



# each baby COUNTS.

2018 progress report



November 2018

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# Abbreviations

BMI	body mass index
CNST	Clinical Negligence Scheme for Trusts
CTG	cardiotocography
DAS	Difficult Airway Society
FSE	fetal scalp electrode
HSIB	Healthcare Safety Investigation Branch
IT	information technology
LMS	Local Maternity System
LSCS	lower segment caesarean section
MDT	multidisciplinary team
NICE	National Institute for Health and Care Excellence
NMPA	National Maternity and Perinatal Audit
NPSA	National Patient Safety Agency
OAA	Obstetric Anaesthetists' Association
PMRT	Perinatal Mortality Review Tool
RCM	Royal College of Midwives
RCoA	Royal College of Anaesthetists
RCOG	Royal College of Obstetricians and Gynaecologists
STP	Sustainability and Transformation Partnership
VBAC	vaginal birth after a previous caesarean section
WHO	World Health Organization

# Acknowledgements

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- Louise Robertson; Co-Investigator

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# Foreword

Welcome to the second Each Baby Counts annual report into stillbirth, early neonatal death and severe brain injury occurring during labour at term. Based on data for babies born in the UK in 2016, this report shines a spotlight on the care provided to women and their babies and provides an opportunity to measure progress and identify areas for improvement in maternity safety. The work of Each Baby Counts, and of everyone who contributes to it, plays an important role in driving forward the national maternity ambition to reduce by half the rate of stillbirths, maternal and neonatal deaths and brain injuries that occur during or soon after birth by 2025. The programme also recognises the impact that each of these tragic events has on parents and families. Our aim is to ensure that maternity services learn from mistakes to reduce and prevent avoidable harm wherever possible.

As in previous years, this report presents an overview of the learning gained from all babies reported to Each Baby Counts, as well as taking a more detailed look at key contributory factors where improvement is needed. Sadly, once again this year's report finds that different care might have made a difference to the outcome for almost three-quarters of these babies. This shows that much work is still needed to ensure maternity healthcare professionals are supported to implement recommendations not only from Each Baby Counts but also from other national reports and programmes, including MBRRACE-UK, NHS Resolution's Early Notification scheme and the forthcoming Healthcare Safety Investigation Branch (HSIB) maternity reports.

Importantly, this report also confirms that the reasons for these outcomes are complex and multifactorial. For the babies reported to Each Baby Counts, the reviewers concluded that there was rarely one single cause of the stillbirth, early neonatal death or brain injury. Rather, on average there were 7 critical contributory factors leading to the poor outcome. This complexity and interdependency highlights the need for continued investment to improve care for women and babies across the UK, using methods that recognise the context in which these events occur.

The work of Each Baby Counts and the quality of the recommendations are inherently linked to the quality of the local investigations on which we base our analysis. Compared with 2015, there was a 14 percentage point increase in the overall quality of local investigations, with a total of 89% of completed reports in 2016 being assessed as containing sufficient information. This is a significant improvement, and the efforts of the midwives and obstetricians who produce these reports must be commended. However, much more must be done to ensure that these investigations are of the highest possible quality to ensure that the recommendations for future improvements to care are evidence-based and reflect the true picture of care across the whole of the UK.



It is also heartening to note an increase in the number of parents who were invited to take part in reviews – a key Each Baby Counts recommendation – with an increase to 41% in 2016 from 34% in 2015. However, there is still a lot more to be done since parents were not involved, or even made aware of reviews taking place, in nearly one-quarter of cases.

The three areas we have chosen for a ‘deep dive’ in this report are anaesthetic care, adherence to guidelines and barriers to reporting. This follows the previous annual report’s focus on fetal monitoring, human factors and neonatal care. Our aim is to gain a deeper understanding of key contributory factors in order to develop recommendations that will improve care.

The anaesthesia chapter highlights a core theme of the Each Baby Counts programme – a commitment to supporting multidisciplinary working and collaboration. Our analysis demonstrates the importance of anaesthetic care for maternity safety and calls for greater teamworking across midwifery, obstetrics and anaesthesia. It also highlights opportunities for shared learning across the wider maternity team. We are calling for investment in the development of a communication tool to allow for informed choice of method of anaesthesia and to facilitate communication between teams during urgent situations.

The guidelines and local best practice chapter provides an honest account of the everyday challenges that our maternity teams are facing on the front line, day in, day out. Our analysis presents urgent areas for improvement based on some hard facts, highlighting the impact of issues affecting workload, time and capacity. All leaders within maternity services must place a high priority on empowering and supporting our workforce, and on promoting a culture of teamworking, mutual respect, learning and reflection.

The final thematic analysis focuses on ongoing work by the Each Baby Counts team to drive up the quality of local reviews and remove barriers to reporting. We have learned a significant amount since the programme began in 2014 and are now offering support to units to re-review and re-submit reports where needed. I believe this support has been pivotal in helping to improve the data we receive, and I would like to thank the Each Baby Counts team – and the maternity units with whom they engage – for the time they have dedicated to this work. The introduction of the independent reviews carried out by the HSIB across England will further contribute to the improvement of reviews within maternity services, providing guidance and support to NHS organisations on the conduct of safety investigations.

There is plenty of rich context provided throughout this report, with our thematic chapters providing important insight and meaning behind the overall figures and the quotes that offer snippets of reflection and learning in action. I urge all those working in maternity services – frontline healthcare professionals, managers and clinical leaders – to review the detail behind the recommendations to allow them to take action. I remain optimistic that the will is there to take note, learn and act. The RCOG will continue to highlight the importance of maternity safety in the training and education that we provide, as well as advocating for high-quality care for women and their babies. We will also continue to work in partnership with the Royal College of Midwives (RCM) and the Royal College of Paediatrics and Child Health (RCPCH), as well as charities and, of course, the women and families for whom we provide

care. We remain absolutely committed to ensuring that our maternity services are the safest in the world.

I am also struck by the significant investment that has gone into addressing stillbirth in the UK, and the firm commitment from a range of sectors to improve the care of women and their babies. It is crucial that we sustain the momentum and progress to date, and bring together all of the available learning to ensure that we really make a difference to maternity care in the UK.

I therefore believe that now is the time to establish a national centre dedicated to improving maternity care – a space for sustained improvement at scale, through the collaborative input of women and families, frontline maternity teams, academics and policy makers, with the aim of making the UK the safest place in the world to have a baby. Only by bringing together the shared expertise and experience of all these groups will we achieve this goal.

I would like to finish by thanking everyone who has contributed to this report, in particular the core Each Baby Counts team and the maternity professionals across the country who are supporting the RCOG in our shared determination to improve the quality of maternity care.



Professor Lesley Regan  
President, Royal College of Obstetricians and  
Gynaecologists



# Parent foreword

I feel the pain and sadness of the loss of my son, Harry, every day. The impact on my and my family's lives has been huge – we all miss Harry terribly and live with the haunting question of 'what if?'. Some families have been unable to have more children and now live with the most terrible void and the indescribable pain of what should have been.

Since its launch 4 years ago, the RCOG Each Baby Counts project has gained incredibly valuable insight and information – information we did not previously have. We now know the numbers of babies that tragically sustain brain injury or die during or following term labour. Each Baby Counts has also confirmed what many parents, like me, already suspected – that the majority of these injuries and deaths are potentially avoidable.

This ground-breaking project is now allowing us to understand the reasons why these tragedies occur and this report gives further recommendations for action. The Each Baby Counts website also has practical help in the form of the Implementation mini-site.

Nothing will change my situation or that of the families who have suffered loss like me; however, we now have the knowledge and power to ensure others do not suffer.

I urge you to read this report, share with others and implement the recommendations. You will save lives.

Nicky Lyon, mum of Harry



Nicky and Harry (12 days old)

Harry sustained profound brain damage during term labour. He was resuscitated but was left with little tone, seizures and could not feed. He died of a chest infection in November 2009, aged 18 months.

Nicky Lyon and Michelle Hemmington are the parent representatives on the Each Baby Counts Advisory Group. They are also the co-founders of the Campaign for Safer Births ([www.campaignforsaferbirths.co.uk](http://www.campaignforsaferbirths.co.uk)).



# Executive summary

## Introduction

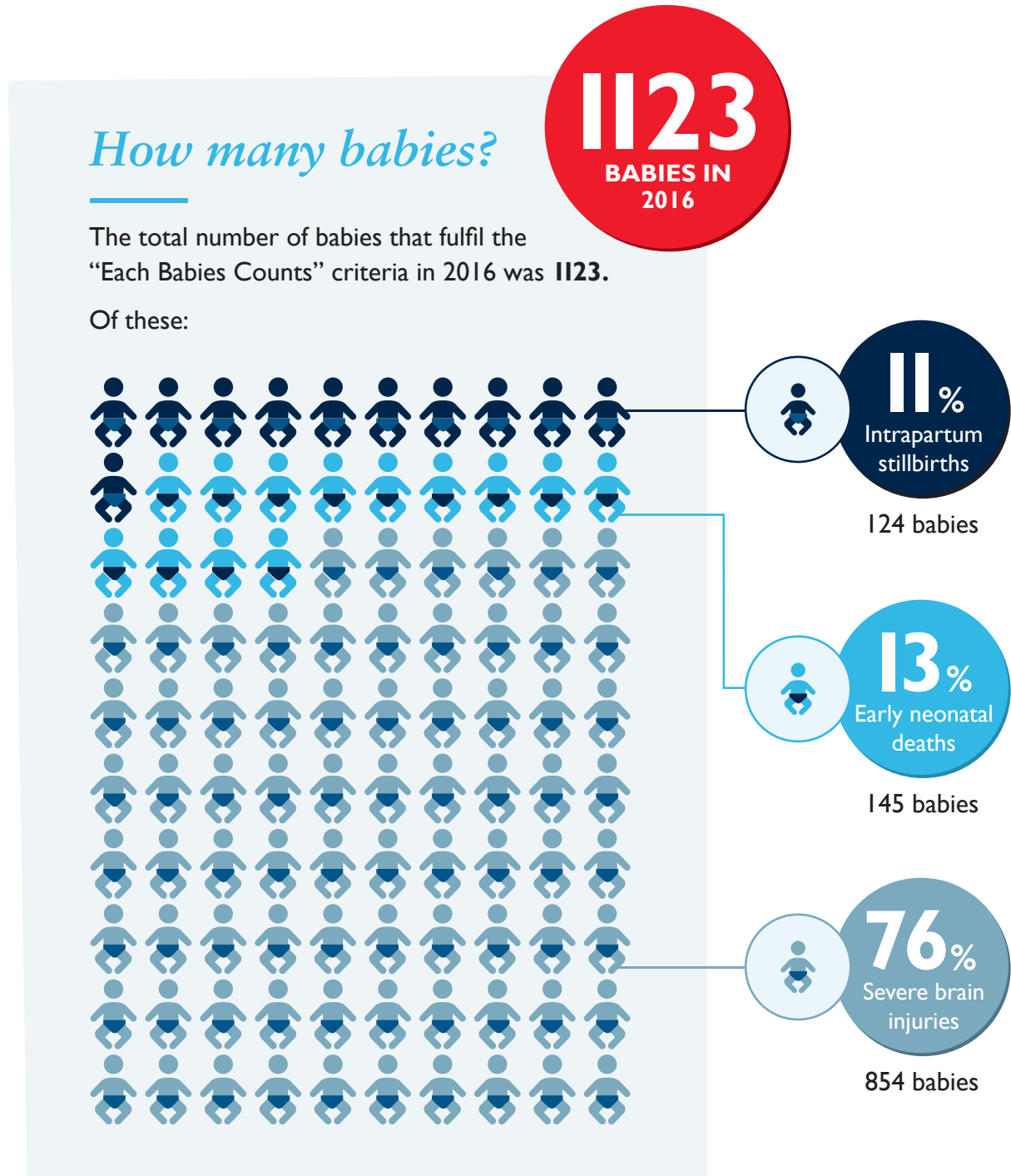
Each Baby Counts is a national quality improvement programme led by the Royal College of Obstetricians and Gynaecologists (RCOG) to reduce the number of babies who die or are left severely disabled as a result of incidents occurring during term labour. In individual maternity units, these events are rare and it is therefore difficult to see clear patterns or identify how best to avoid them. The Each Baby Counts programme brings together the results of local investigations into stillbirths, neonatal deaths and brain injuries occurring during term labour to understand the bigger picture, share the lessons learned and prevent babies from dying or sustaining brain injuries in the future.

This report presents key findings and recommendations based on the analysis of data relating to the care given to mothers and babies throughout the UK, to ensure each baby receives the safest possible care during labour.

## Key findings

### Clinical findings

Of nearly 700 000 term babies born in the UK in 2016:

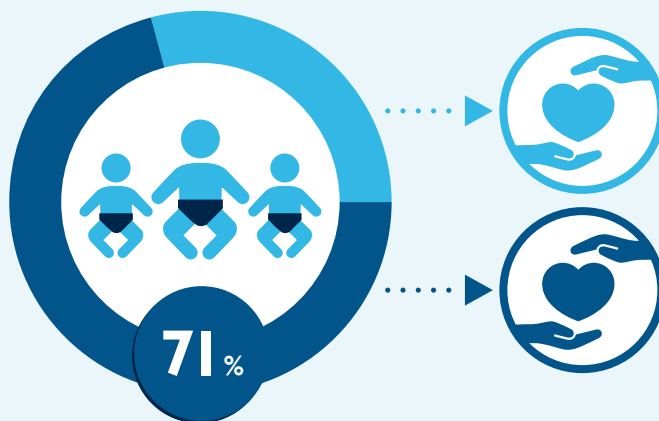


Note: These categories are mutually exclusive. Babies with a severe brain injury who died within the first 7 days of life are classified as early neonatal deaths.

In total, 1123 babies born in 2016 who met the eligibility criteria for Each Baby Counts were reported. There were 124 intrapartum stillbirths, and a further 145 babies were born alive following labour but died within the first 7 days after birth. There were 854 babies who met the Each Baby Counts eligibility criteria for severe brain injury.

The Each Baby Counts definition of severe brain injury is based on information available within the first 7 days after birth and it is not known how many of these babies will have a significant long-term disability as a result of the injuries sustained during birth.

Of the 955 babies where the review provided sufficient information to draw conclusions about the quality of care, the Each Baby Counts reviewers concluded that 674 babies (71%) might have had a different outcome with different care. The main themes identified where improvements could have been made were failure by health professionals to identify or act upon relevant risk factors, issues related to monitoring of fetal wellbeing with CTG and blood sampling, and education or training issues.



### *Care impacts outcomes*

**71%** of babies might have had a **different outcome** with different care.

Where Each Baby Counts reviewers considered that different care might have made a difference to the outcome, an average of 7 critical contributory factors were identified for each baby. This highlights the complex interaction between interrelated clinical and non-clinical factors as the main reason for these serious adverse outcomes.



This report has looked thematically at two different clinical areas: adherence to guidelines and anaesthetic care.

### *Guidelines*

In the analysis of reports from Each Baby Counts babies born during 2016 where at least one reviewer felt that different care might have made a difference to the outcome, guidelines and locally agreed best practice were not followed in 45% (304) of the reports reviewed. Reasons for not following guidelines included lack of recognition of problems, communication issues, heavy workload, staffing levels, local guidelines not being based on best available evidence and gaps in training.



In order to improve the care provided to women and their babies, it is vital that reviews go beyond simply identifying that a guideline was not followed. The reviews must also look at why this occurred.

The analysis identified a need to include discussions with staff about their thought processes and decision making surrounding these events. To identify improvements, holistic reviews of the service as a whole are required. Such reviews should focus on organisational structure, unit culture and training, the way individuals communicate together and as wider teams, also on the environment in which care is expected to be delivered. Lessons on improving care and adherence to guidelines will not be achieved without identifying and addressing these distinct causes.

### *Anaesthetic care*

Analysis of the anaesthetic care provided to the mothers of 49 babies reported to Each Baby Counts from 2015 and 2017 where anaesthetic care was identified as an issue showed that most of the anaesthetic problems noted during the review process contributed to, but were not solely responsible for, delays in birth. The findings echoed many of the lessons on situational awareness and the need for a 'helicopter view' identified in the *Each Baby Counts 2015 Full Report*.<sup>1</sup>

The results showed that there is a clear need to optimise communication about the urgency of birth to allow for informed choice of method of anaesthesia. Key themes for improvement also included the care of women with partially effective regional anaesthesia or airway problems.

One of the key recommendations identified is a need for the development of a structured communication tool to include the three-fold elements of the plan for birth: mode of birth, location of birth and category of urgency. The Each Baby Counts project team is now working with the Obstetric Anaesthetists' Association (OAA) and Royal College of Anaesthetists (RCoA) on the development of this tool.

## **Findings related to reviews**

### *Barriers to reporting to Each Baby Counts*

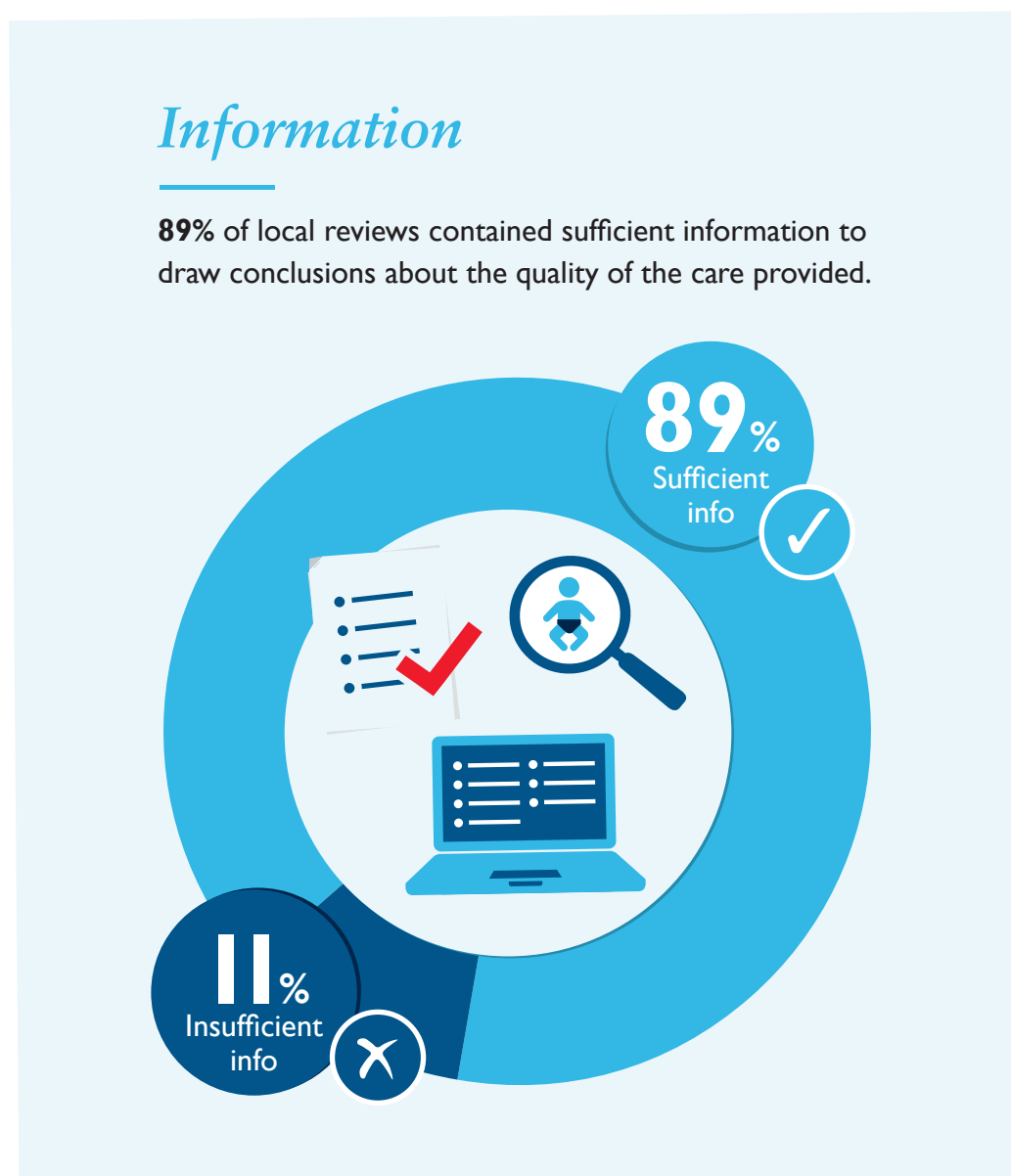
Following findings from babies born in 2015 which showed a significant variation in the quality of local investigations,<sup>1</sup> the Each Baby Counts project team initiated a formal feedback process for units when a review was deemed to contain insufficient information, along with the reasons why. Units were then encouraged to address the feedback and re-submit the information.

The implementation of this policy led to the re-review of 104 investigation reports, and 82 (79%) were subsequently assessed as containing sufficient information taking into account the additional detail that had been provided. This led to a 42% reduction in the total number of reports with insufficient information.

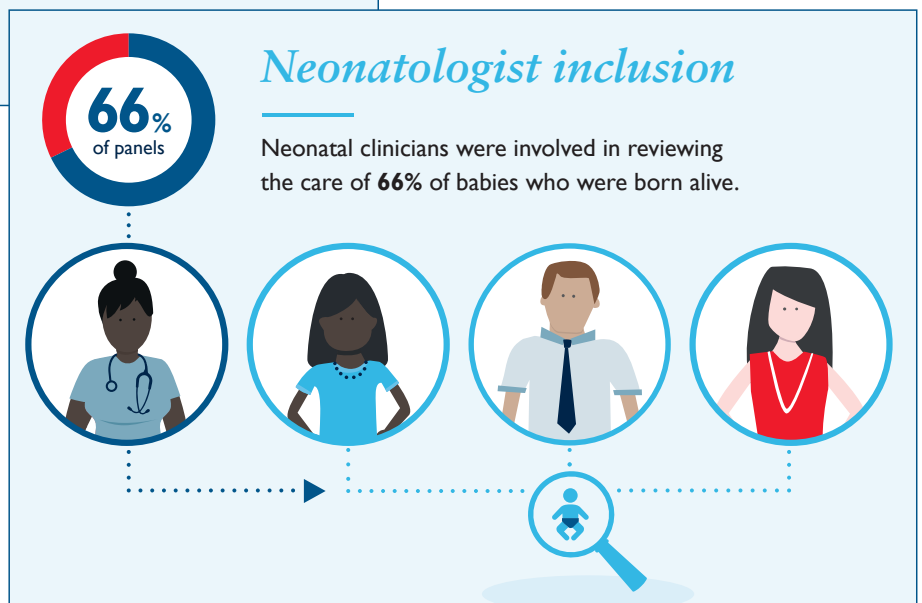
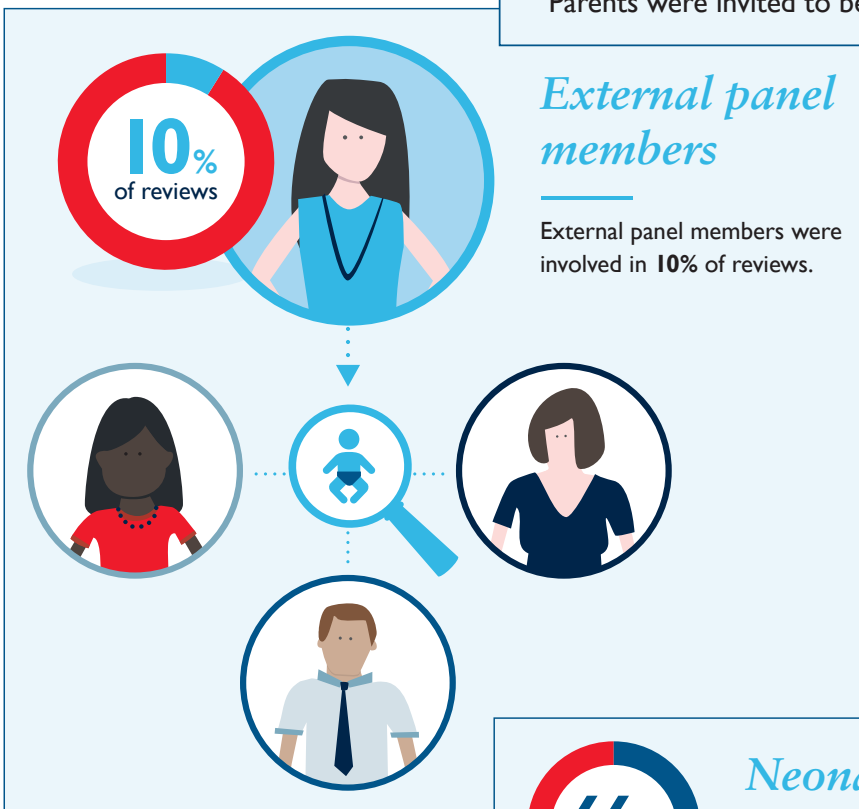
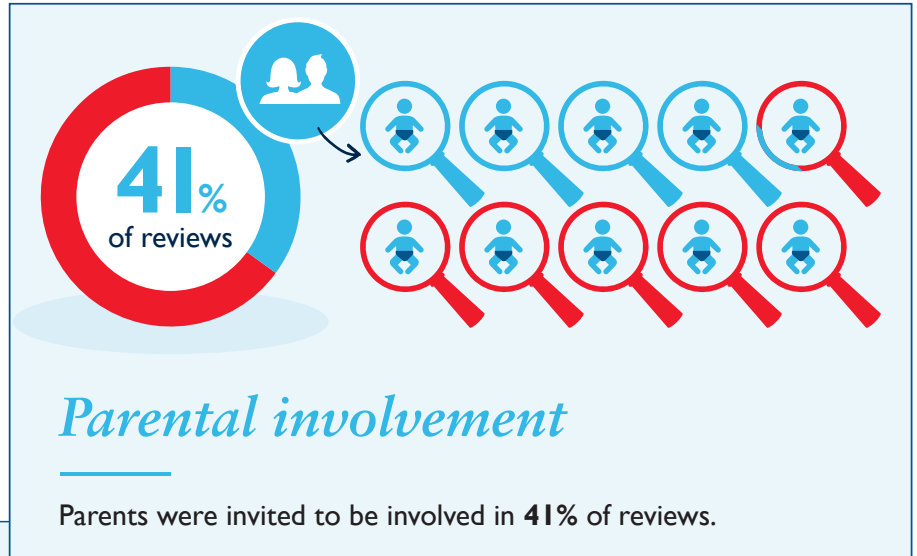
In liaising more directly with units, barriers to reporting to Each Baby Counts were identified in a number of areas, including high staff turnover and insufficient handover, lack of resources available to complete reviews, lack of availability of colleagues' input from other specialties, as well as attitudes to conducting reviews.

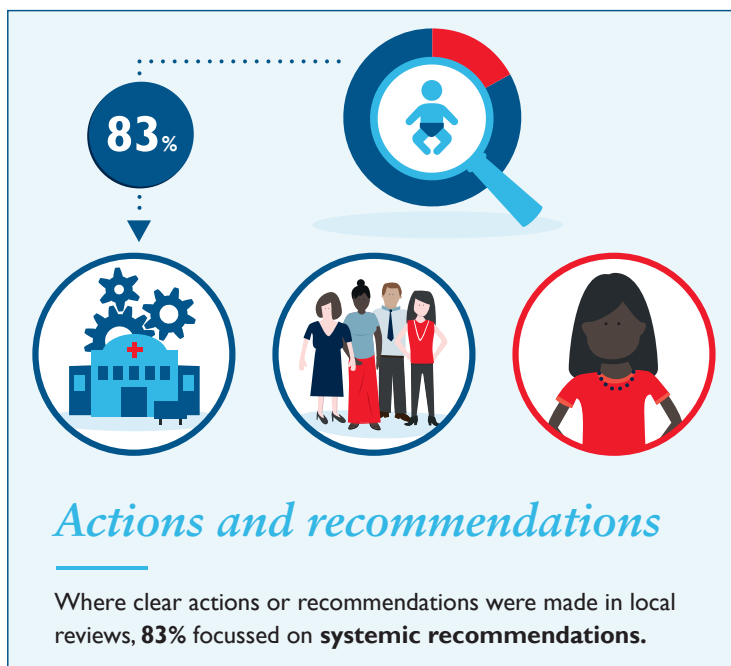
### *Quality of reporting*

Results from the analysis of Each Baby Counts babies born in 2016 showed that 11% of the local reviews did not contain sufficient information to draw conclusions about the quality of care provided, which is a reduction compared with the 2015 results.



In addition to this, the reports were assessed against other important markers of quality and the key results are shown on pages 7 and 8.









## Key recommendations for clinical care

The recommendations below have been identified through detailed thematic analysis of the reviews submitted to Each Baby Counts. They address critical factors in the care of many of the Each Baby Counts babies that may have prevented their death or brain injury. This report focuses on guidelines and anaesthetic care.

### Guidelines


<p><b>Workload</b></p> <p>The labour ward coordinator must remain supernumerary at all times and should not be caring for women during the antenatal, intrapartum or postnatal period.</p>	
<p><b>Escalating high activity</b></p> <p>There must be a clear escalation policy in place and a culture that empowers staff to escalate when the workload is becoming difficult to manage. All members of staff, irrespective of their role or grade, should feel empowered to inform senior midwives, managers and consultants when concerns arise both within their own specialty but also on behalf of another specialty. The consultant obstetrician should always be informed when labour ward activity is high.</p>	

<p><b>Cross-site communication</b></p> <p>Women receiving care from multiple units must have an individualised management plan for antenatal, labour and postnatal care that outlines the roles and responsibilities of each site to avoid any confusion. All sites should be able to readily access a woman's notes whether they be hand-held or electronic.</p>	
<p><b>Local guidelines</b></p> <p>There must be a clear policy to ensure that local guidelines are updated in line with national guidance. Appropriate resources and staff time must be allocated to facilitate this. Where units decide to deviate from national guidance, this should be clearly documented and units should undertake regular review of local deviations from national guidance. All guidelines should be reviewed in light of incidents to ensure that they improve care as intended.</p>	
<p><b>Migration of boundaries</b></p> <p>Teams should protect against migration of boundaries by ensuring that real practice reflects practice as described in guidelines. Audit identifies where migrations from safe practice are occurring, but it is only through a process of quality improvement or changing unworkable guidelines that these migrations can be corrected.</p>	
<p><b>Anaesthetic care</b></p>	
<p>A decision about the purpose of transfer to theatre and urgency of any birth should be made together with the anaesthetist before transfer to theatre. The degree of urgency should be reviewed on entering theatre before the WHO check, and the obstetrician should confirm the degree of urgency directly to the anaesthetist.</p>	





## Recommendations for future reviews

This full analysis of the 2016 data underlines the recommendations for reviews highlighted previously.<sup>1</sup> Improving the quality of local reviews will improve the lessons learned and, ultimately, improve care.

### Barriers to reporting to Each Baby Counts

<p><b>Neonatal input</b></p> <p>Assess your local processes for involving neonatal team members in the review of Each Baby Counts babies to see whether this needs to be improved to ensure a collaborative multidisciplinary approach. This could include identifying an Each Baby Counts neonatal lead for each unit.</p>	
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### Local reviews

<p>All trusts and health boards should inform the parents of any local review taking place and invite them to contribute in accordance with their wishes.</p>	
<p>All Each Baby Counts eligible babies who are stillborn or who die within the first 7 days of life should be reviewed using the Perinatal Mortality Review Tool (PMRT).</p>	
<p>There is an urgent need for a PMRT-style tool that includes morbidity to be commissioned by the UK healthcare system.</p>	
<p>All reviews should involve an obstetric anaesthetist and should include review of the detailed anaesthetic record.</p>	

# Methodology for the Each Baby Counts programme

Each Baby Counts is a UK-wide quality improvement programme led by the RCOG. Its ambition is to reduce the number of babies who die or are left severely disabled as a result of incidents occurring during term labour.

The Each Baby Counts project team, based at the RCOG, has compiled this report. The programme relies on 402 local Lead Reporters, who have responsibility for completing an online registration form for all eligible babies born in their unit, and 77 multidisciplinary reviewers, who complete an independent review of the local investigation reports submitted by Lead Reporters. A full list of Each Baby Counts reviewers and our methodology, including details of thematic analysis methods, is available in previous reports and on the RCOG website: [www.rcog.org.uk/eachbabycounts](http://www.rcog.org.uk/eachbabycounts).

## Report structure

This report comprises four main sections:

- Thematic analysis 1. Guidelines, protocols and standard operating procedures: challenges in implementation
- Thematic analysis 2. Themed chapter on anaesthetic care, including lessons identified from Each Baby Counts babies born 2015 to 2017
- Thematic analysis 3. Barriers to reporting to Each Baby Counts
- Overall findings for 2016 – a quantitative summary of the number of eligible babies, the quality of local reviews and the proportion of babies for whom Each Baby Counts reviewers felt that different care might have made a difference to the clinical outcome.

## Working with trusts/boards to improve reporting

During the preparation of the *Each Baby Counts 2015 Full Report*,<sup>1</sup> the Each Baby Counts project team identified that information relating to potentially eligible babies had not always been checked locally by Lead Reporters (282 babies) and that local Lead Reporters had begun reporting but not completed the required information about a baby (113 babies). In 25% of instances in 2015 there was insufficient information included to assess the care provided. To ensure that the Each Baby Counts data are as accurate as possible, and to ensure that all babies have the thorough review they deserve so that it is possible to learn lessons to improve, the project team implemented a process of working directly with trusts and boards that had information outstanding to try to improve the completeness of reporting. The team contacted each trust and board where a report had been assessed as containing insufficient information to ask for further information to be submitted. The results of this process are outlined in the chapter 'Barriers to reporting to Each Baby Counts' on page 43.

# Guidelines, protocols and standard operating procedures: challenges in implementation

## Introduction

This chapter focuses on reviews in which the Each Baby Counts reviewers identified that there was a need to improve the way in which guidelines and/or locally agreed best practice were followed. While the chapter looks at each of the key themes in turn, it should be noted that in the majority of reviews it is the combination of these themes and their interaction that lead to a baby being eligible for Each Baby Counts reporting. For the group of babies identified within the 'guidelines' theme (54 babies), there were an average of 6 critical contributory factors.

The main guideline applicable to intrapartum care is the National Institute for Health and Care Excellence (NICE) *Intrapartum Care* clinical guideline CG190.<sup>2</sup>

This chapter aims to understand the reasons why this and other best practice was not followed, and to inform clinicians, managers and policy makers of the issues and to present some of the systematic changes that they can put in place to improve this and to address the causes.

## Methods

### *Case identification and analysis*

From babies born in 2016, the Each Baby Counts reviewers identified 304 babies in whom problems with following 'guidelines/locally agreed best practice' was a critical contributory factor. A decision was made to thematically analyse the reviews submitted to explore the reasons why there are problems with following guidelines. To avoid duplication with the Each Baby Counts 2015 report, reviews that highlighted fetal monitoring (continuous cardiotocography (CTG) or intermittent auscultation) as a contributory factor were excluded. This produced a sample of 54 babies of whom 44 are included in this thematic to explore the reasons why guidelines were not followed. All 44 reports in the sample were included in the analysis and data saturation was achieved after 32 reports.<sup>1,3</sup> A sample of 25% (11 reviews) of the 44 reviews in the sample was then independently cross-checked by an additional reviewer, with the coding framework subsequently reviewed and revised collaboratively. Verbatim quotes from local reviews are used throughout this report along



with extracts from national guidance and the literature to support the recommendations that are intended to address the contributory factors identified.

## *Presentation of findings and learning*

Each theme has several elements, and each element is accompanied by three summary statements, namely:

- key learning points
- recommendations
- things you can do.

As this is a chapter that focuses on why guidelines are not followed, there is a key role for auditing adherence to guidelines as part of any improvement. It should be emphasised that, while audit reveals whether guidelines are being followed, it is only by understanding the reasons why they are not being followed and then using quality improvement methods to support implementation of guidance that outcomes or processes will be improved.

## **Thematic analysis**

### *Theme 1.1 – Capacity*

Workload capacity was identified as being a significant contributory factor to difficulties in staff being able to follow guidelines.

#### **Element 1 – Workload**

Caring for more than one woman at a time was a significant contributor to the delays in recognising that further action was required and, as a result, to guidelines not being followed. When a clinician is caring for multiple women, it becomes more difficult to recognise any issues because the clinician is unable to focus their care on one individual. Clear national guidance exists to support one-to-one midwifery care in labour.<sup>2</sup> The NICE *Intrapartum Care* quality standard QSI05 specifies how to calculate the proportion of women who receive this standard of care.<sup>4</sup> In 2017, nationally it was 54% in low-risk women, according to the National Maternity and Perinatal Audit (NMPA) report.<sup>5</sup>

Examples of this included instances where the labour ward coordinator was unable to remain supernumerary and, as a result of trying to care for a woman alongside their coordinating role, became involved in other events that compromised the care of their allocated woman and of others on labour ward.

“The midwife who was looking after the patient was coordinating [the labour ward] and helping another emergency delivery. As the patient was uncomfortable and in pain, it is likely that [she] was establishing in labour and as per guidance should have been put back on CTG. As the midwife was helping another delivery, it is likely that the clinical picture of establishing in labour was not identified and hence delay in putting patient back on CTG.”

### *Key learning points*

Labour ward coordinators looking after women in labour compromises their ability to maintain situational awareness and to deliver high-quality care. The NICE intrapartum care guidance was not followed because of staffing issues.

### **Recommendation**

The labour ward coordinator must remain supernumerary at all times and should not be caring for women during the antenatal, intrapartum or postnatal period.

### *Things you can do*

Review the frequency with which the labour ward coordinator in your unit is asked to look after women in labour alongside their coordinating role. Consider whether a senior colleague, such as a midwifery manager, could assume one of these roles temporarily. In England, share these findings with your maternity safety champion and agree an action plan if necessary to address ongoing staffing issues, drawing on the requirements outlined in the Clinical Negligence Scheme for Trusts (CNST) incentive scheme.<sup>6</sup>

### **Element 2 – Supervising students**

Clear guidelines exist for the supervision of students.<sup>7</sup> Examples were seen where students were directly involved in caring for women without appropriate supervision because their supervising midwives had additional women to care for.

“Midwife A informed student Midwife Z that if Mrs X had not been transferred to [the] labour ward during the morning, a CTG should be performed before lunch as per induction of labour protocol...

Midwife A was engaged in caring for a number of ladies with complex nursing needs... Midwife B (labour ward coordinator) had been unable to facilitate Mrs X's transfer... due to the complexities of the women in labour and the high level of activity being experienced on [the] labour ward on that day.

At 16:15 Midwife A realised that Mrs X's CTG had not yet been performed therefore she requested student Midwife Z to perform it straight away. Student Midwife Z was unable to obtain a CTG trace therefore she sought assistance from the nearest registered midwife (not Midwife A). No fetal heartbeat was detected.”

### *Key learning points*

Students should not be expected to step into a trained midwifery role and be able to accept the same level of responsibility. The intrapartum care guideline was not followed because untrained staff were used as a substitute for trained midwives.

## Recommendation

Student midwives need appropriate support and supervision from a registered midwife at all times. If the workload is too high, student midwives should be moved to an area where they can practise in a supported environment.

### *Things you can do*

Ensure that student midwives are being trained in areas where they can be appropriately supported and recognised as supernumerary.

## Element 3 – Escalating high activity

There continued to be examples of situations as previously identified<sup>1</sup> where despite extremely high activity in the maternity unit the local escalation policy was not instigated and the consultant who was on call from home was not informed of the high activity levels or asked to attend. This led to further instances where workload capacity impaired the ability of staff to follow clinical guidelines, impacting on the care they provided.

“The senior midwife coordinating [the] delivery unit was aware of Patient X’s transfer, but there were several other urgent cases requiring medical input on the unit. The registrar left Patient X’s room to answer a bleep to attend a bradycardia... Patient X’s case was discussed with another registrar (who was delivering another woman) who advised to continue with the current management. The consultant obstetrician was not informed of Patient X’s admission to the unit. If the consultant obstetrician had been aware of Patient X’s case, earlier delivery may have been expedited... Despite intensive resuscitation efforts and ongoing care on the neonatal intensive care unit, Baby A died 5 days after birth.”

### *Key learning points*

Women and their babies are at potentially higher risk of adverse incidents and outcomes when concerns over staffing levels are not acknowledged or escalated.

## Recommendation

There must be a clear escalation policy in place and a culture that empowers staff to escalate when the workload is becoming difficult to manage. All members of staff, irrespective of their role or grade, should feel empowered to inform senior midwives, managers and consultants when concerns arise both within their own speciality but also on behalf of another speciality. The consultant obstetrician should always be informed when labour ward activity is high.

### *Things you can do*

Changing unit culture is a complex process that cannot be achieved overnight but the use of audit and data to demonstrate where improvements need to be targeted can be powerful.

Awareness that higher risks to patients occur when concerns over staffing levels are not escalated may prompt engagement as to how units can embed local escalation policies. Where escalation policies or safety huddle processes are not in place, these should be implemented as a matter of urgency.

### **Element 4 – What to do when waiting for an urgent review**

Situations were noted where the whole obstetric team were unavailable as they were in theatre. On one occasion, a woman's care had been appropriately escalated to the obstetric team but they were unable to attend to care for her as they were all in theatre. In this instance, rather than midwives and junior clinicians feeling empowered to continue the woman's management within their remit or escalating to the wider senior obstetric team, the woman was instead escalated to the on-call doctors and then left without review until this could occur, which meant opportunities for correction of reversible causes were missed.

“The admission CTG shows reduced variability, with repetitive shallow decelerations after approximately 30 minutes and no accelerations in the absence of contractions, therefore it is pathological at 19:53. Escalation to a senior obstetrician and [the] midwife in charge of [the] labour ward should have occurred at this point. The obstetric team were in theatre therefore consideration should have been given to taking the CTG to theatre at this time... There are no apparent efforts to initiate conservative measures such as fluid resuscitation or to facilitate transfer to [the] labour ward. The panel are aware that the unit was very busy during this time. Additional staff had been called into the unit.”

#### *Key learning points*

Lack of initiative in obtaining a review and failure to consider what could be done while waiting, in normal working hours when options for escalation were present, led to a poor outcome.

#### **Recommendation**

Skills and drills training should include situations where the obstetricians are unavailable, with staff given support to empower midwives and junior clinicians to consider transferring the woman to the labour ward, taking the CTG to theatre, acquiring alternative obstetric support, implementing conservative measures and administering terbutaline as indicated while awaiting obstetric input.

#### *Things you can do*

If you need an urgent review of a clinical situation, draw on your local escalation policy and consider what steps you can take in the meantime based on skills and drills training.

## Element 5 – Lack of beds

Several reviews identified lack of bed availability on the labour ward preventing women from being transferred even as their clinical condition worsened as contributing to guidelines not being followed. This was particularly apparent for women undergoing induction of labour; there seemed to be false reassurance that, as they were in an antenatal bed, they were being adequately cared for and therefore less of a priority than those women newly presenting to the labour ward.

“There was a delay in transfer of Patient X from the induction of labour bay to the delivery unit by 5 days... Despite the subsequent presence of spontaneous rupture of membranes...which made transfer a clinical priority, there was a further 1 day delay in transfer. Following the development of maternal sepsis and fetal heart-rate abnormalities, there was a delay in transfer to the delivery unit which may have affected the opportunity for earlier senior review... Baby A died following birth; a placental swab and blood cultures from Baby A revealed *Staphylococcus aureus* infection.”

### Key learning points

In this instance, the guideline for induction of labour clearly stated that transfer to the labour ward should be expedited because of the rupture of membranes.

### Recommendation

When women are unable to be transferred to the labour ward, despite clinical need, an escalation meeting must be held involving the multidisciplinary team (MDT) to discuss current workload, priorities and solutions. This must consider the labour ward and antenatal ward activity. The result may lead to ‘divert’ policy activation. Networks of managed care such as the Local Maternity Systems (LMS) and Sustainability and Transformation Partnerships (STPs) should seek to facilitate such meetings.

### Things you can do

Ensure that women undergoing induction of labour in need of labour ward care are included in the labour ward handover, added to the labour ward board and discussed as part of the safety huddle. In the long term, work with your board-level safety champion (or equivalent) to address the lack of resources and the contributory factors identified.

## *Theme 1.2 – Communication issues*

Communication issues were cited as being a significant contributory factor in instances where difficulties in staff being able to follow guidelines were identified. This was observed both within and across MDTs, during telephone discussions with consultants and where care was being provided across multiple sites.

### **Element 1 – Cross-specialty communication**

As identified in the previous Each Baby Counts report,<sup>1</sup> there were further examples of poor communication between the maternity and neonatal teams that impaired their ability to be able to follow the relevant guidelines.

There were examples where a difficult birth was anticipated but the neonatal team were not asked to attend at an early stage. Other reports detailed a lack of a dedicated neonatal bleep, leading to delays in the arrival of the neonatal team at a difficult birth. Further examples of poor communication between maternity and neonatal teams regarding the urgency of the situation and of how to escalate to obtain more senior neonatal support when required were also seen.

“Paediatric staff attended when Baby F was 4 minutes old, the resuscitation of Baby F was commenced by the midwifery staff and chest compressions were in progress by this time. A baton bleep is being secured for neonatologists to facilitate a more robust process for contacting and ensuring prompt attendance of the paediatricians in an emergency.”

### *Key learning points*

If any member of clinical staff feels that the clinical situation needs a more senior team member, or that specialist help is required, they should escalate accordingly.

### **Recommendation**

All units should have a clear escalation policy including how to contact neonatal team members in an emergency with a rapid bleep system (or equivalent). The policy should be further reinforced through skills and drills MDT training to ensure that it is used appropriately in everyday clinical practice.

### *Things you can do*

Ensure familiarity with your local mechanism for summoning senior team members and specialist help; test the efficacy of this through MDT skills and drills training. Reflect on your communication style in an emergency and support other team members to develop their communication skills.

### **Element 2 – Team communication**

There were several examples where, during emergency situations, poor communication had a negative impact on team performance and subsequently guidelines were not followed.

This was compounded by the presence of staff unfamiliar with the local setting, by a lack of knowledge regarding local equipment and by a loss of awareness of time. There was evidence that, on some occasions, team members were aware of the poor communication but did not know how to resolve it; they felt that if they mentioned it they would make things worse or upset the parents.

“If there was the feeling that resuscitation was suboptimal, why did no one else speak up, or indeed, take action? This question was reflected on by two of the midwives, Midwife A and Midwife B. Both felt that, in retrospect, it would have been better to speak up. At the time, Midwife A felt distanced from the resuscitation because she was concentrating on Mrs X. Midwife B felt that she was junior to the other team members and that it was not her place to voice concerns. And, in fact, Dr G reflected on this himself. He was able to see that communication was poor, but did not know how to fix it in a stressful situation. He also felt he wanted to shield the parents from the difficulties the team were having.”

### *Key learning points*

By talking about the challenges they were having in this scenario, the team could have identified their different mental models, developed a team perception of events and in doing so communicated more effectively to improve team performance overall.

### **Recommendation**

All team members should introduce themselves and state their role. If they are in an unfamiliar clinical environment, this should be made clear to the rest of the team. Where there is a perceived communication difficulty, all team members should be able to raise their concerns and encourage more open conversations about what the difficulties are in order to help find a resolution. The shielding of staff or parental feelings should not be a reason for poor communication to persist, particularly at the expense of patient safety.

### *Things you can do*

Use skills and drills training to develop effective communication strategies for high-risk situations and include every member of the team. Implement debrief sessions after high-risk events to examine how well events were handled, where things went well and where improvements might be made in the future. Consultants and senior midwives must role-model the communication they hope to see around them. Communicating worrying or difficult matters in front of parents is inevitable in some situations and should be practised in skills and drills training.

### **Element 3 – Cross-site communication**

Communication breakdowns were also observed where women were being cared for across multiple sites. This also occurred where women required expertise from a tertiary hospital

for the management of fetal or maternal conditions. Difficulties arose where clinicians were not able to access the notes of the woman they were reviewing because they were computerised or held at a different site, with the result that they were unaware of an important factor that would have prompted them to implement a guideline. Communication errors also occurred where there were no clear definitions of the roles and responsibilities of each site in the individualised management and organisation of a woman's antenatal, labour and postnatal care. This meant that important elements and details were missed and the need to follow a guideline was not recognised.

“[Patient X] booked for antenatal care at Hospital 1 with her first ongoing pregnancy [risk factors at booking were maternal age of 42]. She was seen regularly throughout pregnancy and at... [anomaly] scan the baby was diagnosed with [a non-lethal heart condition].

[Patient X] was referred to a paediatric cardiologist at Hospital 2 for shared care and a plan was made for delivery at Hospital 2... at 32 weeks [Patient X] attended Hospital 2... a fetal wellbeing scan was performed by the fetal medicine consultant which showed normal growth, liquor volume and Dopplers [no further scans took place].

[Patient X] was admitted to Hospital 2 for planned induction of labour at 40 weeks' gestation... Induction was commenced with Propess following a normal CTG... 6 hours later the CTG was re-commenced, very sadly there was no detectable heart rate heard, and intrauterine death was confirmed... baby girl F was stillborn weighing 2830 g, birthweight on the 8th centile.

Had [Patient X] been booked at Trust 2 initially, it seems likely that – according to Trust 2 guidelines – serial growth scans would have been planned in view of maternal age (including one at 36 weeks which may have prompted earlier induction). Sharing of care between her own trust [1] and Trust 2 may sometimes lead to confusion as to which trust should be providing which aspects of antenatal care.”

### *Key learning points*

Communication breakdowns occurred because care was spread over two sites, which led to important clinical factors being missed. If these factors had been recognised, a different guideline and plan of care would have been instigated.

### **Recommendation**

Women receiving care from multiple units must have an individualised management plan for antenatal, labour and postnatal care that outlines the roles and responsibilities of each site to avoid any confusion. All sites should be able to readily access a woman's notes whether they be hand-held or electronic.

### *Things you can do*

Ensure a robust process for women whose care spans two sites.



## Theme 1.3 – Lack of recognition

There were multiple cases where lack of recognition of the pathology resulted in the appropriate guideline not being implemented. This included several instances of focusing on only one element of the care at the expense of other key details.

### Element 1 – Confirmation bias

Multiple examples were seen both in the antenatal and intrapartum period where the focus of care became narrowed to one element of the women's clinical picture. As a result, other key details were missed that would have prompted management according to a different guideline. If clinicians do not recognise the factors that would alert them to the relevant guideline then ultimately the management will be affected.

In one example, the team became focused around the woman's high body mass index (BMI) and concerns regarding how difficult a caesarean section would be. This led to a focus on vaginal birth, with multiple issues surrounding the monitoring of the fetal heart, including repeated attempts at using a fetal scalp electrode (FSE) and ultrasound, being interpreted as obstacles that could be overcome to achieve vaginal birth rather than as prompts to change the course of their thinking. The focus on BMI led to decisions being made with the difficulty of a caesarean section being the overriding principle, rather than what was in the woman's best interest given the balanced clinical picture.

### Key learning points

This illustrates how cognitive dissonance can play a powerful role in deciding between options in labour. Cognitive dissonance<sup>8</sup> describes our ability to believe two contradictory things at the same time. We are naturally averse to the idea we could have made a mistake, and, once we have settled on a course of action, this can result in interpreting any new evidence as confirmation of our position even when this is obviously not the case; this is also referred to as confirmation bias. In situations such as this, obtaining an opinion from a clinician not previously involved in the care is very important, as it will provide an objective assessment.

### Recommendation

Healthcare professionals should recognise that in the midst of a dynamic situation, new evidence is often not interpreted objectively. A holistic assessment of fetal and maternal wellbeing will help minimise confirmation bias and ensure the use of the correct guidance and management.

### Things you can do

Use your wider MDT or external objective third parties to develop a holistic plan of care for women with complex or multiple needs.

## Element 2 – Loss of awareness of the passage of time

Instances were seen where the potential for shoulder dystocia was recognised before the birth but rapid escalation did not subsequently occur. Owing to a fixation on the task in hand (the birth), awareness of the passage of time was lost and escalation was delayed. This was compounded by the absence of a visible clock in the birthing environment.

“At 03:30 the fetal head is just visible, and confirmed by Midwife A. Observations were undertaken every 5 minutes in accordance with guidelines during the second stage. By 03:59 the baby’s head had delivered up to the nose... the baby’s head delivered at 04:06. The baby’s body did not deliver for the remainder of this contraction and the woman was placed into McRoberts position by 04:08. The baby remained undelivered by 04:10 at which time suprapubic pressure was started. At 04:12 an obstetric emergency bleep was put out, and the neonatal team was also requested. The obstetric registrar arrived at 04:13 and noted suprapubic pressure was being performed. They then proceeded to deliver the posterior (right) arm, following which a live female baby delivered at 04:16.”

### Key learning points

‘Freezing’ in an emergency is a common response,<sup>9</sup> during which time the perceived passage of time becomes distorted.

### Recommendation

When engaged in a complex emergency, early help should be summoned as staff might not notice the passage of time when task-focused. It is essential to have a person who can take the role of the helicopter view in this situation. This needs to form part of regular scenario-based skills and drills training to embed learning.

### Things you can do

Ensure that all staff undertake regular skills and drills training. The use of a team debrief following such events can aid reflection and understanding of the human factors involved.

## Element 3 – Ask why

In a few instances, women disclosed an underlying issue directly to a healthcare professional but that person failed to appreciate and act on the significance of the issue, which meant that the appropriate guideline was not subsequently instigated.

“Patient X attended at 28<sup>+6</sup> weeks’ gestation for an antenatal review. An ultrasound scan was performed by Dr F, the liquor was normal... and the estimated fetal weight (EFW) was 1377 g, which plotted on the 50th centile. At this visit, Patient A disclosed that she had previously had a shoulder dystocia. This was documented in her chart... no delivery plan was made, there was no discussion regarding the previous obstetric history with the consultant obstetrician at the antenatal clinic and Patient X’s previous

obstetric notes were not requested... Patient X subsequently went into spontaneous labour at 40+4, shoulder dystocia occurred at delivery, Patient X was assisted into the McRoberts position, suprapubic pressure was applied and internal manoeuvres... facilitated the delivery of Baby A. Baby A required extensive resuscitation... was admitted to the neonatal intensive care unit (NICU) [for cooling] and required subsequent surgery to her right arm.”

In another example, a woman presented at 39 weeks in active labour following spontaneous rupture of membranes at 8 cm. She was aiming for a vaginal birth after a previous caesarean section (VBAC). Care was given on the labour ward and, following 4 hours of regular contractions, her cervix remained 8 cm dilated. A decision was made for an assessment in a further 2 hours by the registrar and, if this remained unchanged, she was to have a lower segment caesarean section (LSCS). At the local review, this was thought to have been too long and the decision could have been made after the first 4 hours of no progress, as per guideline.<sup>2</sup>

After 6 hours, she remained 8 cm and a decision for a category 3 LSCS was made. This should have been a category 2 LSCS in view of the circumstances. In keeping with the local guidance, the consultant was not informed of the woman's management plan. In theatre, there was a very difficult delivery of the fetal head, taking over 8 minutes. This required a T incision towards the bladder and a breech extraction. The consultant was not called during this event. Following birth, there was extensive bleeding and the woman proceeded to lose her total circulating volume, at which point senior support was requested; subsequently she had a cardiac arrest. Rapid escalation occurred at this stage and support from a multitude of surgical specialties including urology and vascular surgery was mobilised. She left theatre 6 hours after the procedure commenced, following hysterectomy and a 12 litre blood transfusion.

### *Key learning points*

A common theme among local reviews was a failure to ask 'why' errors occurred, with most simply stopping when the failure to follow a guideline had been identified. With regard to the examples above, the Each Baby Counts team is left wondering why the clinicians behaved in this way. Because the reviews either did not ask or did not report the answer to this question, not much can be learned from it.

### **Recommendation**

Where it is recognised that a guideline was not followed, a reason for 'why' this happened should be identified and documented. The use of debrief as a tool will aid these insights.

### *Things you can do*

When undertaking a review of a serious incident (SI), always reflect on the reasons why something has been done or not done. Documenting errors alone does not help to avoid their repetition.

### *Theme 1.4 – System and review culture*

There were a number of instances in reviews where guidelines/locally agreed best practice were not followed and where a system or review culture error was clearly identified as being a significant contributory factor. These included outdated or unclear guidelines, the review team not recognising that care was outside guidance, migration of boundaries, tolerance of rule breaking and inadequate equipment or processes.

#### **Element 1 – Local guidelines**

There were instances where the local guideline was incorrect or unclear and this had led staff to believe they were following the 'correct' course of action. However, this actually resulted in contributing to a baby eligible for Each Baby Counts reporting being born.

“During a ward round following delivery, the couple were told by Obstetric Consultant 1 that the [woman] should have been transferred to the labour ward at the time meconium was first seen. Guideline 078 on meconium-stained liquor at birth states that a ‘risk assessment should be carried out and if additional risk factors are present transfer arranged’ [whereas the NICE intrapartum care guideline explicitly recommends transfer if there is significant meconium]... The midwife felt that the patient did not have any risk factors at this time... in accordance with Guideline 078, the midwife did not transfer the patient to the [obstetric unit] ... An hour later, delivery had not occurred... a fetal bradycardia was heard... Patient was transferred to [the obstetric unit] and [the registrar performed a] forceps delivery... the baby required extensive resuscitation... hypothermic cooling... Sadly, a redirection of care was agreed with parents to a palliative pathway at 36 hours of age and the baby died.”

#### *Key learning points*

Some local guidance was ambiguous and this contributed to staff thinking that they were following the correct course of action when they were not.

#### **Recommendation**

There must be a clear policy to ensure that local guidelines are updated in line with national guidance. Appropriate resources and staff time must be allocated to facilitate this. Where units decide to deviate from national guidance, this should be clearly documented and units should undertake regular review of local deviations from national guidance. All guidelines should be reviewed in light of incidents to ensure that they improve care as intended.

*Things you can do*

Ensure that local guideline teams are properly resourced and that guideline changes are up to date and evidence based.

**Element 2 – Local reviews**

There were further instances where the review team did not recognise that care had not been in line with national guidance. It was not clear whether the local guidance was out of date or whether the review team had not recognised the issue. This was particularly prevalent around the management of reduced fetal movements and of shoulder dystocia, and in women requiring additional fetal growth monitoring.

Several babies did not have serial growth scans arranged, which was not mentioned during their reviews. In other reviews, it was noted that the unit had yet to fully implement the Saving Babies' Lives care bundle;<sup>10</sup> however, this had only just been released in 2016 when these events occurred.

*Key learning points*

Local reviews were not always up to date with national guidance.

**Recommendation**

Review teams should be multidisciplinary to ensure that the full breadth of up-to-date clinical guidelines from across specialties relevant to the care provided are considered.

*Things you can do*

Ensure that local review teams are properly resourced, with adequate time within job plans set aside for reviewing care and keeping up to date with national guidance.

**Element 3 – Migration of boundaries**

Over time, with repeated exposure to risk, clinicians become desensitised and begin to take risks. They move away from what they know to be safe practice into unsafe, and eventually dangerous, areas.<sup>11</sup> There were several instances where this was demonstrated.

“Mrs C called triage with a history of red vaginal loss and was invited in for assessment, she was subsequently discharged home following a midwifery review. In this case if the bleeding had been deemed to represent a ‘show’ it would have been reasonable to give telephone advice and not see the woman at the hospital. However, because the coordinator had asked the woman to come into hospital to be seen, there is an implication that she felt it may be more than a ‘show’. Then the antenatal guideline should have been followed where a speculum examination, swabs and review by an obstetrician should have taken place. The ultimate outcome may still have been that the cause was considered ‘benign’ and the woman discharged home. However, the obstetrician may have given consideration to induction of labour being brought forward. It was acknowledged by the panel that, had this been the case, it is unlikely this would have been done straight away, and the fetal death may still not have been prevented.”

### *Key learning points*

When faced with repetitive tasks (such as dealing with predominantly well women in obstetric triage), a false reassurance may develop for common presentations that are mostly benign, but occasionally dangerous, such as antepartum haemorrhage.

### **Recommendation**

Teams should protect against migration of boundaries by ensuring that real practice reflects practice as described in guidelines. Audit identifies where migrations from safe practice are occurring, but it is only through a process of quality improvement or changing unworkable guidelines that these migrations can be corrected.

### *Things you can do*

Consider and reflect upon your own personal biases and how they affect your practice. This could be part of a human factors course, or equally by reading a resource on decision making such as *Thinking, Fast and Slow* by Daniel Kahneman (2011).<sup>12</sup>

### **Element 4 – Tolerance of rule breaking**

Examples were seen where the review team identified that care was not in line with national guidance but justified that care was acceptable in the given circumstance. Rules are not always hard and fast and guidelines can be deviated from in certain circumstances; however, it is important that all staff included in review teams are aware of the development of these tolerances and ensure that they do not begin to shift into tolerating rule breaking that would not be considered reasonable practice. An area where staff need to be aware of this occurring is in the assessment of the use of multiple instruments at difficult obstetric births.

“The baby suffered a sudden acute hypoxic event around the time of delivery which has led to her suffering a degree of hypoxic ischaemic injury. The use of three sequential instruments is not recognised normal practice and is a known risk factor for increased hypoxic injury. It is noted that senior clinicians will at times use their clinical judgement and step outside the boundaries of usual practice. Due to the complexities of the decisions that needed to be made by the senior obstetric consultant at the time of delivery the panel were unable to conclude whether delivery by emergency caesarean section may have led to an improved outcome... The case was therefore discussed with two further senior obstetric consultants. Both of these concluded that this action was against recommended guidance from the Royal College of Obstetricians and Gynaecologists.”

### *Key learning points*

If guidelines are not being followed, the question needs to be asked why. If the guideline is unworkable in the given setting, it needs to be changed; tolerating a guideline being ignored undermines the whole process of guidelines and gives rise to a unit culture where breaking the rules is acceptable.

## Recommendation

Clinicians need to clearly document their reasoning for decisions that are out of line with national guidance. Maternity teams need to be aware of the risk of developing a culture of tolerating rule breaking. This risk can be minimised by encouraging staff to raise concerns and involving external reviewers in the review of cases.

### *Things you can do*

Follow the guideline. If you need to deviate from it, document why and inform your supervisor.

## Element 5 – Equipment

Several reviews identified delays due to labour ward rooms not being ready in advance of use and to lack of equipment, leading to staff being unable to follow guidelines promptly. Time was lost trying to locate key equipment such as a CTG machine and FSE following a transfer from midwifery-led care, and also when a neonatal resuscitaire was not available at a high-risk VBAC.

“High-risk woman. VBAC, significant meconium noted at delivery of the head, neonatal senior house officer asked to attend but resuscitaire not placed into the room and not ready for use.”

### *Key learning points*

Lack of key equipment in labour ward rooms led to delays in appropriate care being provided.

## Recommendation

Labour ward rooms on an obstetric unit should be ready for use with appropriate equipment (including CTG, FSEs and a neonatal resuscitaire) at all times; this ensures that all equipment is readily available should it be needed quickly.

### *Things you can do*

Ensure that labour ward rooms are regularly checked and ready for use in an emergency. Equipment needs should be escalated to the maternity board-level safety champion (or equivalent) to be actioned.

## Element 6 – Process

Examples were seen where the review team identified that a guideline wasn't followed but focused on an individual being at fault rather than reflecting on whether the system the individual had to use was fit for purpose.

A registrar appropriately identified the need for serial growth scans and requested them. However, only one scan at 28 weeks occurred and at birth the baby was noted to have intrauterine growth restriction (IUGR) that would have been potentially detectable had the scans taken place. On review, it was recognised that the registrar had requested all three scans on one request form and this had in turn meant that only one was booked. The conclusion reached by the review team was to retrain staff to complete separate scan requests. However, this is a rather individual-based approach and it would have been better to recognise the flaws in the system and address these instead.

### *Key learning points*

The process provided for staff to follow a guideline, in this case ordering growth scans, can be at fault rather than the individual.

### **Recommendation**

When system issues are identified, local guideline changes and recommendations should focus on how to make the system work better for the staff and women, not on what is easiest for the system.

### *Things you can do*

If you notice risks in the way a system is run, speak to your managers and see whether the system can be changed to work better for clinicians and women before errors occur.



## Theme 1.5 – Informed choice

In some of the reviews it was noted that women chose not to be cared for in line with locally agreed guidelines and this was identified by reviewers as being a critical contributory factor in the subsequent outcome.

Situations were identified where clinicians were unable to undertake vaginal examinations owing to women's birth preferences. In one example, there was a failure to recognise the initiation of active labour and thus inappropriate monitoring occurred. Care seemed to become focused on the woman's preferences and how these were challenging, resulting in loss of situational awareness of the woman's care as a whole and failure to undertake the other routine actions that could have been done to ascertain whether she was in active labour.

In another example, a woman who attended for a VBAC induction declined a non-pharmacological method because this had not been mentioned to her in advance in the clinic so she had arrived with an expectation of pharmacological induction, which was not in line with the local guideline.

“The departure from policy was instigated by Patient A. It is not known whether the decision would have changed if she had been fully informed prior to being admitted for induction of labour. It does not appear that the use of a cervical balloon was discussed when she was booked for induction of labour; however, this was discussed when she was admitted. Clearly her expectation was that she would have a drug, not a balloon, and this expectation seems to have led to her refusal of the balloon.”

Two further examples were seen where women were not in agreement with the suggested mode of birth proposed by the registrar. In one, the registrar wanted to abandon the instrumental birth but persisted at the woman's request. It is very challenging to have a full discussion of the risks and benefits of the available options in these circumstances, although it would clearly not be appropriate to proceed to caesarean section without consent.

Clear explanation of procedures in advance of birth allows for identification of any issues, manages women's expectations and enables informed consent and shared decision making to be achieved. In an emergency situation, clinicians should ensure that they do their best to explain risks and benefits and act in accordance with their clinical expertise. Whether the ultimate decision is to do nothing or to proceed with the woman's preferred course of action, ensure thorough documentation after the event. Consultants and senior midwives should be involved wherever possible.

### Key learning points

Situations will arise where women choose not to be cared for in line with guidelines.

## Recommendation

When a woman chooses care that is not recommended in local guidelines, shared decision making with a senior clinician should take place and be documented in the woman's notes. Wherever possible, this should occur prior to her going into labour.

### *Things you can do*

When you are unable to follow guidelines because of a woman's preference, ensure that senior clinicians are involved in discussions and decision making at an early stage.

## Summary

Analysis of reviews where failure to follow guidelines was identified as a critical contributory factor demonstrates that the underlying reasons are extremely varied. In order to improve the care provided to women and their babies, it is vital that reviews go beyond simply identifying that a guideline was not followed. The reviews must also look at why this occurred so that future care can be improved. This analysis identified a need to include discussions with staff about their thought processes and decision making surrounding these events. To identify improvements, holistic reviews of the service as a whole are required. Such reviews should focus on organisational structure, unit culture and training, the way individuals communicate together and as wider teams, and also on the environment in which care is expected to be delivered. Without identifying and addressing these distinct causes, guidelines will not always be followed and the same mistakes will persist. Clinicians do not routinely intend to deviate from guidelines but, where this occurs, it is vital that an understanding is reached of why this has happened and how this can be addressed.

# Themed chapter on anaesthetic care, including lessons identified from Each Baby Counts babies born 2015 to 2017

## Methods

All reviews in which critical anaesthetic contributory factors had been identified by Each Baby Counts reviewers or which had been referred for review by an Each Baby Counts anaesthetic assessor were included in this analysis. This led to inclusion of 21 babies born in 2015, 20 babies born in 2016 and eight babies born in 2017 (note that not all hospitals have yet provided complete data for 2016 and 2017). This report is thus based on the reviews of the care of 49 babies. As has been previously described,<sup>1</sup> a thematic analysis was undertaken. All reports were read and re-read and a coding framework developed by the lead author (MK); the coding framework was subsequently reviewed and revised in discussion with the Each Baby Counts anaesthetic reviewers (JB, RC, EW). Verbatim quotes from local reviews are used throughout this report to support the recommendations that are intended to address the contributory factors identified.

## Characteristics of the mothers and babies included in this analysis

Descriptive data were complete for all analyses apart from for body mass index (BMI), for which information was available for 44 (90%) of the 49 women included in this review. Data were complete for all of the babies. Twenty (41%) of the 49 women had epidural or attempted epidural anaesthesia, in 11 of whom the epidural did not provide adequate pain relief. In total, 21 of the 49 women (43%) had spinal, combined spinal-epidural or attempted spinal anaesthesia; the spinal anaesthesia was difficult or considered inadequate in ten of these women. Thirty (61%) of the 49 women had general anaesthesia for birth; among these women there were five with failed endotracheal intubation, the majority of whom did not have any recognised risk factors for a difficult airway.

The mothers of the babies whose care was reviewed here had a median BMI of 28.5 kg/m<sup>2</sup> (interquartile range 23–34 kg/m<sup>2</sup>); 30 of the 44 women with known BMI were overweight or obese (69%) and 17 were obese (39%). Thirty-eight of the 49 babies were born by caesarean

section (78%), with seven of these babies being born after a failed trial of operative vaginal birth. A further eight babies (16%) were born with the assistance of forceps, and the remaining three (6%) had unassisted vaginal births. Thirty-seven (76%) of the babies had severe brain injury, six (12%) were stillborn and six (12%) died in the neonatal period.

An internal anaesthetic reviewer was involved in the hospital review team for only 20 (41%) of the 49 babies who were felt to have critical anaesthetic contributory factors to their care. Only one review team (2%) involved an external anaesthetic reviewer. Overall, external reviewers (mostly obstetric) were involved in five review teams (10%).

### Thematic analysis

As would be anticipated from the figures above, it was notable that very few anaesthetists were involved in the reviews of the care of these babies, all of whom were thought to have had an anaesthetic issue as a critical contributory factor. In many instances, essential detail was missing from the reviews concerning anaesthetic management, and the Each Baby Counts assessors were unable to determine whether appropriate management had taken place. In several records, comment was also made that anaesthetic records were unavailable for review. Where an anaesthetist had been involved in the review panel, a clear and detailed account of events was given. Unless all reviews involve an anaesthetist, there is a danger that, where anaesthetic input was not recognised as being needed, anaesthetic issues will be missed.

#### Recommendation

All reviews should involve an obstetric anaesthetist and should include review of the detailed anaesthetic record.

### *Theme 2.1 – Communication – ‘compound delay in delivery’, ‘cumulative delays’*

“Compound delay in delivery due to capacity, acuity and anaesthetic difficulties... The anaesthetist attempted to top up the epidural in the room and again in theatre but could not achieve adequate anaesthesia, and therefore converted to a spinal with full knowledge by the obstetric team... The anaesthetist kept in contact with the obstetric team in theatre regarding his actions and progress [but] the obstetric team did not verbalise concern around the timing of the anaesthetic... No time frame for delivery was declared.”

This is a clear example of failure of communication between obstetric and anaesthetic teams – the category of urgency should have been made clear in theatre. In most instances, anaesthetic delay occurred in the context of established concerns over fetal wellbeing and/or other delays, and may have led to exacerbation of compromise, but no instances were identified where anaesthetic delays were the sole contributory factor. However, it was clear on a number of occasions where anaesthetic delays occurred that the communication around the urgency of the birth needed to be improved. This was particularly evident in the context of anaesthesia

for an urgent operative vaginal birth, where widely understood classifications of urgency (for example, the four categories<sup>13</sup> of classification of urgency of caesarean section) are not used. Thus anaesthetists were unaware of the urgency with which the obstetric team assessed the need for the operative vaginal birth. Reports note a '*lack of shared understanding of the urgency*'.

Direct obstetrician-to-anaesthetist communication concerning the urgency of any birth will ensure that the anaesthetist is making an informed decision about the appropriate method of anaesthesia and, in the context of anaesthetic difficulties, when to revert to an alternative. The obstetrician must directly communicate with the anaesthetist if she or he wants the birth expedited. When an anaesthetist is task-focused, he or she may not be aware of the time and there should be someone else with this responsibility. As the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) report noted in 2000,<sup>14</sup> reluctance by obstetricians and midwives to interrupt anaesthetists, particularly if they are having difficulties, may contribute to delays.

### Recommendation

Anaesthetists should always be informed of the degree of urgency of the birth. As an aid to communication, the classification of urgency of caesarean section should be used for all operative deliveries, vaginal as well as abdominal.

One review noted that, at a trial of an instrumental vaginal birth in theatre, '*During delays in achieving anaesthesia, methods of how to advance the delivery should be considered by the obstetric team*'. National Institute for Health and Care Excellence (NICE) guidelines are clear that a pudendal block is an appropriate alternative in this situation for instrumental birth.<sup>2</sup> However, it is important to be aware that, when an instrumental birth is planned in the presence of fetal compromise, a pudendal block will never be sufficient for caesarean section and is therefore unlikely to be appropriate for a trial of an instrumental vaginal birth in theatre.

### Recommendation

If there is concern about fetal compromise, offer either tested effective anaesthesia or, if time does not allow this, a pudendal block combined with local anaesthetic to the perineum during instrumental birth.<sup>2</sup>

It was noted on several occasions that the urgency of caesarean section was changed, with an initial call for a category 1 (birth within 30 minutes) caesarean section, which was subsequently downgraded to category 2 and then upgraded again. It was evident from the reviews that this led to confusion among staff and altered the anaesthetic decision concerning the method of anaesthesia, which led to delay when the caesarean section classification was reassessed as category 1. This might have been avoided if the obstetrician had stayed with the woman and communicated directly with the anaesthetist. In some instances, continuous fetal heart-rate monitoring was not carried out while anaesthesia was established and thus no one was aware of a significant deterioration in the fetal condition that should have increased the urgency with which the birth was expedited.

“When this decision was made, I discussed the priority for caesarean section with the obstetric team and was told I had time to top up the epidural. My usual practice is to start with a 5 ml bolus of 2% lidocaine with adrenaline followed 5 minutes later by a further 10 ml bolus. I recall that I had given a total of 15 ml of the epidural top-up mix and was asked if the epidural would be [ready] to proceed with the caesarean section within 1 minute. I stated that the epidural would need longer to work and so moved to a general anaesthetic immediately.”

The review group noted that the decision to top up the epidural, which was then abandoned when the category 1 caesarean section was re-called, caused some delay in preparing [the woman] for her caesarean section under general anaesthetic.

Obstetric staff need to be aware that the decision to downgrade the urgency of a caesarean section may have an impact on the chosen mode of anaesthesia, which may lead to delay if the birth subsequently needs to be expedited.

### Recommendation

A decision about the purpose of transfer to theatre and urgency of any birth should be made together with the anaesthetist before transfer to theatre. The degree of urgency should be reviewed on entering theatre prior to the WHO check, and the obstetrician should confirm the degree of urgency directly to the anaesthetist.

It is worth noting that many hospitals now have a ‘reduced’ World Health Organization (WHO) checklist for category 1 caesarean sections, so this review of the degree of urgency will not add substantially to the in-theatre preparation time.

“The Consultant declared an emergency caesarean section... but there was no documented evidence of the grading within the medical records... Upon review, the panel identified that the caesarean section should have been classified as a Grade [category] 2... The woman was prepared for theatre and was seen by the anaesthetic specialist trainee (ST6) [18 minutes after the initial decision to deliver]. [38 minutes after the decision for caesarean section was made] a Grade 1 LSCS [lower segment caesarean section] was called for a second woman; this delayed the first woman going to theatre. At [43 minutes post-decision], the fetal heart was auscultated by the midwife and was recorded at 30–50 beats per minute (bpm). The obstetric consultant was called and immediately classified a Grade 1 LSCS at [48 minutes after the initial decision]. The woman was in theatre [54 minutes after the original decision]. The midwife was unable to auscultate (listen to) the fetal heart in theatre. Scan was performed by the consultant obstetrician and an intrauterine death [...] was confirmed. The obstetrician proceeded to LSCS under general anaesthetic and female stillbirth was delivered [80 minutes after the initial decision to deliver].”

There were multiple occasions when the anaesthetist was busy elsewhere in the labour ward and the need for a category I caesarean section was not adequately communicated to allow them to reprioritise the order in which they attended, and this led to delays. In other instances, plans were made for a category I caesarean section, but the deadline for the birth was allowed to slip because of other emergencies, either within the labour ward or in other departments.

“The ODP [operating department practitioner] was busy in the emergency department. When contacted, she asked about the urgency of the case, and although the term Grade I caesarean section was used, there was no urgency attached to the discussion and she did not leave the department immediately. The on-call ODP was phoned [in] from home. The emergency in [the emergency department] was dealt with before attending [labour ward].”

There should be an ODP immediately available (within 5 minutes) at all times in consultant-led units. There should be contingency plan in place if a second ODP is required in maternity. All staff working in maternity must understand the implications of the categories of urgency. Multiple emergencies are not uncommon on busy labour wards, and this should be anticipated when staff are additionally covering other areas of the hospital. If they need to come from home, early escalation is a priority.

### Recommendation

Contingency plans need to be made ahead of time for calling in additional staff and/or undertaking prioritisation decisions in the event of multiple simultaneous emergencies.

Antenatal referral to an anaesthetist is the best way of flagging up potential anaesthetic problems, which can then be identified by a sticker (for example) in the records.<sup>15</sup> However, on several occasions, delays resulted from unsuccessful regional or difficult general anaesthesia in women who had identifiable risk factors for problems with anaesthesia. The anaesthetists did not appear to be aware either that these women with risk factors were in labour or that they had labour complications which might necessitate an expedited birth. In some instances, an anaesthetist on a previous shift had been aware but the information did not appear to have been passed on after a change of shift. In other instances, the risk factors were not recognised by the obstetric or midwifery teams. Use of a structured and validated anaesthetic handover tool between shifts<sup>15,16</sup> and anaesthetic participation on the ward round at the beginning of each shift would mitigate both of these situations, enabling early identification of potential airway difficulties, anticipation of the need for or potential problems with regional analgesia, and helping ensure appropriate communication. If these are not possible then the anaesthetist should receive a handover from the obstetrician or coordinating midwife. If this is a ‘board’ handover then the anaesthetist should familiarise themselves with women whose labours are complicated.

### Recommendation

Anaesthetists should use a structured and validated anaesthetic handover tool between shifts and, if possible, participate in the routine labour ward handover/review of the labour ward board. This will help maintain situational awareness and enable early anticipation of anaesthetic difficulties.<sup>15</sup>

## *Theme 2.2 – Regional anaesthesia*

There were several instances when an epidural in labour had been only partially effective and yet attempts were made to top up this epidural when a decision was made for category I caesarean section. This led to delays in obtaining effective analgesia when the birth was considered urgent.

“It is difficult to comment on the decision to proceed with operative delivery under epidural anaesthesia as this can only be made by the individual at the time. However, this particular labour epidural required multiple top-ups despite the use of an infusion. The need for multiple top-ups in this situation has been shown to be an independent risk factor for failure to extend labour analgesia to anaesthesia for caesarean section.”

As noted in this review, it is unlikely that an epidural that has already been at best partially effective during labour will be able to provide an adequate block for caesarean section.

### Recommendation

All women who receive epidural analgesia should be reviewed to ensure the effectiveness of the epidural and to minimise delays should the need for an operative birth arise. The functioning of an in-labour epidural should be taken into consideration when deciding on the most appropriate and timely means of anaesthesia for an operative birth.

In two instances, inadvertent dural punctures led to delay in anaesthesia for subsequent caesarean section.

“Inadvertent dural tap occurred with the first attempt at epidural placement, with cerebrospinal fluid on aspiration through the epidural catheter. According to the anaesthetic notes, it is documented that there were two attempts at epidural placement at two separate interspaces (L4/5, L3/4), the second of which was a combined spinal-epidural. The midwifery notes describe three attempts, the third of which was successful... The anaesthetist decided to top up the epidural for the caesarean delivery... However, there were several problems... the patient was known to have a known dural tap and was therefore at risk of unexpectedly high block on epidural top-up if intrathecal spread occurred.”



Inadvertent dural tap will occur with an incidence of approximately one in 100–200 epidural attempts<sup>17</sup> and it is reassuring that it was identified as a significant contributing factor in only two Each Baby Counts babies over a period of 3 years (more than two million births). However, it remains important to be aware of the possibility of a higher block with epidural top-up in the event of dural puncture. In circumstances such as this, if the anaesthetist anticipates difficulties/delays in establishing anaesthesia they should communicate this to the obstetrician so that an appropriate anaesthetic can be administered, taking into account maternal and fetal factors for that time frame.

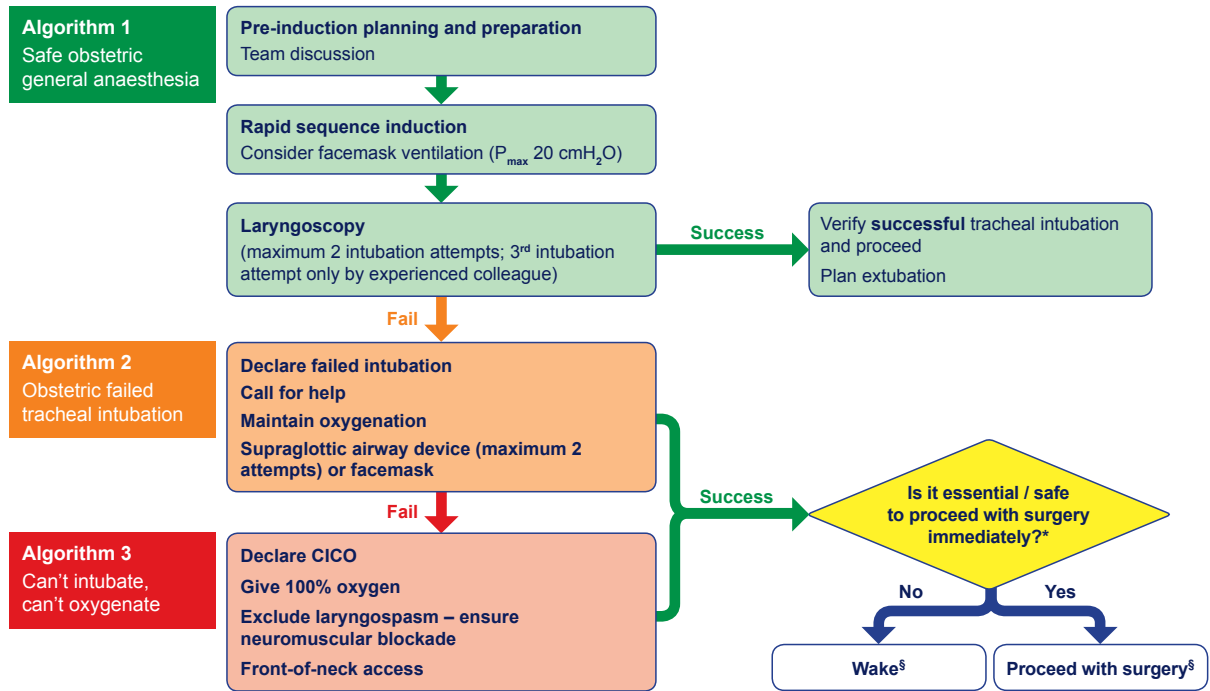
### *Theme 2.3 – Difficult intubation*

There were five instances of failed intubation, the majority in women who did not have clear risk factors. Even in an emergency, there must be optimal preparation and positioning of the woman to minimise the risk; hypoxia during failed/difficult intubation is more likely to damage the fetus than the additional few seconds of preparation. Should failed tracheal intubation occur, avoiding maternal hypoxia is crucial as low maternal oxygen saturations are a predictor of neonatal intensive care unit (NICU) admission.<sup>18</sup> In all instances, the woman's safety was appropriately ensured, but this did result in a delayed birth. In some instances, there was evidence that the Obstetric Anaesthetists' Association (OAA) and Difficult Airway Society (DAS) guidelines<sup>19</sup> were not followed. Three unsuccessful attempts at intubation were made by an anaesthetic trainee who subsequently, appropriately, used a laryngeal mask:

“When the events were discussed over the telephone with the anaesthetic consultant, they were informed that attempts at intubation had failed and the airway was being maintained with a laryngeal mask and advice was sought regarding the ability to undertake the caesarean section using the laryngeal mask as an airway. The consultant advised that a cord prolapse was not an indication to proceed and ideally the patient should be woken up.”

The OAA/DAS guidelines<sup>19</sup> include a table (Table I; see overleaf) of criteria to consider, both prior to and following induction of anaesthesia, as to whether to proceed with surgery or wake up the woman, which includes consideration of both maternal and fetal condition. This is a decision for the anaesthetist looking after the woman. As noted above, the primacy of maternal safety must be emphasised, and this may well require the anaesthetist, especially when junior and stressed by this life-threatening situation, to consult with a more experienced colleague. Note that correct use of Table I in the OAA/DAS guidelines will require input from the obstetrician. The whole team should therefore discuss what actions should be taken in the event of a failed intubation. The OAA/DAS guidelines should be displayed/available in all operating theatres to facilitate these discussions.

**Master algorithm – obstetric general anaesthesia and failed tracheal intubation**



\*See Table 1, §See Table 2

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**Table 1 – proceed with surgery?**

Factors to consider		WAKE		PROCEED	
Before induction	Maternal condition	• No compromise	• Mild acute compromise	• Haemorrhage responsive to resuscitation	• Hypovolaemia requiring corrective surgery • Critical cardiac or respiratory compromise, cardiac arrest
	Fetal condition	• No compromise	• Compromise corrected with intrauterine resuscitation, pH < 7.2 but > 7.15	• Continuing fetal heart rate abnormality despite intrauterine resuscitation, pH < 7.15	• Sustained bradycardia • Fetal haemorrhage • Suspected uterine rupture
	Anaesthetist	• Novice	• Junior trainee	• Senior trainee	• Consultant / specialist
	Obesity	• Supermorbid	• Morbid	• Obese	• Normal
	Surgical factors	• Complex surgery or major haemorrhage anticipated	• Multiple uterine scars • Some surgical difficulties expected	• Single uterine scar	• No risk factors
	Aspiration risk	• Recent food	• No recent food • In labour • Opioids given • Antacids not given	• No recent food • In labour • Opioids not given • Antacids given	• Fasted • Not in labour • Antacids given
	Alternative anaesthesia • regional • securing airway awake	• No anticipated difficulty	• Predicted difficulty	• Relatively contraindicated	• Absolutely contraindicated or has failed • Surgery started
After failed intubation	Airway device / ventilation	• Difficult facemask ventilation • Front-of-neck	• Adequate facemask ventilation	• First generation supraglottic airway device	• Second generation supraglottic airway device
	Airway hazards	• Laryngeal oedema • Stridor	• Bleeding • Trauma	• Secretions	• None evident



Criteria to be used in the decision to wake or proceed following failed tracheal intubation. In any individual patient, some factors may suggest waking and others proceeding. The final decision will depend on the anaesthetist's clinical judgement.

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Reproduced from Mushambi MC, Kinsella SM, Popat M, Swales H, Ramaswamy KK, Winton AL, Quinn AC. Obstetric Anaesthetists' Association and Difficult Airway Society guidelines for the management of difficult and failed tracheal intubation in obstetrics. *Anaesthesia* 2015;70:1286–1306, with permission from Obstetric Anaesthetists' Association/Difficult Airway Society

## Recommendation

The safety of the mother must be the primary concern at all times. Women should not be put at risk of airway problems through inadequate preparation/positioning due to haste to achieve a rapid birth. The required equipment for the management of difficult and failed tracheal intubation in obstetrics detailed in the OAA/DAS guidelines<sup>19</sup> should always be available and all anaesthetists should undergo specific difficult airway training.

The impact of a difficult intubation was minimised when the anaesthetist remained aware of the situation and followed standard practice:

“There was a very short delay commencing the LSCS due to a difficult intubation; according to the anaesthetist, a rapid sequence induction was commenced; the patient was pre-oxygenated, medication given and the application of cricoid pressure was commenced by the Operating Department Practitioner (ODP). The laryngoscopy was attempted with a standard laryngoscope and bougie insertion, but failed. The anaesthetist noted that the cricoid pressure was making the laryngoscopy and bougie insertion difficult and therefore the ODP was asked to remove the cricoid pressure and the intubation was successful.”

Failed intubation is recognised to be uncommon<sup>20</sup> and to fully prepare for this eventuality requires training and/or simulation.

## Recommendation

Skills and drills training: anaesthetists should help organise and participate in regular multidisciplinary drills covering labour ward emergencies such as major obstetric haemorrhage, maternal collapse and failed intubation. These drills should be followed by debriefing and feedback so that lessons can be learned at both an individual and a systems level.<sup>21</sup>

The OAA/DAS guidelines<sup>19</sup> note the importance of follow-up after a difficult intubation and of providing women with written information documenting the problem. There was only one instance when it was clear that the woman had been given the appropriate information/advice after a difficult intubation:

“The woman was reviewed by a senior anaesthetic trainee (Anaesthetist 4) on Day 8 and a difficult airway letter was given to her. As the woman’s husband was not present at this visit, arrangements were made for further anaesthetic follow-up the next day. The woman and her husband were seen by another consultant obstetric anaesthetist (Anaesthetist 5) on Day 9. Anaesthetist 5 offered condolences and explained the anaesthetic management of the case. The difficulties with correct positioning of the tracheal tube were discussed. In addition, it was stressed that if anaesthesia were required in the future, the anaesthetist must be informed that intubation had been previously difficult.”

## Recommendation

Where management of a woman's airway has been difficult, she should always be provided with a letter giving details for her and her GP. A pro forma is available from the Difficult Airway Society.<sup>22</sup> Follow-up should take place in a postnatal anaesthetic clinic for debriefing.

### *Theme 2.4 – Human factors*

There was evidence of lack of situational awareness and/or fixation errors in the care of most babies, as well as among some of the local review teams. In some instances, there was a collective failure to identify simple solutions to problems. For example, a woman collapsed and the oxygen tubing from the piped supply was too short to reach where she fell. The team tried to find an oxygen cylinder rather than moving the woman closer to the supply, which led to an 8 minute delay in administering oxygen; this solution was not identified or discussed in the review.

On other occasions, symptoms were attributed to the anaesthetic and/or poor functioning of the anaesthetic when there was clear evidence of other problems.

#### **Element 1 – ‘Epidural fever’ – sepsis**

The anaesthetic reviewer in one hospital team noted the following in the local review:

“Epidural fever recognised but does shivering and very high temp for over an hour indicate epidural fever or maternal sepsis/chorioamnionitis?”

This woman had clear signs of sepsis with a temperature persistently over 39°C and with both maternal and fetal tachycardia. Her temperature was attributed by staff as being due to the epidural, blood cultures were not taken and antibiotics were not prescribed. Concerns over the fetal heart rate led eventually to an urgent delivery of the baby. The baby was admitted to NICU with moderate–severe neonatal encephalopathy and group B Streptococcal sepsis.

Many women experience a moderate rise in temperature after an epidural is inserted. However, any rise in maternal temperature should trigger a review of her other physiological observations. The UK Sepsis Trust maternal inpatient sepsis tool<sup>23</sup> can be used to assess presence and severity of sepsis.

#### **Element 2 – ‘Breakthrough pain’ – uterine rupture**

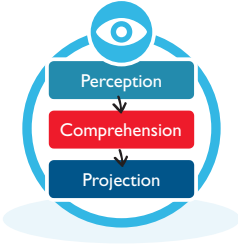

“The mother was tachycardic 110 and feeling breakthrough pain between contractions. Syntocinon was commenced as there was no change from earlier vaginal examinations and she was still 5 cm dilated.”

This woman, undergoing a trial of labour after previous caesarean section, had breakthrough pain that was treated with repeated epidural top-ups. No alternative cause for her pain was considered over the subsequent 3 hours when there were also repeated concerns about the cardiotocography (CTG). Her collapse led to a category I caesarean section at which her uterine rupture was diagnosed.

### Recommendation

Breakthrough pain with a previously working epidural in a woman with a history of uterine surgery should trigger an obstetric review for scar rupture.

Human factors are examined in the 'Guidelines' chapter of this report (page 12) but the recommendations from the previous report<sup>1</sup> deserve reiteration here.

<p>All members of the clinical team working on the delivery suite need to understand the key principles (perception, comprehension, projection) of maintaining situational awareness to ensure the safe management of complex clinical situations.</p>	
<p>A senior member of staff must maintain oversight of the activity on the delivery suite, especially when others are engaged in complex technical tasks. Ensuring someone takes this 'helicopter view' will prevent important details or new information from being overlooked and allow problems to be anticipated earlier.</p>	

### Theme 2.5 – Anaphylaxis

There were two occasions when urgent delivery of the baby was needed following maternal anaphylaxis to penicillin received in labour. Management was appropriate in both instances but both mothers required emergency delivery of the baby under general anaesthetic. Neither had known allergies. Anaphylaxis is unpredictable and should be included in skills and drills training in the management of maternal collapse. The Royal College of Anaesthetists' sixth National Audit Project report into perioperative anaphylaxis noted that obstetric units should ensure immediate availability of anaesthetic anaphylaxis treatment and investigation packs wherever general or regional anaesthesia is administered.<sup>24</sup>

## Theme 2.6 – Maternal tachycardia

When a mother is tachycardic, it can be difficult to differentiate the maternal pulse from the fetal heart rate, which may lead to evidence of fetal compromise, for example a bradycardia, being missed. On several occasions, it was noted that the anaesthetist pointed out when the CTG was recording a maternal tachycardia instead of the fetal heart rate. However, on another occasion, the anaesthetist was aware of a maternal tachycardia but this was not communicated to the obstetric staff who remained unaware that the CTG was inadvertently recording the maternal pulse.

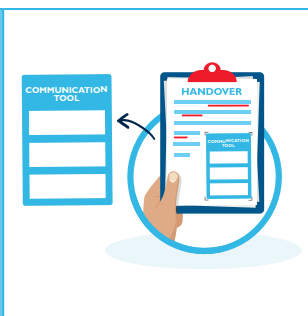
### Recommendation

In the event of a maternal tachycardia the anaesthetist and/or ODP should ensure that the duty obstetrician and midwife caring for the woman are informed.

## Conclusion

Although there were no babies for whom anaesthetic issues were thought to be the sole contributory factor to their outcome, most of the anaesthetic problems noted in these reviews contributed additionally to delays in a birth. Many of the lessons on situational awareness and the need for a ‘helicopter view’ identified in the Each Baby Counts 2015 full report<sup>1</sup> are echoed here. In addition, there is a clear need to optimise communication about the urgency of the birth to allow for informed choice of method of anaesthesia. The CESDI report in 2000<sup>14</sup> started with the statement ‘*the safety of modern obstetric care is based on teamwork... the anaesthetist is a key member of the perinatal management team*’, and this is still a clear message today.

There is a need for the development of a structured communication tool to include the three-fold elements of the plan for delivery: mode of birth, location of birth and category of urgency. This will form a key Each Baby Counts implementation output from this report, and the RCOG is committed to collaborating with the relevant organisations to produce this at the earliest opportunity.



# Barriers to reporting to Each Baby Counts

The first full Each Baby Counts report<sup>1</sup> covered a complete year of data and identified that 25% of local reviews did not contain sufficient information to draw conclusions about the care provided, while a further 7% were either incomplete or a review was never undertaken. In view of this, the Each Baby Counts project team began a process of feeding back to units when a review was deemed insufficient, outlining the reasons why. Units were then given an opportunity to address the issues identified and re-submit the information. The missing (potential reportable babies identified through cross-checking with other national sources of data) and incomplete reports were also more actively highlighted to units to encourage greater overall reporting. Where responses and engagement were not achieved by the team based at the RCOG, communication with these trusts and boards was escalated to senior members of the Each Baby Counts project team who contacted clinical directors (or equivalent) and medical directors at the relevant units to ensure that high-level support for full engagement existed in all units.

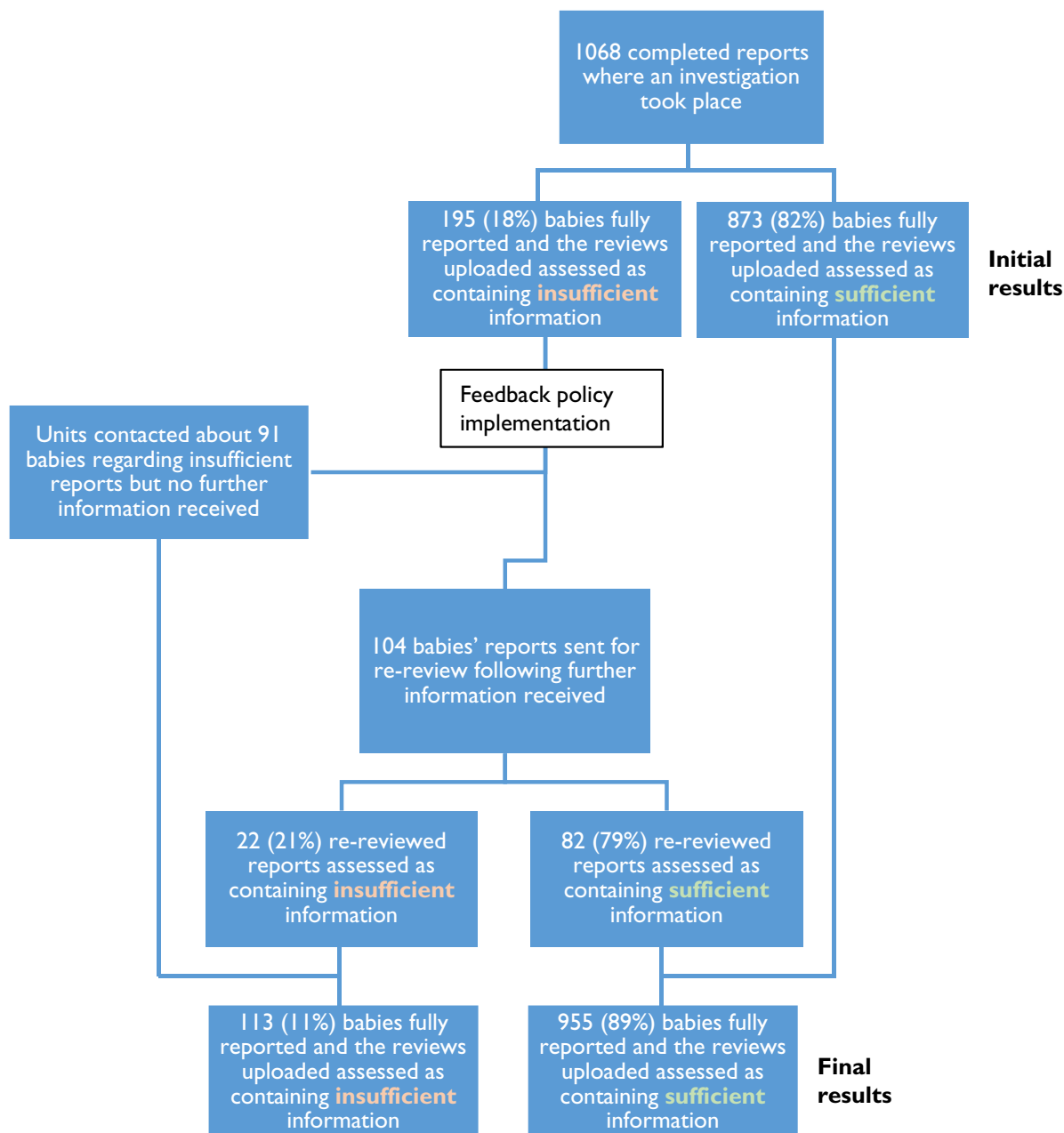
The Each Baby Counts project team appreciates that this placed an additional burden of work on the Lead Reporters, their units and the Each Baby Counts reviewers. The team is extremely grateful for the efforts that went into improved reporting and re-reviewing of reports. Further details of the impact of this are discussed below.

## Reports sent for re-review

Where a Lead Reporter uploads further documentation to a report that has been assessed as containing insufficient information, the Each Baby Counts project team receives a notification of this and can then arrange for the information to be re-reviewed (Figure 1).

## Case ascertainment

The overall case ascertainment for 2016 was 99.9%, with 11% of reviews being deemed to contain insufficient information and 5% having no review submitted (owing to no review being performed or to incomplete reporting); see the 'Overall findings for 2016' chapter on page 50 for further details. This is a substantial improvement on the 2015 results and highlights the success of implementing the new Each Baby Counts feedback policy and the hard work of all involved in the programme, particularly the Each Baby Counts Lead Reporters.



**Figure 1** Flow chart to describe reports sent for re-review

### Thematic analysis

As part of the process of liaising more directly with units, the Each Baby Counts project team had the opportunity to gather information as to why there were difficulties in producing timely reports of sufficient quality. All Each Baby Counts Lead Reporters and trust/health board clinical directors were contacted (via formal letters, telephone calls and emails), inviting them to complete the potential missing cases or to re-review the insufficient documents and report back any concerns regarding this process. A log was kept of all responses that were received. It is important to note that the majority of responses came from units that were struggling to manage the workload of re-reviewing cases; the responses may therefore not be representative of all units. The log of responses was then reviewed



and grouped by theme, which are discussed in turn below. The project team recognises that this method of qualitative analysis has limitations; however, it does highlight some important issues that warrant further investigation into the challenges units face in producing good-quality, timely reports.

### *Theme 3.1 – Change of staff*

A frequently cited barrier to good-quality, timely reporting was a change of staff. This was most commonly due to Lead Reporters going on a period of long-term absence or the role being transferred to a new staff member either as a change of role or new appointment. In both scenarios, the common issues were that the Each Baby Counts project team was not notified of the change and therefore continued to contact the wrong person and also that very little or no formal handover of the role within the organisation took place. This meant that the project team was unable to support the new Each Baby Counts Lead Reporter in their role and that the new Lead Reporters were frequently unsure of the extent of their responsibilities and expectations. This subsequently led to cases not being reported, insufficient information within the reports or significant delays.

“Called the trust and was told that Lead Reporter Y left 2 years ago”

“I only took over this role in the latter part of last year, so haven’t had much chance to go back through previous babies entries”

“X has been off sick for a while, which explains why no follow-up on missing/ outstanding cases”

#### *Key learning points*

The change of Each Baby Counts Lead Reporter process within a unit has been identified as a potential barrier to good-quality, timely reporting.

#### *Things you can do*

Try to minimise changes of Each Baby Counts Lead Reporter. Whenever there is a change of Lead Reporter, please notify the Each Baby Counts project team so that additional support can be offered. Ensure that within your unit there is a formal handover of the role and responsibilities and of the organisation’s reporting structure to enable a smooth transition.

#### *Things the Each Baby Counts project team can do*

Through more direct communication with each unit following the implementation of the new feedback policy, the Each Baby Counts project team has now updated its list of contact details for Lead Reporters nationally. With continued close relationships moving forward, this will be kept up to date and any issues will be identified more quickly. All new Lead Reporters will continue to receive a training manual and additional support from the project team following appointment to the role.

### *Theme 3.2 – Lack of resources*

Another significant barrier to producing timely, good-quality reviews was a lack of resources. This included a lack of time to complete the cases, a lack of appropriate IT software and a lack of staff. Frequently, units reported that they were undertaking verbal reviews of the cases but did not have the capacity or process in place to write up the findings from these meetings into a written report.

There was also a predominance of concerns around the need for more administrative support, both in note keeping from meetings and the use of IT software, which if in place would have made the role much more manageable for the Lead Reporter. There were also concerns raised about individual workload and the number of reports that needed to be produced being difficult for the current staff members to manage.

“They were investigating and reviewing cases but this wasn’t being written up and they do not have the capacity to go back and retrospectively write up”

“We do not have resources to investigate all cases”

“Difficulty reviewing the cases as they had been uploaded in pdf form so he was unable to modify them”

“I have had some problems accessing BadgerNet and our IT person is on maternity leave”

“She informed us that their patient safety team is in flux with no admin support and that she has been concentrating on NHS R”

#### *Key learning points*

Lack of resources including adequate protected time, IT and administrative support are potential barriers to units producing good-quality, timely reports. At both local and national level, the importance of high-quality local reviews in learning from cases and addressing issues needs to be prioritised and appropriately supported and resourced.

#### *Things you can do*

Ensure that the importance of high-quality local reviews is deemed a priority within your unit and assess whether any additional support and resources can be obtained to facilitate this more effectively, including appropriate IT software. Involve your maternity safety champion<sup>25</sup> in England, Quality Improvement Team in Scotland, or equivalent in other nations, who is placed to escalate resource issues to your hospital board.

#### *Things the Each Baby Counts project team can do*

The project team is working with other stakeholders (including HSIB and NHS Resolution) towards a shared ambition of developing a single reporting portal for all eligible cases to minimise the burden of reporting for units. Each Baby Counts will continue to support and facilitate at a UK level the importance of high-quality local reviews, implementation of the Perinatal Mortality Review Tool (PMRT) and, in England, the role of the Healthcare Safety Investigation Branch (HSIB).

### *Theme 3.3 – More information required*

Another barrier in the production of good-quality, timely reports was the need for a clear understanding of what should be included in reviews for them to be deemed as containing sufficient information. For the first time, the new feedback policy enabled units to re-submit cases after adding information based on reviewer feedback. Introducing this new process highlighted that there was confusion surrounding the expected content. Following discussions between Lead Reporters and the project team, and from the individualised feedback provided for each case through the Each Baby Counts reviewers, it was found that where cases deemed previously as having insufficient information were re-submitted, 79% of these cases were subsequently found to now contain sufficient information. This suggests that, through direct communication and feedback, some of these issues have begun to be addressed. Units also reported that, through undertaking these re-reviews, additional lessons were identified (initially missed on first review) and new action plans have now been put in place to address them.

“Asked for further information regarding what information is missing from the case description and timeline”

“Local neonatal consultant rang regarding expectation of what to include following query. Spoke to Y, added four Lead Reporters to system, went through and explained all outstanding cases”

“We were under the impression that we had to wait until all actions had been completed prior to sending... Based on your advice we will forward the reviews to you”

#### *Key learning points*

Expectations around what should be included in reports need to be clear in order to address any misunderstandings and facilitate good-quality, timely reporting.

#### *Things you can do*

Assess the feedback that stems from reports judged to be of insufficient quality, circulate any new learning points that are identified and look for any recurring themes that may need to be addressed in your unit's local review process. Use the PMRT to facilitate a thorough review of care where a baby has died and use its principles for reviewing babies with severe brain injury. Contact the Each Baby Counts project team at an early stage should you have any queries regarding the reporting process or expectations.

#### *Things the Each Baby Counts project team can do*

The project team has run an additional training session for Each Baby Counts reviewers to highlight the importance of providing specific feedback to the units concerned in cases where reviews are deemed to be of insufficient quality. The project team will continue to contact units directly regarding insufficient and missing reports, and to provide telephone support to any units that request it.

### *Theme 3.4 – Neonatal input*

A further barrier to producing good-quality, timely reports was a lack of cohesive multidisciplinary working. There were frequent instances of delays due to the lack of a formal process for including neonatal input. Rather than being a shared responsibility, it was evident that some reports had been the sole responsibility of certain professions/specialties. As discussed in the first Each Baby Counts report,<sup>1</sup> it is vital that the care as whole is reviewed by the appropriate professional groups together. It is not appropriate for a midwife to review the neonatal care nor for a neonatologist to review the labour care in isolation.

“I have checked all these cases and they are neonatal cases. I do not report the cases that go through to the neonatal unit. All the midwifery cases are on and completed”

“Apologies it has taken some time due to competing priorities for the neonatal unit team to arrange our ‘cooled babies’ meeting”

#### *Key learning points*

Maternity and neonatal teams need to work together to ensure that collaborative multidisciplinary reviews of the care provided take place.

#### *Things you can do*

Assess your local processes for involving neonatal team members in the review of Each Baby Counts babies to see whether this needs to be improved to ensure a collaborative multidisciplinary approach. This could include identifying an Each Baby Counts neonatal lead for each unit.

### *Theme 3.5 – Attitudes to reviews*

The introduction of the feedback policy has overall been met positively by units. While it is appreciated that this may have caused additional work, units have, on the whole, agreed with the feedback about why reports were found to contain insufficient information. Some units have also been able to use this as evidence of the need to restructure their governance teams, to ensure a more robust process and to identify additional learning that can be addressed, which was missed on the first review.

“Used Each Baby Counts red results (insufficient information) to support restructuring their governance team and now believe that they have a system that works better”

“We had done a preliminary enquiry into the case mentioned in your letter and found no avoidable factors – this was the data sent to you. I can see why this would not have met Each Baby Counts requirements. We will forward you the results of a more detailed report as soon as this is available”

“Feedback on what was missing from red reviews [insufficient information] would be helpful”

There have been a few instances, however, where the relevance of re-reviewing 2016 events has been challenged. Concerns included the additional workload this would place on staff and the need to prioritise more recent reports; these concerns appear to be due to capacity issues as previously outlined.

There were also isolated examples of attitudes which suggested that nothing could be learned from these events. This included the care of babies born before arrival or following a ruptured uterus during VBAC as well as births complicated by shoulder dystocia, which were felt by some individuals to be unanticipated events where no improvements to care could be identified.

Undertaking only a brief review or deciding the cause of the outcome in advance does not permit a thorough assessment of the care, limits the information that can be fed back to parents, and potentially risks not identifying lessons and therefore recurrence. While not every Each Baby Counts outcome can be avoided, areas of care that can be improved can be identified even in situations where the outcome would not change.

### *Key learning points*

The culture and attitudes within a unit towards the review of babies eligible to be reported to Each Baby Counts has an effect on the ability to produce timely, good-quality reports.

### *Things you can do*

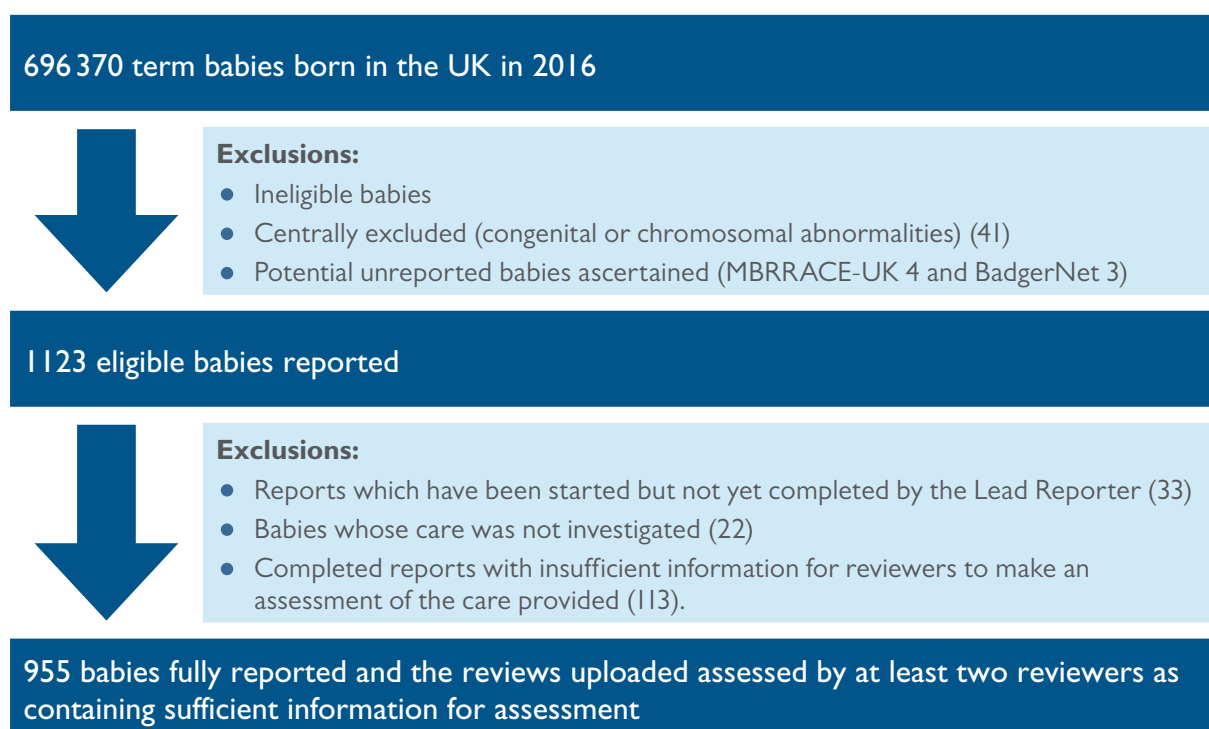
Assess whether at every level within your organisation staff understand the value of thorough reviews. If any lessons learned are not being appropriately shared and acted upon, involve your maternity safety champion<sup>25</sup> in England, Quality Improvement Team in Scotland, or equivalent in other nations, who has a duty to escalate to the hospital board. Appreciative inquiry can be used to provide a positive framework in which problems are identified in order to generate solutions<sup>26</sup> as part of this process. Appreciative inquiry is a method of looking at organisational changes with a focus on identifying positives and expanding what is known to be already working as opposed to identifying problems or issues and attempting to rectify them.

### *Things the Each Baby Counts project team can do*

The Each Baby Counts project team will continue to work at a UK level with the Department of Health and Social Care, the devolved nations and key stakeholders to emphasise the importance of high-quality local reviews and the need for appropriate local resources to facilitate this.

# Overall findings for 2016

The final results for the babies born in 2016 who have been reported to the Each Baby Counts programme are presented in Figure 2.



**Figure 2** Final results for babies born in 2016 who were reported to the Each Baby Counts programme

Out of 696 370 term babies born in the UK in 2016,<sup>27</sup> a total of 124 died during labour, of whom 86 were confirmed to have been alive at the onset of labour by a health professional. The clinical history suggests that the remaining 38 might also have been alive at the onset of labour, but this was not confirmed. A further 145 term babies were born alive following labour but died within the first 7 days after birth. There were 854 term babies reported as meeting the severe brain injury definition. See Figure 3 for a breakdown of reported babies by eligibility.

The estimated proportion of babies in 2016 who met the Each Baby Counts definition of stillbirth, early neonatal death or severe brain injury was 1 of every 620 term babies (1.6 per 1000 term births).

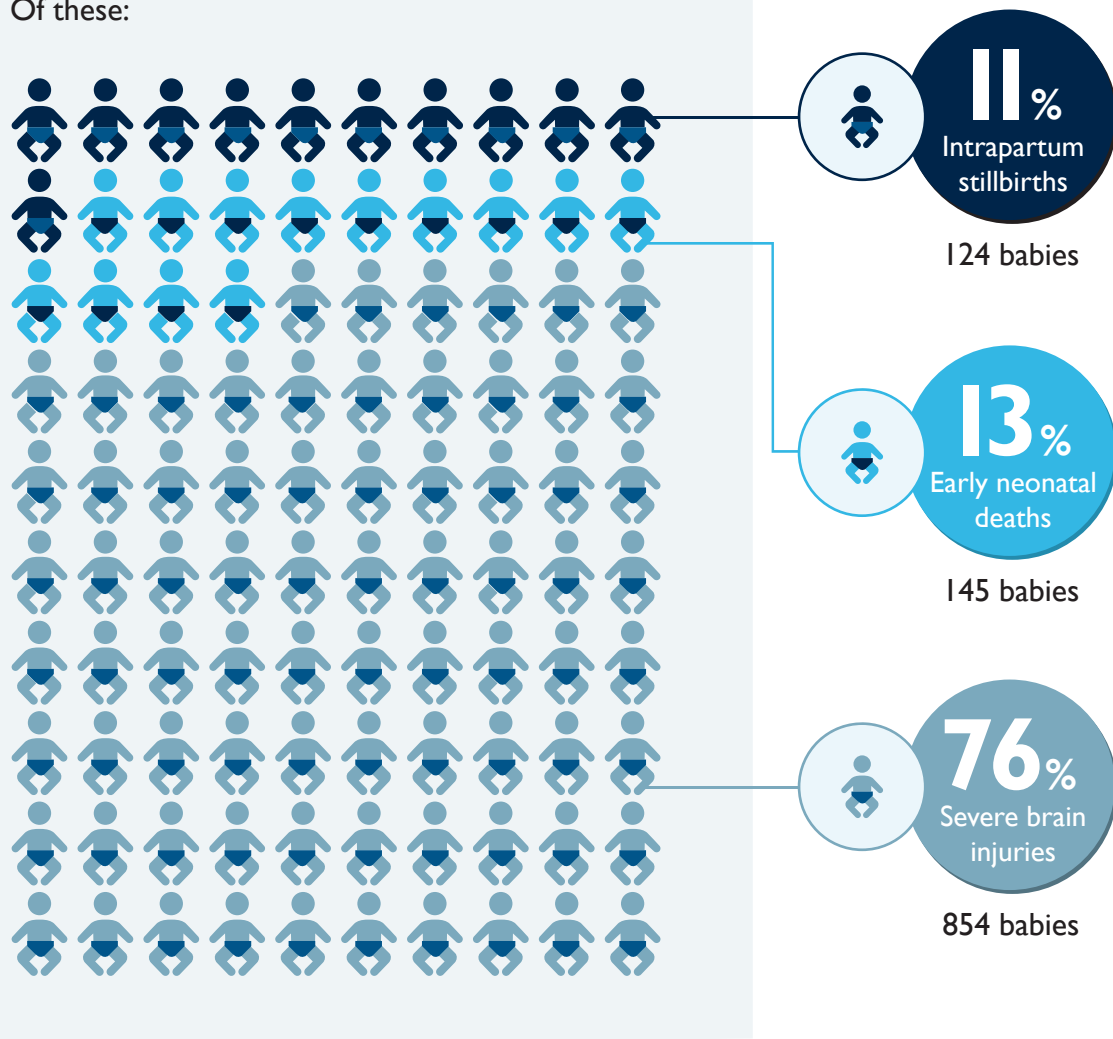
The number of babies identified as potentially reportable to Each Baby Counts through cross-checking of other national sources of data whose information was not checked by the trust or health boards' Lead Reporters was less than 1% (7 babies in total, 4 identified through cross-checking with MBRRACE-UK and 3 identified through cross-checking with

## How many babies?

**1123**  
BABIES IN  
2016

The total number of babies that fulfil the “Each Babies Counts” criteria in 2016 was **1123**.

Of these:



Note: These categories are mutually exclusive. Babies with a severe brain injury who died within the first 7 days of life are classified as early neonatal deaths.

**Figure 3** Breakdown of babies reported to Each Baby Counts by eligibility (N= 1123)

BadgerNet). The level of reporting for Each Baby Counts is therefore 99% of babies who have been identified as being potentially eligible to be reported to Each Baby Counts.

It is important to note that the Each Baby Counts definition of severe brain injury is based on information that is available within the first 7 days after birth, at which point it is not yet known how many of these babies will have a significant long-term disability as a result of the

injuries sustained during birth. However, the fact that the majority (96%) of these infants were actively therapeutically cooled – an intensive intervention requiring sedation and admission to the neonatal unit – reflects the serious clinical condition of these babies at that time.

## Demographics

Table I presents demographic data relating to the babies born in 2016 that were reported to Each Baby Counts. All of the results presented are for term babies born following labour who meet the eligibility criteria for reporting to the Each Baby Counts programme.

**Table I** Demographics for Each Baby Counts eligible babies born in 2016

Demographic parameter	Reports with sufficient information uploaded to Each Baby Counts (N= 955)		National average (%)
	N	%	
Singleton birth	940	98	98.4 <sup>a</sup>
Twin births	15	2	1.6 <sup>a</sup>
Admission to neonatal unit	Early neonatal death	103	77 <sup>b</sup>
	Severe brain injury	707	100 <sup>c</sup>
	Transferred during labour	171	18
Place of birth	Obstetric unit	820	86
	Alongside midwifery unit	96	10
	Free-standing midwifery unit	16	2
	Home	17	2
	Other	4	<1
	In transit	5	<1

<sup>a</sup> Office for National Statistics. Birth Characteristics in England and Wales, 2016 [www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/datasets/birthcharacteristicsinenglandandwales].

<sup>b</sup> Of the total number of Each Baby Counts babies who died within the first 7 days of life for whom sufficient information was available to assess the care provided (134).

<sup>c</sup> Of the total number of Each Baby Counts babies with severe brain injuries for whom sufficient information was available to assess the care provided (707).

<sup>d</sup> Birthplace in England Collaborative Group. Perinatal and maternal outcomes by planned place of birth for healthy women with low risk pregnancies: the Birthplace in England national prospective cohort study; *BMJ* 2011;343:d7400 [www.ncbi.nlm.nih.gov/pmc/articles/PMC3223531/].

<sup>e</sup> NMPA Project Team. *National Maternity and Perinatal Audit: Clinical Report 2017 – Revised Version*. London: RCOG; 2018 [www.maternityaudit.org.uk/Audit/Charting/reports].

## Analysis of local reviews

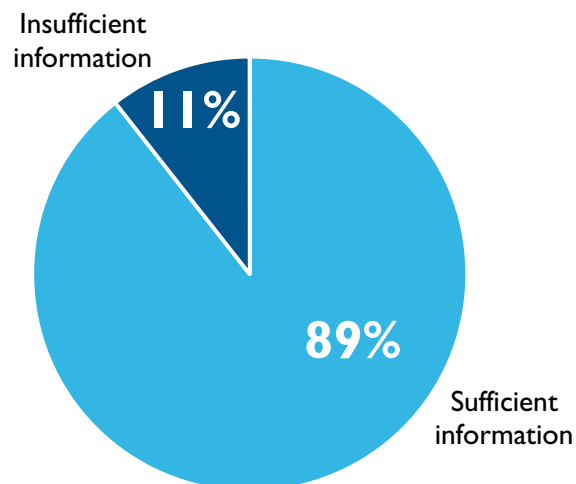
Of the 1123 eligible babies reported for 2016, the information for 1090 (97%) babies was fully completed by a Lead Reporter on the Each Baby Counts online reporting system. The other 33 reports on the system were started but were not, for a variety of reasons, completed by the Lead Reporter(s) of the relevant trusts/health boards. Of the 1090 completed reports, 1068 (98%) had had a local review of some kind carried out.



## Quality of local reviews

Out of the 1068 local reviews that underwent assessment to determine whether enough information had been included in the investigation review to allow an assessment of the care provided, 955 (89%) contained sufficient information for the expert reviewers to classify the care provided (Figure 4). The proportion of local reviews that contained sufficient information improved significantly compared with the result from 2015, which showed only 75%<sup>1</sup> of completed reviews as containing sufficient information. The Each Baby Counts reviewers were impressed with the quality of many of the 2016 reports, with some examples of positive feedback received being:

- *‘Excellent report with good variety of recommendations to improve service’*
- *‘This high-quality report is very thorough and detailed. The review process is very meticulous.’*
- *‘Truly excellent, detailed, structured and balanced review of events with learning points identified.’*



**Figure 4** Proportion of completed investigation reports containing sufficient information to assess the care provided (N= 1068)

The reasons for classifying 113 (11%) reviews as containing insufficient information by Each Baby Counts reviewers were as follows:

- no detailed case description – 104 (92% )
- no timeline provided – 89 (79%)
- no specific tool used – 89 (79%)
- other – 89 (79%).

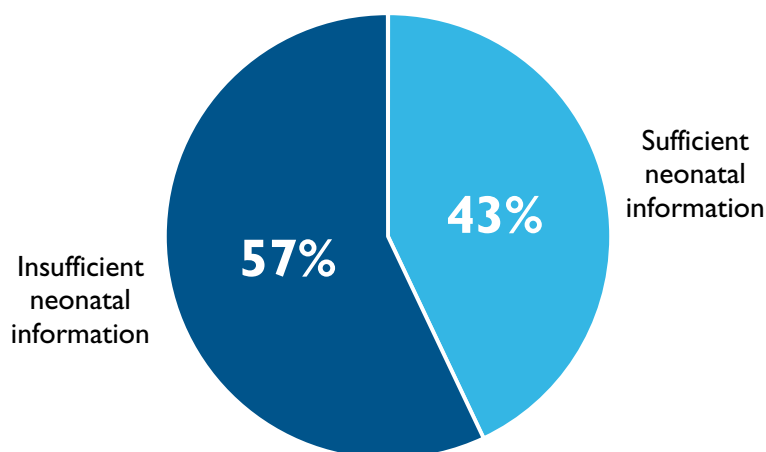
These reasons were not mutually exclusive, so the reviewers could list more than one reason why the information contained in the report was considered to be insufficient.

Examples of the ‘other’ reasons include:

- *‘No cord gases, no description of any care of the baby. Obstetric findings incomplete, and no recommendations’*

- *'Timeline misses out approx. 4½ hours of care likely around the point that there was a change... Also no neonatal timeline'*
- *'There is no detailed description of the intrapartum events... I do not know how long the second stage of labour lasted and whether intervention would have been appropriate earlier to prevent the outcome'*

For the Each Baby Counts babies born in 2016, 475 reviews were assessed by Each Baby Counts neonatal specialists. These reports were those highlighted as requiring neonatal assessment by the obstetric or midwifery reviewers, as well as those sent for automatic neonatal review (reports sent for review from 1 January 2018). The automatic neonatal review of liveborn Each Baby Counts babies was implemented in 2018 following the analysis and findings published in 2017.<sup>1</sup> Of the 475 reports assessed, 271 (57%) were assessed as containing sufficient information about the neonatal care provided (Figure 5). The proportion of reports containing sufficient information about the neonatal care was significantly lower than the proportion of reports containing sufficient information about the maternity care. Over 85% of the 2016 Each Baby Counts eligible babies were born alive and the vast majority of those would have received neonatal care. It is therefore important that neonatal representatives are involved in reviews and that this is reflected in the information contained in reports (for example, timelines recorded during resuscitation).

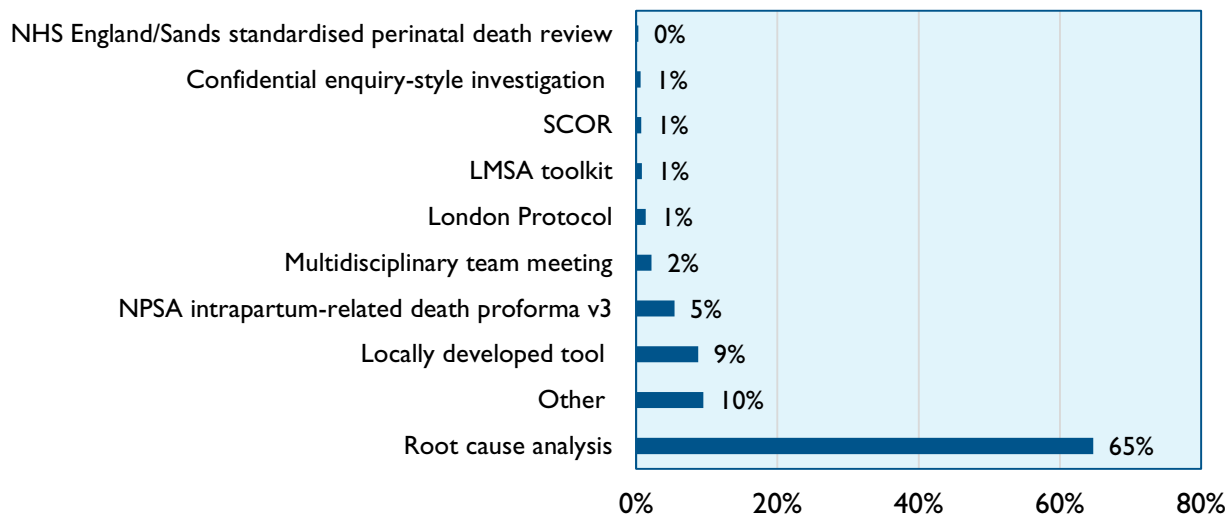


**Figure 5** Proportion of investigation reports assessed by neonatal specialists that contained sufficient neonatal information to assess the neonatal care provided (N=475)

### *Tools and methodologies used in reviews*

Out of the 955 local reviews that contained sufficient information, 83% (797 reviews) used a specific tool or methodology to conduct the review. The remaining 17% (158 reviews) were not carried out using any specific process. Note that the Perinatal Mortality Review Tool (PMRT) was not available in 2016.

Figure 6 shows that, of the local reviews that made use of a specific tool or methodology, the process most commonly used (65%) was root cause analysis. As local investigators may have used a range of tools or methodologies in any given review, multiple options could have been checked.

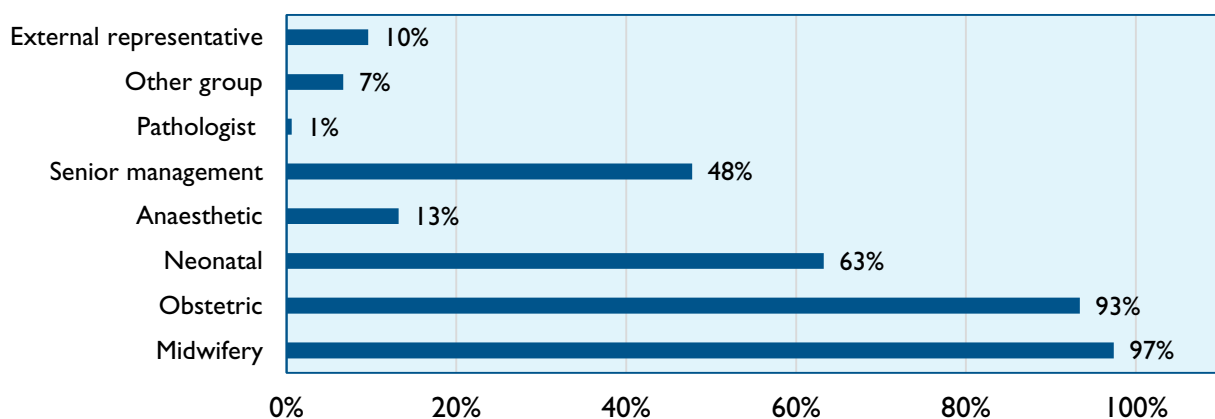


**Figure 6** Tools and methodologies used in local reviews containing sufficient information (N=955)

### Make-up of local review panels

The analysis shows that 96% of the local reviews where the quality was sufficient to judge the care had been carried out by an MDT (i.e. a panel that contained individuals with expertise from more than one specialty). Although these results are encouraging, the Each Baby Counts project team reiterates that the composition of the panel should always ensure that individuals with all the relevant expertise according to the circumstances of the incident are involved.

As expected, midwives and obstetricians were regularly present, but participation from other specialties was lower, with senior management involved in 48% and anaesthetists involved in 13% of reviews (Figure 7).



**Figure 7** Contributors to local review panels for reviews containing sufficient information (N=955)

Of the 955 reviews with sufficient information for the reviewers to classify the care provided, 875 concerned babies who were born alive. Neonatal clinicians in local units were involved in reviewing the care of 575 (66%) of these babies. Improving the representation of neonatal

clinicians in local review groups will ensure that expert opinions and recommendations relating to the neonatal care of the baby are included in the local review process.

### Recommendation

All reviews of liveborn Each Baby Counts babies must involve neonatologists/neonatal nurses.

Following the *Each Baby Counts 2015 Full Report*,<sup>1</sup> the methodology for Each Baby Counts was changed to include the automatic neonatal review of reports uploaded for babies who were born alive. From January 2018, all reports sent for Each Baby Counts review are reviewed by midwifery, obstetric and neonatal reviewers. It is still possible for a midwifery or obstetric reviewer to recommend the neonatal review of a stillborn baby.

### External involvement in reviews

Only 10% of panels included an external expert (Figure 7). Where external panel members were present, these were mostly midwives and obstetricians, but they also included risk managers, the Care Quality Commission or commissioners.

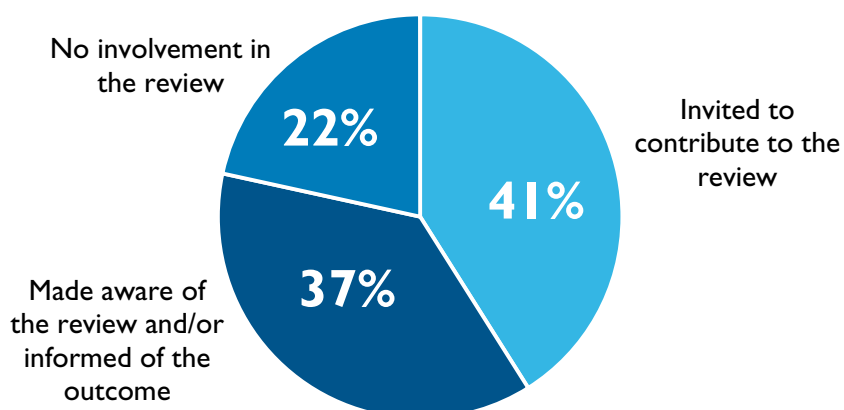
### Recommendation

All local reviews must have the involvement of an external panel member.

### Parental involvement in reviews

Parental involvement in reviews remains inconsistent and still requires improvement.

In 22% of local reviews in 2016, the parents were neither involved nor made aware that a review was taking place. In 41%, the parents were invited to contribute to the review if they wished to (Figure 8), which is a statistically significant\* improvement on the 34% in 2015.<sup>1</sup> Although these figures are improved, there is still significant room for further improvement to ensure that all parents are invited to contribute to all local reviews.



**Figure 8** Parental involvement in local reviews containing sufficient information (N=955)

\* 34% (2015) and 41% (2016),  $p=0.003$ , RR 1.21 (95% CI 1.06–1.37)

### Recommendation

All trusts and health boards should inform the parents of any local review taking place and invite them to contribute in accordance with their wishes.

It should be noted that there are a number of different approaches to involving parents in reviews and a personalised approach should be followed. NHS Scotland's 'Being Open Framework'<sup>28</sup> presents a refresh of the National Patient Safety Agency (NPSA) Being Open framework (2009)<sup>29</sup> to support NHS boards in developing their approach to communicating and engaging with people who have experienced moderate or severe harm following an adverse event (predominantly category 1 or 2 in the national framework). The framework can be used to guide and inform local policy and procedures and applies across all care settings within NHS Scotland. The PARENTS study<sup>30</sup> has developed, implemented and evaluated parental engagement in the perinatal mortality review process. The lessons learned from the research showed practical information on how to engage parents in the review process, including recommending a point of contact and ongoing support (for example, through a bereavement midwife or nurse) or facilitating parents talking through their experience rather than completing a feedback form in isolation.

To improve parental involvement in reviews, as well as to ensure that the appropriate multi-disciplinary group is involved, the Each Baby Counts project team recommends using the PMRT<sup>31</sup> for all Each Baby Counts babies who die. Although this tool is currently not used to review babies born with severe brain injuries, the project team recommends that the principles of a PMRT review be applied to Each Baby Counts eligible babies with severe brain injuries.

### Recommendation

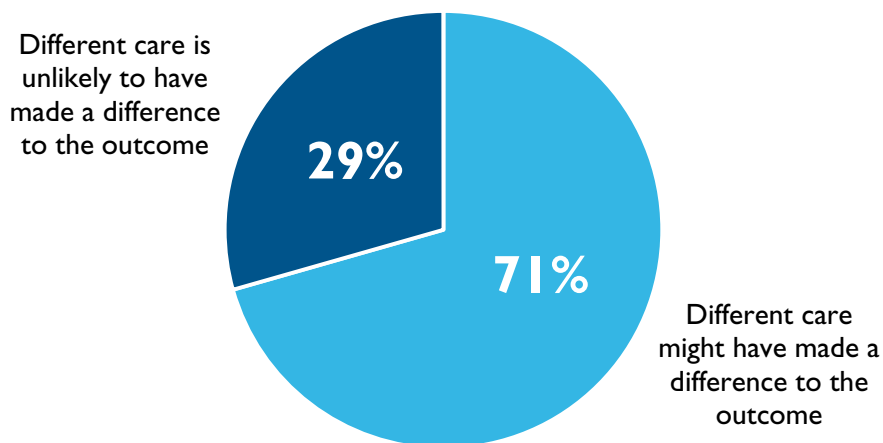
All Each Baby Counts eligible babies who are stillborn or who die within the first 7 days of life should be reviewed using the PMRT.

### Recommendation

There is an urgent need for a PMRT-style tool that includes morbidity to be commissioned by the UK healthcare system.

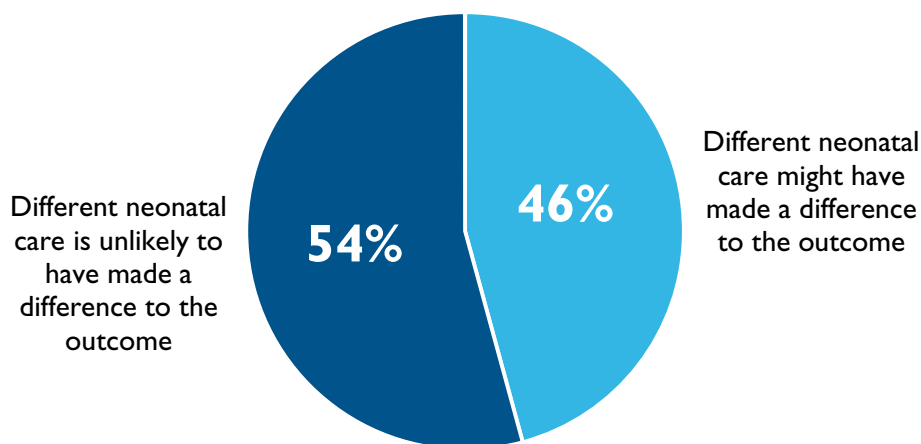
## Would different care have made a difference to the outcome?

Where a reviewer indicates that there is enough information contained in the uploaded local review to assess the care provided, the reviewer is then asked whether different care might have made a difference to the outcome. In 29% of babies, the reviewers agreed that, based on the information contained in the local review, different care would have been unlikely to have made a difference to the outcome (Figure 9). In the remaining 674 (71%) instances, at least one of the independent reviewers considered that different care might have made a difference to the outcome.



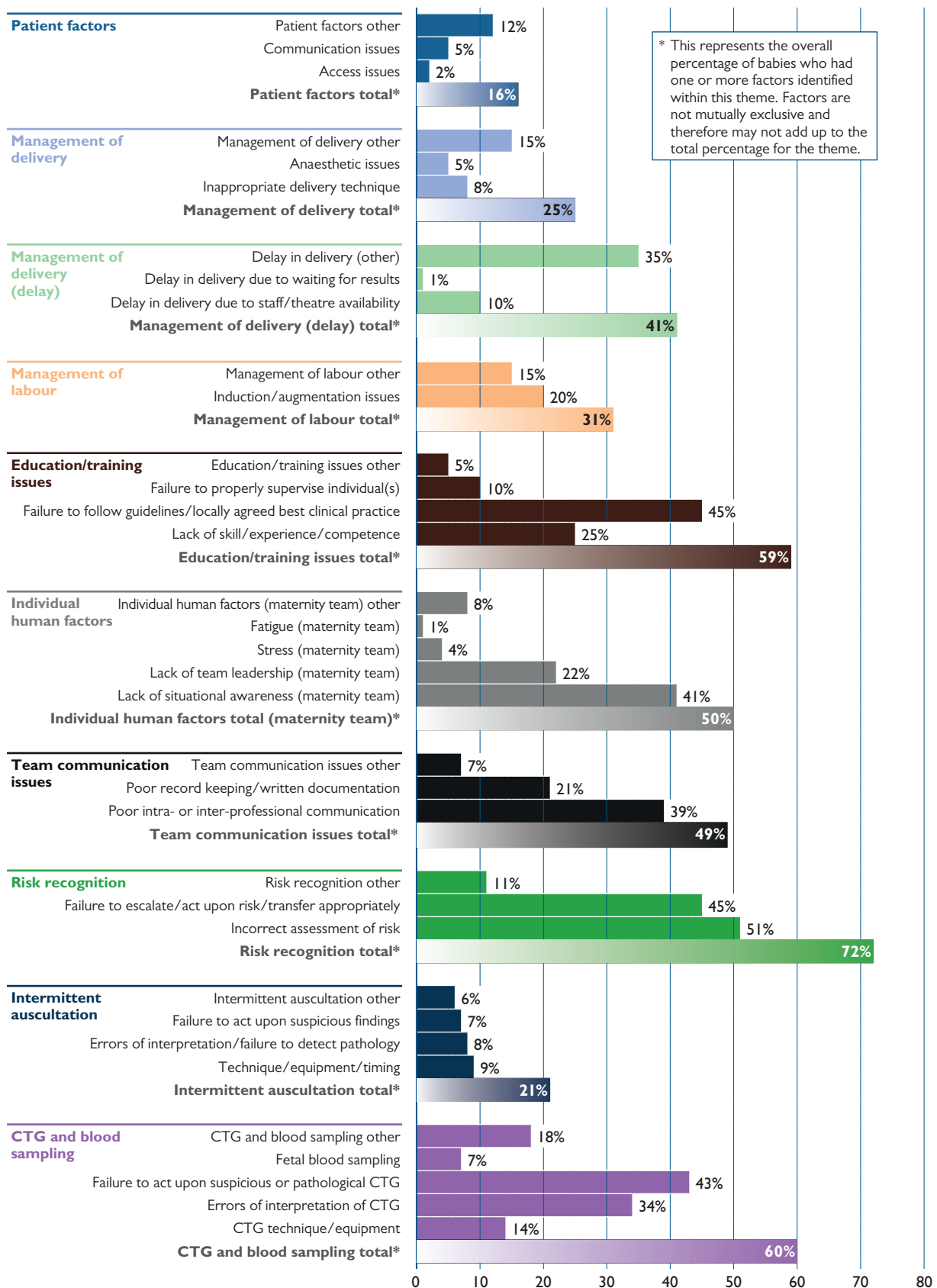
**Figure 9** Proportion of babies for whom different care might have made a difference to the outcome (N=955)

Each Baby Counts neonatologist specialist reviewers assessed the care given to 271 babies whose reviews contained sufficient information for an assessment to be made about the neonatal care. In 124 (46%) of these reviews, the neonatal reviewer considered that different neonatal care might have made a difference to the outcome (Figure 10). In the remaining 147 (54%) reviews, the neonatal reviewer considered that different neonatal care is unlikely to have made a difference to the outcome. This result highlights the importance of neonatal involvement in reviews because, even when the need for improvements in obstetric care have been identified, there may be further improvements in neonatal care that a specialist neonatal reviewer may identify.

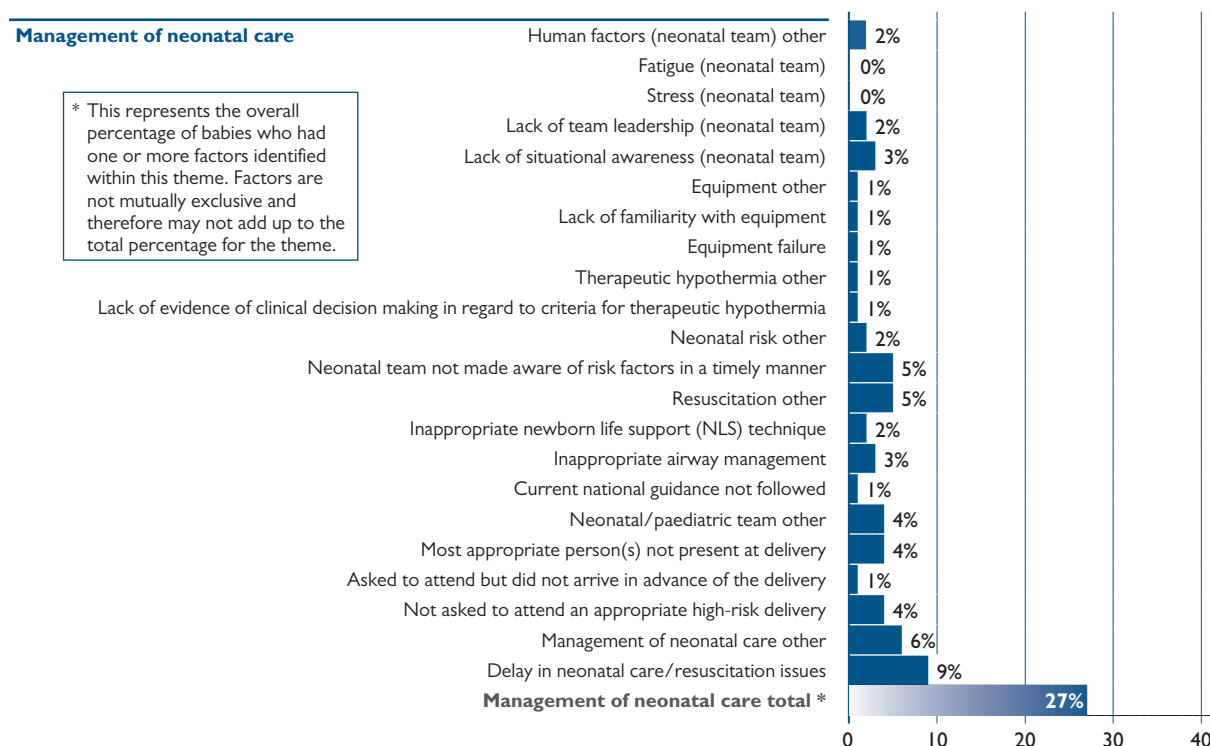


**Figure 10** Proportion of babies for whom different neonatal care might have made a difference to the outcome (N=271)

Where a reviewer considers that different care might have made a difference to the outcome, they are asked to indicate what the critical contributory factors were in the care provided. The distribution of these critical contributory factors for babies born in 2016 is outlined in Figure 11 for all themes excluding neonatal care, which is outlined separately in Figure 12.



**Figure II** Critical contributory factors identified in babies for whom different care might have made a difference to the outcome (N=674); note that each baby has potentially two or more reviewers identifying contributory factors and multiple factors may apply to the same baby

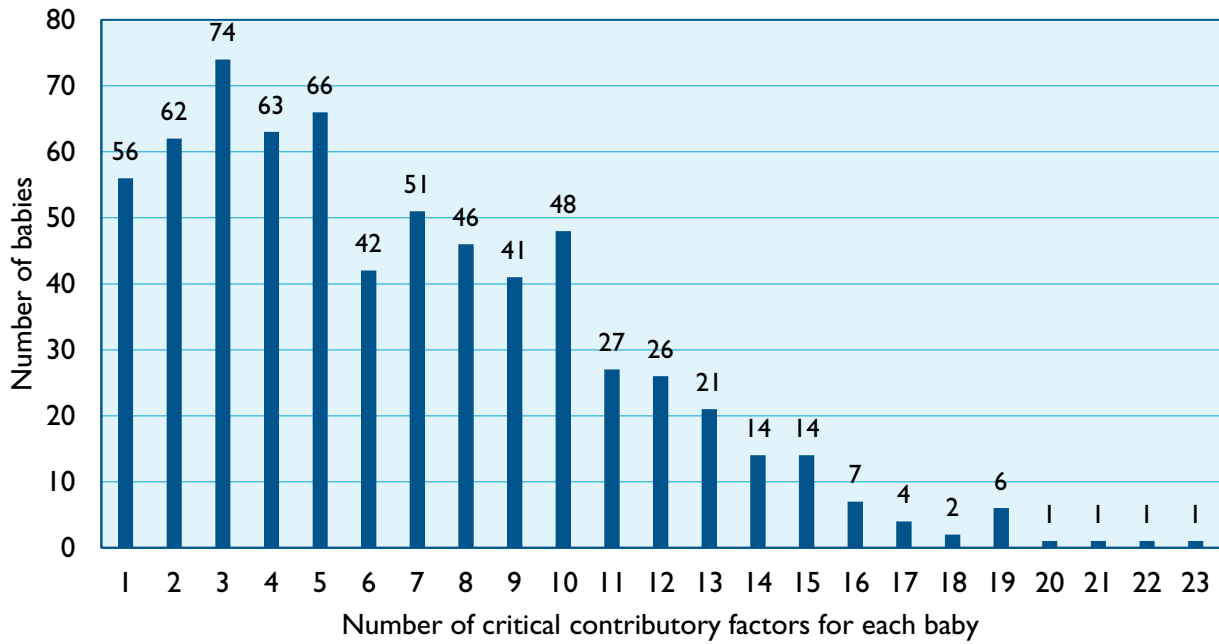


**Figure 12** Critical contributory factors in neonatal care identified in babies for whom different care might have made a difference to the outcome (N = 271); note that each baby has potentially two or more reviewers identifying contributory factors and multiple factors may apply to the same baby

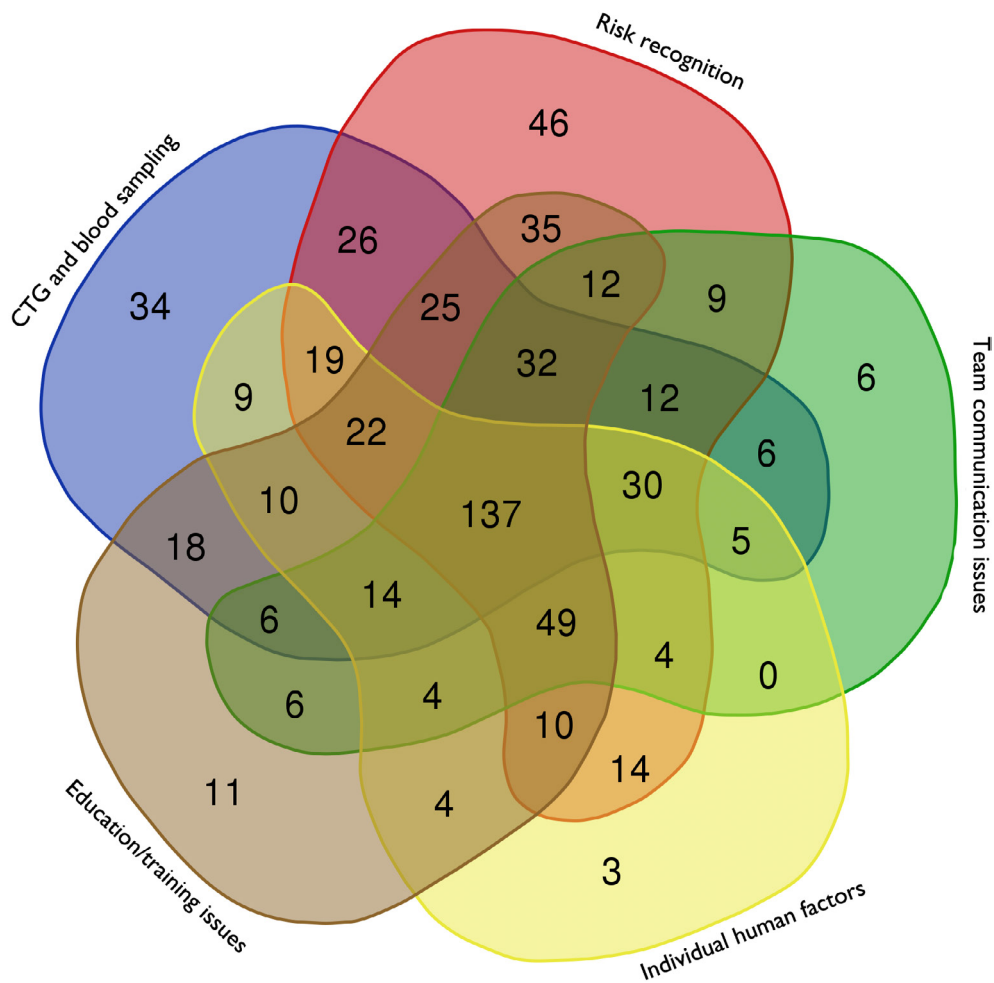
The review of care for the 674 babies where at least one reviewer considered that different care might have made a difference to the outcome identified a total of over 4500 critical contributory factors. It is worth noting that each baby can have up to five reviewers from different specialties assess their care and multiple factors can be identified by each reviewer. The average (mean) number of critical contributory factors identified for each baby was 7 and this demonstrates the complexity of interactions between clinical and non-clinical factors, which can often be interrelated. The total number of critical contributory factors varied between cases from one factor identified in the care of 56 babies to 23 factors identified in the care of one baby. Figure 13 shows the distribution of the total number of critical contributory factors identified for each baby where at least one reviewer considered that different care might have made a difference to the outcome.

Each critical contributory factor is categorised under the most appropriate theme. Figure 14 shows the interrelatability of the five themes in which critical contributory factors were identified most frequently by Each Baby Counts reviewers. At least one factor in one of the most common themes was identified in the care of 618 babies. The remaining 56 babies did not have a critical contributory factor falling under one of these five themes identified in their care. Note that these 56 babies do not directly correspond with the 56 babies discussed in the previous paragraph where only a single critical contributory factor was identified in their care.





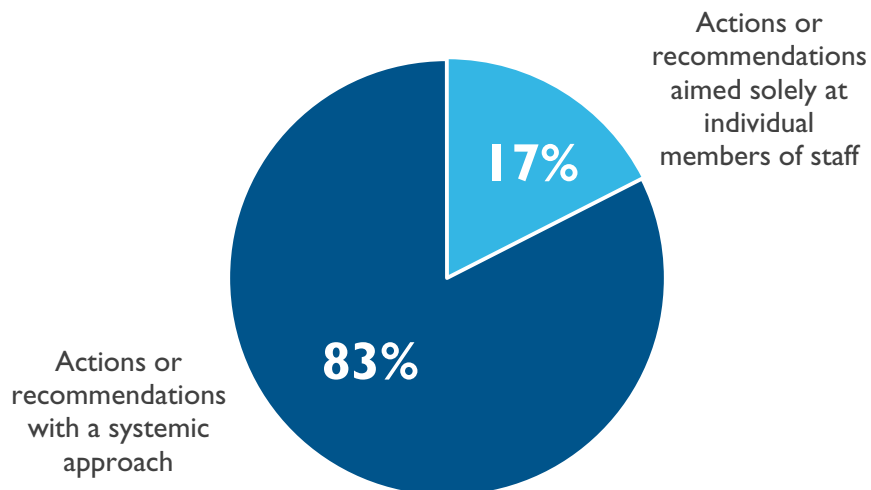
**Figure 13** Distribution of the total number of critical contributory factors identified for each baby (N=674)



**Figure 14** Interrelatability of the five most commonly identified themes (N=618); diagram produced using <http://bioinformatics.psb.ugent.be/webtools/Venn/>

## What are the actions that follow local reviews?

Of the 955 local reviews that contained sufficient information for an assessment of care, 103 (11%) contained no actions or recommendations. Of the 852 local reviews that did contain clear actions or recommendations, 149 (17%) had actions or recommendations that were aimed solely at individual members of staff (for example, a requirement to attend further training). The remaining 703 reviews (83%) contained actions or recommendations that took a systemic approach (Figure 15), which is a significant improvement over the 77% in 2015.<sup>1</sup>



**Figure 15** Recommendations and actions from the local reviews (N=852)

# Appendix: Additional resources

The **RCOG** is committed to understanding the workforce challenges that currently exist and through ‘**Supporting our Doctors**’ and **Workforce Task Groups** is working closely with members through focus groups and surveys to understand the extent and nature of their workforce challenges and to develop meaningful and sustainable solutions. [[www.rcog.org.uk/en/careers-training/workplace-workforce-issues/support-for-doctors-in-difficulty/](http://www.rcog.org.uk/en/careers-training/workplace-workforce-issues/support-for-doctors-in-difficulty/)]

The **Royal College of Midwives (RCM)** ‘**Caring for You**’ campaign aims to improve RCM members’ health, safety and wellbeing at work so they are able to provide high-quality maternity care for women and their families through a charter that heads of midwifery are encouraged to sign up to and implement locally. [[www.rcm.org.uk/caring-for-you-campaign](http://www.rcm.org.uk/caring-for-you-campaign)]

**NHS Resolution’s CNST Maternity Incentive Scheme** introduced a series of standards that all units in England should adhere to in order to receive a 10% reduction in CNST payments. [<https://resolution.nhs.uk/services/claims-management/clinical-claims/clinical-negligence-scheme-for-trusts/maternity-incentive-scheme/>] The following directly relate to this report:

- Evidence of the use of the Perinatal Mortality Review Tool (PMRT) to review perinatal deaths.
- Evidence that the obstetric unit midwifery labour ward coordinator has supernumerary status (defined as having no caseload of their own during that shift) to enable oversight of all birth activity in the service.
- Evidence of a systematic, evidence-based (Birthrate+) process to calculate midwifery staffing establishment.
- Evidence that no more than 20% of middle-grade sessions on labour ward are filled by consultants acting down from other sessions.
- Evidence that 90% of each maternity unit staff group have attended an ‘in-house’ multi-professional maternity emergencies training session within the last training year. Training should include fetal monitoring in labour and integrated teamworking with relevant simulated emergencies and/or hands-on workshops. The training syllabus should be based on current evidence, national guidelines/recommendations, any relevant local audit findings, risk issues and case-review feedback, and include the use of local charts, emergency boxes, algorithms and pro-formas. There should also be feedback on local maternal and neonatal outcomes.
- Evidence that the trust safety champions (obstetrician and midwife) are meeting bi-monthly with board-level champions to escalate locally identified issues.

The **Healthcare Safety Investigation Branch (HSIB)** is undertaking independent investigations of all babies meeting the Each Baby Counts criteria to identify the factors that may have contributed towards death or harm and to use evidence-based accounts

to establish what has happened and why. They plan to work alongside staff in all English maternity units by March 2019, to ensure local and clinical knowledge is incorporated into the review alongside parent perspectives. [[www.hsib.org.uk/maternity/](http://www.hsib.org.uk/maternity/)]

**National Maternity Safety Champions (NHS Improvement)** – Dr Matthew Jolly and Professor Jacqueline Dunkley-Bent have been appointed to work across professional groups and system boundaries to maintain the emphasis on high-quality, safe maternity care for women and newborns, and to promote learning and innovation, seeking out best practice and sharing it across the system. Maternity clinical networks were asked to designate a **maternity safety champion as local quality-improvement adviser**, coach and conduit for sharing learning from national and international research and from local investigations or initiatives. The role includes fostering relationships between maternity clinical networks and neonatal operational delivery networks. [<https://improvement.nhs.uk/resources/maternity-safety-champions/>]

At provider level, to promote unfettered communication from ‘floor-to-board’, the *Safer maternity care* action plan sets out the need for a **board-level maternity safety champion** to ensure a board-level focus on improving safety and outcomes as part of improving maternity services.

The **Maternal and Neonatal Health Safety Collaborative (NHS Improvement)** [<https://improvement.nhs.uk/resources/maternal-and-neonatal-safety-collaborative/>] is a three-year programme, launched in February 2017. The collaborative covers all maternity and neonatal services across England and aims to:

- improve the safety and outcomes of maternal and neonatal care by reducing unwarranted variation and provide a high-quality healthcare experience for all women, babies and families across maternity and neonatal care settings
- contribute to the national ambition, set out in *Better Births*, of reducing the rates of maternal and neonatal deaths, stillbirths, and brain injuries that occur during or soon after birth by 20% by 2020.

**1000 Lives Improvement** is the national improvement service for **NHS Wales**. This has established the Maternity Network Wales, a group of NHS professionals and service users working together to improve the quality and safety of maternity services in Wales for anyone who uses the services or comes into contact with them. This includes the **Safer Pregnancy** campaign that highlights the importance of keeping safe during pregnancy to reduce the risk of stillbirth and aims to help expectant mothers and healthcare professionals talk about what can be done to keep safe. [[www.1000livesplus.wales.nhs.uk/home](http://www.1000livesplus.wales.nhs.uk/home)]

The **Northern Ireland Maternity Collaborative** for trust obstetric services is supported by an independent Quality and Safety Forum. It is working to improve maternity safety across Northern Ireland, with many regional Each Baby Counts Lead Reporters also being members of the Collaborative. [[www.publichealth.hscni.net/directorate-nursing-and-allied-health-professions/hsc-safety-forum/maternity](http://www.publichealth.hscni.net/directorate-nursing-and-allied-health-professions/hsc-safety-forum/maternity)]

**Being Open in NHSScotland** [[www.healthcareimprovementscotland.org/our\\_work/governance\\_and\\_assurance/learning\\_from\\_adverse\\_events/being\\_open\\_guidance.aspx](http://www.healthcareimprovementscotland.org/our_work/governance_and_assurance/learning_from_adverse_events/being_open_guidance.aspx)] is an approach to learning from adverse events through reporting, review and the sharing of learning that:

- supports a consistent approach across Scotland to identification, review, reporting and learning from adverse events based upon national and international good practice
- promotes the sharing of learning points following adverse event reviews through the Community of Practice site, regular network meetings and the publication of an annual Learning and Improvement report featuring good practice and improvement examples
- supports a consistent approach to Being Open with people following an adverse event
- provides public assurance on the appropriate management of adverse events through progress meetings with NHS boards and engagement with NHS representatives through its adverse events network and short-life working groups

The **Maternity and Children Quality Improvement Collaborative (MCQIC)** brings together the Scottish Patient Safety Programme's (SPSP) maternity, neonatal and paediatric programmes to improve the quality of care to women, children and their families across Scotland through the use of quality improvement methodology. From 2013, MCQIC has supported and empowered NHS boards to increase local capacity and capability of quality improvement through the teaching of quality improvement methodology at national learning sessions, support visits to every NHS board and unit, WebEx sessions, networking events, data analysis and ongoing support and coaching of QI methodology. The MCQIC programme has supported a 22.5% reduction in stillbirth and 17% reduction in neonatal mortality by testing clinical changes to practice in fetal monitoring, smoking cessation and fetal movement. In addition, embracing teamwork, communication and collaboration by focusing on safety culture, team huddles and debriefs, just to name a few, has no doubt contributed to these improvements. The impact of its work in reducing stillbirths can be accessed on page 11 within the *iHub Impact Report 2017-18* at <https://ihub.scot/media/4029/ihub-impact-report-2018-digital.pdf>.

The **Maternity and Neonatal Adverse Event Review Process** for Scotland promotes learning from adverse events through reporting. Structured review is fundamental to drive continuous improvements to deliver safe and effective person-centred care. The principles underpinning learning from adverse events in Scotland are described within the NHS national framework developed by Healthcare Improvement Scotland (HIS). To ensure consistency across Scotland, a national standardised multidisciplinary approach to the review of adverse events in maternity and neonatal services is proposed. This approach includes a clear pathway which clarifies the level of review required and the mechanisms that need be in place to support the review process, provides guidance on who should be involved at each level, and describes a system of capturing and sharing learning. This approach is being piloted currently and will be rolled out across Scotland in 2019. [[www.healthcareimprovementscotland.org/our\\_work/governance\\_and\\_assurance/learning\\_from\\_adverse\\_events/national\\_framework.aspx](http://www.healthcareimprovementscotland.org/our_work/governance_and_assurance/learning_from_adverse_events/national_framework.aspx)]

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