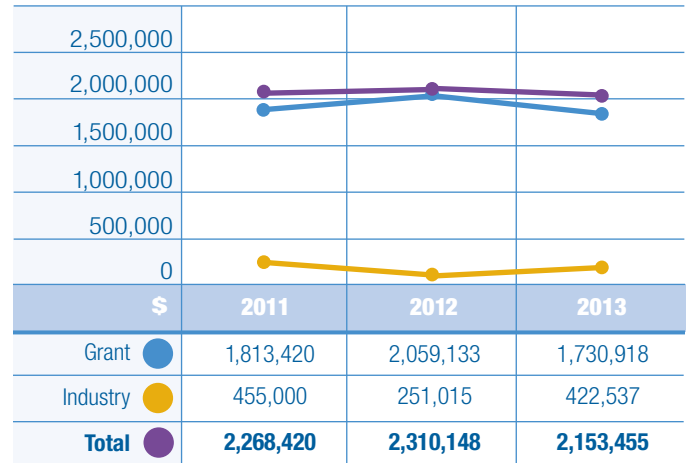


Strategic Priorities 2013-2014

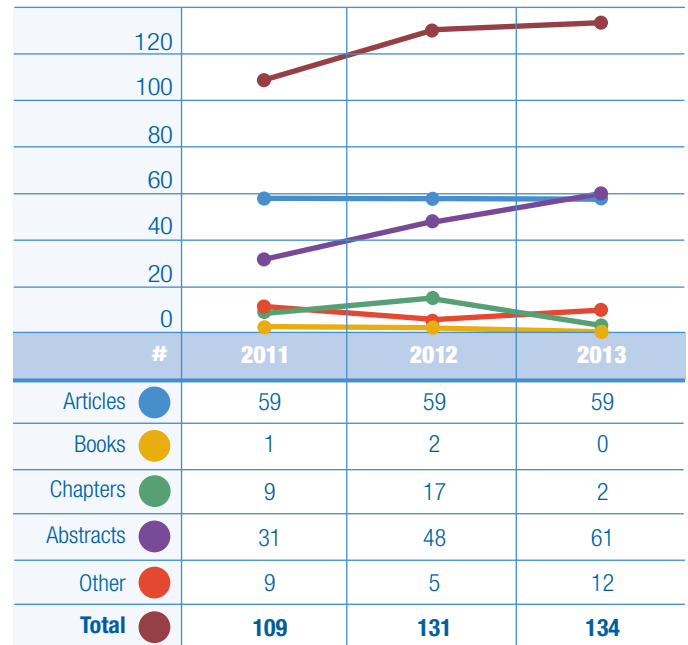
- **Support trainee programs involving research projects**
 - Review support to Dalhousie Research In Medicine, residents and fellow research projects
 - Coordinate timelines and forms for projects for the resident research program
- **Support the Perioperative Anesthesia Clinical Trials (PACT) initiative**
 - Coordinate biannual meetings and develop/maintain protocol database
 - Coordinate department-sponsored welcome reception
- **Assist current human resource planning to recruit clinician scientists**
 - Representative on the department's human resources committee, representative on university hiring selection committees
- **Advocate for a flexible scheduling environment to facilitate research planning**
 - Continue communication with scheduler, develop plan for optimal scheduling

A Snapshot of Research Excellence

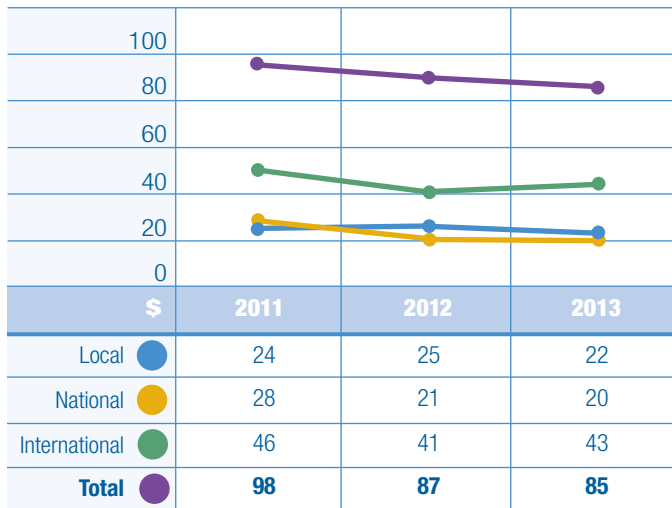
Research Funding



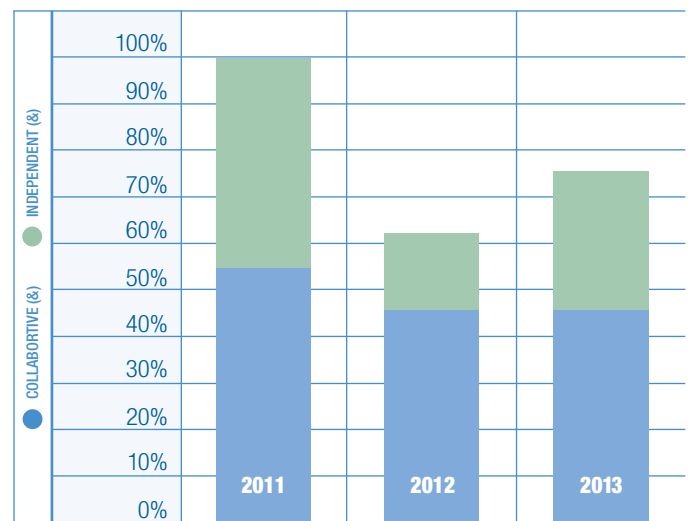
Publications



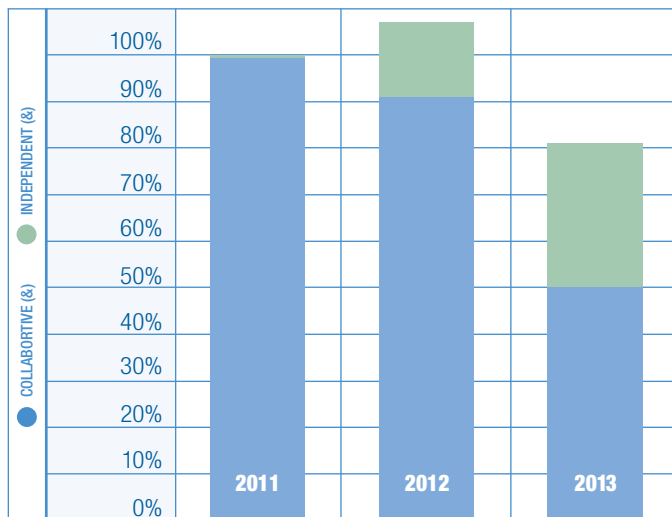
Presentations



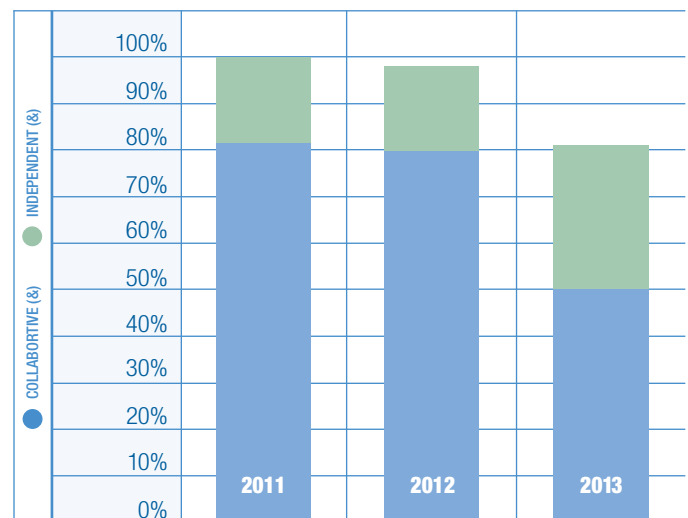
Collaborative Research Projects



Collaborative Publications



Collaborative Publications & Projects



Academic Profile to Provide Accurate Academic Activity Capture

The *Academic Profile (TAP)*, the new database that replaces the *CV Module* in the IIS, went live on July 2, 2014.

The academic profile was developed by the Database IIS Committee (DISCO) to address the need for accurate information necessary to the completion of the department's various accountability reports as well as its annual alternate funding plan (AFP) deliverables report to the Nova Scotia Department of Health and Wellness.

TAP is a comprehensive streamlined mechanism for department members and the department to capture and report on education, research and clinical activities and accomplishments, e.g. publications, seminars, awards, lectures. It is supported by the recently approved academic profile policy, which identifies the necessary information and process to be used to maintain and update your profile on the department's internal information system.

Features of the academic profile:

- Automated/controlled data capture, including clinical teaching, faculty appointment and promotions, and grant capture, which ensure the highest quality of data together with minimum input from department members.
- Status summary display, which allows quick and easy review of recently updated items and items that are close to ending.
- Academic goal setting and career path identification that enables better professional development planning.
- Enhanced flexibility for tailored reporting, e.g., CV, teaching dossier and accountability reports



Department Launches Anesthesia Internal Support for Research (Research Funding Anesthesia)

Anesthesia, Pain Management & Perioperative Medicine formalized its model through which the department assesses and awards financial support for research with the launch of its internal funding program. The purpose is to present a transparent and equitable model for requesting financial support for research purposes in the Department of Anesthesia, Pain Management and Perioperative Medicine.

The model is based on three categories of support; activities, projects, and programs/research time. The Office of Research screens all applications to ensure their objectives are aligned with the award guidelines as well as for completeness. For project, program and research time requests, an Internal Peer Review Committee is used. Also, for research time requests, the Office of Research liaises with the department's administrator and scheduler to determine the projected impact of the requested additional research time as well as assess budget availability.

Review Process – Project and Program

The application process to request financial support for the Project and Program categories includes the completion of the internal support request form as well as a more comprehensive application package that undergoes an internal peer review. The estimated time for a decision is 4-6 weeks after submission date.

Review Process – Research Time

Similarly an Internal Peer Review Committee is used for research time requests. The estimated time for a decision is 4-6 weeks after submission date. Successful research time requests may start an additional 1-6 months after award notification.

Research Day 2014

Research Day 2014 attracted more than 20 abstracts – our most enthusiastic participation to date.

It was a great day of research excellence demonstrating our department's growing research strength.

Keynote speaker

Dr. Pamela Flood, professor of anesthesiology, Stanford University. Dr. Flood is recognized for her extensive research in women's & obstetric anesthesia, particularly in labour pain and progress. The pain and progress of labor are highly variable and the sources and nature of that variability are poorly understood. Labor pain has only limited commonality with acute pain in other settings. Using animal models and clinical trials, Dr. Flood's laboratory seeks to understand the factors that are predictive of the variable expression of acute pain, labor pain and labor progress.

Research Day Winners

1st Prize – Resident/Fellow Category

Methylene Blue in the Treatment of Experimental Septic Shock. Tristan Dumbarton, N Farah, J Nantais, A Maxan, S Minor, J Zhou, and C Lehmann

2nd Prize – Resident/Fellow Category

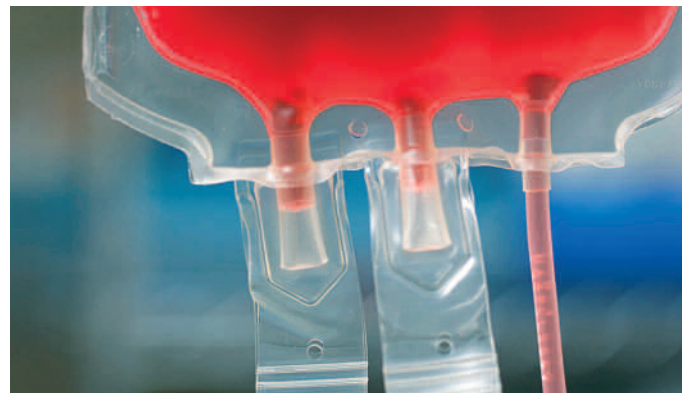
A Comparative Study of the Glidescope and McGrath Mac Video Laryngoscopes for Intubation in Cadavers With Simulated Oropharyngeal Bleeding. David MacDonald, J Zhang, and O Hung

1st Prize – Graduate Student Category

Cannabinoid Associated Tlr 4 Signalling in Inflammation. James (Tom) Toguri, R Laprairie, A Szczesniak, E Denovan-Wright, J Zhou, M Kelly, and C Lehmann

2nd Prize – Graduate Student Category

Novel Co2 Absorber: Membrane vs. chemical granulate. Florentin Wilfart and M Schmidt



1st Prize – Undergraduate Student Category

Blood Transfusion Requirements in Aortic Valve Replacements With and Without Underlying Endocarditis. Hannah Dahn, K Buth, JF Legare, H Mingo, B Kent, and M Scheffler

2nd Prize – Student Category

Factors Associated With Decreased Oxygen Saturation on Arrival to Pacu. B Schelew, Matthew Walker, and R Farmer

Department Members Secure New TRIC Grants



The QEH Foundation Translating Research into Care (TRIC) Grants is a new 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.

Three TRIC grants were awarded to Anesthesia research teams:

- Clark A.J., Mumford K., George R., Davis D., Milne D., Langille L., Hammond P., Yazbeck S., Sernyk S. The highly opioid tolerant patient – will a new paradigm of care improve outcomes? (Grant) Translating Research into Care (TRIC), 2014-2015
- Snelgrove-Clarke, E., West, J., Wenning, J., Allen, V., Mann, C., Harrold, J., Courtney, L., McKeen, D. Second stage management: A collaborative strategy for change (Grant) Translating Research into Care (TRIC), 2014-2015
- Chorney, J., d'Entremont, C., Allen, S., Smith, I., Bird, S., Latimer, M., Martin, C., Wright, S. Identifying ways to improve the perioperative experience for children with Autism Spectrum Disorders. Translating Research into Care (TRIC): Healthcare Improvement Research Program. \$3,000.00 (1 year)



Anesthesia, Pain Management & Perioperative Medicine Research Projects & Funding 2013-2014

Pain Management

Hart C, Fraser J, Clark AJ. The Mobile Methadone Program Is it Helping? [Educational Grant] Dalhousie University. Jul 2013. (\$2,500)

Pediatric Pain

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

Chorney J, Bailey K, Schmit P, Taylor B. 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. Jan 2013. (\$3,000)

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

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

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)

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

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)

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)

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

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

Chorney J. Pain in Children at Home Following Major Surgery: New Investigator Award [Grant] CIHR. Jul 2012. (\$300,000)

Kain ZN, Chorney J, Blount RL. Improving pain and anxiety in children

undergoing surgery: Changing Healthcare Provider Behavior [Grant] National Institutes of Health. Jan 2012. (\$2,730,034)

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

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

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

Women's Pain

George RB, Islam Saleh Abdo, Dolores McKeen, Jillian Coolen, Christian Lehmann. Maternal Microcirculation & SDF Imaging: A novel assessment of the microcirculation 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. Mar 2013. (\$15,000)

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

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

Chronic Pain

Clark AJ, Chambers C, Harman K, George R, McDougall J. Dalhousie Pain Group [Grant] Faculty of Medicine, Dalhousie University. May 2013. (\$23,000)

d'Entremont M-A, Lynch ME, Clark AJ. Urine Drug Screening in the Management of Chronic Pain [Grant] Pain Management Unit CDHA. Jul 2013. (\$2,500)

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)

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)

Women's & Obstetric Anesthesia

George RB, Islam Saleh Abdo, Dolores McKeen, Jillian Coolen, Christian Lehmann. Maternal Microcirculation & SDF Imaging: A novel assessment of the microcirculation 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. Mar 2013. (\$15,000)

McKeen DM. The RECITE Study: Residual Curarization and its Incidence at Tracheal Extubation. [Overhead Award] IWK Health Centre. Jan 2013. (\$18,677.18)

Cardiac Anesthesia

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)

Kwapisz M. Retrospective Chart Review on the use of Fibrinogen Concentrate in Cardiac Surgery Patients [Grant] CSL Behring. Jun 2013. (\$9,000)

Kwapisz M. Retrospective Chart Review on the use of Fibrinogen Concentrate in Jehovah's Witness Cardiac Surgery Patients. [Grant] CSL Behring. Jun 2013. (\$9,000)

Gallacher W, Kwofie K, Doucette R, Kiberd M. Perioperative echocardiographic evaluation of the aortic valve by anesthesiologist: Can we be taught? [Unfunded] CDHA. Jun 2013.

Neuroanesthesia

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

- Schmidt M, Stoyek M., Wilfart F., Croll R., Smith F. A zebrafish model to investigate the cardiac effects of noble gases.
- Schmidt M, Stoyek M, Croll R, Wilfart F, Smith F. The isolated zebrafish heart as a model to investigate the basic mechanisms of cardiac side effects of modern anesthetics.
- Schmidt M, Croll R, Wilfart F. Zebrafish learning as a model for investigating learning disabilities after repeated anesthesia.
- Schmidt M, Croll R, Wilfart F. Zebrafish learning as a model for investigating learning disabilities after exposure to toxic byproducts of anesthesia.
- Schmidt M, Nickerson P, Wilfart F. The mouse as model for the investigation of anaesthetics and its by-products on apoptosis and necrosis of the retina.

Schmidt M, Wilfart F, Nickerson P, Christie S. Spinal injury in the pig as model for investigating anesthesia strategies and neuro-protective substances.

Medical Education Research

Dumbarton T, Livingston P, MacLeod A. Curriculum Design and Mapping for the Anesthesia Residency Program at Dalhousie University: An Ethnography [Unfunded] Apr 2013

Gu Y, Witter T, Livingston P. Does simulator fidelity effect learning of non-technical skills? A randomized controlled trial. [Unfunded] October 2013.

Dr. Yugi Gu's study, The Effect of Simulator Fidelity on Acquiring Non-Technical Skills. A Randomized Controlled Trial, was approved for funding of \$5,000 in the most recent Capital Health Research Fund competition (March 2014). Congratulations to Dr. Gu and co-investigator, Dr. Tobias Witter.

Regional Anesthesia

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)

Vargo M, Beauprie I, Chorney J. Evaluation of lumbar facet joint steroid injection in clinical practice, a retrospective cohort analysis. [Unfunded] Sep 2013.

Airway Management

Law JA, Gu Y, Robert J. Optimal laryngoscopic view to enable GlideScope-aided tracheal intubation. A Randomized Control Trial [Unfunded] Dec 2013.

Gilchrist A, Brady J, Goodday R, Milne AD. Effect of Orthognathic Surgery on Airway Grade - A Retrospective Review [Unfunded] Jun 2013.

Law JA, Milne A, Morris I, Brousseau P. A retrospective database review of methods used to achieve tracheal intubation in operative patients [Unfunded] Oct 2013.

Law JA, Gu Y. King Vision laryngoscope (channeled version): Standard endotracheal tube vs. Parker endotracheal tube for first-pass success. (Working Title) [Unfunded] Oct 2013.

Milne AD, Pullela R, Valiant EM. Mechanical Strength Characteristics of Plastic Versus Metal Disposable Laryngoscope Blades [Unfunded] Aug 2013.

Basic Research

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

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

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

McDougall J. The relationship between proteases, protease activated receptors and cytokines in mediating osteoarthritis pain [Grant] Canadian Institutes of Health Research (CIHR). Jan 2012. (\$601,280)

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

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

Other

Hung O. Intravenous fluid administration monitor "IV-Tag" [Industry] innovacorp Early Stage Commercialization Fund. Jan 2013. (\$50,000)

Anesthesia, Pain Management and Perioperative Medicine Publications 2013-2014

Note: This list of publications includes only those peer-reviewed articles that are currently published and accessible online (52)

1. Al-Banna N, Christian Lehmann. Oxidized LDL and LOX-1 in Experimental Sepsis. *Mediators of Inflammation*, 2013. [doi: [10.1155/2013/761789](https://doi.org/10.1155/2013/761789)].
2. Al-Banna NA, Pavlovic D, Bac VH, Utpatel K, Janke E, Rippke JN, Borowiak M, Grundling M, Ladwig E, Cerny V, Spassov A, Johnston B, Issekutz TB, Lehmann C. Acute administration of antibiotics modulates intestinal capillary perfusion and leukocyte adherence during experimental sepsis. *Int J Antimicrob Agents*, 2013; 41(6):536-43. PubMed ID: [23622880](https://pubmed.ncbi.nlm.nih.gov/23622880/).
3. Al-Banna NA, Pavlovic D, Grundling M, Zhou J, Kelly M, Whynot S, Hung O, Johnston B, Issekutz TB, Kern H, Cerny V, Lehmann C. Impact of antibiotics on the microcirculation in local and systemic inflammation. *Clin Hemorheol Microcirc*, 2013; 53:155-169. PubMed ID: [22975936](https://pubmed.ncbi.nlm.nih.gov/22975936/). [doi: [10.3233/CH-2012-1583](https://doi.org/10.3233/CH-2012-1583)].
4. Al-Banna NA, Toguri JT, Kelly ME, Lehmann C. Leukocyte-endothelial interactions within the ocular microcirculation in inflammation and infection. *Clin Hemorheol Microcirc*, 2013; 2013 Oct 10. [Epub ahead of print] PubMed ID: [24113507](https://pubmed.ncbi.nlm.nih.gov/24113507/).
5. Allen MJ, Asbridge MM, Macdougall PC, Furlan AD, Tugalev O. Self-reported practices in opioid management of chronic non-cancer pain: a survey of Canadian family physicians. *Pain Res Manag*, 2013; 013 May 28. pii:13901. PubMed ID: [23717824](https://pubmed.ncbi.nlm.nih.gov/23717824/).
6. Burkovskiy I, Zhou J, Lehmann C. Use of Escherichia coli toxins in sepsis models. *Adv Biosc Biotechn*, 2013; 4:424-429.
7. Burkovskiy I, Joel Sardinha, Juan Zhou, Christian Lehmann. Cytokine release in sepsis. *Advances in Bioscience and Biotechnology*, 2013.
8. Cerny V, Zhou J, Kelly M, Alotibi I, Turek Z, Whynot S, Saleh A, Lehmann C. Noninvasive assessment of the iridal microcirculation in rats using sidestream dark field imaging. *Journal of Microscopy*, 2013; 249 PubMed ID: [23277920](https://pubmed.ncbi.nlm.nih.gov/23277920/).
9. Chorney J, Tan E, Kain ZN. Adult-child interactions in the Post Anesthesia Care Unit: Behavior matters. *Anesthesiology*, 2013; 118 (4):834-41. PubMed ID: [23254147](https://pubmed.ncbi.nlm.nih.gov/23254147/).
10. Finley A, Chorney J, Campbell L. Not Small Adults: The emerging role of pediatric pain services. *Canadian Journal of Anesthesia*, 2013; October [doi: [10.1007/s12630-013-0076-7](https://doi.org/10.1007/s12630-013-0076-7)].
11. Forgeron PA, Evans J, McGrath PJ, Stevens B, Finley GA. Living with difference: Exploring the social self of adolescents with chronic pain. *Pain Res Manage* 2013; 18(6): e115-e123
12. George RB, Allen TK, Habib AS. Automated intermittent epidural bolus (IEB) compared to continuous epidural infusions (CEI) for labor analgesia: A systematic review and meta-analysis. *Anesthesia & Analgesia*, 2013; 116(1):133-44. IF 3.286: 2012. PubMed ID: [23223119](https://pubmed.ncbi.nlm.nih.gov/23223119/).
13. George RB, Munro A, Abdo I, McKeen DM, Lehmann C. An observational assessment of the sublingual microcirculation of pregnant and non-pregnant women. *Int J Obstet Anesth*, 2013. PubMed ID: [24342223](https://pubmed.ncbi.nlm.nih.gov/24342223/). [doi: [10.1016/j.ijoa.2013.08.013](https://doi.org/10.1016/j.ijoa.2013.08.013)].
14. Graepel R, Leung G, Wang A, Villemaire M, Jirik FR, Sharkey KA, McDougall JJ, McKay DM. Murine autoimmune arthritis is exaggerated by infection with the rat tapeworm, *Hymenolepis diminuta*. *Int J Parasitol*, 2013; 43(7):593-601. PubMed ID: [23583716](https://pubmed.ncbi.nlm.nih.gov/23583716/).
15. Gregoire MC, Finley GA. Drugs for chronic pain in children – A commentary on clinical practice and the absence of evidence. *Pain Res Manage*, 2013; 18(1):47-50. PubMed ID: [23457686](https://pubmed.ncbi.nlm.nih.gov/23457686/).
16. Habib AS, George RB, McKeen DM, White WD, Ituk US, Megalla SA, Allen TK. Antiemetics Added to Phenylephrine Infusion During Cesarean Delivery: A Randomized Controlled Trial. *Obstetrics & Gynecology*, 2013; 121 (3):615-23. IF 4.73: 2012. PubMed ID: [23635626](https://pubmed.ncbi.nlm.nih.gov/23635626/).
17. Hao W, Chorney J, Hong P, Bezuhly M, Wilson K. Analysis of health-related quality of life outcomes and their predictive factors in pediatric patients who undergo otoplasty. *Plastic and Reconstructive Surgery Journal*, 2013; Nov;132(5):811e-817e. [doi: [10.1097/PRS.0b013e3182a3c133](https://doi.org/10.1097/PRS.0b013e3182a3c133)].
18. Kianian M, Al-Banna NA, Kelly ME, Lehmann C. Inhibition of endocannabinoid degradation in experimental endotoxemia reduces leukocyte adhesion and improves capillary perfusion in the gut. *J Basic Clin Physiol Pharmacol*, 2013; 24(1):27-33. PubMed ID: [23382309](https://pubmed.ncbi.nlm.nih.gov/23382309/).
19. Kianian M, Kelly M, Zhou J, Hung O, Cerny V, Rowden G, Lehmann C. Cannabinoid receptor 1 inhibition improves the intestinal microcirculation in experimental endotoxemia. *Clin Hemorheol Microcirc*, 2013. PubMed ID: [23334604](https://pubmed.ncbi.nlm.nih.gov/23334604/).
20. Kwofie K, Shastri U, Vandepitte C.. Standard approaches for upper extremity nerve blocks with an emphasis on outpatient surgery. *Current Opinion in Anaesthesiology*, 2013; 26(4):501. PubMed ID: [23787491](https://pubmed.ncbi.nlm.nih.gov/23787491/).
21. Kwofie MK, Shastri UD, Gadsden JC, Sinha SK, Abrams JH, Xu D, Salviz EA. The effects of ultrasound-guided adductor canal block versus femoral nerve block on quadriceps strength and fall risk: a blinded, randomized trial of volunteers. *Reg Anesth Pain Med*, 2013; 38(4):321-5. PubMed ID: [23788068](https://pubmed.ncbi.nlm.nih.gov/23788068/).
22. Law JA, Broemling N, Cooper RM, Drolet P, Duggan LV, Griesdale DE, Hung OR, Jones PM, Kovacs G, Massey S, Morris IR, Mullen T et al.. The difficult airway with recommendations for management: Part 1. Difficult tracheal intubation encountered in an unconscious/induced patient. *Can J Anesth*, 2013.[doi: [10.1007/s12630-013-0019-3](https://doi.org/10.1007/s12630-013-0019-3)].
23. Law JA, Broemling N, Cooper RM, Drolet P, Duggan LV, Griesdale DE, Hung OR, Jones PM, Kovacs G, Massey S, Morris IR, Mullen T et al.. The difficult airway with recommendations for management: Part 2. The anticipated difficult airway. *Can J Anesth*, 2013. [doi: [10.1007/s12630-013-0020-x](https://doi.org/10.1007/s12630-013-0020-x)].
24. Lehmann C, Abdo I, Kern H, Maddison L, Pavlovic D, Sharawi N, Starkopf J, Hall R, Johnson P, Williams L, Cerny V. Clinical evaluation of the intestinal microcirculation using sidestream dark field imaging – Recommendations of a round table meeting. *Clinical Hemorheology and Microcirculation*, 2013.
25. Lehmann C, Nowak A. The Hawthorne effect: can it be measured and utilized? *Br J Anaesth*, 2013; 110:658-9. PubMed ID: [23508495](https://pubmed.ncbi.nlm.nih.gov/23508495/).
26. Lehmann C, Gotz F, Schuster L, Zhou J. Improved setup for intralaminar intravital microscopy in mice - the "floating table" *Minerva Anestesiologica*, 2013; 79:102-103. PubMed ID: [22772852](https://pubmed.ncbi.nlm.nih.gov/22772852/).

27. Lynch ME, Cesar-Rittenberg P, Hohmann A. A double blind placebo controlled crossover pilot trial with extension using an oral mucosal cannabinoid extract for treatment of chemotherapy induced neuropathic pain. *J Pain Symptom Manage*, 2013; Jun 4 PubMed ID: [23742737](#).
28. Lynch ME. Nonmedical use of prescription opioids, what is the real problem? *Pain Res Manage*, 2013; 18(2):67-68. PubMed ID: [23662287](#).
29. Milne AD, Brousseau CA. Effects of Battery Type and Age on Performance of Rechargeable Laryngoscopes. *J Anesth*, 2013. PubMed ID: [23640370](#).
30. Milne AD, Brousseau PA. Complete obstruction to flow in a three-way stopcock due to a manufacturing defect. *Can J Anesth*, 2013; September 27, 2013 PubMed ID: [24078553](#). [doi: [10.1007/s12630-013-0034-4](#)].
31. Petter M, Chambers CT, Chorney J. The effects of mindfulness-based attention on cold pressor pain in children. *Pain Research and Management*, 2013; Jan/Feb 18 (1):39-45. PubMed ID: [23457685](#).
32. Racine M, Dion D, Dupuis G, Guerriere D, Zagorski B, Choiniere M, Banner R, Barton PM, Boulanger A, Clark AJ, Gordon A, Guertin MC, Intrater HM, Lefort SM, Lynch ME, et al. The Canadian STOP-PAIN Project: The burden of chronic pain – does sex really matter? *Clin J Pain*, 2013. PubMed ID: [23887346](#).
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34. Rashotte J, Harrison D, Coburn G, Yamada J Stevens BJ; CIHR Team on Children's Pain. Health care professionals' pain narratives in hospitalized children's medical records. Part 2: Structure and content. *Pain Res Manage* 2013; 18(5): e84-93
35. Roman Skulec, Anatolij Truhlar, Zdenek Turek, Renata Parizkova, Pavel Dostal, Shawn Hicks, Christian Lehmann and Vladimir Cerny. Comparison of cold crystalloid and colloid infusions for induction of therapeutic hypothermia in a porcine model of cardiac arrest. *Critical Care*, 2013; 17:R242 PubMed ID: [24131867](#). [doi: [10.1186/cc13068](#)].
36. Salviz EA, Xu D, Frulla A, Kwofie K, Shastri U, Chen J, Shariat AN, Littwin S, Lin E, Choi J, Hobeika P, Hadzic A. Continuous interscalene block in patients having outpatient rotator cuff repair surgery: a prospective randomized trial. *Anesthesia Analgesia*, 2013; 117(6):1485-1492. PubMed ID: [24257398](#).
37. Sardinha J, Kelly M, Lehmann C. Inhibition of Endocannabinoid Degradation. *Signa Vitae*, 2013; 8:9-14.
38. Sawynok J, Lynch M, Marcon D. Extension trial of Qigong for fibromyalgia: A quantitative and qualitative study. *Evidence-based Complementary and Alternative Medicine*, 2013; Article ID 726062:12 pages. [doi: [10.1155/2013/726062](#)].
39. Sharawy N, Ribback S, Al-Banna N, Lehmann C, Kern H, Wendt M, Cerny V, Dombrowski F, Pavlovic D. Estradiol receptors agonists induced effects in rat intestinal microcirculation during sepsis. *Microvasc Res*, 2013; 85:118-27. PubMed ID: [23063870](#). [doi: [10.1016/j.mvr.2012.10.002](#)].
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42. Taylor AM, Peck M, Launcelott S, Hung OR, Law JA, MacQuarrie K, McKeen D, George RB, Ngan J. The McGrath Series 5 videolaryngoscope versus the Macintosh laryngoscope: A randomised controlled trial assessing laryngoscopy and tracheal intubation in anaesthetised patients with a simulated difficult airway. *Anaesthesia*, 2013; 68(2):142-7. IF 2.958: 2012 . PubMed ID: [23121470](#).
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44. Toguri JT, Lehmann C, Laprairie RB, Szczesniak AM, Zhou J, Denovan-Wright EM, Kelly ME.. Anti-inflammatory effects of Cannabinoid 2 Receptor activation in endotoxin-induced uveitis. *Br J Pharmacol.*, 2013. PubMed ID: PMID: [24308861](#). [doi: [10.1111/bph.12545](#)].
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51. Wright KD, Stewart SH, Finley GA. Is temperament or behavior a better predictor of preoperative anxiety in children? *Children's Health Care*, 2013; 42(2):153-167. [doi: [10.1080/02739615.2013.766110](#)].
52. Zhou J, Pavlovic D, Rub J, Masur S, Spassov A, Whynot S, Hung O, Kern H, Abdo IS, Shukla R, Cerny V, Lehmann C. Physostigmine reverses disturbances of the intestinal microcirculation during experimental endotoxemia. *Clin Hemorheol Microcirc.*, 2013. PubMed ID: [23736080](#).

Department Organization 2013-2014

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. Claudio Diquinzio, staff anesthesiologist
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

Clinical Advisory Committee (Capital Health)

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Dr. Andrew Milne, associate medical director, quality assurance/patient safety
Dr. Adam Law, site chief, HI site
Dr. Ian Morris, site chief, VG site
Dr. Andre Bernard, medical director, same day admissions clinic
Dr. Alison Kelland, site chief, Hants Community Hospital
Dr. Henry Adamson, staff anesthesiologist
Dr. Bruce Macaulay, staff anesthesiologist
Dr. Romesh Shukla, head/chief (ex officio)
Dr. Allison Gray, subspecialty chief, pediatric anesthesia
Dr. Dennis Drapeau, staff anesthesiologist
Paul Brousseau, anesthesia assistant

Dalhousie Department Site Chiefs Committee

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Dr. Ian Morris, VG site
Marilyn Girouard, executive assistant
Carl Stevens, administrator
Lea Ockrant, administrative assistant
Dr. J Adam Law, HI site
Dr. Orlando Hung, medical director, Office of Research
Dr. Robert Nunn, IWK, women's & obstetric anesthesia
Dr. Robert Paterson, Dartmouth General Hospital
Dr. Allison Gray, IWK, pediatric anesthesia
Dr. Alison Kelland, Hants Community Hospital
Dr. Janice Chisholm, medical director, postgraduate education
Dr. John Chisholm, Saint John Regional Hospital
Dr. Narendra Vakharia, medical director, education and simulation

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Marilyn Girouard (admin)
Dr. Allison Gray (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. Jennifer Szerb (peripheral nerve block/acute pain, HI site)
Dr. Kirk MacQuarrie (liver transplant)

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Dr. Ronald George, associate medical director, Office of Research (co-chair)
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Jill Chorney, PhD
Jason McDougall, PhD
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Kathleen Leadon, director of research services, IWK Health Centre
Mark Filiaggi, PhD, chair, Dalhousie Department of Applied Oral Sciences
Marilyn Girouard, executive director
Polly Moores, administrative assistant

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Dr. Peter MacDougall, medical director, continuing professional development
Dr. Patty Livingston, medical director, global health
Dr. Jane Henderson, medical director, fellowships
Dr. Dolores McKeen, associate director, postgraduate education
Dr. David MacDonald, PGY-3
Dr. Ben Schelew, medical director, undergraduate education
Dr. Narendra Vakharia, medical director, education and simulation
Cyndi Lushman, academic coordinator
Marilyn Girouard, executive director
Dr. Austin Lamb, PGY4
Dr. Robyn Doucet, staff anesthesiologist
Lisa Nardecchia, coordinator, global health

Faculty Roles, Academic Outreach and Scholarship

Christopher Allen
Assistant Professor

Gagan Arora
Assistant Professor

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
Member, Fellowship Advisory Committee

Presentations, Seminars, Workshops, Lectures:

Canadian Interventional Pain Course, Hamilton, ON.

Stephen Beed

Professor

Committee Memberships:

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

Christopher Berger

Assistant Professor

Andre Bernard

Assistant Professor
Medical Director, Same Day Admissions Clinic

Committee Memberships:

Member, Drugs and Therapeutics Committee, Capital Health
Anesthesia, Pain Management & Perioperative Medicine
Member, Strategic Planning Day Planning Committee
Member, CaRMS Interview and Selection Committee
Member, Clinical Advisory Committee
Member, Applause Recognition Committee

Sally Bird

Assistant Professor

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

John Blake

Associate Professor

Kirk Blanchard
Assistant 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:

Member, Dalhousie Postgraduate Medical Education Competency Based Education Working Group
Chair, Dalhousie Postgraduate Medical Education Resident Duty Hours Task Force
Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee
Chair, Residency Program Committee
Co-Chair, Residency Curriculum Renewal Committee
Member, Education Operational Committee
Member, Continuing Professional Development Committee
Member, Fellowship Advisory Committee

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, Site Chiefs Committee

Presentations, Seminars, Workshops, Lectures:
Preceptorship in Chronic Pain, Bridgewater, NS.

Richard Chisholm
Assistant Professor

Jill Chorney
Associate Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee
Member, Research Advisory Committee
Presentations, Seminars, Workshops, Lectures:
Management of Children's Pain Following Spinal Fusion: Developmental and cognitive influences, 9th International Symposium on Pediatric Pain.
Outpatient Group Treatment of Complex Chronic Pain in Children and Teens: Pain 101, 9th International Symposium on Pediatric Pain.

A. John Clark

Professor
Medical Director, Pain Management Services

Committee Memberships:

Member, Tier 2 Canada Research Chair in Pain Search and Selection Committee
Member, Dalhousie Pain Chair Planning Group
Member, Provincial Advisory Council for Chronic Pain Services
Member, IM Steering Committee, Capital Health Chair, Pfizer Neuropathic Pain Research Awards Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee
Member, Fellowship Advisory Committee
Presentations, Seminars, Workshops, Lectures:
To Weed or Not to Weed: The tangled garden of medical marijuana, Halifax, NS
Cannabinoids and Pain, Toronto, ON
Nova Scotia Update: Chronic pain, Fredericton, NB
Update: From the Canadian pain summit to the present, Winnipeg, MB

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

C. Ruth Covert

Associate Professor

John Crompton
Assistant Professor

Raymonde DeGrace
Assistant Professor

Catherine Delbridge
Assistant Professor
Committee Memberships:
Member, Dalhousie Medical School Admissions Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, CaRMS Committee
Member, Residency Curriculum Renewal Committee

J. Hugh Devitt
Professor

Claudio DiQuinzio
Assistant Professor
Committee Memberships:
Member, Executive Council, Anesthesia Nova Scotia Inc.
Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee

Gregory Dobson
Assistant Professor
Medical Director, Quality Assurance and Patient Safety, Anesthesia, Pain Management & Perioperative Medicine
Committee Memberships:
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Chair, Clinical Advisory Committee
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Member, Strategic Planning Day Planning Committee
Member, Education Operation Committee
Member, Residency Curriculum Renewal Committee
Member, Education Operational Committee
Presentations, Seminars, Workshops, Lectures:
Ultrasound for Vascular Access, Charlottetown, PEI

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Assistant Professor
Committee Memberships:
Member, Capital Health Information Management Steering Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee

Scott Drysdale
Assistant Professor

Jean Yves Dubois
Assistant Professor

Kirk Duguay
Assistant Professor

Volker Eichhorn
Assistant Professor

George Ferrier
Assistant Professor

G. Allen Fenty
Professor
Committee Memberships:
Chair, Developing Countries Working Group
Member, Global Initiative for Emergency and Essential Surgical Care
Anesthesia, Pain Management & Perioperative Medicine
Member, Fellowship Advisory Committee
Presentations, Seminars, Workshops, Lectures:
Pain in Children as a Special Population: Childkind International, 1st Symposium of the World Institute of Pain Foundation
What Children and Those Who Care for Them Should Know About Pain, 1st Symposium of the World Institute of Pain Foundation
Challenge in Acute Pain Drug Research, Pain in Child Health Training Institute
Chronic Pain in Adolescents: Where are we? Where are we going?, Associacao Portuguesa a para o Estudo da Dor
The Childkind International Initiative – in Workshop: Controlo da dor aguda em crianças e adolescentes – Protocolos e auditorias, IV Congresso Interdisciplinar de Dor.
Why Shouldn't We Change the World?, Primer Congreso Nacional y Centroamericano de Cuidados Paliativos.
How Much Does it Hurt?, Primer Congreso Nacional y Centroamericano de Cuidados Paliativos.
Please Don't Hurt Me! Managing Procedure Pain, Primer Congreso Nacional y Centroamericano de Cuidados Paliativos.
But Doctor, It Still Hurts! Recognition and Belief in Pediatric Chronic Pain, Primer Congreso Nacional y Centroamericano de Cuidados Paliativos.
Chronic Pain in Adolescents: Where are we? Where are we going?, IV Jornadas Internacionales de Doctor Infantil.
Pharmacological Treatment of Chronic Pediatric Pain: Problems and solutions, IV Jornadas Internacionales de Doctor Infantil.
Children's Pain Around the World: Barriers and solutions, Axe Inflammation/Douleur, Centre de Recherche Clinique Etienne LeBel, Centre Hospitalier Univers.

Timothy Fitzpatrick
Assistant Professor

Kendra 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
Member, CAS Annual Meeting Organizing Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee
Co-Chair, Research Advisory Committee
Member, Continuing Professional Development Committee
Member, Fellowship Advisory Committee
Presentations, Seminars, Workshops, Lectures:
Introduction to Labour Anesthesia and Analgesia, Labour Nurse Education Seminar
MIDAS: Microcirculation Diagnostics & Applied Studies – Research From Bench to Bedside, Dalhousie University

Marilyn Girouard
Assistant Professor
Executive Director, Anesthesia, Pain Management & Perioperative Medicine
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine
Member, Applause Recognition Committee
Member, Fellowship Advisory Committee

Timothy Godkin
Assistant Professor

Allison Gray
Assistant Professor
Subspecialty Chief, Pediatric Anesthesia
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee
Member, Site Chiefs Committee
Member, Subspecialty Chiefs Committee

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, Nova Scotia District Health Authorities Multisite Research Ethics Board
Corresponding Member, Capital Health Research Ethics Committee

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

Brian Hamilton
Assistant Professor

Jennifer Hancock
Associate Professor

Lynn Hansen
Assistant Professor

Babar Haroon
Assistant Professor

Christopher Hawkes
Assistant Professor

Jane Henderson
Associate 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

Dietrich Henzler
Professor

Rosario Hernandez
Assistant Professor

Shawn Hicks
Assistant Professor

David Hughes
Assistant Professor

Orlando Hung
Professor
Medical Director, Research, Anesthesia, Pain Management & Perioperative Medicine
Member, Human Resources Advisory Committee, 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
Presentations, Seminars, Workshops, Lectures:
Airway Management Review, Making a Mark: Royal College Examination Review Course.
Airway Management, Bag-mask Ventilation, Extraglottic Devices, Non-visual Techniques of Tracheal Intubation, Difficult Airway Course.

David Imrie
Professor

Mirza Iqbal
Assistant 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 Kanellakos
Assistant Professor
Subspecialty Chief, Thoracic Anesthesia
Medical Director, ASPENS
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine
Member, Subspecialty Chiefs Committee
Member, Continuing Professional Development Committee

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, Human Resources Advisory Committee
Member, Subspecialty Chiefs Committee
Member, Fellowship Advisory Committee

Hartmut Kern
Professor

Andrei Khorovets
Associate Professor

Tracy Kok
Assistant Professor

Paula Kolysher
Assistant Professor

Justyna Kroll-Lass
Assistant Professor

Sutthirak Kuruhongsa
Assistant Professor

Myron Kwapisz
Associate Professor

Presentations, Seminars, Workshops, Lectures:
ROTEM and its Use in Cardiac Surgery, Canadian Blood Services
The Role of Fibrinogen in Acquired Bleeding, The Ottawa Hospital

Kwesie Kwofie
Assistant Professor
Committee Memberships:
Member, Faculty & Scientific Programme Committee

Presentations, Seminars, Workshops, Lectures:
Evidenced Based Peripheral Nerve Blocks, IV NWAC World Anesthesia Convention.
Perioperative Considerations for Pheochromocytoma (PBLD), IV NWAC World Anesthesia Convention.

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
Presentations, Seminars, Workshops, Lectures:
The Difficult Airway Course: Anesthesia, Orlando, FL and Las Vegas, NV.

Susan Lee
Assistant Professor

Christian Lehmann
Professor

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
Presentations, Seminars, Workshops, Lectures:
The CASIEF – National University of Rwanda Partnership for Anesthesia Resident Education, Ottawa, ON.

R. Lloyd
Assistant Professor

Konstantin Lorenz
Assistant Professor
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine

Member, Promotions and Reappointment Committee

Mary Lynch

Professor

Committee Memberships:

Member, Medical Cannabis Advisory Committee
Member, Scientific Program Committee
Member, Executive Advisory Committee on Medical Marijuana
Member, Working Group on Pain Medicine, Royal College of Physicians and Surgeons of Canada
Presentations, Seminars, Workshops, Lectures:
Opioid Misuse in Canada: What is the real problem?, CIHR Canadian Orofacial Pain Team Workshop.

The Youth Pain Program: Successes and challenges, Café Scientifique.
The Clinical World of Pain and Cannabinoids, Hebrew University.
Advocating for Pain in a Pain Hating World, Canadian Pain Society.

Brian MacAdam

Facpn

Bruce Macaulay

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Clinical Advisory Committee

Peter MacDougall

Professor

Director, Continuing Professional Development, Anesthesia, Pain Management & Perioperative Medicine
Founder and Director, Atlantic Mentorship Network – Pain and Addiction

Committee Memberships:

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

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, Dalhousie Dean of Medicine Search Committee
Member, CIHR Operating Grant Committee (Clinical Investigation B)
Member, Dalhousie Pain Research Day Planning Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Canada Research Chair in Pain Medicine Search Committee
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
Target Identification for Future Joint Pain Relief, Colloquium University of Western Ontario
Arthritis Pain & the Potential Benefits of Cannabinoids, Atlantic Health Professionals Association
Findings of the Expert Advisory Committee on Information for Physicians on Marijuana for Medical Purposes, Health Canada

Colm McGrath

Assistant Professor

Dolores McKeen

Associate Professor

Co-Medical Director, Anesthesia Resident Research
Associate Director, Postgraduate Medical Education, Anesthesia, Pain Management & Perioperative Medicine
Medical Director of Women's & Obstetric Anesthesia Research
Associate Chief, Women's & Obstetric Anesthesia, IWK Health Centre

Committee Memberships:

Member, CAS Research Advisory Committee
Anesthesia, Pain Management & Perioperative Medicine
Vice Chair, Research Advisory Committee
Co-Chair, Resident Research Evaluation Committee
Member, Residency Program Committee
Chair, Academic Promotions Committee
Member, Residency Curriculum Renewal Committee
Member, Education Operational Committee
Chair, Applause Recognition Committee
Chair, Promotions and Reappointment Committee
Presentations, Seminars, Workshops, Lectures:
What's New in Obstetric Anesthesia: Five top 2013 OB papers you need to know, 2013 CAS Atlantic Region Meeting, Charlottetown, PEI.

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

Sarah McMullen

Assistant Professor

Andrew Milne

Assistant 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 Elect, Doctors Nova Scotia

Committee Memberships:

Co-Chair, AFP Negotiations Committee
Member, Doctors Nova Scotia Board of Directors
Member, Doctors Nova Scotia Fee Schedule Rewrite Committee
Member, Doctors Nova Scotia Master Agreement Negotiations Steering Committee
Member, MSI Physician's Manual Review Committee
Anesthesia, Pain Management & Perioperative Medicine
Member, Executive Advisory Team
Member, Human Resources Advisory Committee

Samuel Minor

Associate Professor

Committee Memberships:

Member, Nova Scotia RBC Clinical Experts Working Group
Member, Open Abdomen Management Consensus Group, Capital Health
Member, Nova Scotia Trauma Education Committee
Member, Blood and Beyond Planning Committee 2014
Member, Dalhousie General Surgery Resident Training Committee
Member, Cdn. Association of General Surgery Professionalism Committee
Member, Division of Critical Care Recruitment Committee
Member, Nova Scotia Massive Transfusion Committee

Joesph 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

Timothy Mullen

Assistant Professor

Committee Memberships:

Anesthesia, Pain Management & Perioperative Medicine
Member, Fellowship Advisory Committee

John Murdoch
Assistant Professor

Johnson Ngan
Associate Professor

C. Andrew Nice
Assistant Professor
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program 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
Member, AIMS Implementation Steering 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

Ward Patrick
Professor
Division Head, Critical Care
Director, Critical Care Services, Capital District Health Authority
Committee Memberships:
Member, District Medical Advisory Committee (Quality), Capital Health
Member, Clinical Services Planning Executive Leadership Steering Committee, Capital Health
Member, District Quality & Patient Safety Council, Capital Health
Member, Capital Health Business Planning Committee
Member, Clinical Operations Group, Capital Health
Member, Pediatric Critical Care Intensivist Search Committee, IWK Health Centre
Member, ICU Applications Working Group, Capital Health
Member, Antimicrobial Agents Subcommittee
Member, Clinical Services Planning Team, Capital Health
Member, Leadership Team Health Systems Planning Committee, Capital Health
Member, Dalhousie Department of Pharmacy Residency Training Program
Member, Postgraduate Education Committee

Member, Rapid Escalation Protocol Development Committee
Co-Chair, ICU Operations Committee, Capital Health
Member, AFP Governance Working Group
Member, Royal College of Physicians and Surgeons of Canada Adult Critical Care Medicine Training Committee
Member, Division of Critical Care Residency Program Committee
Member, Division of Critical Care Pharmacy Liaisons Committee
Member, District Medical Advisory Committee, Capital Health
Member, Leadership Team, Innovative Care Flexible Facilities Project
Member, Patient Information Transfer Safety Committee, Capital Health
Member, Revenue Generating Group
Member, PICU Oversight Council, Capital Health
Member, Critical Care All Hazard Business Continuity Committee, Capital Health
Member, Committee of AFP Department Heads
Member, AFP Compensation Committee
Member, Capital Health Facilities Renewal Steering Committee
Member, Capital Health Resuscitation Committee
Member, OR Executive Committee
Member, Internal Medicine Exam Board, Royal College of Physicians and Surgeons of Canada
Member, Acute Renal Working Group, Capital Health
Member, Acute Care Bed Availability System Project Advisory Committee, Nova Scotia
Department of Health and Wellness
Member, Trauma Services Committee
Member, Drugs and Therapeutics Committee, Capital Health
Member, Division of Critical Care Education Committee
Member, Division of Critical Care Finance Committee
Member, Division of Critical Care Simulation Committee
Member, Antimicrobial and Antiinfective Subcommittee, Capital Health

Dragan Pavlovic
Professor

David Petrie
Professor

Raissa Petriw
Assistant Professor

Brian Price
Assistant Professor

Arif Rafiq
Assistant Professor

Rick Retallick
Assistant Professor

Fiona Roper
Assistant Professor

Zdzislaw Sadowski
Assistant Professor

Jana Sawynok
Professor

Matthias Scheffler
Assistant Professor

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, Education Operational 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, QEII Foundation Board of Trustees
Anesthesia, Pain Management & Perioperative Medicine
Chair, Executive Advisory Team
Member, Human Resources Advisory Committee
Member, Clinical Advisory Committee
Chair, Site Chiefs Committee
Chair, Subspecialty Chiefs Committee

Matthew Simms
Assistant Professor
Treasurer, Nova Scotia Anesthesia Society
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine
Member at Large, Continuing Professional Development Committee

Heather Sirounis
Associate Professor

Ana Sjaus
Assistant Professor
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine
Member, Residency Program Committee
Member, Continuing Professional Development Committee
Member, Promotions and Reappointment Committee

Amanda Smitheram
Assistant Professor

Christian Soder
Associate Professor

Parvinder Sodhi
Assistant Professor

Markus Sommer
Assistant Professor

Sarah Stevens
Assistant Professor
Committee Memberships:
Anesthesia, Pain Management & Perioperative Medicine

Member, Promotions and Reappointment Committee

Ronald Stewart
Professor

Randolph Stone
Assistant Professor

Jennifer Szerb
Associate Professor
Subspecialty Chief, Peripheral Nerve Block/Acute Pain (HI Site)

Committee Memberships:
Member, Dalhousie Medical School Admissions Committee

Member, IM Committee, Capital Health
Anesthesia, Pain Management & Perioperative Medicine

Member, Subspecialty Chiefs Committee

Presentations, Seminars, Workshops, Lectures:
Introductory Ultrasound, 14th Asian Australian Congress of Anesthesiologists
Blocks Above the Clavicle, 14th Asian Australian Congress of Anesthesiologists
Year in Review: Top articles in 2013/2014, Brisbane, Australia
Regional Anesthesia and Ambulatory Surgery, 54th McGill Anesthesia Update

John Tallon
Professor

Geoffrey Thompson
Assistant Professor

Fiona Turpie
Assistant Professor

Narendra Vakharia
Associate Professor
Medical Director, Education, Anesthesia, Pain Management & Perioperative Medicine

Committee Memberships:
Member, School of Health Sciences Advisory Council
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 and Orlando, FL.

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

Alistair Wright
Assistant Professor

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

Milton Wybenga
Assistant Professor

Harold Yazer
Assistant Professor

Juan Zhou

