Royal College of Midwives

Royal College of Obstetricians & Gynaecologists

each baby counts +
learn & support

Final Evaluation Report

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Contents

Abbreviations

AID	Advice, Inform, Do
CQC	Care Quality Commission
CTG	Cardiotocograph
DGH	District General Hospital
DHSC	Department of Health and Social Care
EBC L&S	Each Baby Counts + Learn and Support
GDPR	General Data Protection Regulation
HSIB	Healthcare Safety Investigation Branch
LDL	Local Development Leads
LMS	Local Maternity System
MatNeoSIP	Maternal and Neonatal Safety Improvement Programme
MCA	Maternity Care Assistant
MDT	Multi-disciplinary teams
NHS	National Health Service
NHSEI	NHS England and NHS Improvement
PMA	Professional Midwifery Advocate
PROMPT	Practical Obstetric Multi-Professional Training
QI	Quality Improvement
RCM	Royal College of Midwives
RCOG	Royal College of Obstetricians and Gynaecologists
SBAR	Situation, Background, Assessment, Recommendation
TA	Thematic analysis
TDF	Theoretical Domains Framework
TIDieR	Template for Intervention Description and Replication

Within this document we use the terms woman and women's health. However, it is important to acknowledge that it is not only women for whom it is necessary to access women's health and reproductive services in order to maintain their gynaecological health and reproductive wellbeing. Gynaecological and obstetric services and delivery of care must therefore be appropriate, inclusive and sensitive to the needs of those individuals whose gender identity does not align with the sex they were assigned at birth.

Acknowledgements

This report has been prepared by the Each Baby Counts Learn and Support Team including (in alphabetical order):

- **Aaliya Ali** – Research Assistant
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- **Susie Crowe** – Clinical Programme Lead
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- **Mandy Forrester** – Programme Lead
- **Ann Morling** – Midwifery Consultant
- **Suzette Woodward** – Clinical and Professional Advisor for Patient Safety

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Finally, we would like to express our sincere gratitude to all of the Local Development Leads who participated in this Programme. Without their unwavering dedication, hard work and strength during one of the most difficult periods in their professional and personal lives, it would not have been possible to achieve the successes highlighted in this report.

Foreword

Providing safe, high quality care is the aim of everyone in maternity services, particularly midwives and obstetricians. It's a shared enterprise, which is why programmes like Each Baby Counts Learn and Support are so important. Its successful delivery is thanks to close collaboration, mutual respect, and teamwork from both professions, which is a theme of the project throughout.

Each Baby Counts Learn and Support was a project proposal that Eddie developed when he was Vice President for the Royal College of Obstetricians and Gynaecologists, along with colleagues at the Royal College of Midwives. It has been supported and funded by the Department of Health and Social Care, to whom we are very grateful. It followed on from the successful RCOG project Each Baby Counts, which has become one of the most influential pieces of work by the College. Its aim was to show how learning in maternity should be taken from the identification of an issue to be addressed, identify and train the right people and to effect change in a sustainable way.

It hasn't been without its challenges. Working through a global pandemic wasn't something we had anticipated, so we give full credit to the teams who have found creative solutions to continue to collaborate and to get us to this point. With this programme as the natural progression of Each Baby Counts, we have successfully built the capacity of frontline maternity professionals in clinical leadership, safety thinking and quality improvement, who used this to deliver bottom-up change. We want Each Baby Counts Learn & Support to impact the wider maternity safety landscape in a positive way, with solutions and interventions to improve maternity care for both staff, and the women, birthing people, and babies we care for.

All Trusts and maternity leaders should consider the contents of this report not only in the context of what was done but also how it was achieved. As maternity professionals, you already know what the problems are and often what you need to do to get to a better place.

The RCOG and RCM share a joint commitment to effect change and to improve the evidence base that captures this. Each Baby Counts Learn & Support has paved the way for other projects, but more importantly the relationship between the professions and the government, as evidenced by their support for our next phase, the collaboration we have with THIS institute and the project Avoiding Brain Injury in Childbirth (ABC), the results of which we will publish later in 2022.

Every avoidable harm to or loss of a baby is a tragedy. As numerous reviews of such tragedies have demonstrated, we all need not only to learn from these, but to use that learning to prevent future harms. That is what Each Baby Counts Learn & Support seeks to achieve and we are proud to share it with you.

Edward Morris
President, Royal College of Obstetricians and Gynaecologists

Gill Walton
Chief Executive, Royal College of Midwives

Executive Summary

Background

Each Baby Counts Learn and Support (EBC L&S) was a joint initiative between the Royal College of Obstetricians and Gynaecologists (RCOG) and the Royal College of Midwives (RCM), funded by the Department of Health and Social Care to improve the quality and safety of maternity services across the country.

Over the last decade, many maternity safety reports have highlighted the contributory factors to avoidable harm to women, birthing people and their families during labour. These reports also highlighted the need to shift the maternity safety culture from one of blame towards a more restorative and positive culture. The EBC L&S programme was designed to build leadership, safety and quality improvement skills for a cohort of obstetricians and midwives, known as Local Development Leads (LDLs) from 16 NHS maternity units across England. A key part of the learning was to help the LDLs to design and implement their chosen local practice changes using quality improvement, implementation science and a structured behavioural science approach, resulting in change that would be successful, sustainable, and replicable across local and regional systems.

Aims of Each Baby Counts Learn & Support

The aims were:

1. To build the capacity of 16 NHS maternity professionals in clinical leadership, safety thinking and quality improvement.

2. To facilitate a structured quality improvement process within 16 maternity units around the country, using behavioural science to improve clinical escalation in intrapartum settings.

3. To evaluate the programme's training and development approach (to develop a sustainable approach to building capacity) and the impact of the specific co-designed intervention strategies on clinical escalation.

How We Achieved our Aims

Sixteen NHS trusts around England were selected to participate in the programme. Each had an assigned LDL, backfilled one day per week.

The EBC L&S programme was comprised of two core interlinked elements: '**learn**' and '**support**'. For the 'learn' element, following an analysis of safety reports to identify key themes, monthly workshops were held to develop the LDLs' clinical leadership skills, knowledge and awareness of key maternity safety concepts, as well as capability in quality improvement. The support element included peer to peer support together with expert coaching and mentorship. Combining 'learn and support' together, the LDLs co-produced interventions to improve clinical escalation. These were tested, refined and then implemented across the 16 units. This learning will be shared nationally with other maternity units.

Quality improvement approach

We employed a step-wise structured quality improvement approach. This included:

1. **Diagnostic phase** – LDLs undertook detailed diagnostics including structured observation, analysis of serious incident reports, consultations with staff and women to understand safety and culture in their respective units and explored the barriers and facilitators to effective clinical escalation. The barriers were mapped onto the COM-B model[20], a comprehensive behavioural science framework that combines many theories and models of behaviour change.
2. **Design phase** – Designed three interventions addressing the barriers identified through the diagnostic work to have a positive impact on women, pregnant people and their families, by encouraging psychological safety and a culture of speaking up.
3. **Implementation phase** – The three interventions were implemented across the 16 units between March-August 2021. The interventions were launched using a campaign approach with the strapline of 'Identify – Communicate – Act', to encompass the different components of clinical escalation.
4. **Monitoring and evaluation** – Mixed methods data were collected throughout the programme including interviews with the LDLs, baseline and post implementation surveys with staff across the 16 units, intervention specific surveys as well as qualitative feedback from a selection of staff across the 16 units.

Interventions developed and tested

The three interventions designed and tested by the LDLs were:

Team of the Shift

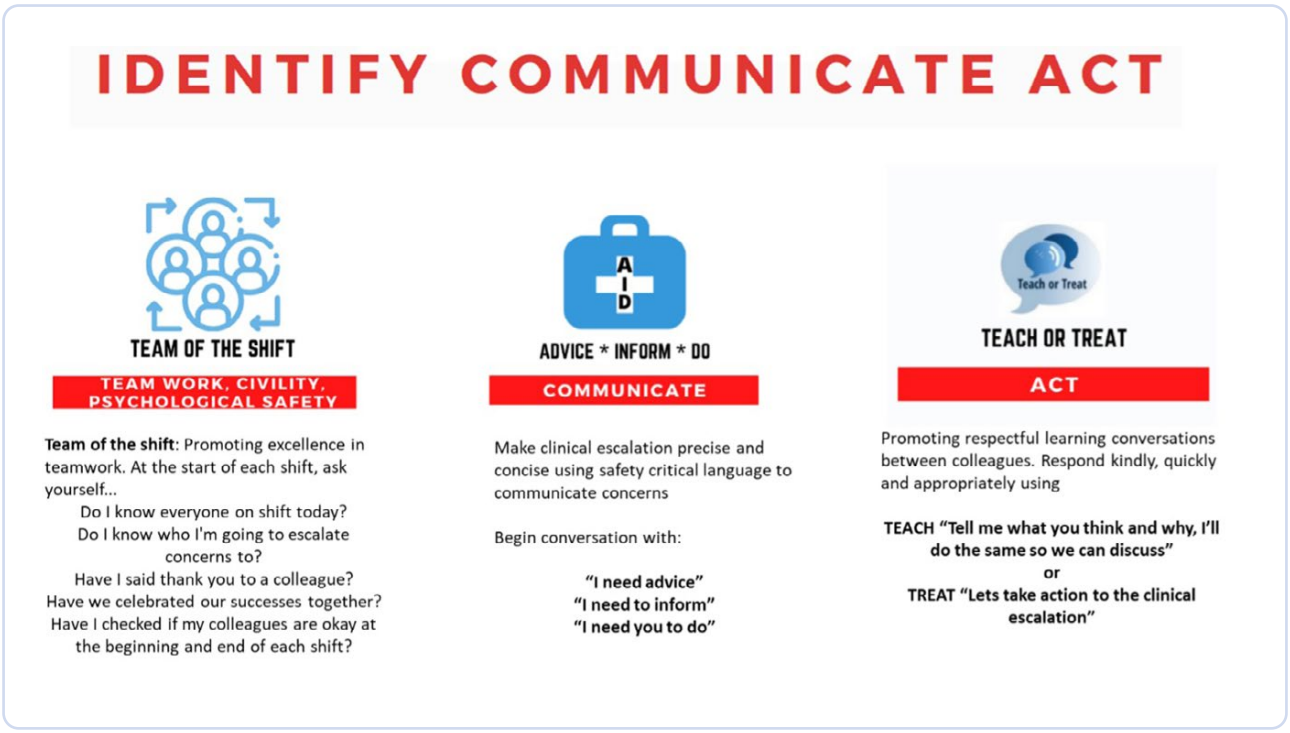
To enable multi-disciplinary teams to easily identify who to escalate to and establish psychological safety at the start of every shift.

Advice – Inform – Do

Safety critical phrases to make clinical escalations concise and precise.

Teach or Treat

Promoting respectful feedback and learning conversations between colleagues.



What We Found

The findings from our evaluation highlighted many positive impacts of EBC L&S. From the LDLs perspective, this included increased confidence to lead change, improved working relationships with colleagues, deeper understanding of key safety concepts and their relevance to maternity services, as well as professional development and career progression. The network and community of practice built by the multi-disciplinary group LDLs was also a strong determinant of the LDLs' success.

The multi-method diagnostics undertaken by the LDLs highlighted similar barriers to effective clinical escalation across the 16 units. These included a lack of role clarity as to who to escalate to, frequent communication using vague language, and receipt of negative responses to escalations. The three interventions were designed to specifically enable teams to overcome these barriers.

Successful implementation of the interventions was largely due to the 'bottom-up' approach with the LDLs involving their frontline colleagues from the beginning, direct staff engagement, integration of the interventions into existing unit practices, role modelling of desired behaviours by the LDLs together with prompts and rewards for staff in the form of posters, pens and cakes.

Implementation challenges included the COVID-19 pandemic that impacted on unit staffing, staff morale and engagement with the interventions. Nevertheless, the interventions were reported as relevant, well accepted by multi-disciplinary staff with high levels of adoption. Positive impacts included improved psychological safety, confidence and empowerment of staff in speaking up. Overall, the interventions improved clinical escalation through increasing the participants' capability, opportunity and motivation with regards to knowing who to escalate to (capability), perceived approachability of colleagues (social opportunity) and believing that their role included speaking up about concerns (motivation).

What We Learnt about Improving Safety and Culture in Maternity

Methodology

We demonstrated a feasible and highly informative approach using behavioural science to design, implement, and evaluate interventions in maternity. The structured behavioural approach allowed us to design impactful interventions that addressed the key barriers and clearly defined the changes teams needed to make on a daily basis in concrete and measurable terms.

Adoption

All units implemented the same interventions, although each unit had the ability to modify its approach to implementation. This demonstrated that quality improvement work can be driven nationally, as long as local adaptation is accepted and encouraged.

Engagement

A 'bottom-up approach' and involving frontline staff in the co-production and implementation of interventions led to high levels of engagement, acceptability and adoption.

Replicability

By introducing the interventions in a diverse range of units (teaching hospital, DGH, rural, inner-city), the programme also demonstrated that positive change is possible everywhere, and maternity units have significant commonalities, no matter where in the country they sit geographically and socio-economically.

Diversity

A key facilitator of success was the multi-disciplinary community of practice created amongst the LDLs. This allowed them to channel enthusiasm, share and learn from successes, and overcome barriers to change. Bringing together clinicians from different roles and backgrounds, as well as different levels of experience in change management and leadership created a cohort that could bond, learn from, and inspire each other.

Role-modelling

Our evaluation also highlighted the importance of having clinically based LDLs who were working alongside their multidisciplinary team colleagues, role-modelling the desired practices and behaviours as crucial to implementation success. Furthermore, protected time, support and endorsement by senior leaders were also pivotal for building successful engagement and adoption.

Sustainability and Spread

Learning from EBC L&S has been shared with other national organisations, projects and initiatives, including NHS Resolution, HSIB, other work streams within NHSEI including culture and leadership, and most notably, MatNeoSip. Various other suggestions that are being explored include introducing the concepts through the fetal monitoring networks, via the RCOG trainees' curriculum, and the curricula of student and preceptor midwives.

Moving forward, there is an ambition for the behavioural aspects of escalation as addressed by EBC L&S to fit into the frameworks being developed by NHSEI on the recognition of the deteriorating mother and baby. This will be supported by the output of the programme; an online toolkit, which includes training videos on the interventions for use in training sessions.

Part One – The Each Baby Counts Learn & Support Programme

1. Background and introduction

Each Baby Counts Learn and Support (EBC L&S) was a joint initiative between the Royal College of Obstetricians and Gynaecologists (RCOG) and the Royal College of Midwives (RCM), funded by the Department of Health and Social Care (DHSC).

The programme commenced in 2019 with the aim of using the learning from the RCOG's Each Baby Counts Programme to build leadership, safety and quality improvement skills for a cohort of obstetricians and midwives (Local Development Leads; LDLs) from a variety of units across the NHS in England. Following a structured quality improvement process involving detailed diagnostics, the leads chose clinical escalation as the topic to focus on and were provided support to design, develop and implement interventions to improve escalation. The following evaluation report will describe the programme in detail.

Background

We want the UK to become known as the safest place in the world to give birth. Around 700,000 babies are born in the UK every year[1]. The vast majority are born safely, but more than 1,000 babies die or suffer a brain injury during or shortly after term labour[2]. Many of these cases are preventable, and recurrent reports have indicated that amongst other factors, improved culture in maternity will contribute towards better care and outcomes for women and babies.

Despite the wealth of information on the causes of perinatal and maternal mortality and morbidity, national maternity safety reports continue to highlight similar concerns with the culture of maternity care. It was recognised there was an urgent need to systematically implement the learning from maternity safety reports to improve the quality and safety of maternity and neonatal services across the country. Recognising this need, the Department of Health funded the RCOG and the RCM to establish the EBC L&S programme to design and evaluate an approach that combined quality and safety improvement and, building local clinical leadership and capacity to implement change, as the cornerstone of a consistent and sustainable safety strategy across the regional and local systems[3].

The challenge of change

Change management is the complex process of translating policy or theory or interventions into practice. The challenge is to convince people to adopt and implement changes on a daily basis especially if they don't see a significant and large change[4]. This is the context that the local

development leads (LDLs) faced. A core focus of the EBC L&S programme was therefore to aid understanding of these challenges as part of the LDLs' development programme.

Enabling healthcare practice change through quality improvement and behavioural science

Quality improvement approaches are widely implemented across the NHS to help drive changes in the quality and safety of care, however it is recognised that a significant challenge lies in sustaining initiatives. Implementing recommendations from maternity safety reports is likely to involve a series of complex changes in the practices of health professionals, managers and strategic leads[5]. Furthermore, this process is highly dependent on the dynamic interaction between individual, team and organisational level factors[6]. However, traditional approaches to quality improvement have tended to focus on efficacy and the demonstration of change with little attention to context, precise reporting of what has been delivered (content) and the mechanisms change[7,8]. This means change is rarely replicable or sustainable. There is evidence to suggest that quality improvement projects with a clear focus on measurement and guidance may have an increased likelihood of success[9].

The use of behavioural science provides a structured framework alongside tried and tested tools to further enable and strengthen the quality improvement process. A further aim of the EBC L&S programme was to provide the LDLs with knowledge of behavioural science as a way to help elucidate the challenges health professionals encounter in adopting new practices and design impactful interventions that empower teams to overcome barriers to change. The programme wanted to use a structured behavioural science approach to help bridge the policy-practice gap by clearly delineating the changes teams need to make on a daily basis in concrete and measurable terms. Such approaches have been successfully applied to guide quality improvement in a range of health settings including antibiotic prescribing[10], organ donation[11] and sepsis management[7].

Culture in Maternity Care

Culture is part of our everyday language and used frequently in reference to improving safety. The culture of an organisation is often described as the way 'we do things around here' and, how we behave when no one is looking, i.e., the way we behave towards one another and how we work together[4].

We know from a number of patient safety inquiries that the safety culture in the NHS needs shifting from one of blame towards a more restorative and positive culture. This is no different in maternity care. While the majority of units are building a positive culture whereby staff are able to speak up, ask questions, contribute and challenge this is not consistent across the NHS. A culture of safety requires compassionate leadership, a psychologically safe environment, inclusivity and a just culture as well as an understanding of what works as much as what doesn't (Safety-II)[4].

Despite the link between poor working cultures and adverse outcomes for mothers and babies being highlighted in so many national reports over the last decade, the interim report into Shrewsbury and Telford NHS Trust demonstrated that we still have a long way to go to tackle the problem[12]. These units do not represent isolated pockets of practice and it has long been recognised that largescale cultural improvements need to be made nationally in maternity care.

This requires a multifactorial approach.

The EBC L&S programme therefore focused on both compassionate leadership, and the creation of learning cultures demonstrated through a commitment to safety thinking and a focus on a safety II approach. It also highlighted the creation of a positive workplace culture for the whole multidisciplinary team that promotes high levels of psychological safety and excellence in teamwork and leadership, through a sound understanding of behaviours and human factors.

Achieving Real Change in Maternity Safety – from Recommendations to Action

One of the things the EBC L&S programme set out to achieve was to harness the drive and enthusiasm exhibited by many maternity professionals to contribute positively to the maternity safety landscape, locally, regionally, and nationally. It was recognised that the programme would have faltered had it just been a theoretical course – supporting the LDLs to achieve real change in the maternity services in which they worked was a key output, both for their own professional development, as well as the benefit for the wider maternity system.

To realise this vision, a structured approach to quality improvement methodology was designed to support the LDLs to improve clinical escalation across intrapartum settings. Clinical escalation was chosen for a number of reasons. Firstly, findings from the RCOG 2018 Each Baby Counts Report highlighted that 674 babies (71%) might have had a different outcome with different care[13]. Moreover, at least one reviewer deemed the 'failure to escalate/act upon risk/transfer appropriately' as contributory factors to stillbirth or neonatal death in 36% (358/986) of reports.[13] Failures in clinical escalation have also repeatedly been cited in other maternity safety reports.[14, 15, 16, 17, 18]

There are multiple systems in place in maternity settings to recognise deterioration and the need to escalate, but there are very few structured approaches to standardise the behavioural and communication aspects of effective clinical escalation. Addressing this issue therefore had the potential to positively impact on maternity unit culture, as improving clinical escalation would require solutions to flatten hierarchies, provide psychologically safe working environments, promote optimal teamwork, and support staff.

Aims of EBC L&S involving the capacity building of QI and leadership in frontline maternity professionals.

EBC L&S was created as a national programme of work designed to create solutions to the problems identified in recurrent safety reports. The aims were as follows:

1.

To build the capacity of 16 NHS maternity professionals in clinical leadership, safety thinking and quality improvement. Each of these professionals would be known as a "Local Development Lead" (LDL).

2.

To facilitate a structured quality improvement process within 16 maternity units around the country, using behavioural science to improve clinical escalation in intrapartum settings.

3.

To evaluate the programme's training and development approach (to develop a sustainable approach to building capacity) and the impact of the specific co-designed intervention strategies on clinical escalation.

2. Overview of EBC L&S

Summary box 1

The EBC L&S programme was comprised of two core interlinked elements: **'learn'** and **'support'**. For the 'learn' element, following an analysis of safety reports to identify key themes, monthly face-to-face workshops from May 2019 were planned to develop the LDLs' clinical leadership skills, knowledge and awareness of key maternity safety concepts, as well as capability in quality improvement. They also undertook detailed diagnostic work with a focus on maternity safety and culture within their own units, including both clinical observation and an analysis of serious incident reports. As part of the 'support' element, LDLs were supported to co-produce interventions to improve clinical escalation, test, refine, and then embed them within their own units, and then spread the learning locally and regionally.

The programme logic model and theory of change can be found on pages 22 and 24 and further outline the programme activities, outcomes and mechanism of change. The key components of the EBC L&S programme using the Template for Intervention Description and Replication (TIDieR)[19], a checklist for reporting and understanding the general content of interventions and to aid replication can be found in appendix A.

Overview of 16 sites and LDL roles

Recruitment

The programme commenced with a recruitment process which started in March 2019. An application pack was sent to maternity units in England inviting them to apply. It explained that we were seeking a broad mix of midwives and obstetricians and welcomed applications from those in senior positions as well as midwives or obstetricians seeking opportunities to support their career development. Successful nominations needed to demonstrate experience of introducing quality and safety improvements or change initiatives into their workplaces, and an ability to thrive in a team based/peer learning environment. These skills were outlined within the main duties and person specification. It was also emphasised that it was important that any applicant should be able to link with or have participated in the NHS England and NHS Improvement Maternity and Neonatal Safety Improvement (MatNeoSip) programme to ensure coordination and shared learning.

Sixteen frontline maternity professionals (initially 13 midwives and 3 obstetricians) were selected to act as 'local development leads' (LDLs) within their host NHS organisations with posts being back-filled (0.2WTE) by the EBC L&S programme. Inclusion criteria for the selection of LDLs included:

- A commitment from Trust management for the Local Development Lead to be seconded to the programme for the equivalent of one day per week for two years from May 2019
- The trust must have been through Wave 1 or 2 of the NHS England and NHS Improvement MatNeoSip programme.
- Each unit had to provide a named Trust Executive Board level sponsor and guarantor for EBC L&S participation.

- A named maternity-unit level sponsor, either a Director/Head of Midwifery or the Clinical Director (or equivalent).
- Demonstration of a strong link with the Local Maternity Systems and any other relevant regional improvement initiatives.

Trusts who were in special measures, those rated as outstanding or maternity units already being supported by other organisations (e.g. CQC or NHSEI) were excluded from taking part in the EBC L&S programme.

Table 1: Demographic profiles of the 16 units participating in EBC L&S

Trust	Hospital where interventions were implemented	LDL	LDL Role
Royal Wolverhampton NHS Trust	New Cross Hospital	Dr Nina Johns	Consultant Obstetrician
West Hertfordshire Hospitals NHS Trust	Watford General Hospital	Lydia Gerrie May 2019 – Jan 2020 Zowie Guminska Jan 2020 - June 2021	Maternity Matron Ward Manager for Antenatal Services
Wirral UHT	Arrowe Park Hospital	Dr Libby Shaw	Consultant Obstetrician and Gynaecologist, Labour Ward Lead
Calderdale and Huddersfield Foundation Trust	Calderdale Royal Hospital	Jill Bellerby	Maternity Patient Safety and Quality Midwife
East Suffolk and North Essex NHS Foundation Trust	Colchester Hospital	Sandra Gosling until July 2021	Clinical Specialist Midwife/ Midwifery Matron
Leeds Teaching Hospitals (LTHT)	Leeds General Infirmary and St James Hospital	Theresa Fitzpatrick	Senior Midwife/Delivery Suite Co-ordinator. Fetal Monitoring Midwife from Jan 2021
Royal Devon and Exeter NHS Foundation	Royal Devon and Exeter	Hannah Rutter May 2019 - Dec 2019 Mair Davies Jan 2019 – July 2021 Trudy Arkinstall July 2021 – Sep 2021	Clinical Midwifery Manager Professional Midwifery Advocate Clinical Midwifery Manager
Sherwood Forest Hospitals NHS Foundation Trust	Kings Mill Hospital	Susanna Al-Samarrai	Consultant Obstetrician and Gynaecologist
University Hospitals of Morecambe Bay	Furness General Hospital Royal Lancaster Infirmary	Amanda Andrews	Started as Quality Improvement Lead and subsequently Governance Lead

Type of unit: 1. Obstetric led 2. Alongside midwifery led 3. Free standing midwifery led 4. Home birth	Level of neonatal unit	Approximate births per year	Teaching hospital?	Is the hospital located in an urban/rural area?
1, 2	Level 3	5,000	Yes	Urban
1, 2, 3, 4	Level 2	4,390	No	Urban
1, 2, 3, 4	Level 3	3,100	Yes	Urban and rural
1, 2, 3, 4	Level 2	5,000	No	Urban location
1, 2, 3, 4	Level 2	3,382	No	Urban
1, 2	Level 3	8,687	Yes	Urban
1, 2, 3, 4	Level 2	4,000	Yes	Urban with rural hubs
1	Level 2	3,300	No	Urban with surrounding rural areas
1	Royal Lancaster is a Neonatal Unit & Furness General Hospital is a Special Care Baby Unit	tbc	Yes	Urban with surrounding rural areas

Table 1: Demographic profiles of the 16 units participating in EBC L&S (continued)

Trust	Hospital where interventions were implemented	LDL	LDL Role
Norfolk and Norwich University Hospital NHS Foundation Trust	Norfolk and Norwich University Hospital	Lydia Gerrie	Better Births Lead Midwife
University Hospitals Southampton NHS Foundation Trust	Princess Anne Hospital	Danielle Freemantle	Midwife - Lead Practice Educator
East Cheshire NHS Trust	Macclesfield District General Hospital	Chloe Hughes	Midwife - Saving Babies Lives Champion
Medway NHS Foundation Trust	Medway Maritime Hospital	Michelle Keeler May 2019 –Mar 2021 Francesca Whitehead Feb 2021 - Sep 2021	Fetal Well Being Midwife Band 7 Midwife Delivery Suite Coordinator
Chesterfield Royal Hospital NHS Foundation Trust	Chesterfield Royal Hospital	Annika Carney May 2019 - Jan 2020 Annie Juckes Feb 2020 - Jan 2021 Santhi Chidambaram From Feb 2021	Band 7 Midwife Band 6 Midwife Consultant Obstetrician & Gynaecologist
Kingston Hospital NHS Foundation Trust	Kingston Hospital NHS Foundation Trust	Amanda Moules	Midwifery Team Leader changed to Digital Midwife and Professional Midwifery Advocate
United Lincolnshire Hospitals NHS Trust	Pilgrim Hospital	Samantha Tinkler	Divisional Governance Support Manager

Type of unit: 1. Obstetric led 2. Alongside midwifery led 3. Free standing midwifery led 4. Home birth	Level of neonatal unit	Approximate births per year	Teaching hospital?	Is the hospital located in an urban/rural area?
1	Level 3	5,200	Yes	Rural
1, 2, 3, 4	Level 3	5,200	Yes	Urban with surrounding rural areas
Usually 1 (but currently 4) due to current inpatient services being suspended	Special Care Baby Unit	1,500	No	Rural
1, 2	Level 3	5,000	No	Urban
1, 2	Level 2	2,800	No	Urban with surrounding rural areas
1	Level 2	5,900	Yes	Urban
1	Level 1	6,000	No	Rural

Logic Model

Need/Situation

EBC L&S was created as a national programme of work designed to create solutions to the problems identified in recurrent safety reports.

Inputs

- 16 NHS maternity professionals selected as Local Development Leads (LDLs), with protected time for one day per week for the programme
- Programme delivery team comprising of two senior midwives, one obstetrician, research fellow, research assistant and project manager
- Venues/virtual platforms to deliver workshops
- Creation of local multi-disciplinary home team including user representatives led by LDL
- Programme oversight group including key stakeholders from RCOG, RCM, NHS Improvement, User representatives, King's College London

Activities

Training & development of LDLs:

- Monthly workshops with LDLs on leadership skills, safety thinking and quality improvement methodology
- Coaching and mentoring support from clinicians within core team
- LDLs to attend regional and national service improvement network meetings

Quality improvement work diagnostic phase:

- Review of report recommendations and existing literature (core team)
- LDLs to collate local evidence through serious incident (SI) reviews, focus groups and observation using a behavioural science approach

Intervention design phase:

- Creation of intervention strategies to address identified barriers

Implementation & monitoring:

- Creation of training materials, training sessions with staff prior to implementing interventions
- Collect baseline and follow up measures based on behavioural science

Outputs

Training & development of LDLs:

- Number of workshops held
- Number of attendees at workshops
- Number of coaching contacts per LDL
- Number and type of maternity safety meetings attended

Quality improvement work diagnostic phase:

- Number of consultations/ focus groups held with staff (including number of attendees and role)
- Number of consultations/ focus groups held with women (including number of attendees)
- Number, length and location of observations done
- Number and types of contributory factors identified from SI reports

Implementation & monitoring:

- Number of people and roles within home team
- Number of staff and roles attending intervention training session
- Number of responses to baseline and follow up survey

Outcomes*

Training & development of LDLs:

- Increased clinical leadership and quality improvement capability of LDLs
- LDLs' increased knowledge and awareness of key concepts in maternity safety
- LDLs' increased participation in regional and national service improvement networks

Quality improvement work:

- Increased number of staff escalating concerns across 16 units
- Reduction in reported barriers to escalation within staff across 16 units
- Implementation success in terms of the feasibility, acceptability, reach, adoption and sustainability of the intervention strategies

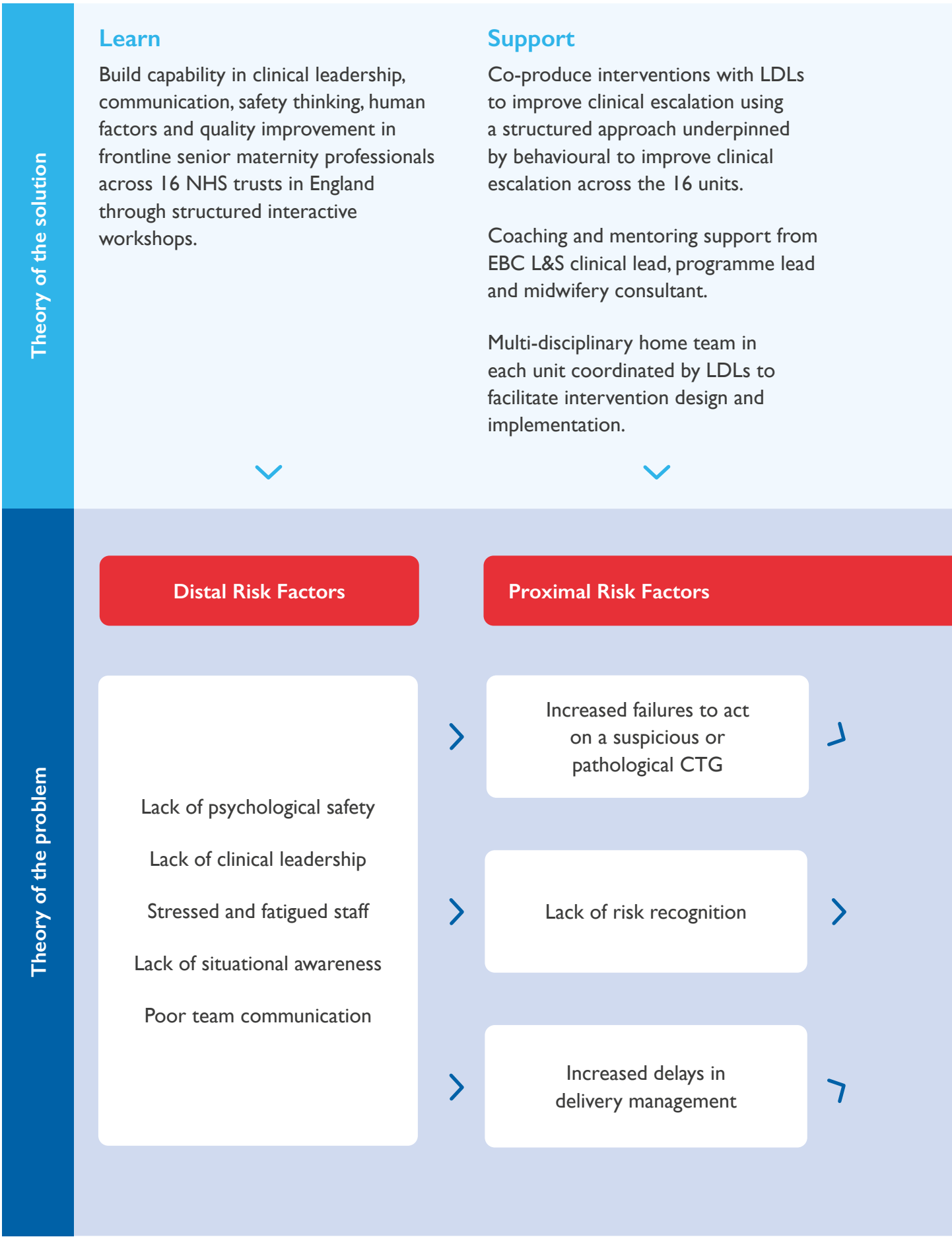
*(short term, assessed in evaluation)

Impact*

- Inform future training approaches for NHS staff and increased capability of teams to implement changes to practice
- Reduction in avoidable harm during intrapartum care as a result of escalation failures
- Improved staff well-being and reduction in attrition following serious incidents
- Women and families' increased satisfaction with maternity care
- Improved clinical escalation practice nationally through sharing learning
- Reduction in negligence payments made as a result of escalation failures

*(long term, not assessed in evaluation)

Theory of Change Model



Dissemination

Establish a community of practice and enable LDLs to share learning on local, regional and national levels through attendance at LLS, LMS and MatNeoSip CILG meetings.

Short term outcomes

- Increased clinical leadership and quality improvement capability of LDLs
- LDLs Increased knowledge and awareness of key concepts in maternity safety
- LDLs increased participation in local learning system
- Increased number of staff across 16 units
- Escalating concerns using intervention tools
- Increased positive attitudes towards escalation within staff across 16 units
- Reduction in reported barriers to escalation across 16 units

Delays in escalating concerns

Avoidable harm to women and babies during labour

Increased complaints

Increased number of serious incidents

Increased staff sickness and attrition, PTSD

Adverse impact on women and families

Increased litigation costs

3. Learning: Training and development of LDLs

Workshop Curriculum

The EBC L&S taught curriculum launched on the 31st May 2019 and focused on 3 key areas; **safety**, **leading change**, and **quality improvement**. These are summarised in the box below:

Box 2: Summary of the EBC L&S curriculum

Summary of the EBC L&S curriculum

- Development of the LDL's clinical leadership and communication skills based on transformational leadership methodology.
- Increasing the LDL's awareness of key maternity safety concepts such as:
  - Building a safe and just learning culture
  - Safety I and Safety II
  - Human factors – and the link between behaviours and patient safety
  - Civility and impact of incivility
  - Psychological safety
  - Polarity mapping

Support (Quality Improvement)

- Coaching and mentoring support available to all LDLs from senior clinicians within the RCOG programme delivery team
- Training in QI methodology and behavioural science
- Co-production of interventions to improve clinical escalation in each of the 16 participating units using a structured approach, and underpinned by behavioural science.
- Support and guidance to enable the LDLs to create multi-disciplinary 'home teams' for them support and the influence to effect change within their maternity units.
- Encouragement and guidance for the LDL's to attend and present at key local, regional, and national meetings.

The curriculum consisted of workshops and webinars delivered by a variety of speakers (see appendix B). The content was aligned with the aims and objectives of the overall programme.

Topics included:

- Building trust and relationships at work
- The national maternity landscape
- Behavioural science
- Measuring improvement and methods of data collection
- Clinical leadership and leading change
- Quality improvement culture and methodology
- Human factors and emotional intelligence

- Insight Discovery – the RCM Leadership programme
- Stakeholder engagement
- Implementation science

Context of Programme Delivery

In March 2020 the global COVID-19 pandemic hit the UK, leading to a major strain on the NHS. Maternity services faced unprecedented pressures – staff shortages, sick women and pregnant people with a novel disease not previously known, and wide scale changes to the way services were delivered. It is important to recognise how challenging this was for frontline maternity staff, many of whom experienced exhaustion and burnout. In the background were personal difficulties with loss and bereavement more common than ever before.

In line with DHSC guidance, the programme was therefore paused to allow the LDLs to focus on clinical work. The LDLs ceased all EBC L&S activity in March 2020, and a no cost extension of 3 months was agreed with DHSC. With the first wave of the pandemic over and the NHS recovery plan underway, it facilitated resumption of LDL activity in late September 2020.

Delivery of the programme had to be completely redesigned due to the social distancing measures in place in the UK. The previous model had relied on a significant amount of face to face training which could no longer take place. It therefore required an agile approach to delivery of the workshops and support for the LDLs. It was important to be able to encourage their innovative thought processes and the next stage of planning the quality improvement processes, designing, testing and evaluating their interventions.

Workshops were adapted to break down the learning content into smaller chunks, responsive to the LDLs' needs. This flexibility supported the LDLs to maintain safe clinical services in their units, as well as recognising the challenge of interacting via a screen for a full day. The workshops were also designed with regular breaks, and multiple small breakout groups to encourage more participation. Over time, each workshop started with a "check in" with each LDL, providing a unique, psychologically safe space for maternity staff across the country to support each other through the most challenging time of their personal and professional lives, whilst also undergoing a personal development journey and leading change in their units.

Remote working for the programme was extremely successful, achieved using video conferencing technology. The chosen system worked and the workshops and webinars were planned meticulously and delivered in a comprehensive way, which enabled support and interactive thinking to take place.

Support given to the LDLs

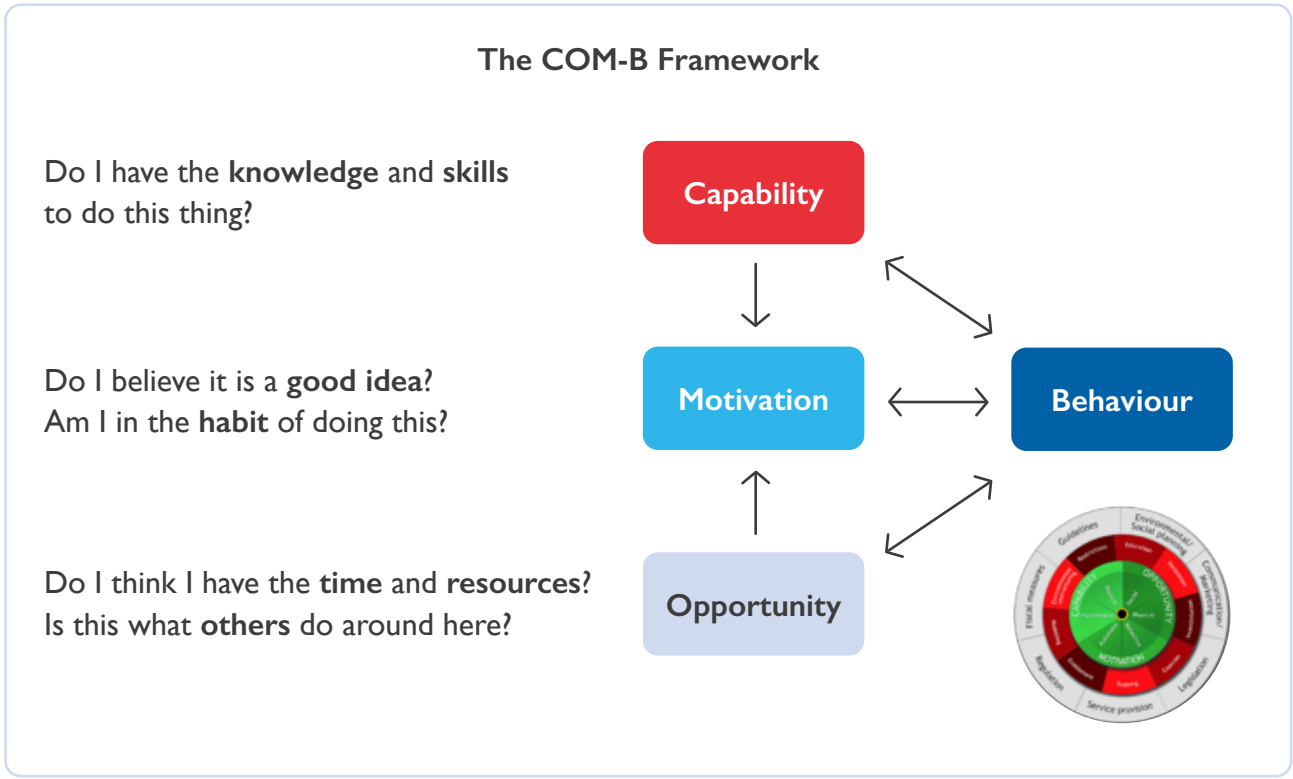
One of the most important components of the programme was the support given to the LDLs. Each LDL was contracted to have one dedicated backfilled day per week to both attend the workshops and deliver the key elements of the programme in their units, with coaching and mentoring from the core programme team. All LDLs were given a named lead from the programme delivery team as a personal link and they also initiated a 'WhatsApp' group for peer support. Later on in the programme, they also met virtually on Thursday evenings.

Within their units, LDLs were encouraged to initiate 'Home Teams' with the aim to give them further support within their own maternity units. It was suggested that the home team consisted of professional leads who could support change management and the introduction and testing of the newly designed interventions. Examples of key facilitators included the units' clinical director / obstetric lead, head of midwifery, intrapartum matrons and co-ordinators, and practice development midwives. The Home teams varied in each trust according to the both the roles and individual need of the LDL, and the service capacity.

4. Support: The Structured Quality Improvement and Behavioural Science Approach

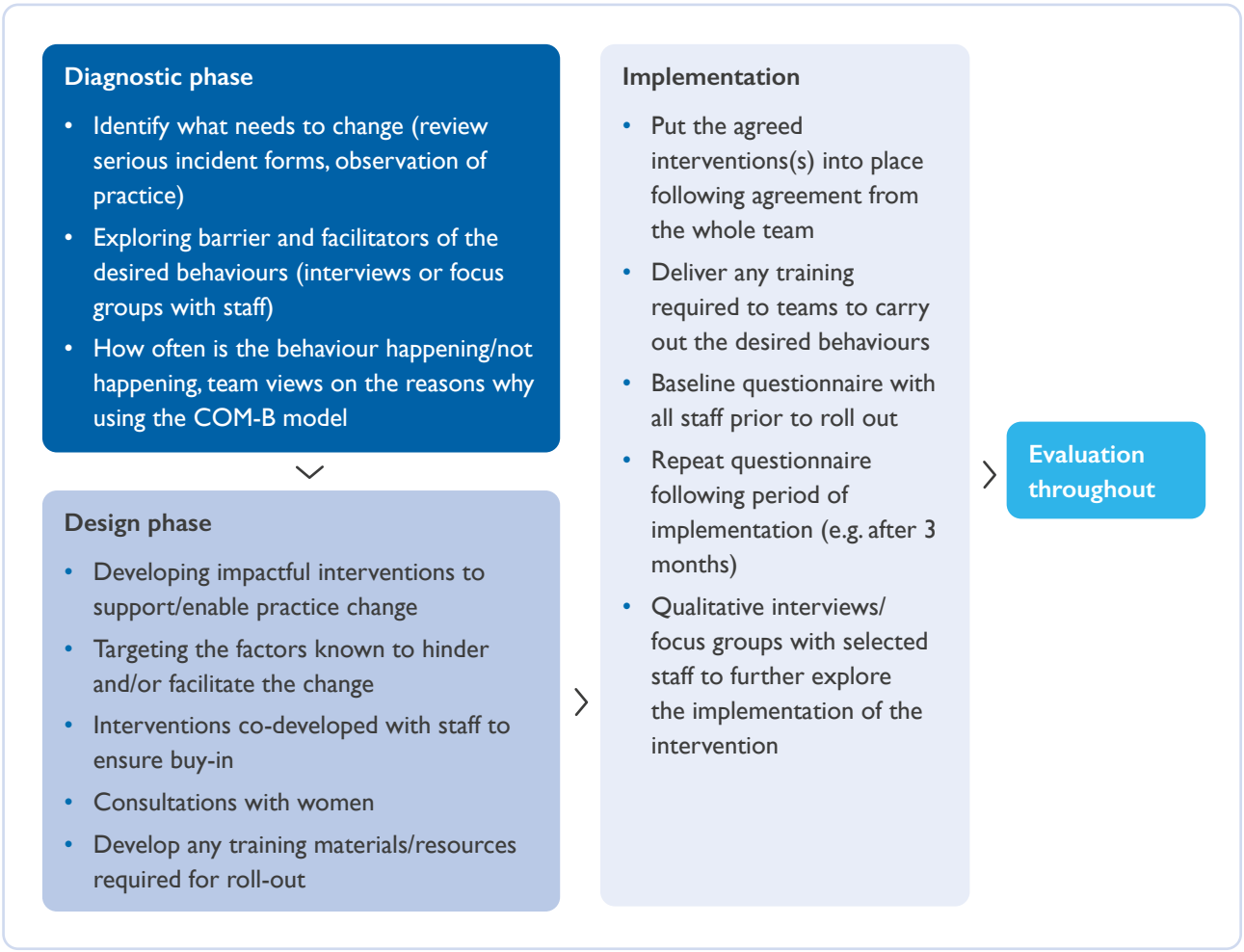
The COM-B model[20] was included as a comprehensive behavioural science framework that synthesises many theories and models of behaviour change. According to this framework (figure 1), in order to change practice, healthcare staff must perceive that they have the capability (knowledge and skills), opportunity (sufficient time, resources and social support) and motivation (including habit) to change. Interventions which are designed with behaviour change techniques, as 'active ingredients', to address capability, opportunity and motivational barriers to practice change may be more effective than interventions which aim to purely increase knowledge or non-task specific behaviours[20].

Figure 1: The COM-B model of Behaviour Change[20]



A structured quality improvement approach underpinned by behavioural science was adopted with activities being conducted in three incremental phases: **diagnostics**, **design**, and **implementation**, where monitoring and evaluation were carried out throughout. The process is outlined in figure 2 and described in detail below. Further details of the evaluation approach are included in section 6.

Figure 2: The Structured Quality Improvement Process



Step One: The Diagnostic Phase

The primary aim of the diagnostic phase was to create a deep understanding of the practices constituted as clinical escalation, thereby allowing LDLs to specify the practices that needed to change, alongside the barriers and facilitators of effective clinical escalation in their own services. It was recognised that these may vary from unit to unit as behaviours and communication are often affected by cultural norms. This approach also ensured any interventions were designed to tackle the barriers individual units may be facing as well as adopting a "bottom up" approach to the process, with high levels of engagement with frontline maternity staff.

Following the same protocol (appendix C), all LDLs undertook in-depth, multi-method behavioural diagnostics within their respective units. Activities included:

- Consultations with staff
- Consultations with women
- Structured observations of practice
- Review of local serious incident reports to identify the relevant contributory factors in serious incidents

LDLs identified barriers and facilitators of all behaviours which constituted clinical escalation in their units. They measured how often the behaviours were occurring in practice through both

observation and via focus groups. Through these groups, they were able to explore multidisciplinary team members' views of their capability, opportunity and motivation towards the escalation behaviours.

Data were collected and summarised by the LDLs for their respective units. Similar barriers to effective clinical escalation were identified across the 16 units including a lack of role clarity as to who to escalate to, frequent communication using vague language, and receipt of negative responses to escalations. Further details of the findings of the diagnostics can be found in appendix D.

Step Two – The Design Phase

In the second phase, intervention solutions were designed and planned to address the barriers identified in the diagnostic phase. The aim was to change and influence behaviours by introducing standardised tools, used by the whole multidisciplinary team. Key principles of interventions to be designed formulated at the onset of the design phase included:

- Interventions tested would provide the balance of local adaptation and standardisation and would be implemented in all of the 16 units in order to maximise learning
- Interventions could be spreadable across all units in England and capture local context and local variables in lessons learnt
- Interventions tested to be backed up by evidence, easy for other services to adopt, and overall lead to standardisation of optimal escalation and communication in maternity care.
- Interventions should result in improved support for all staff and have a positive impact on women, pregnant people and their families, by encouraging psychological safety a culture of speaking up.

A two-day virtual co-design workshop was held with the LDLs in which a summary of the diagnostic findings and themes, together with the result of a systematic review were discussed at length. Initially over 30 change ideas were generated by the LDLs as possible solutions to the barriers to effective clinical escalation they had collectively identified. Through an interactive and consensus driven process, the initial long list was narrowed down to three key interventions to be fully designed, trialled, and evaluated across the 16 units. These are described further in section 5. The three interventions were selected to work together as an overall package to improve clinical escalation, with an overarching campaign that encompassed the three core components of clinical escalation: **identification** of deterioration, **communication** between healthcare professionals, and **action** as a result of the escalation. As there are many national programmes aimed at improving recognition of deterioration, the decision was taken to focus on standardising and improving behaviours and communication around clinical escalation. Therefore the 'identification' element of clinical escalation focused on the identifying the need to escalate and rapid involvement of the right people. This also ensured there was no overlap with existing programmes in a complex maternity safety landscape. Figure 3 illustrates the overall driver diagram of the quality improvement work.

Figure 3: Driver diagram illustrating the overall aims, primary and secondary drivers of the QI work

Aim	Primary drivers	Secondary drivers	Change ideas
Our aim is for the campaign, identity, communicate and act - to test ways to improve clinical escalation in 16 maternity units by end August 2021 and use that knowledge to feedback the learning for all maternity units in England.	Identify (the need to escalate and how this will be done)	Recognition of when to escalate and that it has happened	Team of the shift
	Communicate (the right information to the right people)	Build civility and psychological safety	Systematic communication tool eg Advice, Inform, Do (AID)
	Act and response (upon a potentially critical situation)	Address issues related to unfamiliar teams	Teach or treat response
		Rapidly involve the right people	
		Effective safety critical communication	
		Flatten hierarchies	
		Improve communication and response	

Step Three - The Implementation phase

All LDLs implemented the same three interventions (outlined in section 5) between March and August 2021. A campaign approach linking all three interventions within the strapline 'Identify-Communicate-Act' was adopted to launch the interventions across the 16 units. Resources including logos, posters, banners, business cards and pens were co-designed with the LDLs and supplied via the RCOG programme delivery team to support the launch of the campaign and each intervention (see appendix E). Implementation of the interventions was incremental across the 16 units starting with 'Teach or Treat' followed by 'AID' and then 'Team of the Shift'. Key guiding principles from the field of implementation science we followed to maximise implementation success are summarised in box 2 below.

Key ingredients for implementation success

- Make it as easy and as intuitive as possible
- Demonstrate visibly with numbers, feelings, experiences that the change is better than status quo
- Deliver the message in person; using role models or opinion leaders to convince others of the need to change; people will implement changes that are liked by other people who do a similar job, and the people they respect
- Factor in the fact that people don't have time
- Ensure the quality of the guidance associated with the idea or solution; do not produce a 100-page manual or rely on hours and hours of training
- Target the audience in design and help them own the change and choose things that they want to change because it improves their everyday and the activity of others
- Understand the receptive context; appreciate complexity of a problem or the context in which it is required
- Test it, adapt it, test it, adapt it and test it again to get everything to feel it fits – shift from the notion that something that works in another country, another organisation or even another team will automatically work for everyone
- Reward and recognise people for their actions, thank and value them for their contribution
- Invest resources dedicated to implementation including protected time for staff
- Leaders need to use a coaching style of leadership; if they simply try to solve the problems themselves then people will not own the outcome

5. QI interventions developed and tested by the LDLs

The following interventions were co-developed with LDLs to support and improve clinical escalation by targeting the barriers and facilitators surrounding setting up team of the shift, clinical escalation and communication.

1. Teach or Treat

Teach or Treat is a communication strategy which encourages a discussion about the clinical situation being escalated: initiating a kind, quick and respectful response. It is both about exploring ways to escalate and reducing hierarchical decision making. It promotes a collaborative understanding about the unravelling clinical situation, learning and understanding from everyone's perspectives, and encourages respect for the opinion of others.

The concept is most elegantly described using the following scenario. It is common in intrapartum care for a case midwife to escalate concerns about a CTG (cardiotocograph) to another member of staff. Interpretation of CTGs is complex, and needs to be contextualised with both the progress and stage of labour, and the clinical risk factors for the mother and baby. It is not uncommon for a case midwife to have concerns over fetal wellbeing due to a combination of CTG changes and risk factors, but for another, rushed member of staff to make a cursory assessment and potentially dismiss their concerns (and in some cases, the woman as well). If the other member of staff is higher in the leadership hierarchy (senior midwife or obstetrician) it can sometimes leave the case midwife with both ongoing concerns, or a fear of escalating again. This in turn can lead to mistakes – either because the person being escalated to made an incorrect assessment, or because future escalations don't happen in a timely fashion due to fear of being dismissed.

"Teach or Treat" therefore encourages staff to have respectful, learning conversations during escalation. So, in the CTG scenario, the person being escalated to "teaches" the other member of staff and the woman about their interpretation of current fetal wellbeing. This has 2 benefits. Firstly, if they have missed crucial information or made an incorrect assessment, it provides an additional opportunity to have a more thorough comprehension of the clinical scenario. Secondly, if their holistic assessment has taken everything into account and there is good evidence of fetal wellbeing, it provides a learning opportunity for the other, potentially more junior member of staff, as well as empowering the woman about her care.

If both members of staff are in agreement about the holistic assessment of fetal wellbeing and action is recommended, then this is the "treat" element. A respectful conversation between the staff members and the woman needs to take place, taking into account women or pregnant people's views and preferences. If used effectively and within our guidance, 'Teach or Treat' can also empower individuals to escalate further if required – if disagreement remains between staff members then a third opinion should be sought.

Overall, it provides a chance to obtain extra detail about a situation rather than just receiving a short answer, reducing clichéd or jargon biased responses. It can be reassuring for women or pregnant people being cared for too, they can feel reassured that there is a framework for communication. It must be emphasised that they should be included in the conversation at the appropriate time if they are witnessing it. It is a clear concept - teach or treat in order that

conversations become meaningful and precise and most importantly, effective.

2. Advice Inform Do (AID)

Effective clinical escalation requires clear, succinct communication with the right person at the right time. It also requires receiving the correct response at the right time often in a complicated, evolving clinical situation. The overall the aim of this intervention was to improve time critical escalation in order to reduce delays in the process, and identify when clinical escalation is taking place. AID was developed as a clear and simple communication tool which initiates escalation conversations using 3 simple phrases:

> **I am asking you for Advice**

> **I am Informing you**

> **I need you to Do…**

It is designed to precede and strengthen the commonly used SBAR which is a tool used to describe the clinical situation.

3. Team of The Shift

Teams delivering intrapartum care are large and complex and involve many professional and hierarchical roles. Due to rotating doctors, and in some parts of the country, high rates of agency staff and turnover of midwives, it is not uncommon to be unfamiliar with some members of the team in any given shift. However, optimal communication and clinical escalation, particularly in rapidly emerging time critical situations relies on effective teamwork. It also requires high levels of trust, an understanding of each other's job roles, and a shared mental model of the team's workload.

Unlike other parts of medicine (e.g. surgery) there is no existing current guidance on best practice in establishing a team of the shift in maternity care. The team of the shift intervention was therefore designed to standardise a team huddle at the start of every shift in order to promote optimal teamwork.

Ideally, all members of the multidisciplinary team would be present but differing shift patterns between doctors, midwives, MCAs, and nurses often prevent this. In addition, many units lack the physical infrastructure to accommodate such a large group of people. The application of this intervention was therefore the one that had the most local variation when implemented in the units.

The key principles behind it are to:

- Identify all the staff on shift that day, including job role, length of shift
- Identify the team leaders, including those who will be escalated to

- Flatten hierarchies by giving everyone a voice and encouraging first name introductions
- Support staff by creating psychological safety and encouraging them to raise concerns and speak up
- Identify anyone in the team who may need additional support that day
- Identify learning needs for trainees and students
- Create a positive workplace culture by thanking staff and celebrating successes
- Foster a culture of kindness and civility.

There were a variety of strategies to promote the intervention. Firstly, a standardised email (appendix F) was sent to staff in every unit, explaining the rationale.

Secondly, a proforma and posters (appendix E) were introduced into every unit, in order to standardise each huddle. And finally, "business cards" were developed and handed out to each staff member containing key concepts to promote effective escalation and teamwork.

"Excelling at Clinical Escalation Together:

- Do you know everyone on your shift today?
- Do you know who you're going to escalate concerns to during the shift?
- Have you said thank you to a colleague?
- Have you celebrated your successes together?
- Have you made sure your colleagues are okay at the beginning and end of each shift?"

Part Two – Evaluation

6. Methodology of evaluation

Evaluation objectives

Our evaluation explored the impact of the **learn** and **support** elements of the EBC L&S programme both from the perspective of the LDLs, as well as the implementation of the quality improvement work and changes taking place at the organisational level. Table 2 outlines the evaluation objectives, questions, the corresponding data collection methods and the timelines.

Outcomes

Short term outcomes that were assessed at the end of the programme include:

Learn

- Whether there was an increase in the clinical leadership and quality improvement capability of the LDLs.
- Whether the LDLs demonstrated increased knowledge and awareness of key concepts in maternity safety.
- Whether the LDLs demonstrated increased participation in their local learning systems.

Support

- The number of staff using the tools developed as part of the interventions to improve clinical escalation across the 16 units.
- Whether there was an increase in positive attitudes towards the behaviours addressed in the quality improvement work as reported by the staff across the 16 units.
- Whether there was a reduction in reported barriers to effective clinical escalation as reported by staff across 16 units

Design

A mixed-methods evaluation study, combining qualitative interviews with LDLs (objectives 1-5), quantitative process data collected by LDLs as part of the intervention implementation (objective 4) quantitative questionnaire with multidisciplinary staff across the 16 units administered prior to, and after the implementation of the interventions (objective 5), feedback workshop with a selection of staff across the 16 units (objective 5).

Table 2: Evaluation objectives and data collection method

Objective	Questions	Data collection method
Learn: Training and development of LDLs		
1.	What is the impact of the leadership, quality improvement and safety thinking learning imparted to LDLs? What knowledge and skills they were able to put into practice?	Qualitative interviews with LDLs
2.	What were LDLs' experiences of the intervention development process including use of the behavioural approach, collecting diagnostic data and co-production?	Qualitative interviews with LDLs
3.	What are the key components of the 'learn' and 'support' intervention that made the biggest impact to the LDLs ability to lead and implement change?	Qualitative interviews with LDLs. Thematic analysis and synthesis of multiple forms of data
Support: Quality improvement work		
4.	How was the implementation of the quality improvement interventions across the 16 sites in terms of the delivery, fidelity, reach, feasibility, acceptability adoption? What strategies were used to facilitate implementation, were any adaptations made/required? What challenges were encountered and how they were/could be overcome? What contextual factors (including organisational and wider societal factors) affected implementation? What (if any) were the unintended consequences of the intervention strategies?	Quantitative process data collected by LDLs on the implementation processes of the intervention strategies Qualitative interviews with LDLs.
5.	How did staff in the 16 units perceive the changes made and what was the impact on their practice?	Pre and post attitudes and behavioural questionnaire survey with staff across the 16 units Qualitative interviews with LDLs Virtual feedback groups with a selection of staff across the 16 units.

Participants

All 16 LDLs were invited to take part in qualitative interviews as part of the evaluation of the EBC L&S approach at key stages throughout the programme.

Front-line maternity staff across the 16 units were emailed a link to the baseline and follow-up questionnaires via their respective LDLs. A selection of multidisciplinary health professionals from the 16 units were then invited to take part in a feedback workshop held virtually at the end of the implementation phase.

Data collection

Qualitative

LDLs were invited to take part in the evaluation interviews at three timepoints:

1. at the end of the diagnostic phase once programme activities resumed following the pause for the COVID-19 pandemic
2. at the end of the design phase and
3. at the end of the implementation phase.

In addition, a virtual feedback workshop with multidisciplinary staff took place at the end of the whole quality improvement process. Staff from all 16 units were invited to attend.

LDL Interviews

All LDLs were sent a link to the RCOG privacy policy prior to their interviews. Interviews then began with information outlining the purpose of the evaluation study, the format, the confidentiality agreement, GDPR compliance, and the right to withdraw to be recorded as part of the interview process. Given the geographical spread of the LDLs and the ongoing pandemic restrictions, all interviews were undertaken remotely. They were audio-recorded, stored securely and transcribed externally.

Quantitative

Process data on the design and delivery of the quality improvement interventions was collected by the LDLs via surveys in Microsoft Forms.

The baseline and follow-up questionnaires were administered by the LDLs in their respective units via the Microsoft Forms platform.

Measures

Qualitative

Semi-structured interview topic guides were developed for the interviews with the LDLs according to the phase of the quality improvement work; diagnostic, design and implementation. The semi-structured interview topic guides were based on the Theoretical Domains Framework (TDF; [21,22]). The TDF encompasses a comprehensive range of constructs from theories of behaviour change including emotions, beliefs about capabilities, knowledge, skills and social influences. It has been extensively applied to investigate and address implementation problems. Moreover, use of the TDF provides a firm theoretical basis to allow understanding of the mechanisms of action as well as the barriers and facilitators of implementation[23]. Topic guides were used flexibly; changing the order of questions depending on the flow of the participant's response, and with prompts and probes to explore any issues raised. Topic guides were also refined and revised according to on-going analysis through discussion with the core programme delivery team.

Quantitative

LDLs collected process measures to help evaluate the adoption and implementation of the quality improvement interventions. Questions related to the use and satisfaction of the interventions by staff.

The baseline and follow-up questionnaire with staff across the 16 units (objective 4) was co-produced with the LDLs and included information gathered as part of the diagnostic phase on the key escalation behaviours, plus COM-B influences. We also requested anonymised demographic data such as professional role, years of experience in their role, and hospital, gender, and unit type. As the questionnaire was repeated following the intervention implementation period, we asked staff to include a unique identifier so that their baseline and follow-up questionnaires could be correctly matched.

Data management

Qualitative data

Audio recordings were uploaded to a confidential folder on the RCOG secure network and then subsequently deleted following transcription and verification of transcripts. Any identifiable information in the transcripts e.g. the name of a unit or staff member was removed prior to analysis by the core programme team.

Quantitative data

A data protection impact assessment was undertaken as part of the RCOG organisational procedures to ensure robust data storage and management. Data sharing agreements were placed between the RCOG and each of the 16 NHS trusts before any data was shared by the LDLs. No clinical data was shared between the RCOG and participating NHS Trusts. Process data collected by the LDLs was transferred by encrypted email using mimecast secure send. Data was securely saved in a confidential folder on the RCOG network, retained and will be deleted according to the RCOG disposal policy after 5 years.

Analysis

Qualitative

Qualitative data was analysed via thematic analysis (TA). This is a widely used method in evaluation studies which seeks and reports patterns inherent within the data[24]. TA was chosen as it allows for an understanding of the data to be developed, and patterns within the thoughts and views of participants to be examined. Transcripts were coded systematically and iteratively until the analysis framework adequately captured the data, and saturation was achieved. Data was managed within the MAXQDA data management program.

Quantitative

The quantitative process data was summarised using descriptive statistics, including frequencies and summary statistics on proportions/percentages. The anonymous questionnaire data was imported into a statistical analysis package (e.g. STATA) stored securely on the RCOG encrypted server. Group level data was analysed using descriptive and inferential statistics to explore baseline and follow-up comparisons in participants' self-reported escalation behaviours; attitudes towards escalation in terms of their capability, opportunity and motivation; and any patterns within the data to compare the responses of participants of different genders, levels of experience or professional backgrounds.

Ethical considerations

As EBC L&S was deemed a service improvement programme, NHS ethical approval was not required as confirmed by the Health Research Authority. Trust level approval was obtained from all participating NHS Trusts. All data collected was strictly confidential and stored securely on the RCOG servers. In terms of informed consent, all qualitative interview participants were provided with a link to the RCOG privacy policy and information detailing the aims of the evaluation interviews, format, and duration. They were reminded that their participation was voluntary and of the right to withdraw at any time. Verbal consent was obtained and recorded from all participants at the beginning of the interview recording. The quantitative survey also included an ethics statement to inform survey participants that their data was confidential, anonymous and reminded them of their right to withdraw at any time.

Patient Public Involvement

Patient and public involvement was integral to the ethos of the EBC L&S programme. Women and birthing people's perspectives were planned to be included at all levels of the programme including governance and local engagement by LDLs through Maternity Voices Partnerships (MVPs). Although the COVID-19 pandemic made the latter more difficult, representatives from the RCOG Women's Network and from the National Maternity Voices Partnership remained important stakeholders on the programme governance board throughout the programme.

7. Evaluation findings

Summary of findings

The following section outlines the findings from the multi-method evaluation covering both the Learn and Support components of the programme.

Data included are from interviews with LDLs as well as feedback gathered from wider staff across the 16 units via a virtual feedback session and questionnaire surveys. In summary, many positive impacts of EBC L&S were reported. From the LDLs perspective, this included increased confidence and empowerment in leading change, improved working relationships with colleagues, deeper understanding of key safety concepts and their relevance to change, as well as professional development and career progression for several LDLs. The network and community of practice built by the multi-disciplinary group LDLs was also a strong determinant of their success. In terms of the quality improvement interventions, implementation successes were largely due to the 'bottom-up' approach involving frontline staff from the beginning, direct staff engagement, integration of the interventions into existing unit practices, role modelling of desired behaviours by LDLs and prompts and rewards for staff in the form of posters, pens and cakes. Across all units, the interventions were generally reported as relevant, well accepted by multi-disciplinary staff with high levels of adoption and positive impacts being reported. Key challenges to implementation included the COVID-19 pandemic that impacted unit staffing, staff morale and engagement with the interventions.

Evaluating Learn: Impact of the leadership, quality improvement and safety thinking on LDLs

Overall impact on knowledge and skills in practice

One of the biggest reported impacts was improved confidence in the LDLs, who were empowered to apply the knowledge and skills they were developing. LDLs reported developing a deep understanding of why they were doing what they were doing, and an ability to communicate it to others. This in turn gave them more confidence in leadership, autonomy and speaking about their work and change ideas. LDLs gained confidence in approaching senior staff, speaking publicly at regional events, and conveying messages about particular topics such as quality improvement and safety. Several LDLs reported being more prepared for new roles and positions as a result of the programme and were successful in applying for promotions. Many went on to regional or national safety work, thus having a wider impact than the work implemented within their own units. Others felt more empowered, thanks to their work being recognised, acknowledged and appreciated locally.

> *When you're trying to improve something small in your own unit and you're meeting a sort of barricade, for me I now feel I can have conversations that go beyond what we do or what the unit next door does. I can talk about well actually this is at a regional level or this is at a national level and this what we're working towards.* – ***Midwife***

> *You're often always on that hamster wheel and you never have time to actually read the theory behind what you're doing or reflect on it, really, so that has provided me with a massive opportunity to do that, that's been really good. I feel like really privileged… definitely, for my personal development it's really been enormous.* – ***Midwife***

Most consistently praised by the LDLs was how invaluable the network of a cross-professional and national team had been. Every LDL highlighted that being part of a national team provided them with inspiration from other LDLs, and helped them to understand how practice works across the country. This in turn led to the reassurance that others are experiencing similar challenges, whilst also sharing ideas to manage various different situations. Participating in a cross-professional collaborative group of obstetricians and midwives was described as widening the individuals' perspectives, allowing them to think from the views of the different professions, and appreciate the importance of team work: "it is really easy to become entrenched in your own profession's view and way of doing things and I think, working with those obstetricians has been amazing; it has completely changed my perspective on lots of different things."

> *16 individuals have made a difference because they're able to influence the practice within their own organisations, and then they've been able to spread it out across their sort of local learning sets and their local maternity systems and so you can then influence what's happening in a slightly wider area around you and hopefully then all of those areas will kind of merge together and sort of meld together to make a maternity environment that is more safe, more secure for the staff that are working in it as well as the women that we're providing care for.* – ***Midwife***

Throughout the interviews, the LDLs reported developing their skillsets, knowledge and practice. Examples included improved collaborative skills, leadership skills and knowledge around quality improvement, particularly through the design phase. Additionally, they also developed the ability to build and motivate teams around them, and reported improved working relationships through speaking to staff and understanding their thoughts and positions. Moreover, LDLs reported gaining increased awareness and mindfulness of their own practice alongside others' perceptions which allowed them to create solutions within their wider teams. Better understandings of behaviours such as non-verbal communication and knowledge on behavioural aspects was also reported to have improved LDLs' change-management skills. In turn, small changes in unit cultures such as LDLs conducting wellbeing check-ins, opening up discussions around safety during meetings, and speaking to senior staff about implementing changes were highlighted.

> *I think that has really changed me, it's helped me how I deal with stress and my own perceptions of self and how others may view me, so I'm a little bit of a reflector.* – ***Midwife***

Many of the LDLs emphasised the growth of both their professional and personal learning and development throughout the programme. For instance, having an increased knowledge of different tools and resources such as books on culture, safety, and leading change broadened their learning. The LDLs shared that they have been able to tap into knowledge which is often not provided at shop floor level and have insights into more specialist roles as they have gained different perspectives from the workshops.

> *As an individual and a midwife, everything has come together really well and I feel like this programme has enhanced my development as a midwife massively, so that's been really good.* – ***Midwife***

> *So from a personal perspective it's been really good. I needed something, I love my role as a coordinator but I needed something a bit, I was ready to do something extra. I didn't realise how much Quality Improvement would help satisfy my brain, but also go hand-in-hand with my actual role as a midwife. It's really helped me in my role, even thinking outside of what we're trying to implement, just the way that I practise, so that's been really good and I found it really interesting.* – ***Midwife***

Impact of leadership learning

The leadership workshops were praised by the LDLs in terms of helping them reflect on themselves, their behaviours and how others perceive them, especially as people leading campaigns of change. Learning how to communicate with colleagues and senior members of staff to facilitate change was also developed through the workshops. Many LDLs reported the leadership training was beneficial in understanding how they interact with their team and recognising the behaviours/traits within them in order to build motivation. The usefulness of the leadership content around safety was praised for increasing understanding and confidence within the LDLs on both a professional and personal level.

> *I think certainly the insights work that we've done around sort of leadership style and approaches to how you can sort of just develop the team around you has been really valuable, and we've done work alongside with my consultant team at my organisation, and it's really put me in mind of how I can approach the team that I work with more effectively to get the best out of them as well, so I've found all of that side of it so valuable, because it's a tricky thing to do, to help sort of manage people, so that's been especially useful for me.* – ***Consultant Obstetrician***

Impact of quality improvement learning

Several LDLs highlighted the usefulness of learning about quality improvement methodology to understand the thinking behind change management and the gap between theory and practice. Although LDLs varied in their previous experiences of leading QI projects, the majority highlighted the value of grounding knowledge and formal structure that they gained from the workshops as a key enabling factor to success. Deeper understanding of the tools of quality improvement, such as sending out communication in different ways and explaining why parts of the process are important to the wider team were commended as extremely useful in improving project planning skills. For instance, one LDL reported that they had gained a better understanding of their organisation by planning who to talk to, how to meet them and how often to meet.

> *I've learned absolutely loads through the programme. I feel like I came into it having been involved in some different kinds of quality improvement things in different parts of my career, but never having really had like a sort of formal structure to kind of hang things on.* – ***Midwife***

Moreover, numerous LDLs reported they applied the quality improvement learnings to a variety of different contexts outside the programme. For instance, some LDLs used the same quality improvement methodology used to identify the facilitators and barriers of clinical escalation during the current programme to create projects in other areas such as improving timely auscultations, saying that it was something "I would never have been able to do before." Other projects undertaken by LDLs where they applied a similar behavioural and QI approach included communication across the maternity service and reconfiguration of antenatal services using the drivers and materials provided during the programme.

In turn, LDLs reported increased confidence in approaching senior staff regarding quality improvement projects, gaining buy in and permission, and carrying them out. One LDL believed her overall ability to communicate and explain what is trying to be achieved to others had increased. As a result, their unit has now developed a clinical escalation policy. In addition to the LDLs' quality improvement work, their units also developed more depth and understanding about quality improvement with increased discussions with frontline clinical staff.

LDLs with little or no prior experience reflected how motivated they were to do more quality improvement work. This was due to increased confidence and ideas, as they understood what is expected when delivering large projects. Previously, they were told to embed changes without the appropriate knowledge. Even those with substantial quality improvement experience were able to reflect on their previous projects and contemplate what they may have done differently thanks to their new knowledge and skills.

> *I think on the behavioural change theories that has actually helped me to change some, gain some positive behaviours because I have actually read quite a lot on behaviours and habits, and then it has helped me to try and link that to when we want to do improvement work and just other aspects of work that we do when we're wanting to change people's, how we do things you know, I have linked it to behaviours and thought, 'right how can we make it easier for people to do this'? 'How can we give them the ability to do it'? 'How can we give them the prompt'? So yes it definitely has impacted lots of things I've done to be honest, both personally and professionally.* – ***Midwife***

Impact of safety thinking

LDLs reported that participating in the safety work of the programme gave them a focus and framework to assess situations such as recognising behaviours of safe care, "assertiveness, submissive behaviours and aggressive behaviours". Recognising behaviours and body language cues were helpful in understanding how people were feeling and whether there was psychological safety or not. Psychological safety was noted as affecting every facet of the service's work including whether staff were feeling safe and supported within their department, the effects it had on teams and the personal stress of staff which in turn can lead to incivility and ultimately poor outcomes for women and babies. Several LDLs started using the safety content in presentations during local training sessions such as PROMPT and midwifery training days. This opened up discussion, debate and awareness around safety critical language and psychological safety within the wider multidisciplinary team.

One LDL noted that she conducted similar training with staff in her unit using pictures to demonstrate these behaviours. Consequently, changes in practice were demonstrated where members of staff were recognising, challenging and diffusing negative behaviours such as tutting and rolling eyes among others as well as among themselves:

> *How we speak to each other, the psychological safety has been huge. And, actually, I've been able to, in my role as a midwifery leader I've been able to implement that into situations and just give a bit of insight into a scenario, if a colleague is having a moan or something like that, you can bring that in and teach them, "Actually, let's look at it from the other side", and it diffuses the situations and it makes the environment much nicer. So even just by having one person that encourages that way of thinking and doesn't get embroiled in the gossip, that's really nice. – **Consultant Obstetrician***

Additionally, safety I and safety II approaches learned during the workshops were also implemented across some units. For example, an LDL used the safety II approach and explained that despite having a low-risk unit with very good outcomes, she developed a QI project to improve things further using questionnaires with midwives to identify barriers and facilitators of timely intermittent auscultation during labour. Others shared that using these approaches allowed them to review incidents through different perspectives, learning from effective situations and applying the lessons to improving less successful scenarios.

Several LDLs highlighted the impact of the safety critical language workshops on practice. An increased awareness around the language used in practice, particularly during escalation, was reported such as closed loop communication and clarifying a shared understanding of what is being communicated. Furthermore, the LDLs revealed that these workshops were valuable in identifying what it is staff want to say and communicating that succinctly. It was a recurring issue during the diagnostics phase; escalations were not clear, misunderstood, or staff were completely unaware that an escalation was taking place. Since the workshops, the LDLs had set standards around safety critical language such as the following:

> *If someone came up to me and said, my lady's trickling, I'd look at her and be like, so your lady's actually, tell me about this active bleeding, you know, I would then encourage people to call things what they are, and you know, whereas before I might have accepted that, oh this lady's trickling, I wouldn't accept that anymore, I would want more, I can delve, those are the kind of, I've identified the words I would want to delve into and ask more about, so my lady's trickling, my CTG is a bit dodgy, you know, whereas before I would have just taken that and gone, okay, well we'll get a doctor's review, now I'd be like what do you mean it's dodgy, what do you mean she's trickling. – **Midwife***

> *It's all about ensuring that everybody understands the meaning of what you're actually talking about. So it's ensuring that actually the words we use, that both parties understand the meaning of them. And actually also sometimes it's about clarifying at the end of the conversation that you're both going away with that same understanding and meaning. – **Midwife***

LDLs' experiences of the intervention development process including use of the behavioural approach, collecting diagnostic data and co-production

The diagnostics phase included various components observations, interviews, focus groups and breakout groups which were all praised as enjoyable by the LDLs. The focus groups were particularly commended as the provided questions gave direction to the data collection and it felt useful to understand other perspectives in a safe space for discussion.

A number of LDLs praised good collaboration throughout the design phase despite the group being large and multi-professional. The use of WhatsApp groups was noted as particularly helpful to improve collaboration and increase familiarity among the group. For instance, guidelines and tips were shared which helped to align the work nationally and motivate one another.

> *Everyone's listened to, and I think that combination of having enough people, both obstetricians and midwives means that the kind of designing worked really well.* – ***Midwife***

> *I think I've thought a lot more about, in the past QI has been how can we make things better, not necessarily is that the right thing to want to make better, so I think it's the coproduction aspect has been brought to the front a lot more which has been good, because I think often we think well that's the problem, how can we fix it, rather than asking somebody who's experiencing whether that's a problem for them. And so I think that's been a useful reflection for me to think about, because that's not always how I've thought about working before.* – ***Consultant Obstetrician***

> *Having that collaborative group who all brought ideas and in terms of my personal skills it's facilitating that with enthusiasm and not dominating.* – ***Consultant Obstetrician***

One of the LDLs stressed the importance of involvement in the design phase in facilitating the interventions and moving the programme forward as it "helps when it's come to explaining the programme with the rest of team. Because obviously if you're involved in actually the design work, we know where it's come from at the beginning." Active involvement was also mentioned as being important to receive professional credibility in the unit to help facilitate change.

Some challenges were also mentioned, particularly to do with regards to reorganisation of the programme due to the pandemic. Furthermore, it was noted that if the programme continued in person as it was before the pandemic, perhaps more would have been achieved:

> *We achieved far more in a group setting together around a table then we have been able to on Teams, and I think that's had, that has had an impact, because it's easier to deviate from the actual focal point of our topic, than it is to hold everyone together in a room and focus on what we need to do.* – ***Midwife***

Key components of EBC 'Learn' and 'Support' that made the biggest impact to the LDLs ability to lead and implement change

We explored LDLs' views on the key learning from the programme that should be included in a toolkit sharing learning with staff in other units wanting to make improvements. The significance of a structured programme was highlighted throughout interviews by LDLs. Putting the programme

in a national context with an overview of how everything fits together was noted as being "really, really helpful and really important and that many more people need to know." Dedicated time and regular mentoring/1:1 support were also mentioned as key components that supported the LDLs to achieve change.

Networking and peer support opportunities

During the interviews, almost every LDL mentioned the value of their network, which allowed them to feel a sense of community and peer support. Furthermore, the importance of speaking to other professionals across different units and professions was also highlighted as it allowed the LDLs to gain different perspectives and insights into different work cultures and practices.

> *I think the biggest bonus for me is having various other LDLs, fifteen other people. To have that group has been absolutely fantastic. It's been the best thing actually that comes out of this so far, that we can, we've formed quite a close bond quite quickly, we can talk freely, and it's really interesting to compare how we all do things really quite differently in some respects in each unit so we've sort of picked up tips from each other. – **Midwife***

> *Just the network of 16 people, that is so invaluable for everything. And I think we've probably talked about this before and I'm totally going off topic but in the pandemic that's helpful, really helpful, you know, because I think everybody was in the same situation but different situations, everybody was in their own unit managing something that was unprecedented with national guidelines and national information that was coming out and changing very rapidly. – **Midwife***

Multi-disciplinary team support

Several LDLs mentioned the importance of including multi-disciplinary team support for the successful implementation of QI projects. This included multiple professions, differing ranges of leadership and change experience, clinicians with an education focus, and clinicians with a sound understanding of clinical practice. Staff roles that were suitable for acting as effective local champions included junior medical staff, anaesthetists, governance staff, patient safety midwives, and fetal monitoring midwives. However, labour ward co-ordinators were highlighted as extremely important to achieving intrapartum quality improvement changes. Personal characteristics including those of the LDLs were also recommended including good organisation skills, resilience, some previous QI experience, leadership experience and approachability.

Evaluation of Support: Implementation of the clinical escalation quality improvement interventions

We explored LDLs' experiences of the implementation alongside the barriers and facilitators they encountered. In this section, we report the findings from the LDLs' perspective which are drawn from individual interviews as well as collective group reflections.

Delivery, fidelity, feasibility and acceptability of interventions

Overall, LDLs found the campaign approach as an accessible and engaging way to anchor the

interventions whilst relaying the benefits of improving clinical escalation for staff and the women they cared for. Across all units, the interventions were generally reported as relevant, well accepted by multi-disciplinary staff with high levels of adoption and positive impacts being reported (discussed further in the next section).

> *There's that sense of we are doing something different, and yes a lot of the time we're working really hard with our heads down in the trenches, but the campaign has kind of allowed us to lift our heads up a bit and have conversations outside of the everyday just sort of keeping the wheels running.* – ***Consultant Obstetrician***

> *The work that we've done doesn't just resonate with our units, it resonates with all units, I think.* – ***Midwife***

To assess fidelity, LDLs continued to monitor their adoption in practice either by direct observation or as part of their routine clinical practice and on the whole, found the interventions were being utilised as intended.

> *I went and sat down and watched is Teach or Treat being used and is it being used in a way that we've designed it to be used, that was quite interesting.* – ***Midwife***

> *I have noticed it being done a bit more, particularly in our triage unit, so where you've got some of the more senior midwifery staff supporting some of the more junior midwifery staff, there have been elements where that's been brought out and that's been quite good to see, because I've not been doing a direct observation, I'm just been working a shift, and I can hear it being said, so that's quite nice.* – ***Consultant Obstetrician***

Barriers and facilitators of implementation

LDLs across all units reported similar barriers and facilitators affecting the implementation of the interventions (see table 3). These included factors at the environmental, team and individual levels and are discussed with examples below.

Table 3: Barriers and Facilitators of Implementation

Strategies to facilitate implementation	A 'bottom-up' QI approach involving multidisciplinary frontline staff from the beginning
	Integrating the interventions with established unit norms and practices
	LDLs' protected time
	LDL presence within their maternity units and speaking to staff directly
	Role-modelling desired behaviours
	Support and endorsement from senior leaders at unit and Trust levels
	Attending a range of different departmental meetings and using multiple approaches to engage at different organisational levels
	Campaign materials and resources such as posters and pens
	Baking and providing cakes to colleagues
Barriers to implementation	Implementing during the COVID-19 pandemic
	LDLs being recalled to clinical practice and pausing programme involvement
	LDLs contracting COVID-19 themselves
	Pandemic impacts on unit staffing, staff morale, increased staff mental health difficulties
	Lack of home team support due to competing workloads and clinical priorities
	Challenging engagement and resistance from particular staff groups
	Competing unit priorities and initiatives

Strategies to facilitate implementation

A variety of strategies were employed by LDLs to raise awareness, facilitate implementation and adoption of the interventions in their units. Implementation successes were largely attributed to the 'bottom up' QI approach which enabled LDLs to engage staff with the project right from the diagnostic process through to implementation, for example by highlighting how the barriers they had collectively identified were now being addressed through the three interventions.

Linking interventions to existing unit practices

LDLs gave several examples of how they integrated the interventions within established unit norms and practices to increase engagement and acceptance. Interventions were commonly combined with existing practices such 'fresh eyes' and routine training including new staff inductions, PROMPT and fetal monitoring, which fostered familiarity and reduced feelings of additional burden amongst staff.

> *I tried to just link into the thing that most midwives do which is come to the board and say to either consultant or midwife in charge, 'I just want to let you know'. So I tried to link it into that because it made people stop and think…they just changed their wording, thinking about what they were escalating and how. So I think just using things that we all do day in day out was really helpful because it made people think, oh yeah I didn't even realise I said that so much until I started to use it as an example. So just trying to link in to pieces like that, then it feels, I think it felt to people they didn't have another thing to think about, it wasn't an extra thing it was just a slight alternative.* – ***Midwife***

Increased presence and direct engagement of staff

Another key facilitator of implementation was the presence of LDLs in their maternity units to help build momentum for the interventions as well as opportunities to role-model the desired behaviours to their colleagues as respected clinical leaders.

> *I saw the staff daily, I was in there every day, you know, any changes that I needed to sort of implement were done, so it would've been a really successful.* – ***Midwife***

Increasing visibility and speaking to staff directly was particularly highlighted as a key driver of implementation by LDLs who were not usually based in the maternity unit/labour ward where the implementation was taking place.

> *It was just a case of being visible. It didn't matter, I mean like I put things on our Facebook page, our private Facebook page and I've put stuff out via email but actually it's physically being there and physically talking to people. I think that for me was the only way I've had any major response, actually standing there and chatting to people and letting them ask me questions back and me trying to sort of explain it.* – ***Midwife***

LDLs' protected time

Alongside being physically present within the implementation settings, another key facilitator of success was the utilisation of protected time LDLs had allocated for the project, allowing LDLs time and space to develop their ideas and strategies. This was particularly important for LDLs who were not usually based in the unit/labour ward as they had permission to be present in

clinical settings given the pandemic related restrictions across many maternity units in the country. For these LDLs, maintaining some level of presence in the unit following the end of the project implementation period was also highlighted as being important to ensuring ongoing engagement and utilisation of the interventions.

> *The days as well, the time, the sort of, the contracted time has actually meant you've got time to think about stuff and the project, whereas normally day-to-day when I'm working in QI there's very little thinking time and you do need that really to do things well.* – ***Midwife***

> *I'll come and support them with a difficult CTG to interpret and so like, I guess in a way that's good because it does support all the fetal surveillance training that we're doing, all the enhanced stuff around that but also with the embedding of some of this, it kind of really just supports it to continue and I would love to get down there sort of 2 hours a day each week to be just still supporting them to embed that, I almost think it does need that investment.* – ***Midwife***

> *That would need to be looked at when you roll it out again for other Trusts, that that time really does have to be protected.* – ***Midwife***

Support and endorsement from senior leaders

Another key determinant of successful implementation was the level of support and endorsement from senior leaders at both unit and Trust levels which gave additional weight and credibility to LDLs, the campaign and interventions.

> *So our head of midwifery was very supportive and actually through, since the project started she moved from being our risk midwife to matron, to head of midwifery, so she's kind of moved upwards over the two years so she's kind of seen some of the development work that's gone on and then has been involved with helping embed it within the practice, and so I think having somebody in a senior position that has recognised it but has also been involved in embedding it has kind of created trust from the staff who are sort of within the, sort of the shop floor team, they've gone, 'well if she thinks that's alright then I'm happy to give it a go'.* – ***Consultant Obstetrician***

> *I have to say that I have quite a lot of support from the senior leadership, they were quite supportive. In fact our you know, clinical lead, legal director, head of midwifery, chief nurse, they all were quite interested, they came for my launch meetings and you know, the various planning meetings, I had a few, initially I had quite regular home team meetings for which the head of, deputy head of midwifery came and one or two things, one or two sessions the people like chief nurse they kind of came.* – ***Consultant Obstetrician***

Some LDLs also used the RCOG and RCM origins of the project as an engagement technique, providing further credibility for the project and associated interventions.

> *This sounds awful but I think it's the status. So you say, oh I work a day a week for the RCOG and RCM and instantly you get listened to, that's been such a door opener, especially with the doctors because then they're like oh, okay, yeah, I'll listen…that's been my opening line and it's been really helpful.* – ***Midwife***

Engaging different audiences

Moreover, LDLs attended a number of different departmental meetings to cascade the key campaign and intervention messages, and gather support. These included meetings held with management, risk, audit, labour ward coordinators, consultants, junior doctors' forum, PMA, Trust board as well as attending daily clinical handovers on labour ward. The majority of LDLs followed a multi-method approach to engage, communicate and build momentum for the interventions at different organisational levels.

> *I've targeted everyone in every way I can, so I've sent the presentations and the information round via global email. I've attended all the staff meetings, so people have got it that way. I've gone face-to-face in the units, so people have got it that way. Mandatory study days, so people have got it that way. I think I learnt that from when we did the continuity of care work, and when we asked people how they wanted us to engage with them, it was a fairly mixed, face-to-face, email, posters, kind of mix, so I kind of knew that I had to think of every way I could to communicate with people, because people like to be communicated with in different ways.* – ***Midwife***

Although senior support and endorsement was important, LDLs highlighted the key agents for behaviour change and practice were frontline clinical staff whom the interventions were designed to support as well as labour ward/delivery suite coordinators, shift leaders and senior doctors.

> *Key people are the shop floor to try out a new idea, and to keep it going, and to get any good response back from it that's useful information, more bottom heavy than top heavy I think is the way forward, definitely. So I would know that in future, yes pop to the high level meetings to talk about it, but actually you know, putting yourself onto each mandatory study day that's on that month, and putting yourself onto a Friday afternoon teaching that we have for doctors, or turning up at handover three mornings out of five to talk about it before you launch it, those things are the things, putting it on the staff Facebook page, those are the things where actually you've got to do that prep, and then it runs better. So I would be more focused on that level of getting information out to those people, than a higher level."* – ***Consultant Obstetrician***

> *I think you need to have people on the ward, on the shop floor, so if you've got like an LDL type person that's a lead for it, having them physically supernumerary on the shift would be incredible so that they could go and do the Teach or Treat, they can listen to escalations and encouraging that and your doctors as well, so I've said to all our doctors, when someone escalates something to you, ask them to do AID and prompt people. So I think, you know, your labour ward co-ordinators and your doctors are the key players in championing it because they're the ones that people are escalating to, for both CCG and well for any escalation really and also your Team of the Shift, if they're doing thank yous, that's who's going to be doing the thank yous, so they're the key players.* – ***Midwife***

Campaign resources and rewards

A consistent theme across LDL interviews was the value of the campaign materials and resources in engaging staff and supporting implementation. Posters, business cards and pens all acted prompts and provided continuous reminders about the interventions to staff. LDLs continued to innovate throughout the implementation period and created additional resources such as 'Teach or Treat'

stickers that were placed on CTG machines, 'escalation bingo' game and printed t-shirts conveying the key messages of particular interventions e.g. Advice, Inform, Do.

> *I think the products, so things like a poster, I know we laugh about the pens, but actually it's a real conversation opener, and it's something tangible, you know, if you're just talking about an idea or I mean really maternity is full of change ideas isn't it, particularly at the minute, there's a new form for this, or a new chart for that, or can you write things here not there, can you use this new tool… it all becomes a little bit white noise. And tools like the posters, the little business cards, the pens, have actually made the project stand out a bit from everything else. I've found those tools so useful, really useful.*
> – ***Consultant Obstetrician***

Alongside the posters and merchandise, LDLs also emphasised the difference baking/providing cakes for their colleagues had made to engagement and adoption of the interventions.

> *Cakes has helped massively, people have really, really appreciated the cakes. And it's funny because there's been like, some colleagues, who I would say are a bit cold towards you and don't really have much time for the project, but by the time they were finished they were as chatty as anything and all conversation always started around cake, everyone seemed to like the lemon drizzle cake. So I think that does make a difference, people really like it. Somebody said yesterday people love their home baked cakes, and I think they do, I don't know what it instils in the team, I don't know whether it makes people feel like they're cared for, I don't know, but people really, really liked that and they would listen. I think if you didn't do that, I think you would find it much harder. – **Midwife***

Barriers to implementation

Impact of the COVID-19 pandemic

A number of similar barriers and challenges were reported by LDLs across all units, the most prominent being implementing a QI project during the COVID-19 pandemic. Direct challenges included LDLs being recalled to clinical practice and thus pausing their involvement with the programme for six months. One LDL's maternity unit closed at the start of the pandemic with staff being redeployed to other local sites. Even upon their return to the programme, many found themselves being pulled clinically on their scheduled EBC L&S work days as different waves of the pandemic escalated.

> *I started taking the time to work from home, but you need to be in the unit, so when I'm in the unit I'm pulled to do you know, the day job as well. – **Midwife***

Several LDLs had contracted COVID-19 themselves with many reporting multiple infections over the course of their involvement with the EBC L&S programme. Unfortunately one LDL was unable to return to the programme due to suffering with Long Covid. Other direct impacts of the pandemic on unit staffing, staff morale and ultimately their engagement with the QI interventions were widely reported alongside increased mental health difficulties amongst staff.

> *It's been really frustrating doing a QI project through this because we know what it's like previously and how we've implemented things in the past and I think that's gone for all of us, is the timing and the staffing, and the morale at the minute is at an all-time low. I mean I've been in since 2003 at [hospital] and I've just never, ever seen a situation like this before. So I think that has been hardest for all of the LDLs to do, is to realise that the such amazing work we've done but it's been near-on impossible sometimes to actually prove it, or to see the benefits of it, because we are faced with this horrendous situation we're in.* – ***Midwife***

> *I think we probably would have got a better response rate had people not been as exhausted and they are utterly exhausted, like the sickness rates are really high now, you know, we're seeing a lot of mental health which we didn't before, we did always see some but we're seeing a lot of it now and I think that's just where people's buckets are just too full.* – ***Midwife***

Lack of home team support

These pressures also led to many LDLs working without the active involvement of their home teams who were too busy and juggling competing clinical priorities. This posed a significant barrier to many LDLs, especially those based outside of the unit/labour ward, who relied on the home team staff support to maintain momentum when they weren't present themselves.

> *…what's been missing is, you know, my presence on a daily basis, that's what you need to implement changes and a day a week has been great to be sort of funded for, but it is about if you can't, you've just got to get that engagement so it's every day that these are sort of repeated and sort of explained and taught about really.* – ***Midwife***

> *…the lack of a structured home team, but that's sort of collapsed you know, sort of early on in the project. Because two years is a, you know, it's a decent chunk of time isn't it, to keep momentum going, as people are pulled to other things and having to do extra shifts, and shifts change.* – ***Midwife***

Engaging particular staff groups

Aside from the pandemic, additional barriers reported by LDLs included engagement of particular staff groups and active involvement in implementing the interventions. Several LDLs encountered pockets of staff who displayed resistance to new practices and reported difficulties with changing ingrained practices and habits.

> *I think trying to get everyone on board, so most of us are, most of the coordinators, there's a group of us and we are willing to try some things, new things, but there are a handful of people that won't, that aren't even willing to consider it so I think that's probably it. You've got a handful of staff, no matter what level of staffing it is that are stuck in their ways or won't even consider change and I think that's the bit that probably would have helped.* – ***Midwife***

Competing priorities

Many LDLs reported a number of other competing unit priorities and initiatives that were concurrently being implemented such as electronic patient records, continuity of carer that also impacted staff's willingness to engage with the interventions.

> *…we're doing one consultation after another really and that's not a good time to implement a change project, when people are, you know, not feeling that they're getting what they want that they don't want the way of working that's going to be, and it should be implemented bottom-up, but what do you do if people don't want to do it, it's difficult. – **Midwife***

Staff perceptions about their own practice

An additional barrier reported by some LDLs related to staff perceptions that they were already implementing aspects of the interventions and were therefore not as engaged or motivated to adopt the intervention practices. However, LDLs observed this was not always the case where staff did not always effectively escalate clinical concerns or provide the appropriate response, and changing these perceptions was a challenge.

> *I think what's challenging is that people think that they escalate well already. So that is the big, I think that would be the biggest challenge is those, that people believe that is a skillset that they already have and that there's not much scope for improvement, it's something we already do, and that's hard. And to come in and start to try and crack that up and that was, is a big challenge, really big challenge. – **Midwife***

> *I've found that some of my colleagues have, say, 'oh it's fine, we do that anyway, part of the CTG', and actually when you talk to other colleagues they say, 'oh no that doesn't happen', so there's a perception there I think in our unit that people think they do it but actually they possibly don't. – **Midwife***

Wider staff perspectives on the interventions and impacts on practice

Feedback on the interventions was gathered from wider staff across the 16 units via questionnaires and a virtual feedback session. Twenty participants across 11 Trusts attended the virtual feedback session from a variety of professional backgrounds including consultant obstetricians (n=2), obstetric trainees (n=4), labour ward coordinators (6), band 6 midwives (n=2), other specialist midwives (n=4), and managers/matrons (n=2). Further details about survey participants is included in the 'survey findings' section.

Overall feedback on interventions

Overall, the campaign and interventions were well received across units and viewed as being effective, suitable and easy to implement. The combination of the three interventions as a single package with accompanying tools empowered staff, brought clinical escalation to the forefront and resulted in improved relationships and communication between multi-disciplinary staff, particularly Band 7 midwives and consultants.

> *In terms of empowerment people felt that having a name or something to put into it meant that they could say oh, do you mind, can we Teach or Treat this please? And that is kind of the phrase down there, can we Teach or Treat please? – **Midwife***

> *When you were speaking about the psychological safety element of it, I just think the whole thing is a continuum isn't it, so like from the sort of the Team of the Shift where you get to know each other and introduce sort of people who have been there for years to brand new students, and again that will engender, sort of enable them to feel part of the team and that carries on, and maybe the softer options of Teach or Treat, to get used to that…you're sort of enabling people to feel confident doing that kind of thing. – **Staff feedback***

Overall, the interventions had been positively received by staff and admired by senior teams. There were several examples of the interventions being used in different areas including delivery suite, low-risk units, neonatal and even outside of maternity.

> *So on a wider scale, so I'm presenting in October at the Trust Safety Board about AID and they're looking at bringing it through to A&E and other areas of hospital because they think it's really good, so they've cottoned onto it and they think it's excellent. – **Midwife***

Changes in the units

A number of changes were noticed by LDLs in their units during implementation ranging from small changes in behaviours to wider cultural impacts. These included improved psychological safety and staff confidence to discuss decisions and disagreements in judgement with increased respectful conversations across units.

> *You feel safer to ask a question, and so I think the juniors felt, and the midwives feel more safe to ask because then they understood that the reply coming back would either be in the context of a Teach or Treat, and not in a context of I'm going to tell you off for waking me up at two o'clock in the morning by making me look at this. – **Staff feedback***

Improvements in escalation were widely reported by LDLs and wider staff across the units. Staff became more confident and understanding around clinical escalation, including awareness of what constituted escalation and its potential problems. In some cases, the way incidents were reviewed had changed due to adopting a safety II approach, and some units reported a significant reduction in the number of serious incidents.

> *We have had a massive change in the number of incidents that have had escalation as something that features in HSIB reports and actually increasingly the SIs [serious incidents] are saying escalation was really good and they did this effectively and appropriately. So I think that's got to be as part of the project definitely and the training that I've managed to introduce through PROMPT on the identify, communicate, act, so, you know, I'm really pleased with that. – **Consultant Obstetrician***

Communication and working relationships were described as improved within teams, across teams and across professions. For example, staff used phrases from the campaign to communicate more clearly and the clarity of phone calls has improved with AID. Staff were reported to be working more cohesively with doctors and midwives being able to see each other's perspectives.

> *I used it on that Monday and I said to a doctor, I need to ask for advice and again, it's like a perception of the body language, it empowered her because I was coming to her to say hey, I need some of your knowledge but also there was a really good connection between the two of us to discuss the case.* – ***Midwife***

> *But the Advice, Inform and Do I think has really changed the way we practice because even though we think we are asking the doctor for something we often are not, and we just had an SI where exactly the same thing has happened where, you know, the doctor, it was escalated to a doctor but it wasn't "I need you to come and help now", you know, it was that "so I'm making you aware", so there was a lot of confusion and it ended up an SI.* – ***Staff feedback***

Intervention feedback

Teach or Treat

Teach or treat was widely accepted as a positive intervention, which empowered staff and created a positive culture. It was most commonly used when interpreting CTGs – either during a requested clinical review or during "fresh eyes". It was also used as a teaching tool. Flatter hierarchies were noticed; for example, there were instances of junior staff sometimes teaching senior staff. Junior staff felt empowered to respectfully challenge decisions or ask for explanations which helped understand decision-making on both sides. Some staff also reported it was a useful prompt to involve women and families, to give reassurance and include them in their care, especially if they had concerns that could feed into the discussion and care plan. In turn, this created a teaching/learning environment within some trusts and improved psychological safety and situational awareness.

> *I felt like my concerns were acknowledged and plan agreed and also the patient was able to hear our discussions which they felt reassured by.* – ***Staff feedback***

> *If there was that disagreement we probably wouldn't have the same degree of teaching as we do now and I think we've got better from that point of view that actually we can teach the junior midwives about the CTGs that we feel, they might feel there was a problem with it but we felt it was normal and it gave us, I think it gave us permission almost to talk to them about why we thought it was normal and why they didn't think it was normal for example, and that's really good and I think that that's really improved within our Trust.* – ***Staff feedback***

Some difficulties around the intervention were also shared such as resistance and reluctance from some doctors, although there were also reports of doctors slowly moving forward with the intervention as it gained momentum. Staff reported using Teach or Treat less during night shifts, although it was noted that this was the time it was most useful.

Advice - Inform - Do (AID)

AID was also well received throughout the units and widely adopted by staff. AID was most positively received by the people who were being escalated to. It was therefore particularly adopted and liked by doctors, and coordinators as it helped streamline communication, making

conversations "more precise and concise". Specific AID language was highlighted as especially useful when calling senior colleagues at night and during busy periods because it improved the clarity of escalations by helping those being called understand what was needed from them and removed ambiguity in stressful situations. Consequently, it helped to improve responses and decision-making. Staff also reported that it helped empower them to escalate their concerns, improve confidence among staff, particularly new staff and those not usually confident to escalate.

> *I have had a few conversations with band 5s/band 6s who think this is what we already do but that's because they are the ones doing the escalating, not the ones being escalated to. When I explain the lack of clarity we get in escalation and give examples they now understand how useful it is. I actively encourage people to stop and use these phrases now.* – ***Staff feedback***

> *…It does take that ambiguity in a sort of stressful situation when you actually really do need somebody to act, it makes it precise.* – ***Staff feedback***

The intervention was strongly praised for its simplicity, ease to understand and use. Communication and teamwork were also noted to be improved as it was used as a two-way conversation and helped flatten hierarchy and improve mutual awareness of escalations and actions among staff. Some staff reflected it was easier and more succinct than SBAR, although it was designed to be used as an adjunct.

> *As a newly qualified midwife I find this gives me confidence to explain what I need from who I am escalating to (whether I need advice or a review).* – ***Staff feedback***

Staff shared several examples of specific areas where they had implemented AID and found it to be impactful. Most common uses were to escalate concerns about women followed by asking for advice, during reviews, busy delivery suite discussions, triage, teaching opportunities, reviews, providing updates on previous apprehensions such as CTG concerns.

Challenges around AID mainly concerned resistance towards the use of more acronyms and a lack of confidence using the 'do' part of the phrase, particularly among junior staff who were worried they would come across as being rude. Staff who generally did not use tools such as SBAR effectively, were also reported to be less engaged and unlikely to use the AID framework.

> *I think there are some people who just find it really difficult to structure things and use an SBAR type tool anyway, so if they aren't very good at using SBAR then they're not going to be very good at using this tool as well, using the appropriate language.* – ***Staff feedback***

Team of the Shift

As with the other interventions, Team of the Shift was generally perceived as being easy to implement and an effective framework to establish psychological safety, trust and a sense of support within teams.

> *Learning to make time to introduce people to one another and talk about escalation to in turn creates safer shifts.* – ***Staff feedback***

Introduction of each team member at the beginning of a shift enabled staff to easily identify team members and who they could escalate to should any concerns arise. It was also identified as helpful in highlighting skill-sets and individual learning needs within the team to plan areas of support as well as a positive and supportive way to start a shift. This was especially the case for junior staff who felt more empowered through this intervention. The use of Team of the Shift during ward rounds was also implemented to ensure inclusivity of all staff members.

> *Whether it's kind of a whole shift with the newly qualified midwives or whether there's a mixed kind of skillset for each midwife, or even in terms of doctors it's nice to go around to know whether you've got a junior anaesthetist or a senior anaesthetist who's on for you and kind of how comfortable they are with the things that they're doing.* – ***Staff feedback***

Prior to implementation, some units were under the impression that they were already conducting something similar but following observation and then implementation using the proforma and posters, they realised there were areas that required improvement. For example, one LDL reported that they had a good formal handover for their medical teams but not for during their midwifery handovers and therefore used elements of the intervention to improve that:

> *I think it's just become very familiar, and people assume that they know each other, so we tried things like, okay, well let's just all introduce ourselves, and then actually people like the students or new midwives, sort of said afterwards, actually that's really helpful for me because I didn't know who that was, and I know I've been here four weeks, but I've never seen her before. So I could see we did have work to do, so it… and things like we all wear blue, so we're not really very identifiable, so we wore different coloured lanyards and that had quite a good response as well.* – ***Midwife***

Some challenges were identified when implementing Team of the Shift, namely around units being too busy to implement the intervention, staffing and acuity and timings around handovers. For example, doctors and consultants sometimes had different handover times than midwives and so it was suggested that if everyone had the same handover times, it would be helpful. However, handovers were also shorter and affected due to COVID-19 restrictions. Suggestions to improve implementation of Team of the Shift included involving all staff members at huddles, and the use of colour coded name badges and lanyards to clearly denote role and seniority.

Findings from staff surveys

Pre and post survey results

Summary of participants

1178 staff members across 15 units (responses were not received from 1 unit due to closure) completed the pre implementation questionnaire based on the barriers and facilitators of escalation highlighted by the diagnostic work, mapped onto the COM-B framework. This yielded a 28% response rate. Participants had an average of 14.4 years of experience across all units. 67% of participants were from a midwifery background, with the vast majority being Band 6 midwives. Of the remaining staff, 13% were from obstetrics, 5% from anaesthetics, 4% from neonatal, 3% from theatres, 5% from maternity support and 3% from nursing professional backgrounds.

At the post implementation follow-up, 207 participants across all units completed the survey, being 17.5% of the original sample size. Of these, approximately 10 participants had completed both the pre and post surveys (matched by unique identifying codes). Given the large number of participants lost at follow up, we took a pragmatic analysis approach and matched pre and post survey participants by NHS Trust, gender, years of experience, professional background and role. As matched data is more powerful in detecting change than unmatched data, pre and post survey data from 207 participants across 10 Trusts was matched and included in the main analysis. Demographics of the 207 matched participants are included in table 4.

Table 4: Demographic characteristics of the study participants matched in the pre and post baseline questionnaire.

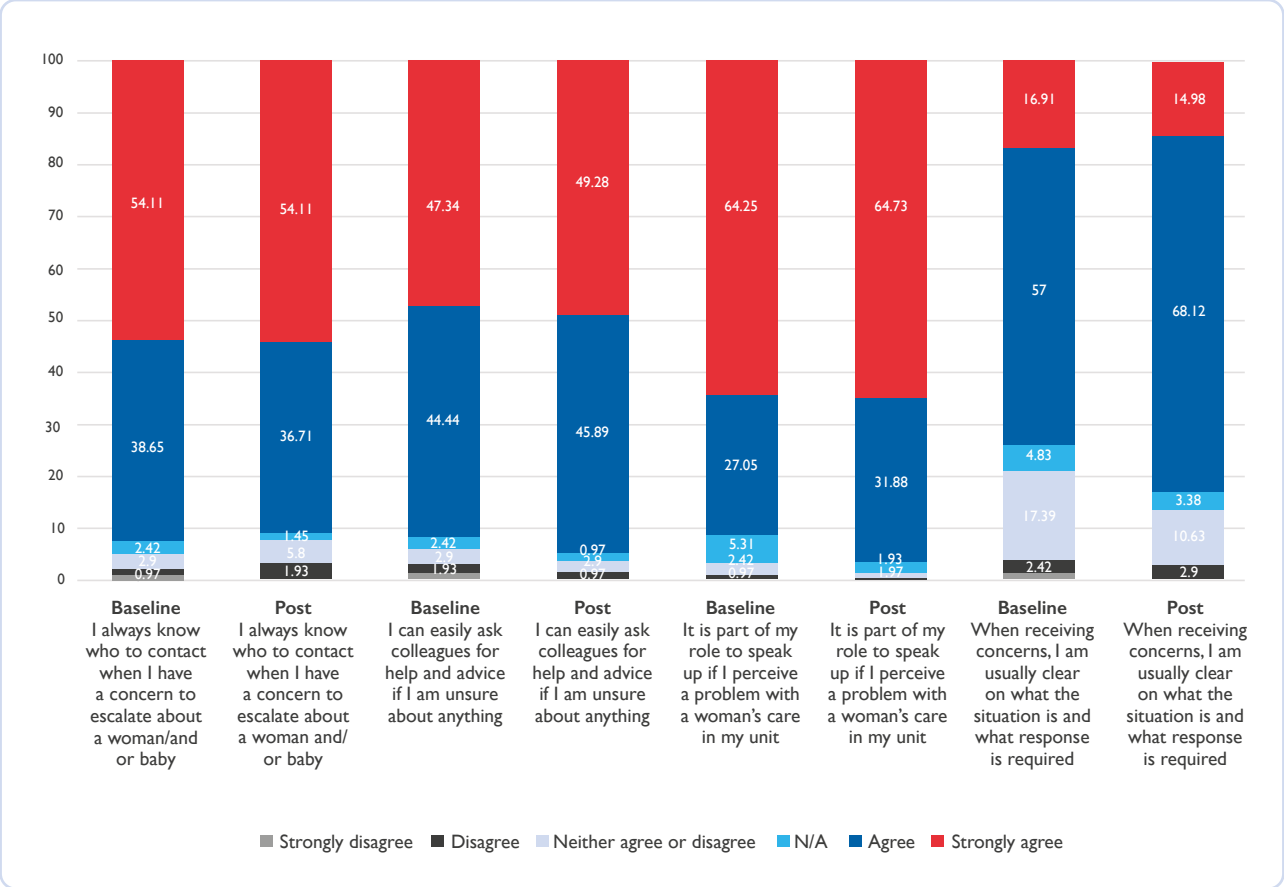
Characteristics		N (%)
Gender	Female	191 (92.3)
	Male	16 (7.7)
Professional years#		**12 [6.5]**
Professional background	Maternity support	17 (8.2)
	Medical - Anaesthetics	6 (2.9)
	Medical - Neonatal	3 (1.4)
	Medical - Obstetrics & Gynaecology	26 (12.6)
	Midwifery	148 (71.5)
	Nursing	5 (2.4)
	Other	2 (1.0)
Number of escalations in the last shift	0 or N/A	73 (35.3)
	1-4	102 (49.3)
	5-10	23 (11.1)
	11-15	8 (3.9)
	16-20	1 (0.5)
Change in the unit	No	113 (55.1)
	Yes	92 (44.9)

N(%), #median [interquartile range]

Changes in views and practices of clinical escalation

In the post implementation questionnaire, participants were asked whether they had observed in any changes in their unit as a result of the clinical escalation QI interventions. 55% of participants responded to indicate they had not noticed any changes, with nearly 45% reporting that they had. Of the 20 COM-B based items included in the questionnaire, Wilcoxon signed rank test indicated statistically significant differences in 4 items, indicating the interventions had somewhat improved participants' capability, opportunity and motivation with regards to knowing who to escalate to (capability), perceived approachability of colleagues (social opportunity) and believing that their role included speaking up about concerns (motivation). In addition, more participants in the post survey indicated that they received clearer clinical escalations in terms of the situation and response. Figure 4 below displays the statistically significant pre and post changes observed. The full analysis table can be found in appendix G.

Figure 4: pre-post baseline questionnaire change (statistically significant only)



There were no statistically significant changes observed in the 4 items regarding psychological safety included in the pre and post surveys (see appendix G for the table).

Intervention specific questionnaires

Summary of participants

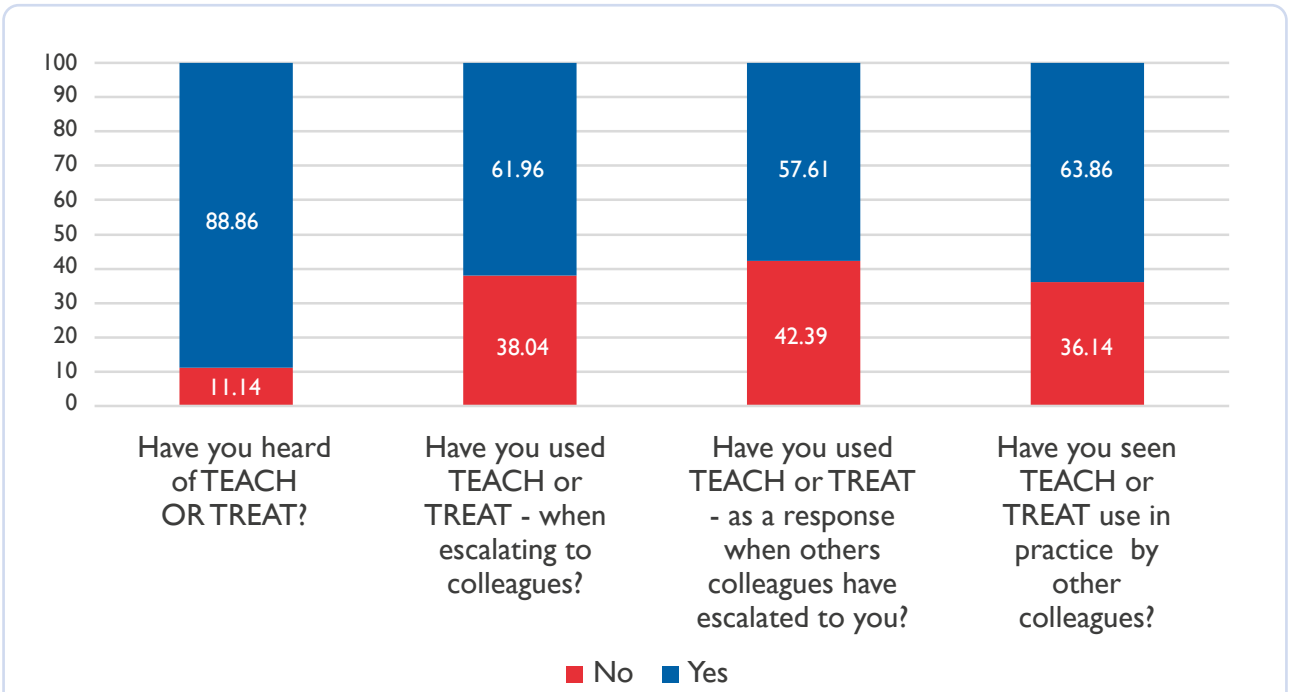
To gather further feedback from staff in their units, intervention specific questionnaires were administered by LDLs during the implementation phase. Across all units, 368 participants completed the Teach or Treat questionnaire, 280 completed the AID questionnaire and 58

participants completed the Team of the Shift questionnaire. The questionnaires were brief and included broadly similar questions regarding the use and staff satisfaction with the interventions.

Teach or Treat feedback

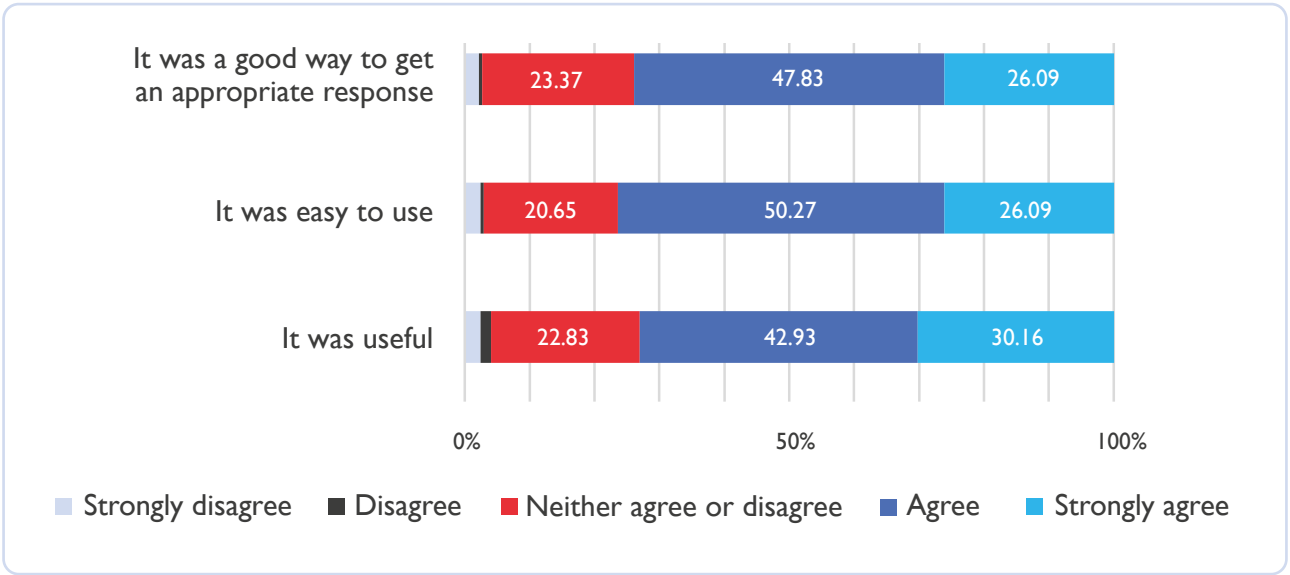
As shown in figure 5 below, the majority of participants had heard of Teach or Treat, used it themselves and observed it being used in practice.

Figure 5: Use of Teach or Treat in practice



The majority of participants reported positive experiences in terms of the intervention being easy to use, useful and a good way to get an appropriate response to escalations.

Figure 6: Experiences of Teach or Treat

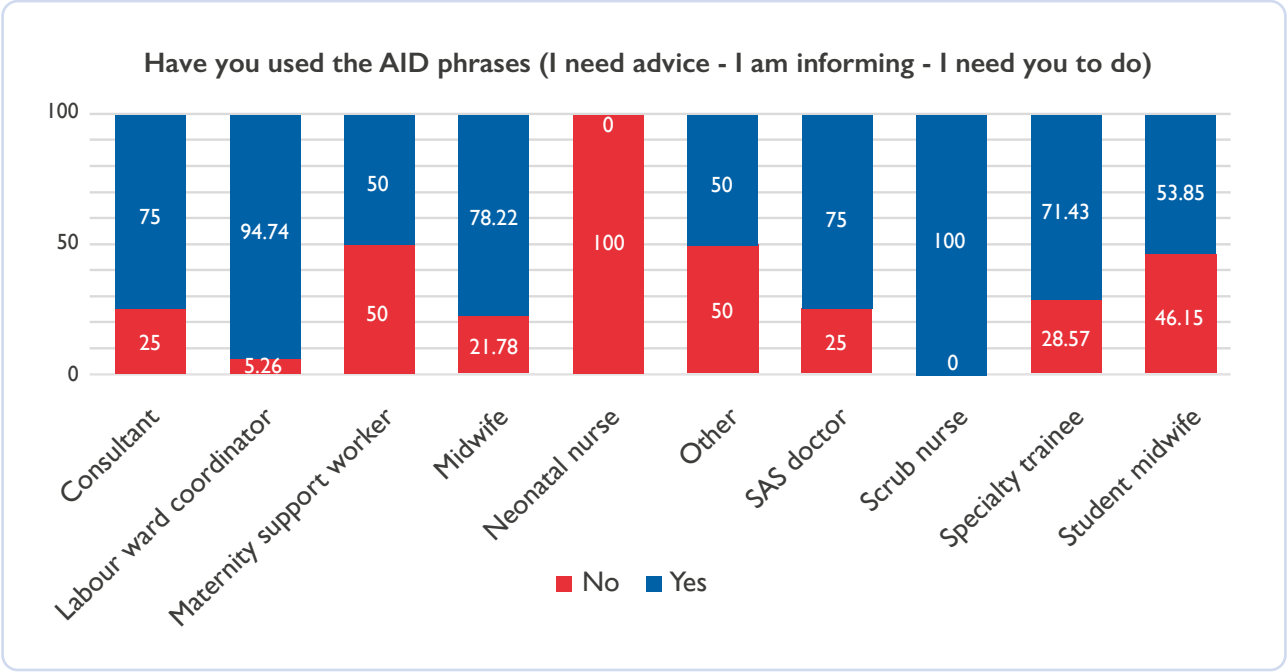


AID feedback

72% (N=202) of the AID responses were completed by midwives. This was followed by 7.5% (N=21) responses from specialty trainees, 7% (N=19) of responses from labour ward coordinators, 4-5% each by student midwives (N=13) and consultants (N=12). Less than 1% responses each were by maternity support workers (N=2), neonatal nurses (N=2) and scrub nurses (N=1) whilst SAS doctors (N=4) and other professions (N=4) comprised 1.4% of the responses each.

Results revealed that a majority of the staff had experience of using the AID phrases:

Figure 7: Use of AID phrases



Most responses agreed or strongly agreed that the intervention was easy to use and remember and revealed that staff were mostly confident using the AID phrases when escalating to a colleague.

Figure 8: Ease of AID to use and remember

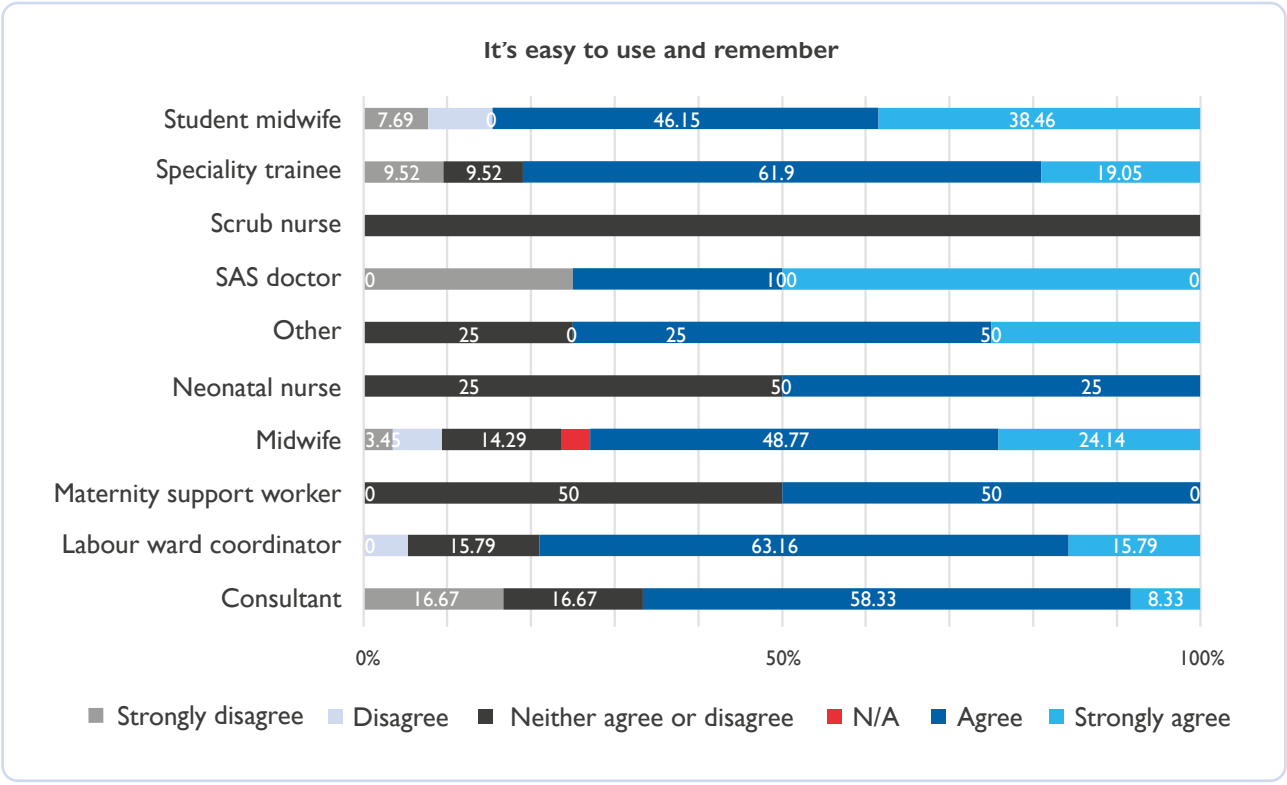
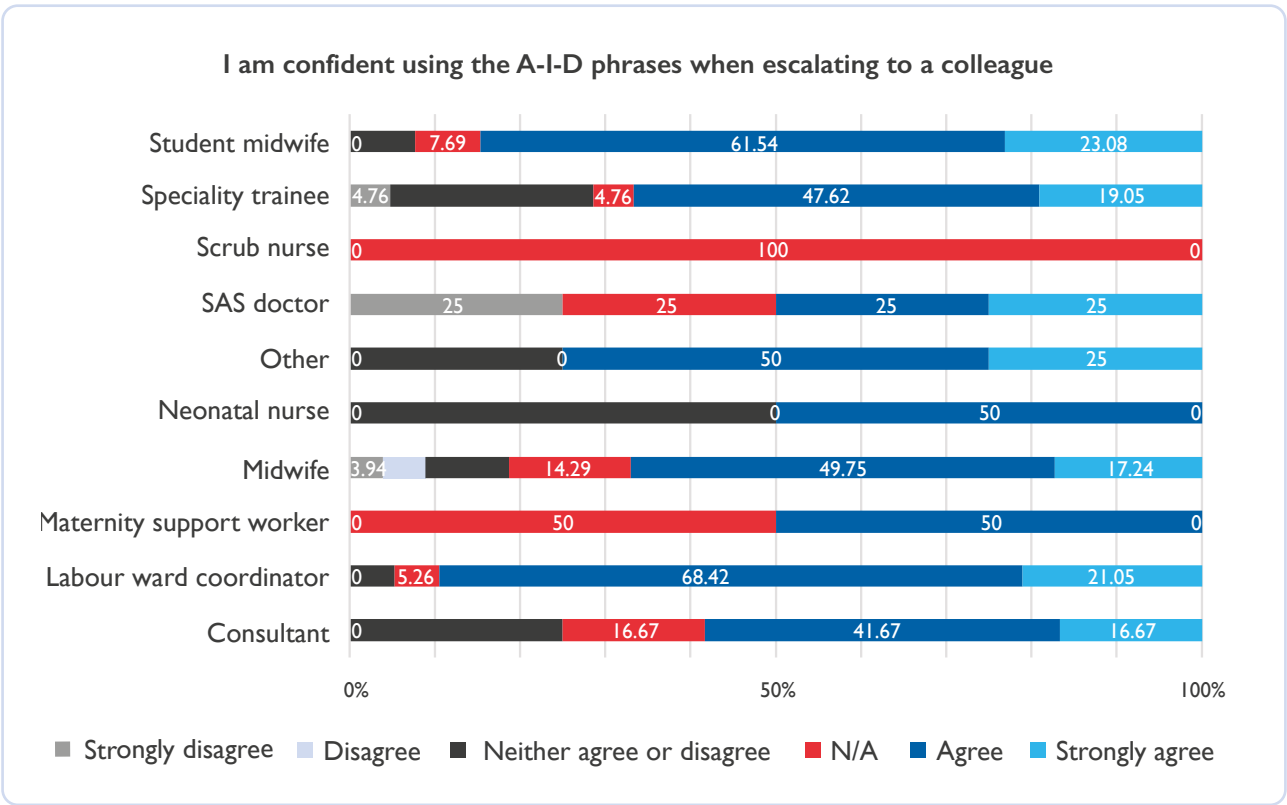


Figure 9: Confidence around using the AID phrases when escalating

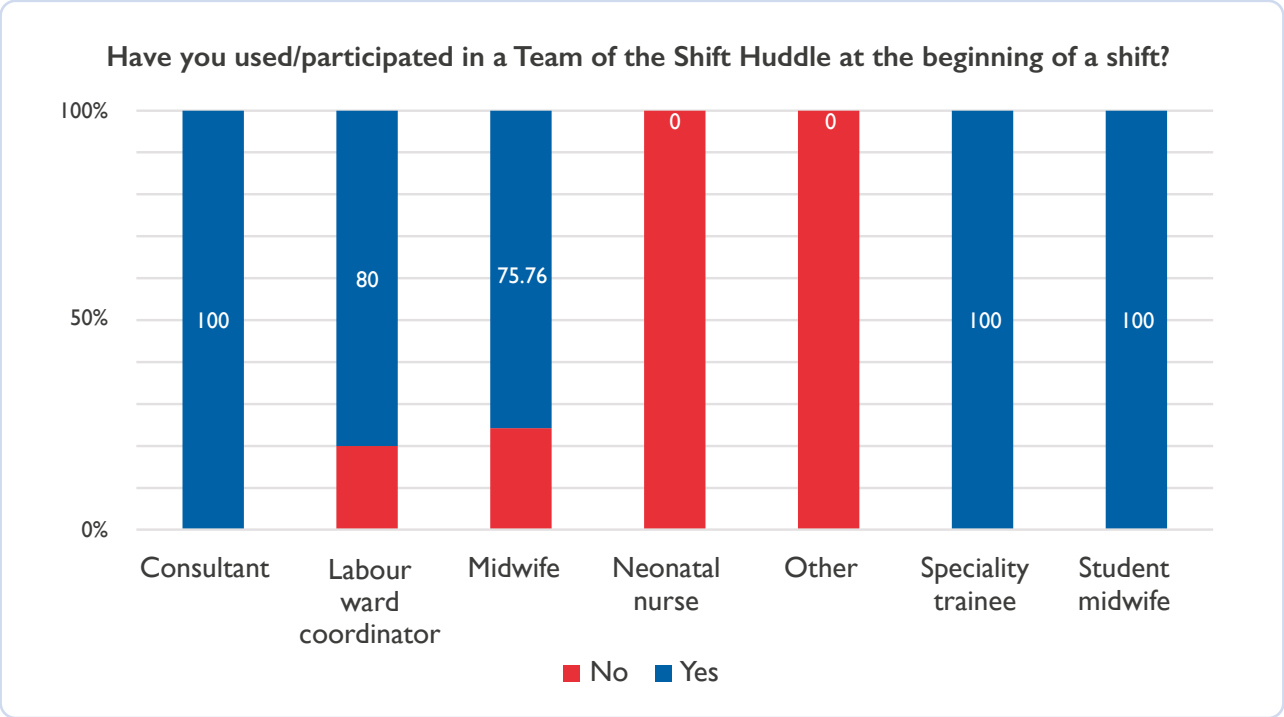


Team of the Shift feedback

Of the 58 responses received, 56% of responses were completed by midwives (N=33). Specialty trainees (N=10) comprised 17% of the responses whilst other professions made up less than 10% of responses: labour ward coordinators (N=5, 9%) consultants (N=4, 7%), neonatal nurses (N=3, 5%), student midwives (N=2, 3%), other (N=1, 2%).

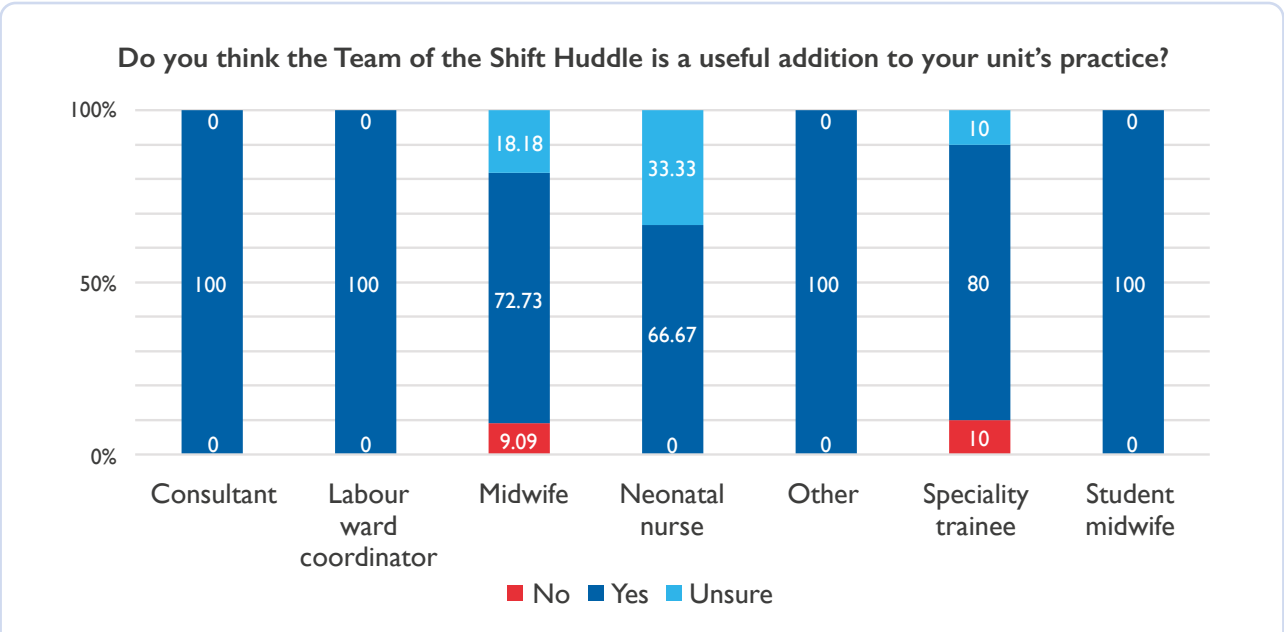
With the exception of neonatal nurses and 'other' professions, a majority of staff indicated having used or participated in a Team of the Shift Huddle at the beginning of a shift:

Figure 10: Use/participation in a Team of the Shift Huddle



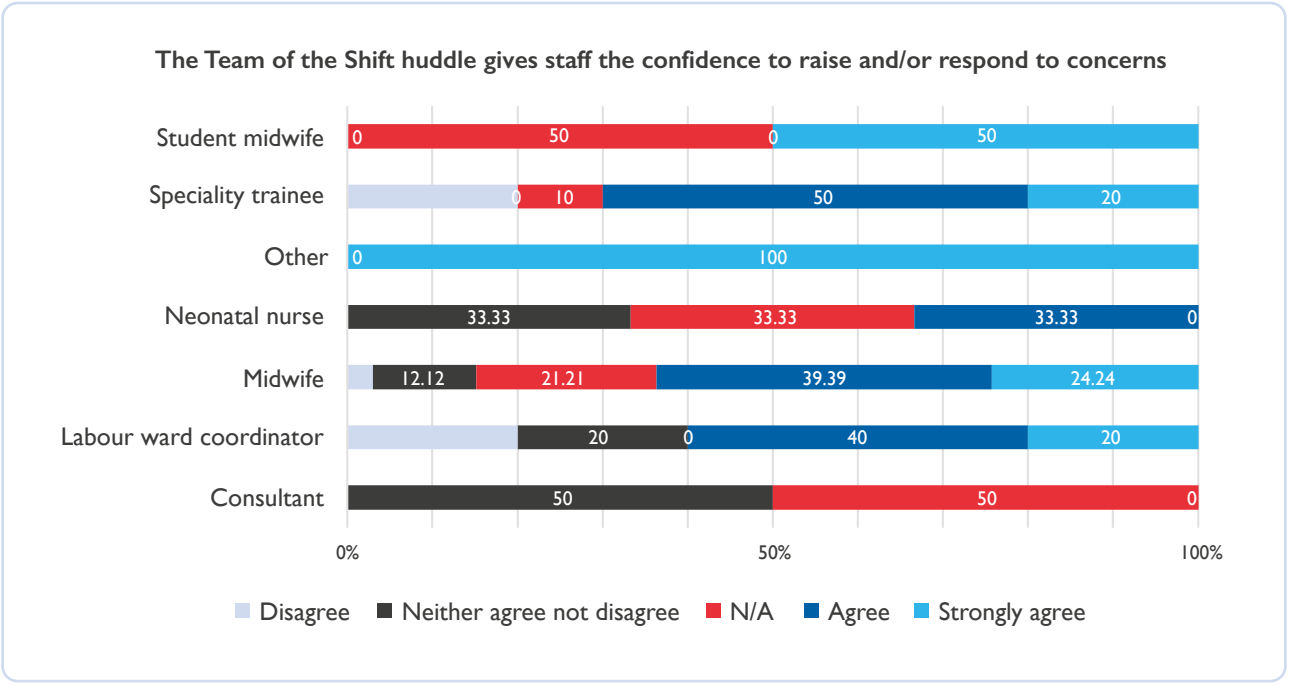
Overall, experiences of the intervention were seen as useful additions to the units' practice:

Figure 11: Usefulness of the Team of the Shift Huddle



Excluding consultants who shared more neutral responses, all other professions indicated improved confidence among staff:

Figure 12: Impact of the Team of the Shift Huddle on confidence



Embedding Successful Change Locally

Local Training and Study Days

As the project was brought to a close, the LDLs were interviewed for a third and final time whilst a virtual feedback event was held for staff within their units. When asked on their thoughts around sustaining the interventions within the units, most responses strongly suggested embedding interventions across different training sessions, such as annual mandatory training, in situ simulation, and intrapartum care or CTG teaching. Some LDLs mentioned they had already started putting the interventions into these sessions, while others indicated plans to do so.

Involving key staff/staff groups

A common theme that arose as both a facilitator of implementation and sustainability was the involvement of particular staff members. For instance, several LDLs mentioned specialist midwives being key in embedding interventions into CTG teaching as well as liaising with regional fetal monitoring leads to encourage wider spread. The risk team within one unit embedded the change ideas into action plans for serious incidents. Others have also mentioned the usefulness of support from their senior teams such as their HOMs and matrons where they are introduced to both internal staff members and externally such as MatNeoSIP, LMS meetings, regional safety events, national meetings and conferences.

Suggestions from the virtual feedback session highlighted the importance of engaging intrapartum Band 7 co-ordinators, as they are often the staff members who use the tools the most and can act as champions. They are therefore also the key to sustainability. Staff leading by example and role modelling key behaviours and change ideas was also stressed alongside the efficiency of bottom-up implementation to motivate any reluctant consultants or seniors. Though specific staff groups

were mentioned as crucial to implementation and sustainability, MDT integration and the use of interventions across the whole of maternity was also highlighted.

Use of resources

Many LDLs highlighted the importance of resources to continue embedding change. For example, the continued use of visual reminders such as posters and business cards to maintain awareness was highlighted as a successful strategy, which was reiterated through the staff focus groups during the virtual feedback day. There is also a lot of anticipation around the launch of the toolkit so that staff are able to access the materials including the videos and use them within their units and trainings:

> *When the toolkit's launched actually it will all be a revamp again won't it, there's new information, there'll be new tools that I can access, the videos, all that kind of thing, I will be able to use all that, my knowledge of that to kind of, you know, get that going in our unit again so that will help to sustain everything I think.* – ***LDL 7 (Senior Midwife/ Delivery Suite Co-ordinator. Roles changed to Fetal Monitoring Midwife Jan 2021)***

Maintaining campaign awareness

In order to sustain the campaign, maintaining its awareness was stressed as imperative by the LDLs and their staff. Packaging interventions with the RCOG and RCM branding was noted as helpful for credibility and settings standards of behaviours. A re-launch of the campaign as a national rollout was proposed as being helpful for momentum and standardising training to develop the change ideas as a new norm. For example, both staff and LDLs expressed interest in learning how other trusts have implemented the interventions within their units to feedback within their own units.

8. What Have We Learnt About Achieving Improvement and Culture Change in Maternity?

The evaluation demonstrates the programme's success in achieving local change and impacting on maternity culture. What was unique about this programme that other projects can learn from? And are the current and potential benefits to the wider maternity system, beyond those gained by the participating units?

What we've learnt about improvement in maternity:

1. Although there was already a broad understanding nationally of the barriers to successful clinical escalation in maternity units, the programme ran a comprehensive diagnostic phase in each of the participating units in order to design the interventions through a 'bottom-up' approach. This gave the interventions more weight when promoting change with shop floor staff – that the interventions were designed on "work as done" vs "work as imagined". It also meant the staff felt listened to and engaged with, which positively impacted on the response to the project overall. All the units implemented the same interventions, although each unit had the ability to modify its approach to implementation. This demonstrates that quality improvement work can be driven nationally, as long as local adaptation is accepted and encouraged. Recommendations can be broken down and adapted into concrete, measurable actions within units.

2. The interventions were developed with a sound background understanding of human factors, safety thinking, and human behaviours, using experts in the field to help guide the design process. Crucially, behaviours were linked with patient safety. This meant that when introducing methods of behavioural change, it was understood that simply telling people to act in a certain way is likely to fail, particularly with staff groups who are entrenched in longstanding cultural norms. Instead, introducing simple but specific structured conversational tools normalises certain behaviours, and empowers junior staff to speak up. This in turn has a positive impact on psychological safety and culture overall.

3. The interventions were introduced with carefully constructed, impactful campaigns. There were multiple reflections along the way, and the approach was consistently tweaked, with the LDLs learning from both their own and each other's experiences. It required time, energy, and enthusiasm – therefore being part of a community of practice, having senior mentoring and coaching, and regular webinars for their own professional learning and development helped to sustain momentum despite the challenges of delivering QI work through a global pandemic.

4. Although the overall ambition was large; "to improve clinical escalation" in an intrapartum setting, this overarching theme was broken down into smaller, more manageable projects. This allowed the LDLs to gradually build on each success, which in turn gave both them and the programme credibility when introducing new change ideas.

5. One of the things that was consistently mentioned in both the analysis of the programme but also when discussing it at regional and national conferences, was the importance of the "bottom-up" approach. There is often a disconnect between national strategy and front-line staff, with a feeling that policy is created by people who rarely, if ever, do clinical work. The fact that all the interventions were co-produced and tested by multi-disciplinary staff working in a clinical setting, has led to a high level of acceptability. By introducing the interventions in a diverse range of units (teaching hospital, DGH, rural, inner-city), the programme also demonstrated that positive change is possible everywhere, and maternity units have significant commonalities, no matter where in the country they sit geographically and socio-economically.

6. The programme also had a focus on both measuring improvement and celebrating successes, which were in turn communicated to staff at all levels. Demonstrating tangible improvement and benefit had a positive impact on the units, particularly at a time when staff morale was at an all-time low due to the pandemic. At times, it was recognised that the LDLs had to consider the appropriateness and timing of introducing change as the pandemic had initiated many constraints within the maternity system.

7. One of the huge facilitators of success was the community of practice created amongst the LDLs. This allowed them to channel enthusiasm, share and learn from successes, and overcome barriers to change. Bringing together clinicians from different roles and backgrounds, as well as different levels of experience in change management and leadership created a cohort that could bond, learn from, and inspire each other.

Impact on the wider maternity system

Following the close of the LDL activity, many of the LDLs have progressed to other regional or national roles pertaining to safety in maternity care. The impact of the development of the LDLs as individuals therefore goes wider than the 16 units themselves, as the leadership capability they developed is spread across the system.

Sustainability and Spread

Throughout the programme, the core team worked closely to align with other national projects and initiatives, including NHS Resolution, HSIB, and most notably, MatNeoSip. Moving forward, there is an ambition for the behavioural aspects of escalation as addressed by EBC L&S to fit into the frameworks being developed by NHSEI on the recognition of the deteriorating mother and baby. This will be supported by the online toolkit, which will include training videos on the interventions for use in training sessions.

The learning from the programme is also feeding into a number of other workstreams within NHSEI including culture and leadership.

Various other suggestions that are being explored include introducing the concepts through the fetal monitoring networks, via the RCOG trainees' curriculum, and the curriculae of student and preceptor midwives. Early understanding of the link between optimal communication, teamwork, behaviours, and its link to culture and patient safety was discussed repeatedly in the evaluation as critical to the ongoing improvements we are making in maternity care.

9. Strengths and limitations

This was an in-depth, multi-centre, multi-method evaluation study, co-developed by a team including maternity clinicians and behavioural scientists. Key strengths included following a pragmatic and formative evaluation approach that was closely interlinked with programme delivery. This allowed learning from each phase of the programme to inform the next stage thus being responsive and relevant to LDLs' learning and support needs. Our evaluation explored all aspects of the EBC L&S programme including the processes and outcomes linked to the capacity building of frontline maternity professionals alongside the implementation, change processes and initial impacts of the QI clinical escalation interventions. We collected robust qualitative and quantitative data from the LDLs as well as staff from across the 16 units, gaining invaluable insights from multiple perspectives and harnessing that learning into a dynamic safety and QI toolkit to be shared with wider maternity staff.

In terms of programme delivery, this was an innovative method to build the knowledge and skills of frontline maternity staff in safety thinking, leadership, QI and behavioural science that was rapidly adapted for remote delivery during the COVID-19 pandemic. Furthermore, we demonstrated a feasible and highly informative approach to using behavioural science to designing, implementing and evaluating QI interventions. The in-depth diagnostics process, underpinned by behaviour change theory, allowed LDLs to fully understand and specify the practices that needed the most urgent attention for change in their units as well as detailed insights into the barriers and facilitators. This provided an important step forward in integrating theory and practice whilst enabling maternity staff to implement tangible changes in their units by targeting identified barriers in a systematic way. Moreover, the community of practice created by the LDLs resulted in a powerful peer support network of multi-disciplinary maternity professionals from 16 different units, a key strength of the programme with positive impacts reaching local, regional and national levels.

However, there were some challenges that are important to acknowledge. Firstly, as alluded in the evaluation findings, the COVID-19 pandemic presented a significant challenge to both programme delivery, LDLs getting their protected time, implementation of the QI work, and evaluation. One unit was forced to close at the start of the pandemic although the corresponding LDL was able to explore the QI interventions from an antenatal perspective. Two further units were lost during the course of the implementation period as LDLs who had progressed to new organisations and those impacted by COVID-19 were not replaced by their Trusts. Momentum also slowed to induct new LDLs onto the programme who were appointed as their predecessors moved on. From an evaluation perspective, LDLs also encountered significant challenges in gathering real time feedback on the QI interventions from staff in their units due to increasing pandemic pressures impacting staffing and morale. This was also evident in the 87.5% decline in the number of responses to the post implementation questionnaire compared to baseline, therefore adding caution to the interpretation of these findings.

Finally, a key learning point from our evaluation was the importance of having clinically based LDLs who had both the high level endorsement from their Trusts, as well as active implementation support from their home teams. As the programme progressed, several LDLs progressed to new roles with less clinical involvement which inevitably impacted the adoption and momentum of the QI interventions in practice.

10. Conclusions

To conclude, EBC L&S achieved the aims it set out to achieve. We successfully built the capacity of frontline maternity professionals in clinical leadership, safety thinking and quality improvement. We also facilitated a structured quality improvement process within 16 maternity units across England, using behavioural science to improve clinical escalation in intrapartum settings. The programme was evaluated rigorously. Applying the learning from our programme through the uptake of our online safety and QI toolkit has the potential to positively impact the wider maternity safety landscape with a tangible framework for teams to effectively implement recommendations into practice.

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Appendices

Appendix A

Key components of EBC L&S using the TIDieR Checklist

EBC L&S components	Rationale	Mode of delivery	Delivered to	Delivered by	When/how often
Learn: training and development of LDLs					
Developing LDLs' clinical leadership and communication skills based on the Insights Transformational Leadership Programme.	Building LDLs' personal leadership style and capabilities as compassionate, effective and collaborative clinical leaders.	Face-to-face (group) and/or virtual via Microsoft teams or Miro. *All workshops were delivered virtually throughout the COVID-19 pandemic.*	16 LDLs	Dr Bernie Divall, Professional Advisor for Leadership	Three sessions held during the programme: 1.at the beginning of the programme, 2. during the diagnostic phase, 3. prior to implementation phase.
Increasing awareness of key maternity safety concepts including building a safe and just learning culture, Safety I and II, human factors, civility and psychological safety.	To inform the quality improvement intervention design and implementation process.	Face-to-face (group) and/or virtual via Microsoft teams or Miro. *All workshops were delivered virtually throughout the COVID-19 pandemic.*	16 LDLs	Professor Suzette Woodward, Professional and Clinical Advisor in Patient Safety and Susie Crow, Programme Clinical Lead/ Consultant Obstetrician	A series of webinars and structured workshops integrating knowledge of maternity safety concepts and implementation to facilitate the quality improvement process.
Training on quality improvement methodology, behaviour change, quantitative and qualitative data collection methods, piloting of data collection tools.	To build LDLs' knowledge and equip them with the skills to undertake the design and implementation of the quality improvement strategies.	Face-to-face (group) and/or virtual via Microsoft teams or Miro. *All workshops were delivered virtually throughout the COVID-19 pandemic.*	16 LDLs	Dr Nimarta Dharni, Psychologist/ Research fellow	Regular workshops throughout the programme.

EBC L&S components	Rationale	Mode of delivery	Delivered to	Delivered by	When/how often
Support: Quality improvement work					
Coaching and mentoring support to LDLs	Building LDLs' confidence and capabilities as clinical leaders as well as role modelling of leadership behaviours by experienced clinicians within the core team who either currently or have previously held clinical leadership positions.	Alongside the workshops, additional one-to-one coaching and mentoring support was provided via telephone, email, remote meetings, and a peer led WhatsApp group.	16 LDLs	Mandy Forrester, Ann Morling and Susie Crowe - core programme team	Monthly 1:1 catch ups and as/when requested by LDLs for the duration of the programme
Co-producing interventions with LDLs to improve clinical escalation using a structured approach underpinned by behavioural science.	To facilitate the intervention design process. Use of behavioural theory provides a firm theoretical basis to ensure intervention strategies are specifically designed to address barriers to health professionals' practice.	Face-to-face/virtual (group). *All workshops were delivered virtually throughout the COVID-19 pandemic.*	16 LDLs	Core programme team	Monthly, one or two day workshops
LDLs to create a multi-disciplinary 'home team' recommended to include the following representatives: obstetrician, midwife, labour ward coordinator, neonatologist, anaesthetist and a member of the local maternity voices partnership (MVP).	To support the LDLs with the local implementation of the quality improvement intervention strategies and staff training.	Face-to-face (group). Plus virtual workshops and meetings throughout the COVID-19 pandemic.	Home teams across 16 NHS Trusts	LDLs	Plan for weekly meetings during the implementation phase at the host NHS institution.
Attendance at key meetings including local maternity systems (LMS), local learning system (LLS) and MatNeoSip clinical improvement leaders group (CILG) meetings.	To help establish a community of practice and enable LDLs to share learning on local, regional and national levels and further develop their leadership skills.	Face-to-face/virtual (group). All workshops were delivered virtually throughout the COVID-19 pandemic.	16 LDLs alongside other maternity professional leaders	MatNeoSip, LLS and LMS partners	Quarterly/as and when scheduled

Appendix B

Each Baby Counts Learn Support Workshops & Webinar Topic List

Date	Subject matter	Speakers
Workshop 31/05/2019	• Maternity Programme Areas of Learning • How will Each Baby Count L&S add value? • Conditions, Values, Attitudes and Behaviours that underpin everything we do. • The Local Development Lead role: Challenges and Opportunities • Home team information	Sandy Lewis, Director of Maternity Investigations HSIB. Tony Kelly Prof Suzette Woodward, Senior Advisor, Department of Health and Social Care. Dr Bernie Divall, Professional Advisor for Leadership, Royal College of Midwives.
Workshop 19/07/2019	• Overview of Maternity Safety Landscape • Where does each baby counts learn and support fit into this landscape? • Building trust and relationships to support the work • Setting behavioural norms and accountability • Individual development assessments, group assets assessments • What are we here to achieve? Setting a group aim • What's gone before? Diagnosing the problem and potential solutions • How do we plan to achieve it? Developing small group/whole group driver diagram with change ideas to support the aim • What can we measure? Shared and local measures to indicate improvement • Clinical leadership in the local learning system	Michelle Upton Mandy Forrester Tony Kelly and IHI team
Workshop 19-20/09/2019	• Welcome and programme update • QI Thinking: progress with escalation • Leadership presentation • Emotional Intelligence • Cohort wheel • Insights presentation	Mandy Forrester Heather Pritchard Bernie Divall
Workshop 13/11/2019	• MatNeoSIP Collaborative event (Harrogate) • QI update	Heather Pritchard
Workshop 19/12/2019	• Stakeholder/patient engagement • EBC Progress Report – Escalation • TeamBirth – "whiteboard" presentation	Matthew Miles and Louise Grew Dr Gemma Goodyear Dr Reena Aggarwal
Workshop 21/01/2020	• Influencing practice behaviour change • Identifying escalation behaviours • Tools for data collection	Nim Dharni
Workshop 28/02/2020	• Safety Critical Language application in practice • Fetal Monitoring • Update on diagnostic phase and next steps • Introduction of logic frame model and its design	Georgina Charlton Freedom to Speak Up Guardian - Guys and St Thomas' NHS Foundation Trust Susie Crowe Nim Dharni & Hannah Rutter
Workshop 20/03/2020 (1st Remote via MS Teams)	• Listen to Me Safety thinking • COVID-19 experiences and reflections	Mara Tonks Everyone

Date	Subject matter	Speakers
COVID-19 Programme pause		
Webinar 02/09/2020 Programme recommenced post COVID-19 pause	• Updated programme aims, objectives, timeline • COVID related arrangements • Programme Outputs • Diagnostics reminder • Setting up Home team	Mandy Forrester/Susie Crowe/ Ann Morling
Webinar 16/09/2020	• Methods for data collection	Nim Dharni
Workshop 22/09/2020	• Interpersonal Relationships; Valuing and working with a difference	Bernie Divall
Safety Webinar 07/10/2020	• Rethinking patient safety • Safety I and Safety !! • Psychological Safety • Just culture	Suzette Woodward
Workshop 15/10/2020	• All about Teams • Home team formation • Importance of Teams to healthcare • Your experience of team working • Team formation and types • Leading teams • Using Insights to explore team structures	Bernie Divall
Safety Webinar 21/10/2020	• Imentation problems and behavioural insights • 3 key messages: "it's not all on you, we can't change everyone, bottom-up is best" • Understanding the drivers of adopting change • Strategies for introducing change – EAST, organise for impact, spread and sustainability	Suzette Woodward
Workshop 03/11/2020	• Revisiting the timeline • Human Factors: What does good look like? • Introduction to Mind Mapping • Mindmapping: what have we learnt from our diagnostics, who have we connected with, what are the barriers to engagement, what innovations are already being implemented, what is our vision/end goal • Next Steps	Mandy, Susie, Ann, Nim
Webinar 18/11/2020	• Safety Critical Language in action – London Ambulance Service • Measurement and monitoring in relation to clinical escalation • Defining clinical escalation • What do we know already • Solutions and interventions • Process and outcome measures • Methods for measuring and measuring in the absence of something	Amanda Mansfield Suzette Woodward
Workshop 01/12/2020	• Design workshop 1: • Feedback from diagnostics interviews and systematic review • Shaping the intervention bundles • Prioritisation criteria • The short list of intervention ideas • Naming, crafting, adding, subtracting intervention ideas • Shaping the intervention bundles • Practical steps forward	Susie, Ann, Suzette, Nim

Each Baby Counts Learn Support Workshops & Webinar Topic List (continued)

Date	Subject matter	Speakers
Workshop 02/12/2020	• Design workshop 2 • Shaping the implementation methods • Engagement and reaching the hard to reach • 30 day implementation planning • Creating an implementation plan • Breaking up the next 6 months into 30 day / monthly activity • Expectations for 19 January • Update and refresher on QI methodology and logic model to support the implementation planning	Suzette, Ann, Susie, Nim
Webinar 06/01/2021	• Update on Covid-19 situation in units • What will Jan-March look like: making it doable and achievable • Update from communication and handover groups – looking at work as done • Plans for next workshop	Mandy, Susie, Ann, Suzette, LDLs
Workshop 19/01/2021	• Finalising our aim statement and throughline • Updated driver diagram • Identify – Communicate – Act Campaign objectives and methodology • Implementation plan • Developing a communication plan and key messages for each change idea • Campaign materials • Example measures for each change idea • PDSA cycles and testing on a small scale • Evaluation outline • Behaviour change techniques to consider	Suzette Nim
Workshop 10/02/2021	• Checking the revised aim statement • Definition of implementation • Implementation programme – timeline and actions from February to September 2021 • Feedback on campaign materials – finalise and update • Revisiting our objectives for each change idea • General measures • Measures of psychological safety	Suzette
Workshop 10/03/2021	• MatNeoSIP update on deterioration work and patient safety networks • Checking in on campaign launch and testing of Teach or Treat • Structure of PDSA cycles for remaining interventions • Finalising measures and format for Teach or Treat	Hannah Rutter & Tony Kelly Suzette
Annual Safety Summit 31/03/21	• Creating a just culture for maternity • Culture and behaviour change as barriers to escalation • Moving from barriers to solutions – overview of campaign and change ideas	Suzette, Susie LDLs
Safety Webinar 14/04/2021	• Polarity mapping	Suzette Woodward
Workshop 21/04/2021	• Summit on Teach or Treat - collecting and sharing implementation lessons learnt	LDLs
Workshop 09/06/2021	• Summit on AID – collecting and sharing implementation lessons learnt	LDLs
Workshop 01/09/2021	• Summit on Team of the Shift – collecting and sharing implementation lessons learnt	LDLs

Appendix C

Each Baby Counts Learn & Support Diagnostic Phase Protocol and Tools for LDLs

The aim of the diagnostic phase is to understand what maternity health professionals' practice behaviours need to change in order to improve clinical escalation across intrapartum settings.

As part of this process, we will complete a number of activities to:

1. Identify what changes we want to make to escalation practice by a) measuring how much of the behaviour is occurring/not occurring in practice and b) by reviewing HSIB reports of EBC reportable cases.

2. Identify the barriers and facilitators of escalation behaviours for staff and for women, in terms of their capability, opportunity and motivation towards escalation behaviours.

Observation of escalation behaviours in practice

Using the updated observation checklist template (Sept 2020), please observe and log your observations on the checklist. Please use one form per session of observation. Early feedback from some of the team suggest it might be helpful to use one form per escalation observed. Remember we are observing the whole team and not particular individuals or cases. The observation can be completed over a number of days/hours and settings e.g. triage, induction suite, labour ward, maternity assessment unit, handover, birth centre. Ideally, it would be **great to observe a different setting to** where you usually work to give the fresh eyes perspective.

When, where and how you complete your observation is completely up to you and your working pattern. Please ensure you complete the description of the setting, date, time, duration of the observation and any other relevant factors on the first page of the checklist.

You can complete your observation as part of routine contact with women or pregnant people and write up your reflections on the form afterwards, or you can observe from placing yourself in a general area within your unit. You can complete the observation on paper initially and transfer onto the electronic copy or enter your observations directly on the electronic version.

Please do **complete the unstructured notes** section to record any contextual information, verbal or non-verbal communication/escalations observed as well as any behaviours reflecting escalation that are not included in the checklist.

The key objective of this task is to identify to what escalation behaviours are or are not occurring in practice AND where the delays might be the escalation to the action (identify – communicate - act (e.g. from the decision to go to theatre to women actually being transferred).

HSIB report review of EBC eligible cases

Using the 'HSIB case review form' please review between 1 and 5 HSIB reports to identify the key contributory factors based on the 3 stages of escalation (**Identify – Communicate-Act**). Please complete the case review using the information included in the HSIB report and any other information that may be readily available to you.

The key objective of this task is to identify where in 3 stage escalation process a breakdown occurred in an EBC reportable/HSIB serious incident.

Consultations with staff

The key objective of this task is to identify the barriers and facilitators of escalation behaviours experienced by staff AND help establish buy-in for the project.

Similar to the group discussion in the January workshop, the following open- ended questions can be asked:

1. How do you **usually escalate** concerns about a woman/baby? To whom do you usually escalate to? *(aim here is to explore current escalation behaviours)*
2. What **barriers/challenges** have you experienced when escalating concerns about a woman/baby? Probe the 3 stage escalation process e.g. **barriers to identifying, barriers to communicating, barriers to action/response** *(you can take detailed notes and or record on post-its as we will categorise these barriers into the Capability-Opportunity-Motivation domains later on)*
3. What **solutions** can we put into place to address these barriers? *(the important thing here is to try and elicit a solution for each barrier or type of barrier mentioned e.g. if team hierarchy is a barrier, how can we overcome this? The more specific we can be, the better informed our intervention design will be. Use prompts such as "tell me more", "what would that [solution] look like", "how can we implement this?" to elicit further details.*

The questions can be asked to staff in focus group format, individually via one-to-one discussions or both as long as you document the approach taken. Focus groups tend run best with 6-8 participants in each group so you may need to run 2-3 groups within your units. Try to include staff representing different professional groups (midwives, obstetricians) as well as staff of varying seniority (band 5 midwife, junior registrars, labour ward coordinator, consultant etc). For any staff interviewed individually, please take detailed notes on their responses as this will constitute as data for the design phase. As we will interview a selection of staff across the 16 units as part of the evaluation next year, please keep a note of which staff members have taken part in the focus groups/interviews to ensure we don't overburden particular individuals.

Consultations with women or pregnant people

As women, pregnant people and families are at the heart of our work, we want to also ensure we can **capture the barriers they may have encountered when escalating their concerns during labour.** The following questions can be asked:

Congratulations on your new baby! I am [give name and role] and am leading a quality improvement project to improve the quality of care our women, pregnant people and their families receive. May I ask you a few questions about your experience of giving birth here?

1. Did you have any concerns or issues during your labour that you felt were not heard or fully acknowledged by staff?
2. How easy or difficult was it for you to raise any concerns or issues you had during labour?
3. From your experience, what can get in the way of women asking for help/raising concerns during labour?
4. What would make it easier for women to ask for help/ raise their concerns more effectively?

Please do not collect any personal details of women or pregnant people, we only need their opinions and feedback at this stage. Please do take detailed notes on responses to the above questions as again this information will be highly informative for the design phase. As a guide, you can speak to up to 10 women or pregnant people in your unit. We will then collate and summarise the results across all 16 units.

Escalation in practice – Observation Checklist

(using the 3 stage escalation process)

Day ☐ Night ☐ Handover in progress ☐ (Midwifery ☐ Obstetric ☐) Time: Observation duration:

One hour before handover ☐ One hour after handover ☐

Monday ☐ Tuesday ☐ Wednesday ☐ Thursday ☐ Friday ☐ Saturday ☐ Sunday ☐

Location *(tick all that apply)*	Delivery Suite ☐ Midwifery Led Unit ☐ (Alongside ☐ Standalone ☐) Triage ☐ Maternity Assessment Unit ☐ Maternity ward ☐ (Antenatal ☐ Postnatal ☐) Obstetric Theatre ☐ Neonatal Unit ☐ Other:
Staffing level	As per policy ☐ Staff absences / shortages ☐ Comment:
Acuity	Low ☐ Normal ☐ High ☐ 'Unmanageable' ☐ (acute situation ☐ or prolonged over number of hours ☐) Escalation policy in action ☐ (Resulted in sufficient staff ☐ Remains high level despite escalation ☐) Consultant present ☐
Skill mix *(comment)*	
Case detail *including escalation situation summary (no personal names and patient specific detail)*	

Step 1- Identify		**How?** *What mechanism was used to identify complication or evolving clinical situation?*	**Is this what you would normally expect to happen? If no, state reasons why**	**Were there any barriers to effective identification?** *e.g. Human factors/errors, loss of situational awareness, high acuity*
Was the deviation from normal correctly recognised?	Yes / No	e.g. using existing tool/ framework/cognitive aide or pre-existing knowledge		
Were the risk factors fully reviewed/ considered?	Yes / No	e.g. review of records/history or care/ SBAR		

Step 2 – Communicate		What happened?	Is this what you would normally expect to happen? If no, state reasons why	Were there any barriers to effective communication? *e.g. unwilling to challenge, poor handovers, distractions, steep hierarchy, passive escalation and/ or PACE graded assertiveness tool not used*
Was any safety critical language used? *If yes, state phrase used in the 'what happened' box*	Yes / No			
Did closed loop structured communication take place?	Yes / No			
Was there a clear handover?	Yes / No			
Was a flattened MDT hierarchy evident? *respectfull/ treated as equals*	Yes / No			
Was the escalation assertive enough? *by whom*	Yes / No			
Was the action receptive? by whom	Yes / No			

Step 3 – Act		What happened?	Is this what you would normally expect to happen? If no, state reasons why	Were there any barriers to effective action/response? *e.g. Human factors/errors, loss of situational awareness, high acuity*
Was the response appropriate for the situation?	Yes / No			
Was the speed of response appropriate for the situation?	Yes / No			
Any Infrastructure/ resource availability problems? *e.g. staff / theatres available*	*Yes / No*			

Unstructured observation: descriptive, analytical and reflective written field notes

e.g. how team members are interacting with each other, observations of verbal and non-verbal interactions between staff, attempted escalations (successful and unsuccessful)

EBC L&S review of HSIB reports

Report 1

Summary of case - What happened, which setting, what was the outcome

Review of escalation – Summary of where delay or breakdown occurred in the 3-stage escalation process. Include the things that went well (blue ticks) as well as where the problems occurred (red crosses).

Identify

✓
✓
✗
✗

Communicate

✓
✓
✗
✗

Act

✓
✓
✗
✗

Impact of any other contextual contributory factors identified in the report such as:

- Workload/staffing issues
- Leadership/supervision
- Physical environment
- Team function
- Staff training/experience
- Safety culture

HSIB report recommendations

Appendix D – Diagnostics findings

Key Barriers: Identifying problems

Wrongly categorised CTG led to inappropriate management of care (Capability)
Inaccurate documentation in completing the SBAR when a clinical concern was raised (Capability)
Identifying what is happening / what is required based on guess work and assumptions (Capability & Opportunity)
Lack of timely escalation when changing clinical picture in the late second stage of labour (Capability & Opportunity)
Delays in identifying need for urgent delivery. Focussed only on CTG and not the risk factors in the bigger picture (Capability & Opportunity)
Tools to assess and identify need for clinical escalation not used consistently e.g. risk assessment questions/CTG interpretation tool/ MEOWS (Capability)
Human factors and difference between day and night decision making (Opportunity & Motivation)

Key Barriers: Communicate

No formal clinical escalation policy in the unit (Capability & Opportunity)
Confusion between staff on the evolving plan (Opportunity)
Staff unsure who people were, lack of clarity of different medical roles and grades and who has responsibility and able to do what (Capability & Opportunity)
Relevant information not passed on at handover (Capability)
Use of jargon not understood by all (Capability)
Not being able to get hold of a Doctor/ midwife in charge due to bleeps not being answered or the use of personal mobile phones. (Opportunity)
Telephone escalation possibly not as effective as face to face conversation (Opportunity)
Midwives and doctors not being fully aware of guidelines. The junior medical staff are not always aware of the midwives level of competence (Capability)
Staff confidence in escalating concerns especially when unknown colleague (Motivation)
Fear of getting it wrong, fear of the response to escalation, fear of being dismissed or questioned (Motivation)

Tensions between particular staff e.g. labour ward lead and registrar (Opportunity)
Communication barriers between delivery suite and theatre teams not clear e.g. not defining category of theatre case (Opportunity)
Vague escalation language so not always clear what the situation is and what response is required (Opportunity)
Presuming senior staff will return to review within a time frame (Opportunity & Motivation)
Presuming that someone is watching the external central fetal monitoring system (Opportunity & Motivation)
Some Consultants are deemed more approachable than others (Motivation)
Upon an emergency situation being recognised and escalated for transfer the urgency of the situation was not immediately understood due to the lack of shared language between the professionals involved (home birth) (Opportunity)
Staff shortages meaning some staff are working in unfamiliar areas and teams (Opportunity)
Hierarchies and lack of permission to escalate directly (Opportunity)

Key Barriers: Act

A reluctance of junior staff to call an emergency when there was someone more senior in the room (Opportunity and Motivation)
Staff refusing to attend to escalated concern (Motivation)
Not having a clear leader making the decisions (Opportunity)
Staff experienced plans being undermined in front of women (Motivation & Opportunity)
Responses of consultants during the day when they are present on the unit different when on-call at night (Opportunity & Motivation)
Delay in formal review by obstetric team (Opportunity)
Responsibility is relinquished once staff have told someone although that staff member may not be in a position/available to attend (Opportunity & Motivation)
Registrars reluctant to call consultant on call at night due to fear of appearing incompetent and not coping (Motivation & Opportunity)

Key Barriers: Women's Views

Women didn't always feel there was enough **time** to raise concerns
Women felt they had to raise concerns and were **not regularly asked** if they had any concerns

Some women felt their issues had been **forgotten** but in actual fact things had happened outside the room that hadn't been fed back or answers given.
Having to **repeat stories** to different hcps
Witnessing dismissive behaviours of doctors towards midwives when a concern was raised
Embarrassment of not knowing enough about what was happening and not wanting to look stupid.
Communication impaired by staff wearing **masks**
Not wanting to **bother staff** when unit was **busy**
Some women felt their concerns/perceptions of stage of labour were **dismissed**
Not knowing **who to ask** for help especially when everyone is dressed in the same coloured scrubs
Difficult to explain to staff in a **second language** and not understanding all the information being given in that second language
Being **frightened** and not knowing what is going to happen next

Facilitators of Effective Escalation

- **Flattened hierarchy** where the coordinator felt able to suggest a different plan of care and the Registrar was open and accepting of this.
- Appropriate midwifery and medical **staffing** for workload
- **Supportive and helpful shift leader** who **supports the team**
- **Supportive and decisive medical team,** with interested obstetric consultant who spends time on the department
- **Clarity of midwifery and medical leadership** for the shift
- **Clarity of plan of management** and what to do if clinical situation changes, with timeframes for next review or intervention
- **Clear language** used by all members of the team about the issue being escalated and how urgency the review is needed
- **Tools like MEWS charts** and opportunities for **second opinion** e.g. fresh eyes
- **Helpful response** from the person you escalate too
- **Clear and structured handover** when starting the shift or taking over care including all the relevant risk factors and plans
- **Positive feedback** when appropriate escalation occurs
- **Active listening** from person receiving the escalation
- **Shared goals and understanding** amongst all members of the team on that shift
- **Knowing who the people are** who are looking after you; their names and their roles (women's perspective)

Appendix E – Campaign materials and resources

Teach or Treat Poster

AID card


THE ROYAL COLLEGE OF MIDWIVES
each baby counts
learn & support
Royal College of Obstetricians & Gynaecologists
Identify - Communicate - Act
Escalating a clinical situation? Frame what you need to say with safety critical language.
A-I-D
"I am asking for your ADVICE..."
"I am INFORMING you..."
"I need you to..(DO)"
A I D
ADVICE * INFORM * DO
COMMUNICATE


IF YOU ARE ESCALATING
OR
BEING ESCALATED TO
A I D
ADVICE * INFORM * DO
COMMUNICATE
ASK YOURSELF...
ASK YOURSELF...
"What precisely do I need, am I..
Requesting ADVICE?
INFORMING of a situation?
Requiring an action (DO)?"
"What is being asked of me, do I need to...
Give ADVICE?
Process INFORMATION?
DO something now?"
each baby counts
learn & support
THE ROYAL COLLEGE OF MIDWIVES
Royal College of Obstetricians & Gynaecologists

Team of the Shift card

each baby counts
learn & support

Identify - Communicate - Act

Excelling at Clinical Escalation Together as a Team

At the start of each shift, ask yourself...
Do I know everyone on shift today?
Do I know who I'm going to escalate concerns to?
Have I said thank you to a colleague?
Have we celebrated our successes together?
Have I checked if my colleagues are okay at the beginning and end of each shift?

Turn over to find out how we can achieve excellence together with the Team of the Shift huddle. By making clinical escalation easy, we can continue to keep women and babies safe, support each other and foster psychological safety.

Setting up the Team of the Shift Huddle

Start promptly (5-10 mins for team of the shift prior to clinical handover).

Reduce distractions, minimise noise and ensure privacy

Consider delegation prior to team of the shift & clinical handover to minimise any immediate safety concerns.

TEAM OF THE SHIFT
TEAM WORK, CIVILITY, PSYCHOLOGICAL SAFETY

Welcome the incoming team:
- Introduce everyone by first name, role and duration of shift
- Check how everyone is feeling (Hungry, Angry, Late, Tired, Distracted)
- Ensure everyone knows who to escalate concerns to
- Any learning/support needs

Thank outgoing team:
- Promote kindness and civility
- Celebrate successes
- Check everyone is safe to go home

Identify the emergency team for the shift - roles and any potentially anticipated emergencies

Team of the Shift Poster

THE ROYAL COLLEGE OF MIDWIVES

each baby counts + learn & support

Royal College of Obstetricians & Gynaecologists

Identify - Communicate - Act

Excelling at Clinical Escalation Together as a Team

At the start of each shift, ask yourself...
Do I know everyone on shift today?
Do I know who I'm going to escalate concerns to?
Have I said thank you to a colleague?
Have we celebrated our successes together?
Have I checked if my colleagues are okay at the beginning and end of each shift?

We would like to introduce a Team of the Shift huddle at the start of every shift to make escalation easier so we can continue to keep women and babies safe, support each other as a team and foster psychological safety.

- Let's make clinical escalation easy
- Let's give every team member a voice so they can raise concerns without fear
- Let's pledge to respond with kindness and compassion to all our colleagues

Team of the shift guide

Excelling at clinical escalation together

This may be used to guide / structure **Team of the Shift** within a handover or team huddle and if required it can be used to record that it has happened.

Set the scene before you start

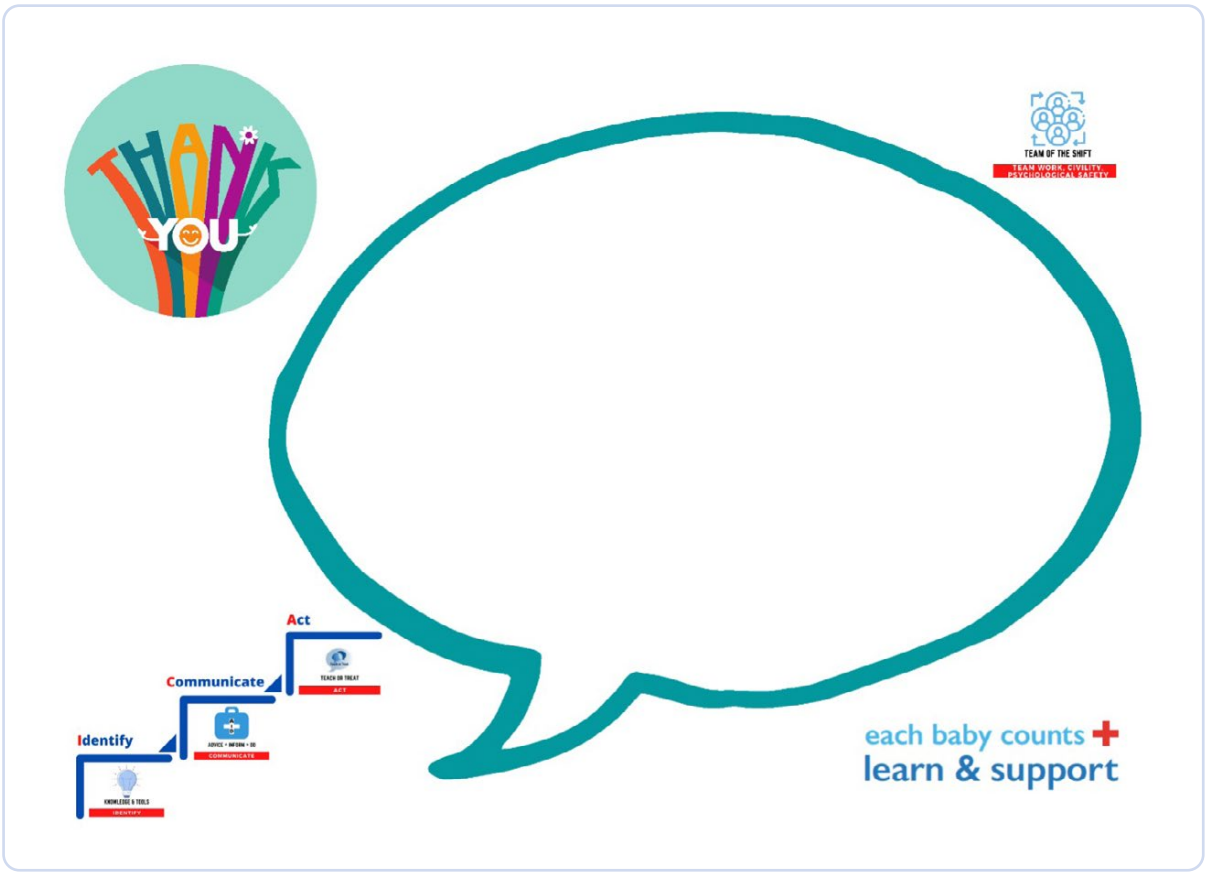
- Reduce distractions
- Reduce interruptions (e.g. close door, but be mindful of enabling staff to approach the team for critical escalations)
- Ensure privacy and confidentiality
- Manage any immediate safety issues - delegate prior to team of the shift huddle and handover

Implementation	Comments
Start promptly 5-10mins for Team of the Shift then clinical handover	Record time:
Welcome incoming team Ask how they are? (is anyone hungry, angry, late, tired or distracted). Let people know who to talk to if they want to talk to someone privately.	
Team Introductions • First name and job title • Role for the duration of the shift • Support/development needs.	
Identify emergency team Their roles and any potential emergencies anticipated.	
Identify who to escalate to and consider if escalation buddies are requested.	
Clinical handover	
Thank outgoing team - promoting kindness and civility • What went well? • Celebrate and recognise success (Thank you cards?) • Is everyone ok? • Are you safe to go home?	

Suggested implementation measures:

- % of times when team of the shift was implemented according to agreed processes.
- % of times when the 'escalation board' was up to date.
- Staff rate experience of 'Team of the Shift Huddle' ability to speak up without fear or repercussions.

Thank you card



Thank you magnet

Appendix F

Standardised email of rationale to LDLs

Dear all,

As you know, through the EBC L&S programme, we've been improving clinical escalation with Teach or Treat, and AID. The last thing we'll be introducing is "Team of the Shift", tying everything together.

We know how hard things have been for everyone over the last 18 months – and how exhausted you all are. We also know that faced with such immense pressures, the little things that make our days better can sometimes slip, and it's why we wanted to have a focus on looking after each other. It's so important we foster a culture of kindness and civility, not only because in doing so we support each other, but also because we know that incivility can be crucially linked to patient safety.

So this campaign is all about optimal teamwork, and recognising that the little things we do – asking a colleague how they are, saying thank you, checking in with each other at the end of the shift - can go a long way towards making someone else's day better. Our behaviours, positive or negative, can have a huge impact on others. By promoting a positive culture, we also enable psychological safety – making everyone feel valued, respecting and welcoming the input of every member of the team, and encouraging everyone to speak up without fear of blame or retribution. This in turn has a big impact on patient safety, enabling everyone to speak up when they have concerns.

It's also so important to know your team for the day. Who are you going to escalate to? Who is going to escalate to you? Are you all ok? Does anyone need extra support? Or are there any learning or development needs to address?

We'll be reminding you about this over the coming weeks, with cards and posters, amongst other things.

Appendix G

Baseline-Post Analysis Table

Likert scale – pre-post baseline questionnaire change

How often did you escalate a concern labour to a colleague of the same profession?
How often did you escalate a concern to a colleague from a different profession?
How often did you get the appropriate response?
How often did you escalate a concern multiple times before you got the required response?

I am confident in escalating concerns about a woman and/or baby to any colleague, including those I have never worked with before
I always know who to contact when I have a concern to escalate about a woman and/or baby
I routinely use clear, concise and direct language to escalate concerns
I can easily contact the appropriate person quickly when I have a concern to escalate
I don't always know who all my colleagues are on a shift or what their roles and responsibilities are
I worry about the response I might get when escalating a concern about a woman and/or baby
I am not always clear on when to escalate a concern about a woman and/or baby
I usually receive constructive feedback on the outcome of escalated concerns
It is part of my role to give constructive feedback to colleagues after they have escalated a concern
My colleagues routinely use clear and concise language to communicate the situation and level of urgency when escalating concerns
I often observe tensions between different members of the team
I can easily ask colleagues for help and advice if I am unsure about anything
I am nervous about interrupting colleagues to escalate a concern when they are busy
Escalating concerns is more difficult during the night shift compared to during the day shift
It is always clear who is responsible for making decisions during the response to an escalated concern
I do not have enough time to give a structured summary e.g. using SBAR when escalating a concern
When escalating concerns, I am usually clear on what the situation is and what response is required
It is part of my role to speak up if I perceive a problem with a woman's care in my unit
It is not necessary to give a structured summary e.g. using SBAR when escalating a concern
When receiving concerns, I am usually clear on what the situation is and what response is required

Bold text indicates significant pre-post change in Wilcoxon signed rank test, $p < 0.05$

Baseline (n=207)						Post (n=207)						Pre-post change
Never	Rarely	Sometimes	N/A	Often	Always	Never	Rarely	Sometimes	N/A	Often	Always	p value
11.59	10.14	23.19	13.04	27.54	14.49	9.18	8.21	25.12	18.84	28.5	10.14	0.808
10.63	8.7	29.47	11.59	29.47	10.14	8.21	7.73	24.64	16.91	31.88	10.63	0.624
1.93	0.97	12.56	14.98	42.03	27.54	0.97	0.97	11.59	20.29	39.13	27.05	0.446
19.81	38.16	19.81	17.87	4.35	0	19.81	30.43	20.77	22.71	4.35	1.93	0.542

Baseline (n=207)						Post (n=207)						Pre-post change
Strongly Disagree	Disagree	Neither Agree or Disagree	N/A	Agree	Strongly agree	Strongly Disagree	Disagree	Neither Agree or Disagree	N/A	Agree	Strongly agree	p value
0.48	0.48	2.42	2.42	38.65	55.56	0.48	2.42	1.93	0.97	40.58	53.62	0.35
0.97	0.97	2.9	2.42	38.65	54.11	0	1.93	5.8	1.45	36.71	54.11	**<0.001**
0.48	1.45	4.35	1.93	56.52	35.27	0.97	0.48	5.31	0	59.9	33.33	0.616
0.48	4.35	8.7	1.93	56.52	28.02	0.97	8.21	15.46	0	48.79	26.57	0.985
28.02	39.13	7.25	1.45	17.39	6.76	16.43	39.61	8.7	0.48	28.02	6.76	0.145
20.77	50.72	10.63	1.45	14.49	1.93	15.94	48.79	15.46	0.97	15.94	2.9	0.796
30.43	54.59	4.83	1.45	6.76	1.93	24.15	59.42	7.25	1.45	6.28	1.45	0.235
5.31	18.36	28.5	1.93	40.1	5.8	4.35	18.84	29.47	3.38	37.2	6.76	0.786
5.8	10.14	19.32	8.7	36.71	19.32	2.42	8.7	14.49	8.21	41.06	25.12	0.981
1.93	11.11	14.98	1.93	56.04	14.01	0	10.14	21.26	0	59.9	8.7	0.231
4.35	31.88	30.43	0.97	24.15	8.21	3.86	28.5	31.4	0.48	28.5	7.25	0.848
0.97	1.93	2.9	2.42	44.44	47.34	0	0.97	2.9	0.97	45.89	49.28	**0.001**
19.32	47.83	11.59	0.97	16.43	3.86	11.59	51.69	14.01	0	16.43	6.28	0.382
10.14	38.16	15.46	13.04	16.91	6.28	11.11	31.88	16.91	11.59	21.26	7.25	0.329
2.42	8.7	23.19	2.9	49.76	13.04	0.48	12.56	17.39	0.97	57.97	10.63	**0.012**
10.63	52.17	16.91	4.35	13.04	2.9	12.08	54.11	15.94	2.9	12.08	2.9	0.826
0.48	2.42	7.25	2.42	67.63	19.81	0	2.42	8.21	0.48	66.67	22.22	0.361
0	0.97	2.42	5.31	27.05	64.25	0	0.48	0.97	1.93	31.88	64.73	**<0.001**
34.3	49.76	9.18	2.42	3.38	0.97	31.4	51.21	12.08	0.97	2.9	1.45	0.605
1.45	2.42	17.39	4.83	57	16.91	0	2.9	10.63	3.38	68.12	14.98	**0.001**

Psychological safety questionnaire table

I don't feel able to bring up problems, challenges and concerns
My unique skills and talents are valued and utilised
If I make a mistake I feel it is held against me
I feel listened to and respected when raising concerns

Baseline (n=207)						Post (n=207)						Pre-post change
Strongly Disagree	Disagree	Neither Agree or Disagree	N/A	Agree	Strongly agree	Strongly Disagree	Disagree	Neither Agree or Disagree	N/A	Agree	Strongly agree	p value
23.67	60.87	9.18	0	5.31	0.97	25.12	57.49	10.14	0	5.8	1.45	0.523
1.45	7.25	27.05		57.49	6.76	1.45	14.01	26.57	0	51.69	6.28	0.447
5.31	32.85	38.16	0	20.29	3.38	7.25	36.23	29.95	0	23.67	2.9	0.313
0.97	2.42	24.64	0	64.73	7.25	1.45	6.28	21.74	0	63.77	6.76	0.291

Notes:

each baby counts +

learn & support

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