BMJ Open

# Engaging Canadians in evidence-based communication about vaccines: a scoping review protocol of immunisation support programs in Canada

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**To cite:** Kelly KJ, Mears K, Burns M, *et al*. Engaging Canadians in evidence-based communication about vaccines: a scoping review protocol of immunisation support programs in Canada. *BMJ Open* 2022;**12**:e060103. doi:10.1136/bmjopen-2021-060103

► Prepublication history and additional supplemental material for this paper are available online. To view these files, please visit the journal online (http://dx.doi.org/10.1136/bmjopen-2021-060103).

Received 14 December 2021
Accepted 30 March 2022



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## ABSTRACT

**Objective** To identify, characterise and map the existing knowledge about (1) immunisation programmes that provide evidence-based support about vaccines to Canadians and reduce barriers to vaccination; and (2) barriers and facilitators to the delivery of immunisation support programmes.

**Introduction** Vaccine hesitancy is a complex issue that has significant repercussions for the health and safety of Canadians. Engaging in evidence-based communication about vaccines can reduce vaccine hesitancy and increase participation in immunisation programmes.

**Methods** The Joanna Briggs Institute methodology for scoping reviews will be used for this scoping review. A comprehensive keyword search strategy was developed and translated for six electronic databases on 19 November 2021: CINAHL via EBSCOhost, APA PsycINFO via EBSCOhost, Academic Search Complete via EBSCOhost, Scopus, Medline via EBSCOhost and EmCare via Ovid. We will identify unpublished literature by searching websites listed in CADTH's Grey Matters checklist and other relevant sources in January 2022. Two independent raters will screen and extract data from identified material. Data will be presented in a tabular form.

**Inclusion criteria** We will consider Canadian programmes that target the general public and exclude papers targeting health professionals. Our review will not limit by vaccine type and will consider any intervention that aims to inform individuals about immunisation. Our primary concept involves mapping the characteristics of programmes (eg, programme description, delivery format) and our secondary concept will examine barriers and facilitators to programme delivery.

**Ethics and dissemination** Ethical approval is not required as this study is a review of the published and publicly reported literature. Findings from this review will be disseminated to academic and health system stakeholders to inform immunisation programmes across a wide range of vaccine types and settings. We intend to use the results of this review to develop an immunisation support programme in Prince Edward Island, Canada.

## Strengths and limitations of this study

- ► Our team involves individuals with expertise in the area of health services research and reviews, including researchers, clinicians and a health sciences librarian.
- ► Searches in the published and unpublished literature will allow us to identify programmes informing Canadians about immunisation from a wide range of sources.
- ► The article screening and data collection steps will be conducted by two independent reviewers.
- ► Despite our attempt to conduct a comprehensive search, we may have missed interventions that exist in practice and not in the literature or are published in languages other than English.

## INTRODUCTION

Within the range of public health initiatives, immunisation programmes are arguably among the most important interventions for preventing disease. Vaccines prevent the untimely death of millions of children and adults around the world.[1] The resurgence of once eradicated diseases, such as the measles, demonstrates the inadvertent impact that vaccine hesitancy and resistance can have on the health and safety of the public.[2] Vaccine hesitancy is conceptualised as the reluctance to be vaccinated despite the availability of vaccines[3] and has been identified by the WHO as one of the greatest threats to humanity.[4] More recently, hesitation regarding COVID-19 vaccines has led to numerous outbreaks around the world and in Canada.[5]

Factors of vaccine hesitancy have been well documented in the literature (for reviews, see studies by Aw et al,[6] Cooper et al,[7] Leask et al,[8] Hasnan and Tan[6–9]). Although vaccine hesitancy can be associated with demographic characteristics such as age, education and political stance,[10] factors of hesitancy are

typically driven by broader influences[11] and are largely context-specific.[7 12] Acceptance of vaccines is influenced by a myriad of factors,[3] including mistrust of health authorities[13 14]; religious beliefs[15 16] and misinformation.[17] Hesitancy can also be driven by structural barriers, including financial and other insecurities related to transportation and childcare.[18] Poor communication about immunisation can lead to vaccine hesitancy and anti-vaccination sentiments.[19] Providing evidence-based information about immunisation, and removing barriers to immunisation, can promote participation in vaccine programmes.[20–23]

Acceptance of vaccines range from the vaccine confident to those firmly opposed to immunisation.[8 24] Individuals that fall in the middle of this continuum (eg, the vaccine hesitant or late/selective vaccinators) are reported as the most likely to respond to interventions targeting vaccine uptake.[8 25] Dissemination of information about vaccines through immunisation support programmes, such as knowledge translation programmes that are multicomponent and dialogue-based,[26] can help to encourage the acceptance of vaccines among those considered to be vaccine hesitant.[27] Integral to the success of vaccine promotion strategies include building a rapport with those hesitant or opposed to vaccination and tailoring the conversation according to factors influencing vaccine perceptions.[7 8] Conversations and information dissemination about immunisation can occur through various settings (eg, clinics, schools, community centres) to different sections of the population (eg, urban, rural, indigenous, vulnerable persons), by diverse teams (eg, nurses, pharmacists, educators).[28 29] The goal of such interventions and communication strategies is typically to promote uptake of vaccines[30] including regular childhood vaccines,[31 32] novel, disease-specific vaccines (eg, influenza[33] and COVID-19 vaccines[34]) and travel-related vaccines.[35]

Given the potential impact that communicating evidence-based information about vaccines can have on participation in immunisation programmes, a review of existing immunisation support programmes in Canada is warranted. A preliminary search of CINAHL and *Academic Search Complete* was conducted and no current or underway systematic reviews or scoping reviews on the topic were identified.

## Research purpose

The purpose of this scoping review is to identify, characterise and map the existing knowledge about (1) immunisation programmes that provide evidence-based support about vaccines to Canadians and reduce barriers to immunisation; and (2) barriers and facilitators to the delivery of immunisation support programmes. Findings from this review will inform the development of an immunisation support programme in Prince Edward Island, Canada. This review represents one phase in a larger project to reduce vaccine hesitancy and barriers to immunisation, with the overarching goal to improve vaccine uptake.

## Research questions

1. What are the characteristics of immunisation support programmes in Canada that provide evidence-based information about vaccines, and reduce barriers to immunisation?
2. What are the perceived barriers and facilitators to information delivery by immunisation support programmes (including interventions and other strategies) in Canada?

## Eligibility criteria

### Participants

This scoping review will focus on immunisation support programmes that target various cohorts within the general public, including parents/guardians, infants, children, adolescents and other adults (eg, school administration, seniors). Members of the general public will be inclusive of any segment of the population (eg, indigenous, minority, urban and rural populations); however, we will not include papers that are limited to the education of health professionals.

### Concept

The main concept is the characteristics of immunisation support programmes that aim to engage the general public to communicate about immunisation and/or disseminate evidence-based information about vaccines, while reducing barriers to immunisation. This study defines immunisation support programmes as an umbrella term for any programme that aims to engage in communication with the general public about immunisation, using evidence-based information, and/or reduce structural barriers to immunisation (eg, childcare, transportation). This includes anything from comprehensive education programmes to reminders and pamphlet campaign. In this study, we distinguish between immunisation programmes and immunisation support programmes; the latter is differentiated in this review by the inclusion of informational, emotional and/or structural or tangible support to facilitate the decision to become vaccinated (ie, provision of information or engaging in dialogue beyond what is typically included in a vaccine consent form). We will not limit papers to any specific vaccine type. Included papers will discuss the characteristics of Canadian-based immunisation support programmes, such as setting and delivery format.

The focus of this review is on immunisation support programmes that directly target members of the general public (eg, parents/guardians) and communicate evidence-based information about immunisation and/or reduce barriers to immunisation. The goal of these programmes is to promote the uptake of vaccines (including, but not limited to: vaccines targeting influenza, COVID-19, human papillomavirus and routine childhood vaccinations such as measles, mumps and rubella; pneumococcal conjugate; and tetanus, diphtheria, pertussis). Terms related to immunisation support programmes (eg, interventions) and terms synonymous with these programmes (eg, vaccine education) will be

used in our search strategy to cast a wide net across potentially relevant sources.

The secondary concept is barriers and facilitators to the implementation and delivery of immunisation support programmes in Canada. However, papers do not need to report on factors related to barriers and/or facilitators to be included in this review. Papers will be included if they report the main concept: characteristics of immunisation support programmes. This review will exclude interventions and communication strategies that do not directly focus on supporting or communicating with members of the general public about vaccines (eg, programmes that target health professionals, such as physicians, nurses, pharmacists, etc).

### Context

This review will consider papers on immunisation support programmes in all settings, including (but not limited to) clinics (eg, primary care, provincial public health), community health centres, school settings and research clinics. We will consider all methods of delivery (eg, phone, videoconferencing, in-person). Papers will be limited to programmes in Canadian provinces and territories.

### Types of sources

This scoping review will consider both experimental and quasi-experimental study designs including randomised controlled trials, non-randomised controlled trials, before and after studies and interrupted time-series studies. In addition, analytical observational studies including prospective and retrospective cohort studies, case–control studies and analytical cross-sectional studies will be considered for inclusion. This review will also consider descriptive observational study designs including case series, individual case reports, study protocols and descriptive cross-sectional studies for inclusion. Qualitative studies will also be considered that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, qualitative description, action research and feminist research. Text and opinion papers will also be considered for inclusion in this scoping review. This review will also consider other literature, including unpublished papers and evaluation reports. We will exclude all reviews, such as systematic and scoping reviews, and meta-analyses; however, the reference list of relevant review papers will be hand searched for additional studies.

## METHODOLOGY

This review will be conducted in accordance with the Joanna Briggs Institute (JBI) methodology for scoping reviews.[36]

### Search strategy

A three-step search strategy was developed by a research librarian (KM) in consultation with the research team to identify published empirical articles. The first step of the search strategy consisted of a limited search of two databases (CINAHL and Academic Search Complete, both via EBSCOhost) to identify titles and abstracts of papers that focused on programmes and/or interventions that provide information about immunisation in Canada. The text words used in identified articles at this preliminary stage (ie, in titles, abstracts and keywords) were examined and used to identify additional keywords, subject headings, descriptors and related search terms. The second stage of the search strategy involved using the identified keywords to conduct a more comprehensive search of the literature. The search strategy for a study on the taxonomy of communication interventions for vaccination was located and adapted[37] . The search strategy, including all identified keywords and index terms, will be translated for each included database and/or information source. The reference list of all included sources of evidence will be screened for additional papers. Only papers published in English will be included due to time and resource limitations. There will be no cut-off date built into the database searches; papers from any time period will be considered. Searches for relevant articles were completed on 19 November 2021 in six electronic databases: CINAHL via EBSCOhost, APA PsycINFO via EBSCOhost, Academic Search Complete via EBSCOhost, Scopus, Medline via EBSCOhost and EmCare via Ovid. The syntax for the search strategy in MEDLINE via EBSCOhost is outlined in online supplemental file 1. A detailed search process that follows the Preferred Reporting Items for Systematic reviews and Meta-Analyses literature search extension (PRISMA-S) will also be included in the scoping review.[38]

The third step of the search strategy included a search for scientific evidence published in sources other than journals, such as publications from other sources and evidence-based consensus expert opinion papers. This search will consist of a broad search on the first 10 pages of Google Scholar. We will also search for literature using the Canadian Agency for Drugs and Technologies in Health Grey Matters checklist.[39] Relevant organisational, governmental and healthcare association websites will also be reviewed, including the Public Health Agency of Canada, the Government of Canada (eg, National Advisory Committee on Immunization statements and publications), Immunize Canada, Indigenous Services Canada and Infection Prevention and Control Canada. We will identify additional sources by inquiring with relevant stakeholders through provincial Chief Public Health Office and regional health authorities. A full list of databases used to search the unpublished literature and corresponding keyword searches will be made available in the final review.

### Study selection

Papers identified in the keyword searches will undergo a careful process of selection to be included in the final scoping review. Citations identified by the keyword searches will be exported from their respective databases and collated in Covidence, an online review management

platform that facilitates article screening and data extraction,[40] where duplicates will be removed.

The selection of papers will begin with a screening of titles and abstracts, followed by a more in-depth screening of full-text papers. Two independent reviewers (KJK and JL) will conduct the first level of title and abstract screening against the established eligibility criteria. A calibration test on 50 titles and abstracts will be conducted to evaluate reviewer agreement in the screening process. The resulting kappa statistic (ie, measure of inter-rater agreement) will be assessed to determine whether agreement is sufficient for further independent screening.[41] If agreement is not sufficient (eg, the statistic is 0.60 or less, indicating fair or no agreement[41]), the reviewers will find a consensus on conflicting articles and independently screen an additional 50 articles. Reviewers will meet to discuss any discrepancies, and a third reviewer (WM) will resolve any outstanding conflicts.

Potentially relevant sources will be retrieved in full and their citation details will be imported into Covidence. The same two reviewers (KJK and JL) will independently screen full-text papers against the inclusion criteria using the same process as the one described above. Reasons for exclusion of sources of evidence at full text that do not meet the inclusion criteria will be recorded and reported in the final review. Any disagreements that arise between the reviewers at each stage of the selection process will be resolved through discussion or with an additional reviewer (WM). The results of the search and the study inclusion process will be reported in full in the final scoping review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow diagram.[42]

### Data extraction

Data will be extracted from papers by two independent reviewers using a data extraction tool developed by the research team and implemented in Covidence (see online supplemental file 2). Information that will be extracted from papers will include: (1) characteristics of the article, including: author(s); year of publication; publication journal; study design; study objectives (including aims/purpose); research question(s); methodology (including philosophical perspective); and (2) characteristics of the programme/intervention, including: programme name; programme description; target population and participant details; delivery format; programme delivery personnel and team format; setting (eg, community, clinical); context; geographical location; vaccine type(s); data analysis; outcome measures; reported barriers/facilitators to intervention implementation and/or delivery; author's conclusion (ie, key findings); implications; identified gaps/future directions; reviewer's comments.

The draft data extraction tool will be modified and revised as necessary during the process of extracting data from each included evidence source. Modifications will be detailed in the scoping review. Any disagreements that arise between the reviewers will be resolved through discussion or with an additional reviewer (WM). If appropriate, authors of papers will be contacted to request missing or additional data, where required.

### Data analysis and presentation

The results of the search will be synthesised, summarised and reported in full in the final scoping review and presented in a PRISMA-ScR flow diagram.[42] All extracted data will be combined to provide one complete dataset for analysis and cleaned by one reviewer. The extracted data will be presented in a tabular form that aligns with the study's objectives. Specifically, one table will include author(s); year of publication; publication journal; study design; study objectives (including aims/purpose); research question(s); and methodology (including philosophical perspective); target population and participant details; delivery format; setting (eg, community, clinical); context; geographical location; vaccine type(s); data analysis; outcome measures; implications; identified limitations. A second table will include programme name; programme description; programme delivery personnel and team format; and reported barriers/facilitators to intervention implementation and/or delivery. We will also present a narrative summary and discussion of the table, describing how the results relate to the review objectives and questions.

### Strengths and Limitations

We will follow established scoping review methods described by the JBI and report the review using the PRISMA-ScR checklist. Two independent reviewers will evaluate papers at the level of study selection and data extraction to minimise the risk of errors. We aim to be comprehensive in our consideration of literature from peer-reviewed sources in multiple health and education-related databases; however, limitations regarding the restriction to English-language papers may lead to the exclusion of relevant papers in other languages. For example, it is likely that immunisation support programmes based in Quebec will be omitted from the current review, thus impacting the generalisability of findings. Moreover, despite a careful and iterative process of keyword selection, our strategy may not lead to the identification of all papers that describe immunisation support programmes in Canada.

### Patient and public involvement

No patients or public were involved in the study.

## ETHICS AND DISSEMINATION

Ethical approval is not required as this study is a review of the published and publicly reported literature. The goal of this scoping review is to characterise and map existing immunisation promotion programmes in Canada. We intend to use the results of this scoping review to develop a province-wide immunisation support programme in Prince Edward Island, Canada. Specifically, our programme aims

to promote knowledge translation about immunisation, and especially the COVID-19 vaccine, and to increase health literacy. Through a partnership with CHANCES, a charitable organisation that provides programming and support to PEI children and their families,[43] we aim to provide informational, emotional and structural (ie, through the reduction of barriers such as child care, transportation) support to Islanders relative to COVID-19 immunisation. Findings from this scoping review will inform the framework of our programme using lessons learnt and best practices from similar programmes. Findings from this review may also inform other immunisation programmes across a wide range of vaccine types and settings. We will share the findings with key academic and health system stakeholders through brief evidence summaries, knowledge translation reports, informal presentations and conference meetings.

**Acknowledgements** We would like to acknowledge the contribution of Dr Janet Loo as the duplicate screener (ie, inter-rater evaluator) in this scoping review.

**Contributors** KJK substantially contributed to the conception and design of this project (eg, expert contribution to the process of conducting a scoping review); primary author of the completed manuscript; critically revised the important intellectual content and gave final approval for the version to be submitted for consideration. KM substantially contributed to the conception and design of this project (ie, expert librarian who developed the keyword search strategy and conducted the retrieval of papers); critically revised the important intellectual content; and gave final approval for the version to be submitted for consideration. MB and WM substantially contributed to the conception and design of this project, and drafting/interpretation of data for the work; critically revised the important intellectual content and gave final approval for the version to be submitted for consideration.

**Funding** This work is supported by the Public Health Agency of Canada, through the Immunisation Partnership Fund.

**Competing interests** None declared.

**Patient and public involvement** Patients and/or the public were not involved in the design, or conduct, or reporting, or dissemination plans of this research.

**Patient consent for publication** Not applicable.

**Provenance and peer review** Not commissioned; externally peer reviewed.



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