Welcome to the December 2012 edition of the NARQ. The members of the Department of Anesthesiology and Perioperative Medicine have dedicated substantial resources to ramping up our research productivity, and the results are impressive. With investment, hard work and our excellent and professional support staff, more members have been able to generate important and novel projects. The publications also demonstrate the involvement of many of our residents and undergraduate students in scholarly work. The coming year will see more grant applications and multidisciplinary collaborations, an increasing focus on educational research, the recruitment of a new PhD researcher, and further investment in our research infrastructure. Despite the expanding clinical demands and manpower challenges, academic productivity will continue to be at the forefront of our Department's mission. I invite you to take a few minutes to read this year’s research newsletter.

Joel Parlow

Dr. Brian Milne, Director of Clinical Research and Current Research Committee Chair
Dr. Ramiro Arellano, Research Committee Chair (past)
Debbie DuMerton Shore, RN, CCRP, Research Coordinator
Beth Orr, RN, CCRP, Research Nurse
Cheryl Tait, RN, Research Nurse
Jessica McCourt, RN, BNSc, Research Nurse
Rachel Phelan, MSc, Clinical Research Facilitator
Dana Thompson-Green, Secretarial support

Ongoing Clinical Research - 27
Other Research Work - 24
Publications - 97
Grants - 48
Dr. Rob Tanzola is an assistant professor of Anesthesiology at Queen’s University and cardiac anesthesiologist at Kingston General Hospital. His research interests center around the use of echocardiography in the perioperative setting. Recent projects include development and evaluation of a focused transthoracic echocardiography (TTE) training program for residents, the use of TTE to confirm central line guidewire placement, and the development and evaluation of a tablet-based TTE training module. Other areas of interest include perioperative resource utilization and the use of beta-blockers as an opioid-sparing drug in laparoscopic surgery.

### Ongoing Clinical Research

<table>
<thead>
<tr>
<th>Research Group</th>
<th>Investigator(s)</th>
<th>Study</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>Arellano, R. Tanzola, R. Milne, B.</td>
<td>The Use of Transthoracic Echocardiography (TTE) for the Confirmation of Central Vein Catheter Placement</td>
<td>Data Collection Complete – publications in process</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Arellano, R. Sponsor – Montreal Heart Institute</td>
<td>A Multicenter, National, Double-Blind, Double-Dummy Randomized Placebo-Controlled Trial of Inhaled Milrinone</td>
<td>Data collection Complete – awaiting publication</td>
</tr>
<tr>
<td>Other</td>
<td>Arellano, R.</td>
<td>Canadian Web-Based Hemostasis Registry</td>
<td>Data collection complete</td>
</tr>
<tr>
<td>Pediatric - Perioperative</td>
<td>Ashbury, T., Milne, B.</td>
<td>A Clinical Tool To Identify Pediatric Risk Factors for Anxiety At the Induction of Anesthesia</td>
<td>Data Collection complete – awaiting publication</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Gilron, I. Duggan, S.</td>
<td>A Randomized, Controlled Trial of Combination Pharmacotherapy for Postsurgical Pain and Functional Recovery in Abdominal Hysterectomy</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Gilron, I. Chaparro, L.</td>
<td>Combination Pharmacotherapy for the Management of Fibromyalgia</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Gilron, I.</td>
<td>Combination Pharmacotherapy for the Management of Neuropathic Pain</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Category</td>
<td>Authors</td>
<td>Title</td>
<td>Status</td>
</tr>
<tr>
<td>-------------------</td>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Henry, R.</td>
<td>A Possible Link Between Myofascial Trigger Points and Primary Raynaud’s Phenomenon</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Henry, R.</td>
<td>Resistant Angina Responds to Myofascial Trigger Point Injections</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Henry, R.</td>
<td>Present of Myofascial Trigger Points in Patients Undergoing Total Knee Replacement and the Effects on Surgical Outcome: A Pilot Investigation</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pain/Acute/Chronic</td>
<td>Henry, R.</td>
<td>Presence of Myofascial Trigger Points in Patients Experiencing Chronic Non-Surgical Back Pain</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Milne, B. Tanzola, R.</td>
<td>Quantifying Air Emboli Suspended in Human Blood During Open Heart Surgery</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Perioperative</td>
<td>Parlow, J. Allard, R.</td>
<td>POISE-2 Trial - The Impact of Clonidine and Acetylsalicylic Acid (ASA) in Patients Undergoing Noncardiac Surgery who are at Risk of a Perioperative Cardiovascular Event</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Parlow, J. Erb, J</td>
<td>A Randomized Controlled Trial to Assess the Impact of Dabigatran (a direct thrombin inhibitor) and Omeprazole (a proton-pump inhibitor) in Patients Suffering a Myocardial Infarction After Noncardiac Surgery</td>
<td>Starting soon</td>
</tr>
<tr>
<td>Pediatric-Perioperative</td>
<td>Rooney, R. Langdon, M</td>
<td>A Randomized Controlled Trial of Dextromethorphan versus Placebo for Post Tonsillectomy or Adenotonsillectomy Pain Control in Children</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Perioperative</td>
<td>Tanzola, R. Engen, D Marois, J</td>
<td>The Effect of Intraoperative Labetalol, Esmolol, or Fentanyl on Time to Discharge and Hemodynamic Stability in Laparoscopic Cholecystectomy</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Perioperative</td>
<td>Turner, K. Zamora, R Sponsor - Merck</td>
<td>RECITE trial - Residual Curarization and its Incidence at Tracheal Exubation</td>
<td>Data Collection Complete</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Wang, L. Mahaffey, R</td>
<td>A Pilot Study to Investigate the Role of Intravenous and Topical Tranexamic Acid in Reducing Perioperative Blood Loss in Primary Coronary Bypass Graft (CABG) Surgery</td>
<td>Starting soon</td>
</tr>
<tr>
<td>Medical Education</td>
<td>Burjorjee, J.</td>
<td>Incorporating Professionalism Into Anesthesia Residency Curriculum: What is the Effect of Operating Room Hierarchical Structure on Residents’ Challenging Authority?</td>
<td>Ongoing</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Simulation/ Medical Education</strong></td>
<td>Burjorjee, J.</td>
<td>Learning Generated Through High Fidelity Simulation Sessions in Anesthesiology Postgraduate Trainees</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Pain/Acute/Chronic</strong></td>
<td>Duggan, S.</td>
<td>Caudal Epidural Steroid and Local Anesthetic Compared to Caudal Epidural Saline Injection--an Enriched Enrolment Randomized Withdrawal Study</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Simulation</strong></td>
<td>Fleming, M.</td>
<td>Evaluating Performance in Pediatric Anesthesiology Simulation: Piloting Tools for the Managing Emergencies in Pediatric Anesthesia (MEPA) Course</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Simulation</strong></td>
<td>Mark, D.</td>
<td>Use of High Fidelity Patient Simulation to Identify Risk Factors Affecting the Performance of the Inter-professional Teams in a Community Hospital</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Simulation</strong></td>
<td>McMullen, M.</td>
<td>Pilot Study for Structured Versus Unstructured Simulator Training for Ultrasound-guided Regional Anesthesia: Impact on Success and Complication Rates</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Perioperative</strong></td>
<td>McMullen, M.</td>
<td>Pilot Study to Evaluate the Time to Secure the Airway using a Modification of the Traditional GlideScope Technique</td>
<td>Data Collection Complete</td>
</tr>
<tr>
<td><strong>Perioperative</strong></td>
<td>Turner, K</td>
<td>Use of the Boussignac CPAP Mask Immediately Following Extubation to Improve Lung Function in Adults with Moderate to Severe Obstructive Sleep Apnea</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Research Group</td>
<td>Investigator(s)</td>
<td>Study</td>
<td>Status</td>
</tr>
<tr>
<td>---------------</td>
<td>----------------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Arellano, R.</td>
<td>A Retrospective Review of High Risk Patients who Underwent Cardiac Bypass Surgery with Topical or Intravenous Tranexamic Acid: Quality Assurance</td>
<td>Complete</td>
</tr>
<tr>
<td>Medical Education</td>
<td>Ashbury, T.</td>
<td>An Assessment of Family Practice Anesthesia (FPA) Training Programs</td>
<td>Pending publication</td>
</tr>
<tr>
<td>Simulation</td>
<td>Cummings, M.</td>
<td>Simulation Olympics: An Annual Simulation-based Resuscitation Competition</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Medical Education</td>
<td>Engen, D.</td>
<td>The Economics of Anesthesia Drug Wastage</td>
<td>Pending publication</td>
</tr>
<tr>
<td>Medical Education</td>
<td>Engen, D.</td>
<td>Anesthesia Manpower and Anesthesia Assistant Survey</td>
<td>Pending publication</td>
</tr>
<tr>
<td>Medical Education</td>
<td>Goldstein, D.</td>
<td>A Survey of Health Professional Education in Patient Safety at Queen’s University</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Medical Education</td>
<td>Jaeger, M.</td>
<td>Does the Introduction of a Formative Objective, Structure Clinical Examination (OSCE) Influence Performance of Trainees on the Medical Council of Canada Licensing Exam Part II</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Medical Education/Simulation</td>
<td>McMullen, M.</td>
<td>Debriefing on Demand: The Introduction and Validation of a Pause Button in Medical Simulation.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Pain</td>
<td>McMullen, M.</td>
<td>Quality Improvement in Postoperative Pain Management</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Milne, B.</td>
<td>Development of a Novel Technology for Destruction of Air Emboli and Implications for Cardiac Surgery.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Perioperative</td>
<td>Murdoch, J.</td>
<td>Impact of Presurgical Meeting on Patients Preference for General or Spinal Anesthesia and Anxiety Levels Associated With Joint Replacement Surgery</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Other</td>
<td>Patterson, L.</td>
<td>In Vitro Heating Effect on Epidural Catheter at 3.0 TESLA MRI</td>
<td>Complete</td>
</tr>
<tr>
<td>Cardiac</td>
<td>Saha, T.</td>
<td>Are Preoperative Potassium Levels Predictive of Morbidity and Mortality in Cardiac Surgery Patients: Quality Assurance.</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Medical Education</strong></td>
<td>Shyam, V.</td>
<td>Comprehensive Sonoanatomy Module to Reduce Duration of Training and Increase Accuracy of Neuraxial Block Performance</td>
<td>Ongoing</td>
</tr>
<tr>
<td>-----------------------</td>
<td>-----------</td>
<td>-----------------------------------------------------------------------------------------------------------------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Perioperative</strong></td>
<td>Shyam, V.</td>
<td>Impact of Cardiology Consult on Treatment Plan and Health in Emergency Hip Fracture Patients</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Medical Education</strong></td>
<td>Simchison, B.</td>
<td>Anesthesia Staff and Resident Survey on the Use of Ultrasound to Locate the Epidural/Spinal Space</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Medical Education</strong></td>
<td>Tanzola, R.</td>
<td>Focused Transthoracic Echocardiography Training of Anesthesiology Residents in Perioperative Setting</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Medical Education</strong></td>
<td>Tanzola, R.</td>
<td>Development and Evaluation of a Novel iPAD-Based Application for Teaching Hemodynamic Ultrasound in Unstable Patients</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Pain/Chronic/Acute</strong></td>
<td>VanDenKerkhof, E.</td>
<td>The Epidemiology of Neuropathic Pain in Canada</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Patient Safety</strong></td>
<td>VanDenKerkhof, E.</td>
<td>A Pre and Post Implementation Study of an Innovative Communication Technology</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Patient Safety</strong></td>
<td>VanDenKerkhof, E.</td>
<td>Perspectives of Patient Safety among Undergraduate Nursing Students in a Canadian University</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Patient Safety</strong></td>
<td>VanDenKerkhof, E.</td>
<td>Accessing Best Practice Resources on iPod Touch Devices: A Feasibility Study in an Undergraduate BNSc Program at Queens University</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Population Health</strong></td>
<td>VanDenKerkhof, E.</td>
<td>Maintaining Health, Function and Autonomy in Aging Community-Dwelling Canadians with a Chronic Condition</td>
<td>Ongoing</td>
</tr>
<tr>
<td><strong>Population Health</strong></td>
<td>VanDenKerkhof, E.</td>
<td>Pain and Well-Being Study: Analysis of Data from the Life After Service Study (LASS) – Survey on Transition to Civilian Life</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
Queen’s University Department of Anesthesiology Publication List – 2010-2012
(in alphabetical order of 1st author. Department members/cross-appointees highlighted in bold)


**BOOK CHAPTERS**


---

Almost J. Wilson R, Sears K, Woo K, VanDenKerkhof EG Using population databases to determine the prevalence of clinical problems: A new faculty research program School of Nursing Research Development Fund $2,500

Arellano, R (PI) Randomized Controlled Trial of Inhaled Milrinone, Montreal Heart Institute. Total: $12,200

Arellano R (PI), Tanzola R (CO-PI), Cummings M (co-signatory) Development and evaluation of a novel iPAD-based application for teaching hemodynamic ultrasound in unstable patients, Post graduate Medical Education Special Research Fund- Faculty of Health Sciences, Queen’s University, $10,000/1 year

Burjorjee J. (PI) Learning Generated Through High Fidelity Simulation Sessions in Anesthesiology Postgraduate Trainees. The Justus Medical Education Fund, Fellows in Educational Scholarship Award, Faculty of Health Sciences, Queen’s University, $10,000/1 year

Clark AJM, Cooper L, Lynch L, VanDenKerkhof EG Canadian Institute of Health Research Meetings, Planning and Dissemination Grant: Dissemination Event $17,500

Damon G, O’Brien T, Howes D, Parker C, Smith C, McLellan C, Cummings M (co-investigator) Simulation Olympics: An annual simulation-based resuscitation competition.” Post graduate Medical Education Special Research Fund-Faculty of Health Sciences, Queen’s University, $10,000/1 year

Davidson L, Jaeger M, Walker R Effectiveness of a novel joint undergraduate/postgraduate LMCC part 2 preparatory OSCE. SEAMO Educational Innovation and Research Fund $15,000/1 year

Erb J (PI) Status of Hand-held Echocardiography in Intensive Care Medicine: Characterization of Current state and Investigation of Improvement Strategies. Research Initiation Grant, Faculty of Health Sciences. Queen's University. $30,000/1 year

Fleming M, McMullen M, Sampson J, Cummings M: cosignatory. Development of crisis-specific simulation scenarios for the assessment of anesthesia residents’ “readiness” for undertaking independent call duty. Postgraduate medical Education Grant. $10,000/1 year

Gilron I. Evaluation of differential impact of pharmacological interventions on sensory and affective pain quality descriptors in neuropathic conditions. Queen’s University Faculty of Health Sciences Harry Botterell Grant for the Neurological Sciences. $15,000

Gilron I (PI) Trial methodology comparing triple to double non-opioid therapy for postoperative movement-evoked pain Physicians’ Services Foundation Inc (PSIF) Health Research Grant, Total $101,500/2 years ($47,500 for this year)

Gilron I (PI & Mentor), Chaparro L (Fellow & co-investigator) International Association for the Study of Pain (IASP) J. Bonica Fellowship-Salary support. Total $100,000 ($50,000 for this year)

Gilron, I (PI) Chaparro L (Fellow & co-investigator). Holden R, Milev R, Towheed T, Tu D CIHR Operating Grant (Bridge Funding from INMHA) Combination pharmacotherapy for the management of pain in fibromyalgia Role: $100,00/1 year

Gilron, I (PI) Chaparro L (Fellow & co-investigator), Holden R, Milev R, Towheed T, Tu D CIHR-RCT operating grant Combination pharmacotherapy for the management of pain in fibromyalgia, $331,000/3 years ($139,571 for this year)

Goldstein D (PI), VanDenKerkhof E (co-investigator), Edge D. A Survey of Health Professional Education in Patient Safety at Queen’s University, Medical Research Endowment Fund, Faculty of Health Sciences, Queen’s University. $3,433/1 year

Goldstein D (PI), Almost, Barling, Briggs, Edge, Ginsburg, Godfrey, Hanson, Ilan, Knutsen E, Knutsen W, Medves, Nyce, Parlow, Parush, Peppin, Rudie, Squires, Tregunno, VanDenKerKhof, Wilson, Woo, Zoutman. Investigating efficacy of healthcare Quality $4800

Henry R (PI), Cahill C (Co-investigator) Improving outcomes and delaying need for surgery in patients wait listed for total knee arthroplasty: A Pilot Study, Harry Botterell Foundation for the Neurological Sciences, Faculty of Health Sciences, Queen’s University, $15,000/1 year

Jaeger M (PI), Borschneck D, Ungi T, Fichtinger G, Mousavi P Real-time needle and ultrasound tracking system for invasive procedure skill acquisition: a pilot study, SEAMO Education Innovation and Research Fund. $14,161/6 months

Mark D (PI), Burjorjee J (co-investigator), Wang L (co-investigator). Use of High Fidelity Patient Simulation to Identify Factors Affecting the Performance of Interprofessional Teams in a Community Hospital, SEAMO Innovation Fund $57,394/1 year

Milne B (PI), Pollard A Development of a Novel Technology for Destruction of Air Emboli and Implications for Cardiac Surgery. Garfield Kelly Cardiovascular Fund. Faculty of Health Sciences, Queen’s University- $10,000/1 year

Milne B (PI), Ashbury T, VanDenKerKhof E, Holden R, McVicar J. Development of a brief clinical tool to predict adverse behaviour at the induction of anesthesia in Children-Senate Advisory Research Committee, Queen’s University- $8,243/1 year
Nathan H, Gilron I. The Effect of an Inter-Disciplinary Program, Including Mindfulness Based Stress Reduction, on Psychosocial Function, Pain and Metabolism in Patients with Painful Diabetic Peripheral Neuropathy. 2012 Canadian Diabetes Association Operating Grant. $138,000.00

Pal R, Sanfilippo, O'Reilly M, Arellano R, Tanzola, Allard R. Development of a novel evaluation tool for assessment of competence in Level 1 echocardiography following focused training. SEAMO Education Innovation Fund $12,000/ 1 year

Parlow J [site PI], Allard A [site co-investigator] - Devereaux P (Overall PI-from McMaster) Peri-operative Ischemic Evaluation-2 Trial (POISE-2 Trial) CIHR - Collaborative Health Research Projects (CHRP) $148,010 to date

Payne D (PI), Brown P, Hamilton A, Milne B (Co-investigator), Nakatsu K, Petsikas D, Malik P, Zelt D - Remote Ischemic Preconditioning in High Risk Cardiovascular Surgery Patients: A Randomized-Controlled Trial-- SEAMO AHSC-AFP Innovation Fund. Total: $124,613 /2 years ($60,726 for this year)

Pukall C, Gilron I. Neuropathic pain characteristics in women with vulvodynia.2012 CIHR Operating Grant (bridge funding). $100,000.00

Rooney R (PI), Cummings M (Co-signatory). Funding for live models for teaching ultrasound-guided neuraxial blocks- Post graduate Medical Education Special Research Fund-Faculty of Health Sciences, Queen’s University, $1,000/1 year

Rooney R (PI) Is dextromethorphan an effective, safe and feasible adjunct analgesic for pediatric tonsillectomy? Research Initiation Grant, Faculty of Health Sciences, Queen’s University, $30,000/ 1 year

Saha T, Petsikas D (Mentors). The Prevalence of Chronic Pain after Coronary Artery Bypass Graft (CABG) at Kingston General Hospital - A Pilot Study Summer studentship awarded for Daniel Mok, Queen’s University Faculty of Health Sciences (2nd year medical student) $5,000/1 year

Saha T, Tanzola R, Arellano R, Mahaffey R, Duggan S (Mentors). Use of transthoracic echocardiography as a diagnostic aid during cardiac surgery when tranesophageal echocardiography is contraindicated. Summer studentship awarded for Jasmine Bahrami, Queen's University Faculty of Health Sciences (2nd year medical student) $5,000/1 year-Declined

Shyam V (PI), Murdoch J (co-investigator), McMullen M, Mahaffey R. Comprehensive sonoanatomy module to reduce duration of training and increase accuracy of neuraxial block performance. SEAMO Education Innovation Fund $5,360/1 year

Sydor D. Medical Education Development Program (MEDP), Southeastern Ontario Academic Medical Organization (SEAMO) $110,000 / 18 months

Tranmer JE (PI) Edge D, VanDenKerkhof EG (Co-investigator) Canadian Institute of Health Research Meetings, Planning and Dissemination Grant: Planning Grant. Defining and Optimizing Nursing Contribution to Chronic Disease Care Within the Primary Care Setting. Total $150,000 for 2009-12.

**Turner K (Mentor)** Complications associated with the use of Ketorolac in mammoplasty surgery: A retrospective chart review- Summer studentship awarded for Thomas Cawthorn Queen’s University Faculty of Health Sciences (2nd year medical student) $8,000/1 year

**Turner K, Murdoch J.*** Use of Boussignac CPAP system immediately following extubation in the OR for improving lung function in the 24 hours post-extubation in adults with moderate or severe obstructive sleep apnea, Dr. Boussignac, $8,750

**Turner K (site PI), Zamora J.*** Residual Curarization and its incidence at tracheal extubation. Industry sponsored. Merck Sharp & Dohme Corp. $117,389

**VanDenKerKhof E (PI), Gilron I (Co-investigator),** Smith B, Torrence N, Bennett M. The Epidemiology of Neuropathic Pain in Canada. Pfizer Canada Operating grant $150,000/2 years

**VanDenKerKhof E (PI),** Bruce J Peters M. Understanding the epidemiology of chronic pain after surgery. The International Association for the Study of Pain (IASP) Collaborative Research Grant $14,500, U.S./1 year

**VanDenKerkhof E (PI)** Bruce J, Peters M. International Chronic Postsurgical Pain Collaboration International Strategic Opportunities Program, Ontario Ministry of Research and Innovation, $150,000/ 3 years

**VanDenKerkhof E (PI)** Canadian Institute of Health Research IGH Mid-Career Award, CIHR Ontario Women’s Health Council/ salary support 2008-2013 $70,000 /year for 5 years + $10,000/year for 5 years


**VanDenKerkhof EG** Harrison MB, Hopman W. Maintaining health, function and autonomy in aging community-dwelling Canadians living with chronic conditions. May 2012 – Apr 2013. Botterell Foundation, Queen’s University $15,000


**VanVlymen J (Mentor)** Prevalence of hyperglycemia and associated risk factors in patients presenting for pre-surgical screening identified through hemoglobin A1c testing, McLaughlin studentship awarded for Yuri Koumpan, Queen’s University Faculty of Health Sciences (2nd year medical student) $6,000/1 year

**VanVlymen J (Mentor)** Michael Raphael, Summer studentship from the Queen’s University Faculty of Health Sciences (2nd year medical student) $8,000/1 year

**Woo K, Wilson, R., VanDenKerhof, EG.*** The relationship between pain, stress and wound healing. Jan. 2012. Senate Advisory Committee, Queen’s University $10,000