



## EPICORE 2013 Annual Report

EPICORE SCOREs! – Supporting Clinical and Outcomes Research

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# DIRECTOR'S MESSAGE

## Director's Message

Welcome to the "rink". It is with great pleasure that I present to you our 2013 annual report. By now you will have noted the references to hockey in our report - indeed, ours is a team sport, with each member contributing to the goals that we score.

2013 was a challenging year for us in many respects (outlined in more detail in the report). Nevertheless, I remain optimistic that we will continue to serve our health research colleagues to produce clinical and outcomes research that makes a difference to health and healthcare of the communities we serve. In many ways these challenges have made us stronger and even more focused on our mission.

On behalf of our team, thanks for being a fan. You bring our game to the next level.

Dr. Ross Tsuyuki  
Professor of Medicine and Director,  
EPICORE  
Faculty of Medicine and Dentistry  
University of Alberta



# WHO WE ARE

## Who We Are

EPICORE is an operating unit within the Department of Medicine, which itself is a department of the Faculty of Medicine and Dentistry at the University of Alberta.

### Faculty of Medicine and Dentistry

**Mission:** The Faculty of Medicine & Dentistry serves the public good through excellence in medical and health professions education, research and patient care. We build partnerships essential to a high-performing academic health sciences centre.

### Department of Medicine

**Mission:** To improve the health and health care of current and future generations through excellence and innovation in education, research and clinical care.

### EPICORE

**Mission:** To serve the Faculty and our community by generating new knowledge in the areas of health and health care through the design, execution and analysis of clinical trials, health outcomes research and epidemiologic studies.

**EPICORE supports the mission of the Faculty of Medicine and Dentistry and Department of Medicine through:**

- Conducting innovative research that makes a difference in health and health care
- Furthers this excellence through service to other health researchers
- Education of the next generation of health researchers through graduate student programs and courses
- Partnerships with like-minded individuals and organizations

## What We Do

Our Goal: As noted on the front page, EPICORE SCOREs (Supporting Clinical and Outcomes Research). We **assist** by ensuring that our clients achieve their clinical/outcomes research objectives.

EPICORE is involved in the full range of activities necessary for the conduct of clinical trials and outcomes research, including protocol/research design consultations, case report forms design, database creation, study management, implementation, site coordination (for multicentre trials), data management, biostatistical consultation and analyses and assistance with grant preparation.

EPICORE has completed over 520 projects (Appendix A) for over 250 different investigators (Appendix B).

In 2013, we:

- worked on 70 projects, ranging from consultations to multicentre trials (Appendix C)
- were recognized on 36 publications (Appendix D)
- helped with the preparation of 18 grants, 16 of which were submitted, 69% of which were funded
- trained 11 health researchers
- received 3 trainee awards
- received 3 national awards

# WHAT WE DO

## EPICORE Numbers: Some Team Stats



### What Our Fans Say

*"We have had the pleasure of working with EPICORE over the last 10 years. Initially we asked them to be involved in a small portion of our team's research, but after working with them, we realized what tremendous expertise and support they have to offer. We now routinely include EPICORE in all our large grant applications and describe their strengths to potential funders with regards to data management and analysis of large, complex, multicentre trials. FoMD benefits tremendously from EPICORE, as it enables FoMD researchers to be successful in winning large competitive grants from peer-reviewed funding agencies."*

**Dr. Sunita Vohra, Department of Pediatrics.**

*"EPICORE has been instrumental in helping me secure multiple CIHR grants and provided comprehensive data management for these projects. The EPICORE brand is recognized nationally as an institution that provides methodologically rigorous, high quality project support."*

**Dr. Raj Padwal, Division of General Internal Medicine, Department of Medicine.**

*"EPICORE and Ross have been tremendously supportive of my investigator-initiated research projects at the Royal Alexandra Hospital. They have made doing clinical research possible for faculty members like myself with little or no resource, not belonging to a major research group, and physically away from the major research hub across the river."*

**Dr. Winnie Sia, Royal Alexandra Hospital.**

*"As a pediatric nephrologist and new investigator establishing myself within the University, national, and international community, EPICORE has been an invaluable resource for me. EPICORE supported my first independent operating grant, not just with standard resources, but also with mentoring, tremendous collegiality, and a genuine desire to see me succeed. EPICORE is now supporting a CIHR-funded, multicenter, international study for which I am the Principal Investigator. They have been a large part of the progress of my research career and I am tremendously grateful to have EPICORE as a continuing resource."*

**Dr. Catherine Morgan, Department of Pediatrics.**

## OUR BEST GAMES

### Our Best Games: A 'hat trick' of innovation

EPICORE was acknowledged in 36 publications in 2013 (Appendix D). Here are 3 examples of our work.

#### THE FIRST GOAL:

**Title:** Bagshaw SM, Stelfox T, McDermid RC, Rolfson DB, Tsuyuki RT, Baig N, Artiuch B, Ibrahim Q, Stollery DE, Rokosh E, Majumdar SR. Association Between Frailty and Short and Long-Term Outcomes in Critically Ill Patients: A Multi-Centre Prospective Cohort Study. CMAJ 2013. DOI: 10.1503/cmaj.1306.39.

**Highlighted Researcher:** Dr. Sean Bagshaw, Associate Professor, Division of Critical Care Medicine, University of Alberta.



**Main Findings:** Frailty is common in patients admitted to intensive care units. Using the Clinical Frailty Scale, we identified frail patients who were at higher risk for adverse events, morbidity and mortality compared to those who were not frail.

**Impact:** Using a simple bedside tool can give better assessment of prognosis and identify vulnerable individuals who could benefit from closer follow-up after discharge from the ICU.

**EPICORE's Role:** We assisted with the funding application, designed the case report forms, created the database, entered the data and performed the biostatistical analyses.



Early release, published at [www.cmaj.ca](http://www.cmaj.ca) on November 25, 2013. Subject to revision.

CMAJ

RESEARCH

## Association between frailty and short- and long-term outcomes among critically ill patients: a multicentre prospective cohort study

Sean M. Bagshaw MD, H. Thomas Stelfox MD, Robert C. McDermid MD, Darryl B. Rolfson MD, Ross T. Tsuyuki PharmD, Nadia Baig BSc, Barbara Artiuch MD, Quazi Ibrahim MSc, Daniel E. Stollery MD, Ella Rokosh MD, Sumit R. Majumdar MD

### ABSTRACT

**Background:** Frailty is a multidimensional syndrome characterized by loss of physiologic and cognitive reserves that confers vulnerability to adverse outcomes. We determined the prevalence, correlates and outcomes associated with frailty among adults admitted to intensive care.

**Methods:** We prospectively enrolled 421 critically ill adults aged 50 or more at 6 hospitals across the province of Alberta. The primary exposure was frailty, defined by a score greater than 4 on the Clinical Frailty Scale. The primary outcome measure was in-hospital mortality. Secondary outcome measures included adverse events, 1-year mortality and quality of life.

**Results:** The prevalence of frailty was 32.8% (95% confidence interval [CI] 28.3%–37.5%). Frail patients were older, were more likely to be female, and had more comorbidities and greater functional dependence than those who were not frail. In-hospital mortality was

higher among frail patients than among non-frail patients (32% v. 16%; adjusted odds ratio [OR] 1.81, 95% CI 1.09–3.01) and remained higher at 1 year (48% v. 25%; adjusted hazard ratio 1.82, 95% CI 1.28–2.60). Major adverse events were more common among frail patients (39% v. 29%; OR 1.54, 95% CI 1.01–2.37). Compared with nonfrail survivors, frail survivors were more likely to become functionally dependent (71% v. 52%; OR 2.25, 95% CI 1.03–4.89), had significantly lower quality of life and were more often readmitted to hospital (56% v. 39%; OR 1.98, 95% CI 1.22–3.23) in the 12 months following enrolment.

**Interpretation:** Frailty was common among critically ill adults aged 50 and older and identified a population at increased risk of adverse events, morbidity and mortality. Diagnosis of frailty could improve prognostication and identify a vulnerable population that might benefit from follow-up and intervention.

**Competing interests:** Ross Tsuyuki has served on advisory boards for Bristol-Myers Squibb, PharmaSmart International and Abbott Laboratories, and a data monitoring board for dabigatran studies for Boehringer Ingelheim; he has received consultant fees from Merck; and his institution has received grants from Sanofi and AstraZeneca. No competing interests were declared by the other authors.

This article has been peer reviewed.

**Correspondence to:** Sean Bagshaw, [bagshaw@ualberta.ca](mailto:bagshaw@ualberta.ca)

*CMAJ* 2013. DOI:10.1503/cmaj.130639

## OUR BEST GAMES

### THE SECOND GOAL:

**Title:** Jamal SA, Vandermeer B, Raggi P, Mendelssohn DC, Fitchett D, Lok CE, Chatterley T, Dorgan M, Tsuyuki RT. The effects of calcium-based versus non-calcium-based phosphate binders on mortality among patients with chronic kidney disease: a systematic review. *Lancet* 2013; 382: 1268-1277. DOI:10.1016/S0140-6736(13)60897-1

**Highlighted Researcher:** Dr. Sophie Jamal, Associate Professor, University of Toronto, Faculty of Medicine, Department of Medicine, Division of Endocrinology and Metabolism



**Main Findings:** In this systematic review of the published literature, we found that the use

of a new class of non-calcium-containing medications to bind phosphate (“phosphate binders”) in patients with chronic kidney disease was associated with a 22% reduction in death, compared to those using calcium-containing phosphate binders (which is what is used by the vast majority of patients).

**Impact:** The ubiquitous practice of using calcium-containing phosphate binders (like calcium carbonate) may be contributing to the high rate of heart disease and death in patients with chronic kidney disease. We are the first group to convincingly demonstrate this.

In the accompanying editorial, Ortiz and colleagues described our findings as game changing. (Ortiz A, Sanchez-Niño MD. The demise of calcium-based phosphate binders. Published online July 19, 2013 [http://dx.doi.org/10.1016/S0140-6736\(13\)61165-4](http://dx.doi.org/10.1016/S0140-6736(13)61165-4))

**EPICORE’s Role:** We led the project, coordinated investigators from several institutions and performed the biostatistical analyses.





## Effect of calcium-based versus non-calcium-based phosphate binders on mortality in patients with chronic kidney disease: an updated systematic review and meta-analysis

Sophie A Jamal, Ben Vandermeer, Paolo Raggi, David C Mendelsohn, Trish Chatterley, Marlene Dorgan, Charmaine E Lok, David Fitchett, Ross T Tsuyuki

Lancet 2013; 382: 1268-77

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See Comment page 1232

Division of Endocrinology and Metabolism, Women's College Hospital (S A Jamal MD), Women's College Research Institute (S A Jamal), Division of Nephrology (C E Lok MD), and Division of Cardiology, St Michael's Hospital (D Fitchett MD), University of Toronto, Toronto, ON, Canada (Prof D C Mendelsohn MD); Alberta Research Centre for Health Evidence, Department of Pediatrics (B Vandermeer MSc), Mazankowski Alberta Heart Institute (Prof P Raggi MD), John W Scott Health Sciences Library, Walter C Mackenzie Health Sciences Centre (T Chatterley MLIS, M Dorgan MLIS), and Division of Cardiology (Prof R T Tsuyuki PharmD).

### Summary

**Background** Phosphate binders (calcium-based and calcium-free) are recommended to lower serum phosphate and prevent hyperphosphataemia in patients with chronic kidney disease, but their effects on mortality and cardiovascular outcomes are unknown. We aimed to update our meta-analysis on the effect of calcium-based versus non-calcium-based phosphate binders on mortality in patients with chronic kidney disease.

**Methods** We did a systematic review of articles published in any language after Aug 1, 2008, up until Oct 22, 2012, by searching Medline, Embase, International Pharmaceutical Abstracts, Cochrane Central Register of Controlled Trials, and Cumulative Index to Nursing and Allied Health Literature. We included all randomised and non-randomised trials that compared outcomes between patients with chronic kidney disease taking calcium-based phosphate binders with those taking non-calcium-based binders. Eligible studies, determined by consensus with predefined criteria, were reviewed, and data were extracted onto a standard form. We combined data from randomised trials to assess the primary outcome of all-cause mortality using the DerSimonian and Laird random effects model.

**Findings** Our search identified 847 reports, of which eight new studies (five randomised trials) met our inclusion criteria and were added to the ten (nine randomised trials) included in our previous meta-analysis. Analysis of the 11 randomised trials (4622 patients) that reported an outcome of mortality showed that patients assigned to non-calcium-based binders had a 22% reduction in all-cause mortality compared with those assigned to calcium-based phosphate binders (risk ratio 0.78, 95% CI 0.61-0.98).

**Interpretation** Non-calcium-based phosphate binders are associated with a decreased risk of all-cause mortality compared with calcium-based phosphate binders in patients with chronic kidney disease. Further studies are needed to identify causes of mortality and to assess whether mortality differs by type of non-calcium-based phosphate binder.

**Funding** None.

## OUR BEST GAMES

### THE THIRD GOAL:

**Title:** Al Hamarneh YN, Charrois T, Lewanczuk R, Tsuyuki RT. Pharmacist intervention for glycaemic control in the community (the RxING study). *BMJ Open* 2013; 3: e003154. DOI: 10.1136/bmjopen-2013-003154.

**Highlighted Researcher:** Dr. Yazid Al Hamarneh, postdoctoral research fellow, Department of Medicine and EPICORE, University of Alberta.

**Main Findings:** In patients with diabetes and poor blood sugar control, pharmacist assessment, education, prescribing and follow-up resulted in a change of HbA1c from 9.1% to 7.3% (a change of 1.8%) over 6 months.

**Impact:** This is the first trial of pharmacist independent prescribing. A change of 1.8% in HbA1c is clinically important and similar to, or greater than what has been previously reported in the literature.

**EPICORE's Role:** We led the project, wrote the protocol, obtained the funding, designed the case report forms, created the database, coordinated sites, performed the data entry and the biostatistical analyses.



# BMJ Open Pharmacist intervention for glycaemic control in the community (the RxING study)

Yazid N Al Hamarneh,<sup>1</sup> Theresa Charrois,<sup>2</sup> Richard Lewanczuk,<sup>3</sup> Ross T Tsuyuki<sup>1</sup>

**To cite:** Al Hamarneh YN, Charrois T, Lewanczuk R, et al. Pharmacist intervention for glycaemic control in the community (the RxING study). *BMJ Open* 2013;3:e003154. doi:10.1136/bmjopen-2013-003154

► Prepublication history for this paper is available online. To view these files please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2013-003154>).

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#### Correspondence to

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#### ABSTRACT

**Objective:** To determine the effect of a community pharmacist prescribing intervention on glycaemic control in patients with poorly controlled type 2 diabetes.

**Design:** Pragmatic, before–after design.

**Setting:** 12 community pharmacies in Alberta, Canada.

**Participants:** Type 2 diabetes receiving oral hypoglycaemic medications and with glycated haemoglobin (HbA1c) of 7.5–11%.

**Intervention:** Pharmacists systematically identified potential candidates by inviting patients with type 2 diabetes to test their HbA1c using validated point-of-care technology. Pharmacists prescribed 10 units of insulin glargine at bedtime, adjusted by increments of 1 unit daily to achieve a morning fasting glucose of  $\leq 5.5$  mmol/L. The patients were followed up at 2, 4, 8, 14, 20 and 26 weeks.

**Primary outcome:** Change in HbA1c from baseline to week 26.

**Secondary outcomes:** Proportion of patients achieving target HbA1c, changes in oral hypoglycaemic agents, quality of life and patient satisfaction, persistence on insulin glargine, number of insulin dosage adjustments per patient and number of hypoglycaemic episodes.

**Results:** We screened 365 patients of whom 111 were eligible. Of those, 100 (90%) were enrolled in the study; all 11 patients who did not consent refused to use insulin. Average age was 64 years (SD 10.4), while average diabetes duration was 10.2 years (SD 7). HbA1c was reduced from 9.1% (SD 1) at baseline to 7.3% (SD 0.9); a change of 1.8% (95% CI 1.4 to 2,  $p < 0.001$ ). Fasting plasma glucose was reduced from 11 (SD 3.3) to 6.9 mmol/L (SD 1.8); a change of 4.1 mmol/L (95% CI of 3.3 to 5,  $p = 0.007$ ). Fifty-one per cent of the patients achieved the target HbA1c of  $\leq 7\%$  at the end of the study.

**Conclusions:** This is the first completed study of independent prescribing by pharmacists. Our results showed similar improvements in glycaemic control as previous physician-led studies. RxING provides further evidence for the benefit of pharmacist care in diabetes.

**Trial registration:** [clinicaltrials.gov](http://clinicaltrials.gov); Identifier: NCT01335763.

#### INTRODUCTION

Currently, 347 million individuals are living with diabetes worldwide.<sup>1</sup> Approximately 90%

#### ARTICLE SUMMARY

##### Strengths and limitations of the study

- This is the first study of independent prescribing by pharmacists in patients with diabetes and it demonstrates a clinically important improvement in glycaemic control.
- The 26-week follow-up period can be considered relatively short; it is possible that with a longer study more patients may have achieved the target glycated haemoglobin (or fewer if patients discontinued their insulin).
- We did observe several 'hypoglycaemic-type symptoms', however we were not able to confirm these as true hypoglycaemia. We also have no frame of reference as patients may have experienced some of these symptoms prior to enrolling in our study. Finally, the number of reported 'hypoglycaemic-type symptoms' in this study was consistent with the findings reported in the literature.

of them have type 2 diabetes.<sup>1</sup> The number of new cases of type 2 diabetes is rapidly increasing mainly because of obesity and an ageing population.<sup>2</sup>

Because of its chronic nature and the severe complications associated with it, diabetes carries a health and a financial burden on the affected individual and health systems.<sup>3</sup> Poorly controlled diabetes puts patients at high risk of suffering from macrovascular and microvascular complications.<sup>4</sup>

Type 2 diabetes is a progressive disease; it has been reported that 50% of the insulin-producing capacity is lost at the time of diagnosis with an average loss rate of 5% per year afterwards.<sup>5</sup> As a result, many patients with type 2 diabetes will eventually require the use of insulin; however, clinicians seem reluctant to start insulin<sup>6</sup> despite evidence from studies such as INSIGHT, which demonstrated improved glycaemic control with the addition of insulin glargine to oral hypoglycaemic agents in patients with type 2 diabetes<sup>7</sup> as well as guidelines that recommend

# OUR TEAM

## Our Team: Some of our MVPS

### TRAINEE MVP - **SHERILYN HOULE**

**Birthplace:** Kamsack, Saskatchewan

**Playing History:**

- BSP, University of Saskatchewan
- Staff pharmacist, Red Deer Hospital
- Home care pharmacist, Capital Health (Edmonton)

**Position:** PhD student

**Length of Time with the Team:** 4 years

**Contributions:**

Sherilyn has received 13 awards and honours since starting with us in 2009. Of special note, she has received a CIHR Frederick Banting and Charles Best Canada Graduate Scholarship and a CIHR Doctoral award. She has received several national-level awards including “Best Research by a Graduate Student” at the 2011 Canadian Hypertension Congress, an “Outstanding Poster Presentation Award” at the CIHR Young Investigators Forum (Institute of Circulatory and Respiratory Health) in June 2012 and a Magnum Opus Award for pharmacy practice. Since starting the program, she has had 12 peer reviewed publications as well as 19 abstracts accepted. During her training, Sherilyn also received her Post baccalaureate teaching certificate and took several short courses in health economics. Sherilyn successfully defended her PhD in December.



# OUR TEAM

## STAFF MVP - LILY YUSHKO

**Birthplace:** Kiev, Ukraine.

**Playing History:**

- MEd, National Pedagogical University, Kiev, Ukraine
- Computer Systems Technology Diploma, NAIT, Edmonton, Alberta

**Position:** Team Lead, Clinical Research Informatics

**Length of Time with the Team:** 12+years

**Contributions:** Originally hired to provide IT support and perform data entry, Lily has proven to be an invaluable team member. Her current responsibilities include case report form and database design using our new REDCap platform. She contributes to teaching in our graduate-level MED 600 course (Introduction to Clinical Trials).



# OUR TEAM

## FACULTY MVP - MICHAEL KOLBER

**Birthplace:** Edmonton, AB

**Playing History:**

- MD, University of Alberta
- Residency in Family Medicine
- Special certificate in gastroenterology
- Family physician, Peace River, AB.
- MSc, School of Public Health, University of Alberta

**Position:** Assistant Professor, Department of Family Medicine, University of Alberta

**Length of Time with the Team:** 3 years

**Contributions:** Dr. Kolber is an academic family physician and a faculty member with EPICORE. Dr Kolber was an important contributor to the primarily rurally-based and recently completed RxACTION study. He is the director of the rural training program for Family Medicine and still provides patient care to the population of Peace River, travelling there every 4-5 weeks.



## OUR TEAM

### ALUMNI MVP - SCOT SIMPSON:

#### Alumni MVP Scot Simpson:

**Birthplace:** Regina, Saskatchewan

#### Playing History:

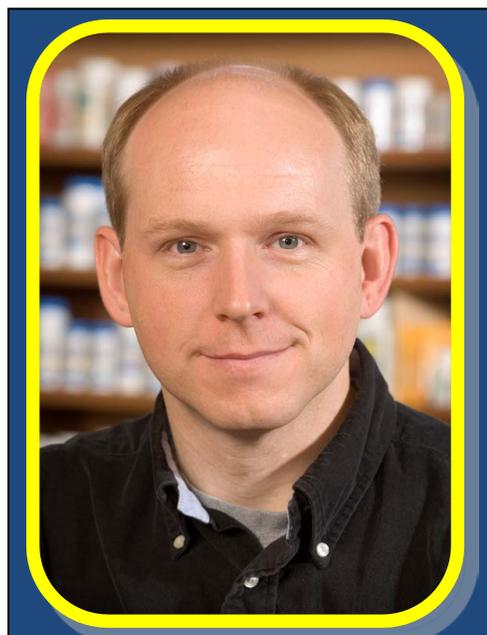
- BSP, University of Saskatchewan
- PharmD, University of Toronto
- Postdoctoral research fellowship, EPICORE (Supervisor Dr. Ross Tsuyuki)
- MSc Medicine (Supervisor Dr. Ross Tsuyuki)
- Research Associate, ACHORD, University of Alberta/Institute of Health Economics

**Position:** Associate Professor and Associate Dean, Faculty of Pharmacy and Pharmaceutical Sciences, University of Alberta

**Length of Time with the Team:** 14 years

#### Contributions:

Dr. Simpson completed a 2 year postdoctoral research fellowship and an MSc in Medicine at EPICORE from 1998-2001. He was the project officer for the seminal SCRIP study (Arch Intern Med 2002). Since joining the Faculty of Pharmacy and Pharmaceutical Sciences in 2004, he received a prestigious CIHR New Investigator award, held over \$800,000 in operating grant funding as a PI and published over 65 peer reviewed papers. His current research interests are in two main areas. First, using pharmacoepidemiologic methods, he is examining the safety and effectiveness of medications used for type 2 diabetes (specifically, sulfonylureas and aspirin). Second, as a health services researcher, he is examining the role of pharmacists in diabetes management. He has supervised 3 MSc and 2 PhD students, served on supervisory or examining committees for 17 graduate students, and supervised 17 undergraduate students.



# OUR TEAM

## Our Team: The Players



Name: Debbie Boyko, RN  
Position: Research Coordinator



Name: Quazi Ibrahim, BSc(Hon), MSc (stat), MSc(stat), MScEpi(cand)  
Position: Biostatistician



Michael Kolber, MD, MSc, CCFP  
Position: Assistant Professor, Family Medicine



Name: Nicole Olivier, RAHT, RLAT, RMLAT  
Position: Data Entry (temporary)



Name: Glennora Dowling  
Position: Administrative Support, Data entry



Name: Lily Yushko, MEd  
Position: Team Lead, Clinical Research informatics



Name: Tammy Bungard, BSP, PharmD  
Position: Associate Professor of Medicine (Cardiology)



Name: Miflam Fradette, BSc(Pham)  
Position: Research Coordinator

# OUR TEAM

## Our Team: Future Superstars

### Our Trainees:



**Yazid NI Al Hamameh**, BPharm, PhD,  
Postdoctoral Research Fellow  
(Supervisor: Dr. Ross Tsuyuki)



**Marcie Smignorovsky**, RN, NP, PhD (Medicine)  
student (Supervisors: Dr. Ross Tsuyuki and Dr.  
Colleen Norris)



**Sherilyn KD Houle**, BSP, PhD student  
(Supervisor: Dr. Ross Tsuyuki)



**Meagan Rosenthal**, MA (sociology),  
PhD student (Supervisor: Dr. Ross  
Tsuyuki)



**Sourabh Vashishtha**, MSc, PhD student  
(Supervisors: Dr. Gordon Broderick and Dr.  
Ross Tsuyuki)



**Meghan Sebastiani**, MPH, PhD student  
(supervisors: Dr. Ross Tsuyuki and Dr. Sean  
McMurtry)



**Monica Zolezzi**, BSc(Pharm),  
MPharm, PhD student, University of  
Auckland (supervisors: Dr. John Shaw  
and Dr. Ross Tsuyuki)

**Meagan Dunn**, BScN, MSc (Medicine) student (Supervisors: Dr. Ross Tsuyuki and Dr. Michael Chan)

**Rachael Moohan**, BPharm, PhD student, Queen's University, Belfast, UK (Supervisors: Dr. James McElroy and Dr. Ross Tsuyuki)

Congratulations to Monica and Sherilyn, who successfully defended their PhD in 2013. Monica is a clinical practice leader with the Pharmacy Department at Alberta Health Services, and Sherilyn recently accepted a tenure-track assistant professor position at the School of Pharmacy, University of Waterloo.

## OUR TEAM

### Training Camp:

**MED 600: Introduction to Clinical Trials** (Co-coordinators Dr. Ross Tsuyuki, Ms. Lesley Mitchell): This graduate-level course has been run by EPICORE since 2001. MED 600 covers aspects of clinical trial design, including justifying the research question, patient population, randomization, dealing with confounding and bias, case report form design, sample size, analytical plan, research ethics and consent, grantsmanship, and budgeting in a practical small group setting. It remains a popular course, frequently over subscribed and highly rated.

*“Overall, great course. One of the best courses I’ve ever taken.” Excerpt from MED 600 student evaluation.*



## In the Dressing Room: Significant Events



### A Rebuilding Year

In the spring of 2013, senior EPICORE personnel, together with a special purpose team from the Department of Medicine, undertook a full review and restructure of EPICORE operations. This included a full financial review, a review of business procedures and standard operating procedures and staff restructuring.

As a result, EPICORE has emerged as a more streamlined and efficient operation. Major changes include: new policies and procedures for invoicing, evaluation and updating of the billing rates for our services, new procedures for estimating (quoting), a new electronic data capture system (REDCap, see below) and a new project management system (FunctionPoint, see below).

We were presented with another challenge in July, 2013, we were given only a few weeks' notice to move from College Plaza (our home for over 10 years) to the 3<sup>rd</sup> Floor of the Brain and Aging Research Building (BARB). Unfortunately, the space in BARB was not initially suitable for our needs, requiring a number of changes and a resulting loss of about 8 weeks of staff productivity. Compounding the effect of this unplanned move, we have had major problems with the ventilation system in BARB, resulting in frequent toxic odours, virtually every day of the week. This has caused symptoms of dysgeusia, mucus membrane irritation, sneezing and nausea. During the colder months towards the end of the year, we had to send staff home almost every day for about 7 weeks in a row. University facilities staff have been responsive, however unable as yet to determine the problem with the air system. Finally, we also had 3 extended sick leaves of staff members.

# IN THE DRESSING ROOM

## FunctionPoint®:

FunctionPoint is a cloud-based project management system which was originally designed for the creative industries (like graphics design firms). With invaluable help from Tim Bulger and the Department of Medicine administration, we implemented the system in August 2013 and all 70 ongoing projects are now managed with this system. FunctionPoint helps us generate and track estimates, timesheets, manage workflow, assign tasks, review billable hours, schedule work, and produce invoicing requests. Importantly, it also helps us to manage out of scope requests for work and alerts us if a project is about to go over budget.

*FunctionPoint dashboard showing active jobs and timesheet window for quick entry of hours towards a job:*

The screenshot displays the FunctionPoint dashboard for the University of Alberta Faculty of Medicine & Dentistry, Department of Medicine. The interface is organized into several key sections:

- Timesheets:** Features a 'Time Clock' set to 00:00:00, a 'Work Date' of Mon Mar 10 2014, and a 'Duration' field. It includes a 'Job' dropdown menu and a 'Description' text area. A 'Daily Total' section shows '1 OF 0' records.
- Jobs:** A list of active jobs with columns for Job ID, Co, S#, Name, and My. The list includes jobs such as 1145 (DCF, FrankBone, 2013 Outscrubrite), 1019 (DSH, ABI, ABI: 441), 1044 (KS, ABLE, ABLE - eSVID), 1045 (KS, ABLE, ABLE - Caplain and Hearing Loss), 1049 (KB, ABLE, ABLE - Caplain and Kidney Disease), 1017 (KS, ABLE, ABLE - K. Schultz), 1050 (KS, ABLE, ABLE - Thrombosis), 1053 (DTH, 302, AMG database), 1041 (AbuJS, ASPROSE, ASPROSE NL), 1040 (AbuJS, ASPROSE, ASPROSE Survey), 1043 (AbuJS, ASPROSE, ASPROSE UAH), 1042 (AbuJS, ASPROSE, ASPROSE UK), 1046 (AbuJS, ASPROSE, ASPROSE USA), 1020 (cmr, S43, ASRLD SafetyNet), 1018 (ECC, BrainCool, Brain Cooling), 1055 (Mg2, CStop, C-Stop), 1054 (RTRes, S91, Change in Sys BP), and 1112 (DSVD, COMPACT).
- Pinned Notes:** A section for managing notes, currently showing 'No Records'.
- Tasks / To Dos:** A table listing tasks with columns for ID, Task Title, Job#, Company / Job, By, To, Due, Qty, Act, and Status. The table shows two tasks: '295 Contract Negotiations' (Job# 1007, Admin RT, Qty 1.92, Act 0.00, Status Assigned) and '294 Initial Protocol review' (Job# 1007, Admin RT, Qty 1.64, Act 0.00, Status Assigned).

The dashboard also includes a navigation menu at the top (COMPANIES, CONTACTS, NOTES, SCHEDULES, TASKS, STUDIES, QUOTES, JOBS, EXPENSES, TIMESHEETS, INVOICES, REPORTS) and a search bar at the bottom right.

# IN THE DRESSING ROOM

## REDCap (Research Electronic Data Capture System)

As part of the restructuring process, EPICORE made a commitment to using an electronic data capture system for all the studies it undertakes, irrespective of whether a paper case report form is used. The REDCap Consortium is composed of 951 active institutional partners, from the National Center for Advancing Translational Sciences Clinical Translational Sciences Award, The University of Maryland General Clinical Research Center, and other institutions in 76 countries. The consortium supports a secure web application (REDCap) designed exclusively to support data capture for research studies. The REDCap application allows users to build and manage online surveys and databases quickly and securely, and is currently in production use or development build-status for more than 99,000 projects with over 129,000 users spanning numerous research focus areas across the consortium. The REDCap Shared Library is a repository for REDCap data collection instruments and forms that can be downloaded and used by researchers at REDCap partner institutions. Curated instruments have been approved for inclusion by the REDCap Library Oversight Committee after review for research relevance, accuracy in coding and function, and copyright issues.

The use of REDCap by EPICORE has already provided positive results in terms of streamlining the process of case report form and database creation. Further, the real-time query capabilities of the system, which will analyze the data at the time of data entry by the site or by EPICORE staff, will reduce the amount of EPICORE time spent on ensuring the data are complete accurate, as it will be analyzed by REDCap immediately upon entry. The use of the standard structure provided by the REDCap system will also allow for more rapid analyses of the data at the end of the study.

The screenshot displays the REDCap interface for a 'Thrombotic Event' form. The form is titled 'ABLE Thrombosis' and is for 'Record ID O-201'. The 'Record #' field is set to '1'. The 'Date of Thrombosis' is '28-09-2010'. The 'VTE was:' dropdown is set to 'Symptomatic'. The 'Time of Occurrence' dropdown is set to 'During Chemotherapeutic Treatment'. The 'Method of Diagnosis (check all that apply)' section includes checkboxes for 'Venography', 'Ultrasound', 'Echo', 'MRI', 'CT Scan', 'X-ray', 'ECMO', 'Ventilation/Perfusion Scan', 'MR Venography', 'MR Angiography', and 'Other'. A 'Save Record' button is visible in the top right corner.

## Around the League: Partnerships

EPICORE has entered into some strategic partnerships with like-minded research groups.

**1. Women's and Children's Health Research Institute (WCHRI):** WCHRI and EPICORE share the REDCap platform housed at the Faculty of Medicine and Dentistry. Along with this, we both provide consultative services to researchers. WCHRI and EPICORE are founding members of the Alberta Clinical Trials Information Network (ACTIoN). ACTIoN is a small group of individuals representing organizational interests in health research management strategies and includes the University of Alberta, University of Calgary, Alberta Health Services (Research), Alberta Health Services (Cancer Care) and Alberta Innovates – Health Solutions. The collaboration is focusing initially on clinical trial support systems, including Clinical Trial Administration, Clinical Trial Management, and Clinical Data Management.

Benefits: Shared personnel and expertise in data capture including REDCap, reducing duplication. An acknowledged leadership role for EPICORE.

**2. Northern Alberta Clinical Trials and Research Centre (NACTRC):** EPICORE has been a partner with NACTRC for many years. We provide consultative services to investigators wishing to design and conduct research projects. Under the leadership of Dr. Richard Fedorak, NACTRC generously funds the first hour of our consultations for investigator-initiated research.

Benefits: provides some funding to support our common mission of enhancing investigator-initiated research. NACTRC is also a collaborator on research projects and referral source for contract work for EPICORE.



## Draft Picks: Future Prospects

Our business development pipeline contains projects totalling \$3.03 million (adjusted for probability). A few new and ongoing projects of note :

**ABLE** (Dr. Kirk Schultz): This CIHR-funded 5 year project aims to validate the use of biomarkers to predict complications of cancer chemotherapy in children (thrombosis, chronic graft vs. host disease, nephrotoxicity and ototoxicity). EPICORE is the core data management facility for all 4 projects, involving over 20 pediatric oncology centres in the US and Canada. Total EPICORE funding \$542,122 over 5 years.

**R<sub>x</sub>EACH** (Dr. Ross Tsuyuki, Dr. Brenda Hemmelgarn, Dr. Charlotte Jones): This project is a unique partnership of Alberta Health, Alberta Health Services (Cardiovascular and Stroke Strategic Care Network) and Merck. Total funding: \$1.35 million over 2 years.

**CHIN-UPS** (Dr. Steven Grover, Dr. Ross Tsuyuki, Dr. Debra Da Costa): This project, funded by CIHR, is a Canada-wide randomized trial of cardiovascular risk estimation (Cardiovascular Age), lifestyle intervention and e-health education in patients who have demonstrated poor adherence to hypertension and/or dyslipidemia medications. This study will be conducted in community pharmacies. Total funding : \$473,757 over 3 years.



## OUR STATS

### Our Stats: Financial Highlights

As noted earlier, 2013 was a transitional year for EPICORE. Revenue for the calendar year 2013 was \$1,015,064, compared with \$921,677 for 2012, an increase of 10%. This includes revenue accrued for two of the partnerships noted earlier – ABLE and Rx EACH.

Net income for the period was \$176,412, compared with a loss of \$572,072 for 2012. Included in expenses for calendar 2013 are one-time \$198,100 in staff termination costs related to the restructure of the operations.

The summary income statement for calendar years 2012 and 2013 are noted in Appendix E.



# APPENDIX A

## Appendix A: Cumulative List of All EPICORE Projects

	<b>Name</b>	<b>PI</b>	<b>Status</b>
1	HESA Study - Abbott Labs	ABBOTT	Complete
2	ABBOTT - RAPROSENL	ABBOTT	Complete
3	Comparison of Scan Methods	Abdul, A	Complete
4	Pharmacy/Cardiologist Focus Groups	Ackman, M	Complete
5	T.V. Comparison	Allen, M	Complete
6	WEST	Armstrong, P	Complete
7	CAPTORS	Armstrong, P	Complete
8	Liver Transplantation	Bagshaw, S	Complete
9	HepC	Bailey	Complete
10	PhotoGraph	Beard, K	Complete
11	REGAIN	Beaupre, L	Complete
12	VAT Surgery	Bedard, E	Complete
13	Metformin and Exercise	Boule, N	Complete
14	CAMERA	Braam, B	Complete
15	Paralysis in Gastroschisis	Bratu, I	Complete
16	Gulf War Vets and CFS Databases	Broderick, G	Complete
17	Propensity Analysis	Brown, N	Complete
18	AMS Satellite Clinics	Bungard, T	Complete
19	AMS Benchmarking for Clot	Bungard, T	Complete
20	AMS Anticoagulant Control	Bungard, T	Complete
21	AMS Eval. of Main.Dosing vs Loading	Bungard, T	Complete
22	AMS Point of Care	Bungard, T	Complete
23	AMS - Patient Opinion Survey	Bungard, T	Complete
24	AMS HAS-BLED	Bungard, T	Complete
25	Warfarin Knowledge Survey	Bungard, T	Complete
26	Patient Self-Mangement of Warfarin	Bungard, T	Complete
27	AMS Physician Survey	Bungard, T	Complete
28	EASE Analysis	Bungard, T	Complete
29	AMS On the way to practice change	Bungard, T	Complete
30	Assessment of Atrial Fibrillation management	Bungard, T	Complete
31	Blood Pressure Assessment in the Anticoagulated Patient	Bungard, T	Complete
32	ICH ADAPT II	Butcher, K	Complete

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33	ROC Curve	Butler, C	Complete
34	Diagnosis of Accuracy of Cardiac MRI	Butler, C	Complete
35	Melanoma Study	Cadili, A	Complete
36	SLNB	Cadili, A	Complete
37	Nasogastric	Cadili, A	Complete
38	Spleen Study	Cadili, A	Complete
39	Pancreatic cyst	Cadili, A	Complete
40	Endo Aneurysm Repair - Surgery	Cadili, A	Complete
41	Angioembolization/Spleen	Cadili, A	Complete
42	Supraclavicular Brachial Plexus	Cameron, J	Complete
43	Paravertebral Blocks/Breast Cancer	Cameron, J	Complete
44	GP Practice	Campbell-Scherer, D	Complete
45	CHIRP Clinical Database	Casey, L	Complete
46	Scalpel and Cautery	Chao, J	Complete
47	MSS - Dr. Chari	Chari, R	Complete
48	Evidence trend	Chowdhury, R	Complete
49	Echo Stats	Choy, J	Complete
50	ENDOCARDITIS	Choy, J	Complete
51	Contrast Stress Echo	Choy, J	Complete
52	Echo Contract Study	Choy, J	Complete
53	Surg. Meno	Chubaty, A	Complete
54	Head and Neck Database	COMPRU	Complete
55	Suppression of Myocardial F-FDG uptake	Coulden, R	Complete
56	VRR Worksite	CV-SCN/Padwal, R	Complete
57	Heart Function ClinicProject	Dewart, K	Complete
58	Ulcerative Colitis and Prebiotics	Dieleman, L	Complete
59	Regional Anesthesia Database	Dillane, D	Complete
60	Families First Edmonton	Drummond, J	Complete
61	Control of PPH	Dryden, A	Complete
62	Alberta Heart	Dyck, J	Complete
63	Mositurizers Study	Dytoc, M	Complete
64	Total Glossectomy	Dziegielewski, P	Complete
65	Degner Project	Estabrooks, C	Complete
66	PHANTOM	Eurich, D	Complete
67	Infliximab Adherence	Evaschesen, C	Complete
68	WalkAid	Everaert, D	Complete
69	HFC Abstract	Ezekowitz, J	Complete

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70	ARCTIC-D	Ezekowitz, J	Complete
71	AHF-em	Ezekowitz, J	Complete
72	CAM-CV	Ezekowitz, J	Complete
73	Heart Failure Clinic Data merging	Ezekowitz, J	Complete
74	HFC Core Data Collection	Ezekowitz, J	Complete
75	Vertebral Fractures in Heart Failure	Ezekowitz, J	Complete
76	Canadian Heart Failure Registry	Ezekowitz, J	Complete
77	HFC - Device Implant	Ezekowitz, J	Complete
78	Resveratrol Study	Ezekowitz, J	Complete
79	VITA-H.F.	Ezekowitz, J	Complete
80	Dose Escalation	Fedorak, R	Complete
81	VSL #3	Fedorak, R	Complete
82	TNF Alpha	Fedoruk/Alistair	Complete
83	Pedicle Screw Insertion	Fox, R	Complete
84	Creating Bone and Joint Health	Frank, C	Complete
85	CHAMP	Galvin, D/Jones, C	Complete
86	Propofol increases vascular relaxation - Dept of Anesthesiology	Gragasin, F	Complete
87	APPROACH Audit and Feedback Project	Graham, M	Complete
88	esSTROKE	Green, T	Complete
89	Marijuana and Epilepsy	Gross, D	Complete
90	PRP Breast Study	Guenther, C/Anzarut, A	Complete
91	How many are too many	Guerra, G	Complete
92	Big Five Inventory - hosp. pharm.	Hall, J	Complete
93	Breast Cancer vs Heart Failure	Haykowsky, M	Complete
94	KITE	Haykowsky, M	Complete
95	Aliskiren	Hossini, F	Complete
96	B.P. Reduction Sample Size	Houle, S	Complete
97	Catheter	Hunt, I	Complete
98	IHE Survey (Ollie)	IHE	Complete
99	IHE Survey (Arto)	IHE	Complete
100	CAREERS	IHE	Complete
101	VASTVALUS	Jacka, M	Complete
102	SPSS Syntax Development	Janzen, W	Complete
103	STRIP Type2	Johnson, J	Complete
104	IPAD Survey	Johnston, B	Complete
105	Co Morbidities	Jones, A	Complete

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106	PREP Study	Jones, A	Complete
107	Acute Kidney Injury	Kanji, H	Complete
108	Colonoscopy	Kao, D	Complete
109	Vaccination of RA patients	Keeling, S	Complete
110	SATTURN Study	Kimber, S	Complete
111	IDEAL	Kimber, S	Complete
112	STICK	King, K	Complete
113	VTE and Thrombocytopenia	Koplovic, I	Complete
114	TIC TAC	Koshman, S	Complete
115	Statin Utilization 2	Koshman, S	Complete
116	Childhood IBD	Kroeker, K	Complete
117	Beck Study	Kroeker, K	Complete
118	PIVOT Trial	Kumar, D	Complete
119	Banding Study	Lazaurescu, A	Complete
120	Anorectal Manometry	Lazaurescu, A	Complete
121	Iron IV vs. Oral	Lee, T/Fedorak, R	Complete
122	Infliximab Infusion	Lee, T/Fedorak, R	Complete
123	TB Transmission - Medicine	Long, R	Complete
124	BNA Questionnaire	Long, R	Complete
125	T.B. Study	Long, R	Complete
126	Dr. Gavin Low	Low, G	Complete
127	Genetic Mutation	Lu, C	Complete
128	Sample size calculation Oct. 01/08	Ma, M	Complete
129	WREST	Majumdar, S	Complete
130	Wrist Fracture	Majumdar, S	Complete
131	WRIST Fracture SubStudy	Majumdar, S	Complete
132	STOP #	Majumdar, S	Complete
133	AVOID	Majumdar, S	Complete
134	Opinion Leader Study	Majumdar, S	Complete
135	Impact of Pharmacists	Makowsky, M	Complete
136	E-Triage	Maksymowych, W	Complete
137	OARSI-OMERACT	Maksymowych, W	Complete
138	Seniors' Clinic Chart Review	Marin, A/Sadowski, C	Complete
139	PHIND-OA	Marra, C	Complete
140	Allergy Labeling	Marra, C	Complete
141	PHIT OA	Marra, C	Complete
142	DMARD	Marra, C	Complete

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143	Pharmacy AdaptaionServices in B.C.	Marra, C	Complete
144	CAP-Telehealth	Marrie, T	Complete
145	CAP Study ( Main)	Marrie, T	Complete
146	CAP - COPD	Marrie, T	Complete
147	CAP - Low Risk admissions	Marrie, T	Complete
148	CAP - Wetaskiwin	Marrie, T	Complete
149	UACAPS	Marrie, T	Complete
150	CAP - Antibiotic Failure	Marrie, T	Complete
151	CAP - Pregnancy	Marrie, T	Complete
152	CAP - Bacteremia	Marrie, T	Complete
153	CAP - Etiology & Cytokine Profile	Marrie, T	Complete
154	CAP - Etiology & TB NMR	Marrie, T	Complete
155	CAP - QFever	Marrie, T	Complete
156	CAP - Etiology - Extended Diagnostic Testing	Marrie, T	Complete
157	CAP - Etiology - Urine Normals Substudy	Marrie, T	Complete
158	CAP - Etiology - Non-pneumonia Patients	Marrie, T	Complete
159	CAP - Urine Normals	Marrie, T	Complete
160	Med Student Clinical Skills	Marrie, T	Complete
161	CAP – Serial Metabolomics	Marrie, T	Complete
162	CAP - Etiology of Staph Aureus	Marrie, T	Complete
163	CAP - ICU	Marrie, T	Complete
164	CAPS - Patterns of Antibiotic Use	Marrie, T	Complete
165	Early Inflammatroty Arthritis	Martin, L	Complete
166	Lupus HealthNet	Martin, L	Complete
167	COPD Education Initiative	Mayers, I	Complete
168	MedImmune	Mayers, I	Complete
169	ASTHMA - Bridging the Gap	Mayers, I	Complete
170	ASTHMA School Questionnaire	Mayers, I	Complete
171	ASTHMA Phase 1	Mayers, I	Complete
172	ASTHMA - Physician Survey	Mayers, I	Complete
173	ASTHMA - Phase 2	Mayers, I	Complete
174	ASTHMA - Phase 3	Mayers, I	Complete
175	ASTHMA - All Phases	Mayers, I/Man, P	Complete
176	DAAFI -2	McAlister, F	Complete
177	Heart Failure Database	McAlister, F	Complete
178	ESP-CAD	McAlister, F	Complete
179	PREVENTION	McAlister, F	Complete

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180	DCA in PHT Grant	Michelakis, E	Complete
181	Thrombosis	Mitchell, L	Complete
182	Acute Kidney Injury in Children	Morgan, C	Complete
183	RFFF vs ALTF	Morrissey	Complete
184	Nose Bleed Study	Morrissey, A	Complete
185	GN Registry	Murray, A	Complete
186	Myocarditis	Nee/Paterson	Complete
187	Treatment for depression /CAD	Norris, C	Complete
188	Relationship btween OT and Trust	Norris, C	Complete
189	Oropharyngeal Cancer Survival	O'Connell	Complete
190	OPSCC	O'Connell, D	Complete
191	HELP	Oudit, G	Complete
192	HELP	Oudit, G	Complete
193	Novel Study	Oudit, G	Complete
194	Fingerprinting in patients with CAD	Oudit, G	Complete
195	Bairhugger Study	PACU-RAH	Complete
196	WELCOME	Padwal, R	Complete
197	APPLES Study	Padwal, R	Complete
198	Sample size estimation Equivalence design	Padwal, R	Complete
199	EP Ablation	Pantano, A	Complete
200	LV Function Recovery in Myocarditis	Pate	Complete
201	Breast Cancer	Patel	Complete
202	Proximal RCA	Paterson, I	Complete
203	NHD Interviews	Pauly, R	Complete
204	Niacin Pilot Study	Pearson, G	Complete
205	SBE Prophylaxis	Pharis	Complete
206	Neuropsychological Testing Study	Power, C	Complete
207	HIV-Antiepileptic Drug Study	Power, C	Complete
208	TB Rsch	Rennert-May, E	Complete
209	Endocarditis in Pediatric Patients	Robinson, J	Complete
210	IVCRB in Children - Pediatric	Robinson, J	Complete
211	SUPPORT CDM II	Rosenthal, M	Complete
212	Initial Access Prescribing by Pharmacists in Albe	Rosenthal, M	Complete
213	BeIMR	Ross, D/Pretorius, V	Complete
214	ACE	Rowe, B	Complete
215	AIR	Rowe, B	Complete
216	The Lung Attack Alert Study	Rowe, B	Complete

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217	Emergency Depart. Projects	Rowe, B	Complete
218	Educate Asthma	Rowe, B	Complete
219	ED-Directed Interventions	Rowe, B	Complete
220	Whiplash Survey	Russell, A	Complete
221	WHIPLASH	Russell, A	Complete
222	Hypoglycemic Agent	Ryan, E	Complete
223	GDN Screening	Ryan, E	Complete
224	GDM	Ryan, E	Complete
225	GDM Registry	Ryan, E	Complete
226	SCOPE Pilot Project	Sadowski, D	Complete
227	EP Ablation Substudy - ICD	Sandhu, R	Complete
228	Graduating Students Survey	Schindel, T	Complete
229	DOXCABG	Schulze, C	Complete
230	Benefit from Anticoagulation	Shanks, M	Complete
231	Dell Obesity Trial	Sharma, A/Tsuyuki, R	Complete
232	ASTHMA Professional Practice Survey	Sharpe, H	Complete
233	ASTHMA WAP	Sheldon S.	Complete
234	Urine P/C Ratio Study	Sia, W	Complete
235	Preclampsia	Sia, W	Complete
236	GBS	Siddiqi, Z	Complete
237	MMF withdrawal Study	Siddiqi, Z	Complete
238	Vascular Intervention Program	Simpson, S/Johnson, J	Complete
239	CV ICU - Glycemic Control	Singh, G	Complete
240	Factor X	Sivakumaran, S	Complete
241	Compression AF	Sivakumaran, S	Complete
242	START Study	Slaughter, S	Complete
243	Sample Size	Smigorowsky, M	Complete
244	Risedronate + CA and Vit. D	Soo, I	Complete
245	Smoking	Spencer, T	Complete
246	Sample size J. Stewart	Stewart, J	Complete
247	Fort Chip Project	Svenson, L	Complete
248	Refractory ascites	Tandon, P	Complete
249	TOSCA	Teo, K	Complete
250	Need and Method Training	Thomson, A	Complete
251	Thermal Injury Study	Tredget, T	Complete
252	exSALT	Tredget, T	Complete
253	Edm ARA Acute Pain Service	Tsui, B	Complete

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254	Electrical Impedance	Tsui, B	Complete
255	Difficult Airway ( Anesthesiology)	Tsui, B	Complete
256	BREATHE	Tsuyuki, R	Complete
257	PaKSAC	Tsuyuki, R	Complete
258	SCRIP Plus Extension	Tsuyuki, R	Complete
259	SCRIP Plus	Tsuyuki, R	Complete
260	REACT - Ex	Tsuyuki, R	Complete
261	REACT	Tsuyuki, R	Complete
262	SCRIP - HTN	Tsuyuki, R	Complete
263	HEARTT	Tsuyuki, R	Complete
264	COLLABORATE Survey	Tsuyuki, R	Complete
265	Pharmacy Survey	Tsuyuki, R	Complete
266	MORE SCRIP	Tsuyuki, R	Complete
267	Pharmacy Culture	Tsuyuki, R	Complete
268	Parmalat	Tsuyuki, R	Complete
269	HF Medication Burden	Tsuyuki, R	Complete
270	ACHIEVA	Tsuyuki, R	Complete
271	EPI SOB	Tsuyuki, R	Complete
272	CONCORDANCE	Tsuyuki, R	Complete
273	epiPAD	Tsuyuki, R	Complete
274	Compensation for Pharmacists	Tsuyuki, R	Complete
275	EpiSOB - Saskatchewan	Tsuyuki, R	Complete
276	Determining Glycemic Control- Pilot	Tsuyuki, R	Complete
277	Hypertension Care in PCN	Tsuyuki, R	Complete
278	Misaligned Culture and Mindset	Tsuyuki, R	Complete
279	Characterizing Pharmacy's Professional Culture - D	Tsuyuki, R	Complete
280	Knowledge Translation Canada	Tsuyuki, R	Complete
281	Improving the Pharmaceutical Care of Canadians - D	Tsuyuki, R	Complete
282	Relationship between personality traits and pharma	Tsuyuki, R	Complete
283	Effect of mixed messages on pharmacy practice change	Tsuyuki, R	Complete
284	Statin Survey	Tsuyuki, R	Complete
285	COPE Study	Tsuyuki, R	Complete
286	Management of CHF in Long-Term Care	Tsuyuki, R	Complete
287	PSAP7	Tsuyuki, R	Complete
288	COLLABORATE	Tsuyuki, R/AHS	Complete
289	SDM Optimum Study	Tsuyuki, R/Tonelli, M	Complete

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290	Red Yeast	Tyrrell, B	Complete
291	SPAT 2005	Tyrrell, G	Complete
292	Vaccine paper - Temp	Tyrrell, L	Complete
293	EP ABLATION - Pilot study	Valtuille, L	Complete
294	Conduction Block in Atrial Fibrillation	Valtuille, L	Complete
295	ReadToMe	Van Zantem, S	Complete
296	Colonoscopy	Van Zantem, S	Complete
297	Support for Clinical Practice Change	Van, D	Complete
298	Epistaxis	Vethanayagam, D	Complete
299	HHT	Vethanayagam, D	Complete
300	CARE - CAM	Vohra, S	Complete
301	DELPHI	Vohra, S	Complete
302	Cold FX	Vohra, S	Complete
303	SONAR	Vohra, S	Complete
304	CARE - CHEO	Vohra, S	Complete
305	CARE - Maternal hypothyroidism	Vohra, S	Complete
306	CARE - HC-AWR	Vohra, S	Complete
307	Melatonin RCT	Vohra, S	Complete
308	Urinary Tract Infections	Wagg, A	Complete
309	Mini-Metrxics	Wang, S	Complete
310	Mini-METRXICS - Validation	Wang, S	Complete
311	AIM 3	Webber	Complete
312	Radial Artery Occlusion	Welsh, R	Complete
313	MetaAnalysis	Welsh, R	Complete
314	VHR - RADAR	Welsh, R	Complete
315	Cardiopulmonary Exercise Testing	Welsh, R	Complete
316	PURGE	Welsh, R	Complete
317	PHAST Care Survey	Welsh, R	Complete
318	STREAM	Welsh, R	Complete
319	Z-PROACT	Welsh, R	Complete
320	VHR - MVD	Welsh, R	Complete
321	Rural STEMI Database	Welsh, R	Complete
322	PROACT Biomarkers Study	Welsh, R	Complete
323	REMCON - STEMI	Welsh, R	Complete
324	PCI Registry	Welsh, R	Complete
325	STREAM	Welsh, R	Complete
326	Vital Heart Response	Welsh, R	Complete

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327	Imuran Study	Wong, J	Complete
328	Frontal Sinus	Wright	Complete
329	Testosterone therapy	Yuksel, N	Complete
330	Botox	Yuksel, N	Complete
331	Chronic Pelvic Pain	Yuksel, N	Complete
332	Osteopharm	Yuksel, N	Complete
333	Cardioversion Wait List Study		Complete
334	Cefazolin		Complete
335	Contrast		Complete
336	Heart Health Project		Complete
337	Risk Reduction Study		Complete
338	S.V.G.		Complete
339	CRP		Complete
340	A.C.S.Database		Complete
341	Osteoporosis (2003)		Complete
342	C.V. Awareness		Complete
343	Edmonton Flu Study		Complete
344	Peds Oncology Study		Complete
345	Clopidogrel following Coronary Stenting		Complete
346	GRIST		Complete
347	Stroke and First Nations		Complete
348	Peds/Fever/Surgery		Complete
349	Bronchiolitis		Complete
350	Prevention of Delirium		Complete
351	Pregnancy Risks		Complete
352	Pharmacist Hypertension Project		Complete
353	NARG Dialysis Study		Complete
354	Osteoporosis Study		Complete
355	Treatment & Control of hypertension in the Eld		Complete
356	CHIH - Discharge Database		Complete
357	Cardiovascular Risk		Complete
358	Dept. of Medicine Database		Complete
359	Brain Cancer		Complete
360	Agitation & Tobacco Withdrawal		Complete
361	ICD-10		Complete
362	Niemann-Pick Type C		Complete
363	Bleed Risk		Complete

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364	Patient Safety in CHA		Complete
365	T-Echo Study		Complete
366	ECHO - AF		Complete
367	Scarring		Complete
368	Pharmacy Student Surveys		Complete
369	EXACT		Complete
370	AFib cohort		Complete
371	PICU - Fever Study		Complete
372	FRESH		Complete
373	TEE Emboli		Complete
374	RURAL AMI		Complete
375	NHP and Potential Adverse Events Survey		Complete
376	Facial Trauma		Complete
377	Ace Inhibitor		Complete
378	NIMV		Complete
379	Reducing Restraints		Complete
380	VAC		Complete
381	PPS Diabetes		Complete
382	Bronchoscopy		Complete
383	Hip & Knee Fracture		Complete
384	Bowering Diabetes Project		Complete
385	IBD Clinics Chart Review		Complete
386	Osteoporosis (Andrea)		Complete
387	IMR		Complete
388	Antiretrovirals in Pregnancy		Complete
389	Neonatal HSV		Complete
390	CSF – Meningitis, Encephalitis		Complete
391	PET Database		Complete
392	Echo Clinical Database		Complete
393	DOPPLER Study		Complete
394	MAp Study		Complete
395	The Optics of Transdisciplinary Behaviours in		Complete
396	PTSD		Complete
397	Globus Pharyngis		Complete
398	Thyroid Orbithopathy		Complete
399	Dumper ENT		Complete
400	Rats IVS		Complete

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401	MESH		Complete
402	Nursing Project - James		Complete
403	Antimicrobial Catheter Study		Complete
404	Fragrance Study		Complete
405	FLAP - Surgery		Complete
406	Surgery Practice - Seema		Complete
407	Surgery - Toy		Complete
408	NeuroSugery - Matnaj		Complete
409	CV ICU - Readmissions		Complete
410	Surgery/Mrad		Complete
411	ECLS		Complete
412	PRECEPT		Complete
413	MONO		Complete
414	Captial Health Chart Review		Complete
415	CH Chart Review		Complete
416	Breast Implant		Complete
417	Validation of a Risk Model for Mode of Death		Complete
418	Exacerbation of Heart Failure		Complete
419	Advanced Cancer Staging		Complete
420	Kunimoto		Complete
421	Use of Pain Pumps after Abdominoplasty		Complete
422	Tooth Root Resorption		Complete
423	ACES and Appendicitis		Complete
424	LipSplitScar Study		Complete
425	Cardiac Access		Complete
426	Mandibulotomy - Friend or Foe		Complete
427	Esophageal Cancer Study		Complete
428	HIV/HCV Coinfection neurological diseases		Complete
429	HIV-Disease incidence/prevalence vs. neurologi		Complete
430	Sample size claulation Oct 01/08 - Andrea Trai		Complete
431	Trens in Nosocomial Blood Stream Infections		Complete
432	Firefighter Lung Project - Medicine		Complete
433	ASCEND Mapping		Complete
434	EPIC - Enhancing Practice to Improve Care		Complete
435	VHR-ESSC		Complete
436	HEALD- PCN		Complete
437	REASSESS		Complete

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438	Risk Reduction Live Database		Complete
439	Device Database		Complete
440	Hyperglycemia & Oncology		Complete
441	Tobeornottobe - Peter D.		Complete
442	Statin Utilization		Complete
443	Geriatric Assessment		Complete
444	Creating Supports for Change and Transition		Complete
445	Early Fibrinogen transfusions in Trauma Patients -		Complete
446	Telehealth		Complete
447	Insulin Protocol		Complete
448	Anesthesia techniques for cardiac cath - Dr. F. Ru		Complete
449	Pulmonary involvement of Chrohns Ps on IFX - Dr. R		Complete
450	Glaucoma and Robot Prostatectomy - Anesthesiology		Complete
451	Cadaver Study - Dept. of Anesthesiology		Complete
452	Inhaled Milrinone and the R. Ventricle - Dept. of		Complete
453	Smile Sonica		Complete
454	Immunotherapy in Cat Allergy Subjects		Complete
455	Supporting Vulnerable Children - AI-HS, Sharon And		Complete
456	ABBOTT - ASPROSE Survey	ABBOTT	Ongoing
457	ABBOTT - ASPROSEUAH	ABBOTT	Ongoing
458	ABBOTT - ASPROSEUK	ABBOTT	Ongoing
459	ABBOTT - ASPROSEUSA	ABBOTT	Ongoing
460	ABBOTT - RAPROSE survey	ABBOTT	Ongoing
461	ABBOTT - RAPROSEUAH	ABBOTT	Ongoing
462	ABBOTT - RAPROSEUSA	ABBOTT	Ongoing
463	HESA Study - Abbott Labs	ABBOTT	Ongoing
464	Parent Burden RSV - ABBOTT	ABBOTT	Ongoing
465	CVICU Frailty Study	Bagshaw, S	Ongoing
466	ICU Frailty Study	Bagshaw, S	Ongoing
467	SPARK	Bagshaw, S	Ongoing
468	IMAGE -CAD Study	Becher, H	Ongoing
469	AMS Database	Bungard, T	Ongoing
470	LMWH in pregnancy	Bungard, T	Ongoing
471	Brain Cooling Study	Chan, M	Ongoing
472	Ultrasound test for Pressure Ulcer	Chan, M	Ongoing
473	VRR Worksite	C-SCN	Ongoing

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474	ABLE - cGVHD Study	Cuvelier, G	Ongoing
475	Data Management for Prevention of UC	Dieleman, L	Ongoing
476	Diet in UC	Dieleman, L	Ongoing
477	Dementia	Drummond, J	Ongoing
478	Sodium H.F.	Ezekowitz, J	Ongoing
479	Pearlium	Fedorak, R	Ongoing
480	Pulmonary Crohns	Fedorak, R	Ongoing
481	Creating Bone & Joint Health	Frank, C	Ongoing
482	Diabetes Care Optimization	Gyenes, G	Ongoing
483	RAPPORT - Biologics - IHE	IHE	Ongoing
484	Memantine/ALS	Kalra, S and Chan, M	Ongoing
485	RA Risk Reduction	Keeling, S	Ongoing
486	esACS Substudy	Khan, N	Ongoing
487	esACS	King, K	Ongoing
488	STATIN	Koshman, S	Ongoing
489	Costco Pharmacists Intervention	Hanna, J	Ongoing
490	C-STOP	Majumdar, S	Ongoing
491	FORCAST	Maksymowych, W	Ongoing
492	RAPPORT	Maksymowych, W	Ongoing
493	RAPPORT - Newfoundland	Maksymowych, W	Ongoing
494	Early Inflammatory Arthritis	Martin, L	Ongoing
495	RAPPORT - Calgary	Martin, L	Ongoing
496	HAART Study	Mason, A	Ongoing
497	PROACTIVE	McAlister, F	Ongoing
498	Data Transfer	Miciak, G	Ongoing
499	ABLE - Thrombosis	Mitchell, L	Ongoing
500	Quality of Life in Kidney Disease	Molzahn, A	Ongoing
501	Long Term Renal Outcomes	Morgan, C	Ongoing
502	Renal Oxygenation as Predictors of AKI	Morgan, C	Ongoing
503	EVOLUTION	Padwal, R	Ongoing
504	SETS	Parent, E	Ongoing
505	Manticore Study	Paterson, I	Ongoing
506	Kidney Disease and Q of L	Pauly, R	Ongoing
507	ABI Study	Pehowich, M	Ongoing
508	ABLE - Cisplatin and Hearing loss	Rassekh, R	Ongoing
509	Fecal Incontinence in men	Sadowski, D	Ongoing
510	ABLE	Schultz, K	Ongoing

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511	GLADIATOR	Singh, G	Ongoing
512	Digoxin Levels	Thompson, A	Ongoing
513	Change in Sys BP	Tsuyuki, R	Ongoing
514	RxACTION	Tsuyuki, R	Ongoing
515	RxACT	Tsuyuki, R	Ongoing
516	RxEACH	Tsuyuki, R	Ongoing
517	RxING	Tsuyuki, R	Ongoing
518	SPAT	Tyrrell, G and Marrie,, T	Ongoing
519	SPAT 4	Tyrrell, G and Marri T	Ongoing
520	COMPACT	Van Diepen, S,	Ongoing
521	ASRLS/SafetyNET	Vohra, S and Pohlman, K	Ongoing
522	MY NAP	Vohra, S	Ongoing
523	Pediatric Integrative Medicine	Vohra, S	Ongoing
524	Rhodiola Rosea	Vohra, S	Ongoing
525	ABLE - Cisplatin and Kidney Disease	Zappitelli, M	Ongoing
526	Epilepsy Clinical Database	Ahmed	Proposed

## APPENDIX B

### Appendix B: Partial List of Investigators Served

1	ABBOTT/Abbvie
2	Abdul, A
3	Ackman, M
4	Allen, M
5	Armstrong, P
6	Bagshaw, S
7	Bailey
8	Beard, K
9	Beaupre, L
10	Becher, H
11	Bedard, E
12	Boule, N
13	Braam, B
14	Bratu, I
15	Broderick, G
16	Brown, N
17	Bungard, T
18	Butcher, K
19	Butler, C
20	Cadili, A
21	Cameron, J
22	Campbell-Scherer, D
23	Casey, L
24	Chan, Michael
25	Chan, Ming
26	Chao, J
27	Chari
28	Chowdhury, R
29	Choy, J
30	Chubaty, A
31	Coulden, R
32	Cuvelier, G
33	CV-SCN (AHS)
34	Dewart, K
35	Dieleman, L
36	Dillane, D
37	Dong, K

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38	Drummond, J
39	Dyck, J
40	Dytoc, M
41	Dziegielewski, P
42	El Bialek, T
43	Estabrooks, C
44	Eurich, D
45	Evaschesen, C
46	Everaert, D
47	Ezekowitz, J
48	Fedorak, R
49	Fedorak/Alistair
50	Fox, R
51	Frank, C
52	Galvin, D
53	Gragasin, F
54	Graham, M
55	Green, T
56	Gross, D
57	Guenther, C/Anzarut, A
58	Guerra, G
59	Gyenes, G
60	Hall, J, Hall, K
61	Hanna, J
62	Haykowsky, M
63	Hossini, F
64	Houle, S
65	Hunt, I
66	Institute of Health Economics
67	Jacka, M
68	Janzen, W
69	Johnson, JA
70	Johnston, B
71	Jones, A
72	Kalra, S
73	Kanji, H
74	Kao, D
75	Keeling, S
76	Khan, N
77	Khani-Hanjani, A

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78	Kimber, S
79	King-Shier, K
80	Kopolovic, I
81	Koshman, S
82	Kroeker, K
83	Kumar, A
84	Lai, F
85	Lazaurescu, A
86	Lee, T/Fedorak, R
87	Lehr, E
88	Long, R
89	Lu, C
90	Ma, M
91	Majumdar, S
92	Makaroff, C
93	Makowsky, M
94	Makskymowych, W
95	Maksymowych, W
96	Manns, B
97	Marin, A
98	Marra, C
99	Marrie, T
100	Martin, L
101	Mason, A
102	Mayers, I
103	McAlister, F
104	McNeely, M
105	Michelakis, E
106	Miciak, G
107	Mitchell, L
108	Molzahn, A
109	Morgan, C
110	Morrissey, A
111	Murray, A
112	Nee/Paterson
113	Norris, C
114	O'Connell, D
115	Oudit, G
116	Padwal, R
117	Pantano, A

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118	Parent, E
119	Pate
120	Patel
121	Paterson, I
122	Pauly, R
123	Pearson, G
124	Pehowich, M
125	Pharis
126	Power, C
127	Pretorius, V
128	Rassekh, R
129	Ravid, N
130	Reid, S
131	Robinson, J
132	Rolfson, D
133	Rosenthal, M
134	Ross, D
135	Rowe, B
136	Russell, A
137	Ryan, E
138	Saad, E
139	Sadowski, D
140	Sandhu, R
141	Schindel, T
142	Schultz, K
143	Schulze, C
144	Shanks, M
145	Sharma, A
146	Sharpe, H
147	Sheldon, S
148	Shibata, M
149	Sia, W
150	Siddiqi, Z
151	Siffeldeen, J
152	Simpson, S
153	Sinclair, D
154	Singh, G
155	Sivakumaran, S
156	Slaughter, S
157	Smigorowsky, M

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158	Soo, I
159	Spencer, T
160	Svenson, L
161	Tandon, P
162	Teo, K
163	Thompson, A
164	Thomson, A
165	Tonelli, M
166	Tredget, T
167	Tsui, B
168	Tsuyuki, R
169	Tyrrell, B
170	Tyrrell, G
171	Tyrrell, L
172	Valtuille, L
173	Van Diepen, S
174	Van Zanten, S
175	Vethanayagam, D
176	Vohra, S
177	Wagg, A
178	Wang, S
179	Webber
180	Welsh, R
181	Wong, J
182	Wright
183	Yuksel, N
184	Zappitelli, M

## APPENDIX C:

### Appendix C: Current Projects

	<b>Project</b>	<b>Principal Investigator</b>
1	ABBOTT - ASPROSE Survey	ABBOTT
2	ABBOTT - ASPROSEUAH	ABBOTT
3	ABBOTT - ASPROSEUK	ABBOTT
4	ABBOTT - ASPROSEUSA	ABBOTT
5	ABBOTT - RAPROSE survey	ABBOTT
6	ABBOTT - RAPROSEUAH	ABBOTT
7	ABBOTT - RAPROSEUSA	ABBOTT
8	HESA Study - Abbott Labs	ABBOTT
9	Parent Burden RSV - ABBOTT	ABBOTT
10	CVICU Frailty Study	Bagshaw, S
11	ICU Frailty Study	Bagshaw, S
12	SPARK	Bagshaw, S
13	IMAGE -CAD Study	Becher, H
14	AMS Database	Bungard, T
15	LMWH in pregnancy	Bungard, T
16	Brain Cooling Study	Chan, Michael
17	Ultrasound test for Pressure Ulcer	Chan, Ming
18	VRR Worksite	CV-SCN and Padwal, R
19	ABLE - cGVHD Study	Cuvelier, G
20	Preiotics for UC	Dieleman, L
21	Diet in UC	Dieleman, L and Madsen K
22	Dementia	Drummond, J
23	Lower Back Pain	Drummond, J
24	Sodium H.F.	Ezekowitz, J
25	Pearlium/Effectical	Fedorak, R and Sinoveda
26	Pulmonary Crohns	Fedorak, R
27	Creating Bone & Joint Health	Frank, C
28	Diabetes Care Optimization	Gyenes, G
29	RAPPORT - Biologics	Institute of Health Economics
30	Memantine/ALS	Kalra, S
31	RA Risk Reduction	Keeling, S
32	esACS Substudy	Khan, N
33	esACS	King, K

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34	STATIN	Koshman, S
35	Costco Pharmacists Intervention	Hanna, J
36	C-STOP	Majumdar, S
37	FORCAST	Maksymowych, W
38	RAPPORT	Maksymowych, W
39	RAPPORT - Newfoundland	Maksymowych, W
40	Early Inflammatory Arthritis	Martin, L
41	RAPPORT - Calgary	Martin, L
42	HAART Study	Mason, A
43	PROACTIVE	McAlister, F
44	PREVENTION	McAlister, F
45	Pulmonary Rehab + PAH	Miciak, G
46	ABLE - Thrombosis	Mitchell, L
47	Quality of Life in Kidney Disease	Molzahn, A, Makaroff, C
48	Long Term Renal Outcomes	Morgan, C
49	Renal Oxygenation as Predictors of AKI	Morgan, C
50	EVOLUTION	Padwal, R
51	SETS – Schroth Exercise - Scoliosis	Parent, E
52	MANTICORE	Paterson, I
53	Kidney Disease and Quality of Life	Pauly, R
54	ABI and CV outcomes after coronary cath	Sebastianski, M
55	ABLE - Cisplatin and Hearing loss	Rassekh, R
56	Fecal Incontinence in men	Sadowski, D
57	ABLE	Schultz, K
58	GLADIATOR	Singh, G and Bagshaw, S
59	Digoxin Levels	Thompson, A
60	RxACTION	Tsuyuki, R
61	RxACT	Tsuyuki, R
62	RxEACH	Tsuyuki, R
63	RxING	Tsuyuki, R
64	SPAT	Tyrrell, G and Marrie, T
65	SPAT 4	Tyrrell, G and Marrie, T
66	COMPACT	Van Diepen, S
67	ASRLS/SafetyNET	Vohra, S
68	MY NAP	Vohra, S
69	Pediatric Integrative Medicine	Vohra, S
70	Rhodiola Rosea	Vohra, S

## Appendix D: EPICORE Centre Publications - 2013

1. Makowsky MJ, Madill H, Schindel TJ, Tsuyuki RT. Physician Perspectives on Collaborative Working Relationships With Team-Based Hospital Pharmacists in the Inpatient Medicine Setting. *IJPP* 2013;21:123-127. DOI: 10.1111/j.2042-7174.2012.00227.x.
2. Gilani F, Majumdar SR, Johnson JA, Tsuyuki RT, Lewanczuk RZ, Spooner R, Simpson SH. Adding Pharmacists to Primary Care Teams Increases Guideline-Concordant Antiplatelet Use in Patients With Type 2 Diabetes: Results From a Randomized Trial. *Ann Pharmacother* 2013;47(1):43-8. Published Online, 16 Jan 2013, *theanals.com*, doi:1345/aph.1R552.
3. Chan M, Tsuyuki RT. Heart failure in the elderly. *Curr Opin Cardiol* 2013;28:234-241.
4. Houle SKD, Tsuyuki RT. Public-Use Blood Pressure Machines in Pharmacies for Identification of Undetected Hypertension in the Community. *J Clin Hyperten* 2013. Doi: 10.1111/jch.12061.
5. Eurich DT, Weir DL, Majumdar SR, Tsuyuki RT, Johnson JA, Tjosvold L, Vanderloo SE, McAlister FA. Comparative Safety and Effectiveness of Metformin in Patients with Diabetes and Heart Failure: Systematic Review of Observational Studies Involving 34000 Patients. *Circ HF* 2013. Published online March 13, 2013; DOI: 10.1161/CIRCHEARTFAILURE.112.000162.
6. Al Hamarneh YNJ, Houle SKD, Chatterley P, Tsuyuki RT. The Validity of Blood Pressure Kiosk Validation Studies: A Systematic Review. *Blood Pressure Mon* 2013;18:167-172.
7. Leiter LA, Berard L, Bowering CK, Cheng A, Dawson K, Ekoe J-M, Fournier C, Goldin L, Harris S, Lin P, Ransom T, Tan M, Teoh H, Tsuyuki RT, Whitham D, Woo V, Yale J-F, Langer A. Type 2 Diabetes Mellitus Management in Canada: Is it improving? *Can J Diabetes* 2013;37:82-89.
8. Houle SKD, Padwal R, Tsuyuki RT. The 2012-2013 Canadian Hypertension Education Program (CHEP) guidelines for pharmacists: An update. *Can Pharm J* 2013;146(3):146-150. Doi: 10.1177/1715163513486864.
9. Schulze CJ, Castro MM, Kandasamy AD, Cena J, Bryden C, Wang SH, Koshal A, Tsuyuki RT, Finegan BA, Schulz R. Doxycycline reduces cardiac matrix metalloproteinase-2 activity but does not ameliorate myocardial dysfunction during reperfusion in coronary artery bypass patients undergoing cardiopulmonary bypass. *Critical Care Medicine* 2013;41(11):2512-2520. DOI: 10.1097/CCM.0b013e318292373c.
10. Sebastianski M, Makowsky MJ, Dorgan M, Tsuyuki RT. Paradoxically lower prevalence of peripheral arterial disease in South Asians: a systematic review and meta-analysis. *Heart* 2013. Published online June 11, 2013, doi:10.1136/heartjnl-2013-303605.
11. Necyk C, Ware M, Arnason JT, Tsuyuki RT, Boon H, Vohra S. Increased bruising with the combination of long-chain omega-3 fatty acids, flaxseed oil and clopidogrel. *Can Pharm J* 2013;146(2):93-96.
12. Necyk C, Barnes J, Tsuyuki RT, Boon H, Vohra S. How well do pharmacists know their patients? A case report highlighting natural health product disclosure. *Can Pharm J* 2013;146(4):202-209.
13. Jamal SA, Vandermeer B, Raggi P, Mendelssohn DC, Fitchett D, Lok CE, Chatterley T, Dorgan M, Tsuyuki RT. The effects of calcium-based versus non-calcium-based phosphate binders on mortality among patients with chronic kidney disease: a systematic review. *Lancet* 2013; 382: 1268-1277. doi:10.1016/S0140-6736(13)60897-1.
14. Tannenbaum C, Tsuyuki RT. The expanding scope of pharmacists' practice: implications for physicians. *CMAJ* 2013; 185(14): 1228-1232. doi: 10.1503/cmaj.121990.

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15. Jorgenson D, Dalton D, Farrell B, Tsuyuki RT, Dolovich L. Practice Guideline for Pharmacists Integrating into Primary Care Teams. *Can Pharm J* 2013; 146(6): 342-352. DOI: 10.1177/1715163513504528.
16. Hall J, Rosenthal M, Family H, Sutton J, Hall K, Tsuyuki RT. Personality traits of hospital pharmacists: Toward a better understanding of factors influencing pharmacy practice change. *Can J Hosp Pharm* 2013; 66(5): 289-295.
17. Houle SKD, Grindrod KA, Tsuyuki RT. Publicly funded remuneration for the administration of injections by pharmacists: An international review. *Can Pharm J* 2013;146(6):353-364. DOI: 10.1177/1715163513506369.
18. Bagshaw SM, Stelfox T, McDermid RC, Rolfson DB, Tsuyuki RT, Baig N, Artiuch B, Ibrahim Q, Stollery DE, Rokosh E, Majumdar SR. Association Between Frailty and Short and Long-Term Outcomes in Critically Ill Patients: A Multi-Centre Prospective Cohort Study. *CMAJ* 2013. DOI: 10.1503/cmaj.1306.39.
19. Houle SKD, Rosenthal MM, Tsuyuki RT. A case study in mobilizing all pharmacy team members in the community setting – A clinical facilitation role for pharmacy technicians. *Can Pharm J* 2013 Published online ahead of print. November 27, 2013. DOI: 10.1177/1715163513513865.
20. Al Hamarneh Y, Charrois T, Lewanczuk R, Tsuyuki RT. Pharmacist Intervention for Glycemic Control in the Community (The RxING Study). *BMJ Open*. 2013 ;3:e003154. doi:10.1136/bmjopen-2013-003154.
21. Grindrod K, Forgione A, Tsuyuki RT, Gavura S, Giustini D. Pharmacy 2.0: a scoping review of social media use in the profession. (Commentary). *Res Soc Admin Pharm* 2013. DOI:10.1016/j.sapharm.2013.05.004.
22. Rosenthal MM\*, Chen CB, Hall K, Tsuyuki RT. Mixed Messages: The Blueprint for Pharmacy and a Communications Gap. *Can Pharm J*. Accepted November 20, 2013.
23. Neczyk C, Tsuyuki RT, Boon H, Foster BC, LeGatt D, Cembrowski G, Murty M, Barnes J, Charrois TL, Arnason JT, Ware MA, Rosychuk RJ, Vohra S. Pharmacy Study of Natural Health Product Adverse Reactions (SONAR): A Cross-Sectional Study using Active Surveillance in Community Pharmacies to Detect Adverse Events Associated with Natural Health Products. Accepted with revisions, *BMJ Open* November 20, 2013.
24. Fletcher J, Tsuyuki R. Don't tamper with oxycodone. *CMAJ* 2013;185:107, DOI:10.1503/cmaj.122099 and *Can Pharm J* 2013;146(1):6-7.
25. Tsuyuki RT. A new beginning and more of the same. *Can Pharm J* 2013;146(1):5.
26. Tsuyuki RT, Campbell N. Hypertension: Silent and/or ignored. *Can Pharm J* 2013;146(2):61-64.
27. Tsuyuki RT. Pharmacists' duty of care. *Can Pharm J* 2013;146(3):125-126.
28. Tsuyuki RT, Krass I. What is patient-centred care? *Can Pharm J* 2013;146(4):177-180.
29. Tsuyuki R. On becoming a new pharmacist (editorial). *Can Pharm J* 2013;146(5):241-242.
30. Tsuyuki RT. A sharpened focus on patient-centred care. *Can Pharm J* 2013;146(6):305-306.
31. Tsuyuki R. New Practitioners: On becoming a new pharmacist (column). *Can Pharm J* 2013;146(6):318. DOI: 10.1177/1715163513507525.
32. Houle SKD, Rosenthal MM, Campbell NRC, Duhaney T, Tsuyuki RT. Why pharmacists should care about the marketing of unhealthy foods: Increasing our role in public health policy. *Can Pharm J* 2014;147:4. DOI: 10.1177/1715163513515833.
33. Tsuyuki RT. New Practitioners: Moving on and adapting after 4 months (column). *Can Pharm J* 2014;147(1):14. DOI: 10.1177/1715163513515834.

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34. Lyster RL, Houle SKD. Abnormal vaginal bleeding following pharmacist prescribing of metformin leads to the detection of complex endometrial hyperplasia. *Ann Pharmacother* 2013;47(11):1581-3.
35. Rosenthal MM, Chen CB, Hall K, Tsuyuki RT. Mixed messages: The Blueprint for Pharmacy and a communication gap. *Can Pharm J* 2014;147(2):xx-xxx. DOI: 10.1177/1715163514520948.
36. Bungard TJ, Barry AR, Jones C, Brocklebank C. Patient Satisfaction with Services Provided by Multidisciplinary Anticoagulation Clinics. *Pharmacotherapy* 2013;33(11):1246-1251. DOI: 10.1002/phar.1318.

## APPENDIX E

### Appendix E: Summary Income Statement

<b>EPICORE</b>		
<b>Income Statement</b>		
<b>For the 12 month periods ending December 31, 2013 and 2012</b>		
	2013	2012
Revenue		
Project income	\$ 473,532	\$ 559,425
Faculty of Medicine and Dentistry Grant	250,000	250,000
Accrued revenue not invoiced	291,532	112,252
Total revenue	<u>1,015,064</u>	<u>921,677</u>
Expenses		
Salaries, benefits, bursaries and grants	681,291	1,099,038
Severance costs related to realignment	198,100	-
Consulting and outside services	41,025	72,675
Supplies	23,193	152,548
Computer and office supplies	9,690	20,348
Telecommunications	9,089	12,366
Facility and equipment related costs	7,334	8,188
Travel	2,958	9,776
Parking and other registrations	328	3,275
Bad debts (recovery)	<u>(134,358)</u>	<u>115,536</u>
Total expenses	<u>838,652</u>	<u>1,493,749</u>
Net income (loss)	<u>\$ 176,412</u>	<u>\$(572,072)</u>

#### Notes:

Revenue accrued but not invoiced includes a number of projects where the invoices were created after the cut-off date for invoicing for December. It also includes revenue for work completed on two projects for which the contract has not yet been signed. These two projects are for Government of Alberta departments with whom EPICORE has had a longstanding relationship

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Severance costs related to the restructure are for several people whose positions were eliminated at EPICORE as a result of the restructuring of activities. These are one-time costs and will not be incurred again.