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User testing and evaluation of Evidence for Equity: systematic review summaries for policy makers

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List of Abbreviations

CBA	Controlled Before-After (studies)
CI	Confidence Interval
DALY	Disability-Adjusted Life Years
E4E	Evidence for Equity
EPOC	Effective Practice and Organization of Care
GRADE	Grading of Recommendations Assessment, Development and Evaluation Working Group
HIC	High-Income Country
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome
ITS	Interrupted Time Series (studies)
IQR	Interquartile Range
NGO	Non-Governmental Organization
NRCT	Non-Randomized Controlled Trial
LMIC	Low- and Middle-Income Country
MD	Mean Difference
MDG	Millennium Development Goal
OR	Odds Ratio
PRESS	Peer Review of Electronic Search Strategies
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
PROGRESS	Place of residence, Race/ethnicity/culture/language, Occupation, Gender/sex, Religion, Education, Social Capital, Socioeconomic status
RCT	Randomized Controlled Trial
RD	Risk Difference
ROB	Risk of Bias
ROBINS-I	Risk Of Bias In Non-randomized Studies – of Interventions
SD	Standard Deviation
SDG	Sustainable Development Goal

SE	Standard Error
SES	Socioeconomic Status
SOF	Summary of Findings (table)
SR	Systematic Review
WHO	World Health Organization

1. INTRODUCTION

The World Health Organization (WHO) has defined health inequalities as “differences in health status or in the distribution of health determinants between different population groups (e.g. racial, ethnic, sexual orientation or socioeconomic groups)” (1). Health inequities are a subset of these in which the differences in health outcomes are avoidable and would be considered unfair and may result in differences in terms of incidence of disease and access to health care services across a population (2).

Systematic reviews are becoming increasingly important for policy makers making decisions about reducing health inequities (3-5). They offer many potential benefits to policy makers, including identifying, appraising, and synthesizing the available evidence as well as improving the confidence in the results than individual studies (4, 6). However, most systematic reviews are written using technical language, are too long, and lack contextual information important for policy makers and other users making decisions about how to use the evidence (7).

A study by Petticrew et al. found that in order to facilitate evidence-based policy making that considers health equity, public health policy makers need information on the distributional effects of interventions and their cost-effectiveness (5). To use systematic reviews, policy makers also require contextual information about the intervention to appropriately use the systematic review evidence and, in addition, they need information about potentially disadvantaged subgroups of the population (5). This includes information on whether the intervention is likely to increase or reduce inequities.

This thesis includes a study to describe how to define and identify potentially disadvantaged populations for systematic review authors, a systematic review to determine the types of evidence summary formats that are most useful for policy makers making decisions about equity-relevant interventions, and an evaluation of a collection of equity-focused systematic review summaries aimed at policy makers making decisions about interventions to reduce health inequities. For the purposes of this work, ‘policy makers’ include health ministers and their political staff, civil servants, and health-system stakeholders (i.e. civil society groups, patient groups, professional associations, non-governmental organizations, donors, international agencies) (8).

1.1 Systematic Reviews

The number of studies published each year is increasing which makes it difficult for decision makers, including policy makers and clinicians, to stay up-to-date with the latest research findings (6). Systematic reviews can assist policy makers by providing a high quality summary and analysis of the available literature on the topic. They use explicit methods and attempt to compile and synthesize all available evidence meeting pre-defined eligibility criteria to answer a research question (6). Systematic reviews utilize all available research on the topic regardless of the findings. This is a key difference; traditional narrative or literature reviews often select certain research papers to support a particular viewpoint (9). For these reasons, systematic reviews are the recommended study design for evidence-based policy making.

Additionally, systematic review methods are optimally planned and reported in advance to ensure transparency, minimize bias and increase the reliability of the findings and often published as a protocol (10).

There are five key characteristics of a high quality systematic review:

1. Clear objectives and pre-defined eligibility criteria;
2. Explicit and reproducible methodology;
3. Comprehensive and systematic literature search that aims to identify all potentially eligible published and unpublished studies;
4. Assessment of the validity of the included studies; and
5. Systematic analysis and presentation of the included studies and their findings (6).

In some systematic reviews, data from the individual studies are summarized using descriptive analysis. In others, data from the individual studies may be pooled using meta-analysis. In these reviews the results may provide a more precise estimate of the treatment effect or other outcome than each individual study alone (11).

In many systematic reviews, especially those published by the Campbell or Cochrane Collaborations, each outcome is assessed for the quality, or certainty, of the evidence. These judgements are made based on a set of criteria to grade the evidence, using the GRADE system. This requires systematic review authors to assess: the methodological limitations of the study, indirectness of the evidence, unexplained heterogeneity or inconsistency of the results, imprecision of the results, or high probability of publication bias (6). The certainty of the evidence is presented alongside the effect sizes to help readers of the systematic review understand whether additional studies would be likely to change the result.

Systematic review authors often assess the risk of bias of the individual studies, such as selection bias, publication bias, and detection bias. These assessments are considered in the presentation of the pooled results (6). Depending on the proportion of studies assessed as high risk of bias the analysis and resulting interpretations will be more cautious (6). In addition, the certainty of the evidence will also be lower.

1.1.1 Cochrane (formerly The Cochrane Collaboration)

Cochrane is an international network of healthcare providers, researchers, patients, and others who work to prepare, maintain, and promote systematic reviews of primary research on healthcare and health policy interventions (12). Cochrane's vision is "a world of improved health where decisions about health and health care are informed by high-quality, relevant and up-to-date synthesized research evidence" (13). Cochrane was founded in 1993 and since then has become widely recognized as the gold standard for systematic reviews, as an international gold standard for high quality and trusted information and the highest standard for evidence for health care (12, 14).

Cochrane follows ten key principles, including: collaboration, building on the enthusiasm of others, avoiding duplication, minimizing bias, keeping up to date, striving for relevance, promoting access, ensuring quality, continuity in editorial processes and functions, and enabling wide participation and encouraging diversity (15). Cochrane reviews are updated regularly to incorporate new research and ensure the evidence is up-to-date.

There are 53 review groups within Cochrane, each focusing on the preparation and maintenance of reviews in a certain area of health care. All Cochrane reviews follow strict methods guidance published in the Cochrane Handbook for Systematic Reviews of Interventions (6). To date, over 6000 reviews have been published in the Cochrane Library.

Cochrane is the largest network of scientists, researchers, health policy makers and consumer advocates working on systematic reviews of healthcare interventions (16). There are over 37,000 contributors to Cochrane from over 130 countries (17). Since its establishment, Cochrane has been a major influence on evidence-based medicine (14).

1.1.2 The Campbell Collaboration

The Campbell Collaboration was created in the year 2000 to develop and maintain systematic reviews on interventions within the crime and justice, education, international development, knowledge translation and implementation, and social welfare fields. Campbell aims to promote "positive social and economic change through the production and use of systematic reviews and other evidence synthesis for evidence-based policy and practice" (15).

Similar to Cochrane, the Campbell Collaboration follows 10 principles. These are: collaboration, building on the enthusiasm of individuals, avoiding duplication, minimizing bias, keeping up-to-date, striving for relevance, promoting access, ensuring quality, continuity, and wide participation (15).

Campbell systematic reviews also follow strict methods guidelines and standards similar to those used within Cochrane systematic reviews; these are published in the Campbell Methods Policy Briefs. These provide guidance for systematic review authors, peer reviewers, and consumers on the methods required for Campbell reviews, including research design, information retrieval, statistical analysis, and economic methods (18). There are over 300 completed reviews, protocols and title forms published online in *Campbell Systematic Reviews* (19).

Campbell's recognition as a source for high quality evidence on social and educational interventions is growing (20).

1.2 Health Inequities

Health inequities exist across many socially stratifying factors, both within and between countries, such as place of residence (rural/urban/inner city, low or middle income country), race/ ethnicity/ culture/ language, occupation, gender/ sex, religion, education, socioeconomic status, and social capital. These characteristics can be summarized by the acronym PROGRESS (21).

The WHO has recognized the importance of addressing health inequities and identifying the effects that national and international policies have on reducing as well as exacerbating them (22). Globally, populations are, on average, living longer and healthier lives than at any other time in history. The average life expectancy at birth in 1955 was 48 years. By 1995 it was 65 years and by 2025 it is predicted to reach 73 years; there are now over 5 billion people with life expectancy over 60 years (23). However, these improvements have not been equally achieved by all groups of the world's population. Just as there are inequalities in access to natural resources that affect well-being, there are also inequalities in health status which are not coincidental. Rather, they are driven by these socially stratifying forces that are systemic in societies.

In some instances, health inequalities are attributable to biological variations or occur because of choices a person makes, for example, regarding behaviours or lifestyle. However, other inequalities are attributable to the external environment and conditions that are mainly outside of an individual's control. These are considered health inequities. In addition, interventions themselves may generate or increase inequities. This is known as the 'inverse prevention law'; those who would benefit the most from a preventive intervention are also the least likely to receive it (24).

The likelihood that a person experiences health inequities is influenced by the context in which one is born, lives, and works and may result in differences across a population in terms of incidence of disease, health outcomes, and access to health care. Therefore, inequities in health are associated with income, occupation, place of residence, and gender, among other factors. These are considered 'upstream' factors; ones over which individuals have little or no direct control, and which can only be altered through social and economic policies as well as political processes (25). This is quite different from 'downstream' factors which refer to the individual behavioural-based determinants of health, such as lifestyle choices. To understand and act on health inequities both upstream and downstream factors must be considered (26). Depending on the context, certain factors may be more or less important for a particular population.

1.2.1 The Campbell and Cochrane Equity Methods Group

Systematic reviews usually focus on the average effect across the population but this approach may hide the effects for those in some population segments such as those who are potentially disadvantaged. The Equity Methods Group was established in 2007 and aims to encourage authors of both Campbell and Cochrane reviews to consider the effects of the intervention on potentially disadvantaged population subgroups. For example, whether there are differences in the effect for women versus men, for those living in urban versus rural areas, for those with lower socioeconomic status or of minority race/ethnic/culture/language/religious groups, for those with certain occupations, or depending on a person's level of education or social networks. Equity considerations in systematic reviews are useful for policy making.

Policy makers have indicated that systematic reviews are useful sources of evidence for decision making (27). However, systematic reviews may lack some of the information necessary for decision makers to use the evidence to address issues of health inequity in their local context. For example, policy makers might also be interested in the distribution of benefits of an intervention across population groups, such as within different neighbourhoods since access to services may vary (28). Systematic reviews can provide evidence on interventions to reduce health inequities but may also provide evidence on interventions which unintentionally increase inequities by improving the health of those least disadvantaged while not affecting those most disadvantaged (16). For example, implementation of a school-based nutrition education intervention may increase inequities if access to healthier foods is limited for those with lower socioeconomic status.

Systematic reviews within Cochrane are concerned with "the question of 'what works, for whom, and in what circumstances'", which is especially true for equity-focused reviews (16). Equity-focused reviews aim to explore the distribution of population-based effects of the intervention. To assist with this, the Equity group encourages authors to use the PROGRESS acronym (place of residence (rural/urban/inner city, low or middle income country), race/ ethnicity/ culture/ language, occupation, gender/ sex, religion, education, socioeconomic status, and social capital) (21).

In 2010, Welch et al. conducted a methodology study to examine how health equity is assessed in systematic reviews. They found that in 224 systematic reviews assessing health outcomes, only 29 (13%) assessed the effects of the intervention on health equity (by conducting subgroup analyses or targeting a potentially disadvantaged population) (29). This makes interpreting the evidence difficult for policy makers interested in reducing health inequities.

To assist Campbell and Cochrane systematic review authors, the Equity Methods Group has published guidance for the conduct and reporting of equity-focused systematic reviews, and how to interpret subgroup analyses (22, 30). Systematic review authors are not encouraged to conduct subgroup analyses on all of these –only those where differences in effects are logically likely for any of these population groups; it is then important to pre-specify additional analyses to explore them.

1.2.2 Defining disadvantage

As mentioned earlier, many factors contribute to whether a population is described as "disadvantaged". While much of the literature has focused on inequities between countries, unfair differences in health are prevalent within countries as well. For example, in China, rates of childhood stunting are three times higher in rural areas than in urban areas (31) and maternal mortality is higher in poorer provinces than in richer provinces (32). In India, immunization rates vary by caste and certain castes have lower rates (33). These differential health outcomes are not coincidental, but are actually grouped according to socially stratifying forces such as the family's place in the social hierarchy, where a person lives and their income level (34). There are also many differences in health outcomes between countries, regions, or continents (25) such as inequitable differences in child mortality in high-income countries compared to low- and middle-income countries. In 2010, neonatal mortality in Africa was 34 per 1000 live births compared to just 9 per 1000 live births in the Americas (35).

Programs and policies may be successful in reducing the gradient in health between the most and least disadvantaged groups within a population. However, in some cases, these interventions inadvertently contribute to increasing inequities in health and may ultimately increase the gap between the most and least disadvantaged (24). For example, downstream interventions such as mass media campaigns may be more likely to increase inequities among lower socioeconomic groups.

Increasing the availability of an effective intervention within a country or region is not necessarily enough to reduce inequities. The intervention has to be accessible, acceptable, effective in, and used by the most disadvantaged group within that population to be truly effective at reducing inequities in health. Barriers to successful implementation of an intervention may include: gaps in knowledge about services; gaps in understanding of beliefs or practices between patients and local health systems or program providers; inability to use services due to low health literacy, language barriers, or lack of appropriateness; and not wanting to use existing services because of fear and distrust (36). Failure to adequately anticipate and address these barriers will result in improvements in health outcomes for some of the population, most likely the least disadvantaged, while missing those most in need. Many new public health interventions initially benefit only those with higher socioeconomic status and therefore inadvertently increase inequities (the inverse equity hypothesis) (37). Over time this gap may be reduced, once the more disadvantaged groups within the population gain access to the intervention. Therefore, interventions need to be designed and implemented with an ‘equity lens’ to ensure that benefits reach the most hard-to-reach segments of the population and to avoid intervention-generated inequalities (24).

The use of a list of factors associated with effects on equity helps one to consider equity explicitly in the design of new intervention studies and in systematic reviews. A number of frameworks have been proposed to ensure consideration of these factors. For this thesis, we aim to justify one such list: PROGRESS, which is used as the framework for the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Equity Extension (PRISMA-Equity 2012) and from groups within both Cochane and the Campbell Collaboration, such as the Equity Methods Group and the Public Health and International Development Review Groups. PROGRESS is already being increasingly used by systematic reviewers (24, 38-46).

The PROGRESS acronym was introduced in 2003 by Tim Evans and Hilary Brown as a way to capture socially stratifying factors that could lead to variations in health outcomes (47). It has been used by the WHO, the International Clinical Epidemiology Network, Cochrane, the Campbell Collaboration, and in a number of studies and systematic reviews (24, 38, 40, 42, 48). In 2007, Davidson Gwatkin included the PROGRESS acronym as one of the “10 best resources on health equity” and stated that although it required further development, it is an important reminder that inequities are related to more than the gender and socioeconomic differences described most in the literature (49).

1.2.3 Equity-focused systematic reviews

Considerations of health equity are not necessarily relevant to all systematic reviews. Because of this, we have defined equity-focused systematic reviews as those designed to either: a) assess the effects of an intervention targeted at disadvantaged or at-risk populations, or b) assess the effect of an intervention aimed at reducing the social gradients across populations or among subgroups of the population (50). In the first type, the systematic review does not compare results across groups but by targeting a potentially disadvantaged population, described using the PROGRESS acronym, could reduce inequities. For example, a Cochrane review from 2007 assessed school feeding programs for improving the physical and psychosocial health of socioeconomically disadvantaged children (51). An example of the second type is a review of lay health worker interventions in primary and community health care for maternal and child health and the management of infectious diseases (52). These interventions address the gradient in health by expanding the coverage of effective neonatal and child health interventions to reach subgroups of the population who may not have access to standard health care.

In 2010, a study estimated that 20% of all systematic reviews indexed in Medline could be classified as equity-focused by at least one of the above criteria (53).

1.3 Evidence Summaries

The number of systematic reviews published per year has increased from about 80 in the late 1980s to more than 8000 per year today (54). This makes it difficult for policy makers and other decision makers to remain up-to-date with the latest research. It is widely known that the use of research evidence in policymaking is essential. Policy makers are increasingly utilizing systematic reviews for decision making (3-5, 55). The shift from the use of single studies has occurred because systematic reviews offer additional benefits to policy makers by assessing all the relevant published literature, thus offering more confidence in results (4). This makes them a better choice for policymaking. However, they may not be easily accessible by those in decision making roles because of barriers such as technical language, the lack important contextual information and the excessive length of most systematic reviews. For these reasons, the development of plain language, “friendly front end” summaries of systematic reviews has become more common (7, 55). A needs assessment conducted by Evidence Aid found that while complete systematic reviews were perceived to be useful for workers ‘on the ground’ (i.e. NGOs, health care providers), summaries containing contextual information were considered additionally helpful for decision making about the applicability of the findings to their local setting (56).

There are several organizations that develop and disseminate evidence summaries for different populations or subsets of decision makers. For example, within Cochrane, the Evidence Aid Project was developed in response to the 2004 Indian Ocean Tsunami as a means of providing decision makers and health practitioners ‘on the ground’ with summaries of the best available evidence needed to respond to emergencies and natural disasters (56). The goal was to “enable those guiding the humanitarian sector to apply an evidence-based approach in their activities and decisions” using the evidence from systematic reviews (57). Evidence Aid aims to highlight which interventions have been shown to be effective, which are not, and for which more research is required and provide this information to those making decisions about health care in response to emergencies or natural disasters.

Outside of Cochrane, many other organizations are also created systematic review derivative products. Examples of these include:

- SUPPORT Summaries were developed for policy makers in low- and middle-income countries (LMICs) making decisions about maternal and child health programs and interventions (www.support-collaboration.org);
- Health Systems Evidence provides a one-stop shop for systematic reviews related to health systems including policy briefs for policy makers and other stakeholders (www.healthsystemsevidence.org/);
- Cochrane Summaries provides a searchable database containing plain language summaries of all Cochrane systematic reviews (http://www.cochrane.org/evidence);
- Communicate to vaccinate (COMMVAC) is creating user friendly summaries to translate evidence on vaccination communication for policymakers and the community in LMICs (http://www.commvac.com) mm; and
- Rx for change is a searchable database for evidence about intervention strategies to alter behaviours of health technology prescribing, practice, and use (www.cadth.ca/resources/rx-for-change).

In fact, a document analysis conducted by Adam et al. identified 16 organizations involved in the production of summaries for policy makers (58).

These summaries may be described using many different terms, such as ‘evidence summaries’, ‘policy briefs’, ‘briefing papers’, ‘briefing notes’, ‘evidence briefs’, ‘abstracts’, ‘summary of findings’, and ‘plain language summaries’(58) but all contain summarized evidence from systematic reviews. Summaries are intended to assist decision makers in understanding the evidence and encourage their use in decision making. They highlight the policy-relevant information and allow policy makers to quickly scan the document for relevance (4, 28). The key points are provided as well as links to the complete research (e.g. the full systematic review) to allow policy makers to go beyond the summary, when necessary or desired.

The various summary products also have some differences. For example, abstracts, evidence summaries, and summary of findings tables summarize evidence from a single systematic review. In contrast, policy briefs may utilize evidence from one systematic review but may also use multiple reviews as well as additional sources to provide contextual or economic information (58). References for all of these materials are provided for the policymaker.

1.4 Background for systematic review: The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review.

While many organizations and research groups are producing systematic review derivative products, such as evidence summaries, evidence on the usefulness and effectiveness of these products is lacking. Previously conducted systematic reviews have assessed interventions to increase the use of systematic reviews among decision makers however; these have focused on the use of complete systematic reviews in decision-making and none focused specifically on derivatives of systematic reviews. For example, one systematic review examined the effectiveness of interventions for improving the use of systematic reviews in decision-making by health system managers, policy makers, and clinicians (59). This review included eight studies and the authors concluded that information provided as a single, clear message may improve evidence-based practice but increasing awareness and knowledge of systematic review evidence might require a multi-faceted intervention. Similarly, another systematic review assessed interventions encouraging the use of systematic reviews by health policy makers and managers (60). Four studies were included and the authors concluded that future research should identify how systematic reviews are accessed and the formats used to present the information. A systematic review by Wallace et al. found that the of barriers, facilitators, and interventions that impact systematic review uptake found that a description of benefits as well as harms and costs, and using a graded entry approach (in which evidence is available as a 1 page summary, 3 page summary, or 25 page full report) facilitated systematic review use by policy makers (61). Similarly, a systematic review by Oliver et al. also assessed barriers and facilitators to the use of research by policy makers; they found that access to high quality, relevant research as well as collaboration between researchers and policy makers were the most important factors for increasing research use (62). None of these reviews were focused on summaries created from systematic reviews. In addition, we focused on studies of evidence summaries for health policy makers and health system managers making decisions on behalf of a large jurisdiction or organization but did not include studies related to decision making for an individual person or patient.

This review aimed to assess the effectiveness of systematic review summaries on increasing policy makers' use of systematic review evidence and to identify the components or features of these summaries that are most effective (63).

1.5 Evidence for Equity

Building from Cochrane's Evidence Aid project, we developed the Evidence for Equity (E4E) project to focus specifically on the development of summaries of equity-relevant interventions. E4E translates evidence from Campbell and Cochrane systematic reviews into "friendly front-end" (plain language) summaries for policy makers The goal is to provide policy makers, particularly those working in resource-limited settings, with easily accessible, high quality evidence on relevant interventions.

To develop the initial format of the E4E summaries, we utilized previous research which indicated that tailored, targeted messages are an effective strategy for facilitating evidence-informed decision making (64). Studies of policy makers' preferences have shown that a graded entry approach, in which the user can choose how much or how little information to read, is preferred. This approach has been called the 1-1-3-25 approach to indicate one line, one page, 3 pages, and 25 pages (28). The 'one line' refers to a headline or one sentence that succinctly describes the question and the answer. The 'one page' refers to a one page summary of the key messages of the systematic review. The 'three pages' indicates a systematic review summary that may consist of text, figures, or tables that convey the key messages of the systematic review as well as some description of the systematic review methods or the quality of the evidence. Finally, '25 pages' refers to the complete systematic review.

Many other organizations have developed evidence summaries and similar systematic review derivative products; however, there are none which focus on interventions to reduce health inequities. The E4E collection of systematic review summaries aims to address this gap.

To develop E4E, a steering group of international experts in systematic reviews and knowledge translation, including the Evidence Aid team and members of Cochrane and the Campbell Collaboration, met face-to-face in London, England in February of 2013.

The group was tasked with identifying pilot topics to be covered by the E4E Summaries and decided to focus on a combination of priorities using the Millennium Development Goals as a starting point and expanding to include non-communicable diseases as well. This resulted in the selection of the following pilot topic areas, each of which has a high burden of disease globally, as indicated by associated disability-adjusted life years (DALYs):

- Diabetes/obesity: For diabetes mellitus, over 59 million DALYs (2.2% total DALYs) as of 2012
- HIV/AIDS: Almost 92 million DALYs (3.4% total DALYs) as of 2012
- Malaria: Over 55 million DALYs (2.0% total DALYs) as of 2012
- Mental health/depression: For unipolar depressive disorders, 76.5 million DALYs (2.8% total DALYs) as of 2012 (65)

- Nutrition: For children under 5 years of age, maternal and child undernutrition is responsible for 11% of global DALYs as of 2012 (66)

Since this initial meeting, in 2015, the MDGs were replaced by the global Sustainable Development Goals (SDGs). These include 17 goals to be met by 2030 (67). The topic areas chosen for E4E are still relevant to the SDGs; goal number 3 addresses all health priorities and includes reproductive, maternal and child health, communicable and non-communicable diseases, as well as access for all to safe, effective, and affordable medicines and vaccines (68). In addition, goal number 10 aims to reduce inequalities within and between countries and focuses on eliminating inequities based on many of the PROGRESS-Plus characteristics, including age, sex, disability, race, ethnicity, origin, religion, and socioeconomic or other status (69).

We have developed 25 pilot summaries grouped into these 5 topic areas. These summaries are housed on the Campbell and Cochrane Equity Methods Group's website (https://methods.cochrane.org/equity/e4e-series) with no access restrictions (open access).

1.6 User Testing

We conducted a formative evaluation of the E4E Summaries format and website using user tests. This formative evaluation used qualitative research methods, including participant observation and interviewing. This goal of this evaluation was to determine the changes required to improve the summary format and website before launching the website and disseminating the summaries to policy makers and other decision makers.

A formative evaluation is an assessment of usability conducted during the development of a product to inform further development (70). For E4E, a think-aloud formative evaluation protocol was used. Think aloud exercises allow participants to verbalize their thoughts while using the website. Think-aloud protocols allow for the identification of user difficulty with navigation and content and provide detailed information about potential problems with both user comprehension and product usability (70). Participants are encouraged to describe what they are thinking while looking at the website and reading through the summary. Participants can comment on the website itself, including format and `look' but can also discuss the content of the summary. These think aloud methods can be better at identifying problems with both the website and the summaries than standard methods, such as questionnaires (71).

Formative evaluations are intended to collect information that can be used for program development and improvement (72). Formative evaluations differ from summative evaluations in which the main focus is to determine whether the program has met its predefined outcomes. A formative evaluation allows for iterative program development with feedback from intended users influencing changes and improvements. In formative evaluations, the evaluator works closely with the program developer to ensure feedback and is involved in decisions about planning, developing, and implementing the program (73). The product is tested within the context in which it is intended to be used (74). User tests are conducted with those who are the intended audience rather than experts in website design.

User tests can be used to collect both quantitative and qualitative data. For Evidence for Equity, we were less interested in collecting quantitative data such as the amount of time users spend on each page of the website and focused more on learning about the users' experience with the website and summaries and their opinions about what has been presented in a useful way and what aspects need to be improved.

This chapter contains text from the two published qualifying manuscripts submitted as per the TRIBE PhD requirements: (1) O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, Evans T, Pardo Pardo J, Waters E, White H, Tugwell P. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. Journal of Clinical Epidemiology. 2014, 67 (1), pg. 56-64. doi:10.1016/j.jclinepi.2013.08.005 (2) Petkovic J, Welch V, Jacob MH, Yoganathan M, Ayala AP, Cunningham H, Tugwell P. The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review. Implement Sci. 2016 Dec 9;11(1):162.

2. AIMS OF RESEARCH AND HYPOTHESES

Most systematic reviews are written using technical language, are quite long, and do not describe contextual information important for policy makers and other users making decisions about how to use the evidence (5). The best way to present evidence to increase policy makers' understanding has not been determined.

Many systematic reviews do not describe the potential equity effects of the intervention. The E4E project will develop evidence summaries of interventions that are effective at reducing inequities.

Objectives

Primary:

1. To develop and evaluate a special collection of evidence summaries of systematic reviews of interventions that can reduce inequities across the factors described by the PROGRESS acronym for policymakers.

Secondary:

1. To assess the utility of an acronym, "PROGRESS" (Place of residence, Race/ethnicity/culture/language, Occupation, Gender/sex, Religion, Education, Socioeconomic status, and Social capital), in identifying factors that stratify health opportunities and outcomes.
2. To assess the effectiveness of evidence summaries on policy makers' use of the evidence and identify the most effective summary components for increasing policy makers' use of the evidence.

Hypotheses

1. A special collection of targeted systematic review summaries will increase policy makers' use of the evidence and support evidence-informed decision-making to reduce health inequities.
2. The PROGRESS acronym will assist systematic review authors in identifying potentially disadvantaged groups for whom the intervention may be more or less effective.
3. Targeted systematic review summaries will increase policy makers' use and understanding of the evidence.

3. METHODS

3.1. Methods for the paper on defining disadvantage – describing the PROGRESS acronym

Study Design

The utility of the PROGRESS acronym was assessed by using it in 11 systematic reviews and methodology studies published between 2008 and 2013 (24, 38, 41, 42, 75) and studies/reviews of methodology (39, 40). To develop the justification for each of the PROGRESS elements I consulted experts to identify examples of unfair differences in disease burden and an intervention that can effectively address these health inequities.

Study Outcomes

An example of an inequitable difference in health outcomes as well as an example of an effective intervention that can reduce that inequity for each of the characteristics included in the PROGRESS acronym.

1.7 Methods for systematic review - The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review.

Review Protocol

We developed and published an a priori protocol for this systematic review (63).

Searches

Information Specialists (APA, HC) developed and translated the search strategy using the PRESS Guideline (76).

Electronic searches

We used the search strategy developed by Perrier et al. and Murthy et al. for their systematic reviews of interventions to encourage the use of systematic reviews by health managers and policy makers to inform our search (59, 60). We expanded the Perrier search by including additional databases, as suggested by John Eyres, of the International Initiative for Impact Evaluation (3ie) and the Campbell International Development Review Group. These included Global Health Library (from WHO), Popline, Africa-wide, Public Affairs Information Service, Worldwide Political Science Abstracts, Web of Science, and DfiD (Research for Development Database). The search strategies were translated using each database platform's command language and appropriate search fields. Both controlled vocabulary terms and text-words were used for the search concepts of policymaking, evidence synthesis, systematic reviews, knowledge translation, and dissemination. No date restrictions were used. The complete MEDLINE search strategy is available in Appendix 1.

Searching other resources

We identified and searched websites of research groups and organizations which produce evidence summaries building on the list of organizations identified by Adam et al (58). We searched for unpublished studies evaluating the effectiveness of the systematic review derivatives in increasing policy makers' understanding (e.g. Health Systems Evidence, the Canadian Agency for Drugs And Technologies In Health, SUPPORT Summaries). A complete list of grey literature sources is provided in Appendix 2.

We also checked the reference lists of included studies and related systematic reviews to identify additional studies. We contacted researchers to identify ongoing and completed/published work.

Study inclusion and exclusion criteria

Eligible studies included randomized controlled trials (RCTs), non-randomized controlled trials (NRCTs), controlled before-after (CBA) studies, and interrupted time series (ITS) studies.

We included studies whose participants were health policy makers at all levels. We defined policy makers as health ministers and their political staff, civil servants, and health system managers, and health-system stakeholders as civil society groups, patient groups, professional associations, non-governmental organizations, donors, international agencies (8). We included populations involved in the development of clinical practice guidelines. To be included, the population had to be responsible for decision-making on behalf of a large jurisdiction or organization and we did not include studies related to decision making for an individual person or patient (8).

We included studies of interventions examining any type of "friendly front end", "evidence summary", or "policy brief" or other product derived from systematic reviews or guidelines based on systematic reviews that presents evidence in a summarized form to policy makers and health system managers. Interventions had to include a summary of a systematic review and be actively "pushed" to target users. We included any comparisons including active comparators (e.g. other summary formats) or no intervention.

Primary Outcomes

1. Use of systematic review derivative product in decision making (e.g. self-reported use of the evidence in policy-making, decision-making as well as self-reported access of research, appraisal of research, or commissioning of further research within the decision-making process (77). We included any type of use including instrumental use of research in decision-making (e.g. direct use of research) as well as conceptual use (e.g. using research to gain an understanding of a problem or intervention) and symbolic use (e.g. using research to confirm a policy/program already implemented) (78).
2. Understanding, knowledge, and/or beliefs (e.g. changes in knowledge scores about the topic included in the summary)

Secondary Outcomes

- Perceived relevance of systematic review summaries
- Perceived credibility of the summaries
- Perceived usefulness and usability of systematic review summaries
    - Perceptions and attitudes regarding the specific components of the summaries and their usefulness
- Understandability of summaries
- Desirability of summaries (e.g. layout, selection of images, etc.) (7)

Since some studies may use different terms to describe these outcomes our team assessed each outcome and categorized them according to the above list.

Two reviewers independently screened titles and abstracts to identify relevant studies meeting the pre-specified inclusion criteria. The full text of each potentially included study was then screened independently by two authors.

Potential effect modifiers and reasons for heterogeneity

Meta-analysis was not possible but if it had been, we planned to explore heterogeneity using forest plots and the I^2 statistic according to guidance of the Cochrane Handbook for

Systematic Reviews of Interventions (79). We were also thus unable to conduct planned meta-regression to assess the role of mediating factors, such as: target audience of summary (e.g. focused on specific local context, generic summary); type of decision maker (e.g. federal policymaker versus hospital administrator); and components of friendly front end (e.g. bulleted list, text, summary of findings table, causal chain).

Study quality assessment

The methodological quality was assessed using the risk of bias tool from the Cochrane Handbook for randomized trials. If we had identified eligible ITS, CBA, or NRCT we planned to use the Effective Practice and Organization of Care (EPOC) Review Group criteria for ITS and CBA studies (79, 80) and Risk Of Bias In Non-randomized Studies - of Interventions (ROBINS-I) (81, 82).

We used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach to assess the quality of evidence for the outcomes reported in this review (83).

Data extraction strategy

The data extraction form was pre-tested, and included factors related to the population, intervention, comparison, and outcomes. Data extraction was completed by two authors independently using a structured Excel sheet. Disagreements on extractions were resolved by discussion and with a third member of the research team when necessary. Data were extracted for the following:

- Country
- Setting
- Study design
- Participants
    - Type of policy or decision makers
    - Country
    - Age
    - Gender

- Intervention
    - Type of evidence summary
    - Format of evidence summary
    - Description of evidence summary components (e.g. descriptions of easy-to-skim formatting, graded entry, use of tables/figures)(55)
    - Mode of delivery
    - Topic of evidence summary
    - Recommendation of evidence summary
- Outcomes
    - Policy/decision makers' self-reported use of summaries in decision making
    - Policy/decision makers' knowledge of the summary content and the measurement used
    - Policy/decision makers' understanding and measurement used
    - Perceived relevance of the summaries and measurement used
    - Perceived credibility of the summaries and measurement used
    - Perceived usefulness and usability of the summaries and measurement used
    - Perceived understandability of the summaries and measurement used
    - Perceived desirability of the summaries and measurement used
- Process Indicators
    - How the systematic review was selected for summary (e.g. based on topic, quality criteria)
    - How the evidence summary was developed (e.g. iterative process)
    - Involvement of stakeholders in evidence summary development – which stakeholders, description of involvement

Data synthesis and presentation

Since it was not possible to combine the studies, we have presented the results for each study separately. We planned to conduct sensitivity analyses to assess the effects of incorporating these corrected analyses in our analysis. However, since we did not conduct a meta-analysis, this was not possible. We contacted the corresponding author of studies by email to ask for clarification on missing data and to ask for complete study results for eligible protocols.

1.8 Methods for user testing of E4E Summaries

For each of the five E4E topic areas, the E4E Steering Group was consulted to identify and recruit one 'Stakeholder Panel' chair and five policy makers and researchers. User testing was conducted with stakeholders in each of five topic areas: diabetes/obesity, HIV/AIDS, malaria, mental health-depression, and nutrition. One summary was tested with one member of each Stakeholder panel for a total of 5 user tests.

Participants were assigned a summary depending on the panel in which they were a member. The participant read through the summary at their own pace and then they were guided through each section of the summary and asked to think aloud. Prompts were used when necessary according to the interview guide. The interview guide was adapted from the tools developed by the Norwegian Branch of the Nordic Cochrane Centre (http://www.cochrane.no/user-testing-cochrane-library). The semi-structured interview guide is provided in Appendix 3. Users were asked open-ended questions related to their first impressions of the website and the summary including both format and content.

Population

Each of the five "Stakeholder Panels" addressed one of the five condition-related topic areas listed above to provide guidance on the priority interventions for which summaries should be created. Members of these panels were purposefully selected to ensure a variety of policy makers (e.g. national, regional, civil society, NGO) from both HIC and LMIC, with responsibility in the topic area of their panel and with interest in evidence-based policy making and ensuring gender and geographic diversity. Purposeful sampling is a qualitative research technique that allows for the best sample to help the researcher understand the problem and the research question (84).

The user testing participants were self-selected after an email invitation was sent to all members of the panel asking for their participation. The recommended number of participants for user testing is five (85).

User tests consisted of one stakeholder participant and one interviewer.

Data was collected using GoToMeeting which allows for screen sharing and audio recording.

Outcomes

We used the Morville honeycomb of user experience (figure 1) to guide the development of our outcomes (86). We did not assess accessibility since it would other forms of user testing would be better suited to examine this outcome (87).

Figure 1: Morville's User Experience Honeycomb

To summarize, users were asked whether they would trust the information and whether it seemed credible; whether the summary was generally easy or generally hard to understand; whether they perceived the summary to be usable; whether they would use a summary such as the E4E summary in decision making; whether the summary was useful; if they 'liked' the format (desirability)and whether the summary was valuable and if a series of these summaries would be valuable for decision makers. Finally, we asked for suggestions on how to disseminate these summaries to the appropriate audience (findability).

Statistical Analysis

Frequencies were tabulated. The participants’ responses were analyzed using inductive analysis using coding and categorizing (88).

This chapter contains text from the two published qualifying manuscripts submitted as per the TRIBE PhD requirements: (1) O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, Evans T, Pardo Pardo J, Waters E, White H, Tugwell P. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. Journal of Clinical Epidemiology. 2014, 67 (1), pg. 56-64. doi:10.1016/j.jclinepi.2013.08.005 (2) Petkovic J, Welch V, Jacob MH, Yoganathan M, Ayala AP, Cunningham H, Tugwell P. The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review. Implement Sci. 2016 Dec 9;11(1):162.

4 RESULTS

4.1 Results for defining disadvantage - describing the PROGRESS acronym

The purpose of this paper is to explore the justification for each of these PROGRESS factors and provide examples of interventions that can effectively reduce these health inequities for each of the PROGRESS factors. Each element of PROGRESS is justified on the basis of differences in effects. We have not described why the difference exists, but have attempted to explain why these differences may contribute to disadvantage and argue for their consideration in new evaluations and systematic reviews. Variations in health are evident across a number of socially stratifying forces captured by PROGRESS.

Table 1 includes examples for each PROGRESS factor that demonstrate differences in burden of disease and provides an example of an effective intervention that could reduce that burden.

4.1.1 Place of Residence

Place of residence is an important determinant of health. For example, green space is related to area deprivation and obesity (89). This element of PROGRESS has often referred to rural, urban, and inner city places of residence (38) but also includes high-, middle-, or low- income countries (21). Place of residence also includes the particular region, town, or community in which a person lives, for example a disadvantaged community within a less disadvantaged city or town (e.g. an urban slum) (21). In LMIC off road and remote communities are more likely to suffer from low service quality including absence of facilities and high rates of health worker absenteeism (90). The role of place of residence in determining health goes beyond socioeconomic status. Other characteristics of a neighbourhood, city, or region, such as air pollution, deforestation, and water quality may also contribute to disadvantage.

Many of the differences in health outcomes related to place of residence are avoidable if the necessary infrastructure is in place. When the difference is related to distribution of services, such that services are not available to populations living within certain areas, this can be considered unfair. An example of a health inequity based on place residence and an intervention that can address it is provided in table 1 for both a LMIC and a HIC.

4.1.2 Race, ethnicity, culture, and language

This component refers to racial, ethnic, and cultural background (21, 43). We recommend the addition of language to this component because many definitions of ethnicity include shared culture and shared language (91-93). There are many differences in health outcomes across different races, ethnicities, cultures, and languages. Table 1 provides example of inequities in a LMIC and a HIC along with examples of effective interventions to address it.

Race is often used interchangeably with both ethnicity and culture (11). Race is usually considered to be biologically determined while culture and ethnicity include social aspects. However, the use of 'race' within medical research is controversial since most categories of race are historical and not necessarily based on natural differences (94). In regards to inequities, there are few that are directly related to race, or biology and genetics; however, most racial inequities stem from the social experiences of "racialized groups". There are important social and political impacts on health that may play a role in determining disadvantage and that require consideration of race (10). A biological difference would not be considered inequitable (unfair or unjust) unless its expression is avoidable.

Ethnicity refers to relationships between groups of people whose members consider themselves distinctive within a society (95). Ethnicity implies shared origin or background, shared culture or traditions that are distinctive and continued through generations, and/or shared language (96). Ethnicity is socially constructed, and therefore, like race, it can have impacts on health depending on the context and setting.

Cultural beliefs and practices can disadvantage certain groups from accessing adequate health information and services. In many cases, adhering to cultural practices is not a choice, but is imposed by the family or community. Cultural norms influence many behaviours, such as dietary habits, consumption of alcohol or tobacco, and stress responses (97). These behaviours and norms may impact health and may be considered unfair in certain contexts.

Language contributes to disadvantage, especially in situations where the patient does not speak the same language as the health care provider. This reduces access to health care services, including both prevention and treatment (98). Language on its own is not an indicator of disadvantage but it may be depending on the context in which the person accesses health services (99).

4.1.3 Occupation

This factor encompasses different situations including out of work, underemployment, informal workers and unsafe working environments. Occupational status in an organization is strongly related to mortality and a range of health outcomes (100). In addition, certain occupations have been shown to be associated with higher mortality and morbidity rates than others. Employee benefits and employer-funded insurance systems are related to a person's occupation and will have an impact on their health (101). An example of an occupation-related inequity in a LMIC and a HIC is provided in table 1 along with an example of interventions that can reduce these inequities.

4.1.4 Gender and Sex

Biological and gender based differences between men and women result in differential health risks, disease incidence and health service needs. Sex, or biological differences between males and females, is not necessarily inequitable because differences exist between men and women that are unavoidable. Whereas gender refers to socially constructed roles and other traits that society generally associates with the sexes. Infection with HIV is an example of the former. Women's bodies are more susceptible to HIV and therefore are 1.2 times more likely to become infected than men; this is especially true for adolescent girls whose bodies are still developing (102). Similarly, transgendered individuals are often victims of violence and experience discrimination that may lead to negative health outcomes (103, 104).

Examples of inequities in health that are driven by societally defined gender roles include differential exposure to household hazards and stagnant water. Specifically, because of women’s role in the household they may experience greater exposure to indoor air pollution, which increases rates of asthma. Similarly, in areas where women travel for water or to wash clothes, they experience greater exposure to stagnant water which breeds malaria infected mosquitos and puts them at greater risk for disease. Women might also be more affected by certain gender-related issues such as gender-based violence, discriminatory feeding patterns (whereby women and girls are not fed the same as men or boys in the family), and lack of decision making power (105). Gender norms have implications for health seeking behavior, health status, and access to health services. Examples of gender and/or sex related inequities in LMIC and HIC, and interventions that can address them, are provided in table 1.

4.1.5 Religion

Religion contributes to inequities when access to health services is limited for a subgroup of the population because of their religious affiliation (or lack of religion). Religion does not indicate inequity when, for example, a person declines health based on religious beliefs (2). This would be considered neither unfair nor unjust if a person has had an opportunity to choose to refuse health services. However, this is difficult when considering children or others who do not have the opportunity to make choices about their religion. For example, children may not be given a choice to refuse health services because of religious beliefs, but their parents make the decision. As described above for culture, in certain contexts, adhering to religious beliefs is not an individual choice but is imposed by the community or family. Table 1 provides an example of a religion-related inequity in health in both a LMIC and HIC along with an example of an effective intervention to address this disparity in disease burden.

4.1.6 Education

Education is an important determinant of health status because it affects the type of employment a person is eligible for which in turn is correlated with income (106). Further, people with a higher level of education are more likely to have healthier lifestyles, including being more physically active, receiving primary health care, and not smoking. Well-educated people are also more likely to have more knowledge about health and preventive health measures (106). The availability and choice of education may be determined by the context in which a person lives. For example, some people are able to make a choice regarding whether to attend university while others may not have the opportunity to choose because of financial or other factors. An example of an inequity due to education in a LMIC and HIC has been provided in table 1 along with an example of an intervention that can address it.

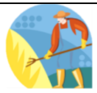
4.1.7 Socioeconomic status

Socioeconomic status is an important influence on a person's health status. Higher socioeconomic status (SES) usually means improvements in many determinants of health, such as better living conditions and access to fresh and nutritious foods. Inequalities in income impact a person's life chances (107) and therefore impact health. An example of an inequity due to SES in a LMIC and a HIC has been provided in table 1 along with an example of an effective intervention to address it.

4.1.8 Social capital

Social capital refers to social relationships and social networks. It includes interpersonal trust between members of a community, civic participation, as well as the willingness of members of a community to assist each other and facilitate the realization of collective community goals and the strength of their political connections which can facilitate access to services (108-110). Social capital is interrelated with socioeconomic status. As income inequality within a community increases, social capital decreases (108). Table 1 provides an example of an inequity in health related to social capital in both a LMIC and HIC along with an example of an effective intervention to address this disparity in disease burden.

Table 1: Examples of Differences in Health Across PROGRESS factors

PROGRESS factor			**Burden of disease**	**Efficacious Intervention**
	**P**lace of Residence	LMIC	Most of the population in Ghana lives over 8km from the nearest health care facility (111).	Initiation of the Community-based Health Planning and Services program in rural areas in Ghana has reduced child mortality by removing geographic barriers to health care through mobile community-based care with resident nurses (111).
		HIC	Rural areas have lower access to health care because of lower numbers of family physicians in these areas (112)	In Canada, incentives offered to medical school graduates are effective in increasing the number of family physicians working in rural and underserviced areas (112).
	**R**ace, ethnicity, culture, language	LMIC	In Nepal, child survival is lower among the lower castes (113). In India, children from certain castes are less likely to be immunized (33).	Vitamin A supplementation for children reduces caste-related child mortality differentials (113). Mass polio immunization campaigns have reduced caste-based differentials in immunization rates (33).
		HIC	Type 2 diabetes is more common among people from certain ethnic backgrounds (114).	Culturally appropriate health education is effective in increasing adherence to lifestyle changes (114).
	**O**ccupation	LMIC	Migrant mining workers in South Africa have higher rates of sexually transmitted diseases (115).	Providing prevention and treatment services to women in the community reduces the rates of STDs (115).
		HIC	Workers in certain occupations, such as coal mining, are at higher risk of occupational related injury or death (116,).	Legislation to improve safety for coal miners has contributed to reduced frequency of coal mining disasters in the US (116).
	**G**ender, sex	LMIC	In many cultures, having a son is preferable to a daughter and over centuries, this has resulted in infanticide of baby girls, neglect, and, with diagnostic ultrasound, sex-selective abortions (117).	Incentives (i.e. pensions for parents of girls) and poster/media campaigns to promote daughters have helped reduce expressions of son preference (117).
		HIC	In Sweden, women from Arabic-speaking countries have lower levels of access to health care and a family physician (118).	Increasing the number of female doctors can improve access to health care for women from Arabic- speaking countries living in Sweden (118).
	**R**eligion	LMIC	In East Africa, uncircumcised Christian males are at increased risk of HIV infection (119).	Medical circumcision for men is effective at preventing heterosexual HIV transmission and has been shown to be acceptable to men from studies in Uganda, Kenya, and South Africa (120-122).
		HIC	Lower immunization rates among Amish populations leads to outbreaks of disease (123).	Vaccine information provided by trusted medical providers leads to increased immunization rates (124).

PROGRESS factor			Burden of disease	Efficacious Intervention
	**E**ducation	LMIC	Prevalence and length of childhood diarrhoea episodes are inversely related to mothers' education (125).	Educating girls and mothers can improve food safety and reduces the risk of diarrhoea for infants (126).
		HIC	Lower maternal and paternal education is associated with reduced rates of breastfeeding (127).	Education (for both boys and girls) leads to increased likelihood of breastfeeding initiation (127).
	**S**ocio-economic status	LMIC	Ownership of malaria bednets decreases with decreasing household wealth (128).	Distribution of free bednets or vouchers for bednets increases ownership (129).
		HIC	People from lower income households are less likely to access health services.	Reducing user fees improves access to health services (130).
	**S**ocial capital	LMIC	Socially isolated people have two to three times higher death rates than people with a social network or social relationships and sources of support (131).	The Intervention with Microfinance for AIDS and Gender Equity study improved social capital among women in South Africa and led to a reduction in intimate-partner violence (132).
		HIC	Low social capital is associated with increased mortality (133).	The Poder es Salud /Power for health study resulted in an increased number of people available for support, improved self-reported health, and reductions in depressive symptoms (133).

4.2 Results for the Systematic review - The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review.

4.2.1 Results of the Search

The search strategy yielded 11,733 references (10,113 after removal of duplicates). Figure 2 depicts the results of the search and screening (134). During the title and abstract screening process we excluded 10,059 references for failing to meet one or more of our inclusion criteria. The remaining 50 references were reviewed as full-text plus three additional references identified through reference-list checking and one additional reference identified through grey literature searching. We excluded 45 studies that did not meet our eligibility criteria (appendix 4). We included six completed RCTs (reported in seven articles) in this review (64, 135-139). The characteristics of the included studies are summarized in table 2.

The completed studies recruited participants from Canada (n=1), Kenya (n=1), the US (n=1), internationally without specifying countries (46% from high-income countries) (n=1), and in countries in Europe, North America, South America, Africa, and Asia (n=1) (64, 135, 137, 138, 140, 141). One study did not report participants' country (139). Additionally, we identified two protocols for eligible studies: one RCT (142) and one CBA (143). These ongoing studies will be conducted in Canada (n=1) and the United Kingdom (n=1) (142, 143). The details of these studies are presented in table 3.

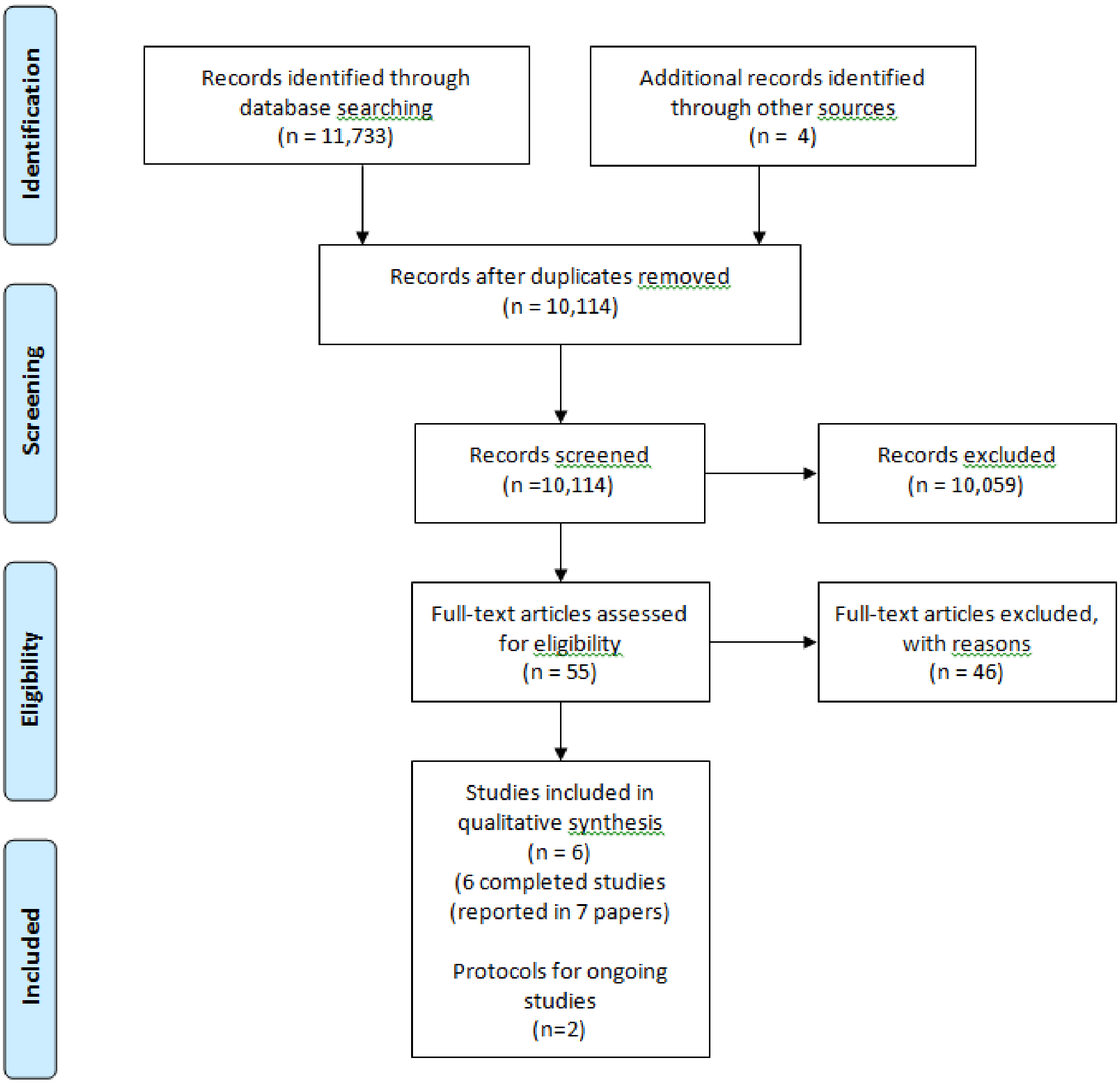


Figure 2: PRISMA Flow Diagram

Table 2: Characteristics of Included Studies

Study ID	Methods	Participants	Intervention Description	Outcomes
Brownson 2011 (135)	RCT	Legislative staff members (e.g. committee staff), state legislators, and executive branch administrators (e.g. division directors, program heads)	4 different policy briefs on mammography screening to reduce breast cancer mortality: - data-focused brief with state-level data, - data-focused brief with local-level data, - story-focused brief with state-level data, - and story-focused brief with local-level data. Each participant was e-mailed 1 of the 4 briefs.	Self-reported Understandability (using 3 measures assessing whether the information was presented clearly, in an attractive way and held the reader's attention) and credibility (2 measures that assessed whether the information in the brief was believable and accurate).
Carrasco-Labra 2016 (141)	RCT	Health care professionals, guideline developers and researchers that use and/or develop systematic reviews	An alternate Summary of Findings table was compared against the current format: - alternate format provides options to display the same data in a different way or to provide supplementary data to the current format.	Self-reported understanding assessed with 7 multiple-choice questions (5 response options). Self-reported accessibility of information assessed with 3 self-reported domains (how easy it is to find critical information, how easy it is to understand the information, whether the information is presented in a useful way for decision-making. Satisfaction measured by asking which about satisfaction with the different formatting elements. Preference assessed using a 7-point Likert scale for the 2 tables.
Dobbins 2009 (64)	RCT	Front line staff, managers, directors, coordinators and	1 group (control): - access to health-evidence.ca and	Self-reported global evidence-informed decision making (participants were

		others from public health departments in Canada (those directly responsible for making program decisions related to healthy body weight promotion in children)	received an email about access to this resource 2nd group: - received tailored, targeted messages - 7 emails with titles of 7 high-quality SRs related to health body weight promotion in children and links to full text, abstract, and summary, plus access to health-evidence.ca 3rd group: - same intervention as the 2nd group plus access to a full-time knowledge broker who was available to ensuring relevant research was provided to the decision makers in a way that was useful, helped them to develop skills for evidence-informed decision making, and translating the evidence.	asked to report the extent to which research evidence was considered in a recent program planning decision within the previous 12 months) related to healthy body weight and promotion and public health policies and programs measured by the sum of actual strategies, policies, and/or interventions for healthy body weight promotion in children being implemented by the department.
Masset 2013 (137, 140)	RCT	Individuals who normally read policy briefs related to international development - e.g. employed in academia, NGOs and international aid organizations - some self-reported influence on policy decisions and therefore considered policy makers	3 versions of a policy brief summarising the results of a SR: - one group received a standard policy brief, - 2nd group received a policy brief with director's commentary - 3rd group received the policy brief with unnamed research fellow's commentary.	Beliefs about the effectiveness of and strength of the evidence for the interventions included in the briefs.
Opiyo	RCT	Panel of healthcare	3 intervention packages:	Self-reported understanding of the

2013 (138)		professionals with roles in neonatal and pediatric policy and care in Kenya	- pack A contained a systematic review alone, - pack B included systematic reviews with summary of findings tables, and - pack C received an evidence summary with a graded entry format.	summary content measured by the proportion of correct responses to clinical questions relevant to the effects of the intervention. Value and accessibility (usefulness and usability) of the evidence was assessed using a 3 or 5-point scale.
Vandvik 2012 (139)	RCT	All panelists for the Antithrombotic therapy and prevention of thrombosis, American College of Chest Physicians	2 formats of the evidence profile that differed by 4 features: - placement of additional information, - placement of overall quality of evidence, - study event rates, - absolute risk differences Each group received 1 of 4 emails with similar text but different links allowing download of the evidence profile.	User preferences for specific formatting options and the overall format of the table were assessed using a 7-point Likert scale. Comprehension of key findings was assessed with multiple choice questions. Accessibility of the information for quality of evidence and relative and absolute effects was assessed using 3 domains: easy to find, easy to understand, and helpful in making recommendation using a 7-point scale. Time needed to comprehend information about quality assessment and key findings was assessed by asking participants to record the time before and after answering questions testing comprehension.

Table 3: Characteristics of Ongoing Studies

Study ID	Methods	Participants	Intervention Description	Outcomes
Wilson 2011 (142)	RCT	Decision-makers, (programs, services, advocacy) from community-based HIV/AIDS organizations in Canada affiliated with the Canadian AIDS Society and from relevant provincial HIV/AIDS networks	At baseline, all participants will receive the 'self-serve' evidence service (includes a listing of relevant systematic reviews, links to PubMed records, and worksheets to help find and use research evidence). During the intervention, one group will receive the 'full-serve' version of SHARE ('Synthesized HIV/AIDS Research Evidence') which includes access to a database of HIV systematic reviews, emailed updates, access to user-friendly summaries, links to scientific abstracts, peer relevance assessments (indicating how useful the information is), as well as an interface for comments in the records, plus links to the full-text, and access to worksheets to help find and use evidence. The control group will continue to receive the 'self-serve' evidence service. During the final two-month period, both groups will receive the 'full-serve' version of SHARE.	The primary outcome measure will be the mean number of logins/month/organization. The secondary outcome will be intention to use research evidence (measured with a survey administered to one key decision maker from each organization).
Wilson 2015 (143)	CBA	Clinical Commissioning Groups: Governing body and executive members, clinical leads and any other	Three arms: 1) consulting plus responsive push of tailored evidence (access to an evidence briefing service provided by the Centre for Reviews and Dissemination (CRD) plus advice and support via phone, email, face-to-face; monthly check in to discuss further evidence	Primary outcome: change at 12 months from baseline of a CCGs ability to acquire, assess, adapt and apply research evidence to support decision-making. Secondary outcomes will measure individuals'

		individuals deemed as being involved in commissioning decision-making processes	needs; issues around use of evidence; alert team to new SRs and other synthesized evidence relevant to priorities); 2) consulting plus an unsolicited push of non-tailored evidence (access to intervention 1 without tailored evidence briefings and instead just evidence briefings without contextual information) ; or 3) ‘standard’ service (CRD will disseminate evidence briefings generated in intervention 1 and any other non-tailored briefings produced by CRD over the intervention period).	intentions to use research evidence in decision making.

4.2.2 Description of Included Studies

Details of the different evidence summary formats are reported in table 4. Briefly, two studies assessed policy briefs,(135, 137) one assessed an “evidence summary”,(64) two assessed different formats of summary of findings tables, which are distinct table formats presenting the main findings of the review (absolute and relative effects for each important outcome)and quality of the evidence,(139, 141) and one compared an SOF table alone to an summary of findings table as part of a “graded entry” evidence summary (a short one page summary, then a narrative report, followed by access to the complete systematic review) (138). Two studies assessed evidence summaries which included recommendations for programs or policies,(64, 135) while the others did not specify whether recommendations were provided within the summary (137-139).

Carrasco-Labra et al. compared a standard format summary of findings table to a new format that presented some of the data in a different way as well as provided supplementary data (141). All the other included studies tested evidence summary formats using multiple arms. Brownson et al. compared four versions of a policy brief: a state-level data-focused brief, a local-level data-focused brief, a story-focused brief with state-level data, and a story-focused brief with local-level data (135).

Dobbins et al. had three groups. The first had access to the online database, the second received targeted, tailored messages in addition to access to an online database, and the third group received the same intervention as the second group plus access to a full-time knowledge broker (64).

Masset et al., and the companion paper by Beynon et al., assessed three versions of a policy brief. The first was the standard policy brief, the second was the same policy brief with an additional commentary by a sector expert (the Director of the institution who conducted the review), and the third was the same except the commentary was attributed to an unnamed research fellow (137, 140).

The study by Opiyo et al. compared a systematic review alone to a systematic review with a summary of findings table and a graded-entry format that included a short interpretation of the main findings and conclusions (with a summary of findings table), a contextually-framed narrative report, and the full systematic review (138).

Finally, the study by Vandvik et al. compared two versions of summary of findings tables with or without four formatting modifications (the placement of additional information, the placement of the overall rating for quality of evidence, the study event rates, and the absolute risk differences) (139).

Table 4: Evidence Summary Formats and Results

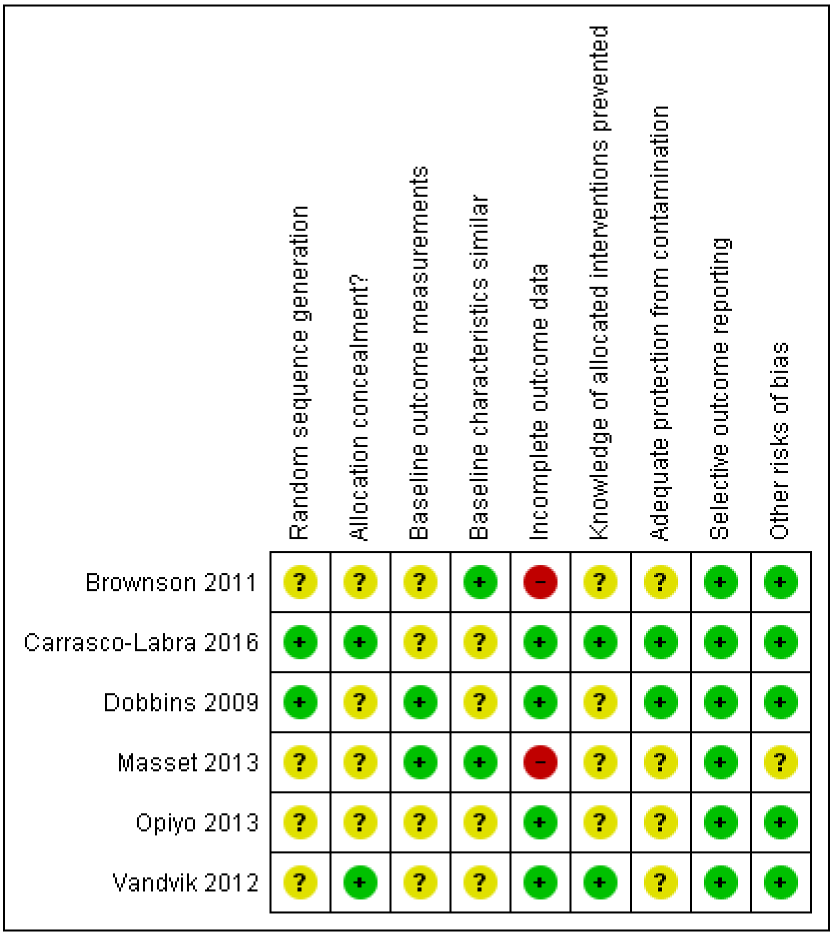
Study	Type of evidence summary	Format of summary	Method of Delivery	Components	Outcomes
Brownson 2011 (135)	Policy brief	Printed leaflet/booklet, pdf version for those who prefer online	Mailed, follow up telephone call, emailed if preferred	Front cover varied according to story vs data driven, colour printed (included data or story), 3rd and 4th pages the same across all 4 briefs, data driven briefs contained 2 statements with percentages related to mammography screening, story driven had 2 personal stories related to mammography, all briefs had data about uninsured women, women not up to date on mammograms, breast cancer mortality compared to other causes, benefits of mammograms, and recommendations	The briefs were considered understandable and credible (mean ratings ranged from 4.3 to 4.5 on 5.0 Likert scale). Likelihood of using the brief was different by study condition for staff members (P = .041) and legislators (P = .018). Staff members found the story-focused brief with state-level data the most useful. Legislators found the data-focused brief with state-level data most useful.
Carrasco-Labra 2016 (141)	Summary of Findings table	Table	Emailed link to online survey	The new format of Summary of Findings table moved the number of participants and studies to the outcomes column, quality of evidence was presented with the main reasons for downgrading, "footnotes" was changed to "explanations", baseline risk and corresponding risk were expressed as percentages, column presenting absolute risk reduction (risk difference) or mean difference, no comments column, Addition of "what happens" column, no description of the GRADE evidence definitions.	Participants with the new Summary of Findings table format had higher proportion of correct answers for almost all questions. The new format was more accessible (easier to understand information about the effects (MD 0.4, SE 0.19); and displayed results in a way that was more helpful for decision making (MD 0.5 SE 0.18), Overall, participants preferred the new format (MD 2.8, SD 1.6).
Dobbins 2009 (64)	Evidence Summaries	text	Targeted, tailored emails	Short summary including key findings and recommendations	The post intervention change in Global Evidence-Informed Decision making was 0.74 (95% CI 0.26-1.22) for the group

					receiving only access to healthevidence.ca; -0.42 (-1.10, 0.26) for the group receiving tailored, targeted emails; and -0.09 (-0.78, 0.60) for the knowledge broker group. The changes in health policies and programs (HPP) after the intervention were -0.28 (-1.20, 0.65) for the group receiving only access to the healthevidence.ca website; 1.67 (0.37, 2.97) for the group receiving tailored, targeted messages; and -0.19 (-1.50, 1.12) for the group with access to a knowledge brokers. The tailored, targeted messages are more effective than the knowledge broker intervention or access to www.health-evidence.ca in organizations with a culture that highly values research.
Masset 2013 (137, 140)	Policy Brief	text, colour leaflet	Email	Introduction to the problem, description of methodology, conclusions and policy implications, 2 versions had expert commentary	Respondents with stronger beliefs about the agricultural interventions at baseline rated the policy brief more favourably. The policy brief was less effective in changing respondents' ratings of the strength of the evidence and effectiveness of the intervention.
Opiyo 2013 (138)	Summary of Findings table, graded entry summary	text, tables	Email	Summary of Findings table Graded entry format included a summary and interpretation of main findings and conclusions, a contextually framed narrative report, and Summary of Findings table	No differences between groups in the odds of correct responses to key clinical questions. Both packs B and C improved understanding. Pack C compared to pack A was associated with a significantly higher mean 'value and accessibility' score. Pack C

	of evidence				compared to pack A, was associated with a 1.5 higher odds of judgments about the quality of evidence being clear and accessible. More than half of participants preferred narrative report formats to the full version of the SR (53% versus 25%). A higher respondent percentage (60%) found SRs to be more difficult to read compared to narrative reports, but some (17%) said that SRs were easy to read. About half of the participants (51%) found SRs to be easier to read compared to summary-of-findings tables (26%).
Vandvik 2012 (139)	Summary of Findings table	table	Email	Tables presented outcomes, number of participants, summary of findings, and quality assessment using GRADE	Participants liked presentation of study event rates over no study event rates, absolute risk differences over absolute risks, and additional information in table cells over footnotes. Panelists presented with time frame information in the tables, and not only in footnotes, were more likely to properly answer questions regarding time frame and those presented with risk differences and not absolute risks were more likely to rightly interpret confidence intervals for absolute effects. Information was considered easy to find and to comprehend, and also helpful in making recommendations regardless of table format.

4.2.3 Study Quality Assessment

The summary of the Risk of Bias assessments is presented in Figure 3 and details are provided in appendix 5.



	Random sequence generation	Allocation concealment?	Baseline outcome measurements	Baseline characteristics similar	Incomplete outcome data	Knowledge of allocated interventions prevented	Adequate protection from contamination	Selective outcome reporting	Other risks of bias
Brownson 2011	?	?	?	+	−	?	?	+	+
Carrasco-Labra 2016	+	+	?	?	+	+	+	+	+
Dobbins 2009	+	?	+	?	+	?	+	+	+
Masset 2013	?	?	+	+	−	?	?	+	?
Opiyo 2013	?	?	?	?	+	?	?	+	+
Vandvik 2012	?	+	?	?	+	+	?	+	+

Figure 3: Risk of Bias

Two studies were assessed as low risk of bias for random sequence generation (64, 141) and the others were assessed as unclear (135, 137-139). For allocation concealment, four studies were assessed as unclear (64, 135, 137, 138, 140) and two studies assessed as low risk of bias (139, 141). Baseline outcome measurements were similar and therefore low risk of bias in two studies (64, 137, 140) and unclear in four (135, 138, 139, 141). Baseline characteristics were also similar in two studies (135, 137, 140) and unclear in the others (64, 138, 139, 141). Incomplete outcome data was assessed as low risk of bias for four studies (64, 138, 139, 141) but high for two studies (135, 137, 140). These two studies had very high rates of attrition; Brownson et al. had an overall response rate of 35% and the Masset study had 50% attrition between baseline and first follow-up (135). Prevention of knowledge of allocated interventions was assessed as unclear for four of the studies (64, 135, 137, 138, 140). One study reported that panelists, data collection, and data analysis were blinded (139) and one reported that allocation was done in real-time when the survey was completed and these were therefore assessed as low risk of bias (141). Adequate protection from contamination was assessed as unclear for four studies. The Dobbins study included public health departments from across Canada and therefore little risk of contamination was expected (64) and Carrasco-Labra et al. reported that allocation was done in real-time when completing the survey leaving little risk of contamination (141). All studies were assessed as low risk of bias for selective outcome reporting.

Most outcomes were assessed as moderate certainty of evidence using GRADE (83). Reasons for downgrading the evidence were due to unclear risk of bias or small sample sizes. Perceived desirability of the summaries was assessed as high certainty of evidence. The assessments are included in table 4.

4.2.4 Evidence of Effectiveness

We generated a Summary of Findings table for this review (Table 4). This is a narrative summary of all studies assessing a particular outcome domain, pooled across different policy brief formats.

Table 5: Summary of Findings

<table>
<tr><td colspan="4">Evidence summaries to increase policy makers’ use of systematic review evidence</td></tr>
<tr><td colspan="4">Patient or population: Policy makers and health system managers</td></tr>
<tr><td colspan="4">Intervention: evidence summaries based on systematic review</td></tr>
<tr><td colspan="4">Comparison: any comparison</td></tr>
<tr><th>Outcomes</th><th>Impact</th><th>No of Participants (studies)</th><th>Quality of the evidence (GRADE)</th></tr>
<tr><td>Use of systematic review evidence in decision making</td><td>Little to no difference in effect on evidence-informed decision making when compared to access to a knowledge broker or online registry of research (64).
Little to no difference in effect on self-reported likelihood of using data-driven versus story-driven policy briefs (with state-level or local-level data) (135).</td><td>399 (2)</td><td>⊕⊕⊕⊖
moderate[1]</td></tr>
<tr><td>Understanding, knowledge and/or beliefs</td><td>One study found little to no effect on understanding of information when provided in different Summary of Findings table formats(139)while the other found that those provided with a new version of the summary of findings table had consistently higher proportions of correct answers assessing understanding of key findings provided in the table (141).
Little to no effect in understanding of information for a graded entry format compared to an summary of findings table or systematic review alone (138).
Little to no effect on changing participants’ beliefs about the strength of the evidence for those who already had beliefs but</td><td>676 (4)</td><td>⊕⊕⊕⊖
moderate[1]</td></tr>
</table>

	increased the number of participants who had beliefs about the strength of the evidence (137, 140).		
Perceived credibility of the summaries	Little to no difference in perceived credibility for different versions of the policy brief (data-driven versus story-driven, local versus state-level data) (135).	291 (1)	⊕⊕⊕⊖ **moderate**[1]
Perceived usefulness and usability of systematic review summaries	The graded entry format was rated higher than the systematic review alone and there was little to no difference between the ratings for the summary of findings table and the systematic review alone (138). Different summary of findings table formats had little to no effect in one study(139), but a new summary of findings format was found to be more accessible than the standard summary of findings in another (141),	443 (3)	⊕⊕⊕⊖ **moderate**[1]
Perceived understandability of the summaries	All formats of the policy brief were reported as easy to understand (135). Graded entry formats were easier to understand the summary of findings tables or systematic reviews alone.(138)	356 (2)	⊕⊕⊕⊖ **moderate**[1]
Perceived desirability of the summaries	Alternate versions of the summary of findings were preferred (139, 141).	378 (2)	⊕⊕⊕⊕ **high**
GRADE Working Group grades of evidence **High quality:** Further research is very unlikely to change our confidence in the estimate of effect. **Moderate quality:** Further research is likely to have an important impact on our confidence in the estimate of effect and may change the estimate. **Low quality:** Further research is very likely to have an important impact on our confidence in the estimate of effect and is likely to change the estimate. **Very low quality:** We are very uncertain about the estimate.			
1. Unclear ROB			

4.2.5 Primary Outcomes:

4.2.5.1 Use of summaries in decision making

Two studies assessed self-reported use of summaries in decision-making. First, Dobbins et al. assessed instrumental use; the change in global evidence informed decision making (EIDM, defined as the extent to which research evidence was considered in a recent decision) after 18 months. The authors found that the intervention had no significant effect on EIDM. This study also reported on evidence-based public health policies and programs as a measure of the actual number of strategies, policies, and interventions for health body weight promotion among children that were implemented by the health department. For this outcome, the group that received the targeted, tailored messages had a significant increase in evidence-based public health policies and programs.

The study by Brownson et al. asked policy makers how likely they would be to use the evidence summary in decision making classified as conceptual use of research. On a 5-point Likert scale (where 1 is strongly disagree and 5 is strongly agree) there was little to no difference based on the type of policy brief (data-driven versus story driven) (range 3.3 to 3.4). However, there were differences in self-reported likelihood of using the policy brief depending on type of policymaker. Staff members reported being most likely to use the story-focused brief with state-level data (mean rating of 3.4, 95% confidence interval (CI) 3.0 to 3.9) and least likely to use the data-focused brief with state-level data (2.5, 95% CI 2.0 to 3.0). Legislators reported being most likely to use the data-focused brief with state level data (4.1, 95% CI 3.6 to 4.6) and least likely to use story-focused brief with state-level data (3.1, 95% CI 2.6 to 3.6) (135).

4.2.5.2 Understanding, knowledge, and/or beliefs

Carrasco-Labra et al. found that respondents receiving the new summary of findings format had a higher proportion of correct answers for almost all questions. These included the ability to interpret footnotes (risk difference (RD) 7%, p=0.18), ability to determine risk difference (RD 63%, p=<0.001), understanding of quality of evidence and treatment effect (RD=62%, p=<0.001), understanding of the quality of evidence (RD 7%, p=0.06), and ability to quantify risk (RD 6%, p=0.06) (141). However, for one question, the ability to relate the number of participants and studies to outcomes, the group receiving the standard summary of findings scored slightly higher (RD -3%, p=1.0).

The Masset study examined changes in beliefs about the effectiveness of the intervention as well as the strength of the evidence included in the policy briefs. The authors found that the policy brief increased the number of participants who had an opinion about the strength of the evidence (e.g. those who did not have an opinion at baseline formed an opinion based on the policy brief) but was less effective in changing participants' ratings of the strength of the evidence or the effectiveness of the intervention (137). The policy brief did not change opinions of those who had an opinion at baseline about the evidence and effectiveness.

The Opiyo study found little to no difference between interventions for the odds of correct responses to questions about the intervention (adjusted odds ratio (OR) for summary of findings table compared to systematic review alone was 0.59, 95% CI 0.32 to 1.07, and for graded entry format compared to systematic review alone OR 0.66, 95% CI 0.36 to 1.21) however both of these indicated that the odds of correct responses were higher for the groups who received an evidence summary or summary of findings (138). However, when comparing groups of participants, both the summary of findings tables and the graded entry formats slightly improved understanding for policy makers (summary of findings table compared to systematic review alone adjusted OR 1.5, 95% CI 0.15-15.15 and for graded entry format compared to systematic review alone, 1.5 (0.64-3.54) (138).

Finally, Vandvik et al. reported little to no difference in participants' understanding of information in the different table formats for most items (range 80% to 97% for table A compared to 69% to 92% for table B, p-values from 0.26 to 0.86) However, those with table A had higher scores for two items: time period for risk estimates (58% compared to 11%, p<0.0001) and the range in which the effect may lie (95% versus 54%, p<0.0001) (139).

4.2.6 Secondary Outcomes:

4.2.6.1 Credibility of the summaries

Brownson et al. reported little to no differences in credibility for the different intervention formats. Mean scores for perceived credibility ranged from 4.4 to 4.5 on a 5-point Likert scale (135). For different policymaker groups there were also little to no differences with mean scores ranging from 4.2 to 4.5 for staff members, 4.3 to 4.7 for legislators, and 4.3 to 4.6 for executives (135).
The Masset study assessed how convincing the policy brief was, how robust the methodology was, and the strength of the evidence. Participants who had stronger beliefs about the evidence at baseline rated the policy brief more favourably (137).

4.2.6.2 Perceived usefulness and usability of the summaries

The Carrasco-Labra study reported that the new summary of findings format was more accessible than the standard format (141). This was assessed by asking respondents about their ease of finding the information about the effects (MD 0.4, SE 0.19, p=0.04) and ease of understanding the information (MD 0.5, SE 0.2, p=0.011). The respondents also reported that the new format displayed results in a way that was more helpful for decision making (MD 0.5, SE 0.18, p=0.011).

Opiyo et al. measured this outcome by assessing the ‘value and accessibility’ of each intervention. The graded entry format received a higher mean score than the systematic review alone (adjusted mean difference (MD) 0.52 (95% CI 0.06 to 0.99). There was little to no difference in effect when comparing the summary of findings table and the systematic review alone (MD -0.11, 95% CI -0.71 to 0.48) (138).

Vandvik et al. reported that accessibility of information for quality of evidence as well as absolute and relative effects was rated similarly with no significant differences between groups (139). Only pooled results were presented.

4.2.6.3 Perceived understandability of the summaries

All the groups in the Brownson et al. study reported that the summaries were easy to understand (135). Mean ratings ranged from 4.3 to 4.4 on a 5-point Likert scale. For the different policymaker groups, there was little to no difference with mean scores ranging from 4.3 to 4.5 for staff members and legislators and 4.1 to 4.4 for executives (135).

The study by Opiyo et al. reported that 60% (95% CI: 48% to 73%) of the participants found systematic reviews to be more difficult to read than the narrative reports included in the graded entry formats. 51% (95% CI: 38% to 63%) compared to 26% (95% CI: 15% to 37%) found systematic reviews to be easier to read than summary of findings tables while 53% (95% CI: 41% to 65%) compared to 25% (95% CI: 14% to 36%) preferred the narrative report format (graded entry) to the full systematic review (138).

4.2.6.4 Perceived desirability of the summaries

The two studies of different summary of findings formats assessed this outcome. One study found that participants preferred the presentation of study event rates versus not having them (median 1, interquartile range (IQR) 1, on 1-7 scale where 1 was strong preference for and 7 was strong preference against), absolute risk differences versus presentation of absolute risks (median 2, IQR 3), and having the additional information embedded in table versus having it as footnotes (median 1, IQR 2). No significant differences found for the placement of the column for overall quality of evidence (either as the final column or before the effect size) or the overall table format (differing by column headings and order of columns) (139).

The other study found that overall, respondents preferred the new summary of findings format (MD 2.8, SD 1.6) (141).

None of the included studies reported on policy makers' perceived relevance of the summaries.

4.2.7 Effect modifiers

The organizational research culture was found to influence the effect of the intervention on evidence-based public health policies and programs in one study which found that tailored, targeted messages were more effective than access to a database alone (healthevidence.ca) or access to a knowledge broker when the organization valued research evidence in decision-making (64).

The Carrasco-Labra study found that the number of years of experience of the respondents modified the effect on understanding by more than 10% (adjusted OR 1.83; 95% CI 0.91 to 3.67) for the questions about the ability to determine a risk difference. For the question assessing whether respondents understand the quality of evidence and treatment effect combined, the authors found that years of experience, familiarity with GRADE, and level of training modified the effect by more than 10% (adjusted OR 0.72; 95% CI 0.20 to 2.56).

4.3 Results for User Testing (Formative Evaluation) of E4E Summaries

Five panels of stakeholders were developed including at least six members per panel. The characteristics of the stakeholders are summarized in table 6. From these panels, 5 user tests were conducted, one for each topic area.

Table 6: Characteristics of Stakeholder Panel members

	N (%)
Total	32
Male	26 (81.3)
Female	6 (18.8)
Country	
High-income	21 (65.6)
Low- and middle-income	11 (34.4)
Australia	1 (3.1)
Argentina	1 (3.1)
Cameroon	2 (6.3)
Canada	6 (18.8)
Chile	1 (3.1)
India	1 (3.1)
Italy	1 (3.1)
Kenya	2 (6.3)
Lebanon	1 (3.1)
Pakistan	1 (3.1)
Peru	1 (3.1)
South Africa	3 (9.4)
Switzerland	3 (9.4)
US	5 (15.6)
UK	3 (9.4)
Role	
Clinician	12 (37.5)
Policy	22 (68.8)
Researcher	30 (93.8)
Note: percentages do not add to 100 since stakeholders could have multiple roles	

4.3.1 First impressions

We asked participants to describe their first impressions of the landing page (first page) of the E4E website (Appendix 6). Responses were both negative (n=1) and positive (n=4). For example, one stakeholder commented that the landing page was underwhelming and lacked graphics and an explanation of what the site is about while another liked that the page focused on equity. Two participants said that it took a few seconds of reading the page to fully understand it but that all the information was provided.

We also asked participants to give their first impression of the topic specific landing page (Appendix 7). This page includes a summary table that provides a list of the interventions and outcomes described in the summaries for that topic and indicates the population for which there is evidence (adult men, adult women, children, babies).

Similar to the landing page, two respondents said that although all of the information required to understand this page is provided it takes a few moments of reading.

Three participants stated that they liked the icons provided. Two mentioned that the meaning of the icons was not immediately clear and that a brief explanation is required. One mentioned that he expected the other PROGRESS characteristics to be included as well. However, one commented that the font was quite small, another stated that the page requires additional information for clarity.

Regarding the topics, one mentioned that it looked like a good distribution of topics but another thought that the topics could be reorganized to improve the user experience. For example, public health and nutrition could both be viewed as cross-cutting, therefore, locating a specific summary may be difficult for users of the website. This participant suggested using the categories listed on the WHO Guidelines website as a guide and cross-referencing summaries that may fit into more than one category.

Finally, we asked participants to open a summary and describe their initial spontaneous reaction to the summary after scrolling through it from top to bottom. Comments on the summary ranged from general to very specific to the summary the respondent was viewing.

In general, respondents thought that the sections and headings within the summary were useful. The relevance table seemed interested and useful. One respondent said their first instinct was to look for the reference to the complete review which should be provided earlier on in the summary. Another stated that PROGRESS-Plus and its purpose in the summary was not clear. One asked about the use of the term ‘disadvantaged’ since it is not commonly used in this person’s field.

One respondent liked that the summary presented both narrative text as well as effect sizes.

One respondent stated that a downloadable version of the summary would be helpful for decision makers. One participant asked how a guideline development committee would reference the summary since the relevance includes information that was not included in the original systematic review.

4.3.2 Credibility

Participants were asked to comment on their impression of the credibility of the summaries and whether they would trust the information provided in the summaries. All participants said the summary seemed credible because the website was a Cochrane branded website and they trust Cochrane. Three of the participants added that they consider the evidence to be trustworthy because it comes from a systematic review.

Table 7: Summary of Stakeholder Responses

Outcome	Responses
Credibility	5 Yes
Usability	3 Yes 1 No
Understandability	5 Yes
Usefulness	3 Yes 2 Maybe
Desirability	2 Yes 1 No 2 Maybe
Valuable	4 Yes 1 Maybe

4.3.3 Sections of the summary

4.3.3.1 Key messages

Participants provided their impression of the first page of the summary which provides the key messages and information about the intervention and its delivery.

Participants suggested that more information on the intervention would be helpful for the readers. Two stakeholders suggested noting whether there were differences in effectiveness for the most and least disadvantaged in the population. For the heading "does it work in the disadvantaged", two participants said to name the actual population included in the review instead of using a generic heading.

However, one stakeholder mentioned that the presentation looked out-dated and that the page is not engaging which might affect the likelihood that a policymaker would continue reading.

4.3.3.2 Summary of Findings table

Participants were asked about their understanding of each section of the Summary of Findings (SOF) table. All participants were familiar with the Cochrane SOF table and each of them commented that the SOF may not be easily understood by those who are not familiar with the format. Two participants mentioned that training may need to be provided to assist users with interpreting this section.

One participant said that the SOF essentially repeats the key messages presented earlier and that for policymakers interested in equity the SOF may be less important than the following table which presents the relevance of the review to disadvantaged communities. This participant suggested switching the order of these two sections.

4.3.3.3 Relevance Table

The relevance table extrapolates information from the review to provide users with some information about how the evidence might apply to their local context. Participants were asked about their impression of this table and the content. Two participants said that this section was complex. One asked whether two columns, one that explains the findings of the review and the second that interprets those findings for policymakers are needed. This stakeholder suggested keeping the interpretations and providing a link for the findings of the review for those who are interested. One asked whether the section on monitoring and evaluation of the intervention is needed, since this section doesn't seem to provide anything specific for health equity.

One participant mentioned that policy makers may not be familiar with all terms, such as applicability or cost-equity.

Three participants said that this section, while including a section on cost-equity, was lacking details on absolute costs and the cost effectiveness which would be important for policy-makers. One mentioned that the definition of cost-equity should be added to the page.

4.3.3.4 Characteristics of the summary

This section provides a link to the complete review with information to explain the contents of the summary. In general, participants thought this section was fine as is, although three thought that it should be moved higher up in the summary.

4.3.4 Usability

Participants were asked whether they felt the summary was usable; 4 said the summary was usable and one said that it was not. The reason it was considered unusable was that presentation seemed weak. Another said that while usable, more information about the results of the intervention for population subgroups would improve its usability.

4.3.5 Understandability

Participants were asked, in general, whether the summary was easy or difficult to understand. All participants said that the summary was generally easy to understand.

4.3.6 Useful

We asked whether the participant would find this summary useful if he or she was going to make or inform a policy decision about the intervention included in the summary. Two of the respondents said the summary is useful in its current format. One said that the summary was useful but would be improved if additional details about the intervention were provided.

However, another stated that there are useful pieces of the summary but that they need to be reconfigured. Finally, another said that more information related to subgroups is needed to make the summary useful for those making decisions about improving equity. This stakeholder also thought that some more information about the intervention itself is needed in the summary to help policymakers judge the applicability of the results and the relevance of the intervention to their setting.

4.3.7 Desirability

Participants were asked whether they “liked” the summary. Two participants said yes. All the others required some changes to the summary, such as changing the presentation and improving the web design, including a downloadable version, and rearranging some of the content.

Improvements suggested included improving the presentation and formatting, adding a case study with local relevance, reorganizing sections, creating a downloadable version, adding more information about subgroups, hiding the numbers (focusing on the narrative with links to reveal the numbers if desired), and translating the summaries into other languages.

4.3.8 Valuable

Participants were asked whether a series of summaries such as those included in E4E would be valuable to them in their policy-making position. Three participants said that a series of these summaries is valuable. One said that a series of summaries may be valuable because the content is valuable but the current presentation of the summaries is weak.

To increase the value of the summaries, participants suggested improving the web formatting of the website and its presentation, including adding information from additional sources to increase the applicability information and include information on subgroups if these are not available in the original systematic review, and one noted that it would be helpful to mention that in many LMIC settings Cochrane systematic reviews are open access.

4.3.9 Findability

We asked participants to provide suggestions for disseminating these summaries to decision makers. They suggested disseminating information about the collection of summaries through professional networks. They also suggested ensuring the original Cochrane reviews provide a link to the E4E summaries.

This chapter contains text from the two published qualifying manuscripts submitted as per the TRIBE PhD requirements: (1) O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, Evans T, Pardo Pardo J, Waters E, White H, Tugwell P. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. Journal of Clinical Epidemiology. 2014, 67 (1), pg. 56-64. doi:10.1016/j.jclinepi.2013.08.005 (2) Petkovic J, Welch V, Jacob MH, Yoganathan M, Ayala AP, Cunningham H, Tugwell P. The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review. Implement Sci. 2016 Dec 9;11(1):162.

5 DISCUSSION

This thesis has presented the rationale and justification for an acronym, PROGRESS, which is useful for identifying potentially disadvantaged populations so that differences in effects of interventions may be considered. PROGRESS was then used as the basis for defining characteristics associated with disadvantage throughout the development and user testing of Evidence for Equity. PROGRESS was used as a framework for judging whether a systematic review has assessed interventions that may have effects on reducing inequities and then to describe which determinants of health are addressed by the E4E summaries. These systematic reviews will be eligible for the E4E project and will be summarized to provide policy makers with evidence for reducing inequities. The format of the Evidence for Equity summaries were influenced by the results of a systematic review to identify the most effective components of the summaries for increasing policy makers' use of the evidence as well as assess the effectiveness of such summaries on policy makers' use of the evidence. A small formative evaluation of these summaries was conducted so that the collection can be expanded and formally launched to assist policy makers making decisions about interventions that may improve health equity.

The acronym PROGRESS has been used as a framework to guide the conceptualization of disadvantage, for data extraction and to inform equity analyses (21) and has been used by systematic reviewers (24, 38-46). The examples provided above for each characteristic of the PROGRESS acronym demonstrate the importance of applying an equity lens to interventions as a strategy for ameliorating the gap between the most and least disadvantaged. The characteristics included in PROGRESS will not indicate disadvantage in every situation. The context in which a person or population is situated will influence whether the PROGRESS characteristics indicate disadvantage. A certain level of judgement is necessary to determine this relationship. In addition, each of the PROGRESS factors requires careful consideration regarding their definition and classification, as well as their interaction with other contextual elements. Researchers need to consider the theoretical approaches to each of the PROGRESS factors, as well as their expected influence on outcomes. PROGRESS is not an exhaustive list of all possible characteristics that may contribute to inequities. However, it illustrates the multidimensionality of the distribution of health within a population.

PROGRESS was used to classify interventions included in Evidence for Equity systematic review summaries. For example, summaries of malaria interventions (e.g. insecticide-treated bed nets) were linked to icons indicating that place of residence, gender, and age are important considerations. Place of residence is important since malaria is endemic in certain areas; gender is important since pregnant women are particularly vulnerable to malaria and it can lead to complications for the developing fetus; and age because malaria is a major cause of child mortality. These classifications assist decision makers who may have particular requirements, such as improving child health, to consider when developing programs and/or policies.

Equity considerations are often limited to a single social stratifier. The use of the acronym PROGRESS can help systematic reviewers and other researchers apply an equity lens through the use of a spectrum of social stratifiers across which there may be differences in effects on health equity. The use of PROGRESS can help avoid unintended intervention effects that may increase the gap between the most and least disadvantaged, however, all interventions should be monitored to determine whether the gap in health outcomes is narrowing or widening.

The systematic review has summarized the evidence on the use of systematic review summaries in policy-making, policy makers' understanding of systematic review evidence, and different components and design features of these summaries. Overall, the findings suggest that evidence summaries are likely easier to understand than complete systematic reviews. However, their ability to increase the use of systematic review evidence in policymaking is unclear.

The results of this systematic review were used in the development of 25 pilot E4E summaries; specifically we used the graded entry approach and a modified summary of findings table. These summaries were posted to the Campbell and Cochrane Equity Methods Group website and used for user testing with a small group of Stakeholders.

Overall, the user tests revealed that while the content and graded entry format were considered useful and valuable by stakeholders, the presentation on the website can benefit from the suggested changes to encourage use of the summaries by policy makers.

There are several limitations to this work. Measuring policy makers' use of systematic review evidence in decision making is challenging since decision making is a complex process. Other studies have noted the inherent challenges in measuring this outcome since many factors contribute to decision making and it is often difficult for an individual to identify which factors had a role in their final decision (64, 144). While policy makers may access research and consider it in their decision making, other information outside of that included in the research report such as the policy maker or government's values, political considerations, and judgments about the local context are also important and play a role in decision making (145). Instead of determining the actual use of research in decision making, we included studies which assessed self-reported use of research or other outcomes, such as perceived credibility or relevance since these may affect the likelihood of research use in decision-making.

In addition, the systematic review is limited by the indexing of studies in this area. To address this issue, a broad search strategy adapted from similar systematic reviews was used. It identified over 10,000 references but resulted in a low yield of included studies. Furthermore, the methods used in the included studies were poorly reported. For example, only two studies adequately reported on random sequence generation or allocation concealment, which means that most studies have unclear risk of bias.

The interventions assessed in the studies included in this systematic review are quite diverse with a variety of outcome measures. We included a broad range of interventions to provide an overview of the evidence on systematic review derivative products. These products have important differences in design and source material. For example, a policy brief includes evidence from one or more systematic reviews and includes information from additional sources (55, 58) whereas a summary of findings table reports results for a single systematic review. We chose to include all systematic review derivative products since there are limited studies on a single product type. We recognize that this creates a challenge for interpreting the results since the interventions were quite different. Therefore, we have provided a narrative summary of each study and presented an overview of the available evidence.

Our formative evaluation of the E4E website and summaries included only five user tests. However, this is acceptable for this type of study (85). As additional summaries are developed and more topic areas are added, we will conduct further user tests to ensure the revised format is useful, useable, and credible for our target audience.

More research is needed to determine whether evidence summaries can increase the use of systematic reviews by policy makers and health system managers. Two protocols for ongoing studies were identified by our systematic review which is promising as the results of these studies will enhance the available evidence about the effectiveness of evidence summaries (142, 143). Other relevant studies assessing the effectiveness of systematic review derivatives that did not use an eligible study design (e.g. used interviews or other methods without a control group) were identified (7, 82). One of these studies was intended to be a RCT and process evaluation but was not eligible for our review because poor recruitment (only 15% of the planned sample) resulted in the termination of the trial (82). This demonstrates the difficulty with recruiting these types of participants. Recruitment for the process evaluation remained low and the authors noted that those included are likely those already more interested in using systematic review derivatives (82). The authors noted that for future RCTs recruitment may be more successful achieved from randomizing divisions versus individuals since the nature of policymaking is quite complex and often not completed at the individual level. Additionally, we identified other studies that were not focused on policy makers but rather clinicians (146, 147) or the public (148). These studies demonstrated that evidence summaries can improve understanding of research evidence within these populations however use of evidence in decision making was not assessed.

It is important to note that only two of the studies included in the systematic review compared the evidence summary to a full systematic review or access to a database of systematic reviews. The others compared different versions of evidence summaries and, in general, found little to no differences in the effects. Had these studies included systematic reviews as a control group the results may be different. Additional research on the use of evidence summaries derived from systematic reviews is needed.

A previously conducted systematic review identified poor access to high quality and relevant research as a barrier to the use of research evidence by policy makers (62). Evidence summaries can address this barrier by increasing access to systematic review evidence provided that policy makers are aware that these products are available. Our review has not identified the best way to disseminate these products although one study found that targeted, tailored messages improved research use by policy makers (64). Future developers of systematic review products should collaborate with policy makers to ensure that their summaries are relevant to those making decisions in practice (62). Future studies should include an assessment of delivery strategies since the effectiveness of the systematic review derivative product in practice will be impacted by policy makers' knowledge of and access to the summaries themselves. Our included studies suggest that evidence summaries have a small effect on improving knowledge and understanding and should be created. However, we have very little evidence to inform the design of evidence summaries since we only found a handful of different formats (none the same), and there was little to no difference between formats when compared directly.

Based on the results of the user tests, the E4E summaries and website will be revised. To further develop the E4E special collection, additional summaries which provide evidence on interventions that may reduce inequities will be added. This will include additional summaries on the five topic areas already included as well as the introduction of additional categories. The website will be officially launched so that policy makers and other decision makers can access high quality systematic review evidence in summary format with the aims of increasing the use of systematic review evidence and reducing global health inequities.

This chapter contains text from the two published qualifying manuscripts submitted as per the TRIBE PhD requirements: (1) O'Neill J, Tabish H, Welch V, Petticrew M, Pottie K, Clarke M, Evans T, Pardo Pardo J, Waters E, White H, Tugwell P. Applying an equity lens to interventions: using PROGRESS ensures consideration of socially stratifying factors to illuminate inequities in health. Journal of Clinical Epidemiology. 2014, 67 (1), pg. 56-64. doi:10.1016/j.jclinepi.2013.08.005 (2) Petkovic J, Welch V, Jacob MH, Yoganathan M, Ayala AP, Cunningham H, Tugwell P. The effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews: a systematic review. Implement Sci. 2016 Dec 9;11(1):162.

6 CONCLUSION

The first part of this thesis has described the acronym PROGRESS and shown that it can be used as a framework and aide-memoire that is useful in ensuring an equity lens is applied in the conduct, reporting, and use of research, specifically systematic reviews. The PROGRESS acronym was then used to classify populations included in the systematic reviews chosen for the E4E summaries.

In the second part, the systematic review found that evidence summaries are likely easier to understand than complete systematic reviews. However, their ability to increase the use of systematic review evidence in policymaking is unclear. Additionally, more research assessing the different formats of evidence summaries and their effect on increasing policy makers' use of systematic review evidence is needed.

The results of the user tests of the E4E summaries show that the 1-1-3-25 graded entry format was perceived as useful by our stakeholders and a series of such summaries was considered valuable; however, the presentation of the summaries needs to be improved.

Together, the results of the systematic review and user tests show that the graded entry format of evidence summaries is useful for decision makers. Evidence from Cochrane and therefore E4E, since it is included on a Cochrane website, are viewed as credible, however the presentation of the summaries needs to be improved to ensure that once a policymaker finds the summary, it successfully engages them enough to read through the complete summary and access the complete review.

We were unable to confirm the hypothesis that targeted evidence summaries increase policy makers understanding of the evidence. However, our systematic review found that the graded entry format likely increases policy maker understanding of the evidence. Our user tests showed that the graded entry approach was likeable by our participants. To investigate this further, a randomized controlled trial to assess whether the E4E summaries increase policy makers' understanding of the evidence compared to the complete systematic reviews could be conducted.

7 SAŽETAK

Donosioci odluka sve češće koriste sustavne preglede za donošenje odluka, definiranje politika i odlučivanje o programima. Te odluke znaju se koristiti i bez korištenja dokaza iz istraživanja ili bez propisnog i transparentnog procjenjivanja kvalitete dokaza. Međutim, sustavni pregledi koje bi trebali koristiti često koriste složen tehnički jezik, nemaju važne informacije o kontekstu i obično su to dugački dokumenti koji ne moraju nužno biti lako dostupni donosiocima odluka. Stoga je nužno razviti odgovarajuće sažetke sustavnih pregleda.

Nejednakosti u zdravstvu su razlike u zdravstvenim ishodima koje se mogu izbjeći. Sustavni pregledi mogu pomoći u smanjenju nejednakosti u zdravstvu promatranjem dokaza o intervencijama koje mogu djelovati na te nejednakosti. U sustavnim pregledima bilo bi potrebno razmotriti pitanje jednakosti, jer su donosioci odluka naveli da je to važno za donošenje odluka i politika. Međutim, to znači da bi autori sustavnih pregleda trebali razmotriti učinke intervencija u različitim podskupinama populacije koje mogu imati veći rizik od nejednakosti.

U ovoj disertaciji 1) istražen je proces koji opisuje akronim PROGRESS-Plus. Taj akronim obuhvaća razmatranje mjesta stanovanja, rase/etniciteta/kulture/jezika, zaposlenja, spola, religije, stupnja obrazovanja, socioekonomskog statusa i društvenog kapitala. Procjena po tom akronimu pomaže autorima sustavnih pregleda u prepoznavanju pojedinačnih ugroženih populacija, 2) proveden je sustavni pregled čiji je cilj bila procjena djelotvornosti sažetaka o dokazima među donosiocima odluka i upraviteljima u zdravstvenom sustavu s ciljem korištenja dokaza iz sustavnih pregleda, i 3) provedeno je istraživanje među korisnicima o pilot uzorku sažetaka sustavnih pregleda.

Sustavni pregled dokaza o sažetcima zaključio je da je pristup postupnog ulaza povećao korisnost tih sažetaka. Takav format je zatim korišten kako bi se napravili sažetci na temelju formata E4E (engl. Evidence for Equity). Ti pilot sažetci pozitivno su ocijenjeni od strane donosioca odluka, koji su dali i korisne komentare za poboljšanje izgleda i prezentacije dokaza, što bi povećalo njihovu vrijednost i iskoristivost.

8 SUMMARY

While policy makers are increasingly using systematic reviews for decision making, policy and program decisions are often made without the use of research evidence or without appropriately and transparently appraising the quality of the evidence. However, systematic reviews often contain technical language, lack important contextual information and are usually long documents that may not be easily accessible by those in decision making roles. For these reasons, the development of summaries of systematic reviews has become more common.

Health inequities are avoidable differences in health outcomes. Systematic reviews can help reduce health inequities by providing evidence on interventions that can address inequities. Equity considerations in systematic reviews are useful for policy making and policy makers have indicated that systematic reviews are useful sources of evidence for decision making. However, this requires systematic review authors consider the effects of the intervention on population subgroups that may be at risk for disadvantage.

We have: 1) described the acronym PROGRESS-Plus to assist systematic review authors in identifying potentially disadvantaged populations, 2) conducted a systematic review to assess the effectiveness of evidence summaries on health policy makers and health system managers use of evidence from systematic reviews, and 3) conducted user tests with a small sample of stakeholders on a collection of pilot summaries of systematic reviews.

The systematic review of evidence summaries found that the graded entry approach increased usability. We used this format to develop E4E. Our pilot summaries were considered useful by our stakeholders however, while the format was positively received improvements to the overall look and presentation of the summaries is needed to increase their value.

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10 APPENDICES

10.1 Appendix 1: MEDLINE Search Strategy

Database: Ovid MEDLINE(R) In-Process & Other Non-Indexed Citations and Ovid MEDLINE(R) <1946 to Present>

Search Strategy:

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1 ((systematic review$ or methodolog$ review$ or quantitativ$ review$ or qualitativ$ review$ or overview$ or synthes$ or metasynthes$ or megasynthes$) adj5 (decisionmak$ or decision-mak$ or policy-mak$ or policymak$ or policy decision$ or health$ polic$ or health$ manag$ or action$ or commission* or purchas* or procur* or budget hold* or budgethold* or service provi*or practice or application or implement$ or utili?ation or utili?ing or utili$ or disseminat$ or summar$ or hospital* decision* or treatment plan* or patient care or patientcare or healthcare or health care or clinical decision* or pathway* or algorithm*)).ti,ab. (37614)

2 (((systematic adj2 (review* or overview* or synthesis or literature review* or evidence review*)) or methodolog* review* or quantitativ* review* or qualitative review* or overview or synthes* or metasynthes* or megasynthes*) adj5 (policy or policies or decision*)).ti. (509)

3 ((gap or gaps) adj7 ((knowledge or research or evidence or trial or result) adj2 practice)).ti,ab. (1257)

4 1 or 2 or 3 (39096)

5 State Medicine/ (64276)

6 exp Purchasing, Hospital/ (6058)

7 Contracts/ (3314)

8 exp Contract Services/ (13365)

9 exp Organizational Innovation/ (26717)

10 Insurance, Health/ or exp Managed Care Programs/ or Medicare/ (108612)

11 (commissioning or commissioner$).ti,ab. (5484)

12 (purchasing or purchaser$).ti,ab. (10071)

13 (procurement or procurer$).ti,ab. (8083)

14 (budget-holder$ or budgetholder$).ti,ab. (60)

15 (service adj2 (development or developer$ or provision or provider$)).ti,ab. (14669)

16 ((investment or budget or purchas$ or service) adj3 priorit$).ti,ab. (663)

17 priorit$ setting.ti,ab. (1889)

18 decision-maker$.ti,ab. (11057)

19 (contract$ adj3 (management or services or tender$)).ti,ab. (1461)

20 Decision Making, Organizational/ (11719)

21 exp Policy Making/ (24537)

22 exp Health Planning/ (346133)

23 or/5-22 (526119)

24 exp Evidence-Based Practice/ (82364)

25 Translational Research/ (9824)

26 exp "Diffusion of Innovation"/ (19708)

27 ((research or knowledge or innovation$ or evidence) adj5 (diffus$ or disseminat$ or implement$ or adoption or exchang$ or application or mobilis$ or mobiliz$ or synthes$ or transfer$ or translat$ or incorporat$ or uptak$ or utilis$ or utiliz$ or transmission or integrat$ or democratis$ or democratiz$ or shar$ or broke$)).ti,ab. (134606)

28 ('research into practice' or 'knowledge into practice' or 'knowledge into action' or 'research into action' or 'research findings into action' or 'evidence into action' or 'evidence into practice').ti,ab. (2005)

29 (KT adj5 (diffus$ or disseminat$ or implement$ or adoption or exchang$ or application or mobilis$ or mobiliz$ or synthes$ or transfer$ or translat$ or incorporat$ or uptak$ or utilis$ or utiliz$ or transmission or integrat$ or democratis$ or democratiz$ or shar$ or broke$)).ti,ab. (758)

30 ((evidence base$ or evidence inform$) adj5 (decision$ or plan$ or policy or policies or practice or action$)).ti,ab. (19276)

31 ((research or knowledge or innovation$ or evidence) adj5 (change$ or changing or improv$ or promot$ or influenc$ or impact$ or disinvest$ or discontinu$ or reject$ or abandon$ or ceas$ or restrict$ or disincentiv$ or stop$)).ti,ab. (145490)

32 ((research utiliz$ or research utilis$ or evidence or knowledge or innovation$) adj5 (decision-mak$ or decisionmak$ or policy-mak$ or policymak$ or health$ manag$ or health$ polic$ or action$ or practice or policy decision$)).ti,ab. (47705)

33 (('use' or using or usage or useful or utiliz$ or utilis$) adj5 (evidence or research)).ti,ab. (104514)

34 Information Dissemination/ (15340)

35 (disseminat$ adj5 (findings or results)).ti,ab. (4523)

36 Health Knowledge, Attitudes, Practice/ (100200)

37 Attitude of Health Personnel/ (113358)

38 Clinical Competence/ (82515)

39 or/24-38 (711779)

40 ((research or knowledge or innovation$ or evidence or information or policy) adj5 (brief$ or summar$ or synops$ or overview$ or bulletin$ or synthes$ or map or mapping or maps or framing$ or product$ or package$ or alert$ or commentar$ or strateg$ or algorithm$)).ti,ab. (144693)

41 (push activit* or pull activit*).ti,ab. (4)

42 (collaborat$ or 'cross-profession$' or intraprofession$ or intra-profession$ or interprofession$ or inter-profession$ or inter-disciplin$ or multi-disciplin$ or multi disciplin$ or multiprofession$ or outsourc$ or subcontract$).ti,ab. (131760)

43 'linkage.mp. and exchange'.ti,ab. [mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier] (2175)

44 or/40-43 (273670)

45 intervention?.ti. or (intervention? adj6 (clinician? or collaborat$ or community or complex or DESIGN$ or doctor? or educational or family doctor? or family physician? or family practitioner? or financial or GP or general practice? or hospital? or impact? or improv$ or individuali?e? or individuali?ing or interdisciplin$ or multicomponent or multi-component or multidisciplin$ or multi-disciplin$ or multifacet$ or multi-facet$ or multimodal$ or multi-modal$ or personali?e? or personali?ing or pharmacies or pharmacist? or pharmacy or physician? or practitioner? or prescrib$ or prescription? or primary care or professional$ or provider? or regulatory or regulatory or tailor$ or target$ or team$ or usual care)).ab. (254746)

46 (pre-intervention? or preintervention? or "pre intervention?" or post-intervention? or postintervention? or "post intervention?").ti,ab. (18129)

47 demonstration project?.ti,ab. (2509)

48 (pre-post or "pre test$" or pretest$ or posttest$ or "post test$" or (pre adj5 post)).ti,ab. (97487)

49 (pre-workshop or post-workshop or (before adj3 workshop) or (after adj3 workshop)).ti,ab. (902)

50 trial.ti. or ((study adj3 aim?) or "our study").ab. (948793)

51 (before adj10 (after or during)).ti,ab. (459308)

52 ("quasi-experiment$" or quasiexperiment$ or "quasi random$" or quasirandom$ or "quasi control$" or quasicontrol$ or ((quasi$ or experimental) adj3 (method$ or study or trial or design$))).ti,ab,hw. (138182)

53 ("time series" adj2 interrupt$).ti,ab,hw. (2055)

54 (time points adj3 (over or multiple or three or four or five or six or seven or eight or nine or ten or eleven or twelve or month$ or hour? or day? or "more than")).ab. (15047)

55 pilot.ti. (58132)

56 Pilot projects/ (111771)

57 (clinical trial or controlled clinical trial or multicenter study).pt. (768492)

58 (multicentre or multicenter or multi-centre or multi-center).ti. (43263)

59 random$.ti,ab. or controlled.ti. (1057332)

60 (control adj3 (area or cohort? or compar*? or condition or design or group? or intervention? or participant? or study)).ab. not (controlled clinical trial or randomised controlled trial or randomized controlled trial).pt. (571144)

61 evaluation studies as topic/ or prospective studies/ or retrospective studies/ (1276574)

62 (utili?ation or programme or programmes).ti. (70885)

63 (during adj5 period).ti,ab. (377747)

64 ((strategy or strategies) adj2 (improv$ or education$)).ti,ab. (28829)

65 "comment on".cm. or review.pt. or (review not "peer review$").ti. or randomised control trial.pt. or randomized controlled trial.pt. (3796804)

66 (rat or rats or cow or cows or chicken? or horse or horses or mice or mouse or bovine or animal?).ti. (1632943)

67 exp animals/ not humans.sh. (4854862)

68 (or/45-64) not (or/65-67) (3225380)

69 4 and 68 and (23 or 39 or 44) (839)

10.2 Appendix 2: Grey Literature Sources

3ie Policy Briefs (http://www.3ieimpact.org/en/evidence/policy-briefs/)

Canadian Agency for Drugs and Technology in Health (https://www.cadth.ca/)

Capacity Plus (http://www.capacityplus.org/)

CDC Community Guide (http://www.thecommunityguide.org/index.html)

Communicate to Vaccinate (http://www.commvac.com/)

Consortium for Research on Equitable Health Systems (http://www.crehs.lshtm.ac.uk/)

Developing and Evaluating Communication Strategies to Support Informed Decisions and Practice Based on Evidence (http://www.decide-collaboration.eu/)

Epistemonikos (http://www.epistemonikos.org/)

Evidence Aid (http://www.evidenceaid.org/)

EVIPNet/SURE (http://global.evipnet.org/en) and (http://www.who.int/evidence/sure/policybriefs/en/)

Global HIV/AIDS Initiatives Network (GHIN) (http://www.aidsmap.com/)

Health Action International (http://haiweb.org/)

Health Systems Evidence (https://www.healthsystemsevidence.org/)

Human Sciences Research Council (http://www.hsrc.ac.za/en)

IntraHealth International/Capacity Project (http://www.intrahealth.org/page/capacityplus)

McMaster Health Forum Evidence briefs (https://www.mcmasterhealthforum.org/)

Partnership for maternal, newborn, and child health (WHO) (http://www.who.int/pmnch/en/)

PDQ evidence (http://www.pdq-evidence.org/)

Rx for change (http://rxforchange.ucsf.edu/)

Social, Technological and Environmental Pathways to Sustainability Centre (http://steps-centre.org/#&panel1-1)

SUPPORT Summaries (http://supportsummaries.org/)

WHO - Department of Health Systems Financing (http://www.who.int/healthsystems/topics/financing/en/)

WHO - Department of human resources for health (http://www.who.int/hrh/about/en/ OR http://www.who.int/hrh/en/)

World Bank - Reaching the poor (https://openknowledge.worldbank.org/handle/10986/7393)

10.3 Appendix 3: User Test Interview Guide

E4E Summary user testing

Date: month, year

Check list, for facilitator:

-website plus selected summary

- GoToMeeting with recording option

Introduction

Go through information sheet.

What we are testing and why

We are going to look at the usability of some material that is under development for the Evidence for Equity (E4E) project. E4E is a collection of summaries of systematic reviews of interventions that are important for reducing health inequities. You are one of several people that we are collecting feedback from in this form around the world. We'll use this feedback to improve the material, so that it will be as good as possible and easy to use for people with backgrounds similar to yours.

What will we be doing?

First we ask you some background questions. Then you will be shown some material and I'll be asking you questions about it. We want you to answer from your own perspective, not on the behalf of other people.

The session will be recorded, if that's ok with you. The recording will only be used for transcribing, and will be erased afterwards. The whole process will take about one hour.

About user testing

From our experience, we are fairly certain that things you find difficult to understand, other people will also find difficult so we can use this information to make the material better. We are interested in finding out what works well and what works less well, both regarding content, use of language or terminology, as well as presentation and formatting. We very much want to hear your opinion, so there is no right or wrong answer to anything we ask. We are not testing you, we are testing our material.

- Do you have any questions about the project?

Turn on recorder.

Background questions

A What is your educational background and your current position?

B Do you sometimes read research results in connection with your work? ☐ yes ☐ no

C Think of an example of a recent policy decision that you recently were involved in – what sort of information did you use, and where did you look for information? (websites, journals, colleagues, etc)

D Do you know what a systematic review is? ☐ yes ☐ no

E Have you read a systematic review or part of one? ☐ yes ☐ no

F Have you heard of Cochrane Reviews? ☐ yes ☐ no

G How familiar are you with them?

☐ not familiar

☐ read/browse seldom

☐ read/browse now and then

☐ read/browse regularly

☐ author or co-author of a Cochrane Review

H What is your primary role? (e.g. researcher, clinician, policy-maker)

I Are you involved in policy-making (e.g. guideline development) ☐ yes ☐ no

Questions about the summary

A short bit of repetition before we begin.

No right or wrong answer

Again, you are not being tested, it is our material we are testing. There are no right or wrong answers to our questions. If you think something is easy or difficult, clear or confusing, if you understand or don’t understand, we want to know about it.

Think out loud

Think out loud. Tell me what you are thinking, what you see, what you find confusing or surprising, even the least little bit. For instance:

- Describe what you are looking at and describe what you think of it.
- If you are unsure about anything

- If you are surprised by anything
- If there are things you don’t understand, just say ”I don’t know what this means...”

My role

My role is to ask questions. But, since it is your opinion we are interested in, I will be saying as little as possible. You can ask me questions, I will give a brief answer and then we can come back to this question at the end, if needed.

First impressions

spontaneous first impression

1 Before showing the summary:

I’m going to show you the landing page for the series of summaries that is being developed. I want you to imagine that you found it as a link on a website that you often visit, and that you chose to visit it.

What is your first impression of this page?

Ask them to click on the topic area in which they are a stakeholder member.

Here you’ll see the topics covered by the current collection of summaries.

Before we select a summary, I want your first immediate impression, your spontaneous reaction to this page.

What is your first reaction?

Then, before you select one of the icons to access a summary, I want you to prepare to tell me your first immediate impression, your spontaneous reaction, to the summary.

Ask them to click on a summary of interest.

Scroll through the entire summary so you can see the whole thing.

What is your first spontaneous reaction?

Overview, quick understanding of the structure

2 Without reading in too much detail (we’ll go much more into depth in a minute), do you get any idea of what information you might find in this summary by glancing at it for a moment or two?

How would they normally read a report?

3 Tell me how you would normally go about a summary like this. Where would you start, what would you look for first etc? How long would you normally use it?

Credible

4 You've just had a brief look at this summary. Based on this, could you say anything about your impression of the credibility of the summary? Do you think you would trust this information? Why, why not?

Would you say the summary is credible? Yes/No

Explain

Now ask them to read the summary, using as much or little time as they like. Remind them that you will not be asking exam-like questions afterwards.

Usable

5 Now I'd like you to go through each part of the summary, every element, and describe what your understanding of it is.

Start up here at the top of the first page and go through each part of the whole summary, and just tell me if things are clear to you or unclear, or if there is anything missing you might be looking for....

5a First page key messages

5b SOF

- walk through each element of table

- ask them to explain how they interpret what is presented, repeat in their own words how they understand (or don't understand) the results

- ask them if the information would be more understandable if it was presented in another way

5c Relevance Table

5d Characteristics of the review

Would you say the summary is usable? Yes/no

Explain

Understandable (self-experienced)

6 Do you think this summary was generally easy or generally difficult to understand? Explain...

Would you say the summary is understandable? Yes/No

Explain

Useful

7 Would this summary would be useful for you if you were going to make a decision about health care intervention on this topic?

Would you say the summary is useful? Yes/No

Explain

Desirable

8 To the degree you can ”like” a summary, did you like this or not?

Explain…

If you could change it in any way (content, language, or formatting) what would you change?

Valuable

9 Do you think a series of these types of summaries would be valuable for people in positions similar to yours?

Do you think the summary is valuable? Yes/No

Explain

Suggestions for increasing value

9 Could they be made more valuable for you?

If it was up to you to make changes, what would you change?

(Content, language, formatting)?

Findable

10 Where would you expect to find summaries like this? (or if you had heard that a series of summaries like this existed, how would you go about finding them?)

Do you have any specific suggestions for spreading them to relevant audience?

That was all the questions I have about the summary, but before we finish I’d just like to ask about the test itself:

Improving our test?

Do you have any suggestions as to how we might have done this test better, for instance the information you received, etc.?

Thank you, that was all, we are finished.

10.4 Appendix 4: Characteristics of Excluded Studies

Ref ID	**Reason for Exclusion**
Alper 2005[1]	Did not include policymakers
Bartels 2011[2]	Did not include policymakers
Bero 1997[3]	The intervention did not assess summaries/derivatives of systematic reviews
Caruana 2008[4]	Not an eligible study design, did not include policymakers
Chambers 2011[5]	Not an eligible study design
Chambers 2012[6]	Not an eligible study design – no control group
Coulter 2006[7]	Not an eligible study design
Dobbins 2001[8]	Not an eligible study design
Dobbins 2004[9]	Intervention included complete systematic review not a derivative product.
Dobbins 2007[10]	Not an eligible study design
Fahey 1995[11]	Not an eligible study design
Kelechi 2010[12]	Not an eligible study design
Kendall 2013[13]	Not an eligible study design
Kirkpatrick 1995[14]	Did not include policymakers
Lavis 2005[15]	Not an eligible study design
Lavis 2011[16]	Completed study identified but RCT was not conducted because of limited enrollment. The authors instead conducted interviews so this was not an eligible study design.
Lorenc 2014[17]	Not an eligible study design
MacFarlane 2011[18]	Not an eligible study design
MacGregor 2014[19]	Not an eligible study design
Madhavan 2012[20]	Not an eligible study design
Mallory 2010[21]	Not an eligible study design

Malterud 2016[22]	Not an eligible study design
Maluka 2014[23]	Not an eligible study design
Mitchell 2011[24]	Not an eligible study design
Moat 2013[25]	Not an eligible study design
Mossialos 2013[26]	Not an eligible study design
Munn 2015[27]	Not an eligible study design
Murthy 2012[28]	Not an eligible study design- systematic review
Nannini 2010[29]	Not an eligible study design
Noor 2009[30]	Not an eligible study design
Nutley 2014[31]	Intervention assessed did not include systematic review derivatives
Oermann 2009[32]	Did not include policy makers
Oliver 2014[33]	Not an eligible study design- systematic review
Perrier 2011a[34]	Not an eligible study design- systematic review
Perrier 2011b[35]	Not an eligible study design- systematic review
Perrier 2015[36]	Did not include policy makers
Rosenbaum 2011[37]	Not an eligible study design
Santesso 2015[38]	Did not include policy makers (patients and the public)
Sullivan 2014[39]	Not an eligible study design
Taylor-Robinson 2008[40]	Not an eligible study design
Thomson 2013a[41]	Not an eligible study design
Thomson 2013b[42]	Not an eligible study design
Tricco 2016[43]	Scoping review not an eligible study design
Wallace 2014 [44]	Systematic review not an eligible study design
Wilson 2013[45]	Not an eligible study design
Yavchitz 2014[46]	Did not include policy makers

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10.5 Appendix 5: Risk of Bias Assessments

Brownson 2011

Bias	**Authors' Judgement**	**Support for judgement**
Random sequence generation	Unclear	Not reported
Allocation Concealment	Unclear	Not reported
Baseline outcome measurement	Unclear	Not reported
Baseline characteristics similar	Low risk of bias	No study condition differences by age, sex, self-reported health status, education level, fiscal or social position
Incomplete outcome data	High risk of bias	Low response rate
Knowledge of allocated intervention	Unclear	Not reported
Adequate protection from contamination	Unclear	Not reported
Selective outcome reporting	Low risk of bias	Reports all stated outcomes
Other risks of bias	Low risk of bias	None detected

Carrasco-Labra 2016

Bias	**Authors' Judgement**	**Support for judgement**
Random sequence generation	Low risk of bias	Randomization scheme automatically generated by SurveyMonkey
Allocation Concealment	Low risk of bias	Allocation done by survey monkey in real time following an algoritm umknown to the authors
Baseline outcome measurement	Unclear	Not reported
Baseline characteristics similar	Unclear	Some differences but not clear if they are significant - e.g. more women in control, more French, Spanish, Italian native speakers in new group, more clinicians in new group, more researchers in control
Incomplete outcome data	Low risk of bias	All participants analyzed for whom the variables of interest were present
Knowledge of allocated intervention	Low risk of bias	To conceal the nature of the SoF tables to which participants were allocated, the tables were labeled as A or B, without any other information about their content or the study hypothesis.
Adequate protection from contamination	Low risk of bias	The randomization scheme was automatically generated by the platform. When direct comparison between the new and current format was required, the order in which the tables were shown to participants was randomly determined. To conceal the nature of the SoF tables to which participants were allocated, the tables were labeled as A or B, without any other information about their content or the study hypothesis.
Selective outcome reporting	Low risk of bias	Protocol specifies all outcomes assessed
Other risks of bias	Low risk of bias	None detected

Dobbins 2009

Bias	**Authors' Judgement**	**Support for judgement**
Random sequence generation	Low risk of bias	Randomly allocated to groups using computer-generated random numbers
Allocation Concealment	Unclear	Not reported
Baseline outcome measurement	Low risk of bias	No statistically significant differences were observed between groups at baseline
Baseline characteristics similar	Unclear	Not reported
Incomplete outcome data	Low risk of bias	Follow up data for 88 or 108 PHD - reasons given were lack of time, not having someone working on health weight promotion for children, similar drop outs for all groups
Knowledge of allocated intervention	Unclear	Not reported
Adequate protection from contamination	Low risk of bias	All Health departments in CAN were invited to participate and were identified through provincial databases.
Selective outcome reporting	Low risk of bias	Assessed all outcome outlined as important
Other risks of bias	Low risk of bias	Appears to be free of other risks of bias

Masset 2013

Bias	**Authors' Judgement**	**Support for judgement**
Random sequence generation	Unclear	Not reported
Allocation Concealment	Unclear	Not reported
Baseline outcome measurement	Low risk of bias	No differences
Baseline characteristics similar	Low risk of bias	Participants were equally divided by gender and by residence in a high income country. There were no differences in characteristics.
Incomplete outcome data	High risk of bias	High attrition (Only 50 per cent of the original sample participated in the first follow-up, a further 36 per cent dropped out at the 1-week follow-up and a further 11 per cent dropped out before the 3-month follow-up)
Knowledge of allocated intervention	Unclear	Not reported
Adequate protection from contamination	Unclear	Not reported
Selective outcome reporting	Low risk of bias	Seems to report all planned.
Other risks of bias	Unclear	High attrition may generate two types of biases. The first bias arises from self-selection of respondents into the survey, while the second bias arises from differential attrition among survey groups during the survey rounds

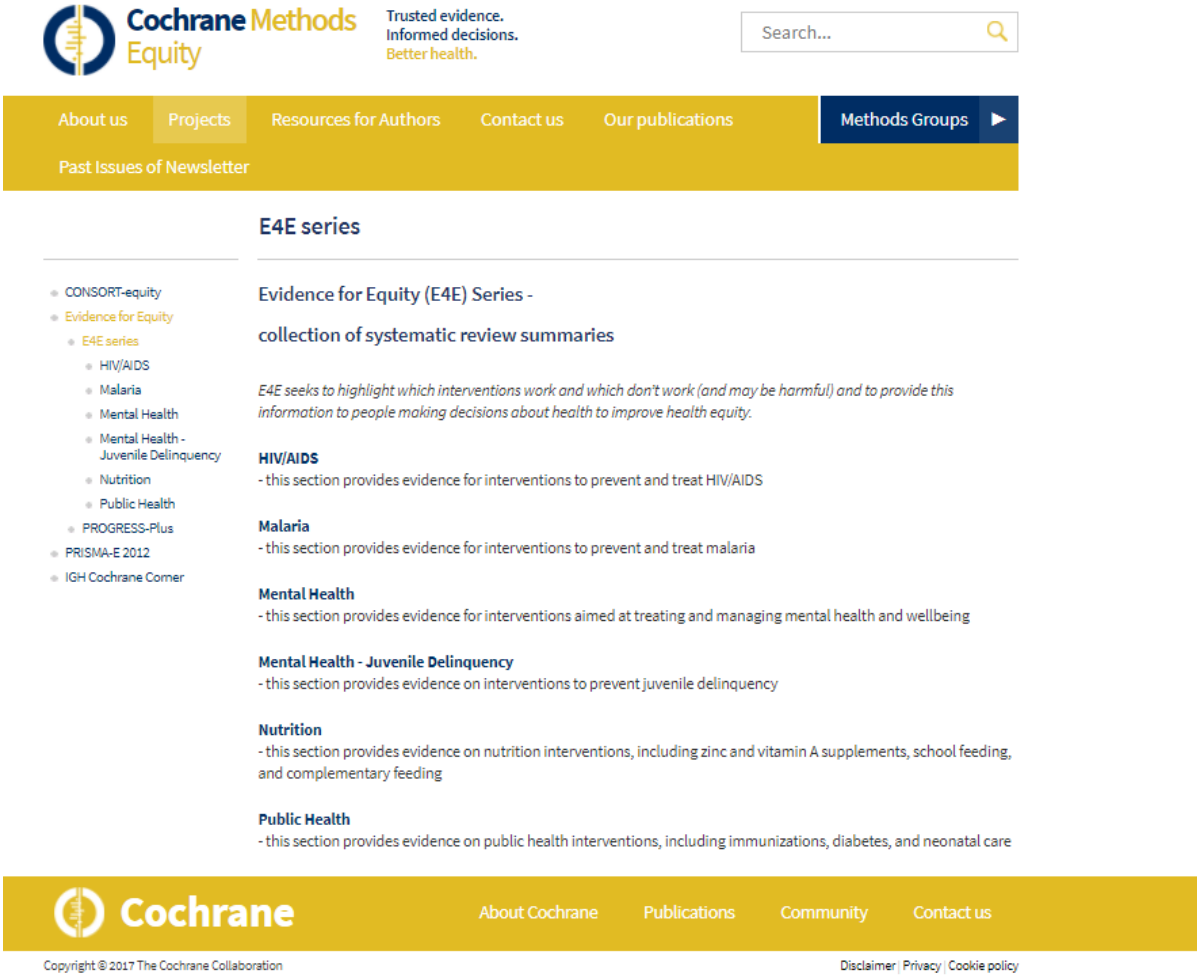
Opiyo 2013

Bias	**Authors' Judgement**	**Support for judgement**
Random sequence generation	Unclear	Not reported
Allocation Concealment	Unclear	Not reported
Baseline outcome measurement	Unclear	Not reported
Baseline characteristics similar	Unclear	Not reported
Incomplete outcome data	Low risk of bias	7 didn't attend workshop, 5 didn't complete questionnaires - The most common reason for non-attendance was related to timing of the meeting
Knowledge of allocated intervention	Unclear	Not reported
Adequate protection from contamination	Unclear	Not reported
Selective outcome reporting	Low risk of bias	Seems to report all outcomes
Other risks of bias	Low risk of bias	None detected

Vandvik 2012

Bias	**Authors' Judgement**	**Support for judgement**
Random sequence generation	Unclear	Not reported
Allocation Concealment	Low risk of bias	"There was no need to conceal allocation as the randomization procedure was performed in one sequence before start of the study"
Baseline outcome measurement	Unclear	Not reported
Baseline characteristics similar	Unclear	Not reported
Incomplete outcome data	Low risk of bias	All those randomized completed the study
Knowledge of allocated intervention	Low risk of bias	Panelists blinded, data collection monitored by blinded investigators, data analysis of results was blinded
Adequate protection from contamination	Unclear	Not reported
Selective outcome reporting	Low risk of bias	Seems to report all outcomes
Other risks of bias	Low risk of bias	None detected

10.6 Appendix 6: E4E Landing Page Screenshot



E4E series

Evidence for Equity (E4E) Series -

collection of systematic review summaries

E4E seeks to highlight which interventions work and which don't work (and may be harmful) and to provide this information to people making decisions about health to improve health equity.

HIV/AIDS
- this section provides evidence for interventions to prevent and treat HIV/AIDS

Malaria
- this section provides evidence for interventions to prevent and treat malaria

Mental Health
- this section provides evidence for interventions aimed at treating and managing mental health and wellbeing

Mental Health - Juvenile Delinquency
- this section provides evidence on interventions to prevent juvenile delinquency

Nutrition
- this section provides evidence on nutrition interventions, including zinc and vitamin A supplements, school feeding, and complementary feeding

Public Health
- this section provides evidence on public health interventions, including immunizations, diabetes, and neonatal care

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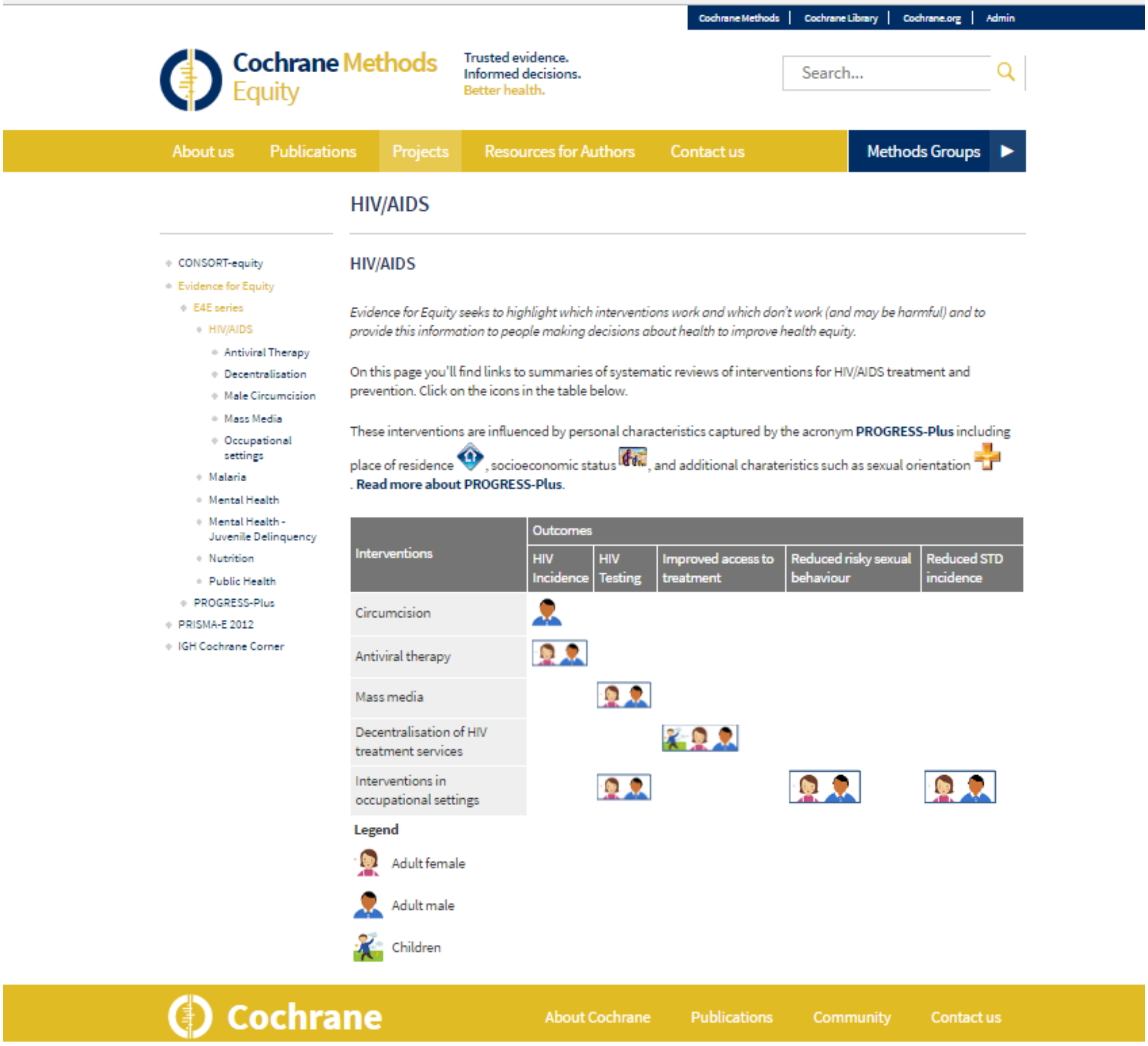
10.7 Appendix 7: Example of topic-specific landing page – HIV/AIDS



HIV/AIDS

- CONSORT-equity
- Evidence for Equity
  - E4E series
    - HIV/AIDS
      - Antiviral Therapy
      - Decentralisation
      - Male Circumcision
      - Mass Media
      - Occupational settings
    - Malaria
    - Mental Health
    - Mental Health - Juvenile Delinquency
    - Nutrition
    - Public Health
  - PROGRESS-Plus
- PRISMA-E 2012
- IGH Cochrane Corner

HIV/AIDS

Evidence for Equity seeks to highlight which interventions work and which don't work (and may be harmful) and to provide this information to people making decisions about health to improve health equity.

On this page you'll find links to summaries of systematic reviews of interventions for HIV/AIDS treatment and prevention. Click on the icons in the table below.

These interventions are influenced by personal characteristics captured by the acronym **PROGRESS-Plus** including place of residence ◆, socioeconomic status ▨, and additional charateristics such as sexual orientation ✚. **Read more about PROGRESS-Plus**.

Interventions	Outcomes				
	HIV Incidence	HIV Testing	Improved access to treatment	Reduced risky sexual behaviour	Reduced STD incidence
Circumcision	👨				
Antiviral therapy	👩 👨				
Mass media		👩 👨			
Decentralisation of HIV treatment services			🧒 👩 👨		
Interventions in occupational settings		👩 👨		👩 👨	👩 👨

Legend

👩	Adult female
👨	Adult male
🧒	Children

11 RESUME

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Current Position (since October 2011)

Coordinator, Campbell and Cochrane Equity Methods Group
Research Associate, Centre for Global Health, Bruyère Research Institute
Coordinator, WHO Collaborating Centre for Knowledge Translation and Health Technology Assessment in Health Equity
University of Ottawa

Professional Highlights

Research Officer, First Nations Centre
The National Aboriginal Health Organization

Research Assistant, Systematic Reviews
The Royal College of Physicians and Surgeons of Canada

Education

PhD Candidate – Translational Research in Biomedicine Program – Interdisciplinary Studies
University of Split, School of Medicine – Split, Croatia

Thesis: *User testing and evaluation of Evidence for Equity: Systematic review summaries for policy makers*)

Research involves the development of a knowledge translation product, Evidence for Equity; which is a database of systematic review summaries for policy makers in low- and middle-income countries. The summaries focus on interventions relevant for reducing health inequities.

MSc Public and Population Health - Global Health
Simon Fraser University (2008) – Burnaby, BC

Research Interests: chronic disease prevention and control of infectious diseases, health promotion, health education, health research systems, and policy development
Masters Project: The 10/90 Gap and Deficient Research Coordination in Developing Countries
Practicum: ADRA Mongolia Intern, Ulaanbaatar Mongolia; Mongolian Ministry of Health Consultant, Assessment of Public Health Research, Ulaanbaatar, Mongolia.

BSc Honours Health Science
Brock University (2006) – St. Catharines, ON
Areas of Emphasis: infectious and chronic disease pathology and control, epidemiology, nutrition and social determinants of health

Grants and Awards

Principal Investigator
2016-2017 Campbell Systematic Review Award (Principal Investigator, $40,000USD): *Evidence summaries for increasing policy makers' use of evidence from systematic reviews*

2014-2017 Canadian Institutes of Health Research, Doctoral Research Award (Doctoral Student, $90,000)
Co-Applicant
2016-2020 CIHR Project Scheme Grant (Co-Applicant, $382,252): *When should systematic reviews be replicated, and when is it wasteful?*
Collaborator
2016-2017 CIHR Knowledge Synthesis Grant (Collaborator, $100,000): *Interactive social media interventions to promote health equity: A systematic review*

Peer Reviewed Publications

Lewin S, Hendry M, Chandler J, Oxman AD, Michie S, Sheppard S, Reeves BC, Tugwell P, Hannes K, Rehfuess EA, Welch V, Mckenzie JE, Burford B, **Petkovic J,** Anderson LM, Harris J, Noyes J. Assessing the complexity of interventions within systematic review: development, content and use of a new tool (iCAT_SR). BMC Medical Research Methodology. 2017;17:76.

Welch VA, Akl EA, Guyatt G, Pottie K, Eslava-Schmalbach J, Ansari MT, de Beer H, Briel M, Dans A, Dans I, Hultcrantz M, Jull J, Katikireddi SV, Meerpohl J, Morton R, Mosdol A, **Petkovic J,** Schunemann H, Sharaf R, Singh J, Stanev R, Tonia T, Tristan M, Vitols S,

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Petkovic J, Barton JL, Flurey C, Goel N, Bartels CM, Barnabe C, de Wit MPT, Lyddiatt A, Lacaille D, Welch V, Boonen A, Shea B, Christensen R, Maxwell LJ, Campbell W, Jull J, Toupin-April K, Singh JA, Goldsmith CH, Sreih AG, Pohl C, Hofstetter C, Beaton DE, Buchbinder R, Guillemin F, Tugwell PS. Health equity considerations for developing and reporting patient-reported outcomes in clinical trials: Report from the OMERACT Equity Special Interest Group. J Rheum. *In press.*

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Welch V, **Petkovic J**, Pardo Pardo J, Rader T, Tugwell P. Interactive social media interventions to promote health equity: An overview of reviews. Health Promotion and Chronic Disease Prevention in Canada. 2016:36(4);63-75.

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H, Whitehead M, Tugwell P. Protocol for the development of a CONSORT-equity guideline to improve reporting of health equity in randomized trials. Implementation Science. 2015:10;146.

Welch V, Petticrew M, **Petkovic J**, Moher D, Waters E, White H, Tugwell P, PRISMA-Equity Bellagio Group. Extending the PRISMA Statement fo equity-focused systematic reviews (PRISMA-E 2012): Explanation and elaboration. International Journal for Equity in Health. 2015;14:92

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Petkovic J, Welch V, Tugwell P. Do evidence summaries increase policy makers' use of evidence from systematic reviews: A systematic review protocol. Systematic Reviews. 2015;4:122.

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