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SURVEILLANCE AND MONITORING

A scoping review and survey on Evidence-to-Decision Frameworks in public health

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This report was commissioned by the European Centre for Disease Prevention and Control (ECDC), coordinated by Helena de Carvalho Gomes and Barbara Albiger, and produced by the Iberoamerican Cochrane Centre, Barcelona, Spain.

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Competing interests:

Javier Bracchiglione, Yang Song, David Rigau, Ivan Solà and Pablo Alonso-Coello are all members of the GRADE Barcelona Centre. Pablo Alonso-Coello is one of the authors of the GRADE Evidence-to-Decision framework.

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List of abbreviations and definitions

AWMF	Association of the Scientific Medical Societies
CDC	Centers for Disease Control and Prevention
CPSTF	Community Preventive Services Task Force
EEFA	Ethics, Equity, Feasibility, and Acceptability
EtD	Evidence to Decision
EURECCA	EURopean micronutrient RECommendations Aligned
EVITA	EVIdence to Agenda
GRADE	Grading of Recommendations Assessment, Development and Evaluation
IDSA	Infectious Disease Society of America
INTEGRATE	INTEGRATe Evidence
NACI	National Advisory Committee on Immunization
PICO	Population, Intervention, Comparison, Outcome
PREVIDE	PREVention decIDE
PSE	Policy, Systems, and Environmental
PRISMA	Preferred Reporting Items for Systematic Reviews and Meta-Analyses
RQ	Research question
WHO	World Health Organization
WICID	WHO-INTEGRATE COVID-19

Executive summary

Formulating evidence-based policies for public health is a complex task. Decision-making must explicitly consider the best available evidence, and contextual factors, as well as the insights of decision-makers, stakeholders, and affected populations. Transparent decision-making is crucial, as it builds public trust, ensures accountability, and enhances the effectiveness of policies.

Given the diverse factors influencing decisions, evidence-to-decision (EtD) frameworks help structure the process by addressing critical criteria relevant to any type of decision, including public health, clinical, or health system recommendations.

ECDC commissioned this report to support the revision of its internal scientific advice process. Initiated in 2023, the revision considered lessons from the COVID-19 pandemic and the expansion of the agency's mandate to include providing science-based recommendations for preventing and controlling communicable diseases in the European Union (EU). The objective of the review was to identify EtD or similar structured tools that facilitate the translation of evidence into conclusions, recommendations or actionable decisions. We were particularly interested in finding practical examples of such tools' application in decision-making processes related to infectious disease prevention and control.

Following the pandemic, the EU expressed a strong commitment to both strengthen the decision-making process with defined and transparent processes and to bridge science and policy in a more organised and integrated manner to increase trust and engage the public.[1]

The aim of this scoping review is to identify existing EtD frameworks, the criteria used by the frameworks to guide decision-making, and highlight experiences with those frameworks.

We conducted an electronic search in MEDLINE and Health Systems Evidence for literature published between January 2013 and December 2022, with two reviewers conducting the selection process. We also searched the websites of relevant organisations, conducted a citation search of the included references, and contacted key organisations.

We identified 15 frameworks, of which seven had a generic scope, two were focused on specific infectious disease topics (immunisation, COVID-19), and six were focused on non-infectious diseases. The frameworks assessed a median of five criteria, with the most frequent being related to 'desirable effects', 'resources considerations', and 'feasibility'. Stakeholder engagement was specifically mentioned as a main criterion by three of the frameworks. Examples of use in the area of infectious diseases were only found for four of the frameworks, with only two also having documented experience on their use (GRADE EtD, WHO-INTEGRATE).

We conclude that the findings of this review support, and should be used to promote, the broader use of EtD frameworks to: guide public health decision-making by making explicit critical decision-relevant questions and criteria; increase the transparency of the decision-making process; and support clear communication. This should be accompanied by systematic reporting and sharing of users' experience, to support the implementation of such frameworks by facilitating mutual learning and identifying areas that require development to further strengthen their utility in different contexts to address different needs.

[1] See https://spanish-presidency.consilium.europa.eu/en/programme/the-spanish-presidency-programme

Introduction

Rationale

The process of formulating evidence-based recommendations and policies entails making decisions suitable for entire or specific populations. However, whether in a public health or a clinical context, it is a complex process [1,2]. Decision-making processes need to explicitly consider the best available evidence from research, the context, and the relevant experience of the decision-makers, stakeholders and patients or populations concerned [2,3]. Nevertheless, a vast range of factors play a role, which depend on the type of decision, the perspective, and the decision-making context [4].

Evidence-to-decision (EtD) frameworks enable users to consider criteria that are critical during decision-making, regardless of the final type of decision, including recommendations (e.g. clinical recommendations, health systems or public health decisions) [5,6]. Several frameworks have been proposed for addressing this process, such as the 'Grading of Recommendations Assessment, Development and Evaluation' (GRADE) Evidence to Decision (EtD) framework [5], and the World Health Organization (WHO) 'INTEGRATe Evidence' (INTEGRATE) framework [7]. Some research groups and organisations have launched other EtD frameworks and processes, often based on the criteria and the subcriteria contained in the GRADE-EtD framework [7,8]. Some approaches emphasise specific criteria, such as equity in the GPS-Health [9], or ethics as in the 'decision-making triangle' [10]. Despite the variation in terms of the criteria being proposed, all the EtD frameworks aim to offer a comprehensive list of criteria needed to be considered by both decision-makers and guideline developers to guarantee transparent decision-making.

While cardiovascular diseases are the leading cause of death in the EU, infectious diseases remain a leading cause of morbidity and mortality worldwide, with HIV, tuberculosis and malaria still causing 10% of all deaths each year, and new emerging pathogens, such as the SARS epidemic in 2003, Zika in 2016 and, more recently, the SARS-CoV-2 pandemic [11].

For decision-making, the characteristics of infectious diseases may require particular inputs to the evidence to decision process, i.e. considering other bodies of evidence, such as mathematical models to estimate disease transmission, or taking into consideration the social impact of measures such as quarantines, or the need of socio-cultural adaptation of the interventions. Furthermore, recent events underline the need and usefulness of an EtD framework to develop rapid recommendations amid public health emergencies, such as the evidence-based recommendations for prevention of COVID-19 or management of patients with COVID-19 issued by different organisations and associations [12–15].

Some reviews have evaluated the available frameworks for different types of decisions, including their implementation for coverage decisions [16] or EtD frameworks on environmental health interventions [17]. However, to the best of our knowledge, there has been neither a systematic evaluation in the field of public health, nor a tailoring process of these frameworks for the field of infectious diseases prevention and control.

Objectives

The main objectives of this research are to identify and describe existing EtD frameworks, as well as to describe examples and experiences of their current application for public health decision-making in the field of infectious disease prevention and control. According to these objectives, we addressed the following research questions (RQs) in two stages:

First stage: Identification and description of existing EtD frameworks

- RQ1 · Which frameworks have been proposed for moving from evidence to decisions, recommendations, and/or policy for public health decision-making?
- RQ2 · Which criteria or domains are included in the frameworks identified in RQ1?

Second stage: Identification of real-world examples of the frameworks' application and/or implementation for public health decision-making.

- RQ3 · What is the main real-world use of these frameworks, and specifically, how have they been used in the field of infectious disease prevention and control?
- RQ4 · Which enablers and limitations have been identified and what was the overall experience with the implementation of the frameworks?

Methods

We answered the research questions through a scoping review. The protocol was registered in Open Science Framework [18]. Here, we present a brief description of the methods. A detailed report of the methods is provided in Annex 1.

Eligibility criteria

We included documents describing a formal EtD framework for public health decision-making, defined as a structured process (explicitly describing or detailing domains, factors or criteria considered) that supports panels or users to move from the available evidence to a recommendation or decision made on behalf of a population, that can potentially affect groups of people or that entire population [1,19].

We identified within these frameworks any representative examples of implementation of public health EtD frameworks that are specific to the field of infectious disease prevention and control, and documents describing the experience of using an EtD framework, with potential enablers and barriers for the implementation of the frameworks referred above. We considered references from 2013 to 2022. While only English references were extracted, no language restrictions were applied to the searches.

Information sources and search strategy

We searched MEDLINE/PubMed and Health Systems Evidence (Annex 2 provides the detailed electronic search strategies). We also looked at reference lists of included documents, and hand searched websites of public health organisations and relevant scientific societies (Annex 3). For retrieving unpublished material, we directly contacted key public health organisations. We identified additionally forward-tracked citations from the identified frameworks (RQ1) to retrieve other potential frameworks – first stage – as well as examples of their use and implementation – second stage – using Google Scholar.

We also contacted key institutions through emails or contact forms via the web to obtain additional information (Annex 3), and we conducted semi-structured interviews to further explore potential examples, the barriers and limitations of the identified frameworks. We continued the recruitment of interview participants and collection of data until the information became repetitive and no new information emerged (sampling saturation) [20].

Data management and selection process

After removing duplicates, two reviewers independently screened the search results of the electronic database search using Covidence, first by title and abstract, and afterwards by full text. In case of disagreement, they reached consensus by discussion or, if needed, involving a third reviewer. One reviewer conducted the webpage search and citation search and identified potentially relevant documents. A second reviewer cross-checked these results.

Data collection and data items

We designed a data extraction form based on the pilot testing of data extraction from three frameworks, and calibrated reviewers for data extraction. One reviewer extracted relevant data from all the frameworks, and a second reviewer verified the quality of the data.

For RQ1 and RQ2, we obtained data about the frameworks' characteristics, including the development organisations; scope and methodology for its development; target audience and settings, categories of decisions, criteria considered for its utilisation and use and sources of evidence to inform these criteria; and funder and declaration of interests.

For RQ3, two authors selected a purposive sample of examples about the use of the frameworks. We prioritised examples that 1) involved a public health decision; 2) were applied to the field of infectious diseases control and prevention; and 3) were conducted in European countries (if possible). Two authors extracted the following data: the scope of the application, organisations, panel member profiles, methodology of the framework applications, decision-making process, and tailoring of the frameworks.

For RQ4, we extracted first order (participants verbatims) and second order (authors perceptions) constructs from the literature for further thematic analysis. To complement this, we also extracted the key findings arising from surveys/interviews to key stakeholders (Annex 4).

Data synthesis

With the data collected from the data extraction process we populated tables of the characteristics of included frameworks (RQ1 and RQ2), and examples and experiences of use (RQ3 and RQ4). For RQ1 and RQ2 we compared and described narratively those common characteristics, domains, criteria or features from included frameworks, and commented on differences and their explanation or rationale. For the examples of use (RQ3), we grouped the described experiences, according to the variables extracted during the data collection process. For the experience of use (RQ4), we conducted a descriptive thematic synthesis [21]. Starting from the first and second order constructs, one author created descriptive themes. Then, two other authors provided feedback to refine the themes. From that thematic synthesis, we interpreted and summarised the main experiences, enablers and barriers in a tabular display.

Results

The database searches yielded 3 892 citations, from which we removed 26 duplicates (Figure 1). We further excluded 3 662 citations at title and abstract screening. We retrieved full texts of 204 publications and excluded 161 of these due to the following reasons: not an EtD framework (n = 118); non-public health decision (n = 18); language other than English (n = 14); does not describe domain, factors or criteria considered (n = 8); non-structured process (n = 2); published before 2013 (n = 1). Annex 5 lists the studies excluded at this stage. Finally, through database search we identified 26 unique publications describing 14 unique EtD frameworks (RQ1 and RQ2) [1,5,7,22–44], and nine references describing experiences using the frameworks (RQ4) [23,45–52].

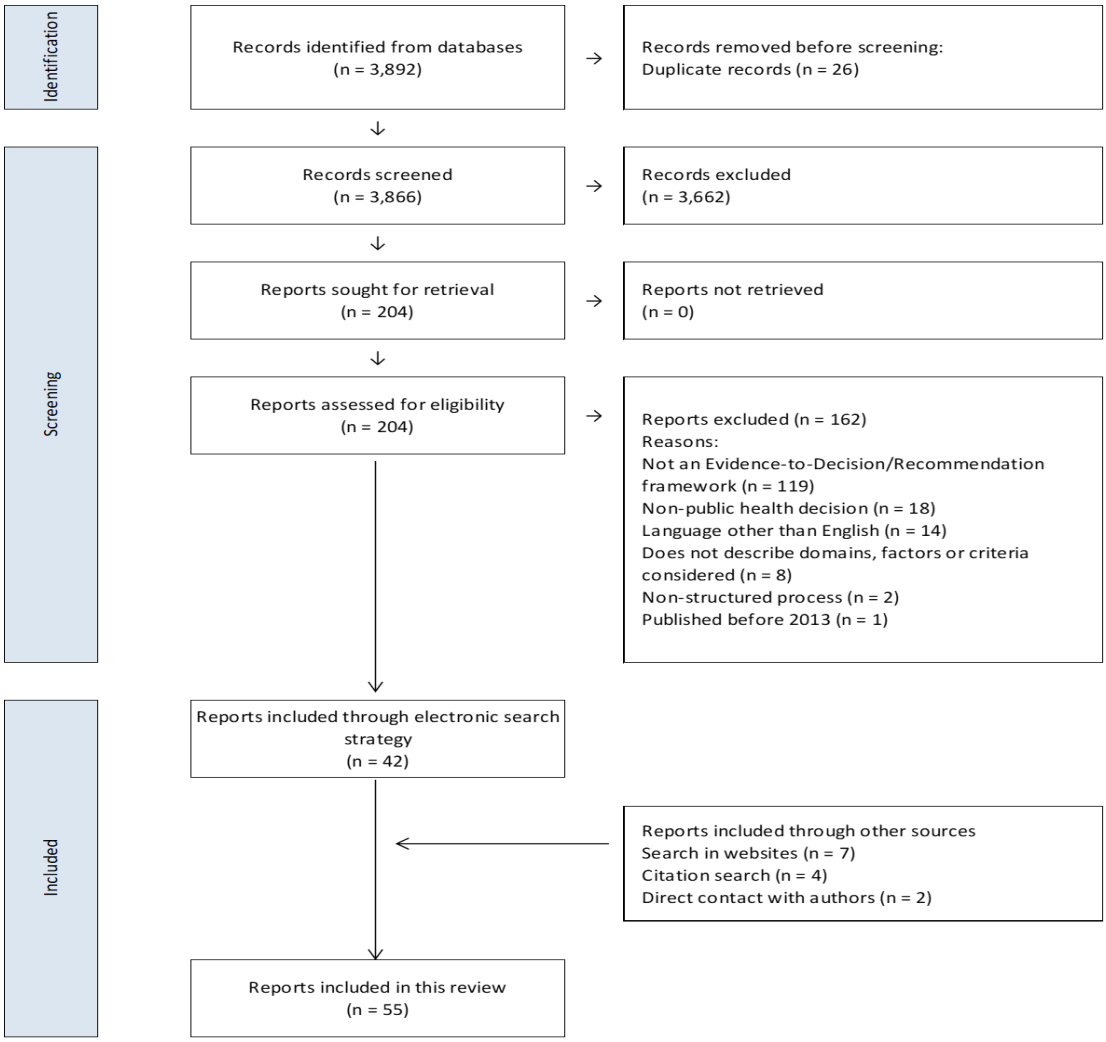
Later, we hand-searched websites of relevant institutions and organisations, and retrieved five additional documents complementing the description of the already identified EtD frameworks (RQ1 and RQ2) [53–57], and one document describing a framework that had not been previously identified (RQ1 and RQ2) [58].

From the set of 15 included frameworks, we selected the main reference and performed a forward citation search using Google Scholar. We screened a total of 655 references at this stage. We retrieved one new publication complementing the description of an already identified EtD framework (RQ1 and RQ2) [57], and two additional documents describing the experience of using EtD frameworks (RQ4) [59,60].

We then contacted 63 key institutions and organisations for further information about previously known frameworks, and examples or experience of use (Annex 3). Thirteen people responded to the survey. Among these, we further invited five to a semi-structured interview to explore their experiences with using the EtD frameworks, with no satisfactory responses. One additional reference about the experience using one of the frameworks was provided by direct contact with one of the contacted people [61].

Finally, we selected a purposive sample of 10 examples of use of EtD frameworks for public health decision-making in the infectious disease field [62–71], retrieved from all the above-mentioned searches. Figure 1 illustrates the selection process.

Figure 1. PRISMA flow chart



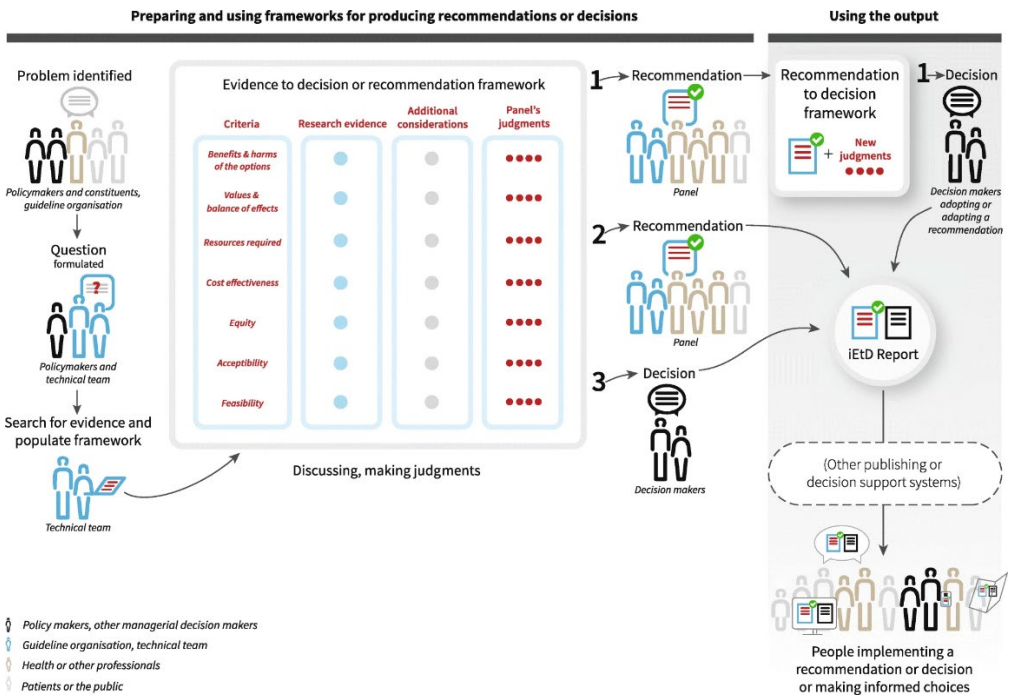
First stage: Identification and description of existing EtD frameworks

RQ1: Which frameworks have been proposed for moving from evidence to decisions, recommendations, and/or policy?

We identified 15 EtD frameworks suitable for making a public health decision [1,7,24,26,28,30–37,58,72]. Seven frameworks had a generic scope (that is, they were developed to be applied in a broad range of health fields) [1,7,30–32,35,58], while eight were specific for the topics of immunisation programs [24], non-pharmacological interventions for COVID-19 [72], non-drug health technologies [34], or non-communicable diseases [26,28,33,36,37]. Table 1 summarises the main characteristics of all the included frameworks. Annex 7 provides further details on the EtD frameworks.

Forward citation searching identified that the most cited frameworks were GRADE EtD framework (204 citations, reproduced below as Figure 2), followed by WHO-INTEGRATE (132 citations), the 'Policy, Systems, and Environmental (PSE) Approaches for Obesity Prevention' framework (88 citations), the 'Framework for planning and improving evidence-based practices' (85 citations), the 'Ethics, Equity, Feasibility, and Acceptability' (EEFA) framework (51 citations), and the 'Framework for prioritising policy choices' (25 citations). The rest of the frameworks had fewer than 20 citations. We did not conduct a forward citation search for the 'Community Preventive Services Task Force' (CPSTF) framework, since it was identified through web search and was not indexed in Google Scholar.

Figure 2. Evidence to Decision (EtD) conceptual map workflow



Source: Moberg J, Oxman AD, Rosenbaum S, et al. The GRADE Evidence to Decision (EtD) framework for health system and public health decisions. Health Res Policy Sys 16, 45 (2018). https://doi.org/10.1186/s12961-018-0320-2
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RQ2: Which criteria or domains are included in the frameworks identified in RQ1?

The EtD frameworks proposed between two and 13 criteria to guide the recommendations (median number of criteria per framework: 5). Five frameworks did not explicitly provide a definition of 'evidence', nor the type of evidence to be considered [24,31–33,35]. Most of the frameworks considered, among their criteria, assessments related to 'desirable effects' (n = 12), 'resources considerations' (n = 12), 'feasibility' (n = 12), 'equity' (n = 10), 'problem priority' (n = 9), 'undesirable effects' (n = 9), 'certainty of evidence' (n = 9), 'balance of effects' (n = 9), 'cost-effectiveness' (n = 8) and 'acceptability' (n = 8). Table 1 outlines the criteria considered by each EtD framework, and further details are shown in Annex 7. Only four frameworks explicitly reported categories of decisions [1,35,37,58].

Table 1. Domains and criteria of the Evidence-to-Decision frameworks

Domains/Criteria	CPSTF framework	EEFA framework	EURRECA	EVITA framework	Framework for planning and improving evidence-based practices	ramework for prioritising policy choices	Framework of evidence-based ecision-making in health system management	GRADE EtD framework	Ontario Decision Framework	Policy Framework for Primary Prevention of Occupational Cancer	olicy Framework for Technology Assessment	Policy, Systems, and Environmental Approaches for Obesity Prevention	PREVIDE	WHO-INTEGRATE	WICID
Problem priority	No	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	No	No
Desirable effects	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes [1]	Yes
Undesirable effects	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes	No	Yes	No	No	Yes [1]	Yes
Certainty of the evidence of effects	Yes	No	No	Yes	Yes	No	No	Yes	Yes	No	Yes	No	Yes	Yes	Yes
Balance of effects	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
Values	No	No	Yes	No	No	No	No	Yes	Yes	No	Yes	No	Yes	Yes [2]	No
Certainty of evidence regarding values	No	No	No	No	No	No	No	Yes	No	No	No	No	No	No	No
Resources considerations	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Certainty of evidence regarding resources	No	No	No	No	No	No	No	Yes	No	No	No	No	No	Yes	No
Cost-effectiveness	No	No	Yes	No	Yes	Yes	No	Yes	Yes	No	Yes	No	No	Yes	Yes
Equity	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes	No	No	Yes	Yes	Yes [2]	Yes
Acceptability	Yes	Yes	No	No	No	No	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Feasibility	Yes	Yes	Yes	Yes	Yes	Yes [3]	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Autonomy	No	No	No	No	No	No	No	No	No	No	No	No	No	Yes [4]	Yes
Sustainability	No	No	No	No	Yes	Yes	No	No	No	No	No	Yes	No	Yes[5]	No

Domains/Criteria	CPSTF framework	EEFA framework	EURRECA	EVITA framework	Framework for planning and improving evidence-based practices	Framework for prioritising policy choices	Framework of evidence-based decision-making in health system management	GRADE EtD framework	Ontario Decision Framework	Policy Framework for Primary Prevention of Occupational Cancer	Policy Framework for Technology Assessment	Policy, Systems, and Environmental Approaches for Obesity Prevention	PREVIDE	WHO-INTEGRATE	WICID
Legal and regulatory considerations	No	No	Yes	No	No	No	No	No	No	Yes	No	Yes	No	Yes [6]	Yes
Political considerations	No	No	Yes	No	No	Yes [3]	No	No	No	Yes	No	Yes	No	Yes [6]	Yes
Human rights	No	No	No	No	No	No	No	No	Yes	No	No	No	No	Yes	Yes
Other considerations	Yes [7]	No	No	Yes [7]	Yes [7]	Yes [7]	No	No	No	Yes [7]	Yes [7]	Yes [7]	No	No	Yes [7]

** The map was constructed based on the criteria considered by the two most cited frameworks (GRADE EtD and WHO-INTEGRATE).*
[1]As part of balance of benefits/harms
[2]As a sub-criteria in the "Balance of health benefits and harms"
[3]Partially yes
[4]As a subcriterion in "Human rights and sociocultural acceptability"
[5]Sustainability was identified as a criterion encompassing sub-criteria related to ecological, economic, and social considerations
[6]As a subcriterion in "Feasibility and health system considerations"
[7]Other considerations are: Evidence gaps (n=1); Stakeholder engagement (n=3); Transferability (n=1); Complementarities and interactions among strategies (n=1); Social impact (n=1); Implications for the course of the pandemic and its impact on health (n=1)

Second stage: Identification of real-world examples of the frameworks application and/or implementation

RQ3: What is the main real-world use of these frameworks, and specifically, how have they been used in the field of infectious disease prevention and control?

Among the potential examples identified, we selected four examples for the GRADE EtD framework [62–65], two for WHO-INTEGRATE [66,67], two for the EEFA framework [68,69], and two for the CSPTF framework [70,71]. All the selected examples addressed public health decision-making related to the infectious disease field. Three examples for the GRADE EtD framework had a nationwide focus, and were selected from Norway [63], Germany [65], and the United States (US) [65]. The last one was done by WHO, with a global focus [64]. One example for the WHO-INTEGRATE framework was from Germany [67], and the other was made by WHO [66]. The examples for the EEFA [68,69] and CSPTF [70,71] frameworks were developed in Canada and the US respectively, with no European examples identified.

The guidelines examples developed using the GRADE EtD framework covered antibiotics [62,65], COVID-19 [63], and malaria [64]. The examples that used WHO-INTEGRATE addressed sanitation and health [66] and COVID-19 [67]; the guidelines following the CPSTF framework covered HIV and vaccination [70,71], and the EEFA framework covered vaccination of herpes zoster [68] and COVID-19 booster [69].

Panel members' profiles included methodologists, relevant technical experts (e.g. clinicians and specialties), intended end-users (e.g. practitioners, program managers, etc.), and patients and other representatives. The methodology of those guidelines that followed each EtD framework always conducted evidence synthesis, used specific methods of rating systems for the certainty of the evidence, and made final decisions through a consensus or voting process. The reporting of the EtD process was insufficient for two of the frameworks (i.e. it was not clear how the framework was actually used by the members of the panel). The frameworks were used in their original form for the examples and none of the frameworks appeared to have been further tailored or adapted. However, none of the examples described in full detail the implementation methodology of the frameworks. Table 3 provides a description of the included examples.

RQ4: Which enablers and limitations have been identified and what was the overall experience with the implementation of the frameworks?

Experience of use of EtD frameworks – Literature findings

Twelve studies explored the experiences of using two of the included EtD frameworks, of which nine were related with the use of the GRADE EtD framework [23,45,46,48–50,59,60], and three with the use of WHO-INTEGRATE EtD framework [51,52,65]. We found no additional documents describing the experience of using other frameworks. Studies assessing the GRADE-EtD framework were published between 2016 and 2022. Six included the perspective of stakeholders and people involved in guideline development [23,45–49], one conducted a literature review [60], one conducted a literature review and interviews to guideline developers [59], and one created a fictitious guideline panel to apply the framework [50]. Studies reporting the experiences using the WHO-INTEGRATE framework were published between 2022 and 2023, and included the perspectives of people with experience in guideline development and evidence-based policy [51,52,61]. Table 4 provides the main characteristics of these studies.

Main enablers identified for GRADE EtD framework use were stakeholder engagement; the possibility of tailoring the framework; and the provision of clear guidance and previous training. Barriers were related to the unavailability of high-quality evidence (as considered by GRADE) for public health; the need for previous skills and knowledge; the misunderstanding of the wording for some criteria; the presence of domineering participants in the panels; and time constraints. Among the enablers for using the WHO-INTEGRATE framework, the literature described the provision of previously summarised evidence, and the availability of different types of expertise through the building of multidisciplinary, diverse panels. The main barriers were lack of guidance; resource constraints; the limited availability of evidence; and the common misunderstanding of the boundaries between different criteria and subcriteria. Table 5 lists main experiences, enablers and barriers identified by the literature.

Experience using the GRADE EtD framework

Overall perception of the GRADE EtD framework

Six studies exploring the experience of using the GRADE EtD framework described an overall positive perception of the process [23,45,47,48,50,59]. The GRADE-EtD framework was perceived as a structured, comprehensive and transparent approach that increased the systematic use of evidence, and facilitated discussion and decision-making [23,45,47–50,59]. One study observed that policy-makers may find it easier to understand summarised evidence using a GRADE EtD framework, rather than using a set of systematic reviews [50]. In another study, users reported mixed views about the level of detail of the framework, with some preferring simpler solutions, while others advocating for more complexity [45]. Besides evidence on health effects, the GRADE EtD framework enhances the consideration of other factors, such as acceptability, feasibility or contextual factors [45,60].

Panel composition and workflow

Users perceived the panel composition of important stakeholders as critical, highlighting the importance of reflecting all interests related to the recommendations or the final decisions [23]. Panels may have members with different levels of skills related to understanding evidence and numerical data, but several users emphasised that having a trained and knowledgeable chair for the panel was a key factor for a successful use of the framework [45]. The main reported challenges for the chair were time management, dealing with domineering participants, and avoiding bias when introducing information or discussing [45].

Panel discussion allowed perspectives' adjustment and facilitated consensus [23]. Nevertheless, the workflow among panels using the GRADE EtD is variable [45]. Clinical experience was perceived as useful for brainstorming into the discussion about making the best recommendation, although users reported that it should always be accompanied by research evidence, if available [46].

Assessing the evidence in the public health field

Users referred that randomised controlled trials are scarce and may not always be the appropriate research design in the public health field, which can make the appraisal of the evidence as proposed by the GRADE methodology more difficult [23,59]. Other studies (not specifically assessing the experience of using the framework itself) have also highlighted similar problems when assessing the certainty of evidence for public health using the GRADE methodology [73,74].

Experience using GRADE EtD framework's criteria

Most of the panels' discussions were related to reviewing the research evidence to determine the effects of an intervention [46]. If evidence was sufficient and clear, the decision-making process was rapid, and it took longer if no evidence or only low-quality evidence was available [46].

The study by Neumann et al showed that 'values and preferences' and 'balance of benefits and harms' criteria posed difficulties for several panels, mainly due to the differentiation between 'uncertainty' and 'variability', and the difficulty of judging the magnitude of desirable and undesirable effects, and its relationship [47]. Panels consistently struggled to answer the questions related to 'balance of benefits and harms', with a few methodologists identifying some questions as redundant [47]. The current GRADE EtD version has already been updated to address most of these challenges [47].

Some participants found terms such as 'values' and 'equity' confusing, and made explicit a need for more guidance to assess them [45,47,48]. In the 'equity' criterion, some suggested adding the option 'no effect on health equity' as an answer [47]. There were mixed views about the 'resource use' criterion: panels without health economists struggled to assess it, while panels with health economists considered the criterion too superficial [47].

A possible overlap between some criteria was mentioned (specifically between 'acceptability' and 'feasibility' with 'values and preferences' and 'resource consideration'), and users may have poor understanding of specific criteria and the overall GRADE approach [47,48]. Some teams expressed not being sure what criterion an issue belonged to [45]. Some users also perceived a process of 'scientisation', related to the overemphasis made on best external evidence, and difficulties in integrating it with the experience. However, separating the evidence summary and the formulation of recommendations was positively perceived, as it allowed to distinguish opinion-based from scientific-based recommendations [59].

The value of tailoring the framework

Users value the option of tailoring the framework in different ways [23,45,48,49]. Users may feel the framework to be too long for specific circumstances, containing sections that may not be always relevant [47]. Users value the option of tailoring the framework by limiting the number of criteria, modifying the order of the criteria, or changing the judgement options [45,48].

Authors have also described that the GRADE EtD framework's criteria may not directly address all the relevant factors for specific decision-making processes, which may lead to a need of including new considerations [23,48,49]. For example, Friesen et al reported that the GRADE EtD framework does not directly assess political or social factors [49]; Guldbrandsson et al decided to tailor the framework, incorporating two new questions

about 'individual autonomy' and 'method sustainability' for the Swedish public health context [23]; and Li et al identified legal context as a non-explicit GRADE criterion [46].

The need for training

The use of the GRADE EtD framework needs previous training in overall GRADE methodology or in the use of specific tools (e.g. iEtD) [47,48]. Some challenges may arise at the moment of searching or presenting evidence, or about what to do when no evidence is available [45]. As stated before, the assessment of specific criteria may also need guidance or previous training, such as 'equity', 'acceptability' or 'values and preferences' [47].

When using the GRADE framework, the vast majority of the panels' discussions were related to the frameworks' predefined criteria [46]. This could be due to the criteria really being comprehensive enough, or also due to the influence of previous training in the GRADE approach itself [46].

Importance of language and wording

Wording and language were important issues in several aspects. Some users stated that the wording of terminology and signalling questions from the GRADE EtD framework in the assessment section was unclear [48]. In order to be transparent and enhance communication, the wording of recommendations represented an important part of the panels' discussions [45,46], and, in some cases, users reported suboptimal wording for recommendations comparing two active interventions instead of one active intervention versus placebo or no treatment [47]. In some contexts, the framework may need to be tailored specifically due to language-dependent issues [23].

Experience with iEtD tool

The overall experience using an iEtD was positive, with users describing the tool as intuitive, simple, easy-to-use, well-organised, and freely available [45,48]. Users appreciated the help sections and the distinction between evidence and judgements/additional considerations [45,48]. Users reported mostly positive experiences for formulating the PICO question and background; for assessing the criteria; and for making the conclusions [48]. The interactive online voting option was also highly valued [45,48].

Drawbacks described by iEtD users were related to the additional workload when working in large groups or with large amounts of evidence; preference for finishing the work offline; using more familiar software (such as Microsoft Word or Excel); and specific aspects of the interface (e.g. problems inserting 'summary of findings' tables, preference for assessing desirable and undesirable effects in one section instead of two, or preference for horizontal format rather than a vertical one) [48]. Some people manifested concerns about the security and ownership of the work completed, being an online tool [45]. Due to the burden of having to learn a new, unfamiliar technology, some people still preferred to use paper [45].

Experience using the WHO-INTEGRATE EtD framework

Overall perception of the WHO-INTEGRATE framework

Three studies including 26 participants described the overall experience of using the WHO-INTEGRATE framework as positive. The framework was usually perceived as useful, detailed, structured, systematic and transparent [51,52,61]. Users reported that WHO-INTEGRATE allowed the separation of different perspectives (e.g. individual and population perspective), and the consideration of feasibility and broad implications beyond health [51].

However, some concerns were raised about the framework's added value [51,61]. Some users pointed out that the framework was too comprehensive, which may affect its use [51]. Some concerns were raised about WHO-INTEGRATE framework's practical considerations, in terms of panel members' voting behaviour – without going into details, guideline acceptability, and implementation [61]. For example, some participants perceived the framework as too complex and questioned whether the working groups assessment of each criteria was really relevant for the voting members [61]. Users perceived that more guidance is still needed [51].

Panel members' profiles, roles and hierarchy

The inclusion of different profiles in the developing team was positively perceived, with team collaboration providing consistency and better interpretation of findings, and diversity of perspective providing legitimacy [52,61]. Some users recommended the inclusion of legal experts within the team [51], and researchers considered that the inclusion of social science researchers may be valuable for reinforcing theoretical understanding, methods, and interpretation of the evidence [52].

One study describing the experience of guideline development for school measures during the COVID-19 pandemic deepened on the understanding of the roles, profiles, and hierarchies within the developing teams [61]. In this study and due to time pressure, secretariat members were involved in most of the development process (beyond the roles of coordination and methods support), assigning different roles for different participants, which evoked diverging opinions [61].

Three types of expertise were described in this guideline development, which ultimately defined each member profile: i) scientific expertise, grounded in scientific studies and disciplinary knowledge; ii) practical expertise, derived from implementing the school measures; and iii) lived experience of those affected by the measures [61]. The profiles influenced the differential insight about how to consider or interpret different types of evidence

and outcomes [61]. Since the guideline secretariat decided who to invite and what functions to assign, this role was decisive [61]. Some members perceived a lack of transparency in terms of panel composition (i.e. selection of institutions invited), prioritisation of endpoints, and the application of the framework itself, with lived experience experts incorporated late in the process, while recommendations were developed in working groups only with the participation of scientists [61].

Most participants reflected that there was a hierarchy present among the panel members, which was influenced by the member profile, seniority, academic credentials, professional experience, institution, and eloquence [61]. The hierarchy may give some participants too much dominance during discussions, influencing the final results, while, at the same time, institutions may influence the participants' arguments [61]. However, for some participants there were no differences between them and other panel members, feeling that their expertise was sought and appreciated [61].

The concept and consideration of evidence

Murano et al reported that, in their experience, the iterative use of WHO-INTEGRATE allowed them to become more familiar with the framework, which facilitated the extraction of the most relevant findings for decision-making [52]. Users appreciated and perceived as time-efficient the previous identification and summaries of the evidence [52,61]. Authors reflected that three outputs should be provided to the panel: i) a high level summary of evidence for each criterion; ii) a supplemental file with detailed findings of evidence; and iii) an evidence gap map for each criterion [52].

Participants agreed that evidence is critical for the guideline development process, but users with different profiles reported mixed views about how to weigh or consider different types of evidence, emphasising the need for developing a shared understanding of the concept and role of evidence [61]. Not having a common understanding about evidence led in some cases to criticism, regarding the decisions about which evidence to consider (e.g. including modelling studies but no basic research studies) [61]. Some participants highlighted that focusing on high quality quantitative evidence of effectiveness may not be feasible for complex interventions [51]. The lack of availability of directly relevant empirical studies (which may be due to ethical and other feasibility issues), the lag between study conduct and its inclusion in systematic reviews, and not considering qualitative evidence were identified among the limitations of the role of evidence in the COVID-19 pandemic context [61].

Authors propose that different search strategies may be needed for areas with limited evidence coverage (e.g. equity, feasibility, values and preferences, unintended consequences, beyond direct health impact), with an evidence map informing discussion and identifying gaps for specific populations and settings [52,61]. Being flexible in terms of identification and selection of qualitative synthesis was positively seen, as it allowed to fill previously identified evidence gaps, but, on the other hand, being restrictive in the selection of economic studies allowed avoiding challenges related to the assessment of models' validity and generalisability [52]. The consideration of qualitative evidence from diverse populations in early stages could better inform considerations about equity (e.g. planning how to face lack of evidence from low and middle income countries), providing also a research agenda and helping to focus on future recommendations updates [52]. WHO-INTEGRATE was perceived as a comprehensive, structured and transparent framework to develop recommendations even in the absence of conclusive evidence [61].

Experience using WHO-INTEGRATE criteria

Overall, all the WHO-INTEGRATE criteria and subcriteria were seen as important, relevant and comprehensive for real-world public health decision-making, and users thought none should be dropped [51]. However, the complexity and additional workload, of actually using the framework, may lead to skipping (or prioritising) some domains, which may diminish the value of the final product [51,61].

Some issues with wording and definitions were reported, specifically in the 'equity, equality and non-discrimination' and 'societal implications' criteria [51]. For example, the criterion 'societal implications' was perceived as fuzzy and vague [51]. Some users perceived missing aspects in the 'balance of benefits and harms', 'human rights and socio-cultural acceptability', and 'equity, equality and non-discrimination' criteria [51]. Possible missing aspects reported were related to the sustainability of the intervention, the reliability and quality of application of the intervention, the consideration of wellbeing-related outcomes, and political feasibility [51]. Also, some participants stated that the framework might not be sufficient for reflecting underserved populations or vulnerable groups [51]. However, several users refer that no relevant criterion is missing in the framework, and the WHO-INTEGRATE developers stated that criteria identified as missing were actually covered by the framework, although there was room for improvement in terms of wording and clarification [51].

Other problems were reported regarding the order and grouping of the 'human rights and socio-cultural acceptability' and 'societal implications' criteria [51]. For example, many were concerned about 'patients'/beneficiaries' values in relation to health outcomes'' being only a subcriterion, since it may not receive enough attention [51]. Other recommendations included separating human rights and acceptability into two different criteria; moving 'non-discrimination' to the human rights consideration (instead of equity and equality); and combining societal impact and health impact into one broad impact-oriented criterion [51]. Participants also

reported overlap, redundancy or delineation problems for several criteria and subcriteria [51]. For example, the boundaries between the criterion 'Health equity, equality and non-discrimination' and the sub-criterion 'Social impact', or between the criterion 'Financial and economic considerations' and the sub-criterion 'Interaction with and impact on the health system' were perceived as blurry [51].

Focus groups that used the framework felt that it successfully encompassed their reasoning through the discussion of all criteria, despite perceiving that the assessment of some criteria was superficial, and that they did not always address each specific subcriteria [51,61]. Finally, some participants pointed out that all the new subcriteria provided by the WHO-INTEGRATE framework could also be addressed as part of the GRADE EtD framework [51].

Perspectives on the development process

Users described the identification of evidence as a challenge, especially for specific domains (e.g. health systems and feasibility considerations, financial and economic considerations, societal impact) [51]. In case of absence of evidence, lived experience was considered important [61]. Users also noted that many aspects of the WHO-INTEGRATE framework were context-dependent, which could limit the applicability of the recommendations or decisions in global guidelines [51]. The understanding of the included and excluded populations and settings is needed for discussions about equity [52]. Also, some participants questioned if involving lived experience experts from the beginning of the process could have an impact in addressing issues such as feasibility or acceptability [61]. In this sense, one participant perceived that WHO-INTEGRATE followed a similar approach than the GRADE EtD framework (defining intervention/gathering evidence/making recommendations), and proposed an approach more focused on beneficiaries by asking them what should be done to improve health and well-being [51].

Time pressures can play an important role, limiting the assessment of all concerns within the panel [61]. Users felt discontent when there was little time for sharing information and comments to prepare meetings [61]. Time pressure and lack of resources may provoke a burden to some members due to excessive task assignments, and also may hinder the in-depth discussion of the recommendations [61].

Regarding the workflow, users reported that the iterative process of working in small groups plus subsequent full-panel consensus was efficient and goal-oriented, appreciating transparent, democratic and anonymous consensus-building procedures [61]. Some specific criticisms included methods-related issues (e.g. choosing a preferred option after initial voting, instead of voting again; not formally prioritising endpoints for outcomes), the uneven consideration of each criterion, and the unequal influence of opinions among participants (related to their profile and experience in guideline development) [51,61].

Participants recognised that balancing different perspectives within the panel was challenging [61]. For example, when developing school measures for COVID-19, the guideline members had to consider the infectious disease control perspective as well as the educational perspective [61]. Although consequences beyond health and education were not systematically considered, common sense was described as important for assessing implications beyond health impacts, and agreeing on the strength of recommendations, especially in the absence of evidence [61].

Experience of use of EtD frameworks – Survey findings

We obtained 13 responses to our survey. Six participants were from European countries (the Netherlands, France, Estonia, Norway, Belgium, and Croatia), while the remaining seven responses were from high-income, non-European countries (Australia, Canada).

No additional frameworks meeting our eligibility criteria were identified through the survey. Seven participants reported experience using the GRADE EtD framework. Most expressed concerns about the comprehensiveness and appropriateness of the framework for the public health field, mainly due to the challenge of dealing with a lack of evidence, the perceived mismatch between the framework's criteria and panel discussions, and the knowledge and resources needed. Annex 7 details the experience of key stakeholders using the GRADE-EtD framework. No response referred to the specific experience of using any of the other included frameworks.

Conclusions

We identified 15 frameworks that can enable public health decision-making processes, among which seven had a generic scope and two were specifically developed for infectious diseases. The frameworks included a median of five criteria, mostly related to the desirable and undesirable effects, resource considerations, and feasibility of the interventions. Since different frameworks assess similar domains to reach a public health recommendation, relevant stakeholders should opt for a framework based on the appropriateness of its scope; the team previous experience or knowledge of a specific framework; available resources; or the consideration of contextual factors within the framework.

We identified examples of public health decisions applied to infectious disease control and prevention only for four frameworks: GRADE EtD, WHO-INTEGRATE, EEFA and CSPTF. Despite searching for representative examples for each framework, the vast majority of the retrieved documents used the GRADE EtD framework, comprehending different diseases and settings. WHO-INTEGRATE had only some examples of use, however, its publication is still recent. Both EEFA and CSPTF examples were restricted to nationwide contexts in North America.

The availability of literature regarding the users' perspective about the GRADE EtD and WHO-INTEGRATE framework illustrates the experience of their use for decision-making in various contexts. Both frameworks' developing groups are active, constantly improving their methods, and providing guidance for their use. The evolving status of these frameworks may influence the interpretation of our findings about users' experience, as some of the identified barriers may have been solved at the moment of planning to adopt these frameworks. On the other hand, the lack of examples and documented experience using other frameworks, may reflect that their current adoption for public health decision-making about infectious disease control and prevention is scarce.

Our review identified frameworks for public health evidence-informed decision-making and assessed their applicability to the infectious disease prevention and control field. Other reviews have reported similar findings for other types of decisions. A review assessing the EtD frameworks for environmental health decision-making highlighted the difficulties for comparing different criteria and types of decisions among the identified frameworks [17]. After retrieving and analysing all the frameworks within this review, we agree with this statement. Most frameworks only report a brief description of their specific criteria or domains, and do not provide an exhaustive definition about their main concepts or a related guidance about how to appropriately assess each criterion. This may affect the results presented for RQ2, as they are the product of a large discussion among the authors of this report and a subjective – but consensual – understanding and mapping of each criterion or domain.

Another review focusing on coverage decisions concluded that the GRADE EtD frameworks' criteria could successfully encompass all the criteria reported by the rest of the frameworks [16]. We think that for public health evidence-informed decision-making this may not be the case, as some criteria are not explicitly considered by the GRADE EtD framework. However, generating a new framework adding up all the criteria reported by every framework may not be the best solution, as it may contain irrelevant domains for specific contexts, be prone to significant overlap or blurry boundaries among the criteria, and translate into heavy workload for panel members. There is still room for improvement and discussion about the balance between comprehensiveness of a framework, and its efficiency in terms of resource use and appropriateness for decision-making in specific contexts.

To the best of our knowledge, this is the first review addressing users' experience of using frameworks for public health decision-making. We did not restrict our focus for RQ4 to infectious diseases, as it would have been too narrow, and we would have missed relevant perspectives that could be relevant to this field. Despite the broad focus, we were able to identify experiences for only two of the included frameworks, from the literature search and contact with key stakeholders. Therefore, it is likely that there is much less experience using frameworks other than GRADE EtD and WHO-INTEGRATE.

Other reports have described the experience of decision-making processes with no use of EtD frameworks [76,77]. Although some common challenges arise – such as the scarce availability of evidence for many public health scenarios – processes conducted without an EtD framework are reported to be less transparent, less clear and less structured [78]. It is therefore relevant to note that users of both GRADE EtD and WHO-INTEGRATE frameworks considered transparency, clarity and structure were among the main strengths of the processes using these frameworks. This leads us to conclude that the use of a framework by itself probably enhances the decision-making process – at least in terms of transparency, clarity and structure.

In our review, we considered public health as a broad concept, encompassing any recommendation or decision made on behalf of a population. Since there is no single and widely accepted definition of 'public health', our review might have omitted or included some frameworks that do not match other definitions. Although our examples (RQ3) are related to the field of infectious disease prevention and control, we considered a broader scope for RQ1, RQ2 and RQ4, since other frameworks and experiences could be suitable to be adopted or

adapted for infectious disease public health decision-making. In addition, whenever possible we prioritised) examples from Europe, so our results could have limited applicability to some other contexts.

On the other hand, our review has several strengths. We conducted an exhaustive search including not only online databases, but also a hand search, a citation search and direct contact with key stakeholders, and we followed systematic methods for reporting and conducting our review, according to a previously published protocol. We identified relevant frameworks, but also mapped and compared the criteria among them, and described the experience, both from the literature and from direct contact with key stakeholders.

Our review could inform public health decision-making processes in several ways. First, it provides an overall mapping of all the relevant available frameworks. In second place, our review identifies the most common or relevant criteria considered by each framework and can help stakeholders decide both which framework and which criteria to use. In third place, for two of the included frameworks, our review informs the users' experience, which can help guideline panels to anticipate common problems in the recommendation development process. Finally, and specifically for the infectious disease field, our review provides examples of the use of four frameworks for public health evidence-informed decision-making.

In conclusion, among the 15 identified frameworks, nine could be theoretically applied for making public health decisions about infectious diseases due to their generic or infectious-specific scope. Of these, we identified real examples for only four frameworks (GRADE EtD, WHO-INTEGRATE, EEFA and CSPTF), with only two (GRADE EtD and WHO-INTEGRATE) having documented experience about their use.

We conclude that the findings of this review support, and should be used to promote, the broader use of EiD frameworks to guide public health decision-making by making critical decision-relevant questions and criteria explicit, increase transparency of the decision-making process and support clear communication. This should be accompanied by systematic reporting and sharing of users' experience particularly from Europe to support the implementation of such frameworks by facilitating mutual learning and identify areas that require further development to further strengthen their utility in different contexts to address different needs.

Annex 1. Detailed methods for this review

We answered the research questions through a scoping review. The protocol was registered in Open Science Framework [18].

Eligibility criteria

First stage: Identification and description of existing EtD frameworks (RQ1 and RQ2)

We included any type of document describing a formal EtD framework for public health decision-making. We considered as a 'formal EtD framework' any structured process that supports panels or users to move from the available evidence to a recommendation or decision, explicitly describing and/or detailing the domains, factors or criteria considered [19].

We considered a public health decision as any recommendation or decision made at a health system or public health level on behalf of a population, that can potentially affect groups of people or an entire population [1].

Second stage: Identification of examples of the frameworks' applications and/or implementation (RQ3 and RQ4)

We included representative examples included in documents implementing public health EtD frameworks, in the field of infectious disease prevention and control. Eligible documents were required to report in sufficient detail the process implemented to use the framework (i.e. not just mentioning that a framework was used). We also included documents describing potential enablers and limitations for the implementation of the frameworks referred above.

We considered references from the last 10 years (2013–2022). We excluded conference abstracts, editorials or letters. Full-text references available only in non-English language were identified but not translated.

Information sources and search strategy

We searched medical bibliographic databases, looked at references lists of included documents, and navigated websites of national or international scientific societies in the infectious disease field, as well as national or international public health organisations (such as institutes, agencies, centres, directorates, etc.). For unpublished material, we directly contacted key public health organisations. We designed a search strategy, without time frame restrictions, to search in the following bibliographic databases: MEDLINE (accessed via PubMed) and Health Systems Evidence (via www.healthsystemsevidence.org/). Likewise, we defined a list of search terms related with the main concepts of the research question and explored the thesaurus from the bibliographic databases to identify controlled vocabulary terms fitting with these concepts. Furthermore, we adapted the strategy to the requirements of each database. The search strategy for MEDLINE and Health Systems Evidence is included in Annex 2. We submitted the complete search strategy to peer review according to the PRESS checklist (McGowan et al. 2016).

We also performed hand searching to identify technical and guidance reports, and/or methodological guidance or handbooks published by the organisations or scientific societies listed in Annex 3. For the hand search process, we searched every website for a section called 'Handbooks', 'Guidelines', 'Recommendations', 'Policy', 'Decisions', 'HTA', 'Evidence', or similar. Within those sections, we looked for frameworks (RQ1 - RQ2), examples (RQ3), or experiences or barriers/facilitators (RQ4) within those sections. If no section was related to those terms, we used the same terms as keywords to search within the webpage (using the searcher built in the webpage, or google.com using the 'site:' function). One author pre-selected the results from the web search, and a second author cross-checked for inclusion.

We additionally tracked citations from the identified frameworks (RQ1) to retrieve other potential frameworks – first stage – as well as examples or experience of their use – second stage– using Google Scholar. For all organisations and health technology assessment agencies incorporating eligible frameworks in their methodological handbooks, we identified their guidelines or technical reports to evaluate how the frameworks were implemented in practice, prioritising examples from the EU.

We contacted key institutions through emails to obtain additional information, as described in Annex 3. We did so if the identified documents did not provide sufficient information for the planned data extraction; if no examples about the implementation or application of the identified framework were identified; if the authors interpret that the identified examples were not representative enough of the implementation of the framework for an infectious disease context; or if limitations and barriers for the frameworks' implementation were not sufficiently described.

We also enquired the informed consent for participating in semi-structured interviews to further explore potential examples, the barriers and limitations of the identified frameworks.

Data management and selection process

We imported the result obtained from the searches into an EndNote X20 database to de-duplicate overlapped records. We then exported the database with the unique records to a Covidence database, to allow the selection process.

Two reviewers independently screened the search results from the Covidence database created for this purpose. First, the reviewers made judgements based on the references' title and abstract against the eligibility criteria, solving discrepancies by consensus. Afterwards, two reviewers independently confirmed eligibility based on the full text of the relevant articles. In case of disagreement, they reached consensus by discussion or, if needed, involving a third reviewer. We specified the list from all the included and excluded documents discussed during the full-text screening step. For those excluded articles, we described the main reason for their exclusion. We reported the complete selection process in a PRISMA flowchart. We performed the searches in web pages and citation search previously described after finishing the selection process from the database searches. At this stage, we focused on the field of infectious disease prevention and control.

Data collection and data items

We designed a data extraction form based on the pilot testing of data extraction from three frameworks, and calibrated reviewers for data extraction. One reviewer extracted relevant data from all the frameworks, a second reviewer verified the quality of the data.

For the RQ1 and RQ2, we obtained data about the framework's development organisation, scope (generic or topic-specific), target audience and settings, categories of decisions, methods for development, sources of evidence to inform these criteria, and funding sources. For the RQ3 and RQ4, we extracted data for the selected examples or experiences using the frameworks: the framework use scope, organisation, panel member profile, methodology framework, type of evidence (systematic reviews, primary studies, experts' opinions, etc.), the scope and methodology for its development; criteria considered for its utilisation and use; approach to assess the certainty of evidence and its integration into the decision-making process; and funder and declaration of interests.

For RQ3, two authors selected a purposive sample of examples about the use of the frameworks. We prioritised examples that 1) involved a public health decision, 2) were applied to the field of infectious diseases control and prevention, and 3) were conducted in European countries (if possible). Two authors extracted the following data: the scope of the application, organisations, panel member profiles, methodology of the framework applications, decision-making process, and tailoring of the frameworks.

For RQ4, we first extracted first order (initial quotations) and second order (authors interpretations) constructs to create third order constructs. We then generated descriptive thematic synthesis of the experience of using each framework [21]. To complement this, we also extracted the key findings arising from surveys/interviews to key stakeholders, supporting them with verbatims from the survey respondents. Annex 4 provides the details of the survey. We continued recruitment of participants and collection of data until information became repetitive and no new information emerged (sampling saturation) (Guetterman 2015).

Data synthesis

With the data collected from the data extraction process, we populated tables of the characteristics of included frameworks (RQ1 and RQ2), and examples and experiences of use (RQ3 and RQ4). For RQ1 and RQ2, we compared and described narratively those common characteristics, domains, criteria or features from included frameworks, and commented on differences and their explanation or rationale. Specifically for RQ2, we considered the criteria of the two most cited frameworks (GRADE EtD and WHO-INTEGRATE frameworks), and visually mapped the criteria considered by all other frameworks within this classification.

For the examples of use (RQ3), we grouped the described experiences, according to the variables extracted during the data collection process. For the experience of use (RQ4), we conducted a descriptive thematic synthesis [21]. Starting from the first and second order constructs of the identified studies, one author created third order constructs and grouped them into descriptive themes. Then, two other authors provided feedback, and discussed the validity and consistency of the themes. Surveys and interviews complemented the findings of the thematic synthesis. Finally, we interpreted and summarised the main experiences, enablers and barriers in a tabular display.

Annex 2. Search strategy for MEDLINE/ PubMed and Health Systems Evidence

MEDLINE/PubMed query	
#1	'Decision Making'[Majr]
#2	evidence[ti]
#3	decision*[ti]
#4	recommendation*[ti]
#5	policy[ti]
#6	priority[ti]
#7	priorities[ti]
#8	prioritisation[ti]
#9	prioritization[ti]
#10	#1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9
#11	'Evidence-Based Medicine'[Mesh]
#12	'Health Policy'[Mesh]
#13	#11 OR #12
#14	approach*[tiab]
#15	formulat*[tiab]
#16	develop*[tiab]
#17	review*[tiab]
#18	synthes*[tiab]
#19	synthez*[tiab]
#20	guidance[tiab]
#21	criteria[tiab]
#22	methodolog*[tiab]
#23	inform*[tiab]
#24	guideline*[tiab]
#25	#13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19 OR #20 OR #21 OR #22 OR #23 OR #24
#26	framework*[ti]
#27	#10 AND #25 AND #26
#28	approach*[ti]
#29	formulat*[ti]
#30	develop*[ti]

#31	review*[ti]
#32	synthes*[ti]
#33	guideline*[ti]
#34	guidance[ti]
#35	criteria[ti]
#36	methodolog*[ti]
#37	inform*[ti]
#38	#13 OR #27 OR #28 OR #29 OR#30 OR #31 OR #32 OR #33 OR #34 OR #35 OR #36 OR #37
#39	theor*[ti]
#40	#10 AND #38 AND #39
#41	#27 OR #40

Health Systems Evidence
(evidence OR decision* OR recommendation* OR policy OR priority OR priorities OR prioritisation OR prioritization) AND (approach* OR formulat* OR develop* OR review* OR synthes* OR synthez* OR guidance OR criteria OR methodolog* OR inform* OR guideline* OR tool OR tools) AND (framework* OR theor*)

Annex 3. List of relevant institutions and organisations for web search and surveys

Institution or organisation	Country	Website	Contacted for survey
Federal Ministry of Health	Austria	http://www.bmg.gv.at	Yes
Sciensano	Belgium	https://www.sciensano.be/en	Yes
National Centre of Infectious and Parasitic Diseases	Bulgaria	http://www.ncipd.org	No*
Croatian National Institute of Public Health	Croatia	http://www.hzjz.hr/epocetna.htm	Yes
Directorate of Medical and Public Health Services	Cyprus	http://www.moh.gov.cy/moh/moh.nsf/index_en/index_en	Yes
National Institute of Public Health (NIPH)	Czechia	http://www.szu.cz	Yes
Danish Health and Medicines Authority	Denmark	http://www.sundhedsstyrelsen.dk/English.aspx	Yes
Health Board	Estonia	http://www.terviseamet.ee	Yes
Finnish Institute for Health and Welfare	Finland	http://www.thl.fi	Yes
French Public Health Agency	France	http://www.santepubliquefrance.fr	Yes
Robert Koch Institute	Germany	http://www.rki.de	No*
National Public Health Organization	Greece	https://eody.gov.gr/eody	Yes
National Public Health Center, Ministry of Human Capacities	Hungary	https://2015-2019.kormany.hu/en/ministry-of-human-resources	Yes
Centre for Health Security and Communicable Disease Control, Directorate of Health	Iceland	http://www.landlaeknir.is	Yes
Health Protection Surveillance Centre	Ireland	https://www.hpsc.ie	Yes
Ministry of Health	Italy	http://www.salute.gov.it	Yes
Centre for Disease Prevention and Control	Latvia	http://spkc.gov.lv	Yes
Principality of Liechtenstein	Liechtenstein	http://www.ag.llv.li	Yes
Ministry of Health	Lithuania	http://www.sam.lt	Yes
Health Directorate	Luxembourg	https://sante.public.lu/fr.html	Yes

Superintendence of Public Health	Malta	https://deputyprimeminister.gov.mt/en/sph/Pages/Superintendence-of-Public-Health.aspx	Yes
National Institute for Public Health and the Environment (RIVM)	Netherlands	http://www.rivm.nl	Yes
Norwegian Institute of Public Health	Norway	http://www.fhi.no	Yes
National Institute of Public Health/National Institute of Hygiene	Poland	http://www.pzh.gov.pl	Yes
Directorate General of Health	Portugal	http://www.dgs.pt	Yes
National Institute of Public Health	Romania	http://www.insp.gov.ro	No*
Public Health Authority of the Slovak Republic	Slovakia	http://www.uvzsr.sk/en	Yes
National Institute of Public Health (NIJZ)	Slovenia	http://www.nijz.si	Yes
Ministry of Health, Social Services and Equality	Spain	http://www.msssi.es	Yes
Public Health Agency of Sweden	Sweden	https://www.folkhalsomyndigheten.se	Yes
Africa Centres for Disease Control and Prevention (Africa CDC)	Africa	https://africacdc.org	Yes
Australian Government Department of Health and Aged Care	Australia	https://www.health.gov.au	Yes
Australian Commission on Safety and Quality in Health Care	Australia	https://www.safetyandquality.gov.au	Yes
Ministério da Saúde Brazil	Brazil	https://www.gov.br/saude/pt-br	No*
Public Health Agency of Canada	Canada	https://www.canada.ca/en/public-health.html	Yes
Canadian Task Force on Preventive Health Care	Canada	https://canadiantaskforce.ca	Yes
Caribbean Public Health Agency	Caribbean	https://carpha.org	Yes
Chinese Center for Disease Control and Prevention	China	https://www.chinacdc.cn/en	No*
Israel Ministry of Health	Israel	https://www.gov.il/en/departments/ministry_of_health/govil-landing-page	Yes
Japanese Ministry of Health, Labour and Welfare	Japan	https://www.mhlw.go.jp/english	Yes
Korea Disease Control and Prevention Agency	Korea	https://www.kdca.go.kr/index.es?sid=a2	No*
Mexico Ministry of Health	Mexico	https://www.gob.mx/salud	Yes

Singapore Ministry of Health	Singapore	https://www.moh.gov.sg	Yes
Thailand Ministry of Health	Thailand	https://p4h.world/en/member/ministry-public-health-thailand	Yes
UK Health Security Agency	UK	https://www.gov.uk/government/organisations/uk-health-security-agency	Yes
Center for Disease Control and Prevention	US	https://www.cdc.gov	Yes
World Health Organization	International	https://www.who.int	Yes
National Institute for Health and Care Excellence (NICE)	UK	https://www.nice.org.uk	Yes
Health Information and Quality Authority	Ireland	https://www.hiqa.ie	Yes
National Collaborating Centre for Methods and Tools	Canada	https://www.nccmt.ca	Yes
Cochrane Public Health	International	https://ph.cochrane.org	Yes
GRADE Working Group (public health group)	International	https://www.gradeworkinggroup.org	Yes
Joanna Briggs Institute	International	https://jbi.global	Yes
The Community Guide	-	https://www.thecommunityguide.org	Yes
Joint Research Commission (JRC)	International	https://joint-research-centre.ec.europa.eu/index_en	No*
European Commission	International (Europe)	https://commission.europa.eu/index_en	No*
European Union (centres and agencies related to health)	International (Europe)	https://european-union.europa.eu	No*
International Network for Government Science Advice	-	https://ingsa.org	Yes
Guideline International Network (GIN)	International	https://g-i-n.net/get-involved/resources	Yes
Infectious Disease Society of America (IDSA)	International	https://www.idsociety.org	Yes

** No contact information available on the website.*

Annex 4. Details of the survey

The survey was conducted using the EUSurvey platform (https://ec.europa.eu/eusurvey/home/welcome). The following email was sent to every organisation listed in Annex 3:

Dear [Name]

[Institution]

On behalf of the European Centre for Disease Prevention and Control and the Iberoamerican Cochrane Centre, we are sending this email to invite you to participate in a survey for the 'Frameworks to support evidence-informed decision-making from a public health perspective' project, which has the aim of identifying and describing the existing evidence to decision frameworks from a public health perspective, as well as describing examples of their current application in the field of infectious disease prevention and control. The protocol is publicly available at https://osf.io/gd74f

To the best of our knowledge, despite existing reviews about evidence to decision frameworks for coverage or environmental health interventions, there has been neither a systematic evaluation on the field of public health, nor a tailoring process of these frameworks for the field of infectious diseases prevention and control.

In an effort to exhaustively obtain all the possible relevant information about the frameworks themselves, real life examples and experiences of their use, we conducted an exhaustive electronic search strategy and handsearch within key institutions' websites. In this context, we would appreciate if you could answer this survey about your experience using (or not) evidence to decision frameworks for making decisions from a public health perspective. Answering this survey should take no longer than 5 minutes.

Link to the survey: https://ec.europa.eu/eusurvey/runner/ECDC_evidence-to-decision_frameworks_public_health_perspective

If there is another person within your institution who could provide us valuable information, feel free to forward them this email. If you have any questions about this project, please let us now.

Thank you very much for your consideration.

The survey included the following questions:

Question	Response
• *What is your name?*	Open question
• *What is your institution?*	Open question
• *What is your current position?*	Open question
• *Does your institution use a structured evidence to decision/recommendation framework or process to develop public health guidelines or recommendations?* ○ *If 'Not sure': Since you answered that you are not sure if your institution use an evidence to decision/recommendation framework from a public health perspective, could you provide us a name and contact email of someone in your institution who might know this information?*	Yes/No/Not sure Open question
• *Irrespective of your previous answers, do you know any additional evidence to decision/recommendation framework or process to develop public health guidelines or recommendations?* ○ *If your answer was 'Yes', could you provide us the name, reference or example of use of that framework?*	Yes/No
• *Considering the above definitions, which frameworks are used in your institution?* ○ *If 'Other': Since you answered 'Other' in the previous question: Which framework does your institution use for moving from evidence to a recommendation or decision from a public health perspective? (Please provide the name and/or reference) If your institution uses a self-developed or in-house framework, please state so.*	GRADE-EtD WHO-INTEGRATE EURECCA PREVIDE WICID Other
• *Has your institution adapted one (or more) of these frameworks?*	Yes/No
• *Are you aware of any representative example of the use of one of these frameworks to the infectious disease field, conducted at your institution? Examples may include guidelines, policy briefs, health technology assessments, internal documents, or other documents.* ○ *If 'Yes' in the previous question, could you provide us the name of the document and link or reference?*	Yes/No
• *How would you describe the experience of using the framework?*	Open question
• *In your opinion, what were the main barriers for its use?*	Open question
• *In your opinion, what were the main facilitators or enablers for its use?*	Open question
• *We may need to contact you for further information. Would you be willing to participate in a brief interview? If 'Yes', we will contact you via email. Data derived from this interview may be used for project and publication purposes only.* ○ *If you selected 'Yes' in the previous question, please kindly provide us with your email address.*	Yes/No Open question

Appendix 5. Excluded studies with reasons

Study ID	DOI	Reason for exclusion
Abbasian 2020	10.2147/RMHP.S258661	Not an EtD framework
Abbey 2017	10.1186/s12889-016-3957-1	Not an EtD framework
Aiassa 2022	10.14573/altex.2004211	Not an EtD framework
Akiyama 2021	10.1016/S2468-1253(20)30365-4	Not an EtD framework
Alonso-Coello 2018a	10.1016/j.gaceta.2017.03.008	Language other than English
Alonso-Coello 2018b	10.1016/j.gaceta.2017.02.010	Language other than English
Alsalem 2022	10.1007/s10462-021-10124-x	Not an EtD framework
AlSiyabi 2021a	10.1123/jpah.2021-0235	Not an EtD framework
AlSiyabi 2021b	10.1123/jpah.2021-0152	Not an EtD framework
Alva 2018	10.3390/ijerph15030522	Not an EtD framework
Ananthapavan 2021	10.1186/s12961-021-00796-w	Non-structured process
Angelis 2017	10.1016/j.socscimed.2017.06.024	Non-public health decision
Angelis 2020	10.1016/j.socscimed.2019.112595	Not an EtD framework
Association of Women's Health, Obstetric and Neonatal Nurses 2022a	10.1016/j.jogn.2022.01.001	Non-public health decision
Association of Women's Health, Obstetric and Neonatal Nurses 2022b	10.1016/j.nwh.2022.01.001	Non-public health decision
Baltussen 2017	10.1016/j.jval.2016.11.019	Does not describe domains, factors or criteria considered
Baltussen 2021	10.34172/ijhpm.2021.158	Does not describe domains, factors or criteria considered
Bao 2021	10.1186/s12913-021-06827-0	Non-public health decision
Behzadifar 2021	10.15167/2421-4248/jpmh2021.62.2.2041	Not an EtD framework
Benmarhnia 2017	10.15171/ijhpm.2017.28	Not an EtD framework
Bertone 2013	10.1186/1478-4505-11-39	Not an EtD framework
Blythe 2022	10.5334/ijic.5997	Not an EtD framework
Bowen 2016	10.2105/AJPH.2015.302970	Not an EtD framework
Brady 2016	10.1016/j.evalprogplan.2016.01.003	Not an EtD framework
Bragge 2017	10.1186/s12874-017-0314-8	Not an EtD framework
Brands 2018	10.3390/ijerph15050942	Not an EtD framework
Brindis 2014	10.1146/annurev-publhealth-032013-182455	Not an EtD framework

Study ID	DOI	Reason for exclusion
Brunton 2016	No DOI. https://eppi.ioe.ac.uk/CMS/Portals/0/PDF%20reviews%20and%20summaries/Employer-led%20workplace%20health%202016%20Brunton.pdf	Not an EtD framework
Backman 2022	10.34068/joe.60.02.21	Not an EtD framework
Caiaffa 2014	10.1007/s11524-013-9812-0	Not an EtD framework
Calonge 2022	10.1002/jrsm.1582	Not an EtD framework
Camps 2020	10.1200/JOP.19.00487	Not an EtD framework
Cao 2022	10.1111/jonm.13458	Not an EtD framework
Chambers 2015	10.1093/pubmed/fdu069	Not an EtD framework
Chan 2020	10.1136/bmjopen-2019-032884	Not an EtD framework
Ciro Correa 2020	10.1186/s12961-020-00588-8	Not an EtD framework
Cole 2015	10.5888/pcd12.150300	Not an EtD framework
Coles 2016	10.1111/1468-0009.12195	Not an EtD framework
Conrad 2019	10.1016/j.zefq.2019.02.006	Language other than English
Crépault 2016	10.1016/j.drugpo.2016.04.013	Not an EtD framework
Dahm 2017	10.1016/j.jclinepi.2017.02.019	Non-public health decision
Davies 2014	10.1016/j.puhe.2013.11.011	Not an EtD framework
De Pietro 2015	No DOI. PMID: 26766626	Not an EtD framework
deFolter 2018	10.1017/S0266462318000090	Non-public health decision
Dinda 2020	10.4103/ijmr.IJMR_3640_20	Not an EtD framework
Djulbegovic 2014	10.1200/JOP.2013.001364	Not an EtD framework
Dörr 2022	10.1371/journal.pone.0263898	Not an EtD framework
Escoffery 2018	10.1186/s13012-018-0815-9	Not an EtD framework
Field 2016	10.1186/s12961-016-0154-8	Not an EtD framework
Fischer 2021	10.1007/s11606-020-06451-4	Does not describe domains, factors or criteria considered
Fourn 2020	10.3917/spub.202.0273	Language other than English
FrutosPérez-Surio 2019	10.1186/s40545-019-0181-2	Not an EtD framework
Funk 2022	10.1016/j.healthpol.2021.10.001	Not an EtD framework
Gaffey 2021	10.1016/S0140-6736(21)00133-1	Not an EtD framework
Garcia 2018	10.5123/S1679-49742018000200020	Not an EtD framework
Gębska-Kuczerowska 2020	10.3390/ijerph17207657	Not an EtD framework
Glover 2020	10.1016/j.jclinepi.2020.06.004	Not an EtD framework

Study ID	DOI	Reason for exclusion
González-Lorenzo 2015	10.1016/j.vaccine.2014.12.020	Non-public health decision
González-Lorenzo 2016	10.1701/2152.23272	Language other than English
Grant 2022	10.1097/01.NUMA.0000874432.64403.fb	Not an EtD framework
Grill 2017	10.1007/s10728-015-0299-6	Not an EtD framework
Guo 2021	10.1186/s12875-021-01556-z	Not an EtD framework
Harder 2015	10.1016/j.healthpol.2015.02.010	Not an EtD framework
Harder 2017	10.2807/1560-7917.ES.2017.22.40.16-00620	Not an EtD framework
Hart 2022	10.2105/AJPH.2022.306929	Not an EtD framework
Hester 2022	10.1016/j.jpeds.2022.06.002	Not an EtD framework
Holly 2022	10.1002/lrh2.10295	Not an EtD framework
Inotai 2018	10.1080/14737167.2018.1508345	Not an EtD framework
IOM 2015	10.17226/19013	Does not describe domains, factors or criteria considered
Janati 2018	10.4314/ejhs.v28i3.8	Not an EtD framework
Jessani 2021	10.1186/s12961-021-00733-x	Not an EtD framework
JimenezdelaJara 2015	10.1186/0717-6287-48-10	Not an EtD framework
Jones 2017	10.1016/j.socscimed.2017.01.048	Not an EtD framework
Jones-Bonofiglio 2020	No DOI. PMID: 32880333	Not an EtD framework
Kallenbach 2019	10.1016/j.zefq.2019.06.001	Language other than English
KamphuisCBM 2022	10.1093/eurpub/ckac068	Not an EtD framework
Keygnaert 2016	No DOI. PMID: 27786434	Not an EtD framework
Kim 2019	10.1016/j.ypmed.2019.105781	Does not describe domains, factors or criteria considered
Kolasa 2018	10.1080/14737167.2018.1467759	Non-public health decision
Kuchenmüller 2022	10.1016/j.evalprogplan.2022.102053	Not an EtD framework
Kumar 2020	10.1093/heapol/czaa027	Not an EtD framework
Lalani 2018	10.1111/hex.12852	Not an EtD framework
Lane 2021	10.1108/LHS-03-2021-0013	Not an EtD framework
Lewin 2019	10.1186/s12961-019-0468-4	Not an EtD framework
Li 2017	10.12688/f1000research.10966.1	Not an EtD framework
Li 2022	10.1016/j.imr.2022.100841	Does not describe domains, factors or criteria considered
Lietz 2020	10.1016/j.zefq.2020.03.002	Language other than English
Lin 2020	10.1007/s11606-020-05783-5	Not an EtD framework

Study ID	DOI	Reason for exclusion
Lo 2019	10.1136/bmjopen-2018-026482	Not an EtD framework
Lotfi 2022	10.1016/j.jclinepi.2021.09.028	Not an EtD framework
Luoto 2013	10.1371/journal.pmed.1001469	Not an EtD framework
Mahdavi 2021	10.34172/ijhpm.2021.142	Not an EtD framework
Malin 2022	10.1007/s15010-021-01645-2	Non-public health decision
Maree 2021	10.1071/AH19290	Not an EtD framework
Martins 2021	10.1007/s11524-021-00560-z	Not an EtD framework
McLaren 2016	10.1002/14651858.CD010166.pub2	Not an EtD framework
McPhaul 2013	10.3912/OJIN.Vol18No01Man04	Not an EtD framework
Morche 2018	10.1016/j.zefq.2018.03.004	Language other than English
Morgan 2018	10.1016/j.jclinepi.2017.09.023	Non-public health decision
Morgano 2017	10.1701/2802.28354	Language other than English
Morgano 2018	10.1701/2902.29246	Language other than English
Mostafavi 2016	10.5539/gjhs.v8n10p212	Not an EtD framework
Murad 2020	10.1016/j.mayocp.2020.05.009	Not an EtD framework
Murphy 2021	10.3310/hta25760	Non-public health decision
Mwendera 2017	10.1186/s12961-017-0264-y	Not an EtD framework
Neale 2019	10.1093/advances/nmy113	Not an EtD framework
Neumann 2018	10.1016/j.jval.2017.12.012	Not an EtD framework
Nicod 2017	10.1007/s10198-016-0823-0	Non-public health decision
Norton 2019	10.1186/s12961-019-0463-9	Not an EtD framework
Nussbaumer-Streit 2018	10.1016/j.zefq.2018.05.004	Language other than English
Oxman 2010	10.1016/S0140-6736(09)61251-4	Published before 2013
Palazzo 2016	10.1701/2218.23926	Language other than English
Parmelli 2017	10.1017/S0266462317000447	Non-public health decision
Paulden 2015	10.1007/s40273-014-0235-x	Non-public health decision
Perfetto 2018	10.1016/j.jval.2017.12.002	Not an EtD framework
Pertschuk 2013	10.1097/PHH.0b013e3182582a57	Not an EtD framework
Pfeifflé 2019	10.3390/nu11020362	Not an EtD framework
Poulin 2013	10.2147/MDER.S51384	Not an EtD framework
Prasinos 2022	10.1109/JBHI.2022.3142503	Not an EtD framework
Qin 2020	10.1371/journal.pone.0237342	Non-public health decision
Quilodrán 2021	10.5867/medwave.2021.04.8182	Language other than English

Study ID	DOI	Reason for exclusion
Redman 2015	10.1016/j.socscimed.2015.05.009	Not an EtD framework
Restar 2019	10.1371/journal.pone.0224133	Not an EtD framework
Rodes-Sanchez 2022	10.1016/j.vaccine.2022.05.054	Not an EtD framework
Rütten 2016	10.1055/s-0035-1548883	Language other than English
Rycroft-Malone 2013	10.1186/1748-5908-8-28	Not an EtD framework
Sacks 2020	10.1007/s13679-020-00376-z	Not an EtD framework
Schloemer 2018	10.1186/s13012-018-0751-8	Not an EtD framework
Schoelles 2017	10.23970/AHRQEPCWHITEPAPER3	Not an EtD framework
Sculpher 2018	10.1016/j.jval.2017.12.003	Not an EtD framework
Shaban-Nejad 2017	10.3233/978-1-61499-830-3-1335	Non-structured process
Shah-Manek 2017	10.18553/jmcp.2017.23.6-a.s13	Non-public health decision
Shekelle 2013	No DOI. PMID: 23427349	Not an EtD framework
Silva 2016	10.1016/j.healthpol.2016.01.005	Not an EtD framework
Sin 2015	10.12809/hkmj144326	Not an EtD framework
Siu 2015	10.12809/hkmj144307	Not an EtD framework
Sofi-Mahmudi 2022	10.1093/heapro/daab049	Not an EtD framework
Solow 2018	10.1016/j.jval.2017.12.004	Not an EtD framework
Sosa 2021	10.1007/s10995-020-03018-x	Does not describe domains, factors or criteria considered
South 2019	10.1093/heapro/dax083	Not an EtD framework
Stafinski 2011	10.2165/11539840-000000000-00000	Non-public health decision
Tan 2019	10.1177/1355819619842305	Not an EtD framework
Thompson 2022	10.1186/s12961-022-00902-6	Not an EtD framework
Timotijevic 2013	10.1080/10408398.2012.747485	Does not describe domains, factors or criteria considered
Turner 2017	10.1001/jamapediatrics.2017.1360	Not an EtD framework
Unsworth 2021	10.1177/20552076211018617	Not an EtD framework
Vélez 2020	10.1186/s12961-020-00584-y	Not an EtD framework
Venkatesan 2019	10.1371/journal.pone.0223946	Not an EtD framework
Votruba 2021	10.1186/s12961-020-00651-4	Not an EtD framework
WaltersLEM 2018	10.2196/jmir.9940	Not an EtD framework
Weber 2017	10.1186/s12904-017-0252-6	Not an EtD framework
Wende 2022	10.1186/s43058-022-00316-z	Not an EtD framework

Study ID	DOI	Reason for exclusion
WHO 2013	No DOI. https://apps.who.int/iris/handle/10665/131300	Not an EtD framework
WHO 2018	No DOI. https://www.who.int/publications/i/item/9789241514088	Not an EtD framework
Wickremasinghe 2016	10.1093/heapol/czv079	Not an EtD framework
WongCHL 2020	10.1177/1534735420940418	Non-public health decision
Yazdi-Feyzabadi 2021	10.1186/s13690-021-00737-7	Not an EtD framework
Yearwood 2018	10.26633/RPSP.2018.91	Not an EtD framework
Yoder-Wise 2020	10.1111/nuf.12381	Not an EtD framework
Yue 2022	10.1186/s12913-022-07493-6	Not an EtD framework
Zawadzki 2021	10.1016/j.jval.2021.03.005	Not an EtD framework
Zucca 2021	10.3389/fpubh.2021.653588	Not an EtD framework

Annex 6. List of included references and documents for each framework and research question

Framework	RQ1 - RQ2	RQ3	RQ4
GRADE-EtD	Main reference: [1] Complementary references: [5,39–44] Adaptations of the framework: [22,23,53–56]	[62–65]	[23,45–50,59,60]
WHO-INTEGRATE	Main reference: [7] Complementary references: [38]	[66,67]	[51,52,61]
PSE framework	[33]	-	-
Framework for planning and improving evidence-based practices	[30]	-	-
EEFA framework	Main reference: [24] Complementary references: [25,57]	[68,69]	-
Framework for prioritising policy choices	[31]	-	-
WICID	[72]	-	-
EURRECA	Main reference: [26] Complementary references: [27]	-	-
Ontario Decision Framework	[34]	-	-
Policy Framework for Technology Assessment	[35]	-	-
Policy Framework for Primary Prevention of Occupational Cancer	[36]	-	-
EVITA	Main reference: [28] Complementary references: [29]	-	-
Framework of evidence-based decision-making in health system management	[32]	-	-
PREVIDE	[37]	-	-
CPSTF framework	[58]	[70,71]	-

CPSTF: Community Preventive Services Task Force; EEFA: Ethics, Equity, Feasibility, and Acceptability; EtD: Evidence to Decision; EURRECA: EURopean micronutrient RECommendations Aligned; EVITA: EVIdence To Agenda; GRADE: Grading of Recommendations, Assessment, Development, and Evaluation; INTEGRATE: INTEGRATe Evidence; PREVIDE: PREVention decIDE; PSE: Policy, Systems, and Environmental; WHO: World Health Organization; WICID: WHO-INTEGRATE COVID-19.

Annex 7. Detailed description of each identified framework

Framework name	GRADE Evidence-to-Decision (EtD) framework [1]
Country	Multi-country
Development organisation	GRADE Working Group
Scope	Generic
Aim	To help groups of people (panels) use evidence in a structured and transparent way to inform decisions in the context of clinical recommendations, coverage decisions, and health system or public health recommendations and decisions
Target audience	Clinicians, guideline developers, and policymakers
Target setting	Not reported
Methods for development	Iterative process (i.e. literature review, brainstorming, stakeholder feedback, piloting, and user testing)
Funding source	European Commission FP7 Program (grant agreement 258583) as part of the DECIDE project
Conflict of interests	No financial relationships with any organisations that might have an interest in the submitted work in the previous three years, no other relationships or activities that could seem to have influenced the submitted work. Authors are members of the GRADE Working Group and the DECIDE project.
Categories for decisions	Strength of the recommendation: Strong or weak Direction of the recommendation: For or against
Decision-making criteria	"For Health system and public health recommendations/decisions: 1. Priority of the problem 2. Desirable effects 3. Undesirable effects 4. Certainty of the evidence of effects 5. Values and preferences 6. Balance between desirable and undesirable effects 7. Resource requirements (costs) 8. Certainty of the evidence of resource requirements 9. Cost-effectiveness 10. Equity 11. Acceptability • Feasibility"
Description of the process to make the recommendations or decisions	"The panel reviews the judgments they have made for all of the criteria (assessment), considering the implications of those judgments for the recommendation or decision. The panel draws conclusions about the strength of the recommendation or type of decision. Besides, the panel states the recommendation or decision in a concise, clear, and actionable manner, along with the justification."
Definition of evidence in the framework	Research evidence refers to facts (actual or asserted) used to inform the panel's judgments that are derived from studies that used systematic and explicit methods
Specific type of evidence used	Systematic reviews or research evidence developed using explicit methods

Framework name	WHO-INTEGRATE (INTEGRATe Evidence) framework [7]
Country	Global
Development organisation	World Health Organization
Scope	Generic
Aim	To ensure that all criteria of relevance in a given guideline or other health decision-making process are considered in a systematic way
Target audience	Not explicitly reported
Target setting	Applicable to all health interventions but particularly well suited for decisions about population-level and system-level interventions at both national and global levels
Methods for development	i) Analysis of WHO's norms and values; ii) systematic review of EtD criteria in clinical care and public health; iii) interviews with key informants (usefulness); iv) application to completed WHO guidelines; v) focus groups; vi) peer review; and vii) development of guidance and prompts for completing the EtD.
Funding source	WHO Department of Maternal, Newborn, Child and Adolescent Health received grants from the United States Agency for International Development and the Norwegian Agency for Development
Conflict of interests	Two authors were members of the GRADE Working Group, and one author was a WHO employee
Categories for decisions	Not reported
Decision-making criteria	• "Balance of health benefits and harms • Human rights and socio-cultural acceptability • Health equity, equality, and non-discrimination • Societal implications • Financial and economic considerations • Feasibility and health system considerations The quality of evidence is considered a meta criterion across the above-mentioned six substantive criteria."
Description of the process to make the recommendations or decisions	"This must be an evidence-informed process. The framework is not intended to be a tick-box exercise, and must respond to a prioritisation of the most relevant criteria, subcriteria depending on the target question, and the time and resource disposition. All criteria are important and should be reflected on, but their relevance varies depending on the context. In contrast, not all subcriteria are always relevant."
Definition of evidence in the framework	Not reported
Specific type of evidence used	Primary research, systematic reviews (formal evidence synthesis), or a more pragmatic approach (e.g. rapid reviews, umbrella reviews, formal consultation with experts – colloquial evidence)

Framework name	PSE-framework (Policy, Systems, and Environmental Approaches for Obesity Prevention: A Framework to Inform Local and State Action) [33]
Country	United States
Development organisation	Division of Health Management and Policy, Institute of Public Health, Georgia State University
Scope	Topic specific (obesity prevention for local and national contexts)
Aim	To provide guidance for clinicians and collaborative groups on the activities that hold promise for facilitating policy change for obesity prevention
Target audience	Clinicians and collaborative groups
Target setting	Local and state settings
Methods for development	Literature searches for published works that describe or explain the policymaking process
Funding source	Research grants from the US Centers for Disease Control and Prevention (CDC) and the Physical Activity Policy Research Network
Conflict of interests	Not reported
Categories for decisions	Promoting policy change by facilitating the convergence of the three domains.
Decision-making criteria	"Three domains: policy, systems, and environmental change ● The priority of the problem, acknowledged by policy-makers ● The policy domain: identification of policy solutions targeting the problem (i.e. typically a specific determinant of obesity) ● The policy proposals that survive to ultimately receive serious consideration generally meet several selection criteria, including technical feasibility, congruence with values, and anticipation of future restraints (e.g. fiscal limitations, public acceptability, and politicians' receptivity) ● The political domain represents the prevailing political context. This domain is affected by factors, such as national mood, public opinion, changes in administration, shifts in partisan or ideological distributions among politicians, and interest group pressure campaigns Further, six activities are to be undertaken: (a) assess the social and political environment; (b) engage, educate, and collaborate with key stakeholders (public and political engagement); (c) identify and frame the problem; (d) utilise available evidence (evidence synthesis); (e) identify policy solutions, considering sustainability, effects on health equity, and any potential for unintended consequences); and (f) build support and political will."
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Not reported
Specific type of evidence used	Not reported

Framework name	Framework for planning and improving evidence-based practices [30]
Country	United States
Development organisation	Centers for Disease Control and Prevention (CDC)
Scope	Generic
Aim	• To promote dialogue among scientists and practitioners about a consistent taxonomy for classifying the evidence for public health practices • To help researchers, practitioners, and evaluators show how their work contributes to building the evidence base for particular practices
Target audience	Researchers, evaluators, practitioners, funders, and other decision-makers
Target setting	United States
Methods for development	• Literature reviews of models and frameworks for classifying evidence, including best practices • Mapping of 'best practice' definitions and key criteria • Deliberation among experts • Development of a conceptual framework for planning and improving evidence-based practices by adapting and extending several streams of existing work related to developing a continuum of evidence • Development of criteria, definitions, and examples for key terms and formulation of a series of questions to apply in assessing and classifying practices
Funding source	No funding
Conflict of interests	None to declare
Categories for decisions	Not reported
Decision-making criteria	"Two interrelated components: Public health impact (effectiveness, reach, feasibility, sustainability, and transferability) and Quality of evidence (ranging from weak to rigorous)"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Not reported
Specific type of evidence used	Preferably systematic reviews

Framework name	EEFA (Ethics, Equity, Feasibility, and Acceptability) Framework [24]
Country	Canada
Development organisation	The National Advisory Committee on Immunization (NACI)
Scope	Topic specific (evidence-informed immunisation program recommendations)
Aim	To systematically assess programmatic factors, such as the ethics, equity, feasibility, and acceptability of recommendations
Target audience	Advisory bodies in charge of implementing vaccine recommendations
Target setting	Vaccine development within immunisation programs
Methods for development	Five years of environmental scans, systematic reviews and surveys, refined by expert and stakeholder consultations and feedback
Funding source	Not reported
Conflict of interests	None to declare
Categories for decisions	Not reported
Decision-making criteria	• "Ethics integrated filters for content and process a. Core ethical dimensions filter: Respect for persons and communities (informed choices); beneficence and non-maleficence; justice; trust b. Ethical procedural considerations filter: Accountability; inclusiveness; responsibility; responsiveness; transparency • Equity matrix: Pre-existing condition; place of residence; race/ethnicity/culture/ language/immigration/refugee status; occupation; gender identity/sex; religion/belief system; education/literacy level; socioeconomic status; social capital; age; other risk factors • Feasibility matrix: Resources (vaccine supply, human resources, funding, and training); integration with existing programs (vaccine coverage, communication, co-admin with other vaccines and existing programs/schedules) • Acceptability matrix: Vaccine (perceptions of); disease (perceptions of); process to get vaccinated; individual factors (beliefs, values, and experiences)"
Description of the process to make the recommendation or decision	• "Once the need for immunisation recommendations is identified, the Technical Leads use the evidence-informed tools to consider issues on ethics, equity, feasibility and acceptability and answer the specific questions from Erickson et al.'s Analytic Framework • The Technical leads present the completed tools to the relevant NACI Working Group as part of the full evidence base considered when developing recommendations • The conclusions of the EEFA Framework are presented within the spectrum of public health science for consideration by the jurisdictions in their own contexts, similar to a GRADE EtD table • Links to the full EEFA Framework and supporting tools, as well as completed tools for the particular vaccine recommendations (if deemed necessary), will be attached to the NACI ACS"
Definition of evidence in the framework	Not reported
Specific type of evidence used	Not reported

Framework name	Framework for prioritising policy choices [31]
Country	Nepal
Development organisation	The Resilient Mountain Solutions (RMS) Initiative at ICIMOD supported by the Governments of Sweden, Norway and Regional Member Countries.
Scope	Generic
Aim	To present principles and criteria, and a suggested approach for assessing and prioritising policy choices in planning and decision-making
Target audience	Policy-makers and governments, as well as those interested in implementation
Target setting	Global
Methods for development	Not reported
Funding source	Governments of Sweden, Norway and Regional Member Countries, and funds of ICIMOD contributed by the governments of Afghanistan, Norway, Sweden, Australia, Austria, Bangladesh, Bhutan, China, India, Myanmar, Nepal, Pakistan, and Switzerland
Conflict of interests	None to declare
Categories for decisions	Not reported
Decision-making criteria	• "Dimensions of priorities: saving human lives and livelihoods; efficiency and effectiveness; equity and fairness; sustainability and resilience • Identifying smart strategies that bring synergistic effects • Complementarities and interactions among strategies • Assessing trade-offs, magnitude of the benefits • Improving policy coherence • Identify alternative approaches or combinations, weighing the potential benefits and externalities, both positive and negative, to maximise potential net benefits in achieving the broader societal goals • Coherence, compatibility, and congruence • Aligning Policy Instruments to Improve • Policy Coherence • Improving Policy Coherence • Managing Externalities • Reconciling Private and Social Interests • Integrating Long-Term Sustainability in policy decisions"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Not reported
Specific type of evidence used	Not reported

Framework name	WICID (WHO-INTEGRATE COVID-19) [72]
Country	Global
Development organisation	German government; Institute for Medical Informatics, Biometry and Epidemiology (IBE); and Pettenkofer School of Public Health, LMU Munich, Bavaria, Germany
Scope	Generic
Aim	To support decision-makers in identifying and considering criteria of relevance for non-pharmacological interventions targeting COVID-19
Target audience	Those involved in making decisions on NPIs at the local, regional and national level (eg, from decision-makers deciding on municipal regulations of how to (re)open a specific school to decision-makers deciding on state-wide regulation on protective measures in the educational system), as well as the scientific expert groups advising these political decision-makers.
Target setting	Local, regional, and national levels
Methods for development	• Authors employed the 'best fit' framework synthesis technique and used the WHO-INTEGRATE framework as a starting point • Brainstorming • A content analysis of twelve relevant documents intended to guide policymakers on the phasing out of applied lockdown measures in Germany • Development of factors and criteria
Funding source	The authors received support from the Bundeszentrale für gesundheitliche Aufklärung (BZgA; the German Federal Center for Health Education) to cover the publication fees for this manuscript. The BZgA did not have any editorial or scientific influence on the content of this publication.
Conflict of interests	The first author is also the author of the WHO-INTEGRATE framework. Two authors were part of an expert group that developed strategy documents intended to inform the COVID-19 crisis task force of the German government. One (in the case of JMS) and two (in the case of MV) of which were included as comprehensive strategy documents in this analysis.
Categories for decisions	Not reported
Decision-making criteria	• "Implications for the course of the pandemic and its impact on health • Implications for quality of life, social well-being and mental health • Implications for physical health, health behaviour, health risks and healthcare beyond COVID-19 • Proportionality and accordance with individual autonomy and fundamental rights • Acceptability of and willingness to implement the measures • Equity, equality and the fair distribution of benefits and burdens • Societal and environmental implications & considerations • Economic implications & consideration • Resource implications & considerations • Feasibility implications & considerations • Interaction with and implications for the health system Quality of evidence considered as a meta criterion"
Description of the process to make the recommendation or decision	• "Development of a logic model or systems map of the measure and the context is intended to be implemented • The WICID framework is used to expand on dimensions not adequately covered • Identification of relevant stakeholders, informed by the logic model • Those involved in the decision-making process need to define criteria that are assumed to be relevant for deliberating on the measure • The assumed importance of the criteria should be rated (e.g. on a 1–5 scale from 'less important' to 'critical') and selected • Efforts should be made to receive feedback on the expanded logic model and the selected criteria from key stakeholder groups identified in the mapping. Repeated rounds of steps 1–4 are likely to produce the best results • Efforts should be made to acquire appropriate sources of evidence to inform the selected criteria (e.g. by commissioning research or inviting experts' judgments) • The retrieved evidence for each criterion should be summarised and presented alongside the assessment of the quality of the evidence and its transferability to the context at hand • The group of decision-makers should engage in the deliberation to balance the criteria against each other, taking their weight, direction, quality and transferability of the evidence into account • The final judgement and the underlying rationale should be made transparent and public"
Definition of evidence in the framework	Not reported
Specific type of evidence used	Primary research, systematic reviews (formal evidence synthesis) or a more pragmatic approach (e.g. rapid reviews, umbrella reviews, formal consultation with experts - colloquial evidence).

Framework name	EURRECA (EUROpean micronutrient RECommendations Aligned) [26]
Country	Europe
Development organisation	Eurreca network of excellence (NoE)
Scope	Topic specific (micronutrient recommendations)
Aim	To describe the process leading from assessing nutritional requirements to policy applications, based on evidence from science, stakeholders' interests, and the sociopolitical context. The framework also covers consumer issues and acknowledges the influences of the wider sociopolitical context
Target audience	Public health policy-makers
Target setting	Not reported
Methods for development	Review of conceptualisations on the process of setting micronutrient recommendations by three international organisations
Funding source	European Commission's Directorate General for Research
Conflict of interests	None to declare
Categories for decisions	Not reported
Decision-making criteria	• "Defining the nutrient requirements for health (aided by systematic reviews) • Setting the nutrient recommendations • Policy options • Policy applications"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Scientific evidence on health effects, biomedical factors, stage of life, susceptibility, geographical, socioeconomic cultural and religious factors
Specific type of evidence used	Nutritional and epidemiological science, evidence on the distribution of usual intake from monitoring surveys, evidence on consumer behaviour and social sciences, as well as stakeholder expertise

Framework name	Ontario Decision Framework [34]
Country	Canada
Development organisation	Ontario Health Technology Advisory Committee (OHTAC)
Scope	Topic-specific (nondrug health technologies)
Aim	To offer a transparent, multidisciplinary and consistent approach to making decisions in a deliberative manner
Target audience	Not reported
Target setting	Single provincial portal for recommendations on the introduction of nondrug health technologies
Methods for development	• A priori consensus on guiding principles; • A scoping review of decision attributes and processes used globally in health technology assessment (HTA); • Presentations by methods experts and members of review committees; • Committee deliberations over a period of three years.
Funding source	Not reported
Conflict of interests	Not reported
Categories for decisions	Not reported
Decision-making criteria	• "Context criteria; • Appraisal criteria: Benefits and harms, magnitude of certainty of evidence for benefits and harms, patients' perspectives, economics, summary of cost-effectiveness, patient-centred care (equity, solidarity, population health, collaboration, and shared responsibility for health); • Feasibility criteria: Budget impact and organisational considerations."
Description of the process to make the recommendation or decision	"No general decision-making process is reported. Different thresholds for assessing each criterion are provided, including a trigger tool to determine when a full ethics and social values analysis is warranted."
Definition of evidence in the framework	Not reported
Specific type of evidence used	Scoping reviews; qualitative research synthesis; research synthesis related to health equity, ethics studies, and patient preferences

Framework name	Policy Framework for Technology Assessment [35]
Country	Canada
Development organisation	The Technology Assessment Unit (TAU) of the McGill University Health Centre (MUHC)
Scope	Generic
Aim	• To identify decision criteria specific to the context of hospital-based health technologies and interventions • To estimate the extent to which the expert community agrees on the importance of the identified criteria • To incorporate the identified criteria into a decision-aid tool • To illustrate the application of a prototype decision-aid tool
Target audience	Hospital administrators
Target setting	Hospital-based health technology assessment (HTA) units
Methods for development	Relevant decision criteria were identified using existing frameworks for HTA recommendations, researchers past experience, literature search, and feedback from a survey of diverse stakeholders
Funding source	Not reported
Conflict of interests	None to declare
Categories for decisions	• Approved • Approved for evaluation • Not approved
Decision-making criteria	• "Clinical benefit: Magnitude of effectiveness, quality of evidence for effectiveness, and safety • Impact on patient: Impact on patient convenience, patient preference, patient-centred outcome measures • Value for money: Total cost, cost avoided/increased hospital efficiency, budget impact on other services, and cost-effectiveness • Feasibility: Availability of local expertise, disruptiveness, need to generate local evidence, ability to increase cross-institution collaboration, personnel satisfaction • Impact on healthcare system: Benefit to society (reduces health care costs), burden on other healthcare centres, and need (unnecessary duplication) • Strategic considerations: Stakeholder pressure to acquire the technology; availability of external funding; number of patients affected by the technology • Ethical considerations: Disruption of access to care"
Description of the process to make the recommendation or decision	"Not well-reported. The technical team documents research findings, indicating whether the findings for each criterion were favourable for the approval of routine use of ECMO in adults. The tool is then emailed to one member of the policy committee, who is asked to rate the importance of each criterion"
Definition of evidence in the framework	Not reported
Specific type of evidence used	Not reported

Framework name	Policy Framework for Primary Prevention of Occupational Cancer [36]
Country	Canada
Development organisation	Occupational Cancer Research Centre, Cancer Care Ontario
Scope	Topic specific (primary prevention of occupational cancer)
Aim	To develop policies to prevent occupational cancer
Target audience	Not specified (various users and contexts)
Target setting	Canada and other countries
Methods for development	An environmental scan of existing prospective health policy analyses to identify potential parameters for a framework that can be used to develop occupational cancer primary prevention policies. The elements that routinely appeared in the literature and that were most applicable to occupational cancer primary prevention were ultimately chosen for inclusion.
Funding source	Canadian Cancer Society Research Institute (Grant #701285). There was no involvement of the funder in this manuscript
Conflict of interests	None to declare
Categories for decisions	Not reported
Decision-making criteria	• "Problem statement • Context (structural, situational, cultural/social, and external factors) • Jurisdictional evidence • Primary prevention policy options • Key policy players and their attributes"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Evidence from other jurisdictions can be used to understand how a particular policy problem has been addressed elsewhere
Specific type of evidence used	Jurisdictional evidence (no further details given)

Framework name	EVITA [28]
Country	Low and middle income countries
Development organisation	Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology & Neuroscience, King's College London
Scope	Topic specific (mental health policy agenda)
Aim	To facilitate, analyse and guide mental health research and policy interrelationships, with the intention to serve as a 'pragmatic, predictive, and effective tool' for improving research and policy exchange, and enhancing research impact on the policy agenda
Target audience	Researchers, individuals and organisations working in mental health research–policy ecosystem, such as policy-makers, health policy agencies and planners
Target setting	Low and middle income countries
Methods for development	• Development of the provisional framework (EVITA 1.0) • Validation framework for mental health • Validation through in-depth interviews • Revision and finalisation of the framework (EVITA 1.1)
Funding source	Not reported
Conflict of interests	Not reported
Categories for decisions	Not reported
Decision-making criteria	• "Advocacy coalitions: To achieve a uniform voice and policy ask, common ground of values, policy aims and implementation • Engagement (actors): Stakeholder mapping (identification and recruitment) • Evidence generators • External influences (e.g. attitudes and perceptions of mental health, mental disorders, or the perception of psychology and psychiatry) • Intermediaries: Their support role can expand into linking advocacy coalitions, to increase policy impact through their single vision and stronger political voice. • Political context (policy-making process, political will, motives and opportunities, and setting the political agenda) • Mechanisms: capacity building; catalysts; communication/relationship/partnership building; strategic communication; building lasting relationships • Framing: Identifying the status quo in relation to the issue, and in what way the new evidence diverges from this status quo, and then adapting the evidence to the context and policy question"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	The evidence has to be of good quality, rigorous, and trustworthy science, which is up to date, timely and relevant. Research (evidence) needs to be clear, understandable, and accessible to policy and public (open-access, and published in non-scientific media. It needs to be generalisable and applicable to local, regional or national policies
Specific type of evidence used	The evidence eco-system encompasses scientific evidence, implementation science/knowledge translation, and academic public and policy engagement (such as universities' policy outreach centres). It can be useful to consider additional non-research evidence

Framework name	Framework of evidence-based decision-making in health system management [32]
Country of development	Iran
Development organisation	Shiraz University of Medical Sciences
Scope	Generic, closer to health system management (HSM)
Aim	To guide and adapt evidence-based decision-making in health system management
Target audience	Not reported
Target setting	Global, but with a focus on low and middle income countries and limited-resource settings
Methods for development	Systematic reviews, data analysis via thematic analysis, and concept generation to achieve the best-fit framework applying Carroll et al. 2013 approach
Funding source	Shiraz University of Medical Sciences, under code (96-01-07-14184)
Conflict of interests	Mrs. Tahereh Shafaghat conducted the project as part of the Ph.D. degree
Categories for decisions	Not reported
Decision-making criteria	"Four general phases of inquiring, inspecting, and implementing are integrated across 10 main steps: • Inquiring: 1) situation analysis and priority setting; 2) quantifying the issue and developing a statement; 3) capacity building and setting objectives; 4) evidence acquisition and integration • Inspecting: 5) evidence appraisal; 6) Analysis, synthesis, and interpretation of data • Implementing: 7) Developing Evidence-Based alternatives; 8) Pilot implementation of selected alternatives • Integrating: 9) Evaluate alternatives; 10) Integrate and maintain change in practice"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Not reported
Specific type of evidence used	Not reported

Framework name	PREVIDE [37]
Country	Australia
Development organisation	University of Queensland, Australia
Scope	Topic specific (Noncommunicable Disease Prevention, NCD)
Aim	To develop a contemporary decision-making framework for NCD prevention in healthcare organisations
Target audience	Not reported
Target setting	Clinical and public health organisations
Methods for development	Qualitative study design (phenomenological), including cross-sectional and semi-structured interviews
Funding source	The University of Queensland Business School Connect Grant Scheme
Conflict of interests	None to declare
Categories for decisions	Investment of time, resources, money, and/or organisational inertia, no action (neutral position), or disinvestment
Decision-making criteria	• "Data • Evidence • Ethics • Health"
Description of the process to make the recommendation or decision	Not reported
Definition of evidence in the framework	Traditional and non-traditional sources of evidence (e.g. innovation, experience)
Specific type of evidence used	Not reported

Framework name	Community Preventive Services Task Force (CPSTF) framework [58]
Country	United States
Development organisation	Centers for Disease Control and Prevention, CDC
Scope	Generic
Aim	Not reported
Target audience	Not reported
Target setting	High income countries
Methods for development	Not reported
Funding source	Not reported
Conflict of interests	Not reported
Categories for decisions	• Recommend, with strong or sufficient evidence • Recommend against, with strong or sufficient evidence when the harms are greater than the benefits • Insufficient evidence, when there is not enough evidence to determine intervention effectiveness or inconsistent evidence
Decision-making criteria	• Body of evidence (quality) • Effectiveness • Applicability • Balance benef/harms • Implementability • Evidence gaps
Description of the process to make the recommendation or decision	• "CPSTF decides on the topic for review based on their prioritisation process. From there, a coordination team ('the team') is convened to guide the review • The team selects an intervention approach (a type of intervention that is used to address a specific public health problem, such as mass media campaigns to increase safety belt use) within the topic area for review • Each team follows an extensive conceptualisation process in which they draft a definition, inclusion and exclusion criteria, analytic framework, research questions, and applicability factors • Next, the team consults with a research librarian at the CDC Library to draft a search strategy. The research librarian then conducts the systematic search • Once candidate publications are obtained from the systematic search, the team begins a three-stage screening process to identify potential papers for inclusion • The team narrows the search yield through the screening process and abstracts relevant information from the remaining papers using the Community Guide criteria to examine the quality of these papers • The team analyses the data, calculating summary effect estimates and assessing applicability • After completing the analysis, the team presents the findings to CPSTF, which translates evidence into CPSTF recommendations and broadly disseminates the findings to public health practitioners"
Definition of evidence in the framework	Not reported
Specific type of evidence used	All types of comparative study designs (e.g. experimental studies with allocated control groups, observational studies with concurrent or historical control groups, and observational studies with single group before-after comparisons of change)

Annex 8. Experiences of survey respondents using the GRADE EtD framework

Participants reflected about the evidence to be considered when using the GRADE EtD framework, referring the lack of evidence as a challenge for the public health field:

- '[The experience of using the framework is] difficult because often there is not enough scientific evidence and we are obliged to use practice based consensus in our guidelines.' (Participant #1)
- 'GRADE is very challenging to apply in Public Health settings, because in the majority of cases the certainty of evidence is low or very low, and will always be so. But action is required. I am extremely concerned that decision-makers will choose not to act when certainty is low or very low, and reallocate [resources] towards more clinical treatment if there is greater certainty.' (Participant #2)
- '(...) a key barrier was the absence of evidence (...) and the inability for this approach to handle other forms of research evidence beyond typical intervention study types.' (Participant #6)
- 'Problems with GRADE EtD for public health guidelines include (...) the fact that evidence in this space is unlikely to involve RCTs and so most studies are going to end up low/very low [certainty]' (Participant #9)

Other participants reflected on the practical implications about the use of the GRADE EtD framework. One referred that the framework was *'Incredible useful' (Participant #13)*. Other participants expressed difficulties using it in contexts where rapid decision-making is needed, and questioned if the criteria was comprehensive and adequate enough to guide panel discussions in the public health field:

- '(...) we basically found it too rigorous and time-consuming to use as we needed rapid collection of evidence for rapid decision-making.' (Participant #10)
- '(...) methods in GRADE are not elaborated and functional for modelling studies, data from lab and sociological studies of impact in society and more' (Participant #10)
- 'The discussions held by the guideline panel were far more wide-ranging than could be adequately captured in the EtD.' (Participant #6)
- 'GRADE does not consider societal implications. The GRADE EtD is too complex and was developed for clinical decision-making not public health decision-making. You can't force a round peg into a square hole.' (Participant #9)

Some participants highlighted the need for specialised knowledge for using the GRADE EtD framework:

- 'These instruments, including GRADE and EtD are fine if you have enough methodologically skilled people with a lot of time who are willing to serve the needs of rapid decision-making.' (Participant #10)
- 'There is need for a lot of training for infectious disease experts to use them (...)' (Participant #10)
- '[The main barriers for its use is the] learning curve' (Participant #13)

The main enabler for its use was the perception of the process as structured and well accepted:

- 'A framework is necessary to ensure that the factors that contributed to the final recommendation are transparently reported and justified. When guidelines are high profile the readers need to know exactly how you reached the conclusion you reached.' (Participant #9)
- '[The main facilitator or enabler for its use is] the structured process' (Participant #13)

After analysing the survey responses, we attempted to contact participants #1, #3, #6, #9 and #11 for an interview, since they could provide further insight in the experience of using EtD frameworks. However, none of these participants was available for an interview.

Table 2. Characteristic of included Evidence-to-Decision frameworks

Framework name	Development organisation	Scope	Target audience	Targeted setting	Categories of decisions	Evidence used	Number of considered criteria[1]
GRADE EtD framework	GRADE Working Group	Generic	Clinicians, guideline developers, and policy-makers	Not reported	Strength of the recommendation: Strong or weak Direction of the recommendation: For or against	Systematic reviews or research evidence developed using explicit methods	12
WHO-INTEGRATE framework	World Health Organization	Generic	Not reported	Applicable to all health interventions but particularly well suited for decisions about population-level and system-level interventions at both national and global levels	Not reported	Primary research, systematic reviews (formal evidence synthesis), or a more pragmatic approach (e.g. rapid reviews, umbrella reviews, formal consultation with experts - colloquial evidences)	6
PSE framework	Division of Health Management and Policy, Institute of Public Health, Georgia State University, US	Topic specific (obesity prevention for local and national contexts)	Clinicians and collaborative groups	Local and state settings	Not reported	Not reported	3
Framework for planning and improving evidence-based practices	CDC, US	Generic	Researchers, evaluators, practitioners, funders, and other decision-makers	US	Not reported	Preferably systematic reviews	2
EEFA Framework	NACI, Canada	Topic specific (evidence-informed immunisation program recommendations)	Advisory bodies in charge of implementing vaccine recommendations	Vaccine development within immunisation programs	Not reported	Not reported	4
Framework for prioritising policy choices	The Resilient Mountain Solutions Initiative at ICIMOD, Nepal (supported by the Governments of Sweden, Norway and Regional Member Countries)	Generic	Policy-makers and governments, as well as those interested in implementation	Global	Not reported	Not reported	13

Framework name	Development organisation	Scope	Target audience	Targeted setting	Categories of decisions	Evidence used	Number of considered criteria[1]
WICID framework	German government; Institute for Medical Informatics, Biometry and Epidemiology; and Pettenkofer School of Public Health, LMU Munich, Bavaria, Germany	Topic specific (non-pharmacological interventions for COVID-19)	Decision-makers at the local, regional and national level	Local, regional, and national levels	Not reported	Primary research, systematic reviews (formal evidence synthesis), or a more pragmatic approach (e.g. rapid reviews, umbrella reviews, formal consultation with experts – colloquial evidences)	11
EURRECA framework	Eurreca network of excellence	Topic specific (micronutrient recommendations)	Public health policy-makers	Not reported	Not reported	Nutritional and epidemiological science, evidence on the distribution of usual intake from monitoring surveys, evidence on consumer behaviour and social sciences, as well as stakeholder expertise	4
Ontario Decision Framework	Ontario Health Technology Advisory Committee, Canada	Topic specific (nondrug health technologies)	Not reported	Single provincial portal for recommendations on the introduction of nondrug health technologies	Not reported	Scoping reviews; qualitative research synthesis; research synthesis related to health equity, ethics studies, and patient preferences	3
Policy Framework for Technology Assessment	The Technology Assessment Unit, McGill University Health Centre, Canada	Generic	Hospital administrators	Hospital-based health technology assessment units	Approved Approved for evaluation Not approved	Not reported	7
Policy Framework for Primary Prevention of Occupational Cancer	Occupational Cancer Research Centre, Cancer Care Ontario, Canada	Topic specific (primary prevention of occupational cancer)	Not specified (various users and contexts)	Canada and other countries	Not reported	Jurisdictional evidence (no further details given)	5

Framework name	Development organisation	Scope	Target audience	Targeted setting	Categories of decisions	Evidence used	Number of considered criteria[1]
EVITA framework	Centre for Global Mental Health, Health Service and Population Research Department, Institute of Psychiatry, Psychology & Neuroscience, King's College London, UK	Topic specific (mental health policy agenda)	Researchers, individuals and organisations working in mental health research–policy ecosystem, such as policy-makers, health policy agencies and planners	Low and middle income countries	Not reported	Scientific evidence, implementation science/knowledge translation, academic public and policy engagement (such as universities' policy outreach centres), additional non-research evidence	8
Framework of evidence-based decision-making in health system management	Shiraz University of Medical Sciences, Iran	Generic, closer to health system management	Not reported	Global, but with a focus on low and middle income countries and limited-resource settings	Not reported	Not reported	4
PREVIDE framework	University of Queensland, Australia	Topic specific (Noncommunicable Disease Prevention, NCD)	Not reported	Clinical and public health organisations	Investment of time, resources, money, and/or organisational inertia No action (neutral position) Disinvestment	Traditional and non-traditional sources of evidence (e.g. innovation, experience)	4
CPSTF framework	CDC, US	Generic	Not reported	High income countries	Recommend, with strong or sufficient evidence Recommend against, with strong or sufficient evidence when the harms are greater than the benefits Insufficient evidence, when there is not enough evidence to determine intervention effectiveness or inconsistent evidence	All types of comparative study designs (e.g. experimental studies with allocated control groups, observational studies with concurrent or historical control groups, and observational studies with single group before-after comparisons of change)	6

CDC: Center for Disease Control and Prevention; CPSTF: Community Preventive Services Task Force; EEFA: Ethics, Equity, Feasibility, and Acceptability; EtD: Evidence to Decision; EURRECA: EURopean micronutrient RECommendations Aligned; EVITA: EVIdence To Agenda; GRADE: Grading of Recommendations, Assessment, Development, and Evaluation; INTEGRATE: INTEGRATe Evidence; NACI: National Advisory Committee on Immunization; PREVIDE: PREVention decIDE; PSE: Policy, Systems, and Environmental; WHO: World Health Organization; WICID: WHO-INTEGRATE COVID-19.

[1]*Criteria may include sub-criteria. For more details, see Annex 7.*

Table 3. Map of the use of public health Evidence-to-Decision frameworks for infectious diseases

Title	Infectious disease health condition	Scope	Organisation	Panel members profile	Methodology	Decision-making process	Tailoring of the framework
GRADE EtD framework[62] **(n=4)**							
Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America [62]	Yes, (Antibiotic Stewardship Program)	Treatment	Infectious Disease Society of America (IDSA)	Multidisciplinary experts from IDSA, the Society for Healthcare Epidemiology of America, representatives from diverse geographic areas, paediatric and adult practitioners, and a wide breadth of specialties representing major medical societies.	Conducted a systematic literature review, grading the certainty of evidence according to IDSA Handbook on Clinical Practice Guideline Development (based on the GRADE methodology)[75] Conflicts of interests were addressed according to IDSA guidelines.	Consensus Development Based on Evidence	No[2]

[2] The example states that recommendations were done according to IDSA guidelines, which do not have major modifications with respect to GRADE's original proposal. However, in the guideline itself they do not describe the specific EtD process for each recommendation.

Title	Infectious disease health condition	Scope	Organisation	Panel members profile	Methodology	Decision-making process	Tailoring of the framework
COVID-19-EPIDEMIC: Should individuals in the community without respiratory symptoms wear facemasks to reduce the spread of COVID-19?–a rapid review [63]	Yes (Facemask to prevent COVID-19)	Prevention	Norwegian Institute of Public Health	Mainly methodologists, no external panel members participated	Most of the EtD criteria were informed by high-quality SRs, although this is information was not presented clearly in the reports. Some primary studies were also used as evidence base. The evidence that is included was based on a rapid systematic review. Additional data were collected from national surveillance. The panel focused primarily on the priority of the problem and the effects of the options. The resource criteria were considered, but the evidence base was limited.	Consensus	No
Strategies to enhance rational use of antibiotics in hospital: a guideline by the German Society for Infectious Diseases [65]	Yes (use of antibiotics in hospital)	implementation, prevention, treatment, diagnosis, surveillance	German Society for Infectious Diseases	No information available	The recommendations were derived by consensus by the GDG based on review of the literature, taking into account relevance, evidence, applicability and practicability in German and Austrian acute-care hospitals.	Consensus	No information available

Title	Infectious disease health condition	Scope	Organisation	Panel members profile	Methodology	Decision-making process	Tailoring of the framework
WHO Guidelines for malaria [64]	Yes (Malaria)	Prevention, treatment, diagnosis, surveillance	WHO	Membership included the following categories of stakeholders: • relevant technical experts (e.g. clinicians with relevant expertise; epidemiologists; entomologists) • intended end-users (programme managers and health professionals responsible for adopting, adapting and implementing the Guidelines) • patients and/or other representatives from malaria-endemic countries.	The guideline was developed using GRADE approach, for each EtD factors (Desirable effects, Undesirable effects Overall certainty of the evidence of effects Values Resource requirements Cost-effectiveness Equity Acceptability Feasibility, the guideline panel based on the systematic reviews	Consensus and online voting: 'The guideline development process aimed to generate group consensus through open and transparent discussion. In most cases, anonymous voting was used to judge the different criteria and develop the final recommendation in order to reduce peer pressure. Voting was used as a starting point to build consensus or to reach a final decision when no consensus was reached.'	No 2

WHO-INTEGRATE (n=2)							
Guidelines on sanitation and health [66]	Yes (Guidelines on sanitation and health)	Prevention; treatment; implementation	WHO	The Guidelines Development Group (GDG) included 30 members with expertise across the various relevant content areas. The group was balanced in terms of gender and geography, and included technical experts as well as end-users. The GDG also included a methodologist with experience in systematic reviews, the GRADE (Grading of Recommendations, Assessment, Development and Evaluation) approach and translation of evidence into recommendations.	Key methodological steps covered: 1. formulating the scoping questions based on a robust conceptual framework 2. prioritising key questions 3. identifying and/or conducting systematic reviews to address the key questions 4. assessing the quality of the evidence 5. formulating recommendations and good practice actions 6. writing the guidelines and 7. developing a plan for dissemination and implementation.	Voting, consensus	No

S3-Guideline Measures for the prevention and control of SARS-CoV-2 transmission in schools | Living Guideline [67]	Yes (S3-Guideline Measures for the prevention and control of SARS-CoV-2 transmission in schools | Living Guideline)	Prevention and control	Association of the Scientific Medical Societies in Germany, AWMF	Students, Employees in the school sector (teachers, head teachers, special education teachers), Parents, policy-makers in school authorities, public health stakeholders (e.g. local health authorities, RKI), as well as Scientific societies (various medical societies, educational societies).	Overall methodology included: 1. Prioritisation of topics and key questions; 2. Systematic research and selection of evidence; 3. Critical appraisal of the evidence using GRADE for direct evidence of each question; 4. Development of the recommendations using the WHO-INTEGRATE framework; 5. Structured consensus development	Structured consensus development: Voting and consensus	No

NACI-EEFA framework (n=2)							
An Advisory Committee Statement (ACS) National Advisory Committee on Immunization (NACI) - Updated Recommendations on the Use of Herpes Zoster Vaccines [68]	Yes, Herpes Zoster Vaccines	Prevention	National Advisory Committee on Immunization (NACI)	Unclear; not well-reported. May include medical specialties, methodologists, or health economy experts.	In brief, the broad stages in the preparation of a NACI advisory committee statement are: 1. Knowledge synthesis (retrieve and summarise individual studies, rank the level [i.e. study design] and quality of the evidence which are summarised in the Summary of Evidence Tables in the Annex). 2. Synthesis of the body of evidence of benefits and harms, considering the quality of the evidence and magnitude of effects observed. 3. Translation of evidence into a recommendation.	Voting; however, the EtD process is not well-reported	No

An Advisory Committee Statement (ACS) National Advisory Committee on Immunization (NACI) - Guidance on COVID-19 vaccine booster doses: Initial considerations for 2023 [69]	Yes, COVID-19 vaccine booster doses	Prevention	National Advisory Committee on Immunization (NACI)	Unclear; not well-reported. May include medical specialties, methodologists, or health economy experts.	On November 29, 2022, and December 13, 2022, the NACI COVID-19 Working Group and full NACI membership respectively reviewed the available evidence on epidemiology and vaccine protection, as well as planning considerations for the next steps of the COVID-19 booster program, including ethics, equity, feasibility and acceptability considerations. NACI also recommended the continued application of the existing decision-making framework for booster doses.	Voting; however, the EtD process is not well-reported	No

Community Preventive Services Task Force (CPSTF) framework (n=2)							
HIV Prevention: Partner Services Interventions to Increase HIV Testing [70]	Yes (HIV)	Diagnosis, treatment	The Community Guide	NR	The guideline was developed based on SRs mainly regarding of effectiveness, applicability and generalisability issues, data quality issues, implementability, other benefits and harms, and cost. The GDG used their own standard to rate the certainty of evidence and strength of recommendations. The decision-making process was not reported in detail.	NR	Unclear - no information to ascertain

CPSTF Findings for Increasing Vaccination [71]	Yes (Vaccination)	Intervention/treatment	The Community Guide	NR	The guideline was developed based on SRs mainly regarding effectiveness, applicability and generalisability issues, data quality issues, implementability, other benefits and harms, and cost. The GDG used their own standard to rate the certainty of evidence and strength of recommendations. The decision-making process was not reported in detail.	NR	Unclear – no information to ascertain

Table 4. Main characteristics of the studies describing experiences of use of EtD frameworks

Study ID	Framework assessed	Aim of the study	Overall methods	Participants
Guldbrandsson 2016 [23]	GRADE EtD framework	To assess the applicability of the DECIDE framework as a tool for dissemination and implementation of recommendations in the public health field in Sweden.	Exploratory study. The framework was presented and discussed in interviews with stakeholders and governmental organisations, and tested in panels. Authors performed content analyses.	Stakeholders from the local, regional and national level in the public health field, representing different parts of Sweden.
Neumann 2016 [47]	GRADE EtD framework	To report on the first experience with the EtD framework for clinical recommendations in real guideline panels.	Authors requested feedback from methodologists supervising the panels of 15 international guideline development, just after the panel meeting. Pre-specified domains to code the information.	Ten methodologists leading guideline development on guidelines for cardiovascular diseases, asthma and allergy, infectious diseases, cancer screening and diagnosis, and others, mainly on adults. All participants had postgraduate training in health research methods or a related discipline, and all were members of the GRADE working group.
Li 2018 [46]	GRADE EtD framework	To describe the use of decision criteria, we explored how panellists adhered to GRADE criteria and sought to identify any emerging non-GRADE criteria when the panellists used the Evidence to Decision (EtD) framework as part of GRADE application. We aimed to determine whether GRADE (normative	Conventional and summative qualitative analyses to identify themes emerging from face-to-face, panel meeting discussions. Forty-eight members from 12 countries participated in the development of five guidelines for the management of venous thromboembolism by the American Society of Haematology.	The decision-making panels consisted of 48 members (40 content experts and methodologists, eight patient representatives) from Belgium (n=2), Canada (n=12), the United States (n=21), Germany (n=2), Italy (n=1), the United Kingdom (n=1), Brazil (n=1), Austria (n=2), Australia (n=2), Denmark (n=1), the Netherlands (n=3), and Switzerland (n=1).
Rosenbaum 2018 [45]	GRADE EtD framework	To help decision-makers achieve fairness in their decision-making, by creating tools that would facilitate these three process elements.	Broad range of structured, semi-structured, and open-ended methods to inform cycles of prototyping and feedback: piloting in actual guideline projects, participatory and non-participatory observation of guideline panels and workshops, prototype sketching, testing examples, user-test interviews, stakeholder feedback, questionnaires, surveys, and discussion in face-to-face meetings. Iterative process for adjustments and improvements. No formal qualitative analysis.	People in organisations involved in decision-making and dissemination (e.g. guideline producers, panel members) and people who would use this information (e.g. policy-makers, health professionals, the public).

Study ID	Framework assessed	Aim of the study	Overall methods	Participants
Meneses-Echavez 2021[48]	GRADE EtD framework	To describe users' experiences with the interactive Evidence to Decision (iEtD) framework and identify main barriers and facilitators related to use	Semi-structured interviews with iEtD registered users. Honeycomb framework used to guide the interviews and explore users' experiences with the iEtD. Content analysis.	Eight methodologists registered in the iEtD database, from national or international organisations that developed guidelines.
Stalteri Mastrangelo 2021 [60]	GRADE EtD framework	To analyse (1) how, and to what extent, tuberculosis, gonorrhoea and respiratory tract infection guidelines are considering antimicrobial resistance; (2) are of acceptable quality; and (3) if they can be easily contextualised to fit the needs of specific populations and health systems.	Systematic review of clinical guidelines	Not applicable
Friesen 2022 [49]	GRADE EtD framework	To demonstrate how the Grading of Recommendations Assessment, Development, and Evaluation (GRADE) Evidence to Decision (EtD) framework for health system and public health decisions can be applied to formulate recommendations and make decisions in national food fortification programming.	Description of the experience of applying the GRADE-EtD framework to a food fortification program.	Authors and a small group of stakeholders from governmental organisations involved in Nigeria's national food fortification program
Moleman 2022 [59]	GRADE EtD framework	To examine guideline quality in relation to the availability of certain types of evidence and to reflect on the implications of CPGs' promise to improve the quality of care practices.	Mixed-methods study consisting of two phases: a quantitative evaluation of 62 Dutch clinical practice guidelines using AGREE and qualitative follow-up interviews about experiences with the development process.	Thirteen guideline developers of the assessed guideline, and six other experts in national and international guideline development
Stadelmaier 2022 [50]	GRADE EtD framework	To illustrate the application of the GRADE EtD frameworks in the process of nutrition-related policy-making for a European country.	Illustration of the process of moving from evidence to recommendations, by applying the EtD frameworks to a fictitious example. Sugar-sweetened beverage (SSB) taxation based on energy density was chosen as an example application.	Authors created a fictitious guideline panel.

Study ID	Framework assessed	Aim of the study	Overall methods	Participants
Murano 2022 [52]	WHO-INTEGRATE	To describe the methods used to apply WHO-INTEGRATE and present summary results of the evidence review for each of the EtD criteria for the three induction of labour topics. To reflect on our methods, process and evidence review outputs, discuss some of the limitations and challenges we encountered, gaps in the evidence base, and reflect on opportunities to improve the process of applying WHO-INTEGRATE.	Adoption of WHO-INTEGRATE framework to consider key criteria and sub-criteria relevant to the intervention. Qualitative, cost and cost-effectiveness, and other evidence search, and iterative approach for interpretation of the evidence. Summary of the findings for decision-makers, and reflection about the process.	Two researchers (social science and public health background), with experience in evidence synthesis and evidence-based policy, from Australia.
Stratil 2022 [51]	WHO-INTEGRATE	To assess WHO-INTEGRATE framework comprehensiveness and usefulness for public health and health policy decision-making.	Qualitative study, comprising interviews and focus group discussions. Qualitative content analysis.	Nine experts involved in WHO guideline development and 40 health decision-makers from Brazil, Germany, Nepal and Uganda (including infectious diseases as thematic area).
Wabnitz 2023 [61]	WHO-INTEGRATE	In the context of a guideline development process about measures for the prevention and control of SARS-CoV-2 transmission in schools, this research aimed to identify lessons learnt about strengths and weaknesses of the guideline development process as perceived by the different groups involved.	Semi-structured interviews. Deductive-inductive thematic qualitative text analysis according to Kuckartz, structuring findings using a category system.	Fifteen people involved in guideline development, including the following: four members of the guideline secretariat, four scientists, four members of the school family, two public health practitioners, and one observer.

Table 5. Summary of the main enablers and barriers for the use and implementation of the identified Evidence-to-Decision frameworks

Reference	Topic	Overall experience	Barriers	Enablers
GRADE EtD framework				
Guldbrandsson 2016	Public health field in Sweden.	• Positive attitudes towards the overall process • Panel discussion allows perspectives' adjustment and consensus • This framework helps reach consensus among panel members. • There may be some language-dependent translation suggestions between English and Swedish. • Two aspects were not being considered by the framework: 'Individual autonomy' and 'method sustainability'	**1. Complicated evidence grading system** *'Evidence grading perceived as complicated.'* **2. Lacking evidence or inappropriateness of RCT for public health** *'RCT-based decisions may not be always appropriate for public health.'* **3. Lack of implementation/adaptation consideration** 'This framework may not address further implementation/adaptation at local or regional level.'	**1. Stakeholder engagement** *'Panel composition is critical, and should reflect all interests related to the recommendations or decisions.'* **2. Guidance** *'User needs clear instructions regarding the form and the panel procedure.'* **3. Tailoring of factors according to context** *'The framework is useful but requires tailoring to public health field.'*
Friesen 2022	National food fortification programming in Nigeria	• GRADE-EtD increases the systematic use of evidence • GRADE-EtD raise awareness of local evidence gaps • GRADE-EtD does not directly address other factors (such as politics or social)	-	-

Reference	Topic	Overall experience	Barriers	Enablers
Li 2018	We aimed to determine whether GRADE (normative criteria) dominate non-GRADE (descriptive factors).	• GRADE EtD criteria contributes to most of the discussions within the panels • GRADE EtD dominates the decision process, which may lead the panel to ignore other relevant factors. • GRADE-EtD may not always explicitly include all the relevant criteria • The users are inclined to be transparent about the description of the decision-making process. – Clinical experience should be accompanied by research evidence – The political environment can be an additional criterion for the EtD process to draw on relevant political advances and to facilitate decision-making.	**1. Lack of evidence/low-quality evidence** was a recurrent issue.	**1. Sufficient evidence** facilitates the rapid decision-making process. **2. Facilitators for different factors:** • *Affordability considerations at different levels and cost-effectiveness analyses as key topics for assessing resources and costs;* • *Providing different scenarios and discussed on desirable and undesirable effects facilitate the balance of benefits and harms;* • *Acceptability and feasibility may related to implementation of recommendation;* • *Patient values and preference was addressed by patient representatives, supplementing with clinical expertise and experience on patient value;* • *Equity was considered by addressing access to recommended interventions/tests or health coverage.* **3. Previous training** facilitates the application of GRADE EtD. 4. **Clinical experience is useful** for brainstorming about making the best recommendations

Reference	Topic	Overall experience	Barriers	Enablers
Stalteri Mastrangelo 2021	Tuberculosis, gonorrhoea and respiratory tract infection guidelines, considering antimicrobial resistance	GRADE enhances consideration of contextual factors	-	-
Meneses-Echavez2021	To describe users' experiences with the interactive Evidence to Decision (iEtD) framework and identify main barriers and facilitators related	• Users refer no problems making background and PICO questions • Users would prefer to assess desirable and undesirable effects in one unique section instead of two separate ones • Positive experiences using the Conclusions section • Users value the option of tailoring the framework (e.g. limiting the number of criteria for rapid health technology assessments, or modifying the order of the criteria).	1. Additional workload required regarding evidence synthesise and preparation of presentation format. 2. Difficulty to coordinate framework completion among large group. 3. Lack of knowledge of using EtD and GRADE approach, including different factors like equity. 4. The term 'values' is perceived as confusing for some users.	1. Guidance is needed

Reference	Topic	Overall experience	Barriers	Enablers
Moleman 2022	To examine guideline quality in relation to the availability of certain types of evidence and to reflect on the implications of CPGs' promise to improve the quality of care practices.	• GRADE perceived as a methodological improvement compared to other approaches, more transparent and systematic • Some participants perceive an overemphasis in best external evidence ('scientisation') – Recommendations with weak supporting evidence may be underrepresented in guideline development – There may be difficulties for addressing multiple comparisons. – PICO section should be more explicit – 'Research priorities' section seen as important.	1. Difficulties applying GRADE for questions not responded by RCTs 2. Difficulties integrating science and other consideration 3. Suboptimal wording for recommendations comparing two active interventions 4. Framework may be too long, with sections that may not be relevant in specific circumstances 5. There may be overlap between some criteria **6. Barriers for each factor** – 'Variability" and 'uncertainty' should be differentiated in 'Values and preferences', and source of information should be explicit – Major difficulties in the 'balance of benefits and harms', with problems answering consistently the questions about the size of the effect, and some questions considered redundant – Mixed views about 'Resource use', depending if the panel included health economists ('too superficial') or not (struggled answering questions) – More guidance needed for answering 'equity' considerations, with suggestions to add the option of 'no effect on health equity' – More guidance needed for 'acceptability', problems for identifying relevant stakeholders – More guidance needed for justification/remarks – More guidance needed for implementation considerations 7. Some issues regarding wording of panel decisions (recommendations).	1. GRADE separates the evidence summary and the formulation of recommendations processes, allowing to distinguish opinion-based and scientific-based recommendations 2. Use of EtD framework may need previous training in GRADE methodology.

Rosenbaum 2018	To help decision-makers achieve fairness in their decision-making by creating tools that would facilitate these three process elements.	• EtD useful for structuring information and discussion • EtD provides structure and facilitates management of the panel.	1. Chairs challenge: Time, domineering participants, avoiding bias in discussion and when introducing information 2. Amount of information could be overwhelming 3. Challenges for condense evidence presentation – skills from Chair is needed 4. Inconsistency of wording can be challenging 5. Some users may need explanations specific for some elements (such as 'Values') 6. Skills required for retrieving evidence and additional considerations 7. Overlapping among criteria.	1. A good chair is a key for a successful use of the framework 2. Different levels of skills understanding evidence and numerical data 3. Users prefer judgements separated, organised, and on the same page as the summaries of evidence 4. 'Additional considerations' is useful for including other sources of information 5. Flexibility for decision-making is required, which can be either easier or difficulty.

Reference	Topic	Overall experience	Barriers	Enablers
Stadelmaier 2022	Nutrition-related policy-making for a European country	EtD as structured, facilitating discussions and decision-making.	-	1. Policy-makers may find it easier to understand summarised evidence in EtD framework rather than a set of SRs.
WHO-INTEGRATE				
Murano2022	To describe the methods used to apply WHO-INTEGRATE and present summary results of the evidence review for each of the EtD criteria for the three induction of labour topics.	WHO-INTEGRATE allowed to explore health rights and inequity in a detailed, systematic and transparent way.		**1. Systematic mapping methods:** *'Use of EtD may be enhanced by systematic mapping methods, consideration of other frameworks, and complementary work with social science researchers.'* Facilitators for each EtD factor: **2. Trial-based studies for Resources used:** *'selection of economic evidence to trial-based studies to avoid challenges with assessing model validity and generalizability'* **3. For equity** **3.1 Consider population characteristics and settings at early stage:** `*Inclusion of evidence from diverse populations and settings in early stages can inform considerations around equity.'* *'Providing to panel regarding population characteristics would further enhance discussion of equity, provide research agenda, and focus on future updating.'*

Reference	Topic	Overall experience	Barriers	Enablers
				3.2 Including Social science equity researcher 'Inclusion of social science equity researchers would be beneficial' **4. For decision-making process:** **4.1 Team collaboration** *'Team collaboration was relevant for consistency and interpretation of findings.'* **4.2. Providing a multi-layered evidence presentation format** *'Providing high-level summary of evidence for each criterion; providing supplemental file with detailed findings of evidence; and evidence gap map for each criterion'*
Stratil 2022	To assess WHO-INTEGRATE framework comprehensiveness and usefulness for public health and health policy decision-making	• WHO-INTEGRATE seen as useful and comprehensive • All WHO-INTEGRATE criteria were seen as important, and none should be dropped. • WHO-INTEGRATE framework separates individual and population perspectives, range of feasibility considerations, broad perspective beyond health implications • Participants think that several criteria and subcriteria need modifications on wording and definition, and have missing aspects, while some few others need order and grouping, or have overlap, redundancy or need delineation • Users fell the framework successfully covered their reasoning. • Using WHO-INTEGRATE can be overwhelming due to complexity and additional workload. This can lead to skipping important domains.	**1. More guidance is needed:** *'Users feel more guidance is needed for using WHO-INTEGRATE.'* 2. **Skipping domains** to reduce workload may diminish the value of the final product. Appropriate resources to conduct a guideline are necessary. 3. Limited by **following the same approach as GRADE EtD framework** (defining as intervention – gather evidence – make recommendation). 4. WHO-Integrate should focus on beneficiaries and asking what should be done to improve health and well-being. **5. Limited availability and low certainty of evidence:**	NR

Reference	Topic	Overall experience	Barriers	Enablers
			Identifying evidence for some criteria might be challenging. **6. Context-dependence may limit applicability:** 'Many aspects of WHO-INTEGRATE are context-dependent, which limits its applicability for global guidelines.' **7. 'Societal implications' was perceived as fuzzy and vague** **8. Barriers for EtD factors:** blurry boundaries between several criteria and sub-criteria. 8.1. Value as a sub-criterion for 'Patients'/beneficiaries' may not receive enough attention 8.2. Human rights and acceptability considerations should be separated into two distinct criteria. 8.3. Non-discrimination could be under Human rights instead of Equity and equality 8.4. Combine societal impact and health impact into one broad impact-oriented criterion **9. Possible missing aspects:** Intervention sustainability, reliability and quality of an intervention, outcomes related to well-being, political feasibility	

Webnitz 2023	To identify lessons learnt for similar endeavours by addressing the following research question: What were the strengths and weaknesses of the guideline development process as perceived by the different groups involved?	EtD provided a comprehensible structure and transparency for making recommendations, especially in absence of conclusive evidence EtD helped the panel to ground recommendations in reality and to consider potential side effects WHO-INTEGRATE criteria were mainly applied in working group of scientists, not so much in full group meetings with practitioners and school family members. WHO-INTEGRATE framework allowed health and societal implications to be considered systematically, mostly informed by anecdotal expertise due to lack of studies and of professional expertise. Consequences beyond health and education were not systematically considered Some questioned the added value of using the WHO-INTEGRATE EtD, mainly referring to their suitability for practical considerations about panel members' voting behaviour, guideline acceptability, and implementation	**1. Methods-related decision process**: 'Critics about methods-related decision process, such as the decision of choosing a preferred option after initial voting (instead of voting again), or not formally prioritizing endpoints for outcomes.' Barrier: **2. High number of topic areas** for recommendations may deprive the panel of time and resources to discuss fewer recommendations more in depth. **3. Unclear how panel member should be selected** **4. The choice of evidence may cause criticism on decision-making process**, for example using modelling studies but refusing lab-based studies. **5. Barriers for EtD factors:** **5.1 Value and preference:** Lack of qualitative research on values and preferences was a limitation **5.2 Societal implications:** evidence and specific expertise for assessing societal implications and unintended consequences (beyond direct health impact) was missing **6. Barriers for decision-making process:** **6.1 Balance different perspectives** 'Main tension during recommendation development was to balance different perspectives (infectious disease control and educational perspective);' **6.2 Balance different criteria** 'In the working groups, some criteria may have received more attention than others (e.g. unintended health consequences and social outcomes versus economic, ecological or legal aspects);' **6.3 Hierarchy of panel members** Some participants may dominate the discussion and have too much influence in the final results; **6.4 Lack of experience** on guideline development might reduce possibilities for fully participation in the process **6.5 Conflict of interest:** 'Institutional interests influence participants' arguments'	**1.** Participants appreciate **transparent, democratic and anonymous consensus-building procedures** **2.** Participants appreciate **previous identification and appraisal of scientific literature.** **3. Sequence of process** allows work in small groups plus full-panel consensus voting, which was efficient and goal-oriented **4. Prior assessment and tailoring of the framework** might be beneficial: *'The same participant noted that allocating more time to a thorough and comprehensive process of prioritizing and then adapting the generic criteria of the WHO-INTEGRATE framework at the beginning of the process might have been beneficial.'* **5. Evidence seen as critical in the process, and Expert opinion as crucial:** *'It is important to provide more opportunities to develop a shared understanding of evidence and its role;'* *'Expert opinion as crucial especially when there is a lack of evidence.'* *'In the absence of evidence, lived experience was important (for scientists and non-scientists). Professional experience, academic credentials and eloquence may make opinions too influential.'* **6. Panel members' expertise** *'Different types of expertise:* *- Scientific expertise (grounded in scientific studies and disciplinary knowledge)* *- Practical expertise (derived from implementing school measures)* *- Lived experience (being affected by those measures)*

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