Equity, Diversity and Inclusion in Canadian immunology: communication and complexity

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FUTURE CHALLENGES

Equity, Diversity and Inclusion in Canadian immunology: communication and complexity

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Abstract

The Canadian Society for Immunology (CSI) organized an Equity, Diversity and Inclusion (EDI) training workshop during its 2022 Scientific Meeting to improve understanding of EDI and explore strategies to achieve EDI goals in the scientific environment. The workshop focused on identifying Specific, Measurable, Achievable, Realistic and Timely (SMART) goals related to EDI in academia through small group discussions and learning exercises. Attendees highlighted several equity considerations within the field of academic immunology, including financial barriers, lack of diversity in research teams and gender bias; they emphasized the importance of creating an inclusive and accessible research environment. The collection and use of data relevant to EDI goals within the CSI were also identified as challenges. Fostering a culture of active and nonjudgmental listening within the CSI community is another aspirational goal to address EDI. The workshop received positive feedback from attendees, who noted that more diverse voices and specific actions for local research environments are needed.

INTRODUCTION

The Canadian Society for Immunology (CSI) demonstrated its continuing support[1] of Equity, Diversity and Inclusion (EDI) initiatives during its Annual 2022 Scientific Meeting by allocating time to a dedicated EDI training workshop in the program and ensuring that the EDI session did not overlap with other sessions. The learning objectives for the EDI workshop included (1) improving participant understanding of EDI, (2) identifying EDI strengths and weaknesses in the scientific environment and (3) exploring strategies to achieve EDI goals. The workshop commenced with an overview of inherent EDI-related barriers in academia and current Canadian national funding agency–led EDI initiatives by Dr Sarah Overington, Director of the Natural Sciences and Engineering Research Council of Canada (NSERC). This was followed by a small group discussion–based learning exercise. The workshop was attended by approximately 100 attendees, comprising about 30% of conference registrants.

Dr Overington discussed EDI in academia and the initiatives of the Canadian Tri-Council funding agencies [Canadian Institutes of Health Research (CIHR), NSERC and Social Sciences and Humanities Research Council (SSHRC)]. She emphasized the importance of understanding systemic barriers faced by underrepresented groups and taking impactful measures to address them. Scientists have a responsibility to promote EDI and reduce barriers. Dr

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Overington outlined systemic barriers to academic research for underrepresented groups but noted that specific EDI-related challenges vary between research teams, institutions and regions. Canadian federal funding agencies have developed resources for inclusive research environments. A more diverse and inclusive research enterprise is necessary to advance knowledge and respond to challenges. Acknowledging EDI challenges and fostering inclusivity are crucial for research success.[2]

The subsequent discussion-based learning exercises were facilitated by volunteer CSI trainees and principal investigators where respectful discourse was encouraged. Participants were first asked to write three words or phrases on "sticky notes" that they personally associated with EDI in academia and to reflect on what academia has "done well" regarding EDI. Facilitators collected these sticky notes and then provided specific prompts to facilitate discussions; for example, (1) "How diverse is my research team?" (2) "Is my lab environment inclusive?" (3) "How is your research lab not diverse or inclusive?" (4) "Have you intentionally taken any action to make your team diverse?". Following group discussions, participants were again asked to write three words they associated with EDI in academia. Finally, participants were instructed to incorporate lessons and discussions from the workshop into creating a Specific, Measurable, Achievable, Realistic and Timely (SMART) goal that could be implemented in their academic setting.

"COMMUNICATION" AND "COMPLEXITY" EMERGE AS KEY TERMS FOLLOWING DISCUSSION

Prior to the facilitated discussion, participants generated 88 unique terms when asked to reflect on EDI in academia and 86 unique terms following the discussion (Figure 1). These submissions were binned according to 14 broader categories pertaining to EDI: (1) accessibility and accommodation, (2) barriers and biases, (3) differences and diversity, (4) communication and understanding, (5) empathy and compassion, (6) equal opportunities and representation, (7) gender and sexual orientation, (8) inclusion and belonging, (9) salary/stipends and hiring, (10) racial and cultural diversity, (11) difficult and complex, (12) performative and negative, (13) promising and positive and (14) education.

Most terms associated with EDI before the activity pertained to inclusion and belonging (13.3%), communication and understanding (12.5%) and equal opportunities and representation (11.7%; Figure 1). Following the facilitated discussion, the largest themes were communication and understanding (20.2%), equal opportunities and representation (15.4%) and promising and positive (11.5%; Figure 1). Interestingly, the theme "difficult and complex" did not arise prior to the activity, yet 9.6% of terms were related to this theme following the discussion. Words in this category included challenging, complex, complicated, difficult, discomfort, intangible and broadness of scope. How these terms emerged was then explored by reviewing discussion notes. The most salient discussion points will be highlighted in the following sections, framing them within suggested recommendations to improve EDI within academia.

Equity considerations within academic immunology

Reflecting a larger issue within academia, hierarchy and financial exclusion continue to persist within the field of immunology. The natural hierarchical structure that is ingrained in many academic communities opposes an environment of mutual respect between senior scientists, leaders and young researchers. This hierarchical structure is perpetuated by financial barriers and stark differentials in compensation.[3,4] Financial exclusions begin with recruitment and recognition, where students from higher socioeconomic backgrounds are at an advantage.[5] These students have more opportunities to engage in extracurricular activities and encounter fewer barriers to academic success giving them a clear advantage. The current models for evaluating scholarship and academic potential use traditional metrics including academic record, leadership experience and community involvement. These inherently tend to disadvantage students from lower socioeconomic backgrounds who have less latitude to engage in these extracurricular activities.[6] These barriers are further exacerbated by the excessive tuition fees paid by international students.[7]

Accordingly, the field of immunology would benefit from recognizing that equity barriers start at the very earliest stages of recruitment and are linked to the criteria used for recognizing candidate potential and achievement. It then follows that expanding the definitions surrounding academic achievement and success and broadening the metrics used to quantify success are crucial to facilitating equity in academia. For example, considering life experience in place of volunteer experience. To specifically offset high international student fees, it is essential that national scholarship granting agencies consider expanding their eligibility criteria for graduate studentships. In this regard, the CSI can have an important and influential role in lobbying the funding agencies on behalf of its constituents. CSI's recognition and appreciation of its members across all career stages further demonstrate that individuals are valued and respected in accordance with the society's core values.

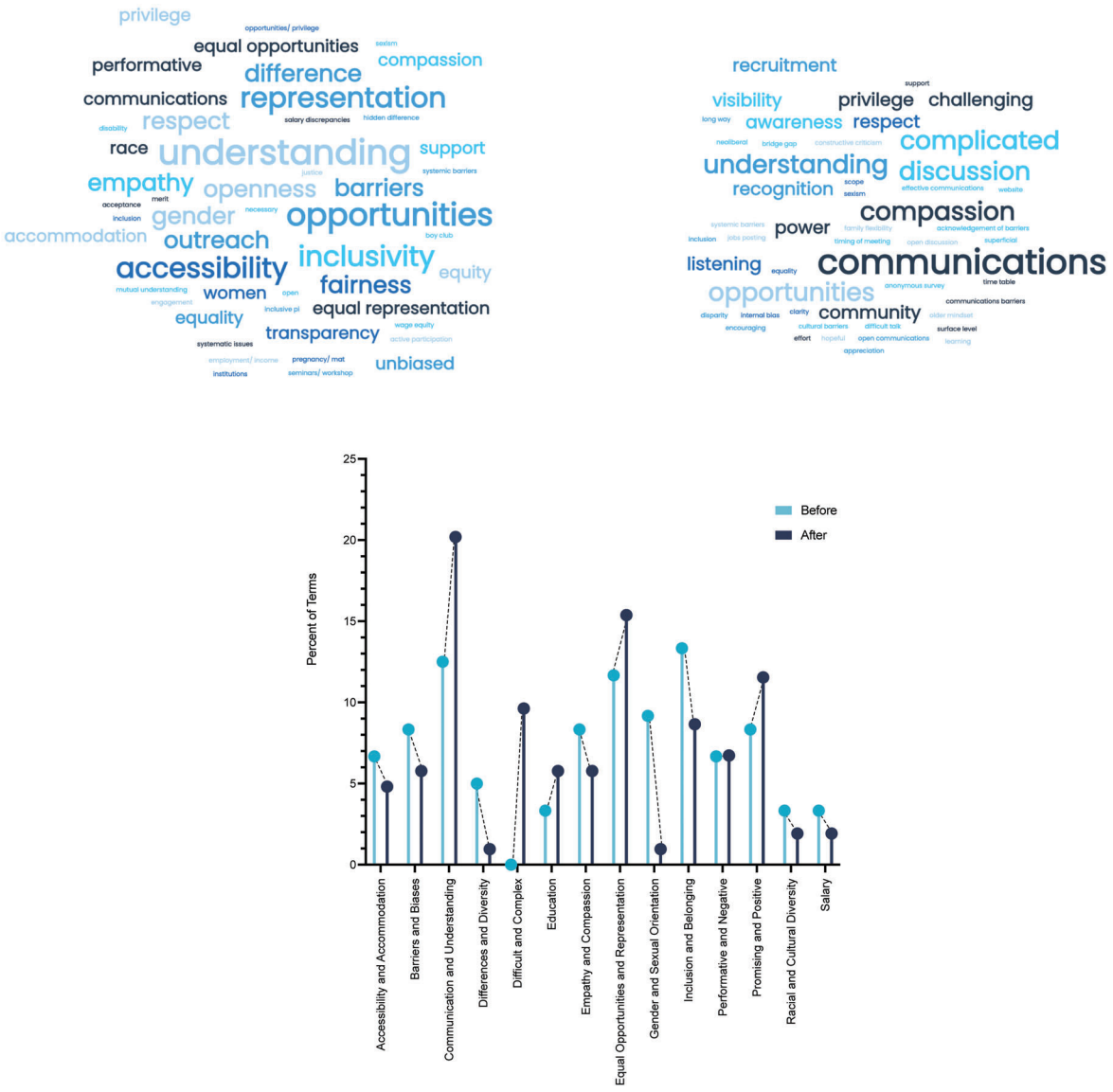

Figure 1. Terms associated with Equity, Diversity and Inclusion (EDI) before and after small group discussions. Workshop attendees were asked to list three words they associated with EDI and then participate in small group discussion–based learning. Following these discussions they were again asked to list three words they associated with EDI. The before (top left) and after (top right) word cloud visualizes the unique terms and frequency in which they were listed. Terms were then grouped into themes and the occurrence of themes from before and after was compared.

Building a diverse team

During the facilitated group discussion, participants were asked what constitutes a diverse research team and how diverse teams are achieved. While the importance of diversity was not the primary focus of the discussion *per se*, the benefits of a diverse research team were discussed independently by several groups. Some principal investigators expressed that they consider their research team to be diverse and often associated pride in this achievement. Some expressed the belief that diversity would occur as a passive default—a concept that would imply that if a laboratory prioritizes EDI, for example, through maintaining an inclusive scientific environment, they naturally achieve diversity in their research team. Other attendees insisted that achieving diversity requires active and intentional recruitment through, for example, broadening the advertising of open positions and not limiting postings to national or internal, university-affiliated, sites.

One frequently recurring topic is gender bias within the field of immunology. While many systemic and societal tendencies contribute to gender bias, the discussion surrounding lack of gender diversity within immunology was well-recognized by workshop attendees. Discussion topics included recognition of the importance of female role models and acknowledging how societal labels influence academic tropes. It was also recognized that gender-based advocacy and research excludes gender-diverse individuals. Attendees advocated for greater emphasis on broader gender considerations, including reduction of barriers encountered by nonbinary individuals.

Creating an inclusive and accessible research environment

A diverse team does not provide equity; inclusion is also required. An inclusive environment ensures all members of a community are integrated, valued and supported equitably for their contributions. The specific steps needed to build an inclusive environment are not universal and should be determined by the circumstances and needs of the specific community. Nonjudgmental communication and active listening allows for understanding of the experiences and needs of our membership. Without consistent listening and learning about our community, it is difficult to know whether EDI efforts are moving in the right direction. Tabulated temporal data on EDI within the CSI are lacking and these were established as a larger goal for the Society Executive. In addition, although active listening tools such as surveys have helped provide feedback from CSI members, we believe that members of the broader community must also feel that their voices are influential and heard. Therefore, another aspirational goal is to foster a culture of active and nonjudgmental listening within the CSI community. Importantly, these conversations need to be supported by a broad base of individual society members to avoid further perpetuating the unequal burden faced by those representing minority groups.

Through these newly set goals and communication, immunology spaces expect to identify their specific exclusionary tendencies and reveal specific problems where inclusion efforts could be applied. Several accessibility issues were highlighted during the workshop, including visible and nonvisible disabilities, language barriers, considerations for parents and family caregivers, diverse cultural celebrations and dry networking/social events.

FEEDBACK FROM WORKSHOP ATTENDEES

Following the conference, participants were surveyed regarding their impression of the EDI workshop. An important limitation to consider is that only 52 individuals responded to the survey, and, thus, the feedback may not be representative of all attendees of the CSI Annual Meeting ($n = 345$) or workshop participants (approximately $n = 100$). Of those who completed the survey, 39 (76.5%) attended the workshop, while 12 (23.5%) did not. Those who did not attend were asked why and an equal number of participants reported that (1) the workshop did not apply to them, (2) they needed a break from the programming, (3) the topic was not of interest or (4) they had already completed EDI training. On a Likert scale ranking usefulness of the workshop from 1 to 5, 27 of the 39 who attended (69.2%) rated the workshop as useful (4 or 5), 5 (12.8%) rated the workshop as neutral (3) and 7 (17.9%) did not find it useful (1 or 2). When asked whether the workshop had a positive impact, 65% of participants agreed that it did. Participants had the opportunity to share their opinions regarding the impact of the EDI session and many answers related to raising awareness of EDI at their local institutions. The EDI session created space for attendees to share their personal experiences, understand each other's perspectives and find ways to foster EDI in their own research environment. Importantly, some participants also noted that the session catalyzed an ongoing discussion that allowed them to keep exchanging ideas throughout the conference. When asked whether they would consider attending an EDI symposium at future CSI conferences, 36 survey respondents (63.2%) said yes, 16 (28.1%) said maybe and 5 (8.8%) said no. The survey respondents also had the opportunity to provide additional feedback on the EDI session overall.

Diversity of EDI committee members

Survey respondents noted that the panel included mostly White members and that more diverse and minority voices should be included in future workshops. While the discussion was facilitated by volunteer CSI members, it would be pertinent to invite minority voices to share their experiences as well as the challenges and barriers that they overcame to build their scientific career. Another comment regarding diversity was that while some EDI topics were more readily apparent, others tend to be forgotten, including disabilities and wage equality. Considering that attendees were divided into discussion groups, the topics of conversation were likely influenced by individuals within each group. This led to the suggestion that future workshops be led by facilitators with expertise and training in EDI to promote discussions enriched in diverse points of view and lived experiences.

Specific actions to improve their local research environmeNT

Attendees expressed a need for concrete and specific actions that could be applied to their local research environments. Establishing goals would provide a framework to support individual ideas and potential solutions. Participants also reported that the EDI session was too short, and that attendance was not necessarily representative of the entire CSI community, as most individuals who voluntarily attended the session are already aware of EDI issues and topics. Overall, the discussions and interactive sessions were viewed very favorably by attendees, who reported a lasting impression that the recognition and discussion of EDI must exist outside of dedicated sessions and workshops and need to be considered essential to a productive research environment.

Attendees were also asked for suggestions of actions and/or interventions that the CSI could implement to support EDI within our community. Attendees highlighted the lack of diversity in the invited speaker list and faculty talks. They also suggested the inclusion of pronouns on attendees' name tags, proposing multicultural food at symposiums and offering financial and childcare support as well as improved access for individuals with different abilities. Additionally, it was suggested that our organization should engage in promotion of immunology and science to youth from diverse communities, issue an official statement on the stance and vision of the CSI regarding EDI and provide an action plan to support inclusivity with resources about EDI-related issues in the scientific community.

LIMITATIONS

The data collected from this workshop and their summarized interpretations have several limitations which need to be considered when contextualizing the findings. By hosting this workshop as part of an annual meeting of Canadian immunologists, there is an inherent selection bias for individuals in the academic community and for those who were financially able to travel to and participate in the conference. Indeed, increasing attendance and participation in EDI workshops will be a goal of future initiatives with specific marketing of these sessions to individuals who do not prioritize EDI learning activities.

CONCLUSIONS: COMMUNICATION AND COMPLEXITY

Nearly 30% of all terms submitted after small group discussions related to communication or complexity. These terms were likely reinforced during the discussion component, particularly in the common discussion themes.

1 Equity considerations within academic immunology:

Equity begins with recruitment and is often based on a narrow set of metrics to assess potential. Recruitment can be broadened by identifying and valuing nontraditional experiences. These efforts will need to involve communicating with applicants in areas outside of the traditional documentation (e.g. curriculum vitae) that do not capture these dynamic metrics.

2 Building a diverse team:

For many in these discussions the term diversity did not mean the same thing, and, when a definition was agreed upon, the best strategy to achieve it was debated. One thing that was not debated was how gender bias negatively impacts females in immunology. Perhaps a reason this gender bias is most well understood is because it is most often communicated. Action against other gender biases (e.g. those impacting gender diverse individuals), ethnicity, culture or disability biases, should be advocated for, and it is also clear that additional conversations need to occur to define what diversity looks like for academic immunology.

3 Creating an inclusive and accessible research environment:

Inclusive and accessible spaces are not one-size-fits-all. The steps to creating such an environment are unique and multifactorial. This knowledge fundamentally requires effective communication with members of a laboratory to ensure they are equitably integrated, valued and supported.

Overall, the active participation of the attendees in the workshop and associated feedback are promising for the future of EDI in the CSI community. Following this EDI workshop, the society membership voted to formalize a standing EDI committee within the CSI, which has been tasked with ensuring the continuity of EDI goals. The establishment of this committee in close collaboration with society executives allowed to efficiently address some of the suggestions from the EDI workshop, such as childcare support for symposium participants as of 2023. This team effort constitutes a formal recognition of current challenges in immunology and demonstrates a commitment to bettering our community, making us hopeful in this pathway for change.

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AUTHOR CONTRIBUTIONS

Siavash Mashhouri: Formal analysis; writing – original draft; writing – review and editing. **Sabryna Nantel:** Formal analysis; writing – original draft; writing – review and editing. **Saki Sultana:** Formal analysis; writing – original draft; writing – review and editing. **Dominique M Gatti:** Writing – original draft; writing – review and editing. **Lauren P Westhaver:** Data curation; formal analysis; writing – original draft; writing – review and editing. **Melina Messing:** Writing – original draft; writing – review and editing. **Kelly M McNagny:** Conceptualization; writing – original draft; writing – review and editing. **Craig Jenne:** Conceptualization; writing – original draft; writing – review and editing. **Heather Melichar:** Conceptualization; data curation; supervision; writing – original draft; writing – review and editing. **Yanet Valdez Tejeira:** Conceptualization; writing – original draft; writing – review and editing. **Sarah Nersesian:** Conceptualization; data curation; formal analysis; visualization; writing – original draft; writing – review and editing.

CONFLICT OF INTEREST

The authors have no conflicts of interest to disclose.

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Graphical Abstract

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The Canadian Society for Immunology held an Equity, Diversity and Inclusion (EDI) training workshop during its 2022 Scientific Meeting, where attendees identified several equity considerations in academic immunology, including financial barriers, lack of diversity in research teams, gender bias and creating an inclusive and accessible research environment. Attendees noted the need for more diverse voices and specific actions for local research environments.