Guidance for Trusts and Health Boards

Conducting Perinatal Mortality Reviews using the National Perinatal Mortality Review Tool (PMRT)

July 2018

Version 1.2

Contents

Background

The concept and principles for a national Perinatal Mortality Review Tool (PMRT) were established by a stakeholder group convened by the Department of Health and the stillbirth and neonatal death charity, Sands in 2012 (Figure 1). The PMRT has been designed following these principles.

Figure 1. Principles for the conduct of local perinatal mortality reviews

- There should be comprehensive and robust review of all perinatal deaths from 22^{+0} days gestation until 28 days after birth*; excluding termination of pregnancy and those with a birth weight <500g if the gestation at birth is not known;
- Such reviews should be conducted using a standardised nationally accepted tool, ideally web-based, that includes a system for grading quality of care linked to outcomes;
- A multidisciplinary group should review each case at a meeting where time is set aside for doing the work;
- There should be scope for parental input into the process from the beginning;
- An action plan should be generated from each review, implemented and monitored;
- The review should result in a written report which should be shared with families in a sensitive and timely manner;
- Reporting to the Trust/Health Board executive should occur regularly and result in organisational learning and service improvements;
- Findings from local reviews should feed up regionally and nationally to allow benchmarking and publication of results, and thereby ensure national learning

*The PMRT has subsequently been designed so that the death of any baby who dies following care on a neonatal unit regardless of their age at death can be reviewed using the PMRT and the age of death is not limited to 28 days after birth

The babies whose care should be reviewed using the PMRT

The PMRT has been designed to support the review of the care of the following babies:

- All late fetal losses 22^{+0} to 23^{+6};
- All antepartum and intrapartum stillbirths;
- All neonatal deaths from birth at 22^{+0} to 28 days after birth;
- All post-neonatal deaths where the baby is born alive from 22^{+0} but dies after 28 following care in a neonatal unit; the baby may be receiving planned palliative care elsewhere (including at home) when they die.

- The PMRT is not designed to support the review of the following perinatal deaths:
    - Termination of pregnancy at any gestation;
    - Babies who die in the community 28 days after birth or later who have not received neonatal care;
    - Babies with brain injury who survive.

(i) Review of the care of babies who have been transferred

Where babies were transferred (either in utero or after birth) and received care in more than one hospital we strongly recommend that the care across all hospitals should be reviewed by the teams involved in the care at each hospital and this should be carried out as a joint activity wherever possible.

The Trust/Health Board where the baby died is responsible for leading the review but all units involved in the care should be part of the review group to ensure that all aspects of the care are considered. Examples of where this did not occur for the deaths reviewed in the perinatal Confidential Enquiries illustrate the inappropriate conclusions which can be reached when limited aspects of care are reviewed in isolation (1) (see Appendix A).

We appreciate that organising joint meetings will be complex, and not possible in all instances, but the use of video conferencing for joint discussions could be considered.

In the event that it is not possible to organise a joint review it is better that care is reviewed separately than not at all and that all units review the part of the care pathway they were involved in providing. As part of the PMRT development we will be making modifications to the PMRT system to enable sharing of information across Units for the same case, although this facility is not yet available.

(ii) Deaths that should be reviewed first

The aim is that the care of all the babies who die, as listed above, is reviewed. For Trusts/Health Boards who currently conduct a very limited number of reviews this is probably unrealistic at the outset. We therefore recommend that in the first instance the deaths of all term intrapartum stillbirths and intrapartum related neonatal and post-neonatal deaths are reviewed. This will mean, however, that on average only 5% of all eligible deaths will be reviewed. We therefore suggest that once the reviewing process is established that reviews should quickly expand beyond the deaths of babies born at term, bearing in mind that antepartum stillbirths account for 90% of all stillbirths and that the majority of babies born alive, but who subsequently die, are born preterm.

Multidisciplinary review group

We strongly recommend that reviews are carried out by multidisciplinary groups (1,2,3). As identified in the Confidential Enquiries the quality of the local review is much higher when a multidisciplinary group conducts the review compared with a single individual or just one or two members of staff (1,2). Appendix A illustrates the limitations of review by a single individual.

Trusts and Health Boards are responsible for establishing their own local multidisciplinary perinatal mortality review group. In many places the group will be convened within the Trust/Health Board but, alternatively a group might be organised across different Trusts/Health Boards, for example, in England across a Strategic Clinical Network or Local Maternity System.

(i) Recommended composition of the perinatal mortality review group

We recommend the composition for the perinatal mortality review group as listed in Figure 2. It is possible for group members to fulfil multiple roles, provided these roles do not result in too small a group of individuals e.g. if the maternity safety champion is a midwife then this person could be one of the two midwives in the core group. If the Chair of the group is involved in the death being reviewed then the meeting should be chaired by the Vice-Chair.

(ii) An external member of the perinatal mortality review group

We strongly recommend that the local review group includes an independent external member to support robust review (1,2,3). By this we mean that a clinician from another Trust/Health Board is invited to be a member of the review group. The external member is present to provide a 'fresh pair of eyes' to the review of the care provided and to provide robust challenge where complacency or 'group think' in service provision has crept in, as identified in the Kirkup report (4).

Figure 2. Recommended composition of the local perinatal mortality review group

Core membership	Additional members
Roles within the group: • Chair and Vice-Chair • Scribe/Admin support • PMRT/Maternity Safety Champion **Minimum of 2 of each of the following:** • Obstetrician • Midwife • Neonatologist and Neonatal Nurse: -All cases where resuscitation was commenced -All neonatal deaths • Bereavement team (1 acceptable) • Risk manager/governance team member (1 acceptable) • External panel member (1 acceptable) • Other members as appropriate to the organisation of care in the Trust/Health Board e.g. service manager	**Named and invited to attend or contribute where applicable:** • Pathologist • GP/Community healthcare staff • Anaesthetist • Sonographer/radiographer • Safeguarding team • Service manager • Any other relevant healthcare team members pertinent to case

Terms of reference and conduct of review meetings

We recommend that the perinatal mortality review group agree the terms of reference for the group. A template set of terms of reference modified from those developed by the World Health Organisation is given in Appendix B and can be downloaded from the website for ease of

modification: https://www.npeu.ox.ac.uk/pmrt/implementation-support The template can be used as the basis for Trusts/Health Boards to develop their own set of terms of reference.

Organisation and preparation for review meetings

Members of the review group need to have sufficient time allocated to attending meetings and for carrying out the preparatory tasks ahead of the review meeting. This time should be included in medical job plans and membership of the group should form part of the identified roles of other staff.

The way in which the review meetings are organised and their frequency will vary from place to place depending upon a number of factors including the number of deaths to be reviewed. Trusts/Health Boards reviewing substantial numbers of cases may organise the review process as a series of stages outlined in Figure 3 and illustrated in Appendix C. Alternatively for Trusts/Health Boards with very few cases, with appropriate preparation, the review process may be completed at a single meeting.

Prior to the review starting and within 72 hours of the death a rapid review will enable identification of any immediate safety concerns and escalation to a Serious Incident if required. The PMRT can still be used for review as part of a Serious Incident investigation; it is likely that additional information will need to be collected and appended to the report generated by the PMRT.

Figure 3. Stages of the review conducted as a multi-stage process

What	Whom
Rapid review to identify any immediate safety concerns	Senior clinician and risk midwife
Enter basic case notification into the PMRT to open the case for review	Designated member of the perinatal mortality review group e.g. clerical support
Preparatory activities	Clerical support staff and clinical staff e.g. risk midwife
Initial review	Two clinical staff members from the perinatal mortality review group
Full (first) review	Perinatal mortality review group
Further review – may be required if information is still pending (e.g. post mortem findings) or new information comes to light	Perinatal mortality review group

(i) Preparation for review meetings

A number of preparatory activities can be carried out ahead of the meeting (Figure 4).

Figure 4. Preparatory tasks which can be carried out ahead of the review meeting

- Agree appropriate dates, time and venue
- Ensure the meeting room has appropriate facilities including IT as needed, for example a projector
- Identify cases for each review meeting
- Collect relevant notes, statements, results of any follow-up investigations and other information as needed
- Gather the parents' perspectives of their care and any questions they have
- Enter the 'factual' information into the PMRT*
- Complete a timeline of the events
- Invite any additional group members who need to attend or contribute (see Figure 2)

*See the section on the PMRT in action where the different types of PMRT questions are outlined

(ii) The initial review stage

Once the preparation is complete an initial review can be carried out by two members of the review group e.g. the risk midwife and an obstetrician in the case of a stillbirth. The purpose of this stage is first, to double check that the factual information already entered into the PMRT is correct. The second purpose is to start the 'review' with initial consideration of the care provided. By answering questions which result in only further relevant questions in the PMRT being presented, this initial review will speed up the full review process and enable the full review group to concentrate on the relevant aspects of care without being distracted by irrelevant questions. This initial review stage also enables a check that all the relevant information needed for the full review has been collated. For example, should ultrasound images require review, this can be carried out during the initial review stage so that information about the quality of the ultrasound images is available at the full multidisciplinary review meeting.

(iii) The full review as a process of 'judgement'

The form of many of the questions requires the review group to make 'judgements' about whether the care provided was appropriate and whether that care met local or national guidelines and standards where these exist. Where relevant national and other guidance exists it is provided in summary form as '**tool tips'** within the PMRT. The tool tips are indicated by an icon and clicking on the icon opens up a text box containing the summary guidance and a reference to the full guidance.

Parents' perspectives and concerns about their care

The review is the opportunity to consider the views and any concerns parents have about the care they received. In order for their perspectives to be considered they need to know that a review will take place and also have had the opportunity to express their views and any concerns they have about the care they and their baby received.

In some cases the fact that a review will take place will be included in a formal 'Duty of Candour' discussion. For other parents, where specific 'Duty of Candour' discussions will not take place, they also need to be informed that a review will take place. Whilst their consent is not required for their care to be reviewed since this is part of standard NHS care, it is nevertheless appropriate that they are told that a review will occur and that they will be invited to discuss the findings.

It goes without saying that the process of telling parents that a review of the care and that of their baby will be carried out needs to be handled sensitively. This discussion does provide, probably the first opportunity to seek any views they have about the care they received. However the appropriate timing for a discussion to seek their views will vary from parents to parents, and from circumstance to circumstance. Asking them immediately following the death is likely to be too soon for many parents. They may also need more than one opportunity to express their views with time to reflect on what has happened to them and their baby. The PARENTS study research group based in Bristol are investigating how best to involve parents in the review process. As results emerge we will incorporate them into guidance and they will also be available on the PARENTS study website at: https://www.nbt.nhs.uk/research-innovation/our-research/current-research/women-children's-health-research-unit/wch-research - click on the PARENTS link.

If you provide hospital-specific information about the reviews you undertake we suggest that you modify this information to include information about your use of the PMRT as part of this. We recommend you include the link to the parent information provided on the PMRT web pages. If you use the Sands information leaflets we are working with Sands on appropriate modifications.

More information about the PMRT for bereaved parents is available on the PMRT website at:

https://www.npeu.ox.ac.uk/pmrt/information-for-bereaved-parents

(i) The legal basis for processing data

Parents' consent is not required to enable a review to be carried out. However, using the PMRT means that their confidential identifiable information is being included in a database which is held by the University of Oxford. We consulted with our stakeholder group of ~25 mother and baby charities about whether Trusts/Health Boards should seek parent consent for the use of the PMRT as the 'legal basis' for including confidential patient information in the PMRT. These stakeholders strongly expressed their belief that the vast majority of parents would support the work of the PMRT and MBRRACE-UK, since both are designed to prevent avoidable deaths in the NHS, without the need to obtain the consent of individuals. It is only possible to use personal identifiable information in this way, without obtaining consent, following a successful application to the Confidentiality Advisory Group for England and Wales, and the Public Benefit and Privacy Panel for Health & Social Care in Scotland. For the purposes of the PMRT we have made these applications which have been approved: 17/CAG/0150 (England and Wales) and 1718-0249 (Scotland).

Under the General Data Protection Regulation (GDPR) the legal basis for processing identifiable data is:

Article 6 (1) (e) processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the data controller*.

and

Article 9 (2) (i) processing is necessary for reasons of public interest in the area of public health, in ensuring high standards of quality and safety of health care.

The privacy notice for the PMRT as required by the GDPR is available to view at:

https://www.npeu.ox.ac.uk/pmrt/privacy-notice

*Of note the Healthcare Quality Improvement Partnership which commissions the PMRT is the data controller; they commission the PMRT on behalf of the Departments of Health in England, Wales and Scotland who have the statutory responsibility to improve the quality of health care services.

The PMRT in action

(i) Using the PMRT to support a systematic and standardised approach to the review of care

The PMRT broadly presents three types of 'questions':

- **Notification of death details** referred to as 'core demographics'. These questions are designed to log within the PMRT the fact that there has been a death which requires review and enables a review to be started. Notification also allows the data for the MBRRACE-UK perinatal mortality surveillance data to be entered. We are in the process of developing case notification page which is common to both the MBRRACE-UK surveillance and the PMRT.
- **Broadly factual questions**. These questions largely relate to 'factual information' about the mother and her pregnancy. These include for example, further demographic details such as her ethnic origin, employment and main support in pregnancy. Other examples include pregnancy and medical history questions which come from the booking and antenatal information.
- The third type of questions support the review of the care and involve **consideration of the care provided** and broadly ask the review group to consider whether the care provided was appropriate in the circumstances and met existing national or local guidelines and standards where these exist. These questions require the review group to make **'judgements' about the quality of care provided.**

The PMRT works by 'opening up' questions about the care provided based on the factual information and also in response to previous care questions, thus only relevant questions will be presented later based on responses to early answers. For example, if the baby was confirmed dead prior to labour and, as a consequence there was no attempt to resuscitate the baby when he/she was born, then questions about resuscitation and neonatal care, beyond double checking that resuscitation was not attempted, will not appear.

(ii) Generation of issues

Particular responses to questions within the PMRT will generate 'issues' with the care provided. For example, if a mother met the national criteria for screening for gestational diabetes but she wasn't offered screening this will generate an 'issue'.

The issues generated will be listed at the end of the review and the review group will be able to identify the factors which contributed to this issue; a 'pick list' of contributory factors is offered for selection. The factors listed come from the National Patient Safety Agency Contributory Factors Classification Framework and it is possible to identify more than one contributory factor for each issue (the full list of contributory factors is given in Appendix C). You might find it helpful to print out the list of Contributory Factors for easy reference during the review meeting.

For each issue, the review group are also asked to identify whether that issue was likely to have contributed to the outcome for the baby and/or the mother. The review group are then asked to identify the action(s) needed to improve care as a consequence. All the actions across all the issues identified are summarised in an action plan which is generated as part of the final report. It is also possible to add issues which have been generated from the review discussion but have not been highlighted by the questions in the tool.

(iii) Grading of care

Towards the end of the review the review group are asked to consider and grade the quality of care provided. Four levels of grading of care are offered for each of the following:

For stillbirths the care considered is:

- The care provided to the mother and baby up to the point that the baby was confirmed as having died;
- The care provided to the mother following confirmation of the death of her baby.

For neonatal deaths and later deaths the care considered is:

- The care provided to the mother and baby up to the point of the birth of the baby;
- The care provided to the baby from birth up to the death of the baby;
- The care provided to the mother following the birth of her baby.

(iv) Final report

Once the review is complete the PMRT will assist in the generation of a final report of the review. This consists of information which comes from the responses to the specific questions and also information which can be added into the tool as the review progresses. This information is added as free text into comment boxes on the right-hand side of the PMRT screen. Notes added as the review is carried out will appear in the final report as text which can be edited. So if short notes are entered into the text boxes these can be edited into prose for the final report by whomever is responsible for producing the final report.

Communicating the outcome of the review with the parents

The PMRT has two over-arching purposes which follow from a high quality, standardised and systematic review of care having been conducted. The first, is to provide the parents with information about why their baby died, whether this might have been avoided and whether the death of their baby has any implications for future pregnancy plans.

We anticipate that the review will have been conducted by the time that the parents come back for their follow-up visit at which the findings of the review can be discussed with them. We recommend that the contents of the report are discussed with them. We are in the process of developing a version of the clinical report which is suitable for sharing with the parents. At present we recommend that they are sent a letter after the meeting which outlines everything that was discussed with them at their visit. The language used in the letter should be appropriate to the circumstances. Examples of highly insensitive language used in follow-up letters was seen in recent Confidential Enquiries. It is clearly preferable to refer to the baby by name or to say 'your baby', and not refer to the baby as "the fetus", "fetal remains" or the "macerated stillbirth". Responsive and respectful care after birth, including at the follow-up visit and subsequent letter, can make a difference to parents' understanding, experience and what they remember in the longer term.

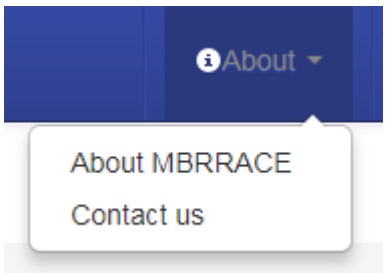
Completing the audit cycle and improving care for future mothers, babies and families

The second overarching purpose of the PMRT, is to support the generation of learning and improvements in care for future mothers, babies and families. We recommend that the action plans generated from these reviews should be 'SMART' that is, the actions should be **S**pecific, **M**easureable, **A**chievable, **R**ealistic and **T**ime-bound. It is important to identify who is responsible for the actions and to ensure that actions are completed and that their impact is audited.

As development of the PMRT continues over the coming months Trust/Health Board level reports will be made available for staff in Trusts/Health Boards to download. These will summarise the issues generated across all the cases reviewed in the Trust/Health Board in a specified time period to enable the identification of recurring themes and, recurring issues and actions.

User comments and requirements

Development of the tool will continue over the coming months. User input into the development process will enable us to modify the tool to better meet the needs of perinatal mortality review groups. We are keen to hear your ideas for improvements. To send these to us please use the 'contact us' facility within the PMRT.



Implementation support materials

We have developed support materials for the conduct of perinatal reviews. These are available at:

https://www.npeu.ox.ac.uk/pmrt/implementation-support

There will be more materials developed over the coming year so please keep an eye on this webpage; we will also update you when further materials are released.

References

1. Draper ES, Kurinczuk JJ, Kenyon S (Eds.) on behalf of MBRRACE-UK. MBRRACE-UK 2017 Perinatal Confidential Enquiry: Term, singleton, intrapartum stillbirth and intrapartum-related neonatal death. The Infant Mortality and Morbidity Studies, Department of Health Sciences, University of Leicester: Leicester, 2017. ISBN: 978-09935059-7-3

2. Draper ES, Kurinczuk JJ, Kenyon S (Eds.) on behalf of MBRRACE-UK. MBRRACE-UK perinatal Confidential Enquiry: Term, singleton, normally formed, antepartum stillbirth. Leicester: The Infant Mortality and Morbidity Studies, Department of Health Sciences, University of Leicester: Leicester, 2015.

3. Royal College of Obstetricians and Gynaecologists. Each Baby Counts: 2015 Full Report. London: RCOG, 2017.

4. Kirkup B. The Report of the Morecambe Bay Investigation. An independent investigation into the management, delivery and outcomes of care provided by the maternity and neonatal services at the University Hospitals of Morecambe Bay NHS Foundation Trust from January 2004 to June 2013. UK: The Stationery Office, 2015.

Appendix A: An example vignette of a review of one aspect of care by a single healthcare professional

An example of the consequences of inappropriate conclusions being reached when limited aspects of care are reviewed in isolation by a single healthcare professional (1)

Vignette – review of only one aspect of care by a single health professional

- *A woman in her 20s in her first pregnancy was booked for antenatal care at 11 weeks. She was low risk and had an uneventful antenatal period.*
- *When she self-referred in labour at 40 weeks it was noted that there was blood stained liquor draining. This was not considered to be abnormal and the woman went on to labour in a birthing pool. Further documentation of blood loss was scant throughout the maternal record.*
- *There was a prolonged active second stage of labour with documentation of active pushing for three and a half hours without escalation or review. There was an absence of fetal heart rate monitoring in the 30 minutes preceding the birth of the baby, who was born in poor condition.*
- *Immediate care at birth was appropriate, although there was a delay in calling for the neonatal team and the baby was not intubated until five and a half minutes after birth.*
- *Following resuscitation the baby was transferred to the neonatal unit for cooling but some days later re-orientation of care was discussed with the parents and the baby died.*
- *Subsequent review by a single neonatal health care professional failed to review any of the care in the intrapartum period and categorised the death as 'expected'.*

Appendix B: Terms of reference

Perinatal Mortality Review Meeting Terms of Reference*

[INSERT TRUST/HEALTH BOARD NAME]

The aims of our stillbirth and neonatal mortality review meetings include:

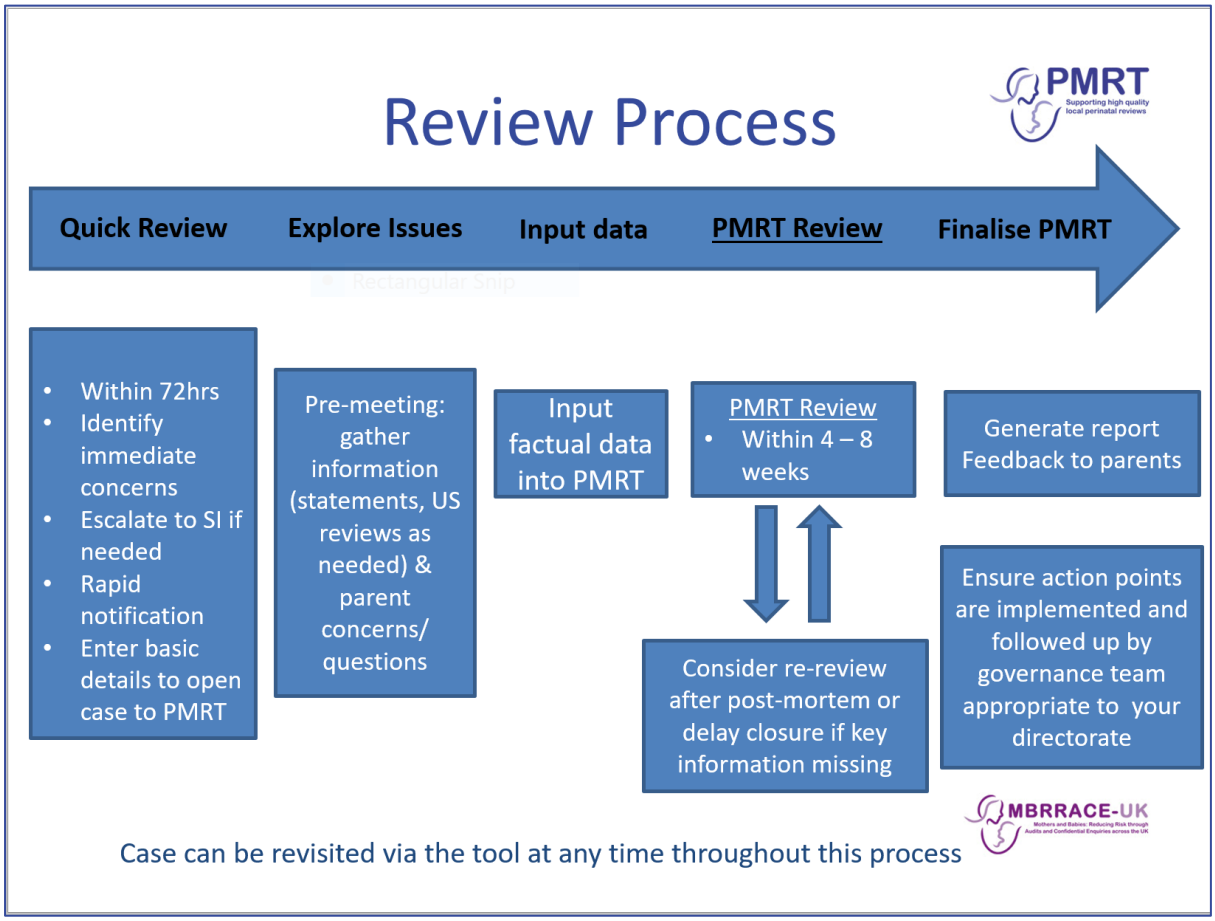
- Identifying the cause of each baby's death by robustly and comprehensively reviewing each case and the quality of care provided;
- Working through the care for each baby who died to identify contributory factors where issues are identified and assessing whether different care may have made a difference to the outcome (grading of care);
- Developing action plans that aim to address the contributory factors identified and achieve organisational change and service improvements;
- Recognising a 'just culture' of accountability for individuals and organisations;
- Incorporating the parents' perspective of their care and addressing any questions and concerns they have;
- Providing parents with a robust explanation of why their baby died (accepting that in all instances, despite full clinical investigations, it is not always possible to determine this) and any implications for future pregnancies;
- Improving the care we provide for mothers, babies and families in the future.

The conduct of our stillbirth and neonatal mortality review meetings include:

- Making every effort to gather the relevant information/evidence about each death in advance of the meeting;
- Attending and arriving on time to the meeting;
- Participating actively in discussions;
- Respecting everyone's ideas and way of expressing them;
- Accepting robust discussion and disagreement;
- Agreeing to be comprehensive, open and transparent throughout;
- Trying as much as possible (recognising this can be challenging) to accept that your own actions can be questioned;
- Respecting the confidentiality of the documents and discussions that take place during the meetings and record/dispose of them appropriately;
- If gaps are identified in the information there may be a need to go away and gather more information before completing the review;
- Using the national Perinatal Mortality Review Tool (PMRT) to support the conduct of each review.

*Modified: World Health Organisation. Making Every Baby Count: audit and review of stillbirth and neonatal death. Geneva: WHO, 2016.

Appendix C: Stages of the Review Process



Appendix D: National Patient Safety Agency: Contributory Factors Classification Framework

Root Cause Analysis Investigation tools

Contributory Factors Classification Framework

Patient Factors	Components
Clinical condition	❑ Pre-existing co-morbidity ❑ Complexity of condition ❑ Seriousness of condition ❑ Limited options available to treat condition ❑ Disability
Physical Factors	❑ Poor general physical state ❑ Malnourished ❑ Dehydrated ❑ Age related issues ❑ Obese ❑ Poor sleep pattern
Social Factors	❑ Cultural / religious beliefs ❑ Language ❑ Lifestyle (smoking/ drinking/ drugs/diet) ❑ Sub-standard living accommodation (e.g. dilapidated) ❑ Life events ❑ Lack of support networks / (social protective factors -Mental Health Services) ❑ Engaging in high risk activity
Mental/ Psychological Factors	❑ Motivation issue ❑ Stress / Trauma ❑ Existing mental health disorder ❑ Lack of intent (Mental Health Services) ❑ Lack of mental capacity ❑ Learning Disability
Interpersonal relationships	❑ Staff to patient and patient to staff ❑ Patient engagement with services ❑ Staff to family and family to staff ❑ Patient to patient ❑ Family to patient or patient to family ❑ Family to family (Siblings, parents, children)

Staff Factors	Components
Physical issues	❑ Poor general health (e.g. nutrition, hydration, diet, exercise, fitness) ❑ Disability (e.g. eyesight problems, dyslexia) ❑ Fatigue ❑ Infected Healthcare worker
Psychological Issues	❑ Stress (e.g. distraction / preoccupation) ❑ Specific mental illness (e.g. depression) ❑ Mental impairment (e.g. illness, drugs, alcohol, pain) ❑ Lack of motivation (e.g. boredom, complacency, low job satisfaction)
Social Domestic	❑ Domestic problems (e.g. family related issues) ❑ Lifestyle problems (e.g. financial/housing issues) ❑ Cultural beliefs ❑ Language
Personality Issues	❑ Low self confidence / over confidence (e.g. Gregarious, reclusive, interactive) ❑ Risk averse / risk taker ❑ Bogus Healthcare worker
Cognitive factors	❑ Preoccupation / narrowed focus (Situational awareness problems) ❑ Perception/viewpoint affected by info. or mindset (Expectation/Confirmation bias) ❑ Inadequate decision/action caused by Group influence ❑ Distraction / Attention deficit ❑ Overload ❑ Boredom

Task Factors	Components
Guidelines, Policies and Procedures	❑ Not up-to-date ❑ Unavailable at appropriate location (e.g. Lost/missing/non-existent/not accessible when needed) ❑ Unclear/not useable (Ambiguous; complex; irrelevant, incorrect) ❑ Not adhered to / not followed ❑ Not monitored / reviewed ❑ Inappropriately targeted/focused (i.e. not aimed at right audience) ❑ Inadequate task disaster plans and drills
Decision making aids	❑ Aids not available (e.g. CTG machine; checklist; risk assessment tool; fax machine to enable remote assessment of results) ❑ Aids not working (e.g. CTG machine, risk assessment tool, fax machine) ❑ Difficulties in accessing senior / specialist advice ❑ Lack of easy access to technical information, flow charts and diagrams ❑ Lack of prioritisation of guidelines ❑ Incomplete information (test results, patient history)
Procedural or Task Design	❑ Poorly designed (i.e. Too complex; too much info.; difficult to conceive or remember) ❑ Guidelines do not enable one to carry out the task in a timely manner ❑ Too many tasks to perform at the same time ❑ Contradicting tasks ❑ Staff do not agree with the 'task/procedure design' ❑ Stages of the task not designed so that each step can realistically be carried out ❑ Lack of direct or understandable feedback from the task ❑ Misrepresentation of information ❑ Inappropriate transfer of processes from other situations ❑ Inadequate Audit, Quality control, Quality Assurance built into the task design ❑ Insufficient opportunity to influence task/outcome where necessary ❑ Appropriate automation not available

Communication	Components
Verbal communication	❑ Inappropriate tone of voice and style of delivery for situation ❑ Ambiguous verbal commands / directions ❑ Incorrect use of language ❑ Made to inappropriate person(s) ❑ Incorrect communication channels used
Written communication	❑ Inadequate patient identification ❑ Records difficult to read ❑ All relevant records not stored together and accessible when required ❑ Records incomplete or not contemporaneous (e.g. unavailability of patient management plans, patient risk assessments, etc) ❑ Written information not circulated to all team members ❑ Communication not received ❑ Communications directed to the wrong people ❑ Lack of information to patients ❑ Lack of effective communication to staff of risks (Alerts systems etc)
Non verbal communication	❑ Body Language issues (closed, open, body movement, gestures, facial expression)
Communication Management	❑ Communication strategy and policy not defined / documented ❑ Ineffective involvement of patient/carer in treatment and decisions ❑ Lack of effective communication to patients/relatives/carers of risks ❑ Lack of effective communication to patients about incidents (being open) ❑ Information from patient/carer disregarded ❑ Ineffective communication flow to staff up, down and across ❑ Ineffective interface for communicating with other agencies (partnership working) ❑ Lack of measures for monitoring communication

Equipment	Components
Displays	❑ Incorrect information / feedback available ❑ Inconsistent or unclear information ❑ Illegible information ❑ Interference/unclear equipment display
Integrity	❑ Poor working order ❑ Inappropriate size ❑ Unreliable ❑ Ineffective safety features / not designed to fail safe ❑ Poor maintenance programme ❑ Failure of general services (power supply, water, piped gases etc)
Positioning	❑ Correct equipment not available ❑ Insufficient equipment / emergency backup equipment ❑ Incorrectly placed for use ❑ Incorrectly stored
Usability	❑ Unclear controls ❑ Not intuitive in design ❑ Confusing use of colour or symbols ❑ Lack of or poor quality user manual ❑ Not designed to make detection of problems obvious ❑ Use of items which have similar names or packaging ❑ Problems of compatibility

Work Environment	Components
Administrative factors	❑ Unreliable or ineffective general administrative systems (Please specify e.g.: Bookings, Patient identification, ordering, requests, referrals, appointments) ❑ Unreliable or ineffective admin infrastructure (e.g. Phones, bleep systems etc) ❑ Unreliable or ineffective administrative support
Design of physical environment	❑ Poor or inappropriate office design (computer chairs, height of tables, anti-glare screens, security screens, panic buttons, placing of filing cabinets, storage facilities, etc.) ❑ Poor or inappropriate area design (length, shape, visibility, provision of space) ❑ Inadequate security provision ❑ Lack of secure outside space ❑ Inadequate lines of sight ❑ Inadequate/inappropriate use of colour contrast/patterns (walls/doors/flooring etc)
Environment	❑ Facility not available (failure or lack of capacity) ❑ Fixture or fitting not available (failure or lack of capacity) ❑ Single sex accommodation limitation/breach ❑ Ligature/anchor points ❑ Housekeeping issues – lack of cleanliness ❑ Temperature too high/low ❑ Lighting too dim or bright, or lack of ❑ Noise levels too high or low ❑ Distractions
Staffing	❑ Inappropriate skill mix (e.g. Lack of senior staff; Trained staff; Approp. trained staff) ❑ Low staff to patient ratio ❑ No / inaccurate workload / dependency assessment ❑ Use of temporary staff ❑ High staff turnover
Work load and hours of work	❑ Shift related fatigue ❑ Excessive working hours ❑ Lack of breaks during work hours ❑ Excessive of extraneous tasks ❑ Lack of social relaxation, rest and recuperation
Time	❑ Delays caused by system failure or design ❑ Time pressure

Organisational	Components
Organisational structure	❑ Hierarchical structure/Governance structure not conducive to discussion, problem sharing, etc. ❑ Tight boundaries for accountability and responsibility ❑ Professional isolation ❑ Clinical versus the managerial model ❑ Inadequate maintenance ❑ Lack of robust Service level agreements/contractual arrangements ❑ Inadequate safety terms and conditions of contracts
Priorities	❑ Not safety driven ❑ External assessment driven e.g. Annual Health checks ❑ Financial balance focused
Externally imported risks	❑ Unexpected adverse impact of national policy/guidance (from Department of Health / Health authorities /Professional colleges) ❑ Locum / Agency policy and usage ❑ Contractors related problem ❑ Equipment loan related problem ❑ Lack of service provision ❑ Bed Occupancy levels (Unplanned bed opening/closures) ❑ PFI related problems (Private Finance Initiative)
Safety culture	❑ Inappropriate safety / efficiency balance ❑ Poor rule compliance ❑ Lack of risk management plans ❑ Inadequate leadership example (e.g. visible evidence of commitment to safety) ❑ Inadequately open culture to allow appropriate communication ❑ Inadequate learning from past incidents ❑ Incentives for 'at risk'/'risk taking' behaviors ❑ Acceptance/toleration of inadequate adherence to current practice ❑ Ignorance/poor awareness of inadequate adherence to current practice ❑ Disempowerment of staff to escalate issues or take action

Education and Training	Components
Competence	❑ Lack of knowledge ❑ Lack of skills ❑ Inexperience ❑ Inappropriate experience or lack of quality experience ❑ Unfamiliar task ❑ Lack of testing and assessment
Supervision	❑ Inadequate supervision ❑ Lack of / inadequate mentorship ❑ Training results not monitored/acted upon
Availability / accessibility	❑ Training needs analysis not conducted/acted upon ❑ On the job training unavailable or inaccessible ❑ Emergency Training unavailable or inaccessible ❑ Team training unavailable or inaccessible ❑ Core skills training unavailable or inaccessible ❑ Refresher courses unavailable or inaccessible
Appropriateness	❑ Inappropriate content ❑ Inappropriate target audience ❑ Inappropriate style of delivery ❑ Time of day provided inappropriate

Team Factors	Components
Role Congruence	❑ Lack of shared understanding ❑ Role + responsibility definitions misunderstood/not clearly defined
Leadership	❑ Ineffective leadership – clinically ❑ Ineffective leadership – managerially ❑ Lack of decision making ❑ Inappropriate decision making ❑ Untimely decision making (delayed) ❑ Leader poorly respected
Support and cultural factors	❑ Lack of support networks for staff ❑ Inappropriate level of assertiveness ❑ Negative team reaction(s) to adverse events ❑ Negative team reaction to conflict ❑ Negative team reaction to newcomers ❑ Routine violation of rules/regulations ❑ Lack of team openness/communication with colleagues ❑ Inadequate inter-professional challenge ❑ Failure to seek support ❑ Failure to address/manage issues of competence (whistle blowing)