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Ontario Medical Students Association
Association des étudiant·e·s de médecine de l'Ontario

POSITION PAPER

Addressing Vaccine Hesitancy and the Resurgence of Vaccine-Preventable Diseases

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SUMMARY

Background

The development of vaccines was a critical breakthrough in the eradication of many communicable diseases, such as eradication of endemic measles transmission in Canada in 1998. Unfortunately, in the past decade, there has been increased vaccine hesitancy with reduced vaccination uptake leading to the resurgence of those preventable diseases. Most recently, there has been an alarming increase in measles cases in Canada, with a steady increase from zero new cases in 2021 to 3 in 2022, 12 in 2023, and 81 cases as of August 2024. Misinformation surrounding vaccines, limited access to healthcare resources, and poor health literacy are a few reasons that account for the declining rates of vaccinations. These factors pose challenges to the healthcare community, who are responsible for delivering evidence-based medicine and promoting the prevention of communicable diseases. This position paper proposes multifaceted recommendations aiming to address vaccine hesitancy. These recommendations target community health literacy concerns, limited resource availability, as well as gaps in medical education and physician practice related to navigating patient vaccine hesitancy and reduced immunization rates.

Recommendations

The Ontario Medical Students Association recommends the following:

- That Canadian medical schools implement training protocols to equip students in combating vaccine hesitancy and misinformation through collaboration with CAME, Public Health Ontario, and relevant school committees.;
- That Public Health Ontario's Ontario Immunization Advisory Committee along with local public health units implement outreach educational and advocacy programs to address resource gaps and poor health literacy causing decreased vaccine uptake in rural regions.
- That Public Health Ontario's Ontario Immunization Advisory Committee develops a vaccination counsellor point-of-care program to increase vaccine accessibility.

INTRODUCTION

Canada has made significant progress towards addressing communicable diseases, thanks to the discovery and implementation of vaccination programs. For example, Canada has eradicated smallpox and is certified as polio-free.[1] With the introduction of the Measles-Mumps-Rubella (MMR) vaccination program in 1996, Canada was one of the first countries to eradicate endemic transmission of measles in 1998.[2] Despite these public health achievements, vaccination uptake and the incidence of vaccine-preventable disease have trended in the wrong direction. This has been partly attributed to access barriers throughout the COVID-19 pandemic, such as closures of schools where vaccines would normally have been administered.[3] In addition to barriers to accessing vaccinations, vaccine hesitancy is also on the rise.[4] While negative attitudes and misinformation surrounding vaccination are not new, they became increasingly rampant throughout the COVID-19 pandemic.[5] Misinformation surrounding the COVID-19 vaccine spread rapidly through social media channels, leading to echo chambers that contributed to fear, hesitancy, and reduced intent to vaccinate.[5] A variety of factors contribute to vaccine hesitancy, including levels of health literacy.[6] Vaccine hesitancy has not been limited to the COVID-19 vaccine; a recent Canadian poll found that an increasing number of parents are expressing opposition to vaccinating their children.[4]

Vaccination is a unique issue in that its uptake not only influences the individual but extends to the population at large via herd immunity (or lack thereof).[7] Vaccination is therefore an issue of public health, safety and peace. In addition, education and health literacy throughout an individual's lifetime plays a role in vaccine hesitancy and decision-making.[8] There is therefore a responsibility and urgency to promote health literacy regarding vaccination throughout an individual's lifetime to ensure patients are properly informed about vaccine-preventable diseases and steps they can take to reduce risk for themselves and others. Vaccine hesitancy poses a significant challenge for the medical community as well. Medical professionals are responsible for delivering evidence-based information to their patients to ensure they are equipped to make informed decisions, however the rise in misinformation poses challenges to these conversations. Vaccine-specific communication training has been shown to improve vaccine communication skills among healthcare providers, however health literacy must also be considered within these conversations.[8] A 2023 scoping review identified gaps in the current state of educational interventions for healthcare providers on engaging in vaccine discussions, particularly regarding providers' self-monitoring and emotion-management during these conversations.[9] It is important that the recent rise in vaccine hesitancy be met with a rise in strategies and training for medical professionals to appropriately and effectively navigate these conversations.[9] Indeed, the widening gaps in Ontario's vaccine coverage are concerning. Based on recommendations from the Global Vaccine Action Plan, Canada's current target is to achieve 95% measles vaccination coverage by 2025.[10] However, in 2021–2022, only 52.5% of seven-year-olds in Ontario had measles vaccination coverage, compared to 94.0% in 2013–2014.[11] Canada-wide, vaccination coverage for measles decreased by 4% in 2021 compared to 2019.[12] These concerning trends have been mirrored by a concurrent rise in measles cases. According to public health monitoring reports, cases have risen from 0 in 2021 to 3 in 2022, 12 in 2023, and 81 as of August 2024.[13] Of the 2024 cases, 24 were in Ontario, with six resulting in hospitalizations.[14]

Many may not be aware of the serious consequences that can result from a measles infection. Severe consequences of measles include respiratory failure, encephalitis, and death.[15] There can also be complications post-recovery, such as blindness, deafness, and subacute sclerosing panencephalitis, which is a rare but fatal neurodegenerative condition.[16] These complications are more likely to occur in certain populations, such as children under 5 years old, pregnant women, and the immunocompromised.[15] In pregnant women, a measles infection can result in miscarriage, premature labor, and low birth weight babies.[16] In 2019, 19% of measles cases (n=21) in Canada resulted in hospitalization, however, only 14% (n=3) had any previous measles vaccination coverage.[2] The estimated measles mortality rate is 1 to 3 people of every 1000 infected cases.[15] Additionally, measles can result in a phenomenon called "immune amnesia", where immunological memory is erased by depletion of antibody diversity and B lymphocytes.[17,18] Thus, there is also a risk of increased susceptibility to other infections and associated consequences.[18]

In February 2024, a memo was released by Ontario's Chief Medical Officer of Health to public health units for distribution to healthcare providers warning of a potential rise in measles following the upcoming March break.[19] A statement was also made by the Chief Public Health Officer of Canada.[20] Altogether, the current landscape of vaccine hesitancy, gaps in vaccine coverage, and rising measles cases in Ontario is concerning and warrants action from health professionals, public health officials, and policymakers.

PRINCIPLES

The Ontario Medical Students Association makes its recommendations using the following guiding principles:

1. **Medical students:**
    - Undergraduate medical education emphasizes the importance of evidence-based action, dismantling misinformation, and encouraging advocacy for population health equity.
2. **Patients:**
    - Peace: Patients across Ontario deserve equitable access to environments that safely mediate medical management through promotion of preventive medicine.
    - Education: Access to high-quality and evidence-based education throughout the duration of schooling from youth to adulthood.

3. **Community and Society at Large:**
    - OMSA supports medical students and physicians in integrating advocacy and outreach programs with the communities affected by the specific principles the organization aims to address.

RECOMMENDATIONS

The Ontario Medical Students Association recommends the following:

1. That Canadian medical schools implement training protocols to equip students in combating vaccine hesitancy and misinformation through collaboration with CAME, Public Health Ontario, and relevant school committees.

Medical students and physicians play an important role in communicating evidence-based information to their patients, communities, and the population at large. In addition to developing a foundation of scientific knowledge on the importance of vaccination in building immunity and preventing disease transmission, medical professionals must be able to communicate this knowledge in terms that are accessible to the general public.[21] Moreover, medical students and healthcare providers should receive training on the common concerns, fears, cultural considerations, and questions that may arise surrounding vaccines. Training can encompass motivational interviewing strategies, which have been suggested to be helpful in conversations surrounding vaccine hesitancy.[21] Importantly, navigating these conversations in a sensitive and culturally safe manner will be key to addressing vaccine hesitancy and misinformation. Previous studies have shown that medical students feel insufficiently equipped to address vaccine hesitancy and misinformation.[22] Encouragingly, training and educational opportunities surrounding vaccine hesitancy have been shown to enhance medical students' confidence surrounding these topics.[22]

Therefore, a primary recommendation is to ensure medical students are well equipped with knowledge and tools to assist with counselling patients on vaccine coverage and preventable diseases, along with effectively responding to vaccine misinformation. Additionally, it has become more common for physicians to use social media platforms (e.g., X, formerly Twitter) to disseminate health information.

Discussions surrounding professionalism and “what not to do” on social media are often brought up early in medical school. However, there is less, if any, conversation on how medical students can appropriately leverage social media as a platform for advocacy. Considering many medical students may choose to have an online presence, as many physicians currently do, ensuring that they are prepared with the tools to effectively advocate and communicate health information will be essential for effective knowledge translation.

Specifically, this recommendation is targeted towards collaboration amongst the following organizations: OMSA, Canadian Association for Medical Education (CAME), Public Health Ontario, as well as relevant interest groups and committees within medical schools (e.g., Public Health Interest Group, Global Health Committee). Please refer to the implementation strategy for more details.

2. **That Public Health Ontario's Ontario Immunization Advisory Committee along with local public health units implement outreach educational and advocacy programs to address resource gaps and poor health literacy causing decreased vaccine uptake in rural regions.**

Trust and information sources are important factors that have been correlated with vaccine hesitancy.[23] Recent studies have shown that certain sociodemographic factors are associated with trust in scientific information, including information pertaining to vaccination safety and the importance of vaccine uptake among the general population.[24] Sociodemographic factors that have been shown to relate to vaccination trust and uptake include education, sex, urban versus rural dwelling, and socioeconomic status.[23–25] For example, higher educational attainment has been associated with greater trust in science and vaccination programs.[24] On the contrary, populations experiencing lower levels of education, socioeconomic status, and rural regions with a lack of resources have displayed higher levels of vaccine hesitancy.[25] This represents disparities within healthcare and health literacy in the general population that may result from inequitable distribution of resources. Therefore, a second recommendation we propose is to address barriers to healthcare and health literacy through collaboration between healthcare systems, Public Health Ontario, and individual public health units.

A recent study has outlined a public health prevention framework for preventing misinformation.[26] Interventions can take place across the different levels of prevention.[26] With the principles of prevention in mind, we recommend modifying current education system curricula to include vaccine education, supported by the distribution of accessible resources. This would span from elementary education to purposeful integration into medical school curricula, thereby ensuring an adequate understanding for physicians and the general population to make informed decisions on vaccination (as discussed above). Certain regions, such as rural communities in Ontario, may use outdated texts and have less access to resources.[27] In addition, rural regions also face increased healthcare inequities, such as decreased access to healthcare, long delays or travel times for healthcare services, and decreased modern resources.[28] Moreover, there were disparities in COVID-19 vaccination uptake among rural and underserved regions in Ontario.[29] Steps to combat these disparities include the calculated distribution of resources such as educational texts, healthcare providers, and pharmacological resources (e.g., vaccinations) to strengthen the healthcare system and promote dialogue with communities.[26] An example of an intervention to improve equitable access to information is a recently launched pilot study that allows families to connect with a registered nurse via a hotline to discuss childhood vaccinations.[30]

Specifically, this recommendation is targeted towards collaboration amongst the following organizations: OMSA, local public health units, Public Health Ontario (specifically the Ontario Immunization Advisory Committee), Canadian Public Health Association (CPHA), and the Canadian Medical Association (CMA). Please refer to the implementation strategy for further details.

3. That Public Health Ontario's Ontario Immunization Advisory Committee develops a vaccination counsellor point-of-care program to increase vaccine accessibility.

Prompted by vaccine hesitancy and informed by motivational interviewing, the PromoVac program is an educational intervention program that placed vaccine counsellors in maternity wards in Québec hospitals.[31,32] Trained counsellors provided nonjudgmental conversations with parents while still in hospital after birth to find out what they already knew about vaccines and vaccine-preventable diseases, share information, and address any concerns using motivational interviewing techniques. The key concept revolves around recognizing that parents and healthcare providers have the same ultimate goal: for the child to be healthy. Both the initial pilot study (PromoVac) and the subsequent Québec-wide study (PROMOVAQ) found a significant increase in intent to vaccinate by parents, and an increase in actual vaccine coverage at follow-up. Importantly, the intervention was well accepted by parents and the feasibility was rated very high.[31–33] The current iteration of the project, now called Programme EMMIE, is overseeing the implementation of the intervention in all maternity wards in Québec.[33]

A similar program could be developed and implemented in Ontario hospitals, starting with pilot projects followed by further expansion and adaptation based on feasibility and regional needs. For a pilot project, clinical research assistants or medical students could be trained to provide the counselling intervention. Data should be gathered to assess the results, including intent to vaccinate, actual vaccination at follow-up, and feedback from participating parents. Following the pilot phase, this feedback could be incorporated to improve the intervention, as well as the training for the counsellors. If efficacy and acceptability are demonstrated, the program could then be expanded in size and region, and designated counsellors could be hired for the role.

Specifically, this recommendation is targeted towards collaboration amongst the following organizations: OMSA, Public Health Ontario (specifically the Ontario Immunization Advisory Committee), local public health units, and Programme EMMIE. Please refer to the implementation strategy for further details.

Implementation Strategy

1.That Canadian medical schools implement training protocols to equip students in combating vaccine hesitancy and misinformation through collaboration with CAME, Public Health Ontario, and relevant school committees.

The following organizations can be engaged to facilitate the implementation of this recommendation: Canadian Association for Medical Education (CAME), Public Health Ontario, as well as relevant interest groups and committees within medical schools (e.g., Public Health Interest Group, Global Health Committee). This recommendation can specifically involve partnering with medical schools to run seminars on counselling around vaccines and vaccine hesitancy. Workshops should be run where medical students can practice these conversations and implement strategies taught in the seminars. Seminars should include stories from parents who were initially hesitant but ultimately decided to vaccinate their children, and detail what ultimately swayed their decisions.

We recommend that these initiatives be implemented at the pre-clerkship level so that students are equipped with these skills prior to entering their clinical years. The topics of vaccine hesitancy as well as social media use for advocacy can be incorporated into mandatory curricular components such as clinical skills and/or professional competency sessions. Additional optional sessions and workshops can be run by interest groups in collaboration with relevant external organizations. Finally, for practicing physicians, further training on vaccine hesitancy can be offered through continuing medical education opportunities.

Specifically, we recommend OMSA create a formal endorsement by collaborating with the CAME, Public Health Ontario, and administrative teams within medical schools. By taking advantage of social media, OMSA can promote these crucial integrations regarding the importance of vaccination and prevention of communicable disease. There are a few barriers to successful implementation which we can foresee, and aim to address, prior to integration of these topics in medical school curricula. For example, there may be a lack of resources and time constraints from medical school administrative staff to change curricula and possible lack of motivation to address vaccine hesitancy.[34] To address these possible issues, we recommend that OMSA delegate individuals within subcommittees to follow up with medical schools and specific organizations to ensure the endorsement and policies are being followed, and address concerns in a timely manner. Adjuvant strategies to address this recommendation include social media promotion to increase awareness of this issue in the general population, liaison with undergraduate programs to ensure integration of these principles among prospective future healthcare professionals, and highlighting of these actionable items at conferences, such as the OMSA Day of Action.

2. That Public Health Ontario's Ontario Immunization Advisory Committee along with local public health units implement outreach educational and advocacy programs to address resource gaps and poor health literacy causing decreased vaccine uptake in rural regions.

The following organizations can be used to facilitate the implementation of this recommendation: local public health units, Public Health Ontario, Canadian Public Health Association (CPHA), and the Canadian Medical Association (CMA). Firstly, the CMA can design outreach programs headed by community healthcare providers partnered with local public health units facilitated by Public Health Ontario. These outreach programs can be in the form of community clinics, “learning days” in elementary/middle/high schools, or support groups for parental learning. To expand this initiative, graduate students can be involved in educational initiatives through Graduate Student Associations or research scientists by involving the National Research Council Canada and individual academic institutions. Next, the CPHA can be involved for various purposes: funding, resources, and assistance with possible legislation required to implement these initiatives. As mentioned above, resources such as up-to-date educational texts, educators, healthcare providers, and vaccinations require a strong implementation plan, funding, and volunteers/collaborators to carry out the goals. A strong collaboration between CHPA and Public Health Ontario, with recommendations from OMSA and the CMA, would be ideal for execution.

We recommend that these initiatives be implemented within educational opportunities at various stages of life to ensure wide coverage of children and parents in diverse communities. These should be supported by annual meetings with the responsible committee, CMA, and Public Health Ontario (Ontario Immunization Advisory Committee) to update content, strategies, and resources. Healthcare inequities and demographic barriers remain a key issue in modern society that can impact healthcare outcomes. The implementation of these recommendations can reduce disparities and promote the uptake of vaccines through informed decisions based on education and healthcare literacy.

OMSA represents 4000+ medical students across Ontario, all of whom hail from diverse educational backgrounds that may have been affected by resource limitations, barriers to education, and socioeconomic inequities. Initially, we endorse OMSA to collaboratively work with the authors and experts mentioned above to draft specific plans of action to create these “learning days” for students and parents. Furthermore, we recommend that OMSA’s external representatives communicate with their respective medical student bodies to introduce, advertise, and recruit for possible initiatives to address this recommendation. For instance, medical students interested in education and advocacy can participate in “learning days” at elementary schools within their respective geographic region. Although there may be setbacks with limited volunteers, initial lack of awareness of the project, or lack of funding, we anticipate these can be resolved through external sponsorships, enlisting of healthcare professionals to market these programs, and resilience in implementing these crucial points of education.

3. That Public Health Ontario's Ontario Immunization Advisory Committee develops a vaccination counsellor point-of-care program to increase vaccine accessibility

The following organizations can be partnered with to facilitate the implementation of this recommendation: Public Health Ontario (Ontario Immunization Advisory Committee), local public health units, and Programme EMMIE. We recommend that a pilot initiative be implemented in a region with a high need as demonstrated by low vaccination rates. A needs assessment should be conducted prior to implementation that assesses any context-specific considerations, enablers, barriers, and mitigation strategies. Once the program is implemented, awareness can be raised through community engagement and promotion through relevant communication channels. Overall, this type of vaccine counsellor program that provides intervention at such a critical time, right after birth, could maximize parental receptiveness and action, and create a foundation for making well-informed decisions about their child’s healthcare going forward.

We specifically recommend that OMSA communicate with administrators and healthcare professionals of Programme EMMIE to ascertain details surrounding plan of action, budgeting, resources required, and possible barriers to implementation. Through this, we aim to create a document that outlines the required tasks to be executed prior to the implementation of a similar program in Ontario. We hope to have this formal endorsement delivered by OMSA to Public Health Ontario, medical schools, and local public health units to determine the possibility of beginning it in Ontario. Although possible barriers to implementation may be similar to those mentioned above (i.e., lack of funding, volunteer limitations, time delays), we are optimistic these can be resolved through the delegation of a specific representative from OMSA who can communicate with the authors and relevant parties involved to ensure this formal endorsement is delivered.

CONCLUSION

The rising prevalence of misinformation and vaccine hesitancy combined with subsequent falling vaccination rates are leading to alarming consequences. Canada is seeing a resurgence of measles, a vaccine-preventable disease whose endemic transmission was previously eradicated in Canada. Our position paper explores three recommendations targeting these issues at various levels, including specific training for medical students and professionals, improving health literacy, reducing barriers for community members, and in-hospital vaccine counsellors for parents immediately after childbirth. Tackling this public health issue is critical for individual and population health, especially for those who are most vulnerable.

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