

Faculty of Health Sciences | School of Medicine

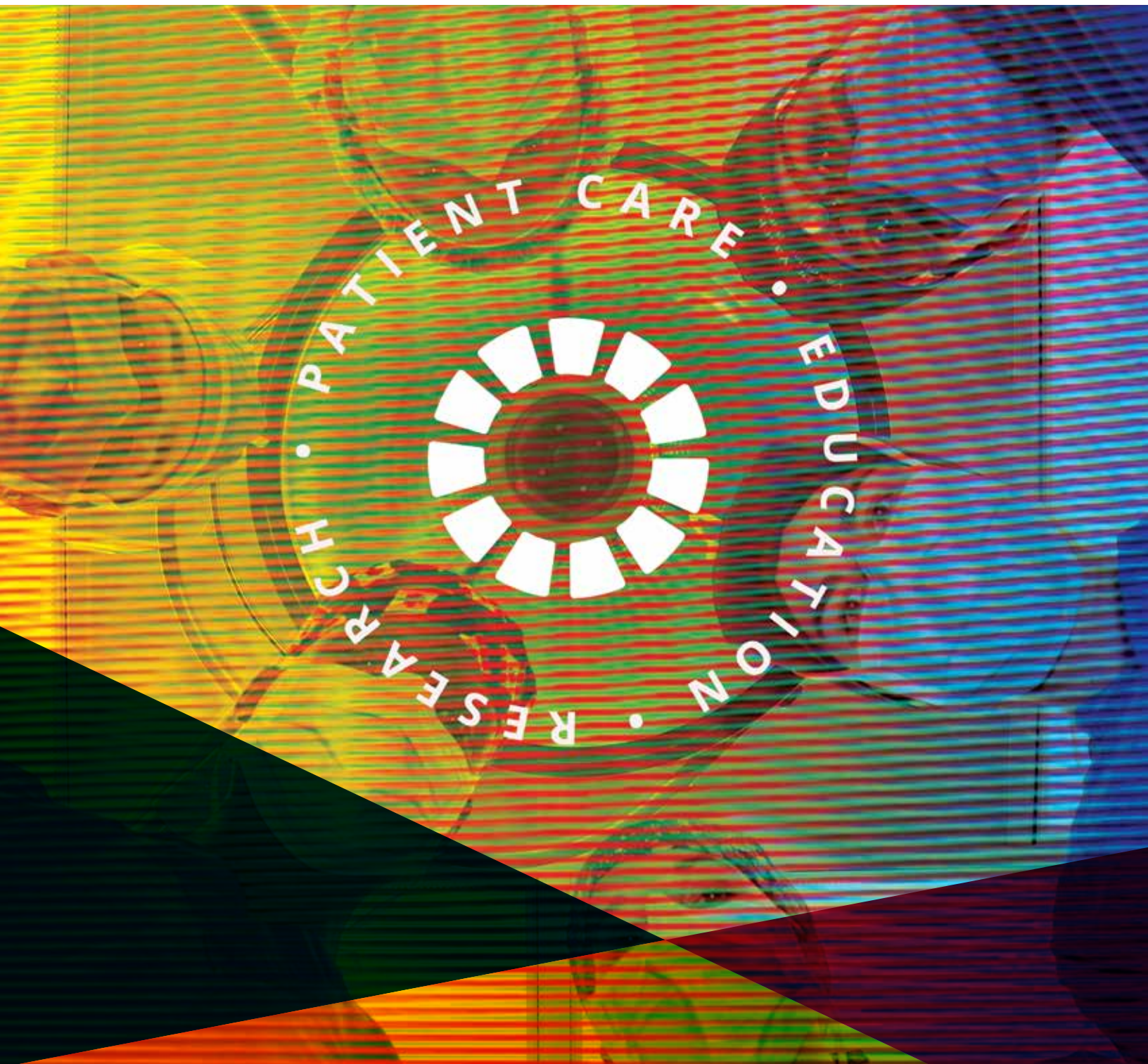


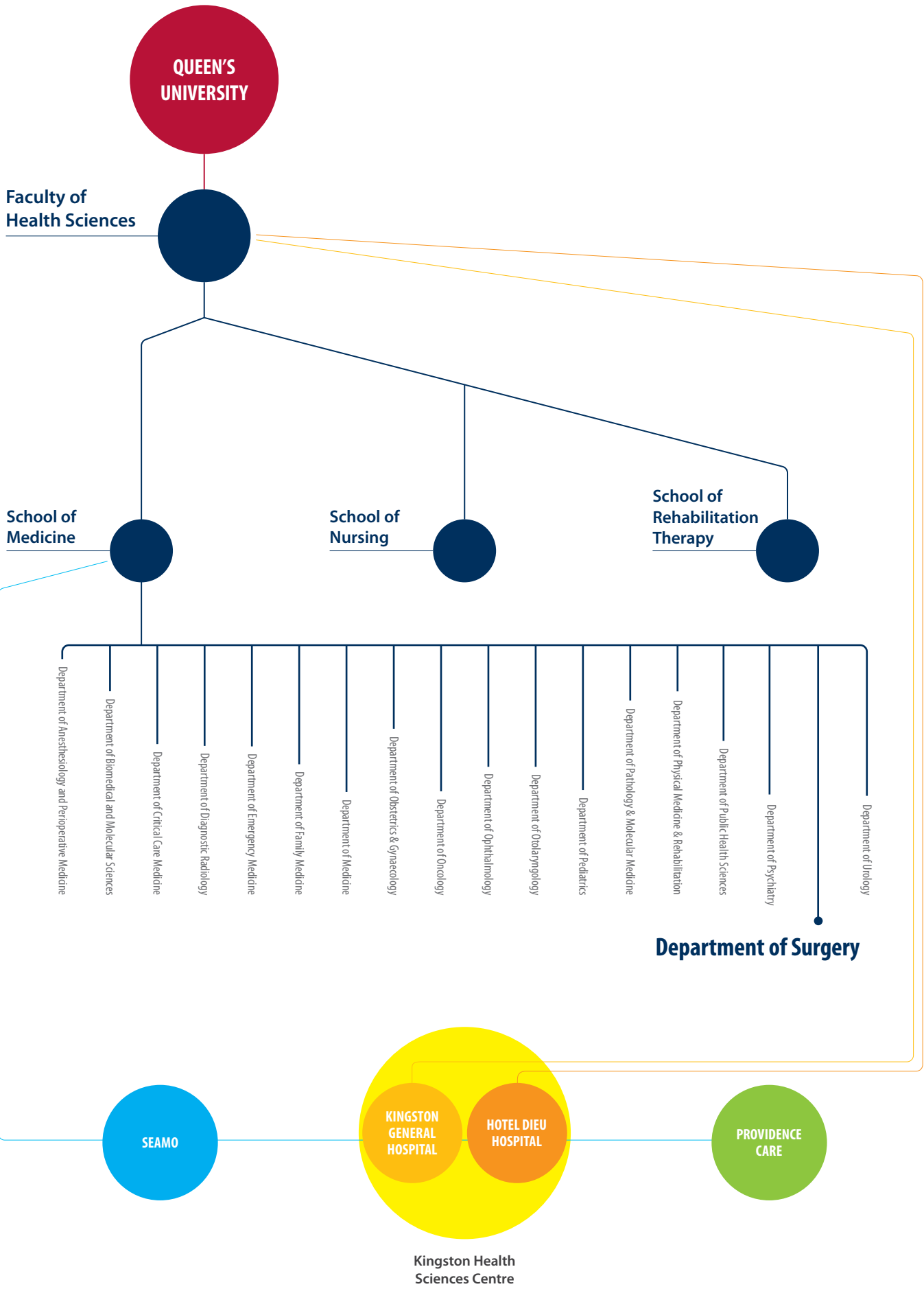
Queen's
UNIVERSITY

DEPARTMENT OF

Surgery

2019





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ACTIVE CLINICAL FACULTY

Message from the Department Head



DR. JOHN RUDAN
Head, Department of Surgery

The continued expansion of our clinical programs brings new treatments and new technologies to our community and to the world.

The speed of our daily lives often leaves little time for reflection, but it's important to stop once in a while and take stock of our accomplishments. The Department of Surgery has much to celebrate — from the quality of our research and clinical services to the growth of our team and many multidisciplinary endeavours.

Ten years ago, our department had 28 full-time surgeons on the Alternate Fund Plan (AFP) agreement; a small but dedicated department. Today, we have 52 surgeons working collaboratively to conduct ground-breaking research, develop new tools and techniques, provide advanced surgical practices for our communities, and train the next generation of health care professionals.

Growth in our research programs has been phenomenal. With six fully-endowed research chairs, we have been able to attract amazing talent to our department. These chairs would not be possible without the support of department members who have made significant investments in critical research areas. Internal and external philanthropy has also led to a successful series of visiting professorships through the Sorbie, Ersil, McGuire and Bruce research activities.

This generosity has also been matched by many community members who see the investment that our physicians are making and want to support our efforts. We are overwhelmed by the support of leaders such as Britt Smith, who has, over time, generously supported two research chairs and funding for the Britt Smith Surgical Suite.

Our Population Health Group has grown and become a springboard for many young careers. Along with significant funding achievements, the group has seen academic accomplishments that point to the high quality of the work and the importance that it plays in improving our approach to care. Medical Education has always been a prime focus for the department, and we are pleased to have two surgeons who are Medical Education Scholars for the Faculty. Their work continues to ensure that Queen's remains a leading medical school.

Our many collegial relationships with other departments and disciplines demonstrate our commitment to a multidisciplinary approach to patient-centered care. Our ongoing collaboration with the HMRC, for example, has led to globally significant discoveries, and continues to this day with innovations such as the Naviknife for image-guided surgery. Beyond campus, our clinician-scientists are working with industries to commercialize tools for global health.

The continued expansion of our clinical programs brings new treatments and new technologies to our community and to the world. New services such as live donor renal transplants and deep brain stimulation are changing care for our community members, who can receive treatment close to home and family. New innovations such as minimally invasive surgical techniques and ultrasound therapies have the potential to change health care globally.

We can reflect on the past with much pride – our team has worked together to build a fiscally sound and diverse department that's agile, efficient and responsive. As we've grown, we've brought on new talent with new skills, who are eager to build on this solid foundation.

Medicine continues to evolve, and as it does, we must be nimble enough to tackle the challenges and seize the opportunities. I'm excited about our capabilities, and confident that our efforts will continue to contribute to new advances for a healthier world.



Education

UNDERGRADUATE SURGICAL
EDUCATION

SURGICAL FOUNDATIONS PROGRAM

GENERAL SURGERY RESIDENCY
PROGRAM

ORTHOPAEDIC SURGERY RESIDENCY
PROGRAM

Education



Dr. Mila Kolar

The Undergraduate Surgical Education at Queen's University spans longitudinally from years 2 to 4. The Surgical Foundation course is incorporated in the 2nd year, while Surgery Clerkship is structured in its 3rd and 4th year.

Undergraduate Surgical Education

The Undergraduate Surgical Education at Queen's University spans longitudinally from years 2 to 4. The Surgical Foundation course is incorporated in the 2nd year, while Surgery Clerkship is structured in its 3rd and 4th year.

Over the last year feedback of medical students and preceptors, along with the work of the Undergraduate Surgical Education Committee (USEC), have resulted in numerous innovations and modifications that have consistently enhanced our Undergraduate Surgical education program. As we strive to be responsive to both, medical students' feedback and constant changes in the Canadian medical education system, Surgery clerkship in many ways is a "work in progress".

The last year was marked with the full implementation of Entrustable Professional Activities (EPA) and Competency-Based Medical Education (CBME) in the Undergraduate Medical education. A series of EPAs have been developed for each stage of undergraduate surgical training, to demonstrate student competence to successfully complete specific tasks, to be promoted to the next level.

Another significant success was the development of a new community based longitudinal integrated clerkship. As a part of this curricular structure, a clinical clerk meets core surgical clinical competencies across multiple disciplines simultaneously, maintaining longitudinal relationships with faculty and patients in acute and chronic settings. In order to prepare our medical students to realities of future physicians who are able to practice in a wide range of institutional and community settings, we are currently providing surgical education and learning experiences in a variety of clinical settings, ranging from small communities with recently implemented integrated surgery clerkships in Collingwood, Cobourg, Bowmanville and Brockville, community hospital in Lakeridge Hospital Oshawa, to the high-quality, complex tertiary care system in Kingston Health Science and Research Center. By immersing clinical clerks in the diversity of these settings, we are not only providing Queen's medical students with compelling opportunities to advance their knowledge and clinical skills, but also to gain a better understanding of factors influencing the quality of medical care, specifically addressing appropriate resource use, that is valuable competence regardless of their

future specialty choices. Students are quickly embracing those experiences, becoming good stewards of resources, fully aware that more spending does not necessarily lead to better patient care and better patient satisfaction.

Distributed Surgical clerkship rotation in Lakeridge Hospital Oshawa has been significantly developed over the last few years. This satellite site continues to excel as one of the most popular surgical rotations, particularly for clerks who are exploring a career in surgery. It offers high-quality clinical experiences, with more “hands-on” experiences and close contact with preceptors,

fundamental premises that support student engagement that facilitate career development.

To be able to achieve educational goals medical students are taught and mentored by our faculty, residents and allied health care professionals. Yet, in creating positive Surgery clerkship experiences, the highest merit belongs to our residents, who aren't only committed teachers, but also great role models, evaluators and advisors, fully committed to these roles despite their many other responsibilities, that compete for time and attention.



Program Director
DR. DARRIN PAYNE

Surgical Foundations Program Update

The Surgical Foundations program continues to refine its model to provide students and educators with a robust and efficient curriculum and evaluation system. The transition to Competency-Based Medical Education (CBME) has enabled streamlining both at the University and the Royal College.

Entrustable Professional Activities (EPAs), a core component of the CBME assessment system, have been modified in response to feedback and review. In some cases, EPAs have been merged or split apart to make them more efficient and reduce redundancies. While the Royal College will be officially implementing these updates in 2021, Queen's will roll out its launch in July 2020. Faculty development and educational support continues, and an improvement in both the number and quality of EPA assessments has been observed as assessors become increasingly familiar with CBME evaluation methods and competency committee promotion standards.

The process of refinement is ongoing, particularly as more data becomes available. It has become clear that what works at one institution may not work at another, resulting in the need to carefully analyze programs regularly and focus on individualized institutional approaches to provide the highest level of education to residents.

Education

General Surgery Residency Program



Program Director
DR. DIEDERICK JALINK

puts us well ahead of other programs in Canada, as many programs are just beginning their transition to CBME this year.

Simulation-based learning continues to be a critical component of the program. New models are being developed to provide

The strength of the General Surgery residency program continues to come from its people – from faculty members and administrators to our talented residents who inspire us to develop training programs that prepare them for leadership positions in surgery.

We have almost fully converted our residency program to Competency-Based Medical Education (CBME), with one traditional cohort left. This

our residents the skills and techniques for advanced and out of scope procedures facilitating applications to competitive fellowships and the ability to practice globally.

Our colorectal surgeons have spearheaded a strong robotics program for pelvic and colorectal surgery with unique opportunities for resident participation. The bariatric program is progressing well, with three surgeons providing much-needed services to our community and offering an excellent learning experience for our students.

Our research endeavors continue to be strong, particularly for population-based outcome studies in several distinct areas, including barriers to cancer treatments, end-of-life care, and surgical oncologic outcomes. Resident participation in research continues to grow, with many being very academically productive.

We are proud of our team, especially our residents, and look forward to continuing to evolve as new surgical techniques and educational tools become available to help us train the next generation of leading surgeons.

Orthopaedic Surgery Residency Program



Program Director
DR. DAVIDE BARDANA

The Orthopaedic Surgery Residency Program has had an exciting year for curriculum development and delivery, with new approaches to evaluation and the launching of an official Competence By Design (CBD) program with the Royal College.

The re-vamping of the Division's academic schedule includes weekly trauma rounds, an academic half-day and five sub-specialty based academic days for all residents, as well as electronic "Orthobullets", regular assessments to guide residents and evaluate progress. In response to student feedback, bi-monthly formative assessments have been added to improve the exposure of this exam format for students as they prepare for their licencing exam. Electronic evaluations also maximize e-learning tools and suit the style of learning for current students.

Multidisciplinary research continues to thrive in the Division, particularly in partnership with the Human Mobility Research Centre. The annual William Ersil Research Day provides Residents with the opportunity to present ongoing clinical and basic science research performed during the year. The work life balance of our program has also allowed for one resident to pursue a PhD through the Clinician Investigator Program (CIP) while continuing to train as an orthopedic surgeon.

The Division will be welcoming a new hand surgeon to support a continuously busy practice, and continues to welcome three residents into the program.

New Programs

CARSIL

TEAMWORK KEY TO INNOVATION
IN SURGICAL TECHNIQUES



New Programs



Cardiac Surgery Innovation Lab

A new surgical network is bringing students, clinicians and researchers together to advance discovery in cardiovascular surgery. The Cardiac Surgery Innovation Lab (CARSIL), founded by Dr. Gianluigi Bisleri, is enabling collaborative studies, while providing an exceptional opportunity for students to be mentored, build their CV and contribute to innovation in cardiovascular research.

“CARSIL is providing students with unique opportunities to learn from clinician-scientists, but also to gain experience giving presentations and preparing publications,” says Dr. Bisleri. “They have amazing ideas and are contributing greatly to advances in cardiac surgery.” The team of undergraduates, graduates, residents, fellows, clinicians and researchers meet regularly to discuss new surgical techniques, including minimally invasive procedures in the operating room.

Students at the Lab have taken part in several training programs, including cardiac robotics training and techniques for mitral valve management. They’ve also presented findings at several conferences, including the Canadian Cardiovascular Society and the American Heart Association.

“New technologies are improving our ability to treat patients more safely, and get them home from the hospital more quickly,” says Dr. Bisleri. “CARSIL is helping us discover and make use of new techniques for today, while mentoring our next generation of researchers and surgeons.”

Teamwork key to innovation in surgical techniques

New technologies are increasingly becoming part of the surgeon’s toolkit, but such advancements also require specialized approaches from all surgical team members to optimize their use. Dr. Gianluigi Bisleri, a cardiac surgeon and clinician-scientist, is collaborating with his colleagues in the surgical suite at Kingston Health Sciences Centre to employ novel endoscopic and robotic tools and procedures that are speeding up the recovery process and getting patients out of hospital more quickly.

Minimally-invasive techniques in cardiac surgery can have a significantly positive effect on patient recovery. Instead of a large chest incision, which is at risk for infection and can be challenging for recovery, patients have small incisions that heal more quickly. In some cases, patients have gone home just two days after surgery. The technique is safe, and, as teams become more proficient, faster to do.

The new procedures benefit the health system as well. Hospitals can realize efficiencies through faster surgical procedures and freed-up bed space due to a quicker recovery time.

Dr. Bisleri, who holds two U.S. patents for novel endoscopic surgical tools, says that team engagement is critical to success.

“It’s a bit like a Formula One race,” he says. “The driver is just one part of the team – everyone’s talents come together to help make the car win the race. In surgery, the nurses, anesthesiologist, perfusion specialists and other members of the medical team all contribute to a successful outcome for the patient.”

Dr. Bisleri recently worked with colleagues to introduce the cardiac robotic program at Kingston Health Sciences Centre, through the A. Britton Smith QC Robotics program. “The robotic platform can facilitate approaches that make the surgical procedure less traumatic, less painful and can allow patients to return to a normal lifestyle in a matter of a few weeks rather than a few months,” he says. “That’s quite an impressive change in the quality of life for these patients after surgery.”

He says that the new techniques offer amazing opportunities for Kingston Health Sciences Centre and Queen’s to develop a ‘niche of excellence’ in this area of precision medicine. “Research into precision tools and techniques has advanced our ability to perform complex cardiac surgeries with minimal invasiveness and trauma. Bringing our knowledge to the OR allows us to truly focus on patient-centered care.”

Divisional Updates

CARDIAC SURGERY

GENERAL SURGERY

NEUROSURGERY

ORTHOPAEDIC SURGERY

OTOLARYNGOLOGY -
HEAD AND NECK SURGERY

PLASTIC SURGERY

THORACIC SURGERY

VASCULAR SURGERY


Queen's
UNIVERSITY

GENERAL SURGERY

GENERAL SURGERY

Divisional Updates



Division Chair

DR. DIMITRI PETSIKAS

Cardiac Surgery Update

The Cardiac Surgery Division has had a busy year with over 640 cases, including 50 trans-catheter aortic valve replacements. New techniques and tools are improving care and recovery, and offering exciting new therapies for our patients.

Our new robotic-assisted surgery program was launched this year, allowing for more precise surgeries, shorter hospital stays and shorter recovery times. It also allows for minimally invasive techniques which vastly improve health outcomes. These new techniques employ both novel endoscopic and robotic tools, and contribute to ongoing advances in mitral and aortic valve surgery.

Research in the division has focused on aortic and arterial wall physiology, as well as post-operative pain outcomes in cardiac surgery. Results are forthcoming for studies in sternal retraction and post-operative pain outcomes.

Cardiac surgery can have a significant impact on quality of life. Our ongoing exploration of precision tools and techniques improves our ability to treat our patients with minimal trauma and contributes to continuing advances in cardiac care.



Division Chair

DR. HUGH MACDONALD

The installation of the Da Vinci robotic operating system has vastly improved patient care while allowing us to build a centre of expertise using advanced technologies. Over 100 colorectal cancer minimally invasive surgeries have been performed, with over 90% of patients now eligible for these minimally invasive surgical procedures. These procedures also result in a significant reduction in length of hospital stay, from seven days to an average of four days.

Our newest colorectal surgeon, Dr. Caycedo, brings substantial expertise in Transanal total mesorectal excision (Ta-TME) to add to our treatment offerings for patients with rectal cancer. This surgical technique allows for better visualization of tumours, a smaller incision and the potential to avoid a permanent colostomy for patients.

General Surgery Update

The General Surgery Division has had several accomplishments over the past year, building both in staff and new surgical tools and techniques to offer quality care and to train our next generation of surgeons.

Our bariatric program has expanded with three surgeons working to manage ministry-assigned volumes, which have increased to 260 cases and provides optimal care for patients closer to home. The Kingston Bariatric Centre of Excellence also provides a medical weight management program to complement surgical procedures.

Ongoing research continues in a number of focus areas, particularly in epidemiology, breast cancer tools and surgical education. Researchers are exploring end-of-life issues, new surgical tools, and the use of big data to improve cancer care, and evaluating new practices for training and assessing surgical residents.

Divisional Updates



Division Chair
DR. CHRIS WALLACE

Neurosurgery Update

Queen's Division of Neurosurgery has continued to grow over the past year. Recruiting and supporting academic surgeons in diverse areas has led to new areas of study and expanded clinical capabilities that have improved our ability to treat patients and produce and disseminate novel research.

Dr. Faizal Haji joined the division in July 2019. He specializes in pediatric neurosurgery and epilepsy surgery. Dr. Haji is also a Medical Education Scholar at Queen's. He has a formidable track record in surgical education research with frequently cited papers in surgical simulation, cognitive performance and program evaluation. He also has an area of focus in global health and the delivery of neurosurgical care in the third world.

Our vision for functional neurosurgery has matured with new programs for deep brain stimulation and spinal cord stimulation. Congratulations to Dr. Levy and his colleagues in neurology and anesthesia who have created this new program to provide a local treatment option for patients with Parkinson's Disease, other movement disorders and chronic pain. We are also excited

to embark on the next steps of treating brain aneurysms at KHSC with endovascular therapy through our recently recognized coiling program spearheaded by Dr. Donatella Tampieri, Dr. Omar Islam and Dr. Chris Wallace.

Our neurosurgeon scientists have had several research successes this year. Dr. Alkins has been granted a \$375K CFI grant to create a high intensity focused ultrasound research program. Dr. D.J. Cook has continued clinical development of the Kingston based Archeoptix NIRD scanner, a handheld device to detect brain bleeding, through a \$1.1M OCE grant. This project was also awarded \$40,000 from the UHKF's Women's Giving Circle, a generous recognition by this local group to recognize and support clinical research in Kingston. Dr. Levy has continued to excel in movement disorders and epilepsy research, receiving a SEAMO Innovation Grant to support his work.

Our recruitment efforts have us looking forward to welcoming Drs. Jamie and Teresa Purzner. They have both graduated from the University of Western Ontario Medical School, trained in Neurosurgery at the University of Toronto and have both completed basic science PhD's from Stanford University. Their expertise is in developmental neuroscience, brain tumour biology and cell cycle regulation. Jamie will start in July 2020 and Teresa in July 2021.

Dr. Wallace will be retiring in June 2020 after a career in neurosurgery highlighted by his early contributions in the microangio architecture of the spinal cord and neuroprotection for stroke and brain injury, the creation of the world-renowned University of Toronto Brain AVM consortium, recognition worldwide as an exceptional educator and examiner in neurosurgery, Program Director at the University of Toronto having trained hundreds of residents and fellows, Division head of the Toronto Western Hospital and finally, having come to Queen's as Division Head to build the most concentrated group of academic neurosurgeons in North America by creating unprecedented funding and protected time for the clinician scientists he has recruited. Dr. Wallace will continue his role at CMPA while enjoying more time at home, on the lake, with his wife, Katie, along with his children and grandchildren.



Division Chair
DR. JEFF YACH

Orthopaedic Division Update

The Division of Orthopaedic Surgery is continuing its mission of excellence in patient care and innovation in research. Along with welcoming Dr. Parham Daneshvar, who specializes in upper extremity, the Division is in the process of enhancing the Trauma Service and is currently interviewing for an additional Orthopaedic Traumatologist.

Research continues to grow within the Division, with clinical outcome, population-based and biomechanical studies at the forefront. Collaborative research with other surgical specialties and faculties is ongoing at the Human Mobility Research Centre.

The Division continues to provide comprehensive tertiary care for our local population and the Southeastern Ontario region, and has developed several outreach programs with regional partners to deliver high-quality care.

Otolaryngology - Head and Neck Surgery

The Division of Otolaryngology - Head and Neck Surgery will be joining the Department of Surgery in January 2020, with seven members providing clinical care, teaching, and conducting research for disorders of the ear, nose, and throat.

A wide range of clinical services are provided for the regional patient population, including General Otolaryngology-Head and Neck Surgery, Otology/Skull Base Surgery, and Head and Neck Oncology. Our Division has a close relationship with the Department of Speech Pathology and Audiology. Joint endeavors include comprehensive hearing and vestibular testing, hearing rehabilitation (hearing aids and hearing implants), and voice/speech pathology services.

The Division provides teaching for undergraduate medical students and postgraduate residents from other specialties. Undergraduate education includes FSGL, critical enquiry, and supervision of student research projects.

Research in the Division includes projects in hearing loss and ear surgery, educational research, thyroid outcomes and pain management. Divisional research has been presented and published nationally and internationally. Recent research in the Division was published in the Journal of Clinical Oncology, where the authors identified risk factors for hearing loss in pediatric cancer survivors.

The Division also holds an annual Otolaryngology - Head and Neck Surgery Research Competition to showcase research projects that are ongoing in the Department, and to provide a platform for students to present their work. Last year's winner was Joobin Sattar, who received the Stephen F. Hall Award for Outstanding Medical Student Research in Otolaryngology - Head and Neck Surgery for his presentation 'Current State of Otolaryngology - Head and Neck Surgery Teaching Across Canadian Medical Schools: A Cross-Sectional Study.'



Division Chair
DR. EDMUND JONES

Divisional Updates



Division Chair

DR. FRED WATKINS

Plastics Surgery update

The Division of Plastic Surgery continues to have a full schedule of clinical services along with innovative new research projects and labs.

The Breast Reconstruction program continues to provide women in the region with a wide range of reconstruction options, through the expertise of Dr. Glykeria Martou, who counsels patients and provides reconstruction surgery. Her research focuses on the evaluation of quality of life following breast reconstruction.

Dr. Doug McKay recently received a SEAMO award for his work studying intraoperative margin assessment during basal cell carcinoma excision using mass spectrometry in real-time. This work involves collaborating with other surgeons using the i-knife to provide better outcomes for skin cancers.

Dr. Mike Hendry has set up a lab focused on advancing peripheral nerve regeneration research. His lab will examine ways to improve surgical techniques, such as nerve transfers, that can restore function to limbs that have been denervated by brachial plexus and peripheral nerve injury. The lab will also examine molecular pathways of nerve regeneration that can be manipulated to enhance recovery from these devastating injuries.

The Division said farewell to Dr. John Davidson, who retired in June after 46 years with Queen's. John was the first plastic surgeon in Kingston to do microsurgery, and was Division Head from 2003 – 2014. Dr. Jim Cooper joined the Division from McMaster, with clinical interests in skin malignancies, burn surgery and craniofacial trauma.



Division Chair

DR. KEN REID

Thoracic Surgery Update

The Thoracic Division had a busy clinical year, with over 100 major resections for lung cancer and 14 for esophageal cancer. All timeline targets were met, as mandated by Cancer Care Ontario.

On the research front, an innovative project is currently before the ethics board to study early intervention in pleural space infections by comparing the initial treatments of interventional radiology through guided chest tube insertion with intrapleural fibrinolytics versus video-assisted thoracoscopic surgery.

The division is poised for growth, with a new surgeon position recently approved by SEAMO. Clinical fellows will also be welcomed in the summer of 2020.



Division Chair
DR. DAVID ZELT

Vascular Surgery Update

The division of Vascular Surgery is poised for growth as we welcome a new surgeon to the team, providing us with opportunities to augment our services to the community. The addition of another surgeon increases our ability to meet the needs of our Southeastern Ontario region with improved wait times for consultation and treatment.

The division has seen a shift in vascular procedures, with endo-vascular techniques, combined with more traditional procedures, becoming standard of care or alternate options for patient care. Complex aortic aneurysms such as juxtarenal and thoracic aortic injuries are all now preferentially treated with endovascular grafting.

Having surgery closer to home has a significant impact on patient lives and recovery. The expansion of our division improves care for our community while contributing to advancements in vascular diseases both arterial and venous.

New Faculty



Dr. Faizal Haji

A new hire in Neurosurgery is enhancing the Surgery department's strong commitment to continuous learning. Dr. Faizal Haji, who joined the Neurosurgery division in July 2019, is also a Medical Education Scholar, working to advance treatment techniques and furthering the Faculty's approach to curriculum design.

Dr. Haji recently completed a clinical fellowship in Pediatric Neurosurgery at the University of Alabama at Birmingham. As a surgeon and educator, he has a passion for improving health services through the innovative use of simulation-based education.

As one of two Medical Education Scholars in the Faculty of Health Sciences, Dr. Haji supports and collaborates with faculty focused on medical education research. His work studying the use of simulation in instructional design and how those skills are translated to a clinical setting is particularly significant as schools re-think approaches to both virtual education and to virtual health care. His interest in global medical education has seen him participate in curriculum design projects around the world.

Dr. Haji also has research interests in epilepsy, working with Dr. Ron Levy and other colleagues to establish the Epilepsy Surgery program to provide surgical treatment for epilepsy patients in the region.

Dr. Haji notes that Queen's focus on excellence in medical education and research, and the opportunity to take on the Medical Education Scholar role, were all important factors in choosing to join the Department of Surgery. "There's an exceptional educational atmosphere here, with many excellent colleagues," he says. "I'm looking forward to building on the work of others, and collaborating to advance our approach to medical education across the continuum – from undergraduate and postgraduate training through to continuing professional development."

New Faculty

A patient's understanding of the health issue at hand is vital for them to understand the reasons for, and the importance of, their treatment

Dr. Kristi Wood

The Division of Orthopaedic Surgery is pleased to welcome Dr. Kristi Wood to the team. Dr. Wood specializes primarily in pediatric orthopaedic surgery, but also cares for adult patients with upper extremity issues. She is passionate about patient education and working with patients and families for optimal health and wellness.

Dr. Wood completed her medical training at Western University, and her residency training in Orthopaedic Surgery at the University of Ottawa. After graduating in 2016, she pursued fellowship training in Hand & Upper Limb Surgery at Western through the Roth McFarlane Hand and Upper Limb Centre and a second fellowship in Pediatric Orthopaedic Surgery at the Hospital for Special Surgery in New York.

Dr. Wood's clinical practice ranges widely across the facets of her specialty, from treating clubfoot and other limb abnormalities to neuromuscular conditions, fracture care and sports injuries. She finds her work with pediatric patients to be very rewarding, both in terms of interacting with families and the role she plays in their bone and joint development.

Along with her clinical practice, Dr. Wood's research interests include clinical outcomes as well as medical education at all



levels, ranging from trainees to continuing education for practicing physicians and allied health. She particularly enjoys finding new ways to teach students for optimal information retention.

Dr. Wood sees patient care as a partnership between a doctor and patient and strives to keep this as a central part of her practice. "I feel an important component in treating children is interacting with the family and educating parents about their child's condition," she says. "A patient's understanding of the health issue at hand is vital for them to understand the reasons for, and the importance of, their treatment. Together, we can work on a solution that best meets their needs."

A close-up photograph of a hand holding a glass flask containing a brown liquid. The flask has a label that reads "125 PYREX U.S.A." and "No. 4980". The background is blurred, showing other laboratory glassware and a warm, orange-toned light.

Research

CHRP GRANT

INTERDISCIPLINARY RESEARCH

NEUROMODULATION THERAPY

CFI FUNDING

A BETTER WAY TO DIAGNOSE
BRAIN BLEEDS

WHEN IS NO TREATMENT THE
BEST TREATMENT

USING BIG DATA TO IMPROVE
RECTAL CANCER CARE

SEAMO INNOVATION GRANT

PAIN MEDICATION IN PREGNANCY

Research

Collaborative Health Research Funding Advances NaviKnife Development

Affecting one in nine women, breast cancer is the second-leading cause of female cancer-related deaths. Treatment, however, can often result in multiple surgeries, with increased risks.

A collaborative funding competition between the Canadian Institutes of Health Research (CIHR) and Natural Sciences and Engineering Research Council of Canada (NSERC) is helping Surgery researchers and colleagues advance the technology of the NaviKnife, a next-generation navigation system that can reduce the need for additional surgeries and significantly improve outcomes for women with breast cancer.

The ideal treatment for early-stage breast cancer is breast-conservation surgery — but on average, one out of every three women undergoing breast-conservation surgery needs at least one additional surgery due to incomplete tumor resection. “Repeat surgery leads to increased risk of postoperative complications, impaired cosmetics, delayed radiation therapy, and increased psychological distress, as well as the increased costs and risks of undergoing a second anesthetic,” says Dr. Jay Engel, the Division Chair of Surgical Oncology. “Repeat surgery can lead to a full mastectomy, which is a traumatic experience for a patient who expected a curative treatment.”

As early stage breast cancer is not palpable or visible, surgeons tend to apply generous "safety margins" around the target tumor, resulting in the removal of a great deal of healthy breast tissue. In current practice, up to 40% of patients who undergo breast-conservation surgery experience breast deformity that can require surgical reconstruction. Over half of these women do not get treated due to the lack of reconstructive surgical capacity.

The Collaborative Health Research Projects (CHRP) funding will help researchers develop the NaviKnife, a next-generation breast conserving surgery navigation system that can achieve a complete tumor resection with minimal tissue loss. NaviKnife builds on novel multiparametric ultrasound imaging to accurately target the cancer prior to resection and novel real-time metabolomic tissue typing to identify and trace the tumor boundary during resection while guided by a simple robotic arm.

“The NaviKnife guides the surgeon in precise tumor resection, providing accuracy even for surgeons who may not be in an academic centre and may be doing less breast surgery,” says Dr. Engel. “It is really a gamechanger for women with breast cancer.”

Collaborative Health Research Projects (CHRP) is a joint initiative between the Natural Sciences and Engineering Research Council of Canada (NSERC) and the Canadian Institutes of Health Research (CIHR), with a goal to encourage collaboration and advance interdisciplinary research.



DR. CHANTELLE CAPICCIOTTI

There are many glycan-based biomarkers that have yet to be discovered or explored, and they are key to advances in personalized medicine.

Interdisciplinary Research Creates New Precision Medicine Tools

The Queen's National Scholar in Precision Molecular Medicine is working with Surgery colleagues to develop novel tools for a better understanding of changes in carbohydrate biology during the progression of a disease. Dr. Chantelle Capicciotti's research is part of a broader interdisciplinary effort to develop multi-resolution biomarkers for integration with imaging, artificial intelligence, and computer assisted surgery.

Dr. Capicciotti, a basic scientist who joined Queen's in 2018, says that the National Scholar position was a perfect match for her approach to research. "I was really interested in the position as it was unique, being joint between the Departments of Biomedical and Molecular Sciences (DBMS), Chemistry and Surgery," she says. "This was a perfect opportunity to be able to continue interdisciplinary research in three great departments."

Her work in precision molecular medicine stems from her interest in glycobiology, which is the biology of complex sugars also called glycans. "Glycans are directly involved in normal physiology and almost every major disease, yet our understanding of how and why the glycome (the collection of sugars in cells, tissues and/or organisms) changes at the onset and progression of disease is limited, especially compared to the genome and proteome," she says. "There are many glycan-based biomarkers that have yet to be discovered or explored, and they are key to advances in personalized medicine."

Over the past year, as part of a team led by Drs. Amber Simpson and John Rudan, Dr. Capicciotti was working to leverage expertise in chemical glycobiology to develop selective and sensitive tools to profile and image specific glycan structures to chemically map cancerous tissue surfaces for mass spectroscopy imaging applications being developed at Queen's. She also aims to develop more chemical tools and probes with a goal to ultimately aid in surgical margin determination, and is excited about preliminary work on identifying novel glycan-based cancer immunotherapy targets.

"I have always been interested in translational applications," she says. "The connection with Surgery provides a great opportunity to facilitate this goal and work with clinicians who can hopefully use the tools we will develop in the lab to improve patient care."

Research



DR. RON LEVY

Our goal is to continue to finetune our efforts for a more personalized approach to treatment

Neuromodulation Therapy Improves Lives of Patients with Chronic Pain and Parkinson's Disease

Neurological diseases can have a devastating impact on quality of life, taking a physical and emotional toll on patients and their families. Dr. Ron Levy, a clinician-scientist neurosurgeon, is studying new ways to optimize neuromodulation therapy for these patients, specifically looking at ways to help treat the symptoms of chronic pain and Parkinson's disease. Neuromodulation therapy is a newer program at the Kingston Health Sciences Centre that launched in 2018.

Chronic pain is a prevalent health issue with limited treatment options and the potential to have significant impact on quality of life. Spinal cord stimulation treats chronic pain by delivering electrical impulses to the spinal cord. By scrambling the pain signals of the spinal cord through the implanted electrodes, a patient's chronic pain can be decreased by at least 50%, which can result in a return to work or other daily activities, and reduce the need for chronic pain medication.

Parkinson's disease affects approximately 1 in 100 adults and elderly individuals. Deep brain stimulation delivers electrical impulses to the basal ganglia of the brain and can improve many of the motor symptoms of the disease, thereby reducing the burden of the disease. "Treatment won't change the natural progression of the disease, but will allow for better quality of life for years to come," Dr. Levy says.

Dr. Levy's goal is to optimize and tailor these treatments by systematically testing the relationships between stimulation parameters and simultaneously characterize the major clinical symptoms and signs of these diseases, using automated and objective behavioural assessment technologies. An important feature of his research is to develop algorithms to find stimulation parameters that maximize the clinical benefit while minimizing the side effects of electrical stimulation. "Our goal is to continue to finetune our efforts for a more personalized approach to treatment," says Dr. Levy. "With the right combination, we'll be able to tailor neuromodulation for individual patients."



DR. RYAN ALKINS

There is currently a lot of excitement for cellular immunotherapies in difficult to treat cancers, like those in the brain.

CFI Funding Advances Discovery in Microbubble Ultrasound Therapies

Dr. Ryan Alkins is the recipient of the Canada Foundation for Innovation's (CFI) John R. Evans Leaders Fund (JELF), an award that will help further his work in gaining a better understanding of the physiological mechanisms and downstream effects of low-intensity ultrasound, paired with microbubble ultrasound contrast agents, on brain tumours.

The CFI JELF award provides funding for foundational research infrastructure required for a researcher to be or become a leader in their field. Eligible recipients must demonstrate excellence in the proposed research field and be engaged in high-quality, original research.

Dr. Alkins is a neurosurgeon with a PhD in Medical Biophysics from the University of Toronto. He completed his PhD under the supervision of Dr. Kullervo Hynynen, well known as one of the pioneers of therapeutic ultrasound. During that time, Dr. Alkins was a co-investigator on the world's first clinical trial of blood-brain barrier opening, using MRI-guided transcranial-focused ultrasound in brain tumour patients. He completed his clinical fellowship at Queen's and has clinical interests in skull-based and vascular neurosurgery.

Therapeutic ultrasound involves the use of high-frequency sound waves to create biological effects in tissue. One such effect is thermal ablation, which has been exploited for non-invasive "surgery" in the brain; this is now an approved treatment for essential tremor in North America. When paired with microbubbles, it can be used to increase the permeability of blood vessels in the brain, known as "blood-brain barrier opening."

Dr. Alkins has a particular interest in combining ultrasound and microbubbles with cellular immunotherapies. "There is currently a lot of excitement for cellular immunotherapies in difficult to treat cancers, like those in the brain," he says. "However, while these treatments have worked exceptionally well for hematological malignancies, there have been significant obstacles in solid tumours. Based on some of the pre-clinical work I've done, ultrasound appears to work synergistically with cellular immunotherapies to overcome some of these obstacles and improve their efficacy."

Research



DR. D.J. COOK

A Better Way to Diagnose Brain Bleeds

For frail and elderly individuals, falling can cause a major health risk, including dangerous brain bleeds. In some cases, however, these bleeds are misdiagnosed as age-related conditions such as dementia. Clinician-scientist and neurosurgeon Dr. D.J. Cook was awarded \$40,000 from the University Hospitals Kingston Foundation Women's Giving Circle for his innovative research into the potential of a novel, hand-held device that can detect brain bleeds, resulting in improved care and reducing the chances of a misdiagnosis.

Dr. Cook's research program is primarily concerned with understanding the disruption of network dynamics and physiology following neurological injury and in the process of recovery. He and a team at Kingston Health Sciences Centre, Providence Care and Queen's University are working in partnership with ArcheOptix, a Kingston medical device company, to test the capabilities of a hand-held scanner to detect bleeding in the brain. The radiation-free device is being used to help doctors more quickly detect the presence and severity of bleeding, ensuring patients receive care more quickly.

"It's a very simple, non-invasive imaging tool. You pass it over the head, and it can instantly detect brain bleeds within three centimeters of the surface," says Dr. Cook. "Our region has a disproportionate number of patients who are elderly and frail or living with other chronic conditions, so I thought it would be

relevant to conduct this research with the device right here in Kingston."

Currently, primary care doctors diagnose this traumatic head injury with a CT scan. But not all hospitals have this equipment, so patients must travel to larger health centres, making diagnosis, treatment, and follow-up difficult, expensive, and time-consuming. For elderly patients, this process can also be disorienting and frightening.

Dr. Cook's vision is to have family doctors and health care providers in remote areas trained to use the tool, enabling them to do the imaging right in the office, and referring those with positive results for CT scans. "Over the last five years I've seen patients who were thought to have dementia but we later found out through a CT scan or a neurological deficit that they had chronic bleeds, and when we treat the bleed, some of these patients get better," says Dr. Cook. "Imagine if your family doctor or local clinic had a simple, fast way to identify and monitor this kind of injury."

Since 2013, the Women's Giving Circle has granted more than \$200,000 to support local research in areas including critical care/end of life, mental health, chronic pain, musculoskeletal disease and gastrointestinal disease.



DR. SHAILA MERCHANT

By working closely with our patients, we can better understand their symptoms and their goals of care, so that we can truly provide the care that they value the most.

When is No Treatment the Best Treatment?

Cancer patients with a poor prognosis face some tough questions. Will treatment help in the remaining time left? Or will it cause side effects that will affect the quality of their shortened life? Dr. Shaila Merchant was recently awarded a Clinical Teachers' Association of Queen's University (CTAQ) award to continue her studies in compassionate care at the end of life for patients with terminal cancer, and to help answer some of those questions.

The CTAQ Research Grant is an annual competition available to all members of the Clinical Teachers' Association of Queen's University. The primary objective is to aid members in developing a research program whose pilot projects will lead to applications for external support in the future.

Dr. Merchant, a surgical oncologist with clinical areas of interest in gastrointestinal (gastric, small bowel, colorectal, anal) and breast cancers, focuses her research on compassionate care at the end-of-life, potentially aggressive end-of-life care, palliative care, increasing psychosocial support and improving patient-physician communication for patients with cancer.

She has published a number of studies examining care at the end of life. "We found some startling figures for patients with gastrointestinal cancers," she says. "In some studies, up to two-thirds of patients were receiving potentially aggressive interventions in the last 30 days of life. Patients who were receiving palliative care, however, received far fewer potentially aggressive treatments."

Although some treatments can help with symptoms and potentially extend life, aggressive treatments such as chemotherapy can also lead to unwanted side effects, and their effectiveness in routine clinical practice is not always clear. For a patient with limited time, this type of treatment may not be the best option. In order to address these gaps Dr. Merchant is studying the effectiveness of palliative chemotherapy in advanced gastroesophageal cancers in routine practice with plans to examine changes in symptom burden during and after palliative chemotherapy. "If symptoms are no better after chemotherapy and the survival benefit is limited, then why do it?" asks Dr. Merchant.

Dr. Merchant has also explored issues around access to medical oncologists. Studies have shown that a significant number of patients diagnosed with cancer do not go on to see a medical oncologist, for a variety of reasons. "Perhaps they didn't receive a referral from their family doctor," she says. "Or they have decided not to pursue further treatment. But we need to do a better job of understanding why."

Dr. Merchant says that at the end of the day, her goal is to provide the highest quality and compassionate care to patients. "By working closely with our patients, we can better understand their symptoms and their goals of care, so that we can truly provide the care that they value the most."

Research



DR. SUNIL PATEL

Our goal is to understand and establish targeted interventions to increase adherence and ultimately improve survival for individuals with rectal cancer.

Using Big Data to Improve Rectal Cancer Care

Rectal cancer, common in Canada, is complicated to manage, but is also considered a ‘treatable’ cancer. Despite this, many patients are not receiving the recommended care they need to survive their disease. Dr. Sunil Patel, a colorectal surgeon, is using big data to study the factors that may act as a barrier, in an effort to improve patient care and long-term survival.

“We do not know how many rectal cancer patients in Ontario are receiving appropriate care and how this affects their survival,” says Dr. Patel. “But we do know that currently only 65% of rectal cancer patients survive 5 years or longer after diagnosis, despite this being a treatable cancer. We’re hoping that we can use our databases to better understand why patients may not be receiving care, and how we can improve these statistics.”

Individuals who are diagnosed with rectal cancer require a number of investigations, multiple types of treatments and long-term follow up. Due to this complexity in management, specific clinical practice guidelines have been created to help ensure that patients receive recommended care. Other factors, however, appear to be contributing to patients not getting the care that they need.

Dr. Patel will be using existing data available from Queen’s Cancer Care and Epidemiology division, which has a database of 5000 individuals with rectal cancer treated from 2010 – 2015. This data will be combined with other databases to capture all aspects of care along the continuum, from diagnosis to follow up. This will allow Dr. Patel to understand the percentage of patients who adhere to recommended care, and to assess factors that may contribute to patients not receiving care. These factors could be patient-related, such as age, geographic location or income level, or provider-related, such as hospital systems or physician practices.

The study, which is being funded by both a Canadian Teaching Association of Queen’s (CTAQ) grant and Canadian Institutes of Health Research (CIHR) funding will also assess whether the current guidelines for care improve long-term care survival. Dr. Patel notes that it will provide “real world” results on whether patients are receiving recommended care, what is preventing them from receiving care, and whether adherence to recommendations improves survival. “This is important information for patients, but also for those in health advocacy and policy,” he says. “Our goal is to understand and establish targeted interventions to increase adherence and ultimately improve survival for individuals with rectal cancer in Ontario.”

Dr. Douglas McKay Receives SEAMO Innovation Grant Funding for Skin Cancer Surgery Studies

Basal Cell Carcinoma (BCC) is the most common type of cancer worldwide. Incidences continue to grow, and surgeries can be challenging. Dr. Douglas McKay, a surgeon within the Plastic Surgery Division, is focusing on revolutionizing skin cancer surgery through intraoperative identification of BCC and bending tissue at the surgical tooltip using Rapid Evaporative Ionization Mass Spectrometry (REIMS).

Dr. McKay and his team hypothesize that both benign tissue and BCC have unique molecular signatures that can be identified with REIMS during surgery. The use of REIMS enables real-time evaluation of the tissue cut during surgery, which allows the surgeon to slightly extend the resection area to avoid incomplete tumor removal.

“As the number of patients diagnosed with skin cancer worldwide continues to grow, the use of REIMS to reduce revision surgeries will lead to major cumulative economic benefits, as well as psychological and cosmetic benefits for patients,” says Dr. McKay. “The use of intraoperative REIMS could also be extended to other oncological surgeries, ultimately, reducing the burden on the Canadian healthcare system.”



DR. DOUGLAS MCKAY



DR. SUSAN BROGLY

Women are often excluded from research studies, which means that critical knowledge about them and their medications is lacking.

Pain Medication in Pregnancy: Using Data to Inform the Risks

Pregnant women are often faced with making choices that can affect their own health, along with the health of their fetus. These choices can be significantly challenging for pregnant women taking medications for chronic pain or other conditions. Dr. Susan Brogly, an epidemiologist, Associate Professor in Surgery and Institute for Clinical Evaluative Sciences (ICES) scientist, received a grant from the U.S. National Institutes of Health (NIH) to study the risks of opioid analgesics and other pain medications in pregnancy, using the rich population-based data available through the ICES database.

“Although some studies have been done, we don’t currently have enough evidence to determine the safest medication for pregnant women and their fetus, particularly in terms of opioid analgesics,” Dr. Brogly says. “We need to balance the risks of taking necessary medication and potential side effects.” Women are often excluded from research studies, which means that critical knowledge about them and their medications is lacking.

The number of medications that women take while pregnant has increased over the years and could include treatments for physical conditions such as asthma or epilepsy, or mental health conditions such as depression. For these women, stopping these treatments may not be an option, and may put their own health at great risk.

Dr. Brogly’s work, along with co-investigators from Queen’s, the Hospital for Sick Kids and Boston University, will examine adverse pregnancy outcomes such as birth defects, preterm births, low-weight births and stillbirths, using Ontario data from 2012 – 2017. Sophisticated algorithms will allow researchers to analyze the ICES data to better understand the risks during different periods of pregnancy, as well as the differences between different medications.

ICES data has been used for many studies in Queen’s Department of Surgery, with research questions ranging from mortality following operative versus non-operative treatment of thoracic empyema and the effect of treatment interruptions in cancer patients. Dr. Brogly says that the database is critical for identifying trends, conducting population-based studies, and providing the evidence needed to guide patient care and patient decision making. “We have information that can truly inform how we advise and treat our patients,” she says. “Such knowledge can provide evidence for quality patient care.”

Lectures and Events

WILLIAM ERSIL RESIDENT
RESEARCH DAY

CHARLES SORBIE FACULTY
RESEARCH DAY

DR. J HUGH AND MIRIAM MCGUIRE
LECTURESHIP IN SURGERY

THE DR. ANDREW AND MARGARET
BRUCE ENDOWMENT



Lectures and Events

The William Ersil Resident Research Day

The William Ersil Resident Research Day is an annual day-long event designed to enable residents from the Department of Surgery to present ongoing clinical and basic science research performed during the year under the supervision of attending staff. It also provides a forum for surgeons to renew or establish professional and personal liaisons, and to recognize outstanding research by residents.

The 38th annual Research Day was held on Monday, November 18, 2019 and featured guest speaker Dr. Gelareh Zadeh, a neurosurgeon-scientist at the Toronto Western Hospital and Princess Margaret Cancer Centre. Dr. Zadeh spoke about the application of methylation signatures to predict outcome of meningiomas.

Dr. Zadeh has an active clinical practice and research laboratory, with a research focus on integrated multi-platform molecular analysis of brain tumours, together with a focus on understanding molecular response to targeted therapies such as anti-angiogenesis and metabolic inhibitors.

Dr. William Ersil obtained his medical degree from Queen's in 1979. He entered the Orthopaedic Surgery program at Queen's,

however he was diagnosed with a liposarcoma and passed away during his second year of residency training in 1984. This research day, named in his memory, has been an annual event ever since.

CONGRATULATIONS TO THE 2019 RESEARCH DAY AWARD WINNERS:

Best Paper in General Surgery Award to Lisa Zhang for:

VTE in colon cancer: A population-based cohort study of VTE rates following surgery and during adjuvant chemotherapy
Sunil V Patel MD, Lisa Zhang MD, Xuejiao (Shelly) Wei MSc, Shaila J Merchant MD, Sulaiman Nanji MD, Paula D James, Chris M Booth

Best Paper in Orthopaedic Surgery Award to Ian Thomson for:

Risk of Glove Perforation among OR Personnel in Orthopaedic Surgical Procedures
Thomson, I, MD; McGuire, A, MD; Krysa, N, MSc; Mann, S, MD

Best Poster Award to David Yu for:

The Safety of Outpatient Stoma Closure: On the Verge of a Paradigm Shift?
Taylor J, MBBChir MPH; Stem M, MS; Yu D, MD, MPH; Chen S, MD; Fang S, MD; Gearhart S, MD; Safar B, MBBS; Efron J, MD

The Dr. J Hugh and Miriam McGuire Lectureship in Surgery

The Dr. J. Hugh and Miriam McGuire Lectureship in Surgery was established with a generous gift made to the University by Miriam McGuire in honor of her late husband, Dr. J. Hugh McGuire, a Queen's alumnus and devoted General Surgeon at Humber River Regional Hospital (formerly York Finch) from 1971 to 2003. Miriam McGuire, RN, CPN (C), worked at the same hospital from 1978 to 2002.

The gift allows the Department of Surgery to invite a Visiting Scholar to bring special expertise to Queen's and to stimulate new ideas and new methodologies among Queen's medical scientists, clinicians and students.

The 3rd annual McGuire Lectureship in Surgery featured Guest Speaker Dr. Martin Weiser, a Surgical Oncologist and Stuart H.Q. Quan Chair in Colorectal Surgery at Memorial Sloan-Kettering

Cancer Center. Dr. Weiser's presentation was titled: "Total Neoadjuvant Therapy for Rectal Cancer". He also gave a presentation at General Surgery Rounds entitled "Minimally Invasive Colorectal Surgery: Updates, Tips and Tricks", and took part in case observations.

As a surgical oncologist, Dr. Weiser specializes in treating cancers of the gastrointestinal tract, with expertise in minimally invasive surgical techniques that allow him to remove tumours without causing significant trauma. His clinical research focuses on increasing the accuracy of tumour staging and improving the methods of predicting outcomes following cancer surgery.





Dr. Annie Ritter, Dr. Caitlin Yeo, Dr. John Rudan, Dr. Jay Engel and Dr. Chantelle Capicciotti

Charles Sorbie Department of Surgery Faculty Research Day

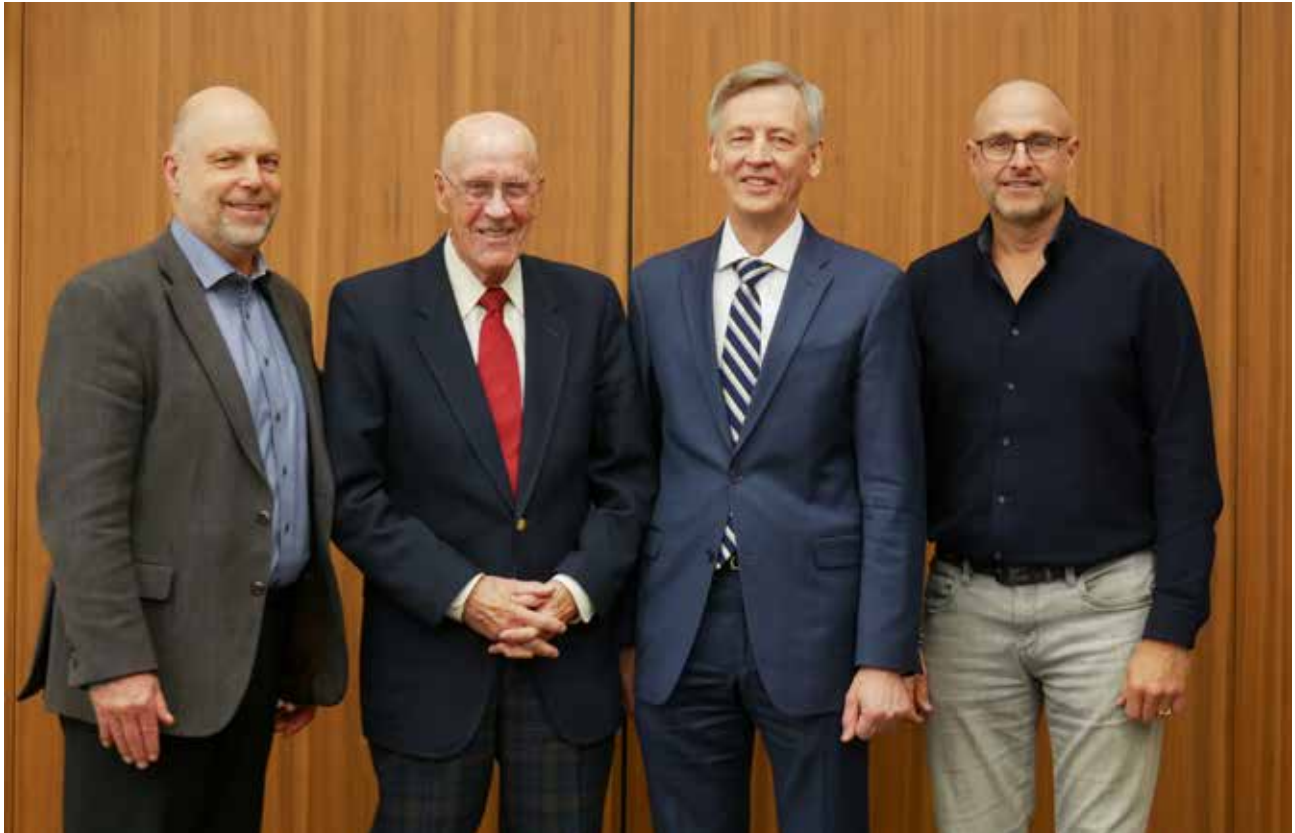
The Charles Sorbie Faculty Research Day provides participants with a valuable opportunity to learn more about the research activities within the Department of Surgery. Along with presentations from researchers across the department, this annual day-long event features a guest speaker and the presentation of several departmental awards.

The Faculty Research Day is made possible by a generous donation from Dr. Janet Sorbie, in loving memory of her husband, Dr. Charles Sorbie, who was a member of the Department of Surgery for 45 years. Dr. Sorbie had a distinguished career as a researcher and a surgeon during his time at the university, and was the first Chair of the Orthopedic Residency Training Program. He had a founding role in the Human Mobility Research Centre, and also served as the Head of the Department of Surgery for ten years.

The 2019 Faculty Research Day took place on Friday, April 12th, 2019 and featured guest speaker Dr. Chantelle Capicciotti, Queen's National Scholar in Precision Molecular Medicine from the Departments of Chemistry, Biomedical and Molecular Sciences and Surgery. She spoke on "Harnessing Chemical Glycobiology for Biomedical and Imaging Applications". Dr. Capicciotti's research interests are in the field of glycobiology, focusing on understanding how glycans/glycoproteins interact with proteins at a cellular level to elicit biological function, as well as on developing glycan-based approaches for biomarker identification, disease diagnosis, imaging techniques, and cell-based therapies.

The Research Day also featured presentations from Queen's researchers, as well as a number of awards. Dr. Annie Ritter received the Resident Clerkship Award and Dr. Caitlin Yeo received the John Rudan Resident Award for Excellence. Dr. Jay Engel received the Faculty Clerkship Award.

Lectures and Events



Dr. John Rudan, Dr. Andrew Bruce, Dr. Kullervo Hynynen, Dr. Rob Siemens

The Dr. Andrew Bruce and Margaret Bruce Endowment for Visiting Scholars in Surgical Innovation

The Dr. Andrew Bruce and Margaret Bruce Endowment for Visiting Scholars in Surgical Innovation brings prominent scholars with special expertise in surgical scholarship to Queen's to introduce new research and ideas, and teach new methodologies to students, medical scientists and clinicians. Along with a public lecture, scholars spend time at Queen's touring labs, meeting with faculty and students, and sharing ideas.

The 7th Annual Dr. Andrew and Margaret Bruce Visiting Scholar in Surgical Innovation took place on Wednesday, March 6, 2019. This year's guest scholar was Dr. Kullervo Hynynen, the Director of the Physical Sciences Platform at the Sunnybrook Research Institute and a Canada Research Chair in Imaging Systems and Image-Guided Therapy.

Dr. Hynynen's public lecture entitled "Healing the Brain with Ultrasound" explained how sound waves under image-guidance

can be used to perform brain surgery and other brain treatments without opening the skin. These treatments will revolutionize how the brain will be treated in the future and offer hope for patients suffering from brain tumours, Alzheimer's and Parkinson's Disease.

Dr. Andrew Bruce is an alumnus of Queen's University and a strong proponent of surgeons and their innovations. He approached the Faculty of Health Sciences and the Department of Surgery with a goal to translate innovation in Surgery by helping to bring scholarly surgical expertise to Queen's. This is now possible thanks to his generous endowed donation that was matched by the Department of Surgery.

The department is also very fortunate to have Dr. Bruce back at Queen's as a member of the Faculty of Health Sciences Dean's Advancement Cabinet and we are honoured that Dr. Bruce and his late wife Margaret have made it their wish to make a major investment in Queen's. With the establishment of the Dr. Andrew and Margaret Bruce Endowment for Visiting Scholars in Surgical Innovation, the Department of Surgery is able to host an annual lectureship for both the medical community as well as the general public.



Awards and Achievements

DR. DARRIN PAYNE RECEIVES SEAMO
AWARD FOR COMPETENCY BASED MEDICAL
EDUCATION PROJECT

DR. DAVID PICHORA NAMED AS TOP 50
REVIEWER

DR. DAVIDE BARDANA RECEIVES THE 2019 H.F
PROSS EDUCATIONAL TECHNOLOGY AWARD

Awards and Achievements



Dr. Darrin Payne receives SEAMO Award for Competency Based Medical Education project

Dr. Darrin Payne is one of 11 winners of the 2019 SEAMO Endowed Education and

Scholarship Fund for his Competency Based Medical Education (CBME) project. His project, titled "Informing Ongoing CBME Program Improvement in the Department of Surgery with a Coordinated Program Evaluation Approach", is evaluating the program as it continues evolve to meet the needs of students and faculty members.

"As the first and only Canadian University to adopt and implement institutional-wide CBME, we want to examine our implementation strategy," says Dr. Payne. "By comparing our planned versus enacted implementation, we aim to better understand optimal strategies and identify potential barriers when adopting a CBME model, with the goal of better defining an ideal implementation blueprint. Systematic program evaluation will also allow us to monitor progress and inform ongoing improvement."

Queen's Faculty of Health Sciences undertook the launch of Competency-Based Medical Education (CBME) across all

programs in 2017. This ambitious endeavour, while challenging, has been a major success in the Department of Surgery, and has positioned the university as a leader in medical education both nationally and internationally.

CBME has resulted in the residency programs being restructured into four stages of learning, each with a different focus. Rather than promotion being based on time-based rotation blocks, residents are promoted based on their ability to demonstrate competence by accomplishing clinical tasks known as Entrustable Professional Activities (EPAs).

Residents are assessed more frequently in the new system, and those who demonstrate competency at an accelerated pace can use their time to pursue additional enrichment opportunities, such as research projects.

Dr. Payne notes that the funding will allow for a better understanding of CBME implementation, defining early outcomes and unanticipated consequences. This will provide insight into the successes and challenges associated with operationalizing CBME across surgical programs, informing ongoing program revision, adaptation and improvement.

The SEAMO Endowed Scholarship and Education Fund supports projects intended to add value to the continuum of medical education offered through Queen's School of Medicine. More than \$150,000 was provided in 2019 to support SEAMO-funded physicians. Selection is based on the clarity of the proposal, its relevance to the purpose of the SEAMO Endowed Scholarship and Education Fund and the extent to which the project contributes to building knowledge in the field of educational scholarship.

Dr. Michael Chan Award in General Surgery

The Dr. Michael Chan award is presented annually to a general surgery resident who consistently demonstrates dedication to the delivery of compassionate, comprehensive care of patients, and is intended to inspire residents in the General Surgery program to always pursue excellence in clinical care.

Dr. Kathryn Hay was the recipient of the award in 2018, and has interests in community surgery and health administration. She says that her favourite part of her work is interacting with

patients and being part of their story. "I never shy away from advocating for my patients, my colleagues and my community," she says. "My motivation for patient care comes from knowing my interaction with patients can make a difference in how they see the health care system and their overall experience."

Dr. Erin Williams, the 2019 recipient of the award, has interests in surgical oncology and thoracic surgery, along with research interests in medical education and curriculum design. She says that her former training as a nurse helps her connect with patients. "I love how busy our days can be, but I also try to make time to get to know patients," she says. "I think that we all strive to put the patient first."



Dr. David Pichora named as Top 50 Reviewer

The Clinical Orthopaedics and Related Research (CORR) journal has named Dr. David Pichora, a clinician-scientist and the President & CEO of Kingston Health Sciences Centre, as

one of their Top 50 reviewers. The recognition is one that Dr. Pichora says stems from his commitment to citizenship in medicine, and one of the ways he gives back to his profession by sharing his expertise.

An internationally recognized leader in hand surgery, upper extremity, peripheral nerve surgery, and orthopaedic trauma, Dr. Pichora is also a pioneer in the use of motion analysis techniques for documenting patterns of disease in upper extremities. He co-pioneered the world's first computer-assisted distal radius

osteotomy and has received numerous research grants. In April 2017, he assumed the role of President & Chief Executive Officer of the newly integrated Kingston Health Sciences Centre (KHSC).

Dr. Pichora is a firm believer in volunteering time and energy to support others, whether it's reviewing grant applications, serving on committees or reviewing publications. "These activities are part of what I consider to be metrics for citizenship," he says. "We've all had mentors in the past who have supported our work and, and I believe it's our duty to do the same by sharing knowledge." Along with his expertise in orthopaedics, Dr. Pichora is also cross-appointed to Mechanical and Materials Engineering at Queen's and has significant experience to share with others working in multidisciplinary environments to improve patient care.

Dr. Pichora notes that reviewing publications also helps him hone and maintain his critical analysis skills, while contributing to the quality of articles. "I read a number of journals, and I'm interested in reading meaningful and well-written pieces," he says. "By contributing my knowledge, I can help ensure that our journals continue to be a valuable component of ongoing education and discovery."



Dr. Davide Bardana receives the 2019 H.F Pross Educational Technology Award

Dr. Davide Bardana is the recipient of the 2019 H. F. Pross Educational

Technology Award, presented to a faculty member in the School of Medicine for their innovative use of technology in teaching and learning. His techniques and innovations have not only had a strong positive impact for trainees at Queen's, but have also significantly influenced training practices in Canada and elsewhere.

Dr. Bardana pioneered the application of novel educational technology using surgical simulators, and is recognized as a

leader in the implementation of these systems for developing competencies in orthopaedic residents. He was nominated for the award for his development of a new approach to training in arthroscopy, a common procedure but challenging from technical and psychomotor perspectives.

Dr. Bardana recognized the potential use of virtual reality simulators for this purpose, and he and his team developed an assessment framework, followed by a new training system. The ARTHRO Mentor™ combines physical anatomical models (shoulder, knee and hip), 3D images and haptic sensation to simulate procedures using a set of tools similar to those used in the OR, including the arthroscopic camera. It has now been implemented in the orthopaedic residency training program and includes a fully integrated e-learning platform.

The Department is grateful to Dr. Bardana for his enthusiastic commitment to education and training and his dedication to surgical excellence. He is truly an innovator in the implementation of education technology and is highly deserving of this award.

Promotions



Dr. Mila Kolar
- promoted to Associate Professor



Dr. Ron Levy
- promoted to Associate Professor



Dr. Darrin Payne
- promoted to Associate Professor

Retirements



Dr. John Davidson retires

On July 11, 2019, the Department of Surgery and the Division of Plastic Surgery celebrated the retirement of Dr. John Davidson after a 46-year affiliation with Queen's University.

John moved from Ottawa to Kingston in the summer of 1973. He obtained three degrees from Queen's University: a BSc (Honors, Life Sciences) in 1977, an MSc (Physiology) in 1979 and an MD in 1982. After medical school, he left Kingston to do a Surgical Internship in London Ontario, a Plastic Surgery Residency in Calgary and a post-residency year as a Registrar in the West of Scotland Plastics and Maxillofacial unit in Glasgow, Scotland. He returned to Kingston in January of 1989, joining the Department of Surgery and the Division of Plastic Surgery.

John's surgical practice was very busy, and he looked after all types of plastic surgery problems in patients of all ages. He was the first plastic surgeon in Kingston to do microsurgery and as a result, he developed strong collaborations with ENT and many other surgical services.

John staffed the Burn Unit until its closure in 2004. He was also very interested in skin cancer and was cross-appointed to the Department of Oncology. His dedication to the patients of this region was unmatched, as evidenced by his positive demeanor even after a busy night on call.

Along with his active clinical practice, John was a strong contributor to the Department of Surgery, Queen's University,

the Kingston Hospitals and the wider medical profession. His academic activity resulted in his promotion to Associate Professor in 1998. He served on and was chair of multiple departmental and hospital committees.

John's leadership as Division Head of Plastic Surgery from 2003-2014 resulted in the establishment of clinics at the Kingston Regional Cancer Centre and at the Lennox and Addington County Hospital. As a result, Plastic Surgery grew from two to five members and was better able to meet the needs of the region.

John was an active and awarded educator at both the undergraduate and post-graduate levels. For many years he was instrumental in organizing and delivering the Principles of Surgery curriculum for the residents in surgery, and he mentored numerous medical students, many of whom are now successful plastic surgeons. He was on committees at the Royal College of Physicians and Surgeons of Canada, the College of Physicians and Surgeons of Ontario, the Canadian Society of Plastic Surgery and was a reviewer for the Journal of Plastic and Reconstructive Surgery.

John has many interests outside of Medicine. He retires to his cottage north of Kingston to pursue these with his wife Lydia (BSc'77), four children and three grandchildren. The Department of Surgery is grateful for his contributions and wishes him all the best in retirement.

Lifetime Achievement Award



Dean Richard Reznick honoured with lifetime achievement award

It's often said that if you want to get something done, give it to a busy person to do. That maxim certainly

applies to Dean Richard Reznick, who was recently recognized by HealthCareCAN, with the 2019 "Legacy of Leadership" award for his outstanding contributions to medical education and to Canada's health system as a surgeon, educator, researcher, administrator and leader.

The HealthCareCAN award recognizes exceptional individuals who have made long-lasting and outstanding contributions to advancing Canada's health system and have demonstrated significant and sustained commitment toward the enhancement of the health of Canadians.

"Dr. Reznick has contributed greatly to the field of medical education," said Paul-Émile Cloutier, President and CEO of HealthCareCAN. "His globally-recognized work in improving the quality of health care reflects a rich and powerful set of skills and talent that personify this award."

After completing his medical degree at McGill University and graduating from the General Surgery training program at the University of Toronto, Dr. Reznick completed his Master of Education at Southern Illinois University, followed by a fellowship in Colorectal Surgery at the University of Texas. His passion for medical education and health quality initiatives has been demonstrated in many ways throughout his career. Along with founding the University of Toronto (U of T) Centre for Research in Education at University Health Network (Wilson Centre), Dr. Reznick led the development of the first objective structured clinical examination at the Medical Council of Canada. He also developed a research program in the assessment of technical competence for surgeons and ran a fellowship program in surgical education.

As Vice-President of Education at UHN and Chair of the Department of Surgery at U of T, Dr. Reznick advanced multiple educational initiatives and partnerships, and helped to advance a successful pilot program in Competency-Based Medical Education (CBME) in Orthopaedic Surgery at the University of Toronto.

Dr. Reznick joined Queen's as Dean of the Faculty of Health Sciences in 2010, and parlayed his passion for education into transforming the Faculty into a leader for educational initiatives. At a time when the Royal College of Physicians and Surgeons implemented CBME with a phased-in period over 10 years, Dr. Reznick took a 'leap of faith' and led an initiative to implement CBME across all 29 programs in the Faculty over a one-year period.

While challenging, the implementation was a success and resulted in Queen's being the first university in Canada to fully deploy this new methodology across all of its specialty programs, a feat that has been celebrated at national and international conferences, and studied by other schools looking to learn from the Queen's approach.

Although Dr. Reznick is finishing up his tenure as Dean, he will continue to be a 'busy person'. Along with active membership on the Premier's Council on Improving Healthcare and ending Hallway Medicine in Ontario, he is working on a collaboration with Haramaya University in Harar, Ethiopia on the development of three new training programs. And as the recently appointed President-elect of the Royal College of Physicians and Surgeons of Canada, he'll continue to add his voice and expertise to advocating for health systems reforms and improving care for Canadians.

Reflecting on his ten years at Queen's, Dr. Reznick said, "It's been a great privilege to serve as Dean at one of Canada's finest universities."

"I am very proud of the collective accomplishments we have made together, advancing our mission of asking questions, seeking answers, advancing care and inspiring change".

Upcoming Changes



Dr. Ross Walker appointed as Head, Department of Surgery

You've been with the Department for over 30 years. What are some of the highlights for you?

I've been so fortunate to have many opportunities to work with some wonderful teams during my time here. I'm proud of our resident education program, which was recognized by the Professional Association of Residents of Ontario (PARO) with a program excellence award in 2006. We've also continued to improve our accreditation results, with the best results in Canada in 2018. Our CaRMS (Canadian Residency Matching Service) matching is steadily improving - last year, we actually matched all PGY-1s in the first iteration. And of course, the implementation of Competency-Based Medical Education (CBME) was a significant accomplishment and a major highlight for me.

What do you think are some of the Department's biggest strengths?

Dr. John Rudan has done an amazing job of growing the Department during his time as Head. His ability to recruit clinician-scientists has resulted in an incredibly rich research program, including in areas such as neurosurgery where we don't have a residency program.

The creation of endowed surgical chairs is also a significant strength, allowing us to make important contributions to medical research. The investment into these by our own surgeons is a testament to the commitment and dedication of our team.

Even though the department has grown, it is still small enough to enable a personal approach to medical education. We work

Dr. Ross Walker, Associate Dean, Postgraduate Medical Education, takes on the role of Head of the Department of Surgery on September 1, 2020. We spoke with him about his career and his plans for the future of the Department.

closely with our residents and with each other, which makes for strong relationships and a high-quality educational experience.

Your career has been largely focused on postgraduate medical education and you were also heavily involved in the implementation of CBME. What do you see as the next steps?

We will continue to actively ensure that our students receive a high-calibre education by taking advantage of formal evaluations of CBME and updating our curriculum to meet evolving practices in medicine. I also see great opportunities for creating new fellowships to enhance our residency program, particularly in our subspecialties.

What are your short and long-term goals for the Department?

In the short term, I'd like to begin a thoughtful review of the practice plan and our deliverables at all levels. I see us engaging in an open strategic planning process in the Fall, to help us all better understand our mission and vision.

In the long term, I want to continue to build on Dr. Rudan's momentum around research, and grow some of our leading research centres. We also have great opportunities to establish more national and international fellowships.

I believe that we need to work with our regional partners to coordinate surgical care across our region to provide the best care for our population. This could mean expanding the AFP program and collaborating on strategic planning.

Most of all, I'm looking forward to working with my colleagues as we plan for the future. I like to think that I'm a consensus builder, and I'm grateful for this opportunity to contribute to the Department's ongoing success.

Upcoming Changes



In light of delayed publication due to the COVID-19 pandemic, we wanted to acknowledge the addition of our new Dean – Dr. Jane Philpott

Welcome to Dean Jane Philpott

Dr. Jane Philpott joined Queen's Faculty of Health Sciences as Dean on July 1, 2020. A physician, educator, global health advocate and former federal politician, Dr. Philpott brings extensive experience to her new role. She is looking forward to working with her new colleagues to advance research, harmonize health systems and bolster equity, diversity, inclusion, and accessibility in the health professions .

"Becoming Dean of the Faculty of Health Sciences at Queen's is one of the greatest honours of my life," says Dr. Philpott. "Being the first woman to hold this position is especially meaningful." Dr. Philpott began her career in West Africa, providing clinical care and training in some of the poorest regions in the world. Upon returning to Canada, she joined the University of Toronto Faculty of Medicine, where she helped to create the first family medicine training program for Ethiopia.

As a politician, Dr. Philpott served Canadians from 2015 to 2019 as the federal Minister of Health, Minister of Indigenous Services, President of the Treasury Board and Minister of Digital Government.

Dr. Philpott says that Queen's is ideally suited for the collaborative approach that is critical to advances in healthcare. "The hospitals, university and community naturally work together here," she says. "That doesn't happen everywhere. As well, having the three schools – medicine, rehabilitation therapy and nursing – together in one faculty ensures that we are well aligned in our work."

Dr. Philpott outlined three areas of priority in her first blog to the Queen's community: research, health systems integration and equity. She intends to place significant emphasis on growing the research mandate and building new partnerships, while developing new models for health care integration. As a physician, educator and politician, she has seen first-hand the impact of systemic racism, sexism and colonialism, and recently struck a Dean's Action Table on Equity, Diversity and Inclusion.

Dr. Philpott says that she is extremely impressed with the energy and commitment she has seen within the faculty and is looking forward to continuing to build the faculty's role as a leader in medical education. "We have so much talent and opportunity at Queen's," she says. "I know that, working together, we can continue to improve healthcare for all."



Grants and Publications

Grants and Publications

2019 GRANTS

Principal Investigator: Abuzeid Wael, Medicine
Co-Investigators: Abunassar Joseph, **Bisleri Gianluigi**, Hazra Samir
Sponsor: Queen's University
Total Awarded: 24,895
Project Title: Echocardiographic and Hemodynamic Determinants of Morbidity and Mortality in Patients Referred for Percutaneous or Surgical Mitral Valve Repair

Principal Investigator: **Alkins Ryan**, Surgery
Co-Investigators: **Brogly Susan**, Hanna Timothy
Sponsor: Queen's University, Department of Surgery
Total Awarded: 15,000
Project Title: Glioblastoma treatment, resource utilization and outcomes in Ontario

Principal Investigator: **Bicknell Ryan**, Surgery
Sponsor: McMaster Health Science
Total Awarded: 50,000
Project Title: Cognitive Behavioral Therapy to Optimize Post-Operative Recovery: A Randomized Controlled Trial (COPE)

Principal Investigator: **Bisleri Gianluigi**, Surgery
Sponsor: Angiodynamics, Inc.
Total Awarded: 25,200
Project Title: Endocarditis in Intra-Venous Drug Users

Principal Investigator: **Brogly Susan**, Surgery
Co-Investigators: Velez Maria
Sponsor: National Institutes of Health (NIH)
Total Awarded: 62,031
Project Title: A Population-Based Study to Quantify the Risks of Opioid Analgesics in Pregnancy

Principal Investigator: **Cook Douglas J**, Surgery
Co-Investigators: Champagne Allen
Sponsor: Queen's University
Total Awarded: 27,000
Project Title: Non-Invasive Metabolic Imaging of Minor Traumatic Brain Injury

Principal Investigator: **Cook Douglas J**, Surgery
Co-Investigators: Nashed Joseph
Sponsor: Queen's University
Total Awarded: 10,000
Project Title: Translational Medicine Graduate Program Research Bursary for Joseph Nashed

Principal Investigator: Groome Patricia A, Public Health Sciences
Co-Investigators: **Mann Stephen**
Sponsor: Canadian Institutes of Health Research, Studentship/Fellowship
Total Awarded: 15,000
Project Title: Hemiarthroplasty Versus Total Hip Arthroplasty for Femoral Neck Fracture: Propensity-Score Matched Cohort Study and Census of Orthopaedic Surgeons in Ontario

Principal Investigator: Johri Amer, Medicine
Co-Investigators: Pang Stephen C, **Zelt David T**
Sponsor: Philips Healthcare
Total Awarded: 30,000
Project Title: Vulnerable Plaque Composition Assessment by Novel 3D-Guided Ultrasound for Atherosclerotic Risk Detection (VANGUARD)

Principal Investigator: Johri Amer, Medicine
Co-Investigators: Azevedo De Lima Patricia, **Cook Douglas J**, Hindmarch Charles, Pang Stephen C
Sponsor: Queen's University
Total Awarded: 75,000
Project Title: Virtual Histology and Molecular Environment of Atherosclerotic Plaque by a Novel 3D-Guided Ultrasound Tool for Atherosclerosis Risk Detection (VANGUARD)

Principal Investigator: **Martou Glykeria**, Surgery
Co-Investigators: Fichtinger Gabor, Janssen, Natasja, Kunz Manuela
Sponsor: University Hospitals Kingston Foundation
Total Awarded: 10,000
Project Title: Evaluation and Surgical Planning of Breast Reconstruction with Fat Grafting Using 3D Optical Surface Scanning

Principal Investigator: **Merchant Shaila**, Surgery
Co-Investigators: Booth Christopher, **Chung Wiley, Patel Sunil**
Sponsor: University Hospitals Kingston Foundation

Total Awarded: 25,000

Project Title: Practice Patterns, Utilization and Outcomes of Multimodality Therapies in the Management of Locally Advanced/Resectable and Advanced Unresectable/Metastatic Esophageal, Gastroesophageal Junction (GEJ) and Gastric Cancers in Ontario, Canada

Principal Investigator: **Merchant Shaila**, Surgery

Co-Investigators: Ropeleski Mark Jeremy

Sponsor: Queen's University

Total Awarded: 2,500

Project Title: Biopsy of Gastric Lesions to Develop Patient-Derived Cancer Models

Principal Investigator: **Merchant Shaila**, Surgery

Co-Investigators: Booth Christopher M,

Chung Wiley, Patel Sunil

Sponsor: Southeastern Ontario Academic Medical Organization Research (CTAQ)

Endowment Fund

Total Awarded: 20,000

Project Title: Practice Patterns, Utilization and Outcomes of Multimodality Therapies in the Management of Locally Advanced/Resectable and Advanced Unresectable/Metastatic Esophageal, Gastroesophageal Junction (GEJ) and Gastric Cancers in Ontario, Canada

Principal Investigator: Mizubuti Glenio, Anesthesiology and Perioperative Medicine

Co-Investigators: DuMerton Shore

Debbie, Ho Anthony, Hopman Wilma M,

Martou Glykeria, McMullen Michael C,

Tanzola Robert C

Sponsor: Southeastern Ontario Academic Medical Organization, AFP Innovation

Grant

Total Awarded: 96,050

Project Title: ANAE-341-19 Can Dobutamine and Goal-Directed Fluid Therapy improve tissue oxygenation in Deep Inferior Epigastric Perforator (DIEP) flap breast reconstruction surgery?

Principal Investigator: **Nanji Sulaiman**, Surgery

Co-Investigators: Spencer Craig

Sponsor: Sunnybrook Hospital

Total Awarded: 12,500

Project Title: A Single-Arm Phase II trial of Intra-Operative Application of HEMOPATCH to the Pancreatic Stump to Prevent Post-Operative Pancreatic Fistula Following Distal Pancreatectomy

Principal Investigator: **Patel Sunil**, Surgery

Co-Investigators: Booth Christopher,

Brogly Susan, Hanna Timothy,

Merchant Shaila

Sponsor: Queen's University, Department of Surgery

Total Awarded: 15,000

Project Title: Barriers to Standard of Care Treatment for Rectal Cancer Patients in Ontario, Canada and the Effect on Cancer Outcomes: A Population Based Study

Principal Investigator: **Patel Sunil**, Surgery

Co-Investigators: Booth Christopher M,

Brogly Susan, Hanna Timothy

Sponsor: Southeastern Ontario Academic Medical Organization, Research (CTAQ)

Endowment Fund

Total Awarded: 20,000

Project Title: Identification and Impact of Barriers to Care in Rectal Cancer Patients: A population Based Study

Principal Investigator: **Zevin Boris**, Surgery

Co-Investigators: Almakky Mohammad,

Mancini Ugo, **Robertson David**

Sponsor: Queen's University, Department of Surgery

Total Awarded: 4,375

Project Title: A Novel Digital Approach to Informed Consent in Bariatric Surgery

Principal Investigator: **Zevin Boris**, Surgery

Co-Investigators: Maracle Jesse, Methot

Michelle, Ring Justine, Zhang Shannon

Sponsor: Physicians' Services Inc.

Foundation (PSIF)

Total Awarded: 20,000

Project Title: Sleep Deprivation and Medication Errors in Surgery: A Prospective Observational Study

Principal Investigator: **Zevin Boris**, Surgery

Co-Investigators: Kouzmina Ekaterina,

Mann Stephen

Sponsor: Queen's University, Department of Surgery, Division of General Surgery

Total Awarded: 5,000

Project Title: Time to Entrust, but are Residents Ready to be Trusted?

Grants and Publications

2019 PUBLICATIONS

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