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A systematic review of standardised tools used in perinatal death review programmes

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ABSTRACT

Introduction: Reducing preventable perinatal deaths is the focus of perinatal death surveillance and response programmes. Standardised review tools can help identify modifiable factors in perinatal deaths.
Aim: This systematic review aimed to identify, compare, and appraise perinatal mortality review tools (PMRTs) in upper-middle to high-income countries.
Methods: Four major scientific databases were searched for publications relating to perinatal death reviews. There were no restrictions on date, study, or publication type. Professional websites for each country were searched for relevant material. The Appraisal of Guidelines Research and Evaluation Health Systems (AGREE-HS) checklist was used for quality appraisal of each tool. A narrative synthesis was used to describe and compare tools.
Findings: Ten PMRTs were included. Five PMRTs were from high-income countries, four from upper-middle income countries and one was designed for use in a global context. The structure, content, and quality of each PMRT varied. Each tool collected information about the antepartum, intrapartum, and neonatal periods and a section to classify perinatal deaths using a standardised classification system. All tools reviewed the care provided. Five tools included recommendation development for changes to clinical care. Four tools mentioned parent involvement in the review process. For quality appraisal, one review tool scored "high quality", six scored "moderate quality" and two scored "poor quality".
Conclusion: There is little standardisation when it comes to PMRTs. Guidance on structuring PMRTs in a standardised way is needed. Recommendation development from a review is important to highlight changes to care required to reduce preventable perinatal deaths.

Statement of Significance

Issue: Reduction of preventable perinatal deaths is a key focus in many middle- and high-income countries.

What is Already Known: Perinatal death review programmes can use a tool to review all aspects of care in a perinatal death, identify preventable factors in the death and develop recommendations for improvements to clinical care to prevent future perinatal deaths.

What This Paper Adds: A comparison and analysis of standardised perinatal death review tools used in perinatal death review programmes in different countries internationally. Specific elements of review tools are highlighted to improve focus and learning from review programmes.

Introduction/background

Perinatal mortality, which includes stillbirths and early neonatal deaths, is a key indicator of the quality of maternity and newborn healthcare services [1]. There are an estimated 2.4 million neonatal deaths and 2.0 million stillbirths each year [2–4], with the majority of

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these occurring in low-income countries. Rates of stillbirth in particular have been slower to decline compared to under-5 child mortality [4].

Reduction of neonatal mortality and preventable newborn deaths are targeted in the World Health Organization (WHO) sustainable development goals [5]. The Every Newborn Action Plan included measurement, programme tracking and accountability as part of five strategic objectives for ending preventable newborn deaths and stillbirths by 2035 and in 2016 the Lancet stillbirth series called for renewed action for high-income countries to improve quality of care of perinatal healthcare services [6,7].

One measure to reduce perinatal mortality that has gained attention in recent years has been the development of maternal and perinatal death surveillance and response (MPDSR) programmes [2,8]. Perinatal death audit can be defined as: "The process of capturing information on the number and causes of stillbirths and neonatal deaths, and then identifying specific cases for systematic, critical analysis of the quality of care received, in a no-blame, interdisciplinary setting, with a view to improving the care provided to all mothers and babies" [2,9]. A perinatal death review is "a forum in which the cause of death, other adverse outcomes and their determinants are discussed." These allow to "identify groups of perinatal deaths which, through detailed inquiry, may provide information for the development of policies designed to reduce perinatal morbidity and mortality". However, the words "audit" and "review" are often used interchangeably throughout the literature related to perinatal mortality and data collected for both can overlap. For this reason, in this paper we use "perinatal mortality review" to indicate examination or investigation (typically by a review programme) of the specific circumstances surrounding a perinatal death.

A perinatal mortality review tool is then to be understood as a package, document or set of materials that describes the review process and includes a standardised data collection form with information on how that data is to be gathered, used and applied for quality improvement of care. These tools are generally available in paper or electronic format.

The WHO has recommended that maternal and perinatal death reviews should be conducted in all hospitals and healthcare settings globally, and in 2021 published materials to support the implementation or augmentation of existing perinatal death review programmes [2,8]. While several countries report an ongoing national audit of perinatal mortality, including New Zealand, the United Kingdom (UK), the Netherlands and Ireland [10], national reporting on numbers and causes of perinatal deaths does not necessarily result in reduction of perinatal deaths.

A systematic review assessing the impact and cost-effectiveness of different types of death reviews in reducing maternal, perinatal and child mortality, did not find a significant reduction in perinatal mortality in a high-income setting and concluded that further research was required to identify how death reviews should be designed and implemented in order to achieve maximum effectiveness in different contexts globally [11]. The Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK (MBRRACE-UK) programme, which is widely viewed internationally as the gold standard in monitoring and reporting of maternal and perinatal deaths, have reported a 20 % reduction in perinatal deaths in the United Kingdom since 2013 [12]. Several initiatives introduced in the UK have targeted reducing perinatal deaths, one of which included national implementation of a standardised perinatal mortality review tool (PMRT) [13].

To our knowledge a comparison and appraisal of the different tools that are used to review perinatal deaths is not currently described in the literature. This is particularly the case for review tools that incorporate the development and implementation of recommendations for clinical practice and are in use in upper-middle and high-income settings.

The primary objective of this systematic review is to identify, compare and appraise standardised tools used to review perinatal deaths in upper-middle- to high-income countries.

Methods

Protocol and registration

This systematic review is reported in accordance with the reporting guidance provided in the Preferred Reporting Items for Systematic Review and Meta-analysis literature search extension (PRISMA-S) 2021 [14]. This review was registered in the International Prospective Register of Systematic Reviews (PROSPERO) database (protocol number: CRD42022326877; registered 10th May 2022) and a protocol for the review was published [15].

Eligibility criteria, information sources

The SPIDER framework, outlined in Table 1, was used to determine eligibility criteria for included publications [16]. For the purposes of this systematic review, we identified a review tool (either in paper or electronic format) as a tool or other standardised checklist, form, framework, or other document that is used to review perinatal deaths. An audit tool was generally viewed as a method of perinatal mortality data collection. If an audit tool did not include distinct sections for reviewing the specific circumstances surrounding a perinatal death, it was excluded from the analysis.

When searching the literature, a study, report, or other online publication was included in the analysis if it referred to or included a tool or framework that is used to review perinatal deaths at local, regional, national, or international level. Only publications from upper-middle- to high-income countries as classified by the World Bank Country and Lending Groups 2022 (N = 135) were included [17]. Review tools used to review individual perinatal deaths or more than one perinatal death at a time were eligible for inclusion. Tools that were no longer in use in that particular setting or that had been superseded by another tool were excluded from the analysis as were some published tools (electronic or

Table 1
SPIDER Framework for eligibility criteria.

SPIDER Framework	Eligibility Criteria
S: Sample	1. Review of perinatal deaths (stillbirths and/or early neonatal deaths) occurring in maternity units or hospitals 2. Standardised review tools (paper or electronic) used, in use or piloted for use at local, regional or national level 3. Upper-middle-income to high-income countries as defined by the World Bank 2022 (N = 135) [17]
PI: Phenomenon of Interest	1. Perinatal mortality: stillbirths (antepartum and intrapartum) and early neonatal deaths 2. Definition according to each country
D: Study Design	1. Any study, report or other publication detailing the current use or trial of use of a standardised review tool to review individual perinatal deaths or perinatal mortality as a whole 2. No language restriction 3. No date restriction
E: Evaluation	1. Structure, content, and format of perinatal mortality review tools 2. Standardisation or validation of the review tool 3. Development of recommendations based on identified remediable factors based on the review of perinatal deaths 4. Evidence of reduction in perinatal mortality rate in the relevant institution, region or country 5. Facilitators and barriers encountered in the implementation of the perinatal mortality review process
R: Research type	1. All relevant study types involving the use of a standardised tool to review perinatal deaths will be included, including both quantitative and qualitative studies 2. Grey literature including publications from national or international scientific societies, professional colleges, charitable organisations, and government organisations

not) where the details were not accessible. In cases of tools where electronic forms are used, these are generally also available or described in some other form/medium or document (in line with the principles of knowledge sharing) hence these have been included. In cases where there was no access to the details of the form, these could not be included.

Search method

A search strategy was developed by the study investigators that included keywords relating to perinatal mortality reviews. Search terms were developed using truncation symbols and refined using the Boolean operators AND/OR. The search was not restricted by date or language. The search strategy can be found in appendix 1.

The following electronic databases were searched from inception to 08th September 2022: PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase and Web of Science. In addition, a search was performed in three online repositories for grey literature, including Easy Dans, Eldis and BASE, using the same keywords outlined in the search strategy. The grey literature search strategy is outlined in appendix 1. An individual search for documentation relating to perinatal mortality was conducted for the 135 countries included in the systematic review (see appendix 1). This search included manual searching of the websites of professional organisations and government agencies for each country.

Titles and abstracts were downloaded from the electronic databases and imported into Mendeley software. The "remove duplicates" function in Mendeley was used to deduplicate the records. Records were subsequently imported into Rayyan for manual screening. All titles and abstracts were screened by two reviewers (EOC & AF) independently for inclusion. The full texts of potentially eligible publications were retrieved for screening against the inclusion and exclusion criteria. Reasons for exclusion were recorded. When necessary, a third reviewer (SL) was consulted, and consensus was reached. The study selection process is recorded in a PRISMA flow diagram (Fig. 1).

Data collection and analysis

Data collection from the identified review tools was completed by one reviewer (EOC) with independent verification of included material by a second reviewer (AF). A standardised data collection form was used to abstract the data. Discrepancies in data abstraction were resolved through discussion and involvement of a third reviewer (SL) for consensus where necessary. The specific data that were abstracted are included in the published protocol for this study [15], and included general information about the review tool (title, authors, year of publication), the type of perinatal deaths reviewed, the structure of the review tool and whether the tool contained a section for developing recommendations.

Quality appraisal

Each review tool was appraised using the Appraisal of Guidelines Research and Evaluation Health Systems (AGREE-HS) tool [18]. This tool was developed by the AGREE research team to systematically appraise health systems guidance (or guideline) documents produced by countries, governing bodies, or committees at national, regional or local level. Two reviewers (EOC and AF) independently conducted quality assessment of the review tools using AGREE-HS. Where there was major discrepancy between the quality assessment scores, each guidance document and accompanying review tool was discussed and reassessed to reach consensus.

The AGREE-HS tool focuses on five key domains that form part of the development of health systems guidance. Each domain was applied to the review tool and scored using a 7-point Likert scale, with scores ranging from 1 (lowest quality) to 7 (highest quality). A final score for

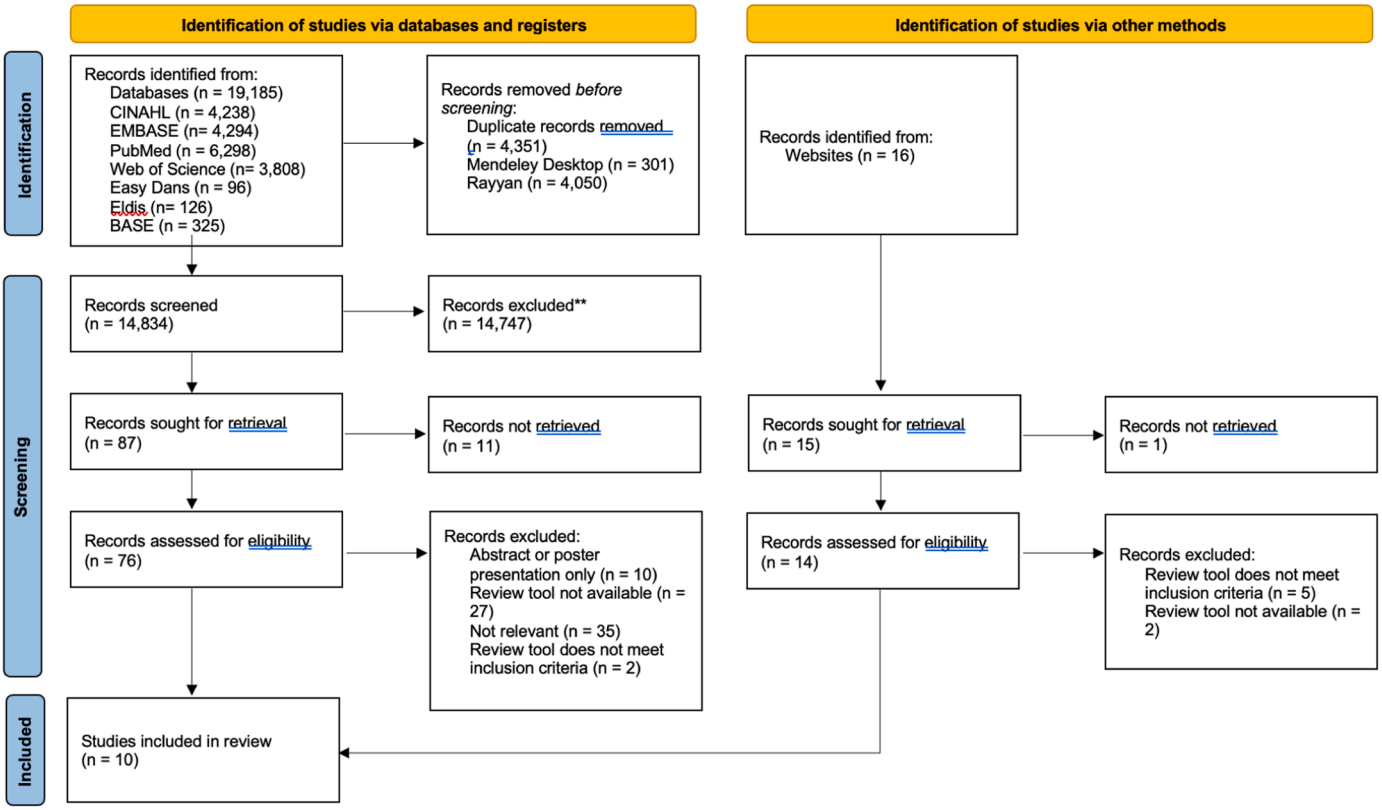

Fig. 1. RISMA flow diagram, outlining the selection and screening process for this systematic review. CINAHL: Cumulative Index to Nursing and Allied Health Literature.

the overall quality of the review tool was calculated by totalling the individual scores for the five domains. The suggested guidance contained within the AGREE-HS manual was used to interpret the percentage scores for the review tools. An overall score of greater than or equal to 70 % is considered high quality, an overall score between 30 % and 70 % is considered moderate quality and an overall score of less than 30 % is considered low quality.

Results

Results of the search

A total of 19,185 records were retrieved from the electronic databases. These results are represented in the PRISMA flow diagram in Fig. 1. After removing duplicates, 14,834 records were screened, and 87 full texts were assessed. Ten review tools were included in the final analysis. The reasons for excluding publications that were assessed as full texts are listed in Fig. 1.

Review tool characteristics

Ten perinatal mortality review tools were included in the final analysis. Table 2 summarises the review tool characteristics. According to the World Bank Country and Lending groups criteria [17], five tools were from high-income countries [19–23], four tools were from middle-income countries [24–27] and one tool was designed by the WHO for adaptation and use in multiple health settings [8]. Three of the tools were published as part of a journal article [21,25,26], six tools were classified by their authors as guidelines [8,19,20,22–24] and one tool was classified by the authors as a report [27]. The tools and associated guidance documentation (journal article, guideline, or report) were published between 2011 and 2022. Only four of the included review tools included information on the document's version number: the Australian tool (Version 3.4), the tool from British Columbia (Version 2),

Table 2
Summary of review tool characteristics.

Publication Title	#	Authors	Year of Publication	Location of publication & Scope of tool	Type of publication (Source of tool)	Type of perinatal deaths reviewed	Definition used for stillbirth/ perinatal deaths	Document Length
Clinical practice guideline for care around stillbirth and neonatal death	1	Flenady V, Oats J, Gardener G, Masson V, McCowan L, Kent A, et al.	2020	Australia, National	Guideline	All	20 weeks/ 28 days	301 pages, including the form (Form= 35 pages)
Manual for completing infant and fetal death investigation forms. (English translation) "Manual de Preenchimento das Fichas de Investigaç ão do Óbito Infantile Fetal"	2	Child and fetal death prevention committee, Ministry of Health	2011	Brazil, National	Guideline	All	22 weeks/ 7 days	117 pages including the form (Form= 26 pages)
Perinatal services British Columia perinatal mortality guideline	3	Perinatal Services British Columbia	2017	British Columbia, Canada Regional	Guideline	All	20 weeks/ 7 days	30 pages (Form= 2 pages)
Improving maternal and child health systems in Fiji though a perinatal mortality audit	4	Raman S, Iljadica A, Gyaneshwar R, Taoito R, Fong J	2015	Fiji National	Journal article	All	Not specified	4 pages (Form= 2 pages)
A nationwide surveillance system to reduce perinatal death cases in Italy: implementing a population based pilot project	5	D'Aloja P, Salvatore MA, Sampaolo L, Privitera MG, Donati S.	2021	Italy, Regional	Journal article	All	28 weeks/ 7 days	10 pages (Form= 4 pages)
Rate, determinants and causes of stillbirth in Jordan: findings from the Jordan stillbirth and neonatal deaths surveillance (JSANDS) system	6	Shattnawi KK, Khader YS, Alyahya MS, Al-Sheyab N, Batieha A	2020	Jordan, Regional	Journal article	All	24 weeks/ 7 days	7 pages (Form= 5 pages)
Report of the prevalence and contributing factors of facility-based maternal and neonatal deaths in five regions of Namibia during 2010–2012	7	Ministry of health and social services, Republic of Namibia	2014	Republic of Namibia, National	Report	NND (0–28 days)	28 weeks/ 7 days	142 pages (Form= 7 pages)
Perinatal death classification form	8	Perinatal and maternal mortality review committee, Health Quality and Safety Commission	2018	New Zealand National	Guideline	All	20 weeks/ 7 days	31 pages (Form= 24 pages)
Maternal and perinatal death surveillance and response: materials to support implementation	9	World Health Organization	2021	Switzerland, International	Guideline	All	28 weeks/ 7 days	140 pages (Form= 3 pages)
Tasmanian perinatal data collection: guidelines for completion of the perinatal data collection form	10	Council of obstetric and paediatric mortality and morbidity (COPMM)	2022	Tasmania, Regional	Report	All	20 weeks/ 28 days	64 pages (Form= 15 pages)

ICD-PM: International Classification of Diseases – Perinatal Mortality, NND: neonatal death, PSANZ: Perinatal Society of Australia and New Zealand.
Note: "Publication Title" – Title of the document of the tool or from where details of the tool were extracted; "Location of publication & Scope of tool" – Country/Region to which the tool applies; "Type of publication (Source of tool)" – classification of the type of document from where details of the tool were extracted; "Type of perinatal deaths reviewed" – Type of perinatal deaths to which the tool applies or which are within the scope of the review; "Definition used for stillbirth/ perinatal deaths" – Gestational age limits or criteria applied in the tools to define Stillbirth classification; "Document Length" - Length (in pages) of the document from which details of the tool were extracted. In parentheses, the length (in pages) of the Perinatal Review Form itself, is shown.

the Brazilian tool (1st Edition) and the Tasmanian tool (Version 8.0). The tool forms varied from 2 pages [20] to 35 pages [19] in length. The shortest review tool form (2 pages) was the Perinatal Mortality Guideline from Perinatal Services British Columbia. This form focused specifically on reviewing the perinatal death and aside from several brief details (mother's identity, date of delivery, gestation, multiple pregnancy, and sequence of delivery if so), it omitted the more detailed section that collects data regarding the woman's pregnancy and details of the labour and birth, which in part accounts for its brevity. All the other tools included an initial section for perinatal data collection, which included information about the pregnancy, labour and birth, and the postpartum course including neonatal resuscitation.

Five tools were intended for use at national level [19,22,24,25,27], four tools were intended for use at a regional level [20,21,23,28] and the remaining tool, published by the WHO, was intended for adaptation and use in various healthcare settings [8]. One tool was published in Portuguese [24], and the remaining nine tools were published in English.

For data extraction, review tools were examined along with any accompanying documentation. For eight review tools [8,19,20,22–24,26,27], there was at least one associated guidance document on completing the tool. For the remaining two tools from Fiji and Italy [21,25], the information available in the associated journal article was used for data extraction purposes in the absence of other guidance documentation. Guidance documents ranged from a single document [8,19,20,23,27] to multiple documents associated with the review process [22,24]. The documentation covered topics such as conducting home interviews with bereaved parents as part of the review process [24] and how a perinatal mortality review meeting should be structured [8,19,20,22,26]. Four tools had evidence of peer review or validation within the accompanying guidance documentation [19,21,25,27].

The definitions for stillbirth and perinatal deaths used by the various review tools are listed in Table 2. The definition for stillbirth for each country ranged from 20 weeks' gestation [19,20,22,23] to 22 weeks' gestation or 28 weeks' gestation [21,28]. The perinatal mortality definition included neonatal deaths up to 7 days after a live birth in some cases [8,20,22,24,26,27,29], and neonatal deaths up to 28 days after a live birth in others [19,23].

Structure of tools for review of perinatal deaths

Table 3 outlines the sections included in each review tool. Nine of the ten tools reviewed stillbirths, intrapartum stillbirths and early neonatal deaths (defined as death of a liveborn infant between day 0 and 7 of life) [8,19–26]. The tool from Namibia was the only tool to solely review neonatal deaths, including late neonatal deaths up to 28 days post-partum [27]. The most frequently used perinatal death classification system was the Perinatal Society of Australia and New Zealand (PSANZ) perinatal death classification system [19,22,23,25] followed by the International Classification of Diseases perinatal mortality classification system (ICD-PM) [8,21,24,28]. Other perinatal death classification systems used included the country's own classification [20] and the modified Wigglesworth classification, which was also applied in the Brazilian tool [24]. One tool did not specify the perinatal death classification system used [27]. At baseline, each tool was designed to collect data relating to the course of the woman's pregnancy, labour, and birth, as well as classify the cause of the perinatal death using one of the classification systems outlined above.

Review of care

We defined a "review of care" section as that which includes any question or set of questions that seek to identify modifiable factors in perinatal deaths. All review tools included a section to collect data for review of the care provided. The content of the review of care section varied across the review tools, and several frameworks were used by the review tools to structure this section. These frameworks included the three delay model, system-level modifiable factors and the PSANZ Contributing Factors Relating to Care tool [8,19]. Among the review tools analysed, the most commonly used review of care frameworks were the three delay model, which was used by four review tools [8,25,27,28] and the PSANZ Contributing Factors Relating to Care tool, used by 2 review tools [19,22].

The information required for this section ranged from simplistic to quite comprehensive. For example, in the review tool from Australia, the review of care section is titled "factors related to care" [19]. It covers review of: 1. Organisational or management factors, 2. Personnel factors and 3. Barriers to accessing or engaging with care or services, with sample prompt answers given for each section. This section covers 3 pages in total out of the 35-page tool. In contrast, the review tool from British Columbia reviews the events surrounding a perinatal death in terms of "preventability", with options including 1. Not preventable, 2. Possibly preventable and 3. Ideally preventable, and this section covers

Table 3
Content included in the review tools.

Review Tool number (#)	Perinatal mortality data collection	Perinatal death classification system applied	Data on Review of care	Recommendations	Guidance on reporting	Parental Involvement	Additional content
1	Yes	PSANZ	Yes	Yes	Yes	Yes	Guidance on respectful and supportive perinatal bereavement care
2	Yes	ICD-10 Modified Wigglesworth	Yes	Yes	No	Yes	Guidance on conducting a home interview with bereaved parents or family members of the infant that died
3	Yes	Own classification system	Yes	No	No	No	
4	Yes	PSANZ	Yes	No	No	No	
5	Yes	ICD-PM	Yes	No	No	No	
6	Yes	ICD-PM	Yes	Yes	Yes	No	
7	Yes	Not specified	Yes	No	No	No	
8	Yes	PSANZ	Yes	No	Yes	Yes	Guidance on conducting death reviews in a culturally appropriate setting for Māori people and including culturally appropriate components within death reviews, reports and recommendations
9	Yes	ICD-PM	Yes	Yes	No	No	
10	Yes	PSANZ	Yes	Yes	Yes	Yes	

ICD: International classification of diseases, ICD-PM: International Classification of Diseases perinatal mortality, PSANZ: Perinatal Society of Australia and New Zealand, WHO: World Health Organization.
Note: Recommendations column relates to whether the tools included guidance or a section specifically focusing on the recommendation development.

half of one page [20].

The three delay model is discussed in the WHO's guidance on perinatal mortality review implementation [8]. This model includes assessing whether modifiable factors were present at three different levels of care: 1. A delay in seeking care, 2. A delay in reaching care and 3. A delay in receiving adequate care. "System-level" modifiable factors are also described, which are family- or patient/personal-related, administration-related, and provider-related. These frameworks appear to have been adapted for use by the different review programmes. For example, the review tool from Jordan uses the three delay model as outlined above [28]. They combine this with an adaptation of the system-level identification of modifiable factors, with the levels labelled as: family-related, administration-related, and provider-related.

Recommendations

Only five review tools contained a section specifically focusing on the recommendation development for change to clinical care, clinical guidelines or governance following the review process [8,19,23,24,26]. In the Australian review tool, the recommendation section queries how many recommendations resulted from the review meeting, each recommendation and the action required to achieve it is listed and then it seeks confirmation that the action has been completed [19]. In contrast, the review tool from Jordan asks to list the modifiable factors that were identified during the review meeting, specify the actions required to address the modifiable factors, designate a person responsible for the actions and a timeframe for completing them [28]. Their guidance documentation recommends following up on these actions at subsequent perinatal mortality review meetings.

Two of the five review tools that included a recommendation section provided guidance or a suggested framework for the development of recommendations [8,19]. Both review tools suggested developing recommendations according to the SMART framework: "Specific, Measurable, Achievable, Relevant and Time-bound" [30].

Dissemination

Four review tools offered some guidance to the target user on the dissemination of review findings [19,22,23,28]. The dissemination of findings had different formats depending on the review tool. For example, in New Zealand's perinatal mortality review programme the perinatal mortality data and the recommendations that are developed from each individual review are collated together into recommendations for national learning that are published in an annual report [31]. Similarly, the Tasmanian tool released collated data from the review tool in an annual report [23]. In contrast, the Jordanian tool provides guidance on completing the minutes associated with the review meeting and the dissemination of the meeting minutes, findings from the review and any resultant recommendations and actions [28]. The remaining six review tools did not give any guidance on the dissemination of the findings of the review [8,20,21,24,25,27].

Parental involvement

Four review tools mentioned parents as part of the review. However, three review tools contained a section or question that requested information regarding follow up with the parents as part of the review [19,22,23]. While the fourth tool, from Brazil, did not include a section that specifically mentioned parent involvement or follow-up after the perinatal death, this tool included extensive guidance on conducting a home interview with the parents of the baby [24]. This part of the review tool included a section for the interviewer to write their opinion on the "repercussions of the death on the family" (translated to English from Portuguese). The remaining six review tools did not give any guidance regarding parent involvement [8,20,21,24–27].

Quality appraisal findings (AGREE-HS evaluations)

The quality assessment scores for each of the review tools are demonstrated in Table 4. Two tools scored >70 % overall and were considered "high quality" by the reviewers [19,22] and two tools scored <30 % and were considered "low quality" [23,26]. The remaining six tools received overall scores between 36 % and 55 %, indicating they were of "moderate quality" [8,20,21,24,25,27].

Table 4 demonstrates individual item scores across five domains as part of the quality appraisal for each review tool. Each item was scored according to the criteria outlined in the AGREE-HS guidance. A score of >70 % was considered "high quality", a score between 30 % and 70 % was considered "moderate quality" and a score of <30 % was considered "low quality". The AGREE-HS guidance does not typically weigh scores for individual items. Instead, it focuses on the overall quality assessment scores for each review tool and associated guidance document. In general, the individual item scoring the highest across review tools was "topic". The individual item with the lowest scores was "participants".

Discussion

This systematic review aimed to identify and compare tools designed to conduct a comprehensive and standardised review of perinatal deaths, with a particular focus on review of care and identifying modifiable care factors. Our search of the literature identified ten perinatal mortality review tools that were included in the analysis. For the purposes of this discussion, we draw on the guidance provided by the WHO for the MPDSR cycle [8]. This cycle is comparable to a traditional audit cycle and includes four main components: 1. Identify deaths, 2. Report deaths, 3. Review deaths, 4. Response action.

Identify deaths

The findings from this review reiterate the evidence from previous literature demonstrating that several high-income countries have made perinatal mortality audit programmes a key priority at national level with resulting policy and action [32–34]. There are also examples of perinatal death review programmes implemented in low- and middle-income countries with subsequent reduction in perinatal mortality rates [35,36]. While decreasing perinatal mortality has been a priority in many high-income countries at national level, an unexpected finding from our analysis was that four review tools were from middle-income countries [24,25,27,28].

The structure and content of each review tool varied significantly, even extending to variation between two tools in use in the same country (Australia) where one review tool is used at a regional level and the other is designed for use at a national level [19,23]. While variation of review tools between countries is understandable, it makes comparison difficult on an international scale. Ideally a single review tool would be designated for use within one country to collate data and share any learning identified. A good example of this is the PMRT programme in the UK. Implemented in 2018, the standardised tool is in use in maternity units throughout the UK (specifically England, Wales, Scotland and Northern Ireland), with review findings collated and published in an annual report [37].

All of the included review tools and programmes were established in the previous twelve years, with the exception of the programme in New Zealand, which was established in 2007 [31]. The more recent establishment of these programmes may reflect the continued emphasis from various organisations internationally on the importance perinatal death review programmes [2,7,8,38].

In terms of standardisation, the review tools from Australia (nationally), Tasmania (regionally) and New Zealand all contained similar content and used the same perinatal death classification, the PSANZ perinatal mortality classification system [19,22,23]. These programmes benefit from the extensive guidance provided by the Clinical Practice

Table 4
AGREE-HS overall scores and individual item scores.

Review Tool Number	Overall AGREE-HS score (%)	Item 1: Topic Score (%)	Item 2: Participants Score (%)	Item 3: Methods Score (%)	Item 4: Recommendations Score (%)	Item 5: Implementability Score (%)
1	75%	64%	21%	85%	78%	64%
2	40%	57%	35%	57%	50%	42%
3	36%	64%	57%	35%	42%	28%
4	40%	64%	21%	42%	42%	71%
5	46%	71%	64%	64%	14%	57%
6	11%	42%	21%	21%	14%	21%
7	55%	85%	71%	42%	57%	50%
8	70%	85%	71%	64%	85%	64%
9	48%	64%	57%	42%	50%	64%
10	5%	35%	14%	14%	14%	14%

AGREE-HS: Appraisal of Guidelines Research and Evaluation – Health Systems, WHO: World Health Organization. High quality = >70 % (green), moderate quality = 30–70 % (yellow), low quality = <30 % (red).

Guideline for Care Around Stillbirth and Neonatal Death, which was published jointly by several key professional organisations in Australia and New Zealand [19]. The similarities allow for some degree of comparison across these review tools and programmes. Other review programmes, including those yet to be established, may benefit in applying a similar structured approach that would allow comparison and shared learning.

Report deaths

Part of the inconsistency observed in perinatal mortality reviews involves the variation in definitions for stillbirth and, by extension, perinatal deaths. There have been calls internationally to standardise these definitions to aid reporting of perinatal mortality and allow for benchmarking and adequate comparison among countries and/or regions [39]. The WHO defines stillbirth as the death of an infant weighing greater than or equal to 1000 g, occurring at 28 weeks' gestation or greater or body length greater than or equal to 35 cm^2. Use of the WHO ICD definition of 28 weeks for reporting of stillbirths may result in the missed identification of up to 32 % of stillbirths [40]. Further, use of this definition hampers potential for learning to improve care in future across high income countries and can have a clear impact on parents [39,40]. The review tools included in this analysis represent countries with varying resource availability. However, several of these countries are still using the 28-week definition and as a result may be missing important stillbirth data. More than 30 % of stillbirths occur between 22 and 28 weeks' gestation in high-income countries [40].

A separate challenge is classifying perinatal deaths in a standardised manner. The international drive to unify countries in using a single perinatal death classification system resulted in the publication of the ICD-PM by the WHO in 2016 [41]. Despite the existence of the ICD-PM, the review tools in our analysis used four different classification systems. This makes comparison between review programmes difficult, as the classification systems are not comparable and have little consensus on assigning cause of perinatal deaths [42]. Employing a validated, internationally used system, such as the ICD-PM, would make international comparison easier while identifying the main cause as well as contributing factors in perinatal deaths [43].

Review deaths

All ten review tools in the analysis included a "review of care" section. The variation observed between review tools and programmes was again evident in this section of each tool, with use of different frameworks to review the care provided. Some of these were recognised frameworks, for example the three delay model and system-level modifiable factors (both are mentioned in the WHO MPDSR guidance) [8], and the PSANZ Contributing Factors Relating to Care tool [19]. Other tools used adaptations or their own version of a framework to review care (see Table 3).

Reducing preventable perinatal deaths includes identifying modifiable factors that may have contributed to the death [44]. Previous studies have demonstrated that substandard care factors have been identified in up to 57 % of perinatal deaths [45]. In the UK, the fourth annual report from the PMRT programme identified issues with care that were likely to have made a difference to the outcome in up to 18 % of perinatal deaths for 2021–2022 [37]. A structured approach for identifying modifiable factors within the healthcare setting will help review programmes to identify and learn from preventable perinatal deaths. Importantly, this learning can be shared at a broader level to enact change. This is evidenced in several initiatives, such as Saving Babies' Lives and Each Baby Counts in the UK and the Safer Baby Bundle in Australia [46–48].

Response action

Development of recommendations for changes to healthcare provision is the next step in the MPDSR cycle. Half of the review tools included in our analysis did not incorporate a dedicated section for recommendation development [20–22,25,27]. This is surprising, as the

main goal of reviewing perinatal deaths is to enact change to prevent further perinatal deaths [8]. The importance of including an action plan and recommendation development has been emphasised in review programmes in other countries [19,22,37]. Omitting this step in the audit cycle risks promoting a strong culture of reporting but a poor culture of learning [49].

The absence of a recommendation section in five review tools may reflect a wider problem internationally where countries prioritise accurate reporting of perinatal mortality rates and do not focus the same attention on improvements to the quality of healthcare provision [50,51]. Of the tools that included a recommendation section, two of them highlighted a specific framework to aid recommendation development, which was the SMART framework. Without a structured framework for recommendation development, it risks weaker, unachievable actions for change [52].

Dissemination and output from review programmes

The output from the review tools varied widely. The programme in New Zealand demonstrated a strong dissemination practice with the publication of an annual report that collated all review findings and recommendations. The dissemination of findings from a review completes the MPDSR cycle, allowing stakeholders to enact change [8]. Without adequate dissemination, relevant learning may be missed with direct effects on the effort to reduce preventable perinatal deaths [44].

Parent involvement

Parent involvement is emerging as an important part of the review process [53–55]. Four review tools mentioned parents as part of the review [19,22–24]. In three tools, this was in relation to whether a follow-up plan had been arranged with the parents after the review, this generally involves a clinical meeting to discuss the review findings and cause of death and is not considered to represent direct parents' involvement in the review process itself. The other six tools did not mention parent involvement. Previous studies have shown that many bereaved parents remain unaware of how the review process works [53]. One internationally-conducted study demonstrated that less than one third of healthcare professionals surveyed reported any kind of parental engagement in perinatal mortality reviews, with only 17 % of respondents describing a process that explicitly involved parent input, feedback and representation at reviews [56]. In countries where perinatal mortality reviews occur regularly, parents report a desire to be involved in the review process and frustration over their lack of involvement [57]. Many parents remain unaware that a review into their baby's death occurs at all [53,58]. Parent involvement in the review process is both valuable and beneficial for parents and maternity healthcare settings [55,59]. There is a significant difference between engagement (which can take the form of acknowledging a review process is underway or providing the report to parents) and involvement (which means being part of the review including providing information, feedback and opinion pertinent to the review and its findings). In depth work has been carried out by the PARENTS study outlining the crucial role of parental involvement in reviews and the different ways in which this can be carried out [54,55,57]. Key stakeholders and policymakers should consider parent involvement as part of any perinatal death review programme as is currently in practice in UK [55,59].

Implementing MPDSR programmes

Implementation guidance provided for the review programmes in our analysis varied. Some of the accompanying guidance documents discussed implementing a perinatal mortality review programme generally [8,19,20,22–24], while others discussed their specific experience with trying to implement their programme directly [21,25]. The importance of the implementation process is often overlooked [60,61], and should be at the fore when establishing a review programme to ensure its sustainability long-term.

Strengths and limitations

This systematic review has several strengths. We conducted a systematic search of the literature internationally, including published and grey literature. A manual search was completed, and in some instances professional and government organisations were contacted to ensure the search was as inclusive and broad as possible. Each tool was reviewed and assessed by two reviewers independently using a validated quality appraisal instrument.

While every effort was made to ensure the search of the literature was as broad as possible, it is possible that certain review tools, especially those that may only have been available in languages other than English, were not identified for inclusion. For some perinatal mortality review programmes that are actively running, the corresponding review tool was not available in the public domain, for example the PMRT by MBRRACE-UK [62]. In this case, every effort was made to contact the review programme or organisation directly to provide the tool. This was not possible for some tools/programmes, and they were not included in the analysis as a result.

A further limitation relates to the fact that 27 tools were not available (as mentioned in Fig. 1). We would recommend the review tools details and approaches are made publicly available so as to assist the enhancement of work in this area and the improvement of care for parents.

Though the AGREE-HS tool was identified as the most acceptable method for quality appraisal of the review tools used in perinatal death review programmes, this tool has not been specifically validated for this purpose. In addition, it is impossible to entirely remove individual reviewer bias when scoring each review tool and associated documentation. This may make the interpretation of the assigned scores less generalizable.

Conclusions

This systematic review analysed the perinatal death review tools and programmes that exist in upper-middle to high-income countries around the world. It highlights that review tools are used in a variety of healthcare settings, with some programmes more established than others. There is a consistent lack of standardisation between perinatal death review tools and programmes, including in more basic elements of tool design such as structure and content. The type and format of data collected varied between the tools, making comparison difficult. Guidance is required for the establishment or revision of standardised, comprehensive review programmes, especially in high-income settings. A comprehensive review programme that aligns with the WHO's MPDSR audit cycle should include a review of care section to identify modifiable factors that contributed to the perinatal death. In addition, recommendation development for improvements to quality of care and accurate reporting of these findings are key aspects of completing this cycle that are often neglected.

Greater emphasis needs to be placed on implementation guidance for these programmes at local, regional, and national levels. Finally, the inclusion of parents in the review process needs to be given due consideration by key stakeholders and policymakers. Parent involvement in what is often an extremely challenging process has been shown to improve the perinatal death review system for both parents and healthcare providers. This review has demonstrated that establishing a review programme is both achievable and desirable across a variety of differently resourced settings. Going forward, revision of existing review programmes or the establishment of new review programmes should consider the benefits of having a standardised format that is applicable to different countries and healthcare contexts to enable accurate data collection and reporting. This in turn will promote shared learning and

widespread, sustainable improvements to care, with the goal of reducing perinatal deaths.

Conflict of Interest

The authors do not have any conflicting interests to disclose.

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Appendix A. Supporting information

Supplementary data associated with this article can be found in the online version at doi:10.1016/j.wombi.2023.09.006.

References

[1] J.H. Richardus, W.C. Graafmans, S.P. Verloove-Vanhorick, J.P. Mackenbach, The perinatal mortality rate as an indicator of quality of care in international comparisons, Med Care 36 (1998) 54–66.
[2] World Health Organisation (WHO), Making every baby count: audit and review of stillbirths and neonatal deaths, WHO Libr Cat. Data (2016) 144.
[3] World Health Organization (WHO), Newborn Mortal. (2022). ⟨https://www.who.int/news-room/fact-sheets/detail/levels-and-trends-in-child-mortality-report-2021⟩.
[4] L. Hug, D. You, H. Blencowe, et al., Global, regional, and national estimates and trends in stillbirths from 2000 to 2019: a systematic assessment, Lancet 398 (2021) 772–785.
[5] United Nations, The 2030 agenda for sustainable development, Arsen. Res Glob. Sustain - Proc. 6th Int Congr. Arsen. Environ. 2016 (2015), https://doi.org/10.1201/b20466-7.
[6] World Health Organisation (WHO), Every newborn: an action plan to end preventable deaths (2014). ⟨www.who.int/about/licensing/copyright_form/en/index.html⟩.
[7] V. Flenady, A.M. Wojcieszek, P. Middleton, et al., Stillbirths: recall to action in high-income countries, Lancet 387 (2016) 691–702.
[8] World Health Organisation (WHO), Unicef. Maternal and Perinatal Death Surveillance and Response: Materials to Support Implementation, World Health Organization,, 2021.
[9] P. Dunn, G. McIlwaine, Perinatal audit: a Report Produced for the European Association of Perinatal Medicine, Parthenon, New York, New York, 1996.
[10] Ä. Helps, S. Leitao, A. Gutman, R. Greene, K. O'Donoghue, National perinatal mortality audits and resultant initiatives in four countries, Eur. J. Obstet. Gynecol. Reprod. Biol. 267 (2021) 111–119.
[11] M.L. Willcox, J. Price, S. Scott, et al., Death audits and reviews for reducing maternal, perinatal and child mortality, Cochrane Database Syst. Rev. (3) (2020). CD012982.
[12] E. Draper, I. Gallimore, L. Smith, et al., MBRRACE-UK Perinatal mortality surveillance report (2022). ⟨https://www.npeu.ox.ac.uk/assets/downloads/mbrrace-uk/reports/perinatal-surveillance-report-2020/MBRRACE-UK_Perinatal_Surveillance_Report_2020.pdf⟩.
[13] S. Chepkin, S. Prince, T. Johnston, et al., National Perinatal Mortality Review Tool: First Annual Report (2019).
[14] M.L. Rethlefsen, S. Kirtley, S. Waffenschmidt, et al., PRISMA-S: an extension to the PRISMA statement for reporting literature searches in systematic reviews, Syst. Rev. 10 (2021) 39.
[15] E. O'Connor, R. Greene, K. O'Donoghue, S. Leitao, A protocol for a systematic review of standardised tools used in perinatal death review programmes, HRB Open Res. 5 (2022) 52.
[16] A. Cooke, D. Smith, A. Booth, Beyond PICO: the SPIDER tool for qualitative evidence synthesis, Qual. Health Res. 22 (2012) 1435–1443.
[17] The World Bank. World Bank Country and Lending Groups. 2023. ⟨https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups⟩ (accessed June 13, 2022).
[18] AGREE-HS Research Team. Appraisal of Guidelines Research & Evaluation — Health Systems (AGREE-HS). 2018. ⟨http://www.agreetrust.org⟩.
[19] Flenady V., Oats J., Gardener G., et al. Clinical Practice Guideline for Care Around Stillbirth and Neonatal Death. Brisbane, Australia, 2020.
[20] Perinatal Services British Columbia. Perinatal Services BC Perinatal Mortality Guideline. Vancouver, BC, 2017.
[21] P. D'Aloja, M.A. Salvatore, L. Sampaolo, M.G. Privitera, S. Donati, A nationwide surveillance system to reduce perinatal death cases in Italy: implementing a population-based pilot project, Epidemiol. Prev. 45 (2021) 343–352.
[22] Health Quality and Safety Commission New Zealand, Guidelines for the completion of the mother and baby forms following a perinatal death, 2016.
[23] Department of Health, Tasmanian Perinatal Data Collection Guidelines for the completion of the Perinatal Data Collection Form (2022).
[24] Ministério da Saúde, Manual de vigilância do óbito infantil e fetal e do Comitê de Prevenção do Óbito Infantil e Fetal, Minist. da Saúde. Bras. (2009).
[25] S. Raman, A. Iljadica, R. Gyaneshwar, R. Taito, J. Fong, Improving maternal and child health systems in Fiji through a perinatal mortality audit, Int J. Gynaecol. Obstet. Organ Int Fed. Gynaecol. Obstet. 129 (2015) 165–168.
[26] K.K. Shattnawi, Y.S. Khader, M.S. Alyahya, N. Al-Sheyab, A. Batieha, Rate, determinants, and causes of stillbirth in Jordan: findings from the Jordan Stillbirth and Neonatal Deaths Surveillance (JSANDS) system, BMC Pregnancy Childbirth 20 (2020) 571.
[27] Ministry of Health and Social Services. Report of the Prevalence and Contributing Factors of Facility-Based Maternal and Neonatal Deaths in Five Regions of Namibia. Republic of Namibia, 2014 ⟨http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=9518668&site=ehost-live⟩.
[28] K.K. Shattnawi, Y.S. Khader, M.S. Alyahya, N. Al-Sheyab, A. Batieha, Rate, determinants, and causes of stillbirth in Jordan: findings from the Jordan Stillbirth and Neonatal Deaths Surveillance (JSANDS) system, BMC Pregnancy Childbirth 20 (2020) (N.PAG-N.PAG).
[29] P. D'Aloja, M.A. Salvatore, L. Sampaolo, M.G. Privitera, S. Donati, A nationwide surveillance system to reduce perinatal death cases in Italy: implementing a population-based pilot project, Epidemiol. Prev. 45 (2021) 343–352.
[30] G. Doran, A. Miller, J. Cunningham, There's a S.M.A.R.T. way to write management's goals and objectives. Manag. Rev. 70 (1981) 35–36.
[31] Health Quality and Safety Commission New Zealand. Fifteenth Annual Report of the Perinatal and Maternal Mortality Review Committee: Reporting Mortality and Morbidity 2020. Wellington, New Zealand, 2022.
[32] T. Norris, B.N. Manktelow, L.K. Smith, E.S. Draper, Causes and temporal changes in nationally collected stillbirth audit data in high-resource settings, Semin Fetal Neonatal Med. 22 (2017) 118–128.
[33] Ä. Helps, S. Leitao, A. Gutman, R. Greene, K. O'Donoghue, National perinatal mortality audits and resultant initiatives in four countries, Eur. J. Obstet. Gynecol. Reprod. Biol. 267 (2021) 111–119.
[34] J. Kurinczuk, E. Draper, D. Field, et al., Experiences with maternal and perinatal death reviews in the UK–the MBRRACE-UK programme, BJOG Int. J. Obstet. Gynaecol. 121 (2014) 41–46.
[35] N.R. Rhoda, D. Greenfield, M. Muller, et al., Experiences with perinatal death reviews in South Africa–the Perinatal Problem Identification Programme: scaling up from programme to province to country, BJOG 121 (Suppl) (2014) 160–166.
[36] A. Dumont, P. Fournier, W. Fraser, et al., QUARITE (quality of care, risk management and technology in obstetrics): a cluster-randomized trial of a multifaceted intervention to improve emergency obstetric care in Senegal and Mali, Trials 10 (2009) 85.
[37] J.J. Kurinczuk, P. Smith, C. Bevan, et al., Learning from standardised reviews when babies die, Natl. Perinat. Mortal. Rev. Tool: Fourth Annu. Rep. (2022). ⟨https://www.hqip.org.uk/wp-content/uploads/2021/10/Ref.-322-PMRT-report-2021-Main-report-FINAL.pdf⟩.
[38] K.J. Kerber, M. Mathai, G. Lewis, et al., Counting every stillbirth and neonatal death through mortality audit to improve quality of care for every pregnant woman and her baby, BMC Pregnancy Childbirth 15 (2015). S9–S9.
[39] K. Kelly, S. Meaney, S. Leitao, K. O'Donoghue, A review of stillbirth definitions: a rationale for change, Eur. J. Obstet. Gynecol. Reprod. Biol. 256 (2021) 235–245.
[40] L.K. Smith, A.D. Hindori-Mohangoo, M. Delnord, et al., Quantifying the burden of stillbirths before 28 weeks of completed gestational age in high-income countries: a population-based study of 19 European countries, Lancet (Lond., Engl.) 392 (2018) 1639–1646.
[41] World Health Organization (WHO), The WHO application of ICD-10 to deaths during the perinatal period: ICD-PM, World Heal Organ (2016) 1–88.
[42] S. Hopkins Leisher, Z. Teoh, H. Reinebrant, et al., Seeking order amidst chaos: a systematic review of classification systems for causes of stillbirth and neonatal death, 2009-2014, Neonatal Intensive Care 30 (2017) 41–54.
[43] E. Allanson, Ö. Tunçalp, J. Gardosi, et al., Classifying the causes of perinatal death, Bull. World Health Organ 94 (2016), 79-79A.
[44] L. De Bernis, M.V. Kinney, W. Stones, et al., Stillbirths: ending preventable deaths by 2030, Lancet 387 (2016) 703–716.
[45] M. Eskes, A.J.M. Waelput, J.J.H.M. Erwich, et al., Term perinatal mortality audit in the Netherlands 2010-2012: a population-based cohort study, Ned. Tijdschr. Geneeskd. (2015) **159**.
[46] K. Widdows, H.E. Reid, S.A. Roberts, E.M. Camacho, A.E.P. Heazell, Saving babies' lives project impact and results evaluation (SPiRE): a mixed methodology study, BMC Pregnancy Childbirth 18 (2018), https://doi.org/10.1186/s12884-018-1672-x.
[47] Royal College of Obstetricians and Gynaecologists, Each Baby Counts: 2020 Final Progress Report, RCOG, London, 2021.
[48] C.J. Andrews, D. Ellwood, P.F. Middleton, et al., Implementation and evaluation of a quality improvement initiative to reduce late gestation stillbirths in Australia: safer baby bundle study protocol, BMC Pregnancy Childbirth 20 (2020) 694.
[49] C. Macrae, The problem with incident reporting, BMJ Qual. Saf. 25 (2016) 71–75.
[50] V. Flenady, A.M. Wojcieszek, P. Middleton, et al., Stillbirths: Recall to action in high-income countries, Lancet 387 (2016) 691–702.
[51] H. Blencowe, S. Cousens, F.B. Jassir, et al., National, regional, and worldwide estimates of stillbirth rates in 2015, with trends from 2000: a systematic analysis, Lancet Glob. Heal 4 (2016) e98–e108.

[52] K. Dropp, L. Taylor, C. Heath, The root cause analysis (RCA) Process, one step at a time, Top. Patient Saf. 9 (2009) 1–4.
[53] Ä. Helps, K. O'Donoghue, O. O'Connell, S. Leitao, Bereaved parents involvement in maternity hospital perinatal death review processes: 'Nobody even thought to ask us anything, Heal Expect. 26 (2023) 183–198.
[54] D. Bakhbakhi, C. Burden, C. Storey, et al., Learning from deaths: healthcare professionals' views on parental involvement in the perinatal mortality review process (The PARENTS 2 study), BMC Pregnancy Childbirth 17 (2017), https://doi.org/10.1186/s12884-017-1457-7.
[55] C. Burden, D. Bakhbakhi, A.E. Heazell, et al., Parents' active role and engagement in the review of their stillbirth/perinatal death 2 (PARENTS 2) study: a mixed-methods study of implementation, BMJ Open 11 (2021) e044563–e044563.
[56] F.M. Boyle, D. Horey, D. Siassakos, et al., Parent engagement in perinatal mortality reviews: an online survey of clinicians from six high-income countries, BJOG Int J. Obstet. Gynaecol. 128 (2021) 696–703.
[57] D. Bakhbakhi, C. Storey, F. Jones, F. Yoward, D. Siassakos, Parents' active role & engagement in their stillbirth/perinatal death review (PARENTS), BJOG Int. J. Obstet. Gynaecol. 123 (2016) 151.
[58] J.E. Norman, A.E.P. Heazell, A. Rodriguez, et al., Awareness of fetal movements and care package to reduce fetal mortality (AFFIRM): a stepped wedge, cluster-randomised trial, Lancet 396 (2018) 1629–1638.
[59] D. Bakhbakhi, C. Burden, C. Storey, et al., PARENTS 2 Study: a qualitative study of the views of healthcare professionals and stakeholders on parental engagement in the perinatal mortality reviewfrom 'bottom of the pile'' to joint learning', BMJ Open 8 (2018) https://doi.org/10.1136/bmjopen-2018-023792.
[60] A.R. Gagliardi, M.C. Brouwers, Do guidelines offer implementation advice to target users? A systematic review of guideline applicability, BMJ Open 5 (2015) 1–7.
[61] L.J. Damschroder, C.M. Reardon, M.A.O. Widerquist, J. Lowery, The updated consolidated framework for implementation research based on user feedback, Implement Sci. 17 (2022) 1–16.
[62] National Perinatal Epidemiology Unit (NPEU). Perinatal Mortality Review Tool. 2023. ⟨https://www.npeu.ox.ac.uk/pmrt⟩ (accessed April 27, 2023).