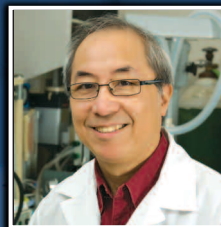
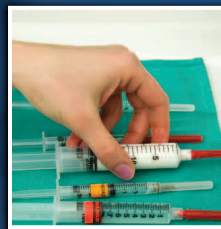
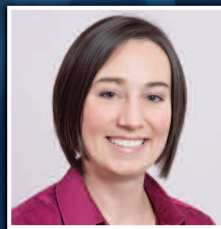


ACCOUNTABILITY REPORT

2011

OFFICE OF RESEARCH Department of Anesthesia Dalhousie University



**DALHOUSIE
UNIVERSITY**

*Inspiring Minds
Faculty of Medicine*

VISION AND MISSION

Department of Anesthesia Vision and 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).

TABLE OF CONTENTS

Executive Summary	1
Introduction	3
Scholarly Curiosity	4
Engage in the process of creativity	4
Engage in the process of research	5
Scholarly Synthesis	9
Actively seek out collaborative opportunities with interdisciplinary colleagues	9
Sit on scientific organizing committees	9
Engage in the administrative process	10
Scholarly Translation	11
Linking theory to practice activities	11
Scholarly Communication	12
Writing and publishing	12
Preparing and delivering presentations	14
Appendix A	A1
Appendix B	B1
Appendix C	C1

EXECUTIVE SUMMARY

The Department of Anesthesia's **2011 Research Accountability Report** communicates the research-related achievements by research staff with respect to established targets and goals stated in the *Research Accountability Framework*. The information in this report highlights research productivity from January to December 2011 and includes data from previous years for comparative and trending purposes.

As a summary, the areas where targets were met or partially met as well as those targets that were not met in 2011 are outlined below.

AREAS IN WHICH THE DEPARTMENT **MET ITS TARGETS** IN 2011:

- The number of research projects increased from seven in 2010 to 21 in 2011.
- The number and value of grants and industry contracts (32 and \$2.2M, respectively) have increased, with a significant increase in industry funded research of \$440,000 in 2011 compared to \$35,000 in 2010 (*Figure 1 and Table 1*).
- Three national recognition awards were received in 2011 (*Table 4*) the same number of awards received in 2010.
- Consistent with 2010, the proportion of projects, proposals and manuscripts are 83% collaborative.
- The proportion of researchers who serve as members or reviewers for research ethics boards, granting agencies and scientific journals for local, national and international organizations is 73%, 67% and 80%, respectively (*Table 6*).
- Eighty percent of researchers were invited to review, organize, chair and offer expert opinion in 2011.
- Eighty-four percent (84%) of action items from the 2011 strategy were successfully completed (*Table 7*).
- The majority of researchers were involved in initiatives targeted at applying or translating research (93%).
- The total number of publications almost doubled from 67 in 2010 to 109 in 2011 with significant increases in peer-reviewed manuscripts and abstracts (*Figure 3*).
- The number of invited presentations made by the researchers reached an all time high of 98 with 76% presented at national and international forums.

AREAS IN WHICH THE DEPARTMENT **PARTIALLY MET ITS TARGETS** IN 2011:

- The proportion of associate and full professors exceeds its targets for full professors (57%), but not for the associate professor level (14%) (*Table 3*). One researcher was successfully promoted to associate level (100% success rate).

AREAS IN WHICH THE DEPARTMENT **DID NOT MEET ITS TARGETS** IN 2011:

- Researcher satisfaction rate with services provided by Office of Research.

The results of this report will be used in the implementation of the Research Accountability Framework's *Evaluation Strategy*.

INTRODUCTION

The Department of Anesthesia identified the need for a research accountability framework during a departmental strategic planning exercise. The research accountability framework was subsequently developed by a working group of departmental researchers and research management staff in a collaborative process. Through it, the department attempted to recognize the value of the full scope of scholarly research activity, from engaging in the process of creativity, to implementing research projects, to communicating the results, and influencing clinical best practice. The **Research Accountability Framework** was adopted by the Department of Anesthesia in December 2008.

THE ACCOUNTABILITY FRAMEWORK HAS FOUR SECTIONS:

- 1. Profile.** In this section, we describe the need for an accountability framework in the context of our office of research and describe our governance structure.
- 2. Results chain.** In this section, we provide a flow chart that ties resources devoted to research to the outcomes through a logical sequence of activities and outputs.
- 3. Measurement and reporting plan.** A key element of the accountability framework is the identification of the most appropriate indicators of research activity and productivity, our current targets, how to measure the indicators and how to report the results (*accountability report*).
- 4. Evaluation strategy.** The purpose of measuring and reporting results is to inform sound performance management and decision-making. The evaluation strategy outlines a cyclical, iterative strategy for on-going learning from our results and adjusting our strategy as required.

This **Research Accountability Report (2011)** covers the time period from January to December 2011. It is the product of the Framework's *Measurement and Reporting Plan* in which key indicators and targets were identified for subsequent measurement and reporting. The results of this report will be used in the implementation of the *Evaluation Strategy*. Consistent with the *Results Chain*, this report reflects the activity of research-oriented clinicians or other professional faculty with protected time (time funded by the department) for research.

The following information reports on the 2011 research-related results for each predetermined target as well as makes the comparison to data from previous years in graphical and table formats. In addition, currently held research grants/contracts and peer-reviewed publications are listed in *Appendix B* and *C*, respectively.

Engage the process of creativity

INDICATOR: Number of new proposals that are developed into research endeavours

TARGET: At least three new research endeavours / projects annually

Residents have engaged in six new research endeavors.

- Residents are expected to fulfill research requirements as part of their five-year residency program. The department has 29 residents (2011/2012).
- In 2011, four scientific abstracts were presented at national and international conferences; three peer reviewed papers were published; six new research projects were initiated and 12 lectures were presented by residents.

Fellows have engaged in three new research endeavors.

- Fellows are expected to fulfill research requirements as part of their one-year fellowship program. The department has four fellows, one in each of the following programs: airway, chronic pain, pediatrics and regional. One fellow has completed data collection and two other fellows have submitted their projects to the REB.

Clinician scientists developed 12 additional research projects (unfunded) that are being conducted in the department. The focus of these projects includes chronic pain, obstetrics, pediatrics, airway and quality assurance and patient safety.

The 2011 annual Anesthesia Research Day program was successfully filled to capacity with research presentations from learners (residents, fellows and students) for the second consecutive year.

Engage in the process of research (act as leader, innovator, change agent)

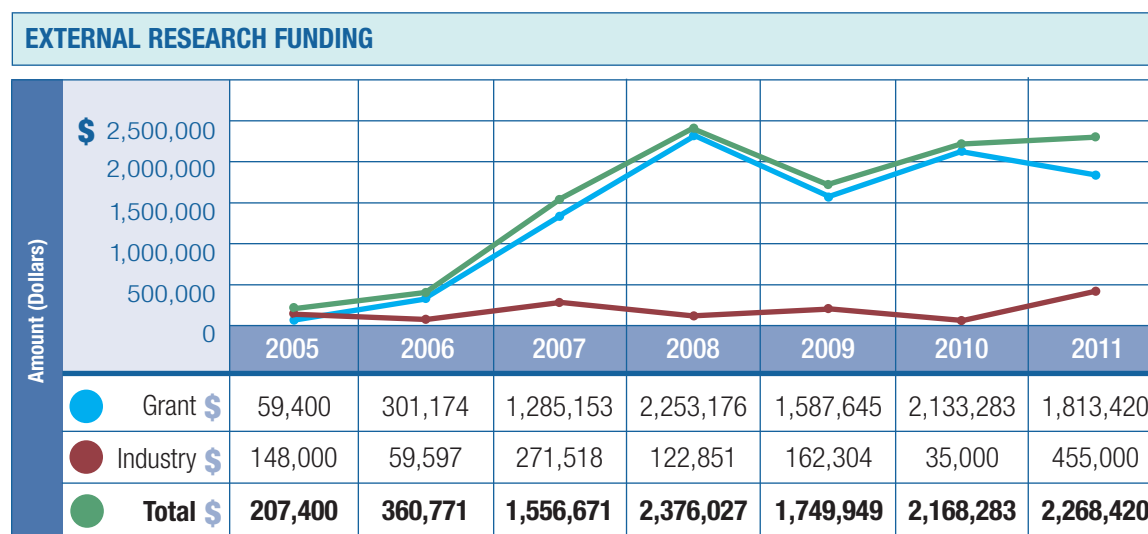
INDICATOR: Number & value (\$) of grants & industry contracts received

TARGET: Trending reflects maintenance or increase from previous years relative to protected research time

In 2011, the total amount of ongoing grant/industry funded projects increased from previous years with the highest recorded contribution from industry contracts to date (*Figure 1*). Similarly, the number of grants and industry contracts are the highest recorded (*Table 1*). A major contributor to this success is the consistent support of protected time for research (*Table 2*).

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

FIGURE 1: The amount (dollars) in external research grant and industry contract funding received (2005-2011)



Grant funded research underway in the department in 2011 includes 11 projects funded by the Canadian Institutes of Health Research (CIHR) totaling over \$1.45M and four projects funded by the Nova Scotia Health Research Foundation (NSHRF) in excess of \$150,000 with the remaining grants including local and international organizations as well as a professional association.

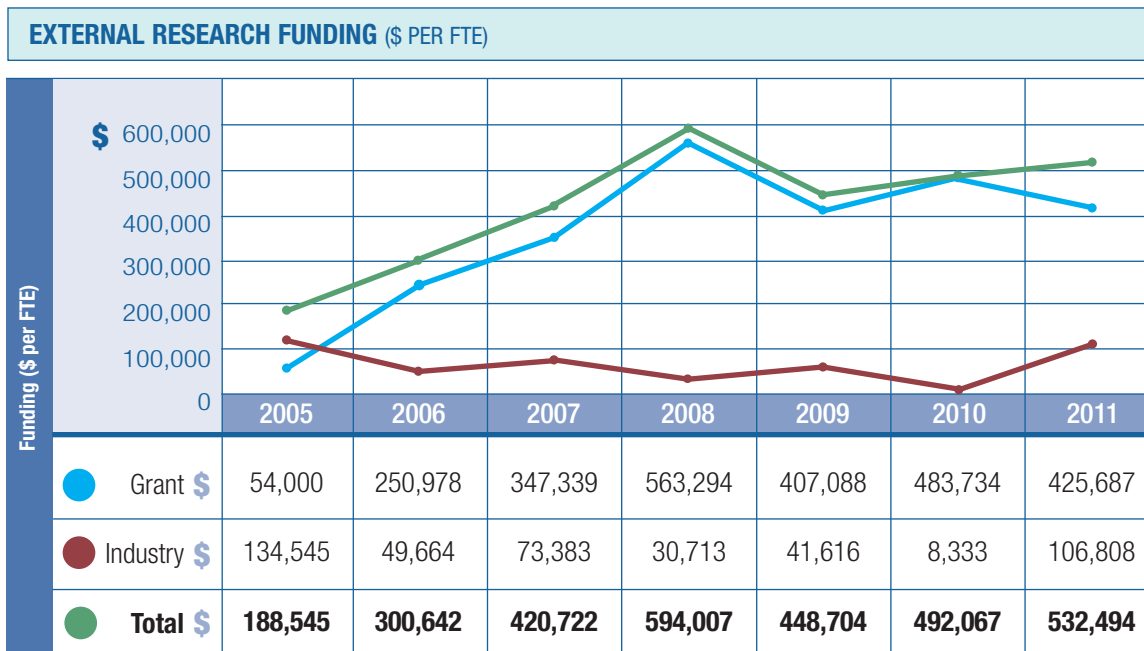
TABLE 1: Number of grants & industry contracts received

FUNDING GRANTS & INDUSTRY CONTRACTS							
	2005	2006	2007	2008	2009	2010	2011
Grant	2	5	10	23	17	24	27
Industry	2	3	4	3	2	1	6
Total	4	8	14	26	19	25	33

TABLE 2: Protected time for research activities (2005-2011)

FTE PROTECTED TIME							
	2005	2006	2007	2008	2009	2010	2011
Protected Time	1.4	1.5	3.8	4.2	4.2	4.2	4.26

FIGURE 2: Value of grants received relative to FTE of protected time for research



In **Figure 2**, the value of grants and industry contracts received relative to FTE (*Table 2*) of protected time for research is illustrated. Note that since 2009 the increasing trend of the total dollar amount relative to the FTE, which has remained constant, indicates that researchers are more successful in funding within the same amount of protected time.

INDICATOR: Number of associate and full professors

TARGET: 50% of researchers will be at professor level, 30% at associate level; and 60% of research related promotion applications are successful.

TABLE 3: Number and percentage of appointments in the Department of Anesthesia

NUMBER AND PERCENTAGE OF APPOINTMENTS		
Rank	Number (#)	Percent %
Full Professor	8	57%
Associate Professor	2	14%
Assistant Professor	4	29%

There was one successful promotion to an Associate designation (P. MacDougall) in 2011 indicating a 100% success rate in the 2011 promotion applications.

In general, the proportion of researchers at the various ranks is consistent with their academic profile and status (e.g. seniority, terms of appointment).

INDICATOR: Number of recognition awards

TARGET: Trending reflects maintenance or increase from previous years relative to protected research time

Three recognition awards for achievements in 2011 were conferred (*Tables 4 and 5*). This is consistent with the number of awards in 2010. One award reflects recognition from a national research agency (CIHR), one from a national professional association (CAS), and one from a local organization.

Congratulations to **Dr. Jill Chorney** for receiving the local Discovery Centre Awards as Emerging Professional, and a prestigious New Investigator Award from the Canadian Institutes of Health Research. As well, congratulation to **Dr. Ron George** as the recipient of the 2011 Canadian Anesthesiologists Society Career Scientist Award.

TABLE 4: Number of recognition awards (2005-2011)

AWARDS							
	2005	2006	2007	2008	2009	2010	2011
No. of Awards	7	6	7	3	7	3	3

TABLE 5: Number of recognition awards relative to FTE of protected time for research (2005-2011)

RECOGNITION AWARDS RELATIVE OF FTE PROTECTED TIME							
	2005	2006	2007	2008	2009	2010	2011
Recognition Awards	5.0	4.0	1.9	0.7	1.7	0.7	0.7

Actively seek out collaborative opportunities with interdisciplinary colleagues

INDICATOR: Number of collaborative projects, proposals and manuscripts.

TARGET: 80% of all projects are collaborative

Of 109 publications, 99 have co-authors (91%). Of 33 funded grants and industry contracts, 19 have co-investigators (58%). Therefore, 118 out of 142 projects and publications are collaborative (83%).

Sit on scientific organizing committees

INDICATOR: Number of researchers who serve as members or reviewers for research ethics boards, editorial boards, professional associations, granting agencies, scientific journals

TARGET: 40% of researchers are reviewers / members locally, 30% nationally, 10% internationally

TABLE 6: Number and percentage of participating researchers in the Department of Anesthesia

PARTICIPATING RESEARCHERS		
	Number of Researchers	Percent
Local	11 / 15	73%
National	10 / 15	67%
International	12 / 15	80%

INDICATOR: Number of researchers invited to review, organize, chair and offer expert opinion

TARGET: 50% of researchers invited to review, organize, chair and offer expert opinion

In 2011, 12 of 15 researchers invited to review, organize or chair (80%).

Engage in the administrative process

INDICATOR: Engage in planning activities to advance the research mission

TARGET: 80% of action items completed from strategic plan each year

The strategic plan is reported based on the academic year (September 2010 to August 2011). Note, that there was a new managing director of research as of September 2011.

TABLE 7: Status of action items for the 2011 strategic plan

STATUS OF ACTIONS			
Status	# Actions	% Actions	
Completed	6	16	84 %
Ongoing (never completely done)	20	53	
Progress underway	6	16	
No progress	6	6	16 %
TOTAL	38		

The Office of Research updated its strategic plan on November 26, 2011. Four priority actions were identified:

1. Space (Perioperative Research Team (PORT) proposal for Tupper space)
2. Increasing the profile of the Office of Research and research productivity
3. Facilitation of research proposal applications (large and small)
4. Actively participate in department's recognition strategy

INDICATOR: Researcher satisfaction with services provided by Office of Research

TARGET: 90% researcher satisfaction rate with services provided by Office of Research

Surveys were sent to all clinicians in the department ($n=106$) which included 15 researchers with protected time. Of the responses received ($n=27$), the majority indicated that they were either very satisfied or satisfied (58%) with the service provided by the Office of Research. One respondent (4%) indicated dissatisfaction while the remaining respondents stated they were neutral or the questions were not applicable to them (38%).

SCHOLARLY TRANSLATION

Linking theory to practice activities

INDICATOR: Number of initiatives (presentations) targeted at applying or translating research

TARGET: 30% of researchers are engaged in knowledge translation activities

14 of 15 researchers engaged in knowledge translation activities (93%).

Writing and publishing

INDICATOR: Number of submitted and accepted publications (peer reviewed & non-peer reviewed)

TARGET: Trending reflects maintenance or increase from previous years relative to protected research time

In 2011, there were increasing trends in each category of the number of publications with a significant increase in articles, book chapters and scientific abstracts (**Figure 3**). The total number of publications in 2011 almost doubled from 2010. **Table 8** shows that relative to protected time the researchers achieved a 5-year high in the total number of publications.

FIGURE 3: Number of submitted and accepted publications (peer reviewed & non-peer reviewed)

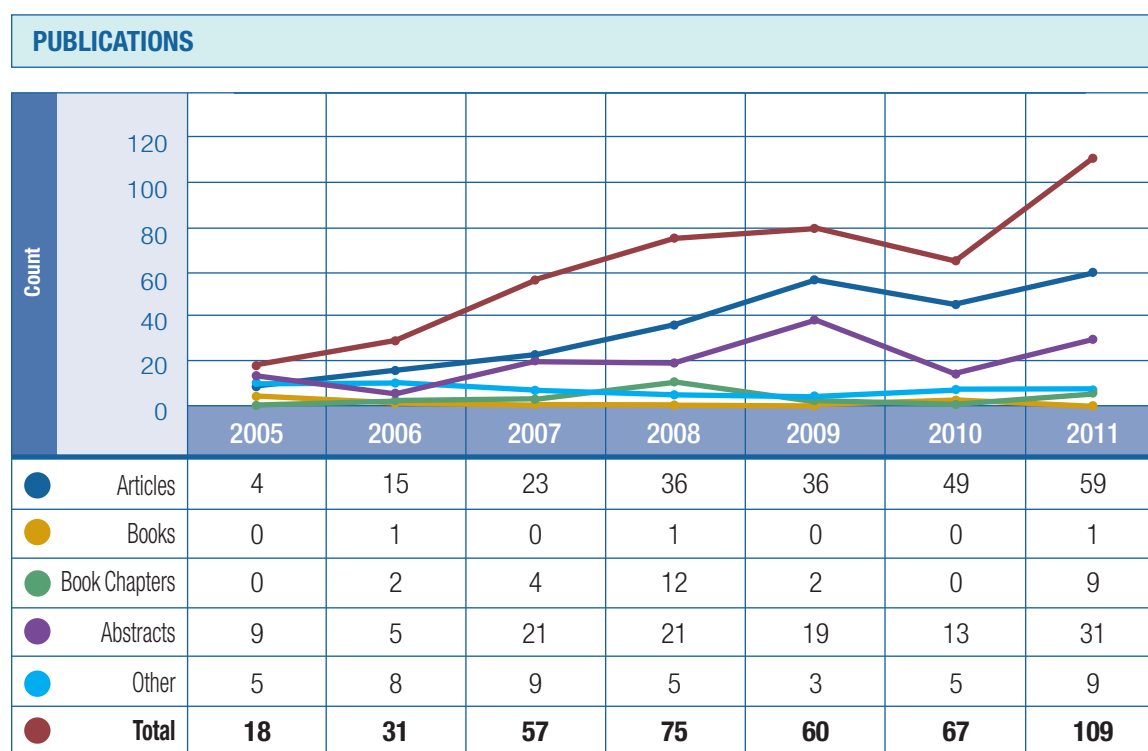


TABLE 8: Number of submitted and accepted publications (peer reviewed & non-peer reviewed) relative to FTE of protected time for research

PUBLICATIONS PER FTE PROTECTED RESEARCH TIME							
	2005	2006	2007	2008	2009	2010	2011
Articles	4	13	6	9	9	11	14
Books	0	1	0	0	0	0	0
Book Chapters	0	2	1	3	1	0	2
Abstracts	8	4	6	5	5	3	7
Other	5	7	2	1	1	1	2
Total	17	27	15	18	16	15	26

Preparing and delivering presentations

INDICATOR: Number of presentations (local, national, international)

TARGET: Trending reflects maintenance or increase from previous years relative to protected research time

In 2011, the total number of presentations by researchers exceeded the highest level recorded in previous years (**Figure 4**). National and international presentations continue to increase compared to previous years while local presentations have remained relatively consistent. Also, the number of presentations relative to protected time for research has reached an all-time high (**Table 9**).

FIGURE 4: Presentations (count) for local, national and international audiences

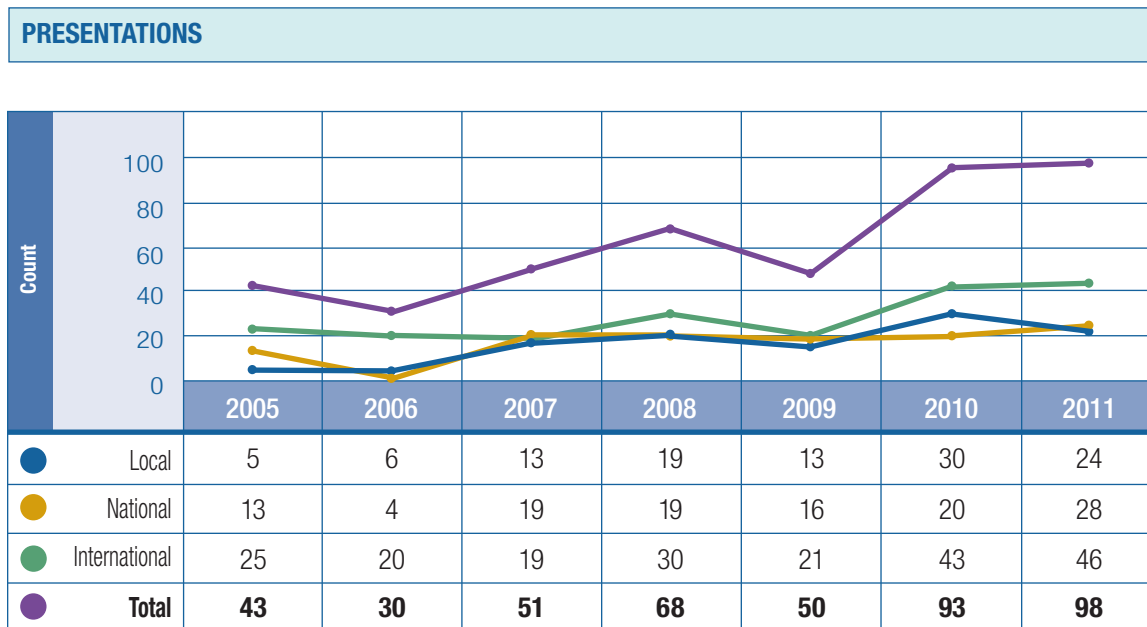


TABLE 9: Number of presentations (local, national, international) relative to FTE protected time for research

PRESENTATIONS RELATIVE TO FTE PROTECTED TIME

	2005	2006	2007	2008	2009	2010	2011
Local	5	6	13	19	13	30	24
National	13	4	19	19	16	20	28
International	25	20	19	30	21	43	46
Total	43	30	51	68	50	93	98

APPENDIX A – PROTECTED TIME FOR RESEARCH

2011 PROTECTED TIME FOR RESEARCH

RESEARCHER	PROTECTED TIME	RESEARCHER	PROTECTED TIME
V. Cerny	0.13	M. Lynch	0.60
A. J. Clark	0.10	P. MacDougall	0.20
A. Finley	0.45	J. McDougall	0.13
R. George	0.45	D. McKeen	0.40
D. Henzler	0.20	A. Milne	0.20
O. Hung	0.40	M. Schmidt	0.20
C. Lehmann	0.60	A. Vlatten	0.20

TOTAL PROTECTED TIME

4.26

Others engaged in research related activities without Anesthesia-funded protected time include **Dr. Jill Chorney** (0.5) in 2011.

Individuals with protected time for other anesthesia related activities include **Drs Richard Hall** (0.1) and **Adam Law** (0.2), but are not included in the total FTE calculation.

Drs. Richard Hall (0.6) and **Dietrich Henzler** (0.2) receive additional protected time for research through the Division of Critical Care. These FTEs have not been included.

APPENDIX B – RESEARCH PROJECTS IN 2011

FUNDED PROJECTS (33). Note that the bracketed dollar amount is the total value of the award whereby annual amounts are provided in Figure 1.

1. 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)
2. Chorney J. Improving perioperative outcomes through preparation: The role of healthcare provider-family interactions [Grant] IWK Health Centre. Jan 2010. (\$90,000)
3. Chorney J. Pain in Children at Home Following Major Surgery: New Investigator Award [Grant] CIHR. Jul 2011. (\$300,000)
4. Clark AJ, Lynch ME, Jovey RD, Cooper L, VanDenKerkhof E, Logan G. Stakeholder Meeting, Canadian Pain Summit [Grant] CIHR. Sep 2011. (\$17,500)
5. Clark AJ. Community Alliances for Health Research and Knowledge Exchange in Pain [Grant] CIHR/AstraZeneca. Jan 2008. (\$350,000)
6. Fassbinder Marius, Henzler D. Impact of preserved spontaneous breathing activity on ventilation associated lung injury [Educational Grant] German Academic Exchange. Jul 2011. (€1,950)
7. Finley GA. IASP grant to ChildKind International [Educational Grant] International Association for the Study of Pain (IASP). Jan 2010. (\$50,000)
8. George RB, McKeen D, Allen TK, Habib AS, Simpson CD, Allen V. A double blind randomized controlled trial of phenylephrine for the prevention of spinal induced hypotension in obese parturients [Grant] IWK Health Centre. Feb 2011. (\$15,000)
9. George RB. Enhancing analgesia and anesthesia for women and high-risk pregnancies. [Grant] Canadian Anesthesiologists' Society. Jul 2011. (\$120,000)
10. Kain ZN, Chorney J, Blount RL. Improving pain and anxiety in children undergoing surgery: Changing Healthcare Provider Behavior [Grant] National Institutes of Health. Jan 2011. (\$2,730,034)
11. 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)
12. Latimer M, Rudderham S, Finley GA, Inglis S, Hutt-McLeod D. Understanding pediatric pain in aboriginal communities: Youth project [Grant] Atlantic Aboriginal Health Research Program. Jan 2011. (\$30,000)
13. Lehmann C, Hall R, Henzler D. Impact of Activated Protein C Therapy on the Intestinal Microcirculation in Clinical Sepsis [Grant] Nova Scotia Health Research Foundation (NSHRF). Oct 2010. (\$93,624)
14. Lehmann C, Kelly M, Cerny V, Zhou J, Pavlovic D. Research in the Endocannabinoid System in Inflammation, Sepsis and Trauma (RESIST) [Grant] Nova Scotia Health Research Foundation. Jan 2011. (\$10,000)
15. Lehmann C, Zhou J. Manipulation of the Endocannabinoid System in Experimental Sepsis [Grant] Nova Scotia Health Research Foundation. Jul 2011. (\$147,960)
16. Lehmann C. Microcirculation Directed Fluid Management [Grant] Capital District Health Authority. Jan 2011. (\$14,900)
17. 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)
18. Lynch ME, Fischer B, Arratoon C, Kendall P, Rehm J, Goldner E, Krahn M. Assessing the impact of policy interventions for problematic prescription opioid use and related harms at a population level [Grant] Canadian Institutes of Health Research (CIHR). Oct 2010. (\$200,000)
19. Lynch ME. Dalhousie Pain Network Speaker Series [Industry] Pfizer, Valeant and Purdue. Jan 2011. (\$15,000)
20. MacDougall P, Chorney J, Jill Hatchette. Enhancing Residents' Research Training Experience: Testing an Applied Research Curriculum [Grant] IWK Health Centre. Dec 2011. (\$15,000)
21. MacDougall P. Nova Scotia Chronic Pain Collaborative Care Network (NSCPCCN) [Industry] Purdue Pharmaceutical. Jan 2011. (\$135,000)
22. MacDougall P. Nova Scotia Chronic Pain Collaborative Care Network [Grant] Nova Scotia Department of Health. Jan 2011. (\$50,000)
23. MacDougall P. Nova Scotia Chronic Pain Collaborative Care Network [Industry] Pfizer. Jan 2011. (\$100,000)
24. McDougall J. The relationship between proteases, protease activated receptors and cytokines in mediating osteoarthritis pain [Grant] Canadian Institutes of Health Research (CIHR). Jan 2011. (\$601,280)
25. McDougall J. Therapeutic potential of lysophosphatidic acid antagonism to control OA pain [Industry] Canadian Arthritis Network/Eli Lilly & Company Industry Research Programme Grant. Jan 2010. (\$200,000)
26. 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)
27. McKeen D. PeriOperative Ischemic Evaluation-2 – A large, international, placebo-controlled, factorial trial to assess the impact of Clonidine and Acetyl-Salicylic Acid (ASA) in patients undergoing noncardiac surgery who are at risk of a perioperative cardiovascular event (POISE-2 Trial) [Grant] Canadian Institutes of Health Research (CIHR). Dec 2011. (\$3,600)

28. McKeen D. REsidual Curarization and its Incidence at Tracheal Extubation (ReCITE) [Industry] Merck Canada. Jan 2011. (\$75,000)
29. Schmidt Alf, Henzler D. Impact of preserved spontaneous breathing activity on ventilation associated lung injury [Grant] German Academic Exchange Service (DAAD). Jan 2011. (€325)
30. Schmidt Alf, Henzler D. Impact of preserved spontaneous breathing activity on ventilation associated lung injury [Grant] RWTH Aachen Research Ambassador. Apr 2011. (€1,125)
31. Schmidt M. Neuroprotection and Anesthesia [Industry] Abbott Laboratories, Limited. May 2011. (\$30,000)
32. Stevens B, Finley GA. Translating research on pain in children – TROPIC [Grant] CIHR. Oct 2008. (\$1,379,952)
33. Stevens B, Finley GA. Team grant in children's pain - TROPIC CTP 79854 - Common database (Project 1) [Grant] CIHR/Hospital for Sick Children. Jan 2007. (\$194,467)

Unfunded Projects (12)

1. Bishop D, MacDougall P, Milne AD, Brousseau P, Gandhi N. Combined Opioid Anesthesia Peri-operative (COAP) dataset [Unfunded] Sep 2011.
2. Brousseau CA, Milne AD, Hung O. A Seven Year Retrospective Review of Glidescope Assisted Intubations [Unfunded] Feb 2011.
3. George RB, Chorney J, Rosen N, Snelgrove-Clarke E. Women's Pain Interdisciplinary Research Group [Unfunded] Aug 2011.
4. George RB, Munro A, Lehmann C. An observational assessment of the sublingual microcirculation of pregnant and non-pregnant women [Unfunded] Sep 2011.
5. Habib AS, George RB, Allen TK, McKeen D, ItukE. The effect of adding metoclopramide and ondansetron to a prophylactic phenylephrine infusion for the management of nausea and vomiting associated with spinal anesthesia for cesarean delivery [Unfunded] Jan 2011.
6. Lynch ME. Inspirational Artists Survey [Unfunded] Jan 2011.
7. Milne AD, Chisholm J, Jarvie A. Retrospective Quality Analysis of Code Blue Events [Unfunded] Nov 2011.
8. Milne AD, Hung O. Determination of the Minimum Light Intensity Required for Lightwand Intubation – A Cadveric Study [Unfunded] Dec 2011.
9. Szerb J, Milne AD. Recognition of Intraneural Injection with Ultrasound Imaging – Does Experience with Ultrasound Guidance Matter [Unfunded] May 2011.
10. Vlaten A. Is interdisciplinary simulation training the way to go for ENT and anesthesia residents to learn the management of a child with a foreign endobronchial body? [Unfunded] Oct 2011.
11. Vlaten A. Survey: Availability of airway devices and management of the difficult pediatric airway in lifeflight helicopters in Germany, Austria, Switzerland and Canada. [Unfunded] Mar 2011.
12. Vlaten A. The role of pediatric anesthesia simulation in residency training. [Unfunded] Oct 2011.

Note that this list of publications only includes those peer-reviewed articles that are currently published (28) and accessible on *pub-med*.

1. Cousins MJ, Lynch ME. The Declaration of Montreal: Access to pain management is a fundamental human right. *Pain*, 2011; 57:1241-2.
2. Cousins MJ, Lynch ME. The Declaration of Montreal. *Pain*, 2011; 152:2673-4.
3. Forgeron PA, McGrath PJ, Stevens B, Evans J, Dick B, Finley GA, Carlson T. Social information processing in adolescents with chronic pain: My friends don't really understand me. *Pain*, 2011; 152(12):2773-2780. [PubMed ID: 21963240](#).
4. Henzler D. What on earth is APRV? *Crit Care.*, 2011; 15(1):115. [PubMed ID: 21345265](#).
5. Henzler D, Hochhausen N, Chankalal R, Wu Z, Whynot S, Slutsky AS, Zhang H. Physiologic and biologic characteristics of three experimental models of acute lung injury in rats. *Anesth Analg*, 2011; 112(5):1139-46. [PubMed ID: 21474656](#).
6. Hubner N-O, Daeschlein G, Lehmann C, Musatkin S, Kohlheim U, Gibb A, Assadian O, Kobayashi H. Microbiological safety and cost-effectiveness of weekly breathing circuit changes in combination with heat moisture exchange filters: a prospective longitudinal clinical survey. *GMS Krankenhaushygiene interdisziplinär*, 2011; 6(1):Doc15.
7. Irving GA, Backonja MM, Dunterman E, Blonsky ER, Vanhove GF, Lu SP, Tobias J, Lynch ME, and the NGX-4010 C117 Study Group. A multicenter, randomized, double-blind, controlled study of NGX-4010, a high concentration capsaicin patch, for the treatment of postherpetic neuralgia. *Pain Med*, 2011; 12(1):99-109.[doi: 10.1111/j.1526-4637.2010.01004.x].
8. Ismaiel NM, Henzler D. Effects of hypercapnia and hypercapnic acidosis on attenuation of ventilator-associated lung injury. *Minerva Anesthesiol*, 2011; 77(7):723-33. [PubMed ID: 21709659](#).
9. Jaggi R, Taylor SM, Trites J, Anderson D, MacDougall P, Hart RD. Review of thromboprophylaxis in otolaryngology-head and neck surgery. *J Otolaryngol*, 2011; 40(3):261-5. [PubMed ID: 21518651](#).
10. Lehmann C, Kianian M, Zhou J, Cerny V, Kelly M. The endocannabinoid system in sepsis – a potential target to improve microcirculation? *J Intensive Care Emerg Med (Signa Vitae)*, 2011; 6(1):7-13.
11. Lynch ME, Fischer B. Prescription opioid abuse, what is the real problem and how do we fix it? *Can Fam Physician*, 2011; 57:1241-2.
12. Lynch ME, Campbell F. Cannabinoids for treatment of chronic non-cancer pain - a systematic review of randomized controlled trials. *Br J Clin Pharmacol*, 2011; 72(5):735-44. [PubMed ID: 21426373](#). [doi: 10.1111/j.1365-2125.2011.03970.x].
13. Lynch ME, Clark AJ, Moulin DE, Watson CP. Modifications are suggested for the Special Interest Group (SIG) on Neuropathic Pain proposed definition and guidelines for neuropathic pain. *Pain*, 2011; 152(7):1682, 1683-4. [PubMed ID: 21570182](#).
14. Lynch ME. The need for a Canadian pain strategy. *Pain Res Manage*, 2011; 16:77-80.
15. McKeen D, George RB, O'Connell C, Allen VM, Yazer M, Wilson M, Phu TC. Difficult and failed intubation: Incident rates and maternal, obstetrical, and anesthetic predictors. *Can J Anaesth*, 2011; 58(6):514-24. [PubMed ID: 21472845](#).
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APPENDIX C – 2011 Publications (27) (CONT'D.)

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