

Systematic search and reporting techniques applied to the grey literature: A review of Canadian school breakfast program guidelines

Katelyn Godin, Jackie Stapleton*, Sharon I. Kirkpatrick, Rhona M. Hanning, Scott T. Leatherdale
School of Public Health and Health Systems; Library*, University of Waterloo, Waterloo ON

BACKGROUND

Grey literature is an important source of information for large-scale review syntheses however, there are many characteristics of grey literature that make it difficult to search systematically. Further, there is no 'gold standard' for rigorous systematic grey literature search methods and few resources on how to conduct this type of search.

This poster describes systematic review search methods that were developed and applied to complete a case study systematic review of grey literature that examined guidelines for school-based breakfast programs in Canada.

For this review, grey literature refers specifically to guidelines published by government or non-government organizations at the federal or provincial/territorial level.

Characteristics of the systematic search method

- 1. Comprehensive:**
 - Multiple sources of information were searched
 - Synonyms were used for each concept of the research question
- 2. Explicit:**
 - A search plan/protocol was developed prior to conducting the search, providing clear details of the search methods
- 3. Reproducible:**
 - Full search documentation was recorded for each resource
 - Reporting of search methods and results followed PRISMA guidelines

Grey literature search plan

Prior to conducting the search, a grey literature search plan was developed, similar to the search protocol for a systematic review, which included:

1. The name of information resource (database, search engine, website)
2. A fully developed search strategy or list of search terms to be used within each resource
3. For each Google search, a limit was set on the maximum number of records to be screened: 10 pages or 100 results per search

METHODS

Identification of studies

Grey literature databases

- Canadian Research Index** (ProQuest, Micromedia)
- Canadian Electronic Library** – Canadian Public Policy Collection
- Canadian Electronic Library** – Canadian Health Research Collection

A search strategy was developed for each database which included synonyms for 3 main concepts: school, breakfast, and guidelines. All results were uploaded to Excel for screening.

Customized Google search engines

- Custom Search Engine for Canadian Public Health Information**, created by the Ontario Public Health Libraries Association
- Customized Government Search** – limited to Canada, code courtesy of MADGIC, Carleton University

10 unique search strategies containing synonyms for the 3 main concepts were applied in each search engine. The first 100 results were reviewed, using the title and short text underneath. Potentially relevant records were 'bookmarked' in the web browser at the time of searching (Google Chrome) and later entered into an Excel spreadsheet.

Targeted websites

Hand searched **77 websites** identified through:

- Implemented 10 Google search strategies with filter applied to only capture Canadian websites
- Recommendations by subject experts

Each website was searched using the websites' database or search bar using combinations of keywords. Websites that did not have a database or search bar were hand-searched. The name, year, and URL of relevant records were entered into Excel.

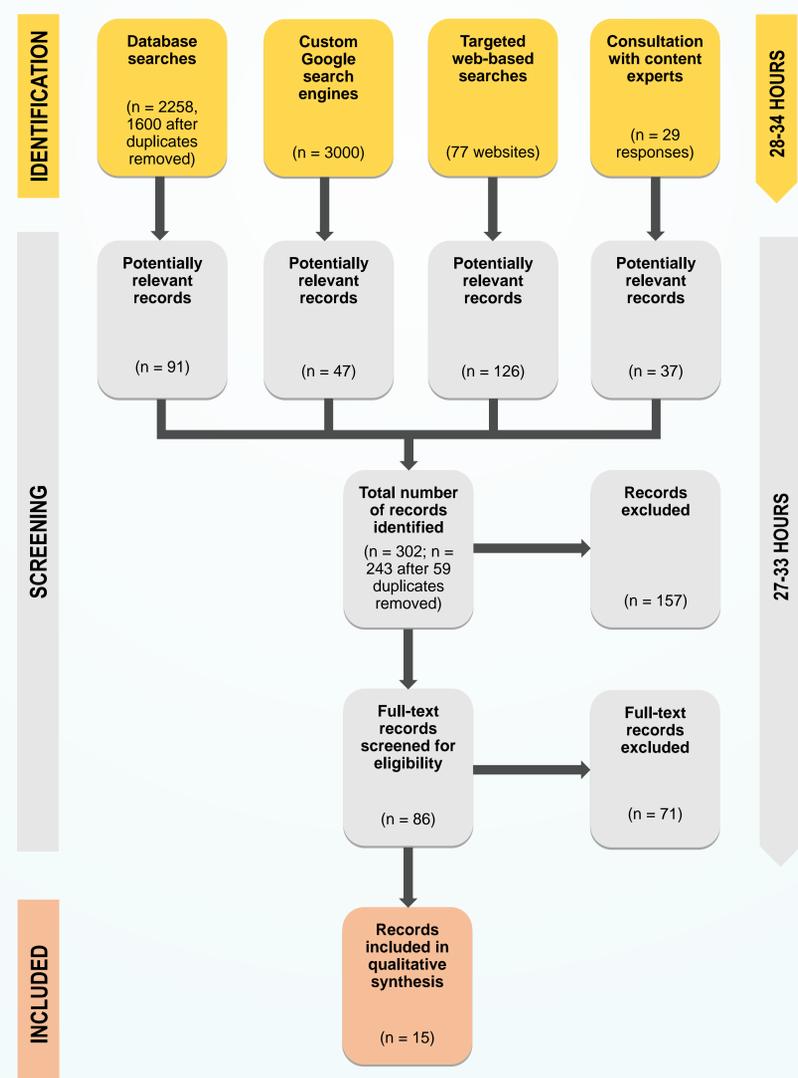
Consultation with experts

- Contacted subject experts

Excel was used to document contact attempts, who had responded, identified documents, and the need for reminder messages to be sent to those who had not yet replied.

RESULTS

Study flow diagram



This study flow diagram depicts the three phases of the review, including the number of records screened and included in the final synthesis.

The timeline indicates the approximate number of hours spent on activities during the search and screening processes.

DISCUSSION

Main findings

The search methods yielded 15 publications from a wide range of organizations (i.e., in terms of geographical area, type, and size).

- 8 non-government organizations (2 national not-for-profit organizations that fund breakfast programs)
- 7 provincial government sources
- No publications or resources were identified from the federal or territorial governments.

The search strategies were manageable, comprehensive, and intuitive when applied in practice. Four publications were uniquely identified through one strategy, suggesting that reliance on one information resource would have led to a less than thorough review.

Advantages to using systematic search methods

- Grey literature search plan**
 - Provides guidance, structure, and transparency of search methods
 - Reduces the risk of bias
 - Facilitates time management, setting boundaries for the number of searches and records to be screened
- Comprehensive documentation**
 - Ensures compliance with systematic review reporting standards, i.e. PRISMA
 - Facilitates reproducibility of results

Challenges in applying systematic search techniques

- Grey literature information sources**
 - Lack of sophisticated search functions
 - No standard indexing or controlled vocabulary
 - Bias can be introduced due to Google 'filter bubble'
 - Inconsistent archiving
 - Changing nature of website URLs
- Screening grey literature documents**
 - Difficulties uploading records to management software
 - Difficult to coordinate duplicate screening of results

Note: since submission of this poster presentation to Mosaic '16, the full methods of the review study have been published in the following article:

Godin, K., Stapleton, J., Kirkpatrick, S. I., Hanning, R. M., & Leatherdale, S. T. (2015). Applying systematic review search methods to the grey literature: a case study examining guidelines for school-based breakfast programs in Canada. *Systematic reviews*, 4(1), 1. DOI: 10.1186/s13643-015-0125-0