

2020-2021
The Centre for Quality,
Innovation and Safety
(CQuInS)
1st ANNUAL REPORT

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Foreword

All healthcare providers want to provide quality care, the greatest patient safety with the best patient outcomes. Within a healthcare setting, continuous quality improvement and patient safety is a national, provincial and local priority. This agenda is only growing, with the increasing awareness and expectation from the public, emerging competency requirements from the Royal College of Physicians and Surgeons, the technological advances in medicine (both in the delivery of treatment and the data that can be extracted) and the need to provide quality healthcare within a fiscally challenged environment. This environment provided an opportunity for London to establish itself as one of the major Quality Improvement and Patient Safety programs in the country through the establishment of the Centre.

Traditionally, Academic Departments of Medicine have focused on providing clinical services, education and research, taking a more passive role in Quality Improvement (QI) and Patient Safety (PS) activities (1, 2). Top performing academic institutions have recognized that QI/PS activities, leading to improved and measurable patient outcomes, are imperative to strategic survival (3, 4). Academic Departments require faculty who role model and teach QI/PS to the next generation of physicians (5) and to inspire discovery through QI/PS research.

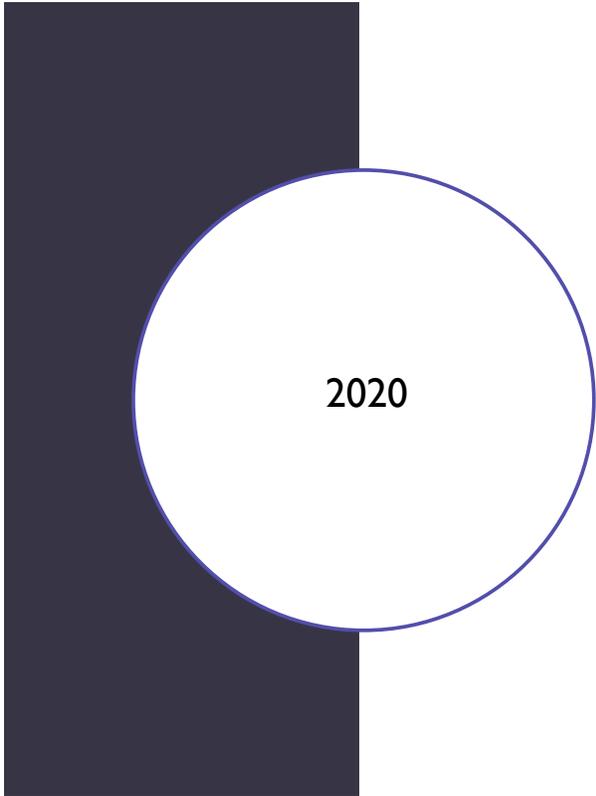
The development, implementation, sustainability and success of QI/PS activities are contingent upon institutions embracing a culture that recognizes, validates and supports this work. This is only possible in an environment where QI/PS projects are a priority and recognized through protected time, funding opportunities and academic advancement based on the contributions of faculty involved in this work.

The Department of Medicine (DOM) within the Schulich School of Medicine & Dentistry at Western University has been increasing its capacity for QI over the last few years. We have hired a number of faculty members with an advanced degree in QI/PS, or in a subject where QI is a substantial part of the overall curriculum (e.g. Healthcare Administration). The Department Chair/Chief, Dr. James Calvin, is a Cardiologist who holds a Physician's Executive MBA, focusing on QI in Lean Six Sigma and Theory of Constraints. He has been a champion in the field of QI for over 20 years and felt that now was the time to develop the capability and capacity to undertake scholarly QI, to create an environment and develop a community do so.

At the end of May 2020, during the first wave of the COVID-19 Pandemic, the idea of a Centre for Quality, Innovation and Safety became a reality, together with its key partners; the DOM, Schulich School of Medicine and Dentistry and the integrated Department of Medical Affairs for London Health Sciences Centre (LHSC) and St Joseph's Health Care, London (SJHC). Its objective being to build an effective

collaborative community in the field of QI/PS Science. Its creation was timely, having synergies with many strategic quality improvement initiatives locally that were already planned, but also at the time of the global pandemic presenting opportunities for the mobilization of rapid implementation of quality improvements, it was key to enable a community to share, learn and grow, for the benefit of our patients and public.

Our Vision and Mission 2020



Vision:

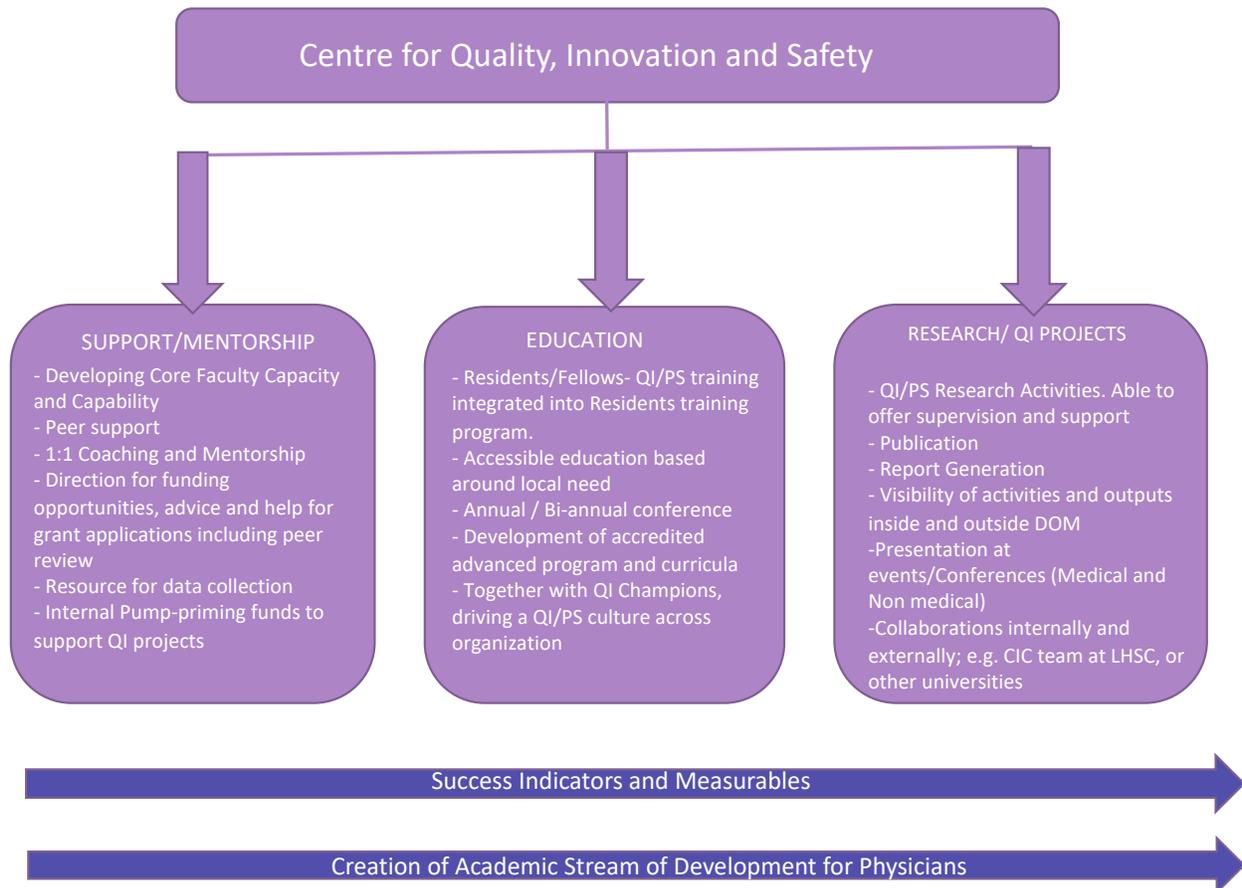
- To become a national leader in health care quality through the continuous pursuit of excellence in all we do for our patients.

Mission:

- To empower and support our healthcare faculty as they continually improve the standards of the quality of the patient-focused care they provide based on the highest proficiency of collaboration and innovation.

Our purpose

The purpose of the Centre is built around 3 main functions; all ultimately aimed at improving the Quality and Safety of patient care. These were derived from a needs' analysis completed while proposing the creation of the Centre. These 3 functions have been a driving force in our initial priorities in this first year and will continue to be as we develop our strategic planning over the coming months. Developments during this first year, relating to these 3 functions will be explored further in the main body of this report.



Director's Message

Welcome to the inaugural report from The Centre of Quality, Innovation, and Safety. We have completed our first full year as an approved centre and what an eventful year it has been. Starting up new projects and new programs is always stressful with much activity being done and often little to show for it in the first year. But the COVID-19 pandemic crisis provided an opportunity to demonstrate value of our emerging centre.

As health care professionals we are committed to always challenge the status quo. We can always do better!! But new technology, new treatments, and new diseases challenge our creativity and our energy and commitment beyond our predictions, to achieve and set new standards of care. This Centre is meant to be a means to facilitate our ambitions to be “standard setters”. It is a means for us to share ideas, to share resources and to build a professional standard of excellence that is the lead in the quality of clinical care in our nation.

Within our first year we have established and improved education curricula, postgraduate training, entered into a relationship with the Ivey Business School on quality education for business students, and have demonstrated innovation by the creation of a virtual ambulatory clinic for COVID-19 patients which has been invaluable in managing our healthcare resources. As a department we have reduced delays in creating discharge summaries on inpatients – an important component of transitional care.

Our focus in taking on new projects includes investigator-initiated projects such as urinary catheter removal on inpatients as well as corporate projects including not only ambulatory virtual care but also reducing hospital re-admission and length of stay. At the same time we are building an exciting and stimulating educational curriculum for postgraduate learners, Attendings, and others interested in Quality of Care and is a key focus going forward. We expect to be able to spread our enterprise beyond the Department of Medicine to other departments within both the Schulich School of Medicine and Dentistry and the hospitals. We have created, through our Quality and Safety Mastermind Series, a forum for discussion around projects and quality improvement methodology that has attracted attention by Attendings from other departments. Our expectation is that this will develop into a faculty-wide program and centre for all within the Schulich School of Medicine and Dentistry.

Governance and Structure

Consistent with the requirements of Centres at Western University, we have convened a Governing Board. Due to workload and member priorities during the pandemic, as well as leadership changes at both partner hospitals, this has delayed the convening of this board. However, its inaugural meeting is planned for the beginning of the academic year 2021 and will advise on high level strategy for the Centre, provide oversight and monitor progression, supporting the Centre's strategic planning cycle during 2021.

An Advisory Committee will also be put in place, with a role to advise the Governing Board and Director and provide more direct support for the ongoing development and support of the Centre. It is planned that the formation, role and membership be discussed during consultation as part of the strategic planning cycle and will likely be a Year 2-3 development. It is envisioned that the membership for this Committee will come from a variety of healthcare professions and backgrounds.

In these initial years mentorship/support for our members, education for our community and research/QI activities will be planned, monitored and reported through the Faculty Members Committee, but as activity grows and Centre membership increases, it may be required that sub-committees form to oversee such areas. At present the Faculty Members Committee meets monthly and all minutes are recorded.

Terms of Reference have been drafted for all committees; actual and proposed for the future. These will be ratified over the coming months. As highlighted in the original Centre proposal, no corporation is sought.

The figure below highlights the Governance and Structure of the Centre. It also highlights the Centre workstreams covering the existing QI projects supported or led by the Centre and educational activities, during this first year 2020-2021. Further information regarding this work can be found later in this report.

Who we are

CQuInS Office

CQuInS Director, Dr. James Calvin MD, MBA



Dr. Calvin is currently the Richard Ivey Chair of Medicine at Western University and Chair/Chief of the Department of Medicine, a position he has held since 2013. He is also the inaugural Director for the Centre for Quality, Innovation and Safety (CQuInS).

Having completed his MD at Dalhousie University, he completed his internal medicine and critical care residency at Western University and cardiology residency in Ottawa before going to San Francisco for two years to be a research fellow at the Cardiovascular Research Institute at the University of California. He held faculty positions in Cardiology in Ottawa and was Vice Chair of the working group in Critical Care, for the Ministry of Health for Ontario, before moving to Chicago in 1991. There he held a number of senior leadership roles in Cardiology and Cardiovascular Medicine, including Division Chairs, at both Cook County Hospital and Rush University Medical Centre until 2013.

Dr. Calvin has a long history in healthcare research, improvement and process redesign of care delivery systems, from his experience of leading Cardiology services in the U.S. and in his current Department of Medicine leadership role. His research interests have involved creating better patient outcomes and resource utilization for patients with Acute Coronary Syndromes (ACS) and for patients with heart failure, publishing widely on a number of aspects of this care. These studies have contributed to the evidence base for many quality improvement projects that he then took forward successfully both locally and nationally. He has previously been involved in a number of high-profile cardiovascular research studies. More recently, Dr. Calvin has been involved in improving quality of care by enhancing physician behavior when prescribing therapy for patients with ACS and heart failure and also enhancing patient behavior by teaching self-management techniques in chronic heart failure. He was on the steering committee of the national CRUSADE registry for Acute Coronary Syndrome in the U.S. and was principle or co-author on three publications from that appointment.

Dr. Calvin has published and lectured extensively about his experiences and has mentored many residents and fellows doing quality improvement projects. He has an MBA with training in Lean Six Sigma and other improvement methodologies.

CQuInS Associate Director, Dr. Louise Moist, BSc (Pharm), MSc, MD



Dr. Moist is the Associate Director for CQuInS. She began her career as a pharmacist prior to completing her medical education at McMaster University. She completed her Internal Medicine and Nephrology certification as well as a Masters in Epidemiology and Biostatistics at the University of Western Ontario. She is also a Certified Canadian Physician Executive, credentialing her significant role in healthcare leadership.

Dr. Moist is a Research Scientist and Professor of Medicine and Epidemiology and Biostatistics at the University of Western Ontario and Associate Chair, Division of Nephrology at the London Health Sciences Centre. She has developed a significant provincial, national and international leadership role, including a Medicine Physician leadership role within the Ontario Health Team West, Medical Lead for Dialysis Access for the Ontario Renal Network, President for the Canadian Organ Replacement Registry, Chair-International Society of Nephrology Research Initiative, and Canadian Society of Nephrology, Guideline Chair for both The Management of Anemia in Chronic Kidney Disease and Timing of Dialysis Start. She has been involved in a number of local, national and international quality improvement initiatives as a result of these appointments.

She recently completed Master's Certificates from the Schulich School of Business, York University: the OMA/CMA Schulich School of Business Physician Advanced Leadership Development Program and in Health Care Management as well as the EQUIPS course through the Centre for Quality Improvement and Patient Safety in Toronto. Her clinical and research interests include vascular access in the hemodialysis patient, and progression and treatment of chronic kidney disease, with a focus on implementation science. She has received peer-reviewed research funding from CIHR, Physicians Services Incorporated, Lawson Health Research Institute and the Canadian Foundation for Innovation. Her publications include over 190 academic papers, articles and abstracts and she has been recognized for her roles within the academic environment, having received a number of awards for her research and contributions to medical education.

Current QI Project involvement:

- Implementation of Community Based IV Antibiotic Stewardship Program in Southwestern Ontario
- Timeliness Discharge Summary Distribution -LHSC/SJHC A Quality Improvement Initiative
- Anemia in the post-transplant population: A Quality Improvement Project
- Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules

CQuInS Clinical Lead, Dr. Alan Gob BSc (Pharm)MD, MSc



Dr. Alan Gob is the CQuInS Clinical Lead and an Associate Professor in the Department of Medicine, Division of Hematology at Western University. He undertook his undergraduate studies at the University of Toronto and completed his Medical Training at Western University. In 2013, he then went on to complete an MSc in Quality and Safety at the University of Toronto, and currently holds an Adjunct Professorial appointment in the Department of Graduate Studies Institute of Health Policy, Management and Evaluation, University of Toronto.

As well as the science of Quality Improvement, Dr. Gob's interest also lies in providing education to others in QI and Patient Safety. He has developed a number of novel educational curricula designed for different participants and professions and is Director of the Quality Education within CQuInS, with projects from these curricula being presented locally and internationally. He is also an avid creator of novel ways of engaging others in QI education, using a variety of media.

Dr. Gob has been involved in a number of hospital wide QI initiatives including the introduction of Patient-Orientated Discharge Summaries and the reduction of unnecessary patient investigations (Pause the Draws), as well as QI of the admission and discharge pathway for patients, especially in relation to readmission. Dr. Gob is recognized as an effective mentor to fellow faculty and students is interested on the role of mentorship in team culture and organizational growth.

Current QI Project involvement:

- Reducing readmission to a medical CTU
- Development of new education curricula for CQuInS including a Certificate in QI
- Increasing capacity for autologous stem cell transplants by outpatient conditioning therapy
- Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules

CQuInS Operational Lead, Dr. Natasha McIntyre, MSc, PhD



Dr. McIntyre is the CQuInS Operational Lead and holds Adjunct positions within the Department of Medicine, Schulich School of Medicine and Dentistry and the Arthur Labatt Family School of Nursing,

Faculty of Health Sciences at The University of Western Ontario. She oversees the operational direction of the Centre and its programs as well as being involved in Centre QI initiatives.

Her interests lie particularly with the implementation of evidence into practice, patient safety and ethics in quality improvement. She qualified as a nurse in 1991 in London, UK, where she specialized in nephrology nursing and worked in the National Health Service (NHS) until moving to Canada in 2014. She has held a number of senior nursing leadership roles in the UK and was Head of Clinical Quality and Patient Safety and Deputy Chief Nurse for Southern Derbyshire Clinical Commissioning Group, prior to moving to Canada. Whilst working in the NHS, she been actively involved in quality improvement for over 20 years. She has post-graduate qualifications in Healthcare Ethics and completed her MSc in Health Service Administration from Nottingham Business School. She has experience of employing key quality improvement methodologies in a healthcare settings on a local, national and international scale, having worked with the National Patient Safety Agency in the UK and The Dialysis Outcomes and Patient Patterns Study (DOPPS) global research collaborative.

She completed her PhD at the University of Nottingham funded by a peer-reviewed research fellowship from Kidney Research UK and the British Renal Society. Together with post-doctoral work she has disseminated discoveries at national and international conferences as well as having published in a number of peer-reviewed journals.

As well as her operational role within CQuInS she is also working with the LHSC Urgent Covid-19 Care Clinic (LUC3) Quality Improvement initiative, an innovative clinic designed to virtually care for COVID-19 positive patients in a community setting.

Recent/current QI Project involvement:

- The LHSC Urgent Covid Care Clinic
- Reducing readmission to a medical CTU
- Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules

CQuInS Administrative Support, Cathy Cole



Cathy Cole is the administrative assistant for The Centre for Quality Innovation and Safety (CQuInS) of the Department of Medicine in the Schulich School of Medicine and Dentistry at Western University.

In this position Cathy works closely with the CQuInS Interim Director, Program Director, Course Directors and other CQuInS members providing administrative assistance. She serves as primary contact for external offices and provides technical and logistical support for special projects. Cathy assists with the coordination of various activities, meetings and workshops.

Prior to her position in CQuInS, Cathy joined the Department of Medicine in 2001 and held the position of administrative assistant to the Manager of Administration and Finance. She has worked at Western University in administrative roles in various departments on and off campus since 1984 including, Donor Relations and Stewardship, Ceremonies Office, Family Medicine and Liaison Services.

CQuInS Education Curriculum Specialist, Joan Binnendyk, BA, BEd, MAdEd



Joan Binnendyk is the Education Curriculum Specialist for The Centre for Quality, Innovation, and Safety (CQuInS) in the Department of Medicine at the Schulich School of Medicine and Dentistry at Western University. Prior to her position with CQuInS, Joan held Educational Developer and CBME Project Lead positions within the department of Postgraduate Medical Education.

She was the recipient of the Best Paper award at the International Conference on Residency Education in 2014 and the Schulich School of Medicine & Dentistry Award of Excellence in Innovation in 2018. Her scholarship has been presented nationally and internationally in the areas of curriculum mapping, assessment, clinical teaching evaluation, CanMEDS integration, and effective teaching methodology.

Joan holds a Bachelor of Arts from Western University, a Bachelor of Education in Adult Education from Brock University, and a Master of Adult Education from St. Francis Xavier University. She has taught at Fanshawe College, Lambton College, Colleges Ontario, and Western University. Since joining CQuInS she has been integral in the development of the educational curricula developed within the Centre.

Current QI Project involvement:

- Development of new education curricula for CQuInS including a Certificate in QI
- Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules

QI, Consultant, Joseph Carson BHSc, MSc



Joseph Carson is a quality improvement consultant within CQuInS and has an active role in mentoring teams going through the co-learning curriculum while also actively practicing continuous quality improvement clinically. Since 2015, he has led process improvement studies at the Schulich School of Medicine and London Health Sciences Centre (LHSC), and more recently within a clinical setting that he

has been integral in creating, in line with his strong QI principles. Joseph's work focusses on patient transitions, staff communication, and infection control. He has published in multiple peer-reviewed journals and presented at academic conferences in Canada and the United States.

Joseph became interested in quality improvement as a research assistant at the University of Toronto, centralizing participant recruitment for spinal cord injury studies. Afterwards, he managed information technology projects for health organizations across Ontario. As a graduate student, Joseph created the London Transfer Project, improving information exchange between hospitals and long-term care homes in the London-Middlesex region.

Joseph holds a Bachelor of Health Sciences from Western University, and a Master of Science in quality improvement and patient safety from the University of Toronto, Institute of Health Policy, Management and Evaluation (IHPME). He has also completed a fellowship in systems leadership and innovation at the MaRS Discovery District in Toronto. Joseph has received the Harry and Rose Perlstein Award at IHPME and the Diane Y. Stewart Award at LHSC.

Current QI Project involvement:

- Rheum Service: Improving referral triage accuracy in outpatient rheumatology.
- Rheum Service: Reducing wait times in outpatient rheumatology during COVID-19
- Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules

CQuInS QI Co-ordinator, Andrea Dafel, BSc, MPH



Andrea Dafel is a QI Co-ordinator, supporting clinical QI projects within the Centre for Quality, Innovation and Safety. She recently completed her Master of Public Health (MPH) degree at Western University. Previously, she graduated with a Bachelor of Science (Honours) degree in Medical Science from Brock University. Andrea is passionate about healthcare reform to increase patient safety and satisfaction. Specifically, she is interested in utilizing a public health lens, focused on healthy equity, to provide individuals from diverse backgrounds with the highest quality patient centered care.

She began her quality improvement career during university, working on the implementation and sustainability of an intentional nurse rounding protocol within the Niagara Health System. This project was the first of its kind in Ontario and has greatly impacted the surrounding areas by providing local community members with the highest quality patient centered care. Andrea looks forward to further developing her quality improvement skills while working collaboratively on projects within the Centre for Quality Innovation and Safety.

Current QI Project involvement:

- The LHSC Urgent Covid Care Clinic
- Improving the Discharge Summary Timeliness in Medicine

Core Department of Medicine Faculty Members

Dr. Erin Spicer MD, MSc



Dr. Erin Spicer is an Assistant Professor in the Department of Medicine, division of General Internal Medicine at Western University. She completed her medical degree at the University of Toronto in 2013, before doing her residency at Western University in General Internal Medicine. In 2018 she was awarded an MSc in Quality Improvement and Patient Safety from the University of Toronto. Presently she also holds an Adjunct Assistant Professors appointment in the Department of Graduate Studies Institute of Health Policy, Management and Evaluation, University of Toronto.

Dr. Spicer's previous activities include being involved in the implementation of Patient Orientated Discharge Summaries (PODS) across Medicine at London Health Sciences Centre (LHSC) with the team receiving the LHSC President's Award for Innovation in 2018. She is the primary investigator for the AMOSO funded 'WalkMORE' research study, which is looking at the effect of training volunteers to mobilize with medicine inpatients to reduce deconditioning.

She is currently one of the Directors for the LHSC Urgent Covid-19 Care Clinic (LUC3), a novel initiative started during Wave 1 of the COVID-19 Pandemic. This clinic is designed to virtually care for COVID-19 positive patients in a community setting, including self-monitoring of patient's oxygen levels at home; an initiative for which Dr. Spicer was one of the recipients to be awarded the 2020 Department of Medicine Award for Excellence for Innovation.

She is a physician representative on the Inter-Professional Practice Advisory Council and acts as a supervisor and advisor to physician trainees and medical student for QI projects.

Current QI Project involvement:

- Lead- The LHSC Urgent Covid Care Clinic

Dr. Andrew Appleton MD, MHA



Dr. Andrew Appleton is an Assistant Professor in the Department of Medicine, division of General Internal Medicine at Western University. He practices acute inpatient, ambulatory and perioperative medicine at University Hospital. He completed his medical school and residency training at Western University and has also completed a Master's of Health Sciences in Health Administration at the University of Toronto. He has recently completed the ICES Faculty Scholars Program at Western. His main clinical interest is in the management of complex chronic disease but he is also interested in investigating care delivery models, integrated care pathways and care transitions. His academic focus is on health services research and quality improvement. He was the Clinical Lead for the successful implementation of the Patient-Oriented Discharge Summaries in acute medicine at the UH LHSC site that went on to be awarded LHSC's President's award for Innovation in 2018. This initiative was part of an HQO ARTIC grant held by UHN OpenLab.

Dr. Margaret Taabazuig MD, MHE, FRCPC



Dr. Margaret Taabazuig is an Associate Professor in the Division of Geriatric Medicine. She completed her medical degree in Havana and did her residency in Internal Medicine in New York and Geriatric Medicine in Michigan. She has been the Program Director of the Geriatric Medicine Residency program since 2014. She is also the Physician Lead for the Clinical Teaching Unit - Acute Care of the Elderly (CTU-ACE) and holds a Master's degree in Health Evaluation (MHE) from the University of Waterloo.

Her areas of interest are poly-pharmacy, multi-morbidity, hospital care of older adults, including quality improvement initiatives regarding early mobilization of hospitalized older adults and delirium prevention and impact on the patient and length of stay. She has been recognized for her teaching and she is a recipient of the University Student Council award of teaching excellence. She has collaborated provincially and locally on quality improvement projects. She was the local Physician Lead and co-investigator of the

Council of Academic Hospitals of Ontario (CAHO), Adopting Research to Improve Care (ARTIC) project entitled Mobilization of Vulnerable Elderly in Ontario (MOVE ON) and MOVE ON+ projects at London Health Sciences Centre. Results from MOVE-ON and MOVE-ON+ which have been published in peer review journals, resulting in significant cultural change and in advancing local knowledge in early mobilization of older adults, with the goal of decreasing incident delirium and functional decline. The MOVE-ON project has been adopted by other local non CAHO hospitals as well as other provinces in the country. Dr. Taabazuing is currently involved in several local quality improvement projects along with residents and other local quality improvement leads.

Current QI Project involvement:

- Physician Lead – Choosing Wisely Lose the Catheter
- Adverse events in alternate-level-of-care patients awaiting long-term-care in hospital
- Optimizing Geriatric Virtual Care during Covid

Dr. Mark Goldszmidt MD, MPHE, PhD



Dr. Mark Goldszmidt is a Professor of Medicine and General Internist in the Department of Medicine, division of Internal Medicine and a Research Scientist at the Centre for Education Research and Innovation (CERI) at Schulich School of Medicine and Dentistry. He is also a member of the Centre for Quality, Innovation and Safety (CQInS). Dr. Goldszmidt has a master's in health Professions Education from the University of Illinois at Chicago and a PhD from the School of Health Professions Education at Maastricht University, the Netherlands.

As an innovator, he has participated in numerous change efforts including the creation of CERI and its role in the development of a community of practice in the field of medical education. He has also participated in numerous QI change efforts on the CTUs at University Hospital and, in his role as site chief hopes to act as a change agent to support ongoing CQI.

As a researcher he has considerable experience in supervision and mentorship as well as expertise in qualitative methodologies. His program of research largely takes place in clinical practice settings where he explores practice variability, communication and collaboration and the often-competing tensions of education and clinical care. His most recent QI grant funded study is:

Development and Validation of a Resuscitation Preferences Video Decision Aid at the London Health Sciences Center (LHSC). Academic Medical Organization of Southwestern Ontario (AMOSO) Innovation fund, \$144,263, 2021-2023.

Current QI Project involvement:

- Development and Validation of a Resuscitation Preferences Video Decision Aid at the London Health Sciences Center (LHSC)
- Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules

Dr. Mayur Brahmania MD, MPH



Dr. Mayur Brahmania is an Assistant Professor of Medicine at Western University practicing in Hepatology and Transplant Hepatology. He completed his medical degree at the University of Saskatchewan and residency at the University of British Columbia in Internal Medicine and a Gastroenterology fellowship at the University of Manitoba. He moved to Toronto for training in general and transplant Hepatology at the Toronto Centre for Liver Disease, as well as undertaking a research fellowship and earning a Masters of Public Health (MPH) degree at the Harvard TH Chan School of Public Health in Boston, MA. He also holds advanced certification from the Centre for Quality Improvement and Patient Safety (CQUIPS) at the University of Toronto.

Dr. Brahmania has been involved with the Choosing Wisely Canada (CWC) campaign as the Canadian Association for the Study of Liver Quality Lead. In this role, he led the development of the top 5 recommendations for Hepatology and this group is currently working to develop strategies to benchmark quality indicators for liver disease across Canada. He also works with CWC on the “Diving into Overuse in Hospitals” campaign. In 2020, he helped lead LHSC to being awarded Level 3 designation by Choosing Wisely Canada. Locally, he is the program lead at Western for the Royal College’s STARS (Students Advocating for Resource Stewardship) campaign to develop quality improvement learning and principles for Medical Schools in Canada.

Dr. Brahmania is the current chair of the Gastroenterology Quality Improvement and Innovation Committee at Western University and currently focuses his research interests around quality improvement initiatives to standardize quality of care in patients living with liver disease; many of these leading to publications in peer reviewed journals and presentation. He is also active in promoting quality improvement and patient safety within an educational setting; instructing and supervising resident quality improvement projects. He is currently also a mentor within CQUIPS in Toronto and is Co-Director of the LHSC Healthcare Excellence Incubator, an innovative course where healthcare and business students learn together about quality improvement principles and implementation.

In 2021, Dr. Brahmania was awarded the Canadian Association of Gastroenterology Young Scholar in Quality Innovation Award.

Current QI Project involvement:

- Reducing Length of Stay Post-Liver Transplant Using the Model for Continuous Improvement
- Reducing 30-day Readmission rates Post-Liver Transplantation
- Reducing the Rate of Hyperglycemia Post-Liver Transplantation
- Development of the Schulich-Ivey Healthcare Consultancy curriculum

Dr. Saira Zafar MD



Dr. Saira Zafar is an Associate Professor in Department of Medicine at Western University. She completed her medical school training at King Edward Medical University, Pakistan. She did her core internal medicine residency and fellowship in General Internal Medicine at Western University. During her residency, she developed an interest in quality improvement and patient safety after winning the Excellence in Research Award for her work on medical errors in the Clinical Teaching Units. She went on to do a clinical scholar year at Western with a focus on improving medical inpatient quality of care. She is involved with various quality improvement projects such as improving hand hygiene compliance rates of residents and medical students, improving discharge summary information, the use of BiPAP in medical patients and medication reconciliation. She has also been working on implementing strategies to identify high risk patients for readmission in-order to provide intensive peri-discharge care to reduce readmission rates. She is involved with the QI curriculum for GIM postgraduate trainees and supervises their QI projects.

In 2020 she was awarded funding from the Academic Medical Organization of Southwestern Ontario (AMOSO) Innovation fund towards a QI initiative looking at the role of patient coaching to reduce readmissions following discharge from CTU.

Current QI Project involvement:

- Reducing readmission to a medical CTU

Dr. Uday Deotare MBBS, MD, DM



Dr. Uday Deotare is an Assistant Professor in the Department of Medicine, Division of Haematology at Western University. He completed his medical degree at the University of Mumbai before doing his residency in Medicine and Haematology in India. In June 2017, Dr. Deotare completed a Clinical Research

Fellowship in the area of Leukemia and Bone Marrow Transplantation at the University of Toronto before being appointed to his Faculty position at Western.

For Dr. Deotare, quality improvement and innovation are the backbone to his research interests, with management of patients having stem cell transplants being a particular focus. He is currently leading a project for the safe and effective transfer of inpatient autologous stem cell transplantation into an outpatient setting. This has resulted in the amelioration of an inpatient stay, with all aspects being done as an outpatient, cost savings and an improved patient experience.

Current QI Project involvement:

- Increasing capacity for autologous stem cell transplants by outpatient conditioning therapy
- Discharge summary to PCP in 48 hours on Hematology Floor C7
- Increasing immunization compliance in Auto post-transplant patients at 6 months
- Early discharge of Auto patients from inpatients to outpatients on Day 15 post-transplant

Dr. Inderdeep Dhaliwal MD, MSc



Dr. Inderdeep Dhaliwal is an Assistant Professor in the Department of Medicine, Division of Respiriology at Western University. He completed his medical degree in Aruba, before doing his residency in Ann Arbor, MI in General Internal Medicine and Respiratory Fellowships in London and Ottawa. In 2017 he was awarded an MSc in Health Quality, Risk and Safety from the Queens University, Kingston.

Dr. Dhaliwal is an active figure in improving quality of care for respiratory patients and is currently the respiratory lead in the Lung Diagnostic Assessment Program, a program to improve the time for diagnosis for patients with suspected lung cancer in southwest Ontario. He has also developed an outpatient pleuroscopy program at LHSC for outpatient diagnosis and management of suspected malignant pleural effusions, that has resulted in significant cost savings, reduction in length of stay for these patients and improved patient experience. Dr. Dhaliwal is also working with the LHSC Urgent Covid-19 Care Clinic (LUC3) Quality Improvement initiative, a clinic designed to virtually care for COVID-19 positive patients in a community setting.

Current QI Project involvement:

- The LHSC Urgent Covid Care Clinic

Dr. Sameer Elsayed MD, MSc



Dr. Elsayed is Professor in the Division of Infectious Diseases (Department of Medicine), Division of Microbiology (Pathology & Laboratory Medicine), and Department of Epidemiology and Biostatistics. He holds degrees in Medicine (M.D., Queen's University at Kingston), Biology (BSc., Western University), and Healthcare Quality (MSc., Queen's University at Kingston), and is currently completing a Master of Public Health (Epidemiology) degree at Harvard University. He holds certifications in Infectious Diseases, Internal Medicine, and Medical Microbiology from the Royal College of Physicians and Surgeons of Canada. Dr. Elsayed is the inaugural and current Director of the Adult Infectious Diseases Residency Training Program at Western University.

Dr. Elsayed is the Physician Lead for the Antimicrobial Stewardship Program at London Health Sciences Centre and the Chair of the Antimicrobial Subcommittee. He is also the immediate Past Chair of the Ontario Medical Association Section on Infectious Diseases and a current Executive member.

Dr. Elsayed is also actively involved in medical education and clinical research. In 2018, he received an LHSC/SJHC Professional Staff Association Leadership Award. In 2019, he received a Schulich School of Medicine and Dentistry Award of Excellence in Postgraduate Education. Dr. Elsayed has authored over 160 peer-reviewed manuscripts and abstracts on a wide range of topics in Infectious Diseases and Medical Microbiology. His research interests are in antimicrobial resistance, antimicrobial stewardship, infectious diseases epidemiology, and healthcare quality.

Dr. Khaled Lotfy MBCH



Dr. Lotfy is currently an Assistant Professor in the Department of Medicine and Division of Nephrology. He completed his medical degree at Ain Shams University Cairo with Internal and Nephrology training at Western University and a Transplant Fellowship also at Western University. He is also presently completing an MSc in Quality Improvement at Queens University and acts as a QI project advisor for residents.

Current QI Project involvement:

- Reducing readmission rates post kidney transplant
- Improving frailty assessment for potential kidney transplant recipients

Dr. Michael Chiu MD MSc



Dr. Chiu is a Nephrologist working in the Department of Medicine at Western University having completed his residency training and Dialysis Fellowship also at Western. He has recently completed an MSc in Quality Improvement at the University of Toronto and acts as a QI advisor and mentor to residents undertaking their QI initiatives.

Current QI Project involvement:

- Improving Obesity Management in MCKC (low clearance kidney clinic)

Dr. Kristen Clemens MD MSc



Dr. Clemens is an endocrinologist at St. Joseph's Health Care London and an Assistant Professor of medicine at Western University. She completed her MD, internal medicine residency and endocrinology fellowship in 2013. She then carried out additional research training as part of the Faculty Scholars Program at ICES Western from 2013-2015. She also completed her Master of Science degree in epidemiology and biostatistics in 2015.

Dr. Clemens' current interests are in diabetes and chronic kidney disease, drug efficacy and safety, and the impact of the environment on human health.

Associate Members from outside the Department of Medicine

As well as the core members, from the Department of Medicine, CQuInS also currently has over 30 Associate Members from other Schulich Departments, Trainees and LHSC staff (listed below).

It is anticipated that as awareness of the Centre increases over time, that this membership will increase.

It is also anticipated that over years to come that the Centre Full Membership expands to include other Departments other than the Department of Medicine.

Current Associate members are listed below:

| Name | CQuInS Position | Dept |
|-------------------------|------------------------|---|
| Ali Bateman | Associate | Physical Medicine & Rehabilitation |
| Andrew Caddell | Associate | Medicine |
| Catalina Casas-Lopez | Associate | Anaesthesia |
| Melissa Chin | Associate | Anaesthesia |
| Ian Chin-Yee | Associate | Laboratory |
| Andrea Dafel | Associate | Medicine |
| Susan Dimitry | Associate | Medicine |
| Nadia Facca | Associate | Quality & Performance |
| Karen Geukers | Associate | Medicine |
| Johanna Halabi | Associate | Perioperative Services |
| Niveditha Karuppiah | Associate | Anaesthesia |
| Ryan Katchky | Associate | Orthopaedics |
| Steve Lee | Associate | Medicine |
| Heather Mackenzie | Associate | Physical Medicine & Rehabilitation |
| Shiraz Malik | Associate | Family Medicine |
| Scott McKay | Associate | Family Medicine |
| Brianna McKelvie | Associate | Paediatric Critical Care Medicine |
| Brad Moffatt | Associate | General Surgery |
| Ruediger Noppens | Associate | Psychiatry |
| Sonja Payne | Associate | Anaesthesia |
| Raju Poolacherla | Associate | Anaesthesia |
| Vasavi Poolacherla | Associate | Psychiatry |
| Hussein Sadkhan | Associate | Anaesthesia |
| Ziad Solh | Associate | Pathology & Laboratory Medicine |
| Paul Stewart | Associate | Oncology |
| Julie Strychowsky | Associate | Otolaryngology |
| David Ure | Associate | Perioperative Services |
| Jennifer Vergel de Dios | Associate | Anaesthesia |
| Deepti Vissa | Associate | Anaesthesia |
| Charles Weijer | Associate | Medicine – Epidemiology & Biostatistics - Philosophy |
| Maurice Williams | Associate | Quality & Performance |
| Terry Zweip | Associate | General Surgery |

Priorities and Strategic Planning

Initial Priorities

The initial priorities, have 3 key functions with the purpose of empowering healthcare staff to improve healthcare. These 3 functions being:

- 1) **Development and Support** of our existing and potential new members
- 2) **Education** for those who want to learn how to do QI and to
- 3) Support, or the development of, **Research/Quality Improvement Innovation** in our community.

The first years will focus on building capacity to develop the current core faculty to drive the QI/PS research and education agenda; building capacity for knowledge acquisition and translation. Within the first 5 years we will gain success with some funding awards, not only for QI/research activities, but also, importantly, to support the development of staff in the form of fellowships, mentorship and coaching activities.

We have focused on development and delivery of education, engaging staff, changing culture, identifying the improvement and research priorities and effecting real change for the benefit of patients.

Educational programs offered through the Centre will complement the existing programs at the University of Toronto, Ottawa and Queens University. The Centre will educate a community of people in QI/PS, generating knowledge and skills for improvement for learners; and income, a wider QI active community and reputation for the Centre.

The Centre would also focus on working with Western University to formalize and recognize that Quality Improvement and Patient Safety is a rigorous academic endeavor, to introduce an academic pathway to promotion for Clinicians in Quality Improvement and Innovation, which is currently being recognized in other universities in Canada.

Within this first year, the focus has been on developing and supporting faculty members, ensuring staff are recruited and trained, and designing and developing the educational offerings and strategies behind them.

1) Development and Support of Members

A needs analysis was completed of known QI active faculty in early 2019 to understand the needs at that time. This was again repeated in late 2020 to highlight and understand how and if this had changed as more people became aware and involved in the Centre.

Our priorities are in the career development of the existing QI trained faculty with a goal to become recognized researchers and future leaders in QI and in addition, to expand the pool of QI active mentors, who are able to take on the mentorship roles for those enrolling in education programs, thus developing a wider community of QI interested people, expanding the QI culture, spreading the workload and allowing others to take on other QI leadership roles.

In developing the core group of faculty already trained in QI science, much of this activity has been done informally by the encouragement of mentorship and coaching, exposure to QI activities with peer support and senior departmental support, but this will be a point of focus in strategic development discussions later in 2021.

In order to expand the number of QI mentors and champions, a coordinated strategy will be developed involving engagement of QI champions from each Division within the Department of Medicine, training, mentorship and other means identified. One group that will be focussed on will be the group of faculty mentors that have just finished their first years mentoring teams of residents undertaking the QI co-learning curriculum.

A funding proposal has been developed in May 2021 to work with this group to identify their development and learning needs for them to provide effective mentorship in order to then develop the necessary interventions. This was submitted as part of Western's CPD Research and Innovation call for grant applications and at the time of writing, a decision for funding is pending.

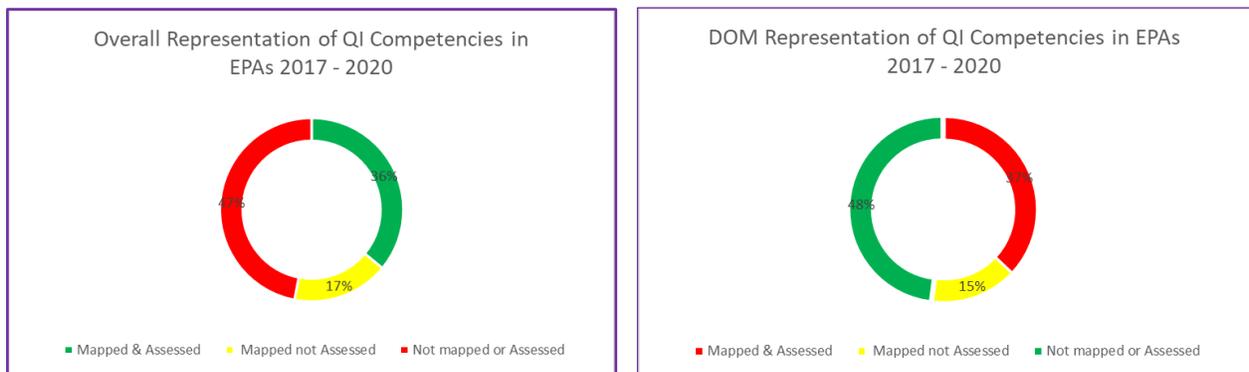
During 2021, within the strategic development cycle further work will be identified within this mission.

2) Education

ENVIRONMENTAL SCAN

In order to guide our future quality improvement and patient safety (QI/PS) educational strategies, we investigated the current integration of these competencies within postgraduate medical education curricula at the Schulich School of Medicine & Dentistry, and specifically within the Department of Medicine. We also explored the extent to which QI/PS standards were met during the most recent School accreditation.

First, a gap analysis was conducted to identify representation of QI/PS competencies within new curricula for programs transitioning to Competency-based Medical Education (CBME) between 2017 and 2020 at Western University (n=25). Through content analysis comparing QI/PS CanMEDS competencies (LDR 1.1-14, ME 5.1-5.2) to Entrustable Professional Activities (EPAs) there were educational gaps identified. The gap analysis revealed that only 36% of QI/PS CanMEDS competencies are mapped and assessed within the context of an EPA. Additionally, 17% of QI/PS competencies are mapped to an EPA but are not routinely assessed while 47% of QI/PS competencies are not mapped to an EPA at all. With respect to Department of Medicine training programs (n=8), similar numbers exist. Only 37% of QI/PS competencies are mapped and assessed within the context of an EPA. Additionally, 15% of the competencies are mapped to an EPA but not assessed, while 48% of the competencies are not mapped to an EPA at all. For Nephrology, Gastroenterology, General Internal Medicine, and Rheumatology in particular, at least 50% of the QI/PS competencies are absent from EPA curricula.



Further exploration of CBME curriculum was completed to identify EPAs that relate specifically to QI/PS. In curricula for Western residency programs transitioning to CBME between 2017 and 2020 (n=34), 41% of the specialties list a specific QI/PS EPA. e.g. *Identifying and analyzing system-level safety, quality, or resource stewardship concerns in healthcare delivery*. Of the ten Department of Medicine programs who have transitioned to CBME since 2017, eight include either a specific QI/PS EPA (n=4) or a scholarly project EPA that references QI/PS (n=4).

A final component of the environmental scan explored the results of the Schulich School of Medicine and Dentistry accreditation review that occurred in November 2019. The scan investigated the extent to which Department of Medicine residency programs met the QI/PS accreditation standard: **Requirement 3.2.6: The residency program provides formal training in continuous improvement with opportunities for residency to apply their training in a project or clinical setting.** The results of this review indicate that ten programs fully met the standard. Four programs require further follow up, either in two years or at the next regular review in eight years: Clinical Pharmacology & Toxicology; Clinical Immunology & Allergy; Emergency Medicine; and Internal Medicine.

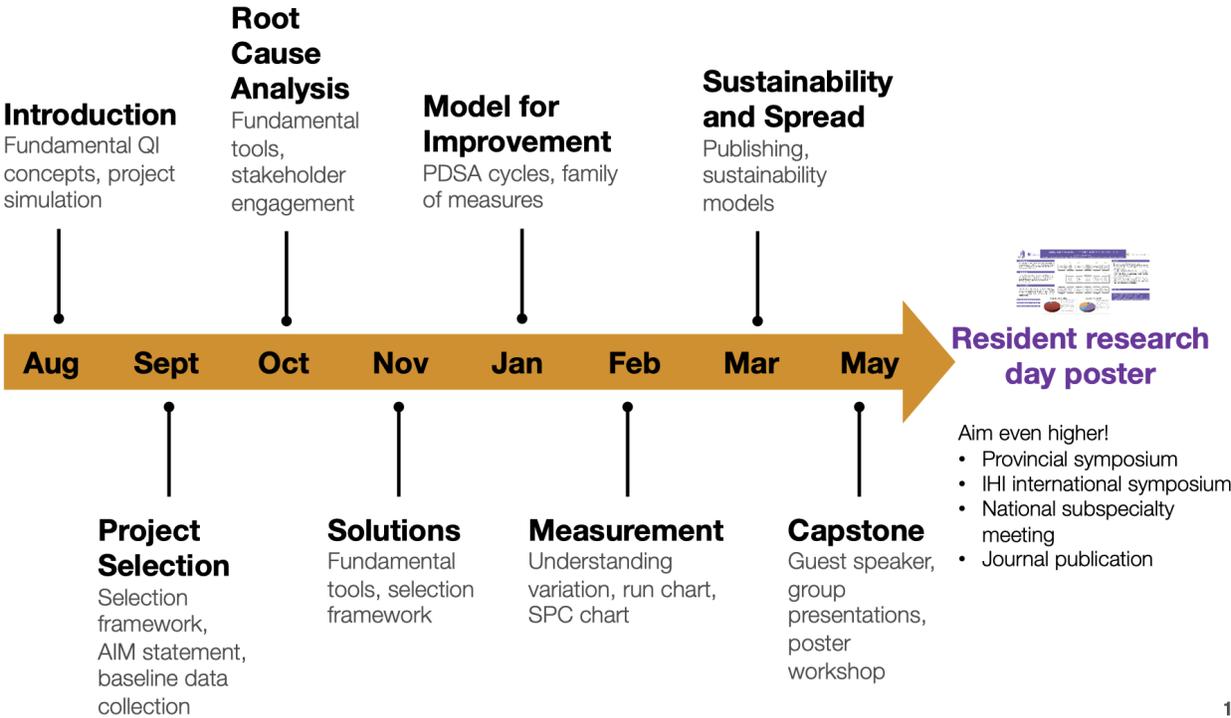
Inadequate representation of QI/PS competencies routinely tied to curricula through EPAs creates an opportunity for CQuInS to provide educational programming to address program-specific gaps in training. Knowledge of QI/PS-specific EPAs can also drive development of curricula that will help programs and their residents meet the required competencies of their training program. Knowledge of existing gaps in accreditation will be used to drive innovative engagement and education strategies.

CO-LEARNING CURRICULUM: BOOTCAMP IN QUALITY IMPROVEMENT

Led by Dr. Alan Gob, the Co-Learning Bootcamp in Quality Improvement features faculty and trainees from the Department of Medicine learning quality improvement methods together via a longitudinal team quality improvement project. The curriculum directly builds capacity for quality improvement activities by cultivating quality improvement skills in current and future faculty.

The 2020-21 academic year was the seventh year of operation, and the first year that the curriculum was delivered as a completely online experience. This year, seven divisions/departments completed nine projects; participants included endocrinology, general internal medicine, gastroenterology, geriatrics, nephrology, psychiatry, and respiratory.

The curriculum was delivered in seven modules, with each module consisting of online video content, group tasks, a group live webinar, and group coaching. The transition to online format was surprisingly smooth. Despite minimal, if any, face-to-face contact, groups successfully navigated the quality improvement project process from start to finish with much more consistency than previous curricular iterations.



Since its inception in 2014-15, multiple projects have been disseminated to national and international conferences, and several have won awards, including:

1. Reducing delays in echocardiogram test completion (Institute For Healthcare Improvement National Forum 2015)
2. Improving osteoporosis assessments post hip fracture (Canadian Society of Endocrinology & Metabolism Annual Meeting 2015)
3. Reducing CT wait times in the urgent medicine clinic (Institute For Healthcare Improvement National Forum 2016)
4. Increasing the appropriateness of referrals to the urgent medicine clinic (UWO resident research day 2017 prize winner, best poster)
5. Reducing inappropriate TSH and Vitamin D ordering on the psychiatry ward (Health Quality Ontario Annual Forum 2018 award winner, best poster; NEJM Resident QI poster Top 10 finalist; published in BMJ Open Quality 2019)
6. Improving the rate of iron deficiency assessment post renal transplant (UWO resident research day 2018 prize winner, best poster)

The Bootcamp was the first educational experience in QI created within the Department of Medicine. Its enthusiastic uptake and expansion highlighted the need for formalized infrastructure, and was among the prompts for the subsequent proposal for a centre for quality. In the 2020-21 cycle, a second improvement advisor and a curriculum specialist were added. Future plans for the curriculum include improving the rigor of participant assessment, integrating project topics more closely with divisional and departmental strategic objectives, and expanding coaching expertise to include more change management and culture change content.

CERTIFICATE IN QUALITY IMPROVEMENT IN HEALTHCARE

Building on the success of the Co-Learning Bootcamp in Quality Improvement, the certificate in quality improvement in healthcare will be the Centre's premium product. It will take the core content from the Co-Learning curriculum, and include more advanced content, more real life examples, and more coaching to achieve a higher level of performance than is expected in the Co-Learning curriculum. The certificate will also include a more robust assessment strategy to ensure that successful candidates have accomplished all of the curriculum's learning objectives.

Starting in September, 2021, the certificate program will feature a rolling enrollment and the same asynchronous online learning format as the Co-Learning curriculum. The program will be marketed as "Quality improvement coaching for anyone, at any time" and will offer participants the most practical, most convenient, and most clearly-guided project experience available in the current market. Our anticipated price point is \$3000-\$5000.

SCHULICH-IVEY CONSULTING COURSE

The Schulich-Ivey Quality in Healthcare Consultancy is a pioneering educational experience bringing together professionals from the healthcare and business spheres to solve complex healthcare problems at a micro and macro-system level. The course nurtures interest in QI/PS and provides applied experience in tackling healthcare issues within a healthcare system that is increasingly demanding value.

The 2020-2021 academic year was the third year of operation and further trained 25 registrants bringing the total to 60 Ivey business students and 20 healthcare professionals. Quickly adapting to pandemic teaching realities, the course transitioned to a fully online program wherein healthcare-business teams each explored a healthcare issue that could be optimized from both a financial and clinical perspective. The 24-week format consisted of 12 classes held bi-weekly using Zoom video conferencing software. Leveraging a flipped classroom model to ensure collaboration during class time, sessions were preceded by online modules/videos teaching basics of QI/PS methodology. The first hour of each 2-hour session was a dynamic lecture by a variety of speakers from Ivey or Schulich making the business case for change within the healthcare ecosystem. Each speaker contextualized quality improvement methodology with their broad experience in healthcare business, politics, and system improvement. The second hour of each session was assigned to group collaboration and project development. Coaching from the guest speakers and course leads was available to each group during this time. Notable projects over the past 3 years include the following:

1. Reducing length of stay post-liver transplant: Healthcare system savings of \$540,000/yr
2. Developing resource stewardship policy for IV iron usage and formulation: Healthcare system savings of \$200,000/yr
3. Facilitate virtual Covid-19 visits within the ER department: Increased numbers of patients with families being present for patient interviews during ER visit
4. Decrease length of stay for TAVI patients: Increased number of weekly TAVIs now performed
5. Centralize CCTC beds to address inappropriate utilization of ICU: Reorganization of beds according to acuity based on data usage

Program evaluation comments indicated an appreciation for the healthcare-business collaboration. Specifically, one LHSC clinician commented that, “The course was very informative, and the concepts learned were applicable to many aspects of my clinical practice. It was rewarding and educational interacting with the business students.” Another healthcare professional remarked that, “The course helped me think differently and I enjoyed brainstorming with the Ivey students [because] they challenged [the] status quo in healthcare.” Overall, inter-hospital and cross-departmental partnerships fostered numerous relationships benefiting participants, payers, the healthcare system, and most importantly, patients. Feedback from the Ivey course leads indicate a need for greater communication of course requirements and expectations up front. This is being addressed through a course syllabus which is currently under development. A more fulsome program evaluation strategy is also being developed to ensure a quality improvement approach is applied to curricular improvement year over year. This will include revised module evaluations, a revised end-of-course evaluation, and one-on-one interviews with participants.

The class of 2022 will be open to start receiving applications in May 2021 with goals to expand capacity, and ultimately foster further collaborations with the Ivey School of Business. A revised Call for Applicants has been developed to appeal to a greater variety of healthcare practitioners. In the coming iteration, applicants will be required to propose and describe a quality improvement project and its rationale in advance. All applications will be reviewed by a panel made up of the CQuInS course directors and the Ivey course leads to ensure the highest quality projects are chosen. In parallel, funding opportunities will be sought after for clinical, academic (AMOSO) and research endeavors (Instructional Innovation and Development Fund). The ongoing and future collaboration with IVEY will foster a long-term relationship that would enable larger and more complicated system and performance issues to be addressed through QI/PS projects.

CERTIFICATE IN QUALITY IMPROVEMENT IN HEALTHCARE

Building on the success of the Co-Learning Bootcamp in Quality Improvement, the certificate in quality improvement in healthcare will be the Centre’s premium product. It will take the core content from the Co-Learning curriculum, and include more advanced content, more real life examples, and more coaching to achieve a higher level of performance than is expected in the Co-Learning curriculum. The certificate will also include a more robust assessment strategy to ensure that successful candidates have accomplished all of the curriculum’s learning objectives.

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MASTERMIND SERIES

These focused sessions are targeted toward academic QI practitioners looking to expand their knowledge and share experiences with their QI peers. These events were held from 3-5pm monthly over the past year, with a few instances of cancellation due to pandemic-related intrusions. For each event, the first hour was an interactive scholarly lecture or debate with invited speakers or panelists. Themes centred around methodology, tools, research, leadership, and data. The second hour was focused on peer support and feedback for individual QI projects. Participants were invited to submit their project summary or manuscript in advance. An important developmental resource for the QI community of practice, this forum was used to encourage constructive feedback, debate, and discussion.

| DATE | TITLE | PRESENTERS |
|------------------|--|---|
| June 3, 2021 | An introduction to statistics for Quality Improvement | Dr. James Calvin, Richard Ivey Chair of Medicine and Chair Chief Department of Medicine, Western University & Director CQuInS |
| May 6, 2021 | Building a QI Program: a group discussion | Alan Gob, Assoc Professor, Hematology, Western & Clinical Lead, CQuInS |
| April 1, 2021 | Continuous Improvement of Care (CIC) | Nadia Facca, Director of Quality and Performance, LHSC Maurice Williams, Manager CIT, LHSC |
| March 4, 2021 | Understanding the Statistic of Statistical Process Control | Steve Lee, Statistical Analyst, Western |
| February 4, 2021 | Data Processing and Reporting | Jimmy Liu, Director Clinical Operations Analytics, LHSC |
| January 7, 2021 | *Strategies for Turning an Academic Medical Centre into a Learning Health System | Leora Horwitz, Associate Professor, NYU School of Medicine |
| December 3, 2020 | A Brief Introduction to Economic Evaluation | Steve Lee, Statistical Analyst, Western |

| DATE | TITLE | PRESENTERS |
|-------------------|---|---|
| November 5, 2020 | Diagnostic Tools for QI | Alan Gob, Assoc Professor, Hematology, Western & Clinical Lead, CQuInS Erin Spicer, Asst Professor, General Internal Medicine, Western |
| October 15, 2020 | The Influencer Model, A simple framework to design behavioural change | Alan Gob, Assoc Professor, Hematology, Western & Clinical Lead, CQuInS |
| September 4, 2020 | The ABCs of SPCs (Statistical Process Control) | Alan Gob, Assoc Professor, Hematology, Western & Clinical Lead, CQuInS |
| July 30, 2020 | Peer Review of Member Projects & PDSA Methodology | Alan Gob, Assoc Professor, Hematology, Western & Clinical Lead, CQuInS |
| June 25, 2020 | QI Apps | Alan Gob, Assoc Professor, Hematology, Western & Clinical Lead, CQuInS |
| February 20, 2020 | Study Design: Qualitative and Quantitative Methodology | Susan Dimitry, Research Officer, Western Demetri Pananos, Statistical Analyst, Western |
| January 30, 2020 | Ethics & Quality Improvement: To Submit or Not to Submit | Charles Weijer, Canada Research Chair, Bioethics, Western Robert Sibbald, Director Ethics, Patient Experience, and Health Equity, LHSC Erica Basile, Director Research Ethics and Compliance, Western Daniel Wyzynski, Research Ethic Coordinator, Western |

In the coming year, Mastermind Series events will present the following topics, among others:

- Division engagement in QI
- Choosing statistical tests
- QI academic pathways
- Overview of Toyota Production System
- Data manipulation in Excel

EDUCATION PROGRAM EVALUATION

As a result of an extensive review of existing and impending educational programming, it has been determined that a comprehensive program evaluation strategy would benefit CQuInS' educational offerings. A quality improvement approach would align with the Centre's mission and values while ensuring quality education continues and advances. To that end, a new program evaluation model has been proposed as the improvement framework going forward. The new model, LTEM - The Learning-Transfer Evaluation Model, developed by Dr. Will Thalheimer, was designed specifically to guide organizations in determining the effectiveness of educational interventions and is aligned with the science of learning. While the Kirkpatrick model is commonly used in education, LTEM is an advanced model that purposefully catalogs a more robust set of requirements. In the upcoming academic year, 2021-2022, LTEM will be used to guide the evaluation of all CQuInS' programming to ensure we are reaching for the highest level of educational programming.

3) Research/QI Initiatives and Innovation

These QI Initiatives and priorities developed during this first year out of clinical need and strategic priorities of our partners. During the imminent strategic planning cycle, these may develop, change or new priorities may emerge. However, the following have been examples of the CQuInS community working with and supporting members to carry out successful Quality Improvement and Innovation to improve the care we give to patients.

IMPROVING THE TIMELINESS OF DISCHARGE SUMMARIES

Timely distribution of discharge summaries (within 48 hours) optimizes patients' transitions and is associated with a decrease in readmission rates. It is also mandated by the CPSO. After multiple improvement cycles using audit and feedback score cards and education, LHSC had only 50% of summaries distributed within 48 hours in September 2020, with an average distribution time of 89 hours. CQuInS engaged with multiple stakeholders and implemented 4 improvement strategies:

1. Resident authentication of the discharge summary
2. Dictation code to auto distribute the summary, prior to physician review
3. 24 h email notification of deficient summaries
4. Monthly dissemination of data to Department Chairs.

As of April 2021, we are tracking to reach the target of 65% by June 30th with a reduction of mean time to distribution of 51 hours.

The use of a multi- intervention approach, with multi-sectorial collaboration resulted in significant improvement in a short time period. Ongoing improvement strategies will be implemented to further improve this outcome to meet the CPSO standards.

This overall improvement wouldn't have been possible without work going on locally within the Departments and Divisions. One example has been in Hematology where they started a project to understand the root causes of their poor performance with completing discharge summaries. Discharge summary sign off was 36% during the baseline collection period from September to December 2020. Root cause analysis highlighted some key areas for improvement and after 2 PDSA improvement cycles discharge summary signoff has increased to 52% by the end of April 2021. This work is ongoing and there continues to be new PDSA cycles completed during the implementation of their planned improvements

USING VIRTUAL CARE TO IMPROVE PATIENT SAFETY, OUTCOMES AND EXPERIENCE

In April 2020, facing emerging issues relating to the care needs for people with a diagnosis of COVID-19, Drs. Erin Spicer, Megan Devlin, Marko Mrkobrada and Michael Nicholson developed a new model of care for an accessible virtual clinic, intended to support those in the community who had a COVID-19 diagnosis. The clinic also aimed to support those discharged home, following a COVID-19 related inpatient admission. Within these groups of people, many were at risk of deterioration and needing rapid medical attention. Patients were referred from the Middlesex London Health Unit, local family physicians, discharging LHSC hospital physicians or emergency department physicians. Drs. Inderdeep Dhaliwal and Jaclyn Ernst initially joined the team for expanded support and since have been joined by other physicians, nurses and other key support staff.

The LHSC Urgent COVID-19 Care Clinic (LUC3) was founded, with support from The Centre for Quality, Innovation and Safety and a provincial grant. It has become a central component of the local COVID-19 care pathway, providing a powerful example of rapidly initiated and effective quality improvement implementation; conceived and delivered in the face of an escalating and unknown threat with the potential to cause widespread collapse of the healthcare system.

The program provides daily weekday virtual clinics, with follow up over the weekend. Within two days of a referral being received, patients have their first virtual appointment. Each patient is assessed to see if they require a pulse-oximeter to monitor their blood oxygen levels at home, using an easy-to-use algorithm. For patients requiring a pulse-oximeter, this is delivered directly to the patient's home, at no cost to the patient. Given the rapidly progressive nature of this disease in some patients, the clinic-based component is augmented with access to a dedicated on-call physician if needed. This is further supported by a novel direct admission pathway to a COVID-19 in-patient bed, allowing patients to by-pass the emergency department.

The clinic provides a comprehensive package of care for both escalation and de-escalation of therapy. This integrated pathway increases patient safety, reduces patient anxiety and mitigates the risk of exposure for other patients and care providers within the hospital setting. This accrues additional benefits such as minimizing the number of in-person encounters, even if requiring direct admission, and significantly reducing personal protective equipment consumption.

The initial plan was for patients to receive a single, virtual appointment, however, the model evolved as there was greater understanding about the wide-ranging needs of this group of patients. This included on-going medical follow-up by LUC3 and supplementation with additional interdisciplinary support pathways. This has grown to include pathways with clinical and neuropsychology, otolaryngology, cardiology, neurology, and physiotherapy.

As LUC3 activity levels surged during the early months of 2021, a three-pronged approach, in partnership with the Centre for Quality, Innovation and Safety (CQuInS) emerged. The goals were to formally investigate the clinical and fiscal benefits of LUC3 and the overall care package which was very much more than a simple telemedicine consultation service. The imperative to learn more about the patient experience at different timepoints of their journey was also recognized early. Data has been collected and analyzed at regular intervals and constant 'course corrections' or improvement cycles completed. Ongoing iterative patient-centred changes have provided a direct organic response to real time data collection and analysis.

In its first 12 months, the clinic has seen over 1600 patients with active disease, a large proportion of the local positive cases, with 65% of those being seen in the first 4 months of 2021. Early findings suggest that the clinic is supporting a diverse and often isolated population with limited access to other forms of healthcare. Further outreach by our physician members was initiated to support vulnerable populations including individuals who identified as Indigenous and unhoused individuals residing at special isolation spaces. The virtual care provided has been particularly well received by patients and their care givers. Patient feedback has been extremely positive, with patients feeling well supported, less anxious and grateful not to feel alone in the course of their illness. A large proportion of patients seen, had disease severe enough to warrant home pulse-oximeter monitoring.

The service provided even more support during the 2nd and 3rd wave of the pandemic. The clinic provided key support to other parts of the healthcare system, **facilitating earlier discharge** from hospital, for patients who were still on oxygen or needed closer monitoring when back at home, this reducing length of stay and creating inpatient capacity. Patients requiring closer monitoring are called by a nurse or physician at least once a day to assess their needs and manage their care as appropriate, until transition to normal follow-up. The clinic also plays a key role in **preventing admissions**, being able to manage patients' care virtually and avoiding many from presenting to the emergency department or allowing attendees to be discharged from the emergency department to be followed up by LUC3. The team are also monitoring the impact of LUC3 on the readmissions of people looked after by them.

As well as improving the safety, quality of care and experience for these patients, within the first months of the clinic's existence, it had also demonstrated significant **cost savings**.

LUC3 now provides equitable and accessible care to those who need it across the whole of the London Middlesex region and has also supported patients from the GTA who were transferred to LHSC during wave 3, in their transition back home. This patient-centred clinic started as an acute care model but has evolved to develop an additional chronic care element as the needs of this group of patients and COVID-19 are better understood. Through internal monitoring systems, it has had the ability to be responsive and implement change rapidly.

REDUCING READMISSIONS

The hospital discharge process can be a stressful experience for patients with life-long disease who often have complex health care needs. This study has some funding from the Academic Medical Organization of Southwestern Ontario (AMOSO) and is also supported by a steering committee and some human resource from CQuInS. It aims to improve patient education, discharge planning and outpatient follow up with the goal of reducing hospital readmissions on a medical clinical teaching unit. It will evaluate a patient-centered intervention that uses a "Transitional Coach" and a standard checklist to enhance patient's capacity to self-care for safer transition to home. This project is designed to employ Quality Improvement methods to test the intervention in rapid, small cycles while collecting and analyzing data on various quality indicators to make changes to the intervention and adapt it for sustainability.

Patients scored as high risk for readmission (using a validated screening tool) will be followed up prior to discharge by the Transitional Coach and closely by telephone or in-person following discharge. This study is important to educate and guide patients, improve patient outcomes and achieve significant savings to the health care system by reducing readmissions.

As of the end of May, a steering group has been set up to help and advise the design and implementation of these Quality Improvement Cycles with members bringing different experience and skills. The Transitional Coach is currently being recruited and baseline clinical data is being collected to determine root causes. It is envisaged that planned changes will be developed and executed towards the latter end of 2021.

IMPROVING ACCESSIBILITY TO DO SCHOLARLY QUALITY IMPROVEMENT

This is an area, that is as yet, still in its infancy and will be an area for much development over the coming years, however during 2020-21 there were a number of barriers identified regarding doing Quality Improvement and taking it through the Research Ethics Board Process. This involved working with the relevant bodies so that the members of the Research Ethics Board developed a better understanding of Quality Improvement and that people wanting to do Quality Improvement could go through the process in an easier and more timely manner.

Work was completed with the Research Ethics Board to develop an expedited Quality Improvement Pathway and this is now available on the Western Research Ethics Board and CQuInS website.

Advice can also be sought from experience CQuInS members for review of project proposals at any time in its inception, and plans for 2021/22 are to develop from this informal arrangement, some more formal pathways for:

- Development of a process for formal evaluation and feedback for grant proposals
- Development of a process for evaluation of prepared publication and advice on how to write for publication for those who seek it

Planning for the Future

The Centre for Quality Improvement, Innovation and Safety was approved in the middle of Wave 1 of the Pandemic in 2020. Much of the strategic development planning that may have been done was delayed. However, out of this crisis developed new innovation that will have changed the face of how healthcare is run for the foreseeable future. Many issues, such as equality and accessibility to healthcare were exposed, and many working within healthcare felt what it was to rapidly assess and change our health system to meet the needs presenting themselves in an uncertain world.

Going forward in 2021 we have planned and started a cycle of strategic planning in collaboration with a Strategic Planning Consultant. This will involve engagement with all stakeholders, understanding our present environment, looking to shape our future, developing our culture and identity. The resulting Strategic Plan will be presented towards the end of 2021, after the completion of the planning cycle.

Some of the groundwork to this has been done in early 2021 and during the months over summer and fall of 2021, there will be engagement with stakeholders and the development of a strategic plan towards the end of 2021.

In conjunction with this process, we have also been working with the Schulich Department of Communications in developing a Communications Strategy for the Centre, with emphasis on the dissemination of Quality Improvements, development and integration of a wider QI community, and marketing of educational offerings.

Publications, Grants, Awards and Accepted Abstracts

Quality Improvement- related published papers, from CQuInS members 2019-2021

2019

Brahmania M, Renner EL, Coffin CS, Yoshida EM, Wong P, Zeman M, Shah H. Choosing Wisely Canada- Top Five List in Hepatology: Official Position Statement of the Canadian Association for the Study of the Liver (CASL) and Choosing Wisely Canada (CWC). *Ann Hepatol*. 2019 Jan-Feb;18(1):165-171. doi: 10.5604/01.3001.0012.7908. PMID: 31113586.

Carson J, Gottheil S, Dyck B, Rice T. Paging the right residents the first time on General Internal Medicine: A quality improvement project. *The Joint Commission Journal on Quality and Patient Safety*, 2019; 45(10): 711-716. <https://doi.org/10.1016/j.jcjq.2019.08.001>.

Carson J, Gottheil S, Lawson S, Rice T. London Transfer Project: Reducing medication incidents after discharge from hospital to long-term care. *Journal of the American Medical Directors Association*, 2019; 20(4): 481-486. <https://doi.org/10.1016/j.jamda.2018.09.037>.

Jalbert R, **Gob A**, Chin-Yee I. Decreasing daily blood work in hospitals: What works and what doesn't. *Int J Lab Hematol*. 2019; **41**(Suppl 1): 151- 161.

Gob A, Bhalla A, Aseltine L, Chin-Yee I. Reducing two-unit red cell transfusions on the oncology ward: a choosing wisely initiative. *BMJ Open Qual* 2019; 8: e000521. [doi:10.1136/bmjoc-2018-000521](https://doi.org/10.1136/bmjoc-2018-000521)
Ismail O, Chin-Yee I, **Gob A**, et al. Reducing red blood cell folate testing: a case study in utilisation management. *BMJ Open Qual*. 2019; 8(1): e000531.

Bateman EA, **Gob A**, Chin-Yee I, et al. Reducing waste: a guidelines-based approach to reducing inappropriate vitamin D and TSH testing in the inpatient rehabilitation setting. *BMJ Open Quality* 2019; 8:e000674.

Muanda FT, Weir MA, Bathini L, Blake PG, Chauvin K, Dixon SN, McArthur E, Sontrop JM, **Moist L**, Garg AX. Association of Baclofen With Encephalopathy in Patients With Chronic Kidney Disease *JAMA*. 2019 Nov 9;322(20):1987-1995

2020

Carson J, Taabazuing M, Sider C, et al. 6 Reducing unnecessary patient isolation on general medicine units. *BMJ Open Quality* 2020;9: doi: 10.1136/bmjoq-2020-IHI.6

Carson J, Gottheil S. Rheum Service: improving virtual care during COVID-19. *BMJ Open Quality*, 2020; 9 (Suppl 1), A12.

Tai F, Chin-Yee I, **Gob A**, et al. Reducing overutilisation of serum vitamin D testing at a tertiary care centre. *BMJ Open Quality*. 2020;9:e000929–938.

Sachedina AK, Mota S, Lorenzin J, Allegretti M, Leyser M, **Gob A**, McKelvie R. Effect of a formalised discharge process which includes electronic delivery of prescriptions to pharmacies on the incidence of delayed prescription retrieval. *BMJ Open Quality* 2020; **9**: e000849. doi: 10.1136/bmjoq-2019-000849

Lok C, Huber TS, Lee T, Shenoy S, Yeyzlin AS, Abreo K, Allon M, Asif A, Astor BC, Glickman MH, Graham J, **Moist LM**, Rajan DK, Roberts C, Vachharajani TJ, Valentini RP. KDOQI Clinical Practice Guideline for Vascular Access: 2019 Update *Am J Kidney Dis* . 2020 Apr;75(4 Suppl 2):S1-S164.

Suri R, Antonsen JE, Banks CA, Clark D, Davison SN, Frenette CH, Kappel JE, MacRae JM, Mac-Way F, Mathew A, **Moist LM**, Qirjazi E, Tennankore KK, Vorster H. Management of Outpatient Hemodialysis During the COVID-19 Pandemic: Recommendations From the Canadian Society of Nephrology COVID-19 Rapid Response Team. *Can J Kidney Health Dis*. 2020 Sep 11;7

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Deotare U, Fulford A, Xenocostas A, Nugent S, Reiger S, Mussio M, Caldwell D, Halley C, **Gob A**. Increasing Capacity for Autologous STEM Cell Transplants By Outpatient Conditioning Therapy: A Quality Improvement Study. *Transplantation and Cellular Therapy*. 2021 Mar;(23): S93-S94

QI related Grants Awarded 2020-21

Dr. Mark Goldszmidt: Development and Validation of a Resuscitation Preferences Video Decision Aid at the London Health Sciences Center (LHSC). Academic Medical Organization of Southwestern Ontario (AMOSO) Innovation fund, \$144,263, 2021-2023

Dr. Saira Zafar: Reducing Readmissions to a Clinical Teaching Unit. Academic Medical Organization of Southwestern Ontario (AMOSO) Innovation fund, \$25,000, 2021-2023

Dr. Louise Moist: Needs Assessment among Medicine Faculty supervising Quality Improvement interactive teaching modules. Western CPD Research and Innovation Award. \$9984. CQuInS Project team: L. Moist, A.Gob, M Goldszmidt, J.Carson, J. Binnendyk, N.McIntyre

QI related Awards 2020-21

Schulich Department of Medicine Innovation Award of Excellence awarded to **Drs Erin Spicer and Marko Mrkobrada** for the development of the LHSC Urgent Covid Care Clinic (LUC3) awarded December 2020.

Canadian Association of Gastroenterology Young Scholar in Quality Innovation award, awarded to **Dr. Mayur Brahmania** (announced in December 2020 and awarded March 2021).

QI Accepted Conference Abstracts 2020

Carson J, Gottheil S. Rheum Service: improving virtual care during COVID-19. (2020). IHI Scientific Symposium.

Gottheil S. **Carson J**. Rheum Service: improving virtual care during COVID-19. (2020). American College of Rheumatology Convergence Conference.

Carson J, Taabazuing M, Sider C, et al. Reducing unnecessary isolations on general medicine at london health sciences centre. 2020. Choosing Wisely Canada National Meeting.

Deotare U. Increasing capacity for autologous stem cell transplants by outpatient conditioning therapy: A Quality Improvement Study. (2020). IHI Scientific Symposium.

D’Cruz J, Mrkobrada M, Nicholson M, Devlin M, **Spicer E**. Is it worth the cost? Cost-analysis of a QI Initiative via telehealth monitoring at LHSC Urgent COVID care clinic (LUC3). (2020). IHI Scientific Symposium.

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2. Neeman N, Sehgal NL, Davis RB, Aronson MD. Quality improvement and patient safety activities in academic departments of medicine. *Am J Med.* 2012;125(8):831-5.
3. Staiger TO, Wong EY, Schleyer AM, Martin DP, Levinson W, Bremner WJ. The role of quality improvement and patient safety in academic promotion: results of a survey of chairs of departments of internal medicine in North America. *Am J Med.* 2011;124(3):277-80.
4. Keroack MA, Youngberg BJ, Cerese JL, Krsek C, Prellwitz LW, Trevelyan EW. Organizational factors associated with high performance in quality and safety in academic medical centers. *Acad Med.* 2007;82(12):1178-86.
5. Staiger TO, Mills LM, Wong BM, Levinson W, Bremner WJ, Schleyer AM. Recognizing Quality Improvement and Patient Safety Activities in Academic Promotion in Departments of Medicine: Innovative Language in Promotion Criteria. *Am J Med.* 2016;129(5):540-6.