



Department of Anesthesia, Pain Management and Perioperative Medicine
Annual Report 2011-2012



Vision & Mission

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).

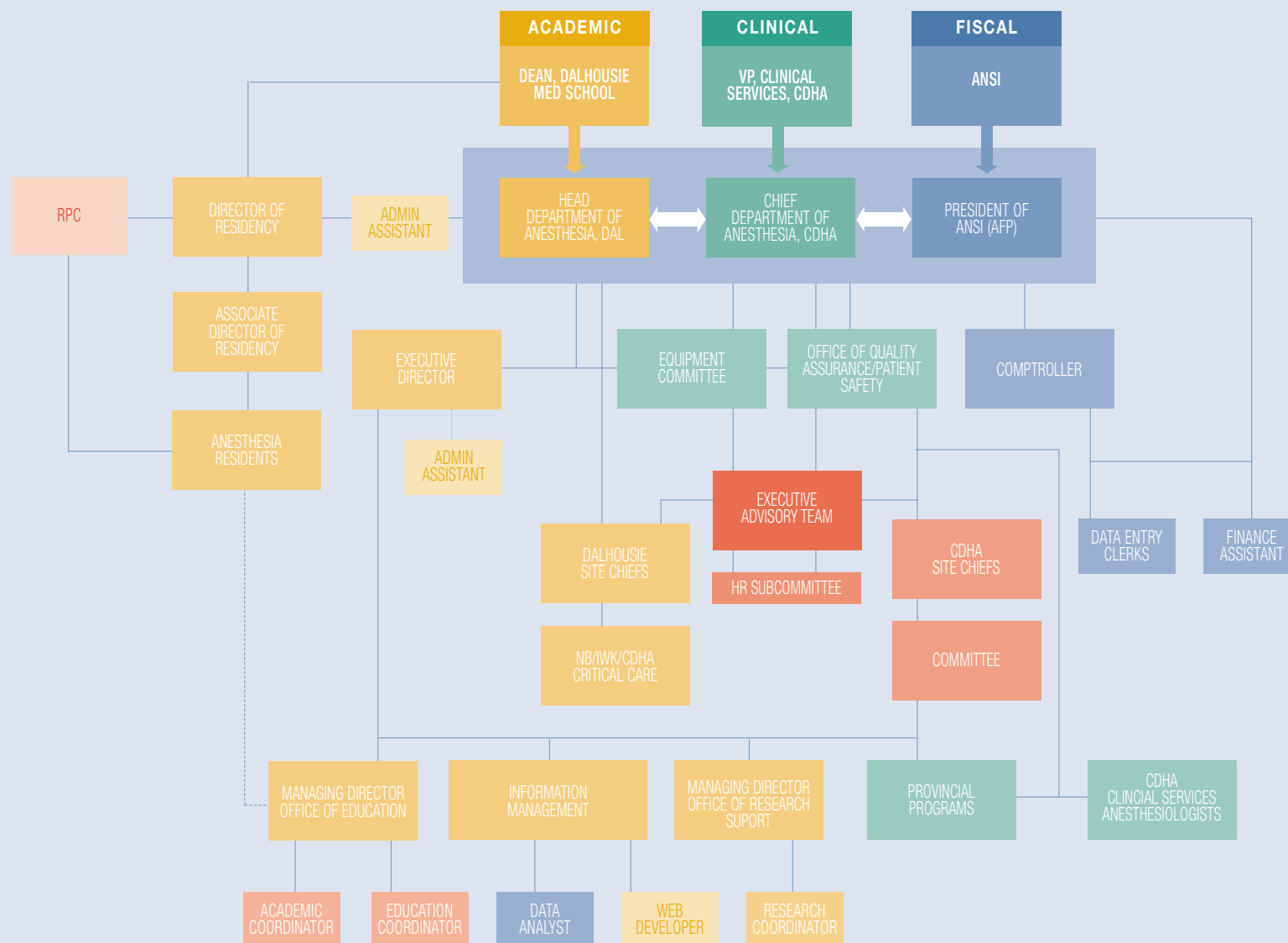
The Department of Anesthesia, Pain Management and Perioperative Medicine believes that:

- Patients are entitled to safe, evidence-informed, humanistic care
- 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

A culture of excellence...

"Leaf Angels"© by Anne Camozzi

Department of Anesthesia Organization Chart





Message from the Head & Chief

The Dalhousie Department of Anesthesia is now more appropriately titled the **Dalhousie Department of Anesthesia, Pain Management and Perioperative Medicine**. The name change was a result of department members taking stock of the breadth and depth of their patient care, education and research; considering advances in their disciplines; and looking to their vision for the department — all of which was undertaken because of the department's commitment to strategic planning and operating on the basis of strategic principles.

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. Created in 1945, the department has grown to provide a full spectrum of critical care and general clinical services and administer leading edge programs in blood management, pain management and regional anesthesia. It subspecializes in cardiac surgery, neurosurgery, women and obstetrics, pediatrics, thoracic surgery and transplantation.

Department members provide expertise locally through community-based initiatives, nationally through a variety of committees, boards and agencies, and internationally through outreach programs.

This year's annual report focuses on the department's efforts to teach all aspects of medicine related to anesthesia and acute care medicine and illustrate the application of the basic sciences of physiology, pharmacology and anatomy to anesthesia. 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. You will read more about the department's education program in the following pages, but I would like to commend the Office of Education's postgraduate portfolio on earning yet another consecutive full accreditation from the Royal College of Physicians and Surgeons of Canada. I would also like to note the department's successful launch of the third phase of its mentorship program, which introduces a flexible process of matching department members in any role with a mentor from within or outside the department. The mentorship program aims to ensure that all staff can perform at their maximum potential and contribute to a culture of excellence in anesthesia practice and programs, research and education. This year, the department also introduced a roster of professional development modules for administrative staff.

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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.

Message (Cont'd.)

While the department's commitment to education is the focus of this year's report, 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.**

In the last year, the department added the most advanced medical equipment, began using *TEE* in liver transplantation, and played a leading role in operational changes to improve OR efficiency and the use of OR time.

The department also continued to advance its research agenda, recording gains in research funding and peer-reviewed publications and collaborative research projects. The department focuses its research efforts primarily in pain, airway management, perioperative inflammation and organ protection. Outcomes research and device development have also been identified as areas of concentration. Increasingly department members are establishing collaborative research groups with local, national and international colleagues and seeking multiple grants and awards for projects in the public and private sectors, helping to ensure sustainability

and expand the impact of their work. In 2011-2012, 20 per cent of funding was generated from the private sector, the most of any year to date.

I invite you to review the following pages and visit the department's website, nsanesthesia.ca, to learn more about the work we're doing to improve patient care and the health of people here and around the world; to educate the health leaders of today and tomorrow; and to advance our knowledge and understanding of the science and practice of anesthesia.



Dr. Romesh Shukla

Awards

Awards & Accolades

Dr. Romesh Shukla Honoured for Professionalism

Dr. Romesh Shukla (*top right*) was among the first nominees for the Dalhousie Faculty of Medicine's *Professionalism Kudos*. Professionalism, according to the Faculty of Medicine Professionalism Policy, is demonstrated by individuals who show in their actions and interactions with others: respect for others, honesty and integrity, compassion and empathy, and duty and responsibility.

Dr. Patty Livingston: Leadership in Global Health

Dr. Patty Livingston (*bottom right*) was named the 2012 recipient of the *Dr. John Savage Memorial Award*, which recognizes a Dalhousie faculty member who demonstrates leadership in global health. Patty's ongoing commitment to global health, several teaching missions to Rwanda and her research to improve education in Rwanda and here at home made her the winning candidate among many excellent nominations for the award.

Jill Chorney: Emerging Professional

Jill Chorney, PhD (*right*) was the recipient of the *Emerging Professional* award at the 9th annual Discovery Awards for Science and Technology. The award recognizes an individual under age 35 who demonstrates intellectual achievements, excellence and potential for on-going growth and development.

Long Service Award Recipients

10 Years

Amber Kelly, Administrative Assistant

Dr. Stephen Beed, Professor, Critical Care

Dr. Kevin Bent, Scheduler, Dartmouth General Hospital

Dr. Chris Berger, Lecturer, Staff Anesthesiologist

Dr. Alison Kelland, Assistant Professor, Anesthesia Site Chief, Hants Community Hospital

Dr. Bruce MacAulay, Assistant Professor, Staff Anesthesiologist





Awards (Cont'd.)

Dr. Peter MacDougall, Associate Professor,
Medical Director of Continuing Professional
Development

Dr. Robert Paterson, Anesthesia Site Chief,
Dartmouth General Hospital

15 Years

Dr. Ian Beauprie, Associate Professor, Chief
of Neuroanesthesia (*interim*)

Dr. Sharon Litz, Assistant Professor, staff
anesthesiologist

Dr. Ward Patrick, Professor, Chief of Critical
Care

Dr. Chris Soder, Associate Professor, staff
anesthesiologist

Retirees & New Hires

Retirees

Dr. Des Writer

Dr. Don Morrison

Dan Cashen

Hires

Dr. Shawn Hicks, Assistant Professor, staff
anesthesiologist

Dr. James Starodub (*locum*), Assistant
Professor, staff anesthesiologist

Dr. Genevieve McKinnon (*locum*), Lecturer,
staff anesthesiologist

Dr. Rochelle MacLellan, Assistant Professor,
staff anesthesiologist

Dr. Ayman Hendy, Assistant Professor, staff
anesthesiologist

Dr. Robyn Doucet, Lecturer, staff
anesthesiologist

Jason McDougall, PhD, Associate Professor,
(joint appointment with the Dalhousie
Department of Pharmacology)

Heather Butler, PhD, Managing Director of
Research Services

Bill Hill, Anesthesia Services Manager



Outcomes of Strategic Thinking & Planning

The Department of Anesthesia first established a strategic plan in 2007, bringing together more than 100 members of the department to develop a shared vision, mission and priorities. The department's strategic plan is reported on, revised, updated and added to annually, effectively making it a "living document" that guides the department's actions in all areas: patient care, education and research.

The department's most significant initiatives launched, expanded or completed in 2011-2012 stemmed from its strategic plan.

The governance renewal working group reviewed the department's governance model and put forward recommendations for revised organizational structures, position descriptions, renewed policies and terms of reference that touched all aspects of the department. The result has been a reorganization of the department's structure to better support its core services of patient care, education and research while strengthening quality assurance. The group is also leading a review of the department's policies and procedures to provide greater consistency and accountability in departmental operations. Its work contributed to a change in the department's name from the Department of Anesthesia to the Department of Anesthesia, Pain Management and Perioperative Medicine,

which more appropriately reflects and recognizes the breadth and depth of the department's activity and contributions to medicine.

Another of the objectives outlined through the strategic planning process was earning full accreditation of the department's postgraduate program from the *Royal College of Physicians and Surgeons of Canada*. The department did just that in February 2012 following a two-year preparation process.

The department also successfully recruited four fellows in 2011-2012 after formally launching its fellowship program in 2010. The program now includes fellowship positions in airway, cardiac anesthesia, chronic pain, global health, regional and acute pain, and women's & obstetric anesthesia. **Drs. Jeanette Scott** and **Tim Mullen** joined the department as airway fellows, **Dr. Magnus Brietling** as a chronic pain fellow and **Dr. Kim Wong** as a regional and acute pain fellow.

One of the highest priorities established and then reinforced through the department's strategic planning process is investment in the professional development and growth of department members. To that end, the department launched a recognition strategy, a performance management program and the third

phase of its mentorship program. The *Applause* recognition strategy is designed to aptly recognize, celebrate and support members of the department for their commitment to excellence in patient care, education and research, and in management and administrative practices. The *Talent Development* performance management process was designed to support and grow the considerable talent found in the department. The mentorship program, initially launched in 2010, aims to ensure all staff can perform at their maximum potential and contribute to a culture of excellence in anesthesia practice and programs, research and education. Its third phase introduces a flexible process of matching department members in any role with a mentor from within or outside the department.

A snapshot of the strategic plan is available on the Department of Anesthesia, Pain Management and Perioperative Medicine website, www.nsanesthesia.ca



Becoming a Full Fledged Anesthesiologist

What is becoming a full-fledged anesthesiologist today like? Is it as challenging as portrayed in television's hottest medical dramas? Is it still as demanding as being a resident in years past?

Dr. Austin Lamb (*far left*) is in his third year of learning just how challenging (and interesting, and fun and rewarding, he says) becoming an anesthesiologist is. He's a resident, almost half way to completing the five-year Dalhousie anesthesia residency program.

Most of Dr. Lamb's days begin at about 5:45 a.m. with a shower, coffee and the journal article he didn't quite get through the night before, then he's off to the fifth floor of the Halifax Infirmary or the 10th floor of the Victoria General to review the schedule again and help set up the OR he's been assigned.

Soon after, he's meeting with the first patient of the day to address any issues or questions and to outline what can be expected from him, the anesthesia team and the anesthetics they will administer before, during and after surgery. The routine repeats itself several times until late afternoon or early evening. Before leaving the hospital, Dr. Lamb reviews the next day's OR cases to find out what journals, cases, procedures and/or skills he should study at home to prepare.

"Being as prepared as possible for the next day helps me maximize my learning. I can ask informed questions and best use my time in the OR and with faculty members to absorb more of the experience," he says. "Though we receive a lot of support and guidance, much of the residency experience and learning is defined by residents."

Dr. Lamb's evenings are mostly reserved for that preparation. He spends an average of two to three hours daily researching anesthesia care. He also makes time for preparing presentations, working on a research project and prepping for exams. It's lights out at about 11 p.m.

This is not everyday, of course. There are "on call" days when Dr. Lamb is called into the hospital long after the standard workday or stays on-site until the early morning. There are also academic days when he and his fellow residents attend lectures on specific topics or spend time in the skills lab.

The Department of Anesthesia, Pain Management and Perioperative Medicine includes 27 residents who are in the process of becoming anesthesiologists. The department's 97 physician members are Dalhousie University faculty members who are responsible for helping residents and medical students to become highly competent, compassionate and skilled physicians.



A Keen Interest in Medical Education

She's young, she's new, she's keen and she may just be an anesthesia resident's best friend. **Dr. Robyn Doucet** (*left*) is fresh out of postgraduate anesthesia and a chief resident position, and is now applying her skills, knowledge and crisp perspective to patient care and to education. A staff anesthesiologist and Lecturer, she joined the Dalhousie Department of Anesthesia, Pain Management and Perioperative Medicine in 2011 after having spent the last five years at the University of Calgary.

While going about providing anesthesia care on a daily basis, Dr. Doucet works with residents to help them develop the skills and knowledge necessary to become competent and compassionate anesthesiologists, with an enthusiasm for doing so that is palpable.

"I've had a keen interest in medical education from the first time I realized I could inspire others' learning. It's a great feeling for me to know that I can encourage others' interest and knowledge of subjects," says Dr. Doucet. *"Teachers and mentors can have a profound impact on us. If I can make some level of impact in a resident's or student's learning, I know I'm doing something right."*

Dr. Doucet is a graduate of Dalhousie Medical School and hails from Halifax. She is currently

pursuing a graduate degree in medical education (The University of Dundee, Scotland) and will begin teaching undergraduate medical students in addition to anesthesia residents in the fall 2012.

The Department of Anesthesia, Pain Management and Perioperative Medicine includes 97 members who are also faculty members at Dalhousie University. They teach 27 anesthesia residents and Dalhousie Medical School students on a daily basis.



Not All About the Students' Learning

Dr. Andrew Jarvie (near left) keeps it simple. *"My job as a clinical faculty member is to make students' experiences as pleasant as possible. If I can make it fun and de-stress a stressed student, I've done my job,"* he says. *"Of course, there's the part about teaching the students, but that's the easy stuff. They are overwhelmingly eager to learn."*

Dr. Jarvie routinely works with residents, helping them to hone their anesthesia skills and expand their breadth and depth of anesthesia knowledge, but he is also a popular teacher among undergraduate medical students who have the opportunity to choose their elective experiences. He has taught elective students each year since joining Dalhousie Anesthesia, Pain Management and Perioperative Medicine in 2005. The most recent was **Steve Scales**, a second-year student at Dalhousie Medical School.

"When the students choose to do an elective in anesthesia, it's because they want to learn more about the discipline. I try to impart as much of my enthusiasm for anesthesia as possible by exposing students to multiple experiences (without risk to patients) while fostering their critical thinking skills and expanding their technical skills," says Dr. Jarvie. *"After even short elective experiences of two to three weeks,*

students often tell me there is much more to anesthesia than they thought."

It isn't all about students' learning though. Dr. Jarvie notes that being an active faculty member encourages you to open the medical journals more often, study best practices and the latest developments in the discipline, and be an exceptional physician.

The Department of Anesthesia, Pain Management and Perioperative Medicine hosted 79 elective students from Dalhousie Medical School and medical schools across Canada in 2011 – 2012.



A Stroke of Luck

Steve Scales (left with *Med III* student, **Mary Beth Bissell**) is a second year medical student navigating his way to becoming a physician. On his first day at Dalhousie Medical School he met **Dr. Ian Beauprie**, staff anesthesiologist and Associate Professor, as part of “shadow a physician day.” The two were randomly assigned – a stroke of luck for Steve who found himself in his comfort zone.

“I decided on that day that my first elective would be in anesthesia and submitted my name to the department shortly thereafter,” says Steve.

For about three months in the fall of 2011, Steve spent half a day per week with **Dr. Konstantin Lorenz**, staff anesthesiologist and associate professor, in the OR at the QEII Health Sciences Centre, meeting with patients, studying and discussing anesthesia cases and reviewing drug therapies.

“Dr. Lorenz allowed me to ‘get right in there,’ which I enjoyed and appreciated,” says Steve. *“It’s too soon to decide on a favourite medical discipline, but I’m thrilled to know I found a specific area of medicine that I really like, which I didn’t think would happen so early on.”*

Steve is one of 16 first and second year medical students who studied anesthesia as an elective of their choosing in 2011-2012. He will return to the department in his fourth year of medical school as a medical clerk, learning more about the breadth and depth of the discipline and gaining valuable experience and knowledge to become a highly skilled and compassionate physician.



All in a Day

On the day of her interview for this piece, **Megan Chipp**, at left with **Laura Harris Buffett** (*right*), intently worked through the details of job descriptions for two management positions at the Rwanda Simulation and Skills Centre; consulted with colleague, **Cyndi Lushman**, curriculum renewal coordinator, to decide upon the best way of organizing the department's residency curriculum in the newly purchased mapping software; came to the rescue of another colleague who needed an impromptu Excel tutorial; checked off a few items on her to do list for the non-technical skills continuing professional development workshop series to be offered to department staff; and chased missing information as a result of her review of the faculty promotion applications from department members.

She also made final arrangements for a new staff orientation session, responded to emails from two Rwandan anesthesia residents who will spend six months in the department in 2013 increasing their knowledge and experience in anesthesia, and submitted information to the department's internal information system (IIS) to ensure department members are aware of what is happening in the many portfolios she coordinates. Megan is the academic coordinator responsible for supporting the

department's global health efforts, mentorship program, faculty appointments and promotions, and overseeing the curriculum renewal initiative.

In January 2013 she will head to Rwanda to facilitate the *Building SAFE Teams* module of the SAFE Obstetrical Anesthesia Course, led by **Dr. Patty Livingston**, medical director of global health.

"The diverse responsibilities in this position, the department's understanding of the importance of educational opportunities as a contributor to its vision of anesthesia excellence, and the chance to broaden my experience in global health drew me to this position and to the department," says Megan. She joined the department as education coordinator in 2010.

Megan is one of three full-time department members who make up the Department of Anesthesia, Pain Management and Perioperative Medicine Office of Education. The office manages all of the department's education activities, including undergraduate and postgraduate medical education, fellowships, continuing professional development, simulation, mentorship, global health and faculty appointments and promotions.

Robust Diversified Education Programs

Now in the third year of an established Office of Education, the education portfolio encompasses undergraduate medical education, postgraduate medical education, fellowships, continuing professional development, mentorship, simulation, global health, and promotion and tenure.

This inclusive education portfolio puts the Department of Anesthesia, Pain Management and Perioperative Medicine in the advantageous position of coordinating all education efforts, resulting in outstanding educational programs and initiatives at all levels.

Much of the focus in the last year has been on fostering solid programs in each area, for example, filling fellowship positions and successfully managing program requirements such as the accreditation process for the postgraduate education program. The education portfolio grew amid staffing changes, which included the need for a temporary managing director and a vacancy in the education coordinator position because of scheduled leaves, the establishment of a medical director and a new medical director of fellowships.

The new medical director for education is **Dr. Romesh Shukla**, head & chief, Department of Anesthesia, Pain Management and Perioperative Medicine. Dr. Shukla's leadership in this role ensures a strong link to the department's overall operations. **Dr. Jane Henderson** became medical director for the fellowship programs following **Dr. Ian Beauprie**'s leadership in that area. Jane Bolivar served as managing director of education for much of 2011 – 2012, keeping the office in good stead for **Laura Harris Buffett**'s return in early 2012.

In the last year, the Office of Education:

- Guided four fellows through airway, regional and acute pain, and chronic pain fellowships;
- Graduated four residents, two of whom remained with the department in staff positions;
- Accepted four residents from among more than 90 applicants to the postgraduate program;
- Offered more than 140 learning experiences to elective students from Dalhousie University's faculties of medicine, health professions and nursing and medical

schools across Canada;

- Supported five department staff and resident volunteers travelling on teaching missions to Kigali, Rwanda through the *CASIEF-Rwanda Sustainable Anesthesia Teaching Program*;
- Held the fifth annual *Global Outreach: Anesthesia in Challenging Environments* course for leaders in global health across North America – the course consistently boasts full enrollments and generates revenues;
- Supported department members to provide education, research, clinical service and advocacy in countries such as Rwanda, Ghana, Bolivia, Jordan, Thailand, China and Brazil;
- Held the second annual Faculty Development Day together with the Department of Surgery;
- Facilitated professional and work life balance sessions for administrative staff;
- Fulfilled all of the requirements of the *Royal College of Physicians and Surgeons* accreditation process, earning full approval for six years;

- Launched a curriculum renewal initiative that will review and assess all of the department's postgraduate education offerings and make recommendations for further aligning the postgraduate program with outcomes set by the *Royal College of Physician and Surgeons*;
- Submitted a formal request to Dalhousie Undergraduate Medical Education for the inclusion of a selective anesthesia rotation within its clerkship program; and
- Initiated planning for an anesthesia simulation centre as a result of the pending reorganization of the *Atlantic Health Training Simulation Centre*.

There are a number of trends and exciting developments in medical and health education and professional development that the Department of Anesthesia, Pain Management and Perioperative Medicine is monitoring or embarking on as it looks to the future.

The department launched the third phase of its mentorship program, which introduces a flexible process of matching department members in any role with a mentor from within or outside the department. The mentorship

program aims to ensure that all staff can perform at their maximum potential and contribute to a culture of excellence in anesthesia practice and programs, research and education. The department also continues to seek opportunities to collaborate with other Dalhousie Faculty of Medicine departments in areas such as simulation, skills training, faculty development and global health, actively exploring new partnerships to offer many and varied education opportunities to anesthesia members and colleagues in areas beyond anesthesia. The 2011-2012 *Faculty Development Day*, which attracted participants from surgery, anesthesia, respirology, emergency medicine and more, was a direct result of such a partnership. An emphasis on collaboration begins within the department though. This year's *Research Day*, which featured keynote **Dr. Michael Cousins**, was produced by the Office of Research with support from the Office of Education. These two offices continue to explore ways to collaborate on other initiatives, such as the department's recently launched recognition program.

The Dalhousie Faculty of Medicine recently renewed its undergraduate curriculum resulting in a two hour per week reduction in anesthesia classroom teaching. However, the department is working to maximize the quality of teaching in the reduced time allotments, through other teaching activities such as the *Med I Shadow Day*, *Anesthesia Interest Group* and the *Med III* elective.

Congratulations are in Order

Teaching Awards

(Pictured top right)

Dr. Ben Schelew: Clinical Teacher of the Year
Dr. Myron Kwapisz: Undergraduate Teacher of the Year
Dr. Orlando Hung: Mentor/Role Model of the Year *(new award!)*
Dr. Fiona Roper: Resident Advocate of the Year *(new award!)*

Promotions

Five department members went through the Dalhousie University faculty promotions process in 2011-2012. Congratulations to:

Dr. Ron George, Associate Professor
Dr. Alison Kelland, Assistant Professor
Dr. Myron Kwapisz, Associate Professor
Dr. Rob Nunn, Associate Professor
Dr. Tobias Witter, Associate Professor

2011 Graduating Residents

(Pictured bottom right, l-r, with Dr. Janice Chisholm, Medical Director, Postgraduate Program)

Dr. Kwesi Kwofie
Dr. Genevieve McKinnon
Dr. Ariane Fielding
Dr. Rosario Hernandez

Welcome

The Office of Education welcomed **Leigh Thibideau** *(right)*, Education Coordinator, in 2011-2012. Leigh is responsible for co-ordinating activities related to undergraduate and postgraduate medical education and continuing professional development.



Education by the Numbers • 2011 - 2012 Academic Year

Undergraduate

Undergraduate Learners 79

Seventy-nine medical students in eight cities and towns: Halifax, Moncton, Charlottetown, Sydney, Amherst, Saint John, Miramichi, Fredericton

Halifax	64	Amherst	2
Moncton	4	Saint John	1
Charlottetown	3	Miramichi	1
Sydney	3	Fredericton	1

Eighty-nine learners from disciplines other than medicine, including nursing, paramedicine, respiratory therapy, etc.

Respiratory Therapy	10
Lifeflight	8
Perioperative nurses	5
Anesthesia assistant students	15
Anesthesia technicians	2
Holland College	19
Other	30

Anesthesia Elective Course Participation

Year 1 course 6 medical student participants
Year 2 course 10 medical student participants

Number of Department Member Undergraduate Tutors at Dalhousie Medical School

15 Tutors 464 hours

Postgrad

Number of Residents

PGY 1	5	PGY 4	4
PGY 2	6	PGY 5	8
PGY 3	6		

Number of Fellows 4

Postgraduate Off-Service/Elective Rotations

Halifax, QEII Health Sciences Centre
29 Residents Total Weeks: 146

Halifax, IWK Health Centre

10 Residents Total Weeks: 40

Saint John

4 Residents Total Weeks: 16

Moncton

2 Residents Total Weeks: 8

Number of Applicants to Residency Program

Can. Resident Matching System (CaRMS) 99

Continuing Professional Development

Number of Grand Rounds 31

Faculty Speakers	8	Fellow Speakers	4
Resident Speakers	7	Visiting Professors	8

Number of M&M Rounds 6

Number of Journal Club 5

Number of other CME and/or events 10



Highest Quality Patient Care

High quality patient care and patient safety are hallmarks of the Department of Anesthesia, Pain Management and Perioperative Medicine. In the past year, the department continued investing in this area guided by the department's **Clinical Accountability Framework**, priorities outlined in its strategic plan and recommendations by the department's governance renewal working group. The intent is to strengthen data collection and systems, reporting, and research to further improve the quality of anesthesia care and patient safety.

Through its quality assurance office, the department refined and developed a number of methods and processes for collecting, reporting and tracking prerequisite information for measuring performance against the 13 quality and safety targets outlined in the Clinical Accountability Framework, which was adopted in 2010. The targets range from ensuring all patients have a preoperative assessment completed to ensuring all patients have a body temperature greater than or equal to 36°C when transferred from the OR to the post anesthesia care unit. Increasing and improving data collection will allow the department to better monitor, research and improve anesthesia care and safety.

The most significant enabler of the department's robust and growing data collection methods

and compliance is Innovian, the anesthesia information system implemented by the department in late 2010. *Innovian* hosts and provides physicians with access to a wide variety of information, everything from a patient's height and weight to who delivered anesthesia care, what care was provided, when and for how long. While a patient is in the OR, *Innovian* records their physiological data, such as blood pressure and heart rate, every 15 seconds, which enables the anesthesiologist to carefully monitor the patient. It links to other information systems throughout Capital Health and the IWK enabling physicians access to lab results, diagnostic scans, x-rays and other tests the second they are available. All of this better enables the department to capture data it uses to improve patient care and safety and to conduct research.

A significant part of delivering high quality care and ensuring patient safety is to do so according to best practice and to obtain the necessary equipment and training. In 2011-2012, **Dr. Arnim Vlaten**, Assistant Professor and staff anesthesiologist, became a core member of the liver transplantation team, strengthening the team's expertise in the use of trans-esophageal echocardiography (*TEE*). He is leading the full implementation of *TEE* in liver transplantation surgery.

High quality patient care and patient safety are hallmarks of the Department of Anesthesia, Pain Management and Perioperative Medicine.



The TEE probe was purchased in 2010 and its use introduced for limited cases, pending further evidence of its efficacy. It is currently used as a standard piece of equipment. The liver transplantation team also began using the latest technology in rapid transfusion this year following the acquisition of a Belmont Rapid Infuser. This new equipment is used to quickly administer higher amounts of blood, medications and other fluids during surgery and in trauma treatment situations. The department also secured a new fleet of anesthesia machines for use by the women's & obstetric anesthesia team at the IWK Health Centre beginning in fall 2012. The cardiac team will introduce new techniques in minimally invasive heart valve surgery and transcatheter aortic valve transplantation (TAVI) in the fall 2012 following site visits in early 2012 by **Dr. Blaine Kent**, subspecialty chief, to Robert Wood Johnson University Hospital (New Jersey) and Saint Paul's (Vancouver) to gain skills and knowledge in the techniques.

The anesthesia team has been instrumental in implementing recommendations for improving OR practices and procedures put forward by an external consultant group, achieving efficiencies at the QEII Health Sciences Centre (part of Capital Health). Coordination of anesthesia services and patient flow by the Anesthesia Coordinator role has continued to prove very valuable as Capital Health moves to further

increase efficiencies. Further, department members were involved in the selection and implementation of a system for the wireless telemetric monitoring of obstructive sleep apnea patients postoperatively. Implementation of the system in November 2011 has allowed patients with obstructive sleep apnea to be cared for on units outside of the intermediate medical care unit (IMCU), thus making intermediate level care available to others and decreasing OR delays and cancellations. The delivery of anesthesia care, however, was hampered in 2011-2012 by a shortage in the supply and number of drugs used for anesthesia. While in most cases, alternate drugs were found and used, the department's office of quality and patient safety is continuing to monitor the impact, in any, on patient safety.



The Role of Anesthesia Assistants and Anesthesia Technicians in the Delivery of High Quality Patient Care

It takes a team – or rather teams – of professionals to help things run as smoothly as possible in the ORs at the QEII Health Sciences Centre; there are tens of thousands of surgeries performed each year, many of which are the most complex in Atlantic Canada. There is also a growing emphasis on OR efficiency so as to meet the needs of citizens in our community within constrained healthcare budgets. Anesthesia assistants and anesthesia technologists are integral team members, working with physicians and nurses to ensure patient safety while increasing efficiency. The two professional groups are little known beyond the OR and tertiary care hospitals but in their elements, they are considered critical to quality patient care.

Anesthesia assistants

Anesthesia assistants are specially trained health professionals who provide anesthesia care, such as the insertion of intravenous lines, administration of intravenous drugs, and airway management and assessment under the supervision of an anesthesiologist. They also provide relief to anesthesiologists,

observing stable patients in the OR, to allow for breaks – necessary to combat fatigue and thus increase patient safety, especially during long surgeries. The provision of relief for anesthesiologists also allows the ORs to function continuously throughout the day and not be interrupted.

Kathryn Ingram, a 10-year anesthesia assistant, works in the “block room” at the Halifax Infirmary where she provides clinical support to the anesthesiologists who are responsible for the administration of regional blocks* to patients just prior to surgery. In so doing, she cares for patients directly and assists the anesthesiologists. Far beyond a set of helping hands, Kathryn says part of what she values most about her work is the expectation that she offer her clinical opinions based on her professional skills, experience and critical thinking. Like all anesthesia assistants Kathryn, is a trained and experienced respiratory therapist, a prerequisite of becoming an anesthesia assistant.

“After working as a respiratory therapist for 15 years, I wanted to increase my clinical expertise and fulfill my desire to work in the

Anesthesia technicians train at the QEII through a nine-month theory and practical based program administered by the Department of Anesthesia, Pain Management and Perioperative Medicine. Candidates must have Licensed Practical Nurse training and experience.

OR setting so, I enrolled in an anesthesia assistant training program and started with the anesthesia department shortly thereafter,” says Kathryn. She is one of 10 full-time anesthesia assistants who work at the QEII.

* Regional anesthesia techniques, also known as regional blocks, are used in select general, orthopaedic, thoracic, plastic, urology and vascular surgeries. Regional anesthesia is characterized by the loss of sensation to a specific region of the body, caused by injecting a local anesthetic around a peripheral nerve or the spinal cord.

Anesthesia technicians

Anesthesia technicians are the technical experts in the provision of anesthesia care in the OR. They have the highest level of knowledge and familiarity with the very sophisticated and critical anesthesia machines and equipment used by anesthesiologists.

*“We are the trusted experts on the anesthesia machines and equipment, which includes the interaction between the machines and the patients,” says **Jacqueline Beck** (previous page), a 22-year anesthesia technician. “While the anesthesia machines and equipment are static, their use varies by surgery and patient as does a patient’s reaction to*

the machines. This necessitates intimate technical knowledge, the ability to react and problem solve quickly, and a great relationship with the anesthesiologists and surgery team.”

Anesthesia technicians set up the ORs at the QEII Health Sciences Centre according to the types of surgeries on the schedule and what teams will be in the ORs, a process that can take between 30 minutes and two hours and includes the inspection of all anesthesia machines and equipment. They also assist anesthesiologists as they administer anesthesia care in the OR, on-call within the OR suite at the Halifax Infirmary and Victoria General to enter the ORs as needed.

*“We are constantly thinking about patient safety,” says **Kim Betts** (previous page), an eight-year anesthesia technician. “The better we do our jobs, the safer surgeries are. If we set up a room incorrectly, miss an equipment or machine issue, or misread a monitor when the anesthesiologist is inserting lines we decrease the efficiency of the OR at best and put patients in jeopardy at worst.”*

Kim and Jacqueline are two of 19 full-time anesthesia technicians who work at the QEII.

Patient Care by the Numbers • 2011-2012

Service Delivery

In 2011-2012, 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, kidney and kidney pancreas 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 more than 49,000 annual procedures was performed at the QEII Health Sciences Centre and IWK Health Centre. The following is a breakdown of OR procedures by anesthesia subspecialty area for the 2011-2012 fiscal year:

Anesthesia for liver, kidney and kidney-pancreas transplantation	154
Cardiac anesthesia	2,118
Neuroanesthesia	1,076
Pediatric anesthesia	5,814
Thoracic anesthesia	824
Women's & Obstetric anesthesia	3,905
General anesthesia*	34,535

**In addition to the surgical procedures represented above, tens of thousands of others performed during the 2011-2012 fiscal year required general anesthesia support. Those include orthopaedic surgeries (6,492), ENT (ear, nose, throat) surgeries (1,712), ophthalmological (eye) surgeries (7,161), urological surgeries (6,653), and others.*

Outside of the OR, two of the Department of Anesthesia's largest services are **Blood Management Services** and **Pain Management Services**. Here is a breakdown of their numbers:

Blood Management Services

New patient consults at the QEII Health Sciences Centre	260
Patient visits	1,450

Pain Management Services (Adult)

Acute inpatient consults at the QEII Health Sciences Centre (March-July, 2012)	467
Regional blocks performed at the HI Site, QEII Health Sciences Centre	2,417
Chronic pain inpatient consults at the QEII Health Sciences Centre	73
Patients seen by the chronic pain team	6,874
New referrals to the chronic pain team	796



A Culture of Research Excellence

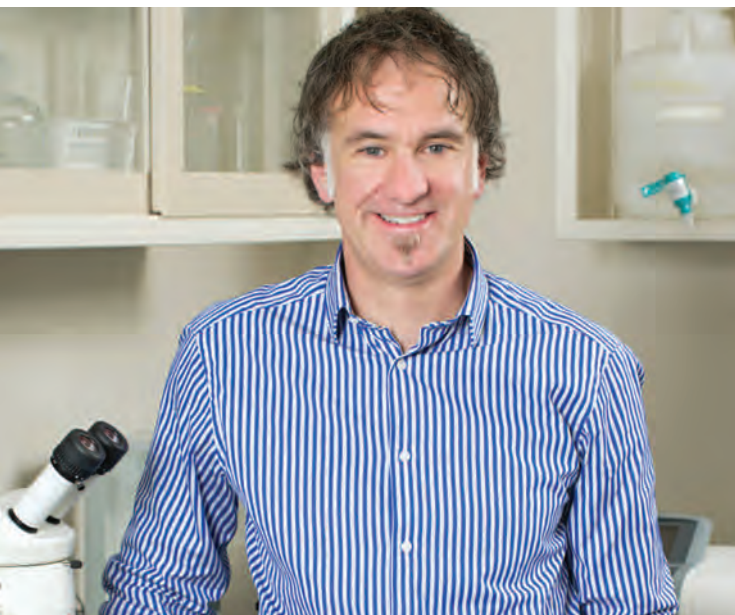
The story of research in the Department of Anesthesia, Pain Management, and Perioperative Medicine could be titled “small but mighty.” A culture of research permeates the department, resulting in a quantity and quality of research work that is comparable with much larger departments. The number of peer-reviewed manuscripts produced by department members has grown in the last year as has funding, despite a decline in the availability of Canadian research funds. Many department members sought multiple grants and awards for their projects in the public and private sectors. Consequently, 20 per cent of funding was generated from the private sector, the most of any year to date.

Part of what helps grow and strengthen research in the Department of Anesthesia, Pain Management and Perioperative Medicine is its members’ increasing collaborations with colleagues across Canada and around the world. **Drs. Mary Lynch** and **Orlando Hung**, as part of a multidisciplinary Dalhousie University team, are leading work to develop novel treatments for pain — an effort that includes colleagues from around the world, including the Hebrew University (Israel); **Dr. Patty Livingston** launched an innovative study using low-fidelity simulation to teach anesthesiologists non-technical skills in partnership with the National University of

Rwanda; and **Dr. Christian Lehmann** (*at left with Juan Zhou, PhD, and Sara Whynot*), has multiple projects underway in the area of sepsis with colleagues at the University of Berlin. He and departmental colleague, **Dr. Dietrich Henzler**, have also trained 20 international students, most of who hail from Germany, continuing to cultivate relationships with up and coming researchers abroad. **Dr. Allen Finley** (*at left with Jill Chorney, PhD*) is working with colleagues across Canada and in Thailand and Brazil to improve the treatment and management of children’s pain around the world by establishing standards for care through several international studies. In Canada, a Canadian Institutes of Health Research-funded multi-level, multi-site study was renewed in 2011 enabling a research team, led by **Dr. Bonnie Stevens** (University of Toronto) and a group of renowned children’s pain experts including Dr. Finley, to continue its work to improve the treatment and management of children’s acute pain. This study puts into practice significant advancements in children’s pain research.

The value of collaboration begins within the department and extends to colleagues in many departments and faculties at Dalhousie University. **The Dalhousie Women’s Pain Group**, (*bottom left*) established in 2011-2012 by

Dr. Ron George, is a multidisciplinary research group dedicated to pain associated with childbirth. Its preliminary work aims to determine whether the pain of labour and delivery has an impact on the severity, prevalence and response to women’s future pain experience. **Dr. John Clark**, **Dr. Mary Lynch** and **Jason McDougall, PhD** are leading the charge to establish the **Dalhousie Institute for the Study of Pain**. The goal is to contribute to better prevention, diagnosis, treatment and management of pain by organizing researchers, clinicians, educators and others across disciplines via a formal institute. The institute would encourage and facilitate more interdisciplinary research collaboration and increase the quantity and quality of education about pain in the academic health sciences sector and among citizens. **Jill Chorney, PhD**, collaborates with a team of IWK researchers and works with industrial engineers and augmented reality companies to develop evidence based approaches to reduce children’s pain and anxiety associated with medical procedures.



The collaborative culture is beginning to pay dividends. **The Nova Scotia Chronic Pain Collaborative Care Network**, which links primary health care providers to chronic pain and addiction specialists to improve pain management through mentorship, received funding in 2011–2012 from the *Nova Scotia Department of Health and Wellness* and the private sector to foster knowledge translation research and program evaluation. The network, which is led by **Dr. Peter MacDougall**, also expanded to double its membership and includes international members.

The department received confirmation of space for the **Perioperative Research Team (PORT)** lab in 2011–2012. The lab will be home to Dalhousie faculty from many basic science and clinical disciplines who will work together on studies and to develop medical technologies and devices to improve care of people during surgery. **Dr. Orlando Hung** (*bottom left*) published the second edition of *Management of the Difficult and Failed Airway* together with **Dr. Mike Murphy** (University of Alberta). The book is considered the definitive text on airway management worldwide and features contributions from more than 15 other department members.

When **Jason McDougall, PhD** (*top left*), joined the Departments of Anesthesia, Pain Management and Perioperative Medicine, and Pharmacology he cited the collegial spirit of

Dalhousie and its reputation for pain research as the main reasons for his relocation. Dr. McDougall explores the mechanisms of joint inflammation and the resultant pain. In 2011–2012, he published 13 manuscripts on his studies in the area. He and his work may just be an osteoarthritis sufferer's greatest hope for relief from debilitating pain.

In addition to adding Dr. McDougall to the research team, the department also welcomed **Heather Butler, PhD**, as managing director, Office of Research, and appointed **Dr. Ron George** as associate medical director of research. Part of the role of the Office of Research is to support the cultivation of clinician researchers within the department. **Drs. Jennifer Szerb, Myron Kwapisz and Patty Livingston** are budding researchers who have up to the past year focused mainly on clinical care. They have studies underway to assess the frequency of intraneural injection, the potential of concentrated fibrinogen to be used initially to slow or stop post-operative bleeding, and the **SAFE Obstetric Anesthesia Course** and **Anesthesia Practice Network** in Rwanda as a **Model for Knowledge Translation**, re-spectively.

DMF Medical Receives Award



DMF Medical Inc. was presented with an **Atlantic Innovation Fund (AIF)** research and development (R&D) award by the **Atlantic Canada Opportunities Agency**. The AIF is aimed at supporting and promoting innovation and research and development. This includes funding for projects to enhance Nova Scotia's reputation in sectors such as medical technology and marine sciences.

DMF Medical is a spin-off company of **Dr. Michael Schmidt's** research group in the Department of Anesthesia, Pain Management and Perioperative Medicine. DMF Medical has set out to refine and optimize **ZeroSorb**, an innovative CO₂ removal device for anesthetic circuits, which uses mechanical technology rather than traditional absorbent chemicals thereby reducing harmful environmental chemicals for both the OR team and patients.

Anesthesia Research Day 2012

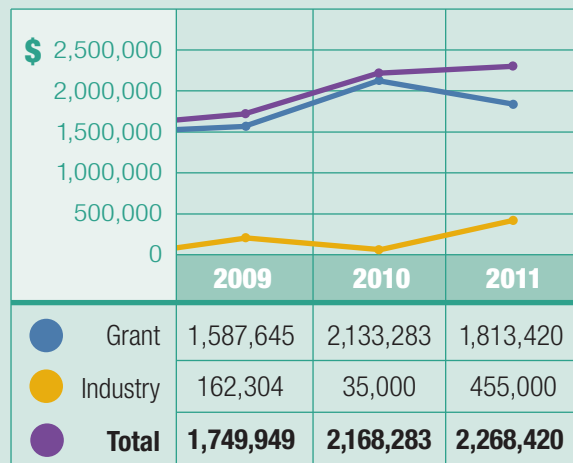


Pictured clockwise from top left: Dr. Romesh Shukla with keynote speaker, Dr. Michael Cousins, Professor, Northern Clinical School, Kolling Institute of Medical Research, University of Sydney (Australia); Karim Mukhida, 1st place prize for resident research; Allana Munro, 2nd place prize for resident research; Katherine Mifflin, 2nd place prize for student research.

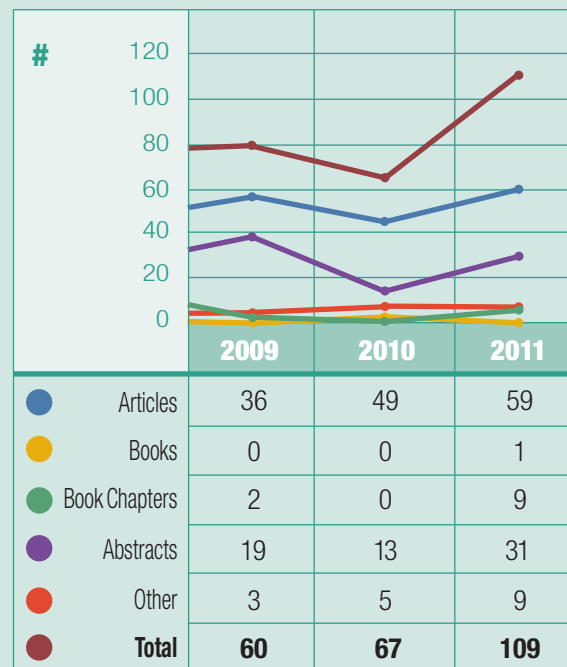
Not pictured: Thomas Toguri, 1st place prize for student research

A Snapshot of Research Excellence

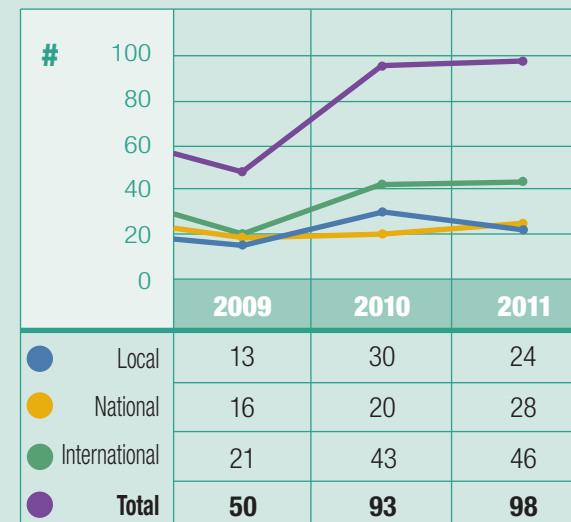
Research Funding



Publications

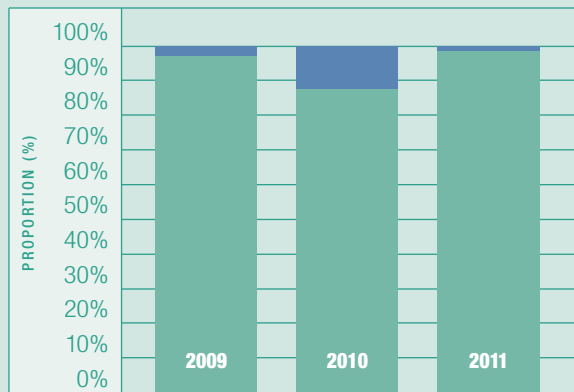


Presentations

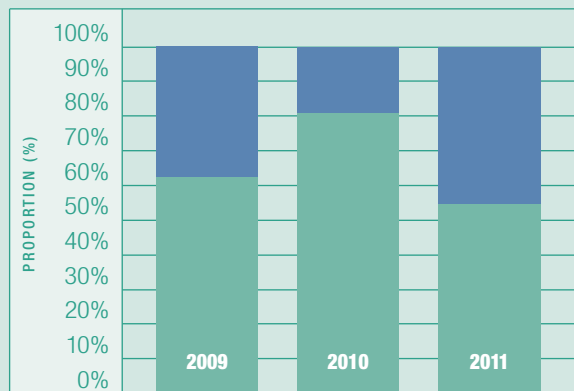




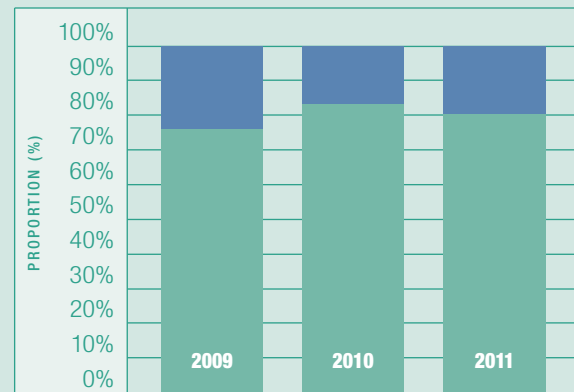
Collaborative Publications



Collaborative Research Projects



Collaborative Publications & Projects



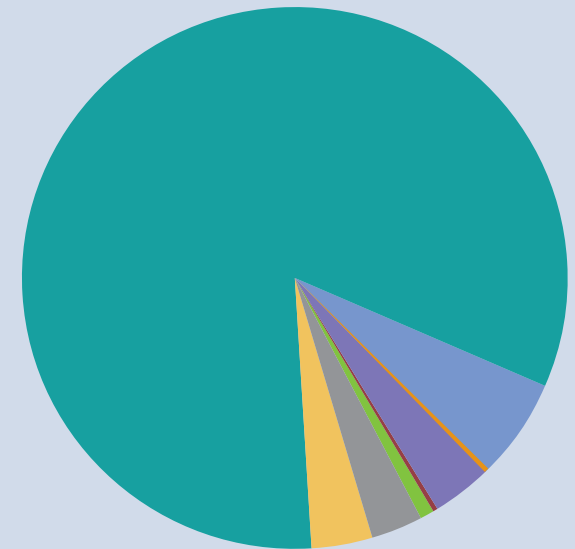
● Collaborative %
 ● Independent %

Financial Overview

2011-2012

The Department of Anesthesia's operational funding for 2011-2012 totalled \$30,191,635 for the provision of clinical services at Capital Health and the IWK Health Centre, and medical teaching as part of Dalhousie University.

ADMIN – OPERATING	3.2 %
ADMIN – SALARIES	3.7 %
CLINICAL PAYMENTS	82.3 %
RESEARCH	6.3 %
EDUCATION	3.4 %
GLOBAL HEALTH	0.2 %
ASPENS	0.2 %
PAIN	0.7 %





"Leaf Angels"(detail) © by **Anne Camozzi**, a Nova Scotian artist and participant in Resilience and Art in Chronic Pain: A Qualitative Study, led by **Dr. Mary Lynch**, Professor and Director of the QEII Pain Management Unit. The study delves into the experience of a group of artists who suffer from chronic pain conditions yet exhibit resilience in a way that allows them to continue to create in the face of this pain."

