Antenatal care – extended examples of quality improvements implemented in trusts and health boards following PMRT review ordered by type of quality improvement

The issue with care identified	Service improvement(s) implemented
System level mandatory question changes/additions to the electronic patient record (EPR) system	
Antenatal aspirin assessment and management Risk assessment for antenatal aspirin was repeatedly missed. *(Multiple survey respondents reported this issue)*	Mandatory questions for compulsory FGR/PET screening tool were added to the electronic patient record system (EPR) to identify whether women are high risk or have a moderate risk and require antenatal Aspirin. Local guidance being reviewed to adopt national guidance. *(Multiple respondent reported a version of this QI action was implemented)*
Antenatal carbon monoxide monitoring CO monitoring during the antenatal period was repeatedly missed.	The EPR was amended to make completion of the carbon monoxide assessment mandatory at all contacts. Universal education to all staff was rolled out as part of multi-professional training. Regular reminders were circulated to staff using the Maternity & Neonatal Safety Briefing Memo and work was completed to ensure every community midwife and inpatient ward area had a working CO monitor available to them.
Antenatal carbon monoxide monitoring Missed opportunity for carbon monoxide (CO) assessment during pregnancy	CO assessments and input of results incorporated as mandatory field in the EPR Dedicated CO SOP developed which requires CO assessments at all antenatal appointments Education and awareness staff training
Antenatal carbon monoxide monitoring Carbon monoxide (CO) monitoring was not occurring at booking in pregnancy due to a supply issue with COVID-19 safe mouthpieces.	New CO machines were purchased which have a stable supply of mouthpieces (The purchase was made with the financial support of our local baby loss support group charity to improve the care of women in pregnancy).
Antenatal carbon monoxide monitoring CO monitoring very low following return to pre-COVID guidance.	Public Health midwife had a big drive on education for staff in all clinic and community areas and equipment was purchased to allow all antenatal clinics and all community midwives to have CO monitoring equipment. CO level should be taken at the ANC booking appointment however if this is missed the community staff who now have equipment can check it at future appointments.

Reduced fetal movements (RFM) General inconsistencies in documentation and use of the EPR system resulting in disjointed note keeping and missed opportunities for care particularly in relation to reduced fetal movements	Alert set up on the EPR to notify of admissions with reduced fetal movements Retraining of all staff in the use of the EPR system including Obstetric and Anaesthetic colleagues Relaunch of 'Altered/reduced fetal movement' guideline
Missed small for gestational age (SGA) Recurrent theme of undiagnosed SGA babies. Specific issue identified was fundal height plotted incorrectly on customised growth chart.	Recent move over to a new EPR meant we could implement GROW 2.0 which enable electronic plotting of fundal height and avoids plotting error. Also this highlight when a scan referral is indicated.
Fetal growth monitoring Not able to evidence whether growth was monitored when reviewing case, as unable to locate GROW charts which were missing from patient notes. Human error in wrongly plotting of SFH or EFW on growth charts Reliance on individual assessment of whether growth velocity between two scans was appropriate or was of concern and needed review	Incorporation of the GROW programme into the EPR system which allows electronic plotting of SFH and EFW, and an alert system if there was a concern of reducing growth velocity between scans Training of staff to ensure familiarity with new process of electronic GROW
Maternal sepsis diagnosis, escalation and treatment There was a delay in identification, escalation and treatment of sepsis as a result of prolonged rupture of membranes	Obstetric Risk Lead & PMRT Lead with the support of the Maternity Governance Team, IT Team, Haematology Team, reviewed and introduced a system as part of the EPR so the investigations for a Septic Screen are now a bundle. Staff can now click on the 'septic screen bundle' and all investigations are displayed together rather than having to tick on the individual components of the septic screen e.g. blood cultures, mid-stream urine, FBC, clotting etc.
Reduced fetal movements (RFM) Delayed presentation of women with reduced fetal movements (RFM)	Mandatory check list added to the EPR Focused Audits conducted on compliance with the national RFM guidance Patient information leaflets in multiple languages were produced
Risk of preterm birth Mothers not being referred to the preterm birth clinic when risk factors are present at the booking appointment.	The questions at booking about the risk of preterm were modified to aid understanding. The preterm birth midwife has implemented a failsafe to ensure all mothers that require a preterm birth clinic referral are referred within a timely manner. There is an ongoing review of the preterm referral pathway.
Glucose tolerance test (GTT) Post birth blood results show mother had undiagnosed gestational diabetes. She had a normal GTT at 28 weeks, had positive glucose in the urine at 32 weeks and the plan was to repeat the urine test to see	Antenatal notes updated to ensure all women presenting with positive urine glucose, despite having a previously normal GTT, to have a repeat GTT.

if there was positive glucose before organizing another GTT. The latter did not happen	
System level expansion of services/changes to services and/or new staff appointed	
Service closed on bank holidays The maternity day assessment unit (DAU) was closed on bank holidays. Post bank holidays the activity was increased greatly	DAU is now open over bank holidays
Misinterpretation and management of CTG results Misinterpretation of CTG and Inappropriate Management of Abnormal CTG	Appointment of dedicated fetal Surveillance Midwife Mandatory full day fetal monitoring study day with competence assessment Care plan for babies with known fetal abnormalities who are on Comfort care pathway Dedicated Guidance on Daws Redman CTG persistently not meeting criteria Contemporaneous Maternal and fetal heart rate recordings(Mandatory)
Booking assessment of fetal growth 'Out Of Area' mother booked with our hospital, but was having antenatal care at her local unit. The local unit does not use GROW to assess fetal growth, therefore fundal height measurements were not plotted.	Joint working with neighbouring unit. It has been agreed that community midwives will follow the GROW programme.
Setting up a new quality assurance process	
Fetal growth monitoring Cases of fetal growth restriction were missed	Implemented a quality assurance process for optimising image quality in fetal growth scans Updated fetal growth restriction guideline
Smoking cessation services for partners Trust offer of smoking cessation to women's partners did not match NICE guidance	Local policy reviewed and adapted and practice brought into line with national guidance
Fetal growth monitoring Lower detection rates of SGA/FGR	Audit of USS image review of missed cases of SGA Overestimation of EFW on scans due to oblique sections Introduction of cross hatch calliper placement Improvement in Detection rates from 35% to more than 50% National Audit(September-60%) GROW 2
Introduction of Patient Group Directions (PGD) to enable midwife dispensing	

Antenatal aspirin assessment and management Risk assessment of need for antenatal aspirin completed at booking and high risk patients advised to obtain aspirin from pharmacy. Patients not attending GP or pharmacy to obtain the aspirin, therefore not there were not taking the aspirin advised. *(Multiple survey respondents reported this issue)*	Patient Group Directions (PGD) applied for and ratified. All midwives in the fetal assessment unit and antenatal clinic trained and signed off competent to give aspirin via the PGD. Prepacks of Aspirin were made available from pharmacy for staff to give to high risk women in antenatal clinics All community midwives have also been trained to dispense aspirin prepacks in community. *(Multiple respondent reported a version of this this QI action implemented)*
Review and modifications to local policy/SOP/process to improve services and/or align with national guidance	
Follow-up of investigations Failing to follow-up blood and microbiology results	Introduced a new process to ensure all results are checked
Maternal sepsis diagnosis, escalation and treatment There was a delay in identification, escalation and treatment of sepsis as a result of prolonged rupture of membranes	For cases of confirmed sepsis - the MDT team including Microbiology Team, ITU Team, Obstetric Team, Pharmacy Team reviewed and changed the Antibiotics Guidelines. Meropenam was introduced as the first line of antibiotics for confirmed sepsis replacing Tazocin.
Antenatal aspirin assessment and management No clear guidance for staff on the use of antenatal aspirin in pregnancy for those at an increased risk of growth restriction	A guideline was developed for staff identifying those who would require antenatal aspirin when at an increased risk of growth restriction. The referral system to the GP was also updated for the prescriptions to be made available.
Absent fetal heart There was a lack of clear guidance on actions when no fetal heart rate could be detected in the community / antenatal day assessment / antenatal ward setting. This led to differing pathways for women.	A clear and comprehensive algorithm was developed by the clinical education team in collaboration with ward managers and community team leaders to set out the pathway to standardise the care received and remove uncertainty on the referral process. Targeted education was rolled out through 'trolley dashes' in the clinical areas and printed copies of the algorithm were displayed in clinical areas for reference.
Reduced fetal movements	Reduced fetal movements contact sticker were introduced for all antenatal handheld notes highlighting the maternity triage number for easy access for women

We were unable to ascertain if all women had easy access to information on reduced fetal movements (RFM) and direct contact number - this is a failsafe	
MSU testing follow-up Test of cure not sent for positive routine MSU testing at booking	When a positive is MSU identified and a prescription for antibiotics requested: a leaflet, repeat MSU request form and container to be collected from pharmacy to be collected with prescription.
Fetal growth monitoring A woman had told the midwives her bump felt small but her personalised grow chart symphysis fundal height (SFH) was within normal limits so this was not escalated; the baby was SGA at birth.	Any patient who repeatedly voices concerns regarding the 'size of bump' will be referred to ANC for Consultant review even if the SFH is within normal limits
Fetal growth monitoring Lower detection rates of small for gestational age SGA/fetal growth restriction FGR	Audit of USS image review of missed cases of SGA found there was an overestimation of estimated fetal weight (EFW) on scans due to oblique sections Introduction of cross hatch calliper placement resulted in an improvement in detection identified on re-audit
Fetal growth monitoring GAP and GROW guidance contradicting local guidelines concerning fetal growth assessment	Mandatory GAP and GROW training for all staff. All community midwives must have done the training before rotating onto community. Our guideline has been altered to reflect the GAP and GROW pathway and we now use and EPR which also assists with this detection. We have invited our sonography governance lead to join the PMRT meetings to review scan images and give their opinion on cases.
Diagnosis and management of antenatal infection During labour, a woman was noted to have foul smelling liquor Observations within normal limits; the woman felt well. Reviewed by doctor, no plan of care made- not offered infection screening. Infant transferred to NICU unwell	Foul smelling liquor added to Antimicrobial guideline. With no other signs of infection the woman is to receive antibiotics.
Maternal concerns Core services questions, including concerning domestic abuse, were not always asked Women in hospital did not have a safe way to flag any concerns, for example concerning domestic abuse	Posters developed that give information in different languages that are displayed in women only toilets. The posters instruct the women that if they want to flag a concern discreetly to place a sticker dot on the bottom of their urine sample.

Antenatal carbon monoxide monitoring Carbon monoxide screening suspended during COVID and when recommenced, this was not always completed in line with recommendations.	Review of testing equipment within community and hospital settings and additional equipment purchased. Online training videos outlining how to use the equipment was developed 'Theme of the week' issued outlining the rationale for undertaken CO monitoring at each contact. Ongoing monthly audits to ensure compliance.
Reduced fetal movements Compliance with reduced fetal movements (RFM) guidance	Guideline modified to ensure that all women with RFMs, regardless of gestation , attend maternity Triage in order to standardise care - Flowchart created to aid decision making with RFM management - Education to staff on multiple platforms to improve care from' lessons learnt' and improve documentation around recommending induction of labour (IOL)
Glucose Tolerance Test (GTT) Glucose Tolerance Test (GTT) was only being perform on women with BMI =>35	GTT guidelines were changed to now test all women with BMI =>30
Glucose Tolerance Test (GTT) For eligible women who missed their glucose tolerance test (GTT) appointment or declined we did not have a robust process in place to ensure they were fully informed regarding risks	The specialist diabetes midwife now has oversight of all women who decline/DNA a GTT appointment to ensure oversight. The midwife contacts all women to explain risks to ensure they make an informed choice
Management of unbooked high risk pregnancies High Risk Unbooked women presented to Maternity Triage in advance pregnancy - third trimester. Initially the medical and midwifery staff would address the acute problem that these women presented with e.g. abdominal pain, offer a bedside scan and these women would be advised to do a self-referral and formally book. A departmental ultrasound would be requested - but booking is needed to generate a hospital number before the scan would be done. (Booking would not be done in Maternity Triage at that visit as the staff were busy). However we had cases of women presenting one or two weeks later to Maternity Triage, sadly with a stillbirth and booking had not been carried out and a formal scan had not been performed despite these women having had an initial contact with Maternity Triage.	An MDT approach was instituted to improve patient safety and reduce fetal losses. Upgraded the 'Unbooked Guideline' (1) Unbooked women to be formally booked within 48 hours of presenting to Maternity Triage and (2) A departmental scan (growth scan instead of a quick bedside scan) to be carried out within 72hours of presenting to Maternity Triage.

Cervical length scans Risk factors for pre-term birth appropriately identified in pregnancy. However, cervical length scans were missed as the request not specify that this needed to be completed in pregnancy.	Change to scan request pathway to support staff making cervical length scan requests in pregnancy. Maternity staff are now able to make the requests from the booking appointment rather than waiting for the dating scan to confirm the EDD. This has reduced the possibility of the cervical length request being missed as the midwife is able to request these scans at the time of the booking appointment when the risk factor is identified. Additional teaching and training has also been provided to ensure different risk factors for pre-term birth are identified.
Maternal weight gain in pregnancy Patient identified as gaining a significant amount of weight in pregnancy, BMI became over 40 in pregnancy however growth scans not arranged unless BMI over 40 at booking	Guidance for staff and learning shared on importance of third trimester weight in pregnancy and updating the management plan if BMI increasing in pregnancy to over 40.
Explaining the importance of investigations including maternal weight check A women who was likely obese refused to have her weight checked which meant her BMI could not be calculated which affect many aspects of her care	New Guideline developed to explain to women the importance of checking their weight to ensure they understand that this affects several aspects of the maternity care: fetal growth monitoring, dose of anticoagulants, dose of analgesia and other medication during labour/postpartum.
DNA policy 'Did not attend' (DNA) policy was identified as being out of date	Policy was reviewed and updated
Internal review of specific services as part of maternity and neonatal care	
Interpreter services Translator services not being used at every appointment.	The Trust and the Local Maternity and Neonatal System (LMNS) established a joint working party for an ongoing project to improve our translator services in the way we offer translators and the services available.
Interpreter services Reliance on family members to act as interpreters	Provision of written information in their preferred language. Review of interpreting services, which is leading to further discussions within the trust regarding alternative methods of effectively communicating with families. Service improvement ongoing.
Cardiotocography (CTG) recording Recording of fetal heart rate on the incorrect CTG paper	To review the process for ordering of new CTG paper to ensure the correct paper is ordered which fits the CTG machine in service
Updating information provision for pregnant women	

Reduced fetal movements Since the introduction of the maternity EPR, the trust stopped providing women with written information regarding fetal movements and instead directed them to electronic system where they could access the information. Not all women were able to access this information and not all women were accessing the information.	All women now receive written information regarding fetal movements (KICKS COUNT) when they attend for their anomaly scan. It is a requirement that when women do not have English as their primary language that they receive the information in their chosen language. Their scan report will be updated to confirm that the information has been provided and if this has been provided in any language other than English. Additional leaflets such as the Tommy's 'Baby Movements' leaflets are still available within the electronic maternity record and via the Healthier together App. Women also receive a push notification outlining the recommended reading for each week of the pregnancy.
Antenatal aspirin assessment and management Aspirin prescribed but not re-discussed to ensure compliance at each antenatal contact.	Aspirin in pregnancy leaflet produced to aid maternal understanding. 'Lessons learnt' created and presented to staff on multiple platforms about re-discussing compliance of prescribed medication at each contact.
Language issues The mother and partner could not read English. She booked late as she did not know how to access services.	Self-referral forms to maternity services made available in different languages. QR codes implemented in GP surgeries and children centres to inform women and families about the self-referral system have been made available in different languages.
Late booking Late booking a problem for several mothers	Self-referral pathway for pregnancy care now in use in GP surgeries containing QR code and multiple language options.
Staff training	
Partogram use in labour Partogram missed being plotted during labour for some of the mothers who had an antenatal stillbirth	Education of the midwives and staff. Posters reminding the staff about using the partogram regardless of the fetal status Regular audits by Bereavement team to check these are being followed.
Vaginal discharge Minimal advice or communication about vaginal discharge in pregnancy, and what a normal vaginal discharge may be and when to be concerned i.e. increase or changes to vaginal discharge.	Training and teaching to maternity staff about vaginal discharge and how important effective communication with pregnant people is in order to recognise changes or increases to vaginal discharge and when to access support.
Fetal growth monitoring Symphysis fundal height (SFH) measurements were not performed at correct times/intervals	Implementation of education programme of SFH measurements and recording as part of the three year educational framework.

Care during labour and birth – extended examples of quality improvements implemented in trusts and health boards following PMRT review ordered by type of quality improvement

The issue with care identified	Service improvement(s) implemented
System level mandatory question changes/additions to the electronic patient record (EPR) system	
Risk of preterm labour Woman who had a previous caesarean section at full dilatation was not referred to the Preterm Clinic (had no additional surveillance, cervical length measurements or preventive management)	At booking - for all multiparous women who had a previous caesarean section there is a distinct new question that was added to the EPR as a prompt to remind the midwives to ask if the caesarean section was done at full dilatation and a reminder to refer the woman to the Preterm Clinic.
QI activities included system level expansion/transformation of services and/or new staff appointed	
Triage services The mother had preterm labour or had preterm pre labour rupture of membranes during her pregnancy and there was a delay in the diagnosis	Triage and BSOTS* guidance was reviewed and disseminated to all staff. Transformation of triage process took place. Triage was re-located from Delivery Suite to outpatient area with dedicated telephone line and staff.
Triage services Capacity in triage and appropriate assessment of patient	An assessment couch has been introduced (in addition to the triage beds) so that all women can have a set of maternal observations and FH auscultated upon arrival. If there are concerns about either then she can be prioritised accordingly. If no problems identified then the patient can be reassured and await a full review.
Triage services CO monitoring compliance very low following return to pre-COVID guidance.	In addition to new equipment in antenatal clinic and for community midwives, equipment has also been introduced in triage and the day assessment unit (DAU) areas, to ensure any missed CO levels can be added.
Triage services A mother presented in early labour, she was not triaged immediately and when she was seen there was no fetal heart.	Review of triage system to support timely initial assessment and the introduction of a RAG rating to inform the ongoing care pathway. Triage stickers are being revised to support these changes. Maternity Assessment Unit (MAU) has been separated into a Rapid Assessment Unit and a day assessment unit.

Booking arrangements Some women were having to be booked by a neighbouring 'out of area' (OAA) trust prior to being referred to our Trust. The OOA trust had a back log of bookings and were often not booking women before 10 weeks, despite women accessing care with adequate time. This meant a delay in referral to our trust and a delay in scanning/screening and bloods.	An OAA booking clinic was implemented at a HUB which allowed the OOA women to be booked by one of our midwives before 10 weeks.
Managing the development of intrapartum risk factors for home births Development of meconium during labour which was not escalated	A new system was introduced: Community Midwife attending homebirth should phone in and update the Sister in Charge of Labour ward every 2 hours when new intrapartum risk factors are identified.
Information about induction of labour Lack of consistent information available for women regarding Induction of Labour	Induction of labour (IOL) Lead midwife appointed
Review and modifications to local policy/SOP/process to improve services and/or align with national guidance	
Triage management of unbooked mothers Mother's arriving to Maternity Triage unbooked were not being booked in a timely manner and therefore not having an ultrasound scan within an appropriate timeframe.	A partial booking process was created to ensure mothers arriving to Maternity Triage unbooked are booked and receive an ultrasound scan within 72 hours.
Care for lethal congenital anomalies Mothers with babies with known lethal congenital anomalies who declined TOP were not invited to complete a birth plan early in pregnancy.	Birth plans modified to include antenatal, intrapartum and postnatal planning for mothers of babies with a known fetal anomaly
Managing maternal deterioration Lack of SBAR** tool and associated SOP for transfer of care following identification of maternal deterioration	SBAR SOP developed and staff training initiated
Differences in clinical opinion Challenges were faced during a mother's admission to hospital to manage the differences in clinical opinion, the ongoing plan of care, including timing of birth.	Development of a conflict of clinical opinion policy to support maternity staff.
High risk birth against guidance at home Term intrapartum stillbirth to a high risk mother following birth at home against guidance; following the initial plan the risk factors deteriorated but	'High Risk Birth Against Guidance at Home' reviewed and the following changes were made:

the plan was not reviewed and additional risks were not discussed with the women.	(1) Introduced a new High Risk Homebirth Pro forma, which has space for the signature and date of the Woman and the Homebirth Midwifery Lead/Consultant Midwife. (2) Women who have an initial High Risk Home Birth Against Guidance plan must have the plan reviewed at 36-38 weeks gestation. (3) For women booked for Low Risk Midwifery Led care who developed high risk features during the pregnancy, and the woman requests a High Risk Homebirth Against Guidance: these birth plans need to have an MDT Review before final signed off by the Woman and the Homebirth Midwifery Lead and Consultant Midwife. (4) High Risk at booking (Consultant Lead Care) for women booked for High Risk Consultant Lead who request a High Risk Homebirth Against Guidance: these birth plans have an MDT review by the woman's Consultant, PMRT Consultant Lead, Homebirth Midwifery Lead and the Consultant Midwife.
Post-dates induction of labour No discussion of rationale/benefits for post-dates induction of labour and the risks if declined/postponed	The trust is currently in the process of reviewing the induction of labour pathway to align with NICE guidance for the recommended timing of postdates induction of labour.
Updating information provision for pregnant women	
Caesarean section and induction of labour Service user feedback - no written information available for women requesting a LSCS on diagnosis of a stillbirth or failed induction of labour following diagnosis of a stillbirth.	A leaflet has been produced and is now in use.
Access to emergency care Issues around the information given to some mothers of the BAME group. Most women did not understand how to access emergency services urgently.	It is a work in progress at present moment mainly in the maternity services to assist this particular group of women to have sufficient information and to also get the right care.
Post-dates induction of labour No discussion of rationale/benefits for post-dates induction of labour and the risks if declined/postponed	A postdates induction of labour decision aid patient leaflet was developed and implemented. The Trust is currently in the process of reviewing the induction of labour pathway to align with NICE guidance for the recommended timing of postdates induction of labour.

Information about induction of labour Lack of consistent information available for women regarding Induction of Labour	Induction of labour (IOL) Lead midwife appointed now who has developed an infographic for IOL, available in many different languages and including an information video, which supports consistent counselling and information provided for post-dates IOL.

*BSOTS Birmingham Symptom-specific Obstetric Triage System; **SBAR tool to aid clinical communication: situation, background, assessment and recommendation

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Neonatal care – extended examples of quality improvements implemented in trusts and health boards following PMRT review ordered by type of quality improvement

The issue with care identified	Service improvement(s) implemented
System level mandatory question changes/additions to the electronic patient record (EPR) system/other IT solution support	
Neonatal prenatal planning for high risk babies Intrapartum and postnatal management plans for a baby made in the antenatal period were not communicated to the neonatal team in a timely manner, leading to missed opportunity for monitoring of the baby and/or missed arranging for investigations required for the baby e.g. using cord blood for genetic testing	Development of a Joint Obstetrics and Neonatal Calendar that is shared between the Obstetrics and Neonatal team: High risks cases requiring significant neonatal intervention at birth are logged in calendar when the date for caesarean section or IOL is made; calendar can be viewed and edited by both teams. Weekly review of the calendar and these cases to ensure that both teams are aware of upcoming high risk cases and anticipate NICU admission and management Development of SOP to ensure consistency in documenting of these plans in EPR Training of staff to familiarise with access and availability of these plans in the EPR
System level expansion of services/changes to services and/or new staff appointed	
Intubation on labour ward Unable to intubate a small preterm baby on delivery suite. The ETT* tube used did not fit an introducer.	Purchased a supply of ETT tubes which do fit introducers. We also have purchased a portable video laryngoscope for use on labour ward/theatres, in addition to having them on the NICU.
Delayed cord clamping Lack of delayed cord clamping due to resuscitation kit being unable to reach the baby and so unable to provide inflation breaths with cord attached.	Sourced and purchased long purple ventilation tubing to be able to provide intermittent positive pressure ventilation (IPPV).
Review and modifications to local policy/SOP/process to improve services and/or align with national guidance	
Neonatal thermoregulation Many babies transferred from delivery suite are cold on arrival in the neonatal unit *(Multiple survey respondents reported this issue)*	Warm care bundle implemented for neonates to improve thermoregulation Completed the QIP for normothermia bundle on the NICU *(Multiple respondent reported a version of this QI action was implemented)*

Poor resuscitation documentation Poor documentation of delivery room resuscitation.	In collaboration with the resuscitation department, a new, carbon-copied version of the resuscitation pro forma was implemented.
Recognition of anaemia Poor recognition of pale babies, especially if they are mixed race	New guideline developed to introduce measuring baby's haemoglobin at resuscitation.
Neonatal transfer from home Poor communication between the ambulance service, A&E, maternity services and the NICU when a sick neonatal needed to be transferred from home and admitted to NICU.	A joint Guideline for neonatal transfer was developed between the ambulance services, A&E, NICU and maternity services Improved signs and directions for London Ambulance Staff - stating clear A&E entrance for small babies compared to children.
Management of neonatal hypotension Management of hypotension in babies with hypoxia ischaemic encephalopathy (HIE) and persistent pulmonary hypertension of the newborn (PPHN) is inconsistent; lack of consensus on which inotropes to use	Reviewed guideline for HIE to have an early echo. Increased the number of staff who can do the echo.
Management of extremely preterm infant Concern about the extreme preterm mortality rate in the first 72 hours in the trust/health board	Management in the first 72 hours reviewed and changes implemented: maximising the impact of management during the 'golden hour', increased frequency of clinical reviews, increased regular parental updates, paying greater attention to physiological details, ensuring staff follow the minimal handling principles, introduction of early expressed breast milk (EBM), and early referral to allied health professionals.
Poor documentation at resuscitation Poor documentation at resuscitation leading to many responses in response to the PMRT questions during the review of 'unable to say'	Resuscitation pro forma amended and scribe allocated, debrief after the resuscitation event to confirm management undertaken. End of life care bundle captures all aspects of PMRT required.
Unplanned extubations Unplanned extubations were noted across a series of reviews	An initial audit was completed to identify any particular issues we needed to address. After the audit a QI project was commenced which included the introduction of a new ETT fixation device, airway risk assessment, education and training sessions especially around handling and moving of intubated babies. The QI project saw a reduction of the rate of unplanned extubations by 50%.
Internal review of specific services as part of maternity and neonatal care	
Location of management of infants Neonates older than 44weeks PMA are often still cared for on NICUs but may best be looked after in PICUs.	Reviewed and strengthened the referral processes to early engagement with the quaternary services to ensure there are clear pathways for babies needing ongoing respiratory support or lung thermal volume measurement

	(LTV). They also advise on appropriate sedation, feeding and nutrition when there are delays in transferring babies to PICU**. Have established an invitation to the referral centre's Respiratory MDT to discuss complex cases being managed on the NICU
Staff training	
Resuscitation of extremely preterm babies at by ambulance staff Extremely preterm ($23^{+1)}$ baby born at home and resuscitated by the paramedics with masks they have available. Temperature was unrecordable when they arrived in A&E.	Ambulance staff offered training and equipment needed for bag mask ventilation of extremely preterm babies; simulation training was carried out in A&E Ambulance team members were invited to the review meeting
Neonatal transfer from home Poor communication between the ambulance service, A&E, maternity services and the NICU when a sick neonatal needed to be transferred from home and admitted to NICU.	Neonatal staff attend A&E Morbidity and Mortality monthly meetings to teach the A& E junior doctors about neonatal care. Regular teaching to NICU staff about the key findings from the annual PMRT Report

*ETT - endotracheal tube; ** PICU – paediatric intensive care unit

End of life care, bereavement care and follow-up meetings with parents– extended examples of quality improvements implemented in trusts and health boards following PMRT review ordered by type of quality improvement

The issue with care identified	Service improvement(s) implemented
System level mandatory question changes/additions to the electronic patient record (EPR) system	
Bereavement care questions Following the launch of our electronic patient record system, our bereavement checklist was not being filled-out in its entirety, therefore we were not sure what bereavement care had been provided.	We revised our bereavement checklist and made it more accessible so we can ensure the bereavement care provided is gold standard. We sent out communications and learning for staff to show where to find the checklist.
Offer to take their baby home Parents were not always offered the opportunity to take their deceased baby home.	Stillbirth and neonatal death checklists have been updated to ensure parents are offered the opportunity to take their baby home following stillbirth or neonatal death and to ensure this is appropriately documented.
Kleihauer test Kleihauer test missed as part of postnatal investigations	Currently liaising with the IT department to add as test to the EPR as part of the group of blood tests offered during bereavement care In the meantime: educating Midwives, using the maternity messages system and emails to all staff.
System level expansion of services/changes to services and/or new staff appointed	
Bereavement care In multiple reviews we identified the need for better bereavement care	Using the evidence from PMRT reviews, by grading care as B/C where parents felt let down with their bereavement care, we were able to use this evidence to get more traction with the trust to obtain the resources to develop a bereavement team.
Bereavement suite Environment in maternity was unsuitable for caring for bereaved families. Lack of sound proofing in the bereavement suite so the occupants are able to hear noises of babies from labour ward *(Multiple survey respondents reported this issue)*	Maternity department was physically restructured to enable a suitable bereavement suite to be incorporated within the existing footprint. New bereavement suite was developed and moved off labour ward and is much more private. The room itself is set up so that we have a clinical side that is used for birthing and any assessments and then we have a side that is a bedroom with a small kitchenette area. The room also includes a bathroom which is wheelchair accessible/wet room.

	Partner is able to stay and also use the bed in the bedroom, friends and family are able to visit at any time. Service users were invited to the opening of the suite. Existing bereavement suite which was appropriately located other than noise was sound proofed *(Multiple respondent reported a version of this QI action was implemented; this is a combined answer from multiple respondents)*
Offer to take their baby home Parents were not being asked if they wished to take their baby home.	New bereavement booklets supporting staff with paperwork and care plans for bereaved families, which specifically asks maternity staff if they have asked the parents if they wish to take their baby home. Bereavement training supporting maternity staff, regular staff updates with full time bereavement midwife, who is present on labour ward which has allowed this service to be offered as routine care, enabling staff to feel confident about what they are offering parents.
Location of follow-up review After a stillbirth women were seen for a Joint MDT Consultant Obstetric PMRT Lead & Bereavement Midwifery Debriefing Clinic appointment about 12 weeks after their baby died. Women were seen in a seclude area at the back of the scanning department (away from other pregnant women in the antenatal clinic), in a room reserved to break bad news for women who had unexpected abnormal scan findings. However these Bereaved women regularly came in contact with pregnant women who attended for scanning.	Improved the patient experience for Bereaved women who returned to the hospital for a Postnatal Debriefing Clinic appointment with the Consultant Obstetric PMRT Lead and the Bereavement Midwifery Team by relocating the meeting room away from scanning and antenatal care.
Palliative care arrangements There was no postnatal care pathway for women discharged from hospital when their babies are receiving palliative care in a hospice.	Change to local guidance and working relationship with local hospice to ensure women discharged from our hospital to the hospice would receive postnatal care from our community midwifery team, including care at home following discharge from the hospice.
Review and modifications to local policy/SOP/process to improve services and/or align with national guidance	
Care at diagnosis of death of the baby Poor compassionate care was being given to bereaved mothers/birthing people at the diagnosis of fetal loss.	Service improvements introduced with the Bereavement Midwifery Team. (Escalated to the Maternity Voices Partnership (MVP) Lead to discuss the issue with service users at MVP meetings to listen to our bereaved women. With the MVP Chair and a Bereaved Mother the risk management lead

	undertook a 15 step walk across Maternity and NICU/SCBU to review the women's journey and seek solutions. Risk management lead invited Bereaved Mother and MVP Chair and Co-Chair as guest speakers to the 'Bite Size Risk' management teaching for junior doctors
Lack of support following bereavement Lack of support/counselling for women and families following pregnancy loss/baby loss	All our bereaved families are referred for bereavement support and we now work on an 'opt out' basis Letter of invitation is sent for the family to make an appointment when they feel ready
Poor documentation of end of life care Poor documentation of end of life care leading to many responses in response to the PMRT questions during the review of 'unable to say'	End of life care bundle introduced which captures all aspects of care which is reviewed in a PMRT review.
Engaging parents in PMRT reviews Looking historically in the past we have not had a clear system in place for identifying key contacts and involving families in reviews	We developed a pathways to ensure parents were offered the opportunity to engage in the review process. We undertook staff training undertaken to improve staff awareness of the role and PMRT process. Improvement noted in family engagement and in early identification of the key contact.
Joint reviews of care from multiple provider Review of care across more than one care provider We had a low incidences of cross boundary working in the completion of PMRT reviews for those women who had care provided across different Health Boards.	Increased engagement with cross boundary risk teams which has led to an increase in joint PMRT reviews of care for those women with shared care across Health Boards.
Updating information provision for parents	
Engaging with parents It became clear that we were not making parents were unaware of the time scale in which PMRT review would take place as a consequence they did not understand the many steps involved in this prior to a debrief being arranged. Often parents felt they had been forgotten or had to chase debrief appointments when in fact the team were working within the time scales set for PMRT.	Parent Engagement Materials | PMRT | NPEU (ox.ac.uk) materials to support staff in Trusts and Health Boards with engaging bereaved parents have been adapted and are now provided to parents from their perspective. The review process is explained to the parents during week 1 - all steps of the process are explained, and a flow chart provided with anticipated dates for completion. This allow parents to be fully aware of the lengthy process ahead and the time scale in which they can expect the review to be completed. Engaging bereaved parents in the review process and including their views and feedback has enhanced the review process at ensuring that improvements have been identified and implemented.

Staff training	
Placental histology Placentae were not being sent for histological examination	Education and created awareness through emails among the staff , reminding the indications for placental histology and updating the guideline posters in theatres