

Department of
**Ophthalmology
& Visual Sciences**

**ANNUAL REPORT
2024–2025**

DALHOUSIE UNIVERSITY

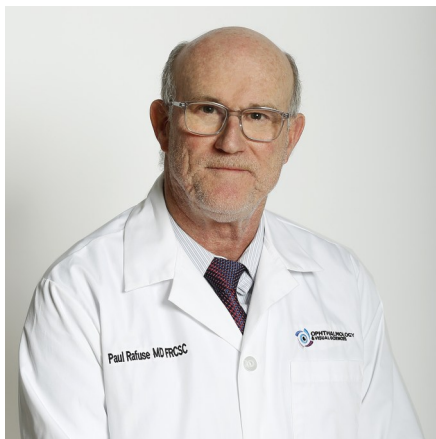


Cover photo courtesy of: Colyn Munn, Master's Student (Biomedical Engineering), supervised by Dr. Corey Smith

Description of photo: *Fluorescein angiography perfusion map of a non-proliferative diabetic retinopathy patient.*

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Paul Rafuse, MD, PhD, FRCSC

Head and Chief

Department of Ophthalmology & Visual Sciences
Dalhousie University & Nova Scotia Health Authority

Dear members and friends of the Department of Ophthalmology and Visual Sciences,

It gives me great pleasure to introduce the 2024-2025 Annual Report. It has been a busy year.

Our surgical numbers in adult ophthalmology have reached new heights. We were able to complete over 11,000 surgical cases of which about half were done at the Halifax Vision Surgical Centre (HVSC). This outpatient surgical facility has allowed our patients to receive their cataract surgery more quickly and at a state-of-the-art facility. We are thankful to Dr. Daniel Belliveau and his team for making this possible. Our clinic encounters at both the Eye Care Centre and IWK Eye Clinic have been relatively stable over the last few years, but you'll note that there were an additional 13,000 visits at the new Bayers Lake Community Outpatient Centre. With this popular new facility, the ECC and IWK clinics, and the busy community-based practices, our clinical capacity has never been greater.

Allow me to introduce our four newest Faculty members. Dr. Devin Betsch has filled a void left in the glaucoma service after completing her undergraduate, postgraduate and fellowship training here at Dalhousie. Dr. Erdit Celo has likewise joined us in the community after his pre-Residency education in Ontario, his Residency here at Dalhousie and a Fellowship in Uveitis at the Université de Montréal. Dr. Amit Mishra did his medical degree in Philadelphia, Residency here at Dalhousie and a total of 3 years of Fellowship training between Moorfield's Eye Hospital and the University of Alberta in Edmonton in the fields of medical and surgical retina. Finally, Dr. André Pollmann, another product of our Residency and with Fellowship training in Cornea and External Diseases from the Université de Montréal has joined us at the Eye Care Centre. We know they all had great Residencies. Welcome back!

Congratulations to our many awardees. Several of our students and staff have distinguished themselves for their teaching and research achievements. I'll highlight the teaching accomplishments of Dr. William Baldrige in two Faculties: Medicine for the Silver Shovel Award and Dentistry for the Golden Tooth Award. Very impressive Bill. Accolades to our graduating Residents, research prizes winners and successful grant recipients.

We had a busy year for meetings. The 35th DOVS Research Day was a great success and a testament to the organization and hard work of Dr. Balwantray Chauhan, Leah Wood and Robyn Sharpe. The quality of the resident and trainee presentations was excellent. The 13th Atlantic Eye didn't disappoint and brought many excellent speakers to us once again. Thank you to Dr. Arif Samad and his programme committee. The 10th biennial Form and Function in Ocular Disease Symposium was held with the attendance of a some very impressive guests. Along with a strong Visiting Professor programme, special thanks once again to Dr. Chauhan and his Committee.

Let me conclude by saying how very proud I am about the people in this Department and what we collectively accomplish. We are the envy of the Canadian ophthalmology and vision science community. Thank you all.

MISSION



The Department of Ophthalmology & Visual Sciences provides high quality ophthalmological care for the population of Nova Scotia and Atlantic Canada, delivers excellent medical education programs and conducts internationally recognized research in a collaborative and innovative environment.

VISION



To lead Canadian ophthalmology in patient care, education and research.

VALUES



- Commitment to excellence
- Transparency, accountability, fiscal and social responsibility
- Innovation and a spirit of inquiry
- Professionalism and inclusivity
- Collaboration and community engagement

Who We Are & What We Do

Where We Deliver Care

| | |
|--|--------|
| Eye Care Centre Visits | 43,176 |
| Bayer's Lake Clinic | 13,415 |
| IWK Ophthalmology | 7,829 |
| Total Adult Surgeries | 11,245 |
| HVSC Surgeries <small>* included in total above</small> | 5,692 |
| Total IWK Surgeries | 231 |

Who Delivers Care

| | |
|---------------------------|-----|
| Ophthalmologists | 24 |
| Nursing & Technical Staff | 70 |
| Administrative Staff | 30 |
| Research Coordinators | 3.5 |

Surgical Cases by Subspecialty

| | |
|------------------------|-------|
| Cataracts (incl. HVSC) | 7,900 |
| Cornea | 226 |
| Glaucoma | 603 |
| Orbit/Plastics | 359 |
| Paediatrics | 231 |
| Retinal Surgery | 2,036 |
| Adult Strabismus | 121 |

Research

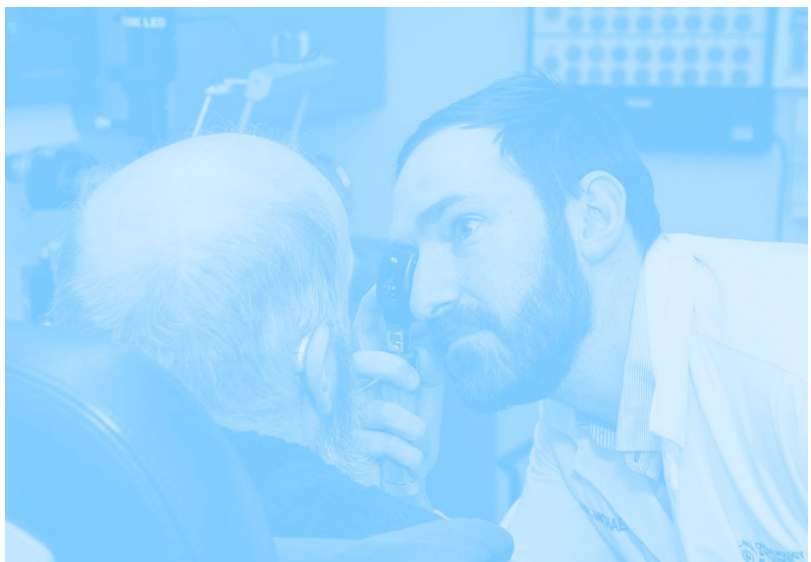
26 Invited Presentations

31 Peer Reviewed Manuscripts

\$518K Continuing Research Grants & Contracts

\$90K New Research Grants & Contracts

\$608K Total Research Funding

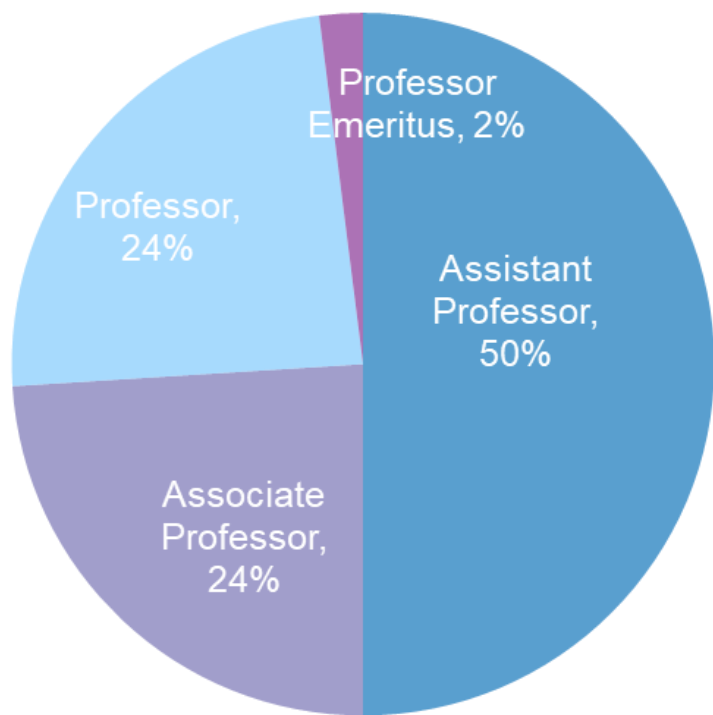


Who We Are & What We Do

Education



| Postgraduate Education | |
|----------------------------|----|
| Residents PGY2-5 | 10 |
| Resident PGY1 | 2 |
| Fellow - Clinical Glaucoma | 1 |
| Fellow - Paediatrics | 1 |
| Postdoctoral Fellows | 2 |
| Clinical Vision Sciences | 13 |



| Undergraduate Education | |
|---|----|
| MED 4 Elective Students | 27 |
| Dalhousie Medical 1 & 2 Student Electives | 15 |

| Professional Development | |
|--------------------------|----|
| Grand Rounds | 28 |
| Conferences | 2 |

Our Faculty

Dr. Curtis Archibald, Assistant Professor
 Dr. Bashar Bata, Associate Professor
 Dr. Dan Belliveau, Assistant Professor
 Dr. Devin Betsch, Assistant Professor
 Dr. Danielle Cadieux, Assistant Professor
 Dr. Erdit Celo, Assistant Professor
 Dr. Wesley Chan, Assistant Professor
 Dr. Balwantray Chauhan, Professor
 Dr. Alan Cruess, Professor
 Dr. Mishari Dahrab, Assistant Professor
 Dr. John Dickinson, Associate Professor
 Dr. Brennan Eadie, Assistant Professor
 Dr. Carolina Francisconi, Assistant Professor
 Dr. Stan George, Associate Professor
 Dr. Rishi Gupta, Professor
 Dr. Ahsen Hussain, Associate Professor
 Dr. Robert La Roche, Professor
 Dr. Amit Mishra, Assistant Professor
 Dr. Anu Mishra, Associate Professor
 Dr. Jeremy Murphy, Assistant Professor
 Dr. Marcelo Nicolela, Professor
 Dr. Daniel O'Brien, Associate Professor
 Dr. Andrew Orr, Associate Professor
 Dr. André Pollmann, Assistant Professor
 Dr. Veronique Promelle, Assistant Professor
 Dr. Paul Rafuse, Professor & Head
 Dr. Johane Robitaille, Professor
 Dr. Arif Samad, Associate Professor
 Dr. Lesya Shuba, Professor
 Dr. Corey Smith, Assistant Professor
 Dr. Alex Tan, Assistant Professor
 Dr. Michael Thorne, Assistant Professor
 Dr. Amr Zaki, Assistant Professor

Joint Appointments

Dr. Melina Agosto (Physiology and Biophysics)
 Dr. William Baldrige (Anatomy & Neurobiology)

Emeritus Appointments

Dr. Charles Maxner, Professor Emeritus

Cross Appointments

Dr. David Clarke (Surgery)
 Dr. Melanie Kelly (Pharmacology)
 Dr. Sylvia Pasternak (Pathology)

Distributed Learning Faculty

Dr. Zach Ashkenazy, Lecturer
 Dr. William Best, Assistant Professor
 Dr. Paul Cheevers, Assistant Professor
 Dr. Alex de Saint-Sardos, Assistant Professor
 Dr. Erin Demmings, Assistant Professor
 Dr. Edward Doherty, Assistant Professor
 Dr. Kenneth Hammel, Lecturer
 Dr. Mustafa Kapasi, Assistant Professor
 Dr. Alejandro Lichtinger, Assistant Professor
 Dr. Colin Mann, Assistant Professor
 Dr. Kristine Mayer, Assistant Professor
 Dr. Rajender Mohandas, Assistant Professor
 Dr. Mohamed Mongy, Assistant Professor
 Dr. Kenneth Roberts, Assistant Professor
 Dr. Robert Scott, Assistant Professor
 Dr. Houfar Sekhavart, Assistant Professor
 Dr. Banakesari Shetty, Assistant Professor
 Dr. Nir Shoham-Hazon, Assistant Professor
 Dr. Iva Smrz, Assistant Professor
 Dr. Jeffrey Steeves, Assistant Professor
 Dr. J. Christopher Symonds, Assistant Professor
 Dr. Vicki Taylor, Assistant Professor
 Dr. Hila Zommer-Sykes, Assistant Professor

Congratulations to Dr. Paul Rafuse on his promotion from Associate Professor to Professor, effective September 1, 2024.

Dr. Rafuse is a highly respected clinician, educator, and researcher in the field of ophthalmology. He serves as Department Head of the Department of Ophthalmology and Visual Sciences at Dalhousie University and has been an active staff member with Nova Scotia Health for more than three decades.

Dr. Rafuse earned his medical degree from the University of Calgary and holds a PhD in Pharmacology from the University of Alberta. He completed his ophthalmology residency at the University of Western Ontario, followed by a clinical fellowship in glaucoma at the Massachusetts Eye and Ear Infirmary, Harvard Medical School.

Throughout his career, Dr. Rafuse has made significant contributions to glaucoma research, authoring numerous peer-reviewed publications, book chapters, and international presentations. He has also held several leadership roles in national and regional ophthalmology organizations, including serving as President of the Atlantic Provinces Ophthalmological Society, the Canadian Glaucoma Society, and the Canadian Ophthalmological Society.



Paul Rafuse, MD, PhD, FRCSC
Professor
 Department Head and Chief

Congratulations to Dr. Rishi Gupta on his promotion to Professor, effective July 1, 2025.

Dr. Gupta completed medical school at the University of Toronto, followed by ophthalmology residency at the University of Ottawa and fellowship training in the surgical and medical treatment of retinal diseases at McGill University in Montreal.

Since joining our retina group in 2015, Dr. Gupta has maintained a busy medical and surgical practice, caring for patients from across the Maritimes and performing complex retinal surgeries. He is well respected for his innovative work in macular buckle techniques.

Dr. Gupta is actively involved in research and teaching and received the 2024 Dr. G.W. Archibald Gold-headed Cane Award in Medical Humanities, recognizing physicians who exemplify a humanistic approach to patient care and serve as role models to learners.

He serves as Academic Director of the retina rotation and curriculum for ophthalmology residents and is involved with the Canadian Ophthalmological Society, scientific journal review, and community advocacy related to ergonomics and injury prevention.



R. Rishi Gupta, MD, FRCSC, DRCPSC
Professor
 Vitreoretinal Surgeon



Bashar Bata MD, FRCOphth
Associate Professor
 Paediatric Ophthalmology and Adult Strabismus

Congratulations to Dr. Bashar Bata on his promotion to Associate Professor, effective July 1, 2025.

Dr. Bata is a pediatric ophthalmologist at the IWK and has been an active member of the Department of Ophthalmology and Visual Sciences since joining our department in 2020. Prior to joining the department, Dr. Bata completed two pediatric and adult strabismus fellowships, one at the Mayo Clinic and the second at the University of Toronto, followed by an Oculoplastics and Ocular Oncology fellowship in the UK.

Dr. Bata's practice focuses on pediatric ophthalmology and adult strabismus. In addition to common pediatric ocular disorders, Dr. Bata takes care of all newly diagnosed retinoblastoma patients and many pediatric patients with eyelid, orbital, and adnexal problems. He sees adult patients with simple and complex strabismus and employs a plethora of surgical techniques including adjustable surgery.

Dr. Bata is a volunteer for the Pediatric Uveitis Committee of the American Association for Pediatric Ophthalmology and Strabismus. This committee provides a pediatric uveitis workshop at the annual meeting and develops screening and treatment guidelines in collaboration with the American Academy of Pediatrics. He is also a volunteer on the Canadian National Retinoblastoma Board, a forum for retinoblastoma case discussion and has been a reviewer for many international journals.

New Vice Chair Role

John Dickinson, MD, FRCSC
 Associate Professor

In November of 2024, Dr. Rafuse announced the implementation of a Vice Chair role for the Department of Ophthalmology & Visual Sciences. The purpose of this position is to assist the Department Head in their administrative responsibilities and serve as Acting Department Head in case of short-term absences. Dr. John Dickinson, Associate Professor and Surgical Vitreoretinal Subspecialist, is our inaugural Vice Chair. Dr. Dickinson will assist with items such as strategic planning, financial oversight and special projects. Additionally, he is serving as moderator for Grand Rounds.

Dr. Betsch completed a Bachelor of Science at Dalhousie University and then went on to attend medical school at Dalhousie. During this time, she received several in course scholarships and awards and graduated with distinction with a Doctor of Medicine in 2018. Dr. Betsch is well known to members of the Department of Ophthalmology & Visual Sciences having graduated from our residency program here in 2023, followed by the completion of a Clinical Glaucoma Fellowship in 2024.

Dr. Betsch joined our department as a community-based glaucoma subspecialist at the level of Assistant Professor on September 1, 2024.



Devin Betsch MD, FRCSC
Assistant Professor
Glaucoma

Dr. Celso completed a Bachelor of Science with honours in biochemistry graduating Summa Cum Laude from the University of Ottawa in 2014. He attended medical school at the Michael G. DeGroot School of Medicine at McMaster University and then completed his residency in ophthalmology at Dalhousie University, graduating in 2022. His fellowship training was at Université de Montréal in uveitis and ocular immunology. Before joining our department, Dr. Celso worked as a comprehensive ophthalmologist and cataract surgeon at Hawkesbury General Hospital and Focus Eye Centre in Ottawa.

Dr. Celso joined our department as a community-based comprehensive ophthalmologist specializing in uveitis at the level of Assistant Professor on September 1, 2024.



Erdit Celso MD, FRCSC
Assistant Professor
Uveitis and Comprehensive

New Faculty



Amit Mishra, MD, FRCSC

Assistant Professor
Surgical Retina

Dr. Amit Mishra joined the Department of Ophthalmology & Visual Sciences, Dalhousie University on September 1, 2024. Dr. Mishra is a hospital-based Medical and Surgical Retina Specialist/Surgeon.

Dr. Mishra completed his medical education at the Sidney Kimmel Medical College at Thomas Jefferson University in Philadelphia, graduating in 2016, followed by ophthalmology residency training at Dalhousie University graduating in 2021. He completed a one-year medical retina and uveitis fellowship at Moorfields Eye Hospital in the UK, followed by a two-year vitreoretinal fellowship at the University of Alberta from which he graduated in 2024.



André Pollmann, MD, FRCSC

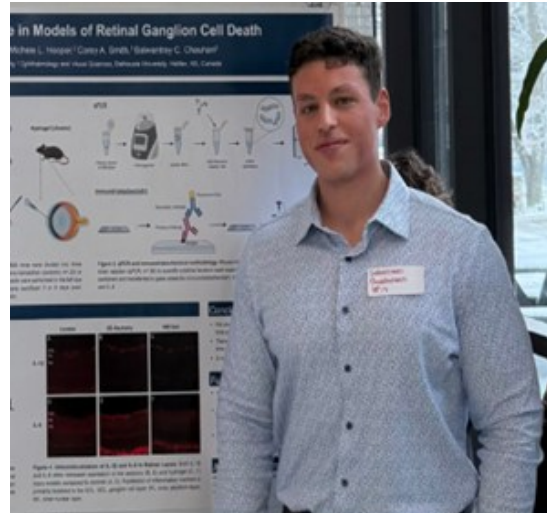
Assistant Professor
Cornea and External Disease

Dr. André Pollmann joined the Department of Ophthalmology & Visual Sciences, Dalhousie University on August 1, 2024. Dr. Pollmann is a hospital-based Adult Cornea and External Disease Specialist/Surgeon.

Dr. Pollmann earned a Bachelor of Science in Pharmacy from Dalhousie University before completing his Doctor of Medicine at Dalhousie in 2018. He went on to complete his ophthalmology residency in the Department of Ophthalmology & Visual Sciences in Halifax, graduating in 2023. Following residency, Dr. Pollmann pursued subspecialty training at the Université de Montréal, where he completed a fellowship in Cornea and External Eye Diseases in 2024.

Gordon and Jean Hayman Glaucoma Research Studentship Award

Sebastiaan Oosthuizen is the recipient of the **2025 DOVS Gordon and Jean Hayman Glaucoma Research Studentship**. Under the supervision of **Dr. Corey Smith**, Sebastiaan is investigating how inflammation contributes to optic nerve damage in glaucoma. Using two mouse models—one that mimics a slow, pressure-related injury and another that mimics a sudden, acute injury—they are examining how inflammation develops in different parts of the retina. By measuring levels of key inflammatory molecules and locating where they accumulate, this research aims to better understand how inflammation worsens retinal ganglion cell damage. The goal is to uncover new information that could lead to treatments targeting inflammation—not just eye pressure—to better protect vision in glaucoma patients. This work represents a crucial step toward more effective, long-term therapies for people living with this blinding disease.



Pictured above: Sebastiaan Oosthuizen

King Charles III Coronation Medal

Congratulations to **Dr. Anu Mishra** on being awarded the **King Charles III Coronation Medal** by Andy Fillmore, Member of Parliament for Halifax. Created by the Sovereign and administered by the Chancellery of Honours, this medal commemorates the coronation of King Charles III on May 6, 2023, and recognizes individuals who have made significant contributions to their communities and to Canada.

Golden Tooth Award Silver Shovel Award

Congratulations to **Dr. William Baldrige** on receiving two prestigious teaching awards: the **Dentistry Class of 2027 Golden Tooth Award**, recognizing his *“unwavering commitment to education and inspiring the next generation of dental professionals,”* and the **Medical School Class of 2024 Silver Shovel Award**, which honours faculty members who demonstrate *“dedication, compassion, and a true commitment to their medical students.”*

Med 1 Lecturer

Congratulations to **Dr. Ashlyn Pinto**, one of our PGY5 residents, who has been ranked among the top 10% of Med 1 lecturers. We thank Dr. Pinto for her ongoing dedication and valuable contributions to undergraduate medical education.

Established in 2014, the Mathers Scholarships permit the Department to support students at the Undergraduate, Masters, PhD and Fellowship levels and are building our capacity year over year.



The Dr. R. Evatt and Rita Mathers Trainee Scholarships in Ophthalmology & Visual Sciences are enabled by a visionary endowment from the estate of the late Peggy St. George to honour her step parents pictured above.

2025 Recipients

Dr. Kana Tokumo is the recipient of the **Research Fellowship in Ophthalmology and Visual Sciences**. Dr. Tokumo, who under the supervision of **Dr. Balwantray Chauhan**, is studying changes in the structure of the eye and specific regions of the visual field in patients diagnosed with glaucoma. They are looking at these changes and their timings impact the visual acuity and function of these patients in everyday life. Ultimately, their goal is to identify early signs of visual deterioration and develop personalized treatment strategies to preserve vision and improve patients' quality of life.

The **PhD in Vision Science scholarship** is awarded to **Aliénor Jamet**, who is working under the supervision of **Dr. Balwantray Chauhan**. In this study, they will focus on single cell imaging of retinal ganglion cells (RGCs) to monitor and detect the earliest alterations in their structure over time. This research will not only allow them to visualize how glaucoma compromises single RGCs but also enable them to quantify the improvement that new drug treatments have at the level of the individual cell in vivo.

Colyn Munn is a recipient of the **Masters in Vision Science scholarship** and is working with his supervisor, **Dr. Corey Smith** to develop a new method for non-invasive and early blood vessel leakage detection in diabetic retinopathy. Current detection methods involve a time-consuming procedure where a dye is injected into the patient's bloodstream and carry a risk of a serious reaction. This new method will allow physicians to non-invasively screen for leakage without the need for a lengthy exam or additional equipment. This research aims to reduce the cases of vision loss caused by delayed diagnosis and delayed treatment of vessel leakage.



Clockwise from the left: Omar Abuelatta (Undergraduate), Kana Tokumo (Postdoctoral Fellowship), Colyn Munn (MSc Vision Sciences), Skylar Dempster (MSc Vision Sciences), Aliénor Jamet (PhD).

Skylar Dempster is also a recipient of the **Masters in Vision Science scholarship**. She is working with her supervisors, **Leah Walsh** and **Jeffrey Locke**, to evaluate the application of a preferential looking (eye movement detection based) stereopsis (3-D vision) test compared to the current option requiring a motor or verbal response, in young children under the age of 5-years. Findings from this study will guide the use of appropriate stereopsis testing in young children to ensure that accurate and reliable results can be obtained. If proven effective, this preferential looking test can help determine the diagnosis early, without the burden of multiple appointments or delays in accessing a full assessment until children are able to comply with current methods.

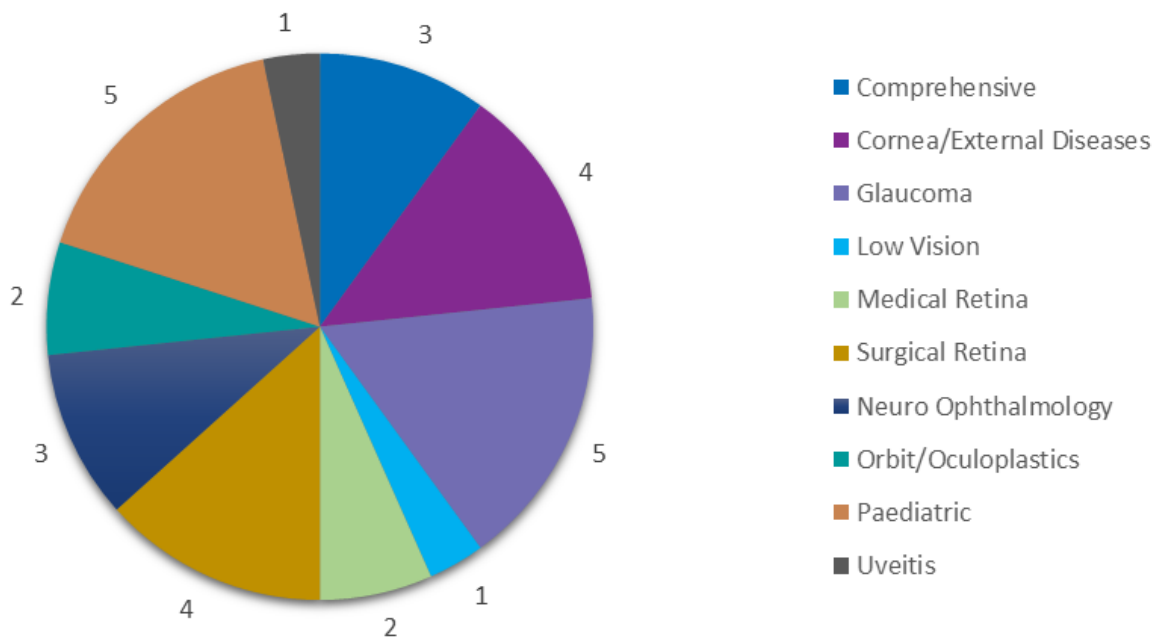
The **Undergraduate Studentship** is awarded to **Omar Abuelatta**, who under the supervision of **Dr. Melina Agosto**, is aiming to better understand the interaction between a family of proteins namely, group III mGluRs, and a protein, called ELFN1, that is known to help in correctly localizing group III mGluRs to their appropriate locations in the retina. These proteins play essential structural and functional roles in transmitting visual stimuli from the retina to the brain.

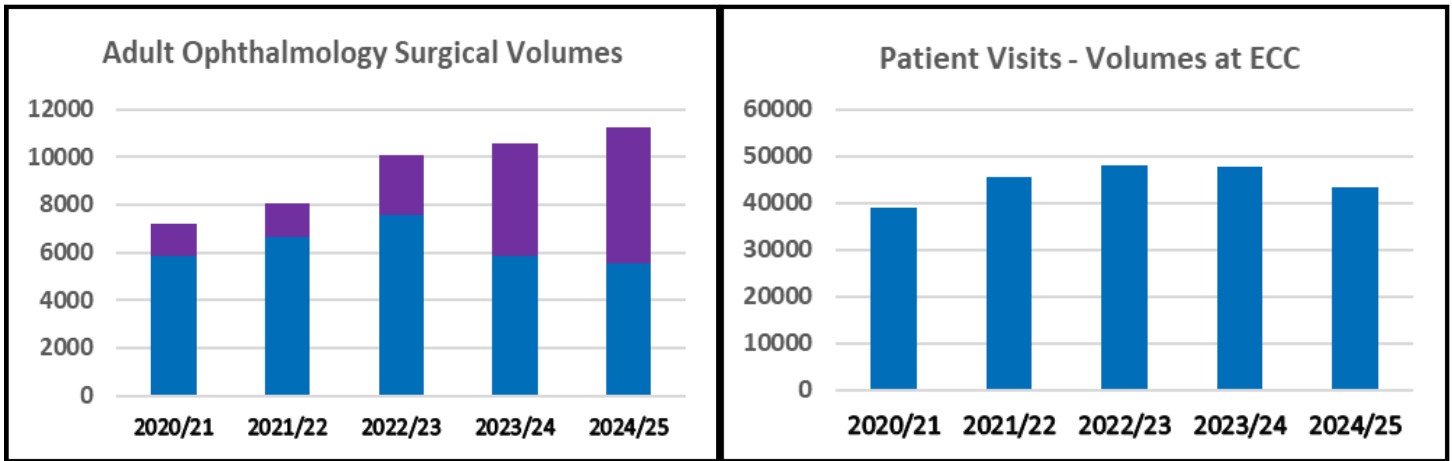


The clinical services delivered by the Department occur at the Eye Care Centre (QEII Health Sciences Centre - VG site – Nova Scotia Health Authority) for adult ophthalmology, at the paediatric ophthalmology clinic located at the IWK Health Centre, at the ophthalmology clinic located at the Bayers Lake Community Outpatient Centre (both adult and paediatric services), Halifax Vision Surgical Centre, and in all private offices, where community based faculty members provide most of their ambulatory clinical care.

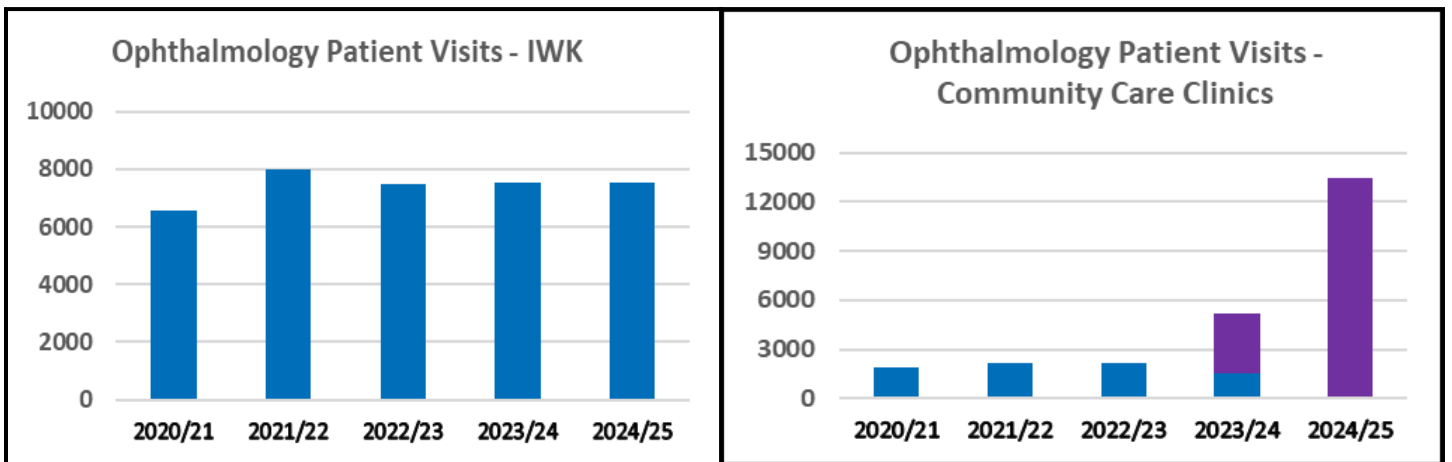


FACULTY SUBSPECIALITY PROFILE (NUMBERS)

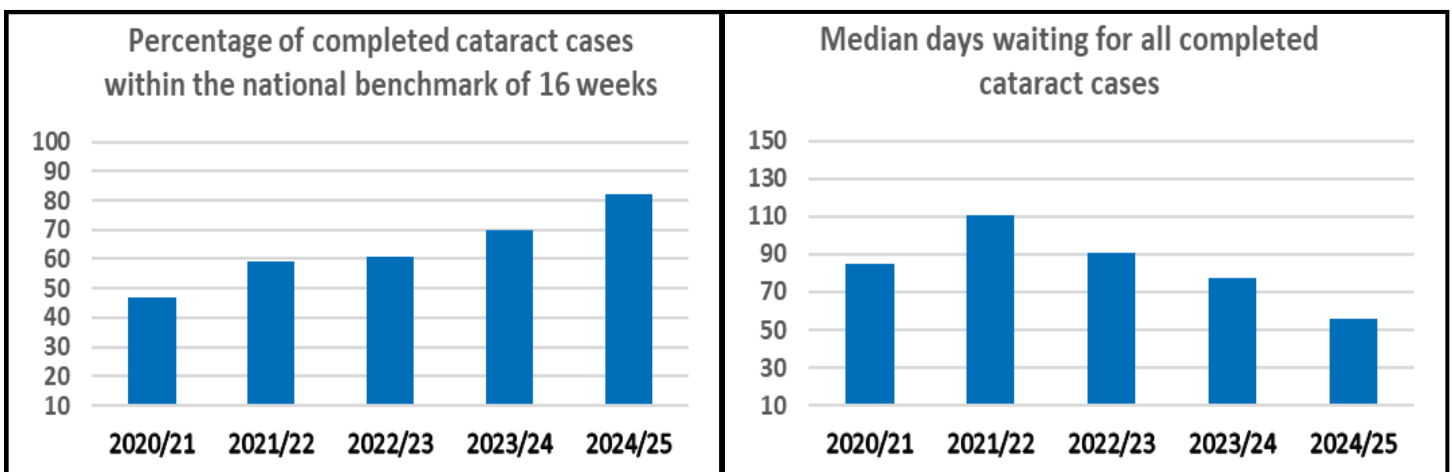




Clinical service volumes in ophthalmology for 2024-25 continue on a growing trend. The purple volume comprises 5,692 cataracts performed at Halifax Vision Surgical Centre.



Clinical volumes at the IWK continue to be relatively steady. Bayer’s Lake Community Outpatient Centre (BLCOC) opened in November 2023. We note a significant increase in clinical volume for 2024-25 reflective of our capacity increase at BLCOC, represented in purple.

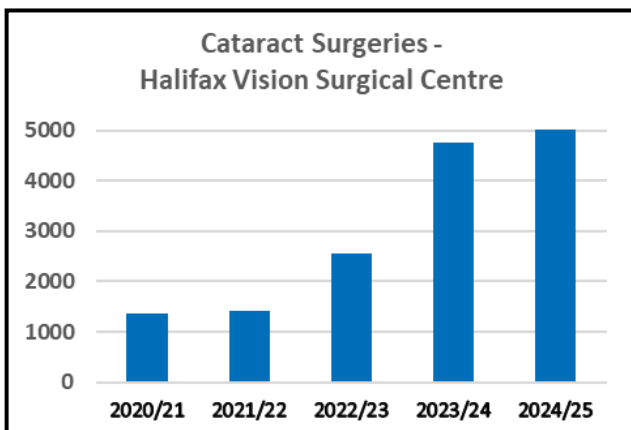


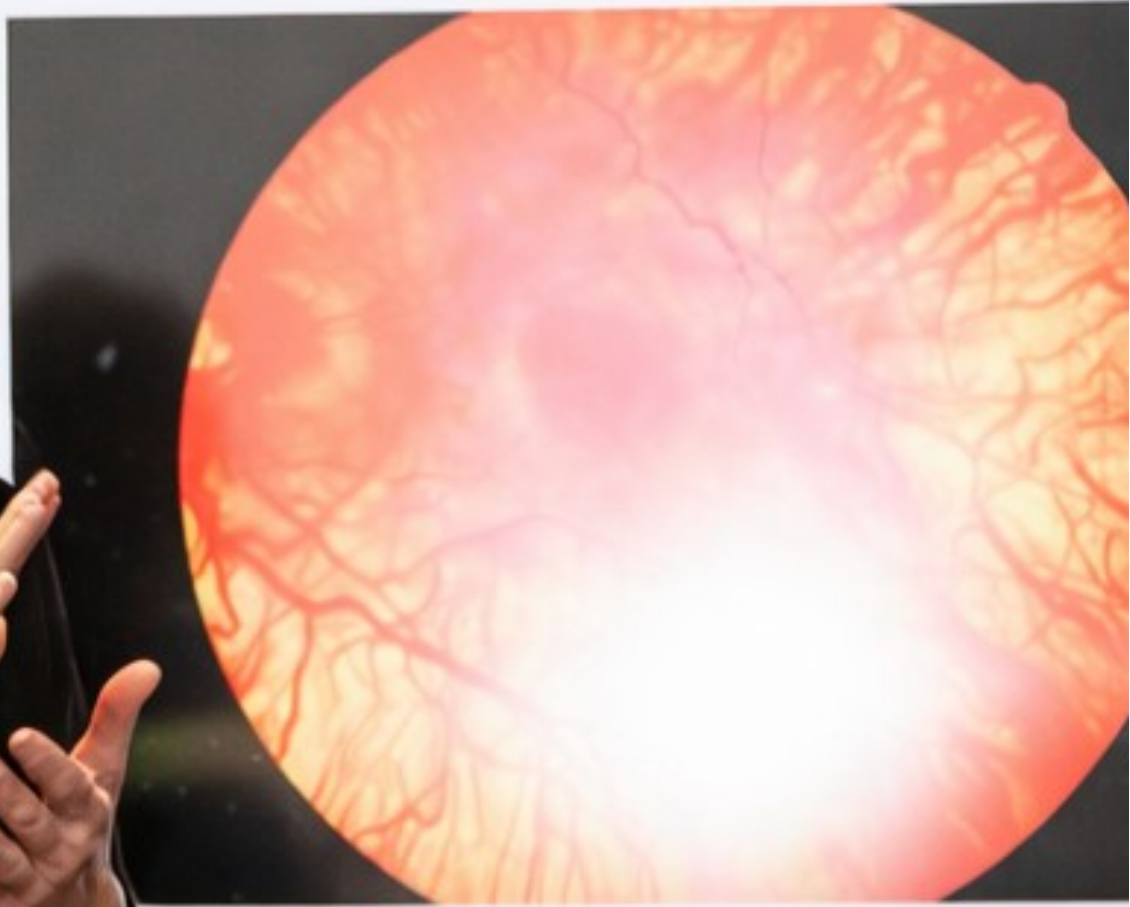
These figures represent cases completed at the Victoria General site and the Halifax Vision Surgical Centre.

Halifax Vision Surgical Centre

Thanks to the continued support of partners in government, Nova Scotia Health, and our faculty members, the Department was able to maintain publicly funded cataract surgeries at the Halifax Vision Surgical Centre. The program, which launched in October 2020, continues to play an important role in improving access to care. In 2024-25, our surgeons performed 5,692 cataract procedures, an increase of 940 cases compared to the previous fiscal year. The program will continue and is planned to extend through fiscal 2026.

We remain grateful to Dr. Dan Belliveau for his vision, dedication, and resourcefulness in developing the concept and providing the physical space that made the facility possible.







Anuradha Mishra, MD, MEd, FRCSC

**Assistant Dean Skilled Clinician & Interprofessional Education
Associate Professor**

Director, Undergraduate Medical Education Ophthalmology

The 2024-2025 academic year was another successful period for the Dalhousie Department of Ophthalmology. Our department continued to thrive with a steady stream of visiting elective students who enriched our learning environment and gained invaluable exposure to ophthalmic care. The Ophthalmology Interest Night sessions remained a popular and well-attended event, drawing in students with a keen interest in the specialty.

Building on the success of our previous year, we once again delivered our interprofessional workshop for Med 2 students, aimed at improving care for patients with vision loss. This initiative continued to receive outstanding feedback, reinforcing its role as an essential component of our educational offerings.

As we look ahead, the 2025 academic year marks an exciting milestone with the integration of the Cape Breton Medical Campus into our academic community. This development will further strengthen our ability to educate and support the next generation of ophthalmologists while enhancing eye care services throughout the region. We are eager to embrace the opportunities that lie ahead and remain committed to excellence in education, research, and patient care.



Dani Cadieux, MD, MHPE, FRCSC

Assistant Professor

Director, Postgraduate Medical Education

May 2024 to present

This year has been an exciting one for the Dalhousie Ophthalmology Residency Program as we celebrate the accomplishments of our graduating residents and welcome the next generation of trainees.

We are incredibly proud of Dr. Jake Blacklaws and Dr. Ashlyn Pinto, who both completed their residencies with exceptional skill, professionalism, and dedication to patient care. Jake has begun practice as a community ophthalmologist in New Minas, Nova Scotia, and we are delighted that he will continue to serve patients here at home. Ashlyn has joined the Prism Eye Institute in Toronto, Ontario, where she is already making an impact in her new community. Congratulations to Glaucoma Fellow, Dr. Ellen Zhou, and Pediatric Fellow, Dr. Ghaida Alahmadi on their successful completion of fellowship training.

As we bid farewell to our graduates, we are equally excited to welcome our two new residents to the program: Dr. Kevin Hodgson, a graduate of Dalhousie University, and Dr. Lisa Renaud, from the University of British Columbia. Dr. Lucas Torres will be starting his 1-year Glaucoma fellowship and Dr. Faten Al-Ghadban will start her 1-year Pediatric Ophthalmology fellowship, both on July 1, 2025. We look forward to supporting their growth as they embark on their ophthalmology training journey.

Congratulations to all on a year of transition, achievement, and continued excellence in education and patient care.



Pictured above (L-R): Drs. Jake Blacklaws, Ashlyn Pinto, and Ellen Zhou

Surgical Teaching Award

This annual award recognizes a staff physician who has made outstanding contributions to the surgical education of ophthalmology residents. The recipient is selected each year by the ophthalmology senior residents through a nomination and voting process.

2025 Recipient

Dr. Brennan Eadie

Dr. Eadie was unanimously nominated for this award by the senior residents in the program for his surgical expertise, patience, and dedication to teaching. Dr. Eadie's calm guidance through challenging moments, and ability to turn high-stress situations into learning opportunities, has not gone unnoticed. Residents especially value his encouraging style, constructive feedback, and the way he instill both confidence and curiosity in the operating room.



Clinical Teaching Award

This annual award recognizes a staff physician who has made outstanding contributions to the clinical education of ophthalmology residents. The recipient is selected each year by the ophthalmology senior residents through a nomination and voting process.

2025 Recipient

Dr. Erdit Celo

Dr. Celo's dedication and contribution to their clinical teaching goes above and beyond the call of duty. Whether it's the clarity with which he explains complex concepts, the patience he brings to each clinical interaction, or the way his thoughtful feedback challenges them to be better physicians, he consistently set the bar high. Dr. Celo makes learning in a demanding environment feel both meaningful and inspiring.



Grand Rounds 2024-2025

| | | |
|--------------|------------------------|---|
| Sep 18, 2024 | Dr. Jake Blacklaws | Nova Scotia's contribution to eye care, a historical perspective |
| Sep 25, 2024 | Dr. Sultan Darvesh | Clinical and Imaging Biomarkers for Dementia |
| Oct 2, 2024 | Dr. Ashley Whelan | Nerve-Wracking Mysteries: Untangling NMO, MOG, and Atypical Optic Neuritis |
| Oct 16, 2024 | Dr. Ashlyn Pinto | Optimizing visual outcomes and patient satisfaction: An approach to cataract surgery in the post-refractive eye |
| Oct 23, 2024 | Dr. James Farmer* | Ophthalmic Pathology: Lessons Learned |
| Oct 30, 2024 | Dr. Veronique Promelle | From Jean-Paul Sartre to Meghan Markle: psychosocial perceptions of the teenager and adult with strabismus |
| Nov 6, 2024 | Dr. David Abramson* | Ten things you learned in your residency about retinoblastoma that have changed |
| Nov 20, 2024 | Dr. Lori Connors | Allergic to what? Overview of allergy for ophthalmologists |
| Nov 27, 2024 | Dr. Pamela Gow-Boyd | Transforming Lives through Vision Loss Rehabilitation Canada (VLRC) Innovative Programs and Technology |
| Dec 4, 2024 | Dr. Devin Betsch | What to expect when they're expecting: glaucoma management during pregnancy |
| Jan 8, 2025 | Dr. Bonnie He | Sustainability in ophthalmology: minding our carbon footprint |
| Jan 15, 2025 | Dr. Dan O'Brien | The Canary in the Coal Mine: The Next Epidemic-Retinal Detachment |
| Jan 22, 2025 | Dr. Verina Hanna | Acute Retinal Necrosis: What Can We Do? |
| Jan 29, 2025 | Dr. Michael Thorne | Myasthenia Gravis: A Practical Update on Diagnosis, Monitoring and Novel Therapies - What Ophthalmologists Need to Know |
| Feb 5, 2025 | Dr. Neetin Prabhu | A review of Von Hippel-Lindau disease |
| Feb 19, 2025 | Dr. Yukihiko Shiga* | Update on Glaucoma Genetics: How Do We Translate Genetic Information into Clinical Practice? |
| Feb 26, 2025 | Dr. Erdit Celso | Seeing Spots: A Practical Approach to White Dot Syndromes |
| Mar 5, 2025 | Dr. Freddy Lee | Going Out of Orbit: A Review on Eye Removal |
| Mar 26, 2025 | Dr. Hunter Cherwek* | Orbis International & Global Ophthalmology- A Confluence of Technology & Training |
| Apr 2, 2025 | Dr. Mohammad Abdulla | Historical review of cataract surgery |
| Apr 9, 2025 | Dr. Brennan Eadie | What's New in Perimetry: VR Testing, New Strategies, and AI Applications |
| Apr 16, 2025 | Dr. Ellen Zhou | Glaucoma Drama: Oscar-Worthy Mimics |
| Apr 23, 2025 | Dr. Isra Hussein | Looking Gender Disparities in the Eye: An Evidence-Based Review of the Landscape for Women in Ophthalmology |
| Apr 30, 2025 | Dr. Marie-Josée Aubin* | The (not so) old uveitis : TB and syphilis |
| May 21, 2025 | Dr. Ghaida Alahmadi | Beyond the Patch: From Traditional to High-Tech Approaches in Amblyopia Treatment |
| May 28, 2025 | Dr. Danny Gauthier* | The approach for anterior vitrectomy from a posterior segment surgeon point of view |
| Jun 4, 2025 | Dr. Alex Deans | Symblepharon and Sticky Situations: The Diagnosis and Treatment of Cicatrizing Conjunctivitis |
| Jun 11, 2025 | Dr. Amit Mishra | Macular Degeneration: Current standards and emerging therapies |

*Visiting Professor Program

Visiting Professor Program

Dr. James Farmer

Subspecialty: Pathology

Department of Molecular and Laboratory Medicine

Queen's University

“Ophthalmic Pathology: Lessons Learned”

Dr. David Abramson

Subspecialty: Retina

Memorial Sloan Kettering Cancer Center, New York

“Ten things you learned in your residency about retinoblastoma that have changed”

Dr. Yukihiro Shiga

Subspecialty: Glaucoma

Université de Montréal

“Update on Glaucoma Genetics: How Do We Translate Genetic Information into Clinical Practice?”

Dr. Hunter Cherwek

Subspecialty: Glaucoma/International Ophthalmology

Orbis International

“Orbis International & Global Ophthalmology- A Confluence of Technology & Training”

Dr. Marie-Josée Aubin

Subspecialty: Uveitis

Université de Montréal

“The (not so) old uveitis : TB and syphilis”

Dr. Danny Gauthier

Subspecialty: Retina

Université de Montréal

“The approach for anterior vitrectomy from a posterior segment surgeon point of view”





Balwantray Chauhan, PhD
Research Director

I am pleased to write this short report on the research activities of the Department of Ophthalmology and Visual Sciences (DOVS). Our department continues to thrive terms of research grants, publications, meeting presentations and training and I invite you to look at these impressive figures outlined in this report.

We continue to attract new funding for research projects from both grants and contracts to build upon our base of continuing research funding. The range of research topics in clinical and pre-clinical research is truly impressive, and I would like to congratulate all grant recipients, particularly in these challenging times when funding is extremely competitive.

Trainees are the cornerstone of our research enterprise, and I am very pleased that our department continues to attract national and international applicants. Through faculty members who are joint- or cross-appointed to DOVS, we have expanded our undergraduate, graduate and post-graduate trainee numbers. Summer students continue to be attracted to vision and the eye as they seek to build experience towards more formal education as graduate or medical students. We are blessed to have the Mathers Endowment that generously provides stipends to summer students, graduate students, residents and post-doctoral fellows.

I am grateful to the Resident Research Directors, Drs. Johane Robitaille and Corey Smith. I want to thank Ms. Leah Wood, our Research Manager, who is a key to all our research efforts. Among her many roles, she provides pragmatic support to all students and faculty embarking on research projects. She also coordinates our successful Annual Research Day which gives all our trainees a forum to share their findings. Finally, Ms. Robyn Sharpe has provided excellent administrative support.

I invite you to explore our achievements in the various research areas in this Annual Report. Please do not hesitate to contact me with any questions, queries, or comments. Our objective, as always, is to strive for better.

35th Annual DOVS Research Day

The 35th Annual Department of Ophthalmology and Visual Sciences Research Day was held at the Halifax Convention Centre on April 8, 2025, in conjunction with the departments of Anaesthesia and Surgery.

Presenters

Jake Blacklaws, MD
 Delaney Henderson, MSc
 Rodolfo Bonatti, MD
 Ryan Matthews, BSc
 Verina Hanna, MD
 Bonnie He, MD
 Aliénor Jamet, MSc
 Emma-Lee Rhyno, BSc

Blitz Presenters

Ashley Whelan, MD
 Ashlyn Pinto, MD, MSc
 Douglas Laboni, MD, MSc
 Neetin Prabhu, MD
 Syed Mohammad, MD

Research Day Award Winners

Resident Award: Bonnie He: Risk of glaucoma associated with calcium channel blocker use in patients with cardiovascular disease

Senior Trainee Award: Aliénor Jamet: Neuroprotection of retinal ganglion cells in experimental glaucoma using a novel gene therapy construct AAV2-SYN1-TrkB-2A-mBDNF in adult and old mice

Junior Trainee Award: Tyler Herod: Barriers existing in Nova Scotia hospitals for people living with sight loss: A qualitative study

Blitz Award: Verina Hanna: Preoperative educational video for patients undergoing cataract surgery: A randomized controlled trial

Interdisciplinary Trainee Speaker Series

Ophthalmology Award: Ellen Zhou: Proteomic analyses for different stages of primary open angle glaucoma – A pilot study of 8000 markers with stringent criteria

The graphic features a blue and purple color scheme. At the top, it reads 'OPHTHALMOLOGY & VISUAL SCIENCES' and '2025 RD'. The main title is '35TH ANNUAL RESEARCH DAY' with the date 'April 8, 2025' and location 'Halifax Convention Centre'. Below this, there are two circular portraits of speakers. The first is Dr. François Codère, Université de Montréal, with the topic 'Oculopharyngeal muscular dystrophy and other ocular myopathies affecting the eyelids'. The second is Dr. Muhammad Mamdani, University of Toronto, with the topic 'Applied artificial intelligence in healthcare'. The Dalhousie University logo is in the bottom right corner.



Pictured above (L-R): Bonnie He, Aliénor Jamet, Balwantray Chauhan, François Codère, Tyler Herod, and Verina Hanna

13th Annual Atlantic Eye Symposium

The 13th Atlantic Eye Symposium was held on September 27 & 28, 2024 at the Halifax Convention Center. We had another outstanding Symposium, highlighted by an impressive list of guest speakers:

Dr. Sunir J. Garg, Thomas Jefferson University, Retina

Dr. Rachel Sobel, Vanderbilt Eye Institute, Oculoplastics

Dr. Jennifer Lim, University of Illinois, Retina

Dr. Bernard Robert Hurley, University of Ottawa Eye Institute, Retina

Dr. Imran Jivarj, Eye Institute of Alberta and Edmonton, Oculoplastic Surgery and Neuro-Ophthalmology

Dr. Malik Kahook, University of Colorado School of Medicine, Glaucoma

Dr. Jody Piltz-Seymour, Glaucoma Care Center at Valley Eye Professionals, Glaucoma

Dr. Clara C. Chan, University of Toronto, Cornea

Dr. Matt Schlenker, University of Toronto, Glaucoma

Dr. Adam Muzychuk, University of Calgary, Cataract

Dr. Mashad Darvish, McGill University, Cornea

Dr. Amandee S. Rai, University of Toronto, Cataract

We were honoured to present the fourth Dr. Aditya Mishra Lecture in Neuro-Ophthalmology, in memory of our beloved colleague, to be delivered by Dr. Daniel Gold.

Dr. Daniel Gold, is an Associate Professor of Neurology, Ophthalmology, Otolaryngology - Head & Neck Surgery, Neurosurgery, Emergency Medicine, and Medicine at The Johns Hopkins University School of Medicine.



Pictured above (L-R) Dr. Wesley Chan and Dr. Daniel Gold

Form and Function in Ocular Disease Symposium

The Dalhousie University Department of Ophthalmology and Visual Sciences hosted the 10th Biennial Form & Function in Ocular Disease Symposium on November 1-2, 2024. This multidisciplinary clinical and basic science symposium featured local and guest faculty who are world-class leaders in diverse areas of ophthalmology from ocular imaging to the future of health care delivery. This year's local and guest faculty included:

Stephan Ong Tone, MD, PhD, University of Toronto

Exploring the regenerative potential of the corneal endothelium in Fuchs endothelial corneal dystrophy

Melina Agosto, PhD, Dalhousie University

A key role for glycosylation at photoreceptor synapses

Thomas Euler, PhD, University of Tübingen

What the eye tells the brain: The sequel

Corey Smith, PhD, Dalhousie University

Clinical epidemiology of rhegmatogenous retinal detachment

Daniel Stamer, PhD, Duke University

Targeting disease for treatment of ocular hypertension in glaucoma

Kyoko Ohno-Matsui, MD, Tokyo Medical and Dental University

Insights into pathologic myopia: Unraveling the enigma of posterior staphyloma

David Guyton, MD, The Johns Hopkins University School of Medicine

Crossing of the eyes in the first year of life – why and how

Sherif El-Defrawy, MD, PhD, University of Toronto

Privatization and future directions of health care delivery in Canada

Joan Miller, MD, Harvard University

Developing treatments for age-related macular degeneration: The road we traveled and the road ahead

The **Form & Function Trainee Travel Awards** provide the opportunity for trainees to present their research at the symposium. This year's awardees were:

Delaney Henderson, PhD, Dalhousie University

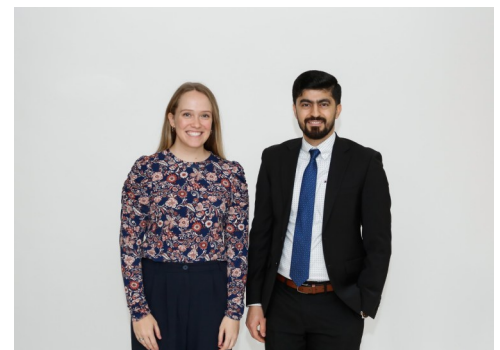
Characterizing the effects of experimental glaucoma and age on retinal cell function

Khaldon Abbas, MD, St. Joseph's Ivey Eye Institute

Investigating RPE melanin distribution in retinitis pigmentosa utilizing polarization sensitive optical coherence tomography



Pictured above (L-R): Dr. Sherif El-Defrawy, Dr. Joan Miller, Dr. Stephan Ong-Tone, Dr. Melina Agosto, Dr. Corey Smith, Dr. Thomas Euler, Dr. Daniel Stamer, Dr. Kyoko Ohno-Matsui, Dr. David Guyton



Pictured above (L-R): Drs. Delaney Henderson and Khaldon Abbas

Resident Research

| Name | Year | Supervisor(s) | Project Title |
|-----------------------|------|--|---|
| Dr. Verina Hanna | PGY4 | Dr. Anuradha Mishra | Preoperative educational videos for patients undergoing cataract surgery |
| Dr. Bonnie He | PGY4 | Dr. Brennan Eadie | Risk of glaucoma associated with calcium channel blocker use for cardiovascular disease |
| Dr. Ashley Whelan | PGY4 | Dr. Carolina Francisconi | Choroidal thickness in treatment naïve eyes receiving unilateral intravitreal anti-VEGF injections |
| Dr. Freddy Lee | PGY3 | Dr. Rishi Gupta | 20/20: Our Vision for Injury Prevention |
| Dr. Freddy Lee | PGY3 | Dr. Brennan Eadie | Single-cell transcriptomic characterization of trabecular meshwork tissue obtained in vivo from eyes with primary open angle and pseudoexfoliative glaucoma |
| Dr. Freddy Lee | PGY3 | Dr. Brennan Eadie | Luminance and thresholding limitations of virtual reality headsets for visual field testing |
| Dr. Neetin Prabhu | PGY3 | Dr. Ahsen Hussain | Factors influencing the survival of full-thickness skin grafts in the periorcular region: A systematic review and meta-analysis |
| Dr. Mohammad Abdullah | PGY2 | Dr. Paul Rafuse & Dr. Marcelo Nicolela | 10-year outcomes of trabeculectomy with mitomycin-C (MMC) |
| Dr. Alexander Deans | PGY2 | Dr. Erdit Celo | Development and assessment of a novel machine-learning-based Bayesian platform for improved diagnostic accuracy of posterior uveitis |
| Dr. Isra Hussein | PGY2 | Dr. Anuradha Mishra | Gender differences in surgical case volumes among ophthalmology residents |
| Dr. Isra Hussein | PGY2 | Dr. Alexander Tan | Efficacy outcomes and risk factors for safety-related events in dropless cataract surgery |

Trainee Research

| Name | Supervisor(s) | Program | Project Title |
|-------------------|--------------------------------|---------------------|--|
| Ahmed Galal | Dr. Melina Agosto | Undergraduate | Cloning EPB41L3 deletion mutants |
| Aliénor Jamet | Dr. Balwantray Chauhan | PhD | Efficacy of viral transduction in murine retina |
| Andrew Rideout | Dr. Melina Agosto | MSc | Identification of determinants of mGluR6 secretory trafficking |
| Arjav Gupta | Dr. Johane Robitaille | Medical Student | Mapping the Genetic Causes of Inherited Retinal Diseases in Maritime Canada |
| Brianna Samson | Dr. Corey Smith | MSc | Biomechanical Characterization of the Human Retina in Experimental Retinal Detachment |
| Brooke Barsness | Dr. Melina Agosto | Undergraduate | Site-directed mutagenesis of myocilin |
| Colyn Munn | Drs. Corey Smith & Alan Cruess | MSc | An AI Model for Generating a Non-Invasive Time Series of Fluorescein Angiography Images |
| Delaney Henderson | Dr. Balwantray Chauhan | Postdoctoral Fellow | Efficacy of viral transduction in murine retina |
| Ellen Zhou | Dr. Johane Robitaille | Postdoctoral Fellow | The Canadian Pediatric Glaucoma Consortium: Genomic Profile of Primary Congenital |
| Ellen Zhou | Dr. Lesya Shuba | Postdoctoral Fellow | Patient Perceptions of Mental Health Support Needs in Vision Care: A Pilot Study in Atlantic Canada |
| Ellen Zhou | Dr. Marcelo Nicolela | Postdoctoral Fellow | Long-term trabeculectomy outcome |
| Faiyaz Abid | Dr. Melina Agosto | MSc | Role of CASK at photoreceptor presynapses |
| Harleen Hekar | Dr. Anuradha Mishra | Medical Student | Review of Ophthalmology Content in Preclerkship Case Base Learning |
| Jaeeeun Lee | Dr. Melina Agosto | Undergraduate | Trans-synaptic interaction with mGluR6 contributes to ELFN1 presynaptic enrichment in rod photoreceptors |
| Joyce Li | Dr. Balwantray Chauhan | Undergraduate | Polygenic risk scores for visual field progression in glaucoma |
| Julia Dugandzic | Dr. Anuradha Mishra | Medical Student | Ophthalmology Education in Family Medicine Residency: A 2024 Canadian Census |
| Kate Lim | Dr. Anuradha Mishra | Medical Student | Sir Harold Ridley as the Pioneer of Intraocular Lenses: His Inspiration Drawn From World War II |
| Kate Lim | Dr. Marcelo Nicolela | Medical Student | Structural, functional and vascular consequences of optic disc haemorrhages in glaucoma |
| Kaur Hargun | Dr. Anuradha Mishra | Medical Student | Web accessibility of patient education resources for individuals with low vision or blindness: a retrospective study |

Trainee Research

| Name | Supervisor(s) | Program | Project Title |
|----------------------|------------------------|---------------------|---|
| Kevin Hodgson | Dr. Marcelo Nicolela | Postdoctoral Fellow | Comparative effect of triamcinolone periocular injection versus post-operative topical steroid in |
| Korolos Sawires | Dr. Corey Smith | Medical Student | Investigating Extended Dosing Intervals of Faricimab in Treatment Refractory Neovascular Age-Related Macular Degeneration (nAMD) Patients |
| Laura Swift | Dr. Balwantray Chauhan | Undergraduate | AI solutions in RGC quantification |
| Mauj Al Hammadi | Dr. Johane Robitaille | MSc | Aligned Perspectives: Co-Creating Patient Education for Strabismus Surgery |
| Michael Miller | Dr. Melina Agosto | Medical Student | The role of glycosylation in mGluR6 G-protein activation |
| Mostafa Bondok | Dr. Anuradha Mishra | Medical Student | Exploring the Gender Gap in Ophthalmology Resident Applicants: A Mixed Methods Study |
| Nigel Beecham | Dr. Melina Agosto | Undergraduate | Golgi trafficking of mGluR6 mutants |
| Omar Abuelatta | Dr. Melina Agosto | Undergraduate | The role of glycosylation in group III mGluRs |
| Oyesode Leye | Dr. Corey Smith | Medical Student | Systematic Review: Does vitrectomy increase the prevalence of open-angle glaucoma? |
| Robyn McGowan | Dr. Melina Agosto | PhD | Pikachurin axonal trafficking and trans-synaptic complex formation |
| Rose Kearney | Dr. Balwantray Chauhan | Undergraduate | Mapping dendritic structure of RGC in the Thy1-YFP-H mouse |
| Samantha Mannala | Dr. Anuradha Mishra | Medical Student | The Med 4 Experience: A collaborative ethnogra |
| Sara Grennough | Dr. Melina Agosto | Undergraduate | Characterization of GPR179 Post Synaptic Interactions with LRRTM4 |
| Sarah van der Ende | Dr. Johane Robitaille | PhD | Investigating Candidate Genes and Disease Mechanism for the Childhood Blinding Disease Familial Exudative Vitreoretinopathy |
| Sebastian Oosthuizen | Dr. Corey Smith | Undergraduate | Measuring the immune response during retinal ganglion cell loss |
| Sung-Uk Baek | Dr. Balwantray Chauhan | Postdoctoral Fellow | High-resolution OCT |
| Tyler Herod | Dr. Anuradha Mishra | Medical Student | Barriers in Nova Scotia Hospitals for Patients Living with Vision Loss |
| Tyler Herod | Dr. Anuradha Mishra | Medical Student | Evaluation of an Interprofessional Workshop on Vision Impairment for Medical Students |
| Yaser Alnasery | Dr. Anuradha Mishra | PhD | Sensitivity and Specificity of a New Low Vision Referral Tool |
| Youssef Sefau | Dr. Marcelo Nicolela | Medical Student | Comparative effect of triamcinolone periocular injection versus post-operative topical steroid in trabeculectomy |

Research Profile—Dr. Marcelo Nicolela



Dr. Marcelo Nicolela, Professor in the Department of Ophthalmology and Visual Sciences at Dalhousie University, is an internationally recognized clinician-scientist whose work has advanced the understanding and management of glaucoma. Originally from São Paulo, Brazil, Dr. Nicolela began his career with the intention of practicing in his home city. However, a clinical and research fellowship with Dr. Stephen Drance in Vancouver in the 1990s and through connections with leaders in the field, including Dr. Balwantray Chauhan and Dr. Ray LeBlanc, he was drawn to Halifax where he has since built a distinguished career spanning clinical care, research, and leadership.

Dr. Nicolela's research program is focused on improving outcomes for patients with glaucoma. His work explores key areas including disease progression, surgical outcomes, risk factors beyond intraocular pressure, and the application of advanced ocular imaging technologies. His research is strongly informed by clinical practice, with patient care serving as a primary source of inspiration. Questions arising from complex or challenging cases continue to shape his research priorities, ensuring his work remains both relevant and impactful.

A defining feature of Dr. Nicolela's research is its collaborative nature. Longstanding partnerships, including those with industry leaders such as Heidelberg Engineering, have contributed to significant advances in imaging and diagnostic approaches within the department. Dr. Nicolela has played an important role in validating diagnostic tools, evaluating emerging treatments, and contributing to clinical trials of new drugs and delivery systems.

In addition to his research contributions, Dr. Nicolela has demonstrated exceptional leadership within the department and beyond. He served as Head of the Department of Ophthalmology and Visual Sciences from 2014 to 2023 and as District Chief of Ophthalmology for Nova Scotia Health. He has also made lasting contributions to education as Director of the Glaucoma Fellowship program for over 20 years.

Dr. Nicolela is deeply committed to supporting the next generation of clinician-scientists. He emphasizes the importance of integrating research early in one's career and encourages trainees and early-career faculty to establish a balance between clinical and academic work from the outset. Through his mentorship, he fosters a collaborative and supportive research environment.

Looking ahead, Dr. Nicolela sees significant opportunity in areas such as artificial intelligence, precision medicine, genetics, neuroprotection, and robotics. He believes ophthalmology has long been at the forefront of innovation in medicine and is excited to see how future advancements will impact on patient care.

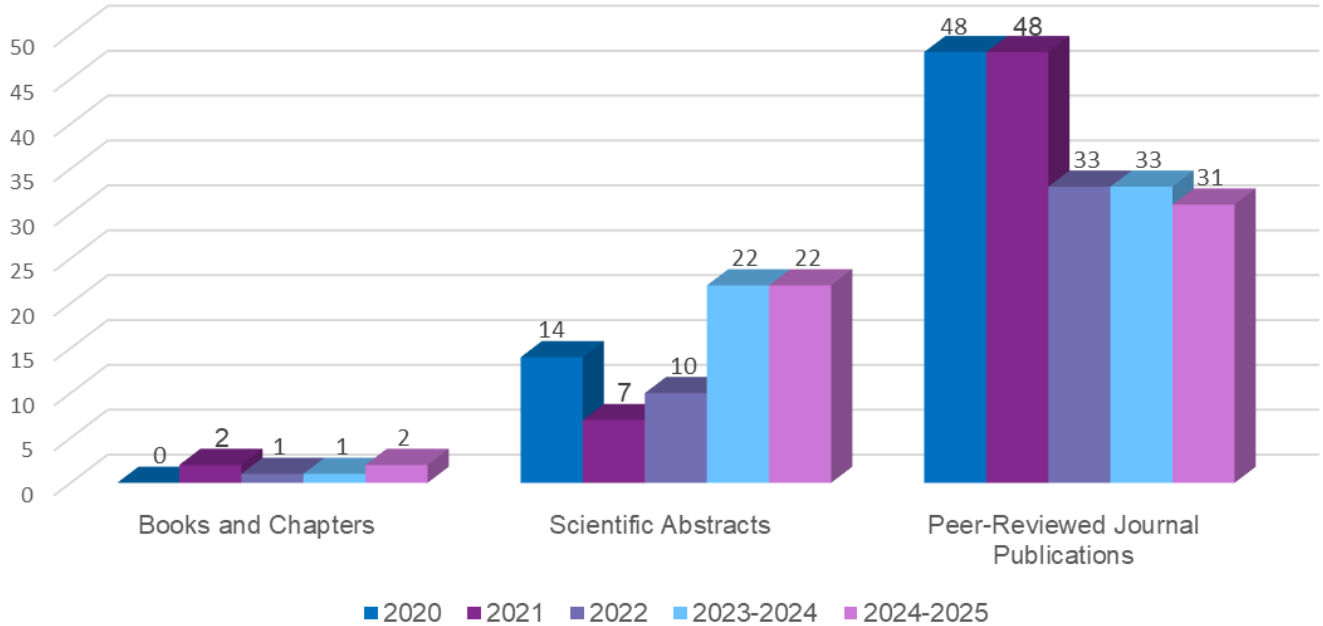
Through his sustained contributions to research, education, and leadership, Dr. Nicolela has made a lasting impact on the field of glaucoma and continues to advance care for patients both locally and globally.



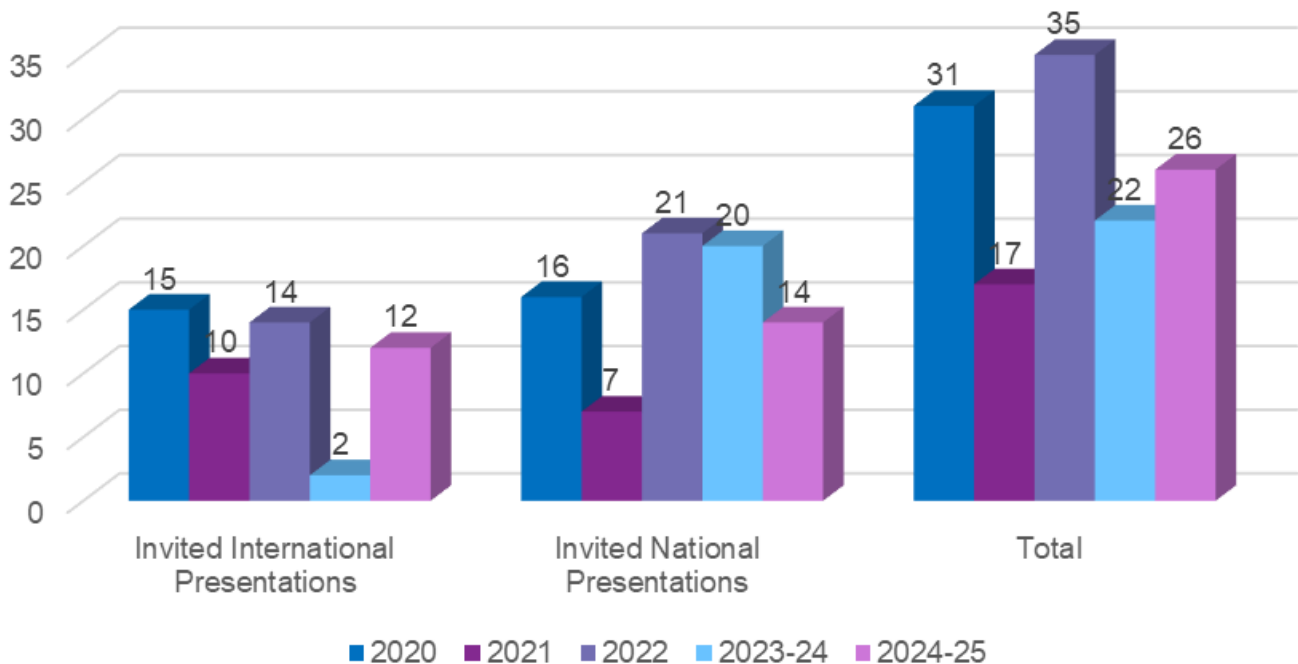
Pictured above (L-R): Drs. Marcelo Nicolela, Ray LeBlanc, and Balwantray Chauhan

Publication Facts and Figures

Number of Books and Chapters, Scientific Abstracts, and Peer-reviewed Articles by Department Members over 5 years



Number of National and International Presentations by Department Members over 5 years



Peer Reviewed Journal Publications

1. Bondok MS, He B, Ka-Lok Tao B, Bondok M, **Hussain A**, Ing E (2024). Incidence of Sympathetic Ophthalmia after Intraocular Surgery: A Systematic Review and Meta-analysis. *Ophthalmology*, 131(7), 836-844. [Review - Published] PubMed ID: 38215990.
2. Jin Z, **Pollmann AS**, **Gupta RR**, Fung AT (2024). Structural integrity of LuxGood intraocular lens eyelets. *Journal of Cataract and Refractive Surgery*. [Published].
3. Al-Qadi M, **Hussain A** (2024). Influence of orbital decompression on upper eyelid retraction in Graves' orbitopathy: a systematic review and meta-analysis. *Orbit (Amsterdam, Netherlands)*, 43(4), 549-554. [Review - Published] PubMed ID: 37611061.
4. Lim KS, **Mishra A** (2024). Sir Harold Ridley as the Pioneer of Intraocular Lenses: His Inspiration Drawn From World War II Pilots. *Cureus*, 16(9), e68722. [Published] PubMed ID: 39371888.
5. Mileski KM, Biousse V, Newman NJ, Flowers AM, **Chan W**, Dattilo M (2024). Optometric Practice Patterns for Acute Central and Branch Retinal Artery Occlusion. *Journal of neuro-ophthalmology : the official journal of the North American Neuro-Ophthalmology Society*, 44(3), 350-354. [Published] PubMed ID: 37733470.
6. Gupta A, Colwell B, Clarke DB, Massoud EA, Croul S, **Hussain A** (2024). The Role of Denosumab Treatment in Recurrent Giant Cell Bone Tumor of the Orbit. *Ophthalmic plastic and reconstructive surgery*, 40(5), e161-e164. [Case Report - Published] PubMed ID: 38984651.
7. **Pollmann AS**, Cohen M, Jabbour S (2024). Corneal epithelial hyperplasia related to chronic eye rubbing mimicking keratoconus. *Eye and Contact Lens*. [Case Report - Published].
8. Youhnovska E, **Pollmann AS**, Blais N, Robert M (2024). Recurrent chronic conjunctival erosions secondary to cabozantinib. *Canadian Journal of Ophthalmology*. [Published].
9. Yang H, Reynaud J, **Sharpe GP**, Jennings D, Albert C, Holthausen T, Jiang X, Demirel S, Mansberger SL, **Nicolela MT**, Gardiner SK, **Chauhan BC**, Burgoyne CF, Fortune B (2024). Diagnostic Performance for Detection of Glaucomatous Structural Damage Using Pixelwise Analysis of Retinal Thickness Measurements. *Investigative ophthalmology & visual science*, 65(12), 17. [Published] PubMed ID: 39382878.
10. **Hodgson K**, Sefau Y, Bonatti R (2024). Vision-sparing self-inflicted ocular trauma in the setting of an incomplete history. *Canadian journal of ophthalmology. Journal canadien d'ophtalmologie*, 59(5), e634-e635. [Case Report - Published] PubMed ID: 38604237.
11. Pindwarawala M, Abid FAK, Lee J, Miller ML, Noppers JS, Rideout AP, **Agosto MA** (2024). Defective glycosylation and ELFN1 binding of mGluR6 congenital stationary night blindness mutants. *Life Science Alliance*, 8, e202403118. [Published].
12. Tomita R, **Smith CA**, **Dyachok OM**, **Sharpe GP**, **Rafuse PE**, **Shuba LM**, **Nicolela MT**, **Chauhan BC** (2024). Sequence and Detectability of Changes in Macular Ganglion Cell Layer Thickness and Perfusion Density in Early Glaucoma. *Investigative Ophthalmology & Visual Science*, 65(14), 8. [Published] PubMed ID: 39625439.
13. Alkhabbaz A, Karam M, **Pollmann AS**, Khaldoun A, Al-Awadhi H, Nath S, Jabbour S (2024). Safety and efficacy of posterior chamber phakic implantable collamer lenses in patients with keratoconus: a systematic review and meta-analysis. *American Journal of Ophthalmology*. [Published].
14. Munn CB, Kamintsky L, Serlin Y, **Smith CA**, Friedman A, Corredores J. Pre-treatment retinovascular leakage predicts treatment responders in patients with central vein occlusion. *Ophthalmology Science*. [Submitted].

15. Tao BK, Dhivagaran T, Butt FR, Balas M, **Hussain A**, Nijhawan N, Nassrallah G, Ing E (2025). Ectropion Repair Techniques and the Role of Adjunctive Superotemporal Skin Transposition for Tarsal Ectropion. *Journal of clinical medicine*, 14(3). [Review - Published] PubMed ID: 39941498.
16. van der Ende S, Bedard K, Wallace K, Mackley MP, Nightingale M, Gaston D, Beis MJ, Leblanc MA, Gillett R, Levin AV, Clark IH, Héon E, Muni RH, Traboulsi EI, Lyons CJ, McMaster CR, **Robitaille JM**. Gene Variant Spectrum in Proband with Familial Exudative Vitreoretinopathy Using an Expanded Panel. *Investigative Ophthalmology and Visual Science*. [Accepted].
17. Tao BK, Butt FR, Dhivagaran T, Balas M, Nijhawan N, Nassrallah G, **Hussain A**, Ing EB (2025). Periocular Aging Across Populations and Esthetic Considerations: A Narrative Review. *Journal of clinical medicine*, 14(2). [Review - Published] PubMed ID: 39860540.
18. **Hussain A**, Ali MJ (2025). Lacrimal History - Part 39: Doyens of Dacryology Series - Jeffrey Jay Hurwitz (1944-2022). *Seminars in ophthalmology*, 1-3. [Editorial - Published] PubMed ID: 40044491.
19. Yao A, **Hussain A**, Kannan R, Nduka C, Malhotra R (2025). Dynamic procedures for eyelid involvement in facial nerve palsy. *Survey of ophthalmology*. [Review - Published] PubMed ID: 40089028.
20. Tomita R, **Sharpe GP**, **Betsch D**, Bonatti R, **Chauhan BC** (2025). A comparative study of the handheld IC200 and slit lamp-mounted ST500 rebound tonometers with Goldmann applanation tonometry. *Ophthalmology Glaucoma*, 8, 152-156. [Published].
21. Bonatti R, **Hodgson K**, **Nicolela M** (2025). Successful resolution of early fibrin occlusion of PreserFlo MicroShunt with Nd:YAG laser treatment. *Canadian journal of ophthalmology. Journal canadien d'optalmologie*, 60(3), e482-e485. [Case Report - Published] PubMed ID: 39870357.
22. **Betsch D**, **Eadie BD**. Ab interno stenting of a Preserflo Microshunt for post-operative hypotony. *Canadian Journal of Ophthalmology*. [Case Report - Submitted].
23. Guinard CA, He B, Sawires B, **Zaki AM**, **Gupta RR** Pasternak S (2025). Primary Vitreoretinal Lymphomas: A Diagnostic Challenge. Report of two recent cases with retinal biopsies and molecular investigations in Halifax, Nova Scotia. *Ocular Oncology and Pathology*. [Case Report - Published].
24. Ohri S, Lee C , **Gupta RR**, Zhang AY. Evaluating Ergonomics Education in United States Ophthalmology Residency Programs. *Journal of Academic Ophthalmology*. [Accepted].
25. Cayenne S, **Hussain A** (2025). Impact of immunosuppressive states on Graves' orbitopathy: Case report and literature review. *Indian Journal of Ophthalmology*. [Case Report - Published] DOI: 10.4103/IJO.IJO_2150_24.
26. Alnasery Y, Packer T, **Mishra A**, Oystreck D, Ghanouni P and Andreou P. A Novel Screening Tool for Optimal Referrals to Vision Rehabilitation Service. *Optometry and Vision Sciences*. [Submitted].
27. Kaur H, Gundala S, Jackson ML, **Gupta RR**, **Mishra A**. Web accessibility of patient education resources for individuals with low vision and blindness: a retrospective study. *Canadian Journal of Ophthalmology*. [Submitted].
28. Bourcier D; Beshara J; Pauli G; Henry T; Peckford M; Huntsman R; **Bata B**; Kollmann TR (2025). Lyme Neuroborreliosis Presenting With Isolated Intracranial Hypertension: A Case Report. *Case Reports in Neurology*. [Case Report - Published].
29. **Pinto A**, **Seddigh S**, **Zaki A**, **Gupta RR** (2024). Serpiginous choroiditis following COVID-19 infection. *Journal of VitreoRetinal Diseases*. [Case Report - Published].

30. Alkharashi H, **LaRoche R**, Walsh L, Westwood D (2025). The role of stereopsis in microsurgical performance on the EYESi ophthalmic surgical simulator. *Strabismus*, 33(2), 126-135. [Published] PubMed ID: 39620643.
31. Tomita R, **Sharpe GP**, **Betsch D**, Bonatti R and **Chauhan BC**. A comparative study of the handheld IC200 and slit lamp-mounted ST500 rebound tonometers with Goldmann applanation tonometry. *Ophthalmology Glaucoma* 8:152-156, 2025.

Scientific Abstracts

1. Parkash S, Rideout AL, **Bata B**, Wong K, Davies D, Aberg E, Skidmore D. Traboulsi Syndrome: A Rare Recessive Disorder to Consider in the Differential Diagnosis of Syndromic Aortopathy. [Poster] GenTac Aortic Summit 2024 (Tromso, Norway), August 2024.
2. Alsaif A, Karam, Alhadayah M, Alkhabbaz A, Hassan A, Al-Awadhi H, **Pollmann A**, Nath S, Alotaibi A, Darvish M, Jabbour S. Eye bank pre-stripped versus surgeon-stripped graft for Descemet membrane endothelial keratoplasty: a systematic review and meta-analysis. [Podium] European Society of Cataract and Refractive Surgery Congress 2024 (Barcelona, Spain), September 2024.
3. Jamet AJ, Hooper ML, **Agosto MA**, **Chauhan BC**. Neuroprotection of retinal ganglion cells in experimental glaucoma using a novel gene therapy construct. [Poster] Society for Neuroscience annual meeting (Chicago, IL), October 2024.
4. Herod T, **Hodgson K**, **Shuba L**, **Nicolela MT**. Comparative 3-Year Surgical Outcomes Between Xen Gel Stent and Trabeculectomy: Single-Center Retrospective Review. [Podium] American Academy of Ophthalmology Annual Meeting (Chicago, USA), October 2024.
5. **Betsch D**, **Hodgson K**, Bonatti R, **Shuba L**, **Eadie BD**, **Rafuse P**, Palakkamanil M, **Nicolela MT**. Initial Results on Safety and Efficacy of Sub-tenon Triamcinolone Injection Versus a Conventional Steroid Drops Post-Operative Regimen Following Glaucoma Surgery. [Poster] 2025 American Glaucoma Society Annual Meeting (Washington, DC, USA), February 2025.
6. Alnasery Y, Packer T, **Mishra A**, Oystrek D, Ghanouni P, Andreou P. A Novel Screening Tool for Optimal Referrals to Vision Rehabilitation Service. [Poster] Canadian Ophthalmology Society (Vancouver, Canada), June 2025.
7. Herod T, **Hodgson K**, Verran R, **Mishra A**. Medical student perceptions of an interactive interprofessional workshop on vision impairment. Need for better training in vision loss for medical students. [Poster] Dalhousie Medical Education Research and Innovation Showcase 2024 (Halifax, NS), November 2024.
8. **Robitaille JM**, van der Ende S, Bedard K, Wallace K, Mackley MP, Nightingale M, Gaston D, Beis MJ, Leblanc MA, Gillett R, Levin AV, Clark IH, Héon E, Muni RH, Traboulsi EI, Lyons CJ, On Behalf of The FEVR Consortium, McMaster CR. Gene Variant Spectrum in Probands with Familial Exudative Vitreoretinopathy Using an Expanded Panel. [Poster] American Association for Pediatric Ophthalmology and Strabismus Conference (Salt Lake City, Utah, USA), March 2025.
9. Herod T, Jennings S, Taylor V and **Mishra A**. Barriers in Healthcare Institutions in Nova Scotia for People Living with Sight Loss. [Podium] Crossroads Interdisciplinary Health Research Conference (Halifax, Nova Scotia), March 2025.
10. **Betsch D**, **Hodgson K**, Bonatti R, **Shuba L**, **Eadie BD**, **Rafuse P**, Palakkamanil M, **Nicolela MT**. Initial Results on Safety and Efficacy of Sub-tenon Triamcinolone Injection Versus a Conventional Steroid Drops Post-Operative Regimen Following Glaucoma Surgery. [Poster] American Glaucoma Society Meeting (Washington, D.C., USA), March 2025.

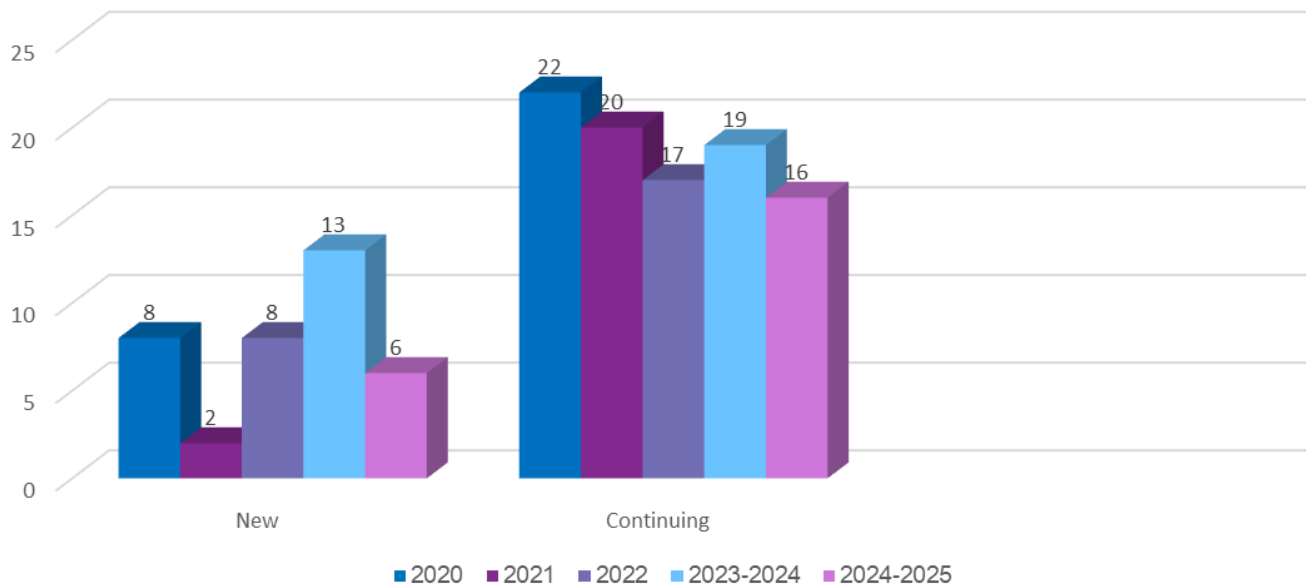
11. Rhyno EM, Alim S, Matheson K, **O'Brien D, Smith CA**. Risk factors for rhegmatogenous retinal detachment in the Maritimes. [Poster] Canadian Ophthalmological Society Annual Meeting (Vancouver, BC), June 2025.
12. Herod TW, Jennings S, Taylor V, **Mishra A**. Navigating Healthcare Institutions with Sight Loss: A Qualitative Study. [Podium] Canadian Ophthalmology Society (Vancouver, British Columbia, Canada), June 2025.
13. Bondok M, Bondok MS, Knafo M, Law C, Nathoo N, Grimm L, **Mishra A**. Exploring the Gender Gap in Canadian Ophthalmology Applicants. [Poster] Canadian Ophthalmology Society (Vancouver, British Columbia, Canada), June 2025.
14. Dugandzic J, **Hanna V**, Betsch T, **Betsch D** and **Mishra A**. Ophthalmology Education in Family Residency Programs: A 2024 Canadian Census. [Podium] International Conference of Academic Medicine (Halifax, NS, Canada), April 2025.
15. Dugandzic J, **Hanna V**, Betsch T, **Betsch D** and **Mishra A**. Ophthalmology Education in Family Residency Programs: A 2024 Canadian Census. [Poster] Canadian Ophthalmology Society (Vancouver, Canada), June 2025.
16. Kaur H, Gundala S, Jackson ML, **Gupta RR, Mishra A**. Web accessibility of patient education resources for individuals with low vision and blindness: a retrospective study. [Poster] Canadian Ophthalmology Society (Vancouver, Canada), June 2025.
17. Rhyno E and **Mishra A**. Caring for Patients with Vision Loss: An Interprofessional Education Initiative. [Podium] Dalhousie Department of Ophthalmology and Vision Sciences Research Day (Halifax, NS), April 2025.
18. Dugandzic J, **Hanna V**, Betsch T, **Betsch D** and **Mishra A**. Ophthalmology Education in Family Residency Programs: A 2024 Canadian Census. [Poster] American Society of Cataract and Refractive Surgeons (Los Angeles, California, United States), April 2025.
19. Herod TW, Jennings S, Taylor V, **Mishra A**. Evaluation of an Interprofessional Workshop on Vision Impairment for Medical Students. [Podium] International Conference in Academic Medicine (Halifax, Nova Scotia), April 2025.
20. **Pinto A**, Kohly R, Baxter N, **Mishra A**. Intersectionality of gender and visible minority status on Canadian ophthalmology trainee experiences. [Podium] International Conference of Academic Medicine (Halifax, NS, Canada), April 2025.
21. Munn CB, Kamintsky L, Serlin Y, Oore S, Popovic MM, Muni RH, Hadziahmetovic M, Tomkins-Netzer O, Levy J, **Cruess AF, Smith CA, Friedman A**. Generative-AI for dye-free fluorescein angiography. [Podium] The Association for Research in Vision and Ophthalmology Annual Meeting (Salt Lake City, USA), May 2025.
22. Herod T, **Hodgson K, Shuba L, Nicolela MT**. Comparative 3-year surgical outcomes between xen gel sten and trabeculectomy: Single-centre retrospective review. [Poster] Canadian Ophthalmological Society Meeting (Vancouver, BC), June 2025.

Other Publications & Books and Chapters

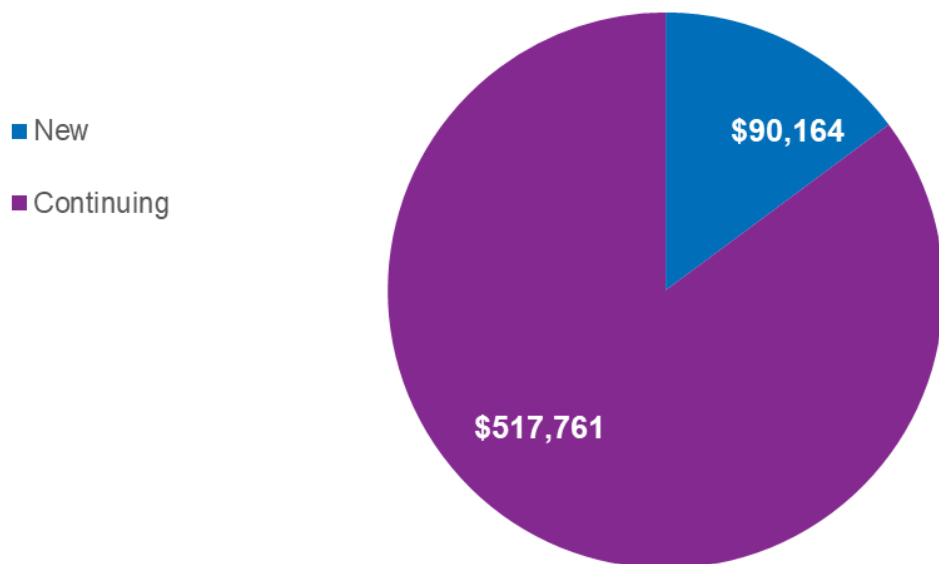
1. Mackenzie D, Sponagle and Sibault K, Contributors [Including **Mishra A**, Andrews C, Lackie K, Pendergast N) (2024). Interprofessional Education: A Resource for Educators [Book]. Pressbooks: Atlantic Canada.
2. **Hussain A** [Accepted] Handbook of Oculoplastics [Book]. Springer: New York.

Research Funding Facts & Figures

Number of Continuing and New Grants and Contracts for 2024-2025 over 5 years



Value of Research Funding for Grants and Contracts 2024-2025



New Research Grants and Contracts

1. Al-Hammadi M, **Promelle V, Mishra A**, Walsh L, ***Robitaille J** and Betts L (2025 - 2027). Aligned Perspectives: Co-Creating Patient Education for Strabismus Surgery [Grant] - IWK - \$24,582.
2. Lee F, **Betsch D, Shuba LM, Gupta RR** (2025 - 2026). 20/20 Campaign: Ergonomics in Ophthalmology [Grant] - QEII Foundation Translating Research into Care (TRIC) grant - \$9,300.
3. **Robitaille JM** (PI), Martinez V (co-PI), Beis MJ, Mackay S, **Mishra A, Locke J**, Skidmore D, DiCostanzo N (2024 - 2025). A New Early Diagnostic Genomic Pathway for Improved Care of People with Inherited Retinal Diseases. (A New EDGe for IRDs) [Grant] - IWK - \$25,000
4. **Promelle V**, Kraus M, Beyea S, Bouzerar R, Bowen C (2024 - 2025). Diffusion Tensor Imaging of the extra ocular muscles [Grant] - IWK - \$35,000
5. **Robitaille JM, Bata B** (2024 - present). Bevacizumab Treatment for Type 1 Retinopathy of Prematurity (ROP4). Clinical Trial [Industry Contract] - PEDIG
6. Zhou E; **Robitaille J, Nicolela MT** (2024 - 2026). The Canadian Pediatric Glaucoma Consortium: Genomic Profile of Primary Congenital Glaucoma (PCG) [Grant] - Glaucoma Research Foundation of Canada - \$25,000
7. Baek S-U (PI), **Chauhan BC** (2025 - 2026). Comparison of the impact of diabetic macular edema on the neuroretinal rim and retinal nerve fibre layer in glaucoma [Grant] - Glaucoma Research Society of Canada - \$20,000
8. **Chauhan BC** (PI) (2025). Imaging single retinal ganglion cells (equipment grant) [Grant] - Plum Foundation - \$69,230

Continuing Research Grants and Contracts

1. **Smith CA, Chauhan BC** (2024 - 2026). Measuring the immune response during retinal ganglion cell loss [Grant] - Glaucoma Research Society of Canada - \$23,000.
2. **Betsch D**, Hodgson K, **Bonatti R, Shuba L, Eadie B, Rafuse PE**, Palakkamanil M, **Nicolela M** (2024 - 2026). Safety and efficacy of sub-tenon triamcinolone injection versus a conventional steroid drops post-operative regime following glaucoma surgery [Grant] - Glaucoma Research Society of Canada - \$24,423.
3. Baker A, Kabiri S, **Smith CA**, Freeman E (2024 - 2026). Exploring Enhanced Artificial Vision via Electrode Biofabrication [Grant] - New Frontiers in Research Fund – Exploration Grant - \$250,000.
4. **Chauhan BC** (2024 - 2029). Functional in vivo imaging of single retinal ganglion cells in experimental glaucoma [Grant] - CIHR - \$979,200.
5. **Bonatti R, Shuba L, Eadie B** (2023 - 2024). Gaze behavior when analyzing visual fields [Grant] - Glaucoma Research Society of Canada - \$15,414.
6. **Agosto MA** (2023 - 2024). Young Investigator Grant [Grant] - Alcon Research Institute - \$83,000 (USD).
7. **Jamet, AJ, Chauhan BC** (2023 - 2025). Characterization of adeno-associated viral vector promotor-mediated specificity to retinal ganglion cells [Grant] - Glaucoma Research Society of Canada - \$29,940.
8. **Chauhan, BC; Nicolela MT; Sharpe G** (2023 - 2025). Clinical evaluation of I-Care Tonometry [Industry Contract] - ICare; Finland - \$104,451.
9. **Agosto MA** (2022 - 2025). Operating grant [Grant] - Plum Foundation - \$34,500 (USD).

10. **Smith CA** (2023 - 2026). Identification of imaging biomarkers for early detection of age-related macular degeneration [Grant] - Department of Ophthalmology and Visual Sciences - \$30,000.
11. Bondok M, Bondok MS, Knafo M, Law C, Nathoo N, Grimm L, **Mishra A** (2023 - 2025). Exploring the gender gap in Canadian ophthalmology: A mixed methods study [Grant] - Dalhousie - \$9,494.
12. **Nicolela MT, Chauhan BC**, Glaucoma Myopia Phenotyping Consortium members (2022 - 2025). Glaucoma myopia phenotyping consortium [Industry Contract] - Heidelberg Engineering, GmbH - \$47,721.
13. **Agosto MA** (2022 - 2027). Formation of trans-synaptic complexes at the first visual synapse [Grant] - NSERC - \$155,000.
14. **Agosto MA** (2021 - 2024). New faculty startup funds [Grant] - Dalhousie - \$300,000.
15. **Smith CA** (2021 - 2026). QEII Foundation scholar in retina research - Startup funding [Grant] - QEII Foundation - \$100,000.
16. Talany G, **Francisconi C, Gupta RR**, Dunsworth S and **Mishra A** (2021 - 2025). The effect of preoperative educational videos on patients undergoing cataract surgery [Grant] – NSHA TRIC - \$23,000.

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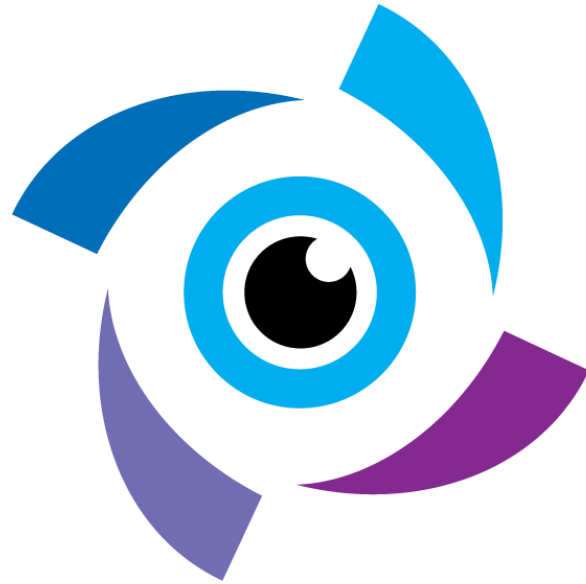
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