Teaching & Research Annual Report 2021-’22

Academic & Medical Affairs

Royal Victoria Regional Health Centre

Centre for Education & Research
at Royal Victoria Regional Health Centre

Annual Teaching & Research Report, 2021-'22
Proudly produced by:

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Contents

IN THIS REPORT:

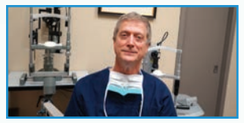
FEATURED RESEARCH

Rapid Evolution of Radiotherapy Technology Presents an Ever-Changing Landscape for Medical Physics Teams 6-7

10-11 Better Post-Operative Prescribing Patterns and Education Reduces Opioid Use

Physicians Give a Boost to the Strength of Oncoplastic Surgery and Radiation Therapy 16-17

18-19 New Research Sheds Light on the Importance of Contrast Sensitivity in Diabetic Macular Edema and Other Eye Diseases



SHORT STORIES

4 **RVH and Hospice Simcoe** Awarded Grant for Research on MAID
5 **Retired Local Family Physician** Honoured by RVH Student Research Scholarship
14 **Return of Scholarship Program** Allows Students to Conduct Local Research
21 **Health Library** Celebrates a Quarter Century
23 **Dr. Jacqueline Limoges** A Passion for Local Research and Innovation

DEPARTMENTAL

3 Welcome from the RVH Centre for Education & Research
8-9 Publications 2021-'22
12-13 By the Numbers 2021-'22
15 Family Medicine Residency Program Awards
20 Medical Education Highlights
24 Meet the Clinical Trials Team
25 Research Council, Research Ethics Board, Clinical Trials Steering Committee

WELCOME FROM THE

RVH Centre for Education & Research

As we enter the third year of the COVID-19 pandemic, the impact of prolonged social restrictions and the "new normal" have had profound consequences on our personal and professional lives. Despite this, together we have managed to adapt our traditional paradigms of patient care with significant, meaningful adjustments to protect our friends, families, and community.

Although not yet fully behind us, nor without strain on our mental and physical well-being, 2021-'22 brought glimmers of normalcy that were accompanied by a sense of resilience, fortitude, and optimism as hope that the toughest days are behind us.

Before the unexpected arrival of COVID-19 in 2020, RVH's Centre for Education & Research (CER) was entering a period of expansion. Comprised of research and medical education professionals dedicated to advancing applied health research throughout the organization, the CER quickly transitioned to a period of adaptation as COVID-19 took hold of nearly every aspect of teaching and research at RVH in 2020-'21. During this time, the CER worked to identify and cultivate new frameworks and partnerships intended to improve future resilience and foster new growth.

In 2021'-22, the RVH Research Institute continued to break boundaries by developing new partnerships, publishing more research than any year before, and expanding on grants and awards programs. For example, clinical trials teams from across the organization merged as a single group to increase research capacity through shared resources, while the RVH Research Ethics Board acted as a new board of record for several organizations across the region. Meanwhile, our Health Library began undergoing a major transition towards becoming a modern hub for learning and information to facilitate a growing demand for touch-down spaces and digital health resources.

The medical education team continued to deliver educational initiatives for RVH professional staff by providing opportunities to enhance their knowledge and clinical capabilities, thus supporting patient care through leading practices. Adjusting to enhanced safety standards, the team provided virtual Medical Grand Rounds, simulation training, and ACLS courses, utilizing creative methods to reach new audiences. Promoting RVH as a workplace of choice for future medical leaders, the team connected medical learners from across the province with RVH clinicians, allowing students to build on their knowledge, expertise, and proficiencies through high-quality, local mentorship.

The remarkable continued growth and adaptation experienced by the CER these past few years speaks to the burgeoning potential of teaching and research within the organization. Indeed, the lessons and experiences earned from such swift, unprecedented transformation has strengthened both our capacity and resolve to face new challenges with optimism.

On behalf of the CER, we wish you and your loved ones health and safety,

Dr. Jeff Tyberg
Chief of Staff & Vice President, Academic and Medical Affairs

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RVH and Hospice Simcoe Awarded Grant for Research on MAID

In June 2016, the federal government passed legislation allowing eligible Canadian adults suffering grievous and irremediable medical conditions to request medical assistance in dying (MAID).

While hospitals, private residences, and long-term care homes are the most common settings for MAID, the legal change has compelled palliative care providers to consider their degree of involvement.

Investigators at RVH and Hospice Simcoe were recently awarded a grant by the public funding agency, PSI Foundation, to evaluate the policies and practices in place to support MAID in Ontario's residential hospices. The study, led by Kelly Hubbard, Executive Director, Hospice Simcoe, Dr. Brian Morris, Medical Director, Hospice Simcoe, and Dr. Giulio DiDiodato RVH Intensivist and Chief Research Scientist, will also examine the reasons why some hospices have adopted MAID, while others have not.

With the primary goal of residential hospices being to improve quality of life for patients and their families, questions regarding whether MAID can co-exist within a palliative setting is under debate.

"MAID is an important topic, and does draw some controversy. While some experts, and professional associations, feel that MAID should not be connected with palliative care, or take place in hospices, others strongly disagree. This study examines a topic that has not been looked at previously, and we hope that it will shed some light that will be useful to all of us in the field of palliative care," says Dr. Morris.

The grant is the first research collaboration between Hospice Simcoe and RVH and is a new milestone for the hospital, representing the first major research award from an external, peer-reviewed, academic granting agency.

"The RVH Centre for Education and Research is an invaluable partner! We are excited to continue to explore research in community based palliative care and bereavement support settings. We look forward to working with RVH on future research projects!" says Kelly Hubbard.

(Above, Left-Right) Dr. Brian Morris, Dr. Giulio DiDiodato, and Kelly Hubbard stand in front of Hospice Simcoe's symbolic inukshuk along the garden path and wooded area outside Hospice Simcoe

Retired Local Family Physician Honoured by RVH Student Research Scholarship

RVH honoured retired family physician, Dr. Laura Crook for her contributions to the hospital and community by establishing a summer student research scholarship in her name - *'The Laura E. Crook Scholarship for Community Health Research'*.

During her impressive 37-year medical career, Dr. Crook delivered more than 3,000 babies, practiced family-centered care long before it became the gold standard in healthcare and gained a well-deserved reputation for not only being an excellent family physician, but a strong advocate of women's health.

"Dr. Crook has been a pillar of the medical community in Barrie and we are so pleased to add to the legacy she has built," says RVH President and CEO Janice Skot. "Her passion for exceptional family medicine, maternal care and research inspired RVH to achieve new levels of excellence. An incredibly compassionate physician, Dr. Crook encouraged us to always see patients as partners in their care."

In the mid-1980s, Dr. Crook established a family practice in Barrie with her late husband Dr. Nabil El-Maraghi where she quickly earned a reputation for providing excellent care. With a strong passion for maternal health, she was RVH's Chief of Obstetrics for six years and, after retiring in 2006, served as the Clinical Director of RVH's Women's Health Program, where she helped to establish new services in the region, including the hospital's midwifery program, Obstetrical Triage Unit and expanded children's services.

She played an instrumental role in the creation of RVH's Research Ethics Board and, most recently, served as the Chair from 2008 to 2020.

"Dr. Crook has devoted countless hours to promoting community research, providing academic guidance to colleagues and students, and safeguarding the rights and well-being of patients," says Dr. Jeffrey Tyberg, RVH Chief of Staff and Vice President of Academic & Medical Affairs. "We are honoured to celebrate Laura's extraordinary contributions to healthcare and we hope this scholarship inspires the next generation to follow in her footsteps."

The scholarship will be given to the highest-ranked student among the pool of successful applicants for RVH's annual Summer Student Research Award, with preference given to those in the fields of family medicine or child and maternal health.

(Above) Retired family physician Dr. Laura Crook with patient pictured in 2006

Rapid Evolution of Radiotherapy Technology Presents an Ever-Changing Landscape for Medical Physics Teams

Radiotherapy is a rapidly evolving, technology-driven field that uses radiation to destroy or damage cancer cells without hurting nearby healthy cells. A hospital's medical physics department is primarily responsible for the development and use of radiotherapy systems, infrastructure, and technical procedures. These teams are typically comprised of healthcare professionals who specialize in the medical practice of physics, including medical physicists, physics assistants (or associates), engineers, and information technology specialists.

Medical physics departments continuously navigate novel treatments and technologies to provide safe, accurate, and reliable care for patients. With responsibilities towards clinical service and consultation, research and development, and teaching, it is critical for these departments to periodically review their staffing resources, particularly to meet resource needs for increased patient volumes and to provide equipment support for newer technologies, such as advanced, high-precision radiotherapy.

In 2012, a team led by Ontario medical physicist Dr. Jerry Battista, Professor of Oncology and Medical Biophysics at The University of Western Ontario, developed a comprehensive, grid-based staffing algorithm to replace simpler, but less accurate models based primarily on caseload. This new model has since been well-validated across Canadian cancer centres, but, a growing discrepancy was observed in 2018 between the algorithm's predictions and actual staffing levels in Ontario.

In 2018, Kyle Malkoske, Medical Physicist and Head of Medical Physics at RVH, joined forces with Dr. Battista and additional medical physicist colleagues Dr. Katharina Sixel and Dr. Robert Hunter to update the parameters of the 2012 algorithm.

As Kyle describes, "We strove to present a model that emphasized safety and innovation, but was also practical and cost-effective for health care systems. This project provided a unique opportunity to liaise with colleagues from across the country and gain a deeper understanding of how different medical physics departments are operated."

The team collected information on various medical physics activities from 15 radiation treatment centers in Ontario from April 1, 2018, to March 31, 2019, and drawing on the data collected, the 2012 algorithm was reviewed and adjusted through regression analysis to better align with observed clinical practices.

The updated algorithm was reorganized into five major components, including Clinical Procedures, Clinical Equipment, Core Services, Education & Training, and Administration. It assigns weighted parameters for staffing, and accounts for variations in local needs and workload. In practice, users of the new algorithm can input their equipment inventory, patient treatment volumes, and other information to which the algorithm estimates the number of medical physics staff required. Indeed, the new algorithm was tested at 23 centres across Canada and yielded better agreement with actual staffing in Ontario.

The authors further compared the new algorithm with four widely referenced staffing models from outside Canada, including the 2014 European Commission, the 2015 International Atomic Energy Agency, and the 2017 Institute of Physics and Engineering in Medicine models. Overall, the new Ontario model showed the lowest staffing counts and the best agreement with observed staffing levels for three representative centres in Ontario, thus re-affirmed the use of the updated algorithm across the province.

The team published the updated model in the August 2021 edition of the *Journal of Applied Clinical Medical Physics*.

Since the publication, the algorithm has been used to improve staffing levels for an established centre in Ontario. Kyle has also received requests for the algorithm tool from hospitals in other provinces, as well as Europe, Asia, and the United States.

(Left) Kyle Malkoske, Medical Physicist and Head of Medical Physics at RVH; (Below) One of four linear accelerators used for radiotherapy located in the Simcoe Muskoka Regional Cancer Program at RVH

Research Publications 2021-'22

1. Adams S, Beatty M, Moore C, Desai A, **Bartlett L**, Culbert E, Cohen E, Stinson J, Orkin J. (2021) Perspectives on team communication challenges in caring for children with medical complexity. *BMC Health Serv Res*. Apr 1;21(1):30

2. Rakovitch E, Parpia S, Koch A, Grimard L, Soliman H, **Stevens C**, Perera F, Kong I, Senthelal S, Anthes M, Wiebe E, Cao J, Goldberg M, Smith S, Spadafora L, Whelan TJ. (2021) DUCHESS: an evaluation of the ductal carcinoma in situ score for decisions on radiotherapy in patients with low/intermediate-risk DCIS. *Breast Cancer Res Treat*. Jul;188(1):133-139

3. **Nixon DR**, Flinn N. (2021) Visual Function for Driving in Diabetic Macular Edema and Retinal Vein Occlusion Post-Stabilization with Anti-Vascular Endothelial Growth Factor. *Clin Ophthalmol*. Apr 20;15:1659-1666

4. O'Rourke C, Jayaraman S, **El-Maraghi RH**, Singal AG, Kielar AZ (2021) Chronic Liver Disease and Liver Cancer: What the Hepatologists, Oncologists, and Surgeons Want to Know from Radiologists. *Magn Reson Imaging Clin N Am*. Aug;29(3):269-278

5. Genshaft SJ, Suh RD, Abtin F, **Baerlocher MO**, Chang AJ, Dariushnia SR, Devane AM, Faintuch S, Himes EA, Lisberg A, Padia S, Patel S, Tam AL, Yanagawa J. (2021) Society of Interventional Radiology Multidisciplinary Position Statement on Percutaneous Ablation of Non-small Cell Lung Cancer and Metastatic Disease to the Lungs: Endorsed by the Canadian Association for Interventional Radiology, the Cardiovascular and Interventional Radiological Society of Europe, and the Society of Interventional Oncology. *J Vasc Interv Radiol*. Aug;32(8):1241.e1-1241.e12

6. Genshaft SJ, Suh RD, Abtin F, **Baerlocher MO**, Dariushnia SR, Devane AM, Himes E, Lisberg A, Padia S, Patel S, Yanagawa J. (2021) Society of Interventional Radiology Quality Improvement Standards on Percutaneous Ablation of Non-Small Cell Lung Cancer and Metastatic Disease to the Lungs. *J Vasc Interv Radiol*. Aug;32(8):1242.e1-1242.e10

7. **Susman D**, **Price R**, **Kotchetkov R**. (2021) Lymphocytosis with Smudge Cells Is Not Equivalent to Chronic Lymphocytic Leukemia. *Case Rep Oncol*. Jun 18;14(2):950-956

8. Longo CJ, Fitch MI, Loree JM, Carlson LE, Turner D, Cheung WY, Gopaul D, Ellis J, Ringash J, Mathews M, Wright J, **Stevens C**, D'Souza D, Urquhart R, Maity T, Balderrama F, Haddad E. (2021) Patient and family financial burden associated with cancer treatment in Canada: a national study. *Support Care Cancer*. Jun;29(6):3377-3386

9. **Serre N**, Espin S, Indar A, Bookey-Bassett S, LeGrow K. (2021) Long-Term Care Nurses' Experiences With Patient Safety Incident Management: A Qualitative Study. *J Nurs Care Qual*. Jul 7. Online ahead of print.

10. **Malkoske KE**, Sixel KE, Hunter R, Battista JJ. (2021) COMP Report: An updated algorithm to estimate medical physics staffing levels for radiation oncology. J Appl Clin Med Phys. Aug;22(8):6-15

11. **Heerschap C**, Butt B. (2021) Algorithmic approaches to ostomy management: An integrative review. *Nurs Open*. Nov;8(6):2912-2921

12. Dixon SN, Sontrop JM, Al-Jaishi A, Killin L, McIntyre CW, Anderson S, Bagga A, **Benjamin D**, Blake P, Devereaux PJ, Iliescu E, Jain A, Lok CE, Nesrallah G, Oliver MJ, Pandeya S, Sood MM, Tam P, Wald R, Walsh M, Zwarenstein M, Garg AX. (2021) MyTEMP: Statistical Analysis Plan of a Registry-Based, Cluster-Randomized Clinical Trial. *Can J Kidney Health Dis*. Aug 27;8:20543581211041182

13. Salomons G, **Nakonechny K**, Neath C, Chin L, Keller H, Chan GH. (2021) Medical physics external beam plan review: What contributes to the variability? *Phys Med*. Sep;89:293-302.

14. **Heerschap C**, **Duff V**. (2021) The Value of Nurses Specialized in Wound, Ostomy, and Continence: A Systematic Review. *Adv Skin Wound Care*. Oct 1;34(10):551-559

15. Dawson J, Reed N, **Bauman S**, Seguin R, Zemek R. (2021) Diagnosing and managing paediatric concussion: Key recommendations for general paediatricians and family doctors. P*aediatr Child Health*. May 20;26(7):402-407

16. **Heerschap C**, **Duff V**. (2021) The Lived Experience of Patients with an Ostomy: A Pilot Study on the Effect of Ostomy Pouch Opacity. *Adv Skin Wound Care*. Dec 1;34(12):662-666

17. **Sauvé A**, Cappelletti A, Murji L. (2021) Stand Up for Indigenous Health: A Simulation to Educate Residents About the Social Determinants of Health Faced by Indigenous Peoples in Canada. *Acad Med*. Dec 28. Online ahead of print.

18. **Gladwish A**, **Didiodato G**, **Conway J**, **Stevens C**, **Follwell M**, **Tam T**, **Mclean J**, **Hanrahan R**. (2021) Implications of Oncoplastic Breast Surgery on Radiation Boost Delivery in Localized Breast Cancer. *Cureus*. Nov 29;13(11):e2000

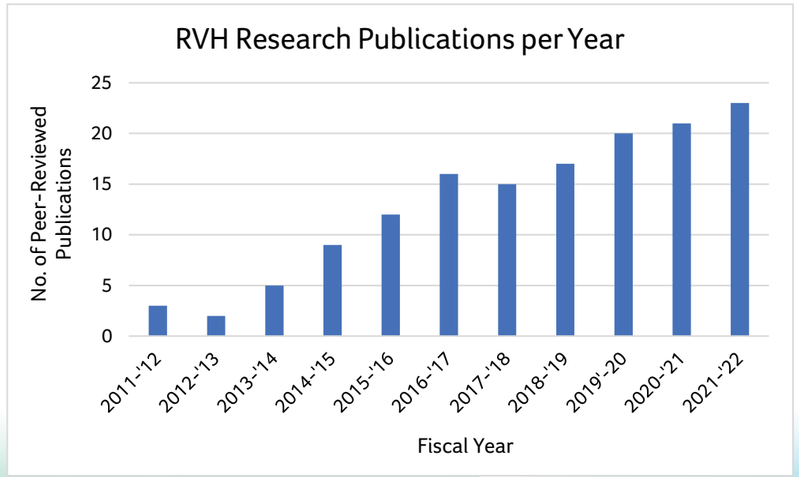
19. Anzola D, Limoges J, **McLean J**, Kolla NJ. (2022) Effects of the COVID-19 Pandemic on the Mental Health of Healthcare Providers: A Comparison of a Psychiatric Hospital and a General Hospital. *Front Psychiatry*. Jan 14;12:720693

20. Ali et al. **CATCO/AMMI/Clinical Research Network/ Canadian Critical Care Trials Group** (2022) Remdesivir for the treatment of patients in hospital with COVID-19 in Canada: a randomized controlled trial. *CMAJ*. Jan 19;cmaj.211698

21. Choi C, Mukovozov I, Jazdarehee A, Rai R, Sachdeva M, Shunmugam M, Zaslavsky K, **Byun S**, Barankin B. (2022) Management of hypertrophic scars in adults: A systematic review and meta-analysis. *Australas J Dermatol*. Jan 31. Online ahead of print.

22. Limoges J, **Mclean J**, Anzola D, Kolla NJ. (2022) Effects of the COVID-19 Pandemic on Healthcare Providers: Policy Implications for Pandemic Recovery. Healthc Policy. Feb;17(3):49-64.

23. Huynh C, Whitmore GA, Vandemheen KL, FitzGerald JM, Bergeron C, Boulet LP, Cote A, Field SK, Penz E, McIvor RA, Lemière C, Gupta S, Mayers I, Bhutani M, Hernandez P, Lougheed MD, Licskai CJ, Azher T, Ainslie M, Fraser I, **Mahdavian M**, Alvarez GG, Kendzerska T, Aaron SD. (2022) Derivation and Validation of the UCAP-Q Case-finding Questionnaire to Detect Undiagnosed Asthma and COPD. *Eur Respir J*. Mar 24:2103243.ww



Better Post-Operative Prescribing Patterns and Education Reduces Opioid Use

Post-operative pain management is undergoing a transformational change with a focus towards moving away from prescribing opioids as the primary mode of analgesia. While the motivations for this practice change are many, the urgency has been accelerated by the emerging opioid public health crisis.

In Ontario, opioid-related mortality rates have increased by 161% over the last 5 years, with over 90% of these deaths due to unintentional overdose among young adults who were never prescribed opioids. Prescription opioids represent a potential source of narcotic misuse, with surgery among the most common indications for opioid initiation.

In response, surgeons and anesthetists have been working together to study the effects of different post-surgical pain management strategies on reducing opioid use without compromising patient outcomes. Many studies have now demonstrated that bundled peri-operative analgesic strategies not only reduce overall opioid use, but also have no adverse effects on post-operative pain experienced by patients.

In 2019, RVH general surgeon and critical care specialist, Dr. Ana Igric, organized a continuing medical education event for the departments of Surgery and Anesthesia, focusing on recent developments in peri-operative opioid prescribing practices. The speakers were a surgeon and an anesthetist from the London Health Sciences Centre who had just completed a prospective study, Standardization of Outpatient Procedure (STOP) Narcotics, using a bundled peri-operative pain management strategy on patients undergoing day surgery. The bundled intervention included an education component for all operative staff, intra-operative analgesia that included opioid-reduction strategies, and time-limited post-operative opioid prescriptions.

Their study demonstrated a reduction in overall opioid use, reduced variability in post-operative opioid prescriptions and good patient pain management outcomes. Not only were the study results well received, but Dr. Igric realized there was no reason that a similar strategy could not be successfully implemented at RVH.

Supported by a donor grant from the RVH Foundation, Dr. Igric organized a research committee to plan for a study involving implementation of the STOP Narcotics peri-operative pain management strategy for patients undergoing elective outpatient hernia repair and laparoscopic gallbladder surgery. In addition to monitoring for the same outcomes as the STOP Narcotics study, the RVH research team also wondered if there were other relevant patient outcomes that might be affected by the opioid reduction strategy. All the studies that had been published prior to this study had considered pain control as the only relevant clinical outcome. Other clinical investigators had not considered asking patients if there were other outcomes that might be just as or more important than pain control.

In collaboration with the RVH Centre for Education & Research, under the mentorship of Dr. Giulio DiDiodato, RVH intensivist and Chief Research Scientist, Dr. Igric designed a study that included a novel approach to measuring other patient-relevant post-surgical outcomes. Patient recruitment started in November 2019, and after 12 months, 184 patients had been enrolled in the study, which accounted for 36.1% of all eligible surgeries.

Supported by a pain specialist research nurse, Mary Robertson, the study was able to demonstrate that patients rated outcomes such as the ability to return to work and the ability to resume usual daily activities as more important than pain control, a novel finding that had not previously been reported in the published literature. Combining pain control along with these other relevant outcomes into a composite outcome, Dr. Igric demonstrated that implementation of the STOP Narcotics bundled pain management strategy resulted in reduced opioid prescriptions and patient use without causing unintended adverse consequences for either pain control or the other important patient-relevant outcomes. The results of the study are currently being summarized and prepared for publication.

(Right) Dr. Ana Igric, RVH general surgeon and critical care specialist; (Left) Mary Robertson, RN CCAA, Acute Pain Service

By The Numbers 2021 -‘22

Centre for Education & Research
at Royal Victoria Regional Health Centre

Research

26 Active Clinical Trials — 15% increase

59 New Study Participants — 69% increase

23 Publications — 10% increase

40 Research Agreements — 18% increase

16 RVH Investigator-led Research Projects

3 Academic Projects Funded by External Granting Agencies

12 RVH Research Awards, Including 8 student scholarships

REDCap Research Electronic Data Capture

Version upgrade with increased functionality, including RVH system login authentication and user message / email / survey communications

Health Library — 10% increase

45 Comprehensive Literature Reviews For Staff

203,577 e-Catalog Searches — 7.3% increase

COVID-19

2 COVID-19 Clinical Trials

17 Study Participants Enrolled

3 COVID-19 Publications

Medical Education

8,220 Medical Trainee Days

274 Rural Ontario Medical Program (ROMP) Learners

122 Hours of full curriculum clinical simulation training hours for family medicine teaching residents

860 Medical Grand (”Rocket”) Rounds views on the RVH Medical Education YouTube Channel — 9% increase* (*vs in-person attendees)

143 Professional staff faculty appointments at the University of Toronto

16 Advanced Cardiovascular Life Support (ACLS) courses offered, with Protected Code Blue instruction

Research Ethics

6 Organizations the RVH Research Ethics Board acted as a board of record for

Return of Scholarship Program Allows Students to Conduct Local Research

After a brief pause due to COVID-19 restrictions, the RVH Summer Student Research Awards program returned in 2021-'22 with great success.

With increasingly growing interest in the program, the RVH Research Institute received more applications than any other previous year, including an 83% rise in submissions from the previous open call.

In 2021-'22, the competitive program saw eight scholarships awarded to exceptionally accomplished and talented students to support community-based research with RVH investigators in a variety of fields.

The program is offered once per year to stimulate interest in applied health research and to help prepare students for post-graduate studies or research-related careers. Details of the award can be found at www.rvhresearchinstitute.ca

(Above, Left to Right) Summer 2021 scholarship awardees: Nell Hoogeveen, Gavin Hughes, Sanjum Hunjan, Valerie Louis, Ramneet Kaloti, and Jessica Maher

2021-'22 RVH Summer Student Research Award Winners

Student Awardee	RVH Supervisor(s)	Research Area
Austin Gerhart	Dr. Michelle Van Walraven	Medical Assistance in Dying (MAID)
Nell Hoogeveen	Dr. Victor Sauro	Pediatric Diabetes
Gavin Hughes	Tyler Glass	Cardiomyopathy and Heart Failure
Sanjum Hunjan	Dr. Giulio DiDiodato	End-of-Life Resuscitation
Ramneet Kaloti	Dr. Matthew Orava and Dr. Anwar Parbtani	Hypertension in Octogenarians; Opioid Prescribing Patterns
Valerie Louis	Dr. Shannon Bauman	Sports-Related Concussions
Jessica Maher	Dr. Giulio Didiodato	COVID-19 Clinical Trials
Samantha Weisenfeld	Corey Heerschap	Wound Care Nursing Education

Family Medicine Residency Program awards

The Family Medicine Residency Program at RVH, in affiliation with the University of Toronto's Department of Family and Community Medicine, is a unique residency program offered to postgraduate medical students training to become family physicians.

Located in the Family Medicine Teaching Unit on the 3rd floor of Rotary Place at RVH, the program takes a team-based approach to providing safe, patient-centered care.

Residents have access to state-of-the-art equipment and opportunities to conduct research and quality improvement projects to better their practice. As of June 30, 2022, the program will have graduated 99 students.

In 2021'-22, supervisors and residents in the program were recognized for their outstanding contributions to family medicine through various awards, including:

Year	Institution	Award	Winner
2021	Department of Family and Community Medicine, University of Toronto, Postgraduate Award	Role Modeling Clinical Excellence	Dr. Jen McNaughton
2021	Department of Family and Community Medicine, University of Toronto, Postgraduate Award	Leadership	Dr. Mark von Allmen
2021	Canadian Federation of Medical Students	Culture Changer	Dr. Matt Orava
2021	Department of Family and Community Medicine, University of Toronto, Undergraduate Education Program	Excellence in Mentorship Award	Dr. Jacky Lai
2021	Family Medicine Teaching Unit, RVH	Teaching Excellence in Specialty Medicine	Dr. Ana Igric
2021	Family Medicine Teaching Unit, RVH	Teaching Excellence in Family Medicine	Dr. Devon Turner
2021	Rotary Club of Barrie	Health Care Award	Dr. Kerstin Mossman

Dr. Ana Igric

Dr. Devon Turner

Physicians Give a Boost to the Strength of Oncoplastic Surgery and Radiation Therapy

When treating patients with localized breast cancer, RVH Oncologic and Reconstructive Breast Surgeon, Dr. Renee Hanrahan, and RVH Radiation Oncologist, Dr. Adam Gladwish, routinely consider multi-disciplinary approaches, often combining surgical and radiation treatments to the mutual goal of providing the best possible outcome for their patients.

In 2021, RVH treated and cared for 1,450 newly diagnosed breast cancer patients. Breast cancer treatment continues to be unique and individualized to each patient's diagnosis, often requiring additional considerations and consultation between both surgical and radiation oncology specialties for planning of each cancer treatment plan.

For women who are diagnosed with localized breast cancer, surgery in the form of a lumpectomy or oncoplastic partial mastectomy (OPM) combined with adjuvant whole breast radiation therapy is the standard of care. Boost radiotherapy (BRT) may also be offered as an additional treatment option after surgery, with the intent of reducing the risk of future breast tumour recurrence in patients with high risk features.

While OPM is increasingly becoming utilized for its favorable oncologic and aesthetic outcomes, this technique leads to additional breast tissue rearrangement, which can have an impact on target definition for BRT.

Both surgeons and oncologists, alike, have found that there remain unanswered questions as to whether there is a greater propensity to omit BRT as a result of surgical technique, presumably because there is concern regarding accurate target localization for patients. Answering this question has become an important topic, particularly as more women choose OPM as a means to improve surgical outcomes.

Given the lack of research investigating the relationship between OPM and BRT, Drs. Hanrahan and Gladwish worked together to develop a study in which they comprehensively reviewed the average treatment effect of surgery type on reception of BRT, as well as treatment delays, tumour recurrence, and BRT targeting.

The study found that performing lumpectomy or OPM was not associated with differences in the proportion of patients receiving BRT; in fact, the findings suggested that BRT treatment was based on tumor features. In addition, there were no significant differences in time to adjuvant radiotherapy and radiation oncologists did not alter BRT volumes in the context of OPM.

Drs. Hanrahan and Gladwish recently published their findings in the November 2021 edition of the medical journal *Cureus*, helping guide their colleagues and patients towards the best possible multidisciplinary care outcomes.

(Above, Left-Right) Dr. Renee Hanrahan and Dr. Adam Gladwish

New Research Sheds Light on the Importance of Contrast Sensitivity in Diabetic Macular Edema and Other Eye Diseases

Diabetes is a chronic health condition that affects how an individuals body turns food into energy. Without proper management, the condition can cause serious health problems, including heart disease, stroke, kidney disease, nerve damage, and eye problems.

As the prevalence of diabetes grows in adult populations, so do concerns over the loss of visual function, which can have substantial negative impact on independence and quality of life.

Diabetic Macular Edema (DME) is an eye disease that arises from untreated diabetic complications and affects up to 10% of patients. DME is caused by swelling or accumulation of fluid in a specific area of the eye called the macula and is commonly associated with impairments in visual acuity and contrast sensitivity, two different, but critical aspects of visual function.

In everyday activities, visual acuity refers to the ability to resolve objects at a distance, and is used to recognize small details with precision, such as reading small print, whereas contrast sensitivity is the ability to distinguish between finer and finer increments of light versus dark, and is used to identify objects from their background, particularly when contrast is poor, such as driving in low light, fog, or glare.

While contrast sensitivity is arguably a more reflective indicator of quality of vision and a better marker for detecting early eye disease than visual acuity, it remains an underutilized tool in formal assessments of visual performance, such as drivers license testing. This may be because there are no agreed to standards for contrast sensitivity thresholds or level of lighting.

Dr. Don Nixon, RVH ophthalmologist, medical director of TriMed Eye Center in Barrie, and Assistant Professor at the Northern Ontario School of Medicine is interested in looking for DME treatments that improve contrast sensitivity outcomes for patients. Born and raised in Barrie, Dr. Nixon has dedicated much of his practice to helping the community access cutting-edge treatments and technologies closer to home, as well identifying which therapeutic avenues best improve daily living activities for patients impacted by DME.

While early treatments for DME involving laser photocoagulation therapy showed little to no improvement in visual acuity, the introduction of intravitreal anti-vascular endothelial growth factor (anti-VEGF) treatments have proven more effective in restoring or preserving visual acuity outcomes. This research has since come a long way, with three main anti-VEGF treatment options now available to patients, including bevacizumab (Avastin®), ranibizumab (Lucentis®), and aflibercept (EYLEA®) for this condition. Unfortunately, the degree to which contrast sensitivity is impacted by these treatments remains relatively unknown.

In 2021-'22, Dr. Nixon published two research articles in the journal *Clinical Ophthalmology* investigating the level of visual function in DME patients who had undergone standard treatment with aflibercept or ranibizumab. The studies looked at post-stabilization outcome levels for visual function and contrast sensitivity, as well as changes in retinal anatomy.

Although both studies concluded that contrast sensitivity impairments were significant despite standard treatments, Dr. Nixon was also able to show in one study that contrast sensitivity could be improved after aflibercept treatment, suggesting that DME patients could benefit from earlier intervention. Interestingly, the greatest improvements in contrast sensitivity were observed in patients that had the greatest reduction in central retinal thickness, although the reasons underlying this relationship remain unknown.

"Diabetes is affecting individuals during their working career and poor control or delayed intervention can reduce quality of life. People place a high value on their vision so earlier identification of disease and treatment can recover and preserve sight." says, Dr. Nixon.

Overall, these studies support more discussion around the clinical importance of contrast sensitivity in evaluating of visual function. With contrast sensitivity increasingly recognized as a critical aspect of conducting daily activities, education and communication with patients over their visual performance and potential limitations is needed.

(Right) Dr. Don Nixon at the TriMed Eye Center in Barrie; (Left) A contrast sensitivity chart, also known as a Pelli-Robson chart, used to evaluate contrast sensitivity

Medical Education Highlights

Each year, RVH's medical education team within the Academic & Medical Affairs department delivers innovative educational opportunities for TEAM RVH. Along with the Barrie Area Physician Recruitment Task Force, the team facilitates hundreds of medical trainee placements, connecting medical students, residents, fellows, midwives, and physician assistants with professionals from across the organization.

In response to the COVID-19 pandemic, the traditional delivery of education and training was forced to change in response to reduced capacity limits and enhanced safety standards. These changes have made it more important than ever to ensure that TEAM RVH possesses the skills necessary to deliver exceptional patient care.

In 2021'-22, the medical education team held 19 Simulation Events with residents from the Family Medicine Teaching Unit. The simulation days were led by medical specialists, focusing on specific topics, such as paediatrics, musculoskeletal diseases, family medicine, respirology, and emergency medicine. While complying with all COVID-19-related restrictions, these education events provided an invaluable experience for residents, allowing them to enhance their clinical skills and receive real-time instruction and feedback.

RVH's longest standing education event, Medical Grand Rounds, continued to evolve and grow throughout 2021-'22. Here, five Rocket Rounds videos were made available on the newly created RVH Medical Education YouTube channel (RVH Medical Education - YouTube). The videos cover a wide-range of topics, including critical care medicine, palliative care, and radiation oncology, and have been viewed more than 850 times this past year.

Ensuring that RVH staff are trained to practice advanced resuscitation, 16 Advanced Cardiac Life Support (ACLS) courses were provided to approximately 100 RVH staff. During each ACLS course, staff were further trained on new Protected Code Blue protocols for intubating and treating patients with COVID-19.

As medical education is a core component of RVH's strategic plan to Accelerate Teaching and Research, the Medical Education team strives to deliver creative, collaborative, and innovative educational opportunities so that TEAM RVH and our community can continue to provide exceptional patient care.

(Above, Left to Right): RVH nurses Kyra Jackson and Jordyn MacDonald taking the ACLS course with medical education instructor, Leslie Craig

Health Library Celebrates a Quarter Century

This year the RVH Health Library celebrates its 25th anniversary. Since 1997, the library has always been an integral part of the hospital's commitment to provide up-to-date, evidence-based health information to physicians, staff, patients, and visitors throughout Simcoe County.

Located on Level 2 beside Victoria's Gift Shop, the library provides patients and visitors free, reliable, and contemporary health information on a variety of healthcare topics. This provides a valuable resource for promoting health literacy in our community and better enabling patients and their families to stay informed about decisions in their care pathway. Moreover, the library provides speciality services to TEAM RVH through a large on-site collection of medical textbooks, periodicals, evidence-based clinical reference materials (e.g., Up-to-Date), online e-resources and directories, as well as full-version article retrieval and personal training on navigating clinical and research databases.

Despite periodic closures due COVID-19 restrictions, the library saw information requests rise by 18% in 2021-'22. To answer these requests, the library provided over 902 articles and facilitated 203,577 searches via its online e-resources catalog, up 7% over the previous year. In addition, RVH's Health Library Technician, performed 45 comprehensive literature reviews for TEAM RVH.

Interestingly, the COVID-19 pandemic has also accelerated a rising trend among libraries to offer more trusted, easily-accessible digital collections and modernized touch-down spaces for visitors.

To facilitate this growing demand for digital resources, the library started forming new partnerships with virtual healthcare education leaders in 2021-'22, including IMD Health, an online patient engagement platform that features content from over 90 trusted health organizations from across Ontario and Canada, and offering over 110,000 patient-friendly videos, images, brochures and interactive materials covering more than 5,600 medical topics.

Indeed, as we look towards meeting the future educational needs of our community, the library is excited to grow as modern hub for healthcare learning and information.

We look forward to seeing you in our 25th year!

(Above) Donna Smith-Roselle, Library Technician, stands in front of the RVH Health Library

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PARTNER SPOTLIGHT

DR. JACQUELINE LIMOGES
A passion for local research and innovation

Large geographic areas that are comprised of rural and semi-urban populations often experience greater health inequities than their urban counterparts. Too often, solutions that are developed to address these issues are created by those who do not have a true understanding of local needs and challenges.

With over 20 years of nursing experience in the Simcoe Muskoka region, Dr. Jacqueline Limoges is a passionate advocate for identifying and using local resources to achieve better outcomes for our community.

Dr. Limoges holds a PhD and MScN from the University of Toronto and was a professor for Georgian College's nursing programs prior to joining Athabasca University as an associate professor. She is the chair of the Ontario Cancer Research Ethics Board and co-lead of the Canadian Nursing and Genomics group.

While Dr. Limoges's research interests seek to understand how nurses develop and apply knowledge throughout their professional careers, she is particularly interested in the impact of contemporary healthcare technology on the clinical practice of frontline providers.

Of the many local partnerships that Dr. Limoges has forged over the years, she recently conducted two large-scale research projects in collaboration with RVH.

The first was a large, multi-site project involving RVH, Georgian College, and Waypoint Centre for Mental Health Care exploring the impact of the COVID-19 pandemic on the wellbeing, clinical practice and interprofessional collaboration of healthcare providers. The second study explored how real time locating system influenced clinical practice and how healthcare providers could use time and location data to reflect on their practice in an acute care setting.

While both studies have been published to the benefit of the broader academic community, it is important to note that Dr. Limoges conducted these studies out of a necessity to understand and assist with major local healthcare challenges, such as the introduction of new technologies or the prolonged impacts of the pandemic on our well-being. Indeed, Dr. Limoges is at the forefront of conducting applied health research that seeks to address local clinical needs through community engagement. RVH and Dr. Limoges look forward to more valuable and exciting projects together in the near future.

Meet the clinical trials team @ RVH

With clinical trials rapidly expanding across the organization, the clinical trials teams from the Simcoe Muskoka Regional Cancer Program and Centre for Education & Research merged as a single team on November 1, 2021. A centralized team is expected to grow research capacity through shared resources, greater engagement of academic and industry partners, increased audit/inspection readiness, and standardized documentation and processes.

Rachelle Beausoleil
Pharmacy Technician

Kelly Cruise,
Clinical Research Coordinator

Christine Di Marco
Clinical Trials Coordinator

Ian Ding
Clinical Research Associate

Michele Harris
Resource Nurse

Max Lounsbury
Study Nurse

Daniel Karbaschi
Student

Caitlin Pascoe
Study Nurse

Sujata Pokhrel
Clinical Research Associate

Amarjit Suri
Pharmacist

Glossary:

Clinical Research Associate:
Works with the Principal Investigator and Study Nurse to identify what data will be collected. Processes study-related lab work and assists monitors and regulators to ensure all research activities are conducted as per the protocol.

Clinical Research/Trials Coordinator:
Works with the Principal Investigator, sponsor, and study team to help conduct the trial.

Pharmacist and Pharmacy Technician:
Works with the Principal Investigator and study team to ensure accurate dispensing of all study-related medications.

Resource Nurse:
Promotes and maintains quality of patient care, manages nursing operations, assists in teaching nursing staff, and enforces policies and practices of the facility.

Study Nurse:
Assists the Principal Investigator with the informed consent process, study monitoring, quality assurance, data management, and analysis. Treats patients according to the clinical trial protocol.

RVH Research Council 2021-'22

Dr. Mark Baerlocher
Physician, Radiology, RVH

Kelly Cruise
Clinical Research Coordinator, RVH

Brenda Guarda
Manager, Population Health Assessment, Simcoe Muskoka District Health Unit

Dr. Adam Gladwish
Physician, Radiation Oncology, RVH

Dr. Jacqueline Limoges
Associate Professor, Nursing, Athabasca University

Pamela Ross
CEO, RVH Foundation

Dr. Giulio DiDiodato
Intensivist & Chief Research Scientist, RVH

Dr. Renee Hanrahan
Physician, Surgery, RVH

Corey Heerschap
Wound and Ostomy Clinical Nurse Specialist, RVH

Dr. Brian Kuzik
Physician, Pediatrics, RVH

Dr. Randy Leung
Physician, Surgery, RVH

Dr. Robert El-Maraghi
Physician, Oncology, RVH

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Dr. Matthew Orava
Physician, Family Medicine, RVH

Dr. Mira Ray
Director, Research & Innovation, Georgian College

Dr. Kent Russell
Physician, Oncology, RVH

Kim Sontag
Director, System Strategy, Planning, Design and Implementation, Ontario Health

Vicci Stevenson
Coordinator, Accreditation and Litigation, RVH

Dr. Jeffrey Tyberg (Chair)
Chief of Staff and VP, Academic & Medical Affairs, RVH

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Intensive Care, Infectious Disease, RVH

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Oncology, RVH

Kristie Holden
Privacy, RVH

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Dr. Stephen Ryan
Health Research Methodology, Rehabilitation Sciences

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Tara Thomas-Tarcza
Dietary Nutrition, RVH

Dr. Nancy Trimble (Chair)
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Deborah Wall-Armstrong
Law, Barrie

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Dr. Giulio DiDiodato
Intensivist & Chief Research Scientist, RVH

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Physician, Medical Director, Cancer Program RVH

Patient Family Advisor
TBD

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