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# BMJ Open

## Informing Canadians about immunization: A scoping review protocol

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060103
Article Type:	Protocol
Date Submitted by the Author:	14-Dec-2021
Complete List of Authors:	Kelly, Katherine; University of Prince Edward Island, Department of Applied Human Sciences Mears, Kim; University of Prince Edward Island, Data and Research Sciences, Robertson Library Burns, Margie; University of Prince Edward Island, Faculty of Nursing Montelpare, William; University of Prince Edward Island, Applied Human Sciences
Keywords:	Public health < INFECTIOUS DISEASES, COVID-19, EPIDEMIOLOGY, Infection control < INFECTIOUS DISEASES, Community child health < PAEDIATRICS, PUBLIC HEALTH

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Manuscripts

## Informing Canadians about immunization: A scoping review protocol

Katherine J. Kelly<sup>1\*</sup> Kim Mears<sup>2</sup> Margaret Burns<sup>3</sup> William Montelpare<sup>1</sup>

1. Department of Applied Human Sciences, Faculty of Sciences, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

2. Data and Research Sciences, Robertson Library, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

3. Faculty of Nursing, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

\* Corresponding author: Katherine J. Kelly, PhD, [kjkelly@upei.ca](mailto:kjkelly@upei.ca), (902) 566-0827, Department of Applied Human Sciences, Faculty of Sciences, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

**Word Count:** 2552

### ABSTRACT

**Objective:** To identify, characterize, and map the existing knowledge about (1) immunization promotion strategies in Canada; and (2) barriers and facilitators to the dissemination of immunization content.

**Introduction:** Vaccine hesitancy is a complex issue that has significant repercussions for the health and safety of Canadians. Providing evidence-based information about vaccines through targeted interventions can reduce vaccine hesitancy and increase participation in immunization programs.

**Methods:** The Joanna Briggs Institute methodology for scoping reviews (ScR) will be used for this scoping review. A comprehensive keyword search strategy was developed and run through six electronic databases (CINAHL, PsycINFO, Academic Search Complete, Scopus, Medline, and EmCare). We will complete this strategy with a search of the unpublished literature using various electronic databases. Two independent raters will screen and extract data from identified material. Data will be presented in a tabular form that aligns with the study's objectives.

**Inclusion criteria:** We will consider programs 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 immunization. Our primary concept involves a mapping of the characteristics of programs (e.g., program description, delivery format, etc) and our secondary concept will examine barriers and facilitators to program implementation and delivery. This review will consider programs across all settings in Canada.

**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 other immunization programs across a wide range of vaccine-types and settings. We intend to use the results of this scoping review to develop a province-wide immunization program in Prince Edward Island, Canada.

**Keywords:** Vaccine Hesitancy; Vaccine Education; Patient Education; Knowledge Dissemination; Public Health

### Strengths and Limitations of this Study:

1. Our team involves individuals with expertise in the area of health services research and reviews, including researchers, clinicians, and a health sciences librarian.
2. Searches in the published and unpublished literature will allow us to identify programs informing Canadians about immunization from a wide range of sources.
3. The article screening and data collection steps will be conducted by two independent reviewers.
4. 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.

For peer review only

## INTRODUCTION

Within the range of public health initiatives, immunization programs are arguably among the most important interventions for preventing disease. Vaccines prevent the untimely death of millions of children and adults around the world (Whitney et al., 2014). 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 (Phadke et al., 2016). Vaccine hesitancy is conceptualized as the reluctance to be vaccinated despite the availability of vaccines (SAGE Working Group, 2014) and has been identified by the World Health Organization as one of the greatest threats to humanity (World Health Organization, 2019). More recently, hesitation regarding Coronavirus-2019 (COVID-19) vaccines has led to numerous outbreaks around the world and in Canada (Shih et al., 2021).

Factors of vaccine hesitancy have been well documented in the literature (for reviews, see Aw et al., 2021; Hasnan & Tan, 2021; Hudson & Montelpare, 2021). Although vaccine hesitancy can be associated with demographic characteristics such as age, education, and political stance (Scott et al., 2021), factors of hesitancy are typically driven by broader influences (Dubé et al., 2013) and are largely context-specific (Larson et al., 2014). Acceptance of vaccines is influenced by a myriad of factors (SAGE Working Group, 2014), including mistrust of health authorities (Bogart et al., 2020; Karafillakis et al., 2019); religious beliefs (Marti et al., 2017; National Academies of Sciences & Engineering, and Medicine, 2021a); and misinformation (Carrieri et al., 2019). Hesitancy can also be driven by structural barriers, including financial and other insecurities related to transportation and childcare (Hapuhennedige, 2020). Poor communication about immunization can lead to vaccine hesitancy and anti-vaccination sentiments (MacDonald & SAGE Working Group, 2015). Providing evidence-based information about immunization, and removing barriers to immunization, can promote participation in vaccine programs (Ellingson et al., 2019; Niederhauser & Markowitz, 2007; O'Leary et al., 2019; Teitelman, et al., 2020).

Acceptance of vaccines range from the vaccine confident to those firmly opposed to immunization (Hudson & Montelpare, 2021). Individuals that fall in the middle of this continuum (i.e., the vaccine hesitant) are reported as the most likely to respond to interventions targeting vaccine uptake (National Academies of Sciences & Engineering, and Medicine, 2021b). Dissemination of information about vaccines through immunization promotion strategies, such as informational programs and in particular programs that are multicomponent and dialogue-based (Jarett et al., 2015), can help to encourage the acceptance of vaccines among those considered to be vaccine hesitant (Dubé et al., 2018). Information about immunizations, can be delivered through various settings (e.g., clinics, schools, community centres) to different sections of the population (e.g., urban, rural, Indigenous, vulnerable persons, etc.), by diverse teams (e.g., nurses, pharmacists, educators) (Baroy et al., 2016; Groom et al., 2015). The goal of such interventions and communication strategies is typically to promote uptake of vaccines (Robinson et al., 2018), including regular childhood vaccines (Ryman et al., 2008; Willis et al., 2013), novel, disease-specific vaccines (e.g., influenza (Burke et al., 2019), COVID-19 vaccines (National Advisory Committee on Immunization, 2020), and travel-related vaccines (Ramsay et al., 2019).

Given the potential impact of communicating information about vaccines on participation in immunization programs, a review of existing immunization promotion strategies 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, characterize, and map the existing knowledge about (1) immunization promotion strategies, such as programs and/or interventions, that target Canadians; and (2) barriers and facilitators to the dissemination of immunization content. Findings from this review will inform the design of a province-wide immunization education program in Prince Edward Island, Canada.

## Research questions

- (1) What are the characteristics of immunization promotion programs (including interventions and other strategies) in Canada?
- (2) What are the perceived barriers and facilitators to information delivery by immunization promotion programs (including interventions and other strategies) in Canada?

## Eligibility criteria

### *Participants*

This scoping review will focus on immunization promotion programs (including interventions and other strategies) that target various cohorts within the general public, including parents/guardians, infants, children, adolescents, and other adults (e.g., school administration, seniors, etc). This study defines immunization promotion programs as an umbrella term for any intervention that aims to inform the general public, using evidence-based information, about vaccines. This includes anything from comprehensive education programs to reminders and pamphlet campaigns. We will not limit papers to any specific vaccine type. Members of the general public will be inclusive of any segment of the population (e.g. 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 immunization promotion programs that aim to inform the general public about vaccinations. Included papers will discuss the characteristics of Canadian-based immunization programs, such as setting and delivery format. This review defines immunization promotion programs as one or more interventions that directly target members of the general public (e.g., parents/guardians, etc) with the goal of promoting 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; etc). Terms related to immunization promotion programs (e.g., vaccine interventions) and terms synonymous with these programs (e.g., 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 immunization promotion programs 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 immunization promotion programs. This review will exclude interventions and communication strategies that do not directly focus on informing members of the general public about vaccines (e.g., programs that target health professionals, such as physicians, nurses, pharmacists, etc).

### *Context*

This review will consider papers on immunization promotion programs in all settings, including (but not limited to) clinics (e.g., primary care, provincial public health), community health centres, school settings, and research clinics. We will consider all methods of delivery (e.g., phone, videoconferencing, in-person, etc). Only papers focusing on programs and related communication strategies across Canadian provinces and territories will be considered.

### *Types of Sources*

This scoping review will consider both experimental and quasi-experimental study designs including randomized controlled trials, non-randomized 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 (Peters et al., 2020).

### **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 2 databases (CINAHL and Academic Search Complete, both via EBSCOhost) to identify titles and abstracts of papers that focused on interventions and/or programs that provide information about immunization in Canada. The text words used in identified articles at this preliminary stage (i.e., in titles, abstracts, and keywords) were examined and used to identify additional keywords, subject headings, descriptors and related search terms.



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3 The second stage of the search strategy involved using the identified keywords to conduct a more  
4 comprehensive search of the literature. The search strategy for a study on the taxonomy of  
5 communication interventions for vaccination was located and adapted (Kaufman et al., 2017).  
6 The search strategy, including all identified keywords and index terms, will be translated for  
7 each included database and/or information source. The reference list of all included sources of  
8 evidence will be screened for additional papers. Only papers published in English will be  
9 included due to time and resource limitations. Papers from any time period will be considered.  
10 Searches for relevant articles were completed on November 19 2021 in 6 electronic databases:  
11 CINAHL via EBSCOhost, APA PsycINFO via EBSCOhost, Academic Search Complete via  
12 EBSCOhost, Scopus, Medline via EBSCOhost, and EmCare via Ovid. The syntax for the search  
13 strategy in MEDLINE via EBSCOhost is outlined in Supplementary File 1. A detailed search  
14 process that follows the PRISMA-S (Preferred Reporting Items for Systematic reviews and  
15 Meta-Analyses literature search extension) will also be included in the scoping review  
16 (Rethlefsen et al., 2021).  
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19 The third step of the search strategy included a search for scientific evidence published in  
20 sources other than journals, such as publications from other sources and evidence-based  
21 consensus expert opinion papers. This search consisted of a broad search on the first 10 pages of  
22 Google Scholar. We will also search for literature using the Canadian Agency for Drugs and  
23 Technologies in Health Grey Matters checklist (CADTH, 2020). Relevant organizational,  
24 governmental, and health-care association websites will also be reviewed, including: the Public  
25 Health Agency of Canada, the Government of Canada (e.g., National Advisory Committee on  
26 Immunization statements and publications), Immunize Canada, Indigenous Services Canada, and  
27 Infection Prevention and Control Canada. We will identify additional sources by inquiring with  
28 relevant stakeholders through provincial Chief Public Health Offices and regional health  
29 authorities. A full list of databases used to search the unpublished literature and corresponding  
30 keyword searches will be made available in the final review.  
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### 34 **Study selection**

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37 Papers identified in the keyword searches will undergo a careful process of selection to  
38 be included in the final scoping review. Citations identified by the keyword searches will be  
39 exported from their respective databases and collated in Covidence, an online review  
40 management platform that facilitates article screening and data extraction (Covidence, 2021),  
41 where duplicates will be removed.  
42

43 The selection of papers will begin with a screening of titles and abstracts, followed by a  
44 more in-depth screening of full-text papers. Two independent reviewers (KK and JL) will  
45 conduct the first level of title and abstract screening against the established eligibility criteria. A  
46 calibration test on 50 titles and abstracts will be conducted to evaluate reviewer agreement in the  
47 screening process. The resulting kappa statistic (i.e., measure of inter-rater agreement) will be  
48 assessed to determine whether agreement is sufficient for further independent screening  
49 (McHugh, 2012). Reviewers will meet to discuss any discrepancies, and a third reviewer (WM)  
50 will resolve any outstanding conflicts.  
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52 Potentially relevant sources will be retrieved in full and their citation details will be  
53 imported into Covidence. The same two reviewers (KK and JL) will independently screen full-  
54 text papers against the inclusion criteria using the same process as the one described above.  
55 Reasons for exclusion of sources of evidence at full text that do not meet the inclusion criteria  
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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 (Tricco et al., 2018).

### 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 Supplementary 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 program/intervention, including: program name; program description; target population and participant details; delivery format; program delivery personnel and team format; setting (e.g., community, clinical, etc); context; geographical location; vaccine type(s); data analysis; outcome measures; reported barriers/facilitators to intervention implementation and/or delivery; author's conclusion (i.e., 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 synthesized, summarized, and reported in full in the final scoping review and presented in a PRISMA-ScR flow diagram (Tricco et al., 2018). 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 (e.g., community, clinical, etc); context; geographical location; vaccine type(s); data analysis; outcome measures; implications; identified limitations. A second table will include program name; program description; program 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 minimize 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. Moreover, despite a careful and iterative process of keyword selection, our strategy may not lead to the identification of all papers that describe immunization promotion programs 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 characterize and map existing immunization promotion programs in Canada. We intend to use the results of this scoping review to develop a province-wide immunization program in Prince Edward Island, Canada. Findings from this review can help to inform other immunization programs 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.

## FUNDING STATEMENT

*Please see letter to the editor.*

## COMPETING INTERESTS STATEMENT

There is no conflict of interest in this project.

## AUTHORS CONTRIBUTIONS

**Katherine J. Kelly:** Substantial contributions to the conception and design of this project (e.g., expert contribution on the process of conducting a scoping review); primary author of completed manuscript; critical revision for important intellectual content; and final approval of the version to be submitted for consideration.

**Kim Mears:** Substantial contributions to the conception and design of this project (i.e., expert librarian who developed the keyword search strategy and conducted the retrieval of papers); critical revision for important intellectual content; and final approval of the version to be submitted for consideration.

**Margie Burns:** Substantial contributions to the conception and design of this project, and drafting/interpretation of data for the work; critical revision for important intellectual content; and final approval of the version to be submitted for consideration.

**William Montelpare:** Substantial contributions to the conception and design of this project, and drafting/interpretation of data for the work; critical revision for important intellectual content; final approval of the version to be submitted for consideration.

## ACKNOWLEDGEMENTS

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

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## Appendix I: Search strategy

MEDLINE via EBSCOhost

Search mode - Boolean/Phrase

1.MH "Communication+" OR MH "Marketing+" OR MH "Computer Systems" OR MH "Communications Media+" OR MH "Health Education+" OR MH "Health Communication" OR MH "Patient Education as Topic+" OR MH "Access to Information" OR MH "Advertising+"

2.TI ( (health or patient or mediated or facilitated or augmentative or alternative or total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or facilitated or augmentative or alternative or total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) )

3.TI ( ((health or patient or client) N1 (education or knowledge or promotion)) ) OR AB ( (health or patient or client) N1 (education or knowledge or promotion)) )

4.TI ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\* or internet or video\* or multimedia or multi-media) N1 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or demonstration or method\* or process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\* or internet or video\* or multimedia or multi-media) N1 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or demonstration or method\* or process\*)) )

5.TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching or education or instruction)) )

6.TI ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\* or increas\*))) )

7.TI ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) )

8.TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) )

9.TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) ) OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )

10.TI ( ((patient or client or health or medical ( (drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*)) ) OR AB ( ((patient or client or health or medical ( (drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*)) )

11.TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual

or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) ) )

12.TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) )

13.TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*)) ) OR AB ( (counsel\*ing session\* or ((support or peer or self help or self-care) N2 (intervention\* or group\* or program\*)) ) )

14.TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )

15.TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )

16.TI ( ((print\* N (material\* or based)) or paper based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) )

17.TI ( (radio or television or audiovisual or video\* or tape recording\* or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*)) ) OR AB ( (radio or television or audiovisual or video\* or tape recording\* or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or mp3 player\* or hotline\* or answering service\* or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*)) ) )

18.TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )

19.TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) )

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3 20.TI ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile-device\* or  
4 laptop\* or notebook computer\* ) OR AB ( ("touch screen" or "digital assistant\*" or pda  
5 or blackberry or mobile-device\* or laptop\* or notebook computer\* ) )  
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7 21.TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or  
8 hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or  
9 system\* or technolog\*))) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone  
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11 recognition or messag\* or system\* or technolog\*))) )  
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13 22.S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR  
14 S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21  
15 23.(MH "Vaccination+") OR (MH "Vaccines+") OR (MH "Immunization+") OR  
16 (MH"Immunization Programs+")  
17 24.TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or  
18 immunis\* or vaccin\* or inoculat\* ) )  
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20 25.S23 OR S24  
21 26.(MH "Canada") OR TI ( Canad\* or Alberta or "British Columbia" or Manitoba or  
22 "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or  
23 "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan  
24 or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\*  
25 or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland  
26 and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince  
27 Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest  
28 Territories" or NWT or "Yukon Territory" )  
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30 27.S22 AND S25 AND S26  
31 28.MH "Animals" NOT MH "Humans"  
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## Appendix II: Data extraction instrument

Domain	Extraction
Article Characteristics	Article ID number (from Covidence)
	Authors
	Year of publication
	Publication journal
	Full citation (e.g., author(s), date, title, journal, volume, issue, pages)
	Study design
	Study objective(s) (including aim/purpose)
	Research question(s)
	Methodology (including philosophical perspective)
	Program/Intervention/Strategy Characteristics
Program description	
Target population and participant details (e.g., age, sex, number)	
Delivery format (i.e., virtual, in-person, or mixed)	
Program delivery personnel and team format (e.g., public health nurses, etc)	
Setting (e.g., clinical, community, etc)	
Context	
Geographical location (e.g. region, country)	
Vaccine type(s)	
Data analysis	
Outcome measures	
Reported barriers/facilitators to intervention implementation and/or delivery	
Author's conclusion (i.e., reported key findings)	
Implications	
Identified limitations	
Reviewer's comments	

## Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	



SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

\* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. doi: 10.7326/M18-0850.





# BMJ Open

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

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060103.R1
Article Type:	Protocol
Date Submitted by the Author:	28-Feb-2022
Complete List of Authors:	Kelly, Katherine; University of Prince Edward Island, Department of Applied Human Sciences Mears, Kim; University of Prince Edward Island, Data and Research Sciences, Robertson Library Burns, Margie; University of Prince Edward Island, Faculty of Nursing Montepare, William; University of Prince Edward Island, Applied Human Sciences
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Qualitative research, Communication, Global health, Health services research, Epidemiology
Keywords:	Public health < INFECTIOUS DISEASES, COVID-19, EPIDEMIOLOGY, Infection control < INFECTIOUS DISEASES, Community child health < PAEDIATRICS, PUBLIC HEALTH

SCHOLARONE™  
Manuscripts

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

## Authors

Katherine J. Kelly<sup>1\*</sup> Kim Mears<sup>2</sup> Margie Burns<sup>3</sup> William Montelpare<sup>1</sup>

1. Department of Applied Human Sciences, Faculty of Sciences, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

2. Data and Research Sciences, Robertson Library, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

3. Faculty of Nursing, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

\* Corresponding author: Katherine J. Kelly, PhD, [kjkelly@upei.ca](mailto:kjkelly@upei.ca), (902) 566-0827, Department of Applied Human Sciences, Faculty of Sciences, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

## Abstract

**Objective:** To identify, characterize, and map the existing knowledge about (1) immunization programs that provide evidence-based support about vaccines to Canadians and reduce barriers to immunization; and (2) barriers and facilitators to the delivery of immunization support programs.

**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 immunization programs.

**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 November 19, 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 programs 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 immunization. Our primary concept involves mapping the characteristics of programs (e.g., program description, delivery format, etc.) and our secondary concept will examine barriers and facilitators to program 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 immunization programs across a wide range of vaccine-types and settings. We intend to use the results of this review to develop an immunization support program in Prince Edward Island, Canada.

**Keywords:** Vaccine Hesitancy; Health Literacy; Patient Education; Knowledge Dissemination; Public Health

**Word Count:** 2654

## ARTICLE SUMMARY

### Strengths and Limitations of this Study:

1. Our team involves individuals with expertise in the area of health services research and reviews, including researchers, clinicians, and a health sciences librarian.
2. Searches in the published and unpublished literature will allow us to identify programs informing Canadians about immunization from a wide range of sources.
3. The article screening and data collection steps will be conducted by two independent reviewers.
4. 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

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Within the range of public health initiatives, immunization programs 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 conceptualized as the reluctance to be vaccinated despite the availability of vaccines [3] and has been identified by the World Health Organization as one of the greatest threats to humanity [4]. More recently, hesitation regarding Coronavirus-2019 (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 [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 immunization can lead to vaccine hesitancy and anti-vaccination sentiments [19]. Providing evidence-based information about immunization, and removing barriers to immunization, can promote participation in vaccine programs [20–23].

Acceptance of vaccines range from the vaccine confident to those firmly opposed to immunization [8, 24]. Individuals that fall in the middle of this continuum (e.g., 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 immunization support programs, such as knowledge-translation programs 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 immunization can occur through various settings (e.g., clinics, schools, community centres) to different sections of the population (e.g., urban, rural, Indigenous, vulnerable persons, etc.), by diverse teams (e.g., nurses, pharmacists, educators) [28, 29]. The goal of such interventions and communication strategies is typically to promote uptake of vaccines (Robinson et al., 2018), including regular childhood vaccines [30, 31], novel, disease-specific vaccines (e.g., influenza [32] and COVID-19 vaccines [33]), and travel-related vaccines [34].

Given the potential impact that communicating evidence-based information about vaccines can have on participation in immunization programs, a review of existing immunization support programs 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, characterize, and map the existing knowledge about (1) immunization programs that provide evidence-based support about vaccines

to Canadians and reduce barriers to immunization; and (2) barriers and facilitators to the delivery of immunization support programs. Findings from this review will inform the design of a province-wide immunization support program in Prince Edward Island, Canada.

## Research questions

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

## Eligibility criteria

### *Participants*

This scoping review will focus on immunization support programs that target various cohorts within the general public, including parents/guardians, infants, children, adolescents, and other adults (e.g., school administration, seniors, etc). Members of the general public will be inclusive of any segment of the population (e.g. 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 immunization support programs that aim to engage the general public to communicate about immunization and/or disseminate evidence-based information about vaccines, while reducing barriers to immunization. This study defines immunization support programs as an umbrella term for any program that aims to engage in communication with the general public about immunization, using evidence-based information, and/or reduce structural barriers to immunization (e.g., childcare, transportation, etc). This includes anything from comprehensive education programs to reminders and pamphlet campaign. In this study, we distinguish between immunization programs and immunization *support* programs; 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 (i.e., 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 immunization support programs, such as setting and delivery format.

The focus of this review is on immunization support programs that directly target members of the general public (e.g., parents/guardians, etc) and communicate evidence-based information about immunization and/or reduce barriers to immunization. The goal of these programs 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; etc). Terms related to immunization support programs (e.g., interventions) and terms synonymous

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3 with these programs (e.g., vaccine education) will be used in our search strategy to cast a wide  
4 net across potentially relevant sources.

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

### 14 15 *Context*

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17 This review will consider papers on immunization support programs in all settings,  
18 including (but not limited to) clinics (e.g., primary care, provincial public health), community  
19 health centres, school settings, and research clinics. We will consider all methods of delivery  
20 (e.g., phone, videoconferencing, in-person, etc). Papers will be limited to programs in Canadian  
21 provinces and territories.

### 23 24 *Types of Sources*

25  
26 This scoping review will consider both experimental and quasi-experimental study  
27 designs including randomized controlled trials, non-randomized controlled trials, before and after  
28 studies and interrupted time-series studies. In addition, analytical observational studies including  
29 prospective and retrospective cohort studies, case-control studies and analytical cross-sectional  
30 studies will be considered for inclusion. This review will also consider descriptive observational  
31 study designs including case series, individual case reports, study protocols, and descriptive  
32 cross-sectional studies for inclusion. Qualitative studies will also be considered that focus on  
33 qualitative data including, but not limited to, designs such as phenomenology, grounded theory,  
34 ethnography, qualitative description, action research and feminist research. Text and opinion  
35 papers will also be considered for inclusion in this scoping review. This review will also consider  
36 other literature, including unpublished papers and evaluation reports. We will exclude all  
37 reviews, such as systematic and scoping reviews, and meta-analyses; however, the reference list  
38 of relevant review papers will be hand searched for additional studies.

## 41 42 **METHODOLOGY**

43  
44 This review will be conducted in accordance with the Joanna Briggs Institute (JBI)  
45 methodology for scoping reviews [35].

### 46 47 48 **Search strategy**

49  
50 A three-step search strategy was developed by a research librarian (KM) in consultation  
51 with the research team to identify published empirical articles. The first step of the search  
52 strategy consisted of a limited search of 2 databases (CINAHL and Academic Search Complete,  
53 both via EBSCOhost) to identify titles and abstracts of papers that focused on programs and/or  
54 interventions that provide information about immunization in Canada. The text words used in  
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3 identified articles at this preliminary stage (i.e., in titles, abstracts, and keywords) were examined  
4 and used to identify additional keywords, subject headings, descriptors and related search terms.  
5 The second stage of the search strategy involved using the identified keywords to conduct a more  
6 comprehensive search of the literature. The search strategy for a study on the taxonomy of  
7 communication interventions for vaccination was located and adapted (Kaufman et al., 2017).  
8 The search strategy, including all identified keywords and index terms, will be translated for  
9 each included database and/or information source. The reference list of all included sources of  
10 evidence will be screened for additional papers. Only papers published in English will be  
11 included due to time and resource limitations. There will be no cut-off date built into the  
12 database searches; papers from any time period will be considered. Searches for relevant articles  
13 were completed on November 19 2021 in 6 electronic databases: CINAHL via EBSCOhost,  
14 APA PsycINFO via EBSCOhost, Academic Search Complete via EBSCOhost, Scopus, Medline  
15 via EBSCOhost, and EmCare via Ovid. The syntax for the search strategy in MEDLINE via  
16 EBSCOhost is outlined in Appendix 1. A detailed search process that follows the PRISMA-S  
17 (Preferred Reporting Items for Systematic reviews and Meta-Analyses literature search  
18 extension) will also be included in the scoping review [36].

19  
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21  
22 The third step of the search strategy included a search for scientific evidence published in  
23 sources other than journals, such as publications from other sources and evidence-based  
24 consensus expert opinion papers. This search will consist of a broad search on the first 10 pages  
25 of Google Scholar. We will also search for literature using the Canadian Agency for Drugs and  
26 Technologies in Health Grey Matters checklist [37]. Relevant organizational, governmental, and  
27 health-care association websites will also be reviewed, including: the Public Health Agency of  
28 Canada, the Government of Canada (e.g., National Advisory Committee on Immunization  
29 statements and publications), Immunize Canada, Indigenous Services Canada, and Infection  
30 Prevention and Control Canada. We will identify additional sources by inquiring with relevant  
31 stakeholders through provincial Chief Public Health Office and regional health authorities. A full  
32 list of databases used to search the unpublished literature and corresponding keyword searches  
33 will be made available in the final review.  
34  
35

### 36 37 **Study selection**

38  
39 Papers identified in the keyword searches will undergo a careful process of selection to  
40 be included in the final scoping review. Citations identified by the keyword searches will be  
41 exported from their respective databases and collated in Covidence, an online review  
42 management platform that facilitates article screening and data extraction [38], where duplicates  
43 will be removed.  
44

45 The selection of papers will begin with a screening of titles and abstracts, followed by a  
46 more in-depth screening of full-text papers. Two independent reviewers (KK and JL) will  
47 conduct the first level of title and abstract screening against the established eligibility criteria. A  
48 calibration test on 50 titles and abstracts will be conducted to evaluate reviewer agreement in the  
49 screening process. The resulting kappa statistic (i.e., measure of inter-rater agreement) will be  
50 assessed to determine whether agreement is sufficient for further independent screening [39]. If  
51 agreement is not sufficient (e.g., the statistic is 0.60 or less, indicating fair or no agreement [39]),  
52 the reviewers will find a consensus on conflicting articles and independently screen an additional  
53 50 articles. Reviewers will meet to discuss any discrepancies, and a third reviewer (WM) will  
54 resolve any outstanding conflicts.  
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Potentially relevant sources will be retrieved in full and their citation details will be imported into Covidence. The same two reviewers (KK 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 [40].

## 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 Appendix 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 program/intervention, including: program name; program description; target population and participant details; delivery format; program delivery personnel and team format; setting (e.g., community, clinical, etc); context; geographical location; vaccine type(s); data analysis; outcome measures; reported barriers/facilitators to intervention implementation and/or delivery; author's conclusion (i.e., 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 synthesized, summarized, and reported in full in the final scoping review and presented in a PRISMA-ScR flow diagram [40]. 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 (e.g., community, clinical, etc); context; geographical location; vaccine type(s); data analysis; outcome measures; implications; identified limitations. A second table will include program name; program description; program 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 minimize 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 immunization support programs based in Quebec will be omitted from the current review, thus impacting the generalizability 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 immunization support programs 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 characterize and map existing immunization promotion programs in Canada. We intend to use the results of this scoping review to develop a province-wide immunization support program in Prince Edward Island, Canada. Specifically, our program aims to promote knowledge translation about immunization, and especially the COVID-19 vaccine, and to increase health literacy. Through a partnership with CHANCES, a charitable organization that provides programming and support to PEI children and their families [41], we aim to provide informational, emotional, and structural (i.e., through the reduction of barriers such as child care, transportation, etc.) support to Islanders relative to COVID-19 immunization. Findings from this scoping review will inform the framework of our program using lessons learned and best practices from similar programs. Findings from this review may also inform other immunization programs 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.

## FUNDING STATEMENT

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

## COMPETING INTERESTS STATEMENT

There is no conflict of interest in this project.

## AUTHORS CONTRIBUTIONS

1  
2  
3 **Katherine J. Kelly:** Substantial contributions to the conception and design of this project (e.g.,  
4 expert contribution on the process of conducting a scoping review); primary author of completed  
5 manuscript; critical revision for important intellectual content; and final approval of the version  
6 to be submitted for consideration.  
7

8  
9 **Kim Mears:** Substantial contributions to the conception and design of this project (i.e., expert  
10 librarian who developed the keyword search strategy and conducted the retrieval of papers);  
11 critical revision for important intellectual content; and final approval of the version to be  
12 submitted for consideration.  
13

14 **Margie Burns:** Substantial contributions to the conception and design of this project and  
15 drafting/interpretation of data for the work; critical revision for important intellectual content;  
16 and final approval of the version to be submitted for consideration.  
17  
18

19 **William Montelpare:** Substantial contributions to the conception and design of this project and  
20 drafting/interpretation of data for the work; critical revision for important intellectual content;  
21 final approval of the version to be submitted for consideration.  
22

## 23 24 **ACKNOWLEDGEMENTS**

25  
26 We would like to acknowledge the contribution of Dr. Janet Loo as the duplicate screener (i.e.,  
27 inter-rater evaluator) in this scoping review.  
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## Supplementary File 1: Search Strategies

### Academic Database Search Strategies

Academic Search Complete via EBSCOhost

Search modes - Boolean/Phrase

1 DE "HEALTH education" OR DE "COMIC books, strips, etc., in health education" OR DE  
2 "DRAMA in health education" OR DE "HEALTH counseling" OR DE "HEALTH  
3 education (Elementary)" OR DE "HEALTH education (Middle school)" OR DE "HEALTH  
4 education (Preschool)" OR DE "HEALTH education (Secondary)" OR DE "HEALTH  
5 education administration" OR DE "HEALTH education of women" OR DE "HEALTH  
6 fairs" OR DE "MASS media in health education" OR DE "PATIENT education" OR DE  
7 "PUBLIC health education" OR DE "RADIO in health education" OR DE "STUDY &  
8 teaching of sexually transmitted diseases" OR DE "TELEVISION in health education"  
9 OR DE "MEDICAL communication" OR DE "COMMUNICATION in dentistry" OR DE  
10 "COMMUNICATION in emergency medicine" OR DE "COMMUNICATION in nursing"  
11 OR DE "COMMUNICATION in obstetrics" OR DE "COMMUNICATION in pediatrics" OR  
12 DE "HEALTH education" OR DE "HEALTH risk communication" OR DE "MEDICINE --  
13 Communication systems" OR DE "MEDICINE information services" OR DE "PATIENT  
14 handoff" OR DE "SBAR (Communication)" OR DE "SOCIAL media in medicine" OR DE  
15 "COMMUNICATION in health education" OR DE "HEALTH information technology" OR  
16 DE "HEALTH literacy" OR DE "HEALTH information technology" OR DE "COMPUTERS  
17 in medicine" OR DE "INTERNET in medicine" OR DE "MARKETING" OR DE  
18 "ADVERTISING" OR DE "BRANDING (Marketing)" OR DE "COLOR in marketing" OR  
19 DE "COMMUNICATION in marketing" OR DE "CONTENT marketing" OR DE  
20 "EDUCATION marketing" OR DE "EVENT marketing" OR DE "GOVERNMENT  
21 marketing" OR DE "GUERRILLA marketing" OR DE "INDUSTRIAL marketing" OR DE  
22 "INFLUENCER marketing" OR DE "INSTITUTIONAL market" OR DE "INTEGRATED  
23 marketing" OR DE "INTERACTIVE marketing" OR DE "INTERNET marketing" OR DE  
24 "LOCATION marketing" OR DE "MACROMARKETING" OR DE "MARKETING  
25 effectiveness" OR DE "MARKETING in service industries" OR DE "MARKETING  
26 models" OR DE "MARKETING personnel" OR DE "MARKETING planning" OR DE  
27 "MARKETING science" OR DE "MARKETING strategy" OR DE "MARKETING  
28 theory" OR DE "MASS marketing" OR DE "MICROMARKETING" OR DE "MOBILE  
29 marketing" OR DE "NEWSPAPER circulation" OR DE "ON- demand marketing" OR DE  
30 "PERMISSION marketing" OR DE "ROADSIDE marketing" OR DE "RURAL  
31 marketing" OR DE "SOCIAL marketing" OR DE "TARGET marketing" OR DE  
32 "TECHNOLOGY- enabled selling" OR DE "VISUAL marketing" OR DE "REGIONAL  
33 marketing" OR DE "INTERNET in publicity" OR DE "MASS media & publicity" OR DE  
34 "RADIO in publicity" OR DE "SOCIAL services publicity" OR DE "TELEVISION in  
35 publicity" OR DE "SOCIAL media in marketing" OR DE "WORD of mouth advertising"  
36 OR DE "INFLUENCER marketing" OR DE "DIRECT marketing" OR DE "DIRECT e-  
37 marketing" OR DE "TELEMARKETING"

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11 2 TI ( (health or patient or mediated or facilitated or augmentative or alternative or total or  
12 simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\*  
13 or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or  
14 barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or facilitated or  
15 augmentative or alternative or total or simultaneous or manual or mass or face-to-face or  
16 oral or cultural or risk or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\*  
17 or board\* or device\* or system\* or barrier\*) n1 communication) )  
18  
19 3 TI ( ((health or patient or client) N1 (education or knowledge or promotion)) ) OR AB (  
20 ((health or patient or client) N1 (education or knowledge or promotion)) )  
21  
22 4 TI ( ((education\* or teaching or learning or instruction\* or training or skills or online or  
23 web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or  
24 course\* or program\* or material\* or package\* or module\* or demonstration or method\* or  
25 process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or  
26 skills or online or web\* or internet or video\* or multimedia or multi- media) N1  
27 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or  
28 demonstration or method\* or process\*)) )  
29  
30 5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching or  
31 education or instruction)) )  
32  
33 6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3  
34 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or  
35 (promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\*  
36 or increas\*))) )  
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38 7 TI ( ((family or office or work\* or school or faith or church or clinic) N1 based) ) OR AB (  
39 ((family or office or work\* or school or faith or church or clinic) N1 based) )  
40 8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or  
41 comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3  
42 (understanding or comprehension)) )  
43 9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking  
44 or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )  
45 OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or  
46 retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )  
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48 10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\*  
49 or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug or  
50 written or print\* or visual\* or provid\* or present\*) N2 inform\*) )  
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52 11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or  
53 negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical  
54 or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or  
55 narrative) N (format\* or presentation or display\*)) ) OR AB ( (((inform\* or message\* or  
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- communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) )
- 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) )
- 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*))) ) OR AB ( (counsel\*ing session\* or ((support or peer or self- help or self-care) N2 (intervention\* or group\* or program\*))) )
- 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )
- 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )
- 16 TI ( ((print\* N (material\* or based)) or paper- based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) )
- 17 TI ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*))) ) OR AB ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*))) )
- 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )
- 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) )
- 20 TI ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile-device\* or laptop\* or "notebook computer\*") ) OR AB ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile-device\* or laptop\* or "notebook computer\*") )

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- 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*))) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*))) )
- 22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21
- 23 DE "VACCINES" OR DE "ANTI-idiotypic vaccines" OR OR DE "AUTOVACCINES" OR DE "BACTERIAL vaccines" OR DE "BOOSTER vaccines" OR DE "COMBINED vaccines" OR DE "DNA vaccines" OR DE "ENCEPHALITIS vaccines" OR DE "INACTIVATED oil adjuvant vaccines" OR DE "MENINGITIS vaccines" OR DE "ORAL vaccines" OR DE "PARASITIC vaccines" OR DE "RICKETTSIAL vaccines" OR DE "SCHISTOSOMIASIS vaccines" OR DE "SEXUALLY transmitted disease vaccines" OR DE "SYNTHETIC vaccines" OR DE "TETANUS vaccines" OR DE "TRYPANOSOMIASIS vaccines" OR DE "VIRAL vaccines" OR DE "IMMUNIZATION" OR DE "IMMUNIZATION of children" OR DE "VACCINATION"
- 24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) )
- 25 S23 OR S24
- 26 (DE "CANADA") OR TI (Canad\* or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" )
- 27 S22 AND S25 AND S26
- 28 S22 AND S25 AND S26 Narrow by Language: English



## CINAHL via EBSCOhost

## Search modes - Boolean/Phrase

- 1 (MH "Communication+") OR (MH "Marketing+") OR (MH "Advertising+") OR (MH "Communications Media+" OR (MH "Computer Systems+" )
- 2 TI ( (health or patient or mediated or facilitated or augmentative or alternative or total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or facilitated or augmentative or alternative or total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) )
- 3 TI ( ((health or patient or client) N1 (education or knowledge or promotion)) ) OR AB ( ((health or patient or client) N1 (education or knowledge or promotion)) )
- 4 TI ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or demonstration or method\* or process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or demonstration or method\* or process\*)) )
- 5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching or education or instruction)) )
- 6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or ("community based" N3 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or (promotion N1 program\*) or ("community based" N3 intervention\*) or (awareness N3 (rais\* or increas\*))) )
- 7 TI ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) )
- 8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) )
- 9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) ) OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )
- 10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )
- 11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) ) OR AB ( (((inform\* or message\* or

- communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) )
- 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") )
- 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*)) ) OR AB ( (counsel\*ing session\* or ((support or peer or self- help or self-care) N2 (intervention\* or group\* or program\*)) )
- 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )
- 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )
- 16 TI ( ((print\* N (material\* or based)) or paper- based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\* ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\* ) )
- 17 TI ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or mp3 player\* or hotline\* or answering service\* or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*)) ) OR AB ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or mp3 player\* or hotline\* or answering service\* or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*)) )
- 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )
- 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or "assisted instruction")) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or "assisted instruction")) )
- 20 TI ( (touch screen or digital assistant\* or pda or blackberry or mobile- device\* or laptop\* or notebook computer\*) ) OR AB ( (touch screen or digital assistant\* or pda or blackberry or mobile- device\* or laptop\* or notebook computer\*) )

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21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or  
hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or  
system\* or technolog\*)) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or  
phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition  
or messag\* or system\* or technolog\*)) ) )

22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11  
OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21

23 (MH "Vaccines+") OR (MH "Immunization+") OR (MH "Immunization Programs")

24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or  
immunis\* or vaccin\* or inoculat\* ) )

25 S23 OR S24

26 (MH "Canada+") OR TI (Canad\* or Alberta or "British Columbia" or Manitoba or  
"New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or  
"Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan  
or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or  
Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and  
Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward  
Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT  
or "Yukon Territory" )

27 S22 AND S25 AND S26

28 S22 AND S25 AND S26 Narrow by Language: - english

## EmCare via Ovid

&lt;1995 to 2021 Week 45&gt;

- 1 exp immunization/  
 2 exp vaccines/  
 3 exp vaccination/  
 4 ((immuniz\* or immunis\* or immunotherap\* or vaccin\* or inoculat\*).mp.  
 5 1 or 2 or 3 or 4  
 6 exp interpersonal communication/  
 7 exp mass communication/  
 8 ((health or patient or mediated or facilitated or augmentative or alternative or total  
 9 or simultaneous or manual or mass or face-to-face or oral or cultural or risk or  
 10 intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or  
 11 system\* or barrier\*) adj1 communication).mp.  
 12 9 (communicat\* or messag\* or verbal\* or nonverbal\* or written or writing or reading  
 13 or language or speech or speak\* or spoken or talk\* or conversation or voice or visual-  
 14 perception or feedback or listen\* or negotiat\* or notify\* or notification or remind\* or  
 15 narrat\* or music\* or humor or humorous or adverti\* or persua\* or interpreting or  
 16 interpreters or interpret\*-service or translat\* service\* or translating).hw,ti.  
 17 10 ((health or patient or client) adj (education or knowledge or promotion)).mp.  
 18 11 ((education\* or teaching or learning or instruction\* or training or skills or online or  
 19 web\* or internet or video\* or multimedia or multi-media) adj1 (intervention\* or session\* or  
 20 course\* or program\* or material\* or package\* or module\* or demonstration or method\* or  
 21 process\*)).mp.  
 22 12 (self adj (teaching or education or instruction)).mp.  
 23 13 ((media adj3 campaign\*) or (promotion adj1 program\*) or (community based adj3  
 24 intervention\*) or (awareness adj3 (rais\* or increas\*))).tw.  
 25 14 exp marketing/  
 26 15 exp advertising/  
 27 ((family or office or work\* or school or faith or church or clinic or hospital) adj based).tw.  
 28 16 ((improv\* or increas\* or enhanc\* or patient) adj3 (understanding or comprehension)).tw.  
 29 17 18 (information\* adj (service\* or center\* or system\* or dissemination or seeking or  
 30 retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or  
 31 pack\*)).mp.  
 32 19 ((patient or client or health or medical or drug or written or print\* or visual\* or  
 33 provid\* or present\*) adj2 inform\*).mp.  
 34 20 (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative)  
 35 adj2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual  
 36 or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) adj  
 37 (format\* or presentation or display\*))).mp.  
 38 21 (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) adj1  
 39 support\*) or psychosocial or ((social or pastoral or spiritual) adj care) or religion or  
 40 chaplaincy or behavior modification).mp.

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3 22 (counsel\*ing session\* or ((support or peer or self-help or self-care) adj2  
4 (intervention\* or group\* or program\*))).mp.  
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6 23 ((social or community) adj2 network\*).mp.  
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8 24 ((mass or communication\* or electronic or digital or print\* or social or new) adj  
9 media).tw.  
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11 25 ((print\* adj (material\* or based)) or paper-based or written material\* or (paper  
12 adj1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\*  
13 or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*).mp.  
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15 26 (radio or television or audiovisual or video\* or tape recording\* or cassette\* or cd-  
16 rom\* or dvd\* or motion picture\* or multimedia or hypermedia or telephon\* or phone or  
17 phones or sms or short message\* or text message\* or i-pod\* or ipod\* or mp3 player\* or  
18 hotline\* or answering service\* or internet or web\* or online or on-line or blog\* or  
19 telemedicine or telehealth or telecare or (virtual adj (reality or world or  
20 environment\*))).mp.  
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22 27 ((electronic or e-) adj (mail or prescri\* or health or game\*)).mp.  
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24 28 exp computer/  
25  
26 29 (computer\* adj1 (system\* or network\* or program\* or terminal\* or interfac\* or  
27 interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching  
28 or mediated or based or tailored or communication or assisted instruction)).mp.  
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30 30 (touch screen or digital assistant\* or pda or blackberry or mobile-device\* or  
31 laptop\* or notebook computer\*).mp.  
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33 31 (((automat\* or interactive\*) adj3 (telephon\* or phone or phones or voice or  
34 hotline\* or hot line\*)) or ((voice or speech) adj (response or recognition or messag\* or  
35 system\* or technolog\*))).mp.  
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37 32 exp Canada/  
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39 33 (((Canad\* or Alberta or British Columbia or Manitoba or New Brunswick or  
40 Newfoundland) and Labrador) or Newfoundland or Labrador or Nova Scotia or Ontario  
41 or Prince Edward Island or PEI or Quebec or Saskatchewan or Nunavut or Northwest  
42 Territories or NWT or Yukon Territory).mp.  
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44 34 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or  
45 21 or 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31  
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47 35 32 or 33  
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49 36 5 and 34 and 35  
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51 37 (exp animal/ or nonhuman/) not exp human/  
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53 38 36 not 37  
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55 39 38 limited to english language  
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## Medline via EBSCOhost

## Search modes - Boolean/Phrase

- 1 MH "Communication+" OR MH "Marketing+" OR MH "Computer Systems" OR  
 2 MH "Communications Media+" OR MH "Health Education+" OR MH "Health  
 3 Communication" OR MH "Patient Education as Topic+" OR MH "Access to Information"  
 4 OR MH "Advertising+"
- 5 2 TI ( (health or patient or mediated or facilitated or augmentative or alternative or  
 6 total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or  
 7 intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or  
 8 system\* or barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or  
 9 facilitated or augmentative or alternative or total or simultaneous or manual or mass or  
 10 face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\*  
 11 or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) )
- 12 3 TI ( ((health or patient or client) N1 (education or knowledge or promotion)) ) OR  
 13 AB ( ((health or patient or client) N1 (education or knowledge or promotion)) )
- 14 4 TI ( ((education\* or teaching or learning or instruction\* or training or skills or  
 15 online or web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or  
 16 session\* or course\* or program\* or material\* or package\* or module\* or demonstration or  
 17 method\* or process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or  
 18 training or skills or online or web\* or internet or video\* or multimedia or multi- media) N1  
 19 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or  
 20 demonstration or method\* or process\*)) )
- 21 5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching or  
 22 education or instruction)) )
- 23 6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3  
 24 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or  
 25 (promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\*  
 26 or increas\*))) )
- 27 7 TI ( ((family or office or work\* or school or faith or church or clinic or hospital or  
 28 community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church  
 29 or clinic or hospital or community) N1 based) )
- 30 8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or  
 31 comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3  
 32 (understanding or comprehension)) )
- 33 9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking  
 34 or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )  
 35 OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or  
 36 retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )
- 37 10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or  
 38 provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug  
 39 or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )



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- 11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) )
- 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) )
- 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*)) ) OR AB ( (counsel\*ing session\* or ((support or peer or self- help or self-care) N2 (intervention\* or group\* or program\*)) )
- 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )
- 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )
- 16 TI ( ((print\* N (material\* or based)) or paper- based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) )
- 17 TI ( (radio or television or audiovisual or video\* or tape recording\* or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*))) ) OR AB ( (radio or television or audiovisual or video\* or tape recording\* or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or mp3 player\* or hotline\* or answering service\* or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*))) )
- 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )
- 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or

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7 or laptop\* or notebook computer\*) ) OR AB ( ("touch screen" or "digital assistant\*" or pda  
8 or blackberry or mobile-device\* or laptop\* or notebook computer\*) )  
9 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or  
10 hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or  
11 system\* or technolog\*)) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or  
12 phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition  
13 or messag\* or system\* or technolog\*)) ) )  
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16 23 (MH "Vaccination+") OR (MH "Vaccines+") OR (MH "Immunization+") OR  
17 (MH "Immunization Programs+")  
18 24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or  
19 immunis\* or vaccin\* or inoculat\* ) )  
20 25 S23 OR S24  
21 26 (MH "Canada") OR TI (Canad\* or Alberta or "British Columbia" or Manitoba or  
22 "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or  
23 "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan  
24 or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or  
25 Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and  
26 Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward  
27 Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT  
28 or "Yukon Territory" )  
29 27 S22 AND S25 AND S26  
30 28 MH "Animals" NOT MH "Humans"  
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10 "Communications Media" OR DE "Audiovisual Communications Media" OR DE "Digital  
11 Media" OR DE "Mass Media" OR DE "Multimedia" OR DE "Social Media" OR DE  
12 "Telecommunications Media" OR DE "Health Education" OR DE "Public Health  
13 Campaigns" OR DE "Digital Health Resources" OR DE "Digital Information" OR DE  
14 "Digital Libraries" OR DE "Digital Literacy" OR DE "Electronic Books" OR DE "Health  
15 Information" OR DE "Digital Health Resources" OR DE "Computers" OR DE "Cloud  
16 Computing" OR DE "Computer Games" OR OR DE "Computer Software" OR DE "Digital  
17 Computers" OR DE "Microcomputers" OR DE "Mobile Devices" OR DE "Computer  
18 Games" OR DE "Mobile Devices" OR DE "Mobile Phones" OR DE "Tablet Computers"  
19 OR DE "Computer Applications" OR DE "Cloud Computing" OR DE "Computer Assisted  
20 Design" OR DE "Computer Assisted Instruction" OR OR DE "Computer Programming"  
21 OR DE "Computer Simulation" OR DE "Computer Software" OR DE "Electronic  
22 Collaboration" OR DE "Electronic Learning" OR DE "Groupware" OR DE "Hypermedia"  
23 OR DE "Hypertext" OR DE "Mobile Applications" OR DE "Computer Searching" OR DE  
24 "Human Computer Interaction" OR DE "Computer Searching" OR DE "Computer Usage"  
25 OR DE "Digital Game-Based Learning" OR DE "Digital Interventions" OR DE  
26 "Telemedicine" OR DE "Teleconferencing" OR DE "Teleconsultation" OR DE "Health  
27 Literacy" OR DE "Client Education" OR DE "Health Promotion"  
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30 total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or  
31 intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or  
32 system\* or barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or  
33 facilitated or augmentative or alternative or total or simultaneous or manual or mass or  
34 face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\*  
35 or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) )  
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37 3 TI ( ((health or patient or client) N1 (education or knowledge or promotion)) ) OR  
38 AB ( ((health or patient or client) N1 (education or knowledge or promotion)) )  
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41 online or web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or  
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43 method\* or process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or  
44 training or skills or online or web\* or internet or video\* or multimedia or multi- media) N1  
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- 7 TI ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) )
- 8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) )
- 9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) ) OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )
- 10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )
- 11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) )
- 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") )
- 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*))) ) OR AB ( (counsel\*ing session\* or ((support or peer or self- help or self-care) N2 (intervention\* or group\* or program\*))) )
- 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )
- 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )
- 16 TI ( ((print\* N (material\* or based)) or paper- based or "written material\*" or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\* ) ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\* ) )

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- 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )
- 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) )
- 20 TI ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile- device\* or laptop\* or "notebook computer\*" ) OR AB ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile-device\* or laptop\* or "notebook computer\*" )
- 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*)) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*)) )
- 22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21
- 23 DE "Immunization" OR DE "Vaccination"
- 24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or immunis\* or vaccin\* or inoculat\* )
- 25 S23 OR S24
- 26 TI ( Canad\* or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" )
- 27 S22 AND S25 AND S26
- 28 S22 AND S25 AND S26 Narrow by Language: - english



## Scopus

1 TITLE-ABS-KEY ( ( ( health OR patient OR mediated OR facilitated OR  
2 augmentative OR alternative OR total OR simultaneous OR manual OR mass OR  
3 face-to-face OR oral OR cultural OR risk OR intervention\* OR interaction\* OR  
4 program\* OR skill\* OR aid\* OR tool\* OR board\* OR device\* OR system\* OR  
5 barrier\* ) W/1 communication ) OR ( ( health OR patient OR client ) W/1 (  
6 education OR knowledge OR promotion ) ) OR ( ( education\* OR teaching OR  
7 learning OR instruction\* OR training OR skills OR online OR web\* OR internet  
8 OR video\* OR multimedia OR multi-media ) W/1 ( intervention\* OR session\* OR  
9 course\* OR program\* OR material\* OR package\* OR module\* OR demonstration  
10 OR method\* OR process\* ) ) OR ( self W/1 ( teaching OR education OR  
11 instruction ) ) OR ( ( media W/3 campaign\* ) OR ( promotion W/1 program\* ) OR (  
12 "community based" n3 AND intervention\* ) OR ( awareness W/3 ( rais\* OR increas\*  
13 ) ) ) OR ( ( family OR office OR work\* OR school OR faith OR church OR clinic  
14 OR hospital OR community ) W/1 based ) OR ( ( improv\* OR increas\* OR  
15 enhanc\* OR patient ) W/3 ( understanding OR comprehension ) ) OR ( information\*  
16 W/1 ( service\* OR center\* OR system\* OR dissemination OR seeking OR  
17 retrieval OR transfer\* OR campaign\* OR provision OR aid OR material\* OR  
18 sheet\* OR pack\* ) ) OR ( ( patient OR client OR health OR medical OR drug OR  
19 written OR print\* OR visual\* OR provid\* OR present\* ) W/2 inform\* ) OR ( ( (  
20 inform\* OR message\* OR communicat\* OR effect\* OR gain OR negative ) W/2  
21 fram\* ) OR ( ( verbal OR oral OR written OR text OR data OR numerical OR  
22 statistical OR visual OR graphic\* OR pictorial OR audio\* OR video\* OR  
23 multimedia OR multi-media OR narrative ) W/1 ( format\* OR presentation OR  
24 display\* ) ) ) OR ( ( ( counsel\* OR social OR carer\* OR caregiver\* OR "care  
25 giver\*" OR patient\* ) W/1 support\* ) OR psychosocial OR ( ( social OR pastoral  
26 OR spiritual ) W/1 care ) OR religion OR chaplaincy OR "behavio?r modification"  
27 OR ( "counsel\*ing session\*" OR ( ( support OR peer OR self-help OR self-care )  
28 W/2 ( intervention\* OR group\* OR program\* ) ) ) OR ( ( social OR community )  
29 W/2 network\* ) OR ( ( mass OR communication\* OR electronic OR digital OR  
30 print\* OR social OR new ) W/1 media ) OR ( ( print\* W/1 ( material\* OR based ) )  
31 OR paper-based OR written AND material\* OR ( paper W/1 pen\* ) OR publication\*  
32 OR newsletter\* OR brochure\* OR booklet\* OR pamphlet\* OR leaflet\* OR flyer\*  
33 OR handout\* OR poster\* OR illustrat\* OR picture\* OR pictogram\* ) OR ( radio  
34 OR television OR audiovisual OR video\* OR tape AND recording\* OR cassette\*  
35 OR cd-rom\* OR dvd\* OR motion AND picture\* OR multimedia OR hypermedia  
36 OR telephon\* OR phone OR phones OR sms OR short AND message\* OR "text  
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38 service\*" OR internet OR web\* OR online OR on-line OR blog\* OR telemedicine  
39 OR telehealth OR telecare OR ( virtual W/1 ( reality OR world OR environment\* )  
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41 ( computer\* W/1 ( system\* OR network\* OR program\* OR terminal\* OR interfac\*  
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4 communication\* OR "assisted instruction" ) ) OR ( "touch screen" OR "digital  
5 assistant\*" OR pda OR blackberry OR "mobile-device\*" OR laptop\* OR "notebook  
6 computer\*" ) OR ( ( ( automat\* OR interactive\* ) W/3 ( telephon\* OR phone\* OR  
7 voice OR hotline\* OR "hot line\*" ) ) OR ( ( voice OR speech ) W/1 ( response OR  
8 recognition OR messag\* OR system\* OR technolog\* ) ) ) )  
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10 2 TITLE-ABS-KEY ( ( immuniz\* OR immunis\* OR vaccin\* OR inoculat\* ) )  
11 3 ( TITLE-ABS-KEY ( canad\* OR alberta OR "British Columbia" OR manitoba OR  
12 "New Brunswick" OR "Newfoundland and Labrador" OR newfoundland OR labrador  
13 OR "Nova Scotia" OR ontario OR "Prince Edward Island" OR pei OR quebec OR  
14 saskatchewan OR nunavut OR "Northwest Territories" OR nwt OR "Yukon  
15 Territory" ) ) )  
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19 humans OR human ) ) ) ) )  
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## Non-Academic Literature Search Strategies

### Google Scholar

Search 1: (immunization OR vaccine OR vaccination OR inoculate OR inoculation) (inform OR educate OR aware) (program OR campaign OR intervention) canada

Search 2: vaccine education program canada

Search 3: Search 2: vaccine education program canada

Search 4: "COVID 19 vaccine" (educate OR inform) (campaign OR program) Canada

### CADTH "Grey Matters" Checklist

Source	Link	Keyword(s) used
Alberta College of Physicians: Tools for Practice	<a href="https://gomainpro.ca/tools-for-practice/">https://gomainpro.ca/tools-for-practice/</a>	vaccine program; immunization program
Alberta Health and Wellness. Decision Process provincial reviews – ongoing and complete"	<a href="http://www.health.alberta.ca/initiatives/AHTDP-reviews.html">http://www.health.alberta.ca/initiatives/AHTDP-reviews.html</a>	vaccine program; immunization program
Canadian Agency for Drugs and Technologies in Health (CADTH)	<a href="https://www.cadth.ca/search?keywords">https://www.cadth.ca/search?keywords</a>	vaccine immunization program
Health Quality Ontario (HQO). Health Technology Assessment	<a href="http://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment">http://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment</a>	vaccine immunization program
The Hospital for Sick Children (SickKids). Technology Assessment at SickKids (TASK)	<a href="http://lab.research.sickkids.ca/task/reports-theses/">http://lab.research.sickkids.ca/task/reports-theses/</a>	N/A
Institute of Health Economics (IHE). Publications	<a href="http://www.ihe.ca/index.php?/publications">http://www.ihe.ca/index.php?/publications</a>	vaccine program
Manitoba Centre for Health Policy (MCHP). Deliverables	<a href="http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html">http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html</a>	N/A
McGill University Health Centre (MUHC). Technology Assessment Unit Reports	<a href="https://muhc.ca/tau/page/tau-reports">https://muhc.ca/tau/page/tau-reports</a>	vaccine program
NLCAHR : Newfoundland and Labrador Centre for Applied Health Research. Contextualized Health Research Synthesis Program (CHRSP) Completed CHRSP projects	<a href="http://www.nlcahr.mun.ca/CHRSP/CompletedCHRSP.php">http://www.nlcahr.mun.ca/CHRSP/CompletedCHRSP.php</a>	vaccine program

Ottawa Hospital Research Institute (OHRI). Knowledge Synthesis Group	<a href="http://www.ohri.ca/ksgroup/publications.asp">http://www.ohri.ca/ksgroup/publications.asp</a>	vaccine program
University of British Columbia. Centre for Health Services and Policy Research	<a href="http://chspr.ubc.ca/publications/">http://chspr.ubc.ca/publications/</a>	vaccine program
Alberta Medical Association. Toward Optimized Practice (TOP)	<a href="https://actt.albertadoctors.org/Pages/Search.aspx?k=vaccine%20program#k=immunization%20program">https://actt.albertadoctors.org/Pages/Search.aspx?k=vaccine%20program#k=immunization%20program</a>	vaccine program / immunization program
Winnipeg Regional Health Authority (WRHA). Evidence Informed Practice Tools	<a href="http://www.wrha.mb.ca/professionals/ebpt/">http://www.wrha.mb.ca/professionals/ebpt/</a>	vaccine program / immunization program
McMaster University, McMaster Health Forum. Health Systems Evidence	<a href="http://www.healthsystemsevidence.org">http://www.healthsystemsevidence.org</a>	vaccine program canada
Public Health Agency of Canada (PHAC). • Public Health Infobase	<a href="http://infobase.phac-aspc.gc.ca/index-en.html">http://infobase.phac-aspc.gc.ca/index-en.html</a>	vaccine program

### Google (General Search)

Search 1: canada immunization information

Search 2: vaccine information program canada

## Appendix II: Data extraction instrument

Domain	Extraction
Article Characteristics	Article ID number (from Covidence)
	Authors
	Year of publication
	Publication journal
	Full citation (e.g., author(s), date, title, journal, volume, issue, pages)
	Study design
	Study objective(s) (including aim/purpose)
	Research question(s)
	Methodology (including philosophical perspective)
	Program/Intervention/Strategy Characteristics
Program description	
Target population and participant details (e.g., age, sex, number)	
Delivery format (i.e., virtual, in-person, or mixed)	
Program delivery personnel and team format (e.g., public health nurses, etc)	
Setting (e.g., clinical, community, etc)	
Context	
Geographical location (e.g. region, country)	
Vaccine type(s)	
Data analysis	
Outcome measures	
Reported barriers/facilitators to intervention implementation and/or delivery	
Author's conclusion (i.e., reported key findings)	
Implications	
Identified limitations	
Reviewer's comments	

## Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	



SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

\* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. doi: [10.7326/M18-0850](https://doi.org/10.7326/M18-0850).



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

Journal:	<i>BMJ Open</i>
Manuscript ID	bmjopen-2021-060103.R2
Article Type:	Protocol
Date Submitted by the Author:	23-Mar-2022
Complete List of Authors:	Kelly, Katherine; University of Prince Edward Island, Department of Applied Human Sciences Mears, Kim; University of Prince Edward Island, Data and Research Sciences, Robertson Library Burns, Margie; University of Prince Edward Island, Faculty of Nursing Montepare, William; University of Prince Edward Island, Applied Human Sciences
<b>Primary Subject Heading</b>:	Public health
Secondary Subject Heading:	Qualitative research, Communication, Global health, Health services research, Epidemiology
Keywords:	Public health < INFECTIOUS DISEASES, COVID-19, EPIDEMIOLOGY, Infection control < INFECTIOUS DISEASES, Community child health < PAEDIATRICS, PUBLIC HEALTH

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

## Authors

Katherine J. Kelly<sup>1\*</sup> Kim Mears<sup>2</sup> Margie Burns<sup>3</sup> William Montelpare<sup>1</sup>

1. Department of Applied Human Sciences, Faculty of Sciences, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

2. Data and Research Sciences, Robertson Library, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

3. Faculty of Nursing, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

\* Corresponding author: Katherine J. Kelly, PhD, [kjkelly@upei.ca](mailto:kjkelly@upei.ca), (902) 566-0827, Department of Applied Human Sciences, Faculty of Sciences, University of Prince Edward Island, 550 University Avenue, Charlottetown, PEI, C1A 4P3

## Abstract

**Objective:** To identify, characterize, and map the existing knowledge about (1) immunization programs that provide evidence-based support about vaccines to Canadians and reduce barriers to immunization; and (2) barriers and facilitators to the delivery of immunization support programs.

**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 immunization programs.

**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 November 19, 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 programs 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 immunization. Our primary concept involves mapping the characteristics of programs (e.g., program description, delivery format, etc.) and our secondary concept will examine barriers and facilitators to program 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 immunization programs across a wide range of vaccine-types and settings. We intend to use the results of this review to develop an immunization support program in Prince Edward Island, Canada.

**Keywords:** Vaccine Hesitancy; Health Literacy; Patient Education; Knowledge Dissemination; Public Health

**Word Count:** 2728

## ARTICLE SUMMARY

### Strengths and Limitations of this Study:

1. Our team involves individuals with expertise in the area of health services research and reviews, including researchers, clinicians, and a health sciences librarian.
2. Searches in the published and unpublished literature will allow us to identify programs informing Canadians about immunization from a wide range of sources.
3. The article screening and data collection steps will be conducted by two independent reviewers.
4. 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, immunization programs 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 conceptualized as the reluctance to be vaccinated despite the availability of vaccines [3] and has been identified by the World Health Organization as one of the greatest threats to humanity [4]. More recently, hesitation regarding Coronavirus-2019 (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 [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 immunization can lead to vaccine hesitancy and anti-vaccination sentiments [19]. Providing evidence-based information about immunization, and removing barriers to immunization, can promote participation in vaccine programs [20–23].

Acceptance of vaccines range from the vaccine confident to those firmly opposed to immunization [8, 24]. Individuals that fall in the middle of this continuum (e.g., 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 immunization support programs, such as knowledge-translation programs 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 immunization can occur through various settings (e.g., clinics, schools, community centres) to different sections of the population (e.g., urban, rural, Indigenous, vulnerable persons, etc.), by diverse teams (e.g., nurses, pharmacists, educators) [28, 29]. The goal of such interventions and communication strategies is typically to promote uptake of vaccines (Robinson et al., 2018), including regular childhood vaccines [30, 31], novel, disease-specific vaccines (e.g., influenza [32] and COVID-19 vaccines [33]), and travel-related vaccines [34].

Given the potential impact that communicating evidence-based information about vaccines can have on participation in immunization programs, a review of existing immunization support programs 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

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

## Research questions

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

## Eligibility criteria

### *Participants*

This scoping review will focus on immunization support programs that target various cohorts within the general public, including parents/guardians, infants, children, adolescents, and other adults (e.g., school administration, seniors, etc). Members of the general public will be inclusive of any segment of the population (e.g. 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 immunization support programs that aim to engage the general public to communicate about immunization and/or disseminate evidence-based information about vaccines, while reducing barriers to immunization. This study defines immunization support programs as an umbrella term for any program that aims to engage in communication with the general public about immunization, using evidence-based information, and/or reduce structural barriers to immunization (e.g., childcare, transportation, etc). This includes anything from comprehensive education programs to reminders and pamphlet campaign. In this study, we distinguish between immunization programs and immunization *support* programs; 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 (i.e., 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 immunization support programs, such as setting and delivery format.

The focus of this review is on immunization support programs that directly target members of the general public (e.g., parents/guardians, etc) and communicate evidence-based information about immunization and/or reduce barriers to immunization. The goal of these programs is to promote the uptake of vaccines (including, but not limited to: vaccines targeting

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3 influenza, COVID-19, human papillomavirus, and routine childhood vaccinations such as  
4 measles, mumps, and rubella; pneumococcal conjugate; and tetanus, diphtheria, pertussis; etc).  
5 Terms related to immunization support programs (e.g., interventions) and terms synonymous  
6 with these programs (e.g., vaccine education) will be used in our search strategy to cast a wide  
7 net across potentially relevant sources.

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

### 16 17 18 *Context*

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20 This review will consider papers on immunization support programs in all settings,  
21 including (but not limited to) clinics (e.g., primary care, provincial public health), community  
22 health centres, school settings, and research clinics. We will consider all methods of delivery  
23 (e.g., phone, videoconferencing, in-person, etc). Papers will be limited to programs in Canadian  
24 provinces and territories.

### 25 26 27 *Types of Sources*

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

## 42 43 44 **METHODOLOGY**

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46 This review will be conducted in accordance with the Joanna Briggs Institute (JBI)  
47 methodology for scoping reviews [35].

### 48 49 50 **Search strategy**

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52 A three-step search strategy was developed by a research librarian (KM) in consultation  
53 with the research team to identify published empirical articles. The first step of the search  
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strategy consisted of a limited search of 2 databases (CINAHL and Academic Search Complete, both via EBSCOhost) to identify titles and abstracts of papers that focused on programs and/or interventions that provide information about immunization in Canada. The text words used in identified articles at this preliminary stage (i.e., 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 (Kaufman et al., 2017). 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 November 19 2021 in 6 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 Appendix 1. A detailed search process that follows the PRISMA-S (Preferred Reporting Items for Systematic reviews and Meta-Analyses literature search extension) will also be included in the scoping review [36].

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 [37]. Relevant organizational, governmental, and health-care association websites will also be reviewed, including: the Public Health Agency of Canada, the Government of Canada (e.g., 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 [38], 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 (KK 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 (i.e., measure of inter-rater agreement) will be assessed to determine whether agreement is sufficient for further independent screening [39]. If agreement is not sufficient (e.g., the statistic is 0.60 or less, indicating fair or no agreement [39]),

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3 the reviewers will find a consensus on conflicting articles and independently screen an additional  
4 50 articles. Reviewers will meet to discuss any discrepancies, and a third reviewer (WM) will  
5 resolve any outstanding conflicts.  
6

7 Potentially relevant sources will be retrieved in full and their citation details will be  
8 imported into Covidence. The same two reviewers (KK and JL) will independently screen full-  
9 text papers against the inclusion criteria using the same process as the one described above.  
10 Reasons for exclusion of sources of evidence at full text that do not meet the inclusion criteria  
11 will be recorded and reported in the final review. Any disagreements that arise between the  
12 reviewers at each stage of the selection process will be resolved through discussion or with an  
13 additional reviewer (WM). The results of the search and the study inclusion process will be  
14 reported in full in the final scoping review and presented in a Preferred Reporting Items for  
15 Systematic Reviews and Meta-analyses extension for scoping review (PRISMA-ScR) flow  
16 diagram [40].  
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### 19 **Data Extraction**

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21 Data will be extracted from papers by two independent reviewers using a data extraction  
22 tool developed by the research team and implemented in Covidence (see Appendix 2).  
23 Information that will be extracted from papers will include: (1) characteristics of the article,  
24 including: author(s); year of publication; publication journal; study design; study objectives  
25 (including aims/purpose); research question(s); methodology (including philosophical  
26 perspective); and (2) characteristics of the program/intervention, including: program name;  
27 program description; target population and participant details; delivery format; program delivery  
28 personnel and team format; setting (e.g., community, clinical, etc); context; geographical  
29 location; vaccine type(s); data analysis; outcome measures; reported barriers/facilitators to  
30 intervention implementation and/or delivery; author's conclusion (i.e., key findings);  
31 implications; identified gaps/future directions; reviewer's comments.  
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33 The draft data extraction tool will be modified and revised as necessary during the  
34 process of extracting data from each included evidence source. Modifications will be detailed in  
35 the scoping review. Any disagreements that arise between the reviewers will be resolved through  
36 discussion, or with an additional reviewer (WM). If appropriate, authors of papers will be  
37 contacted to request missing or additional data, where required.  
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### 41 **Data Analysis and Presentation**

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43 The results of the search will be synthesized, summarized, and reported in full in the final  
44 scoping review and presented in a PRISMA-ScR flow diagram [40]. All extracted data will be  
45 combined to provide one complete dataset for analysis and cleaned by one reviewer. The  
46 extracted data will be presented in a tabular form that aligns with the study's objectives.  
47 Specifically, one table will include author(s); year of publication; publication journal; study  
48 design; study objectives (including aims/purpose); research question(s); and methodology  
49 (including philosophical perspective); target population and participant details; delivery format;  
50 setting (e.g., community, clinical, etc); context; geographical location; vaccine type(s); data  
51 analysis; outcome measures; implications; identified limitations. A second table will include  
52 program name; program description; program delivery personnel and team format; and reported  
53 barriers/facilitators to intervention implementation and/or delivery. We will also present a  
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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 minimize 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 immunization support programs based in Quebec will be omitted from the current review, thus impacting the generalizability 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 immunization support programs 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 characterize and map existing immunization promotion programs in Canada. We intend to use the results of this scoping review to develop a province-wide immunization support program in Prince Edward Island, Canada. Specifically, our program aims to promote knowledge translation about immunization, and especially the COVID-19 vaccine, and to increase health literacy. Through a partnership with CHANCES, a charitable organization that provides programming and support to PEI children and their families [41], we aim to provide informational, emotional, and structural (i.e., through the reduction of barriers such as child care, transportation, etc.) support to Islanders relative to COVID-19 immunization. Findings from this scoping review will inform the framework of our program using lessons learned and best practices from similar programs. Findings from this review may also inform other immunization programs 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.

## **FUNDING STATEMENT**

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

## **COMPETING INTERESTS STATEMENT**

There is no conflict of interest in this project.

## AUTHORS CONTRIBUTIONS

**Katherine J. Kelly:** Substantial contributions to the conception and design of this project (e.g., expert contribution on the process of conducting a scoping review); primary author of completed manuscript; critical revision for important intellectual content; and final approval of the version to be submitted for consideration.

**Kim Mears:** Substantial contributions to the conception and design of this project (i.e., expert librarian who developed the keyword search strategy and conducted the retrieval of papers); critical revision for important intellectual content; and final approval of the version to be submitted for consideration.

**Margie Burns:** Substantial contributions to the conception and design of this project and drafting/interpretation of data for the work; critical revision for important intellectual content; and final approval of the version to be submitted for consideration.

**William Montelpare:** Substantial contributions to the conception and design of this project and drafting/interpretation of data for the work; critical revision for important intellectual content; final approval of the version to be submitted for consideration.

## ACKNOWLEDGEMENTS

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

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38 [committee-on-immunization-naci/interim-guidance-immunization-programs-during-covid-](https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/interim-guidance-immunization-programs-during-covid-19-pandemic.html#shr-pg0)  
39 [19-pandemic.html#shr-pg0](https://www.canada.ca/en/public-health/services/immunization/national-advisory-committee-on-immunization-naci/interim-guidance-immunization-programs-during-covid-19-pandemic.html#shr-pg0) (2020).  
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## Appendix 1: Search Strategies

### Academic Database Search Strategies

Academic Search Complete via EBSCOhost

Search modes - Boolean/Phrase

1 DE "HEALTH education" OR DE "COMIC books, strips, etc., in health education" OR DE  
2 "DRAMA in health education" OR DE "HEALTH counseling" OR DE "HEALTH education  
3 (Elementary)" OR DE "HEALTH education (Middle school)" OR DE "HEALTH education  
4 (Preschool)" OR DE "HEALTH education (Secondary)" OR DE "HEALTH education  
5 administration" OR DE "HEALTH education of women" OR DE "HEALTH fairs" OR DE  
6 "MASS media in health education" OR DE "PATIENT education" OR DE "PUBLIC health  
7 education" OR DE "RADIO in health education" OR DE "STUDY & teaching of sexually  
8 transmitted diseases" OR DE "TELEVISION in health education" OR DE "MEDICAL  
9 communication" OR DE "COMMUNICATION in dentistry" OR DE  
10 "COMMUNICATION in emergency medicine" OR DE "COMMUNICATION in nursing"  
11 OR DE "COMMUNICATION in obstetrics" OR DE "COMMUNICATION in pediatrics" OR  
12 DE "HEALTH education" OR DE "HEALTH risk communication" OR DE "MEDICINE --  
13 Communication systems" OR DE "MEDICINE information services" OR DE "PATIENT  
14 handoff" OR DE "SBAR (Communication)" OR DE "SOCIAL media in medicine" OR DE  
15 "COMMUNICATION in health education" OR DE "HEALTH information technology" OR  
16 DE "HEALTH literacy" OR DE "HEALTH information technology" OR DE "COMPUTERS  
17 in medicine" OR DE "INTERNET in medicine" OR DE "MARKETING" OR DE  
18 "ADVERTISING" OR DE "BRANDING (Marketing)" OR DE "COLOR in marketing" OR  
19 DE "COMMUNICATION in marketing" OR DE "CONTENT marketing" OR DE  
20 "EDUCATION marketing" OR DE "EVENT marketing" OR DE "GOVERNMENT  
21 marketing" OR DE "GUERRILLA marketing" OR DE "INDUSTRIAL marketing" OR DE  
22 "INFLUENCER marketing" OR DE "INSTITUTIONAL market" OR DE "INTEGRATED  
23 marketing" OR DE "INTERACTIVE marketing" OR DE "INTERNET marketing" OR DE  
24 "LOCATION marketing" OR DE "MACROMARKETING" OR DE "MARKETING  
25 effectiveness" OR DE "MARKETING in service industries" OR DE "MARKETING  
26 models" OR DE "MARKETING personnel" OR DE "MARKETING planning" OR DE  
27 "MARKETING science" OR DE "MARKETING strategy" OR DE "MARKETING theory"  
28 OR DE "MASS marketing" OR DE "MICROMARKETING" OR DE "MOBILE marketing"  
29 OR DE "NEWSPAPER circulation" OR DE "ON- demand marketing" OR DE  
30 "PERMISSION marketing" OR DE "ROADSIDE marketing" OR DE "RURAL marketing"  
31 OR DE "SOCIAL marketing" OR DE "TARGET marketing" OR DE "TECHNOLOGY-  
32 enabled selling" OR DE "VISUAL marketing" OR DE "REGIONAL marketing" OR DE  
33 "INTERNET in publicity" OR DE "MASS media & publicity" OR DE "RADIO in publicity"  
34 OR DE "SOCIAL services publicity" OR DE "TELEVISION in publicity" OR DE  
35 "SOCIAL media in marketing" OR DE "WORD of mouth advertising" OR DE  
36 "INFLUENCER marketing" OR DE "DIRECT marketing" OR DE "DIRECT emarketing"  
37 OR DE "TELEMARKETING"

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12 simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\*  
13 or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or  
14 barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or facilitated or  
15 augmentative or alternative or total or simultaneous or manual or mass or face-to-face or  
16 oral or cultural or risk or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\*  
17 or board\* or device\* or system\* or barrier\*) n1 communication) )
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19 3 TI ( ((health or patient or client) N1 (education or knowledge or promotion)) ) OR AB ( (health or patient or client) N1 (education or knowledge or promotion)) )
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21 4 TI ( ((education\* or teaching or learning or instruction\* or training or skills or online or  
22 web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or  
23 course\* or program\* or material\* or package\* or module\* or demonstration or method\* or  
24 process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or  
25 skills or online or web\* or internet or video\* or multimedia or multi- media) N1  
26 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or  
27 demonstration or method\* or process\*)) )
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29 5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching or  
30 education or instruction)) )
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32 6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3  
33 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or  
34 (promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\*  
35 or increas\*))) )
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37 7 TI ( ((family or office or work\* or school or faith or church or clinic) N1 based) ) OR AB ( (family or office or work\* or school or faith or church or clinic) N1 based) ) 8  
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39 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or  
40 comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3  
41 (understanding or comprehension)) )
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43 9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or  
44 retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*))  
45 ) OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or  
46 seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or  
47 sheet\* or pack\*)) )
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49 10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or  
50 provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or  
51 drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )
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53 11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative)  
54 N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or  
55 visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or  
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- narrative) N (format\* or presentation or display\*)) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) ) )
- 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) )
- 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*)) ) OR AB ( (counsel\*ing session\* or ((support or peer or self- help or self-care) N2 (intervention\* or group\* or program\*)) ) )
- 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )
- 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )
- 16 TI ( ((print\* N (material\* or based)) or paper- based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) )
- 17 TI ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cdrom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*)) ) ) OR AB ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*)) ) )
- 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )
- 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or



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3 searching or mediated or based or tailored or communication or assisted instruction))  
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6 20 TI ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile-device\* or  
7 laptop\* or "notebook computer\*") ) OR AB ( ("touch screen" or "digital assistant\*" or  
8 pda or blackberry or mobile-device\* or laptop\* or "notebook computer\*"))  
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10 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\*  
11 or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\*  
12 or technolog\*))) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or  
13 phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or  
14 recognition or messag\* or system\* or technolog\*))) )  
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16 22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11  
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19 23 DE "VACCINES" OR DE "ANTI-idiotypic vaccines" OR OR DE "AUTOVACCINES"  
20 OR DE "BACTERIAL vaccines" OR DE "BOOSTER vaccines" OR DE "COMBINED  
21 vaccines" OR DE "DNA vaccines" OR DE "ENCEPHALITIS vaccines" OR DE  
22 "INACTIVATED oil adjuvant vaccines" OR DE "MENINGITIS vaccines" OR DE  
23 "ORAL vaccines" OR DE "PARASITIC vaccines" OR DE "RICKETTSIAL vaccines"  
24 OR DE "SCHISTOSOMIASIS vaccines" OR DE "SEXUALLY transmitted disease  
25 vaccines" OR DE "SYNTHETIC vaccines" OR DE "TETANUS vaccines" OR DE  
26 "TRYPANOSOMIASIS vaccines" OR DE "VIRAL vaccines" OR DE  
27 "IMMUNIZATION" OR DE "IMMUNIZATION of children" OR DE "VACCINATION"  
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29 24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\*) ) OR AB ( (immuniz\* or immunis\*  
30 or vaccin\* or inoculat\*) )  
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32 25 S23 OR S24  
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34 26 (DE "CANADA") OR TI (Canad\* or Alberta or "British Columbia" or Manitoba or  
35 "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or  
36 "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan  
37 or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or  
38 Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and  
39 Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward  
40 Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT  
41 or "Yukon Territory" )  
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45 CINAHL via EBSCOhost

46 Search modes - Boolean/Phrase

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49 1 (MH "Communication+") OR (MH "Marketing+") OR (MH "Advertising+") OR (MH  
50 "Communications Media+" OR (MH "Computer Systems+")  
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52 2 TI ( (health or patient or mediated or facilitated or augmentative or alternative or  
53 total or simultaneous or manual or mass or face-to-face or oral or cultural or risk  
54 or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or  
55 device\* or system\* or barrier\*) n1 communication) ) OR AB ( (health or patient  
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 (education or knowledge or promotion)) ) OR

AB ( ((health or patient or client) N1 (education or knowledge or promotion)) ) 4 TI ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or demonstration or method\* or process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\* or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or demonstration or method\* or process\*)) )

5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching or education or instruction)) )

6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or ("community based" N3 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or (promotion N1 program\*) or ("community based" N3 intervention\*) or (awareness N3 (rais\* or increas\*))) )

7 TI ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church or clinic or hospital or community) N1 based) )

8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or comprehension)) )

9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) ) OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )

10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )

11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*)) )

12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral

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10 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media ) )
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34 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )
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37 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or "assisted instruction")) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or "assisted instruction")) )
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49 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*))) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*))) )
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55 22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11
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3 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21  
4 23 (MH "Vaccines+") OR (MH "Immunization+") OR (MH "Immunization Programs")  
5 24 TI ( immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or  
6 immunis\* or vaccin\* or inoculat\* )  
7  
8 25 S23 OR S24  
9  
10 26 (MH "Canada+") OR TI (Canad\* or Alberta or "British Columbia" or Manitoba or  
11 "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or  
12 "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan  
13 or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or  
14 Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and  
15 Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward  
16 Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT  
17 or "Yukon Territory" )  
18  
19 27 S22 AND S25 AND S26  
20 28 S22 AND S25 AND S26 Narrow by Language: - english  
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## EmCare via Ovid

&lt;1995 to 2021 Week 45&gt;

- 1 exp immunization/  
 2 exp vaccines/  
 3 exp vaccination/  
 4 (immuniz\* or immunis\* or immunotherap\* or vaccin\* or inoculat\*).mp.  
 5 1 or 2 or 3 or 4  
 6 exp interpersonal communication/  
 7 exp mass communication/  
 8 ((health or patient or mediated or facilitated or augmentative or alternative or total or  
 9 simultaneous or manual or mass or face-to-face or oral or cultural or risk or intervention\*  
 10 or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\* or  
 11 barrier\*) adj1 communication).mp.  
 12 9 (communicat\* or messag\* or verbal\* or nonverbal\* or written or writing or reading or  
 13 language or speech or speak\* or spoken or talk\* or conversation or voice or  
 14 visualperception or feedback or listen\* or negotiat\* or notify\* or notification or remind\* or  
 15 narrat\* or music\* or humor or humorous or adverti\* or persua\* or interpreting or  
 16 interpreters or interpret\*-service or translat\* service\* or translating).hw,ti.  
 17 10 ((health or patient or client) adj (education or knowledge or promotion)).mp.  
 18 11 ((education\* or teaching or learning or instruction\* or training or skills or online or web\*  
 19 or internet or video\* or multimedia or multi-media) adj1 (intervention\* or session\* or  
 20 course\* or program\* or material\* or package\* or module\* or demonstration or method\* or  
 21 process\*)).mp.  
 22 12 (self adj (teaching or education or instruction)).mp.  
 23 13 ((media adj3 campaign\*) or (promotion adj1 program\*) or (community based adj3  
 24 intervention\*) or (awareness adj3 (rais\* or increas\*))).tw.  
 25 14 exp marketing/  
 26 15 exp advertising/  
 27 16 ((family or office or work\* or school or faith or church or clinic or hospital) adj based).tw.  
 28 17 ((improv\* or increas\* or enhanc\* or patient) adj3 (understanding or  
 29 comprehension)).tw. 18 (information\* adj (service\* or center\* or system\* or  
 30 dissemination or seeking or retrieval or transfer\* or campaign\* or provision or aid or  
 31 material\* or sheet\* or pack\*)).mp.  
 32 19 ((patient or client or health or medical or drug or written or print\* or visual\* or  
 33 provid\* or present\*) adj2 inform\*).mp.  
 34 20 (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative)  
 35 adj2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical  
 36 or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media  
 37 or narrative) adj (format\* or presentation or display\*))).mp.  
 38 21 (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) adj1  
 39 support\*) or psychosocial or ((social or pastoral or spiritual) adj care) or religion  
 40 or chaplaincy or behavio?r modification).mp.

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3 22 (counsel\*ing session\* or ((support or peer or self-help or self-care) adj2  
4 (intervention\* or group\* or program\*))).mp.  
5 23 ((social or community) adj2 network\*).mp.  
6 24 ((mass or communication\* or electronic or digital or print\* or social or new) adj  
7 media).tw.  
8 25 ((print\* adj (material\* or based)) or paper-based or written material\* or (paper  
9 adj1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or  
10 leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*).mp.  
11 26 (radio or television or audiovisual or video\* or tape recording\* or cassette\* or  
12 cdrom\* or dvd\* or motion picture\* or multimedia or hypermedia or telephon\* or  
13 phone or phones or sms or short message\* or text message\* or i-pod\* or ipod\* or  
14 mp3 player\* or hotline\* or answering service\* or internet or web\* or online or on-  
15 line or blog\* or telemedicine or telehealth or telecare or (virtual adj (reality or  
16 world or environment\*))).mp.  
17 27 ((electronic or e-) adj (mail or prescri\* or health or game\*)).mp.  
18 28 exp computer/  
19 29 (computer\* adj1 (system\* or network\* or program\* or terminal\* or interfac\* or  
20 interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or  
21 searching or mediated or based or tailored or communication or assisted  
22 instruction)).mp. 30 (touch screen or digital assistant\* or pda or blackberry or  
23 mobile-device\* or laptop\* or notebook computer\*).mp.  
24 31 (((automat\* or interactive\*) adj3 (telephon\* or phone or phones or voice or hotline\* or hot  
25 line\*)) or ((voice or speech) adj (response or recognition or messag\* or system\* or  
26 technolog\*))).mp.  
27 32 exp Canada/  
28 33 (((Canad\* or Alberta or British Columbia or Manitoba or New Brunswick or  
29 Newfoundland) and Labrador) or Newfoundland or Labrador or Nova Scotia or Ontario  
30 or Prince Edward Island or PEI or Quebec or Saskatchewan or Nunavut or Northwest  
31 Territories or NWT or Yukon Territory).mp.  
32 34 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or  
33 22 or 23 or 24 or 25 or 26 or 27 or 28 or 29 or 30 or 31  
34 35 32 or 33  
35 36 5 and 34 and 35  
36 37 (exp animal/ or nonhuman/) not exp human/  
37 38 36 not 37  
38 39 38 limited to english language  
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49 Medline via EBSCOhost

50 Search modes - Boolean/Phrase

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52  
53 1 MH "Communication+" OR MH "Marketing+" OR MH "Computer Systems" OR  
54 MH "Communications Media+" OR MH "Health Education+" OR MH "Health  
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Communication" OR MH "Patient Education as Topic+" OR MH "Access to Information"  
OR MH "Advertising+"

2 TI ( (health or patient or mediated or facilitated or augmentative or alternative or  
total or simultaneous or manual or mass or face-to-face or oral or cultural or risk  
or intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or  
device\* or system\* or barrier\*) n1 communication) ) OR AB ( (health or patient or  
mediated or facilitated or augmentative or alternative or total or simultaneous or  
manual or mass or face-to-face or oral or cultural or risk or intervention\* or  
interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or system\*  
or barrier\*) n1 communication) ) 3 TI ( ((health or patient or client) N1  
(education or knowledge or promotion)) ) OR

AB ( ((health or patient or client) N1 (education or knowledge or promotion)) ) 4 TI ( ((education\* or teaching or learning or instruction\* or training or skills or online or web\*  
or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or  
course\* or program\* or material\* or package\* or module\* or demonstration or method\* or  
process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or  
skills or online or web\* or internet or video\* or multimedia or multi- media) N1  
(intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or  
demonstration or method\* or process\*)) )

5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching  
or education or instruction)) )

6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3  
intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or  
(promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\*  
or increas\*))) )

7 TI ( ((family or office or work\* or school or faith or church or clinic or hospital or  
community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church  
or clinic or hospital or community) N1 based) )

8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or  
comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3  
(understanding or comprehension)) )

9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking  
or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )  
OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or  
retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )

10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or  
provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug  
or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )

11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or  
negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or  
statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or  
multi-media or narrative) N (format\* or presentation or display\*)) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative)  
N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or



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3 visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or  
4 narrative) N (format\* or presentation or display\*)) )  
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6 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1  
7 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or  
8 chaplaincy or behavior modification) ) OR AB ( (counsel\* or ((social or carer\* or  
9 caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or  
10 pastoral or spiritual) N care) or religion or chaplaincy or behavior modification) )  
11  
12 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2  
13 (intervention\* or group\* or program\*)) ) OR AB ( (counsel\*ing session\* or  
14 ((support or peer or self- help or self-care) N2 (intervention\* or group\* or  
15 program\*)) ) )  
16  
17 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2  
18 network\*) ) 15 TI ( ((mass or communication\* or electronic or digital or print\* or  
19 social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or  
20 digital or print\* or social or new) N1 media) )  
21  
22 16 TI ( ((print\* N (material\* or based)) or paper- based or written material\* or (paper  
23 N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or  
24 leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\* ) OR  
25 AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper  
26 N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or  
27 leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\* ) )  
28  
29 17 TI ( (radio or television or audiovisual or video\* or tape recording\* or cassette\* or  
30 cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or  
31 phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or  
32 ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or  
33 online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N  
34 (reality or world or environment\*)) ) OR AB ( (radio or television or audiovisual or  
35 video\* or tape recording\* or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or  
36 multimedia or hypermedia or telephon\* or phone or phones or sms or "short  
37 message\*" or "text message\*" or i-pod\* or ipod\* or mp3 player\* or hotline\* or  
38 answering service\* or internet or web\* or online or on-line or blog\* or  
39 telemedicine or telehealth or telecare or (virtual N (reality or world or  
40 environment\*)) ) )  
41  
42 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB (  
43 ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )  
44  
45 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or  
46 interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or  
47 searching or mediated or based or tailored or communication or assisted  
48 instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or  
49 terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or  
50 graphic\* or simulation\* or searching or mediated or based or tailored or  
51 communication or assisted instruction)) )  
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53 20 TI ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile- device\*  
54 or laptop\* or notebook computer\*) ) OR AB ( ("touch screen" or "digital  
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3 assistant\* or pda or blackberry or mobile-device\* or laptop\* or notebook  
4 computer\* )  
5  
6 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or  
7 hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\*  
8 or system\* or technolog\*))) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\*  
9 or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N  
10 (response or recognition or messag\* or system\* or technolog\*))) )  
11  
12 22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11  
13 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21  
14 23 (MH "Vaccination+") OR (MH "Vaccines+") OR (MH "Immunization+") OR  
15 (MH "Immunization Programs+")  
16  
17 24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\* ) OR AB ( (immuniz\* or  
18 immunis\* or vaccin\* or inoculat\* ) )  
19  
20 25 S23 OR S24  
21  
22 26 (MH "Canada") OR TI (Canad\* or Alberta or "British Columbia" or Manitoba or  
23 "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or  
24 "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan  
25 or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or  
26 Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and  
27 Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward  
28 Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT  
29 or "Yukon Territory" )  
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31 27 S22 AND S25 AND S26  
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33 28 MH "Animals" NOT MH "Humans"  
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35 29 S27 NOT S28  
36  
37 30 S27 NOT S28 Narrow by Language: - english

37 PsycINFO via EBSCOhost

38 Search modes - Boolean/Phrase

39  
40  
41 1 DE "Marketing" OR DE "Digital Marketing" OR DE "Retailing" OR DE "Social  
42 Marketing" OR DE "Advertising" OR DE "Television Advertising" OR DE  
43 "Communications Media" OR DE "Audiovisual Communications Media" OR DE "Digital  
44 Media" OR DE "Mass Media" OR DE "Multimedia" OR DE "Social Media" OR DE  
45 "Telecommunications Media" OR DE "Health Education" OR DE "Public Health  
46 Campaigns" OR DE "Digital Health Resources" OR DE "Digital Information" OR DE  
47 "Digital Libraries" OR DE "Digital Literacy" OR DE "Electronic Books" OR DE "Health  
48 Information" OR DE "Digital Health Resources" OR DE "Computers" OR DE "Cloud  
49 Computing" OR DE "Computer Games" OR OR DE "Computer Software" OR DE "Digital  
50 Computers" OR DE "Microcomputers" OR DE "Mobile Devices" OR DE "Computer  
51 Games" OR DE "Mobile Devices" OR DE "Mobile Phones" OR DE "Tablet Computers"  
52 OR DE "Computer Applications" OR DE "Cloud Computing" OR DE "Computer Assisted  
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Design" OR DE "Computer Assisted Instruction" OR OR DE "Computer Programming"  
 OR DE "Computer Simulation" OR DE "Computer Software" OR DE "Electronic  
 Collaboration" OR DE "Electronic Learning" OR DE "Groupware" OR DE "Hypermedia"  
 OR DE "Hypertext" OR DE "Mobile Applications" OR DE "Computer Searching" OR DE  
 "Human Computer Interaction" OR DE "Computer Searching" OR DE "Computer Usage"  
 OR DE "Digital Game-Based Learning" OR DE "Digital Interventions" OR DE  
 "Telemedicine" OR DE "Teleconferencing" OR DE "Teleconsultation" OR DE "Health  
 Literacy" OR DE "Client Education" OR DE "Health Promotion"

2 TI ( (health or patient or mediated or facilitated or augmentative or alternative or  
 total or simultaneous or manual or mass or face-to-face or oral or cultural or risk or  
 intervention\* or interaction\* or program\* or skill\* or aid\* or tool\* or board\* or device\* or  
 system\* or barrier\*) n1 communication) ) OR AB ( (health or patient or mediated or  
 facilitated or augmentative or alternative or total or simultaneous or manual or mass or  
 face-to-face or oral or cultural or risk or intervention\* or interaction\* or program\* or skill\*  
 or aid\* or tool\* or board\* or device\* or system\* or barrier\*) n1 communication) ) 3 TI ( (health or patient or client) N1 (education or knowledge or promotion)) ) OR  
 AB ( ((health or patient or client) N1 (education or knowledge or promotion)) ) 4 TI ( (education\* or teaching or learning or instruction\* or training or skills or online or web\*  
 or internet or video\* or multimedia or multi- media) N1 (intervention\* or session\* or  
 course\* or program\* or material\* or package\* or module\* or demonstration or method\* or  
 process\*)) ) OR AB ( ((education\* or teaching or learning or instruction\* or training or  
 skills or online or web\* or internet or video\* or multimedia or multi- media) N1  
 (intervention\* or session\* or course\* or program\* or material\* or package\* or module\* or  
 demonstration or method\* or process\*)) )  
 5 TI ( (self N1 (teaching or education or instruction)) ) OR AB ( (self N1 (teaching  
 or education or instruction)) )

6 TI ( ((media N3 campaign\*) or (promotion N1 program\*) or (community based N3  
 intervention\*) or (awareness N3 (rais\* or increas\*))) ) OR AB ( ((media N3 campaign\*) or  
 (promotion N1 program\*) or (community based N3 intervention\*) or (awareness N3 (rais\*  
 or increas\*))) )

7 TI ( ((family or office or work\* or school or faith or church or clinic or hospital or  
 community) N1 based) ) OR AB ( ((family or office or work\* or school or faith or church  
 or clinic or hospital or community) N1 based) )

8 TI ( ((improv\* or increas\* or enhanc\* or patient) N3 (understanding or  
 comprehension)) ) OR AB ( ((improv\* or increas\* or enhanc\* or patient) N3  
 (understanding or comprehension)) )

9 TI ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking  
 or retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )  
 OR AB ( (information\* N1 (service\* or center\* or system\* or dissemination or seeking or  
 retrieval or transfer\* or campaign\* or provision or aid or material\* or sheet\* or pack\*)) )

10 TI ( ((patient or client or health or medical or drug or written or print\* or visual\* or

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- provid\* or present\*) N2 inform\*) ) OR AB ( ((patient or client or health or medical or drug or written or print\* or visual\* or provid\* or present\*) N2 inform\*) )
- 11 TI ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) ) OR AB ( (((inform\* or message\* or communicat\* or effect\* or gain or positive or negative) N2 fram\*) or ((verbal or oral or written or text or data or numerical or statistical or visual or graphic\* or pictorial or audio\* or video\* or multimedia or multi-media or narrative) N (format\* or presentation or display\*))) )
- 12 TI ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") ) OR AB ( (counsel\* or ((social or carer\* or caregiver\* or care giver\* or patient\*) N1 support\*) or psychosocial or ((social or pastoral or spiritual) N care) or religion or chaplaincy or "behavio#r modification") )
- 13 TI ( (counsel\*ing session\* or ((support or peer or self-help or self-care) N2 (intervention\* or group\* or program\*))) ) OR AB ( (counsel\*ing session\* or ((support or peer or self- help or self-care) N2 (intervention\* or group\* or program\*))) )
- 14 TI ( ((social or community) N2 network\*) ) OR AB ( ((social or community) N2 network\*) )
- 15 TI ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) ) OR AB ( ((mass or communication\* or electronic or digital or print\* or social or new) N1 media) )
- 16 TI ( ((print\* N (material\* or based)) or paper- based or "written material\*" or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) ) OR AB ( ((print\* N (material\* or based)) or paper-based or written material\* or (paper N1 pen\*) or publication\* or newsletter\* or brochure\* or booklet\* or pamphlet\* or leaflet\* or flyer\* or handout\* or poster\* or illustrat\* or picture\* or pictogram\*) )
- 17 TI ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or "mp3 player\*" or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*))) ) OR AB ( (radio or television or audiovisual or video\* or "tape recording\*" or cassette\* or cd-rom\* or dvd\* or "motion picture\*" or multimedia or hypermedia or telephon\* or phone or phones or sms or "short message\*" or "text message\*" or i-pod\* or ipod\* or mp3 player\* or hotline\* or "answering service\*" or internet or web\* or online or on-line or blog\* or telemedicine or telehealth or telecare or (virtual N (reality or world or environment\*))) )
- 18 TI ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) ) OR AB ( ((electronic or e-) N1 (mail or prescri\* or health or game\*)) )

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- 19 TI ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) ) OR AB ( (computer\* N1 (system\* or network\* or program\* or terminal\* or interfac\* or interact\* or handheld or intervention\* or therapy or graphic\* or simulation\* or searching or mediated or based or tailored or communication or assisted instruction)) )
- 20 TI ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile- device\* or laptop\* or "notebook computer\*") ) OR AB ( ("touch screen" or "digital assistant\*" or pda or blackberry or mobile-device\* or laptop\* or "notebook computer\*") )
- 21 TI ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*))) ) OR AB ( (((automat\* or interactive\*) N3 (telephon\* or phone or phones or voice or hotline\* or hot line\*)) or ((voice or speech) N (response or recognition or messag\* or system\* or technolog\*))) )
- 22 S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11  
OR S12 OR S13 OR S14 OR S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21
- 23 DE "Immunization" OR DE "Vaccination"
- 24 TI ( (immuniz\* or immunis\* or vaccin\* or inoculat\*) ) OR AB ( (immuniz\* or immunis\* or vaccin\* or inoculat\*) )
- 25 S23 OR S24
- 26 TI ( Canad\* or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" ) OR AB ( Canad\* or Alberta or "British Columbia" or Manitoba or "New Brunswick" or "Newfoundland and Labrador" or Newfoundland or Labrador or "Nova Scotia" or Ontario or "Prince Edward Island" or PEI or Quebec or Saskatchewan or Nunavut or "Northwest Territories" or NWT or "Yukon Territory" )
- 27 S22 AND S25 AND S26
- 28 S22 AND S25 AND S26 Narrow by Language: - english

#### Scopus

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- 1 TITLE-ABS-KEY ( ( health OR patient OR mediated OR facilitated OR augmentative OR alternative OR total OR simultaneous OR manual OR mass OR face-to-face OR oral OR cultural OR risk OR intervention\* OR interaction\* OR program\* OR skill\* OR aid\* OR tool\* OR board\* OR device\* OR system\* OR barrier\* ) W/1 communication ) OR ( ( health OR patient OR client ) W/1 ( education OR knowledge OR promotion ) ) OR ( ( education\* OR teaching OR learning OR instruction\* OR training OR skills OR online OR web\* OR internet OR video\* OR multimedia OR multi-media ) W/1 ( intervention\* OR session\* OR







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3 "New Brunswick" OR "Newfoundland and Labrador" OR newfoundland OR labrador  
4 OR "Nova Scotia" OR ontario OR "Prince Edward Island" OR pei OR quebec OR  
5 saskatchewan OR nunavut OR "Northwest Territories" OR nwt OR "Yukon  
6 Territory" ) )  
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8 4 1 AND 2 AND 3

9 5 ( ( ( INDEXTERMS ( animals OR animal ) ) AND NOT ( INDEXTERMS ( humans OR human ) ) ) ) )

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For peer review only

## Non-Academic Literature Search Strategies

### Google Scholar

Search 1: (immunization OR vaccine OR vaccination OR inoculate OR inoculation) (inform OR educate OR aware) (program OR campaign OR intervention) canada

Search 2: vaccine education program canada

Search 3: Search 2: vaccine education program canada

Search 4: "COVID 19 vaccine" (educate OR inform) (campaign OR program) Canada

### CADTH "Grey Matters" Checklist

Source	Link	Keyword(s) used
Alberta College of Physicians: Tools for Practice	<a href="https://gomainpro.ca/toolsforpractice/">https://gomainpro.ca/toolsforpractice/</a>	vaccine program; immunization program
Alberta Health and Wellness. Decision Process provincial reviews – ongoing and complete"	<a href="http://www.health.alberta.ca/initiatives/AHTDPreviews.html">http://www.health.alberta.ca/initiatives/AHTDPreviews.html</a>	vaccine program; immunization program
Canadian Agency for Drugs and Technologies in Health (CADTH)	<a href="https://www.cadth.ca/search?keywords">https://www.cadth.ca/search?keywords</a>	vaccine immunization program
Health Quality Ontario (HQO). Health Technology Assessment	<a href="http://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment">http://www.hqontario.ca/Evidence-to-Improve-Care/Health-Technology-Assessment</a>	vaccine immunization program
The Hospital for Sick Children (SickKids). Technology Assessment at SickKids (TASK)	<a href="http://lab.research.sickkids.ca/task/reports-theses/">http://lab.research.sickkids.ca/task/reports-theses/</a>	N/A
Institute of Health Economics (IHE). Publications	<a href="http://www.ihe.ca/index.php/publications">http://www.ihe.ca/index.php/publications</a>	vaccine program
Manitoba Centre for Health Policy (MCHP). Deliverables	<a href="http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html">http://mchp-appserv.cpe.umanitoba.ca/deliverablesList.html</a>	N/A
McGill University Health Centre (MUHC). Technology Assessment Unit Reports	<a href="https://muhc.ca/tau/page/taureports">https://muhc.ca/tau/page/taureports</a>	vaccine program

1 2 3 4 5 6 7 8 9	NLCAHR : Newfoundland and Labrador Centre for Applied Health Research. Contextualized Health Research Synthesis Program (CHRSP) Completed CHRSP projects	<a href="http://www.nlcahr.mun.ca/CHRSP/CompletedCHRSP.php">http://www.nlcahr.mun.ca/CHRSP/CompletedCHRSP.php</a>	vaccine program
10 11 12	Ottawa Hospital Research Institute (OHRI). Knowledge Synthesis Group	<a href="http://www.ohri.ca/ksgroup/publications.asp">http://www.ohri.ca/ksgroup/publications.asp</a>	vaccine program
13 14 15 16	University of British Columbia. Centre for Health Services and Policy Research	<a href="http://chspr.ubc.ca/publications/">http://chspr.ubc.ca/publications/</a>	vaccine program
17 18 19 20 21 22	Alberta Medical Association. Toward Optimized Practice (TOP)	<a href="https://actt.albertadoctors.org/Pages/Search.aspx?k=vaccine%20program#k=immunization%20program">https://actt.albertadoctors.org/Pages/Search.aspx?k=vaccine%20program#k=immunization%20program</a>	vaccine program / immunization program
23 24 25	Winnipeg Regional Health Authority (WRHA). Evidence Informed Practice Tools	<a href="http://www.wrha.mb.ca/professionals/ebpt/">http://www.wrha.mb.ca/professionals/ebpt/</a>	vaccine program / immunization program
26 27 28	McMaster University, McMaster Health Forum. Health Systems Evidence	<a href="http://www.healthsystemsevidence.org">http://www.healthsystemsevidence.org</a>	vaccine program canada
29 30 31 32	Public Health Agency of Canada (PHAC). • Public Health Infobase	<a href="http://infobase.phacaspc.gc.ca/index-en.html">http://infobase.phacaspc.gc.ca/index-en.html</a>	vaccine program

### Google (General Search)

Search 1: canada immunization information

Search 2: vaccine information program canada

## Appendix II: Data extraction instrument

Domain	Extraction
Article Characteristics	Article ID number (from Covidence)
	Authors
	Year of publication
	Publication journal
	Full citation (e.g., author(s), date, title, journal, volume, issue, pages)
	Study design
	Study objective(s) (including aim/purpose)
	Research question(s)
	Methodology (including philosophical perspective)
	Program/Intervention/Strategy Characteristics
Program description	
Target population and participant details (e.g., age, sex, number)	
Delivery format (i.e., virtual, in-person, or mixed)	
Program delivery personnel and team format (e.g., public health nurses, etc)	
Setting (e.g., clinical, community, etc)	
Context	
Geographical location (e.g. region, country)	
Vaccine type(s)	
Data analysis	
Outcome measures	
Reported barriers/facilitators to intervention implementation and/or delivery	
Author's conclusion (i.e., reported key findings)	
Implications	
Identified limitations	
Reviewer's comments	

## Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>TITLE</b>			
Title	1	Identify the report as a scoping review.	
<b>ABSTRACT</b>			
Structured summary	2	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
<b>INTRODUCTION</b>			
Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	
<b>METHODS</b>			
Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and publication status), and provide a rationale.	
Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	



SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
<b>RESULTS</b>			
Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	
<b>DISCUSSION</b>			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	
Limitations	20	Discuss the limitations of the scoping review process.	
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	
<b>FUNDING</b>			
Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	

JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews.

\* Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

† A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

‡ The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

§ The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. doi: 10.7326/M18-0850.



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