

# BMJ Open 'Snapshot in time': a cross-sectional study exploring stakeholder experiences with environmental scans in health services delivery research

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## ABSTRACT

**Objective** To describe stakeholder characteristics and perspectives about experiences, challenges and information needs related to the use of environmental scans (ESs).

**Design** Cross-sectional study.

**Setting and participants** A web-based survey platform was used to disseminate an online survey to stakeholders who had experience with conducting ESs in a health services delivery context (eg, researchers, policy makers, practitioners). Participants were recruited through purposive and snowball sampling. The survey was disseminated internationally, was available in English and French, and remained open for 6 weeks (15 October to 30 November 2022).

**Analysis** Descriptive statistics were used to describe the characteristics and experiences of stakeholders. Thematic analysis was used to analyse the open-text questions.

**Results** Of 47 participants who responded to the survey, 94% were from Canada, 4% from the USA and 2% from Australia. Respondents represented academic institutions (57%), health agency/government (32%) and non-government organisations or agencies (11%). Three themes were identified: (a) *having a sense of value and utility*; (b) *experiencing uncertainty and confusion*; and (c) *seeking guidance*. The data suggest stakeholders found value and utility in ESs and conducted them for varied purposes including to: (a) enhance knowledge, understanding and learning about the current landscape or state of various features of health services delivery (eg, programmes, practices, policies, services, best practices); (b) expose needs, service barriers, challenges, gaps, threats, opportunities; (c) help guide action for planning, policy and programme development; and (d) inform recommendations and decision-making. Stakeholders also experienced conceptual, methodological and practical barriers when conducting ESs, and expressed a need for methodological guidance delivered through published guidelines, checklists and other means.

**Conclusion** ESs have value and utility for addressing health services delivery concerns, but conceptual and methodological challenges exist. Further research is

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This study builds on the paucity of research on the use of environmental scans (ESs) in a health services delivery context and provides insight into stakeholder's experiences, challenges and information needs related to the use of ESs.
- ⇒ The survey was disseminated internationally and was available in French and English.
- ⇒ Multiple team members were involved in the analysis of the data, which strengthened the analysis and credibility of the findings.
- ⇒ Although stakeholders were from diverse backgrounds and geographic locations, the generalisability of the findings are limited by non-random sampling and small sample size.
- ⇒ Potential individuals or organisations may have been missed through snowball sampling.

needed to help advance the ES as a distinct design that provides a systematic approach to planning and conducting ESs.

## INTRODUCTION

Environmental scans (ESs) are increasingly used by researchers, health practitioners, policy-makers and community organisations to gather information about the current state of health programmes and/or to identify service challenges, needs and gaps to help inform policy and service delivery decisions.<sup>1–2</sup> Various types of evidence may be considered in ESs including tacit evidence (eg, opinions, expertise) and research evidence to support evidence-informed decision-making.<sup>3,4</sup>

The findings from ESs are commonly used to support formal research or to address significant challenges facing the healthcare system.<sup>1–7</sup> The evidence generated is used to help inform responses to existing and emerging issues and opportunities, inform



quality improvement and support system transformation.<sup>1 8 9</sup> For example, ESs have: (a) described provincial and territorial planning for COVID-19 programmes in Canada<sup>10</sup>; (b) identified mental health and addiction services for LGBTQ2S+ during COVID-19<sup>11</sup>; and (c) examined infection control practices in nursing homes during COVID-19.<sup>12</sup> ESs have also informed high priority or routine care and service delivery and were implemented to: (a) identify the availability, services and scope of virtual walk-in clinics in Canada<sup>13</sup>; (b) examine patient navigation programmes in Alberta, Canada<sup>2</sup>; (c) describe the availability and readability of patient education materials for deprescribing<sup>14</sup>; (d) identify existing frameworks, guidelines, and tools for designing, developing, implementing and evaluating a learning health system for Indigenous health<sup>15</sup>; and (e) identify sexual health services for cancer survivors.<sup>16</sup>

Despite the wide use of ESs over the past two decades in a health services delivery context, surprisingly few studies have examined ESs from a methodological standpoint or investigated stakeholder experiences with ESs. Until recently little was understood about how ESs are applied in this context, but more research about this methodological approach is beginning to emerge.<sup>17 18</sup> Data collection methods and sources are wide-ranging, and ESs are often implemented with other systematic methods of data collection to supplement or validate information.<sup>1 19–22</sup> Studies noted the value and potential of ESs to inform public health practice but also suggested that more application and evaluation are needed to strengthen the methodology.<sup>17 23</sup> A scoping review of 96 studies on the use of ESs in health services delivery research provided additional insight on how ESs are conceptualised and operationalised in the health services delivery context and highlighted conceptual and methodological gaps.<sup>1</sup> Other studies have also noted methodological gaps.<sup>21 24</sup>

Clearly more research is needed to build on previous work to further our knowledge of the application of ESs, address the identified gaps and challenges, and understand the potential impacts of these challenges for stakeholders who are engaging in ES studies. The body of research on ESs to date has not considered the experiences and perspectives of stakeholders who use ESs in their research and work. Engaging stakeholders who have knowledge and experience with designing and implementing ESs is integral to deepening our understanding of the concept, the methodological approach and potential challenges, particularly when the topic has not been extensively examined.<sup>25</sup> Such research could support practitioners, researchers and other stakeholders in designing, implementing and reporting ES studies. This is particularly relevant given the resources (eg, time, human, financial) required to conduct ESs and the need for evidence to inform health policy and programme decisions.

Thus, the purpose of this study was twofold. First, to build on our previous research<sup>1</sup> by gathering feedback directly from stakeholders about their perspectives and

experiences in conducting ESs, including any barriers and challenges experienced. For the purposes of this study, stakeholders were defined as researchers, health practitioners, policy makers and individuals/representatives from health and community organisations, including non-profit organisations. Second, to identify information gaps and needs related to designing and implementing ESs. To our knowledge, this is the first study to examine the perspectives and experiences of participants who are conducting ESs in a health services delivery context.

The objectives of this study were to:

1. Describe the characteristics, experiences and perspectives of stakeholders (hereafter referred to as participants) who have knowledge and experience in conducting ESs in health services delivery research.
2. Examine barriers and challenges experienced by participants while conducting ESs.
3. Identify participant information needs and educational preferences for accessing guidance in designing and conducting future ESs.
4. Inform future research to explore and inform a consensus definition, a methodological framework and reporting guidelines for ES that may assist stakeholders in designing, implementing, and evaluating ESs.

## METHODS

### Design and eligible participants

This cross-sectional study was an open web-based stakeholder engagement survey using an online questionnaire. The online survey was administered using Qualtrics, a secure web-based survey platform commonly used for survey development and analysis, which has fraud detection capabilities to assess the likelihood of bot infiltration.<sup>26 27</sup> Eligible participants were stakeholders who had knowledge and experience with conducting ESs or who were in the process of designing/implementing an ES in a health services delivery context.

### Sampling

A combination of purposive and snowball sampling was used to reach a diverse stakeholder group (eg, geographical, discipline, sector) who had direct knowledge and experience with conducting ESs, and who could provide insight to address the research questions.<sup>28 29</sup> Potential survey participants were identified through: (a) authors of reports, and peer-reviewed and grey literature publications included in a previous scoping review; (b) network contacts of team members (eg, health professional organisations, research organisations/hubs); (c) researchers who previously contacted team members about ES research; and/or (d) snowball sampling; and were contacted via a publicly available email.

### Informed consent

Participants completed an electronic informed consent form that was included with the survey. The consent form included information such as study purpose, estimated time to complete the survey, voluntary nature of the

survey, confidentiality and study investigators. All survey responses were anonymous; however, we were not able to prevent multiple participation of participants.

### Survey tool and recruitment

Draft survey questions were developed then piloted online prior to fielding the questionnaire to participants. The pilot test was completed by research team members who had significant experience with ESs. Our decision to pilot the survey within the team was due to the limited pool of prospective participants. The survey tool was further refined following the pilot test, and the final survey tool included 22 questions which included multiple choice, Likert scale and open-text questions (online supplemental file 1).

The questions included inquiries in two sections related to: participant characteristics; perceptions, experiences and purpose of ESs; challenges or barriers encountered; and information and learning needs related to ESs. Questions were conditionally displayed on the survey based on the response from a previous question to reduce the number of questions. For instance, one question asked participants if they consulted the literature when planning and designing their most recent ES, and if yes, participants were asked how helpful the literature was in providing guidance for designing and implementing an ES. Determination of ‘helpful’ was left to the discretion of the participant to answer in an open-text question that immediately followed the question.

An invitation to participate in the survey was sent to potential participants via a publicly available email. The email contained a letter of information about the study and a web link to the consent form and survey. The survey was initially sent to 119 potential participants (located nationally and internationally) by a research assistant. Team members sent the same email content to their professional/research contacts directly. Recipients of the email were encouraged to share the email with their contacts/colleagues for snowball sampling. The survey was available in English and French and remained open for 6 weeks (15 October to 30 November 2022). A reminder email was sent to recipients 4 weeks into the study. Responses to the survey were anonymous.

### Analysis

Descriptive statistics were used to quantitatively describe the responses to the structured questions related to stakeholder characteristics and experiences. Inductive thematic analysis was conducted on the open-text survey questions according to Braun and Clarke.<sup>30 31</sup> This approach includes six main stages: reading and familiarisation with the data; generating initial codes; searching for themes; reviewing themes; defining and naming themes; and writing the report. Thematic analysis is a method of identifying themes across a textual data set to make sense of the data and can be used to develop detailed descriptive accounts of phenomena.<sup>31</sup>

To strengthen the credibility of the study multiple team members conducted the qualitative data analysis.<sup>28 32</sup> Two team members (PC, DAN) independently conducted the initial steps of the analysis using both manual analysis and the qualitative data management software (NVivo). A third team member (RA) reviewed the data and initial codes. The three team members met to assess consistency by comparing the frequency of codes, resolve any divergences or discrepancies, refine, and agree on final themes. Mitigation of bias was built into the analytical process as these team members worked collaboratively to gain consensus on codes and themes and provided perspectives from different disciplinary backgrounds that provided a degree of reflexivity.<sup>28 31 32</sup> Further, the broader team reviewed the results and had input into the final results. Credibility was further strengthened by using in vivo phrases for thematic codes and providing direct quotes to support findings, and dependability of the study was enhanced through maintaining rigorous steps of data collection and analysis.<sup>28 31 32</sup>

### Patient and public involvement

None.

## RESULTS

### Response and demographics

In total, 47 participants responded to the survey. Most responses (94%) were from Canada, 4% from the USA and 2% from Australia. Participants represented a range of disciplines, employment settings and work roles (table 1). The largest representations in terms of work roles were from academic researchers (51%), and for discipline, the field of health sciences (eg, nursing, medicine, allied health) accounted for 85% of the responses.

### Participant experience

Participants reported a range of years of experience with ESs and in the number of distinct ESs performed. Over half of participants (53%) had more than 5 years experience with ESs and 47% reported having 5 years or less experience. About 70% of all survey respondents had performed one to four ESs and almost 30% had performed  $\geq 5$  scans.

### Gaining knowledge of ESs

When planning and designing their most recent ES, 68% of participants (n=32) had consulted the literature; and 11% (n=5) did not. Of those who consulted the literature, 63% (n=20) reported that the literature was ‘somewhat helpful’; 25% (n=8) ‘helpful’; and 6% (n=2) ‘very helpful’. Only one respondent (3%) reported that the literature was ‘not helpful at all’.

The most common source of learning about ES was peer-reviewed literature (n=19). Other sources of learning were mentoring (n=13); observing others (n=11); non-peer-reviewed literature (n=6); workplace policies/guidelines or protocols (n=6); other (n=4) such

**Table 1** Participant characteristics

Primary discipline or field	Employment		Current work roles/positions		
	% (n/47)		% (n/47)		% (n/47)
Health sciences	85 (40)	Academic institution	57 (27)	Researcher	51 (24)
Psychology	4 (2)	Health agency or sector	26 (12)	Practitioner/clinician	9 (4)
Social sciences	0 (0)	Community or non-government agency	9 (4)	Policy maker	9 (4)
Other*	11 (5)	Government department	6 (3)	Research coordinator	6 (3)
		Other (unspecified)	2 (1)	Research assistant	4 (2)
				Collaborator	2 (1)
				Other†	19 (9)

\*Other disciplines or areas of practice (eg, health technology assessment, non-profit, prevention/health promotion).

†Other work roles and/or positions (eg, information specialists/ librarians, management/health administration, knowledge broker).

as through doctoral research, conference presentations, and by adapting methods from other types of synthesis; university course (n=3), internet (n=3), books (n=2), video or YouTube (n=2) and e-learning modules (n=1).

### Characteristics of ESs

When participants were asked to describe or define an ES (n=34) about 59% (n=20) provided a description of ES and 35% (n=12) provided a definition. Participants appeared to provide an explicit definition in statements such as:

[ES is a] ... structured process to scan a specific environment (geography, system etc.) to identify trends, policies, issues, or threats. (Participant 39)

Un processus rigoureux de recherche utilisant des sources diverses afin d'avoir un aperçu global de l'état des lieux concernant une intervention particulière. [A rigorous process of research using various sources in order to have a global overview of the state of play concerning a particular intervention.] (Participant 14)

Several characteristics of ESs were also derived from the descriptions and definitions. For example, 32% (n=11) of participants suggested that data for ESs is drawn from multiple sources and 12% (n=4) indicated that the sources are from both the internal and external environments of the organisation. These attributes were illustrated by the following comments:

ES involves the collecting, organizing, synthesizing and disseminating external and internal information at a moment in time to support strategic decision making... (Participant 47)

An environmental scan draws information from multiple sources and synthesises them into valid, evidence-based information that can be used to inform decisions, strategies, next steps, planning and prioritisation activities. (Participant 7)

ESs were often referred to as gathering data on programmes, services, policies, needs, issues or other

features of health services delivery such as practices, trends, legislation or resources at a specific point in time, using terms such as 'snapshot', 'moment in time' and 'temporal in nature'. Several participants (21%, n=7) commented that ES occurs within a specific or defined environment described as geographical or institutional, such as described by one participant:

Pour moi, le SE est une méthode qui permet de faire un mapping le plus exhaustif possible de programmes, de services dans un environnement donné (p.ex. municipalité, pays, institution) et de documenter (ou mieux comprendre) les besoins ou les réalités associées à ces programmes ou à ces services à partir des connaissances expérientielles des personnes sur le terrain. [For me, an ES is a method,

**Table 2** Reported steps in the environmental scan process

Steps in the environmental scan process*	n/35	%
Analysing data	14	40
Conducting a 'search' or 'scan'	12	34
Collecting data	11	31
Identifying sources	10	29
Preparing report, communicating and disseminating results	9	26
Engaging stakeholders	9	26
Formulating the research question	8	23
Selecting methods	8	23
Extracting data	8	23
Evaluating or validating results	7	20
Setting the boundaries or scope of the study or search	6	17
Writing a plan or protocol	3	9
Developing the purpose or objectives	2	6
Establishing inclusion criteria	2	6

\*Steps are listed in order of frequency of response, not in order of process.

which allows for the most exhaustive mapping possible of programs, services in a given environment (eg, municipality, country, institution and to document (or better understand) the needs or realities associated with these programs or with these services based on the experiential knowledge of people on the ground.] (Participant 17)

One participant emphasised that data is drawn from various environmental dimensions or sectors that are often linked with ESs:

... [ES] also helps to identify threats and opportunities, and provides perspectives from a political, social, environmental, economic, social, technological perspective depending on the framework utilized. (Participant 40)

Participants were invited to comment on the steps in the ES process (n=35). The steps are reported in order of most frequent responses in [table 2](#).

One participant highlighted the steps and the engagement of stakeholders in the process by stating:

(1) Identify the scanning needs/aims/scope/parameters and methods—similar to developing a research proposal; pursue ethics clearance if required; (2) engage internal and external stakeholders, gather the information (active and passive scanning); (3) analyse data; (4) communicate the results; (5) making data informed, timely decisions or recommendations. (Participant 47)

## Themes

Three overarching themes were derived from the textual data: (a) having a sense of value and utility; (b)

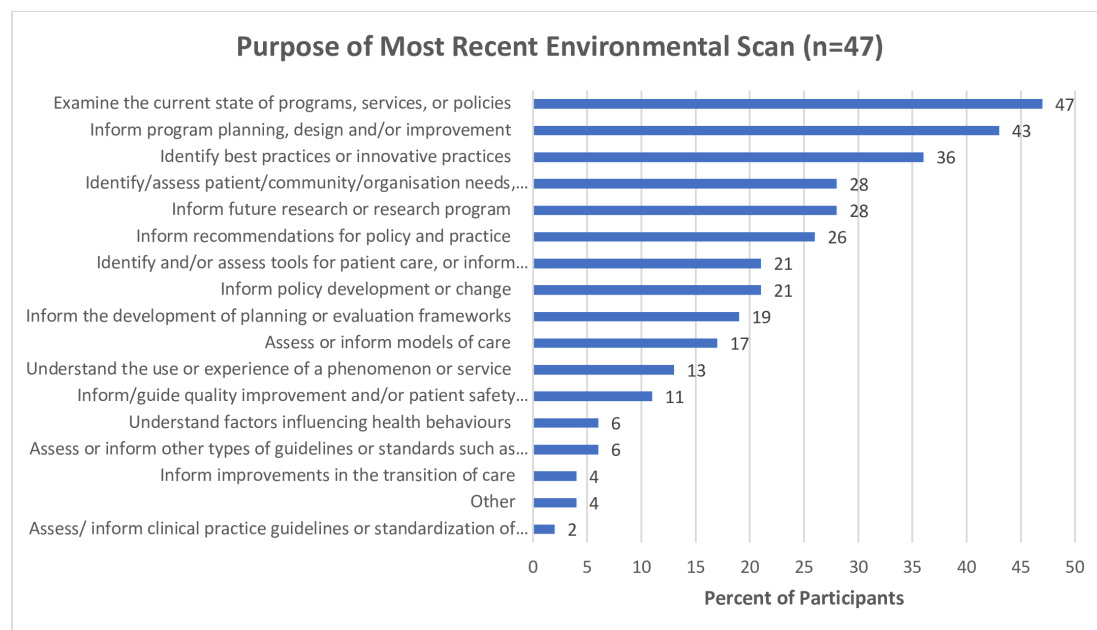
experiencing uncertainty and confusion; and (c) seeking guidance. These themes are presented in more detail below.

### Theme 1: having a sense of value and utility

The results suggest that ESs had value and utility in that information gathering had varied purposes that included to: (a) enhance knowledge, understanding and learning about the current landscape or state of various features or aspects of health services delivery (eg, programmes, practices, policies, services, issues, trends, events, resources, tools, interventions, legislation, problems); (b) expose needs, barriers, gaps and challenges to service delivery; (c) inform planning, policy and program development, and future research; (d) inform recommendations and decision-making; and (e) identify best or innovative practices.

Responses related to the purpose of ESs were gathered through structured and open-ended questions. The structured survey question asked stakeholders about the purpose of their ‘most recent’ ES ([figure 1](#)). The five most common were to: (a) examine the current state of programmes, services or policies (47%, n=22); (b) inform programme planning, design and/or improvement (43%, n=20); (c) identify best practices or innovative practices (36%, n=17); (d) identify, assess patient, community or organisational needs, strengths, challenges, barriers and service gaps (28%, n=13); and (e) inform future research or research programme (28%, n=13).

Thirty-five participants responded to the open-text question about the purpose of ESs. The most common purposes reported in the open-text question about the purposes of ESs were to: (a) describe, understand and learn about the current state of various features of health



**Figure 1** Reported purposes of ‘most recent’ environmental scans. Participants could select more than one option. Other includes to advance postsecondary education programme; and to inform the development of a patient intervention.

services delivery (eg, programmes, services, policies, practices, legislation, trends, resources, issues) (43%, n=15); (b) inform policy, legislation, practice, programme, or service development or improvement (31%, n=11); (c) identify/assess needs, challenges, barriers and gaps (eg, services or policies) (23%, n=8); (d) inform programme and policy recommendations and decision-making (20%, n=7); (e) inform planning including workplans, future planning, strategic planning (17%, n=6); (f) identify, understand and/or implement resources (14%, n=5); (g) locate information that may not be in the published literature (9%, n=3); (h) identify new or leading approaches (6%, n=2); (i) identify threats (6%, n=2); (j) identify opportunities (3%, n=1); (k) identify solutions (3%, n=1); (l) inform evaluation initiatives (3%, n=1); (m) compare policies (3%, n=1); and (n) avoid duplicating effort (3%, n=1). See online supplemental file 2 for examples of purposes with illustrative participant quotes.

When invited to describe or define ES, participants described similar purposes for an ES (n=34). For example the purposes were to: (a) identify current practices, policies, programmes, services, tools, resources, issues, trends (35%, n=12); (b) support decision-making for planning, practice and policy (21%, n=7); (c) identify needs, gaps, and barriers in policy, practice and services (21%, n=7); (d) support policy and programme development (15%, n=5); (e) make recommendations or solutions, and identify opportunities and priorities (12%, n=4); (f) identify threats (9%, n=3); (g) identify strengths and weaknesses (3%, n=1); (h) enable comparisons between sites, provinces or countries (3%, n=1); and (i) to answer a clinical or research question (3%, n=1).

Finally, five participants suggested that ESs seek unpublished information which is a valued source of information in that it can help provide information that may not be available in the peer-reviewed literature. Two examples of this were:

Environmental scans are appropriate for learning about the scope of a topic, what other jurisdictions are doing, and for finding other information that is not typically published formally. (Participant 26)

...To locate unpublished information about programs, services, and other interventions... (Participant 1)

## Theme 2: experiencing uncertainty and confusion

Although results suggest that ES had value and utility, participants also reported experiencing uncertainty and confusion about ES, how it is defined, what it entails, how it is implemented, evaluated for quality and reported, as well as logistical barriers. The responses of 33 participants who described challenges and barriers in planning and conducting ESs were summarised into three categories: conceptual barriers; methodological challenges and barriers; and practical/logistical challenges and barriers. The most common barriers reported were conceptual and methodological understandings of ES.

## Conceptual barriers

Three participants (9%) highlighted the lack of a formal ES definition as demonstrated by this comment:

No consistent way to conceptualize ES and no evidence-based guidance documents on the recommended process. (Participant 6)

One other stakeholder expressed the sentiment this way:

... Lack of formal definition of what typical ES findings are (ie, descriptions of current practices) ... (Participant 42)

Thirteen participants included a specific defining term to describe ES which varied from specific (ie, a method) to broad (ie, an approach), all of which have diverse meanings. The most common terms were: 'a search' (n=4) or 'a scan' (n=4), followed by 'a process' (n=2), 'an approach' (n=1), 'a method' (n=1) or 'a review' (n=1). Several participants commented on the inconsistency in terminology of ES. Two examples of this were:

Inconsistent terminology, no specific guideline for conducting an ES. (Participant 3)

...The lack of what "active data collection" and consultations are—or what would be the best practices and when these should be used... (Participant 42)

A challenge expressed by several participants (12%, n=4) was confusion about how ESs differ from other methodological approaches and selecting appropriate methods and sources. Examples of comments reflecting this confusion were:

One challenge was agreeing on what was, and was not, an environmental scan. There was confusion as to the difference between an ES and a needs assessment and therefore what information to collect and how ... (Participant 23)

No consensus on how to conduct ES; ES designs seemed similar to if not exactly the same as other designs—it was unclear why these design strategies were called something different. (Participant 41)

The paucity of research and consistency regarding the methodology for ESs. Many authors do not report their methodology. There is also a lack of explicit differentiation between ES and applied research descriptions. (Participant 47)

## Methodological challenges and barriers

The most common response in terms of challenges and barriers experienced was the overall lack of methodological guidance for designing, conducting and reporting ESs (42%, n=14). Several specific challenges included: (a) identifying and accessing information sources; (b) determining the scope or boundaries of the ES; (c) identifying appropriate methods; (d) appraising the quality of ES studies; (e) research reporting; and (f) sampling

challenges. The following examples reflect comments from stakeholders about the lack of guidance available for ES:

Absence de lignes directrices claires sur la façon de mener les scans environnementaux. [Lack of clear guidelines on how to conduct environmental scans.] (Participant 24)

Manque de méthodologie formelle. [Lack of formal methodology.] (Participant 21)

Lack of methodological guidelines (not checklist, but explanation of the underlying rationale for doing ES, possible methods and techniques to use—as options—and importance of flexibility), especially considering audiences who are highly used to working with methodological checklists (especially quantitative methods) ... (Participant 42)

No standardized methods. (Participant 15)

No standard guidelines, different researchers using different methodologies ... (Participant 31)

Defining the scope of an ES was identified as a challenge by five participants (15%) in the context of ‘determining scope of the search/scan’ (Participant 4); ‘setting boundaries’ (Participant 39); ‘information about data sufficiency’ (Participant 7); ‘applying the inclusion and exclusion criteria’ (Participant 38); and ‘...defining the scope at the very beginning and without opportunities for refinement based on initial insights’ (Participant 42).

Another issue that presented a challenge for several stakeholders (9%, n=3) was the lack of reporting in published articles:

It is challenging to find a detailed account of methods used in published scans. (Participant 33)

Similarly another stakeholder commented:

... Many authors do not report their methodology... (Participant 47)

Finally, several other challenges included issues about articulating the research question, sampling and stakeholder engagement. Two examples were:

Justification de la taille et des caractéristiques de l'échantillon de répondants lors de la partie sondage et/ou entrevues semi-dirigées à des fins de représentativité. [Justification of the size and characteristics of the sample of respondents during the survey part and/or semi-structured interviews for representative purposes.] (Participant 17)

... ES with IKT—defining the role and the opportunities for research partners throughout an ES project and dissemination ... (Participant 42)

### *Practical/logistical challenges and barriers*

When asked about challenges or barriers related to ESs, several respondents indicated practical challenges and barriers such as time constraints (12%, n=4), resource

and funding constraints (9% n=3) and concerns getting published (3%, n=1). Some exemplar statements were:

Often the items which people want from environmental scans are not possible to obtain in the timeframes they want—if you need info in two days and I have to contact multiple organizations because their policies aren't available on the open internet, that's not realistic ... (Participant 28)

Lack of resources to complete the activities needed. (Participant 19)

... Another barrier is the lack of funding for this type of work. (Participant 23)

... Having a hard time publishing the ES ... (Participant 31)

Six participants (18%) expressed challenges with data availability and selecting and accessing information or sources (people and non-people sources of data). Several statements that exemplified these challenges were:

Availability of informants/people to interview: availability of primary data. (Participant 36)

Locating the best contact to complete the scan in other jurisdictions. I dislike emailing numerous people as it creates confusion as to who should respond. (Participant 35)

... There was confusion as to the difference between an ES and a Needs Assessment and therefore what information to collect and how ... (Participant 23)

Finally, fees for accessing journal publications was also noted as a barrier by one stakeholder:

... If the peer review journal is behind a pay wall then I would be unlikely to access it. (Participant 35)

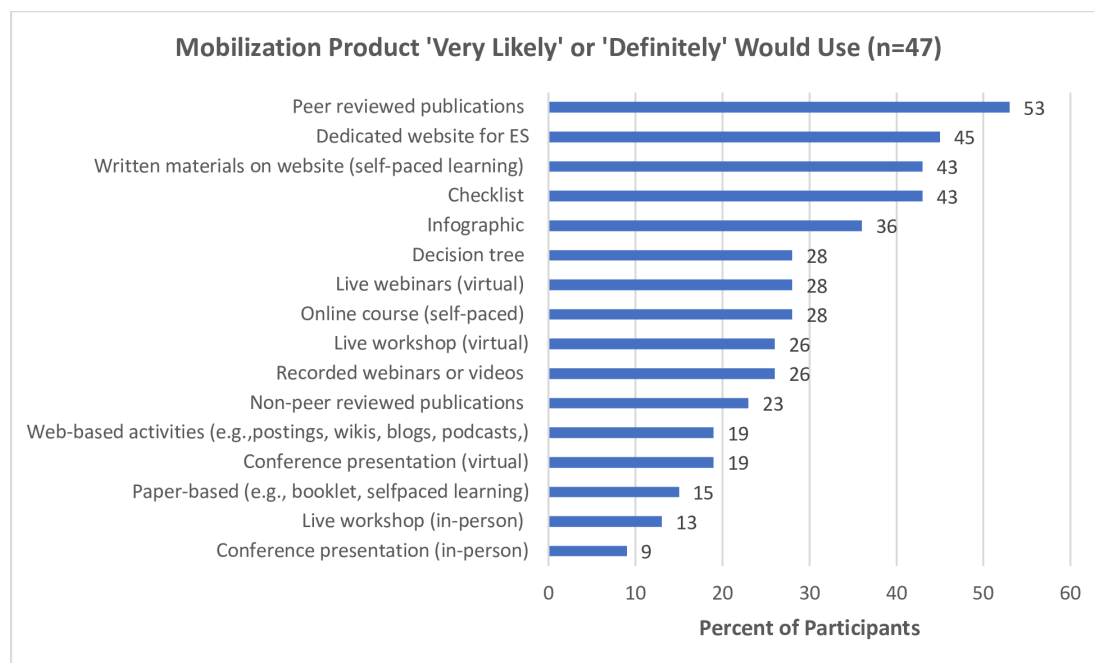
### **Theme 3: seeking guidance**

The third theme related to the expressed need for guidance for designing, conducting and evaluating ESs. Participants were asked about their information needs in terms of what types of information would be most valuable to them in designing, implementing and evaluating ESs as part of their work and research. Of 28 responses, most participants (75%, n=21) reported a need for best practices, standards or guidelines on definition and/or procedures and reporting, as shown in the following statements:

Best practices, common definitions. (Participant 36)

ES goals and timelines matched to specific design and strategy options. (Participant 41)

(1) Best practices on methodology (2) recommendations to evaluate the quality of ESs (3) ethical recommendations (4) differentiation between ES and applied research (I view these on a continuum). (Participant 47)



**Figure 2** Type of mobilisation products that participants reported they would prefer to use for guidance on environmental scans.

Standardization of the process and reporting process: checklists. (Participant 1)

Two participants suggested guidelines or recommendations for evaluating ESs (7%) such as ‘... recommendations to evaluate the quality of ESs ...’ (Participant 47). One participant (4%) commented that ‘... ES information and methods are very widely published’ (Participant 40).

Some participants also expressed their preferences for sources of guidance and learning resources to support competencies in conducting ESs. Participants were invited to answer a structured question about which specific knowledge mobilisation products they would most likely use to learn about and access guidance on ES. The question consisted of a Likert scale with a list of multiple types of products. The products that stakeholders indicated they would ‘very likely’ or ‘definitely’ use were peer-reviewed publications (53%, n=25), dedicated ES website (45%, n=21), checklists (43%, n=20), written materials on websites (43%, n=20) and infographics (36%, n=17). Only 13% (n=6) and 9% (n=4), respectively indicated that they would ‘very likely’ or ‘definitely’ use live in-person workshops or in-person conferences (figure 2).

Participants also described their preferred products in the open text questions. Responses were similar to those reported in the structured question. The most commonly reported preferred products for guidance on planning, conducting and evaluating ESs were: (a) published guidelines (n=12); (b) checklists (n=5); (c) tool or toolkits (n=3); (d) training (n=1); (e) mini courses or workshops (n=1); (f) mentoring (n=1), and (g) a methodological framework (n=1). Some exemplary comments were:

Written and published guidelines (and a checklist) would be very useful. (Participant 31)

Standardization of the process and reporting process; checklists. (Participant 1)

Cadre méthodologique claire, formation en ligne. [Clear methodological framework, online training.]. (Participant 16)

Lecture de protocoles de SE; Reporting checklist for SE [Reading of ES protocols; Reporting checklist for ES.]. (Participant 17)

Des guides comme PRISMA pour les SE . [Guides like PRISMA for ES.]. (Participant 14)

A good methods guidance paper would be valuable. (Participant 26)

One participant emphasised that guidelines are also needed for evaluating the methodological quality of an ES by stating:

État des savoirs et un consensus international sur des lignes directrices pour (1) planifier, (2) conduire et (3) évaluer un scan environnemental. À ma connaissance, il existe surtout des lignes directrice pour “faire” (conduire) un scan; mais peu ou pas pour planifier (en fonction des ressources disponibles) ou pour évaluer (p. ex., la qualité méthodologique) d’un scan. [State of knowledge and international consensus on guidelines for (1) planning, (2) conducting and (3) evaluating an environmental scan. To my knowledge, there are mostly guidelines for “doing” (conducting) a scan; but little or no planning



(depending on available resources) or evaluating (eg, methodological quality) of a scan.]. (Participant 25)

Two other products suggested by participants were updated government directories and a repository of completed ESs, as well as guidance in conducting grey literature searches that could help them in identifying sources for ESs:

Guidance on best practices for conducting literature searches for environmental scans, for example, best sources to search. (Participant 43)

## DISCUSSION

This study builds on the paucity of research on the use of ESs in a health services delivery context and provides insight into stakeholder experiences, challenges and information needs related to the use of ESs. The data suggest that stakeholders found value and utility in ESs, but confusion and uncertainty about an ES definition and the methodological process as well as logistical challenges prevail. Participants emphasised that more conceptual clarity and methodological guidance for conducting ES are needed.

### Utilisation of ESs by stakeholders

ESs were conducted by stakeholders from across health disciplines, including researchers, practitioners and policy-makers representing academic, government and community institutions. Various characteristics of ESs emerged. ESs were described as capturing a moment or 'snapshot in time'. ESs incorporated multiple methods and sources of data, and drew upon information from both the internal and external environments (eg, technological, social, economic), geographical locations, and institutions. These characteristics have also been noted in previous studies on the use of ESs in a health services delivery context.<sup>1 17</sup>

### ES value and utility

Relatively few participants provided a definition of an ES. This is not surprising given that there appears to be no consensus on a definition of the concept in the current literature as we noted in our earlier scoping review.<sup>1</sup> Nevertheless, ESs were conducted to gather a wide range of information about programmes, services, practices, policies, legislation, issues, tools, needs, interventions, trends, best practices and resources. ESs were conducted for many varied purposes, the most common being to: (a) increase knowledge, understanding and learning by describing the current state or 'lay of the land' of various aspects of health services delivery (eg, practices, programmes, services, policies, best practices); (b) expose service needs, gaps, challenges, barriers, risks, threats and opportunities; (c) help guide future action (eg, for programme planning, policy development, future research); and (d) inform recommendations and decision-making. These findings align with research

about how and why organisations use information: (a) to create knowledge (organisational learning); (b) to make sense of situations; and (c) to inform decision-making (problem solving),<sup>33</sup> and are also consistent with previous research on ESs.<sup>1</sup>

### Uncertainty and confusion of stakeholders

Although the data suggest that ESs have value and utility, participants also expressed confusion and uncertainty about the ES process. Lack of methodological guidance hindered the ability of stakeholders to make methodological decisions when planning, conducting, reporting and evaluating ESs. This included confusion about: (a) ES definition; (b) the methodological process and how ES differs from other types of research inquiry; (c) the selection of appropriate sources and methods; (d) research reporting; and (e) appraising the quality of studies. Previous research has also noted similar conceptual and methodological limitations of ESs, and the lack of guidance for the approach.<sup>1 17 18 23 24</sup> For example, a scoping review reported that few studies provided a guiding framework or model specific to the implementation of an ES, particularly from a public health perspective.<sup>1</sup>

A range of terms were used to describe ESs (eg, method, process, approach), all of which have distinct meanings and may suggest confusion about the concept. To our knowledge, a consensus on a concept definition does not exist for ES in a health services delivery context. Concepts have been defined as 'cognitive symbols (or abstract terms) that specify the features, attributes, or characteristics of the phenomenon in the real or phenomenological world that they are meant to represent and that distinguish them from other related phenomena' (p161).<sup>25</sup> Ambiguity in concepts and terminology are not unique to ES research and are common among other research methodologies,<sup>34-36</sup> but defining concepts is important to promote a common understanding and meaning of a particular phenomenon, identify the key attributes of the phenomenon, and to reduce ambiguity and the potential for the same concept from being applied inconsistently.<sup>25</sup> Clarifying concepts may also help improve indexing and information retrieval.<sup>34</sup>

A concept definition would also be integral to help inform the development of a systematic process for ES to address the concerns about the lack of methodological guidance that emerged from the survey. A definition may also help to clarify how ES is differentiated methodologically from other types of inquiries such as needs assessment, given the purpose and methods used in these approaches are often similar. Moreover, the steps in the ES process as described by survey participants are similar to the steps applied to all types of research.<sup>37</sup> The uncertainty about ES process was also cited in previous research.<sup>17 23</sup> For example, Wilburn *et al*<sup>17</sup> noted the absence of a common definition and process and suggested that ES has been a 'catch all term' that is similar to needs assessment but also associated with planning and quality improvement initiatives. Many ES studies do not provide a definition or

description of an ES or the rationale for selecting it, and where descriptions are provided they tend to vary.<sup>1 14 38 39</sup>

The question of differentiation from other types of research inquiry is important to address if there is to be clarity on the ES methodological approach. Clarity and understanding of the specific features and characteristics of various methodologies is important to enhance rigour and study quality, and help researchers make confident, informed decisions about the most appropriate design and methodologies for answering a research question, and for reporting findings that are based on and reflect the specific methodological approach.<sup>34 40–44</sup> For example, what underlying principles and characteristics differentiate ES from other approaches? Does it differ in terms of the principles, purpose, steps or procedures, types of information gathered, extent of stakeholder engagement or reporting? Does ES encompass other approaches such as needs assessment?

Development of a systematic process for ES may also help to address the concern about the lack of reporting in research articles. Lack of reporting is a long-standing problem across research areas, including ES studies.<sup>45–48</sup> Transparency in research articles is essential for understanding the study context, design, methods, analysis and results, and for assessing study rigour.<sup>49 50</sup>

Other practical or logistical challenges identified by survey participants were those that could be applicable to other types of research, such as time and resource constraints, potential fees for accessing peer-reviewed information, and the lack of updated employee directories to facilitate timely identification of potential sources of information.

Unpublished or grey literature was identified by participants as an important information source. Guidance on searching the grey literature and on existing databases and catalogues is available,<sup>51 52</sup> and may help to address the challenge of accessibility in light of time and resource constraints. Including relevant grey literature can also identify information that may otherwise be missed if relying solely on the peer-reviewed literature, and identify additional sources of interest.<sup>1 52 53</sup>

### Seeking guidance

Participants expressed a need for conceptual and methodological guidelines for designing, conducting and evaluating ESs. This study also highlighted the types of mobilisation products that stakeholders would most likely use to access guidance on ESs, including peer-reviewed publications, dedicated websites and checklists. It is interesting that the least preferred options were in-person learning events, such as workshops and conferences that have been commonly used as a knowledge mobilisation strategy. This may be due to more efficient and emerging technological innovations and limitations due to cost and resources for travel.

Reporting guidelines are tools developed for researchers to assist with planning research and writing a research report.<sup>49 54 55</sup> Use of reporting guidelines

improves research quality and transparency, which can assist readers in critically appraising the study and in assessing replicability.<sup>46 48 54–56</sup> The use of reporting guidelines may also help to inform and strengthen the peer-review process,<sup>49 54 55 57</sup> and may help to address one of the challenges expressed by one participant in this study related to difficulties getting published.

As of early 2023 over 500 checklists or guidelines that have been published or under development are listed on the Equator Network.<sup>55</sup> To our knowledge, the Equator site does not provide current guidelines for ESs or indicate that any are in development. Reporting guidelines that may be developed for ESs could build on the array of existing guidelines. For example, many ES studies employ literature or documentary review, or qualitative or mixed methods strategies using interviews or focus groups, all of which have reporting guidelines currently available.<sup>45 48 49 58 59</sup>

### Implications for stakeholders and decision-makers

The lack of formal definition and methodological guidance for ES has important implications for stakeholders. Uncertainty and confusion about definition and methodological approach can impact stakeholder confidence and decisions throughout the process of conducting an ES. For decision-makers and healthcare practitioners who are conducting ES, confusion and uncertainty that arises from a lack of methodological guidance in the process may lead to a less than optimal study design and/or wasted resources (eg, time, cost), particularly when stakeholders may be under time and resource constraints to conduct ESs. The issues of identifying and accessing sources and selecting appropriate methods were identified by several participants as a challenge. Confusion and these additional challenges could potentially impact decision-maker confidence in the quality of the findings. Given that the findings from ESs help to inform strategic decision-making related to policies and programming, rigour in the research process is paramount. For example, in a recent scoping review 20% of studies indicated that the findings from the ES were to inform recommendations for policy and practice.<sup>1</sup> In addition to confusion about design and methods, several other potential impacts of the absence of formal methodological guidance emerged, such as the inability to obtain funding for these types of studies and challenges in getting ES studies published.

### Future research

This study is part of a larger research project investigating the application of ESs in a health services delivery context, and as such, will support future research to explore and inform a consensus on a concept definition, a methodological framework, and reporting guidelines for ES. A Delphi Survey was underway in 2023 to attempt consensus on a definition of ES and to inform a draft methodological framework.

## Strengths and limitations

A strength of this study is that it builds on previous research and provides evidence directly from stakeholders about their experiences, challenges/barriers and needs with regard to the use of ESs, and identifies research gaps and areas for future research. Multiple team members were involved in the analysis of the data which helped to strengthen the credibility of the findings. Nevertheless, the generalisability of the findings may be limited due to the sample size, and the use of non-random sampling which included purposive and snowball sampling (ie, convenience sample). Individuals or organisations may have been missed through the snowballing strategy. The survey questionnaire was limited to piloting within our team and we recognise this as a limitation. Although most respondents to the survey were from Canada and research into the practice of ESs within a health services delivery context is still emerging, we anticipated that general approaches to ESs would be similar across other countries. To that end, we did our best through purposeful and snowball recruitment to ensure international representation in our study.

## CONCLUSION

ESs have many varied purposes but confusion and uncertainty prevail due to the lack of clarity on definition, terminologies and the lack of methodological guidance, potentially undermining stakeholder confidence and study quality. Further research and development are needed to explore the advancement of the ES as a distinct design that provides a systematic approach to conducting ESs and that may help guide stakeholder's decisions when planning and implementing this approach, especially when the information generated is used to help inform important health services delivery decisions. Confusion about how the ES is defined and implemented is likely to continue until a formal definition and specific differentiating features are developed. The implications of these challenges for stakeholders are reported. Our study has led to several important questions for future research. How is the concept of the ES defined within a health services delivery context? What are the differentiating characteristics of the ES from other approaches? What guidance and supports could be provided in terms of identifying and selecting methods and sources?

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