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Sonia Anchouche, DEC^{1*}

Jiaru Liu, DEC^{1*}

Sara Vucetic, MSc²

Kim Santerre, MSc³

Tianwei E. Zhou, MDCM, PhD⁴

The Vision Health Research Network and its commitment to the scholarly development of its trainees

¹ Faculty of Medicine, McGill University,
Montréal, QC

² Université de Montréal Hospital Research
Centre, Montréal, QC

³ Université Laval, Quebec City, QC

⁴ Department of Ophthalmology, Université
de Montréal, Montréal, QC

* S. Anchouche and J. Liu contributed equally
to this manuscript. DEC is Diplôme d'études
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Abstract

The Vision Health Research Network (VHRN) is a provincial scientific organization that aims to improve the ocular health of patients across Quebec by supporting local research endeavors in vision health. The VHRN Student Committee, composed of 288 trainees with diverse backgrounds, has demonstrated its commitment to the scholarly development of its members by providing leadership opportunities, creating networking events, increasing visibility of researchers-in-training and encouraging professional advancement through educational workshops and funding programs. In this article, we review the contributions of the VHRN Student Committee and discuss its future projects.

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Correspondence to:

Tianwei Ellen Zhou

Email: ellen.zhou@umontreal.ca

Introduction

The Vision Health Research Network (VHRN) was established in 1995 with the goal of improving the ocular health of patients across the province of Quebec by fostering collaborations between researchers in the clinical and fundamental sciences, with a focus on key matters proposed by Canadian health policy. Funded by the Fonds de recherche du Québec–Santé (FRQS), the VHRN aims to increase Quebec's research capacity in eye and vision health, to improve research infrastructure and to enhance the competitiveness of its vision research on the international stage. Currently headed by Dr. Michel Cayouette, the VHRN boasts 125 researchers with careers in the fundamental and clinical sciences at 10 different Quebec universities from three different major cities – Montreal, Quebec City and Sherbrooke [1]. The VHRN's research efforts have been categorized into four specific research foci: 1) cornea and anterior segment; 2) retina and posterior segment; 3) brain and perception; and 4) visual impairment and rehabilitation. In bringing together clinical and fundamental science researchers and highlighting their research endeavors at its annual meeting, the VHRN has served as a catalyst for many fruitful collaborations for experienced researchers and junior trainees alike.

Participation of trainees in VHRN

The VHRN sets itself apart from other professional organizations in vision research by its demonstrable commitment to the professional development of its 288 diverse trainees, including post-doctoral fellows, graduate students, undergraduate students, medical students, ophthalmology residents, optometry students and trainees in vision rehabilitation. A study by Yang et al. examining the opportunities for medical students within the major American professional bodies in ophthalmology revealed that only 24% of these groups granted membership to medical students, and that only 12% of the studied groups had student positions within committees [2]. In contrast, the VHRN actively encourages student and trainee involvement. Its Student Committee brings together a wide variety of students and trainees across Quebec who share an interest in vision health, including graduate students, medical students, optometry students, post-doctoral research fellows, and ophthalmology residents. Since its restructuring in 2018, the following positions comprise its executive team: President, Vice President of Finances, Vice President of Communications, three Vice Presidents of Organization and five institutional representatives. Dedicated to early leadership training and career development, the Student

Committee has three key mandates: 1) to enhance trainees' leadership abilities with an emphasis on research ethics, integrity and patient advocacy; 2) to provide guidance throughout a trainee's career with a focus on longitudinal mentorship; and 3) to foster long-lasting collaborations among trainees from various backgrounds. Through its Student Committee, the VHRN has provided an invaluable opportunity for students from all backgrounds and at all levels of training to hone their leadership skills at very early stages of their careers and engage in a meaningful way with the vision research community.

Mentorship and activities

Longitudinal mentorship remains a cornerstone feature of the VHRN Student Committee's mission. Junior trainees can be paired with a senior professional in vision health to explore avenues of research and to obtain hands-on experience with experts in the field. There also exist opportunities for peer-mentorship whereby junior researchers and medical trainees can discuss the challenges they experience and receive feedback in an environment that fosters leadership skills, inter-professionalism and medical education that will prove to be valuable throughout one's career. In early 2019, the Student Committee organized a bilingual science communication seminar with Dr. Carine Monat (a scientific journalist and a radio host) who instructed students on the use of lay language to present research findings and to convey new knowledge to the general public. As a continuation, we organized Le Café Scientifique (October 2019) to discuss corneal tissue engineering in a setting that fosters camaraderie and collaborative intellectual pursuit.

The VHRN also fosters inclusivity and strives to increase access to research opportunities for students from all backgrounds. In particular, the VHRN recognizes a need for outreach strategies to connect students that are underrepresented in the world of medical research. Racial minorities in medicine include those who identify as Black or African American, Native American, Hispanic or Latino, whose proportions in medicine are largely underrepresented relative to their numbers in the general population [3]. The Minority Ophthalmology Mentoring program, a unique initiative spearheaded by the American Association of Ophthalmology (AAO), pairs students from underrepresented backgrounds with well-established mentors and offers them access to a variety networking opportunities and educational resources. The promising results yielded by this program have inspired the VHRN Student Committee to envision establishing a similar program in Quebec.

Funding

Beyond the opportunities in research and mentorship that the VHRN provides its student members, the VHRN has made a commitment to financially support its trainee members by offering many bursaries for students at all levels of training. At present, five scholarships are available to student members of the VHRN at different stages of training [4]. The Graduate Student Award for Excellence aims to recruit high-quality graduate students and facilitates their applications to provincial and federal scholarships. The Vision Network Presentation and Publication Awards are discerned to the best oral and poster presentations or publications by student members. Additionally, the VHRN offers bursaries for trainees with a professional degree (ophthalmology residents, optometrists, etc.) such as the Recruitment Scholarship and the Scientific Presentation and Training Award, to encourage the clinician-scientist pathway.

Collaborations

With the support of the VHRN's Board of Directors, the Student Committee aims to expand its trainee network by fostering collaborations with other professional organizations involved in vision research. In 2018, the VHRN partnered with the peer-reviewed scientific journal, *Annals of Eye Science* of the Zhongshan Ophthalmic Center (Sun Yat-Sen University). Through this partnership, the abstracts of accepted poster and paper presentations at the VHRN's Annual Meeting were published in a special edition of the journal—a remarkable opportunity to increase the visibility of Quebec-led research in the field on the international stage. The VHRN student committee is continuously looking to strengthen collaborations with national organizations like the Canadian Ophthalmology Society to provide exposure to additional networking opportunities to young medical professionals and researchers in vision health.

Improving exposure to vision health research

The opportunities provided by the VHRN to students come at a time where exposure to ophthalmology and vision sciences in medical school is steadily declining. Given the tremendous speed at which medicine's body of knowledge is expanding [5], medical curricula across North America have been adapted to accommodate such rapid growth. As a result, exposure to clinical ophthalmology has been sidelined. Notwithstanding the cursory preclinical exposure to ophthalmology that nearly all North American medical schools provide, the mandatory clinical exposure in ophthalmology has become increasingly scant [6]. In a study

of seven Canadian medical schools, it was found that only 35.7% of participating schools required a mandatory clinical ophthalmology rotation [7]. When asked to rate their medical school exposure to ophthalmology from 1 ("very minimal") to 5 ("more than adequate"), third year medical students reported an average score of 2.11 [8]. Thus, there is a need for opportunities to engage students interested in the field of ophthalmology outside of the medical school curricula. The VHRN strives to address this need by exposing medical students to a vast network of ophthalmologists, and clinician-scientists in order to introduce medical students to potential clinical and research mentors.

Similarly, there is a lack of exposure to the field of visual science at the undergraduate and graduate school levels. Given the interdisciplinary nature of the visual sciences, this discipline is often incorporated into broader academic departments such as the biomedical sciences or neuroscience. As a result, trainees who wish to pursue a career in vision research find it difficult to navigate through the system. The VHRN provides a mentorship program, a vast network of clinicians and scientists and research funding. Students from various backgrounds are thus encouraged to expand their clinical and fundamental knowledge in visual sciences through opportunities 1) to network with experts and 2) to gain work experience in well-known laboratories—and these opportunities are offered very early in the students' academic career.

Summary and next steps

Through its vast network of interprofessional collaborations, prolific educational events, promotion of student and trainee leadership and financial support for aspiring researchers, the VHRN has proven to be a unique organization dedicated to promoting quality, inclusivity and opportunity in vision health research. It has opened doors for early trainees and actively invests in its most junior researchers through education, networking and funding. There already exists an outstanding peer to peer mentoring program within the VHRN which has inspired several trainees to undertake leadership positions and engage in meaningful research initiatives. The next steps involve increasing outreach, promoting diversity and continuing to expand the breadth of opportunities in vision health research available to young trainees through robust and sustainable programs. The road to becoming an established researcher is long and arduous, but having like-minded colleagues with a shared passion for innovation across the province will undoubtedly bring the collective effort to advance research in vision health to new heights.

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