



ROYAL COLLEGE
OF PHYSICIANS AND SURGEONS OF CANADA
COLLÈGE ROYAL
DES MÉDECINS ET CHIRURGIENS DU CANADA

RESEARCH REPORT

2017



Message from the CEO

The Royal College was incorporated by a special Act of Parliament in 1929 to ensure the highest standards and quality of health care. While many are more familiar with the organization's role in setting standards for specialty medical education, our objects of incorporation also stipulate that the College is to *'initiate, encourage, support and extend interest in research in medicine and medical education'*.

The Royal College has a long tradition of pursuing a research and scholarship enterprise, and today we are among the few organizations that fund medical education research in Canada through our grant and Fellowship programs.

Evidence-informed solutions underscore our strategic commitment to *"foster innovation in medical education, health policy and health care through enhanced scholarship, research and support to Fellows."* That commitment, which we express in our strategic plan's key result area (KRA) 3, covers a lot of ground. It calls on us to generate new knowledge, identify and translate knowledge into our policy and practices, and support medical education across Canada through a robust funding program.

This inaugural Research Report reflects that priority. This is a comprehensive, report that gives an overview of our growing research, scholarship, and conference activities in Canada and abroad. It also provides a detailed record of our research activities by Royal College staff and affiliated faculty, and describes our activities funding the research efforts of some of the brightest researchers in Canada.

The Royal College's focus on research has grown substantially in recent years, in part because we have partnered on more than \$5.7 million in funding from external sources. These partnerships have made a compelling case to funders about the value of supporting research in key areas of national concern. Royal College staff have contributed to 57 research publications and academic presentations on a wide-range of important topics, including indigenous health, physician employment, issues in medical education, and CanMEDS.

This report is only one expression of the Royal College's commitment to supporting world class research. We have also established a Research Task Force that will develop recommendations for a strategic vision and mission for our expanding research efforts.

We invite you peruse this report to learn more about our effort and accomplishments over the past year with respect to research and scholarship.

Sincerely,

Andrew Padmos, MD, FRCPC, FACP
Chief Executive Officer

"Foster innovation in medical education, health policy and health care through enhanced scholarship, research and support to Fellows."



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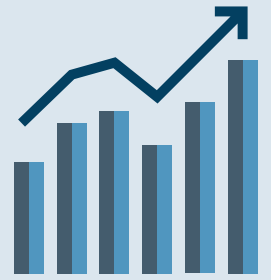
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Productivity



PRESENTATIONS

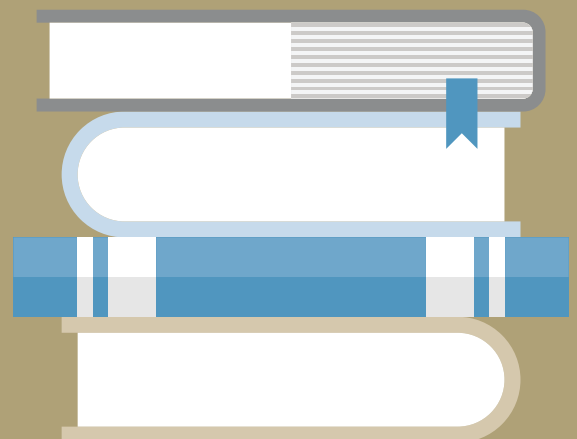
89
STAFF

71
EDUCATORS



57 | **33**
STAFF | EDUCATORS

**PEER REVIEWED
PUBLICATIONS**



30

STAFF



**EDUCATIONAL
EVENTS**



EXTERNAL FUNDING

(Co-Investigator and/or Knowledge User)

\$11,201,400

Scholarly Contributors 2017

“His scholarly interests include high reliability teamwork competency in health professions education and Serious Gaming-Virtual Simulation pedagogy.”



Glenn Barton | RN, MSN (Ed)

Curriculum/Instructional Designer, Practice Performance and Innovation

Mr. Glenn Barton's experience includes various frontline clinician and educator roles primarily in the specialty of critical care. His current educational design work involves the collaborative design, planning, development, and evaluation of various accredited, simulation based, continuing professional development (CPD) offerings for multi-specialty physicians and their inter-professional health team colleagues. Glenn is currently completing an Educational Doctorate (EDd) in higher learning leadership at the University of Western Ontario. His scholarly interests include high reliability teamwork competency in health professions education and Serious Gaming-Virtual Simulation pedagogy.



Farhan Bhanji | MD, MHPE, FRCPC

Associate Director, Assessment

Dr. Farhan Bhanji supports the Examinations (and assessment practices) for the 68 Specialties and 126 National Examinations. He is an active researcher with over 125 peer reviewed abstracts and manuscript publications. He has (co-) supervised over 15 residents and Masters students in Medical Education/Simulation research. Farhan was the inaugural recipient of the Richard and Sylvia Cruess Faculty Scholar in Medical Education at McGill (Educational Scholarship) and served as a Visiting Professor at the Medical Education Development Center of Gifu University, Japan from January to March 2013. He is a frequently sought after speaker and has delivered over 150 National and International invited presentations.



**Susan Brien | MD, MEd,
CSPQ, FRCSC, CPE**

Director, Practice and Systems Innovation | Vice-President, Asia Pacific, Royal College International

Dr. Susan Brien is a neurosurgeon with a Master's of Education from the University of Toronto (Higher Education). She joined the Royal College in 2007 and has held many positions including Registrar, Associate Director of Professional Affairs, Director of Innovation, Research and Simulation, Director of Practice, Performance and Innovation, as well her current role of Director of Practice and Systems Innovation (October 2013). This office leverages strengths in health policy, scholarship and innovative simulation-based training to influence change at the practice level and, more generally, in the Canadian health system. Her portfolio includes overseeing the new regional, national and international projects facilitating life-long learning professional development activities including team training, simulation, performance assessment, simulation accreditation and curricula integration.



Craig Campbell | MD, FRCPC

Director, Continuing Professional Development

Dr. Craig Campbell leads the national Maintenance of Certification (MOC) Program, serves as Registrar for the Royal College and has oversight of the development of a strategy to implement a competency-based CPD model for physicians in practice within the Competence by Design strategic initiative, and the International Academy of CPD Accreditation.

Craig's research and development interests focus on supporting lifelong learning, developing and implementing tools and strategies to promote 'informed' self-assessment, and leading workplace-based assessments of competence and performance of individuals, groups or health care teams. Craig is the past President of The Society for Academic Continuing Medical Education (SACME) and chaired the Society's Research Committee.



Kirk DesRosier

Instructional Designer/
Evaluator, Practice Performance
and Innovation Unit

Mr. Kirk DesRosier has a background in Illustration and programming, his work is focused on using educational technology to support the simulation based training curriculum within the unit. Kirk's current research and development interests are in the areas of instructor-led virtual patients, augmented learning environments, game-based learning and emerging technology use in medical education.

Scholarly Contributors 2017



Jason R. Frank | MD
MA (Ed.) FRCPC

Director, Specialty Education,
Strategy and Standards

Dr. Jason R. Frank is a clinician-educator with a focus on all aspects of health profession training systems. His roles include Director, Specialty Education, Strategy and Standards in the Office of Specialty Education at the Royal College of Physicians and Surgeons of Canada, and Director of Educational Research & Development in the Department of Emergency Medicine, University of Ottawa. An associate professor at the University of Ottawa, Faculty of Medicine, he is cross-appointed to the Faculty of Education, University of Ottawa and the Department of Graduate Studies, Ontario Institute for Studies in Education.



Danielle Fréchette | MPA

Executive Director, Health
Systems Innovation and
External Relations

Mrs. Danielle Fréchette has more than 25 years' experience in the field of social policy, she has supported the development of the Royal College's health policy and governance functions since the early 1990s.

Danielle graduated from the University of Ottawa in both Arts and Communications, following which she obtained a Masters in Public Administration from Queen's University. Her governance-related interests center on innovations that optimize decision-making and accountability. Her health policy-related research interests focus on numerous aspects of human resources for health, and health care system effectiveness, efficiency and equity. She is involved in a number of initiatives, research projects, and committees, nationally and internationally.



Lisa Gorman | BA, MA
(Public Administration)

Manager, Education Strategy,
Innovations, and
Development Unit

Ms. Lisa Gorman develops and undertakes strategic initiatives, research and scholarship, and major projects related to postgraduate medical education. Additionally, Lisa supports the multi-year Competence by Design initiative and provides oversight and stewardship of the Committee on Specialties and the system of discipline recognition. She is also a Board Member and Secretary of the Sandy Hill Community Health Centre (Ottawa, Ontario).

Lisa's research activities include her role as Project Secretariat for a number of scholarship groups, including the International Competency-based Medical Education Collaborators and the CanAM Collaborative (Royal College and ACGME). She is also interested in Postgraduate Medical Education, CBME, Resident wellness, Duty Hours, Fatigue, and its Risk Management, and Health Systems.



Tanya Horsley | PhD

Associate Director, Research Unit

Dr. Tanya Horsley is the Associate Director, Research Unit at the Royal College of Physicians and Surgeons of Canada and faculty in the School of Epidemiology and Public Health, University of Ottawa. Prior to joining the Royal College, she was a Scientist at the Chalmers Research Institute and completed a Post-Doctoral Fellowship at the Centres for Disease Control and Prevention in Atlanta with a focus on systematic review and meta-analysis methodologies.

Tanya is leading research that explores the effect of formalization of integrated knowledge translation on the co-creation, use and influence of research in medical education with a particular focus on multi-stakeholder engagement and organizational contexts. She has authored more than 60 peer-reviewed publications, and regularly presents at national and international conferences. She also has a number of national and international leadership roles, including serving as member of the Association of American Medical College's Research in Medical Education Committee, an Associate Editor for the Journal of Continuing Education in the Health Professions and Canadian Medical Education Journals.



**Kenneth A. Harris | MD,
FRCSC**

Executive Director, Specialty Education and Deputy CEO

Dr. Ken Harris is a Professor Emeritus at the Schulich School of Medicine & Dentistry at the University of Western Ontario (UWO) having spent 25 years in active teaching practice of Vascular Surgery. He currently holds an appointment in the Department of Surgery at the University of Ottawa and UWO.

In his current roles and responsibilities at the Royal College, he oversees educational initiatives in the domain of specialty medicine across the lifelong learning continuum. This includes the setting and evolution of program standards as well as the assessment of specialty candidates and the ongoing maintenance of competence.

“Tanya is leading research that explores the effect of formalization of integrated knowledge translation on the co-creation, use and influence of research in medical education with a particular focus on multi-stakeholder engagement and organizational contexts.”

“Dr. Jolanta Karpinski is a nephrologist at the Ottawa Hospital, working mostly in renal transplantation, and a clinician educator with experience in postgraduate medical education and CPD.”



Jolanta Karpinski | MD, FRCPC

Associate Director,
Specialties Unit

Dr. Jolanta Karpinski is a nephrologist at the Ottawa Hospital, working mostly in renal transplantation, and a clinician educator with experience in postgraduate medical education and CPD.

Her academic interest is in medical education. At the University of Ottawa, she served as program director in Nephrology, Director of the Office of Faculty Development, Director of PGME Evaluation and Accreditation, and as acting Vice-Dean PGME. She completed a 6 year term as Chair of the Royal College specialty committee in Nephrology, and has been a clinical educator in the Specialties Unit since 2011.



Allan McDougall | PhD

Research Associate,
Research Unit

Dr. Allan McDougall is a medical education researcher focusing on post-graduate medical education. His work focuses on the role of communication, technology, persuasion, and design in medical education. Currently, Allan's research explores the relationship between educational design and learner engagement, with a specific focus on game-based learning and gamification.

A qualitative researcher, Allan has expertise in ethnography, grounded theory and postmodern qualitative inquiry. He has worked in medical education research since 2008, and alongside his academic publications he is also the author of several research software technical manuals.

Scholarly Contributors 2017



Steve Slade | BA

Director, Health Systems and Policy

Mr. Steve Slade is a health data, information and policy expert. He leads the effort to generate new and comprehensive information about Canada's physician workforce. Looking at health and the health workforce through a data lens, Steve advances the Royal College goal of serving as "a trusted source of data and evidence about the specialty medical workforce and practice of specialty medicine".

As Vice President of Data and Analysis at the Association of Faculties of Medicine of Canada, Steve co-chaired Canada's multi-stakeholder Physician Resource Planning Task Force Technical Steering Committee. He implemented new data and information services at the Canadian Institute for Health Information and College of Family Physicians of Canada – services that inform and improve healthcare planning. Steve studied computer science and biostatistics at the University of Toronto and completed his undergraduate degree in psychology at York University.



Sarah Taber | MHA/MGSS

Associate Director, Education Strategy and Accreditation

Ms. Sarah Taber coordinates all activities related to Royal College accreditation for residency education in Canada and internationally, as well as the Education Strategy, Innovations and Development (ESID) Unit, which oversees the Royal College's Committee on Specialties as well as undertakes strategic policy projects related to the system of residency education in Canada. As part of this role, she is instrumentally involved in the current three colleges (Royal College/CFPC/CMQ) conjoint initiative to review and redesign residency education accreditation to place greater emphasis on continuous quality improvement (CQI) and program outcomes, and ensure standards are better aligned with the principles of competency-based medical education (CBME).

Sarah completed her Masters of Health Administration at the University of Ottawa in 2004, and her B.A. Honors in Kinesiology at the University of Western Ontario in 2002.



Arun Shrichand | MPA(M)

Senior Analyst, Health Systems and Policy

Mr. Arun Shrichand has been involved in the Royal College's various ventures in human resources for health-related research, including the National Physician Survey and the Royal College's Employment Study. He also co-authored a journal article on the integration of physician assistants in Canada. Arun's research interests focus on health workforce planning and contemporary health system issues such as the regulation of medical marijuana, care to at-risk populations, and the impact of privatization in healthcare.

Royal College Educators



DID YOU KNOW

An educator is a physician with formal training (e.g., graduate degree, robust diploma program, or formal fellowship) in medical education, providing consultative advice for educational projects undertaken by faculty in the health professions.

**Esam Al Banyan, MBBS, FAAP
[Clinician Educator]**

King Abdullah Specialist Children's Hospital, Ministry of National Guard-Health Affairs, Riyadh, Saudi Arabia

**Adelle R. Atkinson, MD, FRCPC
[Clinician Educator]**

Department of Paediatrics, University of Toronto

**Farhan Bhanji, MD, MHPE,
FRCPC [Clinician Educator]**

Pediatric Critical Care Pediatric Emergency Medicine, McGill University
Royal College of Physicians and Surgeons of Canada

**Andrée Boucher, MD, FRCPC
[Clinician Educator]**

Department of Medicine, Université de Montréal

**Pierre Cardinal, MD, FRCPC, MSc
[Epidemiology]
[Senior Scholar/Staff]**

Division of Critical Care Medicine, Department of Medicine, University of Ottawa

**Rodrigo Cavalcanti, MD, MSc,
FRCPC [Clinician Educator]**

General Internal Medicine, University of Toronto

**Adam Cheng, MD, FRCPC, FAAP
[Simulation Educator]**

Department of Paediatrics, University of Alberta

**Warren J. Cheung, MD, MMed,
FRCPC [Clinician Educator]**

Department of Emergency Medicine, University of Ottawa

**Michelle Chiu MD FRCPC
[Simulation Educator]**

Department of Anesthesiology, University of Ottawa

**Lara Cooke, MD, MSc, FRCPC
[Clinician Educator]**

Continuing Medical Education and Professional Development, University of Calgary

**Tim Dalseg, MD, FRCPC
[Clinician Educator]**

Division of Emergency Medicine, Department of Medicine, University of Toronto

**Sue Dojeiji, MD, MEd, FRCPC
[Clinician Educator]**

The Ottawa Hospital Rehabilitation Centre and Bruyere Continuing Care, University of Ottawa

**Nancy Dudek, MD MEd FRCPC
[Clinician Educator]**

Department of Medicine, University of Ottawa

**Leslie Flynn, MMus, MD, CCFP,
FRCPC [Clinician Educator]**

Queen's University



**Jason R. Frank, MD, MA [Ed.]
FRCPC [Clinician Educator]**

University of Ottawa
Royal College of Physicians and
Surgeons of Canada

**Wade Gofton MD, MEd, FRCSC
[Clinician Educator]**

University of Ottawa

**Marcio Gomes MD, PhD, FRCPC,
MHPE candidate
[Clinician Educator]**

University of Ottawa

**Jolanta Karpinski, MD, FRCPC
[Clinician Educator]**

University of Ottawa
Royal College of Physicians and
Surgeons of Canada

**Vicki LeBlanc PhD
[Simulation Educator]**

Department of Innovation in
Medical Education [DIME],
University of Ottawa

**Caryne Lessard MD, MEd,
FRCSC [Simulation Educator]**

CiSSSO, CiSSS de L'Outaouais

**Anne Matlow MD, FRCPC
[Patient Safety System Educator]**

University of Toronto,
The Hospital for Sick Children

**Viren N. Naik MD, Med, MBA,
FRCPC [Clinician Educator]**

University of Ottawa
Royal College of Physicians
and Surgeons of Canada

**Anna Oswald, MD, MMed,
FRCPC [Clinician Educator]**

University of Alberta

**Glenn Posner MDCM, FRCSC,
MEd [Simulation Educator]**

Department of Obstetrics
and Gynecology
University of Ottawa

**Saleem Razack, MD, FRCPC
[Clinician Educator]**

McGill University

**Denyse Richardson, MD, MEd,
FRCPC [Clinician Educator]**

University of Toronto

**Linda Snell, MD, MHPE, FRCPC,
FACP [Clinician Educator]**

McGill University

**Walter Tavares PhD
[Simulation educator]**

Wilson Centre,
University of Toronto

**Elaine Van Melle, PhD
[CanMEDS Education Scientist]**

Royal College of Physicians and
Surgeons of Canada,
Queen's University,
Department of Family Medicine

**Brian M. Wong, MD, FRCPC
[Clinician Educator]**

University of Toronto

Brie Yama MD [Early Career CE]

The Hospital for Sick Children

Major Initiatives & Activities

RESEARCH TASK FORCE

The Royal College has had a long standing commitment to supporting, publishing, and funding research and scholarship. Guided by the assertion that innovation, research and scholarship contributes to and enhances the advancement of all of its programs, a Royal College Research Task Force has been established. The Task Force will work to reinforce and strengthen research & scholarship at the Royal College through the formation of a clear strategic corporate vision and mission supported by robust implementation strategies as they relate to the Royal College's role in the research and scholarship enterprise.



“The Royal College has had a long standing commitment to supporting, publishing and funding research and scholarship.”

The work of the Research Task Force will provide recommendations intended to inform positions, scope, programs, and polices as they relate to research and scholarship within the Royal College's core business functions as applied specifically to:

- Research Across Training
- Clinician Scientist
- Research on Medical Education
- Research on the Delivery of Specialist Care
- Resources to Support Research

The Research Task Force is comprised of leaders in research in Canada and internationally and presently includes:

- Brian Hodges, MD, FRCPC, PhD (Chair)
- George Bordage, MD, PhD
- Paul Bragg, MD, FRCPC, CCFP, MSc, PhD
- France Légaré, BSc Arch, MD, MSc, PhD, CCFP, FCFP
- Viren Naik, MD, MEd, MBA, FRCPC
- Geoff Norman, BSc (Hons), MA, PhD
- Norman Rosenblum, MD, FRCPC
- John Ruedy, MDCM, FRCPC, LLD (hon), DMED (hon)
- Ivan Silver, MD, MEd, FRCPC
- Robyn Tamblyn, BSCN, MSc, PhD
- Chris Watling, MD, FRCP(C), MMedEd

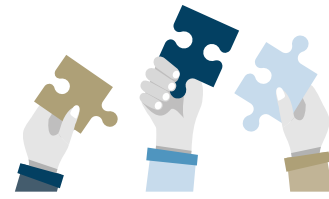
The Research Task Force report is anticipated spring 2019.

COMPETENCE BY DESIGN PROGRAM EVALUATION

Competence by Design (CBD) is a major change initiative aimed at introducing CBME into specialty medical education and continuing professional development across Canada. As a complex system with many interacting components, the overall system-wide evaluation of CBD will be a multi-year, collaborative endeavour. As an initial step in moving the evaluation of CBD forward, a framework document has been drafted (led by Dr. Elaine Van Melle) which is intended to provide an overview of program evaluation within the complexities of CBD and to offer a basis for building capacity for program evaluation across the system.

The three key goals of the overall evaluation of CBD, as proposed in the framework, will be to:

- 01** Foster successful implementation of CBD by examining factors that influence readiness for implementation,
- 02** understand the influence of local contexts, adaptations and innovations as programs and schools implement CBD within their unique settings, and to
- 03** build an evidence base of the impact of CBD over time, with a focus on readiness to practice in the short term and impact on patient care over the longer term.



“As a complex system with many interacting components, the overall system-wide evaluation of CBD will be a multi-year, collaborative endeavour.”

Going forward, there will be numerous opportunities for stakeholders and experts in the field to critically review the proposed framework and to collaboratively determine how to best move forward and create synergy between the overall, system-wide evaluation framework and individual program/specialty evaluative initiatives.

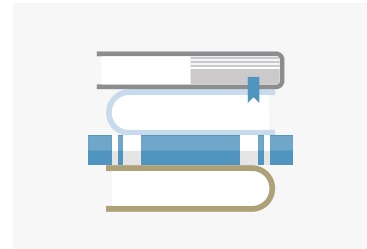


Major Initiatives & Activities

INTERNATIONAL COMPETENCY-BASED MEDICAL EDUCATION COLLABORATORS

International Competency-Based Medical Education (ICBME) Collaborators is a group of leading international experts who examine conceptual issues and current debates in competency-based medical education (CBME). The Royal College provides secretariat support to the ICBME Collaborators.

In June 2017, *Medical Teacher* published its second special CBME issue dedicated to the most recent work of ICBME Collaborators. Focused on emerging CBME concepts, this series provides a scholarly approach to bolster the rationale for this transformational movement, identifies key barriers to the acceptance of CBME and proposes ways to address them. It examines ways to assess CBME programs and identifies reforms in the field of continuing professional development and methodological issues to be addressed as CBME evolves.



“ICBME Collaborators is a group of leading international experts who examine conceptual issues and current debates in competency-based medical education”

The 2017 series builds on the success of the first series of papers, published in the August 2010 issue of *Medical Teacher*, where the ICBME Collaborators introduce the concept of CBME, present a series of definitions, and examine the implications of CBME across medical education. In addition, the collaborators have contributed three other notable papers to the literature on CBME, all published in *Academic Medicine*: Carracio et al. (2016) provides a special charter for clinician-educators advancing CBME, Ten Cate et al. (2016) delivers a paper on entrustment decision-making, and Van Melle et al. (2016) uses contribution analysis to evaluate CBME Programs.

In August 2018, the ICBME Collaborative will host the second world summit on Competency-based Medical Education in Basel, Switzerland, in conjunction with the Association for Medical Education in Europe (AMEE) conference.

GENERALISM SYSTEMATIC REVIEW

Over the last several years, the Office of Specialty Education (OSE) has been engaged in a project to review the various definitions of “generalism” used in the literature and to propose a common understanding of the term “generalism” as a contribution to policy discussions related to medicine, health human resources, and medical education. This review, launched in late 2010, was in response to the challenges associated with the use of the term generalism in medicine and medical education.

In its early phases, the project was supported by a task force whose main activity involved organizing a national summit to engage stakeholders in discussions around the use of the definitions of generalism in medicine and medical education. In 2013, a **final report** was released, based on the national summit deliberations, which provided proposed definitions for the terms generalism and “generalist”, and offered recommendations for promoting generalism in medical education.



Major Initiatives & Activities



GENERALISM SYSTEMATIC REVIEW CONT'D

As part of the overarching generalism project, the systematic review of the literature describing the terms “generalist” and “generalism” is in its final stages. The systematic review has captured definitions dating back over 100 years and is continually being updated as new material arises.

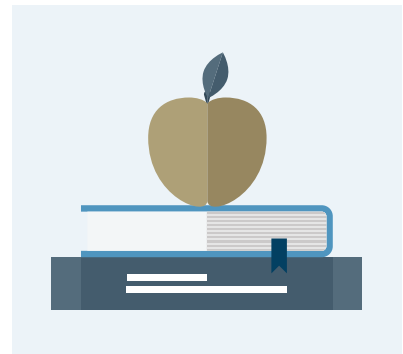
Publication describing the process and results from this systematic review is anticipated in 2018.

PRESCRIBING SAFELY CANADA (PSC)

Recognizing the value of a prescribing competency framework to guide the professional development and education of physicians, the Royal College Prescribing Safety Canada (PSC) initiative, in collaboration with the British Pharmacological Society (BPS), builds on established success in the UK where a validated Competency Framework has been published by the Royal Pharmacological Society and a prescribing safely assessment (PSA) tool has been developed and implemented by the BPS.

The PSC initiative includes three key deliverables:

- 01** A foundational component of the prescribing assessment is a Canadianised prescribing competency framework. A Delphi process sought the input of a diverse expert panel to review and suggest changes to the UK prescribing competency framework. After four rounds, the expert panel achieved consensus and the resulting Canadianised framework includes 64 competencies in 10 domains.
- 02** In collaboration with the BPS, a formative online prescribing assessment was developed and has undergone a detailed peer review by a working group of eight specialists representing the target audience.
- 03** In addition, three online learning modules will be developed. These learning modules will be educational resources focused on antimicrobial stewardship, frail patient and opioid prescribing. Subject matter experts will provide evidence-based content, which will undergo a peer review process.




“In collaboration with the BPS, a formative online prescribing assessment was developed and has undergone a detailed peer review...”

Major Initiatives & Activities

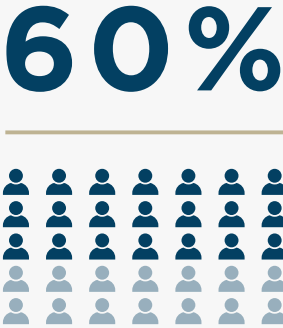
FIRST RESPONDERS PROJECT

The Royal College received a request to assist in identifying needs and potentially implement a training program for police officers who are called to intervene with people who are experiencing a mental health crisis.

The aim of this project is to design an educational intervention that will increase awareness and help police officers recognize behaviours associated with mental illness as well as to provide an approach and enhance skills for de-escalation.



The first phase of the project was a needs assessment that included interviews with several police officers and administrators from three different police forces in Ontario as well as patients with mental illness, and their families, who have had encounters with police. The next phase of the project is to seek funding, then develop and pilot an educational intervention that would include simulations.



60%

60% of physicians indicated they secured some form of employment within approximately 18 months.

PHYSICIAN EMPLOYMENT STUDY

A follow-up publication to the original report on newly-certified physician unemployment and underemployment (2013) will be released in 2018 looking at six years of survey data. The report provides a pan Canadian, cross-specialty view of employment challenges and their underlying causes and will show the employment status of newly certified physicians each year. It will also show longer-term employment outcomes for a cohort of certifiants who reported having employment challenges in the initial survey.

Survey data has consistently showed that 14-18% of specialists have not secured a position six to 24 weeks after confirmation of certification. The most impacted disciplines continue to be resource-intensive ones, like cardiac surgery and radiation oncology, which require specialized infrastructure, resources and personnel.

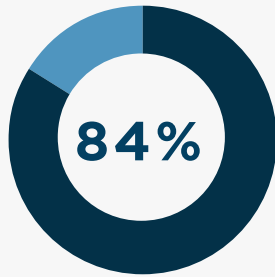
The cohort results give a more complete picture of physicians who experience employment challenges. Overall, 60% indicated they secured some form of employment within approximately 18 months. Willingness to relocate, additional training, fellowships and contacts were often cited as employment enablers.

MEDICAL CARE FOR THE ELDERLY

In 2016, Canada's elderly population surpassed the population of children, and projections show the gap will widen in the future. These trends point to changing population healthcare needs and underscore the need for informed health workforce planning.

The Royal College study of medical care for the elderly uses the Canadian Institute for Health Information's National Physician Database to describe the provision of physician services to Canada's elderly population. The results cover all fee-for-service care provided to those aged 65+ in the 2013/2014 fiscal year.

Major Initiatives & Activities



84% of all elderly services were provided by family physicians, internists and ophthalmologists

Virtually all physicians care for the elderly, but there are distinct cross-specialty variations in service volumes, intensity of elder care, and types of services provided. For instance:

- Approximately 84% of all elderly services were provided by family physicians, internists, and ophthalmologists
- Geriatricians devoted the majority of their practice to the elderly, but other specialties, such as ophthalmology, also provided more than 50% of their services to patients aged 65+
- Diagnostic and therapeutic services (e.g., ECG, cystoscopy) and other assessments (e.g., chronic and convalescent care) made up over half of all elder care during the most recent year

This overview report provides an initial look at how physicians are meeting the healthcare needs of elderly patients, with further in-depth analyses to follow in subsequent publications.

CUTTING THROUGH THE FOG 2017 HEALTH ENVIRONMENTAL SCAN

The amount of information about Canada's healthcare system can be overwhelming. The Cutting through the Fog 2017 Health Environmental Scan covers key indicators and trends from government publications, data repositories, academic journals, news media coverage, and other grey literature.

Organized under five themes, political, economic, socio-demographic, healthcare system, and technology, the report includes information on:

- New federal and provincial healthcare funding arrangements and healthcare priorities
- Policy developments on marijuana, medical assistance in dying and the opioid crisis
- Healthcare spending in Canada (e.g., public-private sector share of total health expenditure, the annual cost of hospitals, drugs, and physician services)
- Health status of Canadians (e.g., morbidity and mortality rates due to cancers, diabetes, cardiovascular and respiratory diseases) and the ongoing health inequities in select populations, such as Indigenous peoples
- Wait times and access
- Statistics and trends in physician workforce supply
- The advent of new technologies such as artificial intelligence, robotics, and 3D printing in the delivery of healthcare



MEDICAL WORKFORCE KNOWLEDGEBASE, VERSION 2.0

The number of physicians in Canada fluctuates. The supply of medical trainees will grow rapidly for a time and then level off, irrespective of population growth, aging, and other changes. While Canada has robust physician workforce databases, the information they produce is fragmented and does not provide an easy-to-read picture of how the physician population is changing.

“The Royal College Medical Workforce Knowledgebase (MWK) provides key insights into the size and composition of Canada’s current and future physician workforce.”

The Royal College Medical Workforce Knowledgebase (MWK) provides key insights into the size and composition of Canada’s current and future physician workforce. Tapping into several authoritative data sources, the MWK highlights recent trends in the number of residency positions, new trainees and new certificants, as well as the size and composition of the fully licensed medical workforce. The MWK puts these key pieces of information together in one easy-to-read place so that physicians, decision-makers, and other stakeholders can see what changes are taking place.

The MWK is evolving and improving. MWK v1.0 gave a nationwide snapshot of physician supply for 31 specialties. MWK v2.0 goes further, showing change at the subspecialty level and within provinces and territories. MWK v2.0 shows demographic trends covering age and sex, as well as physician supply across urban and rural settings. This information provides insight on patient access to specialized medical care and lends support to longer-term health workforce planning.



**While Canada has
robust physician
workforce databases,
the information
they produce
is fragmented...**

Corporate Programs

PROFESSOR-IN-RESIDENCE & VISITING SCHOLAR PROGRAMS

In early 2018 the Royal College will be launching two new programs, the Professor-in-Residence and the Visiting Scholar Programs, to create opportunities to stimulate innovation and knowledge exchange, and to advance scholarship and research in Canada.

The prestigious Royal College Professor-in-Residence Program will annually invite and host an exceptional thought leader in healthcare to engage with Royal College leadership and staff to drive innovation in our programs.

The Visiting Scholar Program will welcome scholars from across Canada including Fellows, graduate students, clinician educators, and professors on sabbatical who are pursuing research in medical education or related health policy.



To kick off both new programs, the Royal College is very pleased to welcome Dr. Richard Reznick as the inaugural Professor-in-Residence. Dr. Reznick was onsite in February 2018 to connect with staff through presentations and the first ever Professor-in-Residence lecture.

A renowned thought leader in medicine and medical education, Dr. Reznick is a Professor in the Department of Surgery and Dean of the Faculty of Health Sciences at Queen's University. Dr. Reznick's career has combined a clinical interest in colorectal surgery with 30 years of dedication to the advancement of medical education. Many of you will know him from his work in championing competency-based medical education.

The Visiting Scholar Program was announced to Fellows and scholars in early 2018 to encourage applications to the program. We expect to welcome our first Visiting Scholars in September 2018. Our goal is to ensure all Visiting Scholars are welcomed and supported in their research endeavors.

These Programs will have wide ranging benefits for participants and the Royal College. For researchers, it is through structured support and access to expert knowledge and information. For the Royal College it is by identifying synergies that will propel and advance research across Canada to ensure the best care for all.

“In early 2018 the Royal College will be launching two new programs, the Professor-in-Residence & the Visiting Scholar Programs, to create opportunities to stimulate innovation and knowledge exchange, advance scholarship and research in Canada.”

ROYAL COLLEGE LIBRARY SERVICES

Scholarship is a fundamental value at the Royal College and is seen as contributing to, and informing the advancement of medical education across the continuum, including specialty medical education and related policy, lifelong learning, and continuing professional development. Increased scrutiny of the profession of medicine expects that practices and policies are informed by evidence, and as such there is an increased focus on scholarship as a part of the strategic goals for the College.

The Royal College is committed to:

- 01** establishing a robust infrastructure for accessing information;
- 02** increasing capacity for scholarship via the provision of the expertise of a librarian;
- 03** developing formal partnerships between Nationally-focused organizations whose mandate is linked to medical education/health-systems scholarship to leverage innovations and expertise

“The Royal College is committed to establishing a robust infrastructure for accessing information”

Over the course of a few years a partnership with the Medical Council of Canada has been developed to explore, pilot, and evaluate a program model that enables staff access to library and information resources to support and foster evidence-informed practices and policy-development. Staff now have access to the Medline database with full text along with back to back access of 16 of the most read journals. In 2017, over 200 articles were requested by staff and scholars.



2017 INTERNATIONAL CONFERENCE ON RESIDENT EDUCATION (ICRE)

Over the past decade, the International Conference on Residency Education (ICRE) has established itself as one of the most practical, scholarly and innovative educational conferences in medical education.

Over the years, registration has risen consistently, with the 2017 conference in Quebec City, Canada attracting more than 2,300 registrations from over 30 different countries.

The 2017 program featured five provocative plenaries, 19 innovative learning tracks, over 200 poster and paper presentations, and more than 60 different workshops.

Celebrating its 10th anniversary, ICRE 2017 successfully introduced a resident focused learning track in place of the separate event held in the past, the International Resident Leadership Summit (IRLS). By including the resident track within the main ICRE program, residents had the opportunity to network not only with their peers, but with their mentors. As a result, ICRE 2017 welcomed a record number of residents and medical students.

ICRE 2017 also hosted many pre-conference events, including the International Medical Education Leadership Forum (IMELF), the Learning Analytics Summit, and a sold-out Program Administrators Conference.

Corporate Programs

2017 SIMULATION SUMMIT

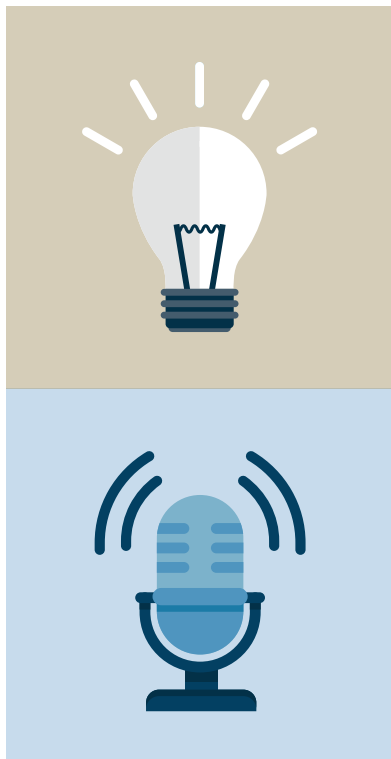
The Simulation Summit is the Royal College's annual conference on simulation in health care education. The aim of this interprofessional conference is to provide medical educators, physicians, researchers, and other health professionals with the most up-to-date information on simulation research, innovation, and its application in practice.

The 2017 conference was held November 1-2, 2017 at Le Centre Sheraton Montreal Hotel- in Montreal, Québec. There were over 300 participants at the 2017 Simulation Summit who attended four dynamic plenary sessions, more than 20 workshops, over 60 research presentations, and the always popular theatre-based simulation event, SimTrek.

2017 Simulation Summit brought together Royal College Fellows, family physicians, nurses, respiratory therapists, simulation programmers, and more. Many participants also attended pre and post-conference programming, including the Simulation Educators Training (SET) course, Primer for Simulation Accreditation, and Principles of Assessment in Simulation Supplement (PASS).



“The aim...is to provide medical educators, physicians, researchers and other health professionals with the most up-to-date information on simulation research, innovation, and its application in practice.”



KEYLIME | KEY LITERATURE IN MEDICAL EDUCATION

Key Literature in Medical Education (KeyLIME) is a podcast produced by the Royal College of Physicians and Surgeons of Canada. It started in 2012 and has released over 150 podcasts.

The most recent news for KeyLIME listeners is that starting January 2018 the podcasts will be weekly instead of bi-weekly.

The hosts Drs. Jon Sherbino, Linda Snell and Jason R. Frank discuss articles on medical education that are important, innovative and will impact educational practice. Listeners are encouraged to suggest articles for the hosts to discuss, and MOC credits under Section 2 for each podcast can be received.

Every year at the ICRE a KeyLIME LIVE session is held with audience participation. Episodes range from 10 to 25 minutes.

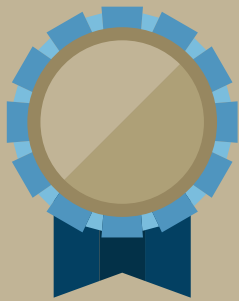
Since 2017, the Royal College has collaborated with the journal *Medical Education*. Once every quarter, the KeyLIME podcast features one of *Medical Education's* articles days or weeks ahead of the article's official release.

KeyLIME cross promotes with the Royal Australasian College of Physicians, their podcast is called Pomegranate Health, Discussing the science and the art of being a physician.



Research Grants

RESEARCH GRANTS AWARDED IN 2017



TOTAL AWARDED

\$442,545

Royal College/AMS CanMEDS

\$24,970

Medical Education Research Grant

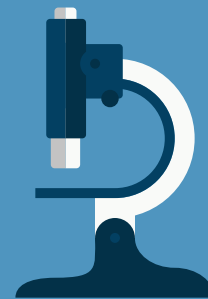
\$170,200

Robert Maudsley Fellowship
for Studies in Medical Education*

\$120,000

Strategic Initiative 2017

\$127,375



2017 MEDICAL EDUCATION RESEARCH GRANT

Competency by what design? Exploring the impact of integrated instruction on procedural skills transfer



Co-Principal Investigators

Ryan Brydges | PhD

Scientist & Director of Research, Allan Waters Family Simulation Centre, St. Michael's Hospital

Jeffrey J.H. Cheung | PhD(c)

Research Fellow, The Wilson Centre, Toronto General Hospital and University of Toronto



How this work will inform research in medical education:

“Though competency-based medical education (CBME) frameworks consistently note the need for integrated and adaptive competencies, they do not clarify which instructional designs help trainees develop those competencies. In this project, we propose and test a mechanism we believe will help trainees integrate the foundational knowledge and skills that underlie clinical competencies. Specifically, we have designed videos to provide integrated instruction, which we expect will teach trainees the target skill (lumbar puncture), as well as integrated knowledge they can transfer to learn a novel, related clinical skill in a future training experience (thoracentesis). This work is important to medical education because it represents a program of research aimed at clarifying which instructional strategies support ‘cognitive integration’ and skill transfer. Moreover, the findings will have implications for educators and researchers seeking to develop curricula and instructional sessions that align with the aspirations of CBME frameworks.”

“This work is important to medical education because it represents a program of research aimed at clarifying which instructional strategies support ‘cognitive integration’ and skill transfer.”

Research Grants

The Role of Emotions in Clinical Reasoning and Recall



Vicki LeBlanc | PhD

Associate Professor and Chair,
Department of Innovation in
Medical Education,
University of Ottawa

Director, University of Ottawa
Skills and Simulation Centre
at The Ottawa Hospital and
University of Ottawa

How this work will inform research in medical education:

“In caring for patients, clinicians and trainees are constantly confronted with emotional events. These events can trigger powerful emotions such as anxiety in situations of uncertainty, anger at perceived injustices, or sadness at undesired patient outcomes. In many of these emotion-evoking situations, clinicians and trainees must obtain and interpret information, make judgments regarding treatment options with different benefits and risks, and remember important clinical information. The study will investigate how different emotions (anxiety, anger) influence residents’ risk perceptions, clinical performance and recall of relevant information in simulated clinical encounters. A greater understanding of the effects of emotions on clinical reasoning and recall is instrumental in preparing health professionals to identify situations in which emotional regulation is called for, as well as identify situations where systems or team-based strategies could reduce unwanted biases that result from the emotional states of health providers.”

Reciprocal Peer Mentorship for Practicing Surgeons - Modernization of Continuous Professional Development in Surgery



**Carmen L. Mueller | BSc(H)
MD FRCSC MEd FACS**

Assistant Professor of Surgery,
McGill University

How this work will inform research in medical education:

“Currently, surgeons engage in solitary practice with few opportunities for mentorship and feedback for the duration of their careers. This project seeks to determine attitudes towards, barriers to, and the impact of a reciprocal peer mentorship model for practicing surgeons. Similar to an “exchange program”, a reciprocal peer mentorship framework will be implemented to help overcome traditional barriers that prevent surgeons from scrubbing with and learning from each other, even within their own hospitals or departments. In addition to facilitating ongoing surgical skill refinement and the adaptation of new techniques in an era of rapid change, the reciprocal peer mentorship model is expected to help engender a greater culture of cooperation and collaboration between colleagues. It is anticipated that the outcomes of this study will contribute to a paradigm shift in the way surgeons presently hone their skills, adapt to practice changes and adopt new technology over time.”

Research Grants

Diagnostic Errors: Knowledge Deficit vs Cognitive Bias and Checklists



Geoffrey Norman | PhD

Program for Educational
Research and Development,
McMaster University

How this work will inform research in medical education:

“Diagnostic errors are a major cause of morbidity and mortality, and have become the focus of much writing in recent years. The dominant view is that errors are a consequence of innate cognitive biases that are a consequence of the nature of human cognition. In turn, there have been many calls to mount courses to educate students about cognitive biases. Surprisingly there is very little evidence of effectiveness. Although over 100 biases have been described, only a handful of studies examined the relationship between expertise and biases, with conflicting results. Moreover, only a few studies have examined the impact of bias teaching on errors; all are negative.”

“The alternative is a focus on applying the appropriate knowledge by reminding physicians of condition-specific knowledge (diagnoses, signs, tests) they should consider. This study is the first direct test of the two approaches, contrasting a cognitive bias checklist with a condition-specific checklist. The results have major consequences for error reduction strategies.”

Measuring Development of Competency with the Ontario Bronchoscopy Assessment Tool



Nha Voduc | MD, FRCPC

Associate Professor and
Respirology Program Director,
Faculty of Medicine,
University of Ottawa

How this work will inform research in medical education:

“The current focus on competency by design by the Royal College has highlighted the need for a better understanding of the training requirements for attainment of procedural competency. This work is important to medical education because it represents the first attempt to determine the learning curve for bronchoscopy, using a validated, competency based assessment tool.”

“By determining the learning curve for bronchoscopy, our study will provide training programs with the first ever evidence on which to base their bronchoscopy training curriculum. The learning curve will also serve as a benchmark against which individual trainee performance can be compared.”

“The multicenter and clinically-based design of our study represents a unique feature for medical education studies in the Respirology field. If successful, our study design can serve as a template for future studies for other medical procedures.”

2017 ROYAL COLLEGE/ASSOCIATED MEDICAL SERVICES CANMEDS RESEARCH DEVELOPMENT GRANT

Managing Emotionally-charged Events: The Impact of Stress Inoculation Training on Empathy in Simulation



Melissa Duffy | PhD

Assistant Professor, Department of Innovation in Medical Education, Faculty of Medicine, University of Ottawa

How this work will inform research in medical education:

“This work is important because it helps to address the need for emotional competency training in postgraduate medical education. Proficiency in regulating one’s emotions is a key component of emotional competency. However, little attention in medical training has been devoted to helping residents manage affective factors, such as emotions. This research will test an educational intervention designed to augment traditional crisis resource management training in simulation environments by helping trainees to apply strategies to manage emotionally charged events. We anticipate that this type of intervention will not only lead to reductions in stress but also promote better clinical performance and compassionate care. This work will provide insights into the link between anxiety and empathy, as well as factors that impact the use of emotion regulation strategies in simulation training.”

2017 ROBERT MAUDSLEY FELLOWSHIP FOR STUDIES IN MEDICAL EDUCATION

Workplace assessment of pathology EPA’s



Marcio Gomes | MD, PhD
(sciences), FRCPC,
MHPE Candidate

How this work will inform research in medical education:

“This work is important to medical education because pathology training in Canada and worldwide is lagging with regard to the introduction of competency-based medical education (CBME), and there are no specific workplace tools for assessing technical skills in pathology and laboratory medicine. Anatomical pathology has initiated the RCPSC Competence by Design (CBD) project in 2016 and CBME tools will be essential for the assessment of the pathology entrustable professional activities (EPAs). Although the final list of pathology EPAs has not yet been defined, some procedure-based routine pathology activities will be part of that list, including intra-operative consultations (aka frozen sections), gross examination and autopsies. Therefore, developing workplace-based assessment tools is a required step in this process. The idea of this study is to introduce assessment-for-learning tools in pathology training, and in particular to do so with regard to the assessment of intra-operative pathology.”

Clinical Competency Committees: Using Qualitative Methods to Explore What Works and Why



Jennifer Tam | BSc (Pharm),
MD, FRCPC

How this work will inform research in medical education:

"A clinical competency committee (CCC) is a group tasked with assessing the progress of each resident in a residency program, with the goal that the resident will be able to practice independently upon program completion. While some programs have used a CCC for years, the formalization of CCCs as an accreditation requirement is relatively new. As such, the best way to run a CCC is unknown. The Paediatric Infectious Diseases training program in Toronto has had a CCC since 2008. This provides a valuable opportunity to examine a CCC in Canada using a method called "instrumental case study" to reveal what works, what does not work, and why. Healthcare is dependent on the people that deliver it, so ensuring the best care to patients starts with medical education. This study will help the Royal College and residency programs develop effective CCCs to guide the training of our future doctors."

A Curriculum for Microsurgical Skills



Claire Temple-Oberle | BA,
MSc, MD, FRCSC,
MEd Candidate

How this work will inform research in medical education:

"The project entitled "A Curriculum for Microsurgical Skills" is important because microsurgery is the backbone of reconstructive plastic surgery. Present microcourses and workplace learning may not foster mastery learning nor provide an environment conducive to deliberate practice. Leveraging a new simulation centre at the University of Calgary, a revised curriculum has been developed using Kern's 6 steps of curriculum development. Once evaluation closes the loop on curricular development, insights gained will provide measurable behaviours and assessment instruments that could underpin the move toward competency based surgical education in microsurgery."

"Once evaluation closes the loop on curricular development, insights gained will provide measurable behaviours and assessment instruments that could underpin the move toward competency based surgical education in microsurgery."

2017 STRATEGIC REQUEST FOR PROPOSALS - RESEARCH ON COMPETENCY-BASED MEDICAL EDUCATION GRANT

Investigating how small groups make decisions about medical trainees: Implications for Clinical Competence Committees



Sayra Cristancho | PhD

Assistant professor, Centre for Education Research & Innovation, Dept. of Surgery and Faculty of Education, Western University

How this work will inform research in medical education:

Clinical Competence Committees (CCCs) will play a vital role in Competence by Design: they will provide personalized guidance for residents and determine their readiness to advance to the next phase of training; yet, CCCs have received little attention and we have almost no empirical basis for understanding how their members (as a group) will make decisions about resident progress. Through this project, we will develop a conceptual model of the decision-making processes of CCCs across multiple specialties. This work will contribute a process to monitor and better understand the decision-making practices of CCCs. Our hope is that this research could also be used to outline a coherent framework for nationwide, prospective research in CCCs. Both potential applications may enhance the learning experience for residents by offering a model for systematically optimizing CCC decision-making.

Operationalizing Programmatic Assessment: Practice Guidelines with descriptions of stakeholder activities



Laura McEwen | PhD

Director of Assessment & Evaluation, Postgraduate

Medical Education Assistant Professor, Department of Pediatrics Faculty of Health Sciences, Queen's University

How this work will inform research in medical education:

Although there are validated frameworks to inform the development and evaluation of competency-based programmatic assessment (PA), these tools are of limited utility to the users of these assessment systems. This is particularly challenging given our impending transition to a Competence by Design residency education model and the Royal College's expectation that a PA approach will be adopted nationally. The purpose of our research is to address this gap by constructing a practice-focused framework to guide the implementation of competency-based PA by various stakeholder groups. We will pilot this framework in multiple programs to gather evidence of its acceptability, utility and applicability in practice. We anticipate the product of our work (the Programmatic Assessment Practice-focused Framework) to support the process of knowledge translation and to help bridge the current research-practice gap. Ultimately, we envision this knowledge tool not only supporting the initial implementation of competency-based PA, but also serving to support ongoing refinements.

Research Grants

Patient Involvement in learner assessment: A mixed-methods study



Katherine Moreau | PhD

Assistant professor, Faculty of Education, University of Ottawa

Affiliate investigator, Children's Hospital of Eastern Ontario Research Institute

How this work will inform research in medical education:

Competence by Design (CBD) requires the assessment of learners through direct observations and the inclusion of multiple assessors. It also involves the development of programs of assessment that encompass various assessment strategies. Patients and their family members (herein referred to as patients) can be valuable contributors to programs of assessment. Patients, armed with first-hand knowledge of how learners interact with them, can assess learners' non-technical skills (NTS). However, the plans for as well as the extent and nature of patient involvement in the assessment of learners' NTS within and across Canadian programs (which are transitioning or have transitioned to CBD) are unknown. By exploring and documenting the plans for, and the present state of patient involvement in learner assessment within these programs, we can identify the types of resources and activities needed to advance and sustain patient involvement in the assessment of learners' NTS within CBD.

Assessment | Developmental Progress Assessment: Exploring the Basis for Best Practices



Co-Principal Investigators

Christina St-Onge | PhD

Associate Professor,
Department of Medicine,
Centre for the Education of
Health Sciences, Faculty of
Medicine and Health Sciences,
Sherbrooke University

Aliki Thomas | PhD, OT

Assistant Professor, School
of Physical and Occupational
Therapy, Faculty of Medicine,
McGill University

How this work will inform research in medical education:

Our study addresses an issue at the core of the success of competency-based medical education (CBME): the assessment of developmental progress (DPA) and, more importantly, the identification of potential facilitators and barriers that could affect its implementation. DPA is expected to be omnipresent throughout postgraduate medical education and continued professional development. Although it will take on different forms, its purpose will be to inform trainees and practitioners of their progression on the competence continuum. Given that part of the success of CBME rests on the purposeful and appropriate implementation of DPA, the design and development of theory-driven and tailored knowledge translation activities is of the utmost importance. This work will lay the foundation for robust knowledge translation activities, which we aim to pursue in a subsequent study.



Publications & Awards

JANUARY 2017 - DECEMBER 2017



ROYAL COLLEGE STAFF & EDUCATORS

(CLINICIAN OR SIMULATION OR CPD EDUCATORS)

AWARDS (STAFF / EDUCATORS)

1. *Cheng A. Presidential Citation, Society for Simulation in Healthcare.* In recognition for leadership provided as co-founder and co-chair of the International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE Network). January 2017.
2. *Cheng A. Fellow (Inaugural), Academy of Fellows, Society for Simulation in Healthcare.* Awarded for lifetime contributions towards advancing simulation in healthcare. January 2017.
3. *Cheng A. Leadership Award, Section of Emergency Medicine, Society for Simulation in Healthcare.* January 2017.
4. *Cheng A. Research Excellence Award, for leadership of the International Network for Simulation-based Pediatric Innovation, Research and Education (INSPIRE Network), Section of Emergency Medicine.* Society for Simulation in Healthcare.

EXTERNAL FUNDING

1. **Horsley T (Co-PI).** *Mastoidectomy Simulator for Surgical Training and Rehearsal.* NSERC/CIHR Collaborative Health Research Project grant \$372,400. Application includes: Ladak H (co-PI), Agrawal S (co-PI), co-Investigators: Chan S, Dort J, **Horsley T**, Mikulec M. The Royal College is formally a Knowledge User.
2. **Horsley T (Co-PI).** CIHR Operating Grant: *SPOR Guidelines and Systematic Reviews.* \$4,997,000 / Matched \$10,829,000. Application includes: Pls / A Tricco, Abou-Setta A, Clement F, Colquhoun H, Curran J, Godfrey C, Isaranuwachai W, Li L, Moffitt P, Moher D, Straus S. Co-Is/ Armson H, Aston M, Barnabe CCM, Baxter N, Bornstein S, Brouwers M, Capanec D, Cheng D, Coyle D, Demczuk L, Desroches S, Dolovich L, Etowa J, Farrell B, Ferrari M, Fiest KM, Florez I, Gagliardi A, Gagnon MP, Gaudine A, Giguere A, Goodarzi Z, Goodridge D, Graham I, Hall A, Hamid J, Hemmelgarn B, **Horsley T**, Ivers N, Iyer S, Jull J, Keeping-Burke L, Klassen T, Lal S, Legare F, Luctkar-Flude M, MacArthur C, MacDonald M, MacKinnon K, Manns B, Martin J, McGowan J, McCabe C, Mitton C, Morin S, Murphy A, O'Brien MA, Ouimet M, Paulden M, Polard S, Porr C, Rieger K, Rochon P, Ross-White A, Rotter T, Scott S, Sears K, Shah J, Sibley K, Small S, Snelgrove-Clarke E, Stelfox HT, Squires J, Stranges S, Szatmari P, Temple B, Thavorn K, Tonelli M, Vandyk A, Veroniki AA, Walker J, Wilson R, Woo K, Woodgate R, Young N, Zomahoun H / (A list of Co-Knowledge Users, Collaborators and other partners available at CIHR)

PEER REVIEWED PUBLICATIONS (STAFF)

1. Archambault PM, van de Belt TH, Kuziemy C, Plaisance A, Dupuis A, McGinn CA, Francois R, Gagnon MP, Turgeon AF, **Horsley T**, Witteman W, Poitras J, Lapointe J, Brand K, Lachaine J, Légaré F. *Collaborative writing applications in healthcare: effects on professional practice and healthcare outcomes*. Cochrane Database of Systematic Reviews 2017, Issue 5. Art. No.: CD011388. DOI: 10.1002/14651858.CD011388.pub2.
2. **Barton G**, Bruce A, Schreiber R. *Teaching nurses teamwork: Integrative review of competency-based team training in nursing education*. Nurse Educ Pract. 2017 Dec 20. pii: S1471-5953(17)30071-9.
3. Beckerleg W, Keskar V, **Karpinski J**. *Peritonitis as the First Presentation of Disseminated Listeriosis in a Patient on Peritoneal Dialysis-a Case Report*. Perit Dial Int. 2017 Mar-Apr;37(2):239-240.
4. **Bhanji F**, Topjian AA, Nadkarni VM, Praestgaard AH, Hunt EA, **Cheng A**, Meaney PA, Berg RA; American Heart Association's Get With the Guidelines-Resuscitation Investigators. *Survival Rates Following Pediatric In-Hospital Cardiac Arrests During Nights and Weekends*. JAMA Pediatr. 2017 Jan 1;171(1):39-45.
5. Brindley PG, **Cardinal P**. (Eds.). (2017). *Optimizing Crisis Resource Management to Improve Patient Safety and Team Performance*. Ottawa, ON: Royal College of Physicians and Surgeons of Canada
6. Brindley PG, Lucas A, Gillman LM, **Cardinal P**. (2017). *Chapter: Leadership and Followership in Acute Care Medicine*. In Brindley PG, & **Cardinal P**. (Eds.), *Optimizing Crisis Resource Management to Improve Patient Safety and Team Performance*. (pp. 47-56). Ottawa, ON: Royal College of Physicians and Surgeons of Canada.
7. Boet S, Thompson C, Woo MY, Pugh D, Patel R, Pasupathy P, Siddiqui A, Pigford AA, **Naik VN**. *Interactive Online Learning for Attending Physicians in Ultrasound-guided Central Venous Catheter Insertion*. Cureus 9(8): e1592. doi:10.7759/cureus.1592.
8. **Cardinal P**, Christian MD, Jeffers N, Brindley PG. (2017). *Chapter: Task Management in Acute Care Medicine*. In Brindley PG, & **Cardinal P**. (Eds.), *Optimizing Crisis Resource Management to Improve Patient Safety and Team Performance*. (pp. 35-46). Ottawa, ON: Royal College of Physicians and Surgeons of Canada.
9. Caverzagie KJ, Nousiainen MT, Ferguson PC, Ten Cate O, Ross S, **Harris KA**, Busari J, Bould MD, Bouchard J, Iobst WF, Carraccio C, **Frank JR**, ICBME Collaborators. *Overarching challenges to the implementation of competency-based medical education*. Med Teach. 2017 Jun;39(6):588-593.
10. **Cheng A**, Lin Y, Nadkarni V, Wan B, Duff J, Brown L, **Bhanji F**, Kessler D, Tofil N, Hecker K, Hunt EA. *The effect of step stool use and provider height on CPR quality during pediatric cardiac arrest: A simulation-based multicentre study*. CJEM. 2017 Apr 3:1-9. doi: 10.1017/cem.2017.12. [Epub ahead of print]
11. **Cheung WJ**, **Dudek NL**, Wood TJ, **Frank JR**. *Supervisor-trainee continuity and the quality of work-based assessments*. Med Educ. 2017 Oct 3. doi: 10.1111/medu.13415. [Epub ahead of print]
12. Collaborative Working Group on the Future of Emergency Medicine in Canada (CWG-EM);, Sinclair D, Abu-Laban RB, Toth P, LeBlanc C, Eisener-Parsche P, **Frank JR**, Holroyd B. *Emergency Medicine Training and Practice in Canada: Celebrating the Past & Evolving for the Future*. CJEM. 2017 Jul;19(S2):S1-S8.
13. de Montbrun S, Louridas M, Szasz P, **Harris KA**, Grantcharov TP. *Developing the Blueprint for a General Surgery Technical Skills Certification Examination: A Validation Study*. J Surg Educ. 2017 Aug 29. pii: S1931-7204(17)30283-0.
14. Elliott JH, Synnot A, Turner T, Simmonds M, Akl EA, McDonald S, Salanti G, Meerpohl J, MacLehose H, Hilton J, Tovey D, Shemilt I, Thomas J et al. [Living systematic review network (**Horsley T**)]. *Living systematic review: 1. Introduction-the why, what, when, and how*. J Clin Epidemiol. 2017 Sep 11. pii: S0895-4356(17)30636-4.
15. Englander R, **Frank JR**, Carraccio C, Sherbino J, Ross S, **Snell L**; ICBME Collaborators. *Toward a shared language for competency-based medical education*. Med Teach. 2017 Jun;39(6):582-587.

Publications & Awards

16. Frank JR, Cheung WJ, Sherbino J, Primavesi R, Woods RA, Bandiera G, LeBlanc C. CAEP 2016 Academic Symposium: How to have an impact as an emergency medicine educator and scholar; CJEM. 2017 May;19(S1):S16-S21.
17. Frank JR, Snell L, Englander R, Holmboe ES; ICBME Collaborators. Implementing competency-based medical education: Moving forward. Med Teach. 2017 Jun;39(6):568-573.
18. Gilfoyle E, Koot DA, Annear JC, **Bhanji F**, Cheng A, Duff JP, Grant VJ, St George-Hyslop CE, Delaloye NJ, Kotsakis A, McCoy CD, Ramsay CE, Weiss MJ, Gottesman RD; Teams4Kids Investigators and the Canadian Critical Care Trials Group. Improved Clinical Performance and Teamwork of Pediatric Interprofessional Resuscitation Teams With a Simulation-Based Educational Intervention. Pediatr Crit Care Med. 2017 Feb;18(2):e62-e69.
19. Griebenow R, **Campbell C**, McMahon GT, Regnier K, **Gordon J**, Pozniak E, Stolz D, Qaseem A, Antes G, Aboulsoud S, König H, Schulenburg D, Gehle H, Mills P, Michalis L, Weber H, Schaefer R. Roles and Responsibilities in the Provision of Accredited Continuing Medical Education / Continuing Professional Development. Journal of European CME Vol. 6 , Iss. 1,2017.
20. Grierson LEM, Mercuri M, Brailovsky C, **Cole G**, Abrahams C, Archibald D, Bandiera G, Phillips SP, Stirrett G, Walton JM, Wong E, Schabot I. Admission factors associated with international medical graduate certification success: a collaborative retrospective review of postgraduate medical education programs in Ontario. CMAJO November 28, 2017 vol. 5 no. 4 E785-E790.
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