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# **Understanding the Implementation of Effective Intrapartum Training**

**Dr Katherine Jane Collins**

**MA MBBS MRCOG**

*A dissertation submitted to the University of Bristol,  
in accordance with the requirements for award of the degree  
of Obstetrics and Gynaecology (MD),  
in the Faculty of Health Sciences, School of Translational Health Sciences*

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## Abstract

Obstetric emergency training programmes, such as PROMPT (Practical Obstetric Multi-Professional Training) can effectively improve outcomes for both mothers and babies. Understanding how best to implement training in new settings is less well understood. This thesis describes the challenges and facilitators to implementation, in a parallel process evaluation of a nationwide PROMPT roll-out across Scottish maternity units. The study aims were to determine why PROMPT may be more successfully implemented in some units compared to others, and to assess the associations between staff safety attitudes and training implementation.

Four Scottish maternity units were purposively selected to participate in a mixed-methods study combining both qualitative (focus groups, interviews and training observations) and quantitative (staff safety attitude questionnaires) approaches. A thematic analysis of the qualitative data was performed, using Normalization Process Theory (NPT) as a theoretical framework. Questionnaire data were statistically analysed using quantile regression.

The findings showed that the facilitators for implementation include receptivity to change, perception of PROMPT as both valuable and coherent, the presence of champions and teamwork, and managerial support for training; these facilitators reflect the NPT core constructs of coherence, cognitive participation, collective action and reflexive monitoring. The core inhibitors to implementation include difficulties attending training, over-reliance on goodwill and perceived risks of participation.

Maternity staff safety attitudes were more positive in smaller units. These units were also identified as able to implement PROMPT earlier than larger units. Training therefore may be easier to establish in smaller hospitals, or where more positive safety attitudes already exist. Findings also suggest that PROMPT may modify attitudes over time, towards a more positive outlook.

This research has informed the further development of PROMPT, identifying that some units may benefit from social franchising initiatives, such as an implementation support team, to establish local training.

## **Dedication and Acknowledgements**

For Phil, Oliver, Emilie and Rory

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## Author's Declaration

I declare that the work in this dissertation was carried out in accordance with the requirements of the University's *Regulations and Code of Practice for Research Degree Programmes* and that it has not been submitted for any other academic award. Except where indicated by specific reference in the text, the work is the candidate's own work. Work done in collaboration with, or with the assistance of, others, is indicated as such. Any views expressed in the dissertation are those of the author

SIGNED:



Date: 20/09/2021

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## Chapter 1: Introduction and Background

### 1.1 Introduction to obstetric emergencies

Obstetric emergencies are events that can occur during pregnancy, childbirth and the postnatal period, that threaten the life or well-being of a mother or her baby. These emergencies include post-partum haemorrhage (heavy blood loss following birth), eclampsia (fitting or seizures often associated with high blood pressure), umbilical cord prolapse, sepsis (severe infection), thrombo-embolism (blood clots in the deep veins of the legs or the lungs), and shoulder dystocia (when a baby's shoulder is trapped behind the mother's pubic bone, after birth of the head, impeding delivery of the body). Obstetric haemorrhage is one of the major causes of maternal morbidity and mortality in both developed and developing countries(1, 2). Shoulder dystocia is less common, with an incidence reported at between 0.58% and 0.70% of all vaginal births (2) but delayed birth or excessive traction of the fetal neck during birth can have life-long implications in terms of hypoxic brain damage or nerve injury to the baby.

Independent inquiries into the safety of maternity services in England have found that births are less safe than they could and should be, and recommend that safe teams are the key to improving the safety of maternity services (3). Thus, safe and timely management of obstetric emergencies by trained healthcare professionals, both midwives and doctors, is necessary to reduce the risk of long-term harm to mother and baby.

Furthermore, adverse outcomes resulting from complications in labour and birth carry a huge financial burden for the NHS, accounting for the highest value and second highest number of clinical negligence claims reported to the NHS Litigation Authority (NHSLA). In the 10 years between April 2000 and March 2010, there were

over 5000 maternity claims made to the NHSLA, with a total value of over £3.1billion (4).

## **1.2. Recommendations for obstetric emergency and teamwork training**

Intrapartum (labour) care could and should be safer, and training in the management of obstetric emergencies is the most widely recommended strategy for improving care.

There have been several well-publicized reports of substandard care in UK maternity units. In March 2015, the Report of the Morecambe Bay Investigation by Dr Bill Kirkup was published (5). This was an independent investigation into the management, births and outcomes of care provided by the maternity and neonatal services at the University Hospitals of Morecambe Bay NHS Foundation Trust from January 2004 to June 2013. It catalogued a series of failures at every level, from maternity care to Trust management, that resulted in *“avoidable harm to mothers and babies, including tragic and unnecessary deaths”*, along with *“grossly deficient”* responses to adverse incidents and *“repeated failure to investigate properly and learn lessons”*. One of the Kirkup report’s recommendations was that the Trusts *“should identify and develop measures that will promote effective multidisciplinary team-working, in particular between paediatricians, obstetricians, midwives and neonatal staff. These measures should include, but not be limited to, joint training sessions, clinical, policy and management meetings and staff development activities”*.(5)

The National Maternity Review *“Better Births: Improving Outcomes of Maternity Services in England”*, by Baroness Cumberlege, was published in February 2016. This report also highlighted the need for improved multidisciplinary working; *“breaking down barriers between midwives, obstetricians and other professionals to deliver safe and personalised care for women and their babies”*. Further recommendations from this report include:

- *Those who work together should train together. Multi-professional learning should be a core part of all pre-registration training for midwives and obstetricians, so that they understand and respect each other's skills and perspectives.*
- *Multi-professional training should be a standard part of continuous professional development, both in routine situations and in emergencies. (6)*

Each triennium since 1985, a confidential enquiry into maternal deaths in England and Wales has been published. These reports consistently highlight deficiencies in the care of some of the women who died, during their pregnancy, labour or puerperium (postnatal period up to 6 weeks following birth) and repeatedly recommend that teamwork training and training in obstetric emergencies is undertaken regularly by maternity staff(7). In 1997, the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) report found that of the 873 intrapartum (labour-related) deaths, 52% were found to have received suboptimal care and in over half of cases, there was a failure to use and/or correctly interpret the cardiocotograph (CTG, or fetal heart rate trace)(8).

In the Saving Mothers' Lives confidential enquiry national report for the triennium 2003-2005, a key recommendation again was that *"all clinical staff must undertake regular, written, documented and audited training for the identification and initial management of serious obstetric conditions or emerging potential emergencies"*(9). The Royal College of Obstetricians and Gynaecologists (RCOG), Royal College of Midwives (RCM), Royal College of Anaesthetists (RCA) and Royal College of Paediatrics and Child Health (RCPCH) issued a joint report into minimum standards expected for safer childbirth in 2007, recommending obstetric emergency skills drills training(10):

*"Multi-professional development and training should be undertaken by all who are involved in the care of the woman and her baby in complicated labour. They must undergo regular skills and drills to maintain competence in managing the following: cardiocotography training (fetal surveillance), cord*

*prolapse, shoulder dystocia, vaginal breech birth, antepartum or severe postpartum haemorrhage, basic adult resuscitation, basic neonatal resuscitation, perineal suturing, third- and fourth-degree tears, recognition of the ill mother and recognition of the ill baby.”*

### **1.3. Incentivizing training in England**

In England, there has historically been a financial incentive to train staff regularly in the management of obstetric emergencies, in addition to the above recommendations. The Clinical Negligence Scheme for Trusts (CNST), a branch of the NHS Litigation Authority (NHSLA) (which has recently been renamed NHS Resolution) handles all clinical negligence claims against member NHS bodies, where the incident in question took place on or after 1 April 1995. All NHS organisations in England providing maternity services are members of CNST, although membership is voluntary(4). CNST created several Maternity Clinical Risk Management Standards in 2003.

One of these standards includes training of staff in obstetric emergencies including shoulder dystocia, haemorrhage, vaginal breech, cord prolapse, maternal resuscitation, eclampsia, and continuous electronic fetal monitoring. Organisations receive a discount on their contributions when they have demonstrated compliance with the relevant NHSLA risk management standards at assessment. Discounts range from 10% (reaching Level 1 standards) to 30% (Level 3 standards).

In 2016, NHS Health Education England (HEE) launched the Maternity Safety Training Fund, which invited all acute NHS Trusts offering maternity services up to apply for at least £40,000 in funding. This was specifically to be spent on delivering training to improve maternity safety. All 134 acute trusts with maternity services received funding to implement multi-disciplinary training in key safety improvement areas including leadership, multi-professional team-working and communication, human factors, fetal growth and monitoring (11). HEE supported the recommendations for

multi-professional training in the Better Births report, including direct reference to PROMPT(6).

NHS Scotland, as a devolved and separate public healthcare system to NHS England, is not associated with CNST and does not have a similar incentivization model at unit level. Therefore, Scottish maternity healthcare providers have not historically had the same financial incentives to implement training as their English counterparts.

## **1.4. Simulation training packages**

Several independently run courses offer training in the management of obstetric emergencies. In the UK, these include ALSO (Advanced Life Support in Obstetrics) and MOET (Managing Obstetric Emergencies and Trauma). NHS Education for Scotland also provides SCOTTIE training (Scottish Core Obstetric Teaching and Training in Emergencies). The key features and evidence base for each of these courses shall be described below.

### **1.4.1 Advanced Life Support in Obstetrics (ALSO)**

ALSO is an international multi-professional obstetric training programme, offering provider, refresher and instructor courses, at simulation training centres. In the USA, it is managed by the American Academy of Family Physicians (AAFP) and has trained over 70,000 maternity care providers there since 1993. In the UK, ALSO is run by a not-for-profit organisation, ALSO UK, which is under licence from the AAFP(12).

Data collated from single-centre, longitudinal cohort studies in Colombia, Guatemala, and Honduras, and from an uncontrolled prospective trial in Tanzania, showed that ALSO training appears to be associated with reductions in in-hospital maternal mortality, episiotomy use, and postpartum haemorrhage (PPH) (13, 14). The active management of the third stage of labour (expediting delivery of the placenta using medication) and vacuum-assisted vaginal delivery increased in frequency after ALSO training(14). Interestingly, while maternal mortality decreased

in the Colombian unit after ALSO training, the number of near misses and maternal morbidity increased after training.

#### **1.4.2 Managing Medical and Obstetric Emergencies and Trauma (mMOET)**

mMOET is run by the Advanced Life Support Group, based in Manchester, UK. It is specifically aimed at multi-disciplinary senior clinicians, who manage care for pregnant women sustaining trauma and/or medical emergencies. It comprises an online component and a practical simulation course(15). MOET courses have been associated with improvements in participant knowledge (16, 17), and with an increased use of peri-mortem Caesarean sections in cases of maternal cardiac arrest, at Dutch maternity units(18).

However, there is no published data regarding any significant improvements in clinical outcomes following MOET training. This may be because MOET training is aimed at medical staff only, and is not mandated for all maternity staff, and therefore measurement of effect in single units where only some medical staff may have received MOET training, is limited.

#### **1.4.3 Scottish Core Obstetric Teaching and Training in Emergencies (SCOTTIE)**

This course is a Scottish Multi-professional Maternity Development Programme (SMMDP) initiative, developed in 2003. It is described as *“a standardized training course in managing emergencies for all health-care professionals who participate in the care of pregnant women...designed to cover the fundamental aspects of maternal emergencies and is suitable for all maternity-care professionals working in all care environments in Scotland”*. It involves pre-course reading and a true/false pre-course questionnaire(19). A 2011 study commissioned by NHS Education for Scotland, and conducted by the University of the West of Scotland, found the SMMDP to be *“relevant, up-to-date, evidence-based and a quality assured method of training multi-professionals within the maternity services”*(20). The principal methods of data collection were through course evaluations by participants, questionnaires and staff interviews. The programme was also perceived to be cost-effective, although there was no evidence to quantify these findings. The report also

recognized that financial constraints within Scottish NHS Boards posed a challenge to attending training. To date there has been no robust evaluation of the clinical effectiveness of SCOTTIE training.

### **1.5. Not all training is equal**

Not all types of training in obstetric emergencies have been associated with improved clinical outcomes(21, 22), while some training programmes have even resulted in increased perinatal morbidity(23). A Danish study evaluating the impact of obstetric multi-professional skills training on the management of postpartum haemorrhage found that it had no effect on the rate of red blood cell transfusion(21). An Irish study comparing outcomes across two 5 year periods, one before, and one after, the introduction of specific training in the management of shoulder dystocia, found no significant difference in the incidence of brachial plexus injury (nerve injury following strain or over-extension of the neck at delivery, often, but not always, associated with shoulder dystocia)(22). An Oxford study retrospectively analysing all cases of shoulder dystocia in a large teaching hospital over a 15 year period, found that the incidence of shoulder dystocia and brachial plexus injuries both increased, despite the introduction and increased use of the McRoberts manoeuvre to relieve the obstruction (usually the first recommended intervention undertaken in a shoulder dystocia emergency to help release the fetal shoulders)(23). A cluster randomised controlled trial in the Netherlands allocated teams from 24 obstetric departments to either no specific training, or to one day of multi-professional, simulation-based training, focusing on teamwork skills. They concluded that this training did not reduce a composite of obstetric complications.(24)

## **1.6. Introducing Practical Obstetric Multi-Professional Training (PROMPT)**

### **1.6.1 History and development of the PROMPT course**

In 2000, following publication of the 1997 CEMACH report highlighting the need for improved teamwork training in obstetric emergencies, to improve maternal mortality, a group of health care professionals based in maternity units in the Southwest of England, developed a training package, called PROMPT - PRactical Obstetric Multi-Professional Training. This was specifically designed to be used locally, and to reduce adverse events and outcomes during childbirth(25).

In 2002, the South-West group received a research grant from the UK Department of Health, to conduct a regional randomized control trial reviewing obstetric emergencies training. The SaFE study (Simulation and Fire-drill Evaluation) aimed to establish if it was more effective for staff to attend training within their own maternity units, rather than sending them to a central simulation centre for training. In addition, the study aimed to determine if including teamwork training in the course improved the team's management further. Eight hospitals across the South West of England participated in the SaFE study, and the trial demonstrated improvements in knowledge, clinical skills and team working during simulated emergencies following training(26). The improvements were the same for both local and simulation centre courses, suggesting that local training was equally as effective as courses at simulation centres, and more economical.

The same multi-professional training programme was introduced at Southmead Hospital (North Bristol NHS Trust) and improvements were replicated in clinical practice, with a 50% reduction in neonatal hypoxic injuries, a 100% reduction in injuries after shoulder dystocia and improvements in performance in Category 1 emergency Caesarean sections following the introduction of the training programme (27, 28). The improvements seen in the management of shoulder dystocia were



observed over a twelve-year period following the introduction of PROMPT at Southmead Hospital.

The continued development of PROMPT led to the publication of the PROMPT 'Course in a Box' with the assistance of the Royal College of Obstetricians and Gynaecologists (RCOG) in 2008. The box comprises trainer and participant course manuals, and a USB stick containing all the necessary information and materials for running a PROMPT course(25). Over 75% of UK maternity units now undertake PROMPT training. Internationally, interest has grown, and PROMPT has been adopted in several countries outside the UK, including New Zealand, Abu Dhabi, Dubai and Zimbabwe. The second edition of the PROMPT 'Course in the Box' was produced in 2012, and the third edition in January 2017.

PROMPT *Train the Trainers (T3) days* are facilitated by the PROMPT Maternity Foundation team, run several times a year in London at the RCOG, in Bristol, and in Dubai. These courses aim to update existing PROMPT users and introduce new multi-professional teams of midwives, obstetricians and anaesthetists to PROMPT. During the course, teams receive the "Course in a Box" materials, learn how to set up and deliver local PROMPT training, and gain practical experience in running simulation drills, to equip them to establish local training in their own units(25).

### **1.6.2 Clinical outcomes associated with PROMPT**

Given the relative paucity of data on clinical outcomes associated with other obstetric training packages, PROMPT is one of the few courses for obstetric emergencies that is evidence-based(27). It has been associated with significant improvements in perinatal outcomes. These include the following results seen at Southmead Hospital, where PROMPT was developed:

- **The reduction of brachial plexus injury** following shoulder dystocia to some of the lowest reported rates in the world(28). In 562 cases of shoulder dystocia between 2009 and 2012, which was approximately a decade after the

introduction of PROMPT at Southmead, there were no permanent brachial plexus injuries.

- A 50% **reduction in hypoxic brain damage** (hypoxic ischaemic encephalopathy or HIE) and low neonatal Apgar scores(29). The Apgar score is a standardized clinical assessment of the infant's condition at birth, using a scoring system with 5 components: 1) colour, 2) heart rate, 3) reflexes, 4) muscle tone, and 5) respiration, each of which is given a score of 0, 1, or 2, totalling a maximum of 10(30). Midwives or paediatricians routinely perform the Apgar assessment at 1 minute, 5 minutes and 10 minutes of age. A low Apgar score, of less than 7 at 5 minutes of age, can be associated with the consequential development of cerebral palsy (31, 32). In a retrospective cohort study of over 19,000 births, infants born with 5-minute Apgar scores of less than or equal to 6 decreased from 86.6 to 44.6 per 10,000 births ( $p < 0.001$ ) and those with HIE decreased from 27.3 to 13.6 per 10,000 births ( $p = 0.032$ ) following the introduction of the training courses in 2000.

In addition to the clinical outcomes evident in UK maternity units following introduction of PROMPT training, there is growing evidence of improvements internationally. In Kansas, PROMPT was associated with a significant reduction in the rate of brachial plexus injury after shoulder dystocia, from a rate of 10.7% in 2008 (training commenced in August 2008) to a rate of 0% in both 2011 and 2012. They also observed improvements in neonatal outcomes, with a reduction in the incidence of hypoxic-ischaemic encephalopathy (a consequence of oxygen deprivation around the time of birth) from 0.13% in 2008 to 0.06% in 2011(33).

PROMPT appears to be effective in low resource settings also. In Mpilo in Zimbabwe, the introduction of PROMPT has been associated with a 34% reduction in hospital maternal mortality(34).

In the state of Victoria, Australia, eight maternity units were introduced to PROMPT training in 2010. Seven of the eight units managed to implement PROMPT. A retrospective analysis of this cohort showed significant improvements in Apgar score

at 1 minute of age (odds ratio 0.84, 95% CI 0.77-0.91), and in the baby's umbilical cord lactate level (odds ratio 0.92, 95% CI 0.85-0.99). They also demonstrated significant reductions in the average length of baby's stay in hospital during or after training (Hedges'  $g$  0.03, 95% CI 0.01-0.05) (35).

### **1.6.3 Teamwork effects of PROMPT**

As already discussed, multi-professional team-working and training (exemplified by PROMPT) has been recommended by the 2016 National Maternity Review(6). Following the introduction of PROMPT at Southmead Hospital, there was a significant reduction in the decision to delivery interval for emergency Caesarean sections, from an average of 25 minutes before PROMPT training was introduced, to 14.5 minutes after training was established ( $p < 0.001$ ) (36). This reflects improved communication and teamworking. Furthermore, a cross-sectional survey of frontline caregiver attitudes at Southmead using the Safety Attitudes Questionnaire (SAQ), a validated psychometric instrument, indicated a positive safety culture, teamwork climate, and job satisfaction. It therefore appears that the establishment of PROMPT is associated with positive teamwork and safety attitudes.(37)

Similar effects were seen in Victoria, Australia, following PROMPT training. There were significant improvements in staff perceptions of teamwork (Hedges'  $g$  0.27, 95% confidence interval [95% CI] 0.13-0.41), safety (Hedges'  $g$  0.28, 95% CI 0.15-0.42), and management (Hedges'  $g$  0.17, 95% CI 0.04-0.31), as measured by the SAQ also (35).

### **1.6.4 Reduction in litigation claims and PROMPT**

In addition to the improvement in clinical outcomes seen in Australia following the introduction of PROMPT, data from the Victorian Managed Insurance Authority (VMIA) who funded the roll-out of PROMPT there, calculated a significant reduction in litigation claims. The reduction in the costs of these claims was more than 20 times the cost of the training(38).

Similarly, in Kansas, seven years after the introduction of PROMPT, financial cost savings were seen. Following a greater than 50% reduction in hypoxic ischaemic encephalopathy (HIE, a marker of fetal hypoxia), reductions in Caesarean section and brachial plexus injuries, they estimated that the health care costs avoided through these improvements exceeded the annual costs of training(39).

### **1.6.5 Why and how is PROMPT effective?**

This question is of fundamental interest to our understanding of PROMPT as a quality improvement (QI) intervention, and central to the overall objective of this thesis. PROMPT is likely to achieve its effects through more complex means than a simple transfer of knowledge, from trainer to trainee. The answers may lie, in part at least, in understanding how PROMPT is implemented and embedded in some units. It is possible to draw on existing theories of implementation and understanding the barriers and facilitators to establishing other quality improvement initiatives, including the role of local context.

## **1.7. Understanding implementation**

Healthcare researchers and social scientists have suggested that the value of theory in quality improvement projects is under-recognized, and that better use of theory can strengthen improvement programmes and facilitate the understanding of their effectiveness(40). Dixon-Woods argues that QI initiatives need more rigorous evaluation, and recommends that lessons of successes and failures be shared.(41) However, theoretical concepts and terminology can mystify and alienate clinicians, and they may feel discouraged from using them. Making sense of what underpins successful interventions, and what impedes implementation, and putting this into a language that is comprehensible and accessible to healthcare practitioners is critically important. Another important objective of this thesis is therefore to ensure that the findings are coherent and applicable to the clinicians who may themselves

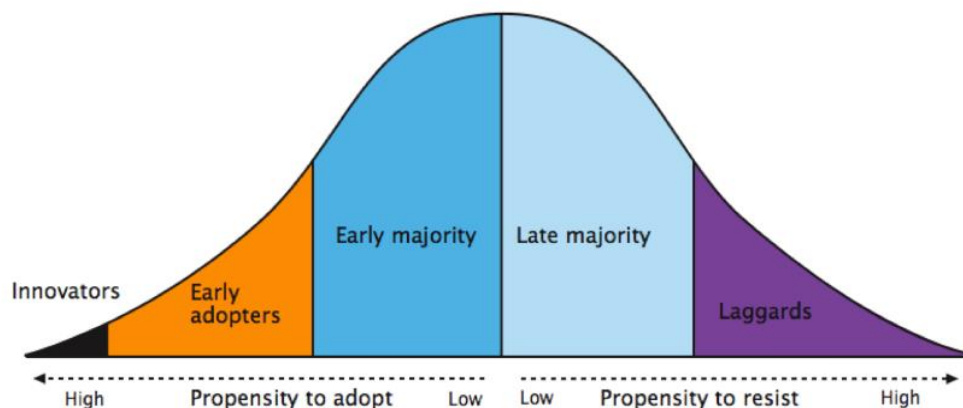
be delivering training, currently and in the future.

Implementation science and the development of implementation theories are growing areas of research interest, which seek to understand how some new initiatives succeed, while others fail to produce a positive impact. The key theories which I have identified as most appropriate to studying the implementation of PROMPT as an intervention, are outlined below.

### 1.7.1 Diffusion of innovations theory

This theory was conceived by Everett Rogers in 1962, and is based on the principle of diffusion, defined as the process by which an innovation is communicated over time, among members of a social system. Rogers characterized five categories of people, based on the speed at which they adopt the innovation: innovators, early adopters, early majority, late majority and laggards(42) (Fig 1).

**Figure 1: Rogers' Diffusion of Innovations theory**



**Source:** Robinson L. 2009 (43)

Rogers' theory has been widely applied to understand how new ideas and innovations are spread (or diffused) within many kinds of organisations, including human resource development, information technology, criminal justice, agriculture, education and, as in this study, healthcare.

His theory has been used as a framework for analysing the introduction of a number of healthcare QI initiatives, including amongst others, electronic health record alerts (44) and peripheral nerve blocks for ambulatory orthopaedic surgery(45).

Central to Rogers' theory is the notion that adoption requires a person or persons to perceive the new idea, behaviour or product as innovative(46). This seems to fit well with the PROMPT paradigm, in that the management of obstetric emergencies are presented in sometimes new or re-organised algorithms, or by using novel practice support tools, such as emergency boxes or simulation props. It therefore seemed appropriate to explore elements of Rogers' theory within this study.

Although very popular, Rogers' theory has been criticised in that it may be too simplistic. LaMorte argues that it cannot account for all complex variables which may influence the adoption of an innovation, such as individual resources and social support mechanisms. Another limitation is that Rogers developed his theory from a social science perspective, and it was not originally conceived to apply specifically to health care innovations(46) (although this is not unusual; many social science theories have been applied to understand healthcare behaviours and outcomes).

### **1.7.2 Normalisation Process Theory**

Normalisation Process Theory (NPT) is a sociological design tool and evaluation framework for implementing complex interventions. It was formulated by Carl May and Tracy Finch in 2009. It aims to describe and enhance implementation potential of a new intervention(47) by identifying the dynamic processes and work that people do in order to successfully implement it, so that it becomes embedded within routine practice (48). NPT involves 4 core constructs that describe these processes:

- **Coherence** – people first need to make sense of the new intervention, understand its value, and how it fits in with, and differs from, current practices, and what role individuals and teams will have in its implementation.
- **Cognitive participation** – people must interact to sustain a “community of practice” around a new technology or intervention. This requires initiation and

(re-)organization of participants to drive the innovation forward, validation of their involvement, and defining the necessary actions to sustain the new system.

- **Collective action** – operational work is required to put an intervention into action. This includes interactional work between participants, and with elements of the innovation itself, knowledge work to maintain confidence in the new set of practices, allocation work and division of labour to deliver the intervention, and allocation of resources.
- **Reflexive monitoring** – assessment and reflection of the effects of the intervention is undertaken. This involves collecting information about the new set of practices, evaluating its impact in groups, as well as individually, considering other contextual information, to build actions to modify or reconfigure the innovation.

NPT is a theory based on action and work, and not necessarily on attitudes or intentions (48). It explores the processes, both passive and active, that are necessary for a new intervention to become accepted, implemented and embedded. This is an appropriate theory to explore within the PROMPT paradigm, since it incorporates both cognitive engagement with the underlying concepts of the training programme, and active creation of the training team and delivery of the course, reinforced by use of local data to support and sustain training.

### 1.7.3 Communities of Practice

Communities of practice is a social learning theory, proposed by Jean Lave and Etienne Wenger in 1991, and modified in 1998. Communities of practice are defined as *“groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly”*. The learning that takes place may not be intentional, but an incidental outcome(49).

This theory resonates with the strong teamwork components of PROMPT - not only reflecting the teamwork that is necessary for creating a functional training faculty of staff who can deliver and teach PROMPT, but also reflecting the ethos of

participating in training as multi-professional teams that work together, which is one of the core values endorsed by the PROMPT programme.

### **1.8. Understanding the barriers and facilitators to quality improvement initiatives:**

In 2011, The Health Foundation commissioned and published a report to describe the challenges to improving quality in healthcare. QI initiatives can be inconsistent in terms of their outcomes, and so there is growing interest in explaining the enabling mechanisms underlying success of some programmes and identifying the barriers to improvement in others. They recommend formal evaluations of programmes to improve quality in healthcare, which is what this study aims to deliver. In this HF report, social scientists from the University of Leicester analysed five quality improvement projects and identified ten common challenges to implementation of these projects(50). Their findings overlap with those from a review by NHS Scotland Quality Improvement Hub, which proposes 10 key factors affecting successful spread and sustainability of quality improvement initiatives(51). These facilitators and inhibitors are summarised in Table 1.

These reports provide useful starting points from which to examine the factors that might affect implementation of PROMPT across different contexts. They helped to shape my framework for this process evaluation, heightening my awareness of potential influences.



**Table 1: Enablers and challenges to implementation from existing literature**

<b>Supportive influences on implementation and sustainability</b>	<b>Common challenges to implementation</b>
<b>Source: NHS Scotland QI Hub</b>	<b>Source: Dixon-Woods et al, The Health Foundation</b>
Putting knowledge into action	Convincing staff of relevance of problem
Engagement	Convincing staff proposed solution is the right one
Measurement	Appropriate data collection and monitoring systems
Human factors	Project excessively ambitious
Culture	Organisational culture, capacity and context
Management changes	Lack of staff engagement
Leadership	Leadership (or lack thereof)
Innovation	Use of incentives to aid participation
Empowerment	Sustainability issues
Evaluation	Unintended consequences

By considering the factors suggested above, I was prepared to look at the following features in the PROMPT paradigm during my fieldwork, and incorporated some of these into the questions I posed during focus groups and interviews:

- **Engagement:** Staff engagement with PROMPT as a new, valuable training programme; support of management
- **Data collection/Measurement/Evaluation:** Formal/written, and informal/ verbal feedback to trainers on their efforts from staff participants
- **Human factors:** Competing time pressures on staff, or other quality improvement initiatives; team cohesion
- **Organisational culture:** Receptivity to training might be influenced by workplace culture and safety attitudes of staff (as measured by the SAQ)

- **Leadership:** Identification of leaders or champions in training, to drive changes through
- **Innovation:** Use of novel practice support tools e.g., props for skills drills, emergency boxes
- **Sustainability:** Evidence of longer-term planning for continuing PROMPT

### **1.9. The THISTLE Study**

This thesis describes “THISTLE-Plus”, a parallel study, situated within the context of the **THISTLE Study** - the Trial of Hands-on Inter-professional Simulation Training for Local Emergencies. Supplementary information about the THISTLE Study can be found in **Appendix 1**. In brief, this stepped-wedge clustered randomised controlled trial took place between 2014 and 2016, and involved the introduction of PROMPT to 12 Scottish maternity units who had not previously undertaken this training. The aim of THISTLE study was to determine if a PROMPT was clinically effective across a health service(52).

### **1.10. THISTLE-Plus Study**

The THISTLE-Plus study is a process evaluation of the implementation of PROMPT in the Scottish NHS, as part of the THISTLE trial. The THISTLE trial provides an ideal opportunity to investigate in parallel how and why PROMPT may be successfully implemented in some obstetric units but less successfully in others. In the wider research context of implementation science, it could be used as a paradigm to explore how an evidence-based training programme, when viewed as a complex intervention, is implemented and integrated within new units.

### **1.11 Research Question**

The THISTLE Plus study enables a thorough exploration of the dynamics of the implementation process across multiple maternity units in Scotland. From this, the overarching research question for this thesis is:

- **What factors affect the implementation of a local multi-professional obstetric training programme across a cluster of Scottish NHS maternity units?**

### **1.12 Aims of the THISTLE Plus Study**

The principle aims of the study (and this thesis) are to:

- 1) To understand why PROMPT may be more successfully implemented in some Scottish NHS maternity units compared to others**
- 2) To assess the associations between staff safety attitudes and the implementation of PROMPT training in NHS Scotland**

These aims and objectives, shall be discussed further in the following methodology chapter.

### **1.13 What is not yet fully understood about effective intrapartum training?**

There remain further aspects of effective training which are not fully understood by existing research, including the role of local contextual factors, the challenges in scaling up and the degree of transferability of training to new settings. Each shall be described below.

#### **1.13.1 The role of context**

Initially, promising quality improvement (QI) interventions do not always transfer well when introduced into new settings, sometimes referred to as the *decline effect*(53). One important influence on how the implementation is managed, is the context of the particular organisation making the change(54).

A systematic review of the influence of context on QI concluded that contextual factors may encompass a huge range of variables, including leadership from top management, organizational culture, data infrastructure and information systems,

and years involved in QI, physician involvement in QI, microsystem motivation to change, and resources for QI. However, the current literature lacks clear definitions of these factors, and there is a paucity of specific measures for them.(55)

Understanding the role of context in the spread of improvement interventions will enhance the likelihood of success of implementation(56). A recent evidence review by The Health Foundation investigated the contextual factors which support successful improvement and sustainability of quality in health care organisations(56). The authors propose contextual factors may be divided into “hard” (structural) and “soft” (cultural) factors, concluding that social context may be the key overall facilitator for quality improvement.

There are three structural levels within healthcare systems that can exert contextual effects on implementation(56):

- **Macro level:** these factors operate at the overall health system level e.g., financial incentives, regulatory mechanisms, competition, professional regulation, technology, geographical factors.
- **Meso level:** these factors operate at the organisation level e.g., leadership, cultures, climate, organisational experience of quality improvement, organisational size, data and information systems, knowledge and training.
- **Micro level:** these factors are at the frontline clinical team or individual level including leadership, team working, knowledge and training.

Understanding the success, or failure, of implementation of PROMPT in new settings therefore requires an exploration of the social or “soft” contextual factors and the “hard” structural factors at macro, meso and micro levels.

There is already some evidence from the implementation of PROMPT in Victoria, Australia, to suggest that training may be associated with improvements in workplace culture (35). Significant increases were found in Safety Attitude Questionnaire scores representing domains of teamwork, safety and perception of management. Furthermore, there was a wide variation in the proportions of staff trained at different participating units, ranging from less than 20% in some units, to

over 85% in others. This suggests that workplace culture, as an example of a meso level contextual factor, can influence the implementation of training, but may also be modified through training. This raises the question of whether training itself could potentially act as a therapeutic intervention for improving workplace culture.

### **1.13.2 The challenge of scaling up**

Scaling up a quality improvement programme, such as obstetric emergency training, involves reaching a greater number of people in a potentially broader geographical area(57). Yamey describes large-scale implementation as more likely if the intervention being scaled up is *“simple and technically sound and there is wide consensus about its value”* (58). Dixon-Woods advises that interventions showing promise need to be rigorously tested in different scenarios, to determine “what are the core, non-negotiable elements and what can be locally customized”, in addition to how best to replicate and scale(41).

Bergh and colleagues propose six stages of change necessary for successful scale-up: appropriate awareness and a policy environment that leads to commitment, health systems-strengthening actions, allocation of resources, dissemination and training, supportive supervision, and monitoring and evaluation(57). Such scaling up is therefore complex, requiring multiple simultaneous strategies.

The impact of obstetric and neonatal care training may be limited by the challenge of scaling up(59), since substantial effort and commitment from implementers is required, along with securing the necessary financial support(60). As already discussed, there is already evidence that the scaling up of PROMPT in Victoria was not a uniform experience across the eight participating maternity units, given the wide variation in numbers of staff trained at each site(35)..

### **1.13.3 Transferability**

Transferability refers to the degree to which a quality improvement intervention can be transferred to other contexts or settings(61). Developing a programme theory to

understand how and why programs work, and not simply whether they work, is essential to improve the generalizability of such interventions (whether the findings are of relevance beyond the sample and context of the research)(62, 63). If we can understand how and why PROMPT training works, or how and why it does not work, in different locations and contexts, then it is hoped that this knowledge could be transferred to the wider successful implementation of PROMPT, and furthermore, potentially applied to training for emergencies in other medical specialties. For example, a pilot study performed at North Bristol NHS Trust identified that a multi-professional training package for the management of haemorrhage after general abdominal surgery, based on the PROMPT model, improved teamwork and safety culture (64). However, further work is needed to understand these associated effects further.

### **1.14 Summary**

This introduction has thus evaluated the evidence for multi-professional training for obstetric emergencies, and the need for theoretical understanding of the implementation of programmes with evidence of clinical success, namely PROMPT. I have introduced the THISTLE and THISTLE-Plus Studies, which will be discussed in more detail in the next chapter. Ultimately, the aims of this study are to develop a deeper understanding of PROMPT as an intervention, to support its generalisation and transferability, and to identify the challenges in implementation, making this learning accessible to clinical and non-clinical audiences. This research is also likely to help by providing an example of a practical application of implementation theory, which practitioners can understand, relate to, and use in clinical practice.

## **Chapter 2: Methodological Approach**

In this chapter, I describe the preparation that I undertook prior to conducting this research, considering my professional background and experience, before then reviewing the aims and objectives of the THISTLE-Plus Study. I will then discuss my ontological position and epistemological beliefs and how these influenced the methodological approach to data collection and analysis, with the overall aim of providing a firm basis on which to consider the findings of the study.

As explained in the preceding chapter, the principal subject matter of this study concerns safety in obstetric practice, training in the management of obstetric emergencies, and implementation science. In seeking to answer the “how” and “why” questions about the effective introduction of a quality improvement intervention, it is therefore most appropriate to adopt a predominantly qualitative approach to this inquiry.

### **2.1 My professional background, and experience of qualitative research**

At the time of conducting this research, I was employed as a Clinical Research Fellow in Obstetrics at Southmead Hospital in Bristol. My professional background is principally medical in nature – I qualified as a doctor in 2003 and have trained in the specialty of Obstetrics and Gynaecology in maternity units across the Southwest of England since 2005. As a senior clinician, I am regularly responsible for the care of pregnant and postnatal women on the Delivery Suite, and frequently manage obstetric emergencies such as haemorrhage and shoulder dystocia. I participate in annual obstetric emergency training courses, as a mandatory requirement of my professional development. Over the last six years, I have become a regular member of the PROMPT Maternity Foundation (PMF) training faculty, having taught on

PROMPT courses locally in Bristol, nationally at the RCOG in London, and internationally, in the Philippines and in Dubai.

My motivations for undertaking this research project stem from these dual experiences as a clinician and a trainer. Having worked at several different maternity units, I have witnessed obstetric emergency training being organised and delivered in different ways at each site. This garnered my interest in the role of context in the implementation of training.

These experiences had the potential to affect the way I approached conducting this study and analysing the results, as I recognised that I am not a completely impartial, non-clinical qualitative researcher, with no prior exposure to PROMPT. I had to acknowledge that I would be observing training in other hospitals through the lenses of both an obstetrician, and a PROMPT trainer. These obviously afforded me advantages in being highly familiar with maternity units, multi-professional team-working and the content of PROMPT training; however, my background may have biased my perspective towards what I considered to be the “ideal” way of delivering training, with anything less than the PMF gold-standard of training seeming inferior. This was important to recognise and reflexively be aware of from the outset of my research. It was necessary for me to identify and attempt to temporarily set aside any *a priori* assumptions - a feature of qualitative researcher engagement known as bracketing(65). I tried to overcome potential bias by asking the same basic set of questions in all focus groups and interviews and using the same structured observations for the training days I witnessed, so that I adopted a uniform and open approach to data collection. I also acknowledged that it would be wrong of me to expect the same degree of familiarity and experience with the PROMPT course in units that had only been running training for a few months, compared to the 15 years of experience acquired at Southmead Hospital, where I have worked and where PROMPT was pioneered and developed. This further demonstrates reflexivity.

To understand how to design this study and how to adequately prepare for data collection, I undertook several introductory courses to qualitative research methods,



at the Universities of Surrey and Bristol. I also observed experienced qualitative researchers from the University of Leicester conducting focus groups at Southmead Hospital in Bristol and discussed with them how they developed their topic guides and recorded their observations. From these experiences, I learnt for example, that in focus groups, I would need a suitable introduction and warm-up questions to get conversations flowing initially. I was able to apply the training from the courses I had attended to formulate my own topic guides, ensuring that I was asking questions that would allow me to answer my study's overarching research question, and that would be open-ended enough to generate breadth and depth of discussion, but focused enough to prevent digression from the main subject matters. I also wanted to ensure that I asked questions that would follow the structure of the logic model for process evaluations (see Section 2.8 below), by sub-dividing questions that would address how training was implemented, the mechanisms of impact and the context for implementation.

## **2.2 The THISTLE Plus study**

As explained in Chapter 1, the focus and subject of this MD thesis is the parallel process evaluation of the wider clinical THISTLE Study, known as the THISTLE-Plus Study. The THISTLE study provided an ideal opportunity to investigate in parallel how and why PROMPT may be successfully implemented in some obstetric units but less successfully in others.

Figure 2 and Table 2 below summarise the distinctions between the two studies in terms of their design, structure and objectives.

Figure 2: THISTLE Studies structure and design

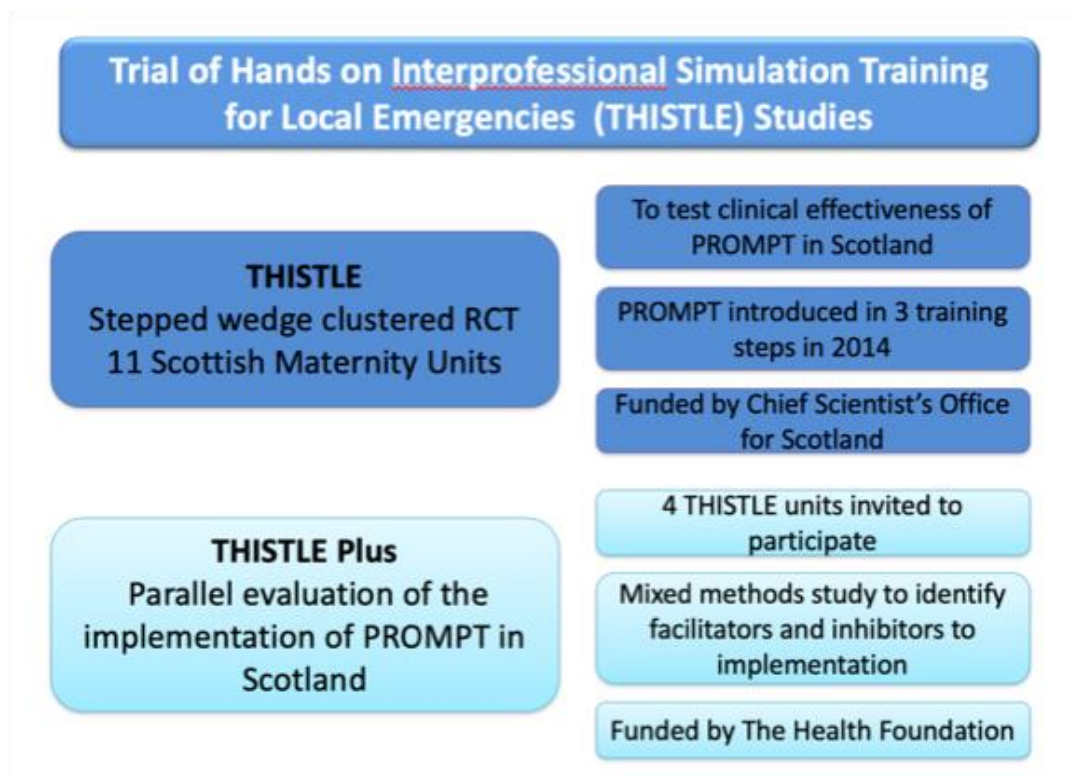


Table 2: THISTLE vs. THISTLE Plus Studies comparison of research objectives and questions

	<b>THISTLE Study</b>	<b>THISTLE-Plus Study</b>
<b>Research Question</b>	Does the implementation of a maternity emergencies training package across a health service reduce the rate of Apgar<7 <sup>5</sup> in term babies (excluding elective planned/caesarean births)	What factors affect the implementation of a multi-professional obstetric training programme across a cluster of Scottish NHS hospitals?
<b>Aims</b>	To determine if a multi-professional training programme for maternity staff (PROMPT) is clinically effective across a health service, using Apgar <7 <sup>5</sup> as outcome measure	To understand why PROMPT may be more successfully implemented in some Scottish maternity units compared to others  To assess the associations between staff safety attitudes and implementation of PROMPT training in NHS Scotland

<b>Objectives</b>	To assess whether the implementation of an intrapartum training package (PROMPT (PRACTICAL Obstetric Multi-Professional Training)) across a health service reduces the proportion of term babies born with Apgar score <7 at 5 min	To establish the elements of PROMPT that are modifiable, and those that need to remain consistent, to deliver training effectively  To identify strategies to maximise effective and sustainable implementation of PROMPT
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### 2.3 Study objectives and aims

As summarised above, the **overall aims** of this thesis and- of the THISTLE-Plus study are:

- To understand why PROMPT may be more successfully implemented in some Scottish NHS maternity units compared to others
- To assess the associations between staff safety attitudes and the implementation of PROMPT training in NHS Scotland

**The objectives** are:

- to establish the core ingredients of PROMPT that need to remain consistent, to deliver effective training
- to determine the elements of PROMPT which are locally adaptable and modifiable
- To identify potential strategies to maximise the effective and sustainable implementation of PROMPT

These aims and objectives guided the design of the study and the methods used, particularly regarding the formulation of the topic guide utilised in focus groups and interviews (see below). To meet the study's aims and objectives, four different data collection methods were employed, which will be discussed in Section 2.15 below.

## 2.4 Study Design

Addressing the first aim of this study - understanding why PROMPT may be more successfully implemented in some Scottish NHS maternity units compared to others - requires interpretation of qualitative data. The second aim - assessing the associations between staff safety attitudes and the implementation of PROMPT training - necessitates a statistical analysis of survey data. However, both analyses will lend each other depth and context, to enhance the overall interpretation of the findings. This study is therefore mixed-methods in design, in that it combines both qualitative (focus groups, interviews and observations) and quantitative (questionnaire survey) data in a single study(66). There is growing interest in and use of mixed or multiple methods in health service research in the UK, mainly for pragmatic reasons, to overcome perceived deficits of quantitative methods alone to address the complexity of healthcare research(66).

## 2.5 Ontology, Epistemology and Theoretical perspective

A mixed-methods approach combines different ontological (view of reality), and epistemological (theory of knowledge) perspectives. Ontological realism is the view that reality is free of values and objectives(67), and that “there is a real world that exists independently of our perceptions, theories, and constructions”(68).

This contrasts with epistemological constructivism and relativism, defined by Maxwell as “our understanding of this world (as) inevitably...construct(ed) from our own perspectives and standpoints”(68).

These appear to conflict with each other, but both approaches can be combined in a critical realist stance, which retains ontological realism while accepting some constructivism(68). This theoretical perspective underpins the approach to this study. We can assume an ontological realist perspective that the implementation of PROMPT in different units is a phenomenon that exists independently of our views or direct experiences of it, but epistemologically, our understanding of how PROMPT

is implemented requires us to construct meaning and opinions about this reality, through our experience of it.

By combining different methods and approaches together, known as methodological pluralism, richer data may be generated(69). Conventional qualitative methods of data collection, such as focus groups and interviews, can be considered constructivist and subjectivist, because they allow the researcher to build and analyse the opinions and perspectives of people (in this study, the opinions and perspectives of those involved in implementing or participating in PROMPT training). Subjectivism can usefully generate new understanding and knowledge with a flexible but deeper understanding of how and why change may have happened, and of underlying social processes and contextual factors(70). However, the use of numerical, questionnaire data (arising from the SAQ in this study) is a quantitative method, from an objective, positivist tradition(71) - seeking to confirm or refute an existing hypothesis – in this study, effectively determining if an association exists between workplace safety culture and the degree of implementation of PROMPT in different units.

Seale argues that the purpose of mixed and multiple methods is not to necessarily converge upon a singular definitive account; instead, the value of multiple methods is that although they may yield consistency in their findings, they may also produce different pictures and perspectives of reality. In this way, mixed methods studies are developed from epistemological relativism, whereby there are multiple standards for understanding the social world. Each method, quantitative or qualitative, will have its own strengths or weaknesses, which may address different aspects of the overall research question, allowing a broader understanding than may have been obtained using a single method. Qualitative methods may be also be a valuable way of understanding patterns arising from quantitative data (72). This mixed-methods study will allow micro-level, qualitative understanding (arising from focus groups and interviews) about macro-level, statistical data from the Safety Attitudes Questionnaires. In the context of the wider clinical THISTLE study, macro-level (large-scale) quantitative data (the rate of low Apgar score after PROMPT training) may be

understood more fully through the micro-level qualitative findings about implementation arising from this parallel study.

## 2.6 Process Evaluation Methodology

Randomized controlled trials (RCTs) are conventionally regarded as the gold standard for evaluating the clinical effectiveness of an intervention, but they do not address how and why an intervention is or is not effective (the causal mechanisms), which is of particular importance when the intervention being tested is complex – defined as one comprising multiple interacting components and contexts (73). A process evaluation is a detailed analysis, that explores the implementation, receipt, and setting of a complex intervention, and can help in the interpretation of the outcome results from trials (74). Furthermore, process evaluations can enable researchers to describe the intervention in detail, check actual exposure to the intervention, and describe the experience of those exposed(75), and utilise this knowledge to better understand the barriers and drivers to implementation and the causal mechanisms of the intervention. This can shed light on why an intervention has the effect it has within different contexts.

Using these definitions, PROMPT is viewed as a complex intervention, involving multiple interacting components, currently being tested within the THISTLE study. As explained in the introduction, I have established that there is a need to understand how PROMPT is effectively implemented. A process evaluation is therefore the most appropriate model by which to explore in parallel the underlying processes involved in the implementation of PROMPT. Process evaluation also corresponds with the epistemology of social constructivism, in that the adoption of a new intervention is dependent upon human activity, requiring resources and participants, and that our understanding of it is essentially socially created.

The methodology and reporting of the overall process evaluation of THISTLE-Plus is based on the framework recommended by the Medical Research Council guidelines on *Process Evaluation of Complex Interventions* (76). To provide a detailed

understanding of the implementation of a complex intervention (such as PROMPT), this framework describes a number of steps which include: an initial description of the intervention (i.e. what is PROMPT and how is it delivered) and its causal assumptions (pre-existing understanding of what might be important for successful implementation), and a detailed examination of how the intervention (PROMPT) was implemented; the impact of the intervention in different units, and the effect of context and local settings in which the implementation has taken place.

Process evaluations normally involve a combination of both quantitative (e.g., structured observations and questionnaires) and qualitative methods (e.g., one-to-one interviews, group interviews or focus groups, and non-participant observation). This multi-method approach allows the evaluator to explore and gather different kinds of knowledge about the intervention, from the perspectives of both the researcher, and the research participants. Approaching the research from different angles is likely to yield greater depth as well as breadth to the data, enhancing its overall quality. The timing of data collection is an important consideration, since the intervention itself, participants' reactions to it, and the context in which the intervention is delivered may change over time. For example, early data collection may identify teething problems, which have been resolved at later stages of the evaluation. Hence it is recommended in the MRC guidance to attempt to undertake data collection at different times to capture changes in implementation or contextual factors(76). It was not practical within the time and financial constraints of the study period to undertake multiple data collection visits at each participating unit, but all the visits took place over a period of eight months, when units had had varying degrees of exposure to the intervention.

## **2.7 Logic Model**

A logic model is a diagrammatic representation of an intervention describing anticipated delivery mechanisms (e.g. how resources will be applied), intervention components, causal mechanisms of impact and intended outcomes(76).

At the outset of the study, the initial starting point for the evaluation process was

the creation of a logic model for THISTLE-Plus (see Fig 3). This allowed me to understand what was already known about PROMPT as an intervention, and to explore some of the pre-existing causal assumptions for its success in other contexts, as stated in the PROMPT Trainers' Manual (77). It would also help me to plan what information I would need to obtain during the data collection period, to perform a thorough evaluation, and to answer the research objectives fully.



Figure 3: Proposed Logic Model for THISTLE Plus Process Evaluation

SITUATION AND NEED	RESOURCES/INPUTS	INTERVENTION	ACTIVITIES	PARTICIPANTS	OUTPUTS	SHORT TERM OUTCOMES	LONG TERM OUTCOMES & IMPACT
<p>Evidence for local success of PROMPT at Bristol and selected pilot sites in improving neonatal outcomes, teamwork and culture</p> <p>Evidence that rate of low Apgar scores in some Scottish Maternity units lower than English national averages and lower than North Bristol NHS Trust</p> <p>Need to understand underlying mechanisms and contextual factors to roll-out at scale</p> <p>To test causal assumptions (key steps considered vital for successful implementation)</p>	<p>Funding – The Heath Foundation Grant</p> <p>Staff – PROMPT Maternity Foundation and research team; University of Bristol supervisors with qualitative research and statistics experience</p> <p>Time (dedicated Clinical Research Fellow job)</p> <p>Training (observation of qualitative researchers from SAPHIRE group at University of Leicester; courses on qualitative data collection and analysis; educational supervision from qualitative academic researcher)</p>	<p>Delivery of Train the Trainers event x 3 steps in Scotland in 2014</p> <p>PROMPT “Course in a Box” materials distributed to participating teams</p> <p>Email and telephone support (provided by Cathy Winter, Lead Research Midwife at PROMPT Maternity Foundation)</p>	<p>Focus groups and semi-structured interviews with staff delivering local training at 3- 4 participating units</p> <p>Observations of local training day(s) and maternity unit</p> <p>Completion of Safety Attitudes Questionnaires by regular maternity staff</p>	<p>Staff from Scottish Maternity Units participating in THISTLE study</p>	<p>Implementation of local multi-professional training days</p> <p>Key themes emerging from focus groups and interviews about barriers and facilitators to implementation</p> <p>Data from SAQs re workplace culture</p>	<p>Impact on clinical outcomes – THISTLE Study (Apgar Score at 5 minutes)</p> <p>Impact on workplace safety attitudes</p> <p>Perceived effect on teamworking and management of emergencies post-training</p>	<p>Understanding of active ingredients of PROMPT and mechanisms by which it works</p> <p>Understanding of contextual factors on implementation</p> <p>Knowledge of necessary components and strategies to replicate success of PROMPT at scale</p>

## **2.8 Causal Assumptions about the successful implementation of PROMPT**

Causal assumptions are the suppositions about how an intervention works, and for well-established programmes, such as PROMPT, these are often known from the outset, and overtly shared between evaluators and programme developers(76). The assumptions should set out the resources needed to implement the intervention, how they will be applied, how the intervention is intended to work, and the intended outcome.

In the PROMPT model, these causal assumptions can be derived from some of the key recommendations for setting up PROMPT, which have been identified by the multi-professional developers of the PROMPT programme. These “ten steps to successful PROMPT implementation” are based on their own personal experiences of establishing PROMPT over 15 years in Bristol, and from their experience of running trainers’ courses and understanding the common challenges that teams from other maternity units face in setting up training. This information is routinely discussed and shared with participants at the T3 events, and published in the PROMPT Trainers’ Manual(77).

Figure 4 summarises some of these recommendations and how they can be transformed into corresponding causal assumptions. These causal assumptions will be explored in the analysis of data yielded from focus groups, interviews and observations of training, to see if they are evident in practice.

**Figure 4: Recommendations and causal assumptions for PROMPT implementation**

	<b>Recommendation from PMF for successful PROMPT</b>	<b>Causal assumption</b>
1.	Multi-professional participants, trainers and drills	Successful training depends on multi-professional team-working
2.	Locally run courses, in your own unit using your own facilities	Training in familiar settings allows staff to develop local knowledge about how and where emergencies should be managed in their own workplace
3.	Training all your maternity staff annually	Skills knowledge and confidence is maintained and updated through regular training
4.	Integrated team-working within the clinical sessions	Promoting team-working at every stage of training embeds the ethos of PROMPT and the importance of working together
5.	Locally adopted and adapted training (remaining in line with national guidance)	Some features of PROMPT can be modified to suit local practices and logistics
6.	Support from medical and midwifery management and in-house clinical “champions”	Implementation of PROMPT requires financial backing and clinical leadership
7.	Use of simple props and actors	PROMPT can be delivered using low-cost but authentic resources; expensive simulation materials are neither preferable nor essential
8.	Use of the PROMPT Birth Trainer* and PROMPT RCOG algorithm for shoulder dystocia	Effective shoulder dystocia training must be evidence-based and improved with high-fidelity simulation equipment
9.	Participant debriefing following drills using clinical and teamwork checklists	Learning from drills is reinforced through constructive feedback
10.	Monitoring and evaluation of local clinical outcomes	PROMPT can be sustained and modified to tackle issues only if its effects are measured and reviewed

\* *This is a specially developed model of a female pelvis, with detachable abdominal and perineal skin, plus a weighted baby mannequin, which enables direct visualization of internal manoeuvres and fetal positioning during training(78).*

In addition to these baseline causal assumptions, I also developed some further hypothetical assumptions, prior to conducting the study, that I felt may be important for successful implementation, and which I aimed to investigate as part of the study. These developed because of my own experience and insight as an obstetrician and PROMPT trainer, and faculty member on the PROMPT T3 programme at the RCOG.

- Staff must recognise a need to improve safety and outcomes on *their* delivery suite. This is known as organisational “readiness for change” and can be defined as “*organizational members' shared resolve to implement a change and shared belief in their collective capability to do so*”(79)
- Financial incentivisation is necessary to justify cost of training

Thus, the analysis of the findings from this study will be both deductive – since there are *a priori* assumptions to be investigated, and questionnaire results to be statistically analysed, – and inductive – where new ideas and themes will be generated via open inquiries in focus groups and interviews.

## 2.9 Sampling and Recruitment Processes

Eleven Scottish maternity units participated in the larger, nationwide THISTLE study. We considered investigating the implementation experiences of all units that took part, but due to time constraints and limited financial resources, it was only possible to evaluate the roll-out of PROMPT with a smaller number of units. The number of units selected for the study was determined by balancing the needs for the sample to provide representative data against the constraints of time and resources. When collecting qualitative data, the sample size is usually determined by the principle of data saturation. This is the continuation of sampling and data collection until no new conceptual insights are generated, and the researcher has provided repeated evidence for his or her conceptual categories(80). However, recognizing when the saturation point is reached can be challenging due to lack of consensus (81) and to an absence of any explicit guidelines for determining data saturation(81, 82).

We anticipated that data saturation would be reached if we obtained sufficient high quality, in-depth data from units displaying a range of different characteristics, to cover a spectrum of possible experiences and approaches to implementation. These characteristics were purposively identified, by selecting maternity units taking part in THISTLE based on three different factors:

- 1) *By training wedge*: Units were initially randomised in the original THISTLE study to one of three training steps or wedges, in March, May or November 2014. We wanted to ensure that units from each step were included in the qualitative study, to determine if there was any temporal effect on implementation.
- 2) *By size of unit*: An inclusion criterion of the THISTLE Study was maternity units with over 1000 deliveries per year. We wanted to include a mixture of smaller (less than 4000 births/year) and larger units (greater than 4000 births/year) in THISTLE-Plus to investigate whether size of units had any impact on implementation of PROMPT. Data on number of births per year by NHS Health Board was obtained from the Information Services Division (ISD) of the NHS National Services Scotland online database. I identified two units which had participated in THISTLE, that had greater than 4000 deliveries per year, and two other THISTLE units with fewer than 4000 deliveries per year.
- 3) *By initial impressions made at the Train the Trainer events*: At the intervention stage of THISTLE, the T3 events, I, and other members of the PROMPT Maternity Foundation (PMF) training faculty, were able to observe teams of multi-professional staff from different units for the first time. As much as I wanted to remain neutral, this interaction inevitably created an initial impression about staff's receptivity to the concept of introducing PROMPT to their own unit, and about how they worked together as colleagues and as a team during skills-drills exercises. In this way, we could identify some teams who seemed enthusiastic from the outset – asking more questions and seen planning how they might run their own PROMPT days during breaks. We also identified some teams who appeared to be less familiar with multi-professional training, and perhaps less confident in their attitudes to setting up PROMPT back in their own units. We wanted to capture data from different “types” of units, so ensured that in addition to satisfying the above characteristics of differing size and training wedge, we

included units who had differing apparent levels of initial interest and enthusiasm for PROMPT.

I next considered how much data would be needed, given limited time and resources. Ultimately, I anticipated that this would be achieved by conducting two focus groups (with multi-disciplinary clinical staff) and two interviews (with lead obstetricians and midwifery managers) at each of the four units. This ultimately was a pragmatic decision, given the difficulty predicting saturation prospectively, although Guest et al. found that 90% of data themes are discoverable within three to six focus groups(83); my research supervisor's experience was that this number would likely provide enough data to analyse within the time available, and therefore we felt confident that no new themes would emerge after data collection was completed.

### **2.9.1 Identification of a Local Collaborator**

Once I had identified these four units, I proceeded to identify a local collaborator at each site. This person was a consultant obstetrician, anaesthetist or a senior midwife, whomever most prior correspondence about the THISTLE Study had been with. Contact details for each collaborator were obtained either from the original THISTLE Study Inclusion Form, (having already consented to participate in the THISTLE Study) or were known to the research team in Bristol because they had been in contact with the PROMPT Maternity Foundation with questions concerning THISTLE.

### **2.10 Research Registration on National Database and Local Approvals**

When units replied indicating their interest and giving provisional agreement to participate, I then proceeded to obtain formal permission to undertake the research from the Research & Development department of each participating unit. After a short period of consideration, NHS Research Scotland then issued general approval for the study and distributed electronic copies of the relevant research documents

to each of the four proposed units' R&D departments. Local queries were then addressed by email, and local approval granted by issuing of a formal letter. Once approved locally, a cover letter, study inclusion form and information leaflets (**see Appendices 2-5**) were also sent electronically to the maternity unit managers and lead obstetricians for PROMPT at each unit, in advance of any visits to the hospitals. These individuals were invited to read the leaflet, to contact the researcher if they had any questions and then to complete and return the Study Inclusion Form to me, as Lead Researcher.

### **2.11 Letters of Access**

Local R&D departments also assisted with issuing Letters of Access for me, and for three research assistants, to enable us to visit the various maternity units. This required supporting letters from our NHS employers at North Bristol NHS Trust, verifying our professional status, and ensuring that appropriate employment checks were in place. We also provided evidence of Good Clinical Practice certification and our current Curriculum Vitae.

### **2.12 Funding Agreements**

Included within the Health Foundation grant obtained to fund this study was a lump sum of £3500, available to each participating unit. The purpose of this money was two-fold: to cover the time of a member (or members) of staff to distribute and collect the SAQs, and to provide funding to cover the costs of staffing backfill, so that participants could attend focus groups during their working day, without compromising staffing levels in clinical areas. A funding agreement pro forma (**Appendix 6**) was created and signed by both the research team in Bristol and management staff at each participating unit, to provide the necessary administrative documentation for issue of payment.

The funding arrangement was designed in respect of the principles of good research practice<sup>(84)</sup>, in particular those of maintaining transparency and accountability, by

trying to ease any potential disruption to clinical workload, without offering any disproportionate incentives that might be seen as coercive.

### **2.13 Sponsorship**

North Bristol NHS Trust agreed to act as Sponsor for the Study, because the core members of the research team were all employed by this Trust (**Appendix 7**).

### **2.14 Ethical Considerations**

The ethical considerations are discussed in Chapter 3: Conducting the Study, section 3.1. The University of Bristol Research Development confirmed oversight of the study (**Appendix 8**).

### **2.15 Data Collection Methodologies**

Four methods of data collection were utilised for this process evaluation. I shall explain the use and purpose of each of these methods, before explaining how each component was designed and conducted within the THISTLE-Plus Study.

#### **2.15.1 Selection of Data Collection Methods**

- **Focus groups** are useful for eliciting the wider range of opinions and perspectives of a group of people. They enable the researcher to understand areas of consensus and conflict between members of the group(76). Unlike in-depth interviews, focus groups also allow data to be generated through interaction between group participants, as each listens to and digests what others have said, which refines their own views, to reveal deeper understanding. In addition, as participants interact with each other, the researcher may exert less influence than in an interview(63). This method is therefore appropriate to this study, since the views of staff about setting up and participating in PROMPT are central to achieving the objective of



determining the facilitators and inhibitors to implementation. Where resources are also limited, focus groups can provide a robust way to collect rich in-depth data while being less time-consuming and less labour intensive than individual face-to-face interviews.

To understand the experiences of all members of staff involved with and exposed to PROMPT, the focus groups needed to be multi-professional. Ideally, I wanted representation from obstetricians, anaesthetists, midwives and maternity care assistants in the focus groups, and asked the local collaborators to assist with inviting staff from each of these groups. It was not always possible for the full multi-professional complement to be present within each focus group, due to staff availability. I was aware that group dynamics might be influenced by professional differences and perceived hierarchies, with more senior clinicians possibly inhibiting the contributions of more junior staff; but I also thought that observing these interactions would provide crucial insight into working relationships between different members of the maternity team. Could staff speak their mind freely or did they seem to be holding back in front of others? I tried to minimise domination of any discussion by one or two individuals by non-verbally encouraging others to speak too, and occasionally directing questions specifically to members of staff from a particular professional subgroup.

- **Semi-structured interviews** provide an opportunity to explore the views of an individual in depth, and to discuss potentially sensitive topics in a less public forum than focus groups. One-to-one interviews overcome the problems of uneven group dynamics, which may repress some individuals from contributing(76). Other advantages of in-depth interviews are that they can combine structure with flexibility allowing for the use of a range of probes to explore individuals' responses further. As for focus groups, they should also be generative in that new knowledge should be produced, by exploring new ideas and proposing solutions to problems discussed(63). This technique is a valuable component to the THISTLE-Plus study, as a detailed

understanding is required about the processes and obstacles involved in setting up training, from the key individuals responsible for it. A combination of open and closed questions can be utilised to draw out the information, in a more structured and direct way than would be used in focus groups.

- **Structured observations** allow the researcher to investigate naturally occurring data, or phenomena as they occur in their natural settings(63). Data is usually recorded by making field notes about the observed phenomena, the setting, social interactions, and language used. I thought this would be valuable for providing insight into the interactions between participants and staff, in the “real-world” context of the maternity unit, capturing non-verbal behaviour and the spirit of the implementation rather than the pure mechanics of its delivery(76).

The nature of the observations can be categorized as either participant or non-participant. Participant observations involve the researcher joining in the study population, recording the phenomena being studied as they themselves experience it too. Conversely, non-participant observation allows the researcher to report on observed behaviours without playing any part in the study population(63). In the THISTLE-Plus study, I performed observations of local PROMPT training days in each unit. The predominant aim was to remain as unobtrusive as possible, as a non-participant-observer, to reduce my influence on the delivery of the local training as much as possible. However, as shall be explained in Chapter 3 (Section 3.7.6 *Effect of researcher presence on participants’ behaviour*), it was not always possible to maintain this approach, and occasionally some participant observations were also necessary.

- **Questionnaires** offer a simple, cheap and convenient way to gather information from a wide range of individuals. In our study, the use of an anonymous survey, the Safety Attitudes Questionnaire (SAQ), served as a valuable adjunct to the qualitative data (**See Appendix 9**). The purpose of the

survey was to get a proxy measure of each unit's workplace safety culture, and to determine if the implementation of PROMPT was associated with stronger (more positive) staff safety attitudes, as had been demonstrated when PROMPT was introduced in Australia(35). Anonymity may have also allowed respondents to answer more freely about potentially sensitive questions regarding their relationships with managers and workplace safety culture, without fear of reprimand or being judged in front of their colleagues, if the same questions had been asked face-to face in a focus group or interview. Furthermore, the use of an existing validated measure allows for comparison of responses across different studies(76). The SAQ is a validated survey tool that has been used in several other studies where PROMPT has been introduced (35, 37), and so will be of value not just in providing background contextual information about workplace cultures in the participating units in THISTLE-Plus, but also of interest for future studies.

### **2.15.2 Design and Conduct of Data Collection Methods**

- **Semi-structured Interviews**

At each participating unit, two face-to-face, semi-structured interviews were conducted. The first was with the lead consultant obstetrician responsible for PROMPT training, and the second was with a senior midwifery staff member involved in PROMPT training. This person was either a practice development midwife, a Labour Ward Sister or a Midwifery Manager, essentially representing the midwifery profession in that unit who had most involvement with PROMPT. The purpose of interviewing these stakeholders was to understand their contribution to setting up PROMPT and elicit their views on the challenges and facilitators to implementation.

A local collaborator at each centre provided contact details for the interviewees and these individuals were sent an invitation to interview by work-based (NHS) email. In most instances, the local collaborator was also one of the two

interviewees, because of their overlapping role in collaborating with the study and establishing local training. The potential interviewees were sent information leaflets in advance of my site visit, by email, explaining the study objectives; they had at least 48 hours to consider whether they wished to participate. The information leaflet (**see Appendix 4**) explained that if they wished to take part they could contact me, the lead researcher, by email or telephone. The interview time was then arranged locally, usually preceding or following a local PROMPT training day occurring at their unit, which was also being observed during the same site visit. This allowed us to maximise the amount of data we could collect in one or two visits.

Prior to commencing the interview, the interviewees were asked to provide their written informed consent and were given the opportunity to withdraw their participation or ask any questions. Part of the consent form included an indication that they consented to be audio-recorded. A digital audio recorder was used to record the interview. The recordings were subsequently downloaded onto a secure, password-protected laptop and backed-up on password-protected NHS computer hard-drives. Subsequently, the MP3 files were sent securely and electronically to a professional transcription company approved by the University of Bristol.

- **Focus groups**

The local collaborators were asked to identify suitable colleagues for two separate focus groups. I wanted the participants for the focus groups to be as multi-disciplinary as possible i.e., to include a mixture of midwives, obstetricians, anaesthetists, maternity theatre staff or nursing auxiliaries, at any stage of their career, in keeping with the PROMPT ethos of multi-professional working, and to obtain as wide a spectrum of opinions as possible.

One focus group was specifically for staff who had been involved in delivering and setting up local PROMPT training (the **Trainers' focus group**) and the other

group was specifically for staff who had attended and participated in a local PROMPT training event (the **Participants' focus group**). The rationale for conducting these two groups separately was that the content of the discussions, as directed by the topic guides, was different (see **Appendices 10 and 11**). The main emphasis in the participant focus group was to encourage discussions about previous training experiences, perceptions of training and suggestions for improvement. The principal purpose of the focus groups with trainers was to identify obstacles and facilitators to implementing training in their unit.

The local collaborators were provided with an Information Leaflet for Staff Participants (**see Appendix 5**) to give to colleagues who were interested in participating. This leaflet explained that they could contact me by phone or email to ask for more information. The local collaborator arranged a suitable time and local venue for the focus groups, usually on the day preceding or following a local PROMPT training event that we were scheduled to observe. This flexibility was a pragmatic choice, to fit in with the work commitments of trainers, participants and researchers. It is possible that this variability between chronicity of data collection at different units may have influenced the observer effect, in both directions – having more insight into how training was conducted if observed before the focus groups, and vice versa. However, the principal questions in the focus groups remained the same, following the topic guide, to maintain as standardised an approach as possible.

As with the interviews, the participants were asked to sign a consent form, and had the opportunity to read the information leaflet and to ask any questions. They also had the option to withdraw their participation at any point if they felt uncomfortable participating. A digital audio recorder was used to record the interview. Subsequently the MP3 files were sent securely and electronically to a professional transcription company approved by the University of Bristol.

- **Numbers of participants in Focus Groups:**

The aim was to have 6 to 8 participants in each focus group, with each discussion lasting approximately 60 to 90 minutes. The numbers for the groups was ultimately determined by staff availability, but the target of 6 to 8 people is typically advised(63) and was selected as necessary to achieve a balance between having too few participants to gain sufficient breadth of opinion to be representative, and having too many participants over- or under-contributing, preventing adequate depth of discussion. In practice, a degree of flexibility was necessary, as due to clinical commitments, some staff could only attend part of a focus group session, and not all staff who wanted to contribute could necessarily attend a focus group on the day it was scheduled. Therefore, in two units we had to run two smaller focus groups with training participants (in addition to one focus group with trainers), to fit around individual work schedules. The numbers in the focus groups therefore ranged between 2 and 10 (see Chapter 4, Section 4.2). This may have had advantages and disadvantages – compromising breadth of discussion in some, and depth in others, as discussed.

## **2.16 Topic Guides for Interviews and Focus Groups**

Topic guide content was developed prior to the interviews and focus groups (**Appendices 10, 11 and 12**), based on the preparatory literature I had read, the core theoretical constructs of Normalisation Process Theory(48) and using guidance from the MRC on process evaluations(76).

The questions were written to promote discussion on the implementation of PROMPT, how and what was delivered, any adaptations made to training (fidelity); the mechanisms of impact of PROMPT in their unit – participant reactions to doing PROMPT training, presence of barriers and/or facilitators (mediators) to implementing training locally, and any unintended results or outcomes of training. Questions were also included to discuss context in terms of workplace culture, relationships between staff, and patient safety culture. Furthermore, specific questions were added to discuss whether PROMPT made

sense (the NPT construct of coherence) and if it felt normalised or part of routine practice yet.

In the interviews with managers and obstetric leads, some more specific, closed questions were also used, to elicit data on the numbers of staff trained locally (i.e., to determine the “reach” of the intervention), and the number of training days organised (or the “dose” of intervention). Additional questions were posed to them regarding how different staff groups had been able to attend PROMPT training sessions, and how the training had been resourced.

Before conducting the first focus group for the study, I piloted the questions in the topic guides on some members of my Bristol-based obstetric research department, in “mock” interviews and focus group scenarios. Piloting of topic guides is considered a critical part of qualitative research practice, in order to ensure participants are not constrained by the questions, and to permit “fine-tuning” before the actual fieldwork commences(63). The colleagues I piloted the topic guides with were already familiar with PROMPT, and so were able to give me some feedback on clearer wording and suggested changing some terminology in the questions that might be perceived to have a negative connotation, such as using the word “challenges” instead of “barriers”.

### **2.17 Observations of a local PROMPT training event**

MRC guidance for process evaluation of complex interventions recommends observing the delivery of the intervention and coding the extent to which components are delivered, using a structured form, in order to reduce any inconsistency between what implementers say they do, and what they actually do(76).

At each unit, observations of a local PROMPT training day were made, using a checklist, as detailed in **Appendix 13**. The list served as an aide-memoire to record field notes, in a semi-structured way. This was intentionally designed to be neither

rigid nor exhaustive, but to permit some flexibility to allow for opportunistic observation. I wanted to ensure that the note taking was as inconspicuous as possible to the participants, without appearing secretive or as if we were performing an assessment, which may have made them feel uneasy. These notes were designed to record the fidelity of the implementation – how similar or different it appeared to be to the “original” material presented in the PROMPT course during the T3 event at the start of the THISTLE Study, and a measure of the context of implementation – what local adaptations had been made and what other background factors, or characteristics of each unit, might have influenced how the training was delivered. This enabled the key similarities and differences between units to be identified and compared to the original PROMPT package and allowed observation of staff receptiveness to multi-professional training.

The sample for the observations was the maternity staff participating in the local training day. Formal individualised consent was not obtained, but the local collaborators were asked to introduce myself, as lead researcher, and my accompanying research assistant, to the staff at the start of the training day. (The role of the research assistant is explained in Chapter 3 – Conducting the Study). We explained the reason for our presence, reassuring them that this was not an inspection or assessment, but purely to record observations of training. We assured them that the observations would not include any identifiable information, and if anyone did not want to be observed, we would exclude any observations about them. No staff raised any objections to observations during our units.

### **2.18 Observations of Maternity Unit**

I sought to determine some additional contextual information about each unit through informal observations, made during tours of the maternity departments. These tours were accompanied by a member of staff, often the local collaborator, and gave me the opportunity to obtain some information through direct visualisation (e.g., observing staff at work, posters on noticeboards, the atmosphere



in clinical areas) and other information via direct enquiry, for example about the layout of the department, staffing levels and location of emergency trolleys. In this way, I aimed to obtain rich situational information about implementation at each unit, both in terms of “hard” or structural data and “soft” or cultural data.

Some numerical observations were recorded contemporaneously (e.g., facts and figures about delivery suite staffing and layout), using a checklist (**see Appendix 13**), and others more analytical observations were made retrospectively at the end of the site visit, to be less intrusive, and once able to reflect on what I had seen over the course of the day. We had explained in the Information Leaflet for Trusts (**Appendix 4**) sent out ahead of our visit to managers that our data collection would involve *“observation of a local training event (and)...review of local resources”*.

This approach for observational work leans on ethnographic techniques, in that I aimed to gain an understanding of what was happening at each unit through observation within that unit. It cannot be deemed truly ethnographic, since the observations were not unstructured, or conducted in each unit over extended periods of time, and the situations I observed were constructed (PROMPT training days) rather than “everyday” events(85). Most observations took place within one- or two-day visits, which was pragmatic within the limits of this study.

## **2.19 Safety Attitude Questionnaires**

As described in Chapter 1, there is some evidence to suggest that uptake of PROMPT training is positively associated with improved safety attitudes(35). One aim of the study was to therefore determine what associations exist between staff safety attitudes in participating Scottish NHS units and their uptake of PROMPT training. Ideally, I would have preferred to collect SAQs from staff at participating units both before and after PROMPT commenced, to see if any change in safety attitudes took place following the intervention. Logistically this was not possible, as at the time that all the necessary permissions were in place for the THISTLE-Plus study, most of the

units had already been exposed to the intervention in Steps 1 and 2 of the THISTLE Study. Instead, we had to compromise with SAQs taken at a single time point for each unit, post-training. Some degree of temporal variation was inevitable between units, in that different units had done different amounts of training at the time the SAQs were conducted. This needed to be considered when it later came to explaining different results between units (See Chapter 11).

Staff safety attitudes were determined using a validated Safety Attitudes Questionnaire (SAQ). This tool, developed by Sexton and colleagues, at the University of Texas(86, 87), assesses caregiver attitudes across 6 domains including teamwork climate, safety climate, perceptions of management, job satisfaction, working conditions, and stress recognition. The version used in this study is the validated UK version of the Labour and Delivery SAQ (**Appendix 9**), which was first used in the SaFE Study(26), and has been used in several other studies assessing caregiver safety attitudes since(35, 37). This is a questionnaire with 57 items plus demographic information (age, sex, professional experience, and nationality). The questionnaire takes approximately ten minutes to complete. Each of the 57 items is answered using a five-point Likert scale (Disagree Strongly, Disagree Slightly, Neutral, Agree Slightly, Agree Strongly).

All permanent maternity staff at participating units, defined as staff working more than 3 days per week for at least 3 months, were eligible to anonymously complete the SAQ, after local training had commenced in their unit.

I asked the local collaborators to identify a suitable member of staff who could help distribute the Safety Attitude Questionnaires. This person, also identified in the funding proforma agreement, was responsible locally for the distribution and collection of the SAQs. I provided this person with copies of the questionnaire, envelopes, and laminated signs for a collection box. I suggested that to gain as large a response as possible, it might be necessary to hand out questionnaires and encourage staff to complete them in communal areas in ward and clinic areas. Once completed (anonymously), the surveys could be sealed in envelopes and placed into

the collection box. The questionnaires were then collected either during site visits to the units or returned by post to me.

More questionnaires were sent to each unit, on request, to attempt as high a return rate as possible, aiming for approximately 60%. This target is based on findings from a meta-analysis of 490 survey studies, which found that the average response rate for survey studies (using data collected from individuals) was 52.7 percent(88).

## **2.20 Transcription of focus group and interview data**

### **2.20.1 Transcription**

Once the focus groups and interviews had been digitally recorded, they were saved securely as audio mp3 files on a password-protected computer. The mp3 files were then sent electronically via a secure server to The Transcription Company, a professional transcription service, approved by the University of Bristol and meeting data protection standards. I also sent an explanation of key acronyms frequently used by participants. The transcripts were then returned to me by email and immediately downloaded onto a secure server and anonymized, and then deleted from the email account. I checked each one against the audio recording for accuracy of transcription, and in one instance, requested a repeat transcription, because there were a significant number of errors and omissions.

### **2.20.2 Anonymisation**

Anonymisation included the removal of the names of all participants in the interviews and focus groups, and of any individuals named during their discussions. I assigned pseudonyms to each person and produced a separate password protected document containing the key to these pseudonyms to ensure that I could still trace patterns within the data. Any place names, hospital names and other identifying information were also removed from the transcripts. To maintain anonymity of the units, each unit was assigned a fictitious pseudonym. The four units will be referred to as follows:

- **Unit 1- Glenchester**
- **Unit 2 - Burnsbury**
- **Unit 3 - Heatherham**
- **Unit 4 - Flintfield**

## **2.21 Qualitative data analysis**

### **2.21.1 Preparation and use of QSR NVivo 10 software package**

In preparation for the coding process, I attended two university courses on qualitative research methods. I imported the edited transcripts into the QSR NVivo 10 software package. This is a qualitative data management software package that allows researchers to organize data efficiently, to facilitate analysis (89).

### **2.21.2 Epistemological and analytical approach to data analysis**

Central to my analytical approach for this study was the underlying critical realist stance, which retains ontological realism while accepting some constructivism, as discussed earlier in this chapter. In practice, this meant that I accepted that to some extent, the reality (of what was occurring in the maternity units I visited) existed independently of my theories and perspectives, but that I was able to construct meaning to what was happening, based on my experiences and observations.

In Glaser and Strauss' grounded theory, refined by Charmaz(90), theory is discovered from the data, in a "bottom-up" approach, using constant comparative techniques until data saturation is reached. The theories are grounded in the observations of the social world, rather than generated in the abstract(72). While some aspects of this approach were attractive, in that I would retain an open mind to my analysis, without imposing pre-existing ideas on to the data, this was not a wholly appropriate approach for my study, because I had already identified some causal assumptions I wished to test (as described above), and also was attempting to establish if Normalization Process Theory might be a useful theoretical framework for

interpreting the findings. Therefore, a “top-down” methodology was also necessary; I needed to identify whether there was any evidence for these assumptions and theoretical constructs in the data. I needed an approach that was flexible, which allowed identification of both similarities and differences across a relatively large dataset, as well as generating unanticipated insights. These are some of the specific advantages of the **thematic analysis** approach, as described by Braun and Clarke(91), which I adopted.

### 2.21.3 Thematic analysis

Braun and Clarke define thematic analysis as a widely used qualitative analytic method *“for identifying, analyzing and reporting patterns (themes) within data”*. They argue that thematic analysis means researchers *“need not subscribe to the implicit theoretical commitments of grounded theory if they do not wish to produce a fully worked-up grounded-theory analysis”*. The flexibility of thematic analysis also means that it can be conducted within different epistemological paradigms – both realist and constructionist – which fitted with the critical realist stance I adopted, as described above.

I undertook the thematic analysis in a 6-stage process, as defined by Braun and Clarke. The last stage is report writing, which is obviously what this thesis represents, so I shall describe the first 5 stages.

**Stage 1: Familiarization with data:** After conducting the focus groups and interviews, I listened to the audio-recordings, and read through the transcripts several times, to fully familiarize myself with the data. I then highlighted key words or phrases that seemed interesting, distinguishing in some way, and/or relevant to the study’s objectives of understanding the facilitators and objectives to implementation of PROMPT.

**Stage 2: Generating initial codes:** Next, I generated some initial codes from the highlighted segments of the transcripts identified in stage 1. Codes refer to “the most basic segment, or element, of the raw data or information that can be assessed

in a meaningful way regarding the phenomenon”(92). Over 30 initial codes were generated this way, including for example:

- History of conducting local training
- Enthusiasm
- Relationship with managers
- Difficulty attending training

On QSR NVivo, these initial codes are identified as “nodes”. The software allowed me to “tag” or create links to the relevant parts of the transcript that illustrated that code. I examined the entire dataset and looked for recurring ideas or phrases that could form the basis of repeated patterns or themes. Some extracts of data were coded several times in different ways, as they matched multiple codes.

### **Stage 3: Searching for themes**

From these codes, I then evaluated their underlying messages, and analysed their meaning, so that I generated “candidate” themes. Braun and Clarke describe this stage as “re-focus(ing) the analysis at the broader level...sorting the different codes into potential themes, and collating all the relevant coded data extracts within the identified themes”(91). I compared these initial themes and identified where they resonated and where they differed. Some recurred in almost every hospital e.g., difficulty getting staff to attend training. Other themes appeared to be more unique to one unit e.g., feeling that their training was substandard. Many of the codes overlapped in their implications, and could be merged into larger groups, facilitating identification of these broader themes. For example, the codes “teamwork”, “auxiliaries’ experiences”, “improved clinical outcomes”, “new learning”, “pride in achievements” and “confidence” were grouped together under the theme “positive effects of PROMPT”.

### **Stage 4: Reviewing themes**

This stage involved reading through and refining all the candidate themes, to ensure that the coded extracts within them had a coherent pattern that fitted the theme,

and then examining whether these themes collectively reflected the meanings of the whole data set. This required some re-coding, and development of some new themes, that had not captured some of the data previously. For example, during this stage, I identified how staff enjoyed the realistic nature of the skills-drills scenarios (under the theme “positive aspects of training”), and that shoulder dystocia training in the “PROMPT” way had been a novel experience for many, generating new understanding and knowledge (coded under the theme “new learning arising from PROMPT”). When I coupled these themes with my observations of teams delivering training during their PROMPT days, when I witnessed some good, and some less technically accurate, examples of shoulder dystocia training, I synthesized this to identify a major overarching theme about authenticity of training being a crucial facilitator to implementation.

### **Stage 5: Defining and naming themes**

In this final stage of the coding process, I reviewed all the themes again to establish what their essence was, verifying that they represented a different component of the data, how they related to each other, and how they might potentially answer the overall research questions and objectives. At the end of this stage, I had defined 5 major themes, each of which contained multiple sub-themes. These form the basis of Chapters 5 to 9.

#### **2.21.4 Further analysis of the data**

- **Double coding:** A selection of the transcripts were double coded by one of my supervisors (AJM), an experienced qualitative researcher. We then met to discuss our shared findings, to establish if there was consensus on the codes and key themes in the data, and to provide rigour to the analysis. This was valuable for providing “fresh eyes” on the data and re-affirmed common findings. We did not disagree on any of our impressions.
- **Presentation of early findings:** After coding the data from the first three units, I had the opportunity to present my early findings to my research colleagues and

supervisors, and to our funders, the Health Foundation. Preparing for this was valuable as it allowed me to consider what I had already deduced from my data so far, and what ideas I needed to develop further. I also gave an oral presentation on the interim analysis at the Health Services Research UK Symposium in Nottingham in July 2016. I presented in a session with another researcher also implementing a quality improvement initiative, and it was interesting to identify some of the common challenges to our research, such as identifying how the findings might be transferable to a wider clinical audience, and the difficulties encountered in scaling up QI projects.

## 2.22 Quantitative data analysis

The analysis of the quantitative data from the Safety Attitudes Questionnaires is described and discussed in Chapter 11.

## 2.23 Validity

Quantitative scientific studies typically assess the validity of their findings through an examination of external and internal validity, reliability and objectivity. However, this realist perspective is at odds with the interpretative stance of some qualitative researchers, since they are less concerned with whether their observations are objectively “true” or “false”(61), and more perhaps with whether the study promotes insight, understanding or dialogue(72) . Ritchie and Lewis argue that alternative terms may be more relevant with determining the strength of the data in qualitative research – replacing “reliable” with “sustainable” and “valid” with “well-grounded”(63). Guba and Lincoln propose four alternative but analogous validity criteria for qualitative studies(93). These are credibility, transferability, dependability and confirmability. Seale suggests several ways in which the quality of qualitative research can be enhanced(72). For the purposes of this study, I used a selection of these approaches to ensure the data was sustainable and well-grounded, as follows:

- Using a combination of qualitative and quantitative methods (as described in



this chapter)

- Showing reflexivity by providing a self-critical account of how the research was conducted (See Chapter 3)
- Demonstrating originality of the findings and relating back to current theory, (such as NPT, see Chapters 5-10)
- Applying “low-inference” descriptors that illustrate observations or transcriptions, minimising researcher interpretation of raw data (for example by using unedited quotes from focus groups and interviews)
- Identifying deviant cases that contradict emerging ideas (see Chapter 4 Introduction to Study Findings, where characteristics of different units and their contrasting styles of implementation are described)

These components shall be detailed in subsequent chapters.

## **2.24 Summary**

In this chapter I have presented my approach to data collection and analysis, along with justifications for these methods. In the next chapter, I will discuss both practical and reflexive aspects of how the study was conducted.

## Chapter 3: Conducting the Study

In this chapter, I shall describe the processes that were necessary to conduct this study, from ethical, administrative and logistical perspectives. I shall also explain some of the practical and conceptual challenges I faced during data collection.

### 3.1 Ethical considerations

The first stage in this process was registering the study details on the Integrated Research Application System (IRAS) online database(94). The initial Project Filter Questions established that since the intended research was *“limited to involvement of staff as participants (no involvement of patients/service users as participants)”*, then the project did *“not require review by a Research Ethics Committee (REC) within the UK Health Departments Research Ethics Service”*.

Secondly, I sought to confirm this assessment, by using the NHS Health Research Authority (HRA)’s Decision Tool(95). After answering a series of questions related to the nature of the study, this also concluded that the study did *“not need NHS REC approval for sites in Scotland”*, although *“other approvals”* might be needed **(Appendix 14)**.

I therefore sought further advice from both North Bristol NHS Trust Research and Innovation Office (the study’s sponsor) and the University of Bristol Research Governance Office. I felt it was important to ensure that all the appropriate consultations had been sought and that I remained conscious of ethical considerations, even if a formal ethical review process was deemed unnecessary. I remained aware that even though no patients or vulnerable groups were involved in the study, the questions that I asked of participants in the focus groups and interviews had the potential to create a predicament for staff, as there was the risk that I could be inviting them to criticize their workplace or colleagues. Furthermore, I

was sensitive to the possibility that working relationships between staff might not be entirely positive, and the mixed professional make-up of the focus groups might create tensions. I felt it was important to ensure that informed consent was obtained from each participant, and that they were reassured about the anonymity of their contributions. I acknowledged that in any interview situation there is the potential for unexpected responses, uncomfortable topics to arise, and for disclosure of sensitive material, despite not actively seeking to disclose such information. I ensured, through the training I had undertaken in qualitative research methods, that any likelihood of such situations arising would be kept to a minimum, and that appropriate support would be available for both participants and for me, if necessary.

Throughout the entire study, I have remained acutely aware of the potential impact of my presence on data collection, retaining insight and empathy as a fellow healthcare professional working in this field.

After considering the nature of the study, the Clinical Trials Manager for Research and Innovation at NHS North Bristol NHS Trust (the sponsor for the study) concluded that it did not need to review *“staff-only projects taking place within the NHS (if staff are recruited by virtue of their professional role), therefore the research [could] legally go ahead without it, assuming it has a sponsor and relevant R&D approvals before it starts (R&D approval needed from each participating site)”* (**Appendix 7**). Consequently, the University of Bristol Ethics department also agreed and approved the study (**Appendix 8**).

### **3.2 Local Research & Development (R&D) Approval**

Once I had gained provisional agreement from each of the four maternity units that they would participate in the study, I then proceeded to obtain formal permission to undertake the research from the R&D department of each unit. Study documents were uploaded to the NHS Research Scotland (NRS) database. The NRS Permissions Co-ordinating Centre (NHSPCC) then issued general approval for the study and

distributed electronic copies of the relevant documents to each of the four proposed units' R&D departments. Site-specific information (SSI) forms were generated by IRAS for each unit and signed by the local collaborator.

### **3.3 Piloting of Topic Guides**

Prior to undertaking the first site visit, as explained previously, I piloted the topic guide questions for the focus groups and interviews with members of my local research department. This process was valuable as it revealed that some of the wording was ambiguous or could be interpreted with a more positive or negative bias. I modified the questions to make them clearer and more neutral in tone. I also changed the wording of some of the questions for the one-to-one interview to be more attentive to the status of the interviewee (trainer, participant in training, or manager), from the more generic style I had initially adopted. In this way, I hoped to draw out some distinct perspectives and experiences from the different individuals participating in the interviews or focus groups. However, I also recognized that staff members from within the research department and from the PROMPT Maternity Foundation were not impartial for piloting this work – as they were already immersed within PROMPT and aware of the work of the THISTLE Study. This “test” was imprecise and could potentially have been biased. Ideally, I could have asked some more objective individuals unfamiliar with PROMPT, who may have been able to highlight ambiguous questions more readily. Despite this limitation, the exercise was still useful, and practical within the time constraints.

I provided notifications of these amendments to NHSPCC along with approval from the sponsor, North Bristol NHS Trust. Both agreed that these changes constituted non-substantial amendments, which were subsequently approved as Category C amendments (not requiring review by individual UK Boards or Trusts) permitting me to proceed to implement the amendment.

### **3.4 Conducting Site Visits**

Following research approval, I contacted the local collaborators at each unit to arrange visits. Local collaborators were identified through their contact details submitted via participation in the wider THISTLE Study. In this way, the local collaborators effectively acted as gatekeepers to their respective maternity units and negotiating with them was crucial to securing access to their department and identifying the most appropriate staff to interview. I provided written information about the study to the gatekeepers, in the form of a leaflet (emailed as a pdf document) and answered any questions by email or telephone.

The dates for site visits were selected to coincide with the date of a local PROMPT training day that their unit would be running, to allow the observation component of the data collection to be undertaken. With the local collaborator, we then planned mutually convenient times and venues for the focus groups and interviews and aimed to conduct the two semi-structured interviews, two focus groups and observations of the local PROMPT day within a two- or three-day visit at each site. However, due to staff availability, in one unit, we had to return later to conduct one of the interviews. The data from this unit was therefore collected at two time points approximately four months apart. It is possible that this interval may have affected the findings, as PROMPT may have been better established within the units by the time of the later interview, and subjectively the staff may have felt more confident and familiar with training at this stage.

### **3.5 NHS-to-NHS Evidence of Pre-Engagement Checks**

Local R&D departments requested that NHS to NHS Evidence of Pre-Engagement Check pro-formas were completed by North Bristol NHS Trust Human Resources department. These confirmed that the appropriate checks (e.g., medical clearance, Disclosure and Barring Service checks etc.) had been undertaken with our substantive employer. We were then issued with Letters of Access, granting

permission on to the Scottish NHS hospital sites and within clinical areas.

### **3.6 Use of Research Assistants**

To assist with the running of the focus groups, one other colleague from within our Bristol-based clinical research team accompanied me on the site visits. Three assistants fulfilled this role across the four site visits. All the assistants had experience with PROMPT, having been facilitators on Bristol-based local training days, or faculty members at the RCOG T3 courses. Two of the assistants were research midwives, and one was an obstetric research fellow. The principal role of the assistants was to act as a scribe for the focus groups, taking note of who was speaking to ensure that participant's words could be attributed accurately once the audio-recording was transcribed. However, there was a secondary advantage in that this person was usually (during three of the four site visits) a midwifery colleague, which allowed us to present ourselves multi-professionally to the units we were visiting, in keeping with the ethos of multi-professional team-working promoted by PROMPT and reflecting the multi-professional nature of our research department. I also wanted midwifery staff and maternity care assistants at the participating units to feel as comfortable as possible when contributing to discussions during the focus groups, alongside their medical colleagues (obstetricians and anaesthetists), and the presence of a fellow midwife on the research team may have facilitated the breaking down of any perceived barriers or hierarchies within the groups.

Although the discussions in the focus groups and interviews were digitally recorded, and later transcribed, it is not unusual within qualitative research studies to have a scribe present to enhance the breadth and quality of the data obtained, both during and after focus group sessions(96). The assistant made a simple diagram in a notebook, depicting where each participant in the focus groups was seated around the table, and allocated them an arbitrary letter. During the discussions, she made a note of who was speaking, using their code letter for brevity, and wrote down their first few words. This was to facilitate the transcription process, so that during later

analysis of the transcripts, I knew whom had made each comment, as their voices would not necessarily be recognizable to either the transcribers or to myself later.

It was important that the scribe did not contribute to the discussions during the focus groups, to allow the participants' contributions to be free from external influence, other than my own input as facilitator. However, after the participants had left, it was very helpful for me to objectively discuss my initial impressions and non-verbal observations with my colleague, in a short debriefing session. This was to provide some degree of consensus and rigour to the conduct and findings of the focus groups and to check that my impressions reflected those of my colleague. On most occasions, our observations were similar and validated the impressions I had formed. Occasionally, my colleague had noticed some non-verbal cues that I had not picked up on, such as shrugging of shoulders, or raised eyebrows from one of the participants in response to something that had been said by a colleague, suggesting that opinions within the group were not always shared. These observations could not be formally incorporated into the coding process, but they did help me develop a more global impression of some inter-professional relationships, particularly between trainers. For example, the more harmonious colleagues tended to work in units where training was established more easily; however, subtle allusions of conflict, or differences of opinion, tended to be witnessed at units that had had more difficulties initiating PROMPT.

### **3.7 Challenges in Conducting the Study**

I encountered several challenges in conducting this study.

#### **3.7.1 Administrative delays**

The process of obtaining final local R&D approval was more time-consuming than originally anticipated. From registering the study documents with NRSPCC on 2<sup>nd</sup> October 2015, local R&D approval was granted at each unit after markedly variable time intervals thereafter. The first unit (Unit 1) granted approval within one month,

Unit 2 within two months, Unit 3 within four months and Unit 4 after eight months. The reasons for these delays included identifying and waiting for the appropriate staff to sign Site-Specific Information (SSI) forms, staff sickness, obtaining letters of access, addressing queries over arrangements for the transfer of the lump sum funds (to cover costs of staffing backfill and to staff time to distribute and collect the SAQs), and the development and signature of a funding arrangement pro forma. In the case of Unit 4 however, there were additional delays due to their hesitation to participate, which shall be explained in more detail below.

### **3.7.2 Confusion between the THISTLE and THISTLE-Plus Studies**

In some units, it was apparent during conversations with staff that there was misunderstanding about the differences between the two studies. The similarity in names may have contributed to this confusion, but it transpired that some of the managers may not have read the information leaflet emailed to them previously or remembered its contents. The leaflet explained the purpose of THISTLE-Plus, as a parallel evaluation of the implementation of the wider THISTLE study. These members of staff therefore may not have been fully aware what their involvement in the THISTLE study would entail. This impression developed because staff I spoke to asked for clarification about whether they were “*still involved*” in the THISTLE study and could not recall emails I had sent them about the studies some months previously. In these instances, I ensured that the differences between the two studies were explicitly described, to avoid any confusion about the reasons for our visit.

### **3.7.3 Initial reluctance and lack of consensus to participate**

Two of the four maternity units readily agreed to participate in this study, and these were both “early initiator” units (Glenchester and Heatherham), which will be described in Chapter 4. The other two units were more hesitant to participate and were “late starter” units (Burnsbury and Flintfield, again described in Chapter 4). The reasons for this reluctance were of great interest to me, as I felt they would provide valuable insight into the workplace culture at these units, and their responses to



PROMPT as an intervention. These issues are explored further in Chapter 5 (Receptivity and readiness for change) and Chapter 6 (Securing financial and conceptual buy-in).

#### **3.7.4 Lack of communication**

In Unit 2 (Burnsbury), in addition to some confusion about the two parallel THISTLE studies, there was also a lack of communication about the necessary study approvals between different tiers of management staff. The Study Inclusion Form had been signed by the Labour Ward Manager, but following our site visit, another, more senior, midwifery manager contacted us requesting clarification about the study, and questioning her staff's involvement, apparently without her overt prior knowledge. This was despite multiple email correspondences about the study with the lead obstetrician for PROMPT and the Labour Ward Manager in the months preceding our visit. The senior manager herself had been included in the initial invitation email about the study, to which the Labour Ward Manager had responded, agreeing to participate. We had therefore assumed, perhaps wrongly with hindsight, that this person had taken responsibility as the key contact at this Unit, and that all appropriate tiers of management had also agreed to participate in the study.

We addressed the concerns of the Senior Midwifery manager in a telephone conference with her, Cathy Winter (Lead PROMPT Midwife), and Prof Tim Draycott, (my supervisor and Consultant Lead for PROMPT). We clarified the study objectives, and reassured her about maintaining the anonymity of both the unit, and its staff, as well as re-iterating that the purpose was not to perform an inspection of maternity unit performance, but to conduct research to understand the challenges and facilitators to implementing PROMPT, and to inform the successful future development of training. Following this conversation, she then agreed to ongoing participation in the study. This was an important learning point for me as a researcher, as it highlighted the complexities inherent in negotiating access to institutions with unfamiliar staffing hierarchies, and to unfamiliar staff with implicit job titles. Going forward, I would aim to be completely certain from the outset of

any future study that the local collaborator was sufficiently senior within their organization to be able to consent to involvement in any external research proposals. It also demonstrated the importance of providing clear reassurance that the study was not an inspection or assessment, in all written and verbal communication with potential participants.

### **3.7.5 Concerns over “failure” and insufficient experience of PROMPT**

Initially, in Unit 4 (Flintfield, see Chapter 4), there was an enthusiastic response from the obstetric lead to participate in THISTLE-Plus. She readily admitted to us that they had experienced some difficulties establishing training in their unit and felt it would be valuable to contribute to the research. The Study Inclusion Form (see **Appendix 3**) had been signed by the Midwifery Manager, but when we started to discuss dates for possible visits, there were several additional phone calls and emails from other members of the unit’s management team, requesting more time to familiarize themselves with PROMPT. They expressed concerns over not having trained enough staff to participate. I tried to provide reassurance that it did not matter if they had not run many PROMPT days or trained all their staff yet, as it was their experience at all stages of the implementation and training that we were interested in. However, I did not wish to exert any undue pressure on them to agree to participate, nor deter them from the study, and so agreed to defer participation for several months. After this time, I re-established contact with the Practice Development Midwife (responsible for PROMPT locally) and the Lead Obstetrician for PROMPT and offered an informal visit to their unit to discuss the study in more detail, and to answer any questions they had directly. This was a useful encounter, as I was able to answer their concerns face-to-face and explain that it did not matter how many staff they had trained or PROMPT days they had held, and I shared that they had in fact done more PROMPT days than some other (anonymized) units participating in the study. This information seemed to reassure them, as they had been concerned that they would be considered as “failing” if they had not trained 100% of their staff within a year of setting up PROMPT. Once this matter had been clarified, final agreement to participate ensued.

### **3.7.6 Effect of researcher presence on participants' behaviour**

In my role as a researcher, from the outset I felt that it was important that I remained as objective as possible during my observations at the maternity units and did not actively participate in the delivery of the training, despite my experience as a PROMPT trainer. However, despite trying to remain inconspicuous (for example by sitting at the back or sides of the training rooms), I was aware that my presence had several effects on the staff participants. In his book, "Ethnography: Principles and Practice", Hammersley explains that participants' responses to the researcher may also themselves be an important source of data, as well as a source of bias. This does not invalidate such data, but he explains that it is crucial that the researcher acknowledges how his or her presence may have influenced this data(85). The effects of my presence included:

### **3.7.7 Self-consciousness and loss of confidence**

It was necessary for us to be introduced as researchers at the start of the local PROMPT training days, so that staff knew why we were present, what the aims of the study were, and to give them the opportunity of opting out of being observed, if they so wished. No-one declined to be observed, across any of the four sites. In making our presence known however, all the staff (both trainers and participants) were aware of us, and there were several occasions when our presence was referred to during some of the presentations. These references included mentioning us while talking about some of the original outcome data from PROMPT in Bristol, or asking us questions during their presentations or skills drills, seeking validation about certain facts, figures or practical techniques. The inference from these interactions was that we were perceived as "PROMPT experts". This appeared to make some of the trainers a little self-conscious, and I sensed there was a desire to impress us. I felt our presence may have contributed to some loss of confidence and a degree of self-doubt that they were not running the training "properly" – which may have been avoided had we not been present. The perception of being inspected or

assessed may have been exacerbated by my need to take field notes, to record my observations, though I tried to make this as inconspicuous as possible. With hindsight, it may have been possible to avoid this if I had just observed the training and made notes retrospectively afterwards. However, it is likely that some accuracy and detail in the notes would have been sacrificed this way.

### **3.7.8 Conflict of roles: Observer vs. participant**

Hammersley describes social research as relying on the human capacity for participant observation, and within ethnographic research, it is permissible for the researcher to act as both observer and participant (85). Junker (1960) and Gold (1958) classified the ethnographer into one of four groups: the ‘complete participant’, the ‘participant-as-observer’, the ‘observer-as-participant’ and the ‘complete observer’. My activity most closely resembled that of an observer-as-participant, as I shall explain below. Hammersley also argues that moving between roles (as observer and participant) can be advantageous, in that it may allow one to access different types of data, and understand the relative bias effects of each (85). Indeed, I found other situations in which my roles changed and shifted during different aspects of the fieldwork – between observer, participant and trainer.

My predominant role during the data collection was to remain as an unobtrusive and neutral observer. However, as previously described, my background as an obstetrician and experienced PROMPT trainer, also gave me an unintended but additional function in some units as a “visiting PROMPT expert”. One unit invited me to give an introductory talk about PROMPT at the start of their local training day. This presented me with a conflict of interests. PROMPT endorses teamworking, and by refusing to support and collaborate with them, I would have undermined this ethos. While I wanted to co-operate with the units, and present myself favourably and flexibly, I felt that speaking about the purpose and values of PROMPT at the start of the day, would have unduly influenced the local style of delivery of training from the outset. I felt that it was more important for me to see how each unit independently presented PROMPT to their staff. Instead, I offered to give some

general closing remarks about my (positive) impressions of their training at the end of the day, which they accepted. Although it was not ideal to intervene in this way, I felt it to be a necessary compromise, to prevent bias of my observational data while avoiding appearing distant or unhelpful. I also acknowledged that in every unit I visited, despite trying to stay neutral, I also wanted to show them that I was impressed with their efforts, not just to be courteous, but to give some positive feedback that I hoped would reinforce their training programme and give them confidence.

Another challenge I encountered related to my intended role as a “silent” observer. In several units, during the practical demonstrations for managing shoulder dystocia on local PROMPT training days, I occasionally witnessed some manoeuvres being taught incorrectly, in the sense that they did not follow the RCOG/PROMPT evidence-based algorithm(2). This posed an ethical and moral dilemma, as it reflected tensions between my dual roles as a researcher and a clinician and trainer. It was difficult to decide whether I should remain silent or speak up. If the trainer appeared hesitant or sought reassurance from me, I felt it was my ethical duty to demonstrate or describe the appropriate technique. Again, this was a trade-off between biasing observational data and considering the clinical implications of staff not being able to manage a potential future obstetric emergency appropriately.

On another occasion, I was observing a skills drill simulation on eclampsia (fitting associated with severe hypertension in pregnancy). One of the two facilitators unexpectedly had to leave the room due to a clinical priority elsewhere in the unit. This left just one trainer to run the drill, which she could not do on her own, as there was no-one to play the part of the patient actress who had to simulate experiencing an eclamptic seizure. For a few moments, nothing happened, and it appeared that the station would not proceed. I felt compelled to offer to play the part of the patient, so that the staff could take part at managing the “seizure”. I thought it would be wrong to remain silent when I could easily help, and I did not want staff to miss out on the opportunity to understand how to manage eclampsia during their training day. As I did not have to teach the staff myself, I felt on balance that this was

acceptable, and the “right” decision.

With hindsight, my occasional involvement and cross-over as a trainer/participant while also being a researcher was perhaps inevitable. However, it was not without benefit to the wider aims of the study, since it permitted identification of areas of weakness in the delivery of the training package. Observing at first-hand that shoulder dystocia training was not consistently taught in the correct “PROMPT” way, was highly valuable, as it has informed the future, improved development of PROMPT training. This is discussed further in Chapter 10: Sustaining and Normalising Training.

## Chapter 4: Introduction to Study Findings and Unit Characterisation

In this chapter I will introduce the four participating maternity units, summarise the final dataset for each site, and broadly describe their relative characteristics in terms of how quickly training was initiated at each unit. I shall then present the major themes synthesised from the data analysis, each of which will be explained in more detail in subsequent chapters.

### 4.1 Characterisation of participating maternity units

To provide context for the data collected, I will provide some background information about the four participating units. I will describe the characteristics of each unit, both demographically, and regarding the timing of their initiation of local PROMPT training.

#### 4.1.1 Unit Demographics

To maintain anonymity of the units, as described previously, each unit was assigned a fictitious pseudonym. The four units will be referred to as: **Burnsbury, Flintfield, Glenchester** and **Heatherham**.

As described in the previous chapters, four units were purposively sampled from the eleven original units that initially took part in the wider THISTLE Study. These were selected based on their unit size and the training step in which they were introduced to PROMPT. Unit size was defined by the number of births per year at each unit in the year 2014-2015. An inclusion criterion of the THISTLE Study was maternity units with over 1000 deliveries per year. We wanted to include a mixture of smaller (less than 4000 births/year) and larger units (greater than 4000 births/year) in the qualitative study, to investigate whether size of units had any impact on implementation of PROMPT. The training step represents the timing of the intervention when multi-professional teams from each unit were randomised to

attend a T3 event in the Scottish Centre for Simulation in Larbert. There were three training wedges in the THISTLE Study, in March, June and November of 2014. Table 3 below illustrates this site-specific information. Some data has been approximated, to maintain unit anonymity, but to still permit the key differences between the units to be distinguished.

**Table 3: Site-Specific demographics**

	<b>Glenchester (EI)</b>	<b>Burnsbury (LS)</b>	<b>Heatherham (EI)</b>	<b>Flintfield (LS)</b>
<b>Training step of THISTLE study (month/year)</b>	Step 2 (Jun 2014)	Step 3 (Nov 2014)	Step 3 (Nov 2014)	Step 1 (Mar 2014)
<b>Live births per unit, in year 2015</b>	<4000	>4000	<4000	>4000
<b>Interval between T3 training and first THISTLE Plus visit (months)</b>	15-20	10-15	15-20	20-30

## 4.2 Descriptive summary of final dataset

Table 4 below summarises the final number of focus groups and interviews conducted per site, and the number of participants per focus group. The focus group durations across all 4 sites ranged from 17 to 76 minutes. The interview durations ranged from 14 to 59 minutes. As previously explained, although we planned to do one focus group for trainers and one for participants at each site, in some units we had to run more than 2 focus groups, but with fewer staff in each group, due to their competing work commitments.



**Table 4: Final dataset descriptive summary**

Unit	Glenchester	Burnsbury	Heatherham	Flintfield
Number of focus groups	2	3	2	3
Number of participants per focus group	4-7	2-3	7-10	2-6
Number of interviews	2	2	2	2

### 4.3 Early impressions

From the outset of the study, through my initial email and telephone communications with local collaborators from each unit, I began to develop an impression about their overall receptivity to PROMPT as a new intervention, and their degree of enthusiasm for taking part in both the THISTLE and THISTLE-Plus studies. The speed of response to email enquiries, communications with management staff, the time taken for completion of the necessary paperwork prior to visiting, and the efficiency with which focus groups were organised, all provided valuable early contextual data, about the perceived value and relevance of PROMPT, in addition to the characteristics of those individuals and teams responsible for establishing training. Although I had initially aimed to remain unprejudiced about the ease of implementation at each unit until I had visited and collected data at each site, it was important to recognise that some degree of preconception on my part was not only inevitable but also valuable and relevant to the study's aims and objectives.

## 4.4 Initiation of PROMPT

The initiation of PROMPT at each unit was assessed through a combination of approaches:

1. Observations and impressions made during the set-up phase of the study, as described above.
2. Direct inquiry during interviews and focus groups about interval between attending Train the Trainers and running their first local PROMPT day.

In these ways, I was able to distinguish two distinct patterns of initiation of PROMPT across the 4 units, which I have classified into **Early Initiators (EI)** or **Late Starters (LS)**. To illustrate the temporal differences in initiating training, Table 5 shows the approximate number of months after T3 training that each unit took to deliver their first PROMPT course, and approximately how many PROMPT days each unit had organized by the time of my first data collection visit.

**Table 5: Temporal distinctions in initiation of PROMPT**

Unit	Interval between T3 training and 1 <sup>st</sup> local PROMPT day (months)	Number of PROMPT days run before data collection visit	Classification of rate of adoption
Glenchester (EI)	<5	10-15	EI
Burnsbury (LS)	10-15	<5	LS
Heatherham (EI)	<5	5-10	EI
Flintfield (LS)	15-20	5-10	LS

### 4.4.1. Early Initiators: Glenchester and Heatherham

The term “early adopter” originates from Everett Rogers’ 1962 Diffusion of Innovation theory, which was discussed in Chapter 1. In this theory, Rogers explains how, why and at what rate innovations are disseminated. He defines five categories

of adopters; innovators, early adopters, early majority, late majority, and laggards(42).

In the PROMPT paradigm, the original developers of the PROMPT course can clearly be identified as “innovators”. Although initially appealing as a theoretical construct for understanding the diffusion and adoption of PROMPT, I judged that this theory was not wholly appropriate. Despite being relatively straightforward to identify those units that had initiated PROMPT quickly and with relative ease, the *speed* of initiation of PROMPT did not necessarily equate with full “adoption” or embedding of PROMPT in these units. Moreover, it was not possible to identify all five of Rogers’ categories of adopter during my observations, since only four units were studied.

Rogers’ originally described early adopters as having the “*highest degree of opinion leadership*”; they may act as role models for other members of a social system, and effectively “*put their stamp of approval on a new idea by adopting it*”(42). Although some units did act as role models for other units, at Glenchester, I did not feel this equated to PROMPT being completely “adopted”. Instead, I prefer to use the term “early initiator” these units, as it refers more specifically to the quicker *rate* of starting local PROMPT training, compared to other units, and considers the relative enthusiasm and receptivity for change shown by the trainers at these units. Adoption and establishment of training are more complex to assess than initiation, and less simply categorized.

Using the time interval between the THISTLE “intervention” (attending Train the Trainers event) and the date of the first local PROMPT day, I have classified Glenchester and Heatherham as EIs, as they took less than five months to set up and run their first PROMPT day.

#### **4.4.2 Late Starters: Burnsbury and Flintfield**

In Rogers’ classification of adopter category, he defines the late majority as approaching innovations cautiously and with skepticism. Laggards are defined as the

last in a group to adopt an innovation, and are typically suspicious and resistant(42). These descriptions did not seem to me to be completely appropriate terms for understanding implementation of PROMPT in different units, principally because the relatively small number of units participating in the study precluded a quantitative interpretation of majority or minority status, but also because “laggard” has derogatory connotations, and I wished to avoid any implied value judgments. Certainly, the distinctions between different categories are not rigid, and rates of initiation of PROMPT form a continuum. It is therefore easier to identify the polarized extremes. By “late starter”, I define units that had a delayed initiation of PROMPT of at least 10 months or more, for a large range of reasons which shall be explored in subsequent chapters. As illustrated in Table 5, Burnsbury and Flintfield took 10-20 months to run their first training day after exposure to the intervention.

As can also be seen from Table 5, although the LS units took longer to run their first PROMPT course compared to EIs, Flintfield had run a similar number of courses as one of the EIs (Heatherham) by the time of my visit. Although delayed in starting PROMPT, once commenced, Flintfield ran quite frequent training days but for relatively small numbers of staff. At Heatherham they trained larger numbers of staff per session. So, although the “dose” of the intervention (number of training days) appears similar between the two units, the “reach” (proportion of staff trained) differed. We were unable to obtain data from each site about the total number of maternity staff at each unit, precluding an accurate calculation of the reach of the intervention. The reasons behind these delays in initiating training will be explored in subsequent chapters, which describe the major thematic findings of this study.

#### **4.5 Introduction to major themes**

Having introduced some background characteristics the participating units, I will now briefly present the principal themes (with their corresponding chapter numbers) which I have identified through coding and thematic analysis, and which address the

study's overall objectives of identifying the major facilitators and inhibitors to implementation of PROMPT.

- **Receptivity and readiness for change (Chapter 5)**

This is the contextual setting into which PROMPT is introduced, and reflects workplace culture and evidence from observations, focus groups and interviews. Maternity units display varying degrees of organisational readiness for change, which reflect how receptive they are to the introduction of new interventions.

- **Securing financial and conceptual buy-in (Chapter 6)**

A crucial step in the implementation of any new healthcare intervention, especially those that incur a cost for that organisation, is the support of senior management. Without financial backing, training cannot be sustained, even if reliance on good will may be sufficient to get training initiated. However, managerial support will not be provided unless there is financial incentivisation to implement the intervention. For clinical staff, engagement with training is less influenced by financial considerations and more by conceptual buy-in. The new intervention must be perceived as coherent, valuable, and sufficiently different to the *status quo* to be worth investing the effort required to set it up.

- **The roles of champions and teams in establishing training (Chapter 7)**

Once there is managerial agreement to fund training, and conceptual buy-in, there needs to be collective action by clinical staff to establish and run local training programmes. This requires excellent communication and strong leadership, from PROMPT “champions”, along with an organised and cohesive team of trainers who are committed to running a regular training programme for all their maternity staff.

- **Barriers to attending training (Chapter 8)**

Many obstacles to attending training were identified. These include raising awareness of PROMPT, inequity of access to training between different professional

groups, staffing shortages, reliance on goodwill, and reluctant or avoidant behaviours of some staff to participate in training.

- **Experience and effects of training (Chapter 9)**

The experience of training is influenced by how easy it is for staff to attend training, the risks of participation (financial and professional) and their impressions of the training when they participate. These factors can both positively and negatively reinforce the perceived value of training. Although the principal objective of multi-professional obstetric emergency training is to improve outcomes for mothers and babies, the effects of PROMPT extend beyond purely clinical benefits. All units reported changes to working relationships and communication between staff, along with greater understanding of each other's roles and responsibilities. PROMPT also allows for the testing of local systems and protocols, to identify areas for improvement. These effects also help to positively reinforce the need for on-going training, helping to sustain it.

- **Strategies for sustaining and normalising training (Chapter 10)**

The above themes and findings are synthesised into strategies for the future development of PROMPT, with the aim of providing practical suggestions for how units can normalise and sustain training in the medium to long-term.

Each of these themes will be presented in detail in the following chapters.

## Chapter 5: Receptivity and Readiness for Change

As briefly outlined in the previous chapter, the first major theme arising from the qualitative analysis of the data, is that of unit receptivity and readiness for change. I shall start by defining the theoretical concepts of organisational readiness for change, and how these relate to the receptivity of each maternity unit to taking PROMPT on board. I will then describe how this understanding links into the NPT constructs of coherence and cognitive participation and explain how I have synthesised these findings into a descriptive model.

### 5.1 Organisational readiness for change: theoretical concepts

Weiner defines organisational readiness for change as a multi-level and multi-faceted construct, *“a shared team property, that is a shared psychological state in which organisational members feel committed to implementing an organisational change and confident in their collective abilities to do so”*(79). Readiness for change can be described in terms of both **change commitment** and **change efficacy**.

Weiner also recognises a distinction between organisational context and organisational readiness. An organisation may have features that create a receptive context for innovation, but this may not necessarily translate into readiness, and any commitment to change is situational and change specific.

#### 5.1.2 Change commitment – Desire versus need for training

Change commitment refers to team members' shared resolve to implement a change. In this paradigm, commitment to implement PROMPT was influenced by whether the driver for change was principally seen as a necessity or as a desirable aspiration.

At Glenchester (EI), there had already been interest in starting PROMPT before THISTLE study commenced, as illustrated in the interview excerpt below:

*“We had spoken maybe about six months before we got asked to take part in THISTLE about sending a team to the college to do the Train the Trainers day, because we were both involved in simulation training sort of separately through various other obstetric emergency courses...and I was in the process of writing a business case to see if...I could send a team and then THISTLE came along and we got sent for free [laughter] ...so I was more than happy to get us signed up straight away”*

- Interview with Lead Obstetrician for PROMPT, Glenchester (EI)

This demonstrates a clear desire to do PROMPT, thus strong change commitment.

Many clinical staff at Burnsbury (LS) identified that there was a need for a formalised training programme, to replace the more ad hoc system they had in place previously. It was thus evident that the EIs had a strong *desire* to do training, while the LSs felt more of a *need* to do training.

This distinction has been recognised by Herscovitch and Meyer, who state that commitment to implementation of an organisational change can be due to wanting to change (valuing the change), feeling they must change (they have little choice) or because they feel they ought to change (obliged to change). Furthermore, they argue that commitment to change based on wanting to change reflects the highest level of commitment(97). This was indeed the case in this study: EI units exhibited more change commitment, from the outset of the study at least, compared to the LSs.



### 5.1.3 Change efficacy

Change efficacy refers to a shared belief in members' collective capability to make the change happen. This capability in turn depends upon three determinants: task demands (what is required to effectively implement the change), resource availability (what resources are needed to implement the change), and situational factors (how the change can be implemented within the current situation). Applied to implementing PROMPT, these determinants can be described as follows:

- 1) Task demands: working out what the teams needed to do to set up training was explicit, as the tools and information about setting up local training were provided during the T3 course that each unit attended, along with the USB stick and course manuals. These demands were the same therefore for each unit.
- 2) Resource availability: resource allocation varied widely and significantly at each unit. In some units, management approval for local PROMPT training had been secured by the time that teams enrolled in THISTLE; at other units, no additional financial resources were made available to teams to set up and fund training, and staff had to organise, plan and attend training in their own time.
- 3) Situational factors: these represent the contextual background into which PROMPT was introduced. The most relevant situational factor was the history of doing training, meaning the pre-existing arrangements for local obstetric emergency training prior to PROMPT. Some units already had a team of trainers, experienced in delivering in-house training for staff (although principally only targeting midwifery staff), while other units had a more informal set-up, delivered by variable trainers, with staff attending mandatory SCOTTIE training, often at off-site regional units instead.

## 5.2 PROMPT as a solution to team-working and communication problems

In some units, previous external reviews of their maternity units had revealed issues with poor team-working and communication. At both Burnsbury (LS) and Glenchester (EI), PROMPT seemed to be the ideal solution to improving teamwork.

*“There was a visit from a team of...[external reviewers]... one of the things that they raised...was that teamwork needed to be improved...on the back of that, they said, ‘Well, this is how we’re going to implement this because PROMPT is multi-disciplinary training and, you know, having these scenarios, and that, will improve the teamwork’ and ...they thought, ‘This is the ideal answer to this recommendation that they’ve made’*

- Consultant Anaesthetist, Focus Group with Trainers, Burnsbury (LS)

*“We had quite a bit of scrutiny about our multi-disciplinary team working and that was in 2009 and we actually had the RCOG do a review of our communications and we didn’t do very well...So to do something like this, where everyone has to work together, because it’s for the greater good, has really been good and it’s something that we don’t want to get rid of”*

- Interview with Clinical Midwifery Manager, Glenchester (EI)

These units may therefore have been more receptive of change because they recognised they needed to change, and PROMPT was seen as one way of addressing the recommendations for change made by external reviewers.

## 5.3 Ease of adoption of PROMPT: examples from focus groups and interviews

As described above, the units differed in their collective capability (change efficacy) in implementing PROMPT. Some found the whole process of setting up training relatively easy, while other units struggled to start training.

The following excerpts from Glenchester illustrate the relative ease with which PROMPT was established at this unit:

*“(PROMPT) seemed quite easy to use as a course, and really everything was there, so it wasn’t as if we had to...come back and...start writing presentations, so we just obviously adapted them slightly for our own protocols, but other than that...it was easy to use, it was straightforward.”*

- Consultant Obstetrician, Glenchester (EI)

*“It was within a month. Yeah, it was a month, it was quick, and we got it up and running quickly.”*

- Midwife Trainer, Glenchester

Similarly, at the other EI unit, Heatherham, the obstetric lead for PROMPT found setting up training relatively straightforward:

*“It’s been relatively easy for a few reasons, I guess. One is that, here in [name of unit], they were already doing quite a bit of training...and so we already had quite a bit of stuff already organised; whether it be equipment or lectures, or just being used to running to scenarios. Secondly, it’s been quite easy just – I think – because I’ve had a really good team around me and especially [names of two midwives]– they’ve just been fantastic, absolutely invaluable.”*

- Consultant Obstetrician, Heatherham (EI)

Glenchester and Heatherham were already looking to change their existing training programme, and had some familiarity with what PROMPT might offer. They were therefore enthusiastic at the prospect of participating in the THISTLE Study, and easily organised multi-professional teams to attend the T3 event.

At Burnsbury and Flintfield (both LSs), there was more divided opinion amongst clinical staff and managers about what participation might entail in terms of effort and resources, and a consequential hesitancy or confusion. At Burnsbury, there was little advance notice given by the managers to clinical staff about the T3 event.

*“So, when I came for the Train the Trainers, it was me and two other midwives. It was very unfortunate. I had some clue what I was signing on for and I took my time before I said yes...but the two other midwives were told, pulled out from their labour rooms while they were working by their Team Leaders – ‘Come outside and you’re going for this training tomorrow. It’s just like SCOTTIE also. It’s really nice. Do you want to go?’ Both were excited, came...when the Train the Trainer course started, then they realised that, ‘Oh my god, we have to take this back and we are going to be trainers in our unit’, so that’s the kind of preparation they had. Basically, didn’t haven’t any time to think what they’re signing up for, what this implies to them.”*

- Interview with Consultant Obstetrician, Burnsbury (LS)

This excerpt demonstrates that some staff attending the T3 course felt unprepared, and then overwhelmed by the prospect of setting up PROMPT. Managers were sent information prior to taking part, but it seems this was not shared with the clinical staff nominated to attend T3. Lack of communication between managers and clinical staff was a recurring theme in the LS units. Feeling daunted by the task demands thus also weakened their collective change efficacy, and the sense that they were obliged to implement it, rather than feeling they wanted to do it, also lessened their change commitment, compared to the EI units.

In this way, at the EI units, there was a collective team-based drive and desire to change, displaying high levels of both change commitment and change efficacy. At the LS units however, there were individuals who felt the need or obligation to change, showing a comparatively weaker degree of change commitment. Other contextual factors may include more negative workplace safety attitude cultures,

seen in the Burnsbury SAQ scores (see Chapter 11), which may have further impeded the establishment of training and hindered their overall change efficacy.

#### **5.4 Implementation “fertility”**

Synthesising these findings further, an analogous, descriptive implementation “fertility” model can be constructed, to help illustrate and explain why some units may adopt PROMPT more readily than others.

Implementation is likely to be more successful at units that have fertile ground for new initiatives, displaying high levels of readiness for change. This “fertility” (readiness for change) is enhanced by their commitment to change – wanting to change being more of a stimulus than an obligation to change – and the efficacy with which change is introduced. Implementation fertility (and efficacy) is facilitated by practical toolkits such as manuals and documentation templates etc, but also by financial investment in training at a managerial level (which shall be discussed in more detail in the next Chapter 6). Furthermore, the “soil” is most fertile (the intervention is most likely to become established) if there is a tradition of doing similar (local, multi-professional) training already, such that a complete overhaul of the *status quo* is not required, and more subtle modifications to pre-existing training strategies are all that are necessary. Implementation fertility is boosted further by positive workplace cultures, where there is a focus on safety and team-working, with relatively high levels of job satisfaction.

Conversely, units which struggle to initiate training, are analogous to having more stony soil. Inconsistent commitment to change, coupled with change inefficiency, impede implementation fertility further. This inefficiency manifests as suboptimal use of available resources, lack of financial backing and/or a negative workplace culture, where staff rate working conditions unfavourably and describe poor relationships with management. Such units may require a fertilizer, or additional supportive measures, for training to take root and flourish.

However, unpromising starts are not necessarily indicative of future failure, and some units may experience a late bloomer effect once the initial hurdles have been overcome. Such strategies for improving implementation and overcoming obstacles will be discussed in Chapter 10.

## 5.5 Summary

There is commonality between the extent of maternity unit's readiness for change and its potential for future normalisation of that change. Units with teams of staff displaying high levels of change efficacy and change commitment, are more determined (show greater change commitment), better organised (in establishing task demands), and supported by the necessary financial support (resource availability) to facilitate implementation. Thus, they demonstrate that they understand what is involved and are coherent of what is needed - coherence representing the first core construct of NPT(98). Subcomponents of coherence include differentiation, specification and internalisation - these characterise the sense-making work staff need to do to understand a) how PROMPT differs from what has been done before, b) the specific aims, objectives, tasks and responsibilities required and c) the worth and importance of the new training, respectively. Awareness of these requirements therefore overlaps with the concept of organisational readiness and change efficacy, as previously described.

Maternity units ready for change also demonstrate the second core construct of cognitive participation, which is defined as the "relational work that people do to build and sustain a community of practice around a new technology or complex intervention"(98). Readiness for change, when interpreted through the lens of NPT, implies an understanding of the work needed by staff to re-organise themselves (enrolment – a subcomponent of coherence), to believe it is worthwhile for them to engage with the change (legitimation), and to collectively define the actions needed to sustain the training (activation). Activation, within the NPT theoretical framework, resonates with the collective capability features of change efficacy, as it demands a realisation of defined task demands and resource allocation.

In summary, this chapter has defined and outlined the features of organisational readiness for change which may facilitate the implementation of PROMPT, as characterised through a maternity unit's change commitment and change efficacy. I have also highlighted how these concepts link in with NPT constructs and developed an analogous implementation fertility model, which could be used to describe these findings in an alternative way.

## Chapter 6: Securing Financial and Conceptual Buy-in

In this chapter I describe how staff in different professional subgroups engaged with PROMPT as a new concept and set of practices. One of the major obstacles to the implementation of PROMPT training was for individual maternity units to secure financial support to fund local training events. I will also discuss the finding of an unexpected unit level variation in access to funding; for some teams and individuals, it was relatively straightforward to access local funding whereas others struggled, at least initially, to convince unit managers to support PROMPT training, even though this was a national initiative, and all units were part of a single national health service.

The findings presented in this chapter resonate strongly with some of core constructs (and subcomponents) of NPT. I have identified these throughout the chapter, where they were applicable and relevant to my findings, at different points during the implementation journey, using NPT as an explanatory framework.

### 6.1 Normalisation Process Theory core constructs and subcomponents

The authors of NPT describe it as “*a sociological toolkit that (we) can use to understand the dynamics of implementing, embedding, and integrating some new technology or complex intervention*” (98). Each core construct has been sub-divided into four further components. Regarding this chapter’s theme of conceptual and financial buy-in, the most relevant constructs are coherence, cognitive participation and collective action; their four sub-components, are listed below in Fig 5.



**Figure 5: Subcomponents of Normalisation Process Theory core constructs**

<b>Coherence: sense-making work to understand the intervention</b>	
	differentiation communal specification individual specification internalisation
<b>Cognitive participation: relational work to build a community of practice around the intervention</b>	
	initiation enrolment legitimation activation
<b>Collective action: operational work to enact an intervention</b>	
	interactional workability relational integration skill set workability contextual integration

These constructs provide a useful analytical lens to gain a deeper and broader understanding of the issues underpinning effective implementation of PROMPT.

## 6.2 “Selling” PROMPT: Coherence

Central to NPT is coherence, or sense-making. To engage with a complex intervention like training, it needs to make sense to all clinical and non-clinical actors in the system including those who will be funding it, those tasked with its implementation, as well as participants. Staff must understand what will be required of them for it to be implemented, which requires comprehension, individual commitment and communal engagement. Overall, midwives and doctors who had attended the T3 event were almost universally convinced of its value. This internal recognition that PROMPT was likely to be worthwhile represents the NPT construct of internalisation – understanding the value, benefits and importance of a set of practices. However, there was a wide variation in how coherent (and how cognitively engaged) managers were at different maternity units. In some units, that

“internalisation” of the potential worth and benefits of training took longer to achieve at a management level.

One of the main drivers for team coherence appears to have been the clinical justification for PROMPT, particularly the associated improvements in clinical outcomes reported by previous centres. This concept was initially presented at the T3 event. These events typically include an introduction that covers the rationale and evidence base for PROMPT as a clinically effective programme, that has been associated with improved neonatal and maternal outcomes, as well as related reductions in litigation costs at unit level (as described in Chapter 1). Prospective trainers differentiated (another NPT component of coherence) the PROMPT style of training from their existing training programmes (either regional SCOTTIE training, or some relatively informal and ad hoc in-house training programme).

There were several key features of PROMPT that distinguished it from SCOTTIE (and alternative packages) including it being multi-professional, rather than being aimed predominantly at midwives, and being held locally in clinical areas, not simulation training rooms or off-site. These two features have previously been reported to be important components of effective training(99), high reliability organising(100) (101) and also safe units(102) . This differentiation was therefore an essential part of the justification for PROMPT and its potential advantages.

Examples of this differentiation are demonstrated in the following excerpts.

*“One of the biggest differences was actually geographically, we always used to hold our training for the midwives ...in [local training centre] ...so there’s nothing clinical down there. It’s just, just classrooms, basically. So, the biggest difference was actually coming up here into the parenthood room and then for the skills stations using one of the labour rooms”*

- Interview with Practice Development Midwife, Flintfield (LS)

Staff also noticed differences in the content and remit of PROMPT compared to what they had been doing previously, as shown below.

*“I see that SCOTTIE is a bit different. It’s taking the staff outwith their environment and...it’s probably even more basic and it’s really just to help the staff, either staff that are struggling or a very junior level, to help them actually with the...knowledge. But whereas PROMPT, to me, is about how the unit works and how it’s about obviously situational awareness and team working”*

- Interview with Lead Obstetrician for PROMPT, Flintfield

*“PROMPT has then added in the extra things that we didn’t have in [former training programme], so you have your anaesthetic emergencies, you’ve got your BLS/ALS [Basic and Advanced Life Support]. So those are new components for us.”*

- Focus Group with Trainers, Heatherham (EI)

It also seemed important that attendees understood how PROMPT could help units with relevant financial drivers. To achieve the level of coherence required for effective local implementation, understanding of the financial as well as technical and clinical advantages of PROMPT over existing training packages is necessary. The implementation of PROMPT therefore relies on these trainers understanding what they have been shown, and sharing it with their managers, in a way that similarly convinces them of PROMPT’s novelty, relevance and value.

*“...it was kind of a no-brainer to get involved...because it just makes sense...You can’t really argue with the data that you guys have presented us, and also...the sort of rationale behind it, as the logic of it.*

- Interview with Consultant Obstetrician, Heatherham (EI)

### 6.3 Inspiring others to do PROMPT – Cognitive participation

A second key part of normalisation is cognitive participation, and this appears to be particularly relevant for inspiring others to deliver PROMPT training.

An emotional, and possibly moral connection, with understanding that training has helped to reduce the numbers of babies being born with hypoxic brain injuries, along with a sense of belonging to a wider national and international PROMPT community of practice, seem important for cognitive participation. This resonates most with the legitimisation component of cognitive participation, in that *“participants believe it is right for them to be involved, and that they can make a valid contribution to it”* (98). It also represents the initiation component of coherence whereby participants understand *“the value, benefits and importance of a set of practices”* (98).

Emotive arguments for doing PROMPT seemed to help convince clinicians, but perhaps not always managers. At one of the LS units, Burnsbury, there was initial difficulty getting management to fund the cost of releasing staff to attend training, and some discussion about midwives attending on their days off. For those clinicians who had already been convinced of the potential value of PROMPT, this relative lack of coherence from managers seemed counter-intuitive, and created some frustration, as shown in the quote below:

*“If everybody’s going to be required to do it [training], which I think is a good thing... it’s a bit sort of short-sighted to think that actually, the cost of that, is that much, when you think of what a litigation cost would be for one damaged baby... to me, it just doesn’t make sense, but I’m not sure how you persuade somebody of that”*

- Consultant Anaesthetist, Focus Group with Trainers, Burnsbury (LS)

I observed that trainers from both LS and EI units found the T3 event training inspiring.

*Facilitator (KC): What were your impressions then after you'd done the Train the Trainers event?*

*Focus group member: 'Bring it on!' weren't we?*

*Focus group member: Yes.*

*Focus group member: We were so enthused.*

- Trainers' Focus Group, Heatherham (EI)

*"I found the trainers particularly good that came up from Bristol. I mean they just really did make an impact...they're quite inspiring...nothing comes across as well as [name of one of the PMF founders] telling it to you, [laughter], you know...He sells it and he's a really good PR guy. And he really understands the nub of the technical questions, that sort of thing the clinical director's going to be asking, the person with the money strings is going to be asking"*

- Interview with Practice Development Midwife, Flintfield (LS)

These excerpts demonstrate that prospective trainers are often inspired and enthused to implement PROMPT effectively. This could be interpreted as a reflection of individual and communal appraisal, which are NPT subcomponents of reflexive monitoring; these refer to how people evaluate and appraise a new set of practices(98). Some attributed this inspiration to the energy and style of delivery of the staff from the PROMPT Maternity Foundation.

*"You've obviously got very engaging leads...I think, the charisma does help! [laughter]"*

Interview with Lead Obstetrician for PROMPT, Flintfield

A dynamic and inclusive delivery was perceived as important, as was humour, to generate the enthusiasm required of future PROMPT trainers, as well as a deeper understanding and justification of PROMPT.

## 6.4 Buying into PROMPT

Having been introduced to PROMPT ideology, the next challenge was to secure buy-in from their other colleagues, in their own maternity unit. This required cognitive participation from other clinicians and managers, ideally securing funding for training; these steps were facilitated by good communication and readiness for change.

### 6.4.1 Cognitive participation

Once the PROMPT “sales pitch” was delivered by the central PMF training team, and the new trainers bought in to the concepts, the next stage was to secure unit level management buy-in, which is a form of building communal engagement, recognised in NPT. This is referred to as *“the work of buying in to the strategy is not simply about individual commitment, but is about building communal engagement”* (98).

This is essential to mobilising the financial resources, including time commitments, required for local PROMPT implementation.

One limitation identified during the focus groups and interviews, was the restriction in numbers to only 4 trainers who could attend the T3 event. Some trainers asserted that it might have been easier to convince their managers to support training if they too had also been able to attend. In NPT terms, this non-involvement of key stakeholders (whether intentional or not) could be seen as a lack of communal engagement, which then resulted in less communal buy-in.

*“[The Lead Obstetrician for PROMPT] was very, very enthusiastic about it and I was very enthusiastic and [another midwife trainer] was, and we all came back quite inspired and wanting to do it all and ready to go. And then it, it took us probably nearly eight months to actually get the first PROMPT course up and running. We, we had a lot of blocking. We had to really try and sell it to the managers. I think, looking back at it now, it would have been far better had the people that make the decisions about, you know, the ultimate decisions about what training is delivered in this unit and who basically hold the money-strings, if they had been incorporated right from the word go to*

*have come on that training and have the same level of, of being inspired that we had.”*

- Interview with Practice Development Midwife, Flintfield (LS)

This quote reflects problems with both initiation and enrolment at Flintfield, both subcomponents of cognitive participation. Initiation is explained as follows: *“the work of setting up a clinical service is often delegated to a small group of managers and professionals who are charged with the work of setting up systems, procedures, and protocols and engaging with others to make things happen”*(98). The clinicians at LS units tasked with setting up PROMPT were unable to fully engage their manager colleagues. Enrolment, or *“the work of buying in to the strategy is not simply about individual commitment but is about building communal engagement”*, was less evident at these units too, as although individual midwives and doctors were committed to starting PROMPT, they could not initially command the support of others.

#### **6.4.2 Funding for PROMPT**

The wider THISTLE Study(52) provided the funding for multi-professional teams to attend the initial T3 event in three training steps, as explained in earlier chapters. However, no additional funding was provided for local unit-level implementation, which in practice is not insignificant(103) even though national training recommendations rarely come with dedicated implementation funding(104). This is particularly an issue in Scotland, which does not have an equivalent to the English Maternity Incentive Scheme(105). This meant that there was an expectation for local management support for the project, to agree to roll-out training within their existing financial budget. This was challenging in a time of significant financial austerity for the NHS. Earlier engagement of local managers to navigate NHS funding streams and drivers would have been extremely helpful.

### 6.4.3 Receptivity and communication

Furthermore, on their return from the T3 course, the core trainers needed to provide their (sometimes sceptical) colleagues with information about PROMPT that distinguished it from their pre-existing training arrangements.

*“So, we’re trying to answer the questions second-hand. And that’s always difficult because you don’t own, you don’t have the same passion for the product, for the training as, as the person that came up with it in the first place. So, you’re doing your best to sell it to people and to under – and you’re still trying to get it like sorted in your own head at the same time”*

- Interview with Practice Development Midwife, Flintfield

Implementation at least partly depends on both how receptive units are to change, and how effectively trainers can understand, communicate and justify these changes to others. EI units were able to do this more effectively than LSs. As discussed in Chapter 5, they displayed varying degrees of readiness for change, in terms of both their change commitment and change efficacy(79, 97).

Core trainers who attended T3 needed to effectively communicate what they had learnt and understood about PROMPT to their other colleagues. This reflects the NPT concept of interactional workability (within the “collective action” construct). This is defined as *“the interactional work that people do with each other...when they seek to operationalize them in everyday settings”*(98). Some people may be naturally better communicators than others and may be able to retain and disseminate information confidently, while others may need additional tools and support from the PMF to do so. Certainly, those teams, more typically at the early starter units, that had already worked together as multi-professional trainers before PROMPT, seemed more confident in their abilities to set up training. Having strong leadership, and good organisational skills are also important factors, and these were less evident at the LS units. These findings will be discussed further in Chapter 7. The additional supportive strategies that might be offered to units that face more initial obstacles will be discussed in Chapter 10.



## 6.5 The role of managers

As discussed, one of the crucial relationships required for the successful local set-up of PROMPT was that between clinicians and their unit level managers.

Managers act as gatekeepers to funding for PROMPT, and in the NPT framework, they therefore play a pivotal role in differentiation and internalisation stages of coherence, and at the initiation, enrolment, and legitimation stages of cognitive participation. PROMPT was implemented earliest in those (EI) units where managers understood how PROMPT differed to existing training, recognised its potential value early and communicated well with clinicians. In Glenchester, for example, the managers had already bought in to PROMPT before teams went to the T3 event. They had heard of PROMPT and agreed to provide funding to release staff from clinical duties to both attend training and provide faculty for the training. They had also recognised that PROMPT might allow them to improve some teamworking and communication issues that had been identified in external reviews (see Section 5.2). All these behaviours demonstrated their engagement (internalisation) and approval (legitimation) of the intervention, as illustrated in the quote below.

*Participant 1: "I think with management as well, we were released to do the training, and staff are encouraged to come on the training as well.*

*Participant 2: It was [name of Head of Midwifery] initially who said she'd heard about it beforehand...and agreed to buy all these manuals! And that was kind of a first for us, because we don't usually hear positive stuff like that from management. We don't hear it and don't feel it that they're giving us good nods towards education. To us this is really important [...] and she also gave us money for those two months"*

- Trainers' Focus Group, Heatherham (EI)

The above excerpts also illustrate that despite managerial support for PROMPT at this EI unit, relationships between managers and clinical staff prior to PROMPT were not always collaborative (in that the trainers felt it was unusual that they were

positive about education). However, in this unit, PROMPT seems to have been endorsed and legitimised (again, representing an NPT construct) as an intervention by the managers from the outset, and they had had some prior awareness of PROMPT. This facilitated the training team to commence local PROMPT training very quickly.

However, in direct contrast, staff at the LS units described how they encountered resistance, and how the physical environment and lack of proximity of managers to the clinical areas and staff impeded communication and ultimately, the initiation of the first local PROMPT training event.

*Interviewee: There's a lot of opposition, you know – kind of obstruction from managerial level but we...agreed amongst ourselves that we are going to take this off the ground and see how it goes, because we thought it's a good thing for the Unit.*

*Interviewer (KC): You said 'obstruction from managers', was that managers at a medical level or a midwifery level?*

*Interviewee: Midwifery... [at a] medical level, no obstruction; like, although they didn't give me any [extra] time.*

Interview with Consultant Obstetrician, Burnsbury (LS)

It was difficult to tease out further exactly what obstruction was experienced, as I could sense that the interviewees sometimes felt uncomfortable talking negatively about their colleagues, despite reassurances from the outset that all interviews would be anonymised, and not fed back to their managers. As a qualitative researcher, I had to recognise that as much as I would have like to probe further, I needed to remain sensitive to the verbal and non-verbal responses (hesitations, vagueness of explanations) of the interviewees, and not make them feel more uneasy. This hesitation to expand further was also noted in the interview with the Labour Ward Manager midwife from the same unit:

*Interviewee: So, my first impressions were, 'Oh, let's go!', you know, 'Let's get it started. Why are we...? What are we waiting for?' so erm...*

*Interviewer (KC): What were they waiting for, do you think? Someone like you or...? [laughter]*

*Interviewee: I don't know. I don't know. I think – I don't know really. I don't know...*

Interview with Labour Ward Manager, Burnsbury (LS)

Similarly, at Flintfield (LS), the lead obstetrician also reported difficulties with getting managers on board with training initially.

*"Hmm, it was very challenging at the beginning. I think it was because initially our service managers didn't see the need for it...I think there is an issue with the management being on a different floor, that we don't tend to see so much of them. There's not so much visibility on a leadership level. They are kind of a bit removed in their glass houses"*

Interview with Consultant Obstetrician Lead for PROMPT, Flintfield

This feeling of managers being distant or distinct from clinical staff was echoed by multi-professional participants in one of the focus groups:

*Interviewer (KC): Do you feel that the managers have a visible kind of presence in the clinical areas?*

*Participant 1: I think [name of Labour Ward Manager], yes but I think above that, no.*

*Participant 2: No, our General Manager, I don't think, has ever been to Labour Suite.*

- Participant Focus Group, Burnsbury (LS)

These observations suggest that the physical absence of managers in the clinical environment also created a division within the department, which may have compounded suboptimal communication and working relationships between clinicians and managers, making it more difficult to get new initiatives off the ground.

One unit tackled the issue of lack of managerial support by eventually choosing to run the course themselves using their own time and resources. This is another example of collective action, the third NPT construct. The midwives and doctors who wanted to start training showed interactional workability, by collectively getting training started despite suboptimal interactional workability with their managers; they effectively managed to initiate training through use of their own personal resources instead, which represents the subcomponent of contextual integration *“the resource work – managing a set of practices through the allocation of different kinds of resources”*(98).

*“We relied on [good-will] to get it started and my hope was, was that we get it up and running and we do the first one. I knew that it would be successful because I knew the staff would enjoy it... and we were hoping from there, we then have a case, you know like, to have it resourced. So that was kind of how we approached it”*

- Interview with Labour Ward Manager, Burnsbury (LS)

This shows that the midwife had confidence that staff would value PROMPT, and that they could deliver it effectively. At this LS unit, investing personal resources and effort in unpaid time was seen as a necessary short-term sacrifice, and the sort of unpaid ‘pump-priming’ required to getting training off the ground. Once the trainers could demonstrate PROMPT as enjoyable and valuable, they hoped that their managers would then also be convinced of its worth, and then support it financially.

This aspiration in fact became the reality. Personal correspondence with the obstetrician at this unit one year after the end of data collection for the study, revealed that the managers had eventually come on board with PROMPT:

*“Just to let you know PROMPT is taken up so well in our unit now and management is fully supportive”*

- Email correspondence with Consultant Obstetrician, Burnsbury (LS)

Thus, the trainers were able to secure conceptual and financial buy-in in the long-term, by deciding to run the course independently and without initial financial investment, to demonstrate how it could be successful. Ultimately, the training itself became a strategy for engaging managers and securing their support. So, the requirement for PROMPT training appears to have catalysed better relationships between managers and clinical teams in some units. This has previously been reported after similar training interventions where clinical attitudes towards managers improved post PROMPT(64) (37) and appears to be a feature of ‘safe’ maternity units(102).

## 6.6 Summary

In this chapter, I have presented the facilitating features of implementation that can help achieve conceptual buy-in of PROMPT, for those tasked with setting it up (clinical staff), and/or funding it (managers). I have described how some of the core NPT constructs relate to the coherence of PROMPT as a complex intervention with the clinical trainers, and how they relate to the engagement of managers with financial buy-in of PROMPT.

Having a dynamic and inspiring faculty who deliver the T3 event, (and enthusiastic trainers delivering local training), ensures the potential health and cost benefits of adopting PROMPT are explained to all, using evidence to demonstrate its effectiveness. These teams need to individually and collectively understand how

PROMPT differs from what they have been doing previously and agree on their roles going forward to deliver it. They may then need to effectively communicate this information and the worth of new training to their managers, to ensure they will agree to fund the training. Some units will require additional supportive measures to achieve this, which shall be discussed further in Chapter 10: Sustaining and normalising training.

Overall, PROMPT can make sense, and may have a relatively straightforward path to implementation, if teams get on board early and organise themselves efficiently. However, in some LS units, while PROMPT might be a coherent and sensible proposal to those clinicians who attend the T3 event, some value may be lost in translation, or diluted, to managers back at the maternity unit, who are less engaged, possibly because of not having attended the T3 event. Despite this, some units were able to launch training with relatively little management support; as PROMPT became established and the positive effects and feedback from staff were becoming evident, the value of the intervention became more apparent to managers. Subsequently, the management staff grew more convinced of its worth, and then became supportive. In this way, while lack of management support can be a significant obstacle to training implementation, PROMPT as an intervention itself can also be used to catalyse more functional professional relationships between clinicians and management in the longer term.

## Chapter 7: The Roles of Champions and Teams in Establishing Training

In previous chapters I have explained how the implementation of PROMPT, as a complex intervention, requires both coherence and cognitive participation (from managers and clinicians) to secure financial and conceptual buy-in, which are the first two core constructs of Normalisation Process Theory (NPT)(98). I shall now explain the relevance of the third and fourth NPT core constructs, collective action and reflexive monitoring, in the PROMPT implementation paradigm, using evidence from observations, focus groups and interviews. Collective action requires teamwork, leadership and communication skills in the clinical training staff who take on the responsibilities of delivering the training. I will provide examples of the workability characteristics of these training teams, and illustrate evidence of reflexive monitoring by trainers, after PROMPT was launched in their units.

### 7.1 Identifying a champion and developing multi-disciplinary partnerships

The participants that attended the T3 day, at the intervention stage of the THISTLE study, usually comprised four clinical members of staff – two midwives, an obstetrician and an anaesthetist. Within this team were one or two self-appointed leaders. This role was not always overtly stated, but there seemed to be local consensus at each unit as to whom was “in charge” of setting up training. Typically, this was a consultant obstetrician and/or a senior labour ward midwife.

*“Don’t get me wrong, I wasn’t, don’t want to sound like I was the only one kind of doing anything, because that’s not the case at all, but I suppose I sort of did take a lead and I think the rest of the group felt that I should do that and that’s fine”*

- Interview with Consultant Obstetrician, Glenchester (EI)

Consultant Anaesthetist Trainer: *She [name of Labour Ward Manager] has been an incredible driving force...she's quite new to the Unit, isn't she?*

Consultant Obstetrician Trainer: *Yeah, she's great*

Consultant Anaesthetist Trainer: *And she, she's fantastic and...she really wants to...try and improve things and she...really has got... a 'can do' attitude, so she has made things happen really [laughter]. I think that's the case"*

- Focus Group with Trainers, Burnsbury (LS)

Interestingly, the champion was not always one of the original staff that had attended the T3 event. At Burnsbury (LS), the Labour Ward Manager referred to in the above excerpt had only started working at the hospital after the THISTLE training had taken place. No training had been started locally prior to her arrival in the unit, but she saw PROMPT as a necessary and valuable package and took it upon herself to start organising training. Possibly the addition of a new senior member of staff provided "fresh eyes" to the potential value of training, which resonates with the discussion in previous chapters about the necessary NPT construct of coherence of complex interventions.

*"So, when I arrived...people had been on the PROMPT Instructor training and...it was in...discussion, 'Oh, we would like to get it up and running. We want to get it started' but there was no kind of push behind that and so I think I provided the push because we needed...for the Labour Ward staff...practical, hands-on type of training because...there was none"*

- Labour Ward Manager, Burnsbury (LS)

This midwife, along with the help of a consultant obstetrician who had attended the THISTLE training, then jointly set-up and organised their first PROMPT day.



*“Dr. [name of obstetrician] has been really...the same as me...she’s been pushing it along from the medical perspective and I’ve been pushing it from the midwifery perspective”*

These multidisciplinary partnerships worked well in all units, perhaps because they embodied the ethos of multi-disciplinary team working promoted by PROMPT, but also because it appears necessary for input from a member of each multi-professional group to create a co-ordinated approach to establishing training. These champions become advocates for PROMPT, generating interest and spreading the word about the new training amongst their colleagues, and recruiting participants from within their own professional group to attend training.

### **7.1.2 Inequities accessing training**

One obstacle some staff faced was being released from clinical duties to attend training. NHS clinical staff are entitled to several days of paid study leave per year, but midwives are not entitled to as many days study leave as doctors (see Chapter 8 for more details about barriers to attending training). Multi-disciplinary partnerships of champions provide inherent understanding of the unique challenges faced by each professional group to attend training, which is obviously advantageous when those obstacles needed to be overcome.

*Interviewer (KC): How have you tried to try and encourage implementing PROMPT here? What things have you had to do to get it off the ground?*

*Obstetrician: One was support from [name of Labour Ward Manager] who kind of let the midwifery staff go, making their rota... possible to allow them to come, rather than using their own time. Although some are using their time, but most of them are kind of released, so she took an initiative from that side and I kind of made it clear to the medical side of things, saying that, you know, ‘This is an important thing for the FY2s, GPs – all levels of trainees, including the Consultant, to attend this training in Obstetric Emergency’*

- Lead Obstetrician, Burnsbury (LS)

With reference to NPT, multi-professional leadership demonstrates one of the subcomponents of collective action – that of interactional workability. This is defined as the *“interactional work that people do with each other, with artefacts, and with other elements of a set of practices, when they seek to operationalize them in everyday settings”*(98). Midwifery and obstetric champions for PROMPT identified together what was needed to be done to launch training, by overcoming attendance issues within their own professional subgroup. The excerpt above refers to the use of initiative in tackling these issues, and this represents a form of interactional workability.

## **7.2 Core “workability” characteristics of training teams**

In addition to the contributions of the leaders or champions, there were several core characteristics identified collectively in the training teams that appeared to facilitate the establishment of training. These were observed to varying degrees amongst the four units, with the more effective teams displaying high levels of all characteristics, and the less organised teams showing fewer of the features, or all features but to a lesser extent. These characteristics included enthusiasm, altruism and pride, perseverance and determination, good communication skills, teamwork, previous experience of delivering training, use of initiative and evidence of future planning. Extrapolating from NPT, these could be considered as “workability characteristics” – features of teams that make them more able to operationalize a new complex intervention, like PROMPT. These characteristics are further described below.

### **7.2.1 Enthusiasm**

This was most evident at those EI units who were ready to embrace PROMPT from the outset of the THISTLE study, although it was also found at the LS units to a lesser degree. Attending the T3 day seemed to galvanise some teams into action.

*Anaesthetist Trainer: "We were just really fortunate we had the enthusiasm from the midwifery, the obstetric and the anaesthetic staff all coming together and we're all up in the same place, there wasn't really any wrangle about 'Should we do it? Shouldn't we do it?' We were just 'We're gonna do this', there was a great enthusiasm from everybody to get it going"*

- Focus Group with Trainers, Glenchester (EI)

Even at the LS units, the T3 day seemed an important event for creating an appetite for new training.

*Interviewer (KC): What were your impressions of the training at Larbert when you'd done the Train the Trainers' course?*

*Practice Development Midwife: "I found it very refreshing. I found it quite... I suppose it sort of reinvigorated my sort of understanding and, and, you know, wanting to train a wee bit"*

- Interview with Practice Development Midwife trainer, Flintfield (LS)

This enthusiasm was shared by the participants who attended training themselves, which created a symbiotic relationship, whereby staff enjoyed attending training and this positively reinforced the trainers, encouraging them to continue.

*"Our feedback has been really good, and I think, speaking for myself anyway as a facilitator, to hear the feedback was really nice, because all of us here have put a lot of work into it, so to be able to hear that we're making a difference and that the people who attended enjoyed it, then that means a lot"*

*"Yes, it does roll on our enthusiasm. If people weren't as enthusiastic, they wouldn't go to another lecture, then it wouldn't happen"*

- Excerpts from Focus Group with Trainers, Heatherham (EI)

Conversely, in the LS units, there was less apparent enthusiasm from the staff, and more wariness and apprehension, possibly even a sense of defeatism, at the prospect of introducing a new training programme.

Practice Development Midwife (PDM): *I think it threw up things like when we first read the [THISTLE Study] document it said about training all your staff in a year and I mean initially that was a big red flag to us and we went, 'Err no. No way can we do that'...I think it sort of put a bit of a negative connotation to everything to – before we'd even gone to the training...and I think because it went to one of the managers first of all...and I think that really put a big red flag into her mind about the PROMPT training right from the word go.*

Interviewer: *So, did that make it difficult to get a team together to send to Larbert?*

PDM: *Yes. I think because of that we just thought, 'Well, actually, there's no way – what's the point of going to the training because we can't deliver that?' We knew just from, just from the pressures within the service really, that achieving that target was...not going – ever going to be achieved. So, I think we did probably dither around about it to start off with"*

- Interview with Practice Development Midwife, Flintfield (LS)

Despite much initial enthusiasm at Glenchester (EI), there was also anticipation that this might wane over time. Some trainers expressed concern about sustaining interest from their colleagues in continuing to facilitate PROMPT courses.

*"From a consultant body everyone was exceptionally enthusiastic about it and no, 'that was great, well done... for you know getting that all organised' and then as time was going on not necessarily so enthusiastic about putting aside the time to come and actually do it"*

- Interview with Lead Obstetrician, Glenchester (EI)

*"I think we've got a core group of champions for it and as long as we maintain our enthusiasm for it, hopefully we can keep that going for everyone"*

*else. We'll see how next year goes, it's that difficult second album isn't it; we'll see how it works in terms of people coming next year....and having the green light to run it..."*

- Consultant Anaesthetist, Focus Group with Trainers, Glenchester

Thus, enthusiasm appears to facilitate the implementation of training, and that the novelty of a new training programme generated a lot of initial energy about getting involved with PROMPT. There was a perception that conversely, over time, a waning of enthusiasm could hinder the future success of training.

### **7.2.2 Altruism and pride**

During the site visits, I observed that most teams were modest but proud about what they had achieved regarding setting up training, despite the challenges, and were passionate to share their positive experiences with me. They acknowledged that to achieve their successes, they had sacrificed considerable amounts of personal time to organise the course, demonstrating altruism and commitment, as discussed in the previous chapter on organisational readiness for change.

*"We wanted the training – we wanted to start it and so we did that. We prepped it, we started it and we, you know like, we did it all on our own time – medical staff, the instructors – everybody that day was here in their own time"*

-Interview with Labour ward Manager, Burnsbury (LS)

*Trainer: The success is absolutely dependant on the faculty, absolutely, it wouldn't work at all if we didn't all do what we do and give our own time. We do get allocated for the day, but it's all the work.*

- Focus Group with Trainers, Heatherham (EI)

*"I still really enjoy it and...I just feel that it's something that I've wanted for so long and it's actually come to fruition that, that – seeing the Unit change.*

*We've still got – we've got our problems as a Unit, so don't get me wrong, but seeing it, just for one day, just working like that is just – it's great..."*

- Interview with Midwifery Manager, Glenchester (EI)

Drive, determination and altruism therefore seem to be important workability characteristics – doing something that is recognised to be valuable for the greater good of others, can help motivate trainers to actually plan and deliver training. Having pride in what has been achieved involves some reflexive monitoring also – the fourth NPT construct. Being proud of setting up PROMPT represents both an individual and collective appraisal – two of the subcomponents constructs of reflexive monitoring. These refer to participants working both together to evaluate the worth of a set of practices, and *“experientially as individuals to appraise its effects on them and the contexts in which they are set”*(98).

### **7.2.3 Perseverance**

Even in units with high levels of enthusiasm for PROMPT, there was acknowledgement that keeping PROMPT going after the initial set-up required determination, effort and persistence, conceptualised as perseverance - particularly with on-going recruitment of staff to deliver the training, and with getting all staff to attend.

*“I started off by being very enthusiastic and encouraging and just saying come along, I then went through a tactic of just nagging and sending emails constantly”*

- Lead Obstetrician, Glenchester (EI)

*“Well, I suppose, everything takes effort. This takes effort. It takes you keeping your finger on the pulse. It takes you being – thinking and being creative and thinking outside the box and not getting sucked into, ‘This is how we do it’ “*

- Clinical Midwifery Manager, Glenchester

*“I think it’s just rallying the troops. You know, at a stage at the beginning of the year I sat and did the whole proforma of who has attended, who needs to attend, who’s attending next. I emailed the heads of department saying, ‘Are you aware that these people haven’t attended from your department?’ and that’s ...helped me then be able to recruit”*

-Midwife trainer, Heatherham (EI)

In the LS units, this perseverance was even more important, as it was required from the outset to overcome the initial obstacles they faced in getting their managers to agree to training.

*“[The name of Consultant Obstetrician] is very forceful when she wants something, and she doesn’t say no. And I, I think really her drive and probably my own drive has been the only reason that we’ve actually ended up with this because we eventually got to a point where I said, ‘Well, I organise the training anyway so let’s just do this.’”*

- Interview with Practice Development Midwife, Flintfield (LS)

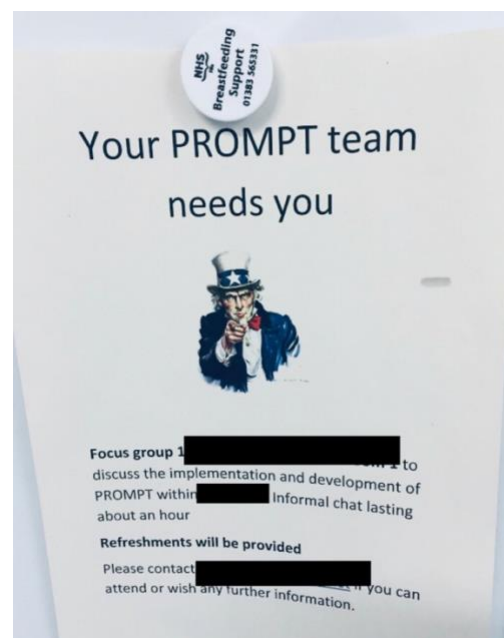
Such “rallying of troops” demonstrates leadership and championing again, employing a targeted approach to driving training through the maternity unit - the very operational work underpinning the NPT construct of collective action.

#### **7.2.4 Communication and organisational skills**

At the core of the most effective training teams were individuals who displayed effective communication and organisational skills. This was evident from the first point of contact with the EI units. There were swift responses to email queries from the local collaborators, creating minimal delays to planning site visits. These impressions were reinforced during my visits, when I learned more about how the

teams had organised themselves, and the strategies they had used to spread awareness about PROMPT within their units. For example, at Heatherham (E1), the team created a PROMPT noticeboard. They designed a poster specifically to recruit staff for the focus groups for my data collection visit (see Figure 8, below). This illustrated excellent communication and organisational skills, initiative, and strong commitment to being involved in PROMPT and its research. As a result of this, we had the largest number of staff in one focus group at this unit (eleven), compared to smaller numbers (two) at some of the focus groups in the LS units.

**Figure 6: Recruitment poster to focus group, Heatherham**



*"I think it has to be said, though, that [names of two of the trainers] are very organised. It's been kept that it's only the two that do the organising and all the emailing and getting all the candidates and doing all the print-out, so we just have to turn up, don't we?"*

- Trainer, Focus Group Heatherham

*"I've got all the emails I've got to manage and reply and make sure I write down who... and also because people who...book them in August are much*



*more likely to cancel, whereas if you book two months beforehand, rather than six months beforehand, they will book and they will attend”*

- Midwifery Sister, Heatherham

The above quote illustrates that the trainers (in the more effective teams) understood that the PROMPT message required dissemination amongst their staff, to encourage them to attend training, along with reminders and relatively short booking timeframes, to ensure people did not forget that they had registered to attend. They recognised the need to convey what differentiated PROMPT from training they had done before, and what made it worthwhile. This again links into the importance of coherence, as an NPT construct, in embedding a new complex intervention.

*“We had to do a little publicising and educating and making people aware what was PROMPT and what was different about it to other courses”*

- Focus Group with Trainers, Glenchester (EI)

Communication and organisational skills are therefore clearly important interactional workability characteristics, part of NPT’s core construct of collective action.

### **7.2.5 Teamwork and planning**

Teamwork is one of the core tenets of PROMPT training, and throughout the practical demonstration course, and within the course handbooks, there are repeated references to the importance of multi-professional teamwork. It seems to follow suit that the units that found it easiest to set-up training, displayed high levels of teamwork and planning, while the LSs showed variable degrees of co-operation. The EI units arranged team meetings soon after the T3 day, whereas there was a less structured approach in the LSs.

Interviewer: *“And how soon after that Train the Trainers event did you meet up and plan?”*

Trainer: *“It was within a month. Yeah, it was a month, it was quick and we got it up and running quickly”*

-Focus Group Trainers, Glenchester (EI)

*“Things are done at the last minute. And it was like, ‘Oh, everything will work. Fine.’ So, we never actually had a planning meeting...I would quite like for our faculty to meet and say, ‘Let’s all just all take responsibility for one of the lectures. Let’s – you modify it.’ And so, it’s been a bit chaotic”*

Interviewer: *“So how many planning meetings did you have before you managed to get your first PROMPT day off the ground?”*

Trainer 1: *“I didn’t have any.”*

Trainer 2: *“I don’t think I’m involved in those. I think [names of lead obstetrician and midwifery manager] are involved in doing the meetings and things like that”*

- Focus Group with Trainers, Flintfield (LS)

This lack of planning and preparation seemed to be the principal reason why training took so much longer to initiate and establish at Flintfield. In essence, there was no proper teamwork involved, and the onus fell onto one or two individuals, not necessarily in a co-ordinated manner, to put some form of training package together, which they recognised as not being ideal. Other trainers had made suggestions for how to improve the planning and preparation, but the lack of overall leadership meant these suggestions were never acted upon. This suggests that skillset workability, (*“the allocation work that underpins the division of labour that is built up around a set of practices as they are operationalized”*(98)) was limited here.

*“If we know who’s going to come, we know who’s going to do what, and then who’s going to give the lecture and who’s going to help with the stations. If we know that beforehand, that would be really good. And you can also add on your own experience and prepare better for the lecture”*

-Obstetrician, Focus group with Trainers, Flintfield (LS)

*“I would have liked just to have had a little bit more, ‘This is our team. Let’s meet. Let’s sit down.’ I thought actually we could have spent a day planning and running it, running scenarios but we didn’t. We just launched straight in and did it, which, yeah, brought up some, some concerns and kind of anxieties I didn’t think I had before...”*

Interviewer: *What particular anxieties or concerns?*

*“No, I think just about planning. Just about planning”*

-Interview with Lead Obstetrician, Flintfield

This relative lack of organisation and preparation was further evident when I enquired about the use of the course manuals and trainers’ handbooks, that were provided as training resources for each team of trainers at the T3 day.

Group facilitator: *There’s a manual for the participants and there’s one for the trainers. I don’t know if you’ve seen that one?...*

Midwife trainer: *No.*

Obstetrician trainer: *I have seen, yeah.*

This demonstrates that even within one unit, there was inconsistency between staff trainers’ awareness of potentially valuable support tools. This may have hindered their understanding of how PROMPT could, and should, be run.

### **7.2.6 History of training and establishment of a teaching faculty**

In all units, most of the trainers recruited into teaching PROMPT had some experience with other obstetric emergency training, either local training, aimed primarily at midwives, or off-site regional and national training courses such as SCOTTIE, ALSO or MOET (see Chapter 1). The efficiency and speed with which a team of trainers was assembled was variable between EIs and LSs.

At Heatherham (EI), there was already a culture of doing monthly in-house obstetric emergency training for midwifery staff. This made the transition to PROMPT less arduous for them, as fewer modifications were necessary, and there was already a certain expectation from both management and maternity staff that some form of regular training would continue. This experience also facilitated the initiation of PROMPT further, by providing a ready-made team of multi-professional trainers who were swiftly co-ordinated and recruited into teaching on PROMPT.

*“I think we were very lucky in that we had [name of local in-house training course] ...we had it up and running so we did all of our obstetric emergencies through that and did run it in the hospital, so it was a much easier, probably, implementation for us than potentially in other units”*

- Midwife Trainer, Heatherham

At Glenchester (EI), there was more *ad hoc* training running for midwives before PROMPT, but the obstetrician and midwifery manager who subsequently became involved in the THISTLE Study had already been looking to set up an improved skills-drills training programme, and PROMPT came along at the right time for them, enabling them to formalise training within a structured and recognised programme.

*“Well, prior to training, [the consultant obstetrician] and I were trying to formulate Drills & Skills, and we were doing it in the old-fashioned way, you know, just while on duty...there was no structure to it. It was very ad hoc, and coming to PROMPT was an eye-opener because it was something that we’d been trying to achieve for a while”*

- Clinical Midwifery Manager, Glenchester (EI)

In the LS units however, the establishment of a training faculty for PROMPT was more staggered and opportunistic. Although midwifery and obstetric staff were familiar with other courses, and some were also SCOTTIE trainers, these courses

were often held off-site at simulation centres or neighbouring maternity units. As in Glenchester, the pre-existing arrangements for ensuring regular local training were less robust with increasingly poor attendance, but at Flintfield, this was seen as an obstacle for introducing a new training initiative, rather than an incentive to improve the status quo.

*“The in-house training was done through Practice Development and that was just for midwives only. But it was beginning – I think it was beginning to get very challenging to, to release midwives to it. And the blocks appeared to be that actually, ‘You, you’re asking for an awful lot more people to teach on this course’”*

- Consultant Obstetrician, Flintfield

At Burnsbury and Flintfield (LS), staff reported that there had previously been informal teaching by senior midwives to junior midwives, but these opportunistic sessions were becoming less feasible due to increasing clinical workloads on the units.

*“We used to do scenarios before we moved to new labour ward, it wasn’t this busy, so we used to do at night-time; the Sisters would run through like shoulder dystocias and PPHs and stuff like that, so that was good, but it stopped because we’re just too busy”*

- Midwife in participant focus group, Burnsbury (LS)

Thus, prior experience of running in-house obstetric emergency training facilitated implementation of PROMPT in some units, as it involved a simpler re-organisation of existing resources. This represents contextual integration work, another subcomponent of NPT collective action – defined as *“managing a set of practices through the allocation of different kinds of resources and the execution of protocols, policies and procedures”*(98).

### 7.2.7 Use of initiative and evidence of future planning

Some of the training teams displayed high levels of motivation to succeed. This ambition was not limited to purely setting up PROMPT training for the purposes of meeting the wider THISTLE study aims (to train all maternity staff within a year), but they were also planning the future development of PROMPT. This was most evident at the EI sites.

At the earliest stage of the THISTLE study, during the T3 intervention, the training team from Heatherham (EI) were observed discussing how they would modify their existing training to become closer to the PROMPT model, for example by taking photographs of equipment to use as props in their drills, and by using a labour ward whiteboard, as had been demonstrated in one of the lectures earlier that day.

*“I had a great time at Larbert. I thought...the Train the Trainers was very good because we got to try out what the scenarios would be like as a participant first and then you could already start imagining, ‘How are we going to do this when we get back to our own hospital?’”*

- Consultant Anaesthetist, Trainers’ Focus Group, Heatherham

The trainers at Heatherham had also independently devised and successfully run a PROMPT day for paramedics and community maternity staff.

*“We’re hoping to change our October [course], which is already booked for in-house, we’re hoping to change it and make another adapted one for community, for paramedics, community midwives and clinic staff”*

- Midwife, Trainers’ Focus Group, Heatherham

*“We tell people about the THISTLE Study, but I don’t make a big thing about it because I don’t want people to think well that’s a study and once that’s finished, we’ll not be doing this anymore...THISTLE study was the impetus for us to get moving and bring PROMPT to the unit but...we want it to stay”*

- Interview with Lead Obstetrician, Glenchester (EI)

*“My feeling going forward is that it would be nice to put some practical skills in to that morning session...We’re meeting about how we’re going forward, we’ll look at lessons we’ve learnt”*

- Midwife Trainer in Focus Group, Glenchester

*“We’ve changed the syllabus slightly...we married it into our Clinical Risk and realised that one of the big hitters that we’re getting trends from are pathological CTGs, but how quickly decisions are made and then action is taken. We’re failing on that. So, what we decided was...we will have an active Category 1 Section drill. So, we’ve just introduced that.”*

- Interview with Clinical Midwifery manager, Glenchester

These excerpts all demonstrate a progressive perspective and future planning, which are examples of the NPT construct of reflexive monitoring. A subcomponent of this construct is reconfiguration – the appraisal work that may lead to attempts to redefine procedures or modify practices(98). These teams learnt from their experiences of their first year of PROMPT training, and then adapted and developed the course to meet their local needs, for example by including paramedics and community midwives in future training.

At the LS sites, there was still evidence of reflexive monitoring, with future planning, but it was with some degree of caution, and reservation about the potential reach of future training, as shown in the quote below.

*“I don’t see us veering away from PROMPT. I think that certainly is the future. I think there’s a few developments that we as faculty maybe need to, to do and think about how we change...the syllabus of what we’re actually delivering and how we incorporate a few other things, primarily the neonatal resuscitation. But also mindful of the fact we don’t want to change it too often because we’re not going to get through the staff that often.”*

- Interview with Practice Development Midwife, Flintfield (LS)

*Interviewer: Are you planning to continue PROMPT?*

*Interviewee: Yes, yeah. I am, although...it's outwith my time, I am really keen to continue, unless something drastic happens like, you know, that really puts me off [laughter]"*

- Interview with Obstetrician, Burnsbury (LS)

Thus, being ambitious and showing initiative are additional useful workability characteristics (of collective action), that can facilitate implementation of PROMPT; examples of reflexive monitoring, through reconfiguration of future planned iterations of training are evident, particularly in the maternity units at a more advanced stage of the implementation process.

### **7.3 Summary**

Establishing training is facilitated by strong leaders and champions for change, supported by a cohesive team of experienced trainers. The most effective teams are highly organised, work collectively and reflect on their outcomes; they make comprehensive training plans, and incorporate staff feedback. Core workability characteristics that enhance the implementation of training include enthusiasm, willingness to change, perseverance, altruism, creativity and use of initiative, and anticipation of future potential problems.



## Chapter 8: Barriers to Attending Training

In previous chapters, I explored the common obstacles to establishing PROMPT training from the initial stages of implementation, including ensuring coherence of a new complex intervention, and the requirement for leaders and local training teams to engage cognitively, logistically and physically with setting up and delivering training. In this chapter I will discuss the barriers to staff attending training. These operate at different contextual levels – macro (organisational), meso (departmental) and micro (individual). Identified barriers included difficulty raising awareness of PROMPT, inequity of access to training, staffing shortages and clinical workload, reliance on goodwill, and reluctance or avoidance to participate in training. These factors relate to the NPT constructs of coherence, cognitive participation and collective action, which will be explored further in this chapter.

### 8.1 Universal attendance goals

PROMPT training usually takes place over one day and requires the participant to be in attendance for the entire course, ideally once a year. Each hospital has their own policies for allowing staff to take study leave to attend training courses, with priority usually given to mandatory training requirements (such as resuscitation training, manual handling etc.) which Trusts have a responsibility to ensure that all staff attend. To maximise the impact of PROMPT, the THISTLE study set participating maternity units the goal of getting 100% of their maternity staff to attend PROMPT training in one year, but managers had no obligation to approve this recommendation, and most significantly, no additional funding was provided through the study to finance the costs of releasing staff from clinical duties to attend. Consequently, managers at each unit participating in THISTLE had to make individual decisions about if, and how, to fund PROMPT locally. At the EI sites, there was managerial support for training (but not necessarily full financial support).

*“I had buy-in from my Line Manager, who we approached before coming to the training and she...is very proactive when it comes to further education...and... we explained how we saw it working but she said, ‘Go for the training, absolutely’. We’d got her support. When we came back, we had to have a meeting with her and say, ‘This is what it’s going to look like’ and she gave us her full support and remained...and she actually attended the training as well”*

- Interview with Lead Obstetrician for PROMPT, Glenchester (EI)

At the LS units, managerial coherence and financial backing for PROMPT was less evident.

*“I would say, moderately difficult with the management kind of not helping, in terms of taking it forward; although they’ve signed up for THISTLE, they said releasing the staff, like especially the midwives for this training, would be difficult, a financial strain on the system plus... they did not give us any support regarding the resource(s) so far”*

Interview with Lead Consultant for PROMPT, Burnsbury (LS)

Thus, one of the underlying mechanisms of non-attendance at PROMPT was the lack of financial backing by managers at LS units. This represents a lack of cognitive participation, one of the core NPT constructs. Conversely, where managers did cognitively engage with PROMPT and give it their backing, training was initiated more quickly.

## **8.2 Communication about PROMPT**

Once PROMPT had been approved locally, there was a degree of promotion necessary to raise awareness of the new training. This required good communication and planning by the training faculty. Importance was placed on explaining to staff how PROMPT differed to existing obstetric emergency training. As the quote below demonstrates, some staff expressed uncertainty about what PROMPT would entail and why they needed another training programme.

*“We had to do a little publicising and educating and making people aware what was PROMPT and what was different about it to other courses. I think there were some people going ‘I’m not quite sure what this is, we’ve already got SCOTTIE, what does this add?’ and I guess once we’d explained that, where it fits, what it’s USP [unique selling point] is, that seemed to be like ‘oh yeah, that’s fine’.”*

Focus Group with Trainers, Glenchester (EI)

The above quote demonstrates differentiation, a subcomponent of NPT core construct of coherence. This is defined as the sense-making work needed to understand how a set of practices and their objects are different from each other(98).

Communication strategies differed between different units. At one of the EI units, forthcoming dates of PROMPT courses were advertised well in advance, using a combination of verbal communication, emails and posters.

*“We’ve got our ... PROMPT posters, there’s one in my office so they’re up, so they’re in all the areas, so people can see where the courses are”*

- Interview with Consultant Obstetrician, Glenchester

At one of the LS units, there was a less co-ordinated approach to sharing information with staff about PROMPT. At Flintfield, on the local PROMPT day we observed during our visit, it was apparent that some participants had had very short notice that that they were due to attend PROMPT, and did not know what it was about. Others had more notice about attending, but thought they were signed up for a completely different type of mandatory training.

*Facilitator: Did you get anything to read beforehand?*

*Midwife participant 1: I was going to say I think something before would be beneficial. I said to the girls halfway through, ‘What does PROMPT even stand for?’*

*Midwife participant 2: I didn't know what PROMPT stood for and nobody introduced what PROMPT was at the start. So, I think a hand-out or pre-course reading might be beneficial.*

*Junior Doctor participant: I did get a hand-out. That was quite useful.*

*Facilitator: When did you get it?*

*Junior Doctor participant: On Saturday night!*

*Participant: I didn't get anything at all.*

*Participant: I looked online.*

*Midwife participant: I actually thought I was coming to child protection today. But child protection was yesterday (laughter). I only discovered about 8 o'clock this morning that it was PROMPT I was coming to, not child protection!*

- Focus Group with Training Participants, Flintfield (LS)

Promotion of PROMPT, or introductions about PROMPT at the start of the training day, were not clearly evident at this unit. One of the course organisers shared some insight into this lack of organisation, and suggestions for improving how they prepared for PROMPT.

*"I can't say it's the lack of trying, but probably from lack of reminders and communication...and I think probably we should be sending out the dates in a more organised way with reminders ...so everybody knows, 'Oh well, there's another...PROMPT in six weeks' time so I can cancel my clinic,' ...and then have...another reminder a week before"*

- Interview with Consultant Obstetrician, Flintfield

Despite identifying potential solutions, there was apparent inertia to make the suggested changes. This could have been due to a combination of factors: a more passive approach to training, lack of cognitive participation with PROMPT, and competing priorities on staff time and resources. Inadequate promotion, planning and communication were all strategic barriers to establishing training at this LS unit,

and resulted in a lack of collective action, another of the core NPT constructs. As a subcomponent of collective action, skillset workability appears to have been poorly achieved. This refers to the *“allocation work that underpins the division of labour that is built up around a set of practices as they are operationalized in the real world”*(48). It was not possible for one person to drive through all the changes and do all the planning and preparation necessary to run PROMPT. Teamwork is therefore crucial, and there needs to be even distribution of the planning work for it to be effectively implemented.

### **8.3 Registering to attend training**

Different systems for the registration of attendees were observed in different units. In the simplest arrangement at one of the early starter units, where managerial approval for PROMPT was already in place, staff were rostered to attend training on a particular day, and did not need to seek study leave allowance. In this situation, no real barrier existed to attend training, and this system clearly facilitated access to training, and removed potential obstacles faced by staff elsewhere. It also set the tone that training was universal and mandatory, and approved by the managers.

In other units, there was a first-come, first-served basis for registering to attend training, and bookings were co-ordinated by a single member of the training team. At Heatherham (E1), one midwife trainer invited staff to email her requests to attend training and limited numbers (as they were always oversubscribed). She would then send out reminders with pre-course reading and a course instruction manual before the local PROMPT day. This prevented over-booking at a unit where there was already a strong appetite for PROMPT, even when staff had to attend on one of their days off. By using a sign-up system, this may have generated a “buzz” around PROMPT, creating more energy and enthusiasm for training by encouraging staff to register before the course was fully booked. However, this could be seen as a potential barrier too, to those staff who did not manage to sign-up in time.

In other units, staff had to book to attend training via an online internal booking system, which was used for all hospital-based training. This might have been an obstacle to attend training because it required comparatively more effort and self-motivation than the other two methods above. Conversely, if this was the standard approach for booking study leave at that unit, it could also be seen as helping to normalise PROMPT as part of expected, mandatory training.

Thus, staff registering for training can face meso-level organisational, logistical and technological barriers. Within the NPT paradigm, this may hinder collective action. One of the sub-components of collective action is interactional workability – that is *“the interactional work that people do with each other, with artefacts, and with other elements of a set of practices, when they seek to operationalize them in everyday settings”* (48). In practice, this means that restrictions on numbers of staff allowed off on study leave at one time, or limited study leave allowances may have impeded the workability of the new training package.

#### **8.4 Inequity of access to training**

Within some individual units, different systems were in place for different professional groups e.g., midwives sometimes attended on their days off, and doctors attended on a day of paid study leave. The reason behind this discrepancy is that doctors and midwives have different annual study leave allowances, with junior doctors usually allocated a study leave budget per annum, to permit them to meet their mandatory training and postgraduate qualification requirements. Once qualified, further formal examinations for midwives are not mandatory.

*“There’s a difference between the doctors and midwives. Doctors have up to seven days study leave; whereas, midwives only have, I think, two or two and a half days for the whole year and they have their other courses to do as well.”*

- Interview with Consultant Obstetrician, Burnsbury (LS)

This imbalance in study leave between professional groups created a potential inequity of access to training and could have deterred midwives from participation. Midwives' attendance in some units relied on goodwill alone, and at the expense of their own time off work. Despite this barrier, there still existed a willingness to participate in PROMPT, even on their days off, which demonstrates a strong appetite for training. While admirable, this is not a sustainable long-term arrangement for getting all staff to attend PROMPT. This motivation for participation seemed strongest in the midwifery professional group, because it represented a (possibly unmet) need for structured practical obstetric emergency training. There was no evidence that doctors attended training on their days off (although this may have happened but was not reported).

*“You don't have to convince them [the midwives] ...they're happy to do it and ...they did it in their own time... Last time...we could have oversubscribed the day...*

*“It's because it's that hands-on, practical training and midwives like that type of training, much rather than classroom type training...and it's something that was lacking before”*

- Interview with Labour Ward Midwife, Burnsbury (LS)

There may also have been curiosity to see what PROMPT entailed, after being promoted within the unit, as it had some novelty value. Inequity of access to training therefore represents a system or meso-level barrier to attending and participating in PROMPT. Overcoming this barrier would necessitate overhauling the current regulations in place at those units with restricted study leave allowances for midwives or mandating annual PROMPT training for all staff at a departmental level. Within NPT, this requires contextual integration, a subcomponent of collective action. This is the *“resource work – managing a set of practices through the allocation of different kinds of resources and the execution of protocols, policies and procedures”* (48). It could also be a form of reflexive monitoring, the fourth NPT construct. To implement PROMPT, reconfiguration of existing practices or procedures (a subcomponent of reflexive monitoring) may be required i.e., allowing

midwives more days of study leave annually and mandating it into their appraisal requirements.

## 8.5 Clinical workload and staff shortages

Even when staff were registered to attend or deliver training, clinical workload on the day of the course meant that they were occasionally asked to do clinical work instead.

*“One of PROMPT’s great strengths is that it’s on site in the hospital, but also that creates a weakness in that the staff are there and it’s very tempting for management in fact if their staff are there are on labour ward, get them teaching in the labour room and it’s all too easy to pull staff back out of their training when the clinical workload is pressurised”*

- Focus Group with Trainers, Glenchester (EI)

*“So, the anaesthetists were just rota-ed in, as were the junior doctors, the midwives...but...they’re the first to get pulled if there’s sickness on that day in the clinical area”*

- Interview with Consultant Obstetrician, Glenchester

Even though most doctors had sufficient study leave allowance (compared to midwives), this did not mean they could automatically attend training. Due to their clinical workload commitments, it was reported that some consultant obstetricians and anaesthetists were unable to attend training.

In this way, being “pulled” from training to ensure safe staffing levels and fulfil clinical duties reflects the limited resources within the maternity units.

Consequently, this is a financial barrier, operating at a meso (departmental) level. Providing staffing cover for clinical work, to allow others to attend training, requires additional investment. This resonates with one of the NPT subcomponents of



collective action, contextual integration, as it requires allocating resources differently.

## 8.6 Reluctance and avoidance to participate in training

Consultant presence at PROMPT training was variable between units, and their relative lack of participation in training, compared to junior doctors or midwives, was noticed at some units, and was not always attributed to their prioritisation of clinical commitments. Course organisers speculated that some consultants were avoiding attending PROMPT training. Disinterest and avoidance were not seen purely at LS units, but at the EI sites too.

*“Other people have maybe struggled a wee bit with clinical commitments, but...in terms of actually participating in it, there’s been some people that have been less enthusiastic about signing up or have found other excuses”*

- Interview with Consultant Obstetrician, Glenchester (EI)

One of these “excuses” was reported to be that some consultants predominantly practice gynaecology rather than obstetrics, and perhaps did not see attending PROMPT as a priority or particularly relevant to their educational training needs.

*“I think here, one of our struggles is that a lot of the consultants are primarily gynaecologists but do Labour Ward on call, and they’re probably less interested in coming to an Obstetric Emergencies course than people who are primarily obstetricians who do on call. I think that’s a bit difficult”*

- Interview with Consultant Obstetrician, Heatherham (EI)

Interestingly, there was recognition that attending PROMPT was probably more important for consultants who were predominantly gynaecology-based, as their skills may have needed more updating than their obstetric colleagues who did regular Labour Ward sessions.

*“It’s very much these people who probably need to do it, because they’re probably not in the Labour Ward quite so often but are still on the on call for Labour Ward”*

- Consultant Obstetrician in Participant Focus Group, Burnsbury (LS)

Additional reasons for not wishing to attend training were also discussed in some of the focus groups, and included preferences for the more technical focus of other courses, and a fear of exposure:

*“I think some of my colleagues have failed to see the value in it out of the stuff they don’t feel is relevant to them. Or they prefer the safety of going to a MOET course away from the hospital with a different team, so they don’t feel so exposed in front of the people they work with every day. Or they see that that’s more technical... There are some people who are very enthusiastic and see that, and there are some people who don’t, I just have one or two people who I’ve failed to engage entirely and they just don’t see it at all”*

- Consultant Anaesthetist, Focus group with Trainers, Glenchester (EI)

Some organisers took a pro-active approach to recruiting the consultants who had failed to sign-up for training, by reminding them of the mandatory requirement for evidence of continuing professional development, which must include some regular form of obstetric emergency training.

*“I’m not saying that nobody’s come but just not as many as I would have liked, and so I took it to our Senior Staff meeting and asked them why people hadn’t come.....and... they didn’t really have a huge answer to my question and so then my follow-up question was, ‘Well, if you haven’t come to PROMPT, can you tell me which Obstetric Emergency course you have been to in the last three years to keep yourselves up-to-date?’ and following that question, five of them signed up for PROMPT!”*

- Interview with Consultant Obstetrician, Heatherham (EI)

In this way, an element of persuasive coercion may have been necessary to get more reluctant clinicians to attend. This requires leadership from the training faculty. Both “carrot and stick” approaches were employed to get staff to attend training.

Encouragement to attend, positive feedback from previous participants, and possibly the novelty of a different type of training might help attract staff. The threat of not maintaining expected continuous professional development (CPD) requirements, also acted as a deterrent to non-attendance.

Using NPT constructs to understand these factors, reveals that perception of PROMPT as irrelevant is a cognitive barrier, and represents both lack of coherence and cognitive participation about the possible value of participation in training. Fear of exposure, or embarrassment in front of colleagues, are social, psychological and professional barriers, which represent potential risks of participation. They may also reflect cognitive disconnect with PROMPT. This resonates with the NPT subcomponent of “legitimation” which is the work of ensuring that other participants believe it is right for them to be involved, and that they can make a valid contribution to it. As these operate at an individual level, they can be described as micro-level contextual influencers.

## **8.7 Summary**

The barriers to staff attendance at PROMPT training have been explored in this chapter, and include a range of logistical, social, professional, technological, financial and political factors. Barriers operate at different contextual levels, as summarised in Table 6 below. The core constructs of NPT, or relative lack thereof, have also been demonstrated throughout this analysis. The presence or absence of such barriers influence the ease of implementation and the extent to which it can become normalised within an institution.

**Table 6: Contextual level influencers on PROMPT attendance**

<b>Macro influencers</b>	<b>Meso influencers</b>	<b>Micro influencers</b>
NHS level investment in maternity training	Departmental policy about study leave allowances, restricting numbers of study days or numbers of staff that can attend	Promotion strategies, communication and planning by trainers
Managerial buy-in to the THISTLE Study, and to PROMPT to financially support its set-up	Fluctuations in clinical workload may cause cancellation of training	Individual perceptions about relevance and value of training vs. risks of participating
	Staff sickness may prevent staff attending training	Consequences of non-attendance e.g., failing to meet annual appraisal or professional revalidation requirements
	Ease/simplicity of registering to attend training	

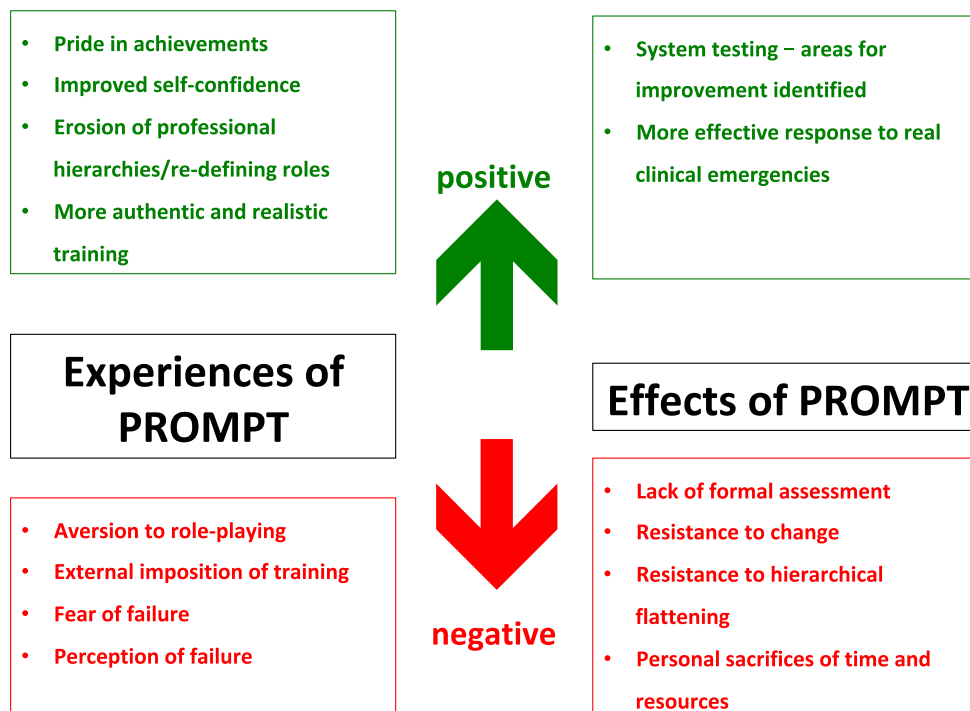
## Chapter 9: Experience and Effects of Training

### 9.1 Introduction

Staff experiences of PROMPT training created both positive and negative impressions. Individual participant experiences were influenced by personal characteristics, such as their professional role or their opinions about simulation training; some experiences reflected the unit's collective response to implementing training, such as the degree to which they felt they had a choice about doing it, or whether it was perceived as being imposed upon them. The effect that PROMPT had on staff, and on the whole maternity unit, also generated both positive and negative outcomes.

These experiences and effects are summarized in Figure 7 below and will be explained in more detail in this chapter.

**Figure 7: Summary of positive and negative effects and experiences of PROMPT**



The overall experiences of PROMPT training, both for individual members of staff, and for the whole maternity team, are also influenced by the financial and professional risks associated with participation. Consequently, these factors can both positively and negatively re-enforce the perceived value of training.

The acknowledgement of experiences and effects are all elements of reflexive monitoring, the fourth core construct of NPT, which refers to the “*appraisal work that people do to assess and understand the ways that a new set of practices affect them and others around them*”(98).

## 9.2 Positive effects and experiences of training

### 9.2.1 Authenticity and realism of training scenarios

During the focus groups there were often positive discussions of how realistic the practical clinical scenarios felt, unlike their experience of previous obstetric emergency courses, such as SCOTTIE. Both trainers and participants commented on this.

*“I think it was beneficial us being here, quite often when we’ve done it in the past, it’s been...in the seminar room, and I think when you go into the actual triage room it’s beneficial because it was more realistic, as much as it can be with the role playing. I think that is better, because when I’ve been in obstetric emergencies on the SCOTTIE course and things as well before they have it downstairs and they do try and set it up as much as possible, but I think actually being on the ward it’s more familiar”*

- Participants’ focus group, Flintfield (LS)

*“I think it was good to do things in real time and you see the problems that come up...you know, you don’t have a pump, somebody’s got to go and look for the pump and actually physically running through IVs, the time it takes, because when you do the SCOTTIE courses, they’ve very regimented.*

- Trainers’ focus group, Flintfield

These quotes further demonstrate some key NPT constructs, including differentiation (a subcomponent of coherence) - in that staff could distinguish the differences offered by PROMPT compared to other courses – and reflexive monitoring - where participants and trainers recognised after training that PROMPT provided beneficial, “real-time” and practical learning opportunities.

This authenticity became particularly useful for demonstrating key manoeuvres necessary for managing breech deliveries and shoulder dystocia, which PROMPT teaches using a specific birthing simulator, called the PROMPT Flex mannequin(78). This is a life-size open model of female pelvis with weighted baby mannequin inside.

*Participant A: It was really good...with the breech station, you can see exactly what's happening, rather than thinking “oh right, it does this and it does that”, you're actually doing it and thinking about it more.*

*Participant B: It makes it more realistic.*

- Participants Focus Group, Heatherham (EI)

The above quote shows that the participants valued being able to visualise the manoeuvres for managing specific obstetric emergencies, using a more authentic mannequin. This allowed them to see and feel inside the model pelvis, creating haptic feedback.

Therefore, authentic and realistic training are valued highly, and make training feel more worthwhile. Simulating real-time pressures in the actual environment in which emergencies happen allows participants to learn and practice how they would and should react. This then instils confidence and embeds situational memory, enabling improved recall when the emergency next occurs.

### 9.2.2 Re-defining roles

For one healthcare professional group, the maternity support workers (MSWs, known as healthcare auxiliaries, maternity care assistants or clinical support workers in different units), PROMPT enabled them to become more involved in the team working on delivery suite and the obstetric wards, in a way that they had not previously experienced. The NHS Health Careers website describes the role of MSWs as *“caring for women and their babies through the vital stages of pregnancy, childbirth and the first few days of birth”*, and explains how they need to be able to cope with emergency situations, and will receive the necessary training, although it does not specify what this training is(106). The Royal College of Midwives published a guide to the roles and responsibilities of MSWs in 2016(107). It emphasises that while no single definition exists, they use MSW to describe any *“unregistered employee providing support to a maternity team, mothers and their families who work specifically for a maternity service”*. They state that the MSW does *“not assess mothers and babies or make clinical judgements or decisions or initiate intervention”*. It is perhaps these distinctions about MSWs being unregistered with a professional body (unlike midwives, anaesthetists and obstetricians), with limited clinical responsibility, that have traditionally set them apart from the rest of the multi-professional team.

One of PROMPT’s defining characteristics is the promotion of multi-professionalism; this ethos is embedded throughout training, and emphasised at T3 events, where teams are introduced to PROMPT for the first time. It was therefore notable to observe during site visits, that this message had been communicated effectively, because MSWs were actively encouraged to participate in training and contribute their views and opinions, in most, but not all, of the units. This was a novel approach for many of the MSWs we met, who described previously standing back during emergencies and trying to *“keep out of the road”*. Other staff valued their involvement, and in turn they felt they had more of a valued role in the team. PROMPT effectively enabled them to contribute as a more integrated member of the maternity team.



*“What I get is mainly the multi-professional training, like how – today, we have auxiliaries, some ODPs [Operating Department Practitioners]. They’re never given an opportunity to go to courses like this. They’re always like, ‘Okay, do this. Do that’ type – come and watch these emergencies. What is, you know, going on in this room, rather than carrying the blood samples from here to there and pull this, pull that trolley. They get an opportunity to actually be part of the team and understand the situation and, you know, carry out their roles in a more efficient way, and also understand the roles and responsibilities of other people, yeah. That was the biggest positive response.”*

- Consultant Obstetrician, Burnsbury (LS)

*“In teaching I was doing, there was a clinical support worker and maternity care assistant...answering most of the questions! (laughter) Because they are there for so many...my registrars were surprised...I never imagined that she would know so much...surprised at the clinical support worker, she’s so observant. The minute you do this, she’s saying, ‘This should be done. That should be done.’ It was really amazing. I would never have found out she had so much knowledge, so the clues she was giving was really helpful. That was very impressive. Everybody was talking about that, how much a clinical support worker has the knowledge by being here for so many years. That was really good.”*

- Consultant obstetrician trainer in Trainers Focus Group, Flintfield

The above quotation demonstrates that for some obstetric (and midwifery) staff, involving MSWs in training was a critical moment or “eye-opener”, revealing a new respect for them and their hitherto unrealised and untapped potential. MSWs may have worked at the hospital for many years, acquiring a wealth of knowledge and experience about how the unit works. In this way, PROMPT allowed some staff to realise and identify existing resources for training and problem-solving within their workforce.

*“And I’ve seen, especially with the clinical support workers and the MCAs, actually a huge, big difference in them. And they just are much more – they – there seems to be better camaraderie...on the wards so I think...it was probably that it filtered through – this is what we’re doing now”*

- Interview with Lead Obstetrician for PROMPT, Flintfield (LS)

In this last quote, it appears that the introduction and involvement of auxiliary staff represented a cultural shift towards more integrated team-working and improved morale. This is a key finding because changing culture within healthcare institutions is poorly understood. A systematic review in 2011 failed to identify any common effective or generalizable strategies to change organisational culture in order to improve healthcare performance(108). The underlying mechanism for this shift seen during the THISTLE study may be due to how PROMPT is presented to staff at the T3 event. Packaging multi-professional working as a core, non-negotiable construct crucial to PROMPT success may be at the heart of this cultural change. Multi-professionalism is continually re-enforced throughout the day, and in the materials supplied to the trainers to take home. Although multi-professional *working* is not a new concept to healthcare workers, multi-professional *training* was novel, to some units participating in THISTLE. This distinction sets it apart from other training courses, and perhaps was one of the easier components to grasp and achieve. PROMPT validates and elevates the roles of MCAs, beyond their traditional responsibilities, to more respected and experienced members of the maternity team. This heightened status, when acknowledged by PROMPT “experts”, sets the expected standard from the outset, and encourages, possibly even mandates, trainers to include MSWs in training.

At Glenchester (EI), a MSW had become part of the training faculty too, which truly embodied the multi-professional ethos of PROMPT. She made this comment during the Trainers’ focus group there:

*“Especially my colleagues, as nursing auxiliaries, PROMPT has brought in what their role is and a bit more variety. You’re not just going in and mopping*

*the floor and making tea and toast. You have got involvement in the unit...A lot of the girls who have been here longer than I have, as you were saying, it was the change, it was 'Oh, but we don't do that', but yeah you can do that. And it was getting them to realise that yeah, it is ok for them to go into a room when there's a lady in labour. You don't need to just stand at the door"*

-Nursing auxiliary, Glenchester Trainers' Focus group

In this way, PROMPT appears to have re-defined and validated the role of clinical support staff, attributing greater respect to their years of experience, and raising their status amongst their colleagues by identifying useful, but previously unrealised, contributions they can make during emergency situations.

Greater appreciation of colleagues' individual strengths and the value of teamwork also transpired during the role-play training. This was not limited to MSW s, as already discussed, but to more junior midwives too.

*"I saw a lot of skills coming out, particularly from my midwifery colleagues that I had no...well, I knew they were skilled, but I had no understanding about actually what some of these girls could do and actually, a few of them could well have been leaders in their own field, rather than we're always seeing them underneath a Co-ordinator in Labour Ward and not actually at their full potential. So, it made me quite impressed that there are a few now that I will... I don't know if I'll interact with in a different way but when I look at them, I actually think, 'You're a person who really knows what you're doing'"*

- Consultant Obstetrician in Participants focus group, Burnsbury (LS)

These experiences demonstrate how PROMPT facilitated new perspectives for maternity staff; more senior professional colleagues developed greater respect and appreciation for their junior colleagues, and maternity support workers felt increasingly valued.

### 9.2.3 Flattening hierarchies and creating safe spaces

Multi-professional collaboration and team-work are not new concepts in health and social care, but are a part of everyday practice, and considered as positive and necessary for achieving good care(109). In the education and Children’s Services sector, the value and importance of multi-agency collaborative working are also recognised(110). However, training together in multi-professional maternity teams was novel in many units, and popular. For the first time in some of the units we visited, it brought staff together and encouraged them to work in small groups, which seemed to flatten some of the traditional hierarchies between doctors, midwives and support staff. This overlaps with the previous section about PROMPT re-defining roles and challenging people’s perceptions of each other; it rejects the traditional notion of the medical professional hierarchy. Instead, PROMPT can be seen as a mechanism for flattening out of professional ranking, allowing all members of the team to have an equal status.

*“It was very good that way. So, I think this can only help by continuing to make groups of individuals work together. I think in a small unit, where you’ve got small numbers, people interact in a lot more friendly fashion. When you’ve got a bigger unit, it’s harder to know who everybody is. There are some people who you just might not know their name of but yet, seen them every day for the last ten years and therefore, you’ve got beyond the point where you can actually go up and ask what their name is [laughter]. So, from that point of view, this just helps kind of break down those barriers, which was good”*

- Participant Focus Group, Burnsbury (LS and larger unit)

*“And then they started calling me by first name. Before that you have the distance, but now that was no longer there because we were just sitting with them and we were doing the teaching the whole day and so they all feel very much part of the team and they can call you by your first name”*

- Obstetric Consultant, Trainers’ Focus Group, Flintfield (LS)

In this way, at the initiation of PROMPT in a maternity unit, staff who may have worked in the same hospital for years, are all new to PROMPT and therefore come to training on a level playing field. By having to introduce themselves to each other with their first names at the start, some of the traditional professional hierarchies are disregarded. The teams are then tasked with working together all day in small groups, becoming more familiar and comfortable with each other, and they realise their collective skills and common goals of achieving safe and timely management of an emergency together. These activities and concepts relate again to the NPT constructs of cognitive participation and collective action.

Much of the evidence about teamwork training originates from programmes that were designed for use in the military. In these mission-critical situations, similar to many medical emergencies, there is a potential for very costly errors in both human and material terms, and so teams need to display high-reliability and effectiveness(111). Multi-professional teamworking in PROMPT generates a sense of task accomplishment, also achieved in time-pressured scenarios. This seems to create a strong bond between the team members, emphasizing mutual respect and collaboration. It also reveals what individuals can contribute to the team.

Another consequence of the erosion of traditional professional hierarchies during training was that staff felt PROMPT provided a safe space, to make mistakes and to speak up honestly in front of colleagues to provide structured, critical feedback.

*“It was really nice to work with the other members of the team, going through the drill at the same time. So actually, learning what my colleagues can do as well in the same situation and naturally, them taking on roles which they’re going to deliver anyway. We still found things that we could do better because we were actually able to communicate with each because we weren’t in an emergency situation...when you’re in front of a patient who’s real, sometimes you don’t criticise each other quite in the same way. So, it was safe, and we were able to verbalise what we liked about what we were*

*doing and what we didn't like about what we were doing. So actually, it was really, really good"*

- Consultant Obstetrician in Participant Focus Group, Burnsbury (LS)

PROMPT thus appears to create a safe space for learning, through a combination of a flattened professional hierarchy and a realistic, yet simulated, clinical environment. This allows pressure-testing to occur, without the risk of any harm being caused to a patient if a mistake is made. Staff may also feel more comfortable "calling out" a colleague or questioning them in a simulation, rather than in front of a patient.

#### **9.2.4 Improved confidence**

Many of the staff reported feeling more confident or reassured in their own abilities to manage obstetric emergencies following participation in the training or had witnessed their colleagues working with more confidence since taking part. This suggests PROMPT better equipped them to deal with real emergencies, or may have re-enforced existing knowledge and skills, promoting greater confidence and competence.

*Participant 1: And you felt quite empowered afterwards. You thought, 'Right, I know what to do.'*

*Participant 2: And also: "I know a lot of this actually!"*

- Participant Focus Group, Heatherham (EI)

In this way, the mechanism of a new training package in obstetric emergencies, launched in the context of a maternity unit staffed by individuals with varying levels of prior experience and competence, produced an outcome of improved confidence and empowerment to effectively deal together with emergency situations in their unit.

### 9.2.5 Pride in achievements

It was also evident that for the trainers, particularly at the EI sites, Heatherham and Glenchester (EIs), that they felt great pride in their achievements in setting up and running PROMPT.

*“It’s a work in progress... I hope Year 2 is as good as Year 1 but watch this space...I’m not saying that we’re perfect at all, however...I still feel really, really passionate about it...and I still really enjoy it and... I just feel that it’s something that I’ve wanted for so long and it’s actually come to fruition that, that – seeing the unit change. We’ve still got – we’ve got our problems as a unit, so don’t get me wrong but seeing it, just for one day, just working like that is just – it’s great”*

- Interview with Obstetric Lead for PROMPT, Glenchester (EI)

This evidence of positive change may promote sustainability and longevity of local PROMPT training, by generating positive re-enforcement; knowing that their efforts to implement training have been well received and successful, can encourage trainers to continue training. This sense of pride and accomplishment may be greatest in those champions who invested the most effort, and thus yielded a bigger sense of reward.

### 9.2.6 Improved responses to real emergencies

Most units reported seeing better management of real obstetric emergencies following the implementation of PROMPT in their units. More specifically, there were reports of teams working more efficiently and following nationally recommended standards, after PROMPT training.

*Participant A: I would say they act quicker.*

*Participant B: Quicker acting definitely.*

*Group Facilitator (GF): You feel it’s more structured?*

*Participant A: More structured.*

GF: *You mean in a real emergency?*

Participant A: *Probably it's kind of structured because everything's there in front of you and it's all dot, dot, dot. There's no variations...Everybody's doing the same thing rather than what their training taught them to do. They're adhering to the guidelines of what we're doing now within the unit and each ward is doing the exact same thing. It's not different from ward to ward.*

- Participant Focus Group, Flintfield (LS)

An important feature of PROMPT training is that it promotes the use of standardised algorithms and national guidelines, to ensure optimal care is delivered by all staff.

*"I don't work in the labour area currently, but from what I've heard, when there is an emergency, you know a PPH, the staff just seem to get on with it and it's managed very well."*

- Participant Focus Group, Heatherham (EI)

*"In any emergency situation I've been in since we've started doing PROMPT, I can definitely, I don't know if I'm just sensitive to it, but I do see a change and a difference in the way that people react, it does seem to be a bit quicker and a bit more people working together as a team"*

- Interview with Obstetric Consultant, Glenchester (EI)

### **9.2.7 Demystifying shoulder dystocia**

Training in managing shoulder dystocia seemed to be particularly enlightening for some staff, in that it provided clearer understanding of the rationale behind different technical manoeuvres, and a logical and simple algorithm for approaching the emergency in a stepwise fashion. Traditional teaching of managing shoulder dystocia include the use of a mnemonic called HELPERR, and eponymous practical techniques e.g. the "Woods screw" manoeuvre(112). The HELPERR mnemonic is



taught at other obstetric emergency training providers such as ALSO(113), and is still included in the NHS Scotland Intrapartum notes record. An evaluation these eponymous manoeuvres and mnemonics for obstetric emergencies (including shoulder dystocia) showed that that only 32% of obstetricians and midwives surveyed who claimed to be familiar with the HELPERR mnemonic, could correctly decipher it. The authors concluded that there was a poor correlation between knowledge of manoeuvres and their eponyms, which limited their usefulness in emergency situations(114). For this reason, the RCOG Guideline on Shoulder Dystocia, and the PROMPT algorithm for shoulder dystocia, discourage the use of these mnemonics and eponymous manoeuvres(2).

The use of the PROMPT Flex mannequin during training allowed staff to see the manoeuvres inside a model of the human pelvis, which helped them to make sense of the physical problem and its solutions. However, not all units had access to this type of mannequin, and some were still using older and more basic models, along with the HELPERR mnemonic for remembering the steps.

*“I’ve heard some really encouraging, stories. One of the Senior Registrars, ST7, said to me that he had come to a PROMPT course, and had the shoulder dystocia station, learnt about the “Pringle’s manoeuvre”... and then not long after...was involved in a serious shoulder dystocia, and he said to me, he felt that if he hadn’t...been to PROMPT just before, he might not have got that baby out”*

- Interview with Obstetric Lead for PROMPT, Heatherham (EI)

In this example, the registrar had evidently grasped one of the key analogous descriptions of how to shape one’s hand to help deliver the baby’s trapped arm (likened to reaching for the last Pringle in the tube), and hence had named it as *“the Pringle’s manoeuvre”*. In PROMPT, this is not labelled as such, but is described as a way of remembering how to help reach the trapped fetal hand. It demonstrates that staff found this concept distinctive and easy to remember, helping them in actual emergencies after training. Use of high-fidelity mannequins, (like PROMPT Flex) and

memorable descriptors (like the Pringle manoeuvre) facilitate learning by demystifying previously poorly described techniques and poorly understood concepts.

### 9.2.8 Reflection and testing of own systems and resources

PROMPT also allowed staff to test their unit's current training systems and actual emergency equipment in their departments, to identify issues that could be improved to facilitate management of some emergency situations. This validates one of the ten "steps to successful PROMPT implementation" proposed in the PROMPT Trainers manual, that of "including testing of systems and protocols within training"(77).

Focus group participant 1: *One of the things that we were trying to measure [was] blood loss more accurately.*

Focus group participant 2: *We were speaking about weighing blood loss more accurately. There's a lot of debate about that at the last PROMPT. I think that's the other really good thing about PROMPT, is it generates a bit of discussion.*

- Focus Group with Trainers, Burnsbury (LS)

Generating discussion is an important aspect of the feedback stage of simulation training in PROMPT. This is where participants reflect on how they have performed in the scenario and are given constructive feedback by their peers. Setting up training also enables identification of deficits in resources.

Obstetrician: *We didn't have peri-mortem Caesarean section pack and we realised we could just put it together very quickly by strapping a scalpel on and put it on the bottom of the resus trolleys. The fact that we're doing PROMPT tomorrow, 'Let's get that done today' was very, very good and changed things and that's another advantage for doing it here within the hospital"*

- Consultant Obstetrician in Focus Group, Burnsbury

*We've adapted our eclampsia grab box...when it was put into practice during the eclampsia scenarios, we realised there were some deficiencies in terms of how it was set out and its usability so that's been changed...PROMPT very clearly demonstrated that we weren't quite as adept at doing things as we thought as they should do. So, we set up some very clear, simple visual aids and instructions.*

- Anaesthetist, Focus Group with Trainers, Glenchester (EI)

These examples illustrate how PROMPT acted a means, and a catalyst, for highlighting deficiencies in existing clinical systems, but also allowed the teams to independently identify relatively simple and cheap ways for improving or resolving the issues. This again represents a significant degree of reflexive monitoring, occurring in both EI and LS units.

### **9.3 Negative experiences and effects of PROMPT**

#### **9.3.1 Aversion to role-playing**

A few participants expressed a dislike of being asked to role-play during training simulations. They felt potential embarrassment in front of colleagues, that maybe they might not know what to do, or the right sequence of actions to perform. However, most of those who found it difficult to start with also revealed that as training progressed, their initial discomfort eased. This seemed to be due to the atmosphere within the training being relaxed and non-intimidating, as previously discussed.

*"Whereas some people don't, some people don't like PROMPT and they've said that they find it quite stressful doing the, the role play and everything..."*

- Interview with Lead Obstetrician, Flintfield (LS)

*“I’ve spoken to one of the girls that’s coming [to PROMPT] tomorrow and she said she was really terrified because she didn’t want to make a fool of herself”*

- Participant Focus Group, Burnsbury (LS)

Unfortunately, some units reported that due to insufficient numbers of different multi-professional staff attending training, occasionally people were asked to role-play a different profession to their usual role e.g., a midwife playing an obstetrician. This is not encouraged during PROMPT training, as the emphasis is on making the scenarios as realistic as possible, and for people to act within the limits of their professional role. This further compounded some staff’s dislike of role-play.

*“We’ve had...a big difficulty with PROMPT, because we’ve not had enough obstetricians coming through so we’re getting staff playing outwith their role and they’re very uncomfortable with that”*

- Interview with Lead Obstetrician, Flintfield

This problem is linked to the challenge of getting some staff (particularly obstetricians) to attend training, as mentioned previously in Chapter 8, Barriers to attending training.

### **9.3.2 Concern over lack of formal assessment**

Although the lack of formal assessment was cited by some as one of the positive aspects of PROMPT compared to other training packages like SCOTTIE, for others this was a negative feature. Some perceived formal assessments as validation of their competence; some trainers viewed assessments as useful tools for identifying those staff that were struggling to reach the necessary clinical standards, and expressed concern therefore that without assessment, underperforming staff might not be detected as they had been previously.

*“And sometimes we found that people that perhaps need a little bit more assessment, shall we say, at a time when maybe...whatever’s happening in their career, they maybe need a formal assessment of capability, they would go on the SCOTTIE course”.*

- Interview with Practice Development Midwife, Flintfield

*“I’ve heard a few people say that they actually preferred SCOTTIE because they were individually assessed, but then that’s perhaps because that’s what they are used to.”*

- Trainers’ Focus Group, Glenchester (EI)

### **9.3.3 Local resistance to change**

The above excerpt refers to some people preferring *“what they are used to”*. Certainly, familiarity with previous training may be easier to run for trainers, and less daunting for participants, than adapting to new ways of teaching and learning. In some units, there was a degree of resistance to introducing PROMPT, which has been discussed previously in Chapter 5, about the receptivity of units and their readiness for change. Difficulties securing management support were alluded to during interviews with lead obstetricians and senior midwives, but staff were reluctant to speak negatively about their colleagues, despite reassurances that the content of the interviews would remain anonymised. There were suggestions in the LS units, that resistance to change extended beyond management buy-in, to some reluctance to change things on a practical level such as procuring emergency equipment boxes, which are recommended by PROMPT.

*“I think it was just felt that geographically it was too difficult to – ‘It’s too heavy to have a PPH box. It’s too heavy or it’s too difficult, it’s too cumbersome. Let’s just use the trolley we had’.”*

- Interview with Lead Obstetrician, Flintfield (LS)

Acquiring new practice support tools (such as emergency boxes, or “haemorrhage trousers”, as suggested in the PROMPT Trainers manual) may have been perceived as requiring too much effort, time or resources. This, in NPT terms, implies less cognitive participation or collective action with PROMPT as an intervention.

### 9.3.4 External imposition of PROMPT

At Glenchester (EI), it was reported during the interview with the midwifery manager, that some staff had expressed wariness about how and why PROMPT had been introduced. This was not overtly mentioned in any other unit, although it is possible that others felt similarly but were uncomfortable disclosing this to me, as a visiting PROMPT researcher.

*“I suppose there’s an element in Scotland where, ‘Well, where was it devised? Why is it devised? Why, you know – is it a scrutiny? Is it finance related?’... So, there was a lot of...quashing this stereotypical idea of this external training coming in, and what we were saying was, ‘It’s not external. It’s ours. We are doing it’, and I think it was about building that trust, and it took us a year to build that trust and for people to come up to me and say, ‘Actually, it wasn’t that bad’”.*

- Interview with Midwifery Manager, Glenchester (EI)

The inference here is that some staff may have perceived PROMPT as being externally imposed upon them, possibly from outside of Scotland. The question about “where” the training had been devised, implies a potential geo-political scepticism, but there was insufficient data to determine if nationalist sentiment truly existed or impeded acceptance of PROMPT. What this excerpt does indicate however, is that getting staff to take ownership of PROMPT as something they could adopt, but adapt to meet their local needs, was important in helping overcome initial hesitations.

Other possible underlying mechanisms inhibiting initial acceptance of PROMPT may include uncertainty due to a lack of knowledge or understanding about the product (in NPT terms, a lack of coherence) or a fear of being scrutinised by outsiders. It may also have reflected a lack of internalisation (another NPT subcomponent), in that some staff did not see new training as necessary or relevant, having been developed to tackle problems in other units which did not exist in their own hospital. Again, these concepts link back to the themes discussed in Chapter 5 about receptivity and readiness for change. Familiarity with the course over time gradually allowed trust and understanding of PROMPT to build, and for it to become accepted, and even appreciated.

### **9.3.5 Personal commitment of time and resources**

In all units, trainers had dedicated a lot of personal time and energy into setting up training. This was because, in most units, staff were not allocated extra paid time to prepare for training, so most planning was done in their spare time. As discussed previously, some midwifery participants attended PROMPT training on their days off. Some staff even made financial contributions to facilitate training, for example by baking cakes and buying lunch for the participants. While admirable, and reflective of a strong commitment to getting training off the ground, this arrangement is not sustainable in the long-term, as trainers should not be personally financially responsible for delivering training.

*“I don’t think it would be fair to expect that [relying on goodwill] ...there comes a point where you cannot rely on goodwill. We relied on it to get it started and my hope was, was that we get it up and running and we do the first one. I knew that it would be successful because I knew the staff would enjoy it... and we were hoping from there, we then have a case, you know like, to have it resourced.*

- Interview with Labour Ward Manager, Burnsbury (LS)

As discussed in Chapter 6 (Securing conceptual and financial buy-in), the use of personal resources and time was seen as a short-term solution to getting training off the ground in LS units, because there had been delays in securing any management approval for funding. Once the trainers could demonstrate PROMPT as enjoyable and valuable, they hoped (correctly) that their managers would then be convinced of it as a worthwhile venture and support it financially.

### 9.3.6 Resistance to hierarchical flattening

There were some unexpected effects of training together in multi-professional teams for the first time. A few staff discovered different facets of their colleagues' personalities, that were hitherto unrecognised. These were sometimes positive (as in the case of the auxiliary staff becoming more valued and respected, discussed previously) but occasionally more negative characteristics were revealed through training. Some staff seemed keen to exert their perceived professional authority through maintaining traditional hierarchical structures within the role-playing scenarios, as illustrated below.

*“It was quite enlightening to study together. It’s been a new phenomenon for here...We’ve always studied separately, we’ve always trained separately but yet we work together, and this has been really an eye-opener. It also showed some true characters, it brought forward egos...I mean there’s so much psychology behind it that...it’s not about the drills...or the clinical knowledge. Pecking orders; all that have come to light through it and...now that we’re up to over a year...if nothing else, it’s opened up our eyes into our role and into the personalities within our Unit for real”*

- Interview with Midwifery Manager, Glenchester (EI)

So, while PROMPT can promote the flattening of some professional hierarchies, in some groups, these were maintained. As a new way of training, PROMPT may pressure-test staff to reveal both positive and negative characteristics.



### 9.3.7 Fear and perception of failure

While the risk of “failing” to successfully implement PROMPT acted as an incentive to get training started in some units, in other units there was a feeling expressed by some that they had failed to implement PROMPT as thoroughly, or as authentically, as they would have liked.

Once units had heard that other neighbouring maternity units had commenced training, there was added impetus to get PROMPT established locally, as managers perhaps did not want to be seen as failing to meet a target or be the “only” Scottish maternity unit that had not managed to initiate PROMPT.

*“We’re part of this THISTLE project, which is Scotland-wide and obviously everybody in Scotland, sort of, heads of midwifery all know each other, and clinical directors all know each other, so it’s probably...my impression of that was, ‘How are we going to look if we are the only Board that can’t deliver this?’”*

- Interview with Practice Development Midwife, Flintfield (LS)

So, while in EI units, the driver for change originated in a desire to implement new training, in LS units, another catalyst existed. This was a geo-political influence – to avoid failing to achieve a national target that others had succeeded in or lagging their regional counterparts. This links back to the discussions presented in Chapter 5 about Herscovitch and Meyer’s understanding of commitment to organisational change being driven by wanting to change (valuing the change), feeling they have to change (they have little choice) or because they feel they ought to change (obliged to change)(97).

During staff interviews at LS units, there was some insight that they may not have yet succeeded at getting PROMPT widely implemented in their units, as part of the THISTLE Study objective. Some individuals felt this more acutely, and this was perceived as a personal failure. They understood the potential value of training but

felt they had been unable to fully convince others, and in front of us as PROMPT researchers (or “experts”), they perhaps even felt embarrassed or ashamed that their version of PROMPT was not up to standard.

*“We thought we were the worst...I still feel that we’re running a, a version of it. It’s maybe too much to say we’re running an apology for it, but a little bit I sometimes feel that there’s a lot we could... we focused on what our local priorities are, which I think is important, but we also need to be...a little bit more adaptable with it and, and move forward”*

- Interview with Labour Ward Lead Obstetrician, Flintfield (LS)

## 9.4 Summary

Overall, despite some challenges in implementation, across all units we visited, PROMPT was perceived positively, adding value to improving practice and care.

The positive experiences of staff, and the beneficial effects of training include: appreciation of the authenticity and realistic nature of the training; re-defining roles; erosion of professional hierarchies and barriers; improved confidence, interprofessional respect and pride; new technical learning; better responses to real emergencies; and systems testing.

Negative experiences and effects of PROMPT included: dislike (by some) of role-playing; concern over a lack of formal assessment; local resistance to change; commitment of time and resources; resistance to hierarchical flattening; and perception of failure.

So, PROMPT can generate a multitude of effects and experiences at unit level, the majority of which are positive forces for change, such as improving confidence and team-working, as well as more efficient clinical responses to real emergencies.

Negative responses to PROMPT tend to be more prominent at the initiation of training. Some of these effects may lessen with time and experience, as familiarity

and understanding of the value of PROMPT grows within a maternity department. PROMPT as an intervention may pressure-test the characteristics and resources of a department, revealing both strengths and weaknesses.

Linking back to the study's overall objectives, to establish the facilitators and inhibitors to implementation of PROMPT, then clearly individual and unit level experiences of PROMPT, and its noticeable effects on individuals and teams, will have a significant impact on whether PROMPT is perceived overall as a meaningful endeavour, with the potential to benefit maternity staff and patients. Where experiences and effects were principally positive, then this strengthened the training team's resolve to continue training, thus helping to normalise it. The affirmative experiences and effects of training therefore resonate with all four core constructs of NPT – valuable new learning makes sense of training (coherence), staff engaged with skills drills and simulations (cognitive participation and collective action); positive feedback and improved confidence and competence to deal with real emergencies after training encouraged staff to re-attend training, and allowed trainers to reflect on the outcomes and adapt their future training programmes (reflexive monitoring), in order to improve and sustain it.

## **Chapter 10: Recommendations and Strategies for Sustaining and Normalising Training**

In this chapter, I present a synthesis of recommendations and suggested strategies to improve implementation of local multi-professional training. These are a combination of ideas proposed by staff during the focus groups and interviews I conducted, as well as concepts related to the sustainability of PROMPT that I have developed through analysis of the study findings, underpinned by the constructs of Normalisation Process Theory. The first section will describe the findings and conceptual suggestions about sustaining training that originated from the data, and the second section will detail the potential strategies that could be employed to deliver these recommendations.

### **10.1 Concepts for promoting sustainability**

In this section, I shall present some of the key findings and suggestions surfacing in the data analysis, which could promote sustainability of training and wider multi-professional attendance, including:

- Mandating training using existing levers
- Importance of feedback for sustaining future training
- Planning
- Communication and championing
- Dedicated financial resources
- Manager attendance at Train the Trainers event
- The value of observing other units delivering PROMPT
- Generating enthusiasm and need for validation

#### **10.1.1 Mandating training using existing levers**

Some of the key requirements for effective obstetric emergency training are to ensure that it is run locally in the maternity unit and attended multi-

professionally(115). In focus groups, participants recognised that simulation of emergency scenarios in PROMPT felt more authentic than previous training they had done, especially when all members of the maternity team trained together. One obvious solution for overcoming poor attendance at training would be to mandate it for all staff. This observation was made during some of the focus groups:

*Participant 1: I think it should be compulsory.*

*Participant 2: A bit more.... Compulsory, well that sounds slightly negative, but yes. I wish it was compulsory! I wish it was.*

*Participant 3: It should be part of our routine....*

*Participant 2: If you're going to dip your toe into obstetrics then you should attend the PROMPT.*

*Participant 3: ...like why would you not attend this? An obstetric emergencies course. That's ridiculous if not.*

- Trainers' Focus Group, Heatherham (EI)

This excerpt illustrates how, to some trainers, PROMPT's value seems obvious, and that it would be counter-intuitive *not* to attend. This “no-brainer” perspective was echoed at other units also, even the LSs. This demonstrates the NPT constructs of coherence and cognitive participation, as discussed in Chapter 6. Not only did PROMPT make sense to them, but they had grasped its value sufficiently to feel that they also had a professional obligation to ensure that they attended obstetric emergency training.

So, while most clinical staff bought in to the PROMPT concept very readily, once they understood how it differed from the training they had been doing previously (as discussed in Chapter 6), they recognised that they did not always have the support or engagement of their managers, to ensure and fund attendance at training. It was therefore accepted that some system-level encouragement to attend would also be useful. Barriers to attendance were identified in the focus groups and the interviews, particularly, problems releasing staff to attend training from a busy clinical service, that could also be understaffed. There were additional challenges encouraging staff

who were reluctant to participate and in reaching all members of the maternity team.

The issues underpinning individual reluctance notwithstanding, it was recognised that there were existing macro-system levers that could be harnessed to promote participation, including mandating attendance at PROMPT as an annual training requirement, reinforced at professional appraisal or re-validation (as it has been at Southmead Hospital, for example).

The appraisal systems vary for different professional groups; however, the principle of locally mandating attendance for core training requirements is the same for consultant annual appraisals (for obstetricians and anaesthetists), midwifery annual reviews and junior doctor Annual Reviews of Competence Progression (ARCPs).

There are also system-level solutions to some barriers to attendance; for example, relaxation of self-imposed managerial restrictions on the proportion of staff allowed to be on study leave at one time, as seen at Flintfield, would also permit greater numbers of staff to attend each study day. This would economize the effort required to run less frequent training of larger groups of staff.

### **10.1.2 Importance of feedback for sustaining future training**

During the participants' focus groups in Heatherham (EI) and Flintfield (LS), staff identified that doing PROMPT at least annually would be important, to refresh their knowledge, especially for less common obstetric emergencies. This has always been a key recommendation for running PROMPT at T3 events.

Thus, maternity staff recognised that continuing regular training should become part of their normal routine. This represents reflexive monitoring, the fourth NPT core construct(98). By reflecting that their PROMPT training had been valuable over the first year or so of implementation, the staff recognised that it was worth continuing, and needed to be sustained. In NPT, reflexive monitoring requires systematization, such as collecting of information about the intervention, communal and individual appraisal of its worth and effects, and finally reconfiguration to modify the

intervention, if necessary, based on their experiences of it. Some units demonstrated these features by collecting feedback from their staff after running local training events. This allowed the trainers to understand if their staff had found training valuable and enjoyable, and take on board any suggestions for improvements.

*“Our feedback has been really good, and I think, speaking for myself anyway as a facilitator, to hear the feedback was really nice, because all of us here have put a lot of work into it, so to be able to hear that we’re making a difference and that the people who attended enjoyed it, then that means a lot.”*

*“It was the one thing [getting positive feedback] that really gave us the enthusiasm to keep going with it and definitely after the one that we’ve adapted just in February...it was, ‘Yes, we’re doing the right thing.’”*

- Excerpts from Focus Group with Trainers, Heatherham (EI)

Receiving positive feedback thus gratifies trainers, gives them confidence that they are “doing the right thing” and helps to sustain future training. The last excerpt shows that staff also adapted their training reflecting upon their experiences, which illustrates the reconfiguration component of reflexive monitoring.

### **10.1.3 Planning**

Local training days require significant planning to ensure the training faculty and equipment are available, along with the attendees. To avoid disruption to the clinical service, professionals should provide sufficient notice for leave, including local training days, which requires forward planning.

Some of the LS units recognised that they had underestimated the level of organisation required, and this resulted in inadequate preparation by the training team ahead of PROMPT days. This manifested as last-minute activity, particularly in finding available faculty to facilitate practical sessions.

Other staff suggested how planning meetings would have been useful, with clearer identification of roles and responsibilities. This resonates with the core construct in NPT of collective action – whereby teams need to come together to bring about change, through interactional work that operationalizes new sets of practices(116). Collective action also refers to the allocation of work and division of labour necessary for implementation of new practices and it seems appropriate to extrapolate this principle to the organisation of training for new practices.

There were several suggestions that more detail should be provided at T3 events about planning training days, so that teams are aware from the outset what is required of them. This new understanding has already informed how PROMPT training has since been implemented at maternity units in Wales in a new study(117) which will be discussed further in Section 10.2.2.

#### **10.1.4 Communication and championing**

As discussed in Chapter 7 (Roles of Champions and Teamwork), one of the major facilitators to implementation of training is having a strong and cohesive team of experienced multi-professional trainers (champions) to lead on delivering PROMPT. This team have the responsibility to promote PROMPT locally, for example by advertising new training events in posters, newsletters and emails. Applying NPT constructs, the teams in EI units that worked most effectively displayed collective action, as highly organised individuals, who made comprehensive plans for the training programme, incorporating feedback (reflexive monitoring) from staff about what previously worked well and what could be improved.

This understanding can be formalised into a potential sustainability strategy. As part of a future enhanced PROMPT support package (see more below), advising new teams to identify a champion to act as a local figurehead for PROMPT, and establish their individual roles at an early stage of planning would be useful, and providing suggestions about how to publicize and recruit staff to local training could be included in T3 events, or in support handbooks.



### 10.1.5 Dedicated financial resources and incentivisation

All THISTLE units had to establish training without any additional specific financial resources allocated to the project, beyond attending the T3 event and receiving the training materials. Recent research has identified that local training costs are significant and under-recognised: approximately £20,000 per 1,000 births and 92% of these costs are related to releasing staff, for both training and training faculty(103). Some units were able to access limited amounts of money to support training from other funds, but most units relied on trainers using their own time, money and resources to plan, buy equipment, make props, prepare feedback documentation etc.

Clearly, this is not sustainable, and some teams suggested that to make training viable in the long-term, the costs of running of PROMPT should be both recognised and supported, possibly through a dedicated allocation of resource from each hospital's maternity department budget. One unit also proposed that they needed to appoint a Practice Development Midwife. This is a well-recognised NHS role, already existing in many units, whose responsibility is to plan and facilitate all mandatory training in line with Trust and national policy. It is not clear why this unit did not already have such a position in place.

*“We’re doing these things in our own time at home and we’re planning it in our own time, and we’re changing things in our own time. You learn your lectures in your own time... If we had a dedicated person and they could be collating things better and bringing things together better.”*

- Trainers’ Focus Group, Heatherham (EI)

In England, training is now incentivised by reductions in indemnity premiums; the Maternity Incentivisation Scheme (MIS) provided by NHS Resolution(105) mandates attendance of 90% of anaesthetists, obstetricians, midwives and other members of the multi-professional team. The discount in indemnity premium will cover the costs of training and there has been an interesting reported change in discourse where

training is now recognised to have a financial value to the organisation, rather than just a cost (118).

Similar indemnifier based schemes have started in Victoria, Australia(38) and are being planned by the State Claims Agency in Dublin. Currently, there are no similar plans for Scotland.

#### **10.1.6 Manager attendance at Train the Trainers event**

Another suggestion made during focus groups and interviews was that more senior members of the maternity department's managerial team should be invited to attend T3 event, and introduced to the concepts, principles and ethos behind PROMPT, so that the clinical training team did not need to then "convince" them to fund training on their return to their base unit.

Staff felt that if managers attended, they would be able to understand at first-hand how PROMPT works, what differentiates it from other training, and potential savings in future litigation claims. These suggestions link to two core NPT constructs(98): coherence and cognitive participation. The distinction between PROMPT and other training required by managers is an example of "differentiation" – the first sub-component of coherence, and has been discussed in more detail in Chapter 6. The cognitive and active participation of managers is also crucial, but their potential role may be ignored, or not realised and made explicit to them at the initiation of training. Managers could also be signposted to other additional benefits to training, including reducing midwifery sick leave (*Sorensen J. Personal Communication*) and promoting the brand of the unit both internally and externally.

Finally, central schemes to incentivise local training, like the NHS Resolution Maternity Incentive Scheme (105), are likely to help managers understand the value of this training, rather than only seeing the cost.

#### **10.1.7 Informal networking and the value of observing other units**

There was a common proposal that it may have been helpful to see how other units that had implemented PROMPT ran a local training day. Trainers felt that this would have improved their confidence in how to set up the course practically, and how to structure the day.

Interviewer (KC): *Can you think of anything that might have helped you support the introduction of PROMPT, making it easier to implement?*

Obstetric Lead: *I suppose the only thing for me would maybe...to have gone to somebody else's PROMPT day and seen...because we went to the two day...training which was brilliant, but a massive amount of stuff to get through and it, the actual practicalities...Just going and actually being on somebody else's day...as an observer might have been quite useful.*

- Interview with Consultant Obstetrician, Glenchester (EI)

Despite this, this unit became an example to other units, who approached them for advice on setting up PROMPT. Several units established informal links with other hospitals, to share their experiences and give suggestions.

*"The anaesthetists from [another hospital] actually want to set a date for early next year to come and visit to see how we do it"*

- Trainers' Focus Group, Glenchester (EI)

During my observations of the Burnsbury (LS) PROMPT course, I saw there were also observers present from another hospital's maternity department within the same Trust. They had been struggling to implement training, so they had come to see first-hand how to deliver the package.

*"We had a great positive response from the participants and the trainers were enthusiastic. Everybody wanted to come and people from other Units calling, emailing, 'Can we come?'"*

- Interview with Lead Obstetrician for PROMPT, Burnsbury

This desire to observe more experienced teams delivering PROMPT, as well as requests for practical advice, seems very important and has not previously been identified. The spontaneous development of such informal local networks across some units is encouraging and is potentially a useful strategy for building confidence and harnessing regional expertise and experience.

There were also suggestions that a two-day introductory course may not be sufficiently long for new teams of trainers to get to grips with the programme and all the potential resources contained within the course materials provided. This understanding has already informed the development of a social franchising strategy, which shall be discussed in the next section.

#### **10.1.8 Generating enthusiasm and need for validation**

Trainers at some units expressed uncertainty if they were “doing PROMPT” correctly and lacked confidence in their delivery of PROMPT. This was most evident in one of the LS units, Flintfield.

*“As a faculty we want to know we’re getting it right, I suppose. Maybe having somewhere where we can go to have another bit of – bit more inspiration again to reinvigorate us as faculty I think would be helpful, even if it was a half-day where the faculty got together and just examined what we’re delivering or...could have another session with [name of PMF Co-Founder] ...just to be inspired again [laughs] would probably really, really be of benefit to us. Maybe going to some other units and actually seeing how they deliver their training would, would be helpful. And it’s something we have thought about but it’s one of these things you never sort of quite get round to doing.”*

- Interview with Practice Development Midwife, Flintfield

This need for validation is related to the previous suggestion some staff had made about wanting to observe others – a lack of confidence about how best to deliver

PROMPT can be an obstacle to its implementation. The potential benefits of dynamic local trainers were also recognised and appears to be important, not just at the first T3 event where PROMPT is introduced for the first time. There are likely to be benefits of reinforcement of positive behaviours and also possible improvements in clinical outcomes(102) that will sustain interest and positive reinforcement of the PROMPT programme going forward.

Finally, as discussed in previous chapters, there appears to be an enthusiasm for training and learning, with some staff attending training in their own time. Whilst this is encouraging, these behaviours are unlikely to be sufficient in the long term and other more sustainable systems are required going forward.

## **10.2 Sustainability and normalisation strategies for PROMPT**

Synthesising these suggestions for improvement has allowed me to develop some new potential strategies for sustaining training, all of which resonate with NPT core constructs(98).

### **10.2.1 PROMPT networks**

There is great value placed by trainers not only on observing others doing PROMPT training, but also on being observed delivering PROMPT themselves; these could be key elements at establishing and sustaining PROMPT.

One potential strategy for overcoming uncertainties with how to set up PROMPT locally would be for neighbouring maternity units to be linked up in a “buddying” system, whereby those with more experience at running PROMPT days could share their learning and expertise with those less familiar with the package. Staff could observe how colleagues from other units organize their training and see how local practical problems can be addressed. This embraces the NPT constructs of cognitive participation and collective action, whereby teams come together to identify the work that needs to be done and then implement these actions.

Moving towards longer term sustainability strategies, formalising and widening informal supportive networks (as seen in this study) would be both logical and feasible. Such a network might include multi-professional trainers, users and managers, who could then support each other and build a virtual learning space, possibly developing blogs and information hubs e.g., with Frequently Asked Questions (FAQs) sections, and “expert” answers.

Regional networks could have additional benefits in promoting the work of PROMPT, fostering a community of practice and sense of belonging to, and identifying with, the PROMPT “brand”. Such networks could address the issues of lack of planning and under-confidence, the need to observe and be observed, and allow for positive feedback – all of which were identified as valuable by staff.

### **10.2.2 Outreach support, social franchising and national funding**

From the findings in this study that some teams felt they would have benefitted from more practical support, and the issues identified with lack of confidence and quality control, I generated the notion of developing a PROMPT Outreach Support programme. I envisaged this support in the form of experienced PMF representatives visiting new units and providing staff with tailored support and practical advice in their own workplace, after T3 training. In fact, this recommendation has now already been realized, and has been instrumental in informing the design of a new study of PROMPT implementation taking place currently in Wales, since the THISTLE-Plus Study ended. The PROMPT Wales Project(117), funded by the NHS Welsh Risk Pool, has involved maternity units new to PROMPT being visited on a number of occasions by an implementation support team, comprising a PMF obstetrician and midwife, and some multi-professional colleagues from other Welsh units, to trouble-shoot, plan and discuss training goals and challenges together. Furthermore, to address the very issues identified in this study, a handbook has been written to help units with a checklist-based planning

scheme for local training days (*Personal communication with S. Renwick and J. Storey, PROMPT Wales/Cymru Project Leads*). Such enhanced support is way of galvanising local teams to get training off the ground, by determining exactly what needs to be done and how, which is an example of NPT collective action.

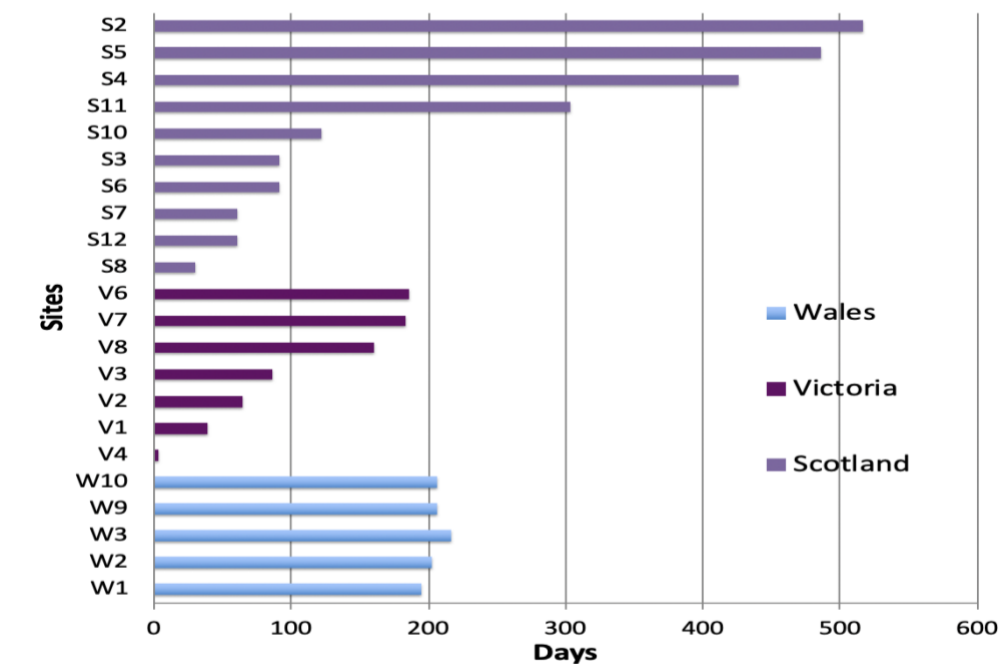
This enhanced support package is a form of social franchising and licensing, defined by the Health Foundation as “methods to replicate and scale interventions that have not yet been used widely in health care...which may have the potential to help spread proven health interventions”(119). Social franchising may address the challenges of funding, and the Health Foundation have funded a parallel research programme to explore whether this approach, including more local support, is useful and/or feasible(120), and to determine if social franchising can become a core replication strategy in the PROMPT Partnership Programme. It is possible that different units may require different levels of support(35).

In Australia, although a social franchise approach was not employed, the CEO of each health service in Victoria was required to sign a memorandum of understanding to establish and run PROMPT locally for a minimum of two years – a show of commitment that is comparable to a franchise agreement, although not as detailed. State-wide roll out in Australia(35) has demonstrated improved outcomes; this is interesting, especially compared to Scotland, where no national agreement for funding was in place.

Research conducted as part of the PROMPT Wales study(117) has provided more data on the time intervals between teams attending Train the Trainer events and starting local training in their own units. As shown in Figure 8 below, when data from Wales (PROMPT Wales), Scotland (the wider THISTLE Study) and Victoria, Australia (VicPROMPT) are compared, the variation in training set-up times can be seen. Some Scottish units took twice as long (over 400 days) than some of the Welsh and Australian units to start training. The core implementation differences between PROMPT Wales and VicPROMPT compared to THISTLE were that the Welsh and regional Australian governments provided either overt or linked funding (respectively) for training, and in the case of PROMPT Wales, additional

implementation support to their units – unlike in Scotland’s THISTLE Study. Therefore, when comparing the implementation of a health improvement intervention at scale, government support and provision of a dedicated implementation support team can reduce the variation in commencing the intervention locally in different contexts.

**Figure 8: Time (in days) from Train the Trainers event to start of local PROMPT training courses**



### 10.2.3 Refresher courses

Another potential strategy to sustain and normalize PROMPT is to introduce half-day, or full-day, PROMPT Refresher courses. These could be optional study days for staff who have already registered with PMF and previously sent teams to T3 Days. This would serve several purposes and address some of the reported obstacles to implementation:

- 1) Maintain enthusiasm and interest in PROMPT
- 2) Ensure quality control and fidelity to PROMPT package, along with reminders of core practical training techniques, especially regarding shoulder dystocia training
- 3) Provide reassurance to less confident teams that they were “doing it right”



This strategy could be interpreted as a form of reflexive monitoring, the fourth NPT construct. Refresher courses could allow trainers to appraise and benchmark their own knowledge and teaching against the “gold standard” demonstrated in T3 training, individually and collectively. It could also provide a forum for problem-shooting logistical training issues with the PMF “experts”, to modify, re-configure and improve their local training on return to their unit.

#### **10.2.4 Managerial support**

As suggested in the focus groups and interviews, a key strategy to overcome the issue of managers not fully understanding the value of PROMPT would be to invite them to the T3 training events, with their clinical colleagues, at the outset of embarking upon PROMPT. This would secure their coherence and cognitive participation (core NPT constructs, as discussed in Chapter 6) in the package. Information about the financial incentives could be shared with the stakeholders directly, to achieve conceptual buy-in, without having to be passed on by the clinicians who attended. In this way, there should be no dilution of the PROMPT message.

#### **10.2.5 Mandating training for all**

As discussed in Section 10.1.1, once managers have attended T3 training and learnt about potential cost savings from reduced litigation, they may be more inclined to fund training in their unit and to mandate it, which could overcome the problems of non-attendance by certain professional groups. This represents enrolment and legitimation, subcomponents of cognitive participation according to NPT.

Ideally, PROMPT training should be mandated at a national level – there are already recommendations in place in NHS England to adopt PROMPT for annual obstetric emergency training(6), and NHS Scotland could follow suit. This is likely to require similar incentivization schemes as already exist in England, whereby Trusts can

secure reduced insurance premiums if they can demonstrate all their staff are attending obstetric emergency training.

### **10.3 Summary**

In this chapter I have discussed potential strategies for enhancing successful implementation of PROMPT, and ways of overcoming barriers to setting up training, some of which have already been introduced into the latest PROMPT training programme in Wales. The need for enhanced support to improve familiarity with training and develop confidence in the trainers is crucial.

Through social franchising, the future PMF may need to be more prescriptive with units about their implementation strategy, which could lead to more authentic and effective replication. Incentivising financial support at a national level may be critical to resourcing training adequately.

The existing literature has established that in order to be effective, it is important that training is multi-professional (115), and this is also a feature of safe maternity units(102). Furthermore, the literature on high reliability organisations(100) recognises that training should bring multi-professional clinical teams together in their normal working environment to rehearse, reflect and improve on their collective practice. By using NPT (98) to analyse the findings from this study, I have established that successful training implementation requires more than multi-professional staff simply turning up and attending training, but necessitates active engagement and cognitive participation. NPT can help further understand that there are very likely to be important social interactions by all the staff groups that are required to implement and embed practice tools in their local context.

I have illustrated how these sustainability concepts resonate strongly with all four components of Normalization Process Theory. In practical terms, normalizing PROMPT essentially means ensuring that as a complex intervention, it is properly

understood, funded, organized, attended, reflected upon and modified. If these objectives are successfully realized, PROMPT is much more likely to be established and sustained.

## Chapter 11: Safety Attitude Questionnaire Results and Analysis

In this chapter, I will present the background, aims and objectives, statistical methods and results of the Safety Attitudes Questionnaires (SAQs). The statistical analysis was undertaken with the assistance of a medical statistician from the University of Bristol, Chetan Prajapati, under the supervision of Dr Erik Lenguerrand. This will be followed by an interpretation and discussion of the results, considering the previous chapters' findings regarding local contextual differences observed at the participating maternity units during the data collection stage.

### 11.1 Background

As explained in previous chapters, the SAQ was originally developed by Bryan Sexton and colleagues at the University of Texas(86). The version used in this study is the validated UK version of the Labour and Delivery SAQ (**Appendix 9**). This comprises 57 items plus demographic information (age, sex, years of professional experience in specialty, and years of experience in hospital, and nationality). It was used in the SaFE Study(26), and has been used in several other studies assessing caregiver safety attitudes since(35, 37). Each item is answered using a five-point Likert scale (Disagree Strongly, Disagree Slightly, Neutral, Agree Slightly, Agree Strongly). The questions assess the respondent's attitudes across 6 domains:

- Teamwork Climate
- Safety Climate
- Perceptions of Management
- Job Satisfaction
- Working Conditions
- Stress Recognition

The questions are a mixture of positively worded and negatively worded statements, with 30 of the different statements corresponding to one of the six domains (**Appendix 15**).

Previous research conducted using SAQs at Southmead Hospital showed a positive safety culture, teamwork climate, and job satisfaction following introduction of PROMPT (37). Similar improvements in staff perceptions of teamwork, safety and management were seen in Victoria, Australia, following PROMPT training (35). These studies suggest establishment of PROMPT is associated with positive teamwork and safety attitudes, and I therefore wanted to determine if similar associations were evident in Scotland after the roll-out of the THISTLE study.

## **11.2 Aims and Objectives**

The principal objective of using the SAQs was to measure workplace safety attitudes in each maternity unit participating in the study, and to identify whether any association exists between implementation of PROMPT and these safety attitudes. I also wanted to compare safety attitudes between different units, and between different professional groups. The analysis of the data was tailored to meet these objectives. With the assistance of professional medical statisticians from the University of Bristol, the appropriate analyses were performed, to ensure rigorous standards and credible results. Together we discussed how the analyses would help answer the questions above, and why the testing methods used were applicable.

## **11.3 Methodology**

### **11.3.1 Data Collection: setting, location, dates and eligibility criteria**

As detailed in Chapter 2, the setting and location for the study were four Scottish maternity units already participating in the wider THISTLE study, with assigned pseudonyms: Unit 1 (Glenchester, EI), Unit 2 (Burnsbury, LS), Unit 3 (Heatherham, EI) and Unit 4 (Flintfield, LS). The eligibility criteria for completing the questionnaire

were permanent maternity staff at participating units, defined as staff working more than three days per week for at least three months, after local training had commenced in their unit. As training commenced at different times at each unit, and because different units agreed to participate in THISTLE-Plus at different times, consequently data collection also took place at different times. The dates of data collection ranged from December 2015 to October 2016.

I asked the local collaborator, if they could not fulfil this role themselves, to identify another member of staff to distribute and collect the SAQs. I provided the collaborator with copies of the SAQ (**Appendix 9**), envelopes, and laminated signs for a collection box. I suggested that to gain a greater possible response, it might be necessary to hand out questionnaires and encourage staff to complete them in communal areas, such as coffee rooms in clinical areas. Once completed (anonymously), the surveys were sealed in envelopes and placed into the collection box. The questionnaires were either collected by me during site visits or returned to me by post. More batches of questionnaires were sent to each unit, on request, to attempt as high a return rate as possible, aiming for approximately 60%. This target is based on findings from a meta-analysis of 490 survey studies, which found that the average response rate for survey studies (using data collected from individuals) was 53% (88). Unfortunately, determining the true sample size, as a proportion of total eligible staff, was not possible, as we could not obtain accurate information on total staff in different professional subgroups at each maternity unit.

### **11.3.2 Transcription of data**

Data was transcribed from the completed questionnaires into an Excel spreadsheet for further analysis. Two undergraduate medical students from the University of Bristol assisted with this process, and I checked the accuracy of their work with a random selection of samples from each of the four units.

### 11.3.3 Outcome of interest - Climate scores

The principal outcome measure for the SAQs was the climate score, that is the score for each of the six safety attitude “domains” listed above. The climate score was measured for each individual respondent, ranging on a scale from 0 to 100 (lowest to highest). This figure is calculated in the following way(121):

- 1) Reverse score all negatively worded items
- 2) Calculate the mean of the set of items from the scale
- 3) Subtract 1 from the mean
- 4) Multiply the result by 25

This can be summarised in the following formula:

$$\text{Climate score} = (\text{mean of climate related items} - 1) \times 25$$

### 11.3.4 Co-variables or explanatory variables

To make the demographic data from the SAQ easier to analyse, it was re-organised into more concise classifications. A co-variate (or explanatory variable) is defined as a variable that is expected to change with the outcome of a study (122). Co-variables therefore are of interest in this analysis because they can explain variability in climate scores (the outcome measure). The co-variables in this analysis are:

- 1) Professional group

“Profession” was grouped into three subgroups for data analysis, as follows:

“*Medical*” refers to all respondents who indicated that they were doctors, including both anaesthetists and obstetricians, of any grade/level of training (including foundation year (FY) doctors, GP trainees and obstetric specialty trainees). I grouped obstetricians and anaesthetists together because there were very few anaesthetists who completed the survey, meaning analysing them as a separate group would not be meaningful, and could be potentially identifiable.

*“Nursing/Midwifery”* refers to all respondents who indicated that they were nurses, midwives, healthcare assistants, nursing auxiliaries, nursery nurses or neonatal nurses.

*“Other”* refers to managers and receptionists. Although these are not strictly the same professional group, subdividing them further could potentially have made their responses identifiable, as the total for this group was only four (see Results section 11.4 below).

## 2) Work experience

There were two questions about work experience in the demographic section of the SAQ. One referred to the number of years working in the specialty, and the other referred to number of years working in that hospital. In our data analysis, the term *“work experience”* was used to indicate the number of years of experience the respondent had working within the specialty, because there were fewer missing data fields for this question (as explained in section 11.4.2).

## 3) Gender

Respondents either indicated if they were male, female, or did not respond to this question.

### **11.3.5 Subgroup analysis**

Having identified at an early stage of the study that some maternity units were larger than others (in terms of annual birth rate) and that some maternity units were quicker at setting up PROMPT than others, I wanted to determine if these differences between units were related to their safety attitudes and whether any statistically significant differences between these units existed. Units 1 and 3 were smaller, in terms of number of live births per year, than Units 2 and 4, as explained in Chapter 4. (Units 1 and 3 had less than 4000 births in 2015, Units 2 and 4 had more than 4000 births in 2015). Units 1 and 3 were also both classified by me as



“EIs” in terms of how quickly they set up their first training days, compared to units 2 and 4, termed “LSs”. We therefore decided to conduct statistical analyses comparing the SAQ climate scores between the smaller units (1 and 3), and the larger units (2 and 4). These are shown in Table 8 and discussed in the Results section below.

### 11.3.6 Statistical model

To understand the data, a statistical model was applied to look for significant differences (in terms of p values) between units. Quantile regression was selected as the statistical model for this analysis, a choice which I shall now justify.

The climate scores and the individual item responses in our analysis were skewed i.e., *not* normally distributed – meaning that the scores were not evenly distributed around a central mean value. Therefore, it was appropriate to use the median and interquartile range (IQR), instead of the mean and standard deviation (used in normal distributions of data). It also follows that linear regression models (based on means) cannot be used to look for patterns or associations in our data. In such *non*-normally distributed data, there are two options. One is to transform the data using logarithmic functions, into a normal distribution, but this is complex and makes the data very difficult to interpret. The second option, which we selected, is to employ techniques based on interpreting median values i.e., the 50<sup>th</sup> centile. This forms the justification for using quantile regression, a statistical test based on estimating the median, or other quantile (fifths of the data set) responses.

Other tests for non-normally distributed data exist (e.g., method of least squares) but quantile regression is considered preferable because it is more robust against outliers in the dataset. It also permits a more thorough analysis of the relationship between different variables.

Data from the Excel spreadsheets was imported into R software, which was used to perform the quantile regression analysis. R is a programming language and software widely used for statistical computing, which enables linear and non-linear modelling

and classical statistical tests, amongst other functions. It can also generate static graphics(123).

- **Unadjusted versus adjusted statistical models**

In the unadjusted quantile regression model, only the climate score and unit were considered. No other co-variables (such as gender or professional subgroup) were included. In the adjusted model, the data was adjusted to include the co-variables (unit size, gender, professional group, and years of specialty experience).

### **11.3.7 Missing data Imputation**

In statistical analysis, if one value in the data is missing, the whole dataset of responses for that individual is automatically removed by statistical software packages. So, either the entire set of responses to that questionnaire must be excluded from the analysis, or, a missing data imputation model can be used, which artificially predicts the missing data value, according to the distribution seen across the observed available datasets. We used the MICE (missing imputation by chain equation) model. We ran analyses with MICE, and without, to see if any differences existed. The imputed and non-imputed data analyses are shown in Table 10.

## **11.4 Results**

### **11.4.1 Number of respondents**

There were 376 SAQs in the initial sample collected. However, four questionnaires were excluded, based on their professional subgroup (see below in section 11.4.2). It was not possible to calculate the sample size as a proportion of the total maternity staff at each unit, as we did not receive accurate or complete data about the numbers of staff working within each professional group from the units. This was a problem shared by the wider THISTLE study across Scotland too(52).

### 11.4.2 Descriptive statistics results

Table 7 below summarizes the concise co-variate demographic data.

The highest number of respondents (111) came from Unit 4, which was one of the larger units, and the fewest respondents (82) came from Unit 3, one of the smaller units, suggesting a broadly proportionate response, although formal sample size calculations were not possible, as already explained.

**Table 7: Descriptive statistics of co-variates**

		<b>TOTAL</b>	<b>Unit 1</b>	<b>Unit 2</b>	<b>Unit 3</b>	<b>Unit 4</b>
	<b>Total respondents</b>	<b>372</b>	<b>91</b>	<b>88</b>	<b>82</b>	<b>111</b>
<b>Profession</b>	<b>Nurse/Midwife (n, %)</b>	<b>323 (87%)</b>	72 (79)	78 (89)	75 (91)	98 (88)
	<b>Medical (n, %)</b>	<b>32 (9%)</b>	14 (15)	5 (6)	4 (5)	9 (8)
	<b>Missing</b>	<b>17 (4%)</b>	5 (5)	5 (6)	3 (4)	4 (4)
<b>Work Experience in speciality (years)</b>	<b>Median (IQR)</b>	<b>15 (7,24)</b>	17 (10,23)	14 (7,26)	11 (7,21)	15 (7,25)
	<b>Missing</b>	<b>141 (38%)</b>	33	31	29	48
<b>Gender</b>	<b>Male (n, %)</b>	<b>14 (4%)</b>	5 (6)	2 (2)	3 (4)	4 (4)
	<b>Female (n, %)</b>	<b>348 (94%)</b>	83 (91)	82 (93)	78 (95)	105 (95)
	<b>Missing</b>	<b>10 (3%)</b>	3	4	1	2

#### 11.4.2.1 Professional subgroup results

Overall, there were only four respondents identifying themselves as managers or receptionists. Given such a small number for this group, it would have been inappropriate to include them as a separate subgroup for comparative analyses. They were therefore excluded from subsequent analyses, as they could be potentially identifiable, and the numbers may have been too small to be representative for that group. Thus, from the original 376 completed questionnaires, the number analysed further was reduced to 372. Comparisons between professional groups were therefore limited to looking at the responses of the “medical” and “nursing/midwifery” groups only.

#### 11.4.2.2 Work experience results

There were missing data in 38% of responses to the question about the number of years of experience working within their speciality. The question about years of experience of working in their current hospital had 45% missing data. We therefore used “years of specialty experience” in preference to “years of hospital experience” for data about work experience, as there were fewer missing data for this question.

Table 7 shows that the median number of years staff had worked within their specialty was similar across all units (11 to 17 years), suggesting no difference between units in terms of seniority or experience level of staff.

#### 11.4.2.3 Gender results

Overall, there were 352 female respondents, 14 male, and 10 who did not respond to this question. Within the medical group, 12 respondents were male, leaving only 2 other males across the other professional groups. Table 1 indicates that the majority (94%) of respondents across all units were female, and 87% overall were midwives.

#### 11.4.3 Climate scores

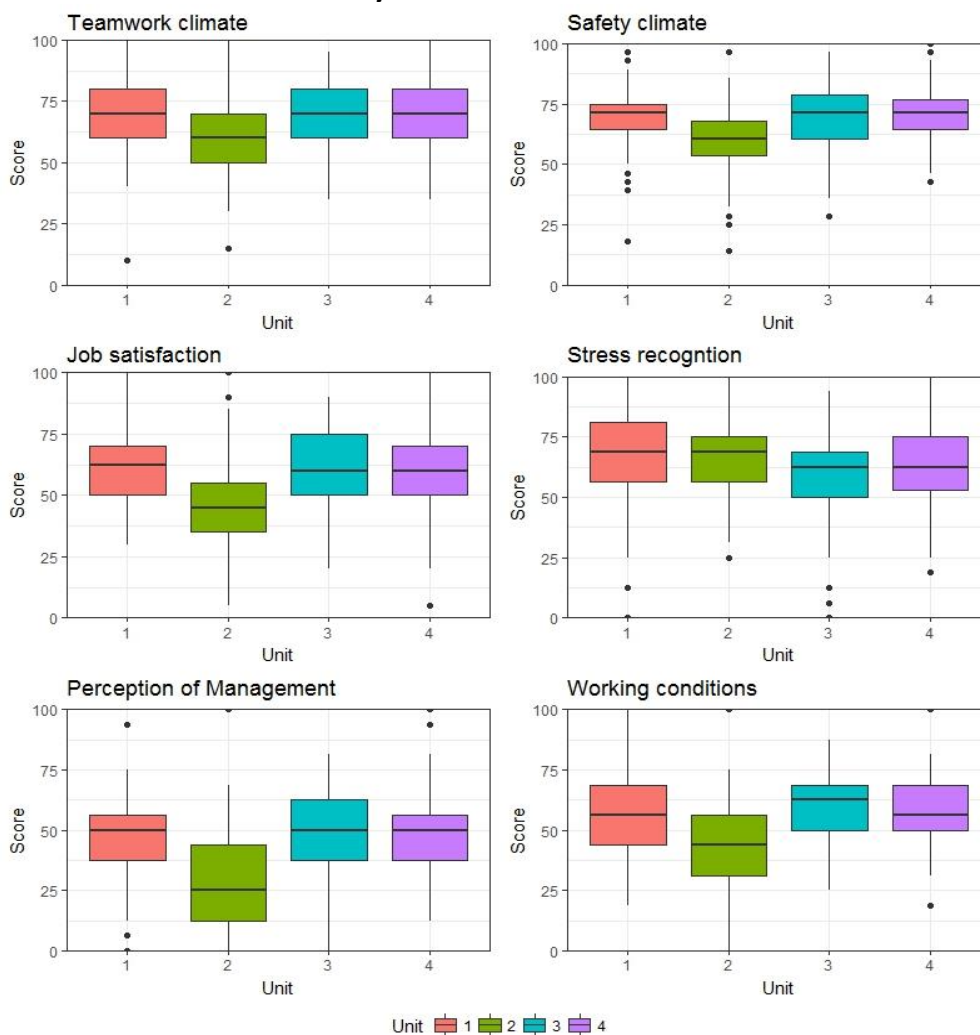
**Table 8** below summarizes the climate scores in tabular format i.e., the collective scores for each of the six SAQ domains, for each unit. As explained previously, the score is from 0-100, with the higher figures indicating more positive attitudes in each of these domains.

**Table 8: Climate Scores by Unit**

Total N= 372	Missing n (%)	Unit 1 n=91 Median (IQR)	Unit 2 n=88 Median (IQR)	Unit 3 n=82 Median (IQR)	Unit 4 n=111 Median (IQR)
<b>Teamwork</b>	16 (4)	70.0 (60.0, 80.0)	60.0 (50.0, 70.0)	70.0 (60.0, 80.0)	70.0 (60.0, 80.0)
<b>Safety</b>	29 (8)	71.4 (64.3, 75.0)	60.7 (53.6, 67.9)	71.4 (60.7, 78.6)	71.4 (64.3, 77.7)
<b>Job satisfaction</b>	24 (6)	62.5 (50.0,70.0)	45.0 (35.0, 55.0)	60.0 (50.0, 75.0)	60.0 (50.0, 70.0)
<b>Stress recognition</b>	13 (3)	68.8 (56.2, 81.2)	68.8 (56.2, 75.0)	62.5 (50.0, 68.8)	62.5 (53.1, 75.0)
<b>Perceptions of Management</b>	17 (4)	50.0 (37.5, 56.2)	25.0 (12.5, 43.8)	50.0 (37.5, 62.5)	50.0 (37.5, 56.2)
<b>Working conditions</b>	13 (3)	56.2 (43.8, 68.8)	43.8 (31.2, 56.2)	62.5 (50.0, 68.8)	56.2 (50.0, 68.8)

This data can be better visualized in graphical format, in Figure 9 below.

**Figure 9: SAQ Outcome Scores by unit**



### Explanation of graphics in Figure 9

Within each graph, the coloured bars represent the scores from units 1 to 4 respectively, as indicated by the colour code at the bottom of the graphic. The bold horizontal line within each bar represents the median score. The upper and lower boundaries of the bar represent the inter-quartile range (IQR), which is the spread of data between the 25<sup>th</sup> and 75<sup>th</sup> centiles. The vertical lines indicate the full range of results from highest to lowest scoring, within the data set for that unit. The dots indicate outliers.

Broadly speaking, these graphs show that Units 1, 3 and 4 (Glenchester, Heatherham and Flintfield, respectively) have similar results across all 6 SAQ domains. Unit 2 (Burnsbury), one of the LS units, appears to show lower (less positive) safety attitude scores across all domains, apart from stress recognition. This finding is discussed further in section 11.5.

#### 11.4.4 Unadjusted model results

The unadjusted model results are summarised in Table 9 below, which as explained previously, does not include any adjustments for gender, professional group or years of specialty experience.

**Table 9: Unadjusted results from statistical model comparing smaller units with larger units**

SAQ Domain	Small Units (1,3) vs. Large Units (2,4)			Unit 2 vs. Unit (1,3,4)		
	Median Difference	95% CI	P-value	Median Difference	95% CI	P-value
Teamwork climate	0.6	-3.2,4.5	0.74	11.3	6.5,16.1	<0.001
Safety climate	-0.3	-4.1,5.6	0.89	8.7	4.7,12.7	<0.001
Job satisfaction	-1.2	-6.3,4.0	0.65	14.2	9.4,19.1	<0.001
Stress recognition	1.4	-3.0,5.9	0.52	-4.2	-9.0,0.9	0.11
Perception of management	2.0	-3.2,7.4	0.44	21.9	16.0,27.8	<0.001
Working conditions	-0.5	-5.5,4.4	0.83	15.8	10.7,21.0	<0.001

This demonstrates that, before controlling for gender, professional group or work experience, most outcome scores are statistically lower (less positive) at Unit 2 compared to the other three units. Again, this finding is discussed further in section 11.5.

Table 10 below shows results of the unadjusted statistical analysis comparing safety attitude domain scores between nursing/midwifery and medical staff at each unit. The p values highlighted in red indicate statistical significance, as they reached a p value of less than 0.05. The data here demonstrates that before adjustment for co-variates, Unit 2 scores were globally low across all domains and for all staff, and no significant differences existed between doctors and nursing/midwifery in this unit. However, in Units 1, 3 and 4, the highlighted p values of less than 0.05 for teamwork climate, job satisfaction, perception of management and working conditions, all indicate statistical significance.

**Table 10: Unadjusted results from statistical model comparing median differences in climate scores between professional subgroups at each unit**

Difference in climates scores between nursing and medical staff								
	Unit 1		Unit 2		Unit 3		Unit 4	
	Median Difference (95%CI)	P-value	Median Difference (95%CI)	P-value	Median Difference (95%CI)	P-value	Median Difference (95%CI)	P-value
<b>Teamwork climate</b>	10.4 (2.5,18.2)	<0.01	-3.7 (-26.5,19.1)	0.72	14.6 (7.9,21.4)	<0.001	13.0 (5.8,20.2)	<0.001
<b>Safety climate</b>	10.4 (3.3,17.4)	<0.01	-0.7 (-18.2,16.8)	0.94	13.9 (7.2,20.6)	<0.001	8.6 (-1.9,19.01)	0.10
<b>Job satisfaction</b>	14.2 (5.8,22.6)	<0.01	8.8 (-16.2,33.7)	0.48	18.1 (9.3,27.0)	<0.001	21.2 (12.6,29.9)	<0.001
<b>Stress recognition</b>	2.9 -7.2,13.0	0.58	5.3 -0.1,10.6	0.06	13.3 -1.9,28.9	0.09	-4.4 -16.0,7.15	0.44
<b>Perception of management</b>	10.3 1.3,19.3	0.02	7.7 -6.1,21.5	0.27	10.5 2.8,18.2	<0.01	25.4 18.5,32.4	<0.001
<b>Working conditions</b>	16.6 (11.2,21.9)	<0.001	7.4 (-7.8,22.7)	0.33	15.9 (11.6,20.1)	<0.001	19.9 (11.8,28.1)	<0.001

This indicates that nursing staff felt significantly less positively about teamwork, safety, job satisfaction and working conditions than their medical colleagues, at all

units, apart from Unit 2 (Burnsbury, LS), where the scores were broadly similar and less positive across almost all climate scores for both professional groups.

#### **11.4.5 Adjusted model results**

Table 11 below shows the results from the statistical model where the data has been adjusted to consider the co-variables (unit size, gender, professional group, and years of specialty experience). Both the imputed and non-imputed data models are shown for comparison. Without imputation, there were only 227 complete samples with demographic (co-variables) and climate scores (outcome measure) answered. Again, the results that reached statistical significance are highlighted in red ( $p < 0.05$ ). There are almost identical results between the imputed and non-imputed models, in terms of p values, except for one result comparing attitudes towards working conditions based on gender (where the non-imputed data showed greater differences in climate scores between gender). These results will be discussed further in the next section 11.5 below.



**Table 11: Results from statistical model (adjusted with co-variates), both without imputation and with imputation**

Climate scale		Linear Quantile regression model N=227		Linear Quantile regression model (after multiple imputation) N=372	
		Median difference (95% CI)	P-value	Median difference (95% CI)	P-value
Teamwork climate	Small Units (1,3) vs large unit (2,4)	5.5 (1.6,9.5)	<0.001	5.0 (2.0,8.0)	0.001
	Unit 2 vs Unit 1,3,4	-9.9 (-15.1, -4.8)	<0.001	-10.5 (-14.5, -6.6)	<0.001
	Gender (Male vs Female)	3.6 (-8.7,15.9)	0.56	1.3 (-7.5,10.1)	0.77
	Profession (Medical vs Nursing)	8.8 (1.6,16.1)	0.01	8.9 (2.7,15.2)	0.005
	Experience in Speciality	0.1 (-0.1,0.3)	0.29	0.1 (0.0,0.3)	0.11
Safety climate	Small Units (1,3) vs large units (2,4)	3.9 (0.3,7.6)	0.03	3.7 (0.8,6.5)	0.01
	Unit 2 vs Unit 1,3,4	-8.1 (-12.5, -3.7)	<0.001	-8.2 (-11.8, -4.6)	<0.001
	Gender (Female vs Male)	3.2 (-6.7,13.1)	0.55	3.3 (-4.4,11.0)	0.40
	Profession (Medical vs Nursing)	8.0 (0.9,15.2)	0.03	8.0 (1.7,14.3)	0.01
	Work experience	0.1 (-0.1,0.3)	0.18	0.1 (0.0,0.3)	0.11
Job satisfaction	Small Units (1,3) vs large units (2,4)	8.1 (3.7,12.4)	<0.001	7.7 (4.1,11.4)	<0.001
	Unit 2 vs Unit 1,3,4	-13.7 (-19.2, -8.2)	<0.001	-14.3 (-18.9, -9.7)	<0.001
	Gender (Female vs Male)	4.5 (-6.9,16.0)	0.44	2.2 (-7.4,11.9)	0.65
	Profession (Medical vs Nursing)	14.6 (6.1,23.1)	<0.001	15.5 (7.7,23.3)	<0.001
	Work experience	0.0 (-0.3,0.2)	0.69	0.0 (-0.2,0.2)	0.80
Stress recognition	Small Units (1,3) vs large units (2,4)	-1.2 (-6.2,3.7)	0.60	-0.9 (-4.7,2.8)	0.62
	Unit 2 vs Unit 1,3,4	4.9 (-0.5,10.2)	0.07	3.7 (-0.6,7.9)	0.09
	Gender (Female vs Male)	3.4 (-9.6,16.5)	0.56	2.9 (-7.6,13.4)	0.59
	Profession (Medical vs Nursing)	4.1 (-5.7,13.9)	0.39	1.3 (-6.9,9.6)	0.75
	Work experience	0.0 (-0.3,0.2)	0.90	0.0 (-0.3,0.2)	0.69
Management	Small Units (1,3) vs large units (2,4)	8.6 (4.2,13.1)	<0.001	8.9 (5.3,12.5)	<0.001
	Unit 2 vs Unit 1,3,4	-18.6 (-24.2, -13.0)	<0.001	-20 (-24.5, -15.4)	<0.001
	Gender (Female vs Male)	7.2 (-2.2,16.5)	0.14	5.4 (-4.8,15.7)	0.30
	Profession (Medical vs Nursing)	10.6 (2.2,19.1)	0.01	12.6 (4.9,20.2)	0.001
	Work experience	0.0 (-0.3,0.2)	0.73	0.0 (-0.3,0.2)	0.89
Working conditions	Small Units (1,3) vs large units (2,4)	6.9 (3.2,10.6)	<0.001	6.7 (3.5,9.9)	<0.001
	Unit 2 vs Unit 1,3,4	-14.1 (-19.3, -8.9)	<0.001	-14.6 (-18.8, -10.3)	<0.001
	Gender (Female vs Male)	7.3 (0.3,14.4)	0.05	5.1 (-2.7,12.9)	0.20
	Profession (Medical vs Nursing)	12.7 (6.5,19.0)	<0.001	14.6 (8.5,20.6)	<0.001
	Work experience	0.1 (-0.1,0.3)	0.57	0.1 (0.0,0.3)	0.21

## 11.5 Interpretation and discussion of results

### 11.5.1 Global SAQ Outcome Scores

(Table 8 and Figure 9)

Units 1, 3 and 4 have similar results across all 6 SAQ climate scores. Unit 2 (Burnsbury, LS) appears to show lower safety attitude scores across all domains, apart from stress recognition.

As discussed earlier in the chapter, Units 1 and 3 were smaller, in terms of number of live births per year, than Units 2 and 4, as explained in Chapter 4. Units 1 and 3 were also both classified as EIs in terms of how quickly they set up their first training days, compared to units 2 and 4, termed LSs.

### 11.5.2 Unadjusted versus adjusted model results

(Tables 9, 10 and 11)

In Table 9, before adjustment for the co-variates (gender, years of work experience, professional group), the p values comparing the differences in scores between the smaller units (1 and 3, both early starters) and the larger units (Units 2 and 4, both LSs), do **not** reach statistical significance (p values all greater than 0.05). However, when Unit 2 is compared to the other 3 units, there are statistically significant differences for all domain scores (other than stress recognition).

**So, at Unit 2 (a larger and a LS unit), staff safety attitudes are significantly less positive than they are at the other 3 units, without taking into consideration work experience, gender or professional subgroup.**

However, after adjustment for co-variates, in Table 11, the p values for the median differences between smaller and larger units in domain scores all reach statistical significance ( $p < 0.05$ ), except for stress recognition.

**Therefore, when adjusted for gender, unit size, profession and years of experience, staff at smaller maternity units feel more positively about most safety attitudes (towards teamwork, job satisfaction, safety climate, perception of management and working conditions) than those at larger hospitals.**

This is an interesting and unanticipated finding. The smaller units (1 and 3) were also the early starter units. So, from our analysis, it appears that not only is training easier to implement initially in smaller units, but that safety attitudes may be more positive in smaller units too. The nature of this association is also debatable – we cannot definitively attribute causation from these findings, but it is possible that safety attitudes are more positive in units where there are fewer staff because people are more likely to know each other and work more cohesively together. In simple practical terms, it may just be easier to do training for all staff where there are fewer people to train. Smaller units may be more receptive to change, and thus new interventions (such as PROMPT) can be taken up more readily. Alternatively, safety attitudes may have become more positive at the early starter units as a result of PROMPT as an intervention. Through multi-professional training on team-working and communication skills, it is possible that PROMPT unifies teams, stratifies their approaches to emergencies, encourages better working relationships and job satisfaction, which is reflected in their higher SAQ scores after PROMPT was introduced.

There were also statistically significant differences between Unit 2 and all the other units across all domains other than stress recognition. This indicates that staff safety attitudes are significantly more negative in Unit 2 than the other units. One explanation for the less positive safety attitudes seen here is that different hospitals have underlying or innate differences in their workplace culture, which remain independent of any training package. Another explanation is that PROMPT may modify safety attitudes over time, towards a more positive outlook, but that it operates in a dose-dependent fashion. The greater the exposure to PROMPT, the greater the improvement in safety attitudes. This is plausible since PROMPT aims as an intervention (amongst other objectives) to improve patient safety and

teamworking. This might be why Unit 2 (Burnsbury, LS) had the lowest scores, because at the time the SAQs were conducted, the unit had only limited exposure to PROMPT, having run the fewest PROMPT training days (as shown in Table 12). Higher scores were seen at units that had done more PROMPT training. **This suggests that PROMPT may have a positive effect at improving workplace safety attitudes over time.**

**Table 12: Unit exposure to PROMPT around the time of SAQ data collection**

Unit number	1	2	3	4
Initiation of PROMPT classification (Early Initiator, EI or Late Starter, LS)	EI	LS	EI	LS
Approximate number of local PROMPT training days before SAQ data collected	>10	<5	5-10	5-10

In Table 11, after adjustment for co-variates, and all responses from nursing/midwifery staff versus medical staff (across all units) were analysed, there are statistically significant differences ( $p < 0.05$ ) between professional subgroups in all outcome scores, apart from stress recognition. Nursing and midwifery staff score more negatively than their medical colleagues. The results were broadly similar for both the imputed model and the non-imputed data.

**Therefore, there appear to be significantly more negative safety attitudes amongst nursing and midwifery staff compared to medical staff.**

This is also an interesting finding, as it shows that staff working at the same units may have different perceptions of their workplace culture, depending on their professional group. Midwives and auxiliary staff may feel less job satisfaction than their medical colleagues for several reasons, such as differing workloads, staff shortages, complex needs of patients, lack of fulfilment, inadequate support from

managers, insufficient rests or breaks, financial cutbacks and under-resourcing, and lack of recognition for hard work.

### **11.6 Comparison with existing data**

Previous research using the SAQ to assess safety attitudes amongst maternity staff at Southmead Hospital (where PROMPT training was already embedded) showed a positive safety culture, teamwork climate, and job satisfaction. Male staff had consistently better safety attitudes in multivariate analyses(37). In my study, teamwork and safety climate scores were generally also the highest across all four units, although the global scores were not as high as those seen at Southmead in these domains. The EI units (1 and 3), where we would expect PROMPT to be more embedded than at the LS units (2 and 4) reached, or were approaching, statistically significant differences in nearly all climate scores, including job satisfaction. Unlike the previous study however, we did not identify any statistically significant differences between male and female staff attitudes, possibly due to very small numbers of male respondents in our study. We did however find differences between midwifery/nursing staff and medical staff, as discussed above.

### **11.7 Limitations of the data**

Interpreting these results is complicated for several reasons. Firstly, due to lack of an accurate denominator (total number of maternity staff working at each unit) we are uncertain of the proportion of staff sampled, making it difficult to know how representative the results are of the staffing body as a whole. Completing the SAQ was anonymous and voluntary. It is possible that more motivated staff opted to complete the SAQ, polarising the results. Those with stronger (more positive or more negative) opinions may have felt more driven to share their attitudes with researchers. Staff who felt generally more apathetic about their working environment may have felt less inclined to complete it.

Secondly, there were many missing data fields, and relatively few medical, or male, respondents. This limits the interpretation of gender and professional group differences.

Also, due to constraints of study timing and design, as explained in previous chapters, it was not possible to conduct SAQs before PROMPT was introduced. We are unable to determine therefore whether safety attitudes changed since PROMPT training commenced, and instead must speculate on reasons why observed differences between units exist.

## 11.8 Conclusions and summary

The principal findings from the SAQs can be summarised as follows:

- Medical staff feel more positively than midwifery/nursing staff about most safety attitudes in the workplace
- Work experience and gender do not appear to significantly affect safety attitudes, although limited data is available in these areas. This contrasts with previous research which showed male staff had consistently better safety attitudes in multivariate analyses(37).
- Staff from smaller units feel more positive (compared to staff from larger units) about teamworking, patient safety, their organization's commitment to safety, job satisfaction and their working environment
- Staff from Unit 2, a large unit which encountered initial difficulties establishing training, have consistently lower safety attitude scores across all domains, apart from stress recognition
- EI units, which were also both smaller units, scored more positively than the LS units (which were both larger units). This suggests that training may be easier to establish in smaller hospitals. It could also mean that PROMPT is easier to implement in units where more positive safety attitudes and workplace culture exists.

- It is possible that PROMPT may modify safety attitudes over time, towards a more positive outlook, operating in a dose-dependent fashion. The greater the exposure to PROMPT, the greater the improvement in safety attitudes.

## Chapter 12: Analysis, Discussion and Conclusions

In this chapter, I will summarise the key findings of the study and how they relate to the original aims and objectives; discuss the elements of the study that address the process evaluation of PROMPT, including any supporting evidence for the baseline causal assumptions discussed in the Introduction chapter; and collate the themes presented in Chapters 4 to 10, in order to synthesize an overarching theoretical framework that explains the challenges and facilitators to implementation of PROMPT. I will then explore how NPT works as a heuristic for the underpinning theory of change, as well as its limitations, and then describe how this study has progressed our understanding of the implementation of obstetric emergency training and its clinical effect. Finally, I will discuss how and why the findings of this study may be extrapolated beyond obstetric emergency training.

### 12.1 Answering the Study Question

The overarching research question was:

***What factors affect the implementation of a multi-professional obstetric training programme across a cluster of Scottish NHS hospitals?***

Understanding the implementation of a complex intervention like PROMPT can be challenging. At a simplistic level, there will always be a combination of positive and negative factors that influence implementation and I have collated those that I identified in this research.

The **positive factors that facilitate implementation** are:

- **Strong unit receptivity to change**, characterised by strong change commitment and efficacy. Training faculties are more committed to change if they want change and view it positively, rather than feel they should do it or that it has been imposed upon them. Efficacious teams are experienced,



organised and communicate well, and are more likely therefore to become **early initiators** of the new training (see Chapters 4 and 5).

- **Perception of PROMPT as a valuable and coherent** training package. Training is more likely to be adopted if it makes both financial sense to managers, through potential reductions in future litigation costs, and if it makes conceptual sense to clinicians. PROMPT must feel worthwhile and sufficiently different to what has been done previously, to justify the effort required to commence a new programme of training (see Chapter 6).
- **Local championing, leadership and teamwork** are key drivers behind the **collective action** necessary to implement and sustain PROMPT at local unit level (see Chapter 7).
- **Financial support for training** is crucial to fund the costs of releasing staff from their usual clinical duties, to attend and/or deliver training, as well as cover the costs of purchasing equipment and manuals (Chapter 6).

**Negative factors** can be seen as the **challenges and inhibitors** to implementation (discussed in Chapters 8 and 9), which obviously include the absence or paucity of the above facilitators, but also the following:

- **Insufficient awareness of PROMPT:** without adequate publicising of PROMPT training, staff will lack awareness about its existence, and will not register, nor book the necessary study leave, to attend.
- **Difficulties attending training:** limited study leave annual allowances for mandatory training, or restrictions on numbers of staff released from clinical work at one time, can hinder attendance at training. Chronic or acute staffing shortages also prevent staff being able to train, as they may be needed to cover essential clinical duties.
- **Reliance on goodwill of staff:** Staff frequently give up their own free time to plan or attend training. This can help initiate training when done by motivated individuals with altruistic intentions, but it may not be a sustainable strategy for continuation of training.

- **Perceived risks of participation** in training: staff may feel embarrassed or self-conscious role-playing in front of their colleagues; others may be apprehensive about revealing knowledge gaps or weaknesses (see Chapter 9).

## 12.2 Addressing Study Aims and Objectives

Addressing the principal aims and objectives of the study:

### 1. **To understand why PROMPT may be more successfully implemented in some Scottish NHS maternity units compared to others**

This study has demonstrated that successful implementation depends on a balance of facilitatory factors outweighing negative inhibitory factors. Maternity units with staff who understand PROMPT concepts and values, have strong leadership and teamwork, and the financial support of managers, are all more likely to successfully to implement training. No single maternity unit can escape some of the common obstacles (listed above), but their approach to overcoming them is crucial to how quickly training becomes established. The balance of supportive and restrictive influences on implementation of training is also a reflection of staff attitudes about the importance of training and patient safety.

### 2. **To assess the associations between staff safety attitudes and the implementation of PROMPT training in NHS Scotland**

Following PROMPT training, staff from smaller units (less than 4000 live births per year) felt significantly more positive in their attitudes (compared to larger units) about team-working, patient safety, their organization's commitment to safety, job satisfaction and their working environment. Early initiator units were smaller (in terms of number of births per year) than the two later starter units. Furthermore, one of the LS units that encountered initial difficulties establishing training, had consistently lower safety attitude scores across all domains apart from stress recognition ( $p < 0.001$ ) compared to the three other units.

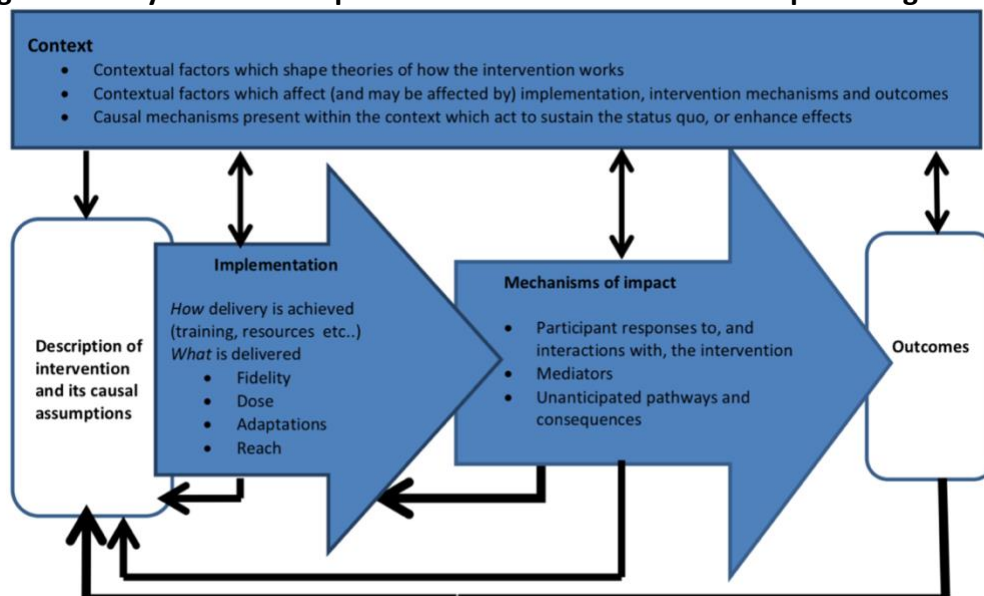
Therefore, it may be that obstetric emergency training is easier to implement in smaller units, which have fewer staff to train, and where staff are more likely to

know each other. Smaller units may inherently foster a more positive workplace culture, making them more receptive to new innovations. Alternatively, PROMPT may have become better established in the EI units at the time the surveys were completed, and PROMPT itself may be a catalyst for improving workplace safety attitudes and culture. However, the relatively small numbers of units analysed, and the lack of comparative safety attitude data before training limit the interpretation of these results.

### 12.3 Review of the Process Evaluation of PROMPT

As discussed in the introduction, the UK Medical Research Council guidance on process evaluations of complex interventions (such as PROMPT), proposes several key component functions (Figure 10 below)(73). Applied to this process evaluation of PROMPT, these functions consist of describing PROMPT and identifying its causal assumptions (already discussed in the Introduction), assessing how PROMPT is delivered, establishing its mechanisms of impact, the concurrent contextual factors, and reviewing the outcomes of PROMPT. Each of these functions, as secondary outputs of this research, will now be summarised below.

**Figure 10: Key functions of process evaluation and relationships amongst them**



*Source: Moore et al. Process evaluation of complex interventions. UK MRC Guidance*

### 12.3.1 Evidence for Causal Assumptions

In the introduction, the causal assumptions underpinning successful implementation of PROMPT were presented. Table 13 summarises whether this study has provided evidence that these are indeed true, and the recommendations going forward for improving and sustaining PROMPT, where applicable.

**Table 13: Supporting evidence for causal assumptions and recommendations for practice**

Causal assumption	Supporting evidence	Recommendation
Successful training depends on multi-professional team-working	<p>EI units who established training more quickly, demonstrate greater team-working skills.</p> <p>LS units experienced less co-ordinated approaches to organising training between different professional groups.</p>	Provide <b>enhanced support package</b> for new units, (such as being delivered in PROMPT Wales) to help local teams plan their training and problem-solve at an early stage of implementation.
Training in familiar settings allows staff to develop local knowledge about how and where emergencies should be managed in their own workplace	Teams recognised the value in doing skills-drills in their own clinical areas, and were able to highlight areas for improvement as a result e.g., need for simpler instructions for drawing up eclampsia drugs.	Continue to <b>emphasise importance of local, in-house training</b> in clinical areas, at T3 events.
Skills, knowledge and confidence are maintained and updated through regular training	<p>Participant technical/factual knowledge was <i>not</i> formally tested in THISTLE-Plus, as this was not part of the study's remit. Most units had completed less than a year of training, so the effect of regular/repeated training was not yet evident.</p> <p>Most training teams expressed a desire to observe other units doing PROMPT to improve their confidence at delivering training.</p> <p>Confidence appeared to improve amongst maternity care assistants/auxiliaries the most following participation in training.</p>	<p>Create <b>regional PROMPT networks</b>, or a <b>buddying system</b>, to offer neighbouring units mutual support.</p> <p>This could enable opportunities to invite others and allow them to observe delivery of training, to share experiences of setting up PROMPT together.</p>

Promoting team-working at every stage of training embeds the ethos of PROMPT and the importance of working together	The importance of team-working was well-understood by all, and all units embraced this in their observed training days.	<b>Emphasis on teamworking</b> at T3 days, and on local training days; continuing to include teamworking on feedback checklists for skills drills.
Some (but not all) features of PROMPT can be modified to suit local practices and logistics	<p>i) Observations of disparities in how shoulder dystocia training was conducted raised some concerns about standardisation of training quality in different units.</p> <p>ii) One of the early adopter units developed their own scenarios for skills-drills based on recent cases that had occurred in their own delivery suite, to make training relevant to the needs of their staff.</p>	<p><b>i) Standardised shoulder dystocia training should be regarded as “non-negotiable”</b>, strictly adhering to the RCOG/PROMPT algorithm, and should not be modified in content or mixed with older out-dated models of training.</p> <p>ii) Locations and format of training programmes can be adapted to fit with the size and layout of the units; content of training can be modified depending on experience level and professional subgroups of the participants.</p>
Implementation of PROMPT requires managerial backing and leadership	Strongly evident as necessary in all units. Lack of support and leadership hindered the set-up phase significantly. Managerial buy-in from the outset promoted quicker establishment of PROMPT.	<b>Invite maternity unit managers to T3 training</b> to understand at first-hand the potential litigation cost savings through investing in training. <b>National level incentivization</b> would promote this support.
PROMPT can be delivered using low-cost but authentic resources; expensive simulation materials are neither preferable nor essential	Although requiring effort on the part of the training faculty, home-made props (such as “haemorrhage trousers”) were created by trainers and received with enthusiasm by participants, as well as working well in simulations.	Include <b>photos and examples of home-made props at T3 events</b> .
Effective shoulder dystocia training must be evidence-based and improved with high-fidelity simulation equipment	Observations of training showed that the use of older, low-fidelity human pelvis models were less effective for demonstrating the necessary manoeuvres.	Continue to <b>recommend PROMPT Flex Birthing Simulator</b> to teach SD skills drills.
Learning from drills is reinforced through	Evident in observations of local training days. Participants enjoyed completing checklists	Continue to <b>use observations checklists and peer feedback</b> in skills drills.

constructive feedback	and giving structured feedback to their colleagues.	
PROMPT can be sustained and modified to tackle issues only if its effects are measured and reviewed	Units which asked staff to complete feedback after local training found it constructive and encouraging. There is a need for more reflexive monitoring, which has not been fully realised in all units participating in the study.	Distribute <b>participant feedback and evaluation forms</b> after local training.  Encourage units to <b>monitor progress through annual reviews of PROMPT</b> at their local units after implementation.

### 12.3.2 Implementation functions

- *How is PROMPT delivered?*

In essence, the core elements required to implement PROMPT are:

- Financial investment
- Support from hospital maternity department managers
- Motivated team of multi-professional trainers, backed by a strong leader(s)
- Resources (time, place, equipment)
- Participation by multi-professional staff

From the findings of this process evaluation, effective delivery of PROMPT is facilitated further when:

- The local implementation team plan, prepare and have access to the necessary course materials (the PROMPT Trainers Manual and USB stick).
- Staff can attend training, ideally being paid as a day's study leave, rather than having to attend in their own time.
- Participants feel safe and able to speak up and potentially expose themselves to acknowledging gaps in their knowledge, without fear of embarrassment.
- Participants give constructive feedback using structured forms.
- Trainers reflect on participants' comments and modify training accordingly.

**Figure 11: Fidelity, dose, and reach of PROMPT**

<b>Dose</b>	'How much' of the intervention is delivered	Number and frequency of PROMPT training days
<b>Reach</b>	Extent to which target audience in contact with intervention	Proportion of staff trained (total and by professional group)
<b>Fidelity</b>	Consistency of intervention	Quality and authenticity of observed training

*Source: Adapted from Moore et al. Process evaluation of complex interventions. MRC Guidance. BMJ 2015(73)*

The dose, reach and fidelity of training, as explained in Figure 11 above, varied between units. EI units took less time to set up and run their first training day, and consequently had often achieved a higher dose and reach of training than LSs at the time the study was conducted. However, once training commenced at the LSs, training continued regularly thereafter. Some units trained large groups of staff and others ran smaller sessions, due to restrictions on how many people could be released from clinical duties at one time. Obtaining exact figures on numbers of staff trained from different groups (the reach) was not possible as the THISTLE Study Working Party did not wish to remove each hospital's anonymity to release this information. However, looking at the anonymized data from the wider THISTLE study published in 2020 (52), some units were found to have implemented the intervention earlier than their allocated step, whereas others delayed the intervention, thus affecting the numbers of staff trained (reach) and total number of training days (dose) at the point that clinical outcomes were collated at the end of the study period.

- *Fidelity of training*

Not all observed training appeared completely authentic or in keeping with the "PROMPT way". Most units did not include fetal monitoring training in their programme, which is always included the PROMPT programmes run locally at Southmead Hospital.

Another area of training which was not consistently delivered authentically was shoulder dystocia (SD) simulation teaching, which varied considerably in content and quality. Trainers were not always confident in their approach to teaching the internal manoeuvres, and sometimes confused older, outdated acronyms with the recommended PROMPT/RCOG algorithm. This confusion was compounded by the NHS Scotland intrapartum paperwork, which included a section on management of SD using the old mnemonic for management (known as “HELPERR”), which is not recommended in the PROMPT or RCOG algorithms. Familiarity with PROMPT generates greater authenticity and attending the T3 event is particularly important for demonstrating the correct PROMPT way of teaching SD. This event is crucial in ensuring that previous methods of teaching shoulder dystocia are discouraged, the dangers of incorrect techniques are highlighted, and that certain myths about management of this condition are dispelled (such as what older outdated techniques involve or how they work). The authors of the wider THISTLE study also concluded that the content and authenticity of the implemented intervention varied widely at unit level(52), as I had indeed observed at the units I studied in THISTLE-Plus.

From these two complementary studies, we have identified that the essential, non-modifiable elements of local PROMPT training should include CTG fetal monitoring training, and authentic shoulder dystocia skills drills.

- *What adaptations can and should be made?*

Through observation of how different teams set up training in their own hospital, it became clear that some elements of PROMPT are adaptable, while others need to remain as close to the examples of skills drills shown in the T3 demonstration.

Each unit we observed modified the course to suit their local training needs, experiences and preferences. Common adaptations included making their own props for the skills drills, using emergency trolleys (instead of boxes), creating their own signs and noticeboards, making up songs to deliver key



messages, and incorporating other initiatives into their training (e.g., their own hospital's feedback system, national sepsis prevention and awareness tools). Some teams adapted the introductory ice-breaker session, moving away from a group team-building activity, and replacing it with an amusing video clip on team-working.

We also observed some hospitals using their own sepsis screening tools or PPH proformas, which were based on national QI initiatives set up by NHS Scotland. These are "acceptable" modifications to PROMPT, as the contents still follow recommended best practice for managing sepsis and PPH.

Whilst it is recommended at the T3 course that CTG interpretation training should be included in every training day, only one of the four observed training days included this session in their programme. The other three units found it difficult to include, as they decided there was a lot of other content they wished to cover, and they did not want to exclude MSWs from it (who do not need to be able to interpret CTGs). During the study period, NHS Scotland had launched a separate, concurrent, CTG training programme, which may explain why teams felt this did not need to be included in their PROMPT programme. The exact format and content of this other CTG training programme however was not clear to the THISTLE research team. All teams included shoulder dystocia training, as recommended, but the quality of this training was variable (as discussed above in "Fidelity of training").

### 12.3.3 Mechanisms of impact

- *Participant responses to PROMPT*

Most participants appeared to enjoy their experience of PROMPT, finding it fun, educational and valuable. Many commented positively on the inclusivity of all maternity staff in training and described feeling greater confidence at dealing with obstetric emergencies afterwards. A few participants described feeling occasionally awkward or self-conscious when asked to role play, especially at the beginning of the session, or if they were asked to play the

part of a different healthcare professional to their usual role. Trainers at the EI units who received positive feedback from their staff about the training, felt rewarded and satisfied that their efforts had been worthwhile, which motivated them to continue training.

- *Mediators*

Useful mediators to implementation overlap with some of the positive factors detailed above, namely strong leadership, teamwork, previous experience of doing training, financial and managerial support, receptive workplace culture, and a desire or commitment to engage with a new programme. It was suggested at most units, that linking up with other units more experienced with PROMPT, to observe how they conducted training would also have been a useful mediator to implement training. Other concurrent national patient safety initiatives (e.g., from MCQIC) helped in some units to cross-fertilize new ideas and had a complementary effect on PROMPT, and vice versa.

- *Unintended consequences*

Although it was hoped that PROMPT would improve team working at the Scottish maternity units that took part in THISTLE, the reaction from health care assistants, and nursing auxiliary staff, who had not historically participated in multi-professional training before, was not specifically anticipated. There was a strong sense in all units that these members of staff felt included, valued and respected as a direct result of having been involved in PROMPT.

Another unexpected effect was witnessing the power of visual images to reinforce new learning. One of the analogous models used for PROMPT training in shoulder dystocia describes squeezing one's hands into a narrower diameter, as if trying to remove the last Pringles crisp from the jar. This is used as a way of explaining how to reach the baby's hand inside the mother's pelvis, when the shoulders are stuck during birth, but it is not formally named in PROMPT T3 courses as a "manoeuvre". This analogy had a marked impact

on staff's understanding of how to perform internal release manoeuvres and captured their imagination. It was observed that staff liked to refer to "doing the Pringles manoeuvre" and reported recording this in the patient notes also.

#### 12.3.4 Contextual factors

- **Macro level:** At a national and NHS level, contextual factors influencing the implementation of PROMPT include:
  - National level recommendations and incentives for multi-professional training: In 2016, the Department of Health launched a Maternity Safety Training Fund, through which all 134 English NHS maternity units were entitled to receive dedicated funding for obstetric emergency training(124). They published an accompanying Maternity Safety Training Catalogue(125), which included PROMPT as a good example of effective training package.
  - Concurrent financial austerity measures, which restrict healthcare spending budgets across all departments
  - Professional regulation, from the RCOG and RCM which require staff to maintain skills training in obstetric emergencies
  - Geographical factors, such as the proximity of maternity units to each other, which could generate regional networks or "word-of mouth" effect in spreading PROMPT
  
- **Meso level:** At an organizational level, strong leadership, management support and previous experience of doing training are meso-level contextual factors. From the SAQ data in this study, we have also seen that workplace safety attitudes and culture may affect, or be affected by, the implementation of PROMPT. Organizational size may also influence ease of uptake, with smaller units in this study appearing to adopt PROMPT more readily.
  
- **Micro level:** These include the characteristics of the clinical training team and

individual champions who drive training forward in their units, such as altruism, commitment, perseverance, use of initiative, enthusiasm, reflexivity, inclusivity, communication and planning (See Chapter 7).

Since this study was conducted, additional ethnographic research has been published about the contextual features of maternity units (including Southmead Hospital, where PROMPT is well established) that make them particularly safe(102, 126). The seven safety features identified include: commitment to safety; technical competence, supported by formal and informal training; teamwork and positive working relationships; constant reinforcing of safe, respectful behaviours; problem-sensing systems; processes designed for safety; and effective coordination and ability to mobilise quickly. In this study, most of the units were at a much earlier stage of their implementation journey with PROMPT than Southmead, so it is not surprising that these mechanisms were not all obvious (although it was beyond the remit of this study to investigate the presence of all these mechanisms). In most units, there were some “safe” features, such as co-ordination of efforts of the training team, and shared understanding (“distributed cognition”) of what they were trying to achieve and why. There is therefore some overlap between the NPT constructs (of coherence and cognitive participation in particular) that I have identified for successful implementation of PROMPT, and recent ethnographic research about what makes certain healthcare institutions safe.

### **12.3.5 Outcomes of PROMPT and understanding the wider THISTLE Study findings**

The outcomes through which PROMPT has previously measured its effectiveness have principally been clinical: brachial plexus injury following shoulder dystocia, and rates of low neonatal Apgar score. The main THISTLE study reported its findings on the clinical outcomes of PROMPT in Scotland in 2020(52), following the conclusion of the data collection and analysis for this parallel qualitative evaluation. The main findings were that PROMPT training, as implemented, had no effect on the rate of neonatal low Apgar during the study period, but that local implementation at scale was found to be more difficult than anticipated. Some units implemented PROMPT

earlier than their allocated step, whereas others experienced substantial delays - as I had discovered independently when I visited, and then characterised, the late starter units. As I had observed, the authors commented on how the content and authenticity of the implemented intervention varied widely at unit level. They identified significant variation in the course programmes, the number of courses implemented and the number of staff trained – in effect, confirming as I had found in my parallel study, that there was variable dose and reach of PROMPT across different sites. When the actual date of implementation of the intervention in each unit was considered in the analysis, there was no evidence of improvement.

The authors concluded that more research is required to understand why the positive effects observed in other single-unit studies have not been replicated in Scottish maternity units, and how units can be best supported to locally implement the intervention authentically and effectively – which is exactly what this, the THISTLE Plus study, and the focus of this thesis, has determined. My research has now provided evidence that while some units will manage to launch training with minimal support after the T3 event, other units are likely to need additional targeted help to get PROMPT initiated. I have identified that further input from experienced PMF faculty and/or PROMPT trainers from other units, could also provide quality control and therefore be a potential solution to overcome the authenticity issues identified in both the wider THISTLE study and this parallel evaluation.

This study adds richer, more granular qualitative data to the body of evidence that explores trainers' and participants' perceptions about PROMPT, their emotional and behavioural responses to real emergencies following training, and the effects that PROMPT has had on their working relationships. THISTLE-Plus has also highlighted areas for future improvement and development for PROMPT to ensure its sustainability and further spread in the future.

Furthermore, this study has helped provide additional evidence which is changing the conversation from the cost of training to the value of training. Maternity clinical negligence claims notified to NHS Resolution in 2018-19 represented ten percent of

clinical claims by number, but accounted for 50% of the total value of new claims, costing over £2400 million(105). Therefore, there is great interest at a national level within the NHS, in finding ways to reduce expenditure in this area.

#### 12.4 Theoretical framework for the implementation of PROMPT

NPT has been used throughout this study, as a theoretical framework for understanding how training becomes implemented and established. I have presented evidence and justification for how each core construct has been applied to the PROMPT implementation model, summarised in Fig 12 below.

Most of these components were visible to some degree at each participating unit in THISTLE-Plus, but variation exists as to how strongly the different multi-professional teams cognitively participated and collectively acted to launch training. In the EI units, the first three components were achieved relatively quickly and easily. The LS units struggled to organise their team, or to garner support from their managers, which hindered their progress.

**Figure 12: NPT Model of Implementation of PROMPT**



Reflexive monitoring of all outcomes was not fully apparent at the time of data collection, in that the clinical effect of PROMPT was still being formally measured and recorded through the concurrent THISTLE Study. However, following introduction of training at some units, trainers identified areas for improvement, and

made practical changes as a result (such as simplifying the instructions on their eclampsia emergency box or introducing a new peri-mortem Caesarean section pack), which demonstrates reflexive monitoring. The use of participant feedback forms enabled training staff to take satisfaction from positive comments about how the training was useful and enjoyable. Most teams also reflected that their auxiliary staff felt more included and valued since they had taken part in training. Some commented that the staff that had done training seemed to work more efficiently together in real emergencies. This has identified that perhaps more formalised collection of feedback and team reflections on outcomes could be useful for the future enhancement of PROMPT. For example, the development of a dashboard system for displaying results, such as staff ratings of PROMPT lectures or skills drills, along with a breakdown of numbers and professional groups of staff trained quarterly, could be beneficial, for showing staff the impact of training on their department. Since the completion of THISTLE-Plus, the PROMPT Wales project(117) has gone on to introduce this dashboard system for helping local teams monitor their results, and reflect on their outcomes.

Normalisation Process Theory therefore has proven a relevant and applicable model for understanding the implementation of PROMPT.

There are however some limitations and criticisms of using NPT in implementation literature. Clarke believes NPT *“tends to place undue emphasis on individual and collective agency without explicitly locating this within...the organisational and relational context in which implementation occurs”* (p13). He asserts that *“more consideration needs to be given to the implementation process so as to effect change at organizational, practice, and service delivery levels”* (p14) (127). Certainly, this limitation was apparent in my research - I identified that macro-level levers, such as national incentivisation and/or dedicated funding for obstetric emergency training (as exists in the NHS in England), would have provided an enormous facilitator to implementation in Scotland, but this did not neatly fit into one of the four NPT core constructs, which are centred more on the work and actions of individuals and

teams. Others have commented that NPT does not “*describe or identify factors influencing the speed of the implementation*”(128), thus limiting insight into the temporal aspects of implementation. In this study, I recognised at an early stage of my data collection and analysis that maternity units differed widely in how quickly they were able to launch training, leading to my development of the early initiator/late starter classification; NPT did not directly explain this, although the core constructs were subsequently useful for understanding why some units may have experienced delays.

### 12.5 Reflection on inhibitory factors to implementation

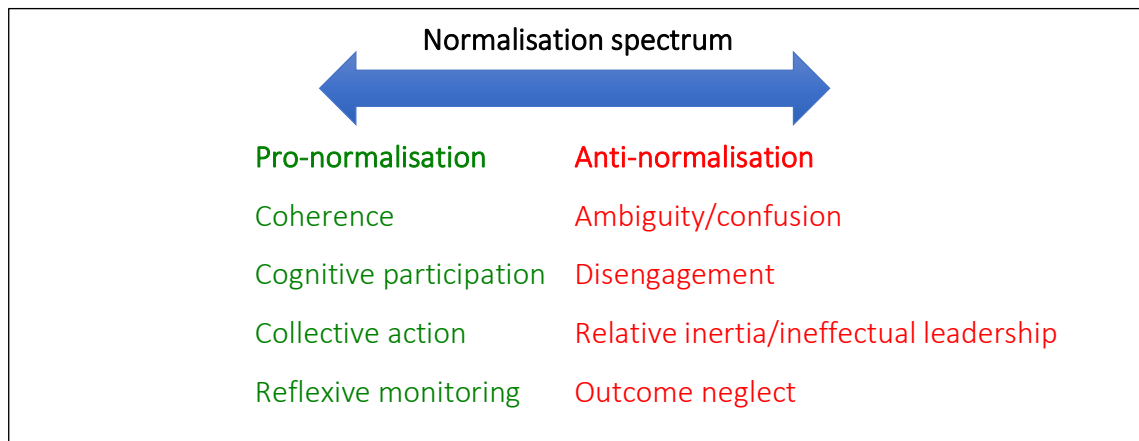
There is an acknowledgement within NPT that there is a spectrum or scale of normalisation - some core NPT constructs may be strongly evident, while other components may be less apparent. The researchers who conceived NPT have more recently developed a toolkit, referred to as the NoMAD instrument, which can be used to measure factors likely to affect normalization from the perspective of implementation participants(129). NoMAD is presented as a survey to users of the intervention, and allows them to subjectively indicate on a scale, how strongly they agree or disagree with various statements about normalisation. This could allow future quantitative assessment of NPT mechanisms, within the PROMPT paradigm. Unfortunately, there were insufficient resources available within this study to use the NoMAD instrument, but it would make for an interesting follow-up study to THISTLE Plus.

Extrapolating from this scale of normalisation, I have theoretically reframed some of the challenges and barriers to implementation of PROMPT as the converse of NPT constructs, or as “**anti-normalisation**” constructs (Fig 13). Anti-normalisation has not previously been described in the context of implementation of complex interventions. Anti-normalisation behaviours and beliefs are those that are antagonistic to the pro-normalisation constructs identified in NPT. Instead of coherence, the failure to see value in PROMPT or understand its distinction from pre-existing training could be termed “**confusion**” or “**ambiguity**”. Likewise, a lack of



cognitive participation, for example through participants not feeling PROMPT is relevant to them, or not re-organising themselves to engage in it, could be considered as “**disengagement**”; where there is poor collective action, to implement PROMPT, “**relative inertia**” and **ineffectual leadership** might exist. This may take the form of a lack of planning meetings or preparation amongst trainers, or insufficient allocation of resources to fund training; lastly, inadequate or absent reflexive monitoring of the effects of training could be viewed as “**outcome neglect**”. This could be failure to learn lessons or implement changes after training, where suggestions for improvement have been made or where certain aspects of training are not working optimally.

These terms are descriptors of extreme positions, but, as discussed, there is a continuum between pro-and anti-normalisation constructs, with maternity units displaying these features to different extents, and at different times in their implementation journey. For example, at the introduction of a new programme, teams may be confused by what they are expected to do and may not yet have identified a leader or established their roles and responsibilities. As they become more familiar with PROMPT, their position changes towards pro-normalisation, as PROMPT begins to make sense, teams become increasingly confident and work more cohesively to deliver training and can reflect on it. It is possible (although not yet evident from our findings), that as PROMPT runs over a period of years, some anti-normalisation behaviours may reappear, as the novelty wears off, teams become disinterested and lack enthusiasm to continue. This may be overcome by ensuring that their programme, and indeed the trainers’ own training, are refreshed and updated.

**Figure 13: Normalisation spectrum**

Within the four units analysed in this study, some anti-normalisation features of ambiguity, disengagement and inertia were apparent, more so in the LSs, and more so at the start of their implementation journey. As already discussed, formal clinical outcomes were not available to review for any of the units, making it difficult for them to reflect on the actual clinical effects of PROMPT in their units, although all teams were able to subjectively gauge non-clinical outcomes such as improved team-working and greater mutual respect between different professional groups.

## 12.6 Transferability of findings beyond obstetric emergency training

I have discussed extensively how the implementation of PROMPT is facilitated by certain factors, but that it also poses many challenges. Some of these issues are PROMPT-specific, such as ensuring fidelity to shoulder dystocia training, and encouraging manager attendance at the T3 event. However, many of the facilitators and inhibitors to PROMPT that have transpired during this study, could be applied and extended beyond the PROMPT paradigm, to other training packages in obstetrics or different medical specialties, or to the implementation of complex interventions in professional settings beyond the healthcare environment. This study therefore contributes to the existing literature and deepens our understanding about effective training.

A recent systematic review of training in the use of intrapartum electronic fetal monitoring, by Kelly et al, concluded that despite training often being recommended as a solution, there remains a lack of clarity about the effects of training and which type of training works best(130). My study has provided such elucidation about how training can be effectively implemented and normalised, both specifically, with regard to the PROMPT paradigm, and more generally, through potential to apply to other interventions.

Through personal communication and discussion with the investigators conducting another quality improvement project, which aimed to reduce the incidence of obstetric anal sphincter injuries, called the OASI Study(131), we realised there were several parallels in the challenges encountered in implementing our two interventions. They conducted a multi-centre study of phased implementation across 16 maternity units, between 2017 and 2018, in which they introduced a care bundle of evidence-based actions to reduce anal sphincter injuries during childbirth. They found that *“local implementation was facilitated by clinical champions (midwives and obstetricians) within each unit. There (was) excellent uptake in some units, with a real drive for change. In other units, there (was) more of a mixed uptake and level of engagement”*.

Thus, there are some common themes between my study and other complex healthcare interventions– facilitation through championing and leadership, but variable uptake across different units, possibly reflecting differences in desire and/or readiness for change. From the NPT perspective, this suggests the OASI study also encountered problems with lack of coherence and cognitive participation in some units.

The transferable elements of this study include the following facilitators to implementation of training:

- The workplace environment is receptive of new ideas and concepts, with staff showing willingness and commitment to engage with the intervention
- The new intervention makes sense, and is valued as worthwhile

- There is strong leadership and team-working, with clearly defined roles and responsibilities
- There is sufficient financial support for the new intervention, with adequate provision of necessary resources
- Unit-level support to provide guidance and ensure quality control

Challenges identified in this study that could be applied to other complex interventions include:

- Lack of awareness, interest or understanding about what the new intervention is about
- Other competing priorities for time and resources
- Insufficient funding
- Costs and risks of involvement in new intervention (financial, social, professional)

## **12.7 Conclusions**

By conducting a process evaluation of PROMPT, and undertaking a thematic analysis of qualitative data, along with statistical analysis of quantitative data, this mixed-methods study represents an extensive, in-depth exploration of how PROMPT functions as a complex healthcare intervention, and what the components for successful implementation and normalisation are. It has also produced evidence-based recommendations for improving the future implementation of PROMPT.

To summarise, the core facilitators for implementation are strong unit receptivity to change, perception of PROMPT as valuable and coherent, local championing, leadership and teamwork, and crucially, financial and managerial support for training. The core inhibitors to implementation are insufficient awareness of PROMPT, difficulties attending training, reliance on goodwill and perceived risks of participation.

Additionally, this study has revealed that safety attitudes amongst maternity staff were more positive in smaller maternity units, which were also identified as those able to implement PROMPT training earlier than larger units. This new knowledge suggests that obstetric emergency training may be easier to implement in smaller maternity units or where more positive safety attitudes already exist. PROMPT may even be a catalyst for improving safety attitudes over time, towards a more positive outlook.

This study has also established that Normalization Process Theory can be a useful theoretical framework for understanding how PROMPT, as a complex healthcare intervention, can become successfully adopted and embedded in new maternity units. All four constructs of coherence, cognitive participation, collective action and reflexive monitoring were evident to various extents at the different maternity units, but more so in the EI units than the LSs, as would be expected given their different rates of initiation of training. The new understanding from this study that some maternity units face initial inherent difficulties in normalizing PROMPT, has allowed me to conceptualize a theoretical adjunct to NPT, the “normalization spectrum”. The spectrum recognizes that when a new intervention, such as PROMPT, is introduced, teams may primarily display more anti-normalisation characteristics, such as ambiguity, disengagement, relative inertia and outcome neglect; such features may be transient and temporary - with the necessary financial and practical investment, and with increasing experience of the new intervention over time, most teams are likely to move along the spectrum towards the established NPT core constructs of coherence, cognitive participation, collective action and reflexive monitoring.

I have also explored how the findings from this study may be transferrable to other quality improvement initiatives, and how they have provided valuable shared learning opportunities, that could also be usefully exploited for future collaborative research partnerships.

The key learning arising from this study regarding the future development of PROMPT, is that it has strongly identified that some units will require a more

enhanced support package to establish local training. This understanding has already been incorporated into the latest PROMPT programme of implementation taking place in Wales, which critically, has also had the financial backing of the Welsh Risk Pool and Government. NHS Resolution have also formally recognized that top-down incentivization in multi-professional obstetric emergency training is necessary, and potentially both cost-effective and clinically effective at improving outcomes for mothers and babies. This is ultimately what all maternity healthcare providers could and should be aiming to achieve.

## References

1. Royal College of Obstetricians and Gynaecologists. Prevention and Management of Postpartum Haemorrhage Green-top Guideline No.52. 2009.
2. Royal College of Obstetricians and Gynaecologists. Shoulder Dystocia Green-top Guideline No.42. RCOG; 2012.
3. O'Neill O. Safe Births: Everybody's business. 2008.
4. Ten Years of Maternity Claims: An Analysis of NHS Litigation Authority Data. NHS Litigation Authority. 2012.
5. Kirkup B. The Report of the Morecambe Bay Investigation. 2015.
6. Cumberlege J. Better Births: Improving outcomes of maternity services in England. National Maternity Review. 2016.
7. Draycott T, Lewis G, Stephens I. Executive Summary, Eighth Report of the Confidential Enquiries into Maternal Deaths in the UK. BJOG 2011;118(Suppl.1):e12-e21.
8. Confidential Enquiry into Stillbirths and Deaths in Infancy: 4th Annual Report, 1 January–31 December 1995. Maternal and Child Health Research Consortium. 1997.
9. Lewis G. Saving Mothers' Lives: reviewing maternal deaths to make motherhood safer - 2003-2005. The Seventh Report on Confidential Enquiries into Maternal Deaths in the United Kingdom. 2007.
10. Safer Childbirth. Minimum Standards for the Organisation and Delivery of Care in Labour. RCOG Press. 2007.
11. Maternity Safety Training Fund: NHS Health Education England; [Available from: <https://www.hee.nhs.uk/news-blogs-events/news/maternity-safety-training-fund>].
12. Advanced Life Support in Obstetrics UK [Available from: <https://www.also.org.uk>].
13. Sorensen BL, Rasch V, Massawe S, Nyakina J, Elsass P, Nielsen BB. Advanced life support in obstetrics (ALSO) and post-partum hemorrhage: a prospective intervention study in Tanzania. Acta Obstet Gynecol Scand. 2011;90(6):609-14.
14. Dresang LT, Gonzalez MM, Beasley J, Bustillo MC, Damos J, Deutchman M, et al. The impact of Advanced Life Support in Obstetrics (ALSO) training in low-resource countries. Int J Gynaecol Obstet. 2015;131(2):209-15.
15. MOET Factsheet: Advanced Life Support Group; [<http://www.alsg.org/en/files/KFactsheet.pdf>].
16. Johanson RB, Menon V, Burns E, Kargramanya E, Osipov V, Israelyan M, et al. Managing Obstetric Emergencies and Trauma (MOET) structured skills training in Armenia, utilising models and reality based scenarios. BMC medical education. 2002;2:5.
17. Johanson R, Akhtar S, Edwards C, Dewan F, Haque Y, Jones P. MOET: Bangladesh--an initial experience. The journal of obstetrics and gynaecology research. 2002;28(4):217-23.
18. Dijkman A, Huisman CM, Smit M, Schutte JM, Zwart JJ, van Roosmalen JJ, et al. Cardiac arrest in pregnancy: increasing use of perimortem caesarean section due to emergency skills training? BJOG. 2010;117(3):282-7.

19. Scottish Core Obstetric Teaching and Training in Emergencies Course. Scottish Multiprofessional Maternity Development. [http://www.scottishmaternity.org/Courses/Introduction%20to%The% Courses/obstetric\\_emergencies.html](http://www.scottishmaternity.org/Courses/Introduction%20to%The% Courses/obstetric_emergencies.html).
20. Howie LR, J. Watson, J. An Evaluation of the Scottish Multiprofessional Maternity Development Programme. Executive Summary. University of the West of Scotland, NHS Education for Scotland. 2011.
21. Markova V, Sorensen JL, Holm C, Norgaard A, Langhoff-Roos J. Evaluation of multi-professional obstetric skills training for postpartum hemorrhage. *Acta Obstet Gynecol Scand*. 2012;91(3):346-52.
22. Walsh JM, Kandamany N, Ni Shuibhne N, Power H, Murphy JF, O'Herlihy C. Neonatal brachial plexus injury: comparison of incidence and antecedents between 2 decades. *Am J Obstet Gynecol*. 2011;204(4):324 e1-6.
23. MacKenzie IZ, Shah M, Lean K, Dutton S, Newdick H, Tucker DE. Management of shoulder dystocia: trends in incidence and maternal and neonatal morbidity. *Obstet Gynecol*. 2007;110(5):1059-68.
24. Franssen A, van de Ven J, Schuit E, van Tetering A, Mol B, Oei S. Simulation-based team training for multi-professional obstetric care teams to improve patient outcome: a multicentre, cluster randomised controlled trial. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2017;124(4):641-50.
25. The PROMPT Maternity Foundation [Available from: [www.promptmaternity.org](http://www.promptmaternity.org)].
26. Crofts JF, Bartlett C, Ellis D, Hunt LP, Fox R, Draycott TJ. Training for shoulder dystocia: a trial of simulation using low-fidelity and high-fidelity mannequins. *Obstet Gynecol*. 2006;108(6):1477-85.
27. Draycott TJ, Crofts JF, Ash JP, Wilson LV, Yard E, Sibanda T, et al. Improving neonatal outcome through practical shoulder dystocia training. *Obstet Gynecol*. 2008;112(1):14-20.
28. Crofts J, Lenguerrand E, Bentham G, Tawfik S, Claireaux H, Odd D, et al. Prevention of brachial plexus injury-12 years of shoulder dystocia training: an interrupted time-series study. *BJOG*. 2015.
29. Draycott T, Sibanda T, Owen L, Akande V, Winter C, Reading S, et al. Does training in obstetric emergencies improve neonatal outcome? *BJOG*. 2006;113(2):177-82.
30. ACOG/AAP Committee Opinion - The Apgar Score. ACOG October 2015. Contract No.: Number 644.
31. Lie KK, Groholt EK, Eskild A. Association of cerebral palsy with Apgar score in low and normal birthweight infants: population based cohort study. *BMJ (Clinical research ed)*. 2010;341:c4990.
32. Moster D, Lie RT, Irgens LM, Bjerkedal T, Markestad T. The association of Apgar score with subsequent death and cerebral palsy: A population-based study in term infants. *The Journal of pediatrics*. 2001;138(6):798-803.
33. Weiner C, Samuelson L, Collins L, Satterwhite C. 5-year experience with PROMPT (PRactical Obstetric Multidisciplinary Training) reveals sustained and progressive improvements in obstetric outcomes at a US hospital. *AJOG*. 2010;192(1):S40.



34. Crofts JF, Mukuli T, Murove BT, Ngwenya S, Mhlanga S, Dube M, et al. Onsite training of doctors, midwives and nurses in obstetric emergencies, Zimbabwe. *Bull World Health Organ.* 2015;93(5):347-51.
35. Shoushtarian M, Barnett M, McMahon F, Ferris J. Impact of introducing practical obstetric multi-professional training (PROMPT) into maternity units in Victoria, Australia. *BJOG.* 2014;121(13):1710-8.
36. Siassakos D, Hasafa Z, Sibanda T, Fox R, Donald F, Winter C, et al. Retrospective cohort study of diagnosis-delivery interval with umbilical cord prolapse: the effect of team training. *BJOG.* 2009;116(8):1089-96.
37. Siassakos D, Fox R, Hunt L, Farey J, Laxton C, Winter C, et al. Attitudes toward safety and teamwork in a maternity unit with embedded team training. *Am J Med Qual.* 2011;26(2):132-7.
38. Humphreys K, Cox L. VMIA Experience of PROMPT. PROMPT Symposium 2015.
39. Weiner CP, Collins L, Bentley S, Dong Y, Satterwhite CL. Multi-professional training for obstetric emergencies in a U.S. hospital over a 7-year interval: an observational study. *J Perinatol.* 2016;36(1):19-24.
40. Davidoff F, Dixon-Woods M, Leviton L, Michie S. Demystifying theory and its use in improvement. *BMJ Qual Saf.* 2015;24(3):228-38.
41. Dixon-Woods M, Martin G. Does quality improvement improve quality? *Future Hosp J.* 2016;3:191-4.
42. Rogers E. *Diffusion of Innovations.* 5th ed: Free Press; 2003.
43. Robinson L. A Summary of Diffusion of Innovations 2009 [Available from: [https://twut.nd.edu/PDF/Summary\\_Diffusion\\_Theory.pdf](https://twut.nd.edu/PDF/Summary_Diffusion_Theory.pdf)].
44. Lin C, Guirguis-Blake J, Keppel G, Dobie S, Osborn J, Cole A, et al. Using the diffusion of innovations theory to assess socio-technical factors in planning the implementation of an electronic health record alert across multiple primary care clinics. *J Innov Health Inform.* 2016;23(1):450-8.
45. Leggott K, Martin M, D. S, D. H, Rosett R, Crandall C, et al. Transformation of anesthesia for ambulatory orthopedic surgery: A mixed-methods study of a diffusion of innovation in healthcare. *Healthc (Amst).* 2016;4(3):181-7.
46. LaMorte WW. *Diffusion of Innovation Theory: Boston University School of Public Health; 2018* [Available from: [http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html#headingtaglink\\_3](http://sphweb.bumc.bu.edu/otlt/MPH-Modules/SB/BehavioralChangeTheories/BehavioralChangeTheories4.html#headingtaglink_3)].
47. Murray E, Treweek S, Pope C, MacFarlane A, Ballini L, Dowrick C, et al. Normalisation process theory: a framework for developing, evaluating and implementing complex interventions. *BMC medicine.* 2010;8:63.
48. May C, Rapley T, Mair F, Treweek S, Murray E, Ballini L, et al. *Normalization Process Theory On-line Users' Manual, Toolkit and NoMAD instrument 2015* [Available from: <http://www.normalizationprocess.org>].
49. Wenger E. *Communities of Practice: Learning, Meaning and Identity:* Cambridge University Press; 1998.
50. Dixon-Woods M, McNicol S, Martin G. Ten challenges in improving quality in healthcare: lessons from the Health Foundation's programme evaluations and relevant literature. *BMJ Qual Saf.* 2012;21(10):876-84.

51. The spread and sustainability of quality improvement in healthcare. Quality Improvement Hub, NHS Scotland. 2014.
52. Lenguerrand E, Winter C, Siassakos D, MacLennan G, Innes K, Lynch P, et al. Effect of hands-on interprofessional simulation training for local emergencies in Scotland: the THISTLE stepped-wedge design randomised controlled trial. *BMJ Quality & Safety*. 2020;29(2):122-34.
53. Dixon-Woods M, Leslie M, Tarrant C, Bion J. Explaining Matching Michigan: an ethnographic study of a patient safety program. *Implement Sci*. 2013;8:70.
54. Quality improvement made simple - what everyone should know about healthcare quality improvement. Quick Guide.: The Health Foundation; 2013 [Available from: <https://www.health.org.uk/sites/default/files/QualityImprovementMadeSimple.pdf>.
55. Kaplan H, Brady P, Dritz M, Hooper D, Linam W, Froehle C, et al. The influence of context on quality improvement success in health care: a systematic review of the literature. *Milbank Quarterly*. 2010;88(4):500-59.
56. Fulop NR, G. Context for successful quality improvement. Evidence Review.: The Health Foundation Oct 2015.
57. Bergh AM, Allanson E, Pattinson RC. What is needed for taking emergency obstetric and neonatal programmes to scale? *Best Pract Res Clin Obstet Gynaecol*. 2015;29(8):1017-27.
58. Yamey G. Scaling up global health interventions: a proposed framework for success. *PLoS medicine*. 2011;8(6):e1001049.
59. Bergh A-M, Baloyi S, Pattinson RC. What is the impact of multi-professional emergency obstetric and neonatal care training? *Best Practice & Research Clinical Obstetrics & Gynaecology*.
60. Spicer N, Bhattacharya D, Dimka R, Fanta F, Mangham-Jefferies L, Schellenberg J, et al. 'Scaling-up is a craft not a science': Catalysing scale-up of health innovations in Ethiopia, India and Nigeria. *Soc Sci Med*. 2014;121:30-8.
61. Research Methods Knowledge Base. Qualitative Validity [Available from: <http://www.socialresearchmethods.net/kb/qualval.php>.
62. Dixon-Woods M, Bosk CL, Aveling EL, Goeschel CA, Pronovost PJ. Explaining Michigan: developing an ex post theory of a quality improvement program. *Milbank Q*. 2011;89(2):167-205.
63. Ritchie J, Lewis J. *Qualitative Research Practice. A Guide for Social Science Students and Researchers*. 1st ed: SAGE; 2003.
64. van der Nelson HA, Siassakos D, Bennett J, Godfrey M, Spray L, Draycott T, et al. Multiprofessional team simulation training, based on an obstetric model, can improve teamwork in other areas of health care. *Am J Med Qual*. 2014;29(1):78-82.
65. Fischer C. Bracketing in qualitative research: conceptual and practical matters. *Psychotherapy research : journal of the Society for Psychotherapy Research*. 2009;19(4-5):583-90.
66. O'Cathain A, Murphy E, Nicholl J. Why, and how, mixed methods research is undertaken in health services research in England: a mixed methods study. *BMC Health Serv Res*. 2007;7:85.
67. *The SAGE Encyclopedia of Qualitative Research Methods*.
68. Maxwell JA. *A realist approach for qualitative research*: Thousand Oaks. SAGE; 2012.

69. Mingers J. Combining IS Research Methods: Towards a Pluralist Methodology. *Information Systems Research*.12(3):240-59.
70. Raddon A. Early Stage Research Training- Epistemology & Ontology in Social Science Research: College of Social Science, University of Leicester; [Available from: <https://www2.le.ac.uk/colleges/ssah/documents/research-training-presentations/EpistFeb10.pdf>].
71. Dudovskiy J. Constructivism Research Philosophy [Available from: <http://research-methodology.net/research-philosophy/epistemology/constructivism/>].
72. Seale C. *Researching Society and Culture*. 2nd ed: SAGE; 2004.
73. Moore GF, Audrey S, Barker M, Bond L, Bonell C, Hardeman W, et al. Process evaluation of complex interventions: Medical Research Council guidance. *BMJ (Clinical research ed)*. 2015;350:h1258.
74. Oakley A, Strange V, Bonell C, Allen E, Stephenson J. Process evaluation in randomised controlled trials of complex interventions. *BMJ (Clinical research ed)*. 2006;332(7538):413-6.
75. Hulscher ME, Laurant MG, Grol RP. Process evaluation on quality improvement interventions. *Quality & safety in health care*. 2003;12(1):40-6.
76. Process evaluation of complex interventions. Medical Research Council. 2014.
77. Winter C, Crofts J, Laxton C, Barnfield S, Draycott T. *PROMPT Trainers Manual*. 2nd Edition ed: RCOG Press; 2012.
78. PROMPT Birthing Simulator: Laerdal Medical; [Available from: <http://www.laerdal.com/gb/doc/224/PROMPT-Birthing-Simulator#/Info>].
79. Weiner BJ. A theory of organizational readiness for change. *Implement Sci*. 2009;4:67.
80. Bloor M, Wood F. *Keywords in Qualitative Methods*. Publications S, editor2006.
81. Baker S, Edwards R. How many qualitative interviews is enough? National Centre for Research Methods. 2014.
82. Bowen GA. Naturalistic inquiry and the saturation concept: a research note. *Qualitative Research*. 2008;8 (1):137–52.
83. Guest G, Namey E, McKenna K. How Many Focus Groups Are Enough? Building an Evidence Base for Nonprobability Sample Sizes. *Field Methods*. 2017;29(1):3-22.
84. Good research practice: Principles and guidelines. Medical Research Council; July 2012.
85. Hammersley M, Atkinson P. *Ethnography: Principles in Practice*. 3rd ed: Routledge; 2007.
86. Sexton JB, Helmreich RL, Neilands TB, Rowan K, Vella K, Boyden J, et al. The Safety Attitudes Questionnaire: psychometric properties, benchmarking data, and emerging research. *BMC Health Serv Res*. 2006;6:44.
87. Sexton JB, Holzmueller CG, Pronovost PJ, Thomas EJ, McFerran S, Nunes J, et al. Variation in caregiver perceptions of teamwork climate in labor and delivery units. *J Perinatol*. 2006;26(8):463-70.
88. Baruch Y, Holtom B. Survey response rate levels and trends in organizational research *Human Relations*.61(8):1139-60.

89. What is NVivo? : QSR International; [Available from: <http://www.qsrinternational.com/what-is-nvivo>.
90. Charmaz K. Constructing Grounded Theory. Sage Publications Ltd. 2014;2nd edition.
91. Braun V, Clarke V. Using thematic analysis in psychology. *Qualitative Research in Psychology*. 2006;3(2):77-101.
92. Boyatzis R. Transforming qualitative information: Thematic analysis and code development: SAGE Publications; 1998.
93. Guba EG, Lincoln YS. Competing paradigms in qualitative research. *Handbook of Qualitative Research*: Sage; 1994. p. 105-17.
94. Integrated Research Application Service: Health Research Authority; 2018 [cited 2018. Version 5.9.1, 23/07/2018, IRAS Dataset version 3.5.: [Available from: [myresearchproject.org.uk](http://myresearchproject.org.uk).
95. HRA Decision Tool: NHS Health Research Authority; [Available from: <http://hra-decisiontools.org.uk/ethics>.
96. Quine S. Focus groups: the role of the scribe and procedures for transcription. *Health Promotion Journal of Australia: Official Journal of Australian Association of Health Promotion Professionals* 8(3):214-6.
97. Herscovitch L, Meyer JP. Commitment to organizational change: extension of a three-component model. *The Journal of applied psychology*. 2002;87(3):474-87.
98. May C, Rapley T, Mair FS, Treweek S, Murray E, Ballini L, et al. NPT Core Constructs. Normalization Process Theory On-line Users' Manual, Toolkit and NoMAD instrument. Available from <http://www.normalizationprocess.org> 2015 [Available from: <http://www.normalizationprocess.org/what-is-npt/npt-core-constructs/>.
99. Siassakos D, Crofts, J., Winter, C., Weiner, C. P., & Draycott, T. . The active components of effective training in obstetric emergencies. *BJOG: an International Journal of Obstetrics and Gynaecology*. 2009;116(8):1028–32.
100. MacRae C, Draycott T. Delivering high reliability in maternity care: In situ simulation as a source of organisational resilience. *Safety Science*. 2019;117:490-500.
101. MacRae C, Stewart K. Can we import improvements from industry to healthcare? . *BMJ (Clinical research ed)*. 2019;364:l1039-4.
102. Liberati EG, Willars, J., Draycott, T., Winter, C., Chew, S., & Dixon-Woods, M. How to be a very safe maternity unit: An ethnographic study *Social Science & Medicine*. 2019;223:64-72.
103. Yau C, Pizzo, E., Morris, S., Odd, D. E., Winter, C., & Draycott, T. The cost of local, multi-professional obstetric emergencies training. *Acta Obstetrica Et Gynecologica Scandinavica*. 2016;95(10):1111–9.
104. Each Baby Counts: 2015 Full Report. Royal College of Obstetricians and Gynaecologists 2017.
105. Maternity Incentive Scheme Year 2 2018 [Available from: <https://resolution.nhs.uk/resources/maternity-incentive-scheme-year-two/>.
106. Maternity support worker: NHS Health Education England; [Available from: <https://www.healthcareers.nhs.uk/explore-roles/wider-healthcare-team/roles-wider-healthcare-team/clinical-support-staff/maternity-support-worker>.

107. The Roles and Responsibilities of Maternity Support Workers. Royal College of Midwives; 2016.
108. Parmelli E, Flodgren G, Beyer F, Baillie N, Schaafsma ME, Eccles MP. The effectiveness of strategies to change organisational culture to improve healthcare performance: a systematic review. *Implementation Science*. 2011;6(33).
109. McCray J. *Nursing and Multi-Professional Practice*: SAGE Publications Ltd; 2009.
110. Cheminais R. *Effective Multi-Agency Partnerships: Putting Every Child Matters into Practice*. Chapter 2: The Benefits and Challenges of Collaborative Multi-Agency Working: SAGE Publications Ltd; 2009.
111. Kozlowski SWJ, Ilgen DR. Enhancing the Effectiveness of Work Groups and Teams. *Psychological Science in the Public Interest*. 2006;7(3):77-124.
112. Dewhurst's Textbook of Obstetrics and Gynaecology. 7th ed. Edmonds DK, editor: Blackwell Publishing; 2006.
113. Advanced Life Support in Obstetrics (ALSO®): American Academy of Family Physicians; [Available from: <https://www.aafp.org/cme/programs/also.html>].
114. Jan H, Guimicheva B, Gosh S, Hamid R, Penna L, Sarris I. Evaluation of healthcare professionals' understanding of eponymous maneuvers and mnemonics in emergency obstetric care provision. *International journal of gynaecology and obstetrics: the official organ of the International Federation of Gynaecology and Obstetrics*. 2014;125(3):228-31.
115. Draycott TJ, Collins KJ, Crofts JF, Siassakos D, Winter C, Weiner CP, et al. Myths and realities of training in obstetric emergencies. *Best Pract Res Clin Obstet Gynaecol*. 2015.
116. May C, Rapley, T., Mair, F.S., Treweek, S., Murray, E., Ballini, L., Macfarlane, A. Girling, M. and Finch, T.L. NPT Core Constructs. Normalization Process Theory On-line Users' Manual, Toolkit and NoMAD instrument. Available from <http://www.normalizationprocess.org> 2015 [Available from: <http://www.normalizationprocess.org/what-is-npt/npt-core-constructs/>].
117. PROMPT Wales. NHS Wales/GIG Cymru: NHS Wales; 2018 [Available from: <http://www.nwssp.wales.nhs.uk/prompt-wales>].
118. The Early Notification scheme progress report: collaboration and improved experience for families. NHS Resolution; 2019.
119. Exploring social franchising and licensing [Available from: <https://www.health.org.uk/funding-and-partnerships/programmes/exploring-social-franchising-and-licensing>].
120. Developing a licensed, social franchising model for regional hubs to support and sustain the roll out of effective local multi-professional maternity training (The PROMPT Maternity Foundation): The Health Foundation; [Available from: <https://www.health.org.uk/improvement-projects/developing-a-licensed-social-franchising-model-for-regional-hubs-to-support-and>].
121. Safety Attitudes Questionnaire - Short Form Scoring Key: The University of Texas Health Science Center at Houston 2008 [Available from: <https://med.uth.edu/chgs/files/2018/05/Scale-Computation-Instructions-updated-EWS-12.23.15.pdf>].
122. The SAGE Encyclopedia of Communication Research Methods: SAGE; 2017.

123. What is R? Introduction to R: The R Foundation; [Available from: <https://www.r-project.org/about.html>].
124. Safer Maternity Care: Next steps towards the national maternity ambition. Maternity Safety Programme Team, Department of Health; 2016.
125. Maternity Safety Training Catalogue. Health Education England; 2016.
126. Liberati EG, Tarrant C, Willars J, Draycott T, Winter C, Kuberska K, et al. Seven features of safety in maternity units: a framework based on multisite ethnography and stakeholder consultation. *BMJ Quality & Safety*. 2021;30(6):444-56.
127. Clarke D, Godfrey M, Hawkins R, Sadler E, Harding G, Forster A, et al. Implementing a training intervention to support caregivers after stroke: a process evaluation examining the initiation and embedding of programme change. *Implementation Science*. 2013;8:96.
128. Alharbi TS, Carlström E, Ekman I, Olsson L-E. Implementation of person-centred care: management perspective. *J Hosp Adm*. 2014;3(3):107-20.
129. Finch TL, Girling, M., May, C.R., Mair, F.S., Murray, E., Treweek, S., Steen, I.N., McColl, E.M., Dickinson, C., Rapley, T. . Nomad: Implementation measure based on Normalization Process Theory. [Measurement instrument]. Retrieved from <http://www.normalizationprocess.org>. 2015 [Available from: <http://www.normalizationprocess.org>].
130. Kelly S, Redmond P, King S, Oliver-Williams C, Lamé G, Liberati E, et al. Training in the use of intrapartum electronic fetal monitoring with cardiotocography: systematic review and meta-analysis. *BJOG: An International Journal of Obstetrics & Gynaecology*. 2021;128(9):1408-19.
131. OASI Care Bundle: A multi-centre quality improvement project to reduce the incidence of obstetric anal sphincter injury: The Health Foundation; [
132. Lenguerrand E, MacLennan G, Siassakos D, Draycott T, Bhattacharya S, Norrie J. The THISTLE study: a stepped-wedge clustered trial of an intrapartum emergencies training package in Scottish maternity units <https://trialsjournal.biomedcentral.com/articles/10.1186/1745-6215-14-S1-P142> [

## List of Commonly used Abbreviations and Acronyms

<b>Abbreviation/Acronym</b>	
<b>ALSO</b>	Advanced Life Support in Obstetrics
<b>BPI</b>	Brachial plexus injury
<b>CEMACH</b>	Confidential Enquiry into Maternal and Child Health
<b>CNST</b>	Clinical Negligence Scheme for Trusts
<b>CTG</b>	Cardiotocograph
<b>EI</b>	Early Initiator
<b>HCA</b>	Health Care Assistant
<b>LS</b>	Later Starter
<b>MSW</b>	Maternity Support Worker
<b>MIS</b>	Maternity Incentive Scheme
<b>MCQIC</b>	Maternity and Children Quality Improvement Collaborative
<b>MOET</b>	Medical Obstetric Emergencies and Trauma
<b>NBT</b>	North Bristol NHS Trust
<b>NHS</b>	National Health Service
<b>NHSLA</b>	NHS Litigation Authority
<b>NPT</b>	Normalisation Process Theory
<b>PROMPT</b>	Practical Obstetric Multi-Professional Training
<b>PMF</b>	PROMPT Maternity Foundation
<b>QI</b>	Quality Improvement
<b>RCOG</b>	Royal College of Obstetricians and Gynaecologists
<b>R&amp;D</b>	Research and Development
<b>SAQ</b>	Safety Attitude Questionnaire
<b>SCOTTIE</b>	Scottish Core Obstetric Teaching and Training in Emergencies
<b>SD</b>	Shoulder dystocia
<b>SMMDP</b>	Scottish Multi-professional Maternity Development Programme
<b>THISTLE</b>	Trial of Hands-on Inter-professional Simulation Training for Local Emergencies
<b>T3</b>	Train the Trainers course (PROMPT)

## Appendices



## APPENDIX 1: The THISTLE Study – Additional Information

The THISTLE Study was a UK Collaborative Study funded by the Chief Scientist Office of the Scottish Government Health Directorates, and co-ordinated by researchers from the University of Aberdeen. The aim of THISTLE was to determine whether the implementation of an intra-partum emergencies training package across all large maternity units within an entire health service could reduce the proportion of term babies with an Apgar score of less than 5 at 5 minutes of age (52).

All Scottish NHS maternity units with over 1000 births per year were invited to participate in THISTLE. Of the fifteen eligible units, three units were excluded from the intervention arm of the study because they were already doing PROMPT locally or had already received some PROMPT training (by attending a T3 course in London). Of the remaining twelve units, eleven agreed to participate and one unit initially declined, without providing a reason. However, after our study had commenced, this unit did eventually commence PROMPT training.

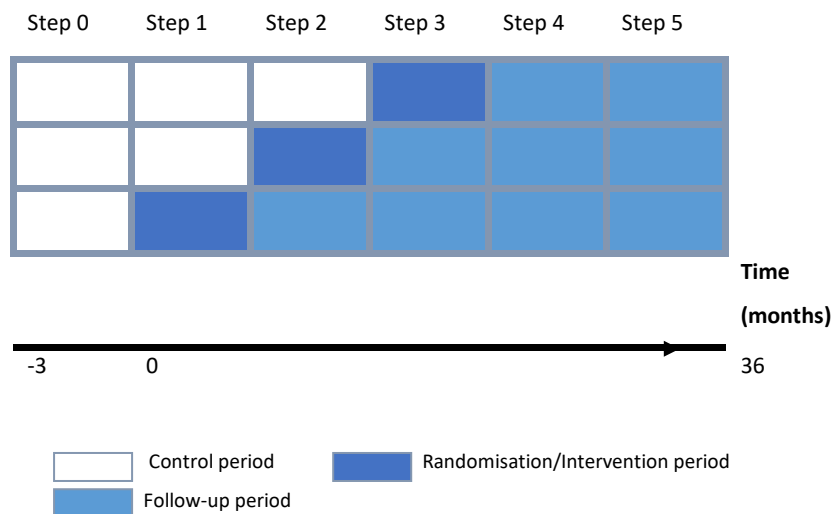
The THISTLE study took place in Scotland between March 2014 and September 2016. The intervention was the delivery of a two-day PROMPT “T3” (*Train the Trainers*) programme by the PMF faculty, to multi-professional teams from Scottish maternity units. The first day of the T3 course included a demonstration of the PROMPT course, the provision of the PROMPT Course-in-a-box materials, and the opportunity for teams to practice running their own skills drills on day 2. Four multi-professional ‘in-house’ trainers from each unit attended the T3 day, with the intention being that they then returned to their own units ready to set-up and run local PROMPT courses for all their maternity staff.

The THISTLE Study was designed as a stepped wedge clustered randomised controlled trial (SW c-RCT) design. The SW-c-RCT permits a phased implementation of the intervention at all sites, which has the advantage of removing logistical and practical constraints of delivering the training intervention at a single time-point and allows for the evaluation of outcomes across several units. It controls for temporal

changes and simultaneously allows longer-term effects to be evaluated, while reducing bias(132). THISTLE featured a cross-over design, in which different clusters switched trial arms in the same direction at randomly assigned time points. Each maternity unit acted as a control, until allocation to the intervention.

The table below demonstrates the intended phased timing of the SW-RCT. This duration allowed all units to receive their T3 (*Train the Trainers*) training within 12 months, keeping each step short to reduce contamination between trained and untrained units. All eleven participating units were trained during 2014, during Steps 1, 2 and 3, as per Figure 3 below. The first T3 course took place in March 2014 (Step 1), the second in June 2014 (Step 2), and the final and course was in November 2014 (Step 3).

### Stepped wedge-design of the THISTLE study



\* Each cell represents a group of 4 maternity units

As discussed, there is good evidence of the success of PROMPT at single or pilot sites. However, there are less data about the implementation of PROMPT across multiple units within a single national health service. This setting therefore provided an ideal context in which to investigate the effect of PROMPT training on a larger scale. Furthermore, the study setting was advantageous in that Scotland has an

established database of all births at Scottish maternity units, through the Information Services Division Scottish Morbidity Record 02 (ISD SMR 02). Pilot data from ISD SMR 02 showed that Scotland has a relatively high rate of Apgar score less than seven at 5 minutes of age, averaging at 1.1%, 0.23 percentage points higher than the low Apgar rate in Bristol, prior to Scottish maternity units undertaking PROMPT training(52).

These findings drew attention to the fact that the SMMDP initiative (SCOTTIE training) had been in place for several years but had not been associated with demonstrable improvement in low Apgar scores or perinatal wellbeing. It was therefore identified that there was not only scope for improvement in outcomes in Scotland, but also scope to introduce a new obstetric emergency training package at a national scale.

## APPENDIX 2: Cover letter for Managers



### **THISTLE-Plus Study: Learning from and Understanding the THISTLE (Trial of Hands-on Interprofessional Simulation Training for Local Emergencies) Study**

Dear *[insert name of Lead Obstetrician or Head of Midwifery]*

**We would like to invite your maternity unit to join the THISTLE-Plus Study, an extension of the THISTLE Study in which your department is already involved.**

THISTLE-Plus is a research project funded by The Health Foundation, an independent charity working to improve the quality of healthcare in the UK. The ongoing THISTLE study aims to determine the clinical outcome effect of introducing the PROMPT (Practical Obstetric Multi Professional Training) safety package. THISTLE-Plus is an extension of this study, and will evaluate and assess the implementation of the PROMPT package and aims to identify the “active ingredients” of PROMPT - the factors which are critical for its success - in order to inform efforts to roll out the programme at a larger national scale.

The views, experiences and opinions of frontline clinical staff on delivery suite (midwives, obstetricians and anaesthetists) are crucial to understanding how training and implementation can be improved. To obtain this information, we would like to arrange a series of discussion groups (focus groups) with staff who have been involved in the training (as participants or trainers), on a voluntary basis, with your managerial approval. We would also like to invite all maternity staff in your unit to complete a validated Safety Attitudes Questionnaire (SAQ), to elicit caregiver attitudes to safety.

**We would be delighted if your unit would support this extension of the THISTLE project.**

Enclosed with this letter is a more detailed Information Sheet about THISTLE-Plus and further contact information should you have any queries. If after reading this information, you are happy for staff to be invited to participate, then please

complete the enclosed Study Inclusion Form and return it to us in the stamped addressed envelope provided.

Thank you for your time and support.

Dr Kate Collins MBBS MRCOG (Clinical Research Registrar) *on behalf of the THISTLE-Plus Research Team*

*Other THISTLE-Plus Team Members*

Prof. Tim Draycott (Chief Investigator and Consultant Obstetrician)

Mrs. Cathy Winter (Project Manager & Lead Research Midwife)

Mr. Dimitrios Siassakos (Principal Investigator & Consultant Senior Lecturer in Obstetrics)

**APPENDIX 3: Study Inclusion Form**



**STUDY INCLUSION FORM FOR THISTLE-PLUS STUDY**

**From:** THISTLE-Plus Research Team

**To:** Midwifery Managers and Obstetric Leads for THISTLE (PROMPT) Training

Please **initial** the boxes if you agree with the following statements:

Please INITIAL box

I/We have read the accompanying information sheet "*THISTLE-Plus Information Sheet for Maternity Units*" (dated 09/09/2015, version 1.0) and understand what is proposed for this study

I/We agree to be included as a maternity unit in this study, on the understanding that individual members of staff will retain the right to decide independently if they wish to participate in focus groups or interviews

Signed:.....

Job Title:.....

Date:.....



### THISTLE-PLUS Study INFORMATION SHEET FOR MATERNITY UNITS

We are a multi-professional team of clinical researchers, forming part of the RiSQ (Research into Safety & Quality) Team from Southmead NHS Hospital in Bristol. With your permission and approval, we would like to invite staff members from your maternity unit, who have participated in local THISTLE (PROMPT) training, to participate in a study, called **THISTLE-Plus**.

#### Background:

Your hospital is already participating in the CSO-funded **THISTLE** Study (Trial of Hands-on Interprofessional Simulation Training for Local Emergencies), which is a training intervention for intrapartum emergencies, based on PROMPT (Practical Obstetric Multi-Professional Training).

In 2014, four staff members from your unit attended a 2 day “Train-the-Trainers” programme, at the Scottish Clinical Simulation Centre in Larbert. This team has been implementing local training in your unit. The overall aim of the THISTLE study is to determine if PROMPT is clinically effective across a health service.

#### What is the THISTLE-Plus study?

**THISTLE-Plus** is a process evaluation of the THISTLE study. Its principal aim is to identify the “active ingredients” of the PROMPT programme – to explore what factors affect the implementation of PROMPT, in order to inform efforts to roll out the programme into other units across the country. The study is funded by The Health Foundation, a registered charity, and involves collaboration with researchers from the University of Bristol.

The study will involve:

- **Focus Group discussions and/or interviews with THISTLE trainers and participants who have attended training**
- **Analysis of a validated Safety Attitudes Questionnaire (SAQ) which staff will be invited to complete**
- **Observation of a local training event, if possible**
- **Review of local resources e.g., guidelines, algorithms, proformas, emergency boxes etc.**

### **What will staff be asked to do if they choose to participate?**

**Questionnaire:** All staff will be invited to complete a Safety Attitudes Questionnaire (SAQ) as part of a survey of caregiver attitudes to safety in practice.

**Focus Groups or Interviews:** Clinical maternity staff (midwives, anaesthetists and obstetricians) who have taken part in local PROMPT training, may be invited to participate in a group discussion (focus group) or a one-to-one interview with a researcher, Dr Kate Collins, a Clinical Research Fellow from the University of Bristol. This will take place in your unit approximately 12 months after training has been implemented.

These group discussions and interviews will be held locally, at a mutually convenient time. Some funding from The Health Foundation research grant will be available to provide staffing “backfill” so that participants are available to attend, without compromising staffing levels. A small amount of funding has also been secured to enable a “co-ordinating” midwife from your unit to facilitate the organization of focus groups. Their role will be to distribute and collect the surveys, and organize the practical arrangements for the group discussions. This funding should be equivalent to 2 days salary per month of a Band 6 level midwife, for 4 months. The funding may be payable as a lump sum for your unit to decide how to allocate appropriately.

The group discussions may last for up to 90 minutes, and questions will be focused on experiences of the training received, and staff views on the implementation of the training in your unit. With participants’ written consent, the discussions will be digitally recorded and transcribed, and anonymized with any identifying information (names, specific times and places) removed.

### **Will our staff be obliged to participate in THISTLE-Plus if they have attended THISTLE training?**

If as a unit, you decide that you are happy for your staff to be invited to participate in THISTLE-Plus, then the decision to be involved in discussion groups or interviews will be entirely up to the individuals concerned. They will be given an information leaflet about the research, and are under no obligation to participate if they choose not to.

### **What are the possible benefits to staff in taking part?**

While there are no direct benefits to those taking part, the discussion groups will hopefully provide an opportunity for staff to share their opinions and feedback which we will be used to improve training for future participants.

### **What are the possible disadvantages of taking part?**

A possible disadvantage may be the time required for the individual staff member to take part in the focus groups or interviews, and some may decide to take part in their own free time. However, we hope that through provision of some funding to



you from the Health Foundation grant (described above), you will be able to provide staffing backfill to allow participants to attend.

### **What if there is a problem or we no longer want to participate in THISTLE-Plus?**

If you have any concerns about any aspect of the study, you can speak to the research team who will do their best to address them. However, if you remain unhappy or wish to complain formally, then please contact the Research and Development Office at your local unit.

### **Will the information given by participants in this study be kept confidential?**

Yes, all the data we gather will be kept strictly confidential. We will anonymise the information, removing all names, places and dates so staff will not be identifiable. The information will then be stored on password-protected computers for 10 years in accordance with Medical Research Council guidelines and used only by researchers within the University of Bristol's School of Clinical Sciences. Anonymous quotes from the interviews may be used in academic publications, but will be free of personal identifiable information.

### **What will happen to the results of the research?**

We plan to publish the results from this research in a number of medical and health science journals, to share our understanding of implementation of new training interventions across different maternity units. As valued contributors, we will update you with our preliminary findings and a final report if you would like to receive this information.

### **Who has reviewed this project?**

This project has been sponsored by North Bristol NHS Trust. If you agree to your unit participating in THISTLE-Plus, then we will seek Research & Development approval from your local NHS R&D office.

### **What do we do now?**

If you are happy for your staff to take part, then please complete the attached Study Inclusion Form, and return it in the stamped addressed envelope provided.

If you require any further information or have any questions about the study, please contact the Dr Kate Collins or Ms Cathy Winter at Southmead Hospital in Bristol, by telephone on 0117 414 6760, or by email [kate.collins@nbt.nhs.uk](mailto:kate.collins@nbt.nhs.uk)

[Further contact details are provided on the following page.](#)

## Contact details

Our address is: RisQ Office, The Chilterns, Department of Women's and Children's Health, Southmead Hospital, Bristol, BS10 5NB  
Tel 0117 414 6760

**Dr. Kate Collins** - Clinical Research Fellow & Senior Registrar in Obstetrics & Gynaecology

**Mrs. Cathy Winter** – Project Manager & Lead Research Midwife

**Mr. Dimitrios Siassakos** – Principal Investigator & Consultant Senior Lecturer in Obstetrics

**Prof. Tim Draycott** – Chief Investigator and Consultant Obstetrician

Thank you for taking the time to read this leaflet.

## APPENDIX 5: Information Leaflet for Staff Participants



### THISTLE-PLUS INFORMATION SHEET: STAFF

We are a multi-professional team of clinical researchers, forming part of the Maternity Research Team from Southmead Hospital in Bristol. We would like to invite **staff who have participated in local THISTLE (PROMPT) training to take part in our study, called THISTLE- Plus.**

#### Background:

Your hospital is already participating in the THISTLE study (Trial of Hands-on Interprofessional Simulation Training for Local Emergencies), which is a training intervention for intrapartum emergencies. Members of staff from your unit attended a 2-day “Train-the- Trainers” programme at the Scottish Clinical Simulation Centre in 2014. This team has been implementing local training in your unit.

*If you have received this local training, then we would like to talk to you about your experiences.*

#### What is THISTLE-Plus?

THISTLE-Plus is an evaluation of the THISTLE study. Our principal aim is to identify the “active ingredients” of the PROMPT programme – essentially to explore what factors affect the implementation of PROMPT, in order to inform efforts to roll out training in other units. The study is funded by The Health Foundation, a registered charity, and involves collaboration with researchers from the University of Bristol.

Our research will involve:

- Focus Group discussions and/or interviews with THISTLE (PROMPT) trainers and participants who attended training
- A survey about safety attitudes which you will be invited to complete
- Observation of a local training event, if possible
- A review of local resources e.g., guidelines, algorithms, proformas, emergency boxes etc.

#### What will I be asked to do if I choose to participate?

**Questionnaire:** You will be invited to complete a questionnaire as part of a survey of caregiver attitudes to safety in practice. Questionnaires can be returned in a sealed envelope, and posted in a dedicated, secure post-box located on your unit.

**Focus Groups or Interviews:** Midwives, anaesthetists and/or obstetricians may be invited to participate in a group discussion (focus group) or a one-to-one interview with Dr Kate Collins, a Clinical Research Fellow from the University of Bristol.

The group discussion and interview will be held at your local unit, at a mutually convenient time. We have some funding available to provide staffing “backfill” so that you can attend, without compromising staffing levels.

Before the focus group/interview, the researcher will ask for your consent (agreement) to take part and to record the interview (using a small audio-recorder). You will receive a copy of the consent form. We expect interviews and group discussions to last between 60 – 90 minutes. Questions will be focused on experiences of the training received, and your views on the implementation of PROMPT training in your unit.

#### **Do I have to take part?**

No. The midwifery manager and obstetric lead at your unit have given their permission for us to ask if you'd like to participate, but the decision to be involved is entirely yours as an individual. You are under no obligation to participate.

#### **Are there any benefits in taking part?**

There are no direct benefits to those taking part, but the discussion groups will hopefully provide an opportunity for you to share your opinions on the training you have received, and/or how you approached the implementation process in your maternity unit. Your feedback will inform us on how the training could be improved for future participants. This information will be invaluable for guiding the development of future local training packages.

#### **What are the possible disadvantages of taking part?**

A possible disadvantage to you may be the time required to attend the focus group or interview. You may have to attend in your own free time, but we will be liaising with your managers to try and avoid this.

#### **What if there is a problem and I no longer want to participate in THISTLE-Plus?**

You can withdraw from the study at any time without giving a reason. However, if you do we would like to retain the information you have given to us up to that point. If you have any concerns about any aspect of the study, you can speak to the research team who will do their best to address them. However, if you remain unhappy or wish to complain formally, then please contact the Research and Development Office at your local unit.

### Will the information I give in this study be kept confidential?

Yes, all the information you give us will be kept strictly confidential. We will anonymise the information, removing all names, places and dates, so you will not be identifiable. The

information will then be stored in a secure location on password-protected computers for 10 years, in accordance with Medical Research Council guidelines and used only by researchers within the University of Bristol's School of Clinical Sciences. Anonymous quotes from the interviews may be used in academic publications, but these will not contain any personal identifiable information.

### What will happen to the results of the research?

We plan to publish the results from this research in a number of medical and health science journals and at conferences. As valued contributors, we will provide your unit with a summary report of our findings.

### Who has reviewed this project?

This project has received ethical approval from [Insert name of ethics committee and approval number], and approval by your Trust's Research & Development office.

### What happens next?

If you would like to participate, then we will contact your local liaison midwife (*name to be inserted*), to let them know you are interested. We will then contact you to let you know where and when the focus group or interview will be taking place.

If you require any further information or have any questions about the study, please contact Dr. Kate Collins or Mrs. Cathy Winter on 0117 414 6760.

### Contact details

Our address is: RisQ Office, The Chilterns, Department of Women's and Children's Health, Southmead Hospital, Bristol, BS10 5NB. Tel 0117 414 6760

#### **THISTLE-Plus Research Team**

**Dr. Kate Collins** - Clinical Research Fellow & Senior Registrar in Obstetrics & Gynaecology

**Mrs. Cathy Winter** – Project Manager & Lead Research Midwife

**Mr. Dimitrios Siassakos** – Principal Investigator & Consultant Senior Lecturer in Obstetrics

**Prof. Tim Draycott** – Chief Investigator and Consultant Obstetrician

**Thank you for taking the time to read this leaflet.**

THISTLE-Plus Information for Participants 30.09.15, Version 1.0

## APPENDIX 6 - Funding Agreement Pro Forma



PROMPT Maternity Foundation – Registered Company number 7506593 Website:  
[www.promptmaternity.org](http://www.promptmaternity.org).

[Name and address of participating unit]

Dear [Name of lead contact]

Correspondence Address:

Dr. Kate Collins  
The PROMPT Maternity Foundation c/o Department of Women's Health  
The Chilterns  
Southmead Hospital  
Westbury-on-Trym  
BRISTOL, BS10 5NB  
January 2016

### **THISTLE-Plus: Process Evaluation of PROMPT Implementation in Scotland**

Thank you for agreeing to participate in the above study.

As part of the grant funding for the study I have managed to secure a small amount of money to enable a local collaborator to be appointed and who will facilitate the distribution and collection of Safety Attitude Questionnaire and coordinate focus groups. The money equates to a band 6 local midwife devoting 2 days per month for 6 months (£2500) and the costs of back filling staff so as to permit me to conduct 2 focus groups (£1,000). The money will be paid as a lump sum to the maternity departments of the participating hospitals.

In order that I can arrange payment of the £3,500 please confirm the appointment of a local collaborator with the above duties by signing and returning to me a copy of the attached form.

With kind regards

**Dr. Kate Collins**



Queen's Anniversary Prize 2014



PROMPT Maternity Foundation – Registered Company number 7506593 Website:  
[www.promptmaternity.org](http://www.promptmaternity.org).

**THISTLE-Plus: Process Evaluation of PROMPT Implementation in Scotland**

**To Dr. Kate Collins**, the PROMPT Maternity Foundation, c/o Department of Women’s Health, The Chilterns, Southmead Hospital, Westbury-on-Trym, BRISTOL, BS10 5NB

I [*Name of Principal local investigator*] of [*name and address of participating unit*] confirm the following:

1. The name and contact details of the local collaborator who has been nominated to undertake the duties of local collaborator are as follows
2. In consideration of my unit receiving the sum of £3,500 the local collaborator will facilitate the task of coordinating the distribution and collection of Safety Attitude Questionnaires and 2 focus groups in a timeously, diligently and in accordance with the Site Specific Information Form and the THISTLE-Plus Information Sheet for Maternity Units” (dated ....., version .....).
3. A cheque for the sum of £3,500 should be made payable to:

Alternatively if payment is preferred by electronic bank transfer the details are as follows:

Account Name: Account Number Bank Name:  
Sort Code: Payment ref:

.....[Signature] Dated:



Queen’s Anniversary Prize 2014

## APPENDIX 7: North Bristol NHS Trust R&D Approval Confirmation

**From:** "Smith Rebecca (NORTH BRISTOL NHS TRUST)" <[rebecca.smith30@nhs.net](mailto:rebecca.smith30@nhs.net)>  
**Subject:** RE: North Bristol NHS Trust Full R&D approval: THISTLEPlus: Process Evaluation of the Implementation of PROMPT in Scotland, R&I 3645  
**Date:** 16 November 2015 13:54:39 GMT  
**To:** "Collins Kate (NORTH BRISTOL NHS TRUST)" <[kate.collins5@nhs.net](mailto:kate.collins5@nhs.net)>  
**Cc:** "[tdraycott@me.com](mailto:tdraycott@me.com)" <[tdraycott@me.com](mailto:tdraycott@me.com)>, "[cwinter@promptmaternity.org](mailto:cwinter@promptmaternity.org)" <[cwinter@promptmaternity.org](mailto:cwinter@promptmaternity.org)>, "[jsiassakos@me.com](mailto:jsiassakos@me.com)" <[jsiassakos@me.com](mailto:jsiassakos@me.com)>, "[aj.moore@bristol.ac.uk](mailto:aj.moore@bristol.ac.uk)" <[aj.moore@bristol.ac.uk](mailto:aj.moore@bristol.ac.uk)>, "Williams Nicola (NORTH BRISTOL NHS TRUST)" <[nicolawilliams6@nhs.net](mailto:nicolawilliams6@nhs.net)>, "[Helen.Lewis@nbt.nhs.uk](mailto:Helen.Lewis@nbt.nhs.uk)" <[Helen.Lewis@nbt.nhs.uk](mailto:Helen.Lewis@nbt.nhs.uk)>, "[katie.tovey@nbt.nhs.uk](mailto:katie.tovey@nbt.nhs.uk)" <[katie.tovey@nbt.nhs.uk](mailto:katie.tovey@nbt.nhs.uk)>, "[annette.clarke@nbt.nhs.uk](mailto:annette.clarke@nbt.nhs.uk)" <[annette.clarke@nbt.nhs.uk](mailto:annette.clarke@nbt.nhs.uk)>, "[Donna.Noonan@nbt.nhs.uk](mailto:Donna.Noonan@nbt.nhs.uk)" <[Donna.Noonan@nbt.nhs.uk](mailto:Donna.Noonan@nbt.nhs.uk)>, "[Agnieszka.ziolek@nbt.nhs.uk](mailto:Agnieszka.ziolek@nbt.nhs.uk)" <[Agnieszka.ziolek@nbt.nhs.uk](mailto:Agnieszka.ziolek@nbt.nhs.uk)>, "Smith Rebecca (NORTH BRISTOL NHS TRUST)" <[rebecca.smith30@nhs.net](mailto:rebecca.smith30@nhs.net)>, Eleftheria Patetsini <[Eleftheria.Patetsini@nbt.nhs.uk](mailto:Eleftheria.Patetsini@nbt.nhs.uk)>

Dear Dr Katherine J Collins,

**Title:** THISTLEPlus: Process Evaluation of the Implementation of PROMPT (Practical Obstetric MultiProfessional Training) in Scotland  
**CI:** Prof Tim Draycott  
**IRAS number:** 165303  
**REC number:** NA  
**R&D Reference:** 3645  
**Start Date:** 16/11/2015  
**End Date:** 01/09/2016

I am pleased to confirm North Bristol NHS Trust (NBT) NHS permission for the above study.

### R&D APPROVAL

I understand that North Bristol NHS Trust will act as sponsor for this study.

We acknowledge that this project does not require ethical review by a NHS Research Ethics Committee under the UK Health Departments' Governance Arrangements for Research Ethics Committees (GAfREC), however it may be necessary to contact the University Research Ethics Committee (UREC).

We wish you every success with your study. **Please be advised that you will not be able to start recruitment until an R&D approval has been issued from the participating sites.** We are keen to support good research at North Bristol NHS Trust and are pleased that you have decided to conduct the analysis of your project here.

The lead Research Governance Officer for this study is Eleftheria Patetsini, who will remain your ongoing main point of contact. They can be reached at the following email address: [research@nbt.nhs.uk](mailto:research@nbt.nhs.uk).



Approval is given on the understanding that this project be carried out according to Good Clinical Practice and UK Statutory Instrument, and within the guidelines of the NHS Research Governance Framework for Health and Social Care, and NHS Trust policies, procedures, and SOPs which are available online at <http://www.nbt.nhs.uk/research>.

In particular you have responsibility for:

- Ensuring that, all participants sign informed consent (whenever applicable).
- Adhering to the protocol and ensuring your co-workers do the same.
- Ensuring all recruitment figures are uploaded to the Edge database on a weekly basis.
- Providing us with information about any amendments to the protocol, changes in funding, personnel or end date.
- Informing us of any research-related adverse events.
- Ensuring that any staff working on this study at this site have been issued with a contract with NBT (honorary, substantive or bank) or a letter of access before they commence work on the study at this site.
- Maintenance of an Investigator Site File and/or Trial Master Files.

Researchers who hold substantive or honorary contracts with North Bristol NHS Trust (NBT) will be covered against claims of negligence by patients of NBT under the Clinical Negligence Scheme for Trusts (CNST). This scheme does not cover 'no fault' compensation and the Trust is precluded from taking out separate insurance to cover this. Any patient or volunteer taking part in the study is entitled to know that if they suffered injury as a result of participating in the study they would first have to prove negligence in a court of law before they could gain compensation. If the study involves patients of any other Trust or healthcare organisation, you will need to confirm the indemnity arrangements with that organisation.

In addition, other information may be requested from time to time and lay summary of the results will be requested from you at the end of the study.

This R&D approval document will need to be filed in your Investigator Site File and/or Trial Master Files.

In accordance with the NBT Research Monitoring and Audit policy, this study is subject to audit by the R&I Office. We will contact the Principal Investigator to make appropriate arrangements for this.

Many thanks

**Dr Nicola Williams**  
**Deputy Director**  
**Research & Innovation**  
**North Bristol NHS Trust**

Tel: 0117 414 9330  
Fax: 0117 414 9329  
<http://www.nbt.nhs.uk/research>

## APPENDIX 8: Confirmation of Approval from University of Bristol Research Governance Team



24<sup>th</sup> October 2019

Dr Kate Collins  
MD Student  
Bristol Medical School  
University of Bristol

Dear Dr Collins,

**MD Study: THISTLE-Plus Study: Process Evaluation of PROMPT Implementation in Scotland**

CI: Dr Kate Collins (MD Student)  
University of Bristol refs: previously Study 2577, Currently 2018 – 1733

This Study, funded by the Health Foundation, was Sponsored by North Bristol Trust (NBT) on 19.01.16.

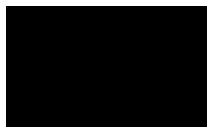
As you are a University of Bristol student, we had a responsibility to conduct oversight checks to ensure that appropriate approvals were in place. As such, we were in contact with NBT who forwarded us a copy of the authorised IRAS R&D form which they had signed, as Sponsor, on 16.10.15.

The study is an NHS staff-only project, taking place within the NHS but with staff being recruited by virtue of their professional role. As such, NBT confirmed, in an email from Donna Noonan dated 15.10.15, that NHS ethical review was not required and that there was no "lower level ethics review process".

We therefore issued confirmation of our oversight in the form of a Study Registration email, reflecting the governance pathway, dated 19.1.16.

I hope that this provides sufficient confirmation.

With best wishes,



Anna Brooke  
Research Governance Officer  
Research Governance Team  
University of Bristol

## APPENDIX 9: Safety Attitudes Questionnaire



Dear Colleague,

Your maternity unit has agreed to participate in the THISTLE-PLUS Study, which aims to explore the implementation of local PROMPT training (Practical Obstetric Multi-Professional Training) in Scottish maternity units. As a member of staff working in your maternity unit, we would like to invite you to complete a **Safety Attitudes Questionnaire**.

We would like to receive the views of all maternity staff in your unit, as every person's viewpoint is important. By completing this Safety Attitudes Questionnaire, you will be contributing to our research and helping to provide further information on how to ensure the safest care for mothers and babies, not only in your own unit, but throughout Scotland.

All questionnaires are anonymous and will only be seen by the THISTLE-Plus Research Team.

### Guidance for Staff

- All staff that have worked in your maternity unit for more than 1 month (& for more than 3 days a week) are being invited to complete the questionnaire
- The questionnaire takes approximately 10 minutes to complete
- Please answer every question by putting a '☒' in one of the 5 boxes
- The questionnaire is anonymous
  - Please complete the background information section at the end of the form.  
**This information will not be used to identify you**
  - Your completed questionnaires will be returned and analysed by the THISTLE-Plus Study Team. They will not be seen by anyone in your hospital.
- The questionnaires should be placed inside the envelope provided, and posted in the designated collection box.

**When completing the questionnaire, please bear in mind the following:**

Term used	Meaning
'This hospital' or 'Hospital administration'	This maternity unit/hospital
Clinical area	The clinical area in which you work
'Hospital management'	The management of this maternity unit/hospital only
'Personnel'	People who work in this maternity unit/hospital

**Thank you. We are extremely grateful to you for sparing the time to complete this survey and support this research.**

***On behalf of the THISTLE-Plus Research Team, Southmead Hospital, Bristol.***



Please answer these items with respect to your unit. Please tick (✓) the box that reflects your opinion		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		A	B	C	D	E
1.	High levels of work load are common in this clinical area					
2.	I like my job					
3.	My input is well received in this clinical area					
4.	I would feel safe here being treated as a patient					
5.	Adverse health care events (event or omission arising during clinical care causing physical or psychological injury to a patient) are handled appropriately in this clinical area					
6.	This hospital does a good job of training new personnel					
7.	All the necessary information for diagnostic and therapeutic decision is routinely available to me					
8.	Working in this hospital is like being part of a large family					
9.	The administration of this hospital is doing a good job					
10.	Hospital administration supports my daily efforts					
11.	I have received appropriate feedback about my performance					
12.	In my clinical area, it is difficult to discuss errors					
13.	Briefing other personnel before a procedure is important for patient safety					
14.	Briefings are common in this clinical area					
15.	This hospital is a good place to work					
16.	Fatigue impairs my performance during emergency situations					
17.	Hospital management does not knowingly compromise patient safety					
18.	The levels of staffing in this clinical area are sufficient to handle the number of patients					
19.	Decision making in this clinical area utilises input from relevant personnel					
20.	I am encouraged by my colleagues to report any patient safety concerns I may have					
21.	The culture in this clinical area makes it easy to learn from the errors of others					
22.	The hospital deals constructively with problem employees					
23.	Junior team members should not question the decision made by senior team members					
24.	The medical equipment in this clinical area is adequate					
25.	In this clinical area it is difficult to speak up if I perceive a problem with patient care					
26.	When my workload becomes excessive my performance is impaired					
27.	I am provided with adequate, timely information about events in the hospital which might affect my work					
28.	I have seen others make errors that had the potential to harm patients					
29.	I know proper channels to direct questions regarding patient safety in this clinical area					
30.	I am proud to work at this hospital					
31.	Disagreements here are resolved appropriately (i.e. not who is right but what is best for the patient)					
32.	I am less effective at work when fatigued					
33.	I am more likely to make mistakes in tense or hostile situations					
34.	Stress from personal problems adversely affects my performance					
35.	I have the support I need from other personnel to care for patients					
36.	It is easy for personnel in this clinical area to ask questions when there is something they do not understand					



Please answer these items with respect to your unit. Please tick (✓) the box that reflects your opinion		Strongly disagree	Disagree	Neutral	Agree	Strongly agree
		A	B	C	D	E
37.	Disruptions in the continuity of care (e.g. shift changes, patient transfers) can be detrimental to patient safety					
38.	During emergencies I can predict what other personnel are going to do next					
39.	The doctors and midwives here work together as a well-coordinated team					
40.	I am often unable to express disagreement with other clinical staff					
41.	Truly professional personnel can put their personal problems aside when working					
42.	Morale in this clinical area is high					
43.	Trainees in my discipline are adequately supervised					
44.	I know the first and last names of all the personnel I worked with on my last shift					
45.	I have made errors that have the potential to harm patients					
46.	Doctors in this clinical area are doing a good job					
47.	All the personnel in this clinical area take responsibility for patient safety					
48.	I feel fatigued when I get up in the morning and have to face another day at work					
49.	Patient safety is constantly reinforced as the priority in this clinical area					
50.	I feel burned out from my work					
51.	Important issues are well communicated at shift changes					
52.	There is widespread adherence to clinical guidelines and evidence-based criteria regarding patient safety					
53.	I feel frustrated by my job					
54.	I feel I am working too hard on my job					
55.	Information obtained through incident reports is used to make patient care safer					
56.	Personnel frequently disregard established rules or guidelines (e.g. hand washing, treatment protocols, sterile procedures)					
57.	Communication breakdowns which lead to delays in treatment are common					

Please turn page over...



**Background Information**

Please tick (✓) the box that reflects your profession / position	
Obstetricians	
Midwives	
Nurses	
Neonatologists	
NICU Personnel	
Anaesthetists	
Anaesthetic assistants	
ODPs	
Health Care Assistants (HCAs)	
Managers	
Physiotherapists	
Nursery nurses	
Receptionists	
Porters	

**Current Age:**

**How many years you have worked in this hospital:  
Years of experience in this specialty:**

**Please tick (✓)**

Usual shift: Days  
Nights  
Evenings  
Variable shifts

Main clinical area: Delivery Suite  
Birth Centre  
Community  
Antenatal  
Postnatal

Job status: Full time  
Part time  
Bank

Gender: Male  
Female

Ethnic Group: White  
Black  
Asian  
Multi-ethnic  
Other:

**What are your top 3 recommendations for improving patient safety in this area?**

- 1.....
- 2.....
- 3.....

**Have you ever completed this survey before? (Please tick ✓)**

- Yes
- No
- Do not know

*Thank you very much for your time.*

## APPENDIX 10: THISTLE-Plus Focus Groups Topic Guide for Trainers - Questions

### INTRODUCTION

- Explanation of THISTLE-Plus (understanding how training been implemented, how we can improve it, barriers and facilitators, not an assessment of unit's performance i.e. not pass or fail assessment)
- Ensure participants have read and understood info sheet and had opportunity to ask questions
- Explain we record and transcribe discussions anonymously
- All info treated in confidence and discussions should remain confidential within group and not discussed outside group
- Voluntary participation
- Collect consent forms
- Refreshments/toilets etc
- No "right" or "wrong" answers

### WARM-UP QUESTIONS

Names & intros (roles)

How long have you worked here?

### IMPRESSIONS OF T3 TRAINING

What were your first impressions of the training in Larbert?

Was the PROMPT training similar or different to other training you might have received/been involved with? How?

Had you heard of PROMPT prior to this T3 training?

What did you know about it?

### IMPLEMENTATION: HOW IS TRAINING DELIVERED

How did you set up training your team?

How many planning meetings did you have before the 1<sup>st</sup> training day?

What is the professional make-up of your team? What roles do people have?

What resources did you use?

- prompt: *Did you find the DVD and course manuals useful? If not could you tell me why?*

### IMPLEMENTATION: WHAT IS DELIVERED?

How many local training days have you been able to run?

How did you find trying to set up these training days? (barriers/facilitators?)

How do you feel people responded to the prospect of training days? (enthusiasm / reluctance?)

How many people attended?

Was there a mix of Obs/MW/Anaesth?

Which groups were the easiest & hardest to recruit? (prompt: *Do you have any ideas why this might have been the case?*)

Which parts of the training have you used? (prompt: *Why did you use these parts in particular?*)

Were there any parts you did not use? (prompt: *Can you say why?*)

How do you structure the training day?

Have you changed or adapted anything from the training day or course manual to suit your own unit?

Did you feel there were some things that you felt were important to keep the same? *Could you say why?*

### **MECHANISMS OF IMPACT**

Do you feel that participants have been engaged with THISTLE/PROMPT? *What made you think that?*

How easy has it been to set up training? *What has helped with implementing it? (Mediators)*

What have you found difficult? *Can you say why?*

Any unexpected outcomes or findings?

Have you had any feedback you want to share?

Do you feel you've been able to do anything with this feedback?

### **CONTEXT (I'm interested in the differences between units involved in training)**

Do you think there is something that makes this unit different to other maternity units you have worked in?

Can you tell me about how you feel about safety in this unit? (before and after PROMPT training)

Has anything tangibly changed for you since training?

### **GENERAL FEEDBACK**

What do you think overall about PROMPT?

Can you think of anything that would have helped you implement training more easily?

What do you hope to do in the future with training?

Do you foresee any problems or have any advice you think might be helpful to improve training?

Is there anything you feel is important that we haven't covered so far?

ANY OTHER QUESTIONS OR FEEDBACK?

Thank you for your time and for sharing your views...

**Re-affirm confidentiality.**



## APPENDIX 11: THISTLE-Plus Focus Group Topic Guide for Participants - Questions

### INTRODUCTION

- Explanation of THISTLE-Plus (understanding how training been implemented, how we can improve it, barriers and facilitators, not an assessment of unit's performance i.e. not pass or fail assessment)
- Ensure participants have read and understood info sheet and had opportunity to ask questions
- Explain we record and transcribe discussions anonymously
- All info treated in confidence and discussions should remain confidential within group and not discussed outside group
- Voluntary participation
- Collect consent forms
- Refreshments/toilets etc
- No "right" or "wrong" answers

### WARM-UP QUESTIONS

Names & intros (roles)

How long have you worked here?

### IMPRESSIONS OF LOCAL TRAINING

Had you heard of PROMPT before you attended training?

If so, what did you know about it?

How easy was it for you to attend training?

Did you attend training on a day off or a working day?

What were your first impressions of the PROMPT training?

Were there things you liked about PROMPT? Why?

Do you feel anything could be improved? Why?

How did you feel doing simulation training?

Were there any discussions during the training? About aspects of working practice? -

Did you feel able to contribute to these discussions?

Did you receive any course materials? What did you think about them?

### CONTEXT (I'm interested to see if there are differences between the units involved in training)

Do you think there is something that makes this unit different to other maternity units you might have worked in?

Can you tell me about how you feel about safety in this unit?

Have you been asked to complete a SAQ?

Has anything noticeably changed here since training was introduced?

### GENERAL FEEDBACK

What do you think overall about PROMPT?

Can you think of anything that would make the training better?

**AOB**

Is there anything you feel is important that you would like to add?

Thank you for your time and for sharing your views...

**Re-affirm confidentiality.**

## APPENDIX 12: THISTLE-Plus Interview Topic Guide - Questions

### INTRODUCTION

- Thank you for coming and sparing your time etc
- Explanation of THISTLE-Plus (to explore your experiences of the implementation of PROMPT in your unit, so we can improve the delivery and effectiveness of training in the future. Not an assessment or inspection of unit's performance.
- Ensure interviewee has read and understood info sheet and had opportunity to ask questions
- Explain we record and transcribe discussions anonymously
- All info treated in confidence and discussions should remain confidential

Voluntary participation

- Consent forms
- No "right" or "wrong" answers

### WARM-UP QUESTIONS

Could you explain what your role or roles are at the Trust? How long have you worked here?

### IMPRESSIONS OF PROMPT

Did you attend the training in Larbert? Are you a local trainer too? If not, have you attended a local PROMPT day here as a participant?

Had you heard of PROMPT before THISTLE study?

What did you know about it?

What were your initial impressions about it?

### IMPLEMENTATION: HOW IS TRAINING DELIVERED

How easy has it been to introduce PROMPT here?

If a trainer: how did you approach setting up a local training faculty?

How do you feel the prospect of PROMPT was received by staff members?

How have you tried to encourage or facilitate implementation of local training here?

How have you managed to release staff to attend training? Are any particular professional groups harder to release?

### MECHANISMS OF IMPACT

What effects, if any, do you think PROMPT has had here?  
Did anything come about that you weren't anticipating as a result of introducing PROMPT?

**CONTEXT (I'm interested in the differences between units involved in training)**

What do you think generally about the working atmosphere here? And what kind of safety culture is there?

**GENERAL FEEDBACK**

What do you think overall about PROMPT? Does it make sense to you? THISTLE-Plus

Has it become a normal part of practice yet?

Can you think of anything that would have helped you support the introduction of training more easily?

Are you planning to continue PROMPT in the future?

Do you foresee any problems sustaining training?

Is there anything you would like to add?

ANY OTHER QUESTIONS OR FEEDBACK?

Thank you for your time and for sharing your views. **Re-affirm confidentiality.**

## APPENDIX 13 – Checklists for Observations of Training and Units

### Checklist of observations of local training

Topics/issues	Comments/observations
Where does training occur?	
Programme for the day	
Numbers and grade of attendees	
Who delivers training? Roles and how do they come across?	
Is data used as part of training?	
Local lessons incorporated	
Atmosphere – engaged? Interactive? Humorous? Serious?	
Any teamwork or communication training?	
Are local safety issues identified?	
Are some elements presented as non-negotiable and others adaptable?	
Do staff appear comfortable about speaking up/clarifying/challenging?	
Any time for questions or discussion	
Any informal learning? e.g., learning by practice and experience	

### Checklist of observations of unit

<p>How many delivery rooms/layout of CDS (Central Delivery Suite)?</p> <p>Proximity to Birth Unit (if any)</p> <p>Staffing</p> <p>Visible leadership?</p> <p>General atmosphere</p> <p>Communication/handovers</p> <p>Evidence of tools:</p> <ul style="list-style-type: none"> <li>• Checklists</li> <li>• Algorithms</li> <li>• Emergency boxes</li> <li>• Stickers – CTG/VE /syntocinon etc.</li> <li>• Trolleys</li> <li>• Guidelines</li> <li>• Packs</li> </ul> <p>Escalation/management of emergencies</p> <p>Debriefing</p> <p>Evidence of any local Quality Improvement work</p> <p>Evidence of data being used for learning or improvement</p>
--

## APPENDIX 14 - NHS HRA Decision Tool Outcome



Health Research Authority

### Do I need NHS REC approval?

**I** To print your result with title and IRAS Project ID please enter your details below:

Title of your research:

THISTLE-Plus: Process Evaluation of PROMPT Implementation in Scotland

IRAS Project ID (if available):

165303

Your answers to the following questions indicate that **you do not need NHS REC approval for sites in Scotland**. However, you may need other approvals.

You have answered **'YES'** to: Is your study research?

You answered **'NO'** to all of these questions:

#### Question Set 1

- Is your study a clinical trial of an investigational medicinal product?
- Is your study one or more of the following: A non-CE marked medical device, or a device which has been modified or is being used outside of its CE mark intended purpose, and the study is conducted by or with the support of the manufacturer or another commercial company (including university spin-out company) to provide data for CE marking purposes?
- Does your study involve exposure to any ionising radiation?
- Does your study involve the processing of disclosable protected information on the Register of the Human Fertilisation and Embryology Authority by researchers, without consent?
- Is your study a clinical trial involving the participation of practising midwives?

#### Question Set 2

- Will your study involve research participants identified from, or because of their past or present use of services (adult and children's healthcare within the NHS), for which the UK

health departments are responsible (including services provided under contract with the private or voluntary sectors), including participants recruited through these services as healthy controls?

- Will your research involve collection of tissue or information from any users of these services (adult and children's healthcare within the NHS)? This may include users who have died within the last 100 years.
- Will your research involve the use of previously collected tissue or information from which the research team could identify individual past or present users of these services (adult and children's healthcare within the NHS), either directly from that tissue or information, or from its combination with other tissue or information likely to come into their possession?

### **Question Set 3**

- Does your research involve recruiting adults who lack capacity to consent for themselves, including participants retained in study following the loss of capacity?
- Will your research involve whole organs retained from a post mortem examination carried out on the instructions of the Procurator Fiscal?
- Will your research involve the analysis of DNA from bodily material, collected on or after 1st September 2006, and this analysis is not within the terms of consent for research from the donor?

### **Question Set 4**

- Is your research health-related and involving prisoners?
- Does your research involve xenotransplantation?
- Is your research a social care project funded by the Department of Health (England)?

## APPENDIX 15: SAQ Questions by domain

<b>Teamwork Climate</b>
36 It is easy for personnel in this clinical area to ask questions when there is something they do not understand
35 I have the support I need from other personnel to care for patients
3 Midwives input is well received in this clinical area
25 In this clinical area it is difficult to speak up if I perceive a problem with patient care
31 Disagreements here are resolved appropriately (i.e. not who is right but what is best for the patient)
39 The doctors and midwives here work together as a well-coordinated team
<b>Safety Climate</b>
21 The culture in this clinical area makes it easy to learn from the errors of others
5 Adverse health care events** are handled appropriately in this clinical area
29 I know the proper channels to direct questions regarding patient safety in this clinical area
20 I am encouraged by my colleagues to report any patient safety concerns I may have
11 I have received appropriate feedback about my performance
4 I would feel safe here being treated as a patient
12 In this clinical area*, it is difficult to discuss errors
<b>Job Satisfaction</b>
15 This hospital is a good place to work
30 I am proud to work at this hospital
8 Working in this hospital is like being part of a large family
42 Morale in this clinical area is high
2 I like my job
<b>Stress Recognition</b>
26 When my workload becomes excessive my performance is impaired
33 I am more likely to make mistakes in tense or hostile situations
16 Fatigue impairs my performance during emergency situations
32 I am less effective at work when fatigued
<b>Perceptions of Management</b>
17 Hospital management does not knowingly compromise patient safety
10 Hospital administration supports my daily efforts
27 I am provided with adequate timely information about hospital events which might affect my work
18 The levels of staffing in this clinical area is sufficient to handle the number of patients
<b>Working Conditions</b>
7 All the necessary information for diagnostic and therapeutic decision is routinely available to me
22 The hospital deals constructively with problem employees
43 Trainees in my discipline are adequately supervised
6 This hospital does a good job of training new personnel