CONFIDENTIAL ENQUIRY INTO INTRAPARTUM RELATED DEATHS

NHS West Midlands Investing for Health
Reducing Perinatal & Infant Mortality (2c)

West Midlands Perinatal Institute

October 2010

NHS perinatal institute
for maternal and child health

Foreword

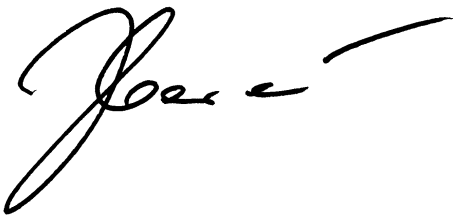
This report is part of the current series of regional and local confidential enquiries being undertaken by the Perinatal Institute. It has been commissioned by the NHS West Midlands Investing for Health programme and was prompted by a CMO report highlighting the need to improve our understanding of intrapartum related deaths.

The results are relevant to all disciplines involved in perinatal care, as well as risk managers, public health and commissioning. Demonstrating the strength of the confidential enquiry process, this Enquiry is also highlighting important systems failures at every level of the service, from performance managers to clinicians at the sharp end.

Running such enquiries requires intensive effort and I am grateful for the dedication which has been applied by staff at the Institute in collecting, anonymising and summarising the cases, assisting with the panel meetings and helping with the subsequent analysis and write up. I would particularly like to thank Nicola Robinson, Mandy Williams, Michelle Southam, Ian Bird and Annette Williamson.

I would also like to thank the many front line professionals (listed in Appendix 1) who have participated in the panels of the Enquiry. The findings of this report are thanks to their willing contribution and open appraisals of the cases. The key conclusions of this report are a synthesis of our many discussions at panel meetings.

Ultimately, any understanding we gain is only possible *because* of the losses – which concern the babies themselves, their grieving mothers, families and the community as a whole, as well as their carers who want to provide a high quality service. The best way to honour them is to implement the changes that will aim to reduce such deaths from occurring in the future.



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Glossary of terms

Abbreviation / Term	Definition
Antepartum	Occurring in the period before birth/labour
Bradycardia	Fetal heart rate below 110 beats per minute
CESDI	Confidential Enquiry into Stillbirths and Neonatal Deaths; also CEMACH (Confidential Enquiry into Maternal and Child Health), now CMACE (Centre for Child and Maternal Enquiries)
Congenital Anomaly	Abnormal condition present at birth
CNST	Clinical Negligence Scheme for Trusts (CNST)
CTG	Cardiotocography – electronic fetal monitoring
DFM	Diminished fetal movements
DR C BRAVADO	Mnemonic used to help identify abnormalities in fetal heart rate tracings
Early Neonatal Death	Death of a live born infant during first 7 days of life
EDD	Estimated Date of Delivery – usually based on dating ultrasound scan, or last menstrual period if scan not done
FBS	Fetal Blood Sampling – a procedure to obtain a sample of fetal scalp blood in labour to assist diagnosis of fetal compromise
FH	Fetal Heart; FHR – Fetal heart rate
Gestational Age	The estimated age of a fetus expressed in weeks from first day of last menstrual period; usually based on dating scan in early pregnancy
GTT	Glucose tolerance test – blood test performed to diagnose gestational diabetes
Hyperstimulation	Excessive number of uterine contractions (e.g. 5 or more) causing fetal distress
Intrapartum	Events occurring during labour and delivery
IUGR	Intra uterine growth restriction
LSCS	Lower Segment Caesarean section
MLC	Midwifery led care – maternity care provided by a midwife or midwifery team only
MLU	Midwifery Led Unit – a dedicated unit to deliver maternity care by midwives only, including birth
Neonatal death	Death of a live born infant during the first 28 days of life (Early neonatal death: first 7 days)
Oxytocic / oxytocin	A drug used to induce/augment labour by stimulating contraction of uterine muscle
Parity	The number of previous infants a woman has delivered either live born or stillborn after 24 weeks gestation
Partogram	A graphic representation of the progress of labour
Perinatal death	Fetal death from 24 weeks gestation and neonatal death before day 7
Postpartum	Occurring in the period following birth
SFH	Symphysis fundal height
SpR	Specialist Registrar
Stillbirth	A child born from 24 weeks of pregnancy which did not at any time breathe or show any signs of life
WMPI	West Midlands Perinatal Institute

1. EXECUTIVE SUMMARY

1.1. BACKGROUND

The West Midlands has approximately 70,000 deliveries per year, one tenth of all births in England & Wales. Most births result in a healthy baby and a satisfactory outcome. However, the West Midlands also contributes one tenth of the babies that die from intrapartum related causes, i.e. events surrounding labour and childbirth.

In his 2006 Annual Report, the Chief Medical Officer highlighted intrapartum related deaths as a particular area for concern. National reports in the 1990s have considered many to have avoidable factors, yet their numbers had not significantly reduced in recent years.

NHS West Midlands have taken a proactive approach to addressing perinatal and infant mortality in the region, and commissioned the Perinatal Institute to undertake a confidential enquiry into intrapartum related deaths as part of the 'Investing for Health' programme. The cohort was to consist of all normally formed, labour or delivery related stillbirths and early neonatal deaths (from 34 weeks gestation) that occurred in WM units during 2008/9. The remit was to apply the well-established confidential case review methodology, to investigate how service provision and clinical care during labour and delivery may be improved in order to optimise outcomes for mothers and babies.

1.2 METHODOLOGY

- There were 25 cases over this period which fit the inclusion criteria, including 16 stillbirths and 9 early neonatal deaths. The deaths occurred at 15 different maternity units in the West Midlands.
- All cases underwent full panel assessment.
- Copies of case notes including investigations and postmortems, where available, were obtained from the respective units, anonymised, and examined by confidential enquiry panels using WMPI's standard proforma.
- The multidisciplinary panels were constituted from a bank of 39 participating senior clinicians from each of the 15 provider Trusts in the region.
- The cases were examined during a series of 7 regional panels convened at the Perinatal Institute from March 2009 to January 2010. They were assessed for standard of care and avoidability of outcome.

1.3 FINDINGS

Panels were able to agree on the grading by consensus in ***all*** cases.

Table 1.1. Grading assigned to the 25 cases examined by panel review

Grade	Definition	Number
0	no substandard care	-
1	substandard care, different management would have **made *no* difference** to outcome	**4**
2	substandard care, different management ***might* have made a difference** to outcome	**5**
3	substandard care, different management ***would have reasonably been expected* to have made a difference** to outcome	**16**

All cases revealed substandard care. In 16 of 25 deaths (64%), panels concluded that different management would have avoided the outcome. In another 5 cases, different management might have resulted in different outcome, suggesting that 21 of 25 or **84% of the deaths were considered to have been potentially avoidable.**

Panels expressed concern about the standards of care provided in each part of the perinatal episode:

Antenatal

- risk factors were missed and management plans were considered inadequate in 7 cases
- intrauterine growth restriction of the fetus was missed in 8 cases

Intrapartum

- in 6 of the cases, the was no appropriate management plan for labour;
- in 16 cases, there were one or more instances of poor interpretation of the fetal heart rate;
- in 5 labours, there was inappropriate use of oxytocics, causing hyperstimulation;
- delay in management / expediting delivery was commented on in 12 of the cases; and
- in 18 cases, the panel felt that there was a failure to escalate a problem and obtain senior input or assistance.

Neonatal
- Substandard resuscitative efforts were commented on in 7 of the 9 neonatal deaths
- In addition, panels felt that resuscitation was inappropriate or substandard in 10 of the stillbirths
- There was concern that in many instances the NLS (neonatal life support) guidance was not followed.

Postnatal
- In 7 cases, there was inadequate support for the mother and bereavement care
- in 6 of the cases, the panels commented that there was no postnatal plan for follow up and future pregnancies.

General
- Panels expressed concern about the quality of record keeping in 21 of the 25 cases

1.4. FEEDBACK AND RECONCILIATION WITH UNIT BASED REVIEW

The provider units' own incident reports, assessments and/or root cause analyses were requested for each case. Assessment of provider units' incident reports demonstrated wide variation in process, methodology and dissemination. In many instances where the incident report was discussed at an internal perinatal meeting with action points noted, the commissioning role and responsibility was unclear in response to the deaths.

Table 1.2 lists the number of concerns identified by the independent panel assessments in each of 11 main care categories, and compares them with the number of corresponding concerns identified by the units' review and risk management systems. This shows that overall, **three-quarter of significant concerns raised by the independent panels were not identified by the unit assessment:**

Table 1.2

Category of substandard care	No. of concerns identified by the panel review	No. of concerns identified by the unit review	% of panel concerns identified by unit review
Poor antenatal risk assessment / plan	**11**	**2**	18 %
Poor antenatal recognition of IUGR	**9**	**1**	11 %
Poor management plan for labour	**6**	**2**	33 %
Poor interpretation of the CTG	**17**	**3**	18 %
Inappropriate use of oxytocin	**5**	**3**	60 %
Delay in management and / or care	**15**	**7**	47 %
Failure to escalate /obtain senior input	**23**	**9**	39 %
Substandard neonatal resuscitation	**17**	**3**	18 %
Poor postnatal support	**7**	0	0
Lack of follow up / future plan	**9**	0	0
Inadequate record keeping	**21**	3	14 %
Total number concerns raised	***140***	***33***	***24 %***

1.5 KEY CONCLUSIONS

- **Similarly to other regional and national audits, most intrapartum related deaths in the West Midlands are potentially avoidable**
- **Most unit based reviews do not demonstrate identification of factors contributing to the demise**

1.6. ACTION

- Individual findings and recommendations sent to respective units and results presented at regional meeting
- IfH2c Board and SHA informed of findings,
- NHS West Midlands are developing a systemic response to assure service improvement to reduce future risk.

1.7. RECOMMENDATIONS & NEXT STEPS

- There is an urgent need for solid reporting mechanisms and performance management to be implemented to allow acute services and their commissioners to respond to adverse outcomes.
- Commissioners should ensure that all perinatal deaths are reviewed internally, and that action plans are agreed and performance managed via the quality element of the maternity contract.
- Reporting systems, unit case reviews and resultant action plans need to be standardised.
- WMPI will support WM units with implementation of the NPSA intrapartum toolkit and regionally agreed proformas, to assess clinical and social factors as well as organisational circumstances e.g. staffing levels.
- WMPI intends to set up a rolling programme of independent case reviews of the new unit based assessment of perinatal deaths, to facilitate quality assurance of the process.
- The proposed West Midlands Perinatal Network would be the obvious forum and governing body to oversee a consistent, cohesive, quality assured approach for implementing this service improvement

2. INTRODUCTION

The numbers of births in the West Midlands is steadily increasing and currently there are over 71,000 births per year in the region. This represents just over one tenth of all births in England and Wales. Most babies are born healthy and do well, with stillbirths and neonatal deaths being relatively rare events. However, the West Midlands has an overall corrected* perinatal mortality rate of 5 to 6 per 1000 births [1], which remains one of the highest in England & Wales. There is a well documented, strong association between perinatal & infant mortality and inequalities as measured by deprivation. The West Midlands has one of the highest indices of deprivation in the country, with six spearhead PCT areas identified.

The reduction of perinatal and infant mortality and improving our understanding of these deaths is a local and regional priority. It is one of the areas targeted in NHS West Midlands 5 year strategic framework 'Investing for Health (IFH)' (2007) [2], which aims to work collaboratively to improve the region's health and develop high quality, evidence-based services. The IFH programme successfully established systems to gather intelligence to inform and improve services and outcomes for mothers and babies in the region. It implemented both a regional system to routinely collect maternity information and a confidential enquiry into intrapartum related deaths occurring over a one year period.

Around 450 babies are classified as being intrapartum related deaths in England & Wales each year [3], with over half of these deaths having no specific cause identified. However when they were last examined in a national confidential enquiry in 1993 [4], avoidable factors were identified in the majority (65%) of cases. Common themes were failure to recognise or communicate problems, and failure of timely intervention when problems develop during labour. Other regional, national and international studies have also found significant or major suboptimal care factors which were likely to have affected the outcome [5,6,7,8].

Following national concerns that the rate of intrapartum related deaths was not decreasing, the Chief Medical Officer called in his 2006 annual report [9] for a rigorous review of intrapartum related deaths, to highlight the avoidable factors and identify actions that could reduce risk. The WM Perinatal Institute was therefore commissioned by NHS West Midlands and its Investing for Health Programme to carry out a confidential enquiry into intrapartum related deaths which occurred in the region between April 2008 and March 2009. The West Midlands had 44 intrapartum related deaths during the study period equating to one tenth of the national total.

This report details the findings of the confidential enquiry panel assessments of the regions intrapartum related deaths and makes recommendations for providers and commissioners of maternity services.

* excluding congenital anomalies and previable deaths

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3. METHODOLOGY

Multidisciplinary confidential enquiries are an acknowledged methodology, which have successfully been used to objectively assess cases of adverse perinatal outcome nationally, regionally and locally. The primary aim of a confidential enquiry is to identify preventable and avoidable factors. Events, actions or omissions attributable to care, management, systems or external factors could all contribute to adverse outcome, but could potentially be prevented. Identification of avoidable and/or suboptimal factors enables the development of practice and commissioning recommendations to improve future maternity services and reduce risk of future adverse outcomes. The process for review included:

- Retrieval and anonymisation of the cases to be reviewed and the development of a standard proforma to summarise antenatal care, social factors, intrapartum care, neonatal and postnatal care by the project co-ordinators and research midwives from the Perinatal Institute aligned to the enquiry.
- Anonymisation of cases, with summaries sent to the review panel members 2 weeks before the review meeting.
- Review panels met and considered each case identifying substandard care as well as good practice, and by consensus assigned a CESDI grade which to indicate the preventability of the outcome.
- The deliberations of the panel were summarised for each case and sent back to panel members (password protected) for final comment.
- Findings from the enquiry are collated into an overarching report for commissioners and providers.

3.1 Cases

The inclusion criteria of the Enquiry were all stillbirths (from 24 weeks gestation) and all neonatal deaths (from 34 weeks gestation). Major congenital anomalies were excluded.

There were 44 records of intrapartum perinatal deaths (stillbirths and early neonatal deaths to age 7 days) in the West Midlands over the 12 month period. Examination of the notes showed that in 10 of these, the death occurred before commencement of established labour, and these cases were excluded. A further 3 cases were congenital anomalies, and 5 deaths fell outside the gestational age criteria. In one case, the case notes were missing. Thus the final figure was 25, which included 16 stillbirths and 9 neonatal deaths. These cases originated from 14 of the 19 maternity units, representing 13 of the 15 Trusts in the Region.

Cases were identified through WMPI's Perinatal Death Notification System and followed up through a network of link persons at each Trust. Photocopied notes of each case were submitted to the Institute.

The cases were fully anonymised and coded, and sent with draft summaries on semi structured proformas to panel members 2 weeks before the scheduled panel meeting. The template of the proforma used is shown in Appendix II.

3.2 Panels

A bank of panel members consisting of consultant obstetricians, labour ward midwives, community midwives, neonatologists and neonatal nurses from Trusts within the region were recruited. In total 39 senior clinicians representing each of the 16 Trusts in the region participated in one or more panels. The panel members are listed in Appendix I.

The 25 cases were reviewed during seven panel meetings held in between March 2009 to January 2010. Each panel session engaged two obstetricians, two labour ward midwives, two community midwives, two neonatologists and two neonatal nurses, as well as project staff from the Institute, and was chaired by the director of the Institute. Usually, three to four cases were covered during a 4 hour session. The meetings examined all aspects of the antepartum, intrapartum, postpartum and neonatal care, and the standard of care was assessed and avoidability graded using the standard CESDI criteria. All gradings in this Enquiry were assigned by consensus.

3.3. Characteristics of the 25 cases -16 stillbirths (SB) and 9 early neonatal deaths (ENND)
Table 3.1

		SB	ENND
		N=16	N=9
Maternal Age	<20	2	2
	20-24	2	1
	25-29	4	2
	30-34	7	1
	35+	1	3
Parity	0	9	3
	1	3	5
	2	3	1
	3	1	-
Ethnic Origin	African	1	-
	African-Caribbean	2	-
	Bangladeshi	-	1
	Indian	1	-
	Pakistani	1	-
	Far East-Asian	-	1
	British - European	10	7
	Unknown	1	-
BMI	<18	-	-
	18-25	4	3
	25-30	6	3
	30-35	1	-
	35-40	2	2
	40+	2	-
	Unknown	1	1
Smokers		3	1
Mode of delivery	Vaginal	6	4
	Instrumental	3	-
	Caesarean Section	7	5
Gestational age	24-29	2	-
	30-33	-	-
	34-36	1	-
	37+	13	9
Birthweight (grams)	% SGA (< 10^{th}) *	6	1
	% LGA (>90^{th}) *	2	3
	Unknown	-	1
Postmortems done		7	3

* Customised centiles

4. PANEL FINDINGS

4.1 Overall grading of standard of care / avoidability

Table 4.1

Grading	Definition	Number (SB/END)	%
0	no substandard care	0	0
1	substandard care, different management would have made *no* difference to outcome	**4** (3/1)	**16 %**
2	substandard care, different management *might* have made a difference to outcome	**5** (3/2)	**20 %**
3	substandard care, different management would have *reasonably been expected* to have made a difference to outcome	**16** (10/6)	**64 %**

The Panel found that all cases had significant instances of substandard care.

- In 21 (84%) out of the 25 cases, it was considered that different management may have resulted in a different outcome; in 16 of these cases (64% of total) substandard care would have reasonably been expected to have made a difference in outcome.
- The 4 deaths considered unavoidable also had features of substandard care.

4.2 Standards of Care

In addition to the overall grade, panels also assigned grades for standard of care

Table 4.2 Substandard care gradings

	A Appropriate care		B Minor substandard care		C Significant substandard care		D Major substandard care	
	n	%	n	%	n	%	n	%
Record-keeping	4	16%	12	48%	4	16%	5	20%
Communication	5	20%	3	12%	9	36%	8	32%
Organisation	4	16%	7	28%	8	32%	6	24%
Social assessment *	14	56%	6	24%	2	8%	2	8%
Maternal factor	18	72%	5	20%	1	4%	1	4%

* 1 case could not be assessed because of insufficient information

4.3 Examples of appropriate care / good practice

The proforma prompted panels to identify and consider good practice. However panels found it sometimes difficult to separate out 'good practice' from that which should be expected as standard.

- 12 cases identified good continuity from midwife antenatally & postnatal
- In 13 cases, panels commented on sections of particularly good and clear record keeping within the case notes
- 5 cases had good postnatal follow up / plan
- Local unit guidelines were commended in several instances
- DR BRAVADO mnemonic used in a case and considered good practice
- Several examples of prompt action with short decision to delivery interval
- Interpreter used to discuss postmortem
- The use of a Pinnard or sonic aid to determine FH prior to CTG
- Neonatal consultant follow up appointment at patients' home

Examples of substandard care / poor practice
A number of themes emerged from the panel's assessments, listed in chronological order of maternity care

4.4 Antenatal

- In 11 (44%) cases, **antenatal risk assessment** was absent or inappropriate; 6 of these were Grade 3; this at times resulted in inappropriate management plans and surveillance during pregnancy and monitoring during labour - e.g.
  - women referred back to MLC despite elevated BP, high BMI & previous preterm delivery;
  - low risk care despite late booker and uncertain EDD;
  - lack of recognition of risk factors e.g. mental health related;
  - no anaesthetic referral initiated where indicated in a case of morbid obesity;
- There were also instances where **antenatal management plans** were not amended according to changing circumstances, e.g.
  - raised BP and proteinuria at term but induction not offered;
  - repeated presentations for decreased fetal movement not appropriately investigated;
  - presented with DFM and CTG was considered to be abnormal but mother discharged home
- In 9 of the cases (36%) the baby had evidence of fetal growth restriction (FGR, birth weight < 10^{th} customised percentile). **In each of these pregnancies, there was no antenatal recognition of intrauterine growth restriction**. The reasons for this included:
  - inappropriate antenatal surveillance plan – e.g. no serial scans despite high risk;
  - single or repeated presentations with DFM not investigated, subsequently found to be FGR;
  - absent / inaccurate plotting of fundal height measurement on customised chart;
  - decreased growth velocity evident on serial SFH measurement but not acted upon;
  - no customised chart in the notes.

4.5 Intrapartum

- 6 (24%) of the cases were considered by the panellists to have had **no clear management plan** for labour. Risk not recognised - e.g.
  - woman presented to MLU with DFM & contractions and thick meconium; inappropriately managed on MLU;
  - failure to reassess risk on admission in labour and plan appropriately.
- In 8 (32%) of the cases **no auscultation of FH with Pinnard or sonic aid** was used prior to commencement of CTG or when there was doubt concerning the presence of a fetal heart e.g.
  - CTG tracing of maternal pulse mistaken for fetal heart rate.
- Intermittent Auscultation:
  - method or length of auscultation not documented;
  - rising baseline on intermittent auscultation not acted upon;
  - inconsistency about role of auscultation in labour management at early gestations
- In 18 (72%) of the cases, panellist identified **failures in recognition and action on an abnormal CTG;**
  - inconsistent assessment, not using standardised format;
  - pathological CTG not recognised and therefore no appropriate action taken;
  - loss of contact, poor quality trace (high BMI) ➔ inappropriate interpretation and action;
  - midwife failed to recognise deviations from normal & therefore failed to inform senior staff;
  - medical team failed to act appropriately when informed.
- In 5 (20%) of the 25 cases, inappropriate use of **oxytocin** (syntocinon) was identified -e.g.
  - oxytocin infusion continued despite hypertonic contractions and non-reassuring CTG;
  - increase in infusion ordered by consultant despite CTG being non-reassuring;
  - oxytocin not stopped while awaiting FBS;
  - oxytocin commenced / continued despite recognition that LSCS is indicated.
- 14 (56%) cases had a **delay** in management or care e.g.
  - difficulty experienced by the SpR in contacting Consultant on call, discrepancies between rota and switchboard which resulted in significant delay in a very compromised baby;
  - difficulty locating equipment;
  - failure to escalate to medical staff deviations from normal such as maternal tachycardia, rising baseline, uterine hyperstimulation
  - delay in deciding to do FBS, by which time thick meconium made procedure impossible.
- In 13 (52%) of cases there was **failure to identify problem and escalate to obtain senior involvement** e.g.
  - labour ward busy with SpR in theatre, no escalation to Consultant to obtain FBS;

- SpR unable to catheterise a woman in labour, no escalation to Consultant;
- failure to escalate to medical staff deviations form normal such as maternal tachycardia, rising baseline & hyperstimulation;
- review from medical team not sought when raised BP & proteinuria on admission.

- 9 (36%) of the cases had **communication** issues either between healthcare professionals or with the mother e.g.
  - midwives not informed of plan & communicated with, resulting in delay in decision to delivery;
  - interpreter misinformed parents about the PM consent & process:
    - poor communication with parents regarding fetal viability; not involving them in plan of care;
    - poor communication, mother distressed and confused about the baby's death;
    - several instances of poor communication in neonatal period .

4.6 Postnatal

- 7 (28%) of the cases had **no bereavement midwife** available within the Trust & therefore the panel felt that bereavement care was inadequate.
- 9 (36%) had no follow up by a Consultant or plan of care for next pregnancy

4.7 Neonatal

- Resuscitation was attempted in 9 of the 16 **stillborn** babies; in 4 of these cases, there was no anticipation of adverse outcome and no timely alert of paediatric team e.g anaesthetic SpR had to assist with resuscitation
- There was also a case where the paediatric team was inappropriately called after USS had confirmed IUD 30 minutes prior to delivery;
- Resuscitation was undertaken in each of the 9 **live born** babies which proceeded to ENND; again in 4 of these, there was delay because of no anticipation of adverse outcome;
- In 17 (68%) of the cases where resuscitation was attempted, the panels had reason to express concern about management, NLS guidance not being followed, or otherwise poor management - e.g.
  - inappropriate level of staff in attendance
  - inappropriate size of ET tube
  - no direct visualisation of cords where indicated
  - peripheral rather than central cannulation when latter indicated

4.8 General points

- In *all cases* reviewed, substandard **record keeping** was highlighted at some point within the notes.
  In 21 cases (84%), this was considered to represent substandard care – e.g.
  - documentation confusing and out of sequence
  - care not documented for periods of time
  - triage assessment re risk inadequately recorded
  - partogram started late in labour
  - discrepancy in notes re actual time of bradycardia
  - times inaccurately recorded on CTG
  - no documentation of abdominal palpation in case of trial of scar ➔ rupture
  - discrepancy about record of status of perineum post delivery
  - poor operation notes

4.9 Other comments

A number of other comments specific to individual cases were fed back to the respective units – e.g. the need to perform a GTT when clinically indicated; the need for taking baseline observations i.e. abdominal palpation; importance of defining fetal position on vaginal assessment; need for appropriate taking and recording of blood gases; placenta not being sent to histology; importance of postnatal documentation and communication.

5.0 FEEDBACK AND RECONCILIATION OF PANEL REVIEWS WITH UNIT REVIEWS

5.1. Review of cases summaries / action plans from units

The IfH Board and the Perinatal Institute wrote to all units requesting the in-house assessment and action plan made for each case. A total of 22 unit case reviews were received.

Table 5.1

Type of unit review	Numbers received
Formal root cause analysis	5
Structured review or minutes of meeting	6
Review using WMPI review proforma	3
Clinical summary	5
Short comment	3
No response from unit	3

Review of the **Format** of these case reviews showed that

- There was great variation, ranging from detailed root cause analyses to short comments about cases (Table 5.1). Some reviews were the results of minuted discussions of a risk management panel, while in others the information received was the opinion of an individual clinician.
- In many instances, there appeared to be little collaboration between obstetricians and neonatologists in formulating the case reviews.
- In most instances, there was no action arising from the review. In a minority of cases there was a stated intention e.g. further training, or a memo to staff reminding them of existing policies. However there were no clear plans on how the implementation was to be audited or monitored for quality assurance.
- In none of the cases was there evidence of engagement / communication with the commissioning PCT.

Review of the content of the case reviews showed that in many instances, the internal reviews failed to recognise

- important antecedents to the adverse outcome
- key aspects of inadequate or inappropriate care and
- the avoidability of the ultimate outcome

Table 5.2. (page 14) lists the main themes on which the panels commented on in each of the 25 cases, and whether these points were identified by the unit based reviews. In the majority of cases (76%), the key points and concerns resulting from the independent panel assessments were not identified by the unit reviews. This was furthermore the case across all the main themes of the panel reviews.

5.2. Unit response

Key positive and negative aspects of care were sent to the respective units' clinical directors, obstetric and neonatal leads, heads of midwifery and risk managers, in encoded, password protected files, with an invitation to comment. Responses were received in 4 cases in total.

- In two cases, the response from the unit was in elaboration on the circumstances of the case, but no disagreement with the grading.
- In one case, the allocated Grade (3) was challenged suggesting it should be 2; WMPI re-examined the panel notes and responded explaining that the panel's reasoning for the Grading (slow response following a pathological CTG); there was subsequently no further comment from the unit .
- In one case, several of the panel's comments regarding neonatal consultant involvement and follow up were disputed; further examination by WMPI on the basis of the detailed unit response revealed that several pages of the case notes were missing, and the case summary was corrected accordingly and re-sent to the unit concerned. However this did no affect the Grading of the case, which was a Grade 3 mainly due to the intrapartum obstetric management.

	ISB o1	ISB o2	ISB o3	ISB o4	ISB o6	ISB o7	ISB o8	ISB o9	ISB o10	ISB o11	ISB o12	ISB o13	ISB o14	ISB o15	ISB o17	ISB o21	IND o1	IND o3	IND o4	IND o5	IND o6	IND o7	IND o8	IND o9	IND o10
Grading	3	3	3	3	1	3	2	3	1	2	1	1	3	3	3	3	2	1	2	3	3	3	3	3	3
Unit review received	√	√	√	√	√	√		√	√	√	√		√	√	√	√	√	√	√	√	√	√		√	√
Categories of substandard care																									
Inadequate AN risk assess and/or Mx plan	√														√										
Antenatal mx/recognition of IUGR	√																								
Poor Mx plan for labour	√																					√			
Poor CTG interpretation			√	√									√												
Inappropriate use of syntocinon		√		√																√					
Delay in management or care		√	√			√							√							√		√		√	
Failure to escalate and obtain senior input		√	√	√									√		√										
Substandard neonatal resuscitation																				√		√			√
Lack of PN support/bereavement care																									
Lack of PN follow up / plan for future preg																									

concern identified by panel review √ concern identified by unit review

Table 5.2 List of concerns expressed by panels in either of 10 main categories of substandard care, and the instances in which that concern was also identified within the unit based review.

6. CONCLUSION AND NEXT STEPS

West Midlands births represent one tenth of all births in England and Wales. Intrapartum related deaths are relatively rare, and here as elsewhere, they account for less than ten percent of all perinatal deaths. However this Enquiry has confirmed previous national findings that most of these deaths are avoidable: in almost two-thirds of cases (64%), substandard care was identified as *likely* to be responsible for the demise, and in a further 20%, substandard care was *possibly* associated with the outcome.

Specific themes were identified which extend from risk assessment at the very beginning of pregnancy, to the formulation of management plans, appropriate antenatal and intrapartum surveillance, response to circumstances and timely action to expedite delivery when indicated, guideline-based neonatal resuscitation, postnatal follow up and bereavement support.

Although the link between substandard care and adverse outcome has been known since national CESDI reports in the 1990's, many of the same problems continue to contribute to these adverse outcomes, Therefore, this Enquiry went further and studied the unit's own assessment of adverse incidents. This revealed that *unit based reviews often miss the main issues which led to the death*. Comparison of panel and unit based reviews demonstrated that only 24% of internal action plans highlighted the same concerns as the panel review. This is likely to be due to the

- lack of standardisation of the unit based review process,
- inability to see system related issues from within the organisation, and
- difficulty for clinicians and their immediate colleagues to look at cases they were involved in with the same objectivity as an independent panel.

Relevant comments from the confidential case reviews have been fed back to individual units for consideration and action. However, the findings also highlight an urgent need to establish a mechanism whereby the acute service and its commissioners are able to learn from such incidents and respond to them effectively. This can be achieved via a Regional approach that includes:

1. The development of a standard policy and protocol to ensure a cohesive response and reporting process to address all perinatal deaths across the Region.
2. The protocol should include a standardised, unit based review process, building upon the NPSA intrapartum toolkit, ensuring that it is applicable for auditing the whole spectrum of adverse perinatal outcome.
3. Commissioners need to be accountable for outcomes relating to the services that they commission. They are therefore responsible for supporting service development and performance managing the implementation of action plans arising from adverse incidents.
4. WMPI will help to develop the process and support it's implementation.
5. WMPI will establish a rolling programme of external reviews to monitor, assist and quality assure the unit based review process. External review is already a criterion within CNST level 3 requirements.

The new West Midlands Perinatal Network is expected to aid in this effort and provide a governing framework for the implementation and performance management of service development in response to perinatal deaths.

Appendix I.

IFH- Project 2C Intrapartum Confidential Enquires 2009 - 2010
Bank of Clinicians who attended one or more panels

Forename	Surname	Role	Unit
Liz	Bailey	Midwife	UHCW
Shagaf	Bakour	Consultant Obstetrician	City
Kate	Birch	Community Midwife	Worcester
Kathryn	Blake	Consultant Neonatologist	UHCW
Jackie	Butterworth	Community Midwife	Heartlands
Swati	Chakravati	Consultant Obstetrician	Heartlands
Rose	Ciavucco	Consultant Neonatologist	UHNS
Julie	Crabtree	Neonatal Nurse	UHNS
Rebecca	Davenport	Community Midwife	Alexandra
Jackie	Davis	Midwife	George Eliot
Richard	DeBoer	Consultant Neonatologist	George Eliot
Sanjeev	Deshpande	Consultant Neonatologist	Royal Shrewsbury
Sharon	Douglas	Community Midwife	Heartlands
Gabrielle	Downey	Consultant Obstetrician	City
Sandra	Ebanks	Midwife	Heartlands
Michelle	Emery	Senior Manager Neonatal	B'ham Women's
Andy	Ewer	Consultant Neonatologist	B'ham Women's
Lorna	Foster	Midwife	Heartlands
Julie	Foster	Matron	Stafford Hospital
Kathryn	Gutteridge	Midwife / Supervisor	Sandwell
Justine	Jeffery	Midwife / Supervisor	B'ham Women's
Carla	Jones-Charles	Community Midwife / SOM	UHNS
Dawn	Lewis	Community Midwife	New Cross
Michael	Maloney	Consultant Obstetrician	Heartlands
Suzy	Matts	Consultant Obstetrician	George Eliot
Lorna	Meer	Consultant Obstetrician	Russell's Hall
Shalini	Patni	Consultant Obstetrician	Heartlands
Karen	Perkes	Community Midwife	Worcester
Jayne	Phelps	Midwife / SOM	UHCW
Spyros	Popaioannou	Consultant Obstetrician	Heartlands
Karen	Powell	Consultant Obstetrician	MSGH
Sharon	Pritchard	Midwife	B'ham Women's
Jennifer	Read	Neonatal Nurse	Warwick
Hazel	Remmett-Booth	Community Midwife	New Cross
Prakash	Satodia	Consultant Neonatologist	UHCW
Jaideep	Singh	Consultant Neonatologist	Heartlands
Kay	Ward	Midwife / Supervisor	UHCW
Lorraine	Williams	Midwife	Heartlands
Peter	Young	Consultant Obstetrician	UHNS

Investing for Health Project 2c Intrapartum Confidential Case Review

Ref :

Do NOT keep any duplicates or copies of this form
Do NOT enter names or signatures

Section A - Case Details

Case Summary	Age	Gravida	Para	BMI	Outcome	at	Gestation

Relevant Medical History

A1 Medical/surgical history

A2 Mother's obstetric history

A3 Family history

Comments

A4 Management plan following medical history taken at booking. Appropriate ☐ Yes ☐ No ☐ N/A
Comments

Section B - Social History at Booking

B1 Social summary

B2 Social circumstances

Martial Status | Ethnic Group

Occupation

English speaking ○ Yes ○ No

Interpreter required ○ Yes ○ No

British Citizen ○ Yes ○ No ○ Unknown

Asylum seeker ○ Yes ○ No ○ Unknown

Traveller ○ Yes ○ No ○ Unknown

Lives with partner ○ Yes ○ No ○ Unknown

Social support:

within family home ○ Yes ○ No ○ Unknown

outside family home ○ Yes ○ No ○ Unknown

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

B3 Smoking/alcohol/non-medicinal drug use

Smoking at booking ○ Yes ○ No No./day

If yes, referred to smoking cessation support worker ○ Yes ○ No ○ Unknown

Alcohol at booking ○ Yes ○ No Units/wk

If yes, referred to substance misuse support agency ○ Yes ○ No ○ Unknown

Drugs at booking ○ Yes ○ No ○ Unknown

Details

If yes, referred to substance misuse support agency ○ Yes ○ No ○ Unknown

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

B4 Partners details

Father of the baby ○ Yes ○ No ○ Unknown

Ethnic group | Age

Partners occupation

Consanguineous union ○ Yes ○ No ○ Unknown

Comments

B5 Housing

Concerns about housing ○ Yes ○ No ○ Unknown

Housing-acceptable standard ○ Yes ○ No ○ Unknown

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

B6 Social service involvement

Known to social services ○ Yes ○ No ○ Unknown

Domestic violence reported ○ Yes ○ No ○ Unknown

Child protection investigations ○ Yes ○ No ○ Unknown

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

B7 Finances

Any concerns about the family's financial situation ○ Yes ○ No ○ Unknown

Did the family need advice about benefits or entitlements ○ Yes ○ No ○ Unknown

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

B8 Management plan following Social History taken at Booking Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

Section C - Antenatal Care

C1 Summary of care

C2 Screening

Routine blood tests	○ Yes	○ No	
Dating ultrasound scan	○ Yes	○ No	
Downs Screening	○ Yes	○ No	
Detailed anomaly scan	○ Yes	○ No	

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

C3 Information given

Diet	○ Yes	○ No	at	weeks
Pregnancy symptoms	○ Yes	○ No	at	weeks
Fetal movements	○ Yes	○ No	at	weeks
Birth plan	○ Yes	○ No	at	weeks
Signs of labour	○ Yes	○ No	at	weeks

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

C4 Fetal wellbeing

Customised growth chart in notes	○ Yes	○ No	○ N/A
Regular fundal height measurements >28/40?	○ Yes	○ No	
FH measurements plotted correctly?	○ Yes	○ No	
Evidence of IUGR from FH measurements?	○ Yes	○ No	
If yes, was it recognised?	○ Yes	○ No	
Referred for growth scan?	○ Yes	○ No	○ N/A
Time from referral to scan	weeks,	days	
IUGR diagnosed antenatally?	○ Yes	○ No	

Details

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

C5 Antenatal admissions ○ Yes ○ No Occasions

(e.g. bleeding, anaemia, UTI, ?prem labour, diminished fetal movement ?IUGR)

Details and management

1
2
3
4

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

C6 Pregnancy related complications ○ Yes ○ No

1
2
3

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

C7 General comments

Section D - Intrapartum

D1 Summary of intrapartum care

D2 AN risk assessment

○ High Risk ○ Low Risk ○ Unknown

Risk factors identified antenatally ○ Yes ○ No ○ N/A

Details

Management plan documented ○ Yes ○ No ○ N/A

Details

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

D3 Admission

Telephone advice given ○ Yes ○ No ○ N/A

Details

Admitting Symptoms

Maternal Observations BP Temp Pulse

FH auscultated ○ Yes ○ No

Method ○ Pinard ○ Sonicaid ○ CTG ○ Unknown

Onset:
○ Induced- Reason
Method
○ Spontaneous - Details
○ N/A (LSCS)

Risk on admission ○ High risk ○ Low risk ○ Unknown

Details

Management plan changed ○ Yes ○ No ○ N/A

Details

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

D4 Fetal monitoring ○ Yes ○ No ○ N/A

Was maternal pulse documented on CTG ○ Yes ○ No

Method: ○ Intermittent ○ Continuous CTG

Were risk factors identified for CTG ○ Yes ○ No

Was CTG abnormal during labour ○ Yes ○ No

If yes, was it identified? ○ Yes ○ No

Was a plan made? ○ Yes ○ No

Details and management

CTG reviewed by (most senior)

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

Section D - Continued

D5 Fetal blood sampling

Indicated ○ Yes ○ No

Undertaken ○ Yes ○ No Number

Details and management

If unobtainable, management

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

D6 Management of labour/birth ☐ N/A

Prolonged ROM> 24 Hours ○ Yes ○ No ○ N/A

Liquor: ☐ Clear ☐ Mec ☐ Blood ☐ None

Labour management

Delay in labour ○ Yes ○ No ○ N/A

Augmented ○ Yes ○ No ○ N/A

Details

Analgesia

Were regular maternal observations taken? ○ Yes ○ No

Evidence of staffing/resource issues ○ Yes ○ No

Labour managed by

Place of birth

Type of birth

☐ NVD ☐ Ventouse ☐ Forceps

☐ LSCS Category:

If categorised, were timescales met? ○ Yes ○ No

If no, reason for delay

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

D7 Emergency procedures

Were they initiated ○ Yes ○ No ○ N/A

Details

Were necessary staff called ○ Yes ○ No ○ N/A

Did they attend? ○ Yes ○ No ○ N/A

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

D8 Intrapartum IUD diagnosis ○ Yes ○ No ○ N/A

Detail and management

Was the woman involved in decisions ○ Yes ○ No

Support offered at diagnosis ○ Yes ○ No

Care appropriate ☐ **Yes** ☐ **No** ☐ **N/A**
Comments

D9 General comments (including whether consistent national and/or local guidelines were used)

Section E - Neonatal support

E1 Summary of neonatal support

E2 Neonatologist assistance
Neonatologist aware prior to delivery ○ Yes ○ No ○ N/A
Time neonatologist called for birth
Time arrived
If delayed, reason

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

E3 Resuscitation
Apgars 1min 5 min 10 min
Cord Ph
Base excess
Was any resuscitation attempted ○ Yes ○ No
Managed by
(most senior member during resuscitation)
Details

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

E4 Neonatal Unit admission ☐ N/A
Age at transfer
Reason for admission
Temperature Blood pressure
Management

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

E5 Transfer
Transferred to another NNU ○ Yes ○ no
Reason
if any delay, why

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

E6 Ventilation Support ☐ N/A
Time of intubation
Tracheal intubation ○ Yes ○ No
CPAP ○ Yes ○ No
O_2 therapy ○ Yes ○ No
Details

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

E7 Death of Baby
Team decision ○ Yes ○ No
Parental involvement ○ Yes ○ No
Details

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

E8 General comments (including whether consistent national and/or local guidelines were used)

Section F - Postnatal support

F1 Summary of postnatal support

F2 Postnatal care - mother

Analgesia

Lactation suppression offered ○ Yes ○ No

Any other medication

When was the mother discharged from hospital

Visited at home by a community midwife ○ Yes ○ No

if yes, number of visits

Number by named midwife

Day of discharge from community care

If not visited, reason

Bereavement support ○ Yes ○ No

By whom

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

F3 Investigations

Antenatal investigations ○ Yes ○ No

If yes, which ones

If no, reason

Maternal postnatal investigations ○ Yes ○ No

If yes, which ones

If no, reason

Examination of the baby ○ Yes ○ No

Birth weight g Birth weight centile

Examination of the placenta ○ Yes ○ No

Placenta sent to histology ○ Yes ○ No

Post-mortem discussed ○ Yes ○ No

Post-mortem accepted ○ Yes ○ No

Postnatal consultant follow-up ○ Yes ○ No

Plan of care for next pregnancy ○ Yes ○ No

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

F3 Postnatal care - baby

Parental involvement ○ Yes ○ No

Religious / cultural rites ○ Yes ○ No

Mementos / photos ○ Yes ○ No

Cremation / burial discussed ○ Yes ○ No

Relevant professionals informed ○ Yes ○ No

Care appropriate ☐ Yes ☐ No ☐ N/A
Comments

F4 General comments (including whether consistent national and/or local guidelines were used)

Section G - Summary

Grade A - appropriate care; B - minor suboptimal care; C - significant suboptimal care; D - major suboptimal care

	Grade A-D
1. Standard of record keeping Comments.....	
2. Communication (between healthcare professionals, or with mother) Comments.....	
3. Organisation/staffing/resources Comments.....	
4. Social care Comments.....	
5. Mother's contribution to care Comments.....	

6. Policies/protocols

Comments.....

.....

7. Examples of good practice

Comments.....

.....

.....

.....

.....

8. Examples of poor practice

Comments.....

.....

.....

.....

.....

9. Overall Grade	**Level of suboptimal/substandard care**	✓
Grade 0	No suboptimal care	
Grade 1	Suboptimal care - different management would have made no difference in outcome	
Grade 2	Suboptimal care - different care MIGHT have made a difference (possibly avoid death)	
Grade 3	Suboptimal care - different care WOULD REASONABLY BE EXPECTED to have made a difference (probably avoid death)	

10. Summary panel comment