Oxford Academic Health Science Network
MATERNITY

The Maternity Clinical Network Annual Report 2015 / 2016

What is the Oxford AHSN?

Oxford Academic Health Science Network is a partnership of NHS providers, commissioners, universities and life science companies to improve health and prosperity in Bedfordshire, Berkshire, Buckinghamshire, Milton Keynes and Oxfordshire. Success comes from collaborative working by the partners and stakeholders across the region.

3 Million People

Benefits of collaboration across the whole system:

- Leverage clinical and management best practice and expertise to improve outcomes
- Share clinical evidence and benchmarking
- Scale innovation adoption
- Learn from each other – clinical standards, models of care, commercial models
- Enable data sharing, operational, patients and research to improve outcomes
- Share evaluation knowledge
- Share clinical and management resources
- Improve region's attractiveness for commercial research
- Make region more attractive for inward investment and product development
- Make the region healthier

Accelerating health and economic gains by working together

Our 7 programmes and themes facilitate shared work across all partners:

- Best Care Clinical Networks
- Clinical Innovation Adoption
- Research & Development
- Wealth Creation
- Patient and Public Involvement, Engagement and Experience
- Informatics
- Patient Safety

Introduction

The vision of the Maternity Clinical Network is for all those involved in maternity care in the Oxford AHSN region to function collaboratively – agreeing and implementing best practice, introducing and spreading innovation, reducing unwarranted variations in care and standards between units, collecting data together and creating a culture where maternity staff can learn from each other.

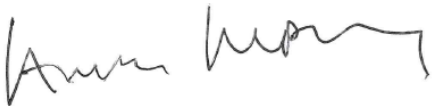
Launched in November 2014, the Maternity Clinical Network has developed strong working relationships with a wide range of stakeholders throughout the region. This includes managerial, clinical and midwifery staff at all the provider organisations, the Thames Valley Children and Maternity Clinical Network, the Thames Valley and Wessex Neonatal Network, local CCGS and Health Education England (Thames Valley).

As a Maternity Clinical Network we work on a number of projects that are developed from the 'ground-up', using the knowledge and expertise of our stakeholders, including women and families who use maternity services, to inform and direct our work.

Over the last year the Maternity Clinical Network has successfully completed a number of projects to improve maternity care in the region and reduce unwarranted variation. The region is now able to share Ultrasound scan information between some of our hospitals; more extremely pre-term babies are being born in the most suitable units; hospitals have unified guidelines on pre-term labour / IUT, pre-term IUGR, Rhesus and Magnesium Sulphate regimes; and patient safety is being increased through sharing of learning from incidents in a collaborative environment between Trusts. All of this has been successful due to the dedication and efforts of all the network members.

We have recently expanded our portfolio of projects to include an ambitious and innovative pilot: a new way of identifying babies that may be at risk of stillbirth and other complications. In addition we are building on our experience of developing, agreeing and implementing network wide sets of guidelines to include a broader set of network wide guidelines (Syntocinon variation, Placental Histology use and Cardiotocograph interpretation). Our Shared Learning Events have been planned for the rest of our licence period and are increasingly popular.

In the forthcoming year we hope to further build relationships with stakeholders in the area, creating a stronger network able to work together to meet the current challenges in maternity care, and to use our experience from our past work to produce results from our current and future projects that will improve the outcomes for mothers and their babies.



Mr Lawrence Impey, FRCOG
Clinical Lead, Oxford AHSN Maternity Clinical Network
Consultant in Obstetrics and Fetal Medicine, OUHFT

The Network Objective

As a Clinical Network, the primary objective is for all in the Oxford AHSN region who are involved in maternity care, to function collaboratively in order to improve patient outcomes.

In 2015/16, the network achieved a reduction in the amount of extremely pre-term babies being born outside of a Level 3 unit. On average 75 – 80% of extremely pre-term babies were born in the safest place. The project is an example of specific changes (pathways as well as guideline), which are collaboratively chosen, to break-down key barriers preventing improvement work.

By agreeing and implementing best practice through the introduction and spread of innovation, the network has been able to reduce unwarranted variation in care and standards between units. The collection of good data throughout all projects, has allowed the network to create and nurture a culture of shared learning between network members.

Stakeholders, Engagement and the Structure of the Network

Over the last year, the Maternity Clinical Network has built upon the strong working relationships that were established in previous years – increasing the number of actively engaged stakeholders to 166. The reach of stakeholder engagement has increased to include managerial, clinical and midwifery staff at all provider organisations in the geography due to strong continuing engagement activities. Other key stakeholders of the network include: The Thames Valley and Wessex Neonatal Network, local CCGs and Health Education England (Thames Valley). Spreading awareness of the network remained a challenge in 2015/16, however, this was overcome by efforts to promote the network at appropriate events and meetings which encouraged involvement. On top of routine e-newsletters, the network has been increasingly active in its use of social media to encourage discussion of the work.

Although it has remained a challenge to increase and maintain active participation with clinicians, midwives and managers (due to the workloads of these groups), the network has a well-attended Steering Group. Led by Mr Lawrence Impey, Consultant Obstetrician at the Oxford University Hospitals NHS Foundation Trust (Clinical Lead for the network), with management support from Mrs Katherine Edwards (Network Manager and Lead Midwife), the Steering Group meets quarterly to align the projects of the network with local needs as well as national mandates. Members advise, plan and oversee the network's activities as well as represent key stakeholders in the region. Representatives include Obstetric Consultants, Heads of Midwifery and other NHS professionals such as Clinical Governance staff from each of the partner Trusts – Oxford University Hospitals NHS Foundation Trust, The Royal Berkshire NHS Foundation Trust, Milton Keynes University Hospital NHS Foundation Trust, Frimley Health NHS Foundation Trust , Buckinghamshire Healthcare NHS Trust and the Great Western NHS Foundation Trust. It also includes representation from HEETV (both Midwifery Workforce and Deanery), the Thames Valley Clinical Network for Children and Maternity and the Thames Valley and Wessex Neonatal Network.

In conjunction with the Thames Valley Maternity SCN and the Nuffield Department of Obstetrics and Gynaecology at the University of Oxford, the network has set up a dedicated Maternity Service User Forum. This established group for women and families from across the geography meets regularly to support the utilisation of patient involvement and experience for all the projects of the network and partner organisations.

Significantly more extremely premature babies are being born in the safest place in our region after the "Place of Birth" project.

An innovative project to try to improve the identification of babies at risk of stillbirth commenced on the 9th May 2016

Six network wide guidelines developed, agreed and implemented across the region; reducing risk and unwarranted variation in care.

New sets of guidelines planned and developed with ratification and planned use across the AHSN geography towards the end of 2016.

Collaboration with Health Education Thames Valley (HETV), ensuring that guidelines are used in the education of trainee doctors.

Shared Learning Events promoted a culture of learning lessons from clinical incidents and interesting or rare cases from across the region.

Connected ultrasound reporting systems in the Oxford AHSN area to improve patient referral safety and to allow for future collaborative data collection.

Engaged with wider maternity initiatives and meetings, e.g. the Health Foundation's "Improving Maternity Services" and the Nation Maternity Review.

Established an area wide Maternity Patient and Public Involvement Forum with the Thames valley Maternity Strategic Clinical Network and the Maternity Research Department at the University of Oxford.

Maternity Network Projects

Place of Birth

The Epicure 2 study (Marlow, *et al*., 2014) found that severely premature babies had significantly better outcomes if they were born in a hospital with a Level 3 Neonatal Intensive Care Unit (Risk of death: aOR 0.73 (95% CI 0.59 to 0.90), survival without morbidity aOR 1.27 (0.93 to 1.74)). This risk remained even if the baby was quickly transferred to a Level 3 unit after birth.

We identified that the percentage of these babies (<27/40 (singleton), <28/40 (multiples) or birthweight <800g) born outside of a Level 3 unit in our area was around 50% of the total born. In some other localities (such as Wessex) they had been performing considerably better, with around only 20% of these babies being born outside of a Level 3 unit. This gave us reason to believe that there was potential to improve this in the Oxford AHSN geography.

Objectives and Outcomes

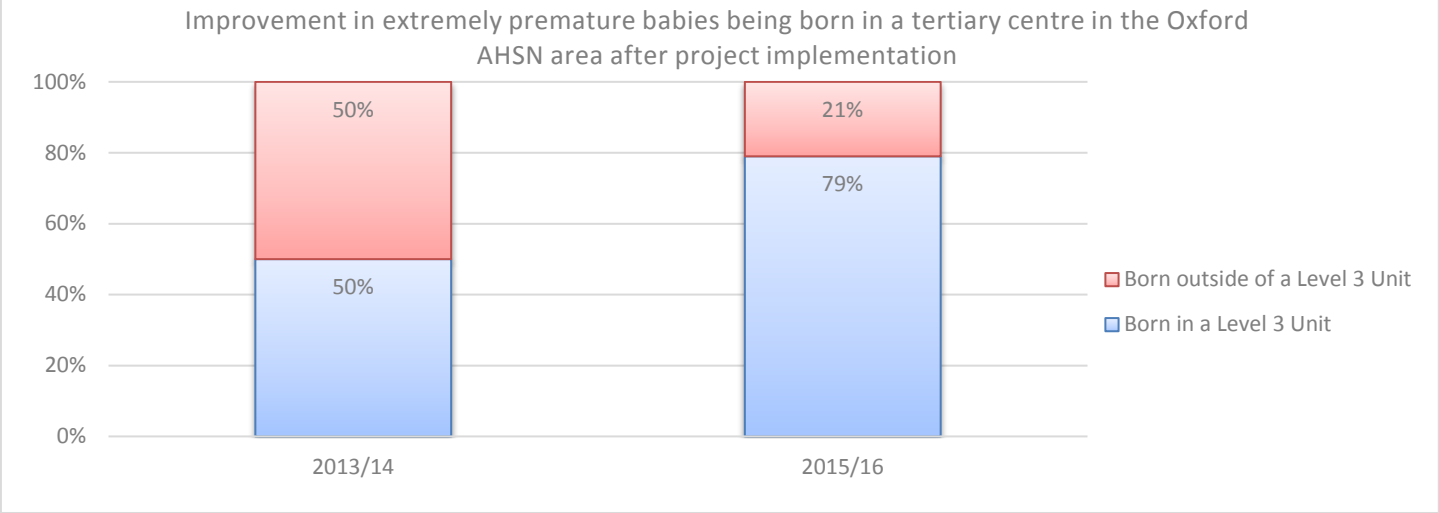
- To identify factors that influence the place of birth of extremely preterm babies in order to promote development of best practice and guidelines to improve transfer rates.
- Increase the delivery rates of extremely preterm babies born in a Level 3 Centre through implementing solutions to identified factors influencing place of birth.

The project included collaborators from the Oxford University Hospitals NHS Foundation Trust, The Royal Berkshire NHS Foundation Trust, Milton Keynes University Hospital NHS Foundation Trust, Frimley Health NHS Foundation Trust (Wexham Park Hospital), Buckinghamshire Healthcare NHS Trust and the Great Western NHS Foundation Trust. The aim of this project was therefore to reduce the number of babies meeting the criteria for Level 3 Unit delivery born in Level 2 or under Units in the Oxford AHSN area, with the intention to improve morbidity and mortality in this group. The first stage of this project was to audit and analyse each case in which a baby meeting the criteria for birth in a Level 3 unit which was not born in one. This enabled us to identify areas for improvement, and implement some of the changes required.

The Maternity Network published the report of our findings in April 2015 which was used to develop and agree network wide best practice guidelines. Following on from this report, the network:

1. Revised the referral pathway for in utero transfers (transfer via ambulance of the pregnant woman to a Level 3 unit)
2. Implemented a network wide set of guidelines to improve the identification and management of threatened preterm labour
3. Implemented a rolling audit of cases where birth occurred outside of a Level 3 unit for continued monitoring of any barriers to appropriate in utero transfer.

Following this, we can now report an increase of around 50% in the rates of these very premature babies being born in the safest place in our region, which is now consistently 75-80% of the total of these babies born in our region. A recent Health Economics study commissioned by the Oxford AHSN estimates that this improvement project will have meant that an additional 4 extremely premature babies have survived in our region, who otherwise might not have.



Preterm Birth: A Case Study

An extremely premature baby (born before 27 weeks) is more likely to survive if they are born in a hospital unit where the whole range of medical and neonatal care can be provided (for example, a Level 3 [tertiary] centre with high dependency or intensive care units). Implementation of the new pathway and guidelines were phased from January 2015 to April 2015.

Shortly after the implementation, a woman presented at one of the Level 2 hospitals in the region. She was in threatened preterm labour with intact membranes and was extremely preterm at 25 weeks gestation. This required the woman to be transferred to the Level 3 unit in the region. The transfer was commended by staff as being efficient and swiftly organised and due to the quick transfer, the patient was seen promptly by the consultant who runs the pre-term labour service.

On arrival, the patient appeared clinically well, but in fact she had severe chorioamnionitis (an infection of the membranes surrounding the fetus) and was acidotic (excessive blood acidity).

These are life threatening to both the mother and the baby as they can develop into sepsis – a leading cause of maternal death. This is largely because it is not diagnosed until it is too late. The signs and symptoms of sepsis in pregnancy can be less distinctive and a pregnant woman can become more rapidly and severely unwell with sepsis than you would expect in a non-pregnant woman.

In this woman's case, her severe infection was recognised despite her reporting she felt well and she was quickly treated by receiving IV antibiotics and delivering the baby.

Without the new referral system in place, the patient in all likelihood would have, at best arrived at the John Radcliffe Hospital after daylight hours because of multiple delays (a consistent feature in the audit reports done prior to implementation). The patient may then not have been seen by the relevant consultant who is most experienced in preterm delivery and it is therefore likely that her subclinical sepsis would not have been diagnosed and treated so quickly. This reduced the chances of what could have been very bad outcomes for both mother and baby.

Thanks to the implementation of new best practice guidelines, mother and baby are doing well and the number of extremely premature babies being born in the safest place has risen from 50% to an average rate of 75 – 80%.

"The Thames Valley Neonatal Network monitors extremely preterm babies born outside a tertiary centre and is delighted to see that there has been a ***dramatic reduction in preterm babies being born outside a tertiary centre.*** *This is a major achievement in a short space of time and the whole network is to be congratulated on all the hard work and co-operation that has gone into making this project a success"*

Dr Eleri Adams
Vice Chair, National Neonatal CRG
Clinical Lead, Thames Valley Neonatal Network

Identification of Small for Gestational Age

The Oxford AHSN Maternity Network is embarking on an ambitious and innovative pilot, designed to increase the detection of babies who are at risk of stillbirth.

Reduction of stillbirth is a mandate objective from the government to NHS England and features in the NHS England Business Plan 2014/15 – 2016/17. Neonatal mortality and stillbirth is a key indicator in the NHS Outcomes Framework, and the *Saving Babies' Lives - Stillbirth Care Bundle* is a work programme for the Strategic Clinical Networks as dictated by NHS England. Aligning our work with the Thames Valley SCN, the Maternity Network agreed to focus on the identification of Small for Gestational Age (SGA) babies, the most important and challenging recommendation in the Stillbirth Care Bundle.

SGA (Small for Gestational Age) babies are at a significantly raised risk of stillbirth compared with normally grown babies *in utero*, particularly when problems with their growth have not been identified. Due to this, they account for approximately half of all stillbirths (Smith, 2015; Gardosi, *et al*., 2013). For example the Auckland Stillbirth Study (Stacey, *et al*., 2012) found SGA babies that had not been identified as SGA prior to birth were significantly more at risk of being stillborn (aOR, 9.46; 95% CI, 1.98–45.13) compared with SGA babies that were identified as such in the antenatal period.

Objectives and Outcomes

- Provide the network stakeholders with robust information regarding performance in identifying SGA at Trust and area levels, enabling identification of good performance and areas for improvement.
- Test the "real-world" validity of the proposed clinical pathway, analysing the impact on the service, financial implications, acceptability to patients and clinical outcomes.
- Increase the identification of SGA babies in the population involved in the clinical pathway by 50%, thereby reducing a significant risk factor for stillbirth.

England has one of the highest rates of stillbirth (4.26/1000, 95% CI 4.1-4.4) in Europe and only around 30%-40% of SGA babies are identified during pregnancy.

The Maternity Clinical Network performed a baseline audit in March 2015 across all the Trusts in the region (OUH, RBH, Bucks, GWH and Milton Keynes) with a view to compare the local detection rate of SGA with that of the national rate. The audit found that in the AHSN region, we pick up 36.7% of SGA babies antenatally, showing the region is performing at around the national average. However, the rate of identification is still far from ideal. If the rates of identification can be improved, this should impact on the rate of stillbirth in the local population. The report of this audit and the recommendations for improvement it discusses can be found on the Maternity Clinical Network's website

A subsequent pilot to increase the identification of SGA babies has been launched at the OUH on 9th May 2016. This involves a simplified risk stratification, an additional test performed (uterine artery Doppler) at the anomaly scan at 20 weeks of pregnancy and the addition of a third trimester scan (with mid-cerebral artery Doppler) for all women within the pilot. Women with key risks will be offered a programme of additional scans to complement this car pathway. Guidelines for the appropriate management of SGA babies, including minimising unwarranted intervention, have been developed as part of this project. This should enable consistent and appropriate practice, including reducing ultrasound usage where not necessary. The outcomes of the use of this pathway will be monitored for viability (both financial and clinical acceptability), impact on clinical outcomes and the impact on the service. These findings will be reported at the end of the pilot.

A key additional purpose of piloting this new pathway is to address the workload of scan departments. Over the last five years the numbers of additional scans for indications such as growth, presentation and placental site has grown exponentially. Without the new pathway we expect the number of additional scans to rise even further putting increased pressure on services. Therefore, the new pathway has been designed to reduce the need for a number of the unnecessary additional scans and monitor the wellbeing of pregnancies in a more structured, planned and clinically effective way.

The Oxford AHSN Maternity Network Steering Group supports the pilot and has proffered opinion on the clinical validity. If the pilot is successful in its aims, it is likely that a number of the member Trusts will be interested in implementing the protocol. However, it is anticipated that if successful, the spread of the innovation will be considerably wider than the Network area.

Network-Wide Guidelines

Unwarranted variation in maternity can cause a number of issues, including introducing risks to patient safety, pockets of less than best clinical practice, and cause complications for staff who regularly rotate through different units in our area which can adversely affect care and safety.

The Maternity Network has successfully developed, agreed and implemented a set of clinical guidelines across all the Trusts involved in Maternity care in the Oxford AHSN region. These include key areas relating to patient safety: magnesium sulphate regime used for pre-eclampsia, pre-term labour and intra-uterine transfer, Rhesus and management of singleton intrauterine growth restriction. An example of the need for network wide guidelines was demonstrated by one incidence whereby a doctor, who had recently rotated from another hospital in the area, unintentionally overdosed a patient with magnesium sulphate as they were following the guidelines they were accustomed to from their previous hospital.

Objectives and Outcomes

- Prevention of incorrect or inappropriate administration of Oxytocin for the augmentation of labour.
- Align CTG interpretation tools between Trusts and thereby improve CTG interpretation in labour.
- Increase the use of placental histology where adverse outcomes occur by >10%.

Aligning the guidelines in this way mitigates some potential patient safety issues which may cause direct harm to patients. Although it was challenging to gain consensus, and to ensure that the guidelines are embedded in practice, we learnt a great deal from the process.

Building on this work, a further set is being developed in response to stakeholder requests and requirements from across the Oxford AHSN geography. By the end of the year, we expect the new set of guideline to be embedded in all the Trusts involved in maternity care.

The guidelines for 2016/17 cover the following subjects:

- **Reducing the variation in Oxytocin (Syntocinon) protocols for the augmentation of labour**

Oxytocin (Syntocinon), as an IV (intravenous therapy) is very commonly used in maternity care to augment or induce labour. Currently there is significant variation in the methods of administering Oxytocin; we identified that no Trust in our area uses the same protocol. This is likely to be an unnecessary risk to patients.

- **Reducing variation and improving CTG (cardiotocograph) interpretation in labour**

This is a key patient safety issue and is a focus of the *Saving Babies' Lives - Stillbirth Care Bundle*. We identified that three different interpretation algorithms were in use across the area through which trainees rotate. A steering group member (Miss Aparna Reddy) conducted and presented research looking at intervention rates according to the three different algorithms.

- **Improving the use of placental histology**

Placental histology helps determine causes of stillbirth, preterm delivery and other adverse outcomes. Due to the centralisation of services, perinatal pathology is only available in Oxford and this service is very busy. Appropriate utilisation would allow improved information on the causes of adverse outcomes, allowing appropriate care and treatment.

Interoperability and Information Sharing

The collection of data, particularly outcome data, is of crucial importance for both clinical governance and research. For large research and innovation projects, and those addressing change in nature and variation of practice to work, maternity data and outcomes need to be accessible for analysis. Further, independent hospital information systems affect patient care and convenience. We found different Trusts within the network use different systems, communication and information sharing is can be problematic, and reports on and outcomes of patients referred between can be difficult to obtain both for the referring clinicians and the tertiary unit, causing potential risks for patients.

Objectives and Outcomes

- Enable the creation of a fetal medicine scanning outcome database.
- Collect broader clinical outcome data for units in the network.
- Facilitate the use of data to improve service audit, inform areas for service improvements and increase data access for appropriate research in the Oxford AHSN area.

A common reason for a woman to be seen at multiple sites is for opinion on problems with the pregnancy picked up on ultrasound scan. In order to smooth this process we have worked on connecting the ultrasound systems of the hospitals in the area enabling clinicians to offer advice remotely, have good up to date information when seeing the woman in person, with no risk of missing records, and the initial referring clinician can check on the woman's consultation to ensure continuity in the pathway of care. This is now live in most of our partner Trusts.

Going forward, the Network will be scoping the best methods to create a network wide data collection system for use for service audit and improvement and research at a local level. We are also contributing to the development of an area wide Maternity Dashboard, which is being led by the TV SCN Maternity Network, which will allow comparison of key performance outcome measures.

Interoperability and Information Sharing: A Case Study

Should an ultrasound scan pick up a problem with a pregnancy, a woman may be seen at multiple hospital sites in order to gain clinical advice and opinions. In conjunction with Oxford University Hospitals NHS Foundation Trust, The Royal Berkshire NHS Foundation Trust, Milton Keynes University Hospital NHS Foundation Trust, Frimley Health NHS Foundation Trust (Wexham Park Hospital), Buckinghamshire Healthcare NHS Trust and the Great Western NHS Foundation Trust, the Maternity Clinical Network is establishing links between ultrasound systems between the hospitals.

Clinicians are now able to offer advice remotely and have good, up to date information with no risk of missing records. The initial referring clinician can check on the woman's appointments and the woman no longer needs to be seen at multiple hospitals which ensures that her care has continuity. As additional trusts acquire suitable ultrasound scanning software, they shall be added on to the connected system. We envisage a complete area wide connection within the next year.

"Access to the system has proved invaluable. Access has enabled us to view appointment details and also to view and print reports once the patient has been seen. This has reduced the amount of time we historically had to spend chasing appointment and report information enabling us to ***provide an improved service to our patients*** *and making more efficient and effective use of time. It has made a* ***real and significant difference for us and our patients and improved the service we offer.***"

Antenatal and Neonatal Screening Coordinator
Wexham Park Hospital

Shared Learning

In many circumstances within maternity services in the Thames Valley area, learning and service change resulting from clinical incidents and challenging or unusual cases remains within the Trust in which it occurred. Improving the spread of learning across Trust boundaries is therefore a key part of ensuring patient safety and reducing risks.

For example, The Thames Valley and Wessex Neonatal Network have been sharing learning points and experience at events which have clinicians and staff from all local Trusts. This has proved successful in promoting learning across the Trust boundaries, enhanced the Network membership's sense of working together and added to the ability of the Network to identify potential areas that require Network input.

Positive multidisciplinary teamwork, particularly between midwives and doctors, is increasingly being identified as an important factor in improving patient safety in maternity, such as in the recent report by Dr Bill Kirkup on the Morecambe Bay Investigation. This is also a key part of the recommendations from the recently published National Maternity Review.

Objectives and Outcomes

- To improve the transfer of learning from clinical events, challenging cases and clinician experience across Trust boundaries.
- To improve the ability for clinical staff to communicate with the Maternity Network and improve the visibility of the Maternity Network in all units.
- To hold regular, well attended and clinically useful Shared Learning events.

In addition, the recent 'Spotlight on Maternity' report by NHS England's Sign up to Safety, calls on organisations to 'share what you are learning so that other organisations and health professionals can benefit'.

To promote shared learning across Trust boundaries and increase engagement of clinical staff with the Maternity Network, we are holding multidisciplinary 'Shared Learning' events, inviting midwives, doctors and other interested parties to present or attend. The first of these was held in January 2016, with excellent feedback from attendees. Topics included the presentation of clinical incidents which provoked discussion regarding multidisciplinary communication, teamwork and referrals between hospitals, variation and issues with CTG interpretation tools and how one Trust is meeting the challenge of women requesting artificial seeding at caesarean section.

As we progress it is intended the events will focus on sharing learning from clinical incidents, challenging or interesting cases and sharing experience and good or innovative practice. Each event will be closely evaluated to ensure they are meeting the objectives.

Sign up to SAFETY
LISTEN LEARN ACT

*"It was really interesting and a great way of **sharing experiences in a non-confrontational environment.** There is great anticipation for the next one."*

Attendee
Research Midwife
Shared Learning Event

Future Work

The aim of our network has been, and will continue to be, to facilitate and enable the delivery of improved health outcomes and address the challenges facing maternity services across the Oxford AHSN region. The capacity to do this relies on collaboration, partnership, sharing and support to deliver improved standards of care across the Oxford AHSN region. We have been able to raise the common standard of care through accelerated adoption of useful clinical innovations because we have been able to utilise upon the trust we have built with the partners involved in all our work. Our steering group strategy has is to focus on quality and value to deliver better outcomes for women, babies and their families, and subsequently address the productivity challenges that more traditional methods of innovation implementation have been unable to take further.

Following on from achievements of the last year, the Maternity Clinical Network submitted a successful bid to continue with our work for an additional two years to March 2018. During this period we will strengthen our relationships with all key stakeholders in the region and will continue to collaborate with our partners to improve the maternity care women, babies and their families receive in our region.

Oxford Academic Health Science Network

Maternity

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Notes

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