

ACCOUNTABILITY REPORT

2018

Department of Anesthesia,
Pain Management
& Perioperative Medicine

OFFICE OF RESEARCH



DALHOUSIE
UNIVERSITY

Anesthesia, Pain Management and Perioperative Medicine Vision and Mission

Vision

Responsive to the anesthesia care needs of our Maritime community while simultaneously providing international leadership in anesthesia education and research.

Mission

Serving the public good through excellence in anesthesia clinical practices, research and education.

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

- Patients are entitled to safe, evidence-based and patient-centred care.
- Lifelong learning is a prerequisite to safe, competent care and professional, compassionate clinicians.
- Scholarly curiosity and the advancement of knowledge are fundamental to the improvement and enhancement of patient care.
- Stewardship of local and global resources is a departmental responsibility.
- Transparency and accountability in combination with creative thinking and leadership are foundational to the department's vision.
- Sharing our expertise regionally, nationally and internationally is a professional obligation.
- Development of future generations of anesthesia care providers able to contribute to excellence in patient care, research and education is a professional responsibility and commitment.

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EXECUTIVE SUMMARY

The Department of Anesthesia, Pain Management and Perioperative Medicine **2018 Research Accountability Report** includes research-related achievements 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 2018 as well as data from previous years for comparative and trending purposes. Targets that were met, partially met, or not met in 2018 are outlined below.

AREAS IN WHICH THE DEPARTMENT MET ITS TARGETS IN 2018:

- The number and value of grants and industry contract-funded research are 52 and \$8.3M, respectively; the value compares with \$8.0M in 2017.
- The proportion of collaborative projects and publications remains high at 88%.
- Eighty-nine per cent of researchers are members on research-related administrative committees with 74%, 58% and 21% serving on local, national and international committees, respectively.
- Fifty-three per cent of researchers chair research-related committees with 47%, 26% and 5% serving on local, national and international committees, respectively.
- Forty-two per cent of researchers perform editorial activities with 26% and 21% serving on national and international committees, respectively.
- There were 59 abstracts accepted in 2018 with 49% of abstracts being podium.
- One research recognition award was conferred in 2018.
- Four media interviews were provided by researchers in 2018.
- Eight-four per cent of researchers supervise learners as the primary supervisor and 21% supervise graduate students.

AREAS IN WHICH THE DEPARTMENT IMPROVED BUT **DID NOT MEET ITS TARGETS** IN 2018:

- Seventy-four per cent of researchers reviewed papers in 2018, whereas 65% of researchers reviewed journal papers for submission in 2017. The target is 80%.
- Forty-seven per cent of researchers reviewed funding applications in 2018, whereas 40% of researchers reviewed funding applications in 2017. The target is 80%. The 2018 result is representative of researchers' career stage (52% junior investigators) with minimal research time (<20%).

AREA IN WHICH THE DEPARTMENT **DID NOT MEET ITS TARGETS** IN 2018:

- Seventeen new research projects were initiated in 2018. The target was 22, as achieved in 2017.
- Fifty-eight per cent of researchers are at the rank of associate professor or higher, whereas the target is 75% of researchers have academic rank of associate or higher. The 2018 result is representative of researchers' career stage.
- The total number of publications reached is 117 in 2018, whereas 127 publications were published in 2017. All publications were peer reviewed.
- Seventy-nine per cent of all researchers presented an abstract in 2018, whereas 80% of researchers presented an abstract in 2017. The target is 100%.
- Thirty-seven per cent of researchers were invited to present their work in 2018 as a keynote, plenary and symposium speaker. The target is 50%. The 2018 result is representative of researchers' career stage.

INTRODUCTION

The annual *Research Accountability Report* details the Department's research activities in relation to pre-determined targets outlined in the Anesthesia, Pain Management and Perioperative Medicine Research Accountability Framework. The accountability framework was developed by a working group of departmental researchers and administrative staff. Through it, the Department attempted to structure the ongoing measurement of the value of the full scope of scholarly research activity, from engaging in the process of creativity to implementing research projects, communicating the results, and influencing clinical best practice.

The framework ties resources devoted to research to the outcomes; it identifies the most appropriate indicators of research activity and productivity, identifies current targets and how to measure indicators, and how to report the results. It also outlines an evaluation strategy.

This *Research Accountability Report* covers the period from January to December 2018 for all deliverables with the exception of funding that corresponds to the period April 1, 2018 – March 31, 2019 based on Nova Scotia Department of Health and Wellness new documented requirements. It is the product of the framework's Measurement and Reporting Plan in which key indicators and targets were identified in 2010 and revised in 2014 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 outlines the 2018 research-related results for each predetermined target. It also provides a comparison to the data from previous years. This is done in graphical and table formats. Lists of protected time for research (FTE), currently held research grants/contracts and peer-reviewed publications are found in Appendix A, B and C, respectively.

Engage in the process of creativity

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

TARGET: New research projects reflects maintenance or increase from previous year (22 new projects in 2017)

RESULT: **Seventeen new research projects are underway (funded and unfunded)**

Seventeen new research projects began in 2018; 15 funded and two unfunded (Appendix B).

To summarize:

1. The researchers contribute to the discovery of fundamental knowledge of health and disease, clinical research and economic analysis.
2. Several researchers are involved in retrospective, database studies, others conduct prospective studies involving patient participants or community-based approaches.
3. One of the researchers co-directs a national knowledge mobilization initiative focused on pediatric pain, supported by the NCE. Five other studies address pain: one in children and four in adults. One of the researchers was instrumental in receiving industry contribution for the Atlantic Pain Conference.
4. Two studies focus on cognitive function and decline using brain neuroimaging or computer-based assessment.
5. Three studies involve community members integrally, using co-design strategy for an app development and communication intervention design to improve well-being and development of community-led solutions.
6. Two studies focus on learning and education as means to improve wellness and healthy development as well as anesthesia performance.
7. One study addresses caring for women who live with obesity during pregnancy.
8. Three research collaborations are examining marginalized or vulnerable populations such as aboriginal children, elderly population and stigmatized people who use opioids.

SCHOLARLY CURIOSITY (CONT'D)

The 2018 Anesthesia Research Day saw 15 research studies presented. These were generated by a variety of trainees, including five residents/fellows, seven graduate/postdoctoral students and three undergraduate students. The presentation topics were balanced with 50% clinical and 50% fundamental research projects.



Dr. Oliver Poole (PGY1) winner of the 2018 Research Day top poster award, with Drs. Deborah J. Cook and Orlando Hung.

Engage in the process of research

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

TARGET: Total funding reflects maintenance or increase from previous year (63 funded projects totalling \$8.0M in 2017)

RESULT: **52 funded projects totalling more than \$8.3M**

Note: For reporting purposes, the fiscal year April 1, 2018 – March 31, 2019 is used for research funding only based on Department of Health and Wellness requirements.

There are 52 ongoing and new grant/industry-funded projects amounting to more than \$8.3M (Figure 1 and Table 1). National and international funds make up approximately 38% of this total, with 62% of funds from regional, institutional and department organizations.

Major contributors to this success are the availability of protected time (Table 2 and Appendix A), national collaborations as well as the support provided by the Office of Research. Grant-funded research underway in the Department includes 12 projects funded by the Tri Council Agencies (CIHR, NSERC, SSHRC), accounting for 85% of the total funds. Five projects funded by the Tri Council are led by department members and total more than \$4.3M. A list of the grants is in Appendix B.

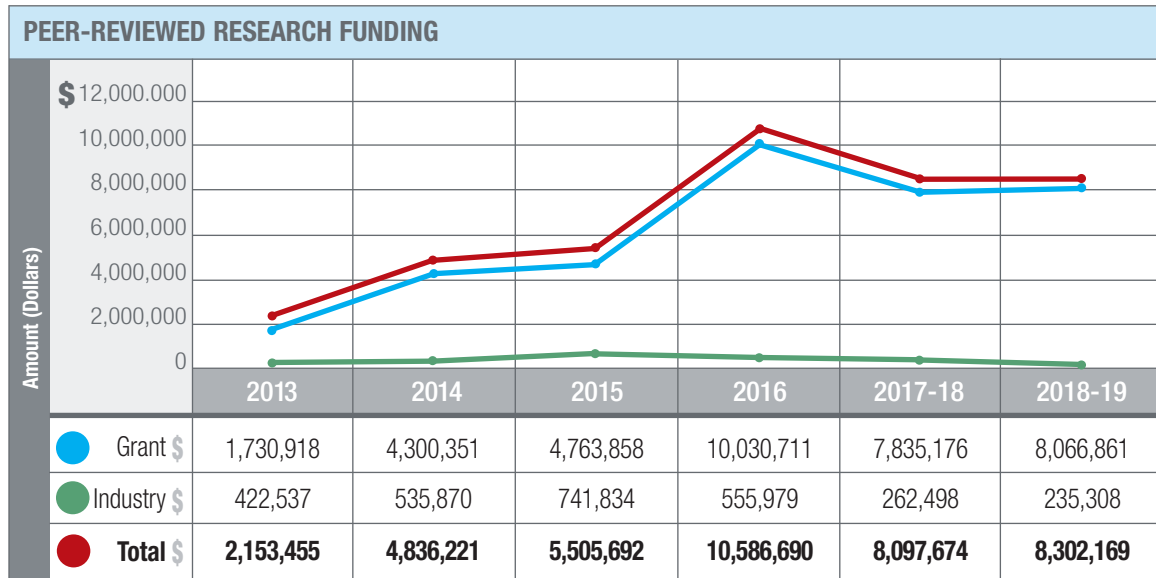


Figure 1: The amount (\$) in external research grant/industry contract funding received (2013-18). *Five large-scale grants ended in 2016 accounts for the decrease in funding for 2017-18: three collaboration grants and two grants led by department members.*

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).

Table 1: Number of grants and industry contracts received (2012-18)

FUNDING GRANTS & INDUSTRY CONTRACTS BY YEAR						
	2013	2014	2015	2016	2017-18	2018-19
Grant	29	60	51	51	57	48
Industry	9	11	6	9	6	4
Total	38	71	57	60	63	52

SCHOLARLY CURIOSITY (CONT'D)

There is consistent FTE assignment for research for the past three years (Table 2). There is a slight increase in funding dollars per FTE for 2018-19 (Figure 2). See Appendix A.

Table 2: Protected time (FTE) for research activities (2012-18)

FTE PROTECTED TIME FOR RESEARCH ACTIVITIES BY YEAR						
	2013	2014	2015	2016	2017-18	2018-19
Protected Time	3.7	3.7	4.6	6.5	6.9	6.1

Note: In 2016 total FTE includes all Anesthesia researcher protected time at Central Zone-Adult, Pediatrics and Women and Obstetrics (Appendix A).

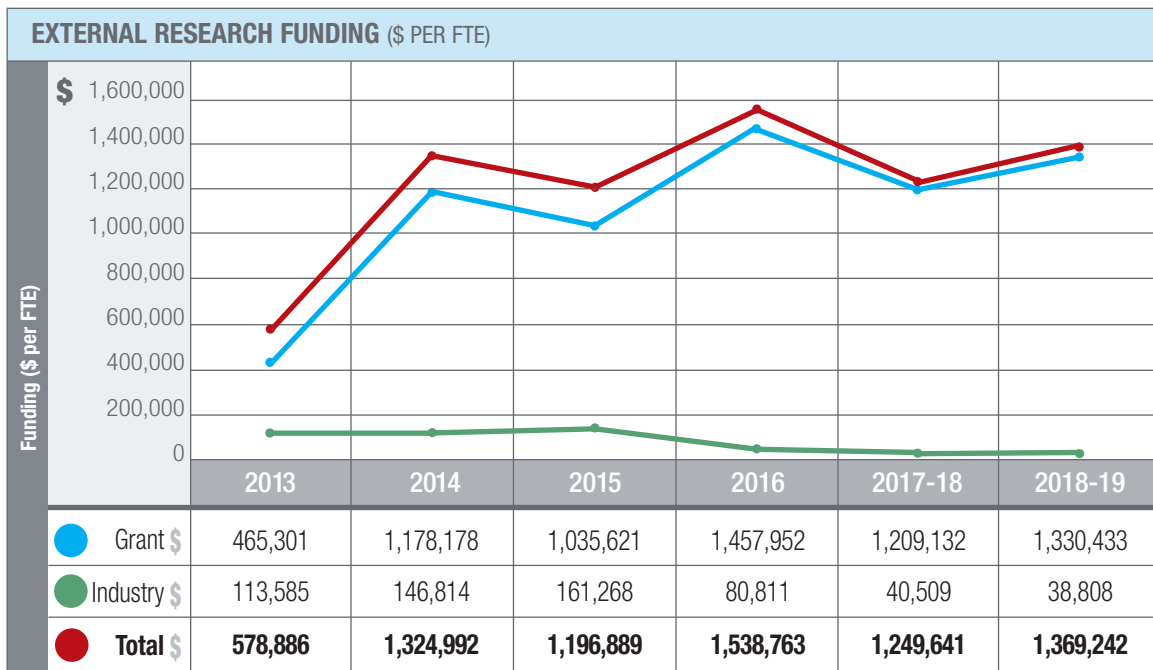


Figure 2: The amount (\$/FTE) in external research grant/industry relative to FTE (Table 2) of protected time for research

INDICATOR: Annual value (\$) of grants and industry contracts received by departmental principal investigators

TARGET: External funding dollars obtained as a principal investigator reflects maintenance or increase from previous year
(\$2.4M from departmental principal investigators in 2017-18)

RESULT: **\$2.0M was obtained by departmental principal investigators**

Thirteen of 19 researchers (68%) with protected time were designated as principal investigators for at least one grant or contract totalling more than \$2.0M.

INDICATOR: Annual value (\$) of grants and industry contracts received by departmental co-investigators

TARGET: External funding obtained as a co-investigator reflects maintenance or increase from previous year
(\$5.7M from co-investigators in 2017)

RESULT: **\$6.3M was achieved by departmental co-investigators**

An additional \$6.3M in external grants and contract funding was achieved by researchers with protected time designated as co-investigators.

Actively seek collaborative opportunities with interdisciplinary colleagues

- INDICATOR:** Number of collaborative projects and publications
- TARGET:** 80% of all projects and publications are collaborative
- RESULT:** **88% of all projects and publications are collaborative**

Of 118 publications, 113 have co-authors (96%). Of 52 funded grants and industry contracts, 37 have co-investigators (71%). Therefore, 150 out of 170 projects and publications are collaborative (88%).

Members of scientific and organizing committees

- INDICATOR:** Number of researchers who participate in research committee work
- TARGET:** 80% of all researchers are members of research-related administrative committees: 50% local, 40% national and 10% international
- RESULT:** **89% of all researchers are members of research related administrative committees: 74% local, 58% national and 21% international**

Seventeen of 19 researchers are members of research-related administrative committees (89%).

- INDICATOR:** Number of researchers who chair research-related committees
- TARGET:** 25% chair research-related committees
- RESULT:** **53% of researchers chair research-related committees**

Ten of 19 researchers were invited to chair research-related committees (53%): 47% local, 26% national and 5% international.

INDICATOR: Number of researchers who review journal articles

TARGET: 80% review journal articles

RESULT: **74% of researchers review journal articles**

Fourteen of 19 researchers were invited to review journal manuscripts (74%).

INDICATOR: Number of researchers who review funding applications

TARGET: 80% review funding applications: 50% at the local, 40% at national level and 10% at international level

RESULT: **47% review funding applications: 11% local, 37% national and 11% international**

Nine of 19 researchers were invited to review funding applications (47%).

INDICATOR: Number of researchers who perform editorial activities

TARGET: 25% perform editorial activities

RESULT: **42% of researchers perform editorial activities: 26% national and 21% international**

Eight of 19 researchers perform editorial activities (42%).

Engage in the administrative process

INDICATOR: Engage in planning activities to advance the research mission of excellence

The Department strives for a culture of excellence in its clinical practice and programs, research and education. In supporting this, the Office of Research and its researchers strive for research excellence through working together with patients to find evidence-based solutions leading to the best possible pain management and perioperative care for our families and global communities.

The 2018-21 research strategic plan is an integration of effort and feedback from working groups focused on 1) enhancing research growth and collaboration, 2) building research capacity and 3) fostering patient engagement in the research process (Appendix D). For 2018-19, the research priorities are outlined in Table 3.

Table 3: Office of Research strategic priority alignment with relevant institutions' strategic plans.

PARTNER STRATEGIC PRIORITY ALIGNMENT			
2018-19 STRATEGIC PRIORITIES	Dal Med Forward	IWK	NSHA
1. Take advantage of funding opportunities for building collaborative research teams, emphasizing internal collaborations	Aligned	Aligned	Aligned
2. Cultivate junior investigator research partnerships for enhanced national/international clinical trial participation	Aligned	Aligned	Aligned
3. Implement targeted research training opportunities and mentorship support for junior investigators and trainees	Aligned		
4. Advocate with key stakeholders for integrating research into optimal HR, space and information management decision-making	Aligned	Aligned	Aligned
5. Integrate patient advisors into the department's research activities while nurturing uptake from investigators	Aligned	Aligned	Aligned

INDICATOR: Number of associate and full professors

TARGET: 75% of all researchers are associate professor or higher and 60% of research-related promotions are successful

RESULT: **58% of all researchers are ranked as associate professor or higher**

There are seven full, four associate and eight assistant professors who receive protected time to conduct research in the Department of Anesthesia, Pain Management and Perioperative Medicine.

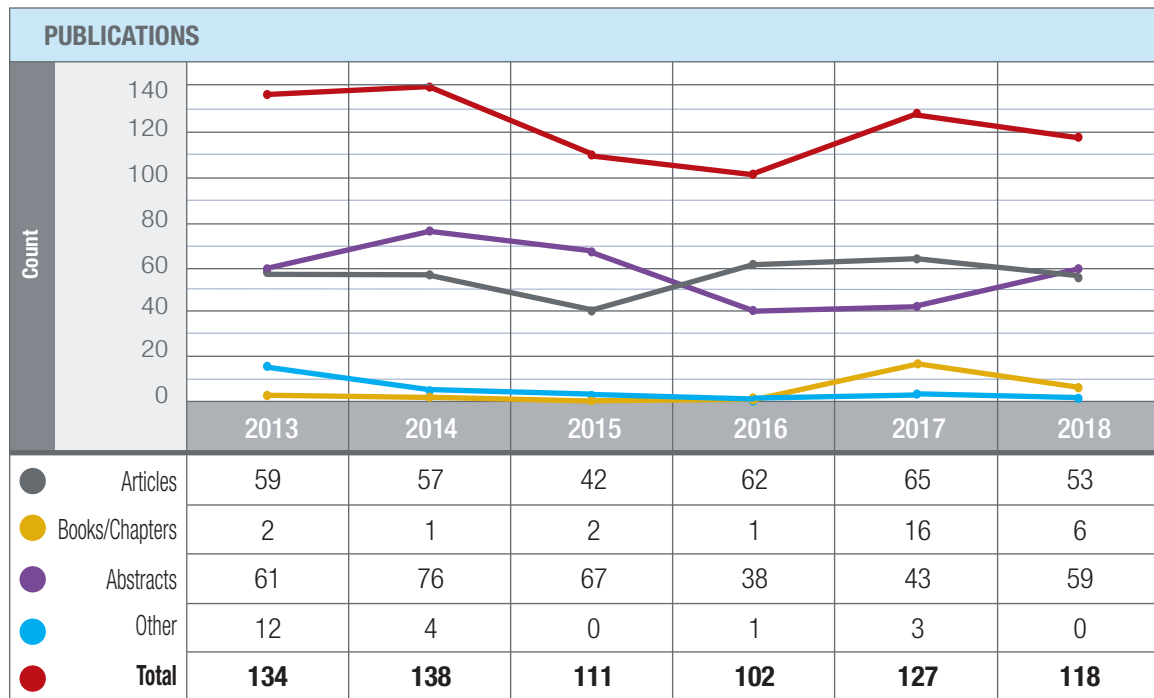
Write and publish

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

TARGET: Trending of accepted and published peer and non-peer review papers reflects maintenance or increase from previous year
(127 publications in 2017)

RESULT: **118 publications have been submitted and accepted**

In 2018, 118 publications have been submitted and accepted (Figure 3) with 53 peer-reviewed manuscripts published online (Appendix C). Table 4 shows the relative protected time with respect to number of publications.



Note: Previous to 2015, invited presentations were categorized as abstract presentation, which may explain the decline in the overall publications category in 2015 and 2016.

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

Table 4: Number of submitted and accepted publications (peer reviewed and non-peer reviewed) relative to FTE of protected time (Table 2) for research

PUBLICATIONS PER FTE PROTECTED RESEARCH TIME						
	2013	2014	2015	2016	2017	2018
Articles	16	16	9	9	9	9
Book/Chapters	1	0	0	0	2	1
Abstracts	16	21	15	6	6	10
Other	3	1	0	0	0	0
Total	36	38	24	15	18	19

INDICATOR: Number of peer-reviewed publications

TARGET: 90% of publications are peer-reviewed
(100% publications were peer reviewed in 2017)

RESULT: **100% of the publications were peer reviewed**

INDICATOR: Number of accepted abstracts

TARGET: Trending of accepted abstracts reflects maintenance or increase from previous year
(43 abstracts accepted in 2017)

RESULT: **59 abstracts were accepted**

Prepare and deliver presentations

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

TARGET: Trending of presentations reflects maintenance or increase from previous year (58 local, 19 national and 24 international invited presentations in 2017)

RESULT: **40 local, 25 national and 12 international invited presentations**

The total number of presentations by researchers is found in Figure 4 with adjustments relative to protected time for research shown in Table 5.

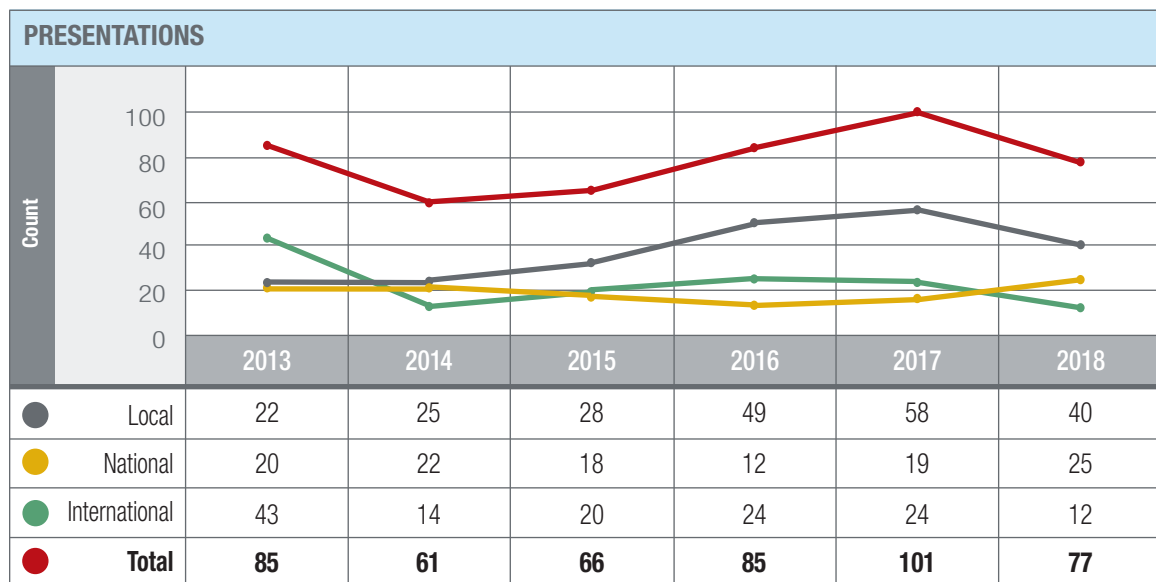


Figure 4: Presentations (count) for local, national and international audiences

Table 5: Number of presentations relative to FTE protected time (Table 2) for research

PRESENTATIONS RELATIVE TO FTE PROTECTED TIME						
	2013	2014	2015	2016	2017	2018
Local	6	7	6	8	8	7
National	5	6	4	2	3	4
International	12	4	4	4	3	2
Total	23	17	14	13	14	13

INDICATOR: Number of invited presentations

TARGET: 50% of all researchers are invited to present (plenary, keynote or symposium)
(50% of researchers were invited to present in 2017)

RESULT: **37% of all researchers are invited to present their work in 2018, as plenary, keynote or symposium speaker.**

INDICATOR: Number of abstracts presented annually

TARGET: 100% of all researchers have an abstract presented annually
(80% of all researchers presented an abstract in 2017)

RESULT: **79% of all researchers presented an abstract in 2018**

INDICATOR: Number of abstracts presented as a podium

TARGET: 20% of abstracts are invited to present a podium
(30% of abstracts were podium presentations in 2017)

RESULT: **49% of abstracts were invited to present a podium**

Seventy-nine per cent of all researchers presented an abstract in 2018. There were 59 abstracts accepted in 2018 with 49% of abstracts invited to present as a podium.

Strategically engaging with external stakeholders

INDICATOR: Number of interviews provided to the media

TARGET: Number of media interviews reflects maintenance or increase
(No media interviews were provided in 2017)

RESULT: **Four media interviews were provided by researchers**

The Women and Obstetric faculty members were featured online to discuss *Obstetric Anesthesia in Global Health* (Dr. Ronald George) and *Departure from traditional surgery preparation leads to faster recovery, better patient experience* (Dr. Dolores McKeen).

Drs. Jason McDougall and Javeria Hashmi were invited to speak on TV about *Cannabis and Second-Hand Smoke* and *Lupus Brain Map*, respectively.

INDICATOR: Number of recognition awards

TARGET: FTE reflects maintenance or increase of research recognition awards from previous year
(One research recognition award was conferred in 2017)

RESULT: **One research recognition award was conferred in 2018**

Dr. Michael Schmidt was recognized as the Innovation Winner for the 2018 Discovery Awards. Please see https://www.youtube.com/watch?time_continue=8&v=LeBEgumaV8 for the video of his innovative research program.



Dr. Michael Schmidt (r) accepts the 2018 Discovery Award for Innovation from the Discovery Centre.

Table 6: Number of recognition awards (2012-18)

RECOGNITION AWARDS BY YEAR						
	2013	2014	2015	2016	2017	2018
Awards	1	1	2	1	1	1

Table 7: Number of recognition awards relative to FTE of protected time for research (2012-18)

RECOGNITION AWARDS RELATIVE TO FTE BY YEAR						
	2013	2014	2015	2016	2017	2018
Awards	0.3	0.3	0.4	0.15	0.15	0.16

Mentoring, teaching and supervision

INDICATOR: Number of researchers supervising trainees (undergraduate, graduate, postgraduate students and research projects for residents and fellows)

TARGET: 50% of researchers supervise trainees as the primary supervisor (65% reported in 2017)

RESULT: **84% of researchers supervise trainees as the primary supervisor**

INDICATOR: Number of researchers supervising graduate students (MSc and PhD)

TARGET: Number of graduate students reflects maintenance or increase (20% reported in 2017)

RESULT: **21% of researchers are supervising graduate students.**

APPENDICES

APPENDIX A – 2018 PROTECTED TIME FOR RESEARCH

2018 PROTECTED TIME FOR RESEARCH					
CENTRAL ZONE - ADULT	FTE	PEDIATRIC	FTE	WOMEN & OBSTETRICS	FTE
J Chorney	0.30	J Chorney	0.03	R. George	0.50
A. Finley	0.20	A. Finley	0.20	D. McKeen	0.20
J. Hashmi	1.00	A. Vlatten	0.10	A. Munro	0.10
O. Hung	0.50	S. Wright	0.10	A. Sjaus	0.10
K. Kwofie	0.20			V. Uppal	0.10
C. Lehmann	0.60				
M. Lynch	0.40				
J. McDougall	0.33				
D. McKeen	0.20				
A. Milne	0.20				
K. Mukhida	0.05				
T. Mullen	0.10				
M. Schmidt	0.40				
V. Uppal	0.10				
A. Vlatten	0.05				
TOTAL	4.63	TOTAL	0.43	TOTAL	1.0

Note: The research deliverables captured in this report include 19 researchers that have protected time to conduct research in the Department of Anesthesia, Pain Management and Perioperative Medicine.

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

NEW FUNDED PROJECTS

1. Bailey JG, Uppal V, Richardson G, Miller A (2019 - 2020). Health care resource and costs comparison between spinal anesthesia in a block room versus general anesthesia for primary hip and knee arthroplasty: an economic analysis [Grant] - Dalhousie - \$4,727.
2. Bailey JG, Uppal V, Richardson G, Miller A (2019 - 2020). Health care resource and costs comparison between spinal anesthesia in a block room versus general anesthesia for primary hip and knee arthroplasty: an economic analysis [Grant] - NSHARF - \$4,844.
3. Barry G, Bailey J, Sardinha J, Milne A, Uppal V (2018 - 2019). Factors associated with rebound pain after peripheral nerve block for ambulatory surgery: A single-centre retrospective cohort study [Grant] - Dalhousie Anesthesia Research Fund (ARF) - \$4,953.
4. Barry G, Bailey J, Sardinha J, Milne A, Uppal V (2018 - 2019). Factors associated with rebound pain after peripheral nerve block for ambulatory surgery: A single-centre retrospective cohort study [Grant] - NSHARF - \$4,893.
5. Chambers CT, Finley GA, Jordan I, LeBlanc C, Orji R, Parker JA, Stinson J, Tutelman PR (2019 - 2020). Development of an app for parents to improve procedural pain management in children: needs assessment and user experience design [Grant] - IWK - \$24,988.
6. Chambers, CT & Maynard DJ (co-Directors), & Ali S, Barwick M, Campbell F, Campbell-Yeo M, Carter N, Finley GA, Jordan I, Larocque L, Mogil J, Noel M, Oberlander T, Stevens B, Stinson J, Taddio A (2019 - 2023). Solutions for Kids in Pain (SKIP) [Grant] - Networks of Centres of Excellence: Knowledge Mobilization initiative (NCE-KM) - \$1,600,000.
7. Curran J, MacPhee S, Mackay R, Bishop A, Breneol S, Burns E, Cassidy C, Chorney J, Doyle M, Grimshaw J, Jabbour M, Lawton L, Newton M, Penney T, Plint A, Ritchie K, Straus S, Wozney L, Zemek R (2018 - 2023). Partnering with Parents and youth to co-design discharge communication interventions for pediatric emergency care [Grant] - CIHR - \$623,457.
8. Hanly JG, Beyea S, Fisk JD, Friedman A, Hashmi JA (2018 - 2021). Characterization of brain dysfunction with multi-modal functional neuroimaging in patients with SLE and cognitive impairment [Grant] - NSHA - \$615,826.
9. Hung OR, Milne AD, d'Entremont M (2018 - 2019). Positive Placement Tracheal LED Intubation Lightwand - Early Stage Commercialization Fund [Grant] - Innovacorp - \$15,000.
10. Kwofie MK, Uppal V, Szerb J, Coles C, Colish J (2017 - present). A Randomized Controlled Trial of Regional Anesthesia Versus General Anesthesia for Promoting Independence After Hip Fracture (REGAIN Trial) [Grant] - Patient-Centered Outcomes Research Institute (PCORI) - \$255,967.
11. Latimer MA, Martin D, McNally M, Rudderham S, Finley GA, Harman K, MacLellan J, Sylliboy JR, Doiron L, Gloade K, Hachey S, Janus M, Noel G, Vine J (2019 - 2020). Using a co-learning approach to create a collaborative community-led solution to improve Indigenous Children's ear and oral wellness and healthy development for school readiness [Grant] - CIHR - \$100,000.
12. Lynch M (2018). Annual Atlantic Pain Conference [Industry Donation] - Industry contributions - \$27,000.
13. Munro A, George R, Andreou P (2018 - 2020). A novel approach to optimize Programmed Intermittent Epidural Bolus (PIEB) delivery for labour analgesia [Grant] - Dalhousie - \$19,918.
14. Schmidt M, Eskes G, Roach DC, George R, MacDonald D, Matwin S, Hung O (2018 - 2019). Computerized assessment for Post-Operative Cognitive Decline (POCD) in elderly surgical populations [Grant] - Centre for Aging and Brain Health Innovation (CABHI) - \$350,000.
15. Snelgrove-Clarke E, Cashen N, O'Reilly D, Tomblin-Murphy G, West J, Lezama B, Walsh C, Casey C, Mann C, Woolcott C, McKeen D, Carson G, Scott H, Piccinini-Vallis H, McLeod L, George R, Scott S, Bleasdale E, Fiander E, Paynter M, Bernard M, Sims M, LeDrew M, Kolanko M, Mills S (2018 - 2019). Building a research team: Caring for women who live with obesity during pregnancy, birthing, and postpartum [Grant] - IWK - \$3,000.

NEW SCHOLARLY PROJECTS (UNFUNDED)

1. Kwofie MK, Sodhi P, Delbridge C, Uppal V, Doucet R, Jarvie A, Szerb J (2018 - 2019). Does Targeted Educational Intervention based on Psychometric Screening Improve Ultrasound-Guided Regional Anaesthesia Performance? [Medical Education or Training]
2. Robichaud Celia, Lynch M (2018 - 2019). Impact of stigma on the experience of prescription opioid-using adults with chronic noncancer pain in the mental health system: a qualitative comparison of patient and clinician experiences [Clinical]

CONTINUING ONGOING FUNDED PROJECTS

- 1.** Buckley DN, Hudspith M, Choinière M, Davis K, Diatchenko L, Finley GA, Fréchette P, Gilron I, Iorio A, Latimer M, MacDermid J, Poulin P, Schneider C, Stevens B, Stinson J (2016 - 2021). SPOR Network: Caring for patients with chronic pain: Connecting patient needs with research and treatment across the lifespan [Grant] - CIHR - \$25,000,000.
- 2.** Chappe V, Anini Y, Croll R, Lehmann C, Pelis R, Xu Z (2017 - 2019). CFTR regulation by VIP: molecular basis and therapeutic potential [Grant] - American Cystic Fibrosis Foundation - \$214,000.
- 3.** Chen JX, George RB, Wozney L (2017 - 2018). Patient-centered perioperative care through mobile application; feasibility and patient engagement pilot in cesarean delivery patients [Grant] - Dalhousie - \$5,000.
- 4.** Hashmi JA (2015 - 2018). Start-up funds [Grant] - Dalhousie - \$100,000.
- 5.** Hashmi JA (2016 - 2020). Predictive role of brain networks in pain modulations [Grant] - Natural Sciences and Engineering Research Council (NSERC) Discovery Grants Program - \$159,000.
- 6.** Hashmi JA (2016 - 2021). Canada Research Chair Tier II (Pain) [Grant] - CIHR - \$500,000.
- 7.** Hashmi JA (2017 - 2018). Measuring the effect of chronic back pain on expectation and learning [Grant] - Dalhousie - \$5,000.
- 8.** Hashmi JA (2017 - 2021). Title [Grant] - CFI - \$364,599.
- 9.** Hashmi JA, Beyea S, Matwin S, Lynch M (2017 - 2020). Role of brain mechanisms of learning and expectation in chronic back pain [Grant] - CDHA - \$99,588.
- 10.** Hashmi JA, Lynch M, Beauprie I, Mukhida K (2017 - 2021). Brain mechanisms of expectation and their role in pain sensitivity and hypervigilance in fibromyalgia [Grant] - CDHA - \$175,000.
- 11.** Hong P, Chorney J, Bezuhly M, Roma R, El-Hawary R (2016 - 2018). Shared Decision Making in Pediatric Surgery: Development, Testing and Implementation of Decision Aids [Grant] - Department of Surgery, Dalhousie University - \$150,000.
- 12.** Hung O, Milne A, d'Entremont M (2017 - 2018). Development of a lightwand tracheal intubation device [Grant] - Nova Scotia Business Inc. - \$25,000.
- 13.** Hung OR (2016 - present). Difficult and Failed Airway Videos [Industry Contract] - McGraw-Hill Video Production Grant - \$15,000.
- 14.** Kocum L, Loughlin C, Robinson L, Kehoe S, Maheu C, Mukhida K, Parkinson M, Younis T (2016 - 2018). Partnership for a Healthy Workplace Response to Breast Cancer [Grant] - CIHR - \$140,823.
- 15.** LeBlanc J, & ASDIT Investigators [Including George RB] (2015 - 2020). Accessing safe deliveries in Tanzania [Grant] - International Development Research Centre (IDRC) - \$168,390.
- 16.** Lehmann C (2015 - 2019). Strategies of Lung Protection in Acute Lung Injury [Grant] - CFI - \$308,467.
- 17.** Lehmann C, Lynch M, Kelly M (2017 - 2018). Novel formulation for the treatment of interstitial cystitis [Grant] - Innovacorp - ESCF 2 - \$50,000.
- 18.** Lehmann C, Zhou J, Hoskin DW (2016 - 2019). Iron-related mechanisms in immune cell function [Grant] - NSERC CRD - \$574,800.
- 19.** Lynch M (2015 - 2018). An RCT vaporized cannabis in OA knee pain - CAPRI study [Industry Contract] - McGill University - \$141,000.
- 20.** MacCormick H, George RB, Munro A, Nash C (2017 - 2018). A retrospective cohort assessment of the impact of programmed intermittent epidural bolus compared to continuous epidural infusion for labour analgesia [Grant] - Dalhousie - \$4,950.
- 21.** McDougall J (2017 - 2018). Assessment of sea cucumber extracts in the control of joint inflammation and pain [Grant] - NSBI Productivity & Innovation Programme - \$22,282.
- 22.** McDougall J (2017 - 2018). Exploring sex differences in joint neuropathic pain and the contribution of Nav1.8 ion channels [Grant] - Department of Anesthesia, Pain Management and Perioperative Medicine - \$5,000.
- 23.** McDougall J (2017 - 2022). Contribution of proteases and protease activated receptors to joint neuropathy and arthritis pain [Grant] - CIHR - \$761,175.
- 24.** McDougall J (2018 - 2020). Sex differences in joint neuropathic pain involve Nav1.8 ion channels [Grant] - The Arthritis Society - \$351,100.
- 25.** McDougall JJ (2015 - 2018). Exploring a Neuroprotective Effect of Cannabinoids to Mitigate Osteoarthritis Pain [Grant] - The Arthritis Society - \$360,000.
- 26.** McDougall JJ, Marshall J, Bezuhly M, Legare JF, Lin TJ (2014 - 2019). Restitution Enhancement in Arthritis and Chronic Heart Disease [Grant] - CIHR - \$2,337,154.
- 27.** McKeen D, Dryden T, Snelgrove-Clarke E, Van Eyk N (2017 - 2019). Research translated into Evidence based Care: improvING outcomes in urogynecology surgery thru Enhanced Recovery: The RECOVER study [Grant] - QE II Health Sciences Centre Foundation & IWK Foundation Nova Scotia's Healthcare Improvement Research Program - \$136,960.
- 28.** McKeen D, McIsaac D, Laupacis A, Earle MA (2018 - 2019). A Canadian Anesthesia Research Priority Setting Partnership [Grant] - Association of Canadian University Departments of Anesthesia, Dalhousie University, University of Manitoba - \$98,643.

29. Parker JA, Chambers CT, Campbell-Yeo M, Corkum P, Filliter J, George RB, Otley A, Rosen NO, Smith I (2017 - 2018). Harnessing the Potential of Social Media in Children's and Women's Health Research - IWK Research Associateship [Grant] - IWK - \$45,000.
30. Ritchie K, Snelgrove-Clarke E, Murphy A, George RB, MacPhee S, Versnel J, Matte M (2015 - 2018). Evidence informed practice-related knowledge, attitudes and practices (KAP): Describing nursing, pharmacy, occupational therapy, and medicine [Grant] - NSHRF - \$148,260.
31. Roda RD, Uppal V, McKeen D, Allen V, Woolcott C (2017 - 2018). Postoperative analgesia with Quadratus Lumborum Blockade for elective caesarean delivery: A retrospective study [Grant] - IWK - \$5,000.
32. Rosen N, George RB, Chorney J, Snelgrove-Clarke E, Pirece M, Andreou P, Binik Y (2016 - 2019). A longitudinal study of biopsychosocial predictors of postpartum genito-pelvic pain: 12 and 24 months later [Grant] - NSHRF - \$150,000.
33. Rosen NO, Chorney JE, George RB, Lee-Baggley DL, Pukall CF, Snelgrove-Clarke EE (2017 - 2020). Biopsychosocial predictors of postpartum genito-pelvic pain: A two-year follow-up [Grant] - CIHR - \$256,274.
34. Schmidt M, Roach DC (2018). memsorb: CO2 filter for safe, environmentally sound anesthesia [Modification] [Grant] - Sustainable Development Technologies Canada (SDTC) - \$245,336.
35. Uppal V, Ke J, Shanthanna H, Kwofie K, Trenholm A (2017 - 2019). Preventing Rebound Pain after Arthroscopic Rotator Cuff Repair under General Anesthesia and Interscalene Block: A Randomized Controlled Trial of Pre-emptive Opioid Treatment Compared to Placebo (\$24,353) [Grant] - CDHA - \$24,353.
36. Wijeyesundera DN, Alibhai S, Jüni P, Mclsaac DI, Scott Beattie W, Breau R; Chan V, Choi P, Choi S, Clarke H, Dhalla I, El Beheiry H, George RB, Isaranuwatthai W, Johnson S, Kennedy E, Ladha K, Lalu M, Lebovic G, Mazer D, McCluskey S, Puts M, Wei A, Herridge M, Morris W, Nathens A (2018 - 2021). The Functional Improvement Trajectories After Surgery (FIT After Surgery) Study: A Multicentre Prospective Cohort Study to Evaluate the Incidence, Trajectories, Risk Factors, Impact and Healthcare Costs Related to Significant New Disability after Major Ele [Grant] - CIHR - \$1,388,474.
37. Wozney L, Hong P, Chorney J (2016 - 2018). Tonsil-Text-To-Me (Tonsillectomy): utilizing a short message service (SMS) to improve perioperative tonsillectomy care [Grant] - IWK - \$60,000.

CONTINUING SCHOLARLY PROJECTS (UNFUNDED)

1. Chorney J, Howlett M (2016 - present). Understanding the Needs and Interest in Preparation for Pediatric MRI: A Needs Assessment Study [Development and Innovation]
2. Chorney J, Howlett M (2017 - present). The MRI Self-Efficacy Scale for Children: Scale Development and Preliminary Validation [Development and Innovation]
3. Curry Lauren, Lynch M (2015 - 2018). A prospective cohort study of qigong in management of fibromyalgia [Clinical]
4. Foss Matthew, Lynch ME (2013 - 2018). Patient-Controlled Analgesia versus Continuous Opioid Infusion for the Treatment of Pain Caused by Oral Mucositis Following Myeloablative Chemotherapy for Hematopoietic Stem Cell Transplantation: A Retrospective Review [Clinical]
5. George RB, Munro A, Nash CM, Carvalho B (2018 - 2022). A pragmatic single centre randomized controlled trial of programmed intermittent epidural bolus (PIEB) compared to continuous epidural infusion (CEI) for labour analgesia [Clinical]



6. MacGregor J, Woolcott C, George RB, Allen V (2017 - 2019). The effect of nitrous oxide for pain management during labour and delivery on maternal outcomes in a population of Nova Scotian women [Clinical]
7. Mukhida K (2016 - present). An examination of the portrayal of pain in Hollywood films [Clinical]
8. Mukhida K, (2014 - present). The influence of Wilder Penfield's research experiences in Spain and Germany on the development of his surgical techniques for epilepsy [Clinical]
9. Mukhida K, Annan H (2015 - present). The neuroscientific basis of art therapy for chronic pain: a review [Clinical]
10. Mukhida K, Meisner J (2016 - present). A survey of natural health product use amongst chronic pain patients [Clinical]

- 11.** Panzarasa J, Woolcott C, George RB, Allen V, MacGregor J (2017 - 2019). The association between the use of nitrous oxide during labor and delivery and neonatal outcomes [Clinical]
- 12.** PS Myles, O Boney, M Botti, AM Cyna, TJ Gan, MP Jensen, H Kehlet, A Kurz, GS De Oliveira Jr, P Peyton, DI Sessler, MR Tramèr, CL Wu the StEP–COMPAC Group [Including George RB], Paul Myles, Michael Grocott, Bruce Biccard, Jane Blazeby, Oliver Boney, Matthew Chan, Elisabeth Diouf, Lee Fleisher, Cor Kalkman, Andrea Kurz, Ramani Moonesinghe, Duminda Wijeyesundera (2016 - 2020). Systematic review and consensus definitions for the Standardised Endpoints in Perioperative Medicine (StEP) initiative [Clinical]
- 13.** Stanzel R, Chedrawy E, Sardiwalla Y, Hirsch G, Dulong B, Henderson M, Schmidt M (2017 - 2019). The impact of deviations on mean arterial pressure during surgery on neurological/renal outcomes [Database]
- 14.** Stanzel R, Chedrawy E, Schmidt M, Dulong B, Henderson M (2018 - 2019). Transcranial Doppler Assessment of Cerebral Gaseous Microemboli During Cardiopulmonary Bypass: Quality Assurance Initiative [Clinical]
- 15.** Stephanie Snow, Jill Chorney, Sally Bird, Stuart Wright (2016 - 2019). B.A.L.A.N.C.E., Building Alliances for Autism Needs in Clinical Encounters: Surgery Edition [Medical Education or Training]
- 16.** Vlatten A, Casey M (2017 - 2018). A randomized crossover comparison of the AIRTRAQ Video laryngoscope and standard direct laryngoscopy in a Pierre Robin manikin [Clinical]
- 17.** Vlatten A, Jagannathan N (2017 - 2018). Evaluation of the STORZ pediatric Dblade in 20 consecutive pediatric patients with difficult direct laryngoscopy [Clinical]
- 18.** Wiseman Luke, Lynch M (2015 - 2019). The use of universal precautions in the assessment and management of chronic pain, an assessment of the value of urinary drug screening [Clinical]

Appendix C – 2018 PUBLICATIONS

Note that this list of publications only includes those peer-reviewed articles that are currently published and accessible online (53).

1. Abbott TEF, Ahmad T, Phull MK, Fowler AJ, Hewson R, Biccarrd BM, Chew MS, Gillies M, Pearse RM, International Surgical Outcomes Study (ISOS) group [including George RB, Bernard A] (2018). The surgical safety checklist and patient outcomes after surgery: a prospective observational cohort study, systematic review and meta-analysis. *British Journal of Anaesthesia*, 120(1), 146-155. [Published] PubMed ID: [29397122](#).
2. Arora G, Brousseau PA, Milne AD. Laryngoscope brightness determined by visual inspection and during mannequin laryngoscopy. *Can J Anaesth*. Epub 2018 Jul 31. doi: [10.1007/s12630-018-1186-z](#).
3. Arora N, Caldwell A, Wafa K, Szczesniak A, Caldwell M, Al-Banna N, Sharawy N, Islam S, Zhou J, Holbein BE, Kelly MEM, Lehmann C (2018). DIBI, a polymeric hydroxypyridinone ion chelator, reduces ocular inflammation in local and systemic endotoxin-induced uveitis. *Clin Hemorheol Microcirc*, 69(1-2), 153-164. [Published].
4. Astapenko D, Pouska J, Benes J, Skulec R, Lehmann C, Vink H, Cerny V. Neuraxial anesthesia is less harmful to the endothelial glycocalyx during elective joint surgery compared to general anesthesia^{1,2}. *Clin Hemorheol Microcirc*. 2018 Nov 29. doi: [10.3233/CH-180428](#). [Epub ahead of print] PubMed PMID: 30507566.
5. Astapenko D, Dostalova V, Dostalova V, Kraus J, Radochova V, Dostal P, Ticha A, Hyspler R, Lehmann C, Cerny V. Effect of acute hypernatremia induced by hypertonic saline administration on endothelial glycocalyx in rabbits. *Clin Hemorheol Microcirc*. 2018 Nov 2. doi: [10.3233/CH-189907](#). [Epub ahead of print] PubMed PMID: 30400083.
6. Caldwell A, Morick JN, Jentsch AM, Wegner A, Pavlovic D, Al-Banna N, Lehmann C (2018). Impact of insulin on the intestinal microcirculation in a model of sepsis-related hyperglycemia. *Microvasc Res*, 119, 117-128. [Published].
7. Curran JA, Bishop A, Chorney J, MacEachern L, Mackay R (2018). Partnering with parents to advance child health research. *Healthcare Management Forum*, 31(2), 45-50. [Published] PubMed ID: [29400092](#).
8. Curran JA, Taylor A, Chorney J, Porter S, Murphy A, MacPhee S, Bishop A, Haworth R (2018). Development and feasibility testing of the Pediatric Emergency Discharge Interaction Coding Scheme. *Health Expectations: An International Journal of Public Participation in Health Care and Health Policy*, 20(4), 734-741. [Published] PubMed ID: [28078763](#).
9. Dickson K, Liu S, Zhou J, Langille M, Holbein BE, Lehmann C (2018). Selective sensitivity of the gut microbiome to iron chelators in polybacterial abdominal sepsis. *Med Hypotheses*, 120, 68-71. [Published].
10. Ellis LD, Berrue F, Morash M, Achenbach JC, Hill J, McDougall JJ (2018). Comparison of cannabinoids with known analgesics using a novel high throughput zebrafish larval model of nociception. *Behavioural Brain Research*, 337, 151-159. [Published].
11. Fischer S, Vinnal J, Pavlova M, Graham S, Jordan A, Chorney J, Rasic N, Brookes JT, Hoy M, Yunker WK, Noel M (2018). The role of anxiety in young children's pain memory development following surgery. *Pain*. [Published] PubMed ID: [30586022](#).
12. Fokam D, Lehmann C. Clinical assessment of arthritic knee pain by infrared thermography. *J Basic Clin Physiol Pharmacol*. 2018 Oct 31. pii: [/j/jbcpp.ahead-of-print/jbcpp-2017-0218/jbcpp-2017-0218.xml](#). doi: [10.1515/jbcpp-2017-0218](#). [Epub ahead of print] PubMed PMID: [30375348](#).
13. Forgeron PA, Chambers CT, Cohen J, Dick B, Finley GA, Lamontagne C (2018). Dyadic differences in friendships of adolescents with chronic pain compared to pain free peers. *PAIN*, 159(6), 1103-1111. [Published].
14. George RB, Habib AS (2018). In reply: Spinal anesthesia for Cesarean delivery in obese parturients: is this the best option? *Canadian Journal of Anaesthesia = Journal canadien d'anesthesie*. [Letter to the Editor - Published] PubMed ID: [29700800](#).
15. George RB, McKeen DM, Dominguez JE, Allen TK, Doyle PA, Habib AS (2018). A randomized trial of phenylephrine infusion versus bolus dosing for nausea and vomiting during Cesarean delivery in obese women. *Canadian Journal of Anaesthesia*, 65(3), 254-262. [Published] PubMed ID: [29209926](#).
16. Goudarzi R, Reid A, McDougall JJ (2018). Evaluation of the novel avocado/soybean unsaponifiable Arthrocan to alter joint pain and inflammation in a rat model of osteoarthritis. *PLoS One*, 13, e0191906. [Published].
17. Groleau C, Wong MJ, Hung O, Morin SN, Vautour L, Bessissow A (2018). Perioperative glucocorticoid stress dosing: a survey of anesthesiologists and general internists. *Canadian Journal of Anaesthesia = Journal canadien d'anesthesie*. [Published] PubMed ID: 30194673.
18. Hanafi Alamdari H, El-Sankary K, Peters U, Al Amer M, Milne AD, Henzler D, Brown J, Maksym G (2018). Analysis of the error in tracking linear time-varying respiratory mechanics with oscillometry. *IEEE Sensors*, 19(1), 311-321. [Published] DOI: [10.1109/JSEN.2018.2873184](#).
19. Hanafi H, Kilcup N, Ford RZ, Wilfart FM, Roach DC, Schmidt M (2018). Design and Development of a Novel High-Throughput System for Learning and Memory on Zebrafish. *Journal of Behavioral and Brain Science*, 8(6), 351-368. [Published] DOI: [10.4236/jbbs.2018.86023](#).
20. Hashmi J (2018). Placebo Effect: Theory, mechanisms and teleological roots. *International Review of Neurobiology*, 139, 233-253. [Review - Published].
21. Hung O, Stewart R, Malpas G, Phipps S, Hung D (2018). Managing the opioid epidemic: back to the basics with resuscitation. *Journal of Emergency Medicine*, 8, 1-2. [Editorial - Published] DOI: [10.1017/cem.2018.453](#).

Appendix C – 2018 PUBLICATIONS (CONT'D)

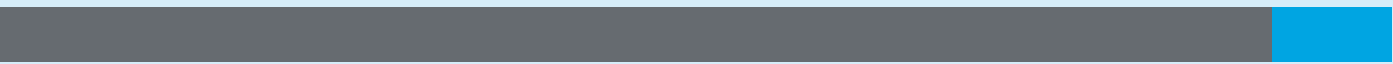
22. Jessula S, Herman CR, Kwofie K, Lee MS, Smith M, Casey P (2018). Intraoperative insertion of paravertebral catheter for postoperative analgesia in retroperitoneal aortic aneurysm repair. *Journal of Vascular Surgery*, 67(4), 1308-1310. [Published] PubMed ID: [29579473](#).
23. Ke JXC, George RB, Beattie WS (2018). Making sense of the impact of intraoperative hypotension: from populations to the individual patient. *British Journal of Anaesthesia*, 121(4), 689-691. [Editorial - Published] PubMed ID: [30236227](#).
24. Khan S, Hashmi JA, Mamashli F, Michmizos K, Kitzbichler MG, Bharadwaj H, Bekhti Y, Ganesan S, Garel KA, Whitfield-Gabrieli S, Gollub RL, Kong J, Vaina LM, Rana KD, Stufflebeam SM, Hämäläinen MS, Kenet T. Maturation trajectories of cortical resting-state networks depend on the mediating frequency band. *Neuroimage*. 2018 Jul 1;174:57-68. doi: [10.1016/j.neuroimage.2018.02.018](#). Epub 2018 Feb 17. PubMed PMID: [29462724](#); PubMed Central PMCID: [PMC5949275](#).
25. Kristjánssdóttir Ó, McGrath PJ, Finley GA, Kristjánssdóttir G, Siripul P, Mackinnon S, Yoshida Y (2018). Cultural influences on parental responses to children's pain. *PAIN*, 159(10), 2035-49. [Published] DOI: [10.1097/j.pain.0000000000001289](#).
26. Latimer M, Rudderham S, Lethbridge L, MacLeod E, Harman K, Sylliboy JR, Filiaggi C, Finley GA (2018). Occurrence and management of pain-related diagnoses comparing First Nation and non-First Nation children & youth. *CMAJ*, 190(49), E1434-E1440. [Published] DOI: [10.1503/cmaj.180198](#).
27. Latimer M, Sylliboy JR, Macleod E, Rudderham S, Francis J, Hutt-MacLeod D, Harman K, Finley GA (2018). Creating a safe space for First Nations Youth to share their pain. *PAIN Reports*, 3, e682. [Published].
28. Luther B, Mamopoulos A, Lehmann C, Klar E (2018). The ongoing challenge of acute mesenteric ischemia. *Visc Med*, 34(3), 217-223. [Published].
29. Malpas G, Hung O, Gilchrist A, Wong C, Kent B, Hirsch G, Morrison S (2018). The use of extracorporeal membrane oxygenation in the anticipated difficult airway. *Can J Anesth*, 65(6), 685-697. [Published].
30. Meier JD, Chorney JM, Fox SD, Hong P (2018). Decision aid prototype for treatment of pediatric sleep disordered breathing: A randomized pilot study. *The Laryngoscope*. [Published] PubMed ID: [30408191](#).
31. Meza A, Lehmann C (2018). Betacaryophyllene - A phytocannabinoid as potential therapeutic modality for human sepsis? *Medical Hypotheses*, 110, 68-70. [Review - Published] PubMed ID: [29317072](#).
32. Motabbakani N, Lehmann C. Laser Doppler-based measurements of periarticular blood flux can be utilized for assessment of arthritis pain: A hypothesis. *Clin Hemorheol Microcirc*. 2018 Dec 7. doi: [10.3233/CH-189408](#). [Epub ahead of print] PubMed PMID: [30562898](#).
33. Mousseau MJ, Burma NE, Lee K, Leduc-Pessah H, Reid AR, O'Brien M, Kwok CHT, Stemkowski PL, Zamponi GW, McDougall JJ, et al (2018). Microglial pannexin-1 channel activation is a spinal determinant of joint pain. *Science Advances*, 8, eaas9846. [Published].
34. Munro A, George RB, Allen VM (2018). The impact of analgesic intervention during the second stage of labour: a retrospective cohort study. *Canadian Journal of Anaesthesia = Journal canadien d'anesthésie*, 65(11), 1240-1247. [Published] PubMed ID: [29987805](#).
35. Munro A, Sjaus A, George RB (2018). Anesthesia and analgesia for gynecological surgery. *Current Opinion in Anaesthesiology*. [Review - Published] PubMed ID: [29474216](#).
36. Myles PS, Boney O, Botti M, Cyna AM, Gan TJ, Jensen MP, Kehlet H, Kurz A, De Oliveira GS, Peyton P, Sessler DI, Tramèr MR, Wu CL, Step-COMPAC Group [including George RB], Myles P, Grocott M, Biccadd B, Blazeby J, Boney O, Chan M, Diouf E, Fleisher L, Kalkman C, Kurz A, Moonesinghe R, Wijeyesundera D (2018). Systematic review and consensus definitions for the Standardised Endpoints in Perioperative Medicine (StEP) initiative: patient comfort. *British Journal of Anaesthesia*, 120(4), 705-711. [Published] PubMed ID: [29576111](#).
37. O'Brien M, McDougall JJ (2018). Cannabis and joints: Scientific evidence for the alleviation of osteoarthritis pain by cannabinoids. *Current Opinion in Pharmacology*, 40, 104-109. [Published].
38. O'Brien SM, Philpott HT, McDougall JJ (2018). Targeting the Nav1.8 ion channel engenders sex-specific responses in lysophosphatidic acid-induced joint neuropathy. *Pain*, 160, 269-278. [Published].
39. Pelland A, George RB, Lehmann C, Coolen J (2018). Sidestream Dark Field Imaging of the Microcirculation to Assess Preeclampsia Microvascular Dysfunction. *Journal of Clinical Medicine Research*, 10(5), 391-395. [Published] PubMed ID: [29581801](#).
40. Pouska J, Tegl V, Astapenko D, Cerny V, Lehmann C, Benes J. Impact of Intravenous Fluid Challenge Infusion Time on Macrocirculation and Endothelial Glycocalyx in Surgical and Critically Ill Patients. *Biomed Res Int*. 2018 Nov 1;2018:8925345. doi: [10.1155/2018/8925345](#). eCollection 2018. PubMed PMID: [30519590](#); PubMed Central PMCID: [PMC6241356](#).
41. Pujol R, Girard CA, Richard H, Hassanpour I Binette MP, McDougall JJ, Laverty S (2018). Synovial nerve fiber density decreases with naturally-occurring osteoarthritis in horses. *Osteoarthritis and Cartilage*, 26, 1379-1388. [Published].
42. Purcell M, Longard J, Chorney J, Hong P (2018). Parents' experiences managing their child's complicated postoperative recovery. *International Journal of Pediatric Otorhinolaryngology*, 106, 50-54. [Published] PubMed ID: [29447891](#).
43. Sancheti SF, Uppal V, Sandeski R, Kwofie MK, Szerb JJ (2018). A Cadaver Study Investigating Structures Encountered By The Needle During A Retroclavicular Approach To Infraclavicular Brachial Plexus Block. *Regional Anesthesia and Pain Medicine*. [Published] PubMed ID: [29923952](#).
44. Sardinha J, MacKinnon S, Lehmann C. Rapid clinical assessment of the sublingual microcirculation – visual scoring using microVAS in comparison to standard semi-automated analysis. *Clin Hemorheol Microcirc*. 2018 Oct 11. doi: [10.3233/CH-180427](#). [Epub ahead of print] PubMed PMID: [30320559](#).

Appendix C – 2018 PUBLICATIONS (CONT'D)

45. Sardiwalla Y, Eskes G, Bernard A, George R, Schmidt M (2018). Assessing the feasibility of using the Dalhousie Computerized Attention Battery to measure Post-Operative Cognitive Dysfunction in older patients. *Journal of Perioperative Practice*. [Published] PubMed ID: [30372363](#).
46. Sevinc G, Holzel BK, Hashmi J, Greenburg J, McCallister A, Treadway M et al (2018). Common and dissociable neural activity after mindfulness-based stress reduction and relaxation response programs. *Psychosomatic Medicine*, 80(5), 439-451. [Published].
47. Staudt MD, Clark AJ, Gordon AS, Lynch ME, Morley-Forster PK, Nathan H, Smyth C, Stitt LW, Toth C, Ware MA, Moulin DE (2018). Long-term outcomes in the management of central neuropathic pain syndromes: a prospective observational cohort study. *Can J Neurological Sciences*. [Published] PubMed ID: [29996953](#).
48. Thorburn T, Aali M, Lehmann C (2018). Immune response to systemic inflammation in the intestinal microcirculation. *Frontiers in Bioscience (Landmark edition)*, 23, 782-795. [Review - Published] PubMed ID: [28930572](#).
49. VanDenKerkhof EG, Stitt L, Clark AJ, Gordon A, Lynch M, Morley-Forster PK, Nathan H, Smyth C, Toth C, Ware M, Moulin DE (2018). Sensitivity of the DN4 in screening for neuropathic pain syndromes. *Clin J Pain*, 34(1), 30-6. [Published] PubMed ID: [28481836](#).
50. Vargovich AM, Chorney J, Gross RT, Vowles KE (2018). Chronic Pain Rehabilitation for Upper Extremity Pain Following Stimulator Removal. *The American Journal of Case Reports*, 19, 1373-1377. [Published] PubMed ID: [30449882](#).
51. Wegner A, Pavlovic D, HauBmann-Vopel S, Lehmann C (2018). Impact of lipid modulation on the intestinal microcirculation in experimental sepsis. *Microvasc Res*, 120, 41-46. [Published].
52. Wiseman L, Lynch ME (2018). The utility of universal urinary drug screening in chronic pain management. *Canadian Journal of Pain*, 2. [Published] DOI: <http://www.tandfonline.com/doi/full/10.1080/24740527.2018.1425980>.
53. Zhou J, Yang H, Lehmann C (2018). Inhibition of GPR 55 improves dysregulated immune response in experimental sepsis. *Clinical Hemorheology and Microcirculation*. [Published] PubMed ID: [30347614](#).

Appendix D – 2018-21 RESEARCH ROADMAP FOR SUCCESS

RESEARCH ROADMAP			
Strategic DIRECTIONS	2018-21 Research ACTIONS	2018-21 Research SUB-ACTIONS	2018-19 Research PRIORITIES
GROW RESEARCH	1. Attract significantly more funding for research	1.1 Making more, higher quality proposals 1.2 Taking advantage of alternate funding sources (e.g., industry, team grants) 1.3 Produce more, high-impact research findings	1. Take advantage of funding opportunities for building collaborative research teams, emphasizing internal collaborations
	2. Generate more/better collaborations	2.1. Being more deliberate and focused where there are already clinical relationships (e.g., general surgery, cardiac surgery) 2.2. Foster collaborations between basic scientists and clinical trialists for enhanced knowledge translation 2.3. Participate in national multi-center trials & networks (e.g., PACT)	2. Cultivate junior investigator research partnerships for enhanced national/international clinical trial participation
BUILD RESEARCH CAPACITY	1. Attract, hire and retain highly qualified personnel	1.1 Recruiting more research-oriented faculty/trainees/patient advisors with a proven track record in research 1.2 Explore opportunities for creating research positions (e.g. research fellowship, research assistants, Endowed Chair, graduate program, CIP)	1. Implement targeted research training opportunities and mentorship support for junior investigators and trainees
	2. Foster a culture of continuous learning and inquiry	2.1. Identify gaps/skill development opportunities targeted to meet the educational needs of the various groups 2.2. Provide mentorship and support 2.3. Celebrate research success and information exchange among stakeholders	2. Advocate with key stakeholders for integrating research into optimal HR, space and information management decision-making
	3. Expand infrastructure & supports	3.1. Optimize department research supports that would benefit research 3.2. Build a pool of expert consultants to support a variety of research endeavours (e.g., statistician, patient advisor, trialist) 3.3. Establish information management processes & opportunities for research support/analytics	
FOSTER PATIENT ENGAGEMENT	1. Generate greater engagement of patients in research	1.1 Build a group of diverse patient advisors 1.2 Researchers have access to excellent patient advisors	1. Integrate patient advisors into the department's research activities while nurturing uptake from investigators.
	2. Strive for a patient engagement culture	2.1 Supporting a patient-led funded research project 2.2 Build researcher and patient advisor capacity in patient engagement 2.3 Support patient representation throughout department 2.4 Integrate patients into all research events e.g., Club, Research Day 2.5 Create a framework of best practices for patient engagement in research	





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