



Report of confidential case note audit of term stillbirths in Northern Ireland occurring in 2016

July 2018

www.rqia.org.uk

Acknowledgements

The Project Team for the case note review of term stillbirths in Northern Ireland would like to acknowledge, firstly and most importantly, the loss for all families in Northern Ireland who have experienced stillbirth.

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Background

Across Northern Ireland the vast majority of pregnant women deliver healthy babies who thrive and go on to become healthy children and adults. However, tragically for some families, babies are stillborn.

Whilst the rate of stillbirth has reduced over the past number of years, there has been minimal change in the last decade. Comparisons with other countries and the findings of many quality improvement and confidential enquiry projects would indicate that there is still work to do.

The complexity of those factors which may contribute to stillbirth is well recognised. Many of these factors are interdependent and rarely can a stillbirth be attributed to just one cause. In order for us to learn, we need to understand the circumstances surrounding each death. This should include the care provided, in addition to risk factors associated with mother and baby.

For those babies who are born too early or too sick to survive, it is especially important that the question, “*would different care have made a difference?*” is carefully considered by a multidisciplinary team who have the right skills and experience to review the care. This work focuses on the care provided to those babies stillborn at or after 37 weeks at which point a baby with no major congenital anomaly would normally be expected to survive.

This document outlines the findings of a confidential case note inquiry into each of the 38 term stillbirths (at or after 37 weeks gestation) that occurred in Northern Ireland during 2016.

Introduction

Regional surveillance of perinatal mortality is co-ordinated by the Northern Ireland Maternal and Child Health (NIMACH) office which sits within the Public Health Agency (PHA). NIMACH also facilitates submission of Health and Social Care (HSC) Trust data to the national Clinical Outcome Review Programmes (CORP) for Maternal and Infant Health which is currently run by Mothers and Babies: Reducing Risk through Audit and Confidential Enquiry (MBRRACE-UK)¹.

A regional steering group, chaired by the Chief Medical Officer, guides the work of NIMACH in supporting perinatal mortality surveillance and improvement.

In recent years there has been a particular focus on stillbirths that happen at or after 37 weeks gestation (term), the theory being, that, if a baby had been delivered prior to dying in utero, there would be every chance of survival. Around a third of all stillbirths happen at or after 37 weeks. MBRRACE-UK completed and published a confidential enquiry into term, normally formed antepartum stillbirths in November 2015², and term, singleton, intrapartum stillbirths and intrapartum related neonatal deaths in November 2017³.

Following the 2015 report, NIMACH, with the support of the regional steering group, was asked to audit term stillbirths in Northern Ireland. This work aimed to identify learning from a case note audit of term (at or after 37 weeks) stillbirths during 2016 and improve clinical skills in mortality review processes. NIMACH gained financial support for this project from the Regulation and Quality Improvement Authority (RQIA)⁴.

At the time of undertaking this work in 2016/17, there was a requirement in Northern Ireland for every child death to be reviewed within Health and Social Care services

¹ <https://www.npeu.ox.ac.uk/mbrpace-uk>

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

³ Draper ES, Kurinczuk JJ, Kenyon S. (Eds) on behalf of MBRRACE-UK. MBRRACE-UK 2015 Perinatal Confidential Enquiry: Term, singleton, normally-formed intrapartum stillbirth and intrapartum-related neonatal death. Leicester: The infant Mortality and Morbidity Studies, Department of Health Sciences, University of Leicester. 2017

⁴ <https://rqia.org.uk/>

by a multidisciplinary team (MDT), regardless of the duration of pregnancy. In 2016, the requirement for a MDT review did not apply to stillbirths; however from December 2014, all stillbirths, capable of being born alive, were required to be reported to the Coroner⁵.

In response to the recommendations of the MBRRACE-UK reports, the Department of Health on 18th December 2017 issued guidance that *'all HSC Trusts should ensure that all stillbirths and neonatal deaths are reviewed by an appropriate multidisciplinary team using a standardised mortality review tool and process'*, and that *'NIMACH, working closely with Trusts and the Maternity Quality Improvement Collaborative, should build on the skills and experience developed through the stillbirth audit to establish a process for ongoing quality assurance of local mortality review processes and to identify and share learning'*.

⁵ Interim advice was issued by the Chief Medical and Nursing Officers on 1 December 2014 (HSS (MD) 38/2014) to the effect that all cases of fetal demise capable of being born alive require to be reported to the Coroner. As such, most cases of stillbirth are now reported to the Coroner (unless the demise of a fetus in utero occurred as a result of some defect which would mean the baby would not survive birth).

<https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/hss-md-14-2012.pdf>

<https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/hss-md-44-2013.pdf>

<https://www.health-ni.gov.uk/sites/default/files/publications/dhssps/hss-md-38-2014.pdf>

Project Aim and Objectives

Project Aim

To identify learning from a case note review of term (at or after 37 weeks) stillbirths during 2016 and improve clinical skills in mortality review processes.

Project Objectives

- Based on recognised national standards, undertake a multidisciplinary case note review of the antenatal, intrapartum and postpartum care provided to all women who experienced a term stillbirth during 2016.
- Learning from good practice across the rest of the UK, identify and use a standardised proforma⁶ for the review process, with a view to establishing a single tool for the review of perinatal mortality in obstetric and midwifery settings moving forward.
- Identify experts in stillbirth review from outside Northern Ireland to act as panel chairs to provide objectivity, guidance, support and enhanced training.
- Identify clinical and organisational learning from the case note review.
- Improve clinical skills to support the ongoing review of stillbirths.
- Use the process to further develop local expertise and clinical leadership for perinatal mortality review in each Trust area.
- Where possible, consider any wider environmental, cultural, human factors and professional issues which may have had an impact on care provided.
- Compare findings with MBRRACE-UK confidential enquiry to ascertain if Northern Ireland practice or lessons learned vary from UK findings.

⁶ Initial plans to use a national tool for perinatal mortality were not possible due to unavoidable delays in the tool's availability. A standardised clinical outcome review (SCOR) tool developed by the Perinatal Institute, already in use by one Trust in Northern Ireland was therefore used.

Methodology

A steering group was established to plan the case note review, with advice being sought from colleagues at MBRRACE-UK as well as from senior obstetric and midwifery colleagues across all five HSC Trusts. (Appendix 1)

An application was made to RQIA for project funding in October 2015 and approved in January 2016.

Standardised Tool

The use of a standardised tool was recommended for the audit of perinatal deaths in order to ensure each stillbirth was reviewed robustly and consistently. Four tools were considered:

1. National Patient Safety Agency (NPSA) tool to review intrapartum deaths, available at: <http://www.nrls.npsa.nhs.uk/resources/collections/intrapartum-toolkit/> . As this tool focuses only on intrapartum care, it was considered less appropriate to support a robust review of antepartum stillbirths.
2. MBRRACE-UK developed a comprehensive checklist to guide and support case note review for two recent confidential enquiry projects^{2,3}. The checklist, based on best practice guidance, is not available electronically and as such its use would require significant resource and time associated with manual analysis.
3. Perinatal Mortality Review Tool (PMRT) is an electronic based tool, commissioned by Healthcare Quality Improvement Partnership (HQIP) and is currently under development by MBRRACE-UK. The development has been supported by the Department of Health England and Stillbirth & Neonatal Death Charity (SANDS) and will facilitate the comparison of care provided against recognised standards of good practice recommended by national bodies including Royal Colleges and The National Institute for Health and Care Excellence (NICE). National roll out of the tool has been delayed due to unforeseen circumstances and as such was not available for use during the

project. It is expected that there will be no financial cost for Trusts to use the tool. Further information on the tool is available at:

<https://www.npeu.ox.ac.uk/mbrace-uk/pmrt>

4. Standardised Clinical Outcome Review (SCOR) is an electronic based tool for perinatal mortality review developed by the Perinatal Institute, a not-for-profit organisation set up to enhance the safety and quality of maternity care.

Similar to other tools, SCOR facilitates the review of care against recognised standards of good practice. There is a cost associated with the use of SCOR.

Further information about the tool is available at:

<https://www.perinatal.org.uk/scor/about.aspx>

It was agreed by the Steering Group that SCOR was the most appropriate tool to support the project as one Trust was already familiar with its use and, as a web based tool, it supports electronic data collation and analysis.

SCOR was purchased by the PHA for use in the case note audit and was made available for one year to all Trusts to support ongoing local review pending roll out of the national PMRT tool.

All clinical staff who participated in the panel were asked to undertake an online training session in the use of SCOR. Training was facilitated by the Perinatal Institute.

External Chairs

Using established contacts within NIMACH, clinicians from across the UK with established expertise in the review of stillbirth were approached to chair each review panel and to provide an educational session at the beginning of each panel on '*What a good review should look like*'. Chairs were also asked to share their personal experience of facilitating mortality reviews and establishing organisational structures to support review processes. The following clinicians from across the UK supported this case note audit:

- Dr Tracey Johnston (two panels) - Consultant in Fetal and Maternal Medicine, Birmingham Women's Hospital and Chair of the DH/Sands Perinatal Mortality Review Task and Finish Group
- Dr Liz Martindale (two panels) - Consultant in Obstetrics and Gynaecology at East Lancashire Hospitals NHS Trust (ELHT)
- Professor Jason Gardosi is the Director of the Perinatal Institute in Birmingham, UK
- Ms Coralie Rogers - Consultant Midwife (currently working independently), previously Birmingham Women's Hospital NHS Foundation Trust and Deputy Head of Midwifery, University Hospitals Morecombe Bay.

Panel Members

A letter was sent to the Heads of Midwifery and Clinical Directors of Obstetric Services across the five HSC Trusts, to seek support for the case note audit and to ask that information about the project be shared with senior midwives and obstetricians, with a view to identifying clinical staff who would be willing to participate in the case note audit.

Staff were asked to submit an expression of interest to the NIMACH office and a database of panel members was created. All panel members (Appendix 2) were required to review all case notes to be discussed at each panel.

Data Confidentiality

All participants in each panel were asked to sign a confidentiality agreement (Appendix 3) which were retained by NIMACH.

Case notes were anonymised by NIMACH staff prior to being reviewed, to remove all person identifiable and Trust information

A data access agreement (DAA) was put in place with the Perinatal Institute to fulfil all data governance obligations⁷. No identifiable data was uploaded to SCOR and each case was given a unique identifier.

Case Identification

Cases identified were all term stillbirths (at or after 37 weeks gestation) notified to NIMACH during 2016 as part of the National Maternal and Infant Clinical Outcome Review Surveillance Programme. Of note, stillbirths associated with congenital anomaly⁸ were also included to ensure that learning associated with any term stillbirth was identified, regardless of cause of death.

Case Notes

Copies of the case note cohort were requested from Trusts by NIMACH staff. Case notes were fully redacted by NIMACH staff to remove all identifiers relating to mother, staff and Trust details.

Panels

- Eight cases were prepared by NIMACH staff for each panel. The number of cases reviewed at each panel depended upon complexity and discussion time required. Cases not reviewed at one panel were automatically listed for the beginning of the next panel.
- Redacted case notes were photocopied and sent to panel members one week in advance of each panel. Panel members were asked to read each set of case notes in preparation for facilitated multidisciplinary audit.
- NIMACH staff uploaded anonymised demographic data for each case to the SCOR web based tool prior to each panel.
- At the beginning of each panel, all present were reminded of their responsibilities in relation to confidentiality.

⁷ Other than information technology staff who require access for essential website maintenance.

⁸ Congenital anomalies can be defined as structural or functional anomalies (e.g. metabolic disorders) that occur during intrauterine life and can be identified prenatally, at birth or later in life.
http://www.who.int/topics/congenital_anomalies/en/

- The external chair of each panel provided a 45 minute training session on 'Good clinical mortality review'. Panel chairs then facilitated case discussion.
- A clinician summarised each case and led discussions on their assessment of the care, as documented in case notes, against expected practice outlined by SCOR. The SCOR database was updated to reflect discussions and resolved opinion.
- No time limit was put on panel discussions to encourage participation, sharing of experience and learning.
- Each case was graded to reflect the panel opinion on the standard of care provided.
- Where opinion was divided despite facilitated discussions, a vote was taken by panel members to agree on grading.
- NIMACH staff recorded notes of each panel, specifically noting areas for further review or improvement.
- All redacted case notes were collected at the end of the meeting and destroyed by NIMACH staff, in line with PHA governance arrangements.

Report Writing

- SCOR data base was analysed by NIMACH staff.
- A small group of clinicians provided clinical input and expertise to the analysis.
- The report was written by a small editorial team made up of NIMACH staff, an Obstetrician and a Senior Midwife.
- Dr Tracey Johnston, external chair was asked to comment on the draft report.

- The draft report was sent for information and comment to all members.
- Panel members were asked to provide comment on their experience of participating in the panels (section 13).

Stillbirths in Northern Ireland

Surveillance

Rates of stillbirth and perinatal⁹ mortality are important markers of the safety and quality of maternity services.

Rates of stillbirth and perinatal mortality in Northern Ireland are similar to those across the rest of the UK¹⁰, after congenital anomaly¹¹ is accounted for. However comparisons published in peer reviewed literature would indicate that perinatal mortality continues to be higher here than in other areas of Europe and high income countries¹².

National and International Comparisons

Benchmarking with the rest of the UK and Republic of Ireland¹³ is an important aspect of the surveillance of stillbirth in Northern Ireland, as the maternal populations and maternity services in these countries are largely similar. All cases of stillbirth¹⁴ are reported by Trusts to NIMACH who then submit anonymised data to the national surveillance of stillbirths which is co-ordinated by MBRRACE-UK who publish national perinatal surveillance reports. Comparative trends between the four countries are shown in Figure 1.

Due to variations in how data are defined and collected; maternity services may also vary considerably and there may be important differences in the maternal population which influence mortality rates, making it more challenging to get effective comparisons of mortality rates in regions outside the UK. As such, whilst it is important to explore how we can best learn from other countries which have made

⁹ Perinatal = stillbirths and neonatal deaths during the first week of life.

¹⁰ Perinatal Mortality Surveillance Report, 2015. UK Perinatal Deaths for Births from January to December 2015, Published May 2017. MBRRACE-UK.

¹¹ Perinatal Mortality Surveillance Report, 2015. UK Perinatal Deaths for Births from January to December 2015, Published May 2017. MBRRACE-UK. Chapter 6 High risk births and their contribution towards the variations in mortality rates.

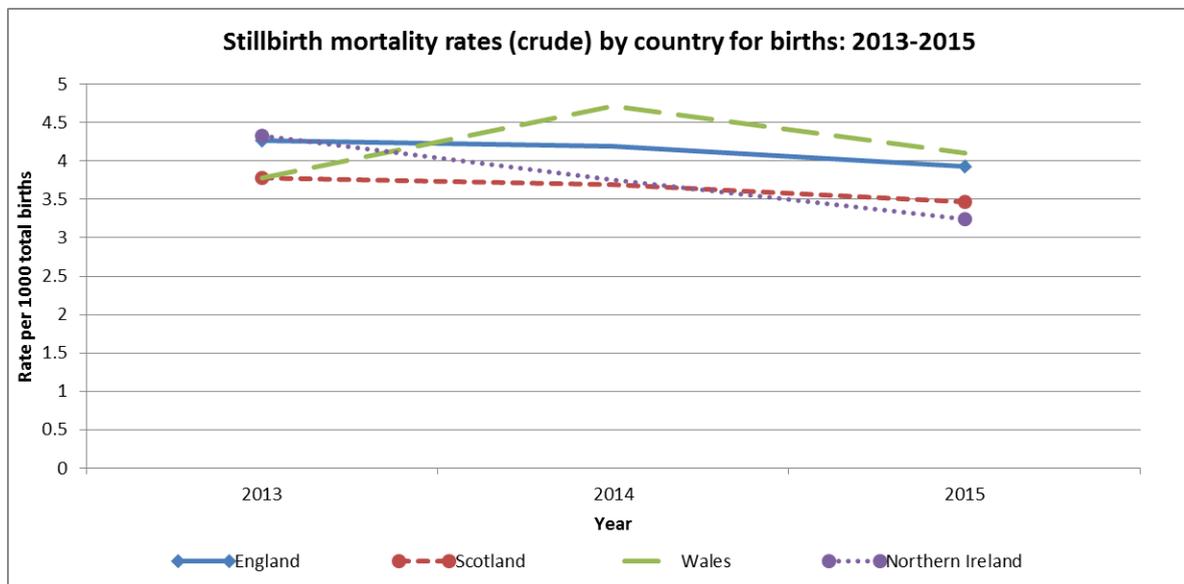
¹² [http://www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)01020-X/fulltext?code=lancet-site](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)01020-X/fulltext?code=lancet-site)

¹³ Perinatal Mortality on the Island of Ireland 2015 and 2016, Published October 2017, National Perinatal Epidemiology Centre and NIMACH.

¹⁴ Baby of 24 weeks gestation or greater, delivered with no signs of life. For the purposes of surveillance in line with MBRRACE-UK, the date of delivery is taken as date of death

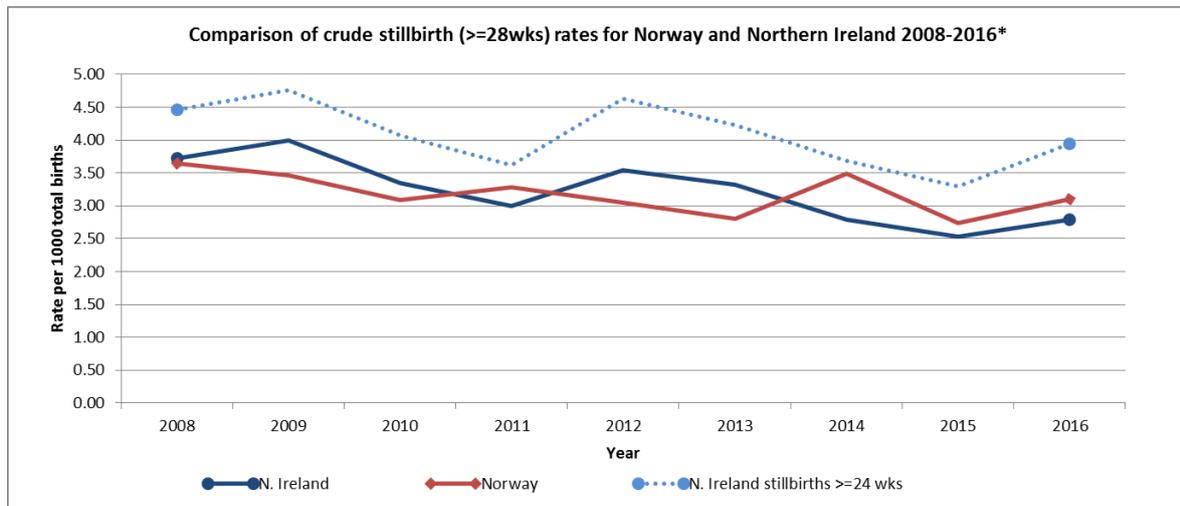
and maintained significant improvements in mortality rates over time¹², caution is advised to ensure that like with like comparisons are drawn where possible. Although Norway is highlighted as being one of the most effective countries in reducing the rates of stillbirths, the stillbirth rate, like the rest of the UK continues to fluctuate. NIMACH has recently worked with colleagues in Norway to compare data over a number of years. Figure 2 shows stillbirth rates for Norway and Northern Ireland at greater than or equal to 28 weeks gestation between 2008 and 2016. Whilst stillbirth rates for Norway from 24 weeks gestation were not available, this is included for Northern Ireland as a comparator.

Figure 1: Crude stillbirth rates by country, UK 2013-2015



Source: MBRRACE-UK Perinatal Mortality Surveillance Report 2015

Figure 2: Crude stillbirth rates at ≥ 28 weeks gestation, Norway and Northern Ireland, 2008-2016



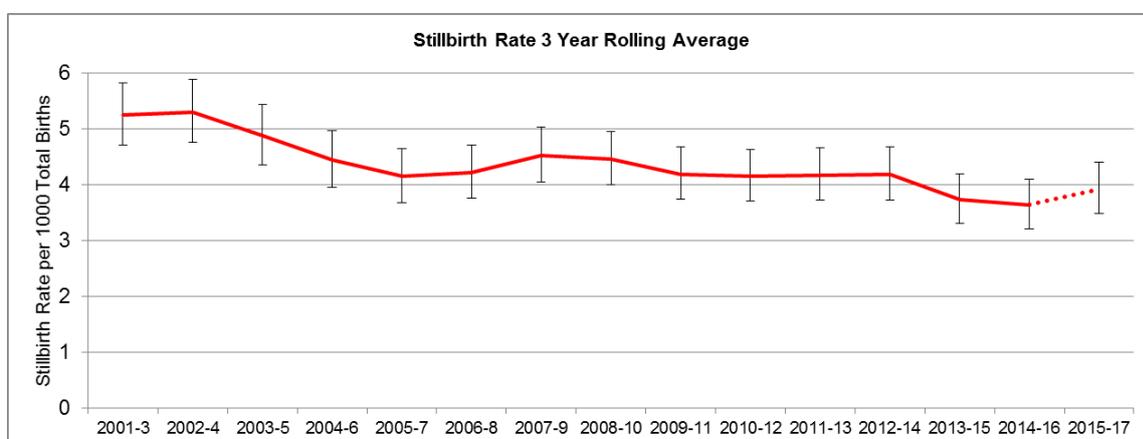
Source: Statistics Norway Statbank; 09745: Births, 1986 - 2016 / NIMACH / NIMATS/ NISRA/ CHS
 *2016 provisional figures

Norway records stillbirth as ≥ 28 weeks gestation therefore no information available on stillbirths ≥ 24 weeks gestation

Stillbirth trends in Northern Ireland

Whilst an overall decrease in the rate of stillbirth is demonstrated since 2001, the rate has remained relatively static in Northern Ireland over the past decade (Figures 3 and 4)

Figure 3: Stillbirth rate per 1000 total births and three year rolling averages, all cases: Northern Ireland ~ 2001 – 2017*



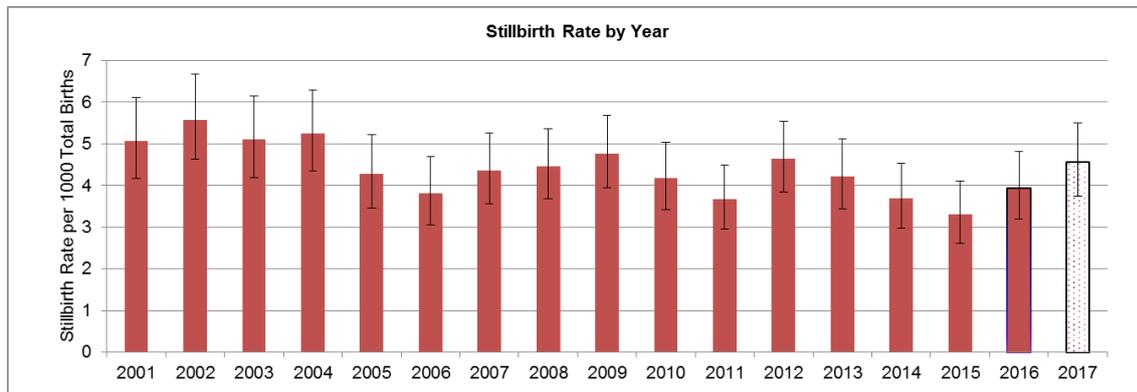
Source: NIMACH and NIMATS (includes 95% confidence intervals)

*2017 provisional figures

From 2015 the total births and total live births include homebirths

Note: Limitations in interpreting rates/numbers due to small numbers and caution is advised

Figure 4: Stillbirth rate per 1000 total births, all cases: Northern Ireland ~ 2001– 2017*



Source: NIMACH and NIMATS (includes 95% confidence intervals)

*2017 provisional figures

From 2015 the total births and total live births include homebirths

Note: Limitations in interpreting rates/numbers due to small numbers and caution is advised

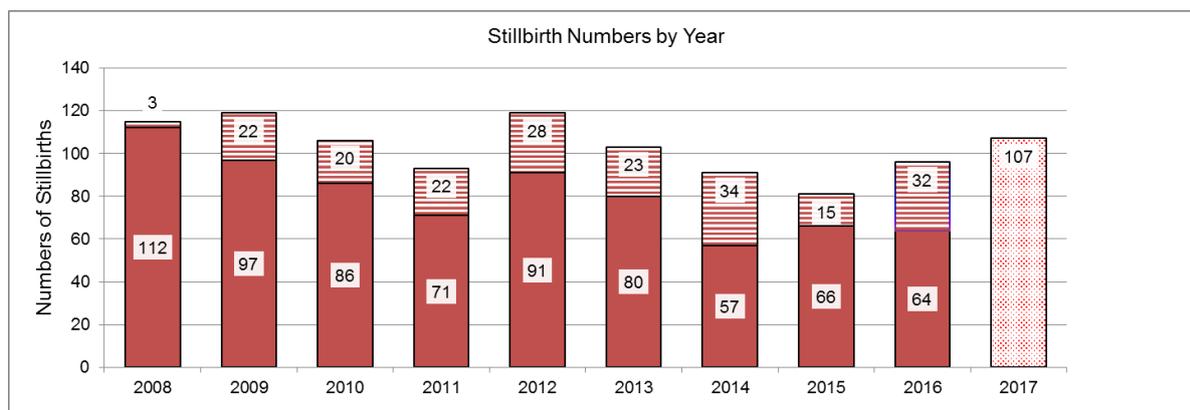
Impact of congenital anomaly

It is well recognised that access to terminations of pregnancy has an impact on the numbers of stillbirths. The striped sections of each bar in Figure 5 represent the burden of congenital anomaly and very low birthweight (<500g) associated with stillbirth in Northern Ireland.

In its most recent report on perinatal mortality surveillance¹⁵ MBRRACE-UK provided data on stillbirths associated with congenital anomaly across all four UK countries (Table 1) demonstrating the differential impact across the four countries.

¹⁵ MBRRACE-UK Perinatal Mortality Surveillance Report. UK perinatal deaths for births January to December 2015, published June 2017. Available at: <https://www.npeu.ox.ac.uk/downloads/files/mbrrace-uk/reports/>

Figure 5: Stillbirth mortality: Numbers (crude and adjusted): Northern Ireland ~ 2008 – 2017*



Source: NIMACH.

Data on Congenital Anomalies for 2017 currently unavailable

From 2015 the total births and total live births include homebirths

Note: Limitations in interpreting rates/numbers due to small numbers and caution is advised

Note: The striped sections of each bar in Figure 5 represent the burden of congenital anomaly and very low birthweight (<500g) associated with stillbirth in Northern Ireland

Table 1: Numbers and rates of stillbirth due to congenital anomalies by Country

Country	Total Births	Stillbirths due to congenital anomalies	
		Number	Rate Per 1000 Births
England	647918	219	0.3
Scotland	55026	23	0.4
Wales	31537	10	0.3
Northern Ireland	24534	16	0.7

Source: MBRRACE -UK Perinatal Mortality Surveillance Report 2015

Stillbirths at or after 37 Weeks Gestation (Term)

The focus of this confidential case note inquiry was to specifically consider those stillbirths at or after 37 weeks gestation (term), after which, unless a major congenital anomaly is present, a baby would be expected to survive if delivered. Term stillbirths account for approximately 30% of all stillbirths, although rates fluctuate from year to year.

Table 2 shows numbers of term stillbirths over the past nine years in comparison to the total numbers of stillbirths. In 2016, almost 40% of stillbirths were at or after 37 weeks of pregnancy.

Information is also provided on the proportion of stillbirths where congenital anomaly was found to be the main cause of death in utero. At term gestations, congenital anomaly is associated with a much smaller proportion of in utero deaths than in earlier gestations. As learning can be found relating to any case, regardless of the cause of death, congenital anomaly cases were not excluded from the audit.

Table 2: Term Stillbirths/neonatal deaths at or after 37 weeks: Northern Ireland 2009 – 2017*

	Year								
	2009	2010	2011	2012	2013	2014	2015	2016*	2017*
	No (%)								
Total stillbirths	119	106	93	119	103	91	81	96	107
Stillbirths at or after 37 weeks	46 (38.7)	39 (36.8)	38 (40.9)	34 (28.6)	35 (34.0)	24 (26.4)	24 (29.6)	38 (39.6)	32 (29.9)
Where MCA is main cause of death	6 (13.0)	0 (0.0)	0 (0.0)	4 (11.8)	3 (8.6)	0 (0.0)	1 (4.2)	3 (7.9)	data unavailable

Source: NIMACH and NIMATS *2017 provisional figures

Note: Limitations in interpreting rates/numbers due to small numbers and caution is advised
Major Congenital Anomaly (MCA) is not listed as the main cause of death unless it fulfils certain criteria: •Evidence and epidemiologic data demonstrating an excess of intrauterine mortality (e.g. Turner Syndrome) •The anomaly is rarely seen in live born neonates, and if it is seen, it frequently results in neonatal death¹⁶.

¹⁶ Reddy, Uma M. et al. "Stillbirth Classification—Developing an International Consensus for Research: Executive Summary of a National Institute of Child Health and Human Development Workshop." *Obstetrics and gynaecology* 114.4 (2009): 901–914. PMC. Web. 27 Feb. 2018. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2792738/>

Table 3: Stillbirth rates (total and term), Northern Ireland, 2015 – 2017*

	Rate per 1000 total births		
	2015	2016	2017
All Stillbirths	3.30	3.94	4.56
Stillbirths at or after 37 weeks	1.06	1.69	1.48

Source: NIMACH and NIMATS *2017 provisional figures

Note: Limitations in interpreting rates/numbers due to small numbers and caution is advised

Term Stillbirth Confidential Case Note Audit

Panels

Six panels were held between November 2016 and October 2017 to review 38 stillbirths at or after 37 weeks gestation notified to the NIMACH office during 2016.

A total of 22 midwives, 18 obstetricians and multidisciplinary representation from the Public Health Agency, Safety Forum, Neonatal Network, Department of Health, Education Consortia and RQIA attended at least one full day panel.

Table 4: Stillbirth Audit Panels

Panel date	Total Midwives Attending*	Total Obstetricians Attending*	Other	Total Attending
24/11/2016	10	8	2	20
09/03/2017	6	6	2	14
12/04/2017	12	13	0	25
27/06/2018	11	9	6	26
28/09/2017	7	5	1	13
11/10/2017	4	7	3	14

* a number of staff attended more than one panel

NIMACH staff attending panels are not included in numbers

Redacted case notes were provided to all panel members, where possible one week in advance to allow adequate preparation time for reading. Whilst members received all case notes, each case was allocated to an individual clinician who led discussions for that particular case¹⁷. Clinicians were also asked where possible to complete SCOR in advance of the meeting. Where SCOR was not completed in advance of panel discussions, it was updated on the day by NIMACH staff. The completion of

¹⁷ Learning from the first panel, the forma was adapted to use this approach from panel 2 onwards.

SCOR was less time consuming as panels became more familiar with using the framework.

Screen shots of the SCOR interface are provided on pages 18 and 19.

Panel discussions lasted between 20 minutes and 1.5 hours per case.

The multidisciplinary discussions were focused on the cases presented which allowed panel members to share the experience, good practice, challenges and information relating to their local processes.

In addition to the completion of SCOR, NIMACH staff recorded notes of the panel discussions, highlighting the learning directly associated with each case as well capturing the wider dialogue.

The panel was prompted by the Chair and NIMACH staff to identify where recommendations should be made on the back of discussions.

Standardised Clinical Outcome Review

perinatal institute
for maternal and child health

Patient informed about review process Last updated: No information. ...

Mother's NHS/CHI number Patient consents to secondary use of data SCOR Record Complete

Pregnancy Details Booking Antenatal Labour and Delivery Neonatal Postnatal Bereavement General Case Review

Mother Baby

Hospital ID number

Mother's last name

Mother's first name

Mother's address (at delivery)

Postcode

Mother's DOB

Ethnic origin of mother

Notes

Mother born in UK

If no, specify

Father blood relation (consanguinity)

No. of previous pregnancies 24+ wks BMI

<24 wks Mat. weight kg

Smoking at booking Smoking at delivery

1st appointment date EDD (by USS)

Number of fetuses at start of pregnancy Birth order

Intended place of delivery (at booking) Never booked

Search Unit type

Review unit Allow record access to this hospital

Actual place of delivery

Search Unit type

Review unit Allow record access to this hospital

Maternal conditions (pre-existing, in pregnancy or at delivery)

Main maternal

Other maternal 1

Other maternal 2

Save Save and exit Cancel

Standardised Clinical Outcome Review

Pregnancy Details Booking Antenatal Labour and Delivery Neonatal Postnatal Bereavement General **Case Review**

Case Summary Risk Factors Key Points Grade Taxonomy Action Plan Review Summary

All these fields are calculated or derived from data previously entered.

Mother name Gravida Parity Multiple pregnancy

Ethnic origin Age BMI

Gestation at booking Booked type of care Transferred care

Pre-existing maternal risk factors: Medical / surgical Psychological / mental health Family history Obstetric history

Social risk factors: Smoking use Drugs / alcohol Asylum seeker / new migrant Interpretation / communication Social service involvement Domestic abuse Lack of social support Other social issues

Maternal issues in pregnancy: Medical / surgical Psychological / mental health Social risk factors Pregnancy related complication Attended Day Assessment Unit Did not attend appointment(s)

Labour/delivery risk factors: Induction of labour / elective delivery Premature Labour Instrumental/ Expedited Delivery Fetal blood sample/ Fetal distress LSCS Shoulder Dystocia Postpartum Haemorrhage 3rd / 4th degree tear High level care needed

Fetal risk factors: Congenital Anomaly Fetal growth restriction Reduced fetal movements Antenatal steroids required

Type of birth Date of birth Birthweight g Customised centile

Gestation at delivery Gestation at death Type of death Age at death

Cause of Death Type of PM conducted Obstetric follow-up

Neonatal follow-up Plan made for next pregnancy

Save Save and exit Cancel

Once all of the tabs have been completed, a case review is undertaken. Tabs on case summary, risk factors, key points and taxonomy are automatically populated. The review team is then asked to grade the standard of care and document the rationale for the decision reached.

Documenting the rationale is important as it provides context for the reader. For the purposes of this audit, care was graded as it related to the neonatal outcome only.

Case Summary Risk Factors Key Points **Grade** Taxonomy Action Plan Review Summary

1. Cause of Death:

GRADE	LEVEL OF SUBOPTIMAL/SUBSTANDARD CARE	Obstetric	Neonatal
0	No suboptimal care	<input type="checkbox"/>	<input type="checkbox"/>
1	Suboptimal care - different management would have made <u>no</u> difference in outcome	<input type="checkbox"/>	<input type="checkbox"/>
2	Suboptimal care - different care <u>might</u> have made a difference	<input type="checkbox"/>	<input type="checkbox"/>
3	Suboptimal care - different care would <u>reasonably be expected</u> to have made a difference	<input type="checkbox"/>	<input type="checkbox"/>

2. Reason for grade:

(Select one for each)

Profile of Cases

Thirty-nine cases were reviewed at or after 37 weeks gestation. However after completion of the process and during analysis, one case was found to have been included in error due to inaccurate recording of gestational age on the NIMATS system.

The accuracy of recording of gestational age was checked in all cases. A further five cases (13%) were noted to have an inaccurate gestational age recorded in the case notes. However they remained within the case definition after correction of gestational age. Therefore the following analysis is based on 38 cases of term stillbirths.

In two cases (5%) the baby died during labour (intrapartum stillbirth). A further three cases (8%) were associated with congenital anomaly of stillbirths at or after 37 weeks gestation compared to 22 (38%) of stillbirths born at a gestation of less than 37 weeks in 2016.

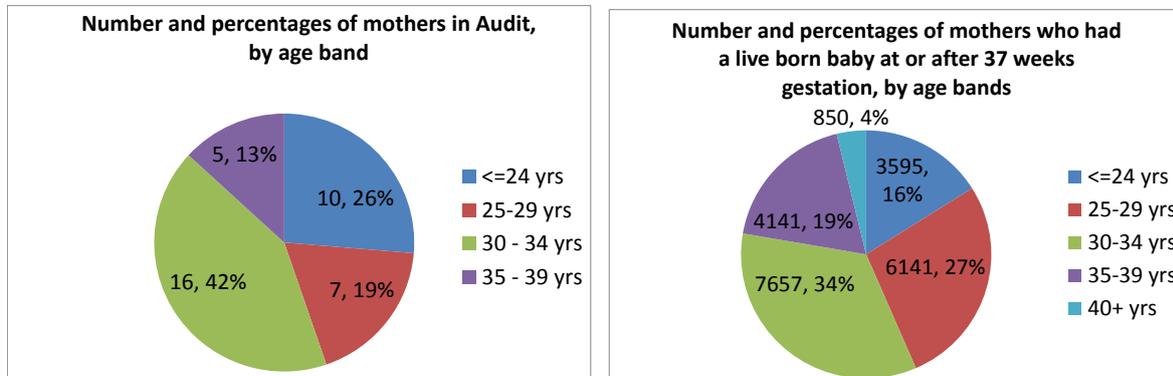
Mothers

A profile of the mothers who experienced a stillbirth at or after 37 weeks gestation in 2016 is provided. Information is also provided on the wider maternal population who had a live born baby at the same gestation, for comparison. Data was extracted from Standardised Clinical Outcome Review (SCOR) database, perinatal death forms (PDNs) and Northern Ireland Maternity System (NIMATs). Numbers were not adjusted to take account of other possible confounders in addition to the variable being considered.

Please note that the numbers reported in the audit are small and as such caution is advised in interpreting or drawing conclusions from numbers and proportions.

Maternal Age

Figure 6: Comparison of number and percentages, by age band, of mothers in the audit compared to mothers who had a live born baby at or after 37 weeks gestation, in 2016



Source: Case notes (audit)

Source : NIMATs

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

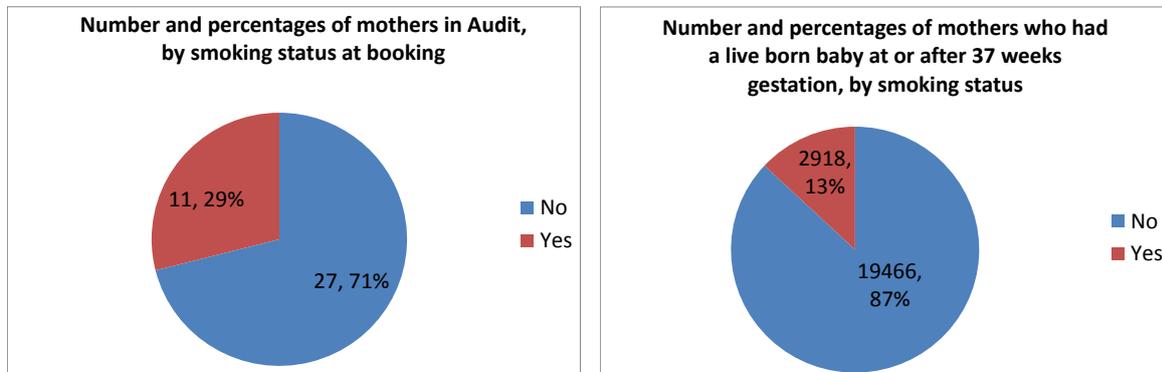
There is a recognised higher risk of stillbirth with mothers who are either older or younger. The numbers investigated in this population cohort are too small to differentiate risk of stillbirth associated with age.

Maternal Ethnicity

MBBRACE reports on perinatal mortality have reported increased rates of perinatal mortality in ethnic and minority populations. The small numbers of stillbirths reviewed in this audit would not be sufficient to draw reliable conclusions. Out of the 38 cases reviewed, only 2 mothers were born outside of the UK or Ireland.

Maternal Smoking

Figure 7: Comparison of number and percentages, by smoking status at booking, of mothers in the audit compared to mothers who had a live born baby at or after 37 weeks gestation, in 2016.



Source: Case notes (audit)

Source : NIMATS

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

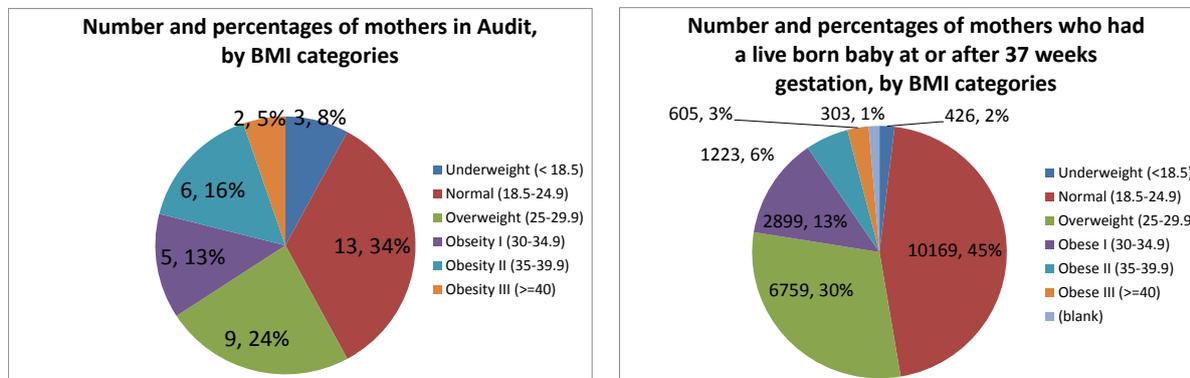
Data on smoking status for the general maternity population is collected at booking and recorded on the NIMATS system. During the audit period, smoking rates were self-reported and could not be guaranteed as an accurate reflection of the proportion of women who smoked during their pregnancy.

In October 2016, routine carbon monoxide monitoring at booking was introduced allowing more robust surveillance of smoking in pregnancy.

Figure 7 shows that smoking was more prevalent in the audit review group 29% (11 of 38) than in the general population 13% (2918 of 22384).

Maternal BMI

Figure 8: Comparison of number and percentages, by BMI categories at booking, of mothers in the audit compared to mothers who had a live born baby at or after 37 weeks gestation, in 2016



Source: Case notes (audit)

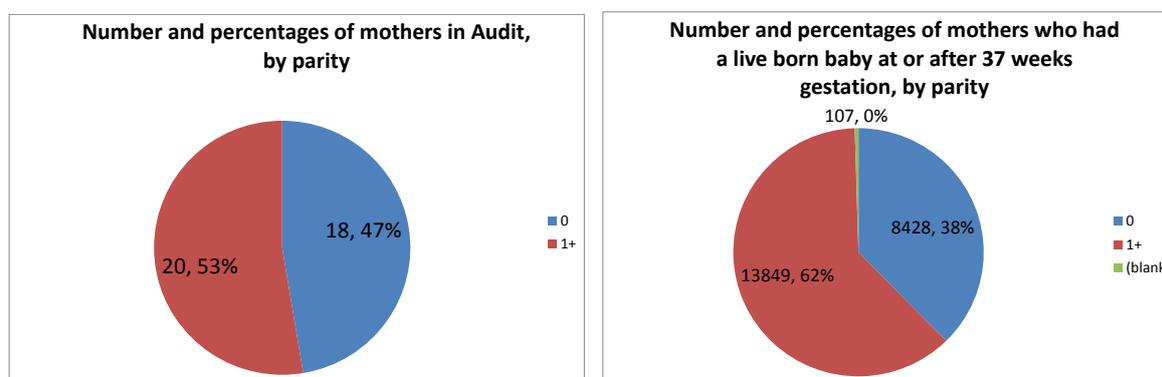
Source : NIMATs

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

Obesity in pregnancy is the most common medical risk factor in women of reproductive age with significant short term and long term adverse consequences for both mother and baby. Mothers who are significantly overweight experience higher incidence for almost all of the pregnancy-related complications and outcomes, even after adjustment for potentially confounding variables.

Maternal Parity

Figure 9: Comparison of number and percentages, by parity, of mothers in the audit compared to mothers who had a live born baby at or after 37 weeks gestation, in 2016



Source: Case notes (audit)

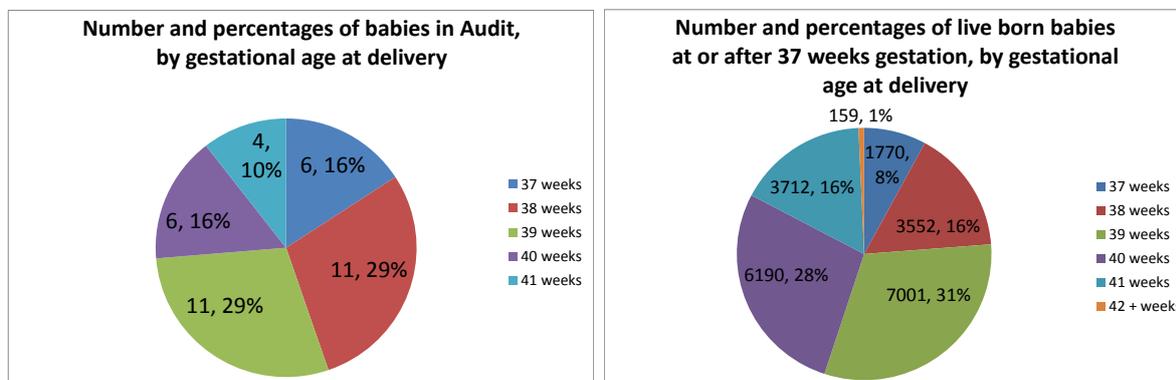
Source : NIMATs

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

Babies

Gestational Age at Birth

Figure 10: Comparison of number and percentages, by gestational age, of babies in the audit compared to live born babies at or after 37 weeks gestation, in 2016.



Source: Case notes (audit)

Source : NIMATs

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

Ninety two percent (22384 of 24245) of all live babies born in 2016 had a gestational age of 37 weeks or more.

During analysis it was noted that seven cases, in the audit, had an incorrect estimated date of delivery (EDD) entered on NIMATS. This anomaly has been highlighted to NIMATS managers. Of note, this discrepancy is also likely to have occurred in the larger group which was not subject to case review.

Gender

Of the 38 term stillbirth cases, 20 were male and 18 female.

Multiple Births

There were no multiple births in term stillbirths.

Birthweight Centiles

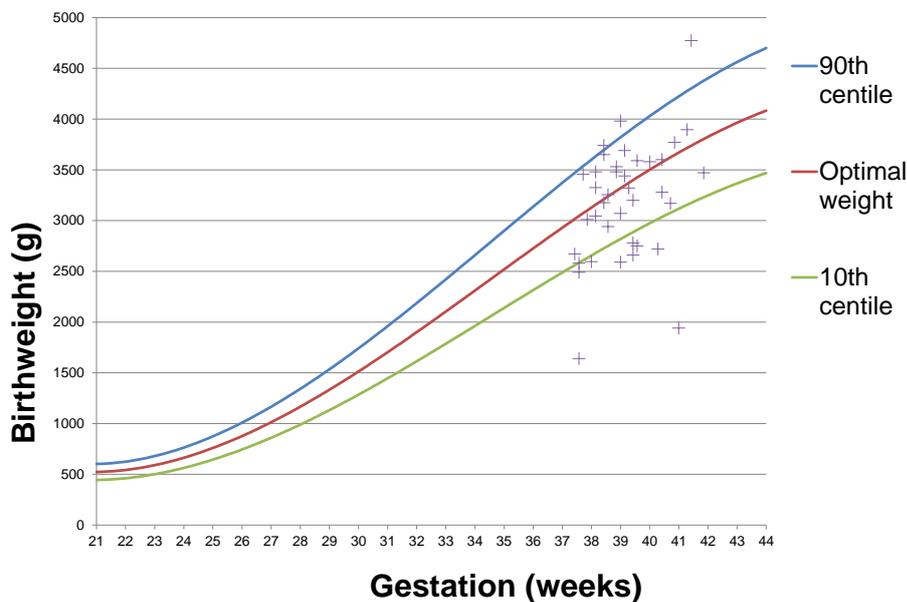
Birthweight centiles for every baby born are generated by midwives in each Trust using GROW software¹⁸. These are based on the weight of the baby when it was born. In 2016 14% of the birthweight centiles on NIMATs were blank.

¹⁸ <https://www.perinatal.org.uk/fetalgrowth/FetalGrowth.aspx>

Using customised growth charts 16% (6 of 38) of term stillbirth cases reviewed were recorded as being below the 10th centile in 2016. This compares to 7% of live births born at or after 37 weeks gestation in 2016 (1561 of 22384).

Eight percent (1831 of 22384) of live births born at or after 37 weeks gestation in 2016 had a birth weight above the 90th centile compared to 5% of the term stillbirths reviewed.

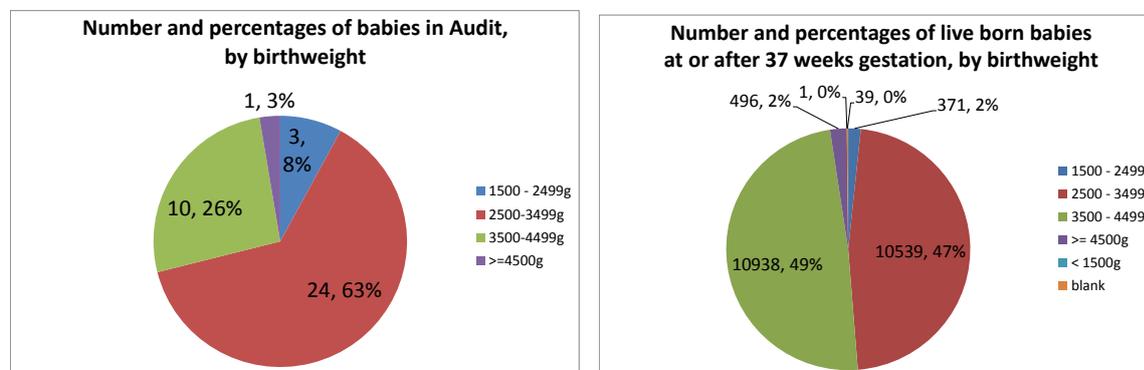
Figure 11: Optimal birthweight and normal range compared to actual birthweights of term stillbirths in audit in 2016



Source: National Perinatal Epidemiology Centre, Department of Obstetrics and Gynaecology, Cork

Birthweight

Figure 12: Comparison of number and percentages, by birthweight, of babies in the audit compared to live born babies at or after 37 weeks gestation, in 2016.



Source: Case notes (audit)

Source : NIMATs

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

Normal birthweight is generally considered to be between 2500g and 4499g. Eighty nine percent (34 of 38) of term stillbirths had a birthweight within the normal range compared to 96% (21477 of 22384) of live born babies born at or after 37 weeks gestation.

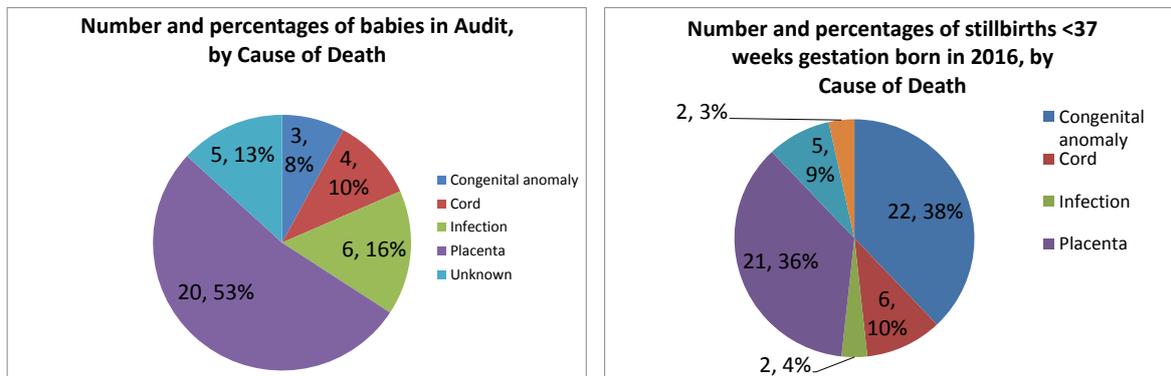
Cause of Death

Accurate classification of perinatal death (stillbirth and early neonatal death) is a crucial step towards understanding and reducing mortality.

Perinatal deaths have been coded using the Causes of Death and Associated Conditions (CODAC) system. CODAC is based on the International Classification of Disease (ICD) and is also used by MBRRACE-UK in national reporting. CODAC codes the main underlying or 'root cause' of death and can also accommodate up to two associated conditions.

In 2016 there were a total of 96 stillbirths in Northern Ireland. 38 of these stillbirths occurred at term (at or after 37 weeks of pregnancy) and 58 occurred preterm (less than 37 weeks of pregnancy). Figure 13 shows the cause of death in term and preterm stillbirths.

Figure 13: Comparison of number and percentages, by Cause of Death, of babies in the audit (stillbirth \geq 37 weeks) compared to stillbirths $<$ 37 weeks in 2016



Source: Case notes (audit)

Source : NIMACH

Limitations in interpreting numbers/percentages due to small numbers and caution is advised

Congenital anomaly was listed as the main cause of death in 26% (25 of 96) cases of all stillbirths. Of those with a gestation of less than 37 weeks 38% (22 of 58) were associated with congenital anomaly. Eight percent (3 of 38) cases of term stillbirths had a congenital anomaly listed as the main cause of death.

Infection was the main cause of death in 8% (8 of 96) of cases of stillbirth. Infection accounted for 16% (6 of 38) of cases of term stillbirth compared to 4% (2 of 58) in those stillbirths notified at less than 37 weeks.

Fifty three percent (20 of 38) of the term stillbirths had a placental cause listed as the main cause of death. Of these, four cases were associated with placental abruption, four cases were linked to circulatory disorders of the placenta and nine cases to villous/vascular development. A further two cases had placentas which were small for gestational age and one was associated with placental transfusion.

Availability of Post Mortem

The opportunity to have a post mortem was offered to all parents who had a term stillbirth with 18% (7 of 38) of parents declining this offer. Where stillbirth occurred before 37 weeks, post mortem was declined in 50% of cases.

Coroner's Cases

Referrals to the Coroner were made in 87% (33 of 38) of the term stillbirth cases. Of the five cases not referred to the coroner:

- Two cases - it was not possible to ascertain from the maternal notes if the term stillbirth had been referred to the Coroner.

- Three cases not referred:
 - One had congenital anomaly listed as the main cause of death,
 - One was associated with the placental cord and
 - One had cause of death unascertained.

Of the 33 cases referred to the Coroner, three were accepted as Coroner's cases. All three cases had a placental cause listed as the cause of death and in one of these cases suboptimal care was identified that may have had an impact on the outcome.

SCOR Analysis

SCOR is largely a tool to guide clinical discussions. Detailed analysis of the aggregated findings of these discussions using SCOR is technically challenging in its current format. The ability to accurately quantitatively reflect gaps in care is also influenced by the consistency of clinical interpretation of case notes and decision making during panel discussions.

This section summarises the analysis of the information uploaded to SCOR for all 38 cases audited. Any gaps or deviation from recognised standards of care are collated and listed in a case summary. No assessment is made within SCOR of the relative importance of each area assessed. This is why it is vital that the SCOR case review is interpreted through multidisciplinary discussions.

Information from SCOR was transferred to an excel database for analysis. The analysis is presented under the main categories used by SCOR to classify learning. Significant time was required to analyse, quality assure and interpret findings before trends and learning could be identified.

Booking Risk Assessment and Management

- Of the 38 cases reviewed, three cases where risk factors for venous thromboembolism (VTE) had been identified, no management plan was documented. In a further two cases the documented plan was not in line with good practice guidance.
- Where mothers had self-reported smoking (5 cases), there was no management plan documented in two cases and in a further three cases a plan was documented but not followed. At the time of the audit, carbon monoxide (CO) monitoring had not been implemented, however all units now monitor CO levels at booking.
- The panels considered that four cases were inappropriately identified as low risk. Risk factors identified associated with these cases included combinations

of the following; gestational diabetes, previous Intra Uterine Growth Restriction (IUGR), smoking, high BMI, mental health issues and hypothyroidism.

- Two cases were identified as having management of a medical problem not in line with recognised good practice. In a further two cases management plans for identified maternal medical problems were not documented.
- Where obstetric risk factors had been identified, in six of them, the documented management plan was not in line with recognised good practice and in a further seven cases either no plan was documented (six cases) or was not followed (one case).
- Where the pregnancy was deemed low risk, management plans were not documented in eight cases and in a further four cases the management plan was deemed inappropriate.
- Where risk factors associated with family history were identified, the documented management plan was not in line with recognised good practice in four cases.
- Where mental health risk factors had been identified, there was no documented plan in three cases and in a further two cases an appropriate plan was in place but not followed.

Antenatal Risk Assessment and Management

- Fifteen (40%) of the 38 cases had issues identified which related to antenatal risk assessment and management.
- Lack of appropriate care on a Day Assessment Unit (DAU) or equivalent was identified in four cases; two were associated with management of Reduced Fetal Movement (RFM) and two with follow up of abnormal results (raised blood pressure and proteinuria).

- Lack of appropriate follow-up of missed appointment(s) was identified in one case.
- Learning was identified in 10 cases relating to the management of a new pregnancy related complication. In two cases the management plan was inappropriate, four cases, an appropriate plan was identified but not followed and in four there was no documented plan.

Antenatal Screening and Surveillance

The recording of antenatal screening and surveillance was identified as suboptimal in 87% (33 of 38) of cases.

- In 14 cases, the number and or timing of antenatal appointments was deemed inappropriate. The reasons included late booking (five cases), numerous appointments with no documented rationale (three cases), delay in ultrasound scanning (two cases), missed appointments (two cases) and intervals between scanning and appointments (six cases). It was not clear if these issues were service related or related to individual women.
- The estimated fetal weight from the ultrasound scan was plotted incorrectly in 34% (13 of 38) cases
- Lack of antenatal continuity of care was identified in four cases.
- Routine enquiry into domestic abuse was not recorded in one instance.
- Lack of appropriate fetal growth surveillance was identified in 66% (25 of 38 cases)
- Lack of appropriate fundal height measuring/plotting/intervals in 45% (17 of 38 cases)

- A delay in conducting a routine ultrasound scan was noted in 13% (5 of 38 cases)

Antenatal-Maternal Complications

In four cases, the management of antenatal maternal complications was deemed not in keeping with best practice guidelines; for the management of raised blood pressure (two cases) and gestational diabetes (two cases).

Antenatal-Fetal Complications

Of the 38 cases reviewed, issues were identified relating to antenatal fetal wellbeing in 53% (20 of 38):

- Fetal growth restriction was not detected in 21% (8 of 38) of cases. Of these cases, there were no mothers from ethnic minorities. Five out of the eight babies were born to mothers who reported smoking. All were over 39 weeks gestation with birth weights between 2590 and 2780 grams. Two of the mothers had a BMI over 30 and a further two had BMIs below 20.
- Four of the eight cases had placental associated causes of death, a further three were noted to be due to infection and one had a congenital anomaly.
- In a further five cases, fetal growth restriction was deemed not to have been appropriately managed. Four of these deaths were associated with placental (two) or cord (two) issues. The fifth was due to infection.
- Four cases had inappropriate management of reduced fetal movement, one of which was also growth restricted. Learning was identified in three out of the four cases which may have made a difference to the outcome. In two of the cases, where concerns were identified, actions to address the concerns were not felt to be appropriate (grade 2 and 3).
- Of the three cases reviewed with a congenital anomaly, all were diagnosed antenatally.

Maternal Factor

- Eleven cases highlighted a lack of an appropriate referral for identified fetal growth restriction

- In four cases, it was recorded that mothers declined care:
 - one was recorded as discharging herself from hospital,
 - two declined the management plan for mental health risk factors
 - one declined a management plan to address identified medical risk factors.

- Two of the 38 cases, declined follow up and did not attend postnatal obstetric consultant clinics.

Labour and Delivery Care

- In 34% (13 of 38) of cases reviewed, at least one issue was identified which related to care in labour or delivery. Five cases had more than one issue identified, two of which, following panel discussions, were assessed as having suboptimal care documented, where different care would reasonably be expected to have made a difference to the outcome.

Issues were identified relating to:

- Fetal monitoring in labour identified in two cases.
- Management of progress of labour noted in six cases.
- Management of induction of labour/elective delivery in two cases.
- Induction of labour/elective delivery not conducted appropriately in two cases.
- Management of fetal distress in one case.
- Management of intrapartum maternal / fetal complications – three cases.
- Management of postpartum haemorrhage in one case.
- Timing of delivery in three cases; one case related to a delay in induction, the second to management of progress in labour and the third to elective section.

In four cases, the panel agreed that there should have been earlier senior involvement in intrapartum care.

Medication Issue

Issues relating to medication included mothers with risk factors for VTE not being given Enoxaparin and no evidence of lactation suppression having been considered or offered following the stillbirth:

- Lack of appropriate medication management at booking in six cases
- Poor postnatal medication management in seven cases
- Inappropriate intrapartum medication management in two cases

Bereavement Care

In four cases a delay in the diagnosis of intrauterine death was highlighted; in the majority of cases, bereavement care was documented as good.

In 15 cases (39%), it was not documented if parents had been asked if they had any concerns or questions that they wished to ask prior to review.

Follow-up Issue

Maternal conditions were not followed up in two cases. In one case postnatal obstetric consultant follow-up was not documented.

Communication Issue

- Lack of appropriate escalation at the point of deterioration in the condition of a mother or baby was identified in six cases. In four of these cases it was deemed that lack of escalation had a negative impact on the outcome of the baby.
- Concern regarding staff attitude or engagement with mother was identified in two cases.

- Issues were highlighted with informed consent in five cases. Two of these cases related to issues where despite the Coroner's office indicating that a Coroner's post mortem was not required, parents were subsequently advised that the Coroner wished to see the results of a hospital post mortem (PM).
- The other cases related to informed consent and difficult decisions around delivery choice. In one case there was no copy of the PM consent in the notes.
- The panels assessed that inadequate letter(s) were sent to the family in the postnatal period in six cases.
- Inadequate information sharing between health care professionals was highlighted in six cases.

Documentation Issue

- Missing documentation or results were noted in 68% (26 of 38) of cases reviewed.
- Illegible writing was noted in five cases. As the notes were redacted, the panels could not comment on signatures.
- Significant errors relating to documentation were highlighted in 11 cases. Issues included missing notes for key elements of care, lack of documentation of important discussions relating to consent, incorrect plotting of growth and incomplete risk assessments for transfer of care.

Insufficient Information/Documentation

Insufficient documentation and/or missing notes were highlighted in the majority of cases audited. Comment was also limited due to the notes being redacted. Issues relating to documentation are highlighted in other sections of the analysis.

The most common areas where documentation was insufficient included:

- Bereavement care following discharge. In 68% (26 of 38) of cases there was no documentation to review standard of care. In the vast majority of cases reviewed, community midwifery notes were not available for the review process.
- Bereavement care in hospital was generally assessed to be excellent by the panels. Some elements of missing documentation were noted in 14 cases.
- Information on the follow up of maternal medical conditions was missing in nine cases
- Evidence of follow up of abnormal tests in the postnatal period was missing in 14 cases. Information was not available from community notes after discharge in most cases.
- Insufficient information regarding a plan of care for the next pregnancy in light of stillbirth outcome was identified in 16 cases
- Insufficient documentation regarding information on fetal movements was highlighted in 95% (36 of 38) of cases. The Maternal Hand Held Records (MHHR) reviewed made it difficult to assess the level of discussion that had taken place at antenatal appointments and therefore most were deemed inadequate due to lack of detail.
- Insufficient documentation regarding number and timing of community midwifery visit(s) identified in 74% (28 of 38) of cases
- Insufficient information relating to information provided to the family in the postnatal period was noted in 63% (24 of 38) of cases
- Insufficient documentation regarding community midwifery care in 55% (21 of 38) of cases

- Insufficient documentation regarding timing of postnatal discharge from hospital / community was noted in 11 cases.

Grading of Care

The standard of care was graded based on consensus opinion after multidisciplinary discussions. A rationale for the decision reached was also documented. Care was graded as follows as per SCOR template:

- 0 No sub optimal care
- 1 Suboptimal care identified but which would have made NO difference to the outcome.
- 2 Suboptimal care identified where different care MIGHT have made a difference to the outcome.
- 3 Sub optimal care where different care would REASONABLY BE EXPECTED to have made a difference to the outcome.

To ensure the objectivity and confidentiality of mothers' identity, cases were anonymised so therefore it is not possible to provide feedback to the teams involved in the care of individuals.

In addition, discussions were based solely on the information provided in case notes. There was no opportunity to gather information from teams directly or to consider wider environmental, staffing or resourcing factors which may have had a bearing on the outcome.

With this in mind, although the cases in this audit were graded after multidisciplinary review at each panel, the grading process was undertaken as a learning exercise only, as all of the relevant information was not available. Within this context, panel consensus on the cases suggested that different care may have made a difference to the outcome in 29% (11 of 38) of cases reviewed.

Review teams must carefully consider the focus of all learning identified. Some cases may warrant further investigation to ensure 'root causes' are identified. Cases graded as three should be further investigated under the serious adverse incident (SAI) processes. On some occasions, those graded as a two may also require reporting as an SAI.

Recommendations

1. Trusts should ensure that all substandard care identified is investigated, regardless of the outcome for mother and baby.
2. Reviewed cases graded as three, should be notified and investigated as a Serious Adverse Incident.
3. All cases graded two should also be considered for further investigation.

Discussions

This section provides further context on the analysis of information collated through the SCOR database, and is largely informed by the multidisciplinary panel discussions.

Discussions are summarised under main subject headings and focus on the recurrent themes as well as those areas where panels felt that a recommendation was warranted.

It is important to recognise that this work was primarily aimed at improving local skills and knowledge in the process of mortality review. As expected, much of the learning identified is very similar to that highlighted in reviews of stillbirth undertaken by MBRRACE-UK (section 12).

The recommendations are therefore focused on those areas where the panels felt that, based on the review of the 38 cases, either there is further work to do on the implementation of existing guidance or that further work is warranted to reduce variation in practice across the region.

As the panels only had access to redacted case notes, there are limitations to the conclusions that can be drawn from the discussions. This is especially relevant in the context of post-natal care as in the majority of cases, community midwifery notes were unavailable.

It was not possible to comment on wider environmental, system or human factors, all of which can have a considerable impact on understanding the root cause of problems.



Existing recommendations are highlighted



Completed recommendations are highlighted



Recommendations in progress are highlighted

Antenatal Care

Panels used the SCOR template to assess the antenatal care documented in each set of case notes. In addition to demographic information, the proforma included questions on the health and social assessment of risk at booking and throughout the antenatal period focusing on routine care, maternal complications, fetal complications and fetal growth surveillance.

Within SCOR, 44 questions are included in the assessment of booking and antenatal care. Every case reviewed had at least one issue identified relating to antenatal care and 42% (16 of 38) of cases had five or more issues identified.

In their discussions, the panels acknowledged the importance of good antenatal care in preventing complications and in optimising both maternal and fetal outcomes. Continuous assessment and identification and management of risk were seen as central to the entire pathway so that women who have pre-existing conditions, risks associated with a higher incidence of stillbirth or those that develop complications during pregnancy are managed appropriately.

The panels agreed that in a review of case notes, it should be obvious what type of care a woman is receiving and the rationale for such. Any changes to the pathway should also be clearly documented.

In panel discussions, a common theme was lack of clarity on risk assessment both at booking and where there was a change to a woman's risk profile during pregnancy. Some of the terms to describe the type of antenatal care provided were also highlighted as being unhelpful, for example 'shared care' which is open to misinterpretation and not well understood.

In a small number of cases, the management of pre-existing maternal conditions was not considered to be in line with best practice. One example highlighted was the

management of mothers with a family history of diabetes. At the time of this audit, local consensus guidance supported carrying out a Glucose Tolerance Test (GTT) only when a family member had Type 1 diabetes. All Trusts are now asked to follow NICE guidance which suggests that where there is family history of diabetes of any type, a GTT should be done.

Panels also discussed the number and frequency of antenatal appointments. In 37% (14 of 38) of cases, the number and frequency of appointments was not in line with regional guidelines and had no documented rationale.

Fetal movement should be discussed with mothers at each antenatal appointment and a record made that the conversation has taken place. This aspect of the antenatal care pathway was generally not well recorded in the 38 cases reviewed, however it was recognised that this may be a documentation issue and not necessarily an accurate reflection on the care provided.

Guidance on the surveillance and management of RFM has been produced by Royal College of Obstetricians and Gynaecologists (RCOG¹⁹). This guidance forms the basis of recommendations to reduce the risk of stillbirth in the Saving Babies Lives care bundle²⁰. A leaflet has also been produced by Tommy's²¹. In one of the Trusts an Awareness of Fetal movements and Focusing Interventions to Reduce fetal Mortality (AFFIRM) study²² was also ongoing at the time of this case note audit and AFFIRM leaflets were being used in this Trust to raise awareness and support mothers in identifying RFM.

In four cases, the management of RFM was also identified as not being consistent with recommended practice. During panel discussions, Trusts reported variation

¹⁹ Reduced Fetal Movements, RCOG Green-top Guideline No. 57, February 2011, available at: https://www.rcog.org.uk/globalassets/documents/guidelines/gtg_57.pdf

²⁰ Saving Babies' Lives. A care bundle for reducing stillbirth. NHS England, March 2016. Available at: <https://www.england.nhs.uk/wp-content/uploads/2016/03/saving-babies-lives-car-bundl.pdf>

²¹ Feeling your baby move is a sign that they are well, Tommy's. Available at: <https://www.tommys.org/pregnancy-information/health-professionals/free-pregnancy-resources/leaflet-feeling-your-baby-move-sign-they-are-well>

²² <https://www.ed.ac.uk/centre-reproductive-health/the-affirm-study>

between units in the approach to managing RFM and the implementation of recommendations from RCOG and the Saving Babies Lives care bundle.

Recommendations

-  Risk assessment in line with good practice as outlined in NICE Clinical Guidelines²³ and the Northern Ireland pathway Core Pathway for Antenatal Care²⁴ should be undertaken at booking and throughout pregnancy. Any changes to the antenatal risk profile (either escalation OR de-escalation) should be recorded in maternity notes, with the rationale and a clinical management plan clearly documented.
- The language used to describe type of obstetric care should be clear and unambiguous and standardised across the Region. The Maternity Quality Improvement Collaborative should lead work to progress this.
-  The HART (History, Assessment, Referral and Transfer) tool should be used to document transfer of care²⁴.
- The rationale for antenatal appointments outside of those recommended by the Regional Antenatal Pathway should be clearly documented in maternity records and communicated to the mother.
-  The Maternity Quality Improvement Collaborative worked with Trusts to develop a regional approach to raising awareness, education, monitoring and management of reduced fetal movement. A leaflet is now incorporated into the Maternity Hand Held Record.

²³ Antenatal care for uncomplicated pregnancies, Clinical guideline [CG62] NICE, March 2008 , available at: <https://www.nice.org.uk/guidance/cg62>

²⁴ Northern Ireland Maternity Services Core Pathway for Antenatal Care, May 2016. Public Health Agency, NIPEC and HSC.

Growth Surveillance

Growth surveillance is an important aspect of work to reduce stillbirths as there may be an option to deliver early any baby identified as being growth restricted.

There is evidence to suggest that fetal growth restriction (FGR) is the most significant risk factor for stillbirth²⁵. This was also highlighted in the recent MBRACE-UK report on stillbirths²⁶, which estimated that one in three term, normally formed, antepartum stillbirths is related to poor fetal growth. HSC guidance relating to growth scanning was highlighted.

Growth surveillance was discussed at length at every panel and was clearly identified as an issue that staff continue to be concerned about. In line with findings across the rest of the UK, during this audit, issues were highlighted in relation to assessment of risk, scanning and measurement as well as recording and documentation. The importance of growth surveillance and management was well recognised as were the challenges in identifying those babies at risk.

Inappropriate growth surveillance was identified as an issue in 66% (25 of 38) of cases reviewed

Growth Monitoring

It was generally agreed that fundal height measurements should be used to monitor growth unless there is a clinical indication to refer for ultrasound scan.

Accurate measurement and plotting of growth was also noted as a significant issue with inaccurate plotting being identified in 45% (17 of 38) of cases reviewed. An estimated fetal weight was incorrectly plotted in 34% (13 out 38) of cases.

The use of set squares to support accurate plotting was suggested by panel members. This has already been implemented in some units.

All units should have regular training and updates on monitoring growth through the GAP training programme²⁷.

²⁵ Gardosi J, Madurasinghe V, Williams M, Malik A, Francis F. Maternal and fetal risk factors for stillbirth: population based study. *BMJ*:f108 <http://www.bmj.com/content/346/bmj.f108>

²⁶ MBRACE-UK 2015 Perinatal Confidential Enquiry Term, singleton, normally-formed, antepartum stillbirth

²⁷ <https://www.perinatal.org.uk/FetalGrowth/GAP/GAP.aspx>

Monitoring growth in pregnancies where the baby is not expected to survive was also discussed. Ongoing scanning in such circumstances was not generally considered to be appropriate. HSC guidance relating to growth scanning²⁸ was highlighted.

Ultrasound Scanning

Scanning was highlighted as an area where practice in Northern Ireland is often at odds with recommended standards.

Panel discussions suggested that over use of ultrasound scanning outside guidance was having a detrimental impact on the availability of scanning resources for women where scans are clinically indicated.

The panels emphasised the point that current scanning practice was not necessarily delivering safer care as, despite doing increased numbers of scans, there continues to be cases of undetected fetal growth restriction with a poor outcome for some of these babies. As such, the importance of only scanning based on clinical evidence of need was emphasised.

The importance of ensuring that when a scan is clinically indicated, it should be done by someone with relevant skills and experience was also highlighted. Clarity was provided by the panel on booking ultrasound scan standards for Northern Ireland²⁹. In those pregnancies where a need for serial scanning has been identified, it is recommended that scanning should be undertaken by a trained practitioner every three weeks. It was also noted that not all high risk pregnancies required to be seen by a consultant at every visit and that serial scans may not be required in every case. Clinical indications for scanning should be decided in line with national guidance.

The proportion of false positives in scanning was also acknowledged.

²⁸ Growth Scans, PL/2017/016 issued by PHA 4th December 2017. "Trusts are asked to take the necessary actions to ensure that by January 2019 all growth scans are carried out using the Hadlock 4 formula" and "audit trust adherence to growth scanning protocols"

²⁹ HSC Pregnancy Dating Scan Protocol Ref: PL/2018/017 (Superseeds PL/2017/014 issued 5 July 2017. "Pregnant women should be offered an ultrasound scan between 10+0 weeks and 13+6 weeks using the crown rump length to establish an accurate gestational age.

All dating scans in the first trimester must be performed competently from the outset and accurate dates determined at that visit. Dates should not need to be changed at anomaly scan if they were done competently at the outset".

Estimated fetal weight from scans was not recorded in some cases.

Recommendations

-  Each pregnant woman should be carefully assessed for risk of growth restriction and an appropriate plan of care documented.
-  Fundal height measurements should be used to monitor growth unless there is a clinical indication to refer for ultrasound scan.
-  All pregnant women should have a growth assessment at every visit in line with the Regional Antenatal Care Pathway either by ultrasound scan or fundal height measurement depending on their risk profile.
- If ultrasound scanning is indicated – this should be undertaken by someone with appropriate skills and experience. A report should be generated and filed in the case notes or the 'record of ultrasound examination' should be completed in the notes. Images should be archived to allow image review and a quality assurance process.
-  Trusts should continue to implement the use of the Saving Babies Lives care bundle²⁰.
- Trusts should continue to review local practice in line with guidance issued by PHA on growth scanning and pregnancy dating scanning protocols.
- A rationale for scanning outside of recommended guidance should be clearly documented in mother's notes

- The Maternity Quality Improvement Collaborative and Trusts should provide training and support to improve growth surveillance and carry out spot audits of charts as evidence that this is achieving improvement.

Care of Women in Labour

Issues relating to labour and delivery were noted in very few of the 38 cases reviewed.

The panels highlighted that a partogram should be completed during labour even if the baby had died in-utero antenatally, or an intrauterine death had occurred antenatally.

It was noted that women who have a stillbirth should largely be managed in the same way as a normal labour. In six cases, learning was associated with the management of progression in labour. Concerns regarding the progression of labour or other issues should be managed and escalated in the same manner as for a live birth.

Monitoring during labour was highlighted in a number of panels. In low risk pregnancies, panels emphasised that intermittent auscultation should be used to monitor the fetal heart and existing guidance on the use of Cardiotocography (CTG) should be followed.

In one case, there were inconsistencies in recording of the death as both a stillbirth and neonatal death. At the panel where this case was discussed, the group recognised that there are currently inconsistencies in how births are recorded at gestations prior to the limits of viability.

Bereavement Care

Whilst it was not possible to review the bereavement care for women post discharge as community midwifery notes were not available, the hospital care was consistently considered to be of a very high standard. Where available, the added value that dedicated bereavement midwives brought to maternity units was recognised.

It was noted that the regional bereavement pathways were not included in all case notes.

The panels discussed the importance of having a dedicated care plan for any woman in labour whose baby is not expected to survive, which details clearly the arrangements for fetal monitoring and expectations for resuscitation at delivery and ongoing arrangements for palliative care if the baby is born alive.

Recommendations

- The findings of the audit should be shared with Department of Health leads, to inform the review of existing Bereavement pathways for maternity care, with a view to the development of a pathway for the intrapartum care of women whose baby is not expected to survive.
-  Relevant Regional Bereavement Pathways should be included and completed in case notes for all cases of perinatal mortality.

Communication

The need for effective communication is a common theme in literature associated with safety and quality in health and social care.

A small number of communication issues were highlighted in this work which related to interactions with families and other stakeholders thus having a detrimental impact on the family experience.

Communication issues were noted in relation to the management of complex pregnancies where a number of specialties may be involved. In six cases audited, inadequate sharing of information between professionals was noted. Mothers should be reminded to take their Maternity notes with them to any appointments with other healthcare professionals and ask the healthcare professional to record any relevant clinical assessment or management plan.

Mothers should also be made aware that their clinical information may be shared with others involved in their care to support ongoing care and planning of future pregnancies.

Panel discussions carefully considered circumstances where failures in communication could have had the potential for more devastating consequences. In such scenarios it is absolutely vital that the root cause of miscommunication is identified, understood and addressed to prevent recurrence.

The requirement to report all stillbirths to the Coroner, unless in circumstances where the baby has a condition from which they are not expected to survive, was considered. In a small number of cases, after being informed, the Coroner indicated, that whilst an inquest may not be required, a hospital post mortem would be preferred. In such cases, there is a risk that parents may be inappropriately advised of the need for a post mortem.

In a number of general panel discussions, the importance of clinical decision making in the context of the 'bigger picture' was highlighted. Panel members emphasised that clinical care should be informed by a professional assessment of all of the available information, including clinical assessment, mothers' wishes, evidence based guidance, environmental and staffing issues and human factors.

Recommendations

- Mothers should be reminded to take their Maternity notes with them to any appointments with other health care professionals and ask the health care professional to make a record of any relevant clinical assessment or management plan.
- The Department of Health should seek clarity from the Department of Justice on parental consent for post mortem if a coronial inquest is not required but the Coroner would prefer that a hospital post mortem is undertaken.

Notes and Documentation

Legibility of the notes reviewed was generally good.

As previously noted, the main issue relating to the accuracy of records was inaccurate plotting on customised growth charts.

Clarity on the type of care being provided based on assessment of maternal and fetal risk factors was consistently highlighted as being poorly documented in maternity notes. It is important that documentation is clear, particularly if there is a change in care provision.

Missing documentation/information from maternity records

Missing documentation was noted in 68% (26 of 38) of cases.

Timely access to community maternity notes (or continuation sheets) to support the review process was one of the most common issues discussed by the panel.

Currently, it is rarely possible to review post-natal care, as maternal and community midwifery notes are not always 'married up' after discharge from care and in some areas notes are stored in separate sites.

The panels highlighted challenges in collating information about unplanned contacts with the service, especially in such instances where care may be discussed by phone. Whilst these are recorded in each unit, a record of the issue discussed and advice given is not generally recorded in mother's notes. This may provide important context for review discussions especially if there had been contact regarding RFM.

Improvements/standardisation

The importance of recording parent concerns and questions for consideration at a stillbirth review was noted. If parents ask questions and/or have concerns it is important to document the answer given.

General discussions highlighted a series of issues where improvements and standardisation in documentation could be considered. These included:

- Recording the date of next appointment in notes.
- Standardising the method of documenting mother's arrival time for antenatal appointments or when presenting to the Emergency Obstetric Unit (EOU)/Admissions unit.
- Documenting if care is the subject of an investigation through other Trust governance processes including Serious Adverse Incident.
- Recording of mental health issues and in particular depression on NIMATS.
- Ensuring that relevant notes and records from other specialist teams e.g. gynaecology, metabolic are included in the maternity notes.
- As the customised growth charts are gender neutral during the antenatal period, it is important that a birth weight centile is recalculated and recorded in the mother's notes after the baby is born and the gender known using GAP software. In cases of stillbirth, where a post-mortem is being carried out, this information should be sent to pathology along with the date death was confirmed, if a post mortem is being carried out. Any changes made by the paediatric pathologist on date of demise, and subsequently the birthweight centile, should also be recorded in maternity notes after post mortem results become available.
- Processes need to be in place to ensure that as evidence based guidance is updated, this is reflected in maternity notes to ensure that clinical practice is in line with guidance.
- Women should be advised on fetal movements at every antenatal appointment and a record of the discussion documented.

In relation to the review process, there was discussion around whether or not the SCOR report should be kept as part of the maternity record or separately. This is an important issue to resolve as, whilst the aim of the process is to support open and

transparent discussions with parents, in its current format the SCOR report language is very clinically orientated.

In addition, as SCOR aims to identify gaps and points for learning, the report taxonomy language is generally quite negative and requires interpretation to ensure that learning is put into context and appropriate language used, to prevent undue distress. A number of approaches are currently being used by Trusts to share SCOR findings with parents. This warrants further discussion with a view to getting regional consensus.

Recommendations

- The Maternal Hand Record should also be used to record care in the community. When a woman has been discharged from the care of their community midwife following a stillbirth, the Maternal Hand Record should be completed and returned within one week of discharge from the service to facilitate timely review of care.
-  Each time a woman is seen throughout her pregnancy and post-natal care, information should be recorded in her notes on when she was seen, reason for visit and any action plan clearly documented.
-  Information on any 'non-planned' contacts with health care professionals, including phone calls, should be documented in mother's notes or the NIMATS system, including rationale for contact and any advice/ plan given
- When reviewing mortality, gathering information to support the review process should be commenced as soon as possible to ensure that organisational memory is fresh and relevant information captured on environmental or staffing issues.

-  Input to the review process should be sought from parents and any questions that they might have should be noted and fed into the review process.

Pathology

Pathology input is often key to MDT discussions and parental involvement. For example, in addition to providing information on cause of death, pathologists may be able to provide additional information on a baby's date of demise which may influence the birth centile and classification of IUGR.

The availability of a paediatric pathology service was seen as essential. Currently placental histology is undertaken for all stillbirths and a post mortem examination offered to all parents following stillbirth. The panels were aware of the fragility of the current service in that there is now only one paediatric pathologist in Northern Ireland.

Recommendations

- The customised growth chart should be sent to pathology along with any information available on date of baby's demise.

Learning from the Process of Mortality Review

Notes were made throughout the process to capture panel discussions which related to the mortality review process.

The need to engage with clinical review of care was universally supported. Panels were also clear in their view that individual clinical staff are all responsible for ensuring that they approach any review of care in an open and transparent manner. It was highlighted that time and effort is wasted, with a potential detrimental impact on the service, if review processes are not effective in identifying the 'root cause' of concerns. This is especially important where system, organisational and/or cultural issues are identified.

The value of having an external chair during this project was highlighted at several meetings. An external chair offers a neutral perspective, and can be valuable in maintaining a context and providing challenge. Whilst this approach may not always be practically possible, it was suggested that such an approach might be considered to support ongoing quality assurance and training processes. The importance of training and in understanding of '*what a good review looks like*' was also emphasised.

The use of a standardised tool to support panel discussions was also agreed as being vital in ensuring that each review was robust. This approach helps staff to avoid making assumptions about care provided. Over the course of the project, panels developed a better understanding of the SCOR tool and adapted their approach accordingly. For example, the importance of completing free text boxes and being clear about rationale for decisions throughout the process. Further work is required to adapt the tool to Northern Ireland.

Effective use of time was a recurring theme. All clinical staff involved were committed to reviewing care as an integral part of their responsibilities. However, it was recognised and emphasised that review processes need to be supported in terms of dedicated time for staff involved and administrative support to ensure clinical time is used effectively.

Standard Operating Procedures (SOPs) used elsewhere in the UK were discussed. Work has already commenced with the Maternity Quality Improvement Collaborative to develop SOPs for perinatal mortality review in Northern Ireland, building on the experience from other areas of the UK. It was agreed that mortality review should be undertaken once and where possible the outputs used to support other processes including significant event audit, mortality/morbidity meetings and Trust governance processes.

It was suggested that review processes should start within two weeks of a stillbirth or perinatal death to ensure organisational memory relating to the event is not lost or forgotten.

The breadth of complexity was noted in the case note audit. A proportionate approach should be taken to the length of time spent on each case depending on issues identified. Where a number of concerns were highlighted, the value of wider multidisciplinary discussions was evident.

All panels agreed on the importance of highlighting and recognising good practice, where evident.

External Chairs advised that learning has to be owned and supported by the wider organisation to ensure recurring themes can be addressed. The importance of not creating an 'industry' around action plans was also noted.

The need for parental involvement in the review process was supported. However it was acknowledged that further work was required to ensure parental involvement was supported, sensitive and transparent. Good practice already established in Northern Ireland was shared and work is underway with the Maternity Quality Improvement Collaborative to develop improved mother's information, such as leaflets and guidance.

It was recognised that an awareness of organisational culture, leadership styles and the beliefs and experience of individual professionals have a direct bearing on the success of mortality review processes.

Comment and advice noted from the external chairs moving forward

The panels benefitted from having an external chair with significant experience in the field of case note review. The chairs engaged with the panels throughout the process, providing challenge, guidance and advice such as:

- Multidisciplinary review is vital in ensuring that objectivity is maintained as far as possible as each profession brings a different view to the table. Whilst it is important that those who lead on trust review processes have appropriate skills and experience, there is considerable value in having a group of clinical staff involved where possible.
- As experience in participating in and leading case review improves, confidence in grading appropriately will develop.
- Multidisciplinary discussions should focus on the identification of system errors and solutions rather than apportioning individual blame.
- Gathering relevant information on environmental and organisational variables is important to ensure that care is set in the context of 'real life'. It is helpful to start to gather information relating to review processes as soon as possible after an incident, while organisation memory is still fresh.
- Use of 'look back' techniques may be helpful in deciding whether or not care was suboptimal. Comparing the timeline of an actual pathway with what would be expected in reality may be helpful in deciding if care was appropriate or whether different care would have made any difference to the outcome.
- A culture which is open to learning from mistakes is vital.
- Review of suboptimal care that would not have made a difference to the outcome is also important. (Grade 1 cases).
- Panel members felt training is required before staff participate in reviews and this will need to be addressed.

- As a service, we must continue to recognise the positive experiences and excellent service provision where demonstrated. Services must also continue to learn from excellence.
- Positive feedback should be provided to staff where good practice and excellence has been identified (e.g. during appraisal).
- Positive feedback should be provided to partner organisations where good practice is identified.
- It is important that mortality review processes are clearly linked into Trust governance processes and that SAI investigations are triggered if necessary.

Recommendations

- Staff leading and/or participating in mortality review processes should have access to training and resources to support their roles. They should also have dedicated time to do this important work.
- Perinatal mortality review should be undertaken by a multidisciplinary team. A standardised tool should be used to support the process.
- Efforts should be made to ensure the objectivity of panels is maintained by the use of external panel members either from another Trust or from outside of Northern Ireland when appropriate.
- Learning from reviews should be owned by the wider organisation. Trusts should ensure that processes are in place to support this.
- Good care and excellence, where identified, should also be recorded and fed back to staff and partner organisations.

- All review processes should have clear arrangements to ensure that the views and experience of parents and families are included.

Comparison with Findings of MBRRACE-UK Confidential Enquiries into Stillbirth

MBRRACE-UK, is a consortium based organisation which coordinates perinatal mortality surveillance across the UK. It has completed and published two confidential enquiries related to stillbirth and neonatal death in recent years.

The first enquiry published in November 2015², highlighted learning from a case note review of 85 cases of term, normally formed **antepartum** stillbirths. This was followed in November 2017³ with a report on term, singleton, **intrapartum** stillbirths (40 cases reviewed) and intrapartum related neonatal deaths (38 cases reviewed).

Northern Ireland participates fully in the work of MBRRACE-UK including submission of cases to confidential enquiries. MBRRACE-UK only reports the findings from confidential enquiries on a UK wide basis. One of the audit objectives was to compare our findings with learning identified by MBRRACE-UK. Whilst there were differences in the methods used during both enquiries, the learning identified had similar themes.

The MBRRACE-UK reports considered antepartum and intrapartum care separately and highlighted that, in 60% and 80% of cases respectively, improvements in care were identified which may have made a difference to the outcome. The audit panel consensus found that, based on the information available in case notes, in almost 30% of cases of the term stillbirths reviewed in Northern Ireland, different care may have made a difference to the outcome.

The vast majority of Northern Ireland cases were antepartum 95% (36 of 38). Common areas for learning associated with antenatal care included issues related to:

- monitoring of fetal growth

- management of gestational diabetes
- management of fetal movement
- the importance of prompt clinical escalation where issues were identified.

During labour (intrapartum), both processes highlighted learning associated with managing progress in labour and the importance of using a partogram in all cases. Additional learning identified in the MBRRACE-UK report is likely be the result of the greater number of cases reviewed.

Access to resources, including staffing was identified by MBRRACE-UK in both enquiries. Although a lack of resources as an issue did not feature strongly in the RQIA audit, it is not possible to tell if this was reflective of the service or simply not recorded.

Following birth, the standard of bereavement care was highlighted in all reports as being good, however the availability of a specialist bereavement midwife was noted as a gap. Lactation support was also identified in both MBRRACE-UK and RQIA audit reviews as an issue which warrants further input.

In terms of pathology, placental histology is carried out for all stillbirths in Northern Ireland. A post mortem was also undertaken on 82% (31 of 38) of cases No review of the quality of the pathology reports was undertaken in the RQIA audit. In the UK as a whole, for antepartum term stillbirths, only half the cases reviewed had a post mortem and only a third had placental histology.

Similar communication and documentation issues were highlighted across all reports, ranging from simple mistakes to more significant errors relating to failure to escalate concerns appropriately or communicate key aspects of care.

As community midwifery notes were not available for the RQIA audit, it is not possible to draw comparisons with MBRRACE-UK.

The audit did not examine the quality of local reviews into term stillbirths, but anecdotally, similar issues to those identified across the rest of the UK are also experienced locally.

Interaction and communication with parents is generally felt to be of a good standard in Northern Ireland, as reflected in the notes related to bereavement care. Panels acknowledged that there is still work to do to improve our local processes to ensure that parents are also supported to provide their story, questions and any concerns to the review process.

Experience and Feedback from Panel Members

Panel members were asked to provide feedback on their experience of participating in the audit. Overall, feedback was deemed to be positive. A selection of comments relating to the feedback questionnaire are as follows:

a) Has your personal and professional knowledge improved by doing this audit

- i. Related to clinical practice
- ii. Related to case note review

“Better understanding of the importance of retaining placentae for histopathology” (Midwife)

“Yes – discussion around many areas of clinical practice” learned from “expert opinion on areas such as fetal growth restriction” (Consultant Obstetrician)

“My knowledge of the review process has improved” (Midwife)

b) Have you changed your clinical practice as a result knowledge gained through participating in the audit?

“Confirmed that decision making is not black and white and it does take time and multidisciplinary input” (Consultant Obstetrician)

“M&M meetings are now more open and learning focused” (Consultant Obstetrician)

c) Have you changed how you approach case note review as a result of participating in the audit?

“Learnt to walk through what could have been response to situations realistically in clinical practice especially in labour ward cases”

“Learnt how to use SCOR properly”

“Our M&M meetings are now more open and learning focused with an MDT”

d) Have you changed or influenced any changes in your organisation as a result of participating in the audit?

“Improved letters for parents”

“I do presentations at mortality/morbidity meetings”

“I mention the case review process and findings when discussing intrapartum care with midwives on study days”

“I have modified my teaching”

“it certainly helped with getting the use of SCOR embedded in practice by those using it”

Comment from External Chair

Dr Tracy Johnson

“It was a great pleasure to be invited to participate in this confidential enquiry on such an important topic. First and foremost, families want to understand why their baby died, and a standardised process and improved skills in reviewing care will enable healthcare staff to give a full explanation to facilitate this understanding.

Although, sadly, not all stillbirths are avoidable, we need to be open to recognising where we can improve care and learn from mistakes, as well as sharing good practice and learning from excellence.

Only through better understanding of the reasons why babies die can we target our limited resources most effectively to improve care and reduce avoidable deaths.

The enthusiasm and engagement from all involved in the process is to be commended, as is the obvious desire to learn and improve that I saw. I had the advantage of chairing the first panel and the last panel, and the improvement in the process and the confidence and skills of those participating was significant - objective, robust review is a skill that, like any other skill, has a learning curve and the progress between the first and the last panel was clear.

The results and recommendations contained within the report must be considered at all levels within the Health Service, and Trusts supported to implement the recommendations as a means to improve care and ultimately reduce the number of stillbirths that are potentially avoidable.”

Conclusions

As highlighted by Dr Johnson, first and foremost, the aim of the clinical review process for stillbirths is to try to explain to parents why their baby may have died and secondly, it is for the service to identify learning.

The use of tools such as SCOR as a framework to support review in standardising processes and preventing premature jumping to conclusions is clearly evident. However the value of multiprofessional, cross organisational discussions is central to good review of care.

External review to provide objectivity has undoubtedly a role to play in quality assuring processes and also demonstrating transparency to families and the wider public, however, only those staff with in-depth local knowledge of the systems, processes and culture will be able to provide the context and understanding required to identify and solve problems.

Relevant clinical staff should have training to lead and/or participate in case note review. This must be recognised moving forward. The costs associated with training and supporting teams to lead and participate in robust review processes could be offset by medical negligence claims many times over.

We must therefore work together across Trusts, and where necessary, across the UK, to ensure that review teams have the necessary skills, experience and objectivity to provide answers for families and continue to improve the safety and quality of maternity services.

The MBRRACE-UK enquiry into term intrapartum stillbirths³ published in 2017 highlighted that there is an “increasing proportion of births to mothers who have risk factors associated with an increased risk of perinatal death”. As such, there are a growing number of pregnant women with conditions who require a more complex package of care and interventions. The changing needs of our maternal population must be reflected in the health care services that are provided.

Summary of Recommendations

- Trusts should ensure that all substandard care identified is investigated, regardless of the outcome for mother and baby.
- Cases which are reviewed and graded as three, should be notified and investigated as a Serious Adverse Incident. All cases graded two should also be considered for further investigation.
-  Risk assessment in line with good practice as outlined in NICE Clinical Guidelines²³ and the Northern Ireland pathway Core Pathway for Antenatal Care²⁴ should be undertaken at booking and throughout pregnancy. Any changes to the antenatal risk profile (either escalation OR de-escalation) should be recorded in maternity notes with the rationale and a clinical management plan clearly documented.
- The language used to describe type of obstetric care should be clear and unambiguous and standardised across the Region. The Maternity Quality Improvement Collaborative should lead work to progress this.
-  The HART (History, Assessment, Referral and Transfer) tool should be used to document transfer of care²⁴.
- The rationale for antenatal appointments outside of those recommended by the Regional Antenatal Pathway should be clearly documented in maternity records and communicated to the mother.
- The Maternity Quality Improvement Collaborative should work with Trusts to develop a regional approach to raising awareness, education, monitoring and management of reduced fetal movement. A leaflet is now incorporated into the Maternity Hand Held Record.

- 
 Each pregnant woman should be carefully assessed for risk of growth restriction and an appropriate plan of care documented.
- 
 Fundal height measurements should be used to monitor growth unless there is a clinical indication to refer for ultrasound scan.
- 
 All pregnant women should have a growth assessment at every visit in line with the Regional Antenatal Care Pathway either by ultrasound scan or fundal height measurement depending on their risk profile.
- If ultrasound scanning is indicated – this should be undertaken by someone with appropriate skills and experience. A report should be generated and filed in the case notes or the ‘record of ultrasound examination’ should be completed in the notes. Images should be archived to allow image review and a quality assurance process
- 
 Trusts should continue to implement the use of the Saving Babies Lives care bundle²⁰.
- Trusts should continue to review local practice in line with guidance issued by PHA on growth scanning and pregnancy dating scanning protocols.
- A rationale for scanning outside of recommended guidance should be clearly documented in mother’s notes.
- The Maternity Quality Improvement Collaborative and Trusts should provide training and support to improve growth surveillance and carry out spot audits of charts as evidence that this is achieving improvement.

- The Maternity Quality Improvement Collaborative should work with NIMACH and Trusts to understand variation in local policies in the recording of births at gestations prior to the limits of viability with a view to reducing variation.
-  In low risk pregnancies, panels emphasised that intermittent auscultation should be used to monitor the fetal heart and existing guidance on the use of CTG should be followed.
- The findings of the audit should be shared with Department of Health leads to inform the review of existing Bereavement pathways for maternity care with a view to the development of a pathway for the intrapartum care of women whose baby is not expected to survive.
-  Relevant Regional Bereavement Pathways should be included and completed in case notes for all cases of perinatal mortality.
- Mothers should be reminded to take their Maternity notes with them to any appointments with other health care professionals and ask the health care professional to make a record of any relevant clinical assessment or management plan.
- The Department of Health should seek clarity from the Department of Justice on parental consent for post mortem if a coronial inquest is not required but the Coroner would prefer that a hospital post mortem is undertaken.
- The Maternal Hand Record should also be used to record care in the community. When a woman has been discharged from the care of their community midwife following a stillbirth, the Maternal Hand Record should be completed and returned within one week of discharge from the service to facilitate timely review of care.

- 
 Each time a woman is seen throughout her pregnancy and post-natal care, information should be recorded in her notes on when she was seen, reason for visit and any action plan clearly documented.

- 
 Information on any 'non-planned' contacts with health care professionals, including phone calls, should be documented in mother's notes or the NIMATS system, including rationale for contact and any advice/ plan given

- When reviewing mortality, gathering information to support the review process should be commenced as soon as possible to ensure that organisational memory is fresh and relevant information captured on environmental or staffing issues.

- 
 Input to the review process should be sought from parents and any questions that they might have should be noted and fed into the review process.

- The customised growth chart should be sent to pathology along with any information available on date of baby's demise.

- Staff leading and/or participating in mortality review processes should have access to training and resources to support their roles. They should also have dedicated time to do this important work.

- Perinatal mortality review should be undertaken by a multidisciplinary team.

- A standardised tool should be used to support the perinatal mortality review process.

- Efforts should be made to ensure the objectivity of panels is maintained by the use of external panel members either from another Trust or from outside of Northern Ireland when appropriate.
- Learning from reviews should be owned by the wider organisation. Trusts should ensure that processes are in place to support this.
- Good care and excellence, where identified, should also be recorded and fed back to staff and partner organisations.
- All review processes should have clear arrangements to ensure that the views and experience of parents and families are included.

Appendices

Appendix 1 : Steering Group members

Name	Job Title	Trust Area	Role in Project
Michael McBride	CMO/ BHSCT Cx Chair of NIMI regional steering group. Receives NI report on perinatal mortality, agrees and signs off recommendations	DoH/BHSCT	Led discussion on perinatal mortality report. Endorsed rec for this work to be carried out through GAIN
Carolyn Harper	Director of Public Health. [Co-signs NI perinatal mortality report with CMO]	PHA	Support implementation of findings and integration into existing work streams
Fiona Kennedy	Consultant in Public Health Medicine. Lead for professional advice and input to commissioning of maternity services.	PHA	Support implementation of findings and integration into existing work streams
Levette Lamb	Regional Patient Safety Advisor	Safety Forum	Support implementation of findings and integration into existing work streams within Maternity collaborative

Appendix 2: List of panel members

Name	Trust	Discipline
Patricia Scott	SEHSCT	Midwifery Practice Educator
Dr Ann Hamilton	SEHSCT	Consultant Obstetrician & Gynaecologist
Dr Sandra Mawhinney	SEHSCT	Consultant Obstetrician & Gynaecologist
Mary Graham	SEHSCT	Delivery Suite Manager
Maureen Ritchie	SEHSCT	Practice Development Midwife
Dr Penny Hill	SEHSCT	Consultant Obstetrician & Gynaecologist
Dr Richard De Courcey - Wheeler	SHSCT	Consultant Obstetrician & Gynaecologist
Joan Boyce	SHSCT	Delivery Suite Sister
Dr Beverley Adams	SHSCT	Consultant Obstetrician & Gynaecologist
Wendy Clarke	SHSCT	Lead Midwife
Donna King	SHSCT	Clinical Risk Midwife
Dr Nichola-Anne Henderson	SHSCT	Consultant Obstetrician & Gynaecologist
Dr Janet Acheson	SHSCT	Consultant Obstetrician & Gynaecologist
Dr Jaqueline Cartmill	WHSCT	Consultant Obstetrician & Gynaecologist
Maureen Miller	WHSCT	Head of Midwife and Gynae Services
Brenda McClafferty	WHSCT	Delivery Suite Manager
Dr Kevin Glackin	WHSCT	Consultant Obstetrician & Gynaecologist
Mary McLoughlin	WHSCT	Clinical Risk Midwife
Dr Salman Kidwai	WHSCT	Consultant Obstetrician & Gynaecologist
Amanda Sayers	WHSCT	Community Midwifery Manager
Deirdre Gill	WHSCT	Clinical Risk Midwife
Dr John McDonald	WHSCT	Consultant Obstetrician & Gynaecologist
Dr Laura Doherty	NHSCT	Consultant Obstetrician & Gynaecologist
Dr Laura McMorrán	NHSCT	Consultant Obstetrician & Gynaecologist
Shona Hamilton	NHSCT	Consultant Midwife
Karen Graham	NHSCT	Clinical Midwife Specialist
Helen Weir	NHSCT	Lead Midwife
Dr Frances Stewart	NHSCT	Consultant Obstetrician & Gynaecologist
Heather Bell	NHSCT	Clinical Risk Midwife
Caroline Keown	NHSCT	Head of Midwifery
Dr Rebecca Barclay	NHSCT	Consultant Obstetrician & Gynaecologist
Barbara Strawbridge	NHSCT	EITP Implementation Manager

Breda Farrell	BHSCT	Bereavement Support Midwife
Dr Janitha Costa	BHSCT	Consultant Obstetrician & Gynaecologist
Heather Watson	BHSCT	Antenatal & Postnatal Midwifery Practice Educator
Dr Inez Cooke	BHSCT	Consultant Obstetrician & Gynaecologist
Dr Alyson Hunter	BHSCT	Consultant Obstetrician & Gynaecologist
Dr Katie Johnston	BHSCT	Consultant Obstetrician & Gynaecologist
Margaret Rogan	BHSCT	Consultant Midwife
Dr Agnieszka Zawislak	BHSCT	Consultant Obstetrician & Gynaecologist
Barbara Gergett	BHSCT	Bereavement Support Midwife
Dr Stan Craig	BHSCT	Consultant Neonatologist
Dr David Millar	BHSCT	Consultant Neonatologist
Denise Boulter	PHA	Consultant Midwife
Dr Catherine Coyle	PHA	Consultant in Public Health Medicine
Levette Lamb	PHA	Regional Patient Safety Advisor
Brigid McKeown	PHA	LSA Midwife (secondment)
Verena Wallace	DoH	Midwifery Officer
Fiona Bradley	HSC CEC	Senior Education Manager
Mary Jo Chesnel	HSC CEC	Midwifery Practice Educator
Dr Dale Spence	Queens University Belfast	Senior Lecturer (Education) School of Nursing and Midwifery
Siobhan Crilly	RQIA	Regional Clinical Audit Facilitator

Appendix 3: Copy of confidentiality agreement



Confidentiality Statement Stillbirth Audit Panel Assessors

In my role as GAIN Stillbirth Audit Panel assessor I declare that:

- I undertake not to make or keep an electronic or paper copy of the case materials with which I am provided for the purposes of NIMACH confidential enquiries.
- I will only discuss the details of any individual case (findings, conclusions and recommendations) which I assess in my role as a GAIN Stillbirth Audit Panel assessor with other GAIN Stillbirth Audit Panel assessors and members of the GAIN Stillbirth Audit Panel.
- I will at all times keep completely confidential any information relating to the review of individual cases, discussions with other GAIN Stillbirth Audit Panel assessors and GAIN Stillbirth Audit Panel team members, and any other aspects of my role as a GAIN Stillbirth Audit Panel assessor.
- Should I recognise a case from my clinical work, medico-legal work or some other set of circumstances I will immediately stop reviewing the case and declare this prior knowledge to the NIMACH Lead Heather Reid. I understand that depending upon the circumstances it may be necessary to reallocate the case.
- Having reviewed an individual case for the purposes of the GAIN Stillbirth Audit Panel, should I encounter this case at any point in the future in relation to medico-legal work or any other similar work, that I will declare a conflict of interest and withdraw from that legal work thereby ensuring that I do not make use of any privileged information arising from my involvement in GAIN Stillbirth Audit Panel for any other purposes and that all such activities are kept completely separate and confidential.
- In the course of my GAIN Stillbirth Audit Panel assessor role that I understand that I am bound by my usual professional code of conduct.
- I understand that this agreement will extend in perpetuity beyond my tenure as a GAIN Stillbirth Audit Panel assessor.

Name:

Signature:

Date:



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