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Guidance relevant to the reporting of health equity in observational research: A scoping review protocol

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Guidance relevant to the reporting of health equity in observational research: A scoping review protocol

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ABSTRACT

Introduction:

Health inequities are defined as unfair and avoidable differences in health between groups within a population. Most health research is conducted through observational studies which can offer real-world insights that randomized trials can not. However, most published reports of observational studies do not address health equity. Our team seeks to develop equity-relevant reporting guidance as an extension of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement. Based on our preliminary search, existing equity-relevant guidance is limited to research with specific populations (e.g., Indigenous peoples), research which considers specific equity-relevant factors (e.g., sex and gender), or is intended for specific users (e.g., applicants for funding or ethics approval). This scoping review will inform the development of candidate items for the STROBE-Equity extension.

Methods and analysis:

We will follow the Joanna Briggs Institute method for conducting scoping reviews. We will evaluate the extent to which the identified guidance supports or refutes our preliminary candidate items for reporting equity in observational research. These candidate items were developed based on items from reporting guidelines for equity in randomized trials and systematic reviews developed by members of this team. We will consult with our knowledge users, patients/public partners, and Indigenous research steering committee to invite suggestions for relevant guidance documents and interpretation of findings. If the identified guidance suggests the need for additional candidate items, they will be developed through an inductive thematic analysis.

Ethics and dissemination:

We will follow a principled approach that promotes ethical co-development and co-ownership with our community partners based on authentic partnerships, anti-racist, anti-oppressive and anti-colonial methods and the shared ownership, interpretation, and dissemination of research. All products of this research will be published as open access. We will develop plain language summaries that will be broadly disseminated amongst partners and stakeholders.

Keywords:

Equity, health, observational research, reporting, guidance

STRENGTHS AND LIMITATIONS OF THIS STUDY

- To the best of our knowledge, this review will be the first to analyze existing research guidance across the PROGRESS-Plus framework of sociodemographic factors to inform the development of a guideline for reporting health equity in observational research.
- The review will follow robust guidelines for conducting a systematic scoping review (JBI method), reporting the review (PRISMA-ScR), and reporting the literature search (PRISMA-S).
- A comprehensive search of multiple bibliographic databases (Embase, CINAHL, MEDLINE and LILACS) and grey literature sources will be conducted by a librarian experienced in scoping reviews.
- We expect to find a diversity of definitions of health equity which may not align with the *a priori* PROGRESS-Plus framework; this may be a limitation (if the framework can't be adapted to accommodate every definition) or a strength (if other definitions lead to an enhanced understanding of health equity).
- We expect considerable heterogeneity among the included literature (i.e., from various types of organizations and in various formats) which may pose a challenge for consistent and comprehensive data extraction.

INTRODUCTION

Health inequities are defined as differences in health between groups within a population that are unnecessary, avoidable, unfair, and unjust.[1] These disparities persist despite over a century of research on health inequities and their causes.[2] Health inequities are experienced across numerous factors such as income, education, geographic setting, age, ethnicity, and gender (a term which has been limited to outdated binary concepts, while in fact there exists a wide spectrum of gender identities and expressions).[3] The United Nations has characterized equity-related determinants of health, which impede people from achieving their health potential, into three distinct categories: social, economic, and environmental.[4]

Most epidemiological research is conducted as observational studies,[5] which can generate rigorous knowledge and understanding of: (i) disease etiology and why disease is distributed inequitably in populations, (ii) the effects of health policies and programs on health equity, and (iii) interactions between context and intersecting socioeconomic factors. Observational studies also provide an opportunity for knowledge generation in conflict and fragile settings where experimental studies may not be possible. For the purpose of this review, we will consider observational studies to consist of cohort studies, case-control studies, and cross-sectional studies.[6]

Observational studies often draw on linked data between different types of administrative databases such as pharmacy, hospital, and medical insurance databases. Such data facilitates the collection of sociodemographic characteristics associated with health inequity, such as place of residence, ethnicity, race, income, age, and sex. These characteristics are often used to control for potential confounding and can also be used to investigate differences in effects across these characteristics.[7] However, the extent to which observational studies investigate these effects appears to be limited, despite the powerful potential for exploring differential outcomes and investigating associations with context. A further constraint is that observational studies using linked data cannot address inequities for populations such as homeless, displaced communities, and migrants, which don’t have access to services that provide data to linked databases. The lack of (otherwise) routinely collected information about these populations may result in under-estimating the actual extent of health disparities.

Differences in health between social groups are also obscured by the lack of granular health data due to aggregation and averaging of data at the national or state/provincial level.[2] The resulting deficiencies in the analyses and reporting of equity considerations are barriers for synthesizing evidence concerning equity. In addition, health systems and policy interventions are often complex, with various interacting components, making it difficult to identify the “active ingredients” and to implement interventions consistently.[8]

Health equity has been studied since the early nineteenth century, when severe disparities in health status and mortality between the poor and the rich were first described in academic literature.[9,10] Guidance for the reporting of equity-relevant details, however, has only recently started to emerge, while other guidelines relating to various study designs and specific areas of health research have been published since 1995.[11] Many reporting guidelines are still being developed, as shown by over one-hundred current registrations for proposed new guidelines on the website of the EQUATOR (Enhancing the QUAlity and Transparency Of health Research) Network.[12] However, of the 464 published guidelines listed on EQUATOR, only three focus on the reporting of equity-relevant information: one addressing sex and gender,[3] one for systematic reviews,[13] and one for randomized trials.[14]

This scoping review is part of a multi-phased project to develop an equity extension of the widely used STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) reporting guideline.[15,16] We mapped all existing STROBE extensions to assess whether any of the extensions included items relevant to equity (mapping table available at https://osf.io/8abtr/) and we did not find any equity-related items. We also assessed all items from the PRISMA-Equity (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guideline[13] and the CONSORT-Equity (Consolidated Standards of Reporting Trials) guideline.[14] Through this process, we developed a draft set of 36 candidate items for a STROBE-Equity extension (Supplementary file #1).

This scoping review aims to compile guidance from sources such as ethics boards, funders, and journal policies which may be relevant to the reporting of health equity in observational studies, to help inform the development of the new STROBE-Equity extension (Open Science project page: https://osf.io/h57se/). We chose to conduct a scoping review as the evidence synthesis method due to the expected varied types and sources of guidance (e.g., institutional web pages, government policies, ethics board documents) which are not typically published in academic journals or indexed in academic databases. A systematic review would not be an appropriate method for this study since we acknowledge that we would not be able to identify every source of relevant guidance from every institution and organization in every country. Our study objectives also align with three of the reasons proposed by Munn et al.[17] for conducting a scoping review: (1) “to identify the types of available evidence in a given field,” (2) “to identify key characteristics or factors related to a concept,” and (3) “to identify and analyse knowledge gaps.” Additionally, a scoping review will allow us to purposively search specific sources of guidance that address health inequities across various sociodemographic factors.

We did not find any existing reviews or protocols for reviews on health equity reporting guidance by searching the following databases: JBI Evidence Synthesis (searched 14/06/2021), Cochrane Database of Systematic Reviews (searched 14/06/2021), Campbell Collaboration online library (searched 14/06/2021), Evidence for Policy and Practice Information (EPPI) (searched 15/06/2021), Epistemonikos (searched 15/06/2021), and PubMed (searched 15/06/2021).

The specific research questions for this scoping review are:

1. Does the identified guidance support or refute each candidate item for the STROBE-Equity extension?
2. Does the identified guidance indicate other/additional candidate items for the STROBE-Equity extension?
3. Does the identified guidance indicate a need for specific guideline items in relation to particular populations or contexts?

METHODS AND ANALYSIS

Consultation and integrated knowledge translation

We designed this scoping review in consultation with relevant stakeholders and knowledge users, including policy makers, advisors, program managers, practitioners, and people with lived experience of health inequities.

We will follow a principled approach to ethical collaborative conduct of this research, including development of authentic partnerships, joint ownership of all data collected and collaborative interpretation of results, using principles of cultural safety and anti-oppressive, anti-colonial methods.[18,19] We developed a diverse and multidisciplinary team of individuals representing different types of stakeholders using a 6Ps framework adapted from Concannon et al.,[20] including patients/public, policy-makers, program-managers, press, payers/purchasers and principal investigators. Stakeholders on the team include patients/public, professional organizations (e.g., Royal College of Physicians and Surgeons of Canada), program managers (e.g. CADTH), press (including journal editors, BMJ, Campbell Collaboration), the Centre of Excellence for Development Impact and Learning (CEDIL), and policy makers (Pan American Health Organization, Public Health Agency of Canada).

Our integrated knowledge translation approach will apply a health equity lens, by focusing on equitable decision-making within our research team, which involves transparency and which doesn't perpetuate unequal power relations that filter out the voices or viewpoints of some stakeholders.[21]

Study design

We chose to conduct this scoping review according to the Joanna Briggs Institute (JBI) method[22] because this approach is useful for identifying a range of sources of guidance (e.g. from published literature, grey literature, and expert contacts) and for synthesizing broad concepts in the available guidance.[23]

Inclusion criteria

We used the Population, Concept, and Context (PCC) framework of JBI to develop the inclusion criteria for this review.

Population

Guidance related to research with or about people experiencing health inequity will be included. We will consider documents, web content, and articles (hereon collectively referred to as 'articles') that pertain to people or groups whose opportunities for health are compromised with respect to any PROGRESS-Plus characteristics (or combination thereof). The PROGRESS acronym stands for Place of residence (e.g. country, neighborhood, urban/rural), Race/ethnicity/culture/language, Occupation, Gender/Sex, Religion, Education, Socioeconomic status and Social capital.[24] The 'Plus' refers to other personal, time-dependent or relationship-dependent factors, such as pregnancy, reproductive capacity, age, disability, and sexual orientation.[25]

We recognize that various terms may be used to describe groups experiencing health inequities such as deprived, discriminated against, handicapped, poor, underprivileged, under-resourced, under-served, disadvantaged, marginalized, equity-seeking, racialized or vulnerable; these will all be eligible for searching. In addition, PROGRESS-Plus characteristics intersect with each other and within the context and setting. We acknowledge that the PROGRESS-Plus framework may not cover all equity-related individual or population-level characteristics. Thus, we will judge relevance to health equity by assessing whether the guidance describes a focus on health equity, social justice, disparities, or inequalities.

Concept

The concept to be studied in this review is research guidance, in the form of guidelines, policies, or recommendations. We will seek literature on two types of guidance: (i) existing reporting guidance for studies with specific populations or contexts, which can inform the development of a general guideline for reporting health equity, i.e. the STROBE-Equity extension, and (ii) guidance for any stage or aspect of conducting research with or about populations experiencing health inequity, to inform the development of items in the STROBE-Equity extension for reporting the equity-relevant details of the study in a comprehensive, precise, and transparent manner. The analysis of equity-related guidance for the *conduct* of research will be important in developing the candidate items for the STROBE-Equity reporting guideline, so that the items in the guideline align with the specific recommendations of diverse stakeholders for conducting various stages of the research.

We will consider guidance for any type of research – experimental, observational, or qualitative (including anthropological research, which can provide socio-cultural insights regarding health equity and help to mitigate ethnocentric attitudes of health providers and researchers).[26] Although the overall objective of this review is to help inform the development of a STROBE-Equity extension for the reporting of observational health studies, we anticipate that there may be equity-related guidance for many types of research which may be relevant and important. We define reporting guidance as systematically developed, evidence-based and consensus-based statements to assist researchers in composing transparent, concise, and comprehensive reports of their studies (adapted from Simera and Altman[27] and the World Health Organization[28]).

Context

For this review, we will use a broad conceptualization of health which is inclusive of guidance in social sciences that relates to health or well-being. We will consider guidance for any country, population or setting, including displaced populations, refugees, humanitarian settings and conflict zones.

Types of evidence sources

We will consider articles from peer-reviewed journals and grey literature (including web page content) (see Table 1 for examples). We will peruse websites of relevant organizations to seek out grey literature that is not published in academic journals. The provenance of the guidance included in the review may be from any source such as journals, ethics boards, professional associations, academic research teams, and governmental or non-governmental organizations. Guidance described as opinion/viewpoint pieces or found in letters, editorials and case studies will be excluded.

Table 1. Examples of relevant guidance from published guidelines, peer-reviewed journals, and grey literature.

Guidance	Organization	Type of organization	PROGRESS dimensions	Dimensions of reporting
SAGER (Sex And Gender Equity in Research)[3]	European Association of Science Editors	Journal editors	Sex and gender	Rationale, methods, results, discussion
NIH Policy on Sex as a Biological Variable[39]	National Institutes of Health (NIH)	Funder	Sex	Methods, results
The Reporting of Race and Ethnicity in Medical and Science Journals[40]	Journal of the American Medical Association (JAMA)	Journal	Ethnicity and race	Abstract, results, methods
Ethical Guidance for Research with People with Disabilities[41]	National Disability Authority (NDA)	Government	Disability	Methods (recruitment, engagement) discussion
Consolidated criteria for strengthening reporting of health research involving Indigenous	Research team	Multidisciplinary	Indigenous people	All

peoples: the CONSIDER statement[42]				
CONSORT-Equity[14]	Research team	Multidisciplinary	All PROGRESS-Plus	All
PRISMA-Equity[13]	Research team	Multidisciplinary	All PROGRESS-Plus	All
A guide to reporting studies in rural and remote health[43]	Rural and Remote Health (RRH)	Journal	Place of residence	All
How to integrate sex and gender into research[44]	Canadian Institutes of Health Research (CIHR)	Funder	Sex and gender	Rationale, methods, results, discussion
Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 (2018)[45]	Canadian Institutes of Health Research (CIHR)	Funder	Indigenous peoples in Canada, Age, Disability	Informed consent
AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research[46]	Australian Institute for Aboriginal and Torres Strait Islander Studies (AIATSIS)	Government statutory authority	Indigenous peoples in Australia	Methods, informed consent, reporting
Values and ethics - Guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research[47]	National Health and Medical Research Council (NHMRC)	Funder	Indigenous people	Rationale, methods, results, discussion
AH&MRC Ethical Guidelines: Key Principles (2020) V2.0[48]	Aboriginal Health and Medical Research Council of NSW (AH&MRC)	Advocacy association	Indigenous people	Methods, informed consent, reporting

Te Ara Tika: Guidelines for Māori research ethics: A framework for researchers and ethics committee members[49]	Health Research Council of New Zealand	Funder	Indigenous peoples of Aotearoa, New Zealand	Rationale, methods, discussion

Search strategy

We will search for both published and unpublished guidance relevant to the reporting of health equity in observational studies. Searches will be designed and conducted by a librarian experienced in scoping reviews (TR), using a method designed to optimize term selection.[29] Indexing terms, text words contained in the titles and abstracts of known relevant guidance (Table 1), and citations from these examples were used to develop a full search strategy in MEDLINE using the OVID interface (Supplementary file #2). Starting with the set of possible guidelines from Table 1, keywords and medical subject headings for those articles will be used to develop a search strategy with the following concepts: 1) health equity (using PROGRESS-Plus characteristics), 2) reporting, analysis, and design of research, and 3) guidelines or guidance articles. We will then check the yield of the search to assess the relevance of articles retrieved and refine the search accordingly.

The search strategy, including all identified keywords and index terms, will be adapted for other electronic databases and information sources. The reference list of all included sources of evidence will be screened for additional studies. The search will not have a language restriction; however, we will exclude articles if an English translation is not available. Dates will be restricted to 2005 and later since we are interested in recent guidance and conceptualizations of health equity in research. This timeframe also aligns with the establishment of the Commission on Social

Determinants of Health (CSDH) by the World Health Organization in 2005.[30] The search will be reported according to the PRISMA-S guideline (for literature searches).[31]

Electronic bibliographic databases

The following electronic bibliographic databases will be searched:

- Embase via OVID
- MEDLINE via OVID
- CINAHL via EbscoHost
- Cochrane Methodology Register via The Cochrane Library (Wiley) Issue 8, 2021
- LILACS via BIREME - PAHO - WHO Latin American and Caribbean Center on Health Sciences Information. http://lilacs.bvsalud.org/en/.

Grey literature search

We expect much of the sought-after guidance to be in grey literature, such as institutional reports, research ethics guidance and journal editorial policies.

A grey literature search using Google and a review of key websites suggested by our steering committee members such as ethics review boards, and funding organizations (listed in Supplementary file #3) will be conducted. In addition to known websites, the first 20 Google results yielded by each relevant phrase or search string will be reviewed.

We will ensure that this search includes organizations based in low, lower-middle, upper-middle, and high-income countries, using the current classifications from the World Bank.[32] We will search sources (e.g. patient advocacy organizations, medical associations) which are related to specific groups of people who face systemic and structural barriers to health across PROGRESS-Plus factors.

Guidance will be eligible for inclusion which is related to participant inclusion, recruitment, retention, and engagement, as well as the design, reporting and analysis of research relevant to populations subject to systemic and structural barriers.

Consultation

We will also ask for suggestions of potential source organizations and guidance from the members of our steering committees: Technical Oversight and Patients/Public, Knowledge Users, and Indigenous Research, and add these to our list of key grey literature sources (Supplementary file #3).

Reference list screening

We will screen references from all included guidance. We will use citationchaser[33] (https://www.eshackathon.org/software/citationchaser.html) to import all references into our Covidence database (https://www.covidence.org) for de-duplication against other sources, and for screening according to the same inclusion criteria as described above for this review.

Stopping rule

We will use the principle of theoretical saturation[34] to determine when to stop searching for grey literature. First, we will include all relevant guidance identified in academic literature. Then, for grey literature we will continue the process by searching sources across domains of PROGRESS-Plus and across different stakeholders as defined by the 6Ps.

After including all relevant guidance identified in academic literature, we will conduct the grey literature search concurrently with the data extraction, checking if the inclusion of additional articles contributes any new evidence, which will indicate whether to continue or stop the search.[35] We will conduct this process with sets of twenty articles, to cover a wide array of guidance sources (e.g. ethics boards, journals, governments) and contexts (e.g. low, middle, and high-income countries). Once a set of twenty additional articles no longer contributes new evidence, the search for grey literature will be stopped.

Source of evidence selection

Initial screening

Titles and abstracts of articles retrieved from the electronic bibliographic database search will be screened, each reference by two reviewers independently, for potential eligibility using Covidence. In cases of disagreement between two reviewers which are not resolved after discussion between them, a third reviewer will make the decision regarding eligibility. The screening criteria will be tested on a training set of 50 references until the team reaches greater than 75% agreement on inclusion or exclusion.

Full-text screening

We will conduct full-text screening for eligibility using Covidence, and the same eligibility criteria. We will assess any conflicts as a team. We will resolve any conflicts through discussion and consultation with the team.

Data extraction and quality assessment

Data will be extracted by pairs of independent reviewers using a pre-tested data charting form. The form will be pilot tested on ten articles, selected to represent various guidance sources (e.g., ethics boards, journals) and contexts (e.g., low, middle, and high-income countries), to identify if the questions in the charting form need to be modified or if other questions or categories need to be added to capture all relevant information from the articles.

The charting form will be designed to collect information on the source, type of organization, and methods of development. We will collect details on whether or not the guidance supports the draft STROBE-Equity extension items. If the reviewed guidance suggests additional items, this will be captured as free text with verbatim quotes from the source document.

We will collect details about specific populations who experience health inequity using free-text boxes. This may contribute to expanding on PROGRESS-Plus as a framework.

Since this will be a scoping review of articles on research guidance, we will not conduct methodological quality (i.e., risk of bias) assessments, as per JBI guidance. To assess the credibility of the guidance, we will collect details on the provenance of the guidance and its development process (e.g., expert opinion, consensus).

Analysis and presentation of the evidence

We will use the principle of framework synthesis to analyse the data. This approach involves the mapping of concepts/data to an *a priori* framework,[36] which in this review is a preliminary STROBE-Equity checklist of candidate items (Supplementary file #1). If we find extracted data that does not match the items (or categories) in the checklist, we will conduct an inductive thematic analysis to develop new items and/or categories as needed based on the data.[37] As such, the *a priori* framework will serve as a basic model which can be expanded or reduced by adding, modifying and/or removing items.[36]

We will analyse the data for common items across diverse populations and inequities as well as items that relate to specific contexts or vulnerabilities. We will analyse any differences in guidance across the candidate items. We will also analyse guidance specifically for Indigenous research as well as guidance for research in conflict and fragile settings, which face increased risks of inequity and where research reporting could miss out key populations more easily than in non-conflict settings. Indigenous research will be an important focus of this review, to align with the objectives of the overall STROBE-Equity project, which involves a parallel stream, led by Indigenous co-investigators, to assess the relevance of the developed guidance for Indigenous research.

We will hold a meeting with the lead author and the four principal investigators to develop new and/or refine existing candidate items based on the data synthesis. Any candidate items relating to research involving Indigenous communities will be developed by Indigenous co-investigators and the Indigenous research steering committee (composed of five Indigenous researchers from Canada, Australia, and Aotearoa New Zealand).

We recognize that the STROBE framework may not be compatible with reporting guidance for Indigenous research. If the analysis of the data confirms this, which will be determined in consultation with the Indigenous researchers on the team, then the scoping review will be conducted in parallel Indigenous and ‘global’ streams, which will be presented as two reports.

The results of the scoping review will be presented as a map of the extracted data in tabular form based on the *a priori* framework. The table will summarize what, if any, extracted data contributed to modifications of the proposed STROBE-Equity checklist.

If the review is conducted in parallel streams, the results for guidance on research involving Indigenous people will be presented according to categories (or domains) that emerge during the inductive thematic analysis of the data, as described above.

We will report our scoping review according to the PRISMA-ScR guideline.[38]

Potential impact of this scoping review

This scoping review will synthesize and chart available guidance on the reporting and analysis of health equity in research. This review will be used to inform the development of an equity-extension to the STROBE reporting guideline for observational studies, being led by this team. It may also be helpful to organizations and individuals who are seeking guidance on the reporting and analyzing of health equity in research.

Potential Limitations

We acknowledge that one limitation of our approach is that we will not be able to review all available guidance (e.g., every ethics board, governmental or NGO guidance document) that may be relevant to the reporting of health equity in observational studies. To address this, we have developed a structured approach to seek out organizations with a balance between high income and low- and middle-income countries, as well as across all PROGRESS-Plus characteristics. This strategy will help avert over-emphasizing any one element of PROGRESS-Plus or focusing only on guidance from some countries or settings. Another possible limitation is the diversity of definitions we expect to find regarding health equity and equity-seeking populations. To synthesize these diverse definitions, we will categorize definitions according to the PROGRESS-Plus framework and will revise, if needed, to encompass definitions which do not fit the PROGRESS-Plus framework. This may help to strengthen/enhance the current understanding of health equity and equity-seeking populations to move forward with more accurate and comprehensive concepts. A third possible limitation is that we expect to find considerable heterogeneity among the included literature (i.e., from various types of organizations and institutions, and presented in various formats and levels of detail) which may pose a challenge for consistent and comprehensive data extraction. A fourth possible limitation is that we will only include articles available in English, which may skew our results such that we miss some issues or concepts about health equity. Lastly, a fifth possible limitation is that the experience of health inequity may depend on the interaction of social identities with contextual factors and systems which may not fit in the PROGRESS-Plus framework. To mitigate this, we will explore modifying the framework or defining systems issues separately.

Patient and Public Involvement

Three members of our research team with lived experiences of health inequities (HE, RG-S and JT) are co-authors. Their involvement in this study pertains to contributions to the development of the methodology as well as the review and editing of the manuscript. Their contributions provided valuable new insights regarding the marginalization and exclusion of various populations in health research.

ETHICS AND DISSEMINATION

This scoping review does not require ethics approval since there are no human participants. We will follow a principled approach to co-developing this research with our knowledge users, patients/public and Indigenous steering committees.[18] This approach follows principles of ethical partnerships, co-ownership of data, collaborative interpretation of results, participatory research, cultural safety and inclusion and protection of cultural knowledge in research. The results will be published in an open-access peer-reviewed journal and will also be disseminated through conference presentations. The international members of our team who are fluent in languages other than English will be encouraged to submit abstracts and presentations for conferences held in other languages. We will also publish a summary on our STROBE-Equity Open Science

Framework project page and on our Cochrane Equity website

(https://methods.cochrane.org/equity/welcome).

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FOOTNOTES

Author Statement

Conceptualization: AR, VAW, EG, LS, EL and PMO; writing of original draft: AR and VAW; resources (search strategy): TR; project administration: AR and VAW; supervision: VAW; funding acquisition: JEJ, LM, VAW and OM; all authors were involved in developing the methodology as well as reviewing and editing the manuscript.

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Competing interests

None declared.

Appendix 1. Possible equity extension items for STROBE.

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
Title and abstract	1		
		1a. Indicate the study's design with a commonly used term in the title or the abstract	
		1b. Provide in the abstract an informative and balanced summary of what was done and what was found	- Describe population according to PROGRESS-Plus - Describe extent/limits of applicability to populations of interest across PROGRESS-Plus characteristics
Background/ ra tionale	2		
		2. Explain the scientific background and rationale for the investigation being reported	- If equity is a focus, what is the rationale for focus on health equity?
Objectives	3		
		3. State specific objectives, including any pre specified hypotheses	
Methods			
Study design	4		
		4. Present key elements of study design early in the paper	- Report who was involved/engaged/consulted in study design (e.g. patients, community, industry, government, etc.) - Report whether a theory of change was described for the study to design analysis
Setting	5		
		5. Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	- Report whether methods of sampling/recruitment were designed to reach populations across relevant PROGRESS-Plus characteristics - Is there possibility of self-selection bias across PROGRESS-Plus factors?
Participants	6		
		6a. *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	- Give inclusion and exclusion criteria across relevant PROGRESS-Plus characteristics - Report context and relationship to health equity (additional items may be needed to document context and systems in which the studies take place) - Report details of partnerships with populations and communities, where applicable

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		6b. *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	- Report whether any PROGRESS-Plus factors used for matching, how categories were determined and why
Variables	7		
		7. Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	- Report whether outcomes were identified as relevant and important to populations across PROGRESS-Plus
Data sources/ measurement	8		
		8.* For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	- Report the method of obtaining population characteristics (e.g. age)
Bias	9		
		9. Describe any efforts to address potential sources of bias	- Report efforts to reduce selection bias across PROGRESS-Plus - Report whether dimensions of context might influence the study (e.g. bias in response/participation)
Study size	10		
		1No. Explain how the study size was arrived at	- Report whether PROGRESS-Plus characteristics of interest were considered in determining the study size
Quantitative variables	11		
		11. Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	- Report how decisions were made about analyses related to PROGRESS-Plus, including whether any categories were defined, and how they were decided - Report whether dimensions of context were collected for analysis
ETHICAL CONCERNS	--	--	New item in CONSORT-Equity, may be relevant to STROBE-Equity
			- Report details of informed consent and ethical clearance
Statistical methods	12		
		12a. Describe all statistical methods, including those used to control for confounding	- If PROGRESS-Plus factors used to control for confounding, describe how they were defined and rationale - Report whether contextual factors were used in adjustment for confounding
		12b. Describe any methods used to examine subgroups and interactions	- Report details of additional analyses related to health equity - Report whether context or systems were explored
		12c. Explain how missing data were addressed	- Explain whether missing data was related to individual or contextual factors associated with health inequities

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		12d. *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy	
		12e. Describe any sensitivity analyses	
Results			
Participants	13		
		13a.* Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed	
		13b.* Give reasons for non-participation at each stage	- Describe the losses and exclusions of participants across PROGRESS-Plus - Describe non-response/non-participation across PROGRESS-Plus
		13c.* Consider use of a flow diagram	
Descriptive data	14		
		14a.* Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders	- Present characteristics across relevant PROGRESS-Plus characteristics
		14b.* Indicate number of participants with missing data for each variable of interest	- Describe whether data on PROGRESS-Plus factors are missing (e.g. ethnicity data in some settings has a high level of missing-ness)
		14c.* *Cohort study*—Summaries follow-up time (e.g., average and total amount)	
Outcome data	15		
		15.* *Cohort study*—Report numbers of outcome events or summary measures over time	
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	
		Cross-sectional study—Report numbers of outcome events or summary measures	
Main results	16		

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		16a. Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included	- Report if confounders were defined for contextual or PROGRESS-Plus factors that are associated with health inequities - Justify why certain categories of PROGRESS-Plus are not disaggregated for analysis
		16b. Report category boundaries when continuous variables were categorized	- Justify any categories used across PROGRESS-Plus characteristics
		16c. If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analysis	17		
		17. Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses	- Report other analyses to address health equity questions, if the study had objectives related to health equity
Discussion			
Key results	18		
		18. Summaries key results with reference to study objectives	
Limitations	19		
		19. Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20		
		20a. Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	- Consider importance of context in interpretation of health equity
Generalizability	21		
		21. Discuss the generalizability (external validity) of the study results	- Discuss external validity to populations across relevant PROGRESS-Plus characteristics, considering issues of possible self-selection, healthy volunteer bias, losses across PROGRESS-Plus -Consider implications of exclusion of people across PROGRESS as well as differential participation and/or loss to follow-up - Consider context in discussion of generalizability
Other information			
Funding	22		

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		22. Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	

*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.

Appendix 2. Search strategy: Ovid MEDLINE(R) ALL 1946 to July 30, 2021

Database: Ovid MEDLINE(R) ALL <1946 to August 02, 2021>

Search Strategy:

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1 Health Equity/ (2006)

2 Cultural Diversity/ (12035)

3 exp Gender Identity/ (20847)

4 (gender-based or gender-related or gender factors).tw. (9171)

5 ((sex or gender) adj3 (analysis or factor$ or inequit$ or disparit$ or inequalit$ or difference$ or interact$)).tw. (135650)

6 exp sex factors/ (272792)

7 exp geriatrics/ (30587)

8 ((ethnic$ or race or racial or religio$ or cultur$ or minorit$ or refugee or indigenous or aboriginal or African american) adj3 (analysis or disparit$ or inequalit$ or inequit$ or difference$ or predict$ or interact$)).tw. (70352)

9 exp homosexuality/ (31357)

10 exp disabled persons/ (68349)

11 ((poverty or low-income or lower income or socioeconomic$ or socio-economic or social) adj3 (analysis or disadvantage$ or factor$ or inequalit$ or depriv$ or inequit$ or disparit$ or difference$ or predict$ or interact$)).tw. (105999)

12 exp Educational Status/ (54541)

13 exp Socioeconomic Factors/ (472147)

14 ((discriminat$ or social exclu$ or social inclu$) adj3 (religion or culture or race or racial or aboriginal or indigenous or ethnic$)).tw. (2447)

15 ((urban or rural or remote or inner-city or remote or slum) adj3 (analysis or inequit$ or disparit$ or inequalit$ or difference$ or predict$ or interact$)).tw. (8623)

16 ((resource-poor or (low income adj countr$) or (middle income adj countr$) or africa or developing countr$ or south america or china or asia or latin america) adj3 (relevance or

analysis or applicab$ or inequit$ or disparit$ or inequalit$ or difference$ or predict$ or interact$)).tw. (6513)

17 (inequalit$ or in-equalit or equit$ or inequit$ or in-equit or disparit$ or underserved or marginali$ed).tw. (144816)

18 exp indigenous populations/ (314257)

19 ((native* or Indian or aborigin*) adj3 (American* or Canadian* or Alaska*)).tw. (13844)

20 (first adj2 nation*).tw. (6145)

21 (indigen$ or aborigin$ or metis or inuit$ or eskimo$ or native or esquimaux or aleut or yuit or inughuit or unanga* or alutiiq or inup#ia* or kalaallit or Inuktitut or Nunavut or nunavik or cree or dene or haida or salish or Mohawk or ojibway or yupik or tribal or arctic).tw. (287080)

22 exp american native continental ancestry group/ or oceanic ancestry group/ (32763)

23 exp rural health/ or Rural Health Services/ (36296)

24 or/1-23 (1647654)

25 *Observational Studies as Topic/ (922)

26 *Health Policy/ (37023)

27 Health Services Research/ (37679)

28 *Research Design/ (39566)

29 *Checklist/ (3125)

30 Terminology as Topic/ (56027)

31 *Publishing/ (19965)

32 Editorial Policies/ (8772)

33 Guidelines as Topic/ (41372)

34 Writing/mt, st [Methods, Standards] (1638)

35 *Periodicals as Topic/ (38400)

36 (research adj3 (design or analysis or report*)).tw. (62625)

37 (report* or publish* or editor*).ti. (720952)

38 or/25-37 (1020653)

39 Consensus/ (15921)

40 Consensus Development Conference/ (12081)

41 Consensus Development Conferences as Topic/ (2629)

42 exp guideline/ (36011)

43 guidelines as topic/ (41372)

44 (editorial or guideline or consensus development conference or consensus development conference, NIH).pt. (603482)

45 (position statement* or policy statement* or practice parameter* or best practice*).tw. (37582)

46 (standard* or criteria or recommend* or guid* or consensus*).ti. (400429)

47 or/39-46 (1040866)

48 24 and 38 and 47 (6115)

49 limit 53 to yr="2005 -Current" (4178)

Appendix 3. Grey Literature sources.

Funding Agencies:

Australian Research Council

http://www.arc.gov.au/

Australian National Health and Medical Research Council

https://www.nhmrc.gov.au/

Canadian Institutes of Health Research

http://www.cihr-irsc.gc.ca/e/193.html

Social Sciences and Humanities Research Council

www.sshrc-crsh.gc.ca

National Institutes of Health

https://grants.nih.gov/funding/index.htm

Patient-Centered Outcomes Research Institute

https://www.pcori.org/funding-opportunities

European Commission

https://ec.europa.eu/research/health/index.cfm

National Institute of Economic and Social Research

https://www.niesr.ac.uk/

Health Research Council of New Zealand

https://www.hrc.govt.nz/

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Institute of Health Economics (IHE). Publications Library

http://www.ihe.ca/index.php?/publications

Agency for Healthcare Research and Quality (AHRQ). Evidence-based Practice

http://www.ahrq.gov/research/findings/evidence-based-reports/search.html

Institute for Clinical and Economic Review (ICER).

http://www.icer-review.org/index.php/Table/Appraisals/

TRIP Database (TRIP). Trip Database - Clinical Search Engine

http://www.tripdatabase.com/

National Institute for Health and Care Excellence (NICE). Evidence Search: Health and Social Care

http://www.evidence.nhs.uk/

University of York. PROSPERO: International prospective register of systematic reviews

http://www.crd.york.ac.uk/prospero/search.asp

Campbell Collaboration website

https://www.campbellcollaboration.org/

Cochrane website

http://www.cochrane.org/

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Guidance relevant to the reporting of health equity in observational research: A scoping review protocol

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Guidance relevant to the reporting of health equity in observational research: A scoping review protocol

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ABSTRACT

Introduction:

Health inequities are defined as unfair and avoidable differences in health between groups within a population. Most health research is conducted through observational studies, which are able to offer real-world insights about etiology, healthcare policy/program effectiveness, and the impacts of socioeconomic factors. However, most published reports of observational studies do not address how their findings relate to health equity. Our team seeks to develop equity-relevant reporting guidance as an extension of the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) statement. This scoping review will inform the development of candidate items for the STROBE-Equity extension. We will operationalize equity-seeking populations using the PROGRESS-Plus framework of sociodemographic factors. As part of a parallel stream of the STROBE-Equity project, the relevance of candidate guideline items to Indigenous research will be led by Indigenous co-investigators on the team.

Methods and analysis:

We will follow the Joanna Briggs Institute method for conducting scoping reviews. We will evaluate the extent to which the identified guidance supports or refutes our preliminary candidate items for reporting equity in observational studies. These candidate items were developed based on items from equity-reporting guidelines for randomized trials and systematic reviews, developed by members of this team. We will consult with our knowledge users, patients/public partners, and Indigenous research steering committee to invite suggestions for relevant guidance

documents and interpretation of findings. If the identified guidance suggests the need for additional candidate items, they will be developed through inductive thematic analysis.

Ethics and dissemination:

We will follow a principled approach that promotes ethical co-development with our community partners, based on principles of cultural safety, authentic partnerships, addressing colonial structures in knowledge production, and the shared ownership, interpretation, and dissemination of research. All products of this research will be published as open access.

Keywords:

Equity, health, observational studies, reporting, guidance, Indigenous, equity-seeking

STRENGTHS AND LIMITATIONS OF THIS STUDY

- To the best of our knowledge, this scoping review will be the first to analyze existing research guidance across the PROGRESS-Plus framework of sociodemographic factors to inform the development of a guideline for reporting health equity in observational studies.
- The scoping review will follow robust guidelines for conducting a systematic scoping review (JBI method), reporting the review (PRISMA-ScR), and reporting the literature search (PRISMA-S).
- A comprehensive search of multiple bibliographic databases (Embase, CINAHL, MEDLINE and LILACS) and grey literature sources will be conducted by a librarian experienced in scoping reviews.
- We expect to find a diversity of definitions of health equity which may not align with the *a priori* PROGRESS-Plus framework; this may be a limitation (if the framework can't be adapted to accommodate every definition) or a strength (if other definitions lead to an enhanced understanding of health equity).
- We expect considerable heterogeneity among the included literature (i.e., from various types of organizations and in various formats) which may pose a challenge for consistent and comprehensive data extraction.

INTRODUCTION

Health inequities are defined as differences in health between groups within a population that are unnecessary, avoidable, unfair, and unjust.[1] These disparities persist despite over a century of research on health inequities and their causes.[2] Health inequities are experienced across numerous factors such as income, education, geographic setting, age, ethnicity, and gender (a term which has been limited to outdated binary concepts, while in fact there exists a wide spectrum of gender identities and expressions).[3] The United Nations has characterized equity-related determinants of health, which impede people from achieving their health potential, into three distinct categories: social, economic, and environmental.[4]

Most epidemiological research is conducted as observational studies,[5] which can generate rigorous knowledge and understanding of: (i) disease etiology and why disease is distributed inequitably in populations, (ii) the differential effects of health policies and programs on health equity, and (iii) interactions between context and intersecting socioeconomic factors. Observational studies also provide an opportunity for knowledge generation in conflict and fragile settings where experimental studies may not be possible. For the purpose of this scoping review, we will consider observational studies to consist of cohort studies, case-control studies, and cross-sectional studies.[6]

Observational studies often draw on linked data between different types of administrative databases such as pharmacy, hospital, and medical insurance databases. Such data facilitates the collection of sociodemographic characteristics associated with health inequity, such as place of residence, ethnicity, race, income, age, and sex. These characteristics are often used to control for potential confounding and can also be used to investigate differences in effects across these characteristics.[7] However, the extent to which observational studies investigate these effects appears to be limited,[8,9] despite the powerful potential for exploring differential outcomes and investigating associations with context. A further constraint is that observational studies using linked data cannot address inequities for populations such as homeless, displaced, and migrant communities, which don't always have access to services that provide data to linked databases. The lack of (otherwise) routinely collected information about these populations may result in under-estimating the actual extent of health disparities.

Differences in health between social groups are also obscured by the lack of granular health data due to aggregation and averaging of data at the national or state/provincial level.[2] The resulting deficiencies in the analyses and reporting of equity considerations are barriers for synthesizing evidence concerning equity. In addition, health systems and policy interventions are often complex, with various interacting components, making it difficult to identify the "active ingredients" and to implement interventions consistently.[10]

Health equity has been studied since the early nineteenth century, when severe disparities in health status and mortality between the poor and the rich were first described in academic literature.[11,12] Guidance for the reporting of equity-relevant details, however, has only recently started to emerge, while other guidelines relating to various study designs and specific areas of health research have been published since 1995.[13] Many reporting guidelines are still being developed, as shown by over one-hundred current registrations for proposed new guidelines on the website of the EQUATOR (Enhancing the QUAlity and Transparency Of health Research) Network.[14] However, of the 464 published guidelines listed on EQUATOR, only three focus on the reporting of equity-relevant information: one addressing sex and gender,[3] one for systematic reviews,[15] and one for randomized trials.[16]

This scoping review is part of a multi-phased project to develop an equity extension of the widely used STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) reporting guideline.[17,18] We mapped all existing STROBE extensions to assess whether any of the extensions included items relevant to equity (mapping table available at https://osf.io/8abtr/) and we did not find any equity-related items. We also assessed all items from the PRISMA-Equity (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guideline[15] and the CONSORT-Equity (Consolidated Standards of Reporting Trials) guideline.[16] Through this process, we developed a draft set of 36 candidate items for a STROBE-Equity extension (Appendix 1).

This scoping review aims to compile guidance from sources such as ethics boards, funders, and journal policies which may be relevant to the reporting of health equity in observational studies, to help inform the development of the new STROBE-Equity extension (Open Science project page: https://osf.io/h57se/). We chose to conduct a scoping review as the evidence synthesis method due to the expected varied types and sources of guidance (e.g., institutional web pages, government policies, ethics board documents) which are not typically published in academic journals or indexed in academic databases. A systematic review would not be an appropriate method for this study since we acknowledge that we would not be able to identify every source of relevant guidance from every institution and organization in every country. Our study objectives also align with three of the reasons proposed by Munn et al.[19] for conducting a scoping review: (1) "to identify the types of available evidence in a given field," (2) "to identify key characteristics or factors related to a concept," and (3) "to identify and analyse knowledge gaps." Additionally, a scoping review will allow us to purposively search specific sources of guidance that address health inequities across various sociodemographic factors.

We did not find any existing reviews or protocols for reviews on health equity reporting guidance by searching the following databases: JBI Evidence Synthesis (searched 14/06/2021), Cochrane Database of Systematic Reviews (searched 14/06/2021), Campbell Collaboration online library (searched 14/06/2021), Evidence for Policy and Practice Information (EPPI) (searched 15/06/2021), Epistemonikos (searched 15/06/2021), and PubMed (searched 15/06/2021).

The specific research questions for this scoping review are:

1. Does the identified guidance support or refute each candidate item for the STROBE-Equity extension?
2. Does the identified guidance indicate other/additional candidate items for the STROBE-Equity extension?
3. Does the identified guidance indicate a need for specific guideline items in relation to particular populations or contexts?

METHODS AND ANALYSIS

Consultation and integrated knowledge translation

We designed this scoping review in consultation with relevant stakeholders and knowledge users, including policy makers, advisors, program managers, practitioners, and people with lived experience of health inequities.

We will follow a principled approach to ethical collaborative conduct of this research, including development of authentic partnerships, joint ownership of all data collected and collaborative interpretation of results, using principles of cultural safety and of addressing colonial structures in knowledge production.[20,21] We developed a diverse and multidisciplinary team of individuals representing different types of stakeholders, including patients/public, practitioners, policy-makers, program-managers, press, payers/purchasers and principal investigators, using a '7Ps' framework adapted from Concannon et al.[22]

Our integrated knowledge translation approach will apply a health equity lens, by focusing on equitable decision-making within our research team, which involves transparency and which doesn't perpetuate unequal power relations that filter out the voices or viewpoints of some stakeholders.[23]

Study design

We chose to conduct this scoping review according to the Joanna Briggs Institute (JBI) method[24] because this approach is useful for identifying a range of sources of guidance (e.g. from published literature, grey literature, and expert contacts) and for synthesizing broad concepts in the available guidance.[25]

Inclusion criteria

We used the Population, Concept, and Context (PCC) framework of JBI to develop the inclusion criteria for this scoping review.

Population

Guidance related to research with or about people experiencing health inequity will be included. We will consider documents, web content, and articles (hereon collectively referred to as 'articles') that pertain to people or groups whose opportunities for health are compromised with respect to any PROGRESS-Plus characteristics (or combination thereof). The PROGRESS acronym stands for Place of residence (e.g. country, neighborhood, urban/rural), Race/ethnicity/culture/language, Occupation, Gender/Sex, Religion, Education, Socioeconomic status and Social capital.[26] The 'Plus' refers to other personal, time-dependent or relationship-dependent factors, such as pregnancy, reproductive capacity, age, disability, and sexual orientation.[27]

We recognize that various terms may be used to describe groups experiencing health inequities such as deprived, discriminated against, handicapped, poor, underprivileged, under-resourced, under-served, disadvantaged, marginalized, equity-seeking, racialized or vulnerable; these will all be eligible for searching. In addition, PROGRESS-Plus characteristics intersect with each other and within the context and setting. We acknowledge that the PROGRESS-Plus framework may not cover all equity-related individual or population-level characteristics. Thus, we will judge relevance to health equity by assessing whether the guidance describes a focus on health equity, social justice, disparities, or inequalities.

Concept

The concept to be studied in this scoping review is research guidance, in the form of guidelines, policies, or recommendations, which would be relevant to the development of reporting guidance that is equity focused. We define reporting guidance as systematically developed, evidence-based and consensus-based statements to assist researchers in composing transparent, concise, and comprehensive reports of their studies (adapted from Simera and Altman[28] and the World Health Organization[29]).

We will seek literature on two types of guidance: (i) existing reporting guidance for studies with specific populations or contexts, which can inform the development of a general guideline for reporting health equity, i.e. the STROBE-Equity extension, and (ii) guidance for any stage or aspect of conducting research with or about populations experiencing health inequity, to inform the development of items in the STROBE-Equity extension for reporting the equity-relevant details of the study in a comprehensive, precise, and transparent manner. The analysis of equity-related guidance for the *conduct* of research will be important in developing the candidate items for the STROBE-Equity reporting guideline, so that the items in the guideline align with the specific recommendations of diverse stakeholders for conducting various stages of the research.

We will consider guidance for any type of research – experimental, observational, or qualitative (including anthropological research, which can provide socio-cultural insights regarding health equity and help to mitigate ethnocentric attitudes of health providers and researchers).[30] Although the overall objective of this scoping review is to help inform the development of a STROBE-Equity extension for the reporting of observational health studies, we anticipate that there may be equity-related guidance for many types of research which may be relevant and important.

Context

For this scoping review, we will use a broad conceptualization of health which is inclusive of guidance in social sciences that relates to health or well-being. We will consider guidance for any country, population or setting, including displaced populations, refugees, humanitarian settings and conflict zones.

Types of evidence sources

We will consider articles from peer-reviewed journals and grey literature (including web page content) (see Table 1 for examples). We will peruse websites of relevant organizations to seek out grey literature that is not published in academic journals. The provenance of the guidance included in the scoping review may be from any source such as journals, ethics boards, professional associations, academic research teams, and governmental or non-governmental organizations. Guidance described as opinion/viewpoint pieces or found in letters, editorials and case studies will be excluded.

Table 1. Examples of relevant guidance from published guidelines, peer-reviewed journals, and grey literature.

Guidance	Organization	Type of organization	PROGRESS dimensions	Dimensions of reporting
SAGER (Sex And Gender Equity in Research)[3]	European Association of Science Editors	Journal editors	Sex and gender	Rationale, methods, results, discussion
NIH Policy on Sex as a Biological Variable[31]	National Institutes of Health (NIH)	Funder	Sex	Methods, results
The Reporting of Race and Ethnicity in Medical and Science Journals[32]	Journal of the American Medical Association (JAMA)	Journal	Ethnicity and race	Abstract, results, methods
Ethical Guidance for Research with People with Disabilities[33]	National Disability Authority (NDA)	Government	Disability	Methods (recruitment, engagement) discussion
Consolidated criteria for strengthening reporting of health research involving Indigenous	Research team	Multidisciplinary	Indigenous people	All

peoples: the CONSIDER statement[34]				
CONSORT-Equity[16]	Research team	Multidisciplinary	All PROGRESS-Plus	All
PRISMA-Equity[15]	Research team	Multidisciplinary	All PROGRESS-Plus	All
A guide to reporting studies in rural and remote health[35]	Rural and Remote Health (RRH)	Journal	Place of residence	All
How to integrate sex and gender into research[36]	Canadian Institutes of Health Research (CIHR)	Funder	Sex and gender	Rationale, methods, results, discussion
Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans – TCPS 2 (2018)[37]	Canadian Institutes of Health Research (CIHR)	Funder	Indigenous peoples in Canada, Age, Disability	Informed consent
AIATSIS Code of Ethics for Aboriginal and Torres Strait Islander Research[38]	Australian Institute for Aboriginal and Torres Strait Islander Studies (AIATSIS)	Government statutory authority	Indigenous peoples in Australia	Methods, informed consent, reporting
Values and ethics - Guidelines for ethical conduct in Aboriginal and Torres Strait Islander health research[39]	National Health and Medical Research Council (NHMRC)	Funder	Indigenous people	Rationale, methods, results, discussion
AH&MRC Ethical Guidelines: Key Principles (2020) V2.0[40]	Aboriginal Health and Medical Research Council of NSW (AH&MRC)	Advocacy association	Indigenous people	Methods, informed consent, reporting

Te Ara Tika: Guidelines for Māori research ethics: A framework for researchers and ethics committee members[41]	Health Research Council of New Zealand	Funder	Indigenous peoples of Aotearoa, New Zealand	Rationale, methods, discussion

Search strategy

We will search for both published and unpublished guidance relevant to the reporting of health equity in observational studies. Searches will be designed and conducted by a librarian experienced in scoping reviews (TR), using a method designed to optimize term selection.[42] Indexing terms, text words contained in the titles and abstracts of known relevant guidance (Table 1), and citations from these examples were used to develop a full search strategy in MEDLINE using the OVID interface (Appendix 2). Starting with the set of possible guidelines from Table 1, keywords and medical subject headings for those articles will be used to develop a search strategy with the following concepts: 1) health equity (using PROGRESS-Plus characteristics), 2) reporting, analysis, and design of research, and 3) guidelines or guidance articles. We will then check the yield of the search to assess the relevance of articles retrieved and refine the search accordingly.

The search strategy, including all identified keywords and index terms, will be adapted for other electronic databases and information sources. The reference list of all included sources of evidence will be screened for additional studies. The search will not have a language restriction. Dates will be restricted to 2005 and later since we are interested in recent guidance and conceptualizations of health equity in research. This timeframe also aligns with the establishment of the Commission on Social Determinants of Health (CSDH) by the World Health Organization in 2005.[43] The search will be reported according to the PRISMA-S guideline (for literature searches).[44]

Electronic bibliographic databases

The following electronic bibliographic databases will be searched:

- Embase via OVID
- MEDLINE via OVID
- CINAHL via EbscoHost
- Cochrane Methodology Register via The Cochrane Library (Wiley) Issue 8, 2021
- LILACS via BIREME - PAHO - WHO Latin American and Caribbean Center on Health Sciences Information. http://lilacs.bvsalud.org/en/.

Grey literature search

We expect much of the sought-after guidance to be in grey literature, such as institutional reports, research ethics guidance and journal editorial policies.

A grey literature search using Google and a review of key websites suggested by our steering committee members, such as ethics review boards, and funding organizations (see Appendix 3) will be conducted. In addition to known websites, the first 20 Google results yielded by each relevant phrase or search string will be reviewed.

We will ensure that this search includes organizations based in low, lower-middle, upper-middle, and high-income countries (LMICs and HICs), using the current classifications from the World Bank.[45] We will search sources (e.g. patient advocacy organizations, medical associations) which are related to specific groups of people who face systemic and structural barriers to health across PROGRESS-Plus factors.

Guidance will be eligible for inclusion which is related to participant inclusion, recruitment, retention, and engagement, as well as the design, reporting and analysis of research relevant to populations subject to systemic and structural barriers.

Consultation

We will also ask for suggestions of potential source organizations and guidance from the members of our steering committees: Technical Oversight, Patients/Public, Knowledge Users, and Indigenous Research, and add these to our list of key grey literature sources (Appendix 3).

Reference list screening

We will screen references from all included guidance. We will use citationchaser[46] (https://www.eshackathon.org/software/citationchaser.html) to import all references into our Covidence database (https://www.covidence.org) for de-duplication against other sources, and for screening according to the same inclusion criteria as described above for this scoping review.

Stopping rule

We will use the principle of theoretical saturation[47] to determine when to stop searching for grey literature. First, we will include all relevant guidance identified in academic literature. Then, for grey literature we will continue the process by searching sources across domains of PROGRESS-Plus and across different stakeholders as defined by our 7Ps framework.

After including all relevant guidance identified in academic literature, we will conduct the grey literature search concurrently with the data extraction, checking if the inclusion of additional articles contributes any new evidence, which will indicate whether to continue or stop the search.[48] We will conduct this process with an initial set of twenty articles and subsequent sets of ten articles, to cover a wide array of guidance sources (e.g. ethics boards, journals, governments) and contexts (e.g. low, middle, and high-income countries). Once a set of ten additional articles no longer contributes new evidence, the search for grey literature will be stopped.

Source of evidence selection

Initial screening

Titles and abstracts of articles retrieved from the electronic bibliographic database search will be screened for potential eligibility using Covidence, each reference by two reviewers independently. In cases of disagreement between two reviewers, a third reviewer will make the decision regarding eligibility. The screening criteria will be tested on a training set of 50 references until the team reaches greater than 75% agreement on inclusion or exclusion.

Full-text screening

We will conduct full-text screening for eligibility using Covidence and the same eligibility criteria, with two reviewers independently screening each reference and providing reasons for excluding references. Conflicts regarding inclusion and exclusion, and reasons for the latter, will be resolved by discussion between the two reviewers, and a third reviewer will be asked for a final decision in cases where agreement is not reached between the two reviewers.

Data extraction and quality assessment

Data will be extracted by pairs of independent reviewers using a pre-tested data charting form. The form will be pilot tested on ten articles, selected to represent various guidance sources (e.g. ethics boards, journals) and contexts (e.g. low, middle, and high-income countries), to identify if the questions in the charting form need to be modified or if other questions or categories need to be added to capture all relevant information from the articles.

The charting form will be designed to collect information on the source, type of organization, and methods of development. We will collect details on whether or not the guidance supports the draft STROBE-Equity extension items. If the reviewed guidance suggests additional items, this will be captured as free text with verbatim quotes from the source document.

We will collect details about specific populations who experience health inequity using free-text boxes. This may contribute to expanding on PROGRESS-Plus as a framework.

Since this will be a scoping review of articles on research guidance, we will not conduct methodological quality (i.e., risk of bias) assessments, as per the JBI manual. To assess the credibility of the guidance, we will collect details on the provenance of the guidance and its development process (e.g., expert opinion, consensus).

Analysis and presentation of the evidence

We will use the principle of framework synthesis to analyse the data. This approach involves the mapping of concepts/data to an *a priori* framework,[49] which in this scoping review is a preliminary STROBE-Equity checklist of candidate items (Appendix 1). If we find extracted data that does not match the items (or categories) in the checklist, we will conduct an inductive thematic analysis to develop new items and/or categories as needed based on the data.[50] As such, the *a priori* framework will serve as a basic model which can be expanded or reduced by adding, modifying and/or removing items.[49]

We will analyse the extracted data by looking for common items across diverse populations and inequities, as well as items that relate to specific contexts or vulnerabilities. As well, we will analyse any differences in guidance across our preliminary set of candidate items (e.g., identifying different or additional considerations for ‘study design’). We will also analyse guidance specifically for Indigenous research, as well as for research in conflict and fragile settings, which face increased risks of inequity and where research reporting could miss out key populations more easily than in non-conflict settings. Indigenous research will be an important focus of this scoping review, to align with the objectives of the overall STROBE-Equity project, which involves a parallel stream, led by Indigenous co-investigators, to assess the relevance of the developed guidance for Indigenous research.

After the analysis is completed, we will hold a meeting with the lead author and the four principal investigators to develop new and/or refine existing candidate items based on the data synthesis. Any candidate items relating to research involving Indigenous communities will be developed by Indigenous co-investigators and the Indigenous research steering committee (composed of five Indigenous researchers from Canada, Australia, and Aotearoa New Zealand).

We recognize that the STROBE framework may not be compatible with reporting guidance for Indigenous research. If the analysis of the data confirms this, which will be determined in consultation with the Indigenous researchers on the team, then the scoping review will be conducted in parallel Indigenous and 'global' streams, which will be presented as two reports.

The results of the scoping review will be presented as a map of the extracted data in tabular form based on the *a priori* framework. The table will summarize what, if any, extracted data contributed to modifications of the proposed STROBE-Equity checklist.

If the scoping review is conducted in parallel streams, the results for guidance on research involving Indigenous people will be presented according to categories (or domains) that emerge during the inductive thematic analysis of the data, as described above.

We will report our scoping review according to the PRISMA-ScR guideline.[51]

Potential impact of this scoping review

This scoping review will synthesize and chart available research guidance across dimensions of health equity, and the results will be used to inform the development of an equity extension to the STROBE reporting guideline. This scoping review may also be helpful to organizations and individuals who are seeking research guidance that includes health equity considerations.

Potential Limitations

We acknowledge that one limitation of our approach is that we will not be able to review all available guidance (e.g., every ethics board, governmental or NGO guidance document) that may be relevant to the reporting of health equity in observational studies. To address this, we have developed a structured approach for our grey literature search that will seek a balance between sources originating in high income countries as well as low- and middle-income countries (e.g., HIC funding agencies and LMIC funding agencies) as well as across all PROGRESS-Plus characteristics. This strategy will help to avert over-emphasizing any one element of PROGRESS-Plus or focusing only on guidance from some countries or settings. Another possible limitation is the diversity of definitions we expect to find regarding health equity and equity-seeking populations. To synthesize these diverse definitions, we will categorize definitions according to the PROGRESS-Plus framework and will revise, if needed, to encompass definitions which do not fit the PROGRESS-Plus framework. This may help to strengthen/enhance the current understanding of health equity and equity-seeking populations to move forward with more accurate and comprehensive concepts. A third possible limitation is that we expect to find considerable heterogeneity among the included literature (i.e., from various types of organizations and institutions, and presented in various formats and levels of detail) which may pose a challenge for consistent and comprehensive data extraction. A fourth possible limitation is that we will only include articles in English, and those that we can obtain English translations of, so we may miss some issues or concepts about health equity from certain settings. Lastly, a fifth possible limitation is that the experience of health inequity may depend on the interaction of social identities with contextual factors and systems which may not fit in the PROGRESS-Plus framework. To mitigate this, we will explore modifying the framework or defining systems issues separately.

Patient and Public Involvement

Three members of our research team with lived experiences of health inequities (HE, RG-S and JT) are co-authors. Their involvement in this study pertains to contributions to the development of the methodology as well as the review and editing of the manuscript. Their contributions provided valuable new insights regarding the marginalization and exclusion of various populations in health research.

ETHICS AND DISSEMINATION

This scoping review does not require ethics approval since there are no human participants. We will follow a principled approach to co-developing this research with our knowledge users, patients/public and Indigenous steering committees.[20] This approach follows principles of ethical partnerships, co-ownership of data, collaborative interpretation of results, participatory research, cultural safety and inclusion and protection of cultural knowledge in research. The results will be published in open-access peer-reviewed journals and will also be disseminated through conference presentations. The international members of our team who are fluent in languages other than English will be encouraged to submit abstracts and presentations for conferences held in other languages. We will also publish a summary on our STROBE-Equity Open Science Framework project page and on our Cochrane Equity website (https://methods.cochrane.org/equity/welcome).

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FOOTNOTES

Author Statement

The following are the authors' contributions according to the relevant CRediT categories. AR, VAW, EG, LS, EL and PMO conceptualized this study. JEJ, LM, VAW and OM obtained funding. VAW supervised the research activity planning. AR, EG and VAW coordinated the research activity planning (project administration). DOL, TY, OD, SGN, EAA, JL, OM, JEJ, ZAB, CC, HE, RG-S, BJH, MH, MK, TK, MJM, LM, MN, JR, JT, PT, XW and CSW contributed to the methodology. TR designed the search strategy. AR and VAW wrote the original draft. All authors reviewed and edited the manuscript and approved the final draft.

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Competing interests

None declared.

Appendix 1. Possible equity extension items for STROBE.

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
Title and abstract	1		
		1a. Indicate the study's design with a commonly used term in the title or the abstract	
		1b. Provide in the abstract an informative and balanced summary of what was done and what was found	- Describe population according to PROGRESS-Plus - Describe extent/limits of applicability to populations of interest across PROGRESS-Plus characteristics
Background/ rationale	2		
		2. Explain the scientific background and rationale for the investigation being reported	- If equity is a focus, what is the rationale for focus on health equity?
Objectives	3		
		3. State specific objectives, including any pre specified hypotheses	
Methods			
Study design	4		
		4. Present key elements of study design early in the paper	- Report who was involved/engaged/consulted in study design (e.g. patients, community, industry, government, etc.) - Report whether a theory of change was described for the study to design analysis
Setting	5		
		5. Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection	- Report whether methods of sampling/recruitment were designed to reach populations across relevant PROGRESS-Plus characteristics - Is there possibility of self-selection bias across PROGRESS-Plus factors?
Participants	6		
		6a. *Cohort study*—Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up *Case-control study*—Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls *Cross-sectional study*—Give the eligibility criteria, and the sources and methods of selection of participants	- Give inclusion and exclusion criteria across relevant PROGRESS-Plus characteristics - Report context and relationship to health equity (additional items may be needed to document context and systems in which the studies take place) - Report details of partnerships with populations and communities, where applicable

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		6b. *Cohort study*—For matched studies, give matching criteria and number of exposed and unexposed *Case-control study*—For matched studies, give matching criteria and the number of controls per case	- Report whether any PROGRESS-Plus factors used for matching, how categories were determined and why
Variables	7		
		7. Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable	- Report whether outcomes were identified as relevant and important to populations across PROGRESS-Plus
Data sources/ measurement	8		
		8.* For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group	- Report the method of obtaining population characteristics (e.g. age)
Bias	9		
		9. Describe any efforts to address potential sources of bias	- Report efforts to reduce selection bias across PROGRESS-Plus - Report whether dimensions of context might influence the study (e.g. bias in response/participation)
Study size	10		
		1No. Explain how the study size was arrived at	- Report whether PROGRESS-Plus characteristics of interest were considered in determining the study size
Quantitative variables	11		
		11. Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why	- Report how decisions were made about analyses related to PROGRESS-Plus, including whether any categories were defined, and how they were decided - Report whether dimensions of context were collected for analysis
ETHICAL CONCERNS	--	--	New item in CONSORT-Equity, may be relevant to STROBE-Equity
			- Report details of informed consent and ethical clearance
Statistical methods	12		
		12a. Describe all statistical methods, including those used to control for confounding	- If PROGRESS-Plus factors used to control for confounding, describe how they were defined and rationale - Report whether contextual factors were used in adjustment for confounding
		12b. Describe any methods used to examine subgroups and interactions	- Report details of additional analyses related to health equity - Report whether context or systems were explored
		12c. Explain how missing data were addressed	- Explain whether missing data was related to individual or contextual factors associated with health inequities

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		12d. *Cohort study*—If applicable, explain how loss to follow-up was addressed *Case-control study*—If applicable, explain how matching of cases and controls was addressed *Cross-sectional study*—If applicable, describe analytical methods taking account of sampling strategy	
		12e. Describe any sensitivity analyses	
Results			
Participants	13		
		13a.* Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed	
		13b.* Give reasons for non-participation at each stage	- Describe the losses and exclusions of participants across PROGRESS-Plus - Describe non-response/non-participation across PROGRESS-Plus
		13c.* Consider use of a flow diagram	
Descriptive data	14		
		14a.* Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders	- Present characteristics across relevant PROGRESS-Plus characteristics
		14b.* Indicate number of participants with missing data for each variable of interest	- Describe whether data on PROGRESS-Plus factors are missing (e.g. ethnicity data in some settings has a high level of missing-ness)
		14c.* *Cohort study*—Summaries follow-up time (e.g., average and total amount)	
Outcome data	15		
		15.* *Cohort study*—Report numbers of outcome events or summary measures over time	
		Case-control study—Report numbers in each exposure category, or summary measures of exposure	
		Cross-sectional study—Report numbers of outcome events or summary measures	
Main results	16		

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		16a. Give unadjusted estimates and, if applicable, confounder-adjusted estimates and their precision (e.g., 95% confidence interval). Make clear which confounders were adjusted for and why they were included	- Report if confounders were defined for contextual or PROGRESS-Plus factors that are associated with health inequities - Justify why certain categories of PROGRESS-Plus are not disaggregated for analysis
		16b. Report category boundaries when continuous variables were categorized	- Justify any categories used across PROGRESS-Plus characteristics
		16c. If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period	
Other analysis	17		
		17. Report other analyses done—e.g. analyses of subgroups and interactions, and sensitivity analyses	- Report other analyses to address health equity questions, if the study had objectives related to health equity
Discussion			
Key results	18		
		18. Summaries key results with reference to study objectives	
Limitations	19		
		19. Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias	
Interpretation	20		
		20a. Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence	- Consider importance of context in interpretation of health equity
Generalizability	21		
		21. Discuss the generalizability (external validity) of the study results	- Discuss external validity to populations across relevant PROGRESS-Plus characteristics, considering issues of possible self-selection, healthy volunteer bias, losses across PROGRESS-Plus -Consider implications of exclusion of people across PROGRESS as well as differential participation and/or loss to follow-up - Consider context in discussion of generalizability
Other information			
Funding	22		

Section	Item No	Standard STROBE Checklist	Possible issues for STROBE equity extension (based on PRISMA-Equity and CONSORT-Equity reporting items)
		22. Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based	
*Give information separately for cases and controls in case-control studies and, if applicable, for exposed and unexposed groups in cohort and cross-sectional studies.			

Appendix 2. Search strategy: Ovid MEDLINE(R) ALL 1946 to July 30, 2021

Database: Ovid MEDLINE(R) ALL <1946 to August 02, 2021>

Search Strategy:

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1 Health Equity/ (2006)

2 Cultural Diversity/ (12035)

3 exp Gender Identity/ (20847)

4 (gender-based or gender-related or gender factors).tw. (9171)

5 ((sex or gender) adj3 (analysis or factor$ or inequit$ or disparit$ or inequalit$ or difference$ or interact$)).tw. (135650)

6 exp sex factors/ (272792)

7 exp geriatrics/ (30587)

8 ((ethnic$ or race or racial or religio$ or cultur$ or minorit$ or refugee or indigenous or aboriginal or African american) adj3 (analysis or disparit$ or inequalit$ or inequit$ or difference$ or predict$ or interact$)).tw. (70352)

9 exp homosexuality/ (31357)

10 exp disabled persons/ (68349)

11 ((poverty or low-income or lower income or socioeconomic$ or socio-economic or social) adj3 (analysis or disadvantage$ or factor$ or inequalit$ or depriv$ or inequit$ or disparit$ or difference$ or predict$ or interact$)).tw. (105999)

12 exp Educational Status/ (54541)

13 exp Socioeconomic Factors/ (472147)

14 ((discriminat$ or social exclu$ or social inclu$) adj3 (religion or culture or race or racial or aboriginal or indigenous or ethnic$)).tw. (2447)

15 ((urban or rural or remote or inner-city or remote or slum) adj3 (analysis or inequit$ or disparit$ or inequalit$ or difference$ or predict$ or interact$)).tw. (8623)

16 ((resource-poor or (low income adj countr$) or (middle income adj countr$) or africa or developing countr$ or south america or china or asia or latin america) adj3 (relevance or analysis or applicab$ or inequit$ or disparit$ or inequalit$ or difference$ or predict$ or interact$)).tw. (6513)

17 (inequalit$ or in-equalit or equit$ or inequit$ or in-equit or disparit$ or underserved or marginali$ed).tw. (144816)

18 exp indigenous populations/ (314257)

19 ((native* or Indian or aborigin*) adj3 (American* or Canadian* or Alaska*)).tw. (13844)

20 (first adj2 nation*).tw. (6145)

21 (indigen$ or aborigin$ or metis or inuit$ or eskimo$ or native or esquimaux or aleut or yuit or inughuit or unanga* or alutiiq or inup#ia* or kalaallit or Inuktitut or Nunavut or nunavik or cree or dene or haida or salish or Mohawk or ojibway or yupik or tribal or arctic).tw. (287080)

22 exp american native continental ancestry group/ or oceanic ancestry group/ (32763)

23 exp rural health/ or Rural Health Services/ (36296)

24 or/1-23 (1647654)

25 *Observational Studies as Topic/ (922)

26 *Health Policy/ (37023)

27 Health Services Research/ (37679)

28 *Research Design/ (39566)

29 *Checklist/ (3125)

30 Terminology as Topic/ (56027)

31 *Publishing/ (19965)

32 Editorial Policies/ (8772)

33 Guidelines as Topic/ (41372)

34 Writing/mt, st [Methods, Standards] (1638)

35 *Periodicals as Topic/ (38400)

36 (research adj3 (design or analysis or report*)).tw. (62625)

37 (report* or publish* or editor*).ti. (720952)

38 or/25-37 (1020653)

39 Consensus/ (15921)

40 Consensus Development Conference/ (12081)

41 Consensus Development Conferences as Topic/ (2629)

42 exp guideline/ (36011)

43 guidelines as topic/ (41372)

44 (editorial or guideline or consensus development conference or consensus development conference, NIH).pt. (603482)

45 (position statement* or policy statement* or practice parameter* or best practice*).tw. (37582)

46 (standard* or criteria or recommend* or guid* or consensus*).ti. (400429)

47 or/39-46 (1040866)

48 24 and 38 and 47 (6115)

49 limit 53 to yr="2005 -Current" (4178)

Appendix 3. Grey Literature sources.

Funding Agencies:

Australian Research Council

http://www.arc.gov.au/

Australian National Health and Medical Research Council

https://www.nhmrc.gov.au/

Canadian Institutes of Health Research

http://www.cihr-irsc.gc.ca/e/193.html

Social Sciences and Humanities Research Council

www.sshrc-crsh.gc.ca

National Institutes of Health

https://grants.nih.gov/funding/index.htm

Patient-Centered Outcomes Research Institute

https://www.pcori.org/funding-opportunities

European Commission

https://ec.europa.eu/research/health/index.cfm

National Institute of Economic and Social Research

https://www.niesr.ac.uk/

Health Research Council of New Zealand

https://www.hrc.govt.nz/

Other sources:

Institute of Health Economics (IHE). Publications Library

http://www.ihe.ca/index.php?/publications

Agency for Healthcare Research and Quality (AHRQ). Evidence-based Practice

http://www.ahrq.gov/research/findings/evidence-based-reports/search.html

Institute for Clinical and Economic Review (ICER).

http://www.icer-review.org/index.php/Table/Appraisals/

TRIP Database (TRIP). Trip Database - Clinical Search Engine

http://www.tripdatabase.com/

National Institute for Health and Care Excellence (NICE). Evidence Search: Health and Social Care

http://www.evidence.nhs.uk/

University of York. PROSPERO: International prospective register of systematic reviews

http://www.crd.york.ac.uk/prospero/search.asp

Campbell Collaboration website

https://www.campbellcollaboration.org/

Cochrane website

http://www.cochrane.org/