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Improving Together for Wales

Maternity Neonatal Safety Support Programme Cymru

Discovery Phase Report

JULY 2023

Foreword

Professor John Boulton, National Director of NHS Quality Improvement and Patient Safety, Public Health Wales NHS Trust

This improvement Discovery Phase report and the MatNeo Safety Support Programme (MatNeoSSP) is a significant step forward for maternity and neonatal care in Wales, clearly outlining the path to improve the quality of care for mothers and babies throughout the journey of new life here in Wales.

By considering maternity and neonatal care in an integrated approach, alongside pre-hospital care, we are laying the foundations for fundamental change in the way we look at and deliver care across Wales. This is really exciting, and I am proud that Improvement Cymru have been able to deliver a comprehensive Discovery Phase which will drive this work forward, with clinical partners across the system and with the support of both Sue Tranka, Chief Nursing Officer and Dr Chris Jones, National Clinical Director, Welsh Government.

The passion throughout the maternity and neonatal workforce is clear to see across Wales, we found a real drive to deliver the best care possible for the people of Wales. There are some clear areas to improve and some bright spots of excellent care and practice that can be shared and scaled across Wales. However, alongside this came some frustration that care is not consistently safe as it can and should be.

Improvements are already underway thanks to the work this Discovery Phase has ignited. The MatNeoSSP team of Leads and Champions have been actively enabling new improvement activities which have emerged as a result of MatNeo feedback and findings, while also being a valuable resource to support organisations with their existing improvement projects.

Moving forward it is important that the Improvement Priorities and Actions for Consideration contained within this report are not used as a framework for performance management. The aim is that they contribute to creating and sustaining a culture of improvement throughout NHS Wales maternity and neonatal services.

I hope this report, and all the work that went into getting us to this point, will be a catalyst for change, improving care for all families across Wales. I know the only way we can achieve this is to continue to work together in partnership across the system and with colleagues at Welsh Government. I am excited to see what this will bring and hope that Improvement Cymru, and the wider NHS Executive, can continue to play a pivotal supporting role in the work as it progresses.

Professor John Boulton

National Director of NHS Quality Improvement and Patient Safety

Public Health Wales NHS Trust

Authorship

This discovery phase report has been written by the maternity and neonatal community in Wales on request of Welsh Government. It brings together the work of numerous people. In particular, it was written by and is based on data collected by:

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Improvement Cymru supported the creation of this report by providing expertise in healthcare improvement in Wales. This included advising and coaching the leads and champions on the most appropriate tools and diagnostic framework for their discovery work.

Improvement Cymru Team: Sarah Patmore, Iain Roberts, Martine Price, Benjamin Bainham and Adam Watkins.

Acknowledgements

The work would not have been possible without the advice, support and knowledge of numerous other individuals and organisations, including:

MatNeoSSP site visit teams.

Improvement Cymru team: Jonathan Cook, Keely McCarthy and Lois Andrews.

Maternity and neonatal colleagues across NHS Wales who gave their time and opinions to create this report.

We would particularly like to thank those patients and staff who took the time to share their stories. While not all could be included in this report, all were taken on board and influenced our findings.

How to read this report

Section 1

Section 1 gives an introduction, providing an overview of what the team did and a brief introduction to the findings, early impacts and next steps.

Section 2

Section 2 sets out a summary of the findings and the headline priorities for action that emerged from them. The findings are structured around the five principles of care set out in the Welsh Government's five-year vision for the future of maternity care in Wales (2019-2024). For each section, there is a brief summary at the start, then a report of the findings, ending with a table of the priorities for action relevant to these findings.

Section 3

Section 3 explains the early impact of the work and next steps for the programme.

Section 4

The full breakdown of the priorities for action can be found as an appendix in Section 4, alongside other useful material. Priorities highlighted in teal are recommended for early adoption.

Section 5

Section 5 lists source material referenced in the main text.

Within this document the terms pregnant woman and women's health are used. However, it is important to acknowledge that it is not only people who identify as women for whom it is necessary to access care. Maternity services and delivery of care must therefore be appropriate, inclusive, and sensitive to the needs of all individuals whose gender identity does not align with the sex they were assigned at birth.

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Executive summary

This report explores the landscape of maternity and neonatal services in Wales and was broad in its remit, including detailed views of work culture, leadership and learning alongside workforce and clinical outcome measures for mothers and babies across the nation. The findings of this Discovery Phase of work, conducted from Dec 2022 – Feb 2023, and the recommendations reflect that broad scope. Moving forward, we must work as one perinatal team, to improve care for women and families.

We welcome the recognition from the Welsh Government that the first 1,000 days of life, from conception to the age of two years, is the most critical time to influence health outcomes for both individuals and nations. Getting things right at the start of life is an important foundation for health and wellbeing for all of us in Wales.

The approach we took to this work has its roots in appreciative inquiry and the Institute for Healthcare Improvement's Framework for Safe, Reliable, and Effective Care. We found examples of good and excellent practice in services across Wales and further afield, which could be shared and scaled up to improve services around the country.

This work was not a review of services, but through meeting and communicating with maternity and neonatal teams, we have identified some opportunities to improve care and governance. Safe and equitable care is the aim in all services, and it has been heartening to see some excellent improvement projects already underway.

There are public health challenges for the health and wellbeing of families in Wales, some of which require work that will fall outside the scope of NHS care. High levels of obesity and smoking for example, and pockets of deprivation, cannot be tackled by the NHS alone. However, there are actions our health service can take to optimise outcomes for women and babies.

There are also serious workforce challenges, not unique to Wales, which will require creative solutions and investment. Our workforce is the foundation of the care we provide. Appropriate staffing underpins everything we want to achieve for women and families in our care. Staff wellbeing, support and retention are key priorities as well as recruitment.

The priorities we identified require personal, local, regional and national actions – along with systemic change, a sustained co-ordinated approach to improvement, and strong collaborative leadership. The report is presented in categories based on the Welsh Government's document: Maternity Care in Wales: a five-year vision for the future (2019-2024), with relevant priorities for improvement within those sections. The detailed table of all recommended **priorities for action** is provided at the end of this report. Top priorities, which should be actioned as soon as possible, are highlighted in teal and included in this summary.

Priorities for action

1. Safe Care Collaborative

KEY PRIORITY:

Develop a Safe Care Collaborative for maternity and neonatal services and bring together expert reference groups involving clinicians, allied health professionals and service users across Wales to drive improvements in care across the service.

2. Leadership

Identification and support of compassionate, strong leadership.

KEY PRIORITY:

Representation at board Quality and Safety committee for the perinatal 'quad' team, with Director of Midwifery, consultant neonatologist and consultant obstetrician safety leaders and senior neonatal nurse representation.

KEY PRIORITY:

Regular structured executive walk rounds.

3. Workforce

We found significant challenges amongst the workforce, with teams strained by gaps and ad hoc cover, which impacted on wellbeing, education, training, research and other services.

KEY PRIORITY:

A workforce strategy ensuring optimum numbers of skilled and highly motivated staff alongside new models of care in both maternity and neonatal services.

KEY PRIORITY:

NHS Wales should ensure provision of psychological support, within each maternity department and neonatal unit, for all maternity and neonatal staff.

KEY PRIORITY:

Administrative support for clinical care and staff training.

4. Perinatal teamworking

Teams that work together should train together.

PROMPT (Practical Obstetric Multi Professional Training) Wales is already leading the way in multidisciplinary training for maternity staff.

KEY PRIORITY:

Time and space for training need to be prioritised.

KEY PRIORITY:

Neonatology should be included in multidisciplinary training alongside local NLS (New-born Life Support) training.

5. Safer pregnancy

Supporting women with evidence-based interventions will optimise pregnancy outcomes and reduce inequalities. It is particularly important to recognise and provide additional care for women with pre-existing medical conditions, previous obstetric complications, obesity and smoking.

KEY PRIORITY:

Highlight national guidance relating to pregnancy and birth across NHS Wales, improving access and reducing variation through quality improvements.

KEY PRIORITY:

Midwifery posts within Welsh Ambulance Services Trust (WAST) for clinical advice, information and partnership working. Support development of national 'Labour Line' and 'Triage Line' telephone services and WAST education.

KEY PRIORITY:

Establish a Maternal Medicine Network(s) ensuring appointment of one or more obstetric physicians in Wales.

KEY PRIORITY:

Refresh the NHS Wales Safer Pregnancy campaign incorporating actions from Saving Babies' Lives Care Bundle version 3. This will require funding & implementation of sonography services, computerised cardiotocography (cCTG) availability, Placental Growth Factor (PLGF) testing in suspected pre-eclampsia and quantitative fetal fibronectin, to wrap around the PERIPrem (Perinatal Excellence to Reduce Injury in Premature Birth) Cymru care package.

KEY PRIORITY:

Midwifery continuity of carer models should be reviewed and optimised.

6. Families are supported and enabled to stay together

KEY PRIORITY:

Keeping families together means working to avoid unnecessary admissions, supporting families when a baby is admitted, and implementing models which enable care at home in the community.

KEY PRIORITY:

Investing in Transitional Care in all maternity units, aligned with national standards.

7. Improving clinical standards and outcomes for babies at the start of life

Evidence-based neonatal care aimed at reducing mortality and morbidity by:

KEY PRIORITY:

optimising and sustaining breastfeeding, particularly for babies on neonatal units,

KEY PRIORITY:

tackling infection and

KEY PRIORITY:

addressing measures which reduce chronic lung disease.

8. Bereavement care

Some families experience stillbirth or the death of a baby soon after birth. As well as working to improve maternity and neonatal outcomes, ensure families are supported through bereavement.

KEY PRIORITY:

NHS Wales to fully implement The National Bereavement Care Pathway.

9. Clinical governance structures

KEY PRIORITY:

Standardise governance roles within maternity and neonatal services, with senior oversight and optimised collaborations with quality improvement departments.

KEY PRIORITY:

Standardise local perinatal quality-surveillance dashboards to enable real-time activity/outcome measurement and monitoring to support local improvements.

KEY PRIORITY:

Align NHS Wales Datix fields with agreed national Trigger Tools and analyse data at Health Board and national level to identify themes and guide continual improvement.

KEY PRIORITY:

Commissioning of external independent review for all cases of maternal death; term intrapartum stillbirth; early neonatal death >37 weeks; and perinatal brain injury.

10. Strategic joint planning of maternity and neonatal services

As maternity and neonatal services are interdependent, it is important that reviews of service planning and funding are undertaken together.

KEY PRIORITY:

Strategic planning and commissioning of maternity and neonatal services 'from cot to community' should be coordinated jointly and include representation from all members of the perinatal team.

These top priorities form just part of the journey to ensure high quality, safe and effective services for women and their babies across Wales. All the other priorities are by no means less important and it is vital to consider them at both local and national level in order to drive better outcomes for families across Wales.

1. Introduction – the journey so far

This report sets out the findings of the first phase of a national programme to strengthen and improve the maternity and neonatal systems in Wales. At the heart of the programme is the aim that services for mothers, babies and their families continually improve to ensure that every family in Wales receives care that is always the best it can be, equitable and safe.

Maternity, neonatal and pre-hospital care services are facing challenges throughout the UK. A number of recent reviews in England and Wales have illustrated these challenges and their impact on care. For example, in England, the Care Quality Commission (CQC), in its 2021 report on safety, equity and engagement in maternity services highlighted that 41% of maternity services in England are rated as requiring improvement or inadequate.[1]

This project came about when, in the summer of 2022, Welsh Government requested that Improvement Cymru undertake the Discovery Phase for a new Maternity and Neonatal Safety Support Programme (MatNeoSSP). The project was commissioned in response to Action 6 of the Welsh Government's Quality and Safety Framework, for national work to be undertaken to lead an all-Wales improvement approach and maximise the opportunity for learning from independent reviews of maternity and neonatal services to improve outcomes for all women, babies and their families in Wales.[2]

The first phase of the programme is called the 'Discovery Phase', as the team set out to discover more about what is happening in maternity and neonatal services across Wales. The team looked for where things were being done well and where services could learn from each other to build on good and innovative practice.

The Discovery Phase has considered care pathways from the first booking of a pregnant woman through to providing neonatal care for her baby if needed. The project has considered services related to antenatal care, birth, postnatal care, and neonatal care. This scope has also meant the team has considered the health of women before they became pregnant and wider socio-economic factors, because they have an influence on the care and services needed for women and babies.

MatNeoSSP has looked at care and pathways both within and between maternity and neonatal services. This approach, looking at maternity and neonatal services together, is unusual – perhaps unique – but these services are inextricably linked. Close collaboration and partnership working is necessary to create and sustain the conditions for care excellence.

The MatNeoSSP team worked intensively for three months gathering data, from November 2022 to February 2023 with colleagues from all seven NHS Wales Health Boards and the Welsh Ambulance Services NHS Trust (WAST).

The team engaged with as many organisations and people as possible, including:

- All Wales Perinatal Mental Health Network
- Congenital Anomaly Register and Information Service (CARIS)
- Digital Maternity Cymru (DMC)
- Health Education and Improvement Wales (HEIW)
- Healthcare Inspectorate Wales (HIW)
- The Quality and safety assurance team (previously the NHS Wales Delivery Unit (DU)
- NHS Wales Maternity & Neonatal Network
- NHS Wales Shared Services Partnership (NWSSP)
- Public Health Wales (PHW)
- Welsh Risk Pool (WRP)
- Third sector groups and
- Maternity and neonatal professionals across Wales.

The team has also engaged with additional people working in maternity or neonatal services in Wales and others who have an expert perspective. The short timescale did not allow for specific engagement with people using services, not least because of the time needed to gain ethics approval. The views of women and families are vital, and their engagement will form part of phase two of the MatNeoSSP programme. Welsh Government's National Review of Maternity Services explored the experiences of women, their partners and families and the MatNeoSSP team has referred to that work.[3]

In recent years, several reviews of maternity and neonatal services have been published in the UK. MatNeoSSP has used these as core reference material, alongside work by the Independent Maternity Services Oversight Panel (IMSOP) on a review of care at Cwm Taf, MBRRACE-UK, the Royal College of Obstetricians and Gynaecologists, the Royal College of Midwives, and the Getting it right first time (GIRFT) work on neonatology and maternity.[4,5,6,7,8,9]

This report will present conclusions based on the findings of the Discovery Phase of MatNeoSSP, while also drawing on the findings and recommendations of other relevant published material, to provide a suite of priorities to drive improvement for maternity and neonatal services in NHS Wales. This strategic approach will inform the next phase of the MatNeoSSP programme.

The Welsh context

The Welsh Government recognises the first 1,000 days of life, from conception to the age of two years, as the most critical time to influence healthy outcomes for both individuals and nations. Early life experiences can impact on the later development of several conditions, such as obesity, non-communicable diseases like heart disease and diabetes, and adverse mental health. This concept has been called developmental programming and can have effects across generations to come.

Wales has a unique landscape in terms of population and faces particular challenges in caring for pregnant women and their babies. There are high rates of maternal obesity, smoking, and perinatal mental health problems. It is vital that healthcare advice and provision during the first 1,000 days of life is of the highest quality to optimise outcomes.

In 2021, more than 28,800 women gave birth in Wales.[10] Outcomes for women and babies are not equal, with significant differences in maternal and perinatal mortality rates for women from different areas. Recent inquiries into maternal and perinatal deaths highlighted once again that women living in the most deprived areas were almost three times more likely to die than those who lived in the most affluent areas. Babies born to women in the most deprived areas are twice as likely to be stillborn and are at a 73% excess risk of neonatal death, compared to women living in the least deprived areas.[11]

Every year almost 3,000 babies are admitted to one of the nine neonatal units in Wales because they were born preterm or are born at term and are unwell. Around 2,500 babies are born preterm in Wales every year.

Babies born before 34 weeks gestation will need to be admitted to neonatal units. Not all units can care for all babies due to the level of specialist care they provide, so some babies will need to be transferred either before birth (in utero) or after birth to a neonatal unit that can care for the sickest babies. As soon as babies are ready to go back to their own units, the aim would be for this to be facilitated. As maternity and neonatal services are closely linked, it is essential that there is alignment of availability for both services to allow successful in utero transfers.

Many babies born late preterm (from 34-37 weeks gestation) may be cared for with their mothers on a local Transitional Care unit avoiding separation of mothers from their babies.

The most unwell babies are cared for in intensive care where they have multiple complex interventions. An admission to the neonatal unit can have long-term impact in terms of later health. In addition, it can also impact on families, including mental health and financial implications, due to additional costs and time away from employment to care. Ongoing healthcare costs alone of preterm babies are significant over childhood and the economic costs of preterm babies in adulthood have not been examined in detail.[12,13]

MBRRACE-UK data also informs that 70% of all stillbirths and neonatal deaths occur in babies born before term and nearly 40% are extremely preterm < 28 weeks. Preterm birth is the most important determinant of adverse infant outcomes including survival, quality of life, psychosocial effect on the family, and healthcare.[14] Whilst survival rates have greatly improved for babies born extremely preterm, these babies remain at risk of developing a wide array of complications, not only in the neonatal unit, but also in the long-term.[15,16] Morbidity is inversely related to gestational age; however, there is no gestational age, including term that is exempt.

Neurodevelopmental disabilities and recurrent health problems take a toll in early childhood. Subsequently hidden disabilities such as educational challenges and behavioural problems become apparent and persist into adolescence. The focus for perinatal interventions is to develop strategies to reduce long-term morbidity, especially the prevention of brain and lung injury. In addition, follow-up to middle age and beyond is warranted to identify the risks for non-communicable diseases such as cardiovascular, respiratory, and metabolic disorders that are beginning to become apparent in grown up preterms.[17]

It is therefore essential to collect robust population data prospectively on all babies and most especially preterm babies in order to determine outcomes and develop strategies to improve them and to focus on reducing preterm birth, through addressing modifiable risk factors such as smoking, providing appropriate care for women at risk of preterm birth and providing interventions including continuity of carer.

Obesity rates vary considerably between Health Boards, from 15% to 33%. Babies born to obese mothers have a higher risk of being admitted to a neonatal unit with low blood sugar or breathing problems. They are also more likely to get admitted to hospital in the first five years of life and are at increased risk of developing diseases in later life such as obesity and diabetes themselves.[18]

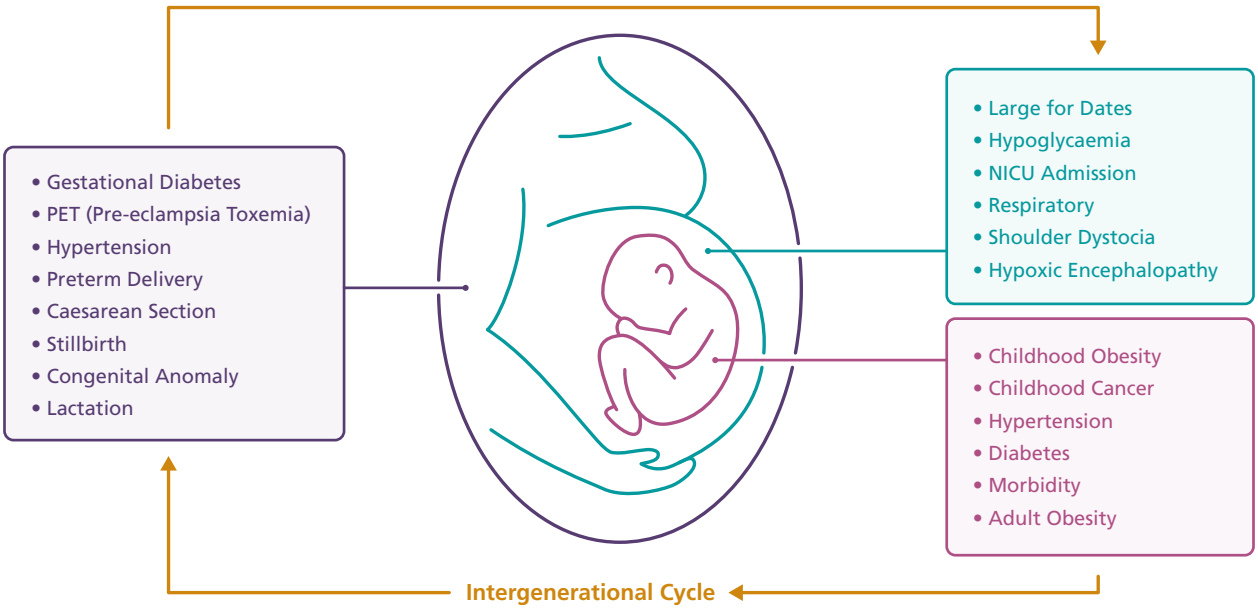


Figure 1. *The impacts of obesity on mothers and their babies.*

Rates of congenital abnormalities are higher in obese mothers and are higher in Wales than England.[19]

One of the best forms of preventive medicine for both term and preterm babies is their mother's own milk. Overall whilst breastfeeding rates in Wales are low, they are improving. Over the last decade there has been increasing emphasis on keeping mothers and babies together where possible. This had led to guidance from the British Association of Perinatal Medicine (BAPM) around Transitional Care, avoiding admission of babies at term and plans for moderate to late preterm babies being managed with their mothers in a Transitional Care setting within maternity departments or alongside neonatal units.[20] The Transitional Care model is essential for infant bonding, breastfeeding, reducing maternal perinatal mental health issues and in addition is associated with significant cost savings.[21]

The geography of Wales raises additional challenges. Ensuring the provision of high-quality maternity and neonatal services to address these inequalities and the impact on the health of the next generation is vital.

The landscape of services

The national landscape for maternity and neonatal services is busy, complex, and evolving (with the formation of the NHS Executive in Wales), with many areas of overlap.

Maternity services

Women across Wales access maternity services through several routes according to their individual needs. The following are available in Wales:

- 10 Obstetric Led Units (OU)
- 9 Alongside Midwife led Units (AMU)
- 12 Free-standing Midwife led Units (FMU)
  - One fully operational free-standing midwifery unit has dedicated staff 24 hours a day, 7 days a week. Many free-standing midwifery units have become a 'pod' or a 'hub' with varied daytime use and for births when required, staffed by the on-call midwifery team.
- Homebirth services

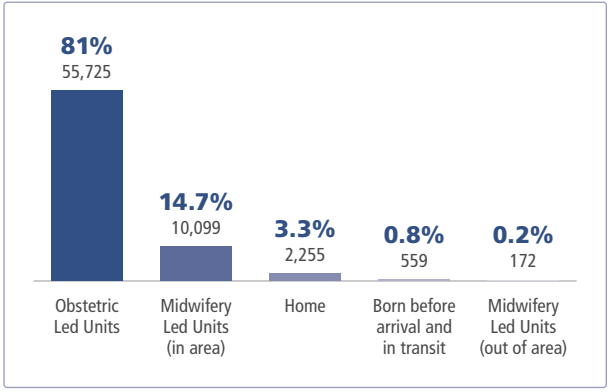


***Figure 2**. Place of birth in Wales, (January 2020- June 2022) (MatNeoSSP data).*

The majority of women birthed in obstetric-led units, followed by midwifery-led units. 3.3% of women birthed at home and a small percentage in transit (where a midwife may be present).

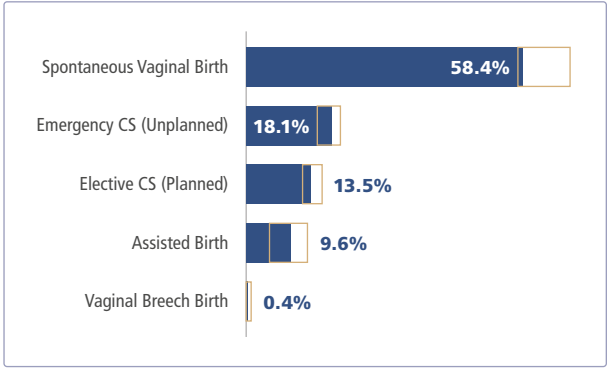


***Figure 3.** Mode of birth (%) in Wales, from maternity data sets. Ranges given reflect variation across Health Boards, i.e., spontaneous vaginal birth (54-65%), emergency CS (15-20%), elective CS (12-16%), assisted birth (5-13%), and vaginal breech birth (0-1%).*

Neonatal services

Hospitals across Wales provide different levels of neonatal service for their local population:

- **3 Neonatal Intensive Care Units (NICUs)** provide care for the smallest and sickest babies across a whole region.
- **1 Sub-Regional Neonatal Unit** (for babies above 26 weeks gestation only), provides Intensive Care.
- **5 Special Care Units (SCUs)** (for babies from 32 weeks gestation). One of these units is self-designated by its Health Board as a Local Neonatal Unit (LNU) and staffed as an LNU, although it is recognised by stakeholders and professionals that the gestational model is in line with an SCU.
- Neonatal stabilisation services are also provided at Bronglais.
- All units provide some level of Transitional Care. Special Care units provide a stabilisation facility for babies who need to be transferred to a NICU.

A more detailed description of different levels of neonatal care is available in appendix four.

Leadership and oversight

There are a number of organisations in Wales which have input to maternity and neonatal services. This includes:

The Wales Maternity and Neonatal Network became part of the NHS Executive from 1 April 2023. This is a unique network within the UK as it covers both maternity and neonatal services, providing support for a single perinatal service. The network currently has a broad portfolio of work under the five key themes of the maternity vision: Safe and Effective Care; Patient Centred Care; Continuity of Care; Skilled Multi-professional workforce and Sustainable Services.

Welsh Health Specialised Services Committee (WHSSC) – WHSSC is responsible for the joint planning of specialised and tertiary services on behalf of local Health Boards. WHSSC commissions neonatal transport, neonatal intensive care (IC) and high dependency (HD) cots for the South Wales area, fetal medicine (including fetal cardiology) and adult congenital heart disease which supports a clinic for pregnant women.

Digital Maternity Cymru (DMC) – Hosted by Digital Health and Care Wales (DHCW) – following an initial project phase to determine need, the DMC 5-year programme has received ministerial approval and funding of £7 million to procure and implement a digital maternity solution for Wales, fully integrated to all other relevant systems. The initial priority is to undergo an open

procurement process which is expected to be complete within a year.

Health Education and Improvement Wales (HEIW) – HEIW has a large portfolio of work driven by A Healthier Wales: Our Workforce Strategy for Health and Social Care in Wales. This currently includes a review of mandatory training for midwives, leadership resources and the development of an All Wales Labour Ward Coordinator Framework. From April 2023 they will be progressing a Maternity and Neonatal Strategic Workforce Plan

Welsh Risk Pool (WRP) Maternity Safety and Learning Programmes – WRP's Maternity Safety and Learning team drives improvement programmes aimed at reducing harm and litigation in maternity services through training and education programmes.

Two WRP programmes – PROMPT Wales and Community PROMPT Wales – have been successfully implemented across NHS Wales. These training programmes provide high quality, standardised training to the multi-professional workforce with a focus on teamworking, clinical management of obstetric emergencies and the impact of human factors. This approach has resulted in a sustainable model which is demonstrating improvements in clinical outcomes.

As a significant proportion of clinical negligence claims arise from intrapartum fetal monitoring concerns, WRP has committed to supporting organisations to achieve the training requirements set out in the All-Wales Intrapartum Fetal Surveillance Standards.

An extensive and thorough scoping review was undertaken during January to March 2023 and identified excellent examples of training provision but the lack of a standardised approach across Health Boards. The current aim is to develop and support a training programme using a similar implementation model to that of PROMPT Wales.

Transport Operational Delivery Network – This project has received WHSSC funding to progress. Swansea Bay University Health Board (SBUHB) will have operational oversight of the Cymru-inter-Hospital Acute Neonatal Transport Service (CHANTS) neonatal transport service in South Wales. The Network and SBUHB are working together with other stakeholders to develop the structure and working relationships required to build on the current transport model.

Healthcare Inspectorate Wales (HIW) – HIW is the regulator of independent healthcare and the inspectorate of NHS healthcare in Wales. In 2020 HIW conducted a review of all maternity services in Wales to explore the quality and safety of the care being provided. Following the publication of the report[22], all-Wales recommendations were circulated, and each Health Board submitted an action plan to address the improvement areas. Each plan was individually reviewed by HIW to ensure each Health Board was taking action to make improvements and protect patients from any risks identified. HIW continues to monitor progress in this area with re-inspections of some maternity services to take place, to ensure timely improvements are being made. To date, HIW have not undertaken any reviews of neonatal units in Wales.

The Quality and safety assurance team (previously the NHS Wales Delivery Unit (DU) within the NHS Executive) is responsible for the total quality management of nationally reportable incidents. The team also provide a role in identifying National themes for systematic learning and improvement that aim to minimise patient safety harm and morbidity whilst improving people experience.

The approach taken

Central to the discovery work has been the use of appreciative inquiry as a foundation, along with a multidisciplinary approach across maternity and neonatal services.

Appreciative inquiry is a way of delivering service improvement by building on strengths. It means listening to people within services and observing what is happening. This approach looks for the core strengths that exist within organisations, rather than looking for problems.

The openness and constructive approach from every person who has engaged with the MatNeoSSP work demonstrates their personal ambition to provide a service that delivers the Welsh Government strategy *'Maternity Care in Wales – A Five Year Vision for the Future 2019-2024'*.[23] The passion, skill, and commitment of the people working within maternity and neonatal services has been clear throughout.

The approach undertaken has helped facilitate understanding of the local, regional, and national systems which deliver maternity and neonatal services across NHS Wales.

What the team did

The Discovery Phase of the MatNeoSSP project has been led by Improvement Cymru, the NHS Wales improvement support team, which is joining the new NHS Wales Executive (moving from Public Health Wales). The National Director of NHS Quality Improvement and Patient Safety, alongside a project lead and with support from Welsh Government, appointed clinical leads for the project in obstetrics and neonatology and national leads (a midwife and advanced neonatal nurse practitioner). Further appointments of local Champions in maternity and

neonates (midwives and neonatal nurses) for each Health Board and WAST were also made. The newly formed MatNeoSSP team started work in November 2022.

To meet the objectives of the programme, Improvement Cymru elected to use three tools which, when combined, provide the clearest overview of the culture of safety.

The 3-step model for this discovery work can be summarised as:

- **Stage 1** – looking at services through the lens of the 'Framework for Safe, Reliable and Effective Care', published by the Institute for Healthcare Improvement.[24] This provided an understanding of the culture of patient safety within organisations by considering the dimensions which can best promote and embed a culture of patient safety.
- **Stage 2** – a 'trigger tool' methodology to quantify and measure instances of good, reliable practice, as well as to identify variation or deficits which could lead to harm.
- **Stage 3** – site visits to all Health Boards and WAST to triangulate information obtained from the framework and trigger tool, alongside meeting teams, executive and local leads.

The data from these tools was analysed to derive the priorities for action (see appendix two) for a national improvement programme as part of the second phase of this programme.

Stage 1 diagnostic

The Framework for Safe, Reliable and Effective Care is a tool which brings together learning and evidence on the dimensions which can best promote a culture of patient safety. The aim of using this tool was to understand the culture of patient safety within organisations.

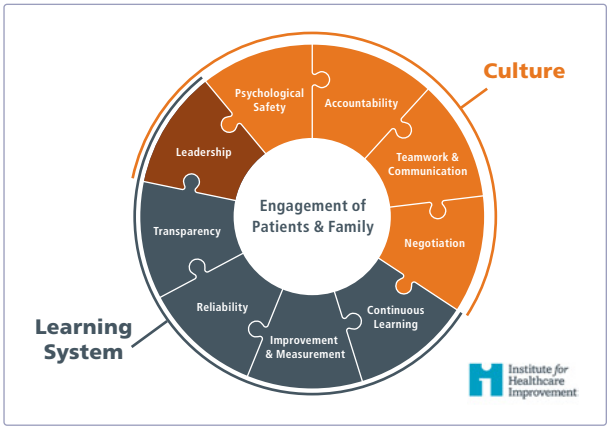


***Figure 4**. IHI (Institute for Healthcare Improvement) Framework for Safe, Reliable & Effective Care.*

MatNeoSSP Champions received training in the principles and use of the framework, with additional training on:

- The appreciative inquiry approach which constituted the foundation of this work.
- Understanding the potential for conscious and unconscious bias in themselves and others.
- The principles of creating a psychologically safe 'space' for colleagues to honestly share their views during Stage 1.

To deliver Stage 1, Champions had conversations with the widest possible range of colleagues to talk about their experience of working in and delivering maternity and/or neonatal services in each organisation. A rich collection of perspectives and experiences emerged which were used to understand the culture of safety across the organisations.

Champions also sought further sources of information and evidence with which to demonstrate how each service was meeting each of the nine dimensions defined within the framework. These included, but were not limited to:

- review of information displayed in and around units
- meeting minutes
- risk registers
- understanding internal governance processes
- observing meetings

The IHI has published a diagnostic tool to accompany the framework. The status statements within that diagnostic tool were used as the basis against which evidence from each organisation was considered. The tool offers four potential status categories for each of the nine framework dimensions, from 'just beginning' to 'exemplary'.

***Figure 5.** The four status categories from the diagnostic tool in the IHI Framework for Safe, Reliable & Effective Care.*

Champions used a bespoke interactive database to record the themes and summaries of their findings. A peer review panel of MatNeoSSP Champions and leads considered the evidence which had been found in each organisation and agreed the category which best described each of the dimensions of the framework for every maternity and neonatal service involved in this process.

The radar charts included within the appendix of this report display the final results as determined by the peer review panel. Note that the 'just beginning' category is represented by the inner circle, with the most mature 'exemplary' category being on the outer ring of the circle of these charts.

Stage 2 diagnostic

The Stage 2 diagnostic is based on a trigger tool methodology to quantify and measure instances of good, reliable practice which can affect outcomes, as well as to identify variation or deficits which could lead to harm.

Three bespoke NHS Wales trigger tools (maternity, neonatal and WAST) were designed for MatNeoSSP. Each sought to explore a wide range of data to:

1. Quantify and measure the landscape of service provision across Wales.
2. Explore factors which are known to, or may, have an impact on patient safety.
3. Enable benchmarking with standards in comparable healthcare systems and populations.

Over 150 separate data items were identified for both maternity and neonatal services, with further data items relating specifically to WAST.

The brief for MatNeoSSP was to consider quality outcomes for all of pregnancy from booking to discharge in the postnatal period. Early pregnancy services are provided to women in the first 12 weeks of pregnancy but were not part of the terms of reference.

When benchmarking to national standards, comparable healthcare systems and populations were chosen, primarily within Scotland and England. For maternity, the year 4 Clinical Negligence Scheme for Trusts (CNST) dataset was used.[25] These are current safety actions designed to improve services for mothers and babies.

In addition, nuances of staffing across Wales and staffing for specific areas such as governance were explored. Additional domains considered transfers of mothers and babies, bereavement care, quality of care in adverse outcomes, and psychological support for staff.

Site visits

Site visits to each organisation were undertaken during January and February 2023. The visits created the opportunity to meet executive colleagues and local teams to discuss how maternity and neonatal safety is delivered, measured, monitored, and managed locally to explore and triangulate the findings from the Stage 1 diagnostic, and provide local context and understanding ahead of drafting the project's final report.

Local MatNeoSSP Champions were asked to liaise with their organisations' service leads to plan a visit timetable which provided a representative view of each organisation's services as much as was possible within a single day.

This timetable comprised a combined total of 347 hours of on-site time across all NHS Wales Health Boards and WAST.

A core principle of these visits was to recognise that Improvement Cymru is not an inspectorate body and the MatNeoSSP site visit was not an inspection. All visit team members undertook their roles using appreciative inquiry as their guiding principle, seeking to identify good practice and excellence which could be shared more widely across NHS Wales. This approach enabled a positive experience for both local organisations and site visit team members and created a foundation of honesty resulting in discussion of bright spots, along with recognition of challenges, and opportunities for improvement in each organisation.

The data derived from all three tools was substantial. It is important to note that:

- Maternity and neonatal services are the first in Wales to systematically apply the IHI Framework for Safe, Reliable and Effective Care from which to derive an understanding of the culture of patient safety.
- The bespoke MatNeoSSP trigger tools that have been developed identified that some data is not systematically available.
- The site visits enabled the MatNeoSSP team to meet organisational staff and see the services in order to provide a rich picture of the service described via the two other tools.
- The data can be used as a solid baseline for the second phase of the programme.
- The legacy of all the data collection tools used in this exercise can be repeated at any time by local services to help them to measure local improvement progress against their baselines.

Bright spots – good practice to be shared

Through studying the data and having conversations with people throughout maternity and neonatal services in Wales, the MatNeoSSP team heard about many bright spots – examples of good and excellent practice being delivered in these services. However, the team also learned about concerns, problems, and variability in some aspects of care and service delivery.

The team identified examples of good and visible leadership at clinical and executive levels and the commitment to leadership improvement in many organisations across Wales.

The team heard good examples of governance in maternity and neonatal services, including around the recording and review of incidents. One Health Board focused on psychological safety around reporting, creating an environment for learning among staff.

Many staff felt there was a good multidisciplinary approach to patient safety and hierarchical behaviours had been flattened in many areas of maternity and neonatal services.

The team saw progress being made in use of digital resources, from referral systems and data dashboards to information for patients.

During the site visits, the team heard about several innovative examples of new roles and re-design of roles to support frontline staff in delivering care. All Health Boards recognised that inadequate staffing is their biggest barrier to safety and quality.

The team heard a real desire across Wales for learning and sharing, with many examples of visible activities to support learning. The team heard about training exercises based on examples of adverse events or themes affecting staff and patients, and multi-professional simulation learning experiences. The team heard about the successful implementation of PROMPT Wales, Multidisciplinary Team (MDT) simulation training for all maternity teams across all maternity units.

The team heard that all maternity services in Wales had a service user group to ensure that the choices of women and families remain central to service design and delivery. One Health Board told the team about the maternity patient reported experience measure (PREM) they had designed and introduced. The team also heard about services developed specifically to address inequalities, such as individualised care provided to pregnant women seeking sanctuary and for survivors of harmful practices.

In Wales, much more needs to be done to support women to stop smoking during pregnancy. The team learned about examples of support and a fetal monitoring training programme which supports individualised care for women during pregnancy.

The team heard about work being done to support families to stay together when specialised care is needed, such as facilities for parents to sleep next to their baby's cot and play areas for families with a baby receiving care in the neonatal unit. The team heard about Family Integrated Care (FiCare), a model which supports partnership between families and staff. The team also heard about Transitional Care, and support for early discharge from hospital to support in the community. While there is considerable work to be done on improving Transitional Care, the team found good examples which can be built on.

The team heard about significant bright spots in leadership and improvement, including the antibiotic stewardship programme, and the successful introduction of a sepsis risk calculator.

Sadly, some families experience stillbirth or the death of a baby shortly after birth or on the neonatal unit. Although there is much work to be done to improve bereavement care for families across Wales, the team heard about good examples, including one unit providing a tailored neonatal-specific bereavement service for as long as the family needs their support.

The team heard about support provided for mothers of preterm babies to have skin to skin time with their babies and to provide breastmilk for them.The team learned about the obstetric bleeding strategy (OBS Cymru), a three-year programme which supported local maternity services to reduce harm from postpartum haemorrhage, now embedded into routine intrapartum care.

The team learned about continuity of carer models, and how some teams provide named midwives to support women throughout their journey from early pregnancy to postnatal care.

These and many other examples throughout this report highlight some of the good and excellent practice in Wales that can be shared, learned from and built on.

Priorities for action

Alongside the bright spots, this analysis has highlighted five key areas of improvement focus needed to move towards the safest maternity and neonatal care in Wales.

- **Patient safety:** MatNeo is a safety support programme. Directly and indirectly, all the improvement work should support the workforce to provide the safest possible maternity and neonatal care. Improving leadership, teamworking and learning, and investment in the workforce will all lead towards the goal of safe and effective care.
- **Leadership:** There must be compassionate, strong leadership, with a focus on psychological safety for all staff. Representation at board Quality and Safety committee for the perinatal ‘quad’ team, with Director of Midwifery, consultant neonatologist and consultant obstetrician safety leaders and senior neonatal nurse representation, with regular executive walk rounds to observe and interact with frontline staff.
- **Teamworking:** Teams that work together should train together and Wales can lead the way in joint multidisciplinary training for maternity and neonatal staff. Prioritising and investing in the capability and skill of the workforce is essential.

- **Learning and sharing of good practice:** The introduction of a new Safe Care Collaborative for maternity and neonatal services will provide opportunities for identifying and sharing of best practice and learning from investigations as well as from excellence in care. This collaborative will facilitate spread and scale throughout Wales, embedded with quality improvement training and coaching.
- **Workforce:** To achieve the above key areas for improvement significant investment will be required, nationally and from Health Boards, in workforce, including in time and space for training. As well as an ambition to provide the best possible care for families in Wales, the aim should be to build on the pride in the workforce, creating the best possible environment to work in. Wider consideration of how maternity and neonatal services are funded in Wales is required.

Throughout Section Two of this report, the key findings are explained and the recommended priorities for action are set out. These are critical to making improvement progress. A full breakdown of these recommendations is included at the end of this report.

Early impacts

The purpose of the MatNeoSSP Discovery Phase is to inform improvement activity: 'To improve the safety, experience and outcomes of maternal and neonatal care and provide support to enable teams to deliver a high quality healthcare experience for all pregnant people, babies and families across maternity and neonatal care settings in Wales'.

At the end of each section of this report is a table giving the priorities for action which were identified. Some are specific, while others are broad in scope. Often the top-line priorities are broken down into multiple specific actions.

It is important to note that NHS Wales has not paused or delayed existing work to wait for the Discovery Phase to end. A range of local improvement initiatives and projects were already underway prior to MatNeoSSP and have continued, as have multiple workstreams of national activity.

There have been several early impacts noted since the Discovery Phase began. The MatNeoSSP team have been told that this work has led to data-driven quality improvement projects in several areas. Positive relationships have formed between MatNeo Champions, Health Board improvement leads, maternity and neonatal teams, which will continue to strengthen and embed improvement work in all areas.

"MatNeoSSP has already highlighted the importance of quality improvement and data collection and put this concept firmly on our leadership team's agenda".

– ***Staff voice***

More efficient and effective ways of using data have been noted, which has led to better understanding of services and areas that may need to be strengthened. Data is now being communicated to staff through learning boards and run charts to demonstrate progress and acting as a catalyst for change.

"We have been looking at data differently, including co-monitoring data across internal team boundaries, tracking outcomes for ethnic minority women and looking to make changes to the maternity system".

– ***Staff voice***

There have been changes in conversations about culture and psychological safety. Staff have reported better working relationships between senior management teams and executive boards within their Health Boards which should foster a psychologically safe environment.

"The MatNeoSSP project has had a positive impact on staff who felt deflated by external reviews in the past. As this project is a national programme staff have faith that it offers real potential for change".

– ***Staff voice***

Drafts of the MatNeoSSP Discovery Phase findings and priorities for action have been shared with key stakeholders and service leaders across NHS Wales. This has raised awareness and generated momentum for new improvement activity. As a result of initial feedback, organisations are planning or have started improvement activity to address local priorities.

MatNeoSSP seeks to improve safety by improving communication and team working between maternity and neonatal services. It is therefore gratifying to note that the 42% of the local projects being supported have a perinatal focus, with the remaining projects split equally between maternity and neonates.

2. Findings

The findings are structured around the five principles of maternity care set out in the Welsh Government's five-year vision for the future of maternity care in Wales (2019-2024).[26] The overall vision set out by Welsh Government is that: *"Pregnancy and childbirth are a safe and positive experience, and parents are supported to give their child the best start in life."*

We've adapted the Welsh Government vision statements for maternity care to include neonatal care throughout.

The vision document states that, *"High performing multi-professional teams will deliver family-centred care within Health Boards which display strong leadership within a culture of research and development, continuous learning, best practice and innovation."*

The five principles of maternity care designed to achieve the vision are: family centred care; safe and effective care; continuity of carer; skilled multi-professional teams; and sustainable quality services.

The team has used these principles to structure the findings, exploring each one in the context of maternity and neonatal services. Within each heading there is a summary of what is expected, what the MatNeoSSP team heard and learned in the Discovery Phase, and the headline priorities for action relating to what was found. Further detail on each priority and actions to be explored can be found in the appendix.

Skilled multi-professional teams

The principle of skilled multi-professional teams can be summarised as: *"Women, babies, and their families will receive care from multi-professional teams, with access to specialist services."*[27]

High quality maternity and neonatal care and improved outcomes are dependent on the perinatal workforce. A highly reliable workforce requires adequate numbers, educated with high skill levels, motivated with good team working and communication. Other essential components of workforce management are succession planning including effective recruitment, training, maintaining, and retaining highly valued staff. The goal is to achieve a learning workforce that feel psychologically safe, driven to improve quality, ensuring implementation of research driven and evidenced based practice.

For maternity and neonatal units to run effectively requires multidisciplinary teams of midwives, nurses, doctors and allied health professionals, such as dieticians and psychologists, support staff to keep units clean and well stocked, technicians, receptionists, an administrative team, and data managers. Each member of the team may have a number of roles, such as governance, bereavement, infant feeding, or quality leads.

Central to delivery of safe care are safe staffing levels. This has been shown to be associated with good outcomes for women and babies with families that feel listened to and supported. Better outcomes for women and babies mean a healthier community in both the immediate and longer term and is aligned with prudent healthcare. The Royal College of Midwives (RCM) and the British Association of Perinatal Medicine (BAPM) have made recommendations regarding appropriate service provision with staffing for maternity and neonatal services.[28,29]

Poor staffing levels were a theme of concern throughout the Healthcare Inspectorate Wales National Review of Maternity Services report in 2019 prior to the COVID-19 pandemic.[30] Post-pandemic, in 2023, a significant shared experience across the majority of NHS Wales maternity and neonatal services are teams reporting shortages of staff in many clinical and non-clinical posts, with the resultant impact on shift staffing, skill mix, prudent use of skills, individual and team morale, training capacity, and service provision.

Staff in several units described their inability to consistently adhere to agreed protocols or standards due to staffing or other local constraints, including student experience, scanning, and patient/staff ratio. Most units reported using bank staff to cover nursing shifts and one unit reported very high costs of locum cover for medical vacancies. Health Boards expressed concern at the sustainability and feasibility of community on call systems, which has consequential impact on the service available for women who choose to birth in any setting they desire, for example a homebirth or freestanding midwife-led unit.

Local teams consistently described a lack of administrative support, resulting in clinical time being used for administrative tasks. Furthermore, clinical colleagues reported lacking allocated time for management tasks or undertaking quality improvement activities.

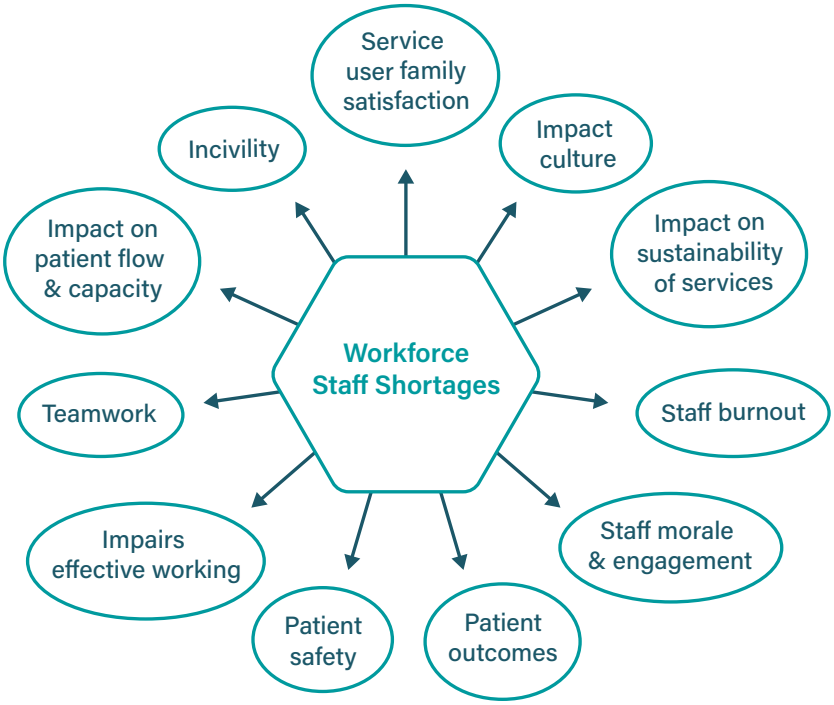


Figure 6. *The wide ranging impacts of staff shortages on the workforce, families and women.*

Leadership and teamworking

In Stage 1 of the Discovery Phase – drawing on the Framework for Safe, Reliable and Effective Care, published by the Institute for Healthcare Improvement – it was identified that maternity and neonatal services across NHS Wales fall into the 'just beginning' to 'making progress' categories of the leadership component.

Strong leadership is fundamental and foremost in creating and maintaining a safe service.[31] An opportunity exists for maternity and neonatal service leaders, at all levels, to embrace this concept more fully in practical terms. Improvement focussed leadership would create the conditions within which existing service excellence can be spread more widely, and take positive, tangible action to address challenges.

The MatNeoSSP team identified bright spots of good and visible leadership at clinical and executive levels. These include:

- An excellent structure of senior midwifery leadership across Wales with Heads of Midwifery (HOMs) in all Health Boards meeting regularly. Since April 2023 this has been named the Strategic Midwifery Leaders Advisory Group.
- Two Health Boards had Directors of Midwifery (DOM), enabling direct input into and responsibility for strategic, board-level decision-making.
- Clear evidence of clinical leadership for practice in specific scenarios, such as strong leadership and excellent teamwork contributing to the management of suspected sepsis in neonatal units.
- One Health Board encouraged band 6 midwives to deputise in a band 7 role for 18 months, developing their skills.

Some Health Boards illustrated that they are highly committed to the positive changes needed to develop a strategy for improvement of leadership.

However, in some areas people described challenges around leadership and low morale resulting from poor leadership, including:

- Feeling able to approach leaders to escalate issues, but not always feeling listened to
- Leadership not well coordinated across departments, with poor collaborative working
- More opportunities in leadership needed with support and specific training
- Staff who wanted to progress finding that should a colleague move from a specialised role, there was no scope to backfill their position due to lack of exposure or experience within this area, which meant there was a loss in service provision and sustainability.

Inclusive and compassionate leadership helps create a psychologically safe workplace. This needs to be from 'floor to board' to ensure teams work collaboratively, leading to better working relationships, staff supporting and listening to each other, and enabling teams to provide exemplary patient care across Wales.[32]

Bright spot: Antibiotic stewardship in neonatal settings

One significant bright spot in leadership and improvement in neonatal units was illustrated by a NICU which has a long history of promoting and implementing an antibiotic stewardship programme in Wales and the UK. It is the only UK unit to collaborate in an international antibiotic stewardship quality improvement programme that resulted in a sustained 43% reduction in antibiotic use on the unit without any harm.

Building on this success, the team led the foundation of a larger collaboration across Wales. A series of studies established that 16% of well, near-term babies receive antibiotics for early onset neonatal sepsis (EONS), most of whom do not develop sepsis and are at risk of unnecessary clinical procedures, microbiome modulation and long-term adverse health outcomes. A pilot study established a potential for 74% reduction in antibiotic use through introduction of the Kaiser Permanente Sepsis Risk Calculator (SRC), a well-established risk stratification tool in North America. The clinicians from 10 perinatal centres in Wales agreed to introduce an adapted version of the SRC from April 2019 that resulted in a remarkable 46% reduction in antibiotic use without any incidence of missed or delayed diagnosis of sepsis. Using the SRC is now standard practice in Wales.

Midwifery staffing

Leaders in all Health Boards discussed staff recruitment, retention, and workforce redesign, recognising that inadequate staffing is their biggest barrier to consistent safety and quality. During the site visits, the team saw bright spots in several innovative examples of new roles and re-design of roles including removal of administrative tasks from senior midwives by creating roster coordinators, working closely with universities to fast-track maternity care assistants, and releasing time to care through digital tools.

Birthrate Plus®10 is a workforce planning system that calculates the required number of midwives to meet the needs of women and babies in relation to defined standards and models of care. It is mandated for use by every Health Board in Wales. A consistent concern was that even where services are staffed in accordance with the tool, services feel too stretched. A review of the methodology in response to delivering the future vision of maternity services in Wales was requested by the Chief Midwifery officer in Wales. The Ockenden report recommended that the feasibility, accuracy and methodology of the tool was reviewed nationally.[33]

All units reported midwifery staffing uplift of 26.9% in line with current national recommendations to allow for annual leave, maternity leave, training and sickness. The review into the Cwm Taf Maternity Services by the Royal Colleges (RCOG & RCM) consistently highlighted concern regarding staffing levels and skill mix leading to concern about the sustainability of the service and the impact on staff wellbeing.[34] As additional training is mandated to improve and maintain safety an increase in uplift is likely to be required. The Ockenden report considering the same issues, therefore recommended *"Minimum staffing levels must include a locally calculated uplift, representative of the three previous years' data, for all absences including sickness, mandatory training, annual leave and maternity leave"*.[35]

In addition, the MatNeoSSP team observed that every unit reported vacancies in midwifery posts ranging from 1.6 to 12.4 WTE posts, with a total of 49.3 WTE midwifery vacancies across Wales. Sickness rates are high across Wales (around 8%, average pre-COVID-19 pandemic 6%).[36] On site visits, shift vacancies up to 30% of recommended staffing were described as a regular occurrence in some units. The MatNeoSSP team collected data from every Health Board in Wales about current staffing. These figures demonstrate clear variations around Wales in staffing models and caseloads. Some staff included in WTE are on secondment to other roles. The team were aware of focussed national work underway into addressing workforce planning.

The MatNeoSSP team found specialist roles in midwifery varied across Wales both in ratios of staff and availability. Examples of roles include safeguarding midwives, Practice Development Midwives (PDM), diabetic midwives, fetal surveillance midwives, infant feeding midwives, all of which provide leadership within their speciality and continuity of care for women with additional risk factors. The RCM series on strengthening midwifery leadership highlights the important role of specialist midwives to maternity services.[37] Very few specialist midwives stated they had administrative support and the team observed instances of specialist midwives spending considerable time on labour intensive administrative tasks such as recording training and updating digital records on ESR. Similar findings were reported in the recent Royal College of Nursing UK Survey stating that 47% of respondents said that too much of their time was spent on non-nursing duties, administrative work.[38]

Specialist midwives provide expert care to women who need it and advice and guidance to colleagues with diverse roles from smoking cessation, to working with vulnerable women to mental health. Specialist midwives are likely to be limited in number to their profession for example one diabetic midwife per Health Board. Therefore, their time to deliver care and information within their speciality to women and colleagues is extremely valuable and should be used as effectively as possible. The MatNeoSSP team observed that there was also a variation in banding of specialist midwives across Wales, even when fulfilling the same roles. One example was that not all midwife sonographers in Wales are the same Agenda for Change (AFC) band which may contribute to challenges of recruitment, retention and directly to fetal safety by limiting a Health Board's ability to provide fetal growth assessment in line with guidance. Staff raised concern that Birthrate plus assumed that a proportion of specialist midwife time was also spent clinically but that this was often not the case. Reasons for this locally should be explored further but one reason noted was due to the administrative tasks they were required to do within their roles on top of their specialised role.

One bright spot was observed in a Health Board which developed a quality improvement project – 'Releasing Time to Care' – whereby several systems, processes and referrals have been digitalised using QR codes and SharePoint pages including pregnancy referrals, sickness reporting and training database which calculated staffing compliance. Their findings found several improvements in the reduction in administrative time spent, examples were time saved in bookings by community midwives and time saving in mandatory training admin.

Maternity medical staffing

The Royal College of Obstetricians and Gynaecologists is developing a maternity medical staffing tool jointly commissioned by Welsh Government, expected to be published in 2023. The team identified 16.7 WTE obstetric registrar gaps and 15 obstetric consultant gaps in January 2023 in Wales. Several of these have since been recruited to, but obstetric registrar gaps remain considerable with significant impact. There is no uplift to allow for out of programme, sickness, maternity leave etc. for trainees.

The MatNeoSSP team heard of patient safety concerns day to day due to rota gaps and the long-term impact of senior staff routinely acting down to cover these shifts, removing them from other clinical duties and leadership roles. Other units described an overreliance on external locum staff at all levels, also highlighted as a concern within the Royal Colleges' Cwm Taf report.[39] Continual gaps and shortages reduce time for learning and educational support for all staff. This is evidenced by the General Medical Council (GMC) trainer and trainees survey for units across Wales in 2022 and by training compliance.[40]

It has been recommended in England since 2007 and reiterated by several reports,[41,42] that all acute admissions to hospital, excluding women in early labour or women on clearly defined midwife-led pathways, are reviewed within 14 hours by a consultant. This was recommended again, following the Ockenden report.[43] One Health Board in Wales has achieved this, others were working towards it.

With regard to succession planning for specialist services; currently no trainees in Wales are undertaking fetal medicine training which is of concern to clinicians working within this service. There are no obstetric physicians in Wales. Formal training for the Diploma in Obstetric Medicine can only be delivered by an obstetric physician. The implementation of a maternal medicine network and appointment of one or more obstetric physicians would facilitate training in Wales, to the benefit of women and families.

Neonatal nurse staffing

All neonatal units should have sufficient nursing staff to deliver BAPM's standard of nurse-to-patient ratios and a co-ordinator.[44,45] In Intensive Care this is one nurse qualified in specialty (QIS) per baby (1:1). For High Dependency this is one nurse QIS for two babies (1:2) and in Special Care one nurse per every four babies. There is nurse staffing uplift across all units ranging from 25-27%, in line with national recommendations (25%), to allow for education, annual leave, training, and sickness. Nursing vacancies varied across units from 2.5-8.4% WTE at the time sampled (2022) however the MatNeo team recognised that this percentage may vary depending on sampling times.

Additional nursing roles as recommended in national guidance were reviewed as part of the trigger tool. All neonatal units had nurse educators and community outreach teams, although there was variation in the number of whole-time equivalents across units. No neonatal units had a discharge planning lead currently in post. Discharge planning leads improve efficiency regarding discharge.

All neonatal departments had community outreach teams although with varying numbers. The national standard from BAPM is to have outreach or community services available seven days per week.

During site visits, the MatNeoSSP team learned of the pressures nursing staff felt they were under both directly looking after babies and in being asked to undertake clinical duties while working in specialist roles. Nurse educators felt they could not always support more junior members of staff.

Neonatal medical staffing

Medical staff providing care for NICUs have duties specifically related to neonatal care and should have three tiers of cover including out of hours. BAPM recommends that there is 12-hour consultant cover on NICUs over seven days.[46] Special Care Units (SCU) usually have shared duties across paediatric and neonatal departments.

Daytime consultant cover across all neonatal units in Wales involves some form of service week. For the SCUs, this may involve morning cover only and for the NICUs full daytime cover, ensuring that babies in neonatal units are seen by a consultant daily. One SCU has reported better growth of their babies since implementing the service consultant. Other SCUs have recently appointed consultants with a specific interest in Neonates who are leading their neonatal services, one of whom rotates to a NICU with allocated weekly sessions there. Maintaining skills of paediatricians in all tiers from SCUs is essential and has been recognised in national reports[47] and recommended by BAPM and GIRFT Neonatology. Furthermore, feedback from all SCUs was that they wished for formal rotation to be facilitated between NICUs and SCUs to maintain skills. Across the three NICUs, there is evidence of 12-hour neonatal cover however, this may not be over seven days.

Supporting professional activity (SPA) facilitates consultants in continual professional development, supporting trainees and other staff, service development, and engaging with patient safety and governance activities including national and international benchmarking, ultimately leading to improved outcomes. The trigger tool showed variation in consultant allocation of time for SPA across units. The same was heard from consultant obstetricians on site visits. One of the most common barriers described for non-attendance at governance activities was consultant time.

There was variation across neonatal units in allocation of time for data, governance and safety and Perinatal Mortality Review Tool (PMRT) activity. There was also variation in consultant working patterns with one unit recognising the changing role of consultants due to seniority with more management, training, and teaching time. Recommendations have been made by some medical colleges regarding changing responsibilities as consultants progress through their careers and BAPM is currently reviewing this area. Eight units had a Neonatal Lead who had recognised allocation for time for the role. For the NICUs, this allocated clinical lead time was described as 'woefully inadequate' with usually one session (3.75 hours per week) allocated.

Neonatal care across the UK has been outward looking and has well established methodology for collecting data and national guidance on mortality reviews. These national programmes have been established to define quality standards and ensure adequate quality assurance for neonatal services, however if there is inadequate capacity allocated for clinicians to undertake these activities, this could impact on effectiveness. Caring for babies day to day by clinicians on a neonatal unit (usually at least one consultant led ward round on an SCU, and two to three consultant led ward rounds daily on NICU) is only one aspect of high quality care. Adequate recognition and support for funding of additional supporting activity to ensure high quality service delivery and outcomes is essential.

Workforce planning remains a challenge within neonates. Wales Maternity and Neonatal Network collects detailed data on medical staffing including vacancies on neonatal units across Wales including Tier 1 and Tier 2 level. The reports (available from Wales Maternity and Neonatal Network) demonstrate ongoing vacancies. The MatNeo team learned from the School of Paediatrics at HEIW that 80% of paediatric trainees at all levels are female. As with obstetric trainees there is no uplift for sickness or maternity leave.

There are new recommendations for protected time for continuing professional development (CPD) for trainees.

The School of Paediatrics is working closely with HEIW as part of the workforce plan for maternity and neonates to recruit at risk to cover out of programme occurrences.

> *"The intensity and complexity of the patients is immense, and the shortage of staff every shift especially experienced staff means we are just firefighting issues instead of providing a quality service is extremely frustrating and exhausting."*
>
> – ***Neonatal trainee***

Support at Tier 1 level on the neonatal rota is also undertaken by Advanced Neonatal Nurse Practitioners (ANNPs). In general, most ANNPs remain at Tier 1 level. Development of more Advanced Neonatal Nurse Practitioners who work at Tier 1 level with succession planning and exploring other roles in supporting the medical team are essential, such as Physician Associates. The MatNeoSSP team obtained positive feedback from one NICU, which has the only NICU Physician Associate in Wales.

Options for alternative modelling at Tier 2 level are also important to explore. Within a number of other neonatal units throughout the rest of the UK, ANNPs are working at Tier 2 or Registrar level. Although there is some evidence of ANNP Tier 2 working in Wales, this is an area for development.

Development of neonatal nurse consultant roles could also be considered.

Allied health professionals

Allied health professionals (AHP) are a core part of the neonatal multidisciplinary team: their input is intrinsically linked to improved outcomes. There are national standards for staffing for AHPs (BAPM and AHP professional organisations), which include psychologists, occupational therapists, speech and language therapists, dieticians and pharmacists. The numbers of AHPs working across neonatal units in Wales varies and the WTEs for each speciality are below national standards.

Pharmacists also play a key role in supporting staff to improve safety. The most common clinical incidents on neonatal units in Wales are medication errors.

National guidance from BAPM states that neonatal units and networks should also have close links with health visitors and social work teams. Many units reported having inadequate social services support which impacted on timely discharge of babies.

With the new strategic direction of the Wales Maternity and Neonatal Network, it will be vital to ensure that national standards regarding network level positions for AHPs and pharmacists to drive excellence and oversee the implementation of high quality care at unit level.

Wellbeing of staff

Staff working within maternity and neonatal services are regularly exposed to traumatic events. Research demonstrates that two-thirds of obstetricians reported exposure to traumatic work-related events. Of these, 18% of consultants and trainees reported clinically significant post-traumatic stress disorder (PTSD) symptoms.[48] Staff from minority ethnic groups were at an increased risk of PTSD. Anxiety and stress are consistently the most cited reason for staff absence within the NHS in Wales, including maternity.[49,50] Recent surveys by the RCM demonstrated staff burnout has exceeded previous levels since COVID-19 with 57% considering leaving the profession.[51]

Working within a neonatal environment can be stressful, especially in intensive care.[52] A recent UK wide survey by Bliss reported 70% of neonatal staff feeling run down, with over 50% experiencing anxiety and 25% having flashbacks or intrusive thoughts. Almost 90% felt that understaffing negatively affected mental health, almost 70% described unmanageable workload and over 50% described under resourcing of their service were contributory factors to poor mental health.[53]

The MatNeoSSP team witnessed the emotional toll on staff across both services and heard of stress, burnout and low morale due to constant pressures of the service. A number of Health Boards have a psychologist that staff can access. However, none are perinatal service specific within maternity. Time from referral to appointment ranges from three weeks to five months. Embedding psychological support for staff within perinatal services can reduce sickness and staff turnover.[54]

Clinical supervisors for midwives are a specialist team who support midwives to learn and reflect on their practice via two elements: group supervision and one-to-one supervision. The elements aim to motivate and support midwives to embrace quality and safety culture to improve outcomes for women and their babies. Whilst the excellent work of the Clinical Supervisors for Midwives (CSfM) is recognised, there is an urgent need to effectively support the mental health and wellbeing of maternity and neonatal staff, ensuring they can come to work in a psychologically safe environment and deliver the best care.

Training

Neonatal and maternity care is complex, dynamic and requires both psychomotor skills and quick thinking, often in high intensity situations involving multi-professional teams. It is therefore essential that the workforce is educated and skilled to provide high quality care and remain engaged with the working environment. Highly skilled teams that work well together show improved outcomes for babies. Enablers of this include regular provision of educational opportunities, succession planning and leadership development and training. A psychologically safe environment fosters a learning environment, and an adequate workforce has the capacity to learn.

Targets to ensure neonatal nurses are trained to specifically care for babies requiring intensive care have been set nationally by BAPM and are endorsed by the All Wales Neonatal Standards. These state a minimum of

70% of the registered nursing workforce establishment must hold an accredited post registration Qualified in Speciality qualification (QIS). Levels of QIS in the three NICUs in Wales are below this level (52%, 55% and 60%). BAPM has recommended the development of a toolkit of neonatal nurse training.

Areas where perinatal teams work together include neonatal resuscitation. National guidance also specifies that neonatal doctors and nurses receive Resuscitation Council recognised New-born Life Support (NLS) training and maintain NLS certification.[55] The MBRRACE-UK programme has identified issues at resuscitation as contributing to worse outcomes. The MatNeoSSP review identified:

- High levels of compliance in NLS training for neonatal nursing staff and trainees.
- Information on compliance with NLS training was not available for all neonatal consultants.
- Compliance with NLS training for midwifery staff was below target of 90% in 6/7 Health Boards, ranging from 52-88% (see Figure 13).

Multi-professional simulation training has been recommended in both the IMSOP's Neonatal Services report from Cwm Taf Morgannwg and the Ockenden review, in order to improve quality and efficiency and workplace conditions.[56,57] Many units reported Simulation training, however, there were barriers to achieving this mainly due to staffing pressures and inadequate space and time allocated in work plans to attend. Adequate uplift and time for training for all team members is essential.

Two training programmes – PROMPT Wales and Community PROMPT Wales – have been implemented across Wales. These provide high quality, standardised training to the multi-professional workforce with a focus on teamworking, clinical management of obstetric emergencies and the impact of human factors. This approach has resulted in a sustainable model which is demonstrating improvements in clinical outcomes.

"Attending PROMPT training every year builds my confidence with communicating effectively with my team and practising closed loop communication."

– ***Staff voice***

"I always enjoy attending the sessions and feel a much more confident team player… [it] increased my confidence in leading emergencies in the ward area."

– ***Staff voice***

Immersive, simulation training suites are used in the Welsh Ambulance Service Trust (WAST). With the implementation of Community PROMPT Wales collaboration between community maternity teams and WAST has begun.[58] In addition, human factor training has been integrated into the PROMPT Wales package for all maternity teams. Training in human factors is undertaken in five neonatal units across Wales.

Through the qualitative aspects of the trigger tool, the MatNeoSSP review team learned that short staffing within units adversely impacted on learning. Team members were often unable to attend training due to having to undertake clinical work and educators were allocated to cover clinical duties impacting on their educational roles.

The MatNeoSSP review team learned that some units fund study leave for their neonatal nursing staff to attend courses that is included in work time. The MatNeoSSP team learned that there was an expectation in some units that nurses would attend training courses in their own non-work time. Two units supported Leadership Masters/ Courses for senior members of the nursing team. Study leave was available for trainees and consultants however medical staff described having study leave declined or cancelled at the last minute due to service pressures. There was also variation in access to further study for maternity staff, with some, but not all, Health Boards supporting midwives to complete higher education.

Quality Improvement training was not consistent across maternity and neonatal units with many departments describing lack of engagement with their Quality Improvement department. Many units had no allocated or recognised time in job planning for Quality Improvement.

"As an education team, we are unable to give the support and training that is required. We are aware that the junior and even not so junior staff require support… The education team has great plans of what we would like to achieve but we are all constantly pulled clinically. Even on days that we are not pulled we are constantly in and out – sometimes covering breaks in all areas or helping carry out tasks which means that we are unable to focus on one job in hand. This is a source of extreme frustration and stress – constantly feeling that we are underachieving and not fulfilling our role."

– ***Staff voice***

"As the Intelligent Intermittent Auscultation (IIA) Champion, part of my role is to boost our compliance for online and face-to-face IIA training. I am struggling to get above 57% of midwives compliant and feel stressed even thinking about the pressure I know that my frequent emails pile on to midwives – midwives that never need to perform IIA. Chasing midwife sonographers in clinic for IIA certificates just isn't rational, and they should not be included in my compliance figures".

– ***Staff voice***

Research

High quality care for women and babies underpinned by the best research evidence is essential to drive better outcomes and improve the life course of preterm and sick babies. Treatments for neonates where possible should be evidence-based, so ongoing research is essential. The numbers of babies admitted to intensive care is not insignificant and it is therefore vital to have a priority setting partnership to ensure that high quality care is underpinned by research to improve generational health in Wales. BAPM states that every neonatal unit should have a research strategy and that all units give families the opportunity to participate in research.[59] Furthermore, time for neonatal research should be additional to clinical requirement for the service.

The MatNeo team heard that the current research landscape for maternity and neonatology across the NHS in Wales could be strengthened. There are research midwives in all seven Health Boards. The MatNeoSSP team are aware of the academic achievements of midwives in Wales, but also aware of the need for further support and opportunities for midwives to be involved in research. In relation to neonatal research, six out of the nine neonatal units take part in national (UK) research projects, however, no neonatal consultants had identified funded research in their job plans and only two units reported that they had a research strategy. There is only one trainee undertaking a PhD and only one (0.8 WTE) neonatal research nurse in Wales. Despite these challenges, a number of neonatal units published in peer reviewed journals.

Welsh Government has committed to ongoing support for healthcare research and innovation, publishing the Five priorities for research, development and innovation focussing on preconception, pregnancy and the start of life which aligns with the goals of A Healthier Wales.[60] Wales is in a unique position in having excellent data repositories from which to drive perinatal research (one example would be the SAIL databank[61]) and it is important that these are utilised to facilitate and promote ongoing research. It is essential that perinatal research is prioritised in Wales and that there is a national research strategy with strong leadership to ensure generational health is improved.

Bright spot: The SuPPORT project

The SuPPORT project is focused on supporting parents and professionals through neonatal resuscitation in theatre. Very little is known on how best to communicate with a mother and her birth partner during neonatal resuscitation in theatre. This is undoubtedly a traumatic time for those families and can also have a profound effect on the theatre team. With a grant from the Obstetric Anaesthetic Association, the aims of the project are:

- To determine and highlight recurrent themes surrounding communication during neonatal resuscitation, by exploring the perspectives of the parents and the anaesthetic team.
- To publish findings to raise awareness of the importance of effective communication between healthcare professionals and families during neonatal resuscitation.
- To develop interventions which provide benefit and reduce psychological distress for both families and healthcare professionals.

Culture

Through Stage one of the Discovery Phase, it was identified that maternity and neonatal services across NHS Wales fall into the 'making progress' category of all four cultural components of the IHI Framework.

1. Psychological safety

Achieving psychological safety requires a flattened hierarchy and a learning system that creates an environment in which all team members can comfortably make suggestions.

A psychologically safe working environment means that anyone in the team can:

- ask questions without feeling stupid
- ask for feedback without looking incompetent
- be respectfully critical without appearing negative
- suggest innovative ideas without being perceived as disruptive.

Primary mechanisms to achieve psychological safety include leaders in coaching roles or as role models, who apply learning thoughtfully while admitting to their own mistakes.[62]

'Psychological safety' as a term was not always understood by staff. When an explanation was provided, there was a general understanding of the underlying principles. The team identified a range of examples of bright spots in current and potential good practice including:

- The Clinical Supervisors for Midwives (CSfM) model which was described by staff as being a supportive mechanism for voices to be heard, resulting in suggestions and concerns being shared and learning both locally and nationally.
- Many staff felt there was a good MDT approach to patient safety and hierarchical behaviours had been flattened in many areas of maternity and neonatal services.
- Some Health Boards report integrating psychological safety and civility training into future mandatory training programmes.

However, colleagues working within maternity and neonatal services described considerable variation in psychological safety within their workplace and teams. While some staff reflected positively the colleagues who reported not feeling psychologically safe described:

- Poor interpersonal working relationships.
- Communication barriers.
- Negative team culture, with hostile behaviours leaving colleagues feeling unsupported.
- Difficult interprofessional relationships and/or team working resulting in a lack of collaboration within internal departments.

While some hospitals in Wales regularly survey whole staff groups, neonatal units reported that there is not a specific psychological safety survey for their departments. BAPM recommends an annual psychological safety survey for neonatal units.

"Not enough is done to measure culture internally in the maternity environment, its evident culture is not measured on a regular basis. Some staff had completed ad-hoc surveys around staff culture, or raised concerns in meetings, however they reported that they never received any feedback or anything ever changing as a result of them highlighting and raising concerns around poor culture. Therefore, staff were left feeling discouraged to partake in any further surveys or meetings to discuss culture as they feel their participation will be futile."

– Staff voice

2. Accountability

The accountability component of culture addresses the importance of holding people to account for their actions but not the failings in the processes or systems. A core component of patient safety improvements is the premise that patient safety incidents are largely the result of a poorly designed system.

The MatNeoSSP team found that culture and practice varied across NHS Wales organisations and units, with reported bright spots of good practice in relation to:

- Governance processes which are holistic and seek to support colleagues through the process resulting from an incident or adverse event while maximising shared learning.
- Consistent multi-disciplinary review of incidents and adverse events.
- Strong, distributed leadership, ownership and responsibility taken for personal and team action, alongside an emphasis on systemic learning.
- Training exercises which are based on examples of adverse events or systemic themes affecting staff and patients in a locality or service.
- Multi-professional simulation learning experiences run on an ad-hoc basis in the ward environment or integrated into structured training programmes.
- A clinical risk meeting renamed to 'Learning from events' with every effort made to fully anonymise cases and focus on system defects rather than individual practices.

However, the MatNeoSSP team also found that some staff feel they work in an environment with attributes of a 'blame culture'. A culture of blame and fear of retribution are recognised barriers to the reporting of patient safety incidents, and therefore risk perpetuating inappropriate practices, circumstances or systems.

Variation in governance processes were evident. Mature governance demonstrated higher levels of reporting, multi-disciplinary review, shared learning, thematic analysis, and translation into actions to address systems and processes. However, less mature governance processes were also found, which manifested in individual blame rather than team or system-wide learning being undertaken. There was some evidence that this variation existed between services in the same organisation as well as between NHS Wales organisations.

3. Teamwork and communication

Teamwork and communication are extremely important in all health care services. Staff work as a team every day. IHI describes teamwork as, *"developing a shared understanding, anticipation of needs and problems, and agreed-upon methods to manage these as well as conflict situations".*[63]

The MatNeoSSP team discovered progress in improving teamwork with bright spots and robust examples of positive and effective teamwork and communication within and between teams.

Other bright spots included:

- Shared maternity and neonatal team safety huddles.
- Processes in place to maintain close partnerships with adjacent teams, e.g., in therapies, theatre and transport services.
- PROMPT Wales training for maternity teams has helped to improve MDT relationships which has been standardised across Wales being delivered by MDT faculty locally.
- Collaboration between community-based teams including WAST and pre-hospital care has recently been introduced whereby community midwives and ambulance clinicians attend Community PROMPT Wales training to improve teamworking and communication.
- Some neonatal services have a 'Druggle Huddle' as well as a 'Druggle information board' which has been introduced by designated pharmacists who collaborate with the neonatal teams and share learning of medications and changes.

However, the MatNeoSSP team also heard some staff across Wales describing a lack of teamwork and problems with communication, including:

- between and within all departments throughout maternity and neonatal services
- *'a them and us attitude'* with a lack of appreciation of role and work context
- individual characteristics and/or behaviours, or personality clashes
- behaviours can be different around particular individuals
- decisions to escalate varying depending on the person in charge.

Bright spot: Multi-professional teamworking

One Special Care Baby Unit has a team of therapists including a dietician, occupational therapist, physiotherapist and speech and language team member. They have allocated hours to spend on the unit to be part of discharge planning meetings, grand ward rounds, Family Integrated Care (FICARE) and multi-disciplinary meetings and are on hand to support ward staff with queries and concerns. High-risk babies are able to access the whole therapy team up until they reach two years old, and they perform assessments at three months corrected gestational age for early intervention of any developmental delay.

4. Negotiation

IHI describes how negotiation as *"gaining genuine agreement on matters of importance to team members, patients and families"* and explains that health care teams should commit to using collaborative negotiation whenever possible and require training with regular practice and the intention to focus on concepts.[64]

Across Wales, almost all staff stated women and their families should be the centre of all concepts and decisions made. However, acuity constraints often lead to conflict on how to accommodate both mother and baby interdependently. Teams stated negotiation was an issue between all departments especially between maternity and neonatal. Staff identified that they are not trained in negotiation or appreciative inquiry.

The MatNeoSSP team were made aware of some examples of bright spots in negotiation including:

- A weekly meeting established by three Health Boards with maternity and neonatal representation to improve outcomes for babies by improving transfers between Neonatal Units. The purpose of the meetings is to undertake timely reviews of successful and failed transfers and review outcomes. One Health Board has seen a 180% increase in transfer acceptance, improved understanding of labour ward co-ordinators on the impact of decisions made, improved MDT working between the local maternity and neonatal teams as well as wider management/clinical teams between the Health Boards, and ultimately improved safety for babies born preterm.
- Daily maternity and neonatal huddles where each service has the opportunity to discuss acuity levels and current workload.

Bright spot: The Learning Conversation

The 'learning conversation' was developed after listening to staff concerns. It is a communication tool that actively creates an enabling culture and supporting distributed clinical leadership amongst midwives and obstetricians. It is defined as a shared mental model to enable a team's collective understanding of a plan or situation. It invites open discussion and a sharing of expertise, promoting a positive learning environment with an aim to flatten hierarchy and improve psychological safety.

Learning systems

Through the MatNeoSSP Discovery Phase it was identified that maternity and neonatal services across NHS Wales fall into the 'making progress' category for the four learning systems components.

1. Transparency

Operational transparency exists when leaders, staff, patients and their families, organisations, and the community can see the activities involved in the learning process. In transparent organisations, it is clear how the teams make decisions and track performance, and they have the courage to display their work openly.

Transparency implies openness, communication, and accountability. This manifests differently depending on the context, but always in pursuit of operational transparency:

Transparency among clinicians exists when there is no fear of giving suggestions, pointing out problems, or providing feedback.

Transparency with patients, specifically after an adverse event, involves clearly describing what happened and what is being done to prevent it from happening again.

Transparency among organisations includes sharing good practices and applying lessons learned.

Transparency with the community requires robust information sharing so that patients can make informed decisions and easily access the care they need.[65]

The MatNeoSSP team identified bright spots in a range of methods used to enhance transparency including:

- Structured governance reviews of cases following adverse events – teams were given the option for early debrief, cases had a rapid review and follow up with families was initiated early.
- Shared learning from adverse events was incorporated into annual mandatory training.
- A number of Health Boards shared monthly statistical information with the community on number of births, place of birth, and birth outcomes.

Most teams stated they had improved processes for shared learning after adverse events, but variation was still evident with some staff stating they did not receive feedback following reviews into cases they may have been involved in. Frustration was also noted from staff, over the time delay following adverse events for women and families to receive feedback with a desire for clear pathways to improve the process.

A number of Health Boards displayed learning boards within their units visible to all staff and families. However, others did not know the potential benefits of a learning board with some confusion between an audit board and learning board for improvement.

Most Health Boards had systems in place to collect patient feedback and some Health Boards had information boards for women and their families on the unit with phrases such as 'you said, we did' as well as sharing women's experiences.

All Health Boards had 'Maternity Voice Partnership' (MVP) groups for women and their families to share information and potentially enhance the service development. However, membership and structure of these groups varied consequently affecting the families voice in planning service developments and improvement.

2. Reliability

To achieve high levels of reliability, there are four foundational principles for making systems and processes more reliable:

- **Standardisation:** processes that ensure people do the same thing the same way every time.
- **Simplify:** processes that are simplified to make it easy to do the right thing.
- **Reduce autonomy:** organisations must set the expectation that care delivery follows evidence-based good practice, unless contraindicated for specific patients and not based on decisions made on personal preference or individual beliefs which can result in care variation and inconsistent outcomes.
- **Highlight deviation from practice:** smart health care organisations create environments in which clinicians can apply their expertise intelligently and deviate from protocols, when necessary, but also relentlessly capture the deviations for analysis. Once analysed, the new insights can lead to educating clinicians or altering the protocol. Both result in greater reliability.[66]

The MatNeoSSP team identified examples of bright spots in current and potential good practice in achieving high levels of reliability including:

- The obstetric bleeding strategy (OBS Cymru) was a three-year programme supporting local maternity services to reduce harm from postpartum haemorrhage. It has led to standardised practice in measuring blood loss across all maternity units in NHS Wales.
- PROMPT Wales training is mandated and standardised annual obstetric emergency training across all maternity units and quality assured by a national oversight team to maintain high standards of training.
- FICARE – every Health Board has implemented elements of this package and has a FiCare Champion in each area.

> *"Our twins were admitted as they needed help with their breathing. We were both afraid and not sure what to do. The staff spoke to us about FiCare and explained the importance and how it benefits not only our babies but us as well. Over the next few days our babies got better, and the staff commented on the change in our confidence. It was amazing to see our babies grow and being enabled to be the primary care givers. We will be forever grateful to the team for helping and supporting us."*
>
> – ***Parent voice***

However, the MatNeoSSP team also found considerable variation in the guidance that Health Boards are following. National guidance is not always implemented consistently across maternity or neonatal services. Local guidance differs from national guidance with little formal gap analysis or risk assessments.

Staff raised concerns that the variation in guidance causes confusion, especially when women and babies are transferred between different Health Boards with differing guidance. Staff stated this can be very challenging. There was variation across Wales in which incidents are reported and the procedures for reviewing adverse events are not standardised.

3. Improvement and measurement

This component of the framework involves leveraging improvement science to develop, test, implement, and spread changes that result in better outcomes. Improvement does not always mean there is something wrong, it can simply mean there is a better way of doing something. Improvements can be initiated in response to clinical, cultural, or operational issues and increasingly, improvement projects are becoming more focused on preventing problems before they arise by allowing teams to understand the processes of care and operations.

To implement improvement, organisations must first understand the system they are trying to improve. Once the issues have been identified, to enable teams to redesign processes and achieve outcomes that matter to patients, families, and staff, a systematic improvement approach like the Model for Improvement can be used. An expectation from this framework is that the organisation will use a chosen improvement methodology and collect data over time. Decisions based on data reflect a deeper understanding of improvement.[67]

There were bright spots in improvement projects across Wales and the MatNeoSSP team noted some examples of Health Boards improving work processes and patient outcomes using standard improvement tools, including measurements over time:

- One Health Board has a Quality Improvement Lead Midwife who supports a data-driven approach to identifying areas for improvement. With an MDT approach, the Quality Improvement Lead Midwife supports all maternity staff with improvement training, planning, testing, measuring and implementation of change and provides guidance and coaching for improvement projects.
- Two Health Boards have developed a standardised maternity dashboard.
- One Health Board has used share point, digital referral forms and QR codes, to streamline and digitise systems and processes. This has released many hours of midwifery time back to providing direct care for women and babies.

Across NHS Wales, staff have varied understanding of improvement, what a culture of continuous improvement looks like within organisations and what projects are underway within their Health Board.

Many staff were unaware of improvement projects and very few had completed quality improvement training. Some staff were not aware that they had a quality improvement team to support them. Staff familiar with improvement science were predominantly in senior or leadership roles. Many staff were not able to implement quality improvement projects due to:

- Lack of time allocated
- Lack of quality improvement experience and/or training
- Lack of empowerment or guidance.

Senior leaders across all Health Boards raised concerns about the reliability of the data collected to measure quality and outcomes and acknowledged challenges due to paper

records and variation in data sets. All staff described the burden of data entry, often duplicated, time consuming and not completed accurately due to work pressures.

Staff within maternity services raised concerns about data and information for women transferred between Health Boards due to each Health Board using different systems.

Neonatal teams were concerned about duplication and time taken to record patient data in multiple systems.

4. Continuous learning

Continuous learning requires organisations to be proactive and provide real-time identification and prevention of problems and harm. Learning organisations are continually searching for ever better ways of working toward and achieving results that improve the lives of patients, families, and staff. Healthcare organisations collect an extensive amount of data. Unfortunately, this is not often shared with teams in a timely manner to allow actions to improve care.

Continuous learning requires feedback loops, providing data for reporting systems to share information and generate insights to prompt action and learning. Leaders are pivotal in supporting a robust learning system. They can signal, by their behaviour, attention, and inattention, what is important and expected.

The MatNeoSSP team noted a real desire across Wales for learning and sharing, with many examples of visible activities to support learning. While the level of maturity of the learning system varied across organisations, there was a consistent message that this was an area teams wanted to develop, along with a recognition of how the next phase of the MatNeoSSP programme could support that.

There did not appear to be an ideal way to share information for all staff. Some staff did not have an email account in one Health Board, others reported clinical demands being too high to check emails. Social media (primarily closed Facebook groups) are used widely to share information; however, staff described it overlapping into their personal time.

Many staff described learning being shared widely but dependent on the organisation, individual responsibility, and engagement. Staff expressed concern that they are missing opportunities to learn.

There is an opportunity for NHS Wales leaders of maternity and neonatal services to become more skilled and visible in promoting the principles of a learning system using the concepts of improvement, reliability, and continuous learning.

The MatNeoSSP team noted some bright spots of Health Boards improving continuous learning for their teams:

- Some maternity teams were developing scenarios from adverse events to be adapted into their annual PROMPT Wales training package as well as providing ad hoc skills and drills sessions.
- Clinical Supervision groups for Midwives have been viewed by staff to be a positive platform for shared learning from adverse events because staff stated they have time allocated.
- The use of PREMs within an organisation has helped them to share learning with staff and improve services from what women and their family's feedback.
- There are a number of platforms where Health Boards and national networks are sharing learning from adverse events for example, national and local governance days, reflection meetings, 'drop in' lunch and learns.
- Some teams have begun to collaborate between maternity and neonatal services to commence ad hoc skills and drills training in neonatal resuscitation.

Bright spot: Perinatal simulation in practice

Simulation is an essential part of learning for all clinical staff. In practising simulation, it creates a safe space where clinical staff can practise and refine clinical skills without the risk of causing harm and debriefs following the simulation can provide invaluable learning for staff.

Across one health board simulation training is held once a month involving all members of the team both medical and nursing and wherever possible both midwifery and neonatal teams. This can be based on situations that have occurred on the unit where a learning need may have been identified or staff may request training that they feel they would benefit from. Debriefs are held following the simulations and learning is shared with the staff involved.

Priorities for action: Skilled multi-professional teams

Leadership & Teamworking		Actions
1	1.1 **Ensure Executive Board members and senior leaders are visible to, and have visibility of, maternity and neonatal services**	**A.** Ensure maternity and neonatal services are a standing agenda item at all Health Board Quality and Safety Meetings. a. Ensuring discussion of themes, learning and action resulting from reported incidents, b. and review of the standardised perinatal quality surveillance dashboard.
		B. All Health Boards to appoint a Director of Midwifery to manage the strategic delivery of maternity services locally.
		C. Implement quarterly standardised leadership walk-arounds.
		D. All Health Boards to appoint and resource Obstetric and Neonatal Consultant Safety Leaders and a neonatal senior nurse to sit at a senior level within the organisation on Quality and Safety Boards and committees to create a floor-to-board link and ensure quad representation.
	1.2 **Ensure leadership and culture are optimised to improve maternity and neonatal teamworking**	**E.** Ensure staff in recognised leadership roles have access to leadership training which includes content on culture and the principles of high performing teams and that resourcing for higher/additional qualifications is supported.
		F. Ensure structures and ways of working, including co-location, which enable midwifery, obstetric and neonatal leads to regularly meet, share, and learn together.
	1.3 **Develop a National Improvement Collaborative for Maternity and Neonatal Services in Wales**	**G.** Ensure improvement-related recommendations from MatNeoSSP Discovery Phase are subject to a test, scale and spread methodology across NHS Wales.

Workforce		Actions
2	**2.1 Develop a workforce strategy for NHS Wales maternity & neonatal services** **2.2 Adherence to national workforce standards from BAPM, RCOG & RCM to deliver optimal care**	**A.** National workforce planning to establish safe standards of care for neonatal, midwifery and obstetric workforce (to include recruitment, retention and training). **Strategy to ensure:** a. Minimum staffing levels include locally calculated uplift, representative of the three previous years' data, for all absences including sickness, mandatory training, study leave annual leave and maternity leave. b. NICUs (neonatal intensive care unit) have direct clinical care provision of 12-hour consultant cover over 7 days. c. Maternity units have enough staff to facilitate a consultant ward round every 12 hours. d. Allied Health Professional roles are embedded within services in line with national standards. e, Facilitation of new models of medical care (e.g., Physician's Associates, ANNPs on Tier 2 and nurse consultant roles). f, Facilitation of clear career progression for non-qualified and qualified workforce.
		B. Ensure the Maternity & Neonatal Network is structured to deliver its defined responsibilities under the NHS Executive Mandate and resourced adequately with Medical and AHP leads including a lead Pharmacist.
		C. Annual review of workforce collated as part of Maternity and Neonatal Network workforce review.
	2.3 Local workforce planning and team structures ensure sufficient capacity and prudent use of skills for high quality care	**D.** Health Boards to undertake annual working patterns survey to explore inefficiencies and use results to review system waste and ensure prudent deployment of all roles *e.g., ensuring sufficient administrative staff.*
		E. All NICUs to have a Clinical Director/Lead or equivalent post with a minimum of two funded sessions to deliver against recommendations. **F.** All Maternity Units to have a Clinical Director with sessional allocation in line with RCOG recommendations.
		G. All Health Boards must allocate adequate SPA time for consultants. This allocation should aim to adhere to the accepted standard of 7:3 DCC (Direct Clinical Care): SPA, with additional time allocated for specific extra lead roles undertaken (e.g., governance, data, Perinatal Mortality Review Tool).
		H. All NICUs should have a data manager with consideration of data management input for LNU/SCU units.
	2.4 Prioritise the wellbeing and safety of staff and patients through team culture and support mechanisms	**I.** NHS Wales to ensure provision of psychological support, within each maternity department and neonatal unit for all maternity and neonatal staff.
		J. Inform future workforce strategies and workforce planning by maximising standardised exit interview uptake, reporting and taking action to address themes both locally and at national level.
		K. All maternity & neonatal services to embed Psychological Safety and the principles of a Just Culture embedded as cultural norms.[68]
		L. All maternity and neonatal units should appoint a Freedom to Speak Up Champion.
		M. All maternity and neonatal units should implement an annual validated psychological safety survey e.g., SCORE, SAFE, with results shared and discussed at local team, unit, Health Board and national levels.

Education & Training		Actions
3	**3.1 Develop a national maternity and neonatal workforce training strategy** **3.2 Deliver national strategy through local training plan** **3.3 Ensure training, competence and qualification records are complete and reportable** **3.4 Ensure sufficient service capacity and opportunity for all members of maternity and neonatal workforce to be able to fulfil all training and development requirements**	**A.** Define national training/competency requirements and standards for each role within the maternity & neonatal workforce: **Which includes but is not limited to adherence to mandatory training in:** a. Equality & Diversity b. FiCare (see 7J) c. Human Factors d. Lactation & Loss (see 13G) e. Leadership (see 1E) f. Multiprofessional Simulation g. Neonatal Life Support h. Patient Safety (see 11FF) i. Perinatal mental health (see 5L) j. Quality Improvement (see 12A & 12H) k. Situational Awareness (see 11P) l. Team Working (including communication) (see 11P) **Which addresses current deficits in relation to:** m. Enhanced Maternal Care (see 11S) n. Incident Investigation (see 11FF) o. Radiology (see 12K) **Which creates a:** p. Development Toolkit for Neonatal Nurse training, including Qualified in Specialty. q. Standardised multidisciplinary simulation training package for midwifery, obstetric and neonatal teams to supplement Neonatal Life Support (NLS) training.
		B. Establish local training plans in each organisation to ensure that every member of the maternity and neonatal workforce has allocated time, capacity and opportunity to meet all nationally and locally defined training needs.
		C. Ensure adequate administrative support is in place to maintain records of all staff training, competencies, and qualifications. These should be held centrally with in the health boards, reportable and reviewed at least annually for all staff.
		D. Ensure that all additional personal and professional training needs are recorded using local appraisal processes.

Research		Actions
4	**4.1 Establish & deliver a Maternity and Neonatal research strategy for Wales to improve both short term neonatal and longer term child and adult outcomes**	**A.** Develop an NHS Wales Maternity & Neonatal Research Strategy which: a. Is led by a centrally funded maternity & neonatal academic lead for Wales in a central facility. b. Establishes research partnerships within Wales and internationally. c. Accesses current data repositories within Wales. d. Ensures primary data is available in a timely manner to drive high quality care.
		B. Expand opportunities for Maternity and Neonatal Trainees in Wales to undertake research and higher degrees.
		C. Ensure that members of the perinatal team who wish to be active researchers have support from their Clinical Leads/Directors with consideration of recognised research time in their job plans.

Family centred care and continuity of carer

The principle of family centred care can be summarised as: *"Women and their babies will receive personalised care, planned in partnership with them and reflecting their choices and health needs whilst also supporting their families."*[69]

Pre-pregnancy or preconception care, before a first pregnancy and care between pregnancies can reduce maternal and childhood mortality and morbidity and improve maternal and child health. Women with pre-existing medical conditions should receive personalised care involving a specialist in some cases.

Access to early pregnancy care and antenatal care are both central to achieving healthy outcomes for all women.

Co-production, women and families' voices are important to ensure meaningful effective improvement. Women should be the centre of any decision making about their care during and after pregnancy and birth and supported by a named community midwife.

After giving birth, it is important to ensure that babies stay with their mothers at all times, if possible, through avoiding unnecessary term admission to neonatal units (ATAIN), provision of Transitional Care, and earliest discharge home from Transitional Care or from the neonatal unit as possible.

Families are supported if admission of their baby to the neonatal unit is required through being involved in their babies' care e.g., FiCare, having additional support through neonatal teams and psychology services, adequate family facilities, and asking families their wants and needs and obtaining feedback.

Breastfeeding will be supported for all women through pregnancy and after birth. Avoiding separation of mothers and their babies supports breastfeeding. If mothers and babies are separated and/or babies are unwell, support for breastfeeding is provided and mothers own milk for their baby optimised.

Keeping families together where possible requires neonatal services to be commissioned from Cot to Community and BAPM recommends that commissioners and providers should work together to ensure consistent and equitable provision of Transitional Care.

Neonatal services are an integral part of maternity services and are interdependent. It is vital that perinatal teams work together and in collaboration with parents and families when managing complex births, planning place of birth and reviewing practice.

The voices of women and their families

The MatNeoSSP team recognise that the voices, experience and outcomes of women and families are central to this work. The MatNeoSSP team has been mindful of the family voice and met the Maternity and Neonatal Network parent group at the outset of the project. There will be continued focus on the parent voice in the next phase of the programme. The team is aware that a national survey on family feedback has been undertaken for Welsh Government.

The MatNeoSSP team observed that all maternity services in Wales had a service user group (either a maternity services liaison committee – MSLC or a maternity voices partnership – MVP).

Bright spot: Maternity Voices Partnership

One maternity service has demonstrated commitment to safer maternity care by promoting meaningful and sustainable engagement and co-production mechanisms. It is the first in Wales to successfully commission a budgeted MVP model, which includes remuneration of the Lay Chair and Vice Chair alongside a package of supportive systems. There is MVP representation within all clinical and governance forums.

Another bright spot the team found in one Health Board was their MSLC – renamed as BABI *(Baby and Bump Improvement group)* – which encouraged diversity within the group by establishing a maternity volunteer service. They worked with mothers who had babies in their service in the last year and who speak English as an additional language. These maternity volunteers provide advocacy, befriending, signposting, and support for mothers who do not speak English, with a focus on cultural differences. The volunteers attend the meetings to represent the voices of women, birthing people, and families from their communities.

All neonatal units across Wales collect family feedback in some form. Some use exit interviews, survey forms or QR codes. There was variation in the timings of when this information was collected, with one unit having a feedback box and others collecting information monthly or at the time of discharge. Whichever system was being used, all units described clear pathways to assess feedback and escalate concerns.

Patient Reported Experience Measures (PREMs) are widely used in other areas of the health service to gather feedback on services and the recently published NHS England 'Three-year delivery plan for maternity and neonatal services'[70] also identified a strategic objective in creating a PREM for maternity by 2025 to support trusts to monitor and improve personalised care. One Health Board in Wales has already implemented PREM for the women and families in their care.

Bright spot: Patient Reported Experience Measures (PREMs)

One health board designed and introduced a Maternity Patient Reported Experience Measure (PREM) in 2021. The PREM differs from satisfaction surveys by reporting objective rather than subjective experiences.

To collect longitudinal feedback, the system automatically distributes text message links to service users' mobile phones at key points throughout pregnancy and early parenthood (following anomaly scan, at 37 weeks', at 14 days post-birth and 12 weeks post-birth). These are distributed via the Civica system and linked with Health Board Maternity Information Systems and include several governance and data safeguards to ensure questionnaires are not distributed inappropriately (for example, to families following a pregnancy loss).

Questions generally align with the CQC Maternity Survey. The data allow the service to monitor and improve personalised care by asking about a range of experiences; from being treated with dignity and respect, kindness and understanding, to women having adequate information and making informed choices. The data are presented and reviewed regularly as a key metric of the maternity service dataset, to identify areas for improvement. PREMs data are included in all quality improvement project metrics as in integral measure. Wherever comparable, PREM data is benchmarked annually against data from the most recent CQC Maternity Survey to identify areas for strategic development.

Pre-pregnancy and early pregnancy care

The MatNeoSSP team found that formal pre-pregnancy counselling was in place for women with congenital or acquired heart disease. Outside this, little formal pre-pregnancy counselling is available through maternity services, even for women with complex medical problems.

MBRRACE-UK reports show no reduction in maternal deaths in the UK in the last 10 years.[71] For 2018-20, 'indirect' causes of maternal death, such as cardiac and neurological disease including epilepsy, continue to outweigh 'direct' causes. More than two-thirds of women who died had pre-existing physical or mental health problems. Many similar instances of maternal

mortality could potentially be avoided by early referral to a multidisciplinary team (MDT) with specific training and experience in the care of medical diseases in pregnancy.[72]

Maternal medicine networks have been recommended by several maternity reports, including MBRRACE-UK, and have been established throughout England. They provide pre-pregnancy, antenatal and postnatal advice and care for women with complex medical needs, along with system-wide leadership and education. Introducing these in Wales would complement NHS Wales's ambitions for high quality, equitable care close to home.

Perinatal mental health

Wales has had an established Perinatal Mental Health Network since 2019, with clear referral pathways and specialist teams within each Health Board.

The MatNeoSSP team observed variation in care pathways for women with mental health concerns, particularly those who did not need referral into the perinatal mental health team. Two of the seven Health Boards have developed their own services with the introduction of emotional wellbeing/support midwives.

Psychiatric disorders account for the same number of maternal deaths as cardiovascular disorders, and suicide is the leading cause of maternal death in the year after pregnancy. The team found variation in the recording of mental health conditions throughout Wales, including use of antidepressant or anxiolytic medication at booking. There was also variation in training in perinatal mental health for staff across Wales and considerable variation between midwifery and medical staff. Some staff were not confident in assessing mental health and were unsure of criteria for referral to specialist services.

Equitable care for all women

MBRRACE-UK reports have highlighted that women from Black, Asian and ethnic minority backgrounds, as well as those in the most socially deprived groups, are more likely to die during or after pregnancy. Tackling these inequalities is complex and requires action on the social determinants of health, as well as health determinants. Therefore, the NHS cannot achieve equity in health outcomes alone and needs collaboration from public, private and third sectors in addition to focussed multidisciplinary leadership, to ensure that women receive the best, most suitable care in healthcare settings that are accessible and where care is explicitly designed to meet their needs.

The Birth rights' year-long inquiry into racial injustice within maternity care in the UK identified that Black, Brown and mixed ethnicity women and birthing people often felt unsafe, were ignored and disbelieved, were subject to racism by caregivers, and were not given a proper choice or the means to give true informed consent.[73] In line with the Anti-racist Wales action plan, the team heard that all staff in maternity and neonatal services have training in equality and diversity.[74]

The MatNeoSSP team found that the quality of data recorded in Health Boards is highly varied, from very good to extremely poor. As an example, known ethnicity at booking was available for only 35% of women in one Health Board.

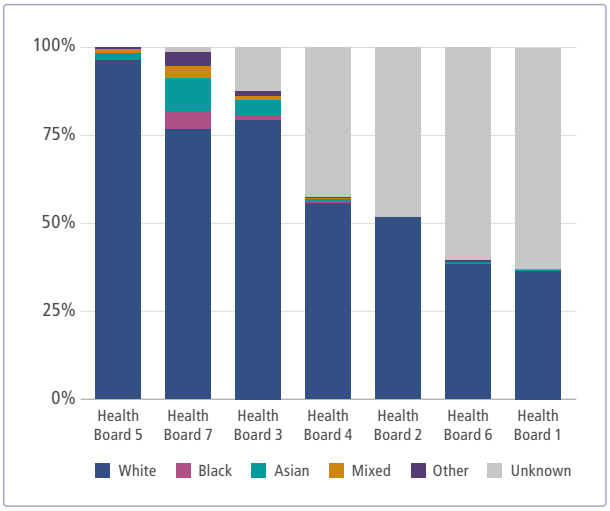


Figure 7. *Ethnicity of pregnant women at first booking by health board in Wales, Jan 2020-Jun 2022.*

It is important to reliably capture ethnicity and postcode data so services can understand how health outcomes vary by geographical area and ethnicity. Services can then identify and prioritise those groups for whom service improvements are needed.

Training and experience in population-related comorbidities and under diagnosis is varied around Wales. There are national reports, training packages and tools available on ethnicity, pregnancy outcomes and experience (e.g., the RCOG & Five x More collaboration on 5 steps for health care workers), which several departments reported sharing with staff.[75] Risk assessment pathways for pre-eclampsia could be updated to reflect the additional risk factors of race and deprivation. Women from Black and ethnic minority backgrounds should receive targeted interventions for medical co-morbidities, and improved access to antenatal care (co-designed). This will align with priority action 4, Anti-racist Wales action Plan.[76]

Wales is a 'Nation of Sanctuary', with its commitments to refugees and asylum seekers including making sure the health needs of people seeking sanctuary are understood and reducing barriers to healthcare.[77] Therefore all maternity and neonatal units require appropriate access to resources and training to reduce risks faced by women, babies and families seeking refuge here.

Bright spot: Inclusion service

One health board offers a holistic service to pregnant women and birthing people who are seeking sanctuary and for survivors of harmful practices. A specialist midwife provides individualised care, and it is the only clinic of this kind in Wales. The aim of the clinic is to provide and improve access to maternity care by developing an integrated service that meets the immediate needs of women seeking asylum, who are under the Initial Assessment of the Home Office. As well as for preparing the women for birth by developing bespoke birth plans based on individual need, the service provides antenatal education in women's own languages, to enhance knowledge and preparation for parenthood. Additionally, women who are victims of human trafficking or who are without status, are provided with case loading and continuity of carer. There is also support from third sector agencies for these families.

Maternity staff working with ethnic minority communities described many areas of practice to engage local communities such as the bright spot of a 'Woman's hour' session, where the specialist midwife together with a consultant midwife and an interpreter, meet with groups of women speaking the same language, to provide antenatal education and discuss postnatal contraception and other public health initiatives.

These staff members expressed concerns about accessibility of maternity care, particularly around digital poverty. Information needs to be accessible and in printed form and visual format for some – internet access and smartphone use should not be assumed.

The MatNeoSSP team identified several opportunities for women to access information in a variety of languages, including widespread use of Welsh language. However, few appeared to be on a Once for Wales approach and some notable national services were only available in English.

In one Health Board, there was a bright spot in the commissioning of a 'Healthier Together' website, which uses a platform that enables translation of its content into >100 languages.

A notable bright spot was the significant investment by one Health Board in 'iPads on wheels', which link to a choice of interpreters for over 200 languages, 24 hours a day, in all their maternity and neonatal areas. These are used routinely in consultations, in labour, in theatre, and in the neonatal unit with positive feedback. This reduces the risk of misunderstanding, misdiagnoses, inadequately informed consent, and the inability to access unscheduled care.

"The people who are most disadvantaged, by clinicians under so much time pressure are those that need the most attention – women with language, cultural or social barriers to engaging with healthcare. Overbooked clinics and busy delivery suites with the bare minimum staff make it challenging to maintain high standards; it is made worse by the unrealistic and outdated expectation that good quality care can be delivered in just a few minutes. It shouldn't be this difficult to make sure every family gets the time they need to make informed, individualised decisions about their pregnancy care."

– ***Staff voice***

Midwifery-led care provision

The international Framework for Quality Maternal and New-born Care[78,79] sets the international context for maternity services, which can guide service provision in Wales. To implement the framework requires a health promoting model using the skillset of midwives in safely supporting physiology during childbearing, for most women, whilst effectively identifying and coordinating medical additionality where complexity is identified. A midwifery core service, including midwifery-led settings for birth, becomes the focus for service planning which is supported by antenatal, intrapartum, and postnatal medical pathways for those women and babies with additional care needs.

Few standards exist to maximise the potential of these birth settings or to monitor safety and care standards received in midwifery-led birth settings.

The MatNeoSSP team collected routine data on place of birth, mode of birth and some markers of maternal morbidity. Unfortunately, from individual Health Board data, within the timeframe, it was not possible to accurately determine the proportion of women who started their labour as low risk for complications during the period January 2020 and June 2022.

The team were only able to determine which women started pregnancy, booked midwifery-led care and which women delivered in midwifery-led care settings. Only in two Health Boards were more than 45% of women booked for midwifery-led care.

The recent publication of the All Wales Midwifery-led Care Guidelines[80] outlines data principles which include:

- number of women who started labour in a midwifery-led setting
- number of women who birthed in a midwifery-led setting
- number of women who transferred to obstetric-led care
- number of babies requiring referral for neonatal medical care.

Comparison of data with that obtained via Birthplace study (2011) would provide an evidence-based benchmark for services in Wales.

In addition to these data principles and benchmarks, the MatNeoSSP provides an opportunity to consider local and all-Wales transfer data and to develop standards of performance to support safe and seamless transfer of women and babies as care need arises, improving communication and teamwork between maternity services and WAST.

The MatNeoSSP team learnt that current workforce constraints adversely affected midwifery-led services (free standing birthing units closed and homebirth services suspended) and have negatively impacted women's choice of place to birth.

Supporting and keeping families together after birth

Avoiding separation of mothers and babies after birth leads to improvements in breastfeeding rates, bonding between mother and baby and improved perinatal mental health.[81] Reasons for term admissions are multifactorial and can represent a proxy for compromise in maternal care or non-optimised care for babies.

Between 20-30% of admissions of term babies to neonatal units are avoidable, which has led to a number of drivers for addressing this, known collectively as ATAIN (Avoiding term admission into neonatal units).[82] It is essential to have a robust mechanism for ATAIN review in line with national guidance. Avoiding admissions and early discharge avoids separating mothers and babies and also leads to considerable cost savings representing Prudent Healthcare in line with Welsh guidance.

Measuring rates of ATAIN in hospitals and any delays in the discharge of babies from neonatal units is important, ensuring that babies are discharged back to their mothers on Transitional Care or home to be with their families as soon as possible. The standard ATAIN target suggested in NHS is ≤5% rate of all births.[83] ATAIN rates across neonatal units (expressed as a percentage of all births in each specific maternity department) in Wales ranged from 3.3% to 8.1%. Five of the nine units have ATAIN rates <5%.

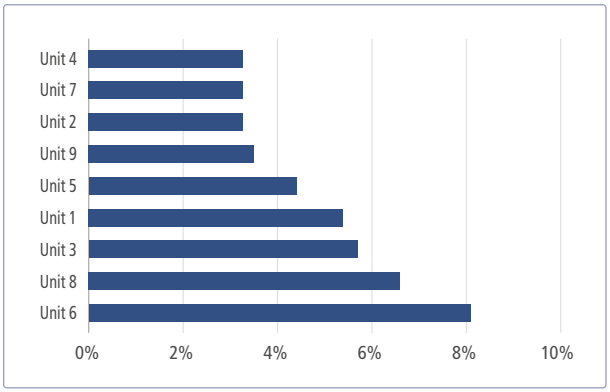


***Figure 8**. ATAIN rates across Wales, expressed as a percentage of live births, Jan 2021 – Dec 2021.*

The trigger tool explored what training is available for ATAIN and how feedback is delivered. Four units have training on ATAIN with two units using NHS England eLearning. Most units have a mechanism for feedback and two units have a well-developed mechanism for sharing and displaying learning.

Six hospitals recorded infants having care on a neonatal unit which could have been provided elsewhere with their mother. For preterm babies, this varied from 3.2 to 9.3 additional days on the neonatal unit. For term babies, the average number of additional unnecessary days' stay ranged from 2.1 to 5.1 days. Babies can be cared for at home on oxygen or nasogastric feeding provided there are robust MDT outreach services. BAPM recommends an operational outreach/community team over 7 days a week. This will avoid delaying discharge of babies from either the neonatal unit or Transitional Care.

A proposed driver diagram for improving the quality and safety of unplanned term admissions is available as an appendix.

Babies discharged to the community may be readmitted to hospital for various reasons such as poor feeding, dehydration, or jaundice. If readmission is necessary, parents should be able to stay with their baby. Improved outreach services could also support babies with feeding in the community avoiding admission in the first place.

Jaundice in certain circumstances can be managed at home with better facilities to diagnose jaundice in the community using transcutaneous bilirubinometers and treatment with phototherapy. Currently, there are no facilities for home phototherapy in Wales and there is variation in the provision of transcutaneous bilirubinometers (TCBs) for use in the community across Health Boards. Use in the community must include training on the challenges that may be associated with diagnosing jaundice in ethnic minority babies and the limitations of many TCBs for these babies.

Families' experiences on the neonatal unit

Having a baby on a neonatal unit has a significant impact on parents and families. Stays on a unit may be short or stretch to many months, often with multiple interventions for babies. Sometimes the stay may have been planned in advance. For others it may be a sudden and unexpected admission, which may coincide with the baby's mother also being unwell.

Whatever the situation, it can be a very traumatic experience for families. It is important that families feel supported, involved in care and feel that their baby belongs to them. Parents wish to feel listened to and neonatal services also need to listen to parents to optimise the delivery of care. Early communication with parents (within 24 hours of admission) by a senior member of the neonatal medical team ranged from 88-97% for all neonatal units.[84]

Partnership programmes with families are associated with better outcomes for both the baby and the family. Embedding them into neonatal unit practice often requires a shift in culture. Involvement of the whole neonatal team in partnering with families is vital and allied health professionals play a key role.

The Bliss Baby Charter places families at the centre of their baby's care and is a practical framework that units can assess themselves against.[85] There are three levels – bronze, silver and gold – and units are assessed against various standards. Three units in Wales have achieved bronze level and some are working towards silver. Four units are at the start of their journey and have achieved a Pledge of Improvement.

Family Integrated Care (FiCare)

Family Integrated Care (FiCare) is a model of neonatal care which promotes a culture of partnership between families and staff; enabling and empowering parents to become confident, knowledgeable, and independent primary caregivers.[86] Studies of FiCare have shown improved short-term outcomes for babies and their families. FiCare has benefits for neonatal staff too, empowering them to lead change and contributing to happy, cohesive teams. FiCare can be implemented at relatively lost cost however additional funding is required for successful and sustained implementation. Elements of FiCare include: a) families are supported to be actively involved in ward rounds, daily care planning and decision-making, b) families have opportunities to give feedback about their babies' care while on the unit and after discharge and c) families' experiences and feedback are actively sought, to inform and improve the quality of services.

All nine neonatal units across Wales reported that they have FiCare Champions, but there is variation across Wales in its implementation. Four out of nine units provide information on FiCare during medical staff induction training or as part of neonatal nurse specialist training. Only one unit had an allocated nursing lead for FiCare.

Parents in a small number of neonatal units across Wales had the opportunity to present (tell their baby's clinical story) on ward rounds. The MatNeo team learned that there was variation in support for nursing staff to attend training for FiCare and some nursing staff were expected to attend training outside of their working time.

"As NICU parents, it can sometimes feel like we have entered motherhood the "wrong" way. However planned or unexpected it may happen. To be consumed by the thoughts of was it something I did? Was it something I ate? Yes, it is a hard and confusing time for many and sometimes downright unfair.

My daughter was suddenly born at 26 weeks. No prior warning and a huge surprise filled with the most worrying feelings. As a nurse I thought I would have been better prepared but as "mum" to this little human, I was everything but. The doctors and most nursing staff were good at communicating. But it was difficult to not feel like a fish out of water. To be in fight or flight mode and be hit by a tsunami of emotions. One psychologist for the whole unit was just simply not enough for the numerous parents in different situations, requiring her support. Even though she was overstretched, she was amazing. Just having a conversation with her at the bedside so I could still see my daughter and for someone to congratulate me on my daughters' progress, no matter how big or small, was the highlight of my days.

For my husband, this was a much more difficult time. With no prior medical knowledge, he began to feel the pressures from becoming a dad to a NICU baby. Even though a nod of the consultants' head ensuring dad our daughter was stable after birth, he was not prepared for the long unknown journey ahead. Entering a dark unit for the first time with all the monitors and noises from all areas of the room was overwhelming to say the least. Not being able to hold our daughter and watching through the incubator, praying that one day this will become a distant memory. Having to leave our daughter overnight was indeed extremely difficult. He began to have chest pains, while managing the struggles of having another child at home.

Dedicating time to change her nappies, participate in ward rounds, getting to know the staff and supporting each other through general day to day feelings. As hard as it was prioritising some part of the busy day to go for a walk, hydrate or simply retire to the family room for some food, it was much appreciated and needed. Now that a year has a passed to reflect on these now processed feelings, I am happy to say that my daughter is happy, healthy and proving to us every day that these tiny babies are indeed stronger than we believe."

– Parent voice

Psychological support for families with a child on the neonatal unit

Admission to the neonatal unit has many negative psychological consequences for the baby, parents and siblings and psychological support is vital.[87,88]

There are significantly higher rates of mental health difficulties in parents who have babies in neonatal care when compared to the general perinatal population. BAPM states that psychologists are essential members of the neonatal team. Psychological interventions provided within neonatal units have been shown to improve these challenges for families during their admission as well as following discharge from the unit. Psychological input is also a key element in FiCare.

Only two of the nine neonatal units have funded psychology support. It is essential that this is addressed.[89]

> *"The doctors and nurses on NICU are incredible but, rightly so, their main focus has to be the babies in their care. The psychologist is able to make space just for the parents, helping them to process all the whirlwind of emotions that comes with the territory. It can be a pretty lonely experience because as NICU parents, we haven't had the happy birth story that most people have. The psychologist helps you process and cope by reassuring you that what you're feeling is completely valid and normal. And being able to talk about those feelings and accept them helps you feel better equipped to be there for both your baby and partner."*
>
> – Parent voice

Facilities for families

Facilities for families on the neonatal unit are important. Three out of nine units had either a play area for siblings on the neonatal unit or play therapy support. Five units have counselling rooms on their units used to provide updates for parents and often used to break bad news. Four units have the facility for parents to sleep next to their baby's cot in intensive care.

Breastfeeding

It is a national goal to ensure a healthier nation across the life course[90] and every child in Wales should receive the best start in life.[91] It is essential that all families have access to sufficient evidence-based information on infant feeding to make an informed choice and subsequently that they are supported in whatever choice they make.[92]

There are critical windows for establishing breastfeeding and all mothers should be supported to provide breastmilk (if that is their choice), irrespective of whether their baby remains with them on the maternity unit or is admitted to a neonatal unit. National guidance recommends early expressing (within two hours) and early administration of colostrum (within 6 hours of birth) to preterm babies.

There was considerable variation found in the data currently collected in maternity services on breastfeeding and a wide variation in breastfeeding rates at 10 days. Overall whilst breastfeeding rates in Wales are low, they are improving. In 2021, 63% of mothers commenced breastfeeding at birth; this figure was 28% at 6 months of age. Support for breastfeeding term babies regardless of place of care, must be provided in line with national guidance. Breastfeeding rates were lowest for babies of white ethnic origin, at all stages at which data were collected.[93] Equity of access for support, equipment, and travel to babies on neonatal units is essential.

The additional benefits of mother's own milk for preterm babies includes improved outcomes with lower rates of necrotising enterocolitis (a bowel inflammation mainly seen in preterm babies), lower rates of infection and chronic lung disease, better neurodevelopmental outcomes, earlier discharge home and less likelihood of readmission to hospital. The World Health Organization (WHO) and specialty consensus guidelines across multiple areas of neonatology recommend maximising the use of maternal breastmilk for premature and sick babies.[94]

Breastmilk may also directly reduce NICU hospitalisation costs, independent of the indirect impact on the incidence and/or severity of morbidities mentioned above. Obtaining information on volumes of milk produced over the first 10 days after birth is key to recognise where support may be needed to help mothers establish and sustain breastmilk production and is part of the All Wales Enteral Feeding guideline.[95] To further support mothers with breastmilk provision, earlier infant feeding and bonding, skin to skin (kangaroo care) should be actively undertaken.

The MatNeoSSP team received limited information on compliance with national guidance in relation to breastmilk provision for preterm babies. Two units reported early expression and using hand expression only. Evidence shows that early breast pump use for expressing is associated with higher rates of breastmilk production, and it is part of national guidance. Four units had information on daily skin-to-skin rates with the lowest being 34%. One bright spot was a Health Board which reported daily skin-to-skin rates of 92%.

Encouraging mothers to express by the cot side is beneficial and can often be undertaken at the same time as skin to skin. One unit reported having breast pumps at the cot side. Support for feeding would increase rates of breastfeeding on discharge.

Early breast-feeding rates for babies born <32 weeks ranged from 70.3-91% in units during 2021. At discharge for these babies, this rate drops to 53% (for any proportion of breastmilk). The national target set is 80%. Ensuring initial support for feeding and maintaining that support throughout the baby's stay would increase rates of breastfeeding on discharge home.[96]

Three units reported data collection for breastmilk volumes produced in the first 10 days after birth (the critical period for establishing breastfeeding).

UNICEF has developed the Neonatal Baby Friendly Initiative (BFI) for use in maternity and neonatal units, with staged accreditation to improve support for breastmilk production and breastfeeding as well as supporting close parent-infant relationships and partnership in care. BAPM recommends that all neonatal units should aim to achieve accreditation. The MatNeoSSP team learned that funding for BFI was variable across Health Boards although six neonatal units had BFI accreditation.

One neonatal intensive care unit (NICU) undertook a 'work as imagined versus work as done' project on breastfeeding. Staff self-reported that they were committed to breastfeeding, however while observed on consultant-led ward rounds there was little mention of breastfeeding or skin to skin. Central investment in breastfeeding support through infant feeding leads, education, quality improvement programmes, BFI and parent support are vital, including regular reporting on measures that promote success.

The overall impression during site visits was that teams are committed to breastfeeding, however having time to support mothers with breastfeeding and provide education for healthcare teams about breastmilk are essential. Five units had an Infant Feeding Lead.

Some mothers are unable to produce breastmilk for their preterm baby, or there may be other reasons why it cannot be used (such as medication or infection). There is currently no donor milk bank in Wales but a hub for breastmilk donation has been set up in Swansea. In North Wales, there is access to the Milk Bank in Chester. National guidance recommends equitable access to donor milk.

The MatNeoSSP team considers that urgent action needs to be taken regarding all recommendations for infant feeding to improve long-term population health.

Bright spot: Golden Drops Project

The BAPM framework for early breastmilk in preterm babies has prompted a drive to give mothers' own breastmilk. The aim of the Golden Drops Project was to give the first drops of colostrum within the first six hours of life, to support the mother while expressing, to support and train staff, and to improve breastfeeding rates.

The Golden Drops team was formed including neonatal doctors, nurses and midwives. There was training on the early use of breast pumps. Mothers were given the opportunity to give their baby the first drops of colostrum in the delivery room, helping bonding.

Prior to the project, the majority of preterm babies were receiving first expressed breastmilk by day three of life. With these improvements, up to 50% of preterm babies have been receiving breastmilk by six hours of life and 85% within 24 hours of life. Though this is a huge improvement, the team's target is for 85% of babies to receive colostrum within six hours of birth.

Transitional Care

There is now national guidance for Transitional Care, ATAIN (avoiding term admission into neonatal units) and for moderate to late preterm babies (34-37 weeks gestation) to be nursed with their mothers in a Transitional Care setting within maternity departments or alongside neonatal units.[97]

Transitional Care supports mothers as primary caregivers for their babies who have additional care requirements, but who do not need to be in a neonatal unit. Transitional Care is associated with earlier discharge, reduced rates of re-admission, increased breastfeeding rates and improved maternal perinatal mental health. Transitional Care improves patient flow rates from neonatal units and is associated with significant healthcare cost savings. It aligns with the national drive in Wales to provide care in the community as much as possible.

BAPM recommends that each neonatal unit should have arrangements to provide Transitional Care defined as *"care additional to normal infant care, provided in a postnatal clinical environment by the mother or alternative resident carer, supported by appropriately trained healthcare professionals"*. BAPM have also made recommendations regarding care delivery and staffing required such as a designated neonatal nursing lead (Band 7) for Transitional Care and collaboration with the midwifery team and other professionals also essential.

Transitional Care – Type of Care
34+0 – 35+6 weeks >1600g
36+0 – 42 weeks 1600g – 2000g
Risk factors for sepsis requiring IV antibiotics, but clinically stable
At risk of haemolytic disease requiring immediate phototherapy**
Congenital anomaly likely to require tube feeding
Inability to maintain temperature following an episode of rewarming and despite skin to skin contact and/or adequate clothing**
Inability to establish full suck feeds; predicted to require 3 hourly nasogastric tube feeds
Significant neonatal abstinence syndrome requiring oral medication or additional feeding support
Haemolytic disease requiring enhanced phototherapy and/or assessment of serum bilirubin 4 – 6 hourly**
Babies readmitted from the community e.g. Excessive weight loss and/or poor suck feeding requiring nasogastric tube feeds
Babies "stepping down" from the neonatal unit e.g., > 33+0 weeks and clinically stable
Palliative Care when parent undertaking most care

Figure 9: *Types of care provided on Transitional Care Units (from BAPM).*

As part of the Discovery Phase for the MatNeoSSP, the team was asked to outline Transitional Care in maternity and neonatal services across Wales. The BAPM framework for Transitional Care was used as a benchmark. The importance of education and training of staff, monitoring and evaluation of the service and the role of neonatal clinical networks is highlighted. The MatNeoSSP findings are similar to the recent scoping exercise of Transitional Care that was undertaken by the Wales Maternity and Neonatal Network.

Many maternity and neonatal services across Wales already provide elements of Transitional Care. Barriers to provision include lack of standardised pathways or guidance, lack of confidence in delivering Transitional Care, or lack of facilities and staffing resource.

On site visits, variation was noted with some Health Boards having designated wards and bays but without clear models for Transitional Care, whereas others did not have a designated area but had some staffing provisions such as nursery nurses or band 3 health care support workers to support the midwives on the postnatal wards.

There is a strong desire to standardise Transitional Care with a recognition that there are several different service models. Keeping families together where possible requires neonatal services to be commissioned from cot to community and BAPM recommends that commissioners and providers should work together to ensure consistent and equitable provision of Transitional Care.

Continuity of carer

The principle of continuity of carer can be summarised as: ***"Women will experience continuity of carer across the whole of their maternity journey."***[98]

There is robust evidence to support midwifery continuity of carer as a key health improvement strategy.

The Maternity Care in Wales Five Year Vision describes the continuity of carer model as the ability to allow women and maternity staff the opportunity to build trusting relationships over the pregnancy journey and into parenthood.[99] The vision acknowledges women often have very individualised journeys through pregnancy from straightforward to more complex requirements. Teams providing continuity of carer ensure the woman receives care and support from professionals she knows and trusts.

Evidence shows that continuity of carer models improving safety and outcomes.[100,101] They are particularly important in improving outcomes for women and babies from ethnic minority backgrounds and economically deprived or disadvantaged groups. Reduction in preterm births have also been noted with continuity of carer models.[102]

Bright spot: Antenatal care model

One health board described their model of midwifery care as unique, as there are no inpatient obstetric or acute services. The community midwives work within a continuity of care model to provide individualised, family-centred care. They report high levels of job satisfaction, and the midwives appreciate the flexibility and the opportunity to have meaningful discussions and shared decision making about pregnancy, labour, birth and postnatal care. A named midwife and a buddy midwife are assigned so each person sees two midwives through the antenatal period. The buddy midwife provides 'fresh eyes', to ensure a review of the notes and care, and acts as a failsafe to reduce errors. Continuity will also be provided for intrapartum care by the named or buddy midwife. Postnatal care follows the same model to ensure continuity and the named midwife completes the postnatal discharge.

The MatNeoSSP team found that models of continuity of carer varied across Wales, with no standardised approach. In smaller maternity teams, community midwives noted a sense of job satisfaction, stating they were able to provide the time to build relationships with the women and their families which enhanced the quality of care the women received and improved safety. However, community midwives from larger maternity teams found the model was difficult to deliver in view of current workforce pressures, work-life balance and service demand. Some had a buddy system in place but still felt this was insufficient due to staff working part-time, annual leave and/or sickness leave.

An example of current workforce pressures and service demand provided was that many community teams across Wales were called in to support the obstetric-led units during times of short staffing and high acuity. This would impact on the work scheduled for community the next day. Community midwives commented if they were called into the obstetric-led unit, they were therefore unable to complete their next day clinics or calls which disrupted their continuity with women. Similar experiences were found during The Ockenden review which therefore highlighted the need for safe levels of staffing to support the continuity of carer model. Recommending that trusts "review and suspend if necessary" midwifery continuity of carer unless they have safe levels of staffing on all shifts.[103]

Antenatal care for women in obstetric-led settings varied. If care was provided in a specialised clinic, women would have a named consultant and often a named specialist midwife. In larger antenatal clinics, women often see several obstetricians, but not necessarily their named consultant.

Across Wales, women had one to one care during labour.

Several elements have been identified elsewhere to support the implementation and sustainability of the continuity of carer model.[104,105] These include:

- Case loading requires midwifery time to be ring-fenced. Workload and flow within systems needs to be understood and respected across all services.
- Capping caseload numbers. Smaller teams who had job satisfaction and provided better quality care had an average of 40-50 cases per midwife; larger teams noted to have an average of 120 cases per midwife.
- One team in Wales adopted flexible working and reported an improved continuity approach and job satisfaction among the staff.
- Rotation of midwives between hospital and community helps to maintain skills and promote a continuity model.

Priorities for action: Family centred care and continuity of carer

Pre-Pregnancy & Pregnancy Care		Actions
5	**5.1 Every woman to be as well as possible for, and during, pregnancy and supported to give children the best start in life**	**A.** Resource and maintain clear service pathways between maternity services, Public Health Wales and primary care to support women to: a. Achieve and maintain a healthy weight, b. Access smoking cessation support services, before, during and after pregnancy.
	5.2 Review access to maternity care for all women, regardless of ethnicity, geography or socio-economic status or other protected characteristic	**B.** All Health Boards to a. co-produce communications tailored for ethnic minority women in their communities, b. ensure rapid access to advice if women from an ethnic minority background are concerned about their health, c. and ensure all staff have a lower threshold to review, admit and consider multidisciplinary escalation in women from an ethnic minority background.
		C. Ethnicity must be accurately recorded at booking and data used to monitor outcomes for women of different ethnic origins.
		D. All Health Boards to implement use of the 'Healthier Together' website, or similar product, to provide advice and information translated into many languages.[106]
		E. All women with limited English language skills should be provided with a co-produced, maternity access card to advise them on how/where to attend an obstetric unit in case of a concern.
		F. All Health Boards to invest in portable visual interpreting systems (functionality similar, but not limited to, those provided by Language Line). These should be accessible 24 hours a day so that they can be used in clinic, theatres, and neonatal units.
		G. Maternity Voices Partnerships in each health board should consider becoming Maternity and Neonatal Voices Partnerships to reflect the common goals of both services.
		H. Each Health Board should engage with their local Maternity Voices Partnership volunteers to create points of contact in harder to reach communities. **I.** Each Health Board to establish paid Chair & Deputy Chair Maternity Voices Partnership positions to embed co-production of services.
		J. Establish an All Wales Maternity and Neonatal Service User Framework Group to ensure the voices of women and families are central to national co-production of services.
		K. Consideration should be given to NHS Wales procurement of digital tools to assist in accurate risk assessment for adverse pregnancy outcome in early pregnancy.
	5.3 Prioritise women's mental health in all areas of contact antenatally and postnatally	**L.** All health boards to embed the Wales perinatal mental health programme[107] and ensure all staff are trained, (see 3A) feel competent to ask about mental health and recognise importance of recording PNMH data including medication use.

High Quality Care in All Midwifery Led Settings		Actions
6	**6.1 Ensure all Health Boards embed The All-Wales Midwifery Led Care Guidance into practice**	**A.** Gather place of birth data as defined in Section16 of the 'Auditable Standards' in the All-Wales Midwifery Led Care Guidelines.[108] a. Benchmark data with 2011 Birthplace Study results. b. Analyse findings to identify variation/risks and use data to inform quality improvement activity and implementation of sustainable practice changes.
	6.2 Develop mandated standards for Midwifery led units in Wales	**B.** Benchmark Freestanding and Alongside Midwifery Units in Wales against the Midwifery Unit Network published standards. **C.** Analyse findings to: a. Support development of NHS Wales Midwifery Led Unit Standards. b. Identify variation/risks and use data to inform quality improvement activity.
	6.3 Implement standardised informed decision-making aids across Wales	**D.** Agree and implement standardised decision-making aids to support women and families in making informed choices. e.g. BRAN (Choosing Wisely)[109] or BAPM Enhancing Shared Decision Making Framework.[110]

Keeping Families Together and Providing Support		Actions
7	7.1 **Families to be supported and enabled to stay together (where possible) when their baby requires support, investigation, or treatment**	**A.** Develop a standardised mechanism for multidisciplinary maternity & neonatal teams to review ATAIN (Avoiding Term Admissions into Neonatal) rates. **B.** Establish and ensure ongoing thematic analysis of ATAIN. **C.** Share findings/learning nationally and use data to inform quality improvement activity and implementation of sustainable practice changes. e.g., where upstream (antenatal) contributory factors have been identified engage with Public Health Wales and other stakeholders (i.e., smoking/ obesity to ensure equitable care).
		D. Ensure adequate facilities and support provision for wider family members, e.g., playrooms and additional support for siblings.
		E. Expand Neonatal Outreach services across NHS Wales to enable earlier discharge from neonatal units, transitional care, and postnatal wards. This should: a. Be available 7 days a week, b. Include access to Allied Health Professional Services. **F.** Include the ability to support short-term nasogastric tube feeding in the community for preterm infants.
		G. Where possible transcutaneous bilirubinometers to be used in the community alongside awareness of challenges for diagnosis of jaundice in ethnic minority babies. Explore introduction of home phototherapy.
	7.2 **Psychological support services should be accessible to all families during their stay in an NHS Wales neonatal unit with seamless links to community maternity mental health services as appropriate**	**H.** Nationally review funding and provision of psychology service ensuring it is in line with national UK guidance. **I.** Use review findings to share national learning, refine/create services and establish referral links to community maternity mental health services as appropriate.
	7.3 **FiCare to be fully embedded in practice in all NHS Wales Neonatal Units**	**J.** FiCare resources to be allocated and training to be facilitated for all units.
		K. All Neonatal Units to demonstrate >80% compliance with FiCare passport, and where not achieved, submit Board report describing barriers and action being taken to address on a 6 monthly basis.
	7.4 **All Neonatal Units to adhere to Bliss Baby Charter Standards**	**L.** All Neonatal Units to achieve Bliss Baby Charter accreditation.[111] a. Resource and workforce capacity should be explicitly allocated to support achieving and maintaining accreditation.
	7.5 **Embed a standardised family feedback process for NHS Wales**	**M.** Agree and embed a standardised Maternity and Neonatal Feedback mechanism into NHS Wales services, including transitional care. a. Ensure inclusion of feedback question/s about parental opinion on safety of care experienced. b. Ensure simplicity of process, communication materials to promote to families and information/training for staff, c. Make results available to parents, families, staff and senior leaders.

Optimising Breastfeeding		Actions
8	**8.1 Ensure opportunities for breastfeeding are optimised for all women** **8.2 Ensure early access to breastmilk and sustaining numbers of both preterm and term babies receiving breastmilk during their entire stay** **8.3 Ensure NHS Wales has an infant feeding educated workforce** **8.4 Ensure monitoring and evaluation of process and outcome indicators for successful breastfeeding**	**A.** All neonatal units to employ at least one funded infant feeding lead post, who will work closely with the Health Board Strategic Infant Feeding Lead (as mandated in All Wales Breastfeeding 5 Year Action Plan 2019) to promote good breastfeeding practice.[112] a. High activity level units to consider employing 2 WTE Infant Feeding Leads. **B.** NHS Wales to adopt the UNICEF Baby Friendly Initiative as a breastfeeding good practice accreditation.[113] a. Resource and staff capacity should be explicitly allocated to support achieving and maintaining accreditation. **C.** All neonatal units to record expressed breastmilk volumes, as defined in the All-Wales Enteral Feeding Pathway for Preterm Infants.[114] a. Report compliance with the pathway quarterly. **D.** Share findings/learning nationally and use data to inform quality improvement activity and implementation of sustainable practice changes, or reinforce action already being taken. **E.** All units alongside their Infant Feeding Leads to develop unit-level plans to maximise early colostrum and early breast pump use in line with national guidance (BAPM MBM Toolkit).[115] a. Ensure pathways and staff education on facilitation and recording of skin-to-skin rates. b. Ensure availability of breast pumps at each cot side. c. Monthly local monitoring of plan implementation. **F.** Share findings/learning nationally and use data to inform quality improvement activity and implementation of sustainable practice changes, or reinforce action already being taken.
	8.5 Ensure equitable access to donor milk and options to donate milk across NHS Wales	**G.** Develop Milk Bank access for all women across Wales.

Transitional Care		Actions
9	**9.1 Develop Transitional Care in all maternity units, aligned with national BAPM standards**	**A.** Implement Neonatal Transitional Care UK standards. a. Consider a single national data recording system to provide monitoring data and commissioning information. b. Ensure Transitional Care Service in all units is commissioned alongside all other neonatal services. c. Ensure that all Neonatal Transitional Care standards are embedded by ensuring services are commissioned and sustainably staffed to BAPM standards, including a designated nurse lead (band 7); a ratio of nursing/nursery staff to babies of 1:4; and all babies to have a named paediatric or neonatal consultant. **B.** Each baby to have clinical input at the same level of seniority as babies receiving special care on a Neonatal Unit.

Continuity of Carer		Actions
10	**10.1 Review models of midwifery care to optimise continuity**	**A.** Establish an agreed method of understanding the continuity of care that women in Wales currently receive. a. Use that method to collect baseline continuity of carer data b. Establish improvement plans where required.
		B. Health Boards to review community midwifery service provision to ensure that women see: a. no more than 2 midwives antenatally and postnatally, b. their named midwife for postnatal discharge.
	10.2 Maximise continual risk assessment throughout pregnancy to ensure women birth in their place of choice	**C.** Health Boards to implement All Wales Midwifery-Led Care Guideline (6th Edition)[116] guidance to ensure all women have the choice to birth in a Midwifery Led setting.

Safe and effective care

The principle of safe and effective care can be summarised as: *"Women and their babies will receive safe and effective care; with risk, intervention and variation reduced wherever possible."*[117]

For most families, pregnancy will be a safe and positive experience. However, some families will experience a baby born preterm with admission to the neonatal unit. Others may have a baby at term who is unexpectedly unwell. A small number of families will sadly be affected by pregnancy loss (miscarriage, stillbirth) or the death of a baby.

Black women were 3.7 times more likely to die than White women (34 women per 100,000 giving birth), and Asian women were 1.8 times more likely to die than White women (16 women per 100,000 giving birth).[118] Mortality rates are higher for babies of Black ethnicity, with stillbirth rates over twice what they are for babies of White ethnicity, and neonatal mortality rates at 43% higher.[119]

The multiple impact of ethnicity, mother's age and deprivation is highlighted by a stillbirth rate of 10.54 and 6.91 per 1,000 total births for babies of Black and Black British ethnicity and Asian and Asian British ethnicity respectively born to mothers aged over 35 years living in the most deprived areas.[120]

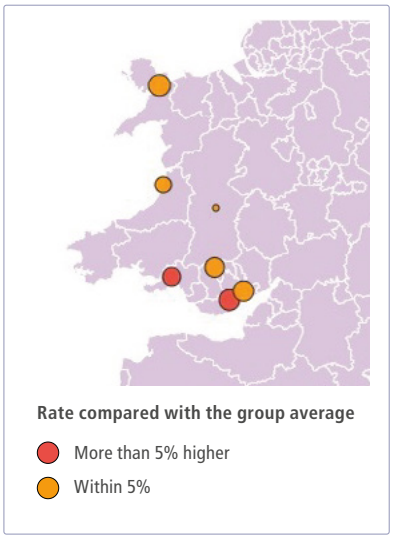


Figure 10. *Mortality rates, birth, 2021. Stabilised and adjusted extended perinatal mortality rate by Health Board in Wales in 2021.*[121]

MBRRACE-UK surveillance data in Figure 10 highlights variation in extended perinatal deaths around Wales. These figures include all stillbirths over 24 weeks gestation and all neonatal deaths up to 28 completed days after birth. Mortality rates are presented in a number of different ways: a 'stabilised & adjusted' mortality rate is shown above. A stabilised rate allows for the effects of chance variation due to small numbers. An adjusted rate considers key factors which are known to increase the risk of perinatal mortality. The extent of the adjustment is limited to those factors that are collected for all births across the whole of the UK: mother's age; socio-economic deprivation based on the mother's residence; baby's ethnicity; baby's sex; whether they are from a multiple birth; and gestational age at birth (neonatal deaths only).

Resources to provide safe care

Estates & equipment The MatNeoSSP site visit teams observed inconsistency in standard recommended care provided to women across Wales. For example, a small number of units were trying to provide services within deteriorating building infrastructure, with a lack of equipment or with equipment which was physically on-site but not actually available for clinical use. Some hospitals do not have access to computerised CTG for women with reduced fetal movements.[122,123]

Point of care tests Throughout the site visits there appeared to be variations in resources available to maternity and neonatal teams, with some units able to access nationally recommended investigations including point of care tests and some not, resulting in inequitable care for women. An example would be the point of care tests for placental growth factor (PLGF), recommended by NICE for women with suspected pre-term pre-eclampsia.[124] These tests have a clear evidence base, are cost effective, and likely to substantially benefit women and babies, but only available in one Health Board.

Obstetric ultrasound resources Three Health Boards were not able to offer serial growth scans to all women who are at risk of growth restriction, despite this having been national guidance for more than five years.[125,126] Those Health Boards appear to be limited by availability of trained sonographers.

Access to preventative treatments: Not all Health Boards had a comprehensive method for women to access aspirin for the duration of pregnancy, with an overreliance on GP prescription or requiring women to purchase aspirin over the counter.

Smoking cessation and carbon monoxide monitoring

Rates of smoking at pregnancy booking vary across Wales, with some areas reporting the highest rates in the UK, with around 15% of women smoking.

The MatNeoSSP team found variation around Wales in approach to mothers who smoke.

Carbon monoxide monitoring was a routine part of antenatal care before the COVID-19 pandemic when it was halted at the advice of the RCOG.[127] Despite being re-introduced in most Health Boards in summer 2022, actual uptake in December 2022 was still below target for every Health Board. Staff described lack of equipment, training, calibration kits and time all as barriers to this measure that was previously routine practice.

The benefit of smoking cessation support and initiatives to support women and families cannot be overstated.

One bright spot was the routine prescribing of nicotine replacement therapy by most obstetricians in the antenatal clinic of one Health Board and the routine stocking of nicotine replacement therapy on all maternity wards including the labour ward.

The MatNeoSSP observed another bright spot in the form of a scheme from Public Health Wales employing healthy lifestyle support workers, which had a positive impact on the service in one Health Board and was well received by women but was finishing at the end of March 2023.

Smoking is associated with significant adverse pregnancy outcomes, including preterm birth, growth restriction and stillbirth.[128] Serial growth scans are recommended in all national guidance for fetal surveillance in all women who smoke, to identify babies who may be at risk of adverse outcome and enable timely interventions such as induction of labour. Several Health Boards were unable to perform these due to a lack of trained sonography staff.

Acute problems in pregnancy

NICE Intrapartum Guidance recommends the use of early assessment by telephone triage for all women.[129] In Wales, women in the latent phase of labour or with antenatal concerns, are advised to ring the unit where they plan to give birth. These are staffed 24 hours a day. There is no specific training on telephone assessment and the advice is not standardised. If the triage midwife is based within the clinical workplace, staff may be subject to bias if the unit is busy.

There are examples across the UK of alternative ways to manage acute problems in pregnancy and triage calls. The Birmingham symptom-specific obstetric triage system (BSOTS) is a standardised triage system that has phone line advice.

There are also examples of remote maternity triage (both within the hospital or embedded within ambulance call centres) to reduce bias. The provision of a national Labour Line and 24-hour telephone triage service for women is one example of how safer care could be enabled.

Pre-hospital care and The Welsh Ambulance Service Trust (WAST)

Over 12 months, WAST recorded almost 2,500, 999 calls related to pregnancy (code 24) for separate incidents, equivalent to one call for 8% of all maternities. An ambulance attended in 1605 cases, equivalent to one attendance for 5% of all maternities. (Some pregnant women may have called more than once.) Some pregnant women in this data may be unbooked with an early pregnancy complication.

Pregnant women calling with other concerns may not be captured by the code 24 data, as these will be dealt with under different protocols (such as sepsis, falls, or cardiac arrest), to ensure the correct dispatch response is given in relation to the chief complaint of the call.

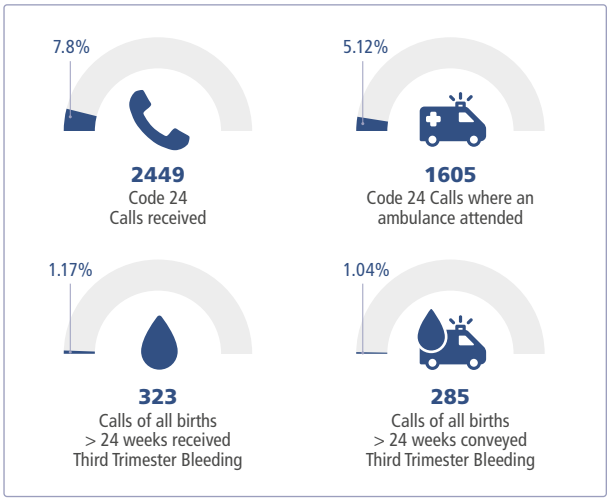


Figure 11. *Numbers of pregnancy-related calls to WAST (Welsh Ambulance Service Trust) March 2022-February 2023 (absolute numbers, % of known maternities).*

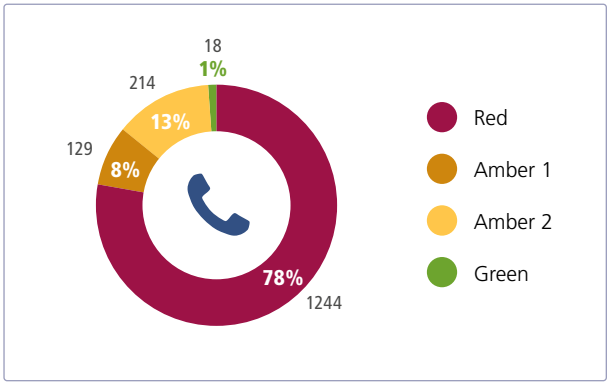


Figure 12. *Call prioritisation of pregnancy-related calls (code 24) resulting in an ambulance attending, in Wales over 12 months March 2022-Feb 2023. RED calls: Immediately life threatening, ambition 8-minute response time, AMBER 1 calls; life-threatening, ambition 20 minute response time, AMBER 2 calls; Serious but not life threatening, ambition 1-4 hours and GREEN calls; not immediately serious or life threatening.*

Third trimester bleeding (defined as any vaginal bleeding over 24 weeks) was recorded in 323 calls and an ambulance conveyed 285 women to hospital.

The postnatal period is a vulnerable time for women, with increased rates of mortality. Postnatal complications may not always be captured by code 24 data. Bleeding is triaged in the same way as for a non-pregnant woman, rather than a recently pregnant woman.

The opportunity for midwives and ambulance staff to work together has supported the sharing and updating of guidance to ensure that pregnant women and babies receive the same high standards of evidence-based care, regardless of setting. This has included the recognition of hypertension in pregnancy and BAPM guidance for the management of extremely preterm babies.

It is also encouraging to note collaborations between community-based maternity services and WAST with the development of a bespoke community PROMPT Wales training package.

Another significant area of collaboration is the development of an All Wales Transfer Document to aid better communication between midwives at homebirths, in freestanding midwifery-led units and WAST to avoid ambiguity about urgency. The document will aid the consideration and use of other modes of transport in non-emergency situations for clinically well women. This is being led by a consultant midwife in the Maternity and Neonatal Network, to ensure deeper understanding of roles between midwives and emergency dispatchers in WAST and a standardised national approach for transfers.

WAST also host the NHS 111 service. In the 12 month period (March 2022- Feb 2023) there were 6247 calls to this service for pregnancy-specific advice.

Increasing midwifery involvement within WAST would improve links with maternity and could oversee the development of a 24-hour labour line as a first point of contact, and potentially a triage line and link with paramedic training. The presence of midwives within the clinical contact centre would also have the benefit of supporting paramedics at the scene through the ability to videocall for advice, which is currently being piloted by WAST in collaboration with stroke services.

Abnormal blood pressure can and does go unrecognised in pregnancy and can contribute to adverse maternal and fetal outcomes. It is important that women cared for in both maternity and non-maternity settings have their observations recorded on a maternity specific chart.[130] This is rarely the case as the charts are not widely available outside maternity settings. Recording observations on a standard chart may give false reassurance and delay treatment of pregnancy-related complications such as pre-eclampsia.

Safety of antenatal care

When considering the current care provided to pregnant women in Wales, MatNeoSSP team used the NHSE ten safety actions for maternity as a broad collective.[131] The actions are current, chosen by a respected group of organisations and consider varied and important aspects of maternity safety. Although not mandated in Wales in this format, many of the actions are within Welsh Maternity guidelines. Minor modifications were required for data collection to reflect the differences.

Safety actions 1,2, 6 and 8 are represented below. Other safety actions such as no. 3, which covers Transitional Care, are described elsewhere in the report.

Selected standards based on NHS England's Safety Actions and Standards

Safety Action	Standard	HB 1	HB 2	HB 3	HB 4	HB 5	HB 6	HB 7
1	At least 50% PMRTs Jan-June 2022 published in full within 6 months of death	N/A	0%	61%	0%	N/A	0%	37%
2	At least 90% of women have ethnicity recorded at booking	38%	53%	88%	64%	99%	40%	99%
6.1	At least 80% of women have CO measured at booking	59%	N/A	53%	70%	33%	N/A	40%
6.2	Detection of fetal growth restriction (% of 5 standards achieved)*	80%	60%	60%	60%	100%	40%	80%
6.3	At least 80% of women have received reduced fetal movement (RFM) info by 28 weeks	95%	78%	90%	67%	100%	67%	100%
6.3	At least 80% of women who attend with RFM have a computerised CTG	100%	0%	93%	100%	100%	100%	100%
6.4	At least 90% of eligible staff have attended local multi-professional CTG training	100%	91%	88%	93%	95%	83%	85%
6.5	Pre-term birth prevention (% of 3 standards achieved)**	0%	33%	33%	33%	67%	67%	67%
8b	At least 90% of relevant staff have attended PROMPT WALES	100%	82%	81%	97%	78%	97%	77%
8d	At least 90% of relevant staff have attended neonatal life support training	100%	67%	77%	88%	DNA	83%	52%

Figure 13. *Snapshot of NHS Wales maternity services against 4 Safety Actions, data collected Jan 2023.*[132]

The MatNeoSSP results showed the following:

Safety action 1: Delays in completing the PMRT relate to delays in receiving post-mortem reports and availability of staff for MDT case review. Most families do not have a debrief with a clinician until the tool is complete and a cause of death decided by the MDT. For Health Boards to learn from cases, implement change and to have compassionate relationships with these families, resources are required for more timely completion of reviews. (Resources include pathology, neonatal, obstetric and midwifery time.)

Safety action 2: Data is submitted to the maternity indicators dataset (MiDS) in Wales. As an example, two of seven Health Boards achieve the minimum data set on recording ethnicity recording at booking.

Safety action 6: 'Can you demonstrate compliance with all five elements of the Saving Babies' Lives care bundle Version 2 (SBLCBV2)?' Version 2 was released in 2019. It is supported by RCOG and RCM. It pulls together national guidance from NICE & RCOG on five areas pertinent to reducing perinatal mortality rates. There is good evidence to support this bundle of care in reducing perinatal mortality since Version 1 was implemented in 2016.

The bundle has not been mandated in NHS Wales, though All Wales guidance supporting the different individual areas has been developed. The MatNeoSSP team observed that several units in Wales have worked to change their maternity care in line with Saving Babies' Lives Version 2. Version 3 has recently been published.[133]

- **Element 1** – Units have found immeasurable challenge reinstating carbon monoxide (CO) monitoring, which was routine pre-pandemic. Even units who have stated at senior level that CO monitoring has recommenced, the MatNeoSSP work on the floor demonstrated that it had not.
- **Element 2** – detection of fetal growth restriction. Most units are making satisfactory progress with risk assessment at booking. Only four units offer serial scans in line with RCOG and All-Wales guidance. Only one unit can offer uterine doppler at 20 weeks to high-risk women (despite this being a standard in the All-Wales Guidance on detection of small for gestational age (SGA).[134] Not every unit is regularly auditing SGA babies born at term.
- **Element 3** – management of reduced fetal movements. Some units are limited by access to computerised cardiotocography (CTG).
- **Element 4** – fetal monitoring. Only two Health Boards were able to release 90% of staff or more to attend local multi-professional fetal monitoring training annually. Barriers to attendance were staffing levels.
- **Element 5** – preterm birth prevention, including routine risk assessment for all women at booking, access to specialist preterm birth clinic and regular audit of referrals and missed referrals. Barriers to this are perceived as an unrecognised element of care and an ultrasound training gap.

Overall, Health Boards in Wales require additional support and investment to deliver the level of care specified for women and their babies in this care bundle.[135] This is important as it is shown to be effective in reducing perinatal mortality.

Safety Action 8: Covers mandatory training but also evidence that at least 90% of each relevant maternity unit staff group has attended an 'in house', one-day, multi-professional training day which includes a selection of maternity emergencies, antenatal and intrapartum fetal surveillance, and new-born life support Not all Health Boards in Wales met this standard, due to a combination of factors, predominately staff shortages.

Bright spot: preterm birth clinic

A bright spot the team heard about was a unit which established a preterm birth clinic to provide appropriate antenatal care to women, with access to transvaginal ultrasound and experienced clinician input by training the midwife sonographers to perform the scans, with benefits of continuity of care for women and upskilling of staff.

Bright spot: Fetal monitoring training

One health board provides a fetal monitoring training programme which uses a variety of interactive resources to support active learning from shared experiences. The group is made up of different grades of multidisciplinary staff, ranging from trainees to senior managers. The group models non-hierarchical and respectful working relationships between midwives and obstetricians.

The programme aims to maximise the use of technology to ensure all staff across the large, rural health board can access similar standards of training. There are regular reflective learning sessions with use of anonymous polling to promote collective learning in an environment of psychological safety. The sessions embed the use of physiological interpretation of cardiotocographs which allows for individualised care and continuous consideration of risk and enhanced situational awareness. Evidence and guideline updates are incorporated into the presentations.

National guidance for care for women having more than one baby

Multiple births make up 2% of all births in Wales.[136] Severe maternal morbidity and mortality is 2.5 times higher in mothers with multiple pregnancies. Twin pregnancies are associated with higher rates of preterm birth, low birth weight, stillbirth, early neonatal death, admission to NICU and adverse perinatal outcomes.

NICE guidance states that care of women with a multiple pregnancy should be from a multidisciplinary team to reduce adverse outcomes for mothers and babies. MatNeoSSP identified two specialist multiple pregnancy clinics in Wales and a third being established. The rural nature of maternity services in Wales presents challenges for delivering care in this way in some areas, while also minimising travel for patients. However, with networks and cross-site working it should be achievable.

There is an opportunity to establish a network of clinicians, midwives, and sonographers from around Wales, to ensure that however care is delivered it meets the NICE guidance.

Preterm birth

Preterm birth, defined as birth less than 37 weeks' gestation, is a common complication of pregnancy, making up around 8% of births in Wales.[17]

Around 50% of preterm births occur in first-time mothers and therefore strategies for all women, such as smoking cessation and continuity of carer, are highly relevant.

There is variation in care across Wales for women at increased risk of preterm birth. Preterm birth prevention is not implemented fully anywhere in Wales and needs to be standardised across Wales in line with available evidence-based national guidance.

History of preterm birth is the single most important risk factor for subsequent preterm birth, with the risk increasing the earlier the previous birth occurred, or with multiple incidences of preterm birth.

Not all neonatal units provide intensive care so some babies will need to be transferred to a neonatal intensive care unit (NICU) where they will remain until well enough to return to their local unit. The complexity of care provided in a NICU comes with a higher risk of adverse events and systems must be in place to ensure the risk of these are minimised.

The MatNeoSSP team observed that there were regular meetings to identify cot and co-aligned maternity beds available in Wales. These are organised by the Maternity and Neonatal Network and are attended by neonatal staff and midwives to anticipate issues with capacity.

In preterm labour, the use of early review with access to appropriate tests is important in Wales, where women may present to remote hospitals and require a long transfer to another unit. Accurate prediction should ensure the correct women are transferred and that treatments such as antenatal corticosteroids are given at the correct time. However, across Wales, there is a lack of access to accurate measures of assessing preterm labour with the point of care test quantitative fetal fibronectin (three Health Boards do not have this), and access to transvaginal ultrasound (five Health Boards do not have this).

These tests and investigations are important, recommended by NICE, evidence based, cost saving and fundamental to improving patient safety within maternity and neonatal services. Variation in care with potential for waste of resources if women are transferred inappropriately, and harm, if women are given untargeted corticosteroids, or not transferred. Preparation for pre-term birth is covered by both BAPM perinatal optimisation and the Periprem model, the latter currently being rolled out across units in Wales.

The standard set is for babies of gestation above 32 weeks to be born at their local unit if appropriate and that under 32 weeks, babies are transferred in utero (before birth) for birth in a NICU. It is safer for the baby to be transferred in utero and this ensures babies are born in the right place with the best care.

The MatNeoSSP team found that an average of around 90 babies <32 weeks are born in SCUs per year and learned that the process for review of these babies could be strengthened.

Preterm birth is the biggest contributor to neonatal mortality. Perinatal mortality is of concern with babies born preterm in Wales having high mortality rates compared with some networks in England.[137]

The MatNeoSSP team identified a need for a cot/bed bureau which can centrally manage aligned capacity for Maternity In-Utero Transfer (IUT) beds/NICU cots.

The MatNeoSSP team found that post-pregnancy follow up is not routinely available for all women who deliver < 34 weeks' gestation. This is important as these women have potentially modifiable risk factors or access to treatment may alter a subsequent pregnancy outcome. This post-pregnancy follow up should be holistic, including asking about mental and physical health, include access to specialised placental histopathology, provide the opportunity to review the pregnancy and delivery and make recommendations for future pregnancies.

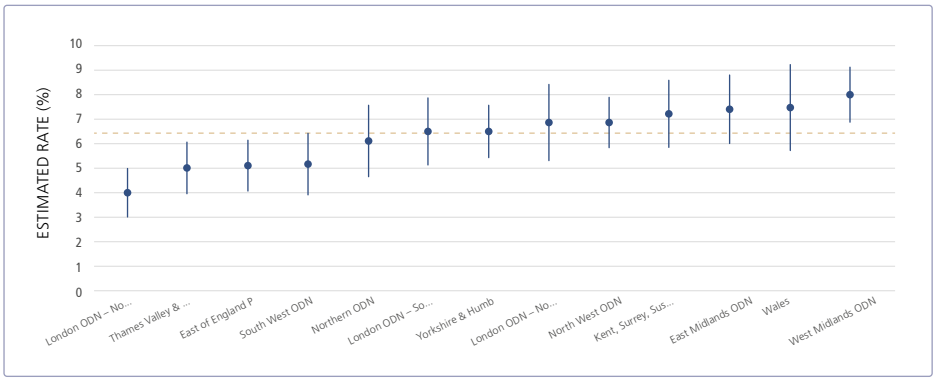


Figure 14: *Mortality in preterm babies: Observed proportion of mortality until discharge (%) in babies born at less than 32 weeks gestational age (July 2018-June 2021), National Neonatal Audit Programme (NNAP).*

Obstetric units and anaesthesia

Anaesthetists are core members of the team caring for women birthing in obstetric units, or where there are complications for women who have birthed elsewhere. Anaesthetists contribute greatly to delivering PROMPT training throughout Wales. The involvement of obstetric anaesthetists leading the obstetric bleeding strategy for Wales (OBS Cymru) and their ongoing work into understanding post-partum haemorrhage cannot be overstated.

Throughout Wales there is variation in the type of pain relief that women can access, dependent on level of anaesthetic staffing. For women in some hospitals, the opportunity to have patient-controlled anaesthesia (PCA) as an alternative to an epidural is not available. One obstetric unit is not co-located with an intensive care unit. While not unique, as other large maternity units in the UK are in the same position, there are particular considerations for which women can birth there.

The MatNeoSSP team understood a need for midwives to have further training in specialist enhanced skills. The Obstetric Anaesthetists Association has developed Maternity Enhanced Care: Competencies Required by Midwives Caring for Acutely Ill Women. One unit has already developed their own training module for midwives to achieve these, others were considering the PROMPT maternity foundation CiPP course, whilst in others midwives have the opportunity to work alongside intensive care nurses to gain these skills. HEIW is developing a module to meet these competencies also.

Elective theatre workload in obstetrics should be resourced in the same manner as elective workload in other specialities. Four Health Boards were achieving this but three were not, where elective work was being covered by the emergency team. Elective work is subject to delay depending on the emergency stream of activity and therefore affects women's experience. A separate list would also be overseen or performed by a dedicated consultant rather than a consultant overseeing both emergency and elective list.

Postnatal care

Postnatal care varied throughout Wales. Some Health Boards described how they ensured that women were booked in to see their named midwife for final discharge and that this had been improved by providing postnatal discharge clinics. Other Health Boards were unable to provide this due to the challenges of geography or staffing numbers.

All Health Boards had 'birth afterthoughts services' with midwives, but not all had the ability to offer obstetric debrief appointments.

The postnatal period is a chance to identify and amend modifiable risk factors such as weight, lifestyle, diet, exercise and an opportunity for ongoing surveillance and timely intervention, e.g., for women who have had pre-eclampsia, gestational diabetes, or a preterm birth. At present postnatal information could be improved and annual follow up for those with gestational diabetes or pre-eclampsia within GP services varied.

Public Health Wales's Primary Care Obesity Prevention programme is engaged with the challenge of supporting the 29% of obese mothers in the postnatal period and for the first five years after pregnancy. A programme of improvement work could engage with primary care and service users using an evidence-based behaviour change social marketing approach with postnatal women to reduce obesity.

Bereavement care for families

Sadly, some families will experience bereavement while in the care of maternity and neonatal units. Some babies are stillborn and very unwell babies may die shortly after birth or on the neonatal unit.

Bereavement support is essential for families. While maternity units had bereavement midwives, only three of the nine neonatal units have a bereavement lead for neonatal services. BAPM recommends bereavement support on neonatal units. MatNeoSSP data revealed that bereavement counselling for women who have had a stillbirth is currently only provided by one Health Board and charities. Families ask for bereavement counselling and consideration should be given to provision by departmental psychologists.

The MatNeoSSP team observed bright spots in the form of good examples of bereavement care such as specialist bereavement midwife care, consistent models for timely obstetric debrief, writing to the families directly and copying to the GP, rather than the other way around, addressing any concerns and recommendations for a future pregnancy and continuity of care in a subsequent pregnancy. Families have opportunities to ask questions and provide feedback on all aspects of their care.

A further bright spot was observed in one unit which provides a neonatal-specific bereavement service to support families. This service is tailored to the family's needs, for as long as they need the service for, usually at least a year.

Mothers who have had a stillbirth or a neonatal death should have the opportunity to donate milk. The BAPM Lactation and Loss Framework[138] has clear guidance, and all mothers and families should be provided with information following the loss of a baby. Having the ability to donate milk can be beneficial for mothers and supports perinatal mental health.

Some babies born alive but who sadly have an early neonatal death on the delivery suite will never be admitted to the neonatal unit. In some Health Boards, women who have had an early neonatal death (and are likely to be on the neonatal unit for much of their baby's life) may not have midwifery input. The MatNeoSSP team heard feedback about missed opportunities to discuss lactation and loss and provide additional support to bereaved mothers both in the maternity and neonatal setting.[139]

The MatNeoSSP team found that care may be more fractured for women undergoing a serious case review and they may feel distanced from the Health Board and clinicians. The reviews may be protracted, and this may result in a poor experience for women and families and in some cases can endanger a future pregnancy, if appropriate action, such as provision of medication or preventative surgery is not planned for and performed. Perinatal pathology services UK wide are under strain with long waits for post-mortem results for families. Full genetic testing for all stillborn babies is not currently available in Wales. Neither is imaging such as MRI.

For parents whose babies have been stillborn or died shortly after birth, a subsequent pregnancy can be very daunting. There is a higher risk of pregnancy complications, and these parents often need extra support throughout their pregnancy. However, the support given varies, often with no continuity of care. Parents have to endure the distress of telling health professionals about their previous loss over and over again.

The Tommy's Rainbow Clinic in Manchester is a specialist service for parents who have suffered a stillbirth or neonatal death that supports them through a subsequent pregnancy. This model of care is now being rolled out to other maternity units in the UK, with one active rainbow clinic in Wales and plans for another to open soon. Expansion of this model of care, in trauma-informed settings across Wales would enable access for women closer to home.

The National Bereavement Care Pathway (NBCP) developed by the Stillbirth and neonatal death society (Sands) aims to improve the quality and consistency of bereavement care. Sands leads the NBCP in collaboration with bereaved families, other charities and Royal Colleges, to provide health care professionals with frameworks, tools and educational resources to support excellent care.

Improving clinical standards and outcomes for preterm babies

Half of all neonatal deaths occur in babies aged less than 28 weeks. It is also known through the National Neonatal Audit Programme (NNAP) that there is ongoing significant variation in key morbidity and mortality outcome measures across neonatal networks in England and Wales in preterm babies including necrotising enterocolitis (NEC), bronchopulmonary dysplasia (BPD) and mortality.

Wales has high preterm mortality rates compared with other networks in England (see Figure 14 on page 57).[140] Effects on mortality rates are multifactorial and whilst national mortality feedback has identified care affecting outcomes, there are additional factors such as the background health of a nation and levels of deprivation.

The short-term complications of preterm birth are numerous. Longer-term associated complications include adverse neurodevelopmental outcomes involving motor (cerebral palsy), cognitive, and behavioural/socialisation disorders (such as autism spectrum).

In recent years the BAPM aligned with key NNAP quality measures to optimise perinatal outcomes leading to a series of BAPM quality improvement toolkits for perinatal optimisation. These have been widely accepted across the UK by perinatal teams. High compliance with these toolkits is associated with high quality care and improved outcomes.

Preterm babies have immature lungs and often require support for breathing. Preventative strategies for chronic lung disease or BPD are recognised and part of national guidance and good practice.

NICE recommends that preterm babies needing respiratory support soon after birth and before admission to the neonatal unit should be given continuous positive airway pressure (CPAP), if clinically appropriate, rather than invasive ventilation.[141] This is also a recommendation in the European Consensus Guideline for the management of Respiratory Distress Syndrome.[142] Reducing rates of ventilation are associated with better outcomes.

NICE also recommends that morphine should not be routinely used for preterm babies on respiratory support due to an increased risk of severe intraventricular haemorrhage and longer time to full feeds. The MatNeoSSP team found variation across units in Wales. Over 50% of units reported routinely using sedation for ventilated babies. Sedation may also delay being able to take a baby off the support of a ventilator. With regard to Very Low Birth Weight (VLBW) (<1500g) babies being ventilated there was variation across Wales with one unit aiming to provide as much non-invasive (gentler) ventilation as possible with very low rates of invasive ventilation (23%)

compared with other units (38-71%). Whilst this is one element of managing babies in relation to lung disease (and the figures may be affected by other factors such as congenital abnormalities and rates of very preterm babies for individual hospitals), it is important that there is capacity for training for all neonatal teams on national guidance and that care is standardised using various approaches such as quality improvement methodology.

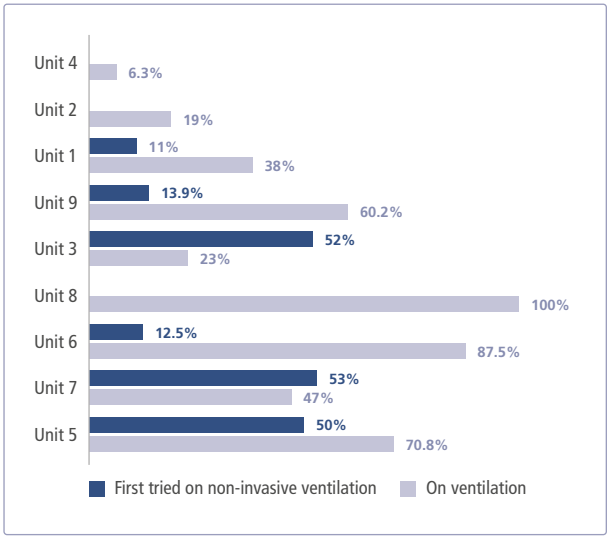


Figure 15. *Percentage of babies < 1500g that were first tried on non-invasive ventilation and those that were ventilated by Health Board in Wales over 12 months Jan 2021 – Jan 2022.*

Probiotics have been shown to reduce necrotising enterocolitis rates and three units across Wales are routinely using them. The MatNeoSSP team are aware of a national Wales probiotics guideline which all units have signed up to.

Antenatal Corticosteroids (ANC) mature preterm lungs reducing rates of respiratory distress and other morbidities. Rates of administration reported varied across units from 52% to 99.5%. Another antenatal optimisation treatment Magnesium Sulphate protects preterm babies' brains. Administration rates across units were between 72-100%.

Optimal or delayed cord clamping has been shown to reduce mortality and is a relatively new NNAP quality indicator with a BAPM toolkit aligned with it. Many units had low levels of optimal cord clamping however in a bright spot, one Health Board showed a doubling of optimal cord clamping practice over one year and could support learning in other units.

Low temperature following birth is associated with increased mortality. The World Health Organisation recommends that preterm babies should birth where the environmental temperature is 26 degrees centigrade. The team asked if hospitals could maintain the temperature where babies are born at 23-25 degrees centigrade, which is the temperature recommended for all babies. Four out of nine units have environmental temperature compliance in their birthing area. When asked the frequency of achieving birthing room temperatures of 26 degrees for preterm birth, five units said this was sometimes achievable and four reported it was rarely or not at all achievable. Admission temperatures in the recommended range showed variation across units from 58-86% target range.

Infections in babies, especially preterm babies, are associated with increased morbidity and mortality. Conclusive data on infections was not obtainable using the trigger tool in this MatNeoSSP scoping. It is essential that data on infections in babies is available and that there are robust mechanisms for reviewing infection rates.

As stated previously, preterm babies are at risk of neurodevelopmental problems and examining development at two years of age is a national target. This informs units about their outcomes, informs parents and allows referral of babies for ongoing multidisciplinary input. There is increasing evidence that the developing brain is flexible in its development and that early intervention strategies from allied health professionals on the neonatal unit and after discharge supports developmental outcomes in babies. Compliance with the standard varied from 33-100%. All units should therefore have a neurodevelopmental support programme and an ability to undertake standardised developmental assessment at two years of age in line with national UK guidance. Across units in Wales, support from allied professionals providing early developmental support is variable as is the ability to undertake validated developmental assessment at two years.

The MatNeo team learned that there may be challenges with data collection for national benchmarking. It is recognised that accurate data collection on neonatal units is essential to obtain measurements of care as this will ultimately improve outcomes and inform quality improvement programmes. Data manager support is essential for neonatal units. The MatNeo team learned that four units did not have a data manager.

Since the start of the MatNeoSSP project, Welsh Government has supported PERIPrem Cymru (Perinatal Excellence to Reduce Injury in Premature Birth) which will implement improvement concepts around a number of elements of perinatal optimisation. Leads and Champions have been appointed and this is an example of real progress in relation to improved outcomes for the most vulnerable babies.

Improving clinical standards and outcomes for term babies

Hypoxic ischaemic encephalopathy (HIE)

Babies who experience a lack of oxygen to the brain around the time of birth may be unwell following birth and develop hypoxic ischaemic encephalopathy (HIE) and go on to have neurodevelopmental problems such as cerebral palsy. Most babies are full term and may be treated with therapeutic hypothermia (cooling treatment). Studies have shown there is an optimum time where outcomes following cooling are better and the target to reach the cooling temperature is set at six hours.

Around 50 babies receive therapeutic cooling in Wales every year. The time to reach cooling temperature occurred within guidance for nearly all babies. Cooling is undertaken within NICUs in Wales and babies that develop HIE in a hospital with an SCU need to be transferred for ongoing treatment. All babies who receive therapeutic cooling have MRI imaging to assess for any brain injury and to facilitate counselling around prognosis.

In some cases, different management in the perinatal period may have resulted in a different outcome for the baby. It is therefore important to have a multi-professional review of perinatal care. Since 2018 in England, all babies with HIE who receive therapeutic hypothermia treatment and have an abnormal MRI are reviewed by an externally commissioned organisation where an independent multiprofessional perinatal review is undertaken using investigation science and taking a system-based and human factors approach.[143] The MatNeoSSP programme learned that clear pathways for reviewing HIE cases in Wales and recording outcomes could be more developed.

The MatNeoSSP team considers that it is imperative that systems are in place to have multiprofessional external review of brain injury cases, review themes and implement learning identified in a robust way.

Neonatal surgery

Some babies born every year will require surgery. This may be planned (known about before birth) or be an unexpected requirement. In south Wales, management is undertaken in the University Hospital for Wales. In north Wales, surgical services are provided in Liverpool. Surgical services were not explored in detail as part of this report, however the MatNeo team learned that between 60-75 babies had surgery annually at the University Hospital for Wales with around 12-15 extremely preterm babies (<28 weeks gestation) having surgery.

Babies with bilious vomiting after birth may need to have surgical issues (such as bowel volvulus/twist or obstruction) ruled out with a radiological contrast study. There is no comprehensive service to obtain access to radiological gastrointestinal contrast studies for babies who may require such a study. Having a service with personnel trained in administering a contrast study with on call radiological facilities available would reduce unnecessary transfers and separation of babies from their families.

Maternity and neonatal governance

High quality care requires robust governance structures with staff with appropriate skills and knowledge to drive improvements in care. A standardised governance structure is required for both maternity and neonatal services, with senior oversight, linked closely with each organisation's quality department.

The management of risk and governance is variable across NHS Wales maternity and neonatal units, and incident reporting systems do not always inform local learning and/or improvements. There are signs of cultural variation between units, with staff in some units describing an open and just culture, while others reported negative cultural norms along with some fear of investigation and being subject to capability processes.

Maternity governance

The MatNeoSSP team identified a defined organisational structure for governance in most maternity services.

All maternity units described ascertainment of harm as being determined using the Datix system. There is no standard trigger list for maternity services and different Health Boards consider different events to be 'moderate harm'. The MatNeoSSP team gathered information on incidents that Health Boards had classed as 'moderate harm'. A bright spot from one Health Board was having automatic triggers within its electronic birth notification, such that the birth notification cannot be completed without submitting the appropriate Datix. These incidents are all then formally reviewed by an MDT and appropriately categorised.

Another bright spot was a Health Board which had taken an improvement approach to its governance system, focussing on psychological safety around reporting, reframing meetings as learning events and ensuring anonymity. They demonstrated increased rates of reporting.

Whilst there are standardised definitions for low, moderate, and severe harm, there are no standard criteria in use (that the team are aware of) to apply these to obstetrics where women and babies may experience recognised complications during pregnancy and birth, that are not due to deficiencies in care. Many units described a desire to have standardised criteria for low, moderate and severe harm.

Reviews must be performed by appropriately trained staff using a systems-based approach to shift away from individual blame. If the investigation focuses too heavily on individuals and does not identify why errors occurred, they may be unable to uncover the system failures and identify meaningful learning or how to improve the service. There is a need to ensure all governance post holders are trained in this approach.

There is variation across Wales in maternity governance staffing. One Health Board had a governance lead from within the quality and safety directorate. The other Health Boards did not. Seniority of staff varied, as did time allocated. The MatNeoSSP team learnt that units were struggling with the increasing workload within governance and how short staffing led to delays in reviews and learning. Increasing assurance requirements in all areas without dedicated additional time was difficult to deliver.

All maternity units had a risk register, with shortages of midwifery, obstetric and sonography staff common themes across most units.

Neonatal governance

Neonates are a high risk and vulnerable population with high rates of adverse events (0.74 per baby admitted). Adverse events are higher for babies born <28 weeks gestation and < 1500g birth weight.[144] It is essential to have a formalised approach for review and analysis to drive quality improvement programmes, alongside dissemination of learning.

Seven units described having a clear governance structure within their neonatal departments. All neonatal units described ascertainment of harm as being determined using the Datix system. Four units described receiving regular training in Datix submission. The most common incidents were medication errors. Medication errors were also the most frequent incident reported in GIRFT Neonatology and the Neonatal Deep Dive report into services at CTM.[145,146]

Eight units used a trigger list to prompt incident reporting with one unit using a modified IHI Global Trigger Tool. The implementation of a tailored perinatal Datix system, aligned with a modified neonatal Global Trigger tool, would support thematic analysis. Many maternity and neonatal units expressed a wish to have a Wales-wide perinatal trigger list to guide but not be exclusive for reporting incidents.

Apart from medication incidents, addressing thematic analysis through the electronic reporting system raises some challenges, supporting the implementation of a tailored perinatal Datix system aligned with a modified neonatal Global trigger tool. This system had previously been developed and used in one neonatal department until the new national Datix system was introduced in 2022 and team members described it as an efficient way to undertake thematic analysis.

All neonatal units described a mechanism for learning from events and knowledge about the management of nationally reportable incidents. As with maternity there was variation in the way incidents were reviewed and feedback received. National UK guidance states that there should be both local monthly multi-professional review of adverse incidents and network level oversight of the governance relating to incident review.[147]

Few units had protected governance time for neonatal nurses. There was variation in governance/patient safety time allocated to consultants with many units having no defined time. The MatNeo team learned that there was little administrative support for patient safety, with one unit describing long waits to obtain notes for review. BAPM recommends recognised allocated time for patient safety in job plans with formally designated programmed activities to facilitate high quality participation in risk for both medical and nursing staff.

All neonatal units had a risk register with workforce shortages and below target for Neonatal Nurses being Qualified in Specialty as the most common theme across units.

Internal review processes

Multiple reports have found that internal investigations are likely to be of poor quality and subject to bias.[148,149,150,151] Bias is possible if the investigator works with or within the same unit or system. Those working within the same team or network may have a shared perception of appropriate/safe care that is influenced by the culture and environment in which they work. As a result, they may fail to challenge the 'status quo' which is critical for identifying system weaknesses and opportunities for learning.

The MatNeoSSP team identified that some practice focussed on individual feedback without clear systems review when looking at incidents on their units. Recommended actions from incident reviews which focus on individuals rather than systems are weaker in terms of impact and are associated with recurrence events.[152] Mechanisms for thematic analysis did not appear to be established across all units. All units had mechanisms for feedback on incidents ranging from emails to formal meetings. However, there was variation in how feedback was given.

External review processes

There are two current processes for reporting and reviewing maternal and perinatal deaths nationally, MBRRACE-UK and the Perinatal Mortality Review Tool (PMRT). They provide thematic analysis and guide national recommendations. Wales was part of the Each Baby Counts programme from 2015 until the programme ceased in 2019.

In the case of maternal death, intrapartum death over 37 weeks, early neonatal deaths or babies with hypoxic brain injury (HIE) investigations in England are all externally reviewed by an independent organisation using human factors and systems based learning.[153] Whilst external review is not mandated for all these cases in Wales, HIE cases and neonatal deaths are presented to multidisciplinary All Wales Review Groups.

The benefits of having mandated external review include value to the individual participants, their organisation and the wider network in terms of reducing bias, encouraging transparency, providing external challenge and viewpoint. Learning from external review panels can be collated nationally and shared widely to facilitate learning.

Litigation associated with avoidable harm in maternity services accounted for 17.73% of claims in Wales, more than any other specialty in 2021-22. This is marginally higher than the reported 12% of claims in England, but which make up 62% of clinical claims by value (almost £6 billion) in England in 2021-22.[154] Claims for severe brain injury are more often for babies born at term and current payments are in the range of 10-20 million pounds. Every claim represents a baby and family affected by the devastating outcome resulting from the incident.

The standardised PMRT is used throughout the UK by maternity and neonatal units to review deaths.[4] The PMRT has been designed with user and parent involvement to support high quality standardised perinatal reviews on the principle of 'review once, review well'. All Health Boards in Wales are now using the tool. It was noted that there was variation through Wales in the number of staff involved in the PMRT.

The time to complete review is currently adversely affected by delays in perinatal pathology services, which affect the whole of the UK. Health Boards reported variable delays in receiving post-mortem results. Four Health Boards reported average time for results to come back to be over six months and two Health Boards reported an average return time of 11 months. One Health Board was receiving results on average in 10-12 weeks. This service was provided by an English trust.

The 2022 PMRT report, which has data on 5,475 cases of pregnancy loss from 2018 to 2022 nationally, rates cases with care issues graded C/D at between 13-19%, increasing slightly each year.

A standardised 'Once for Wales perinatal trigger tool,' including near misses would allow thematic analysis to be undertaken across Wales, identifying issues before they became prominent and facilitating processes to address the themes proactively and implement appropriate quality improvement programmes. Implementing an external investigation process for significant perinatal injury would facilitate further learning and thematic analysis. Ensuring staff have identified and funded roles for Patient Safety and Quality Improvement is essential.

Definitions: Grade A = no issues with care identified, GRADE B = care issues that would have made no difference to the outcome, GRADE C = care issues which may have made a difference to the outcome, GRADE D = care issues which were likely to have made a difference to the outcome.

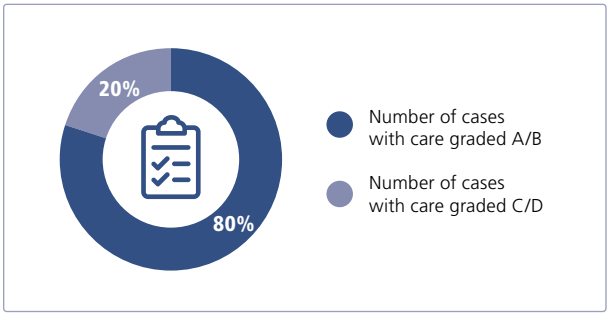


Figure 16. *Percentage of PMRT self-grading of care in Wales. National overview for 168 cases in Wales (between Jan 2020 and Jun 2022).*

Team communication and safety

Safety huddles are short meetings to share information about possible safety concerns. All neonatal units had a daily huddle or handover. Some departments had joint maternity and neonatal huddles and in one example of a bright spot, the MatNeoSSP observed how good communication was between teams in one unit.

Highly reliable organisations with standardised processes minimise variation and have improved outcomes using standard approaches to care by team members. The MatNeo team learned that some junior staff may alter the way they work depending on which senior team leader was on duty.

There is increasing evidence for improved outcomes when there is training in human factors and simulation. This is in line with recommendations from BAPM and RCOG as well as the Independent Maternity Services Oversight Panel (IMSOP) and Ockenden reports. Two units described training in leadership or human factors.

There has been an increase in standards and recommendations around multi-professional patient safety and governance meetings. All maternity and neonatal units reported multi-professional meetings for learning and feedback. All units had a Perinatal Morbidity and Mortality meeting, eight units had multi-professional attendance at these, although staff described barriers to attendance as availability of consultants, time and staffing pressures.

National and international benchmarking of neonatal practice and outcomes is embedded in local neonatal units. It is essential for leaders of organisations to be aware of these outcomes in order to support improvements in care and outcomes.

Digital requirements for maternity and neonatal services

Digital Maternity Cymru is a project to implement an all-Wales digital system for maternity services. It will be of huge benefit to women to have a unified digital system allowing for seamless care across Wales.

The MatNeoSSP team observed that progress on the digital agenda is being made in many organisations, e.g., local digital dashboards, web-based information with auto-translation into multiple languages, SharePoint referral forms in use from booking, through antenatal specialist services to postnatal. The MatNeoSSP team were shown examples of how much midwifery time had been saved by the addition of these processes. Several examples of these, such as for booking a new pregnancy are being rolled out at pace.

An opportunity exists for further pan-Wales collaboration to work on a 'Once for Wales' basis to design, for example, digital solutions for sharing learning, and providing information for women and families. This would offer an efficient use of expertise and resources through which to drive innovation and good practice nationally, rather than risking variation through local development. Local/regional differences are noted, but standardisation offers significant safety benefits and should be a collective responsibility wherever possible.

Furthermore, examples were provided which described the difficulties in satisfying a large number of stakeholders to achieve standardisation. One example being that a new Standard Operating Procedure had taken 18 months of consultation and still not yet been approved. This delay was not due to a lack of action, but to the difficulties in gaining consensus agreement across the range of stakeholders involved.

The RCOG supports the WISDOM website, which is maintained and is available to host all the guidelines for maternity in Wales in one place. There is opportunity to use this more fully.

The MatNeoSSP team received positive feedback from around Wales for the weekly fetal medicine MDT held on Microsoft Teams. This bright spot, enabled by investment in digital infrastructure, gives all clinicians in Wales who wish to join, access to the specialist fetal medicine MDT to discuss cases and disseminate learning. This was praised as an improvement both for the service and for education.

Maternity data is challenging currently in Wales. Each Health Board has a different digital system of varying maturity and paper notes. Two Health Boards had sophisticated dashboards allowing real time understanding of data and outcomes. With the DMC programme and a digital midwife in each Health Board, there is the opportunity for a national dashboard, aligned with NHSE core outcomes and clinical quality metrics to be developed. BAPM has recommended that maternity and neonatal digital system should be able to 'talk' to each other.

Priorities for action: Safe and effective care

Patient Safety & Governance		Actions
11	11.1 Develop and implement standardised advice for management of women with acute problems in pregnancy	**A.** Implement standard advice and pathways to support each Health Board, emergency service and clinician to provide optimal care for women experiencing acute pregnancy problems.
		B. Ensure that standardised clinical advice is made available to women and their families: a. Using Plain English principles b. Available via the most accessible channels c. Easily available at times of critical need d. Translated into multiple languages (including Welsh).
		C. Review information being given via 111 web pages and ensure: a. Alignment with the standard advice b. Published using Plain English principles c. Available in multiple languages (including Welsh).
		D. Establish telephone advice resources, based on the standard advice, and embed their use throughout NHS Wales maternity services.
		E. Create permanent midwifery posts within Welsh Ambulance Services Trust (WAST) to: a. Establish an expert link with maternity and neonatal services for clinical advice, information and partnership working, b. Provide expert input into development of a national 'Labour Line' telephone service. c. Provide expert input into consideration of a national 'Triage Line' telephone service. d. Provide specialist input into internal WAST training, paramedic undergraduate and post graduate education.
	11.2 Implement a standard approach to the detection of the sick or deteriorating woman in line with NICE guidance (NG133)	**F.** Develop an All-Wales Maternity Early Warning Score (MEWS) Chart and implement in every healthcare setting in Wales where a pregnant woman could receive care.
	11.3 Establish maternal medicine network access across NHS Wales	**G.** Establish a Maternal Medicine Network for South Wales, ensuring: a. Leadership from an obstetric physician, b. Senior midwifery coordination, c. Specialist advice from an obstetrician trained in maternal medicine.
		H. Develop and maintain a service level agreement (or equivalent) between NHS Wales services in North Wales with the Liverpool Maternal Medicine Centre.
		I. NHS Wales to consider if a Maternal Medicine Centre could/should be shared between Health Boards.

Patient Safety & Governance		Actions
11	**11.4 Embed national guidance (NICE, RCOG, All Wales guidance) relating to pregnancy and birth across NHS Wales**	**J.** Refresh the NHS Wales Safer Pregnancy Campaign incorporating actions from Saving Babies' Lives Care Bundle version 3.[155] This will require funding/ implementation of: - a. Smoking cessation support readily available in all Health Boards. b. An improvement programme to ensure standardisation of carbon monoxide monitoring. c. Training to support provision of: a) Sufficient sonography services b) Uterine artery dopplers at 20 weeks c) Transvaginal cervical length in preterm birth clinics (NICE Guidance NG25)[156] d. Computerised CTG (CardioTocograph) to be made available in all units for women with reduced fetal movement or early onset fetal growth restriction. e. Preterm birth prevention clinics established in each health board.
		K. All Health Boards to review existing complement of specialist midwives and ensure there are posts to cover multiple pregnancy, diabetes and preterm birth.
		L. All Health Boards to implement Placental Growth Factor (PLGF) testing for women with suspected pre-eclampsia (NICE guidance NG133).[157]
		M. All Health Boards to establish multiple pregnancy clinics with a specialist midwife, obstetrician, and sonographer as core staff (NICE guidance NG137).[158]
		N. National guidance that is not followed should be reported by each health board to the NHS Executive Maternity and Neonatal Network
		O. NHS Wales to undertake a review of the effectiveness of GAP/GROW compared to alternative models for detecting small for gestational age babies.
	11.5 Minimise variation in intrapartum care in line with NICE guidance	**P.** All Cardio Tocograph/Intermittent Auscultation training to consider using Each Baby Counts + Learn & Support toolkits[159] and ensure inclusion of content relating to: a. Situational awareness, b. team working (including communication), c. and escalation *(See 3A)*
		Q. In suspected preterm labour, all Health Boards to ensure all women have access to the most accurate preterm birth tests when presenting, including: a. ultrasound machines to perform transvaginal cervical length, b. and quantitative fetal fibronectin.
		R. In suspected preterm labour, all Health Boards to ensure obstetricians are trained to perform transvaginal cervical length scans (see 3A).
		S. Enhanced maternal care training to be provided for enough midwives to ensure an appropriately qualified midwife on every shift in obstetric units. (See 3A). *(E.g., PROMPT CiPP course)*

Patient Safety & Governance		Actions
11	11.6 Ensure evidence-based care and advice given to postnatal women on modifiable risks	**T.** Ensure all obese postnatal women can access the primary care obesity prevention programme *(in development as of April 2023).*
		U. Ensure all postnatal women who have had gestational diabetes receive advice relating to: a. postnatal testing b. yearly HBA1C c. lifestyle modification to reduce development of type 2 diabetes and associated complications
		V. Ensure all postnatal women who have had pre-eclampsia received advice relating to: a. lifestyle modification b. annual blood pressure checks.
		W. Ensure all postnatal women who had a preterm birth under 34 weeks have an appointment with a specialist obstetrician to discuss implications for future pregnancies.
	11.7 Develop and launch data dashboards which enable monitoring and benchmarking of clinical activity and outcomes 11.8 Ensure standardised approach to maternal and neonatal safety assurance and measurement throughout NHS Wales	**X.** NHS Wales to agree the content and output of a national standardised data dashboard which enables benchmarking against the NHS England Maternity Services and National Maternity and Perinatal Audit data sets.
		Y. Health Boards to collaborate and develop local dashboards, to include the standardised perinatal quality surveillance dashboard (see example in report appendix) to enable real-time activity/outcome measurement and monitoring to support local improvements. a. A standardised perinatal quality surveillance dashboard would incorporate the following: • Clinical outcomes including stillbirths, neonatal deaths, HIE, ATAIN, SBLCBv2 progress and compliance. • Staffing vacancies for maternity and neonatal services for all relevant professional groups. • Training compliance. • Maternity and Neonatal Risk register
		Z. NHS Wales to implement annual assurance safety metrics which are aligned with safety actions elsewhere in the UK, including consideration of incentivisation.

Patient Safety & Governance		Actions
11	**11.9 Optimise and standardise maternity & neonatal governance systems across Health Boards**	**AA.** Develop and implement NHS Wales Maternity and Neonatal Trigger Tools to guide standardisation of event/incident reporting. **AB.** Appoint national Maternity and Neonatal Safety Leads to support national learning and ensure implementation of learning from incidents.
	11.10 Ensure local and national review of maternity & neonatal incidents to facilitate thematic analysis, learning and improvement	**AC.** Align NHS Wales Datix fields with agreed national Trigger Tools and analyse data at Health Board and national level to identify themes and guide continual improvement.
	11.11 Ensure Executive Boards are aware of maternity & neonatal metrics, outcomes, safety and governance issues	**AD.** NHS Wales to develop and implement a standardised maternity & neonatal adverse event review process *(E.g., NHS Scotland Perinatal Adverse Event Review Process).*[160]
		AE. All maternity and neonatal units to have robust governance team structure, with accountability and line management to the DoM and CDs. The team should include: - a. a designated senior midwife/nurse and medical consultant leads for governance: b. with protected time allocated for fulfilling their roles including external review for PMRT, c. sufficient administrative support, d. and equitable allocation across both maternity and neonatal services.
		AF. All incident investigators to be fully trained and competent to undertake their roles, to include consideration of training in: a. Systems Engineering Initiative for Patient Safety (SEIPS).[161] b. Patient Safety Investigation Response Framework (PSIRF).[162] *(See 3A)*
		AG. All Health Boards to ensure recorded justification and decision making to support any local deviation from nationally agreed protocols/guidance/ best practice.
	11.12 Ensure all cases of maternal death, term intrapartum stillbirth, early neonatal death>37 weeks and hypoxic ischaemic encephalopathy (HIE) are reviewed by a fully trained independent investigation team	**AH.** NHS Wales to develop or commission a system for external independent review for all cases of: a. Maternal death, b. Term intrapartum stillbirth, c. Early neonatal death>37 weeks, d. Hypoxic ischaemic encephalopathy (HIE).

Improving clinical standards and outcomes		Actions
12	**12.1 Optimise Maternity & Neonatal Outcomes**	**A.** Ensure that perinatal quality improvement is embedded and sustained as a cultural and behavioural norm throughout NHS Wales. Supporting implementation of: a. Local improvement activities in each unit and Health Board b. National improvement activities such as perinatal optimisation PeriPrem Cymru and MatNeoSSP Improvement Collaborative.
		B. Ensure all instances where babies were not born in the right place (e.g., <32 weeks) are subject to robust local and national review (including babies born prehospital under care of the Welsh Ambulance Services Trust).
		C. All Health Boards to establish and sustain mechanisms for maternity and neonatal teams to work together across service boundaries, to: a. Create strong working relationships and strong communication pathways, b. Support changes in service development c. maximise multidisciplinary learning e.g., Sim training, d. Optimise clinical outcomes. *(In line with national guidance)*
		D. NHS Wales to implement the NHS Wales Probiotics Guideline
		E. Develop and implement an NHS Wales robust definition and process for review of all infections in babies on neonatal units. a. Health Boards to constantly record and monitor local instances. **F.** Report and publish infection rates nationally every 6 months. **G.** Consider use of established QI process for neonatal infection e.g., Vermont Oxford Network (VON)
		H. Ensure neonatal teams embed national guidance on specialist neonatal respiratory care for babies born preterm.[163]
		I. All NHS Wales maternity and neonatal units to ensure that a designated Quality Improvement Midwife/Nurse and senior consultant, with: a. The skills/competence to lead quality improvement activity in their unit. b. Time allocated to act as their unit's Quality Improvement Lead.
	12.2 Ensure Services are equitable for babies across Wales **12.3 Improve the pathway for babies presenting with bilious vomiting**	**J.** All neonatal units to have a plan and to be allocated capacity to have early developmental intervention and to undertake developmental assessment at two years, using AHP input.
		K. Undertake a national review of care pathways for babies with bilious vomiting to enable close partnership working between surgical NICU's, transport services and all service providers to: a. Reduce unnecessary transfers b. Minimise mother-baby separation c. Consider drive-through options
		L. Develop a system of radiology support for neonatal units with no out of hours radiology services in order to reduce delays in access to surgical review and upper GI contrast study.

Bereavement Care		Actions
13	**13.1 Minimise variation in bereavement care for all families who lose a baby, regardless of gestation or age**	**A.** NHS Wales to explore commissioning options for perinatal pathology outside Wales to reduce waiting time for post-mortem results.
		B. NHS Wales to fully implement all five pathways within The National Bereavement Care Pathway (NBCP).[164]
	13.2 All maternity and neonatal units to ensure specialist bereavement posts are created/sustained within workforce plans	**C.** Provide equitable bereavement care across Wales and services to ensure that all bereaved women receive care and advice from a Bereavement Midwife regardless of place of loss.
		D. Each health board to establish and sustain a Rainbow Clinic model which provides: a. Standardised debriefs for bereaved families, b. Specialist obstetric and midwifery care for women in future pregnancies to reduce risk of recurrent loss.
		E. Health Boards to review the caseload of all Bereavement Midwife posts to ensure appropriate use of skills, and plan for delivery of sustainable bereavement services in line with NBCP requirements.
		F. Health Boards to ensure each Neonatal unit has a named Bereavement Lead, with a. Protected time to fulfil the role. b. Potential for a single postholder to provide cover across multiple geographically adjacent units.
	13.3 Create national and local implementation plans to embed the BAPM Lactation and Loss Framework across NHS Wales	**G.** Establish funding/resources, pathways, information and training to enable all Health Boards to embed the BAPM Lactation and Loss Framework for Practice.[165]

Sustainable quality services

The principle of sustainable quality services can be summarised as: *"Women and their babies will receive maternity and neonatal services which are sustainable and the highest quality possible."*[166]

Clarity over funding for all maternity and neonatal care is required with additional new funding to resource clearly identified needs.

Funding provision for maternity and neonatal care needs to be protected within Health Boards and cover the whole course of management including through to outreach and community care. It is recognised that the WHSSC Neonatal Review will be considering related issues.

As maternity and neonatal services are interdependent, it is important that reviews of service planning and funding are undertaken together.

Movement of women

Women move across Health Boards for a variety of reasons.

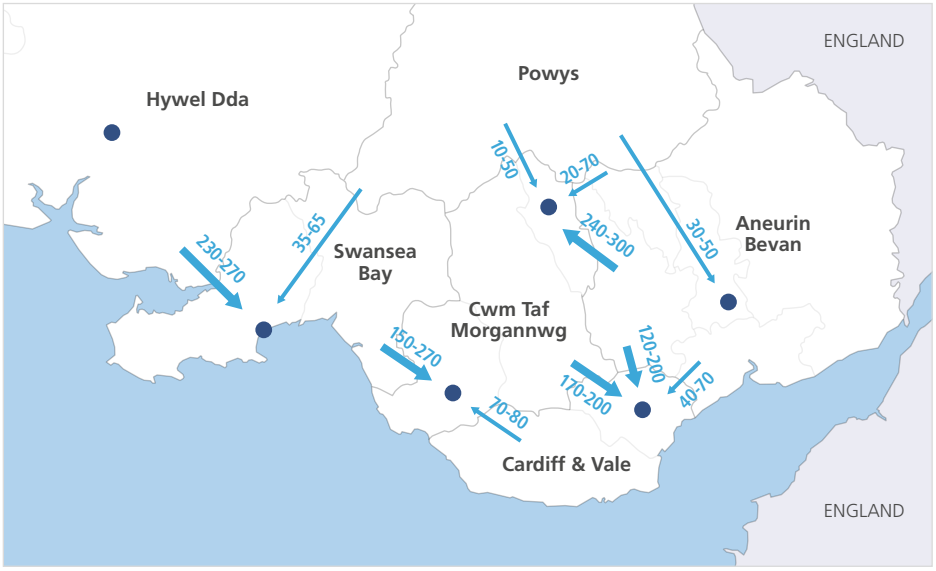
The MatNeoSSP team attempted to determine the number of women moving between Health Boards in pregnancy. Only one unit kept easily accessible data and monitored the trends monthly. This unit reported about 40 transfers per month, amounting to 10% of births. More than 70% of the women transferring into the Health Board had pregnancies requiring obstetric-led care.

To gain a broader picture, data was extracted from the admitted patient care data set (APCD) for in-hospital births compared to mother's postcode of residence to demonstrate movement of women around Wales. Examples are presented below in Figures 17-19.

The Health Boards receive specific core funding allocations based primarily on the size and make up of their local population. There are historical agreements for numbers of women who may move between Health Boards. As maternal co-morbidities increase and care advances, the proportions of women who require obstetric-led care also increases. With the increase in antenatal ultrasound scanning and screening for conditions such as gestational diabetes, antenatal care becomes more resource-intensive to deliver.

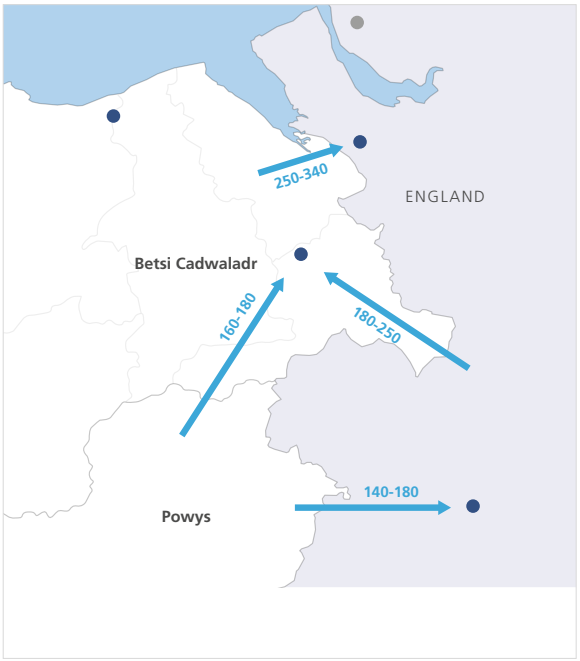
The MatNeoSSP team observed and heard of capacity strain within some units. Therefore, it is necessary to apply correction to resource or consider alternative funding models.

Figures 17-19. *Data derived from place of birth vs resident postcode. These maps show the flow of women from local authority area of residence to hospital site of birth where these flows cross local Health Board or national borders.*



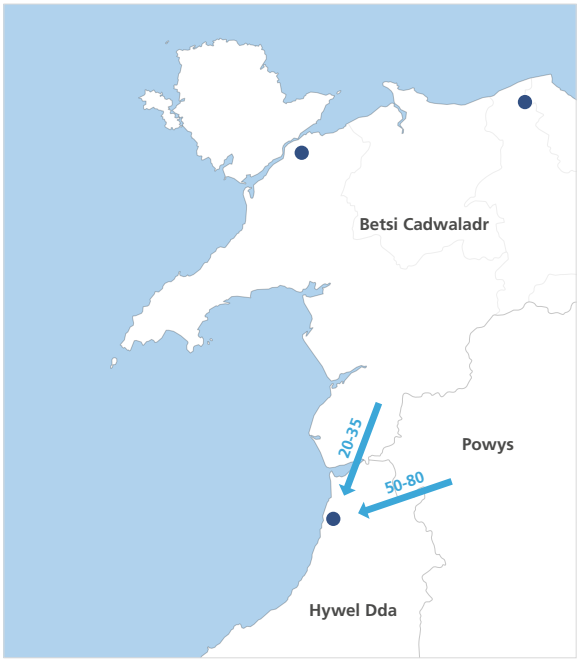
Annual out-of-health-board-area births in south east Wales, estimates based on 2020-2022 data

Ranges shown are estimates based on in-hospital births data for 2020-2022, extracted from the Admitted Patient Care Data set (APC Os).Only flows across health board area borders are shown. Only selected flows are shown, based on sufficient volume.



Annual out-of-health-board-area births in north east Wales, estimates based on 2020-2022 data

Ranges shown are estimates based on in-hospital births data for 2020-2022, extracted from the Admitted Patient Care Data set (APC Os). Only flows across health board area and national borders are shown. Only selected flows are shown, based on sufficient volume.



Annual out-of-health-board-area births in north west Wales, estimates based on 2020-2022 data

Ranges shown are estimates based on in-hospital births data for 2020-2022, extracted from the Admitted Patient Care Data set (APC Os). Only flows across health board area-borders are shown. Only selected flows are shown, based on sufficient volume.

As outlined in the introduction, there are several services in maternity commissioned by the Welsh Health Specialised Services Committee (WHSSC), including a fetal medicine service which handles around 1100 referrals every year.

This is a busy clinical service attended by women and families from across South Wales. Almost all consultations are in person, apart from postnatal follow up. This service comprises 3 specialist fetal medicine consultants, specialist midwives and clinic coordinators. The MatNeoSSP team learnt that approximately 60-70% of the women seen within the fetal medicine unit are resident in other Health Boards and are referred in from other maternity departments. A proportion will give birth in their home unit, but a substantial number transfer into the fetal medicine host Health Board for birth. The MatNeoSSP team learned that in the main fetal medicine centre, there is joint consultation between fetal medicine and neonatology consultants.

The MatNeoSSP learned that all women who require counselling for neurological concerns or who need a fetal MRI scan travel to Bristol. Whilst there is a paediatric neurology service in the Children's Hospital for Wales, the MatNeoSSP team learned that this does not currently have capacity to provide counselling for these women. The MatNeoSSP heard that clinicians in centres across Wales are keen to deliver care closer to home (e.g., Neonatal counselling).

Planning neonatal services

It is recognised that WHSSC have recently undertaken a review of cot configuration across Wales (published following collection of MatNeoSSP data). There is a desire to work closely with service planners and commissioners to avoid duplication and maximise impact of both pieces of work.

Ongoing review of care patterns, flow and activity is essential and BAPM recommends that flow and configuration for maternity and neonatal services are looked at together. Any review of service or cot configuration must include Transitional Care and Outreach services as part of maternity and neonatal care working closely with the Maternity and Neonatal Network. Providing care as close to home as possible requires capacity review including the maintenance of skills of the workforce and an effective transport service.

Hospitals across Wales provide different types of neonatal service for their local population. These include three neonatal intensive care units (NICUs), one sub-regional neonatal unit for babies above 26 weeks gestation, and special care units for babies above 32 weeks gestation (see introduction for more details).

The BAPM sets standards for cot occupancy, nursing numbers and medical cover for neonatal units. It is

recommended that occupancy does not go above 80% as this may have a negative impact on outcomes. Conversely when units have low occupancy rates this could reflect an inefficiency or flow patterns for babies within a geographical area. BAPM considers that it is essential that core activities are maintained in NICUs and Local Neonatal Units (LNUs).

It must be remembered that geography plays a role in Wales with the balance between unit activity and closeness to home relevant in terms of national guidance and equitable care.

Considering the Neonatal Critical Care Transformation Review findings, it states that NICUs should admit at least 100 very low birth weight babies (< 1500 grams) and undertake at least 2000 intensive care days per year.[167] These numbers are based on outcomes from studies on neonatal unit activity.

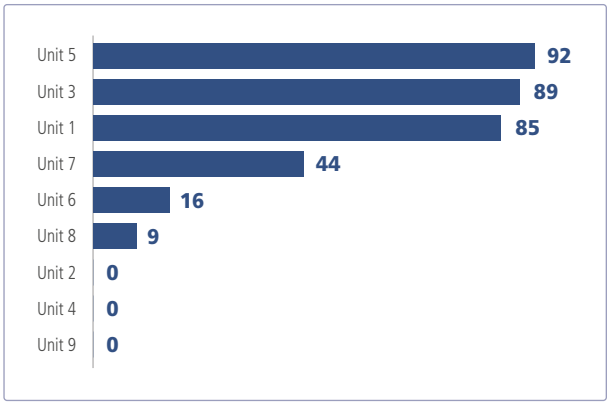


Figure 20. *Number of very low birth weight babies (VLBW) babies looked after in neonatal units in Wales Jan-Dec 2021. NICU standard to admit at least 100 per year.*

BAPM recommends rotation of staff from smaller units to bigger neonatal units to maintain skills. The MatNeoSSP team learned during site visits that one SCU had appointed a consultant with sessional commitment with a local NICU. The consultant felt it helped them to maintain skills. In the same unit, junior medical staff rotated to the tertiary unit and said this helped them feel more skilled and confident, especially to deal with emergencies.

It is important that neonatal units are able to look after their own population, so cot allocations need to consider the number of births. In general, around 8-9% of babies in a general population will get admitted to a Neonatal Unit. This percentage has decreased over the last decade within the UK, and this may be due to a reduction in the number of babies admitted secondary to the ATAIN (Avoiding Term Admission in Neonates) programme and the development of Transitional Care services. Despite the drop in overall percentage of birth population admitted, neonatology has become more complex with care now being offered to smaller and sicker babies.[168]

In utero fetal therapy has also advanced as has comprehensive planning for palliative care post birth. Preterm babies have immature lungs and are at risk of developing respiratory distress syndrome requiring ventilation support. Whilst care has become more complex in some areas, there has been a move away from ventilating many preterm babies to offering gentler non-invasive methods for ventilation. In a similar vein, there has been a move, based on evidence, to start feeding preterm babies earlier and achieving full feeds sooner. Some preterm babies may progress to HD level from IC more quickly than previously generating more HD cot days.

Having goal focussed care means that teams plan progression on a daily basis whilst providing meticulous care and delivering marginal gains. Limiting stay and creating flow through a unit as efficiently as possible will ensure babies are discharged sooner to be with their mothers and families. The team saw evidence in one unit where they had reviewed their term admissions and noted that many babies had been commenced on intravenous fluids. By starting oral feeds on admission where appropriate meant babies could progress through the unit more efficiently whilst also minimising intensity of care.

In relation to discharging or transferring babies, it is important to document either through audit or incident reporting if there have been any delays to assessment or intervention and what barriers there may have been. Reasons for an inability to accept a baby back to their local unit and thus closer to home should also be explored and whether further training for local teams would facilitate more local care (maintaining skills of local teams addressed elsewhere in this document).

Likewise delays to being discharged to the community such as no access to community services over the weekend or inability to plan care with social services need to be reported. This will provide a true picture to flow bottlenecks allowing action to be taken. Within the neonatal Badgernet database, additional nonspecial care days are recorded. This is one way of identifying delays to discharge or transfer.

Neonatal units

As stated above, occupancy rates of neonatal units should not go above 80% as this is associated with negative outcomes. Data on occupancy was not available for the sub regional NICU. Of data provided, overall occupancy for combined IC, HDU and SC went above 80% for all of the three NICUs. For intensive care days, one Health Board was above the intensive care occupancy rates in both 2020 and 2022 (6 months only). The MatNeoSSP team learned that not all cots were available to use due to workforce shortages and that the lack of available cots caused considerable stress to both neonatal and maternity teams.

One Health Board had high occupancy rates for HDU and the MatNeoSSP team learned that this may be due to the fact that the team there provides more HD care because of their preferred use of non-invasive ventilation and early feeding. Another Health Board had relatively low occupancy for IC and HDU cot days but high rates for SC days (113% in 2021). The relatively low rates of IC and HD occupancy may have resulted from high levels of SC cot days blocking overall beds. The high SC occupancy itself may reflect the fact that Transitional Care is not well established at that Health Board, leading to babies being separated from their mothers unnecessarily. The latter illustrates the importance of a holistic approach to neonatal services from ***cot to community*** to keep mothers with their babies and to allow for efficient working. All units with their occupancy above 80% should be supported by their Health Boards and the Maternity and Neonatal network to objectively review where the solutions are and to collaborate with commissioners to address the issues.

One Health Board maintained core activity as recommended by BAPM for both intensive care days and admission numbers for very low birth weight babies in one year of the two examined. The two other NICUs in Wales provided less than BAPM core activity in terms of Intensive Care Days and number of Very Low Birth Weight (VLBW) babies admitted. Across the three NICUs in Wales there was an average of just over 6,000 intensive care days in 2020 and 5,457 average intensive care days in 2021. BAPM recommends that NICUs admit at least 100 VLBW babies per year. Only one of the three NICUs admitted >100 VLBW babies in 2020. The average number admitted across the three NICUs was 91 for both 2020 and 2021.

BAPM recommends that operational delivery neonatal networks that have NICUs admitting less than 100 VLBW or carrying out <2000 intensive care days should develop plans to amalgamate NICUs (or NICUs plus LNUs) to increase throughput or change designation.[169]

Neonatal transport

Neonatal transport service provision is critical to neonatal services, ensuring expert clinical support for babies who require transfer for higher levels of neonatal care (uplifts), as well as transporting babies to their local hospitals when higher levels of care are no longer required. National standards are set in the UK by the Neonatal Transport Group and include variables such as mobilisation times and transport related incidents. The service in Wales was assessed against these.

Every year, a number of babies are born in SCUs in Wales at <32 weeks gestation. Sometimes, it is not possible to transfer a mother out pre-birth if she, for example, presents in advanced labour or has complications. There will always be a number of babies who have to be transferred after they are born (ex utero transfer). It was reported to the MatNeoSSP team that there are around 90 babies born < 32 weeks annually in SCUs in Wales. Most of these babies are transferred out to NICUs.

The MatNeoSSP team learned that some SCUs undertake incident reviews into those babies <32 weeks that are born in their units and that the Maternity and Neonatal Network is also involved in some reviews however are reliant on notification form local units. Having a robust method to explore reasons and barriers to transfer for all babies not born in the right place is essential for enabling development of services to allow equity of access to intensive care for all babies who need it and minimising the risks of an ex utero (after birth) transfer.

There are two neonatal transport services in Wales. Standards for Neonatal Transport services are determined by The Neonatal Transport Group working as part of the British Association of Perinatal Medicine. The MatNeoSSP reviewed compliance against a number of the national standards for both services. For time-critical transfers, the standard for mobilising the transport within one hour of the start of the referring call is 95%. One of the neonatal transport services mobilised in this time 85% of the time in 2020-2021 and 100% in 2021-2022 period.

The reasons for 85% compliance were reviewed in detail. The service has a governance policy and clear guidelines for how incidents are reviewed. These are reviewed locally then at Transport sub-group.

Responses to transport incidents are sought from all the individuals/services involved, logged and also discussed at the sub-group. Learning points are explored and disseminated.

National Standards state there will be a single point of contact through which the Transport Service can be contacted and activated at all times for clinical advice and cot/maternal bed location. Currently there is no single point of contact, no option for formal teleconferencing and call recording and no joint maternity bed finding and cot locator service in either of the transport services. North Wales can undertake teleconferencing calls.

There is a move to support families travelling with their babies during neonatal transfer and it is a national standard where possible. Families have travelled with their babies in 18.4% and 46% of transfers in South Wales and North Wales respectively in 2021-2022 (COVID-19 may have impacted on this lower percentage).

Priorities for action: Sustainable quality services

Planning Maternity Services		Actions
14	**14.1 Ensure resourcing for maternity services is transparent, and an alternative funding model urgently considered** **14.2 Establish a care and funding model which fairly and adequately compensates Health Boards for delivering high quality care to all woman, whilst supporting personalisation, safety, and choice**	**A.** Ensure that funding/resources follow the woman and her baby as far as possible, to a. Ensure women's choices are funded, b. Support organisations to work in close partnership to deliver services. **B.** Incentivise the delivery of high quality and efficient care for all women, regardless of where they live or their health needs (also see 11Z).

Planning Neonatal Services		Actions
15	**15.1 Ensure there is joined up review of all perinatal services and that neonatal services encompass care from *cot to community*** **15.2 Ensure efficient use of cot capacity across Wales** **15.3 Ensure efficient flow of babies to their local hospitals or back home with their families** **15.4 Ensure babies are born in the right place where possible** **15.5 Ensure SCU teams are skilled in managing repatriated babies from NICUs** **15.6 Maintain emergency care skills and confidence for all neonatal clinical staff, particularly those working in SCUs**	**A.** Planning for neonatal services (such as reviews of flow and capacity) should be coordinated jointly with maternity services. **B.** Transitional Care and Outreach services must be included where there is any review of maternity and/or neonatal services. **C.** Strategic planning and commissioning of maternity and neonatal services (from ***Cot to Community***) should be coordinated jointly with commissioners and the NHS Executive and include representation from all members of the perinatal team. **D.** Undertake central review of the BAPM recommendations regarding NICUs admitting < 100 VLBW babies or carrying out <2000 intensive care days to develop plans to amalgamate NICUs to increase throughput or change designation. **E.** Establish a system to electronically capture data relating to transfers and failed transfers of women and babies, in utero and ex-utero in both maternity and neonatal settings. **F.** Develop and implement a tool for monthly monitoring of each NHS Wales neonatal unit's non-special care days (coded HRG 3-5 on Badgernet). a. All units to share and discuss results regionally and nationally to identify improvements and share learning, e.g., barriers to delayed discharge, outreach support, Transitional Care facilities. **G.** Establish and fund ongoing rotational experience for permanent medical staff from SCUs to NICUs.

Inutero Transfers and Neonatal Transport		Actions
16	**16.1 Ensure compliance with all national neonatal transport guidance** **16.2 Ensure 24/7 equitable transport service provision across Wales**	**A.** Establish NHS All Wales guidance and toolkit to enable review of all clinical incidents related to transfers.
		B. Maximise the ability of families to travel with their baby.
		C. Establish a Transport Service single point of contact for clinical advice and cot/maternal bed location. a. To include teleconferencing, call handling, and call recording functionality.
		D. Review service against National Neonatal Transport Group (UK) standards annually.

3. Moving forward

The purpose of the MatNeoSSP Discovery Phase was to inform improvement activity: *'To improve the safety, experience and outcomes of maternal and neonatal care and provide support to enable teams to deliver a high quality healthcare experience for all pregnant people, babies and families across maternity and neonatal care settings in Wales'*.

This report provides a summary of what the MatNeoSSP team heard and found, with clear priorities for action to be taken forward. There are many bright spots of good and excellent practice that can and should be shared, learned from and built upon. The priorities for action are available in the appendix to this report, with more detail on how they could be achieved.

Plans for a MatNeoSSP phase two are currently in development with partner organisations across Wales on how best to move forward on the priorities with the programme, capitalising on the momentum this Discovery Phase has ignited.

Existing work

NHS Wales has not delayed existing work while the Discovery Phase was underway. Local improvement projects have continued. National activities which address similar priorities are also underway, including:

- Health Education and Improvement Wales – Maternity and Neonatal Strategic Workforce Plan for NHS Wales.
- Digital Maternity Cymru – funding of £7 million has been allocated for procurement and implementation of a digital maternity solution for Wales.
- Healthcare Inspectorate Wales – continues to undertake both announced and unannounced reviews of services if concerns are raised. Reviews focus on patient experience, safe and effective care provision, management and leadership. NB: To date, Healthcare Inspectorate Wales has not undertaken any reviews of neonatal units in Wales.
- PERIPrem Cymru – funding has been allocated to implement a bundle of 10 interventions across NHS Wales with the aim of reducing mortality and brain injury in preterm babies.
- The quality and safety assurance team (previously the NHS Wales Delivery Unit (DU) within the NHS Executive) is responsible for the total quality management of nationally reportable incidents. The team also provide a role in identifying national themes for systematic learning and improvement that aim to minimise patient safety harm and morbidity whilst improving people experience.
- Wales Maternity and Neonatal Network – working with clinicians to deliver a broad portfolio of work under the five key themes of the NHS Wales Maternity vision: Safe and effective care; Family centred care; Continuity of carer; Skilled multi-professional teams and Sustainable quality services.
- Transport Operational Delivery Network (hosted by Swansea Bay UHB) – extension of the Cymru-inter-Hospital Acute Neonatal Transport Service (CHANTS) neonatal transport service in South Wales, and ongoing work to review and improve emergency transport processes for both women and babies across Wales.
- Welsh Health Specialist Services Committee Neonatal Cot Review – Cot reconfiguration and realignment of tariff for neonatal services in South Wales.
- Welsh Risk Pool Maternity Safety Learning Programmes – aimed at reducing harm and litigation in maternity services through training and education programmes (PROMPT Wales and Community PROMPT Wales).

Early impacts

The Discovery Phase appears to have influenced and motivated change through the conversations and visits that were a key part of it. Sharing the findings and priorities for action with stakeholders has also generated momentum for improvement work. New quality improvement work has got underway in Health Boards and existing work has been strengthened by the Discovery Phase. In requesting certain data, the team helped to identify data gaps in Health Boards, and several data-driven improvement projects have started in those areas.

The Discovery Phase has also led to the building and strengthening of relationships between maternity and neonatal teams and improvement leads in Health Boards. To date, the team has been made aware of 46 separate local improvement projects were being supported by the MatNeoSSP local safety Champions as a direct result of MatNeoSSP and 42% of the local projects have a perinatal focus, with the remaining projects split equally between maternity and neonates.

Transitioning to a new phase

An important next step in the transition between MatNeoSSP Discovery to Improvement Phase was the April 2023 National Shared Learning Event. This hybrid in-person and online conference attracted around 200 delegates from across NHS Wales. The event showcased bright spots of excellence found in every maternity and neonatal service across NHS Wales and invited expressions of interest in order to spread and scale. At the time of writing, 77 expressions of interest had been received. All interest is being followed-up by the MatNeoSSP local safety Champions, with this work having three aims:

1. Identify which bright spots of excellence are easily transferrable between organisations/units with the same outcomes achieved by applying the original methodology, tools or techniques.
2. Identify which bright spots of excellence can't be implemented without adapting to local context or culture, and resultant testing of alternative ways to achieve results.
3. Capture learning and create a resource pack to enable further spread and scale activity across NHS Wales and beyond.

Current funding of the MatNeoSSP postholders (leads and local Champions) has been allocated to 30 September 2023. The activity described above will be delivered by the end of that period. Ongoing support for these posts will enable the delivery of an ambitious improvement programme for perinatal services, working with local teams and national partners. At the time of writing, the separate functions of the NHS Wales Executive are working together to design a cohesive response which

draws on the collective skills and responsibilities of their own teams and those of key partners to ensure clear and consistent improved approaches to maternity and neonatal safety within all services in Wales.

The actions suggested for each of the MatNeoSSP priorities for improvement have been distributed to all MatNeoSSP National Programme Board members, which includes representatives of all key partners and Executive Directors of Nursing from all NHS Wales Health Boards. These will be subject to exploration, approval and prioritisation at a future Board meeting.

4. Appendices

Appendix 1: National radar charts

Peer Review Panel Decision of the Maternity Services in All Wales

Peer Review Panel Decision of the Neonatal Services in All Wales

Figure 21: *National radar charts showing the combined findings for maternity and neonatal services in Wales.*

The radar chart offers four potential status categories for each of the nine framework dimensions, from 'just beginning' to 'exemplary'.[170]

Each Health Board was provided with their own radar chart.

Note that the 'just beginning' category is represented by the inner circle, with the most mature 'exemplary' category being on the outer ring of the circle of these charts.

Appendix 2: Priorities for action

Priorities highlighted in teal are recommended for early adoption.

Timescales are described as follows:

- Short term: 6-12 months
- Medium term: 1-2 years
- Long term: up to 3 years

With recognition that processes once set up may require ongoing input.

Skilled multi-professional teams

Women, babies, and their families will receive care from multi-professional teams, with access to specialist services.

Leadership & Teamworking		Actions	Timescale	Improvement Collaborative
1	**1.1 Ensure Executive Board members and senior leaders are visible to, and have visibility of, maternity and neonatal services**	**A.** Ensure maternity and neonatal services are a standing agenda item at all Health Board Quality and Safety Meetings. a. Ensuring discussion of themes, learning and action resulting from reported incidents. b. and review of the standardised perinatal quality surveillance dashboard.	Short Term	Leading Safe Services
		B. All Health Boards to appoint a Director of Midwifery to manage the strategic delivery of maternity services locally.	Medium Term	Leading Safe Services
		C. Implement quarterly standardised leadership walk-arounds.	Short Term	Leading Safe Services
		D. All Health Boards to appoint and resource Obstetric and Neonatal Consultant Safety Leaders and neonatal senior nurse to sit on the Executive Board to create a floor-to-board link and ensure quad representation	Short Term	Leading Safe Services
	1.2 Ensure leadership and culture are optimised to improve maternity and neonatal teamworking	**E.** Ensure staff in recognised leadership roles have access to leadership training which includes content on culture and the principles of high performing teams and that resourcing for higher/additional qualifications is supported.	Medium Term	Leading Safe Services
		F. Ensure structures and ways of working, including co-location, which enable midwifery, obstetric and neonatal leads to regularly meet, share, and learn together.	Medium Term	Safe Teams
	1.3 Develop a National Improvement Collaborative for Maternity and Neonatal Services in Wales	**G.** Ensure improvement-related recommendations from MatNeoSSP Discovery Phase are subject to a test, scale and spread methodology across NHS Wales.	Short – Long Term	~

Workforce		Actions	Timescale	Improvement Collaborative
2	**2.1 Develop a workforce strategy for NHS Wales maternity & neonatal services** **2.2 Adherence to national workforce standards from BAPM, RCOG & RCM to deliver optimal care**	**A.** National workforce planning to establish safe standards of care for neonatal, midwifery and obstetric workforce (to include recruitment, retention and training). **Strategy to ensure:** a. Minimum staffing levels include locally calculated uplift, representative of the three previous years' data, for all absences including sickness, mandatory training, study leave annual leave and maternity leave. b. NICUs (neonatal intensive care unit) have direct clinical care provision of 12-hour consultant cover over 7 days. c. Maternity units have enough staff to facilitate a consultant ward round every 12 hours. d. Allied Health Professional roles are embedded within services in line with national standards. e, Facilitation of new models of medical care (e.g., Physician's Associates, ANNPs on Tier 2 and nurse consultant roles). f, Facilitation of clear career progression for non-qualified and qualified workforce.	Medium Term	~
		B. Ensure the Maternity & Neonatal Network is structured to deliver its defined responsibilities under the NHS Executive Mandate and resourced adequately with Medical and AHP leads including a lead Pharmacist.	Medium Term	~
		C. Annual review of workforce collated as part of Maternity and Neonatal Network workforce review.	Ongoing	~
	2.3 Local workforce planning and team structures ensure sufficient capacity and prudent use of skills for high quality care	**D.** Health Boards to undertake annual working patterns survey to explore inefficiencies and use results to review system waste and ensure prudent deployment of all roles, *e.g., ensuring sufficient administrative staff.*	Short Term	Safe Teams
		E. All NICUs to have a Clinical Director/Lead or equivalent post with a minimum of two funded sessions to deliver against recommendations. **F.** All Maternity Units to have a Clinical Director with sessional allocation in line with RCOG recommendations.	Short Term	~
		G. All Health Boards must allocate adequate SPA time for consultants. This allocation should aim to adhere to the accepted standard of 7:3 DCC (Direct Clinical Care): SPA, with additional time allocated for specific extra lead roles undertaken (e.g., governance, data, Perinatal Mortality Review Tool).	Short Term	~
		H. All NICUs should have a data manager with consideration of data management input for LNU/SCU units.	Medium Term	~
	2.4 Prioritise the wellbeing and safety of staff and patients through team culture and support mechanisms	**I.** NHS Wales to ensure provision of psychological support, within each maternity department and neonatal unit for all maternity and neonatal staff.	Short Term	Safe Teams
		J. Inform future workforce strategies and workforce planning by maximising standardised exit interview uptake, reporting and taking action to address themes both locally and at national level.	Short Term	Safe Teams
		K. All maternity & neonatal services to embed Psychological Safety and the principles of a Just Culture embedded as cultural norms.[171]	Long Term	~
		L. All maternity and neonatal units should appoint a Freedom to Speak Up Champion.	Short Term	~
		M. All maternity and neonatal units should implement an annual validated psychological safety survey e.g., SCORE, SAFE, with results shared and discussed at local team, unit, Health Board and national levels.	Short Term	Safe Teams

Education & Training		Actions	Timescale	Improvement Collaborative
3	**3.1 Develop a national maternity and neonatal workforce training strategy** **3.2 Deliver national strategy through local training plans** **3.3 Ensure training, competence and qualification records are complete and reportable** **3.4 Ensure sufficient service capacity and opportunity for all members of maternity and neonatal workforce to be able to fulfil all training and development requirements**	**A.** Define national training/competency requirements and standards for each role within the maternity & neonatal workforce: **Which includes but is not limited to adherence in mandatory training in:** a. Equality & Diversity b. FiCare (see 7J) c. Human Factors d. Lactation & Loss (see 13G) e. Leadership (see 1E) f. Multiprofessional Simulation g. Neonatal Life Support h. Patient Safety (see 11FF) i. Perinatal mental health (see 5L) j. Quality Improvement (see 12A & 12H) k. Situational Awareness (see 11P) l. Team Working (including communication) (see 11P) **Which addresses current deficits in relation to:** m. Enhanced Maternal Care (see 11S) n. Incident Investigation (see 11FF) o. Radiology (see 12K) **Which creates a:** p. Development Toolkit for Neonatal Nurse training, including Qualified in Specialty. q. Standardised multidisciplinary simulation training package for midwifery, obstetric and neonatal teams to supplement Neonatal Life Support (NLS) training.	Medium Term	~
		B. Establish local training plans in each organisation to ensure that every member of the maternity and neonatal workforce has allocated time, capacity and opportunity to meet all nationally and locally defined training needs.	Medium Term	~
		C. Ensure adequate administrative support is in place to maintain records of all staff training, competencies, and qualifications. These should be held centrally with in the health boards, reportable and reviewed at least annually for all staff.	Medium Term	~
		D. Ensure that all additional personal and professional training needs are recorded using local appraisal processes, and that staff members have time, capacity and opportunity to fulfil all agreed training.	Short Term	~

Research		Actions	Timescale	Improvement Collaborative
4	**4.1 Establish & deliver a Maternity and Neonatal research strategy for Wales to improve both short term neonatal and longer term child and adult outcomes**	**A.** Develop an NHS Wales Maternity & Neonatal Research Strategy which: a. Is led by a centrally funded maternity & neonatal academic lead for Wales in a central facility. b. Establishes research partnerships within Wales and internationally. c. Accesses current data repositories within Wales. d. Ensures primary data is available in a timely manner to drive high quality care.	Long Term	~
		B. Expand opportunities for Maternity and Neonatal Trainees in Wales to undertake research and higher degrees.	Medium Term	~
		C. Ensure that members of the perinatal team who wish to be active researchers have support from their Clinical Leads/Directors with consideration of recognised research time in their job plans.	Short Term	~

Family Centred Care

Women and their babies will receive personalised care, planned in partnership with them and reflecting their choices and health needs whilst also supporting their families.

Pre-Pregnancy & Pregnancy Care		Actions	Timescale	Improvement Collaborative
5	**5.1 Every woman to be as well as possible for, and during, pregnancy and supported to give children the best start in life**	**A.** Resource and maintain clear service pathways between maternity services, Public Health Wales and primary care to support women to: a. Achieve and maintain a healthy weight, b. Access smoking cessation support services, before, during and after pregnancy.	Medium Term	Safe Family Centred Care
	5.2 Review access to maternity care for all women, regardless of ethnicity, geography or socio-economic status or other protected characteristic	**B.** All Health Boards to: a. co-produce communications tailored for ethnic minority women in their communities, b. ensure rapid access to advice if women from an ethnic minority background are concerned about their health, c. and ensure all staff have a lower threshold to review, admit and consider multidisciplinary escalation in women from an ethnic minority background.	Short Term	Equitable Safety
		C. Ethnicity must be accurately recorded at booking and data used to monitor outcomes for women of different ethnic origins.	Short Term	Equitable Safety
		D. All Health Boards to implement use of the 'Healthier Together' website, or similar product, to provide advice and information translated into many languages[172]	Medium Term	Equitable Safety
		E. All women with limited English language skills should be provided with a co-produced, maternity access card to advise them on how/ where to attend an obstetric unit in case of a concern.	Short Term	Equitable Safety
		F. All Health Boards to invest in portable visual interpreting systems (functionality similar, but not limited to, those provided by Language Line). These should be accessible 24 hours a day so that they can be used in clinic, theatres, and neonatal units.	Short Term	Equitable Safety
		G. Maternity Voices Partnerships in each health board should consider becoming Maternity and Neonatal Voices Partnerships to reflect the common goals of both services.	Short Term	Equitable Safety
		H. Each Health Board should engage with their local Maternity Voices Partnership volunteers to create points of contact in harder to reach communities. **I.** Each Health Board to establish paid Chair & Deputy Chair Maternity Voices Partnership positions to embed co-production of services.	Short Term	Equitable Safety
		J. Establish an All Wales Maternity and Neonatal Service User Framework Group to ensure the voices of women and families are central to national co-production of services.	Medium Term	Equitable Safety
		K. Consideration should be given to NHS Wales procurement of digital tools to assist in accurate risk assessment for adverse pregnancy outcome in early pregnancy.	Medium/ Long Term	~
	5.3 Prioritise women's mental health in all areas of contact antenatally and postnatally	**L.** All health boards to embed the Wales perinatal mental health programme[173] and ensure all staff are trained, (see 3A) feel competent to ask about mental health and recognise importance of recording PNMH data including medication use.	Medium Term	~

High Quality Care in All Midwifery Led Settings		Actions	Timescale	Improvement Collaborative
6	**6.1 Ensure all Health Boards embed The All-Wales Midwifery Led Care Guidance into practice**	**A.** Gather place of birth data as defined in Section16 of the 'Auditable Standards' in the All-Wales Midwifery Led Care Guidelines.[174] a. Benchmark data with 2011 Birthplace Study results. b. Analyse findings to identify variation/risks and use data to inform quality improvement activity and implementation of sustainable practice changes.	Medium Term	Safe Family Centred Care
	6.2 Develop mandated standards for Midwifery led units in Wales	**B.** Benchmark Freestanding and Alongside Midwifery Units in Wales against the Midwifery Unit Network published standards. **C.** Analyse findings to: a. Support development of NHS Wales Midwifery Led Unit Standards. b. Identify variation/risks and use data to inform quality improvement activity.	Medium Term	Safe Family Centred Care
	6.3 Implement standardised informed decision-making aids across Wales	**D.** Agree and implement standardised decision-making aids to support women and families in making informed choices. e.g. BRAN (Choosing Wisely)[175] or BAPM Enhancing Shared Decision Making Framework.[176]	Medium Term	Safe Family Centred Care

Keeping Families Together and Providing Support		Actions	Timescale	Improvement Collaborative
7	**7.1 Families to be supported and enabled to stay together (where possible) when their baby requires support, investigation, or treatment**	**A.** Develop a standardised mechanism for multidisciplinary maternity & neonatal teams to review ATAIN (Avoiding Term Admissions into Neonatal) rates. **B.** Establish and ensure ongoing thematic analysis of ATAIN. **C.** Share findings/learning nationally and use data to inform quality improvement activity and implementation of sustainable practice changes. e.g., where upstream (antenatal) contributory factors have been identified engage with Public Health Wales and other stakeholders (i.e., smoking/obesity to ensure equitable care).	Medium Term	Safe Family Centred Care or Equitable Safety
		D. Ensure adequate facilities and support provision for wider family members, e.g., playrooms and additional support for siblings.	Short Term	~
		E. Expand Neonatal Outreach services across NHS Wales to enable earlier discharge from neonatal units, transitional care, and postnatal wards. This should: a. Be available 7 days a week, b. Include access to Allied Health Professional Services. **F.** Include the ability to support short-term nasogastric tube feeding in the community for preterm infants.	Medium Term	Safe Family Centred Care
		G. Where possible transcutaneous bilirubinometers to be used in the community alongside awareness of challenges for diagnosis of jaundice in ethnic minority babies. Explore introduction of home phototherapy.	Short Term	Safe Family Centred Care
	7.2 Psychological support services should be accessible to all families during their stay in an NHS Wales neonatal unit with seamless links to community maternity mental health services as appropriate	**H.** Nationally review funding and provision of psychology service ensuring it is in line with national UK guidance. **I.** Use review findings to share national learning, refine/create services and establish referral links to community maternity mental health services as appropriate.	Medium Term	~
	7.3 FiCare to be fully embedded in practice in all NHS Wales Neonatal Units	**J.** FiCare resources to be allocated and training to be facilitated for all units.	Short Term	~
		K. All Neonatal Units to demonstrate >80% compliance with FiCare passport, and where not achieved, submit Board report describing barriers and action being taken to address on a 6 monthly basis.	Medium Term	Safe Family Centred Care
	7.4 All Neonatal Units to adhere to Bliss Baby Charter Standards	**L.** All Neonatal Units to achieve Bliss Baby Charter accreditation.[177] a. Resource and workforce capacity should be explicitly allocated to support achieving and maintaining accreditation.	Long Term	Safe Family Centred Care
	7.5 Embed a standardised family feedback process for NHS Wales	**M.** Agree and embed a standardised Maternity and Neonatal Feedback mechanism into NHS Wales services, including transitional care. a. Ensure inclusion of feedback question/s about parental opinion on safety of care experienced. b. Ensure simplicity of process, communication materials to promote to families and information/training for staff. c. Make results available to parents, families, staff and senior leaders.	Long Term	Safe Family Centred Care

Optimising Breastfeeding		Actions	Timescale	Improvement Collaborative
8	**8.1 Ensure opportunities for breastfeeding are optimised for all women** **8.2 Ensure early access to breastmilk and sustaining numbers of both preterm and term babies receiving breastmilk during their entire stay** **8.3 Ensure NHS Wales has an infant feeding educated workforce** **8.4 Ensure monitoring and evaluation of process and outcome indicators for successful breastfeeding**	**A.** All neonatal units to employ at least one funded infant feeding lead post, who will work closely with the Health Board Strategic Infant Feeding Lead (as mandated in All Wales Breastfeeding 5 Year Action Plan 2019) to promote good breastfeeding practice.[178] a. High activity level units to consider employing 2 WTE Infant Feeding Leads.	Short Term	~
		B. NHS Wales to adopt the Unicef Baby Friendly Initiative as a breastfeeding good practice accreditation.[179] a. Resource and staff capacity should be explicitly allocated to support achieving and maintaining accreditation.	Medium Term	Breastfeeding
		C. All neonatal units to record expressed breastmilk volumes, as defined in the All-Wales Enteral Feeding Pathway for Preterm Infants.[180] a. Report compliance with the pathway quarterly. **D.** Share findings/learning nationally and use data to inform quality improvement activity and implementation of sustainable practice changes, or reinforce action already being taken.	Short Term	Breastfeeding
		E. All units alongside their Infant Feeding Leads to develop unit-level plans to maximise early colostrum and early breast pump use in line with national guidance (BAPM MBM Toolkit).[181] a. Ensure pathways and staff education on facilitation and recording of skin-to-skin rates. b. Ensure availability of breast pumps at each cot side. c. Monthly local monitoring of plan implementation. **F.** Share findings/learning nationally and use data to inform quality improvement activity and implementation of sustainable practice changes, or reinforce action already being taken.	Short Term	Breastfeeding
	8.5 Ensure equitable access to donor milk and options to donate milk across NHS Wales	**G.** Develop Milk Bank access for all women across Wales.	Long Term	Breastfeeding

Transitional Care		Actions	Timescale	Improvement Collaborative
9	**9.1 Develop Transitional Care in all maternity units, aligned with national BAPM standards**	**A.** Implement Neonatal Transitional Care UK standards. a. Consider a single national data recording system to provide monitoring data and commissioning information. b. Ensure Transitional Care Service in all units is commissioned alongside all other neonatal services. c. Ensure that all Neonatal Transitional Care standards are embedded by ensuring services are commissioned and sustainably staffed to BAPM standards, including a designated nurse lead (band 7); a ratio of nursing/nursery staff to babies of 1:4; and all babies to have a named paediatric or neonatal consultant.	Medium Term	Safe Family Centred Care
		B. Each baby to have clinical input at the same level of seniority as babies receiving special care on a Neonatal Unit.	Medium Term	~

Continuity of Carer

Women and their babies will experience continuity of carer across the whole of their maternity journey.

Continuity of Carer		Actions	Timescale	Improvement Collaborative
10	**10.1 Review models of midwifery care to optimise continuity**	**A.** Establish an agreed method of understanding the continuity of care that women in Wales currently receive. a. Use that method to collect baseline continuity of carer data. b. Establish improvement plans where required.	Medium Term	Family Centred Care
		B. Health Boards to review community midwifery service provision to ensure that women see: a. a maximum of 2 midwives antenatally, b. their named midwife for postnatal discharge.	Medium Term	~
	10.2 Maximise continual risk assessment throughout pregnancy to ensure women birth in their place of choice	**C.** Health Boards to implement All Wales Midwifery-Led Care Guideline (6th Edition)[182] guidance to ensure all women have the choice to birth in a Midwifery Led setting.	Short Term	~

Safe and Effective Care

Women and their babies will receive safe and effective care; with risk, intervention and variation reduced wherever possible.

Patient Safety & Governance		Actions	Timescale	Improvement Collaborative
11	**11.1 Develop and implement standardised advice for management of women with acute problems in pregnancy**	**A.** Implement standard advice and pathways to support each Health Board, emergency service and clinician to provide optimal care for women experiencing acute pregnancy problems.	Medium Term	~
		B. Ensure that standardised clinical advice is made available to women and their families: a. Using Plain English principles b. Available via the most accessible channels c. Easily available at times of critical need d. Translated into multiple languages (including Welsh).	Medium Term	~
		C. Review information being given via 111 web pages and ensure: a. Alignment with the standard advice b. Published using Plain English principles c. Available in multiple languages (including Welsh).	Medium Term	~
		D. Establish telephone advice resources, based on the standard advice, and embed their use throughout NHS Wales maternity services.	Medium Term	Safe & Effective Care
		E. Create permanent midwifery posts within Welsh Ambulance Services Trust (WAST) to: a. Establish an expert link with maternity and neonatal services for clinical advice, information and partnership working, b. Provide expert input into development of a national 'Labour Line' telephone service. c. Provide expert input into consideration of a national 'Triage Line' telephone service. d. Provide specialist input into internal WAST training, paramedic undergraduate and post graduate education.	Medium Term	~
	11.2 Implement a standard approach to the detection of the sick or deteriorating woman in line with NICE guidance (NG133)	**F.** Develop an All-Wales Maternity Early Warning Score (MEWS) Chart and implement in every healthcare setting in Wales where a pregnant woman could receive care.	Medium Term	Safe & Effective Care
	11.3 Establish maternal medicine network access across NHS Wales	**G.** Establish a Maternal Medicine Network for South Wales, ensuring: a. Leadership from an obstetric physician, b. Senior midwifery coordination, c. Specialist advice from an obstetrician trained in maternal medicine.	Medium Term	~
		H. Develop and maintain a service level agreement (or equivalent) between NHS Wales services in North Wales with the Liverpool Maternal Medicine Centre.	Medium Term	~
		I. NHS Wales to consider if a Maternal Medicine Centre could/should be shared between Health Boards.	Long Term	~

Patient Safety & Governance		Actions	Timescale	Improvement Collaborative
11	**11.4 Embed national guidance (NICE, RCOG, All Wales guidance) relating to pregnancy and birth across NHS Wales**	**J.** Refresh the NHS Wales Safer Pregnancy Campaign incorporating actions from Saving Babies' Lives Care Bundle version 3.[183] This will require funding/implementation of: - a. Smoking cessation support readily available in all Health Boards. b. An improvement programme to ensure standardisation of carbon monoxide monitoring. c. Training to support provision of: *a) Sufficient sonography services* *b) Uterine artery dopplers at 20 weeks* *c) Transvaginal cervical length in preterm birth clinics (NICE Guidance NG25)*[184] d. Computerised CTG (Cardiotocograph) to be made available in all units for women with reduced fetal movement or early onset fetal growth restriction. e. Preterm birth prevention clinics established in each health board.	Medium Term	Safe & Effective Care
		K. All Health Boards to review existing complement of specialist midwives and ensure there are posts to cover multiple pregnancy, diabetes and preterm birth.	Medium Term	~
		L. All Health Boards to implement Placental Growth Factor (PLGF) testing for women with suspected pre-eclampsia (NICE guidance NG133).[185]	Short Term	Safe & Effective Care
		M. All Health Boards to establish multiple pregnancy clinics with a specialist midwife, obstetrician, and sonographer as core staff (NICE guidance NG137).[186]	Medium Term	Safe & Effective Care
		N. National guidance that is not followed should be reported by each health board to the NHS Executive Maternity and Neonatal Network.	Short Term	Safe & Effective Care
		O. NHS Wales to undertake a review of the effectiveness of GAP/ GROW compared to alternative models for detecting small for gestational age babies.	Long Term	~
	11.5 Minimise variation in intrapartum care in line with NICE guidance	**P.** All Cardio Tocograph/Intermittent Auscultation training to consider using Each Baby Counts + Learn & Support toolkits[187] and ensure inclusion of content relating to: *a) Situational awareness,* *b) team working (including communication),* *c) and escalation* (See 3A)	Medium Term	~
		Q. In suspected preterm labour, all health boards to ensure all women have access to the most accurate preterm birth tests, including: a. ultrasound machines to perform transvaginal cervical length, b. and quantitative fetal fibronectin.	Medium Term	Safe & Effective Care
		R. In suspected preterm labour, all health boards to ensure obstetricians are trained to perform transvaginal cervical length scans. (see 3A)	Medium Term	Safe & Effective Care
		S. Enhanced maternal care training to be provided for enough midwives to ensure an appropriately qualified midwife on every shift in obstetric units. (See 3A). (E.g., PROMPT CiPP course)	Medium Term	~

Patient Safety & Governance		Actions	Timescale	Improvement Collaborative
11	**11.6 Ensure evidence-based care and advice given to postnatal women on modifiable risks**	**T.** Ensure all obese postnatal women can access the primary care obesity prevention programme *(in development as of April 2023).*	Medium Term	Safe & Effective Care
		U. Ensure all postnatal women who have had gestational diabetes receive advice relating to: a. postnatal testing b. yearly HBA1C c. lifestyle modification to reduce development of type 2 diabetes and associated complications.	Medium Term	Safe & Effective Care
		V. Ensure all postnatal women who have had pre-eclampsia received advice relating to: a. lifestyle modification b. annual blood pressure checks.	Short Term	Safe & Effective Care
		W. Ensure all postnatal women who had a preterm birth under 34 weeks have an appointment with a specialist obstetrician to discuss implications for future pregnancies.	Medium Term	Safe & Effective Care
	11.7 Develop and launch data dashboards which enable monitoring and benchmarking of clinical activity and outcomes **11.8 Ensure standardised approach to maternal and neonatal safety assurance and measurement throughout NHS Wales**	**X.** NHS Wales to agree the content and output of a national standardised data dashboard which enables benchmarking against the NHS England Maternity Services and National Maternity and Perinatal Audit data sets.	Medium Term	Safe & Effective Care
		Y. Health Boards to collaborate and develop local dashboards, to include the standardised perinatal quality surveillance dashboard (see example in report appendix) to enable real-time activity/ outcome measurement and monitoring to support local improvements. a. A standardised perinatal quality surveillance dashboard would incorporate the following: • *Clinical outcomes including stillbirths, neonatal deaths, HIE, ATAIN, SBLCBv2 progress and compliance.* • *Staffing vacancies for maternity and neonatal services for all relevant professional groups.* • *Training compliance.* • *Maternity and Neonatal Risk register.*	Short Term	Safe & Effective Care
		Z. NHS Wales to implement annual assurance safety metrics which are aligned with safety actions elsewhere in the UK, including consideration of incentivisation.	Medium Term	Safe & Effective Care

Patient Safety & Governance		Actions	Timescale	Improvement Collaborative
11	**11.9 Optimise and standardise maternity & neonatal governance systems across Health Boards** **11.10 Ensure local and national review of maternity & neonatal incidents to facilitate thematic analysis, learning and improvement** **11.11 Ensure Executive Boards are aware of maternity & neonatal metrics, outcomes, safety and governance issues**	**AA.** Develop and implement NHS Wales Maternity and Neonatal Trigger Tools to guide standardisation of event/incident reporting. **AB.** Appoint national Maternity and Neonatal Safety Leads to support national learning and ensure implementation of learning from incidents.	Short Term	~
		AC. Align NHS Wales Datix fields with agreed national Trigger Tools and analyse data at Health Board and national level to identify themes and guide continual improvement.	Short Term	Safe & Effective Care
		AD. NHS Wales to develop and implement a standardised maternity & neonatal adverse event review process. (E.g., NHS Scotland Perinatal Adverse Event Review Process).[188]	Short Term	~
		AE. All maternity and neonatal units to have robust governance team structure, with accountability and line management to the DoM and CDs. The team should include: - a. a designated senior midwife/nurse and medical consultant leads for governance: b. with protected time allocated for fulfilling their roles including external review for PMRT, c. sufficient administrative support, d. and equitable allocation across both maternity and neonatal services.	Medium Term	~
		AF. All incident investigators to be fully trained and competent to undertake their roles, to include consideration of training in: a. Systems Engineering Initiative for Patient Safety (SEIPS)[189] b. Patient Safety Investigation Response Framework (PSIRF).[190] (See 3A)	Medium Term	~
		AG. All Health Boards to ensure recorded justification and decision making to support any local deviation from nationally agreed protocols/guidance/best practice.	Short Term	Safe & Effective Care
	11.12 Ensure all cases of maternal death, term intrapartum stillbirth, early neonatal death>37 weeks and hypoxic ischaemic encephalopathy (HIE) are reviewed by a fully trained independent investigation team	**AH.** NHS Wales to develop or commission a system for external independent review for all cases of: a. Maternal death, b. Term intrapartum stillbirth, c. Early neonatal death>37 weeks, d. Hypoxic ischaemic encephalopathy (HIE).	Medium Term	Safe & Effective Care

Improving clinical standards and outcomes		Actions	Suggested timescale	Improvement Collaborative
12	**12.1 Optimise Maternity & Neonatal Outcomes**	**A.** Ensure that perinatal quality improvement is embedded and sustained as a cultural and behavioural norm throughout NHS Wales. Supporting implementation of: a. Local improvement activities in each unit and Health Board. b. National improvement activities such as perinatal optimisation PeriPrem Cymru and MatNeoSSP Improvement Collaborative.	Short Term	All Collaboratives
		B. Ensure all instances where babies were not born in the right place (e.g., <32 weeks) are subject to robust local and national review (including babies born prehospital under care of the Welsh Ambulance Services Trust).	Short Term	Safe & Effective Care
		C. All Health Boards to establish and sustain mechanisms for maternity and neonatal teams to work together across service boundaries, to: a. Create strong working relationships and strong communication pathways, b. maximise multidisciplinary learning e.g., Sim training, c. Optimise clinical outcomes, *(In line with national guidance)*	Short Term	~
		D. NHS Wales to implement the NHS Wales Probiotics Guideline.	Short Term	Safe & Effective Care
		E. Develop and implement an NHS Wales robust definition and process for review of all infections in babies on neonatal units. a. Health Boards to constantly record and monitor local instances. **F.** Report and publish infection rates nationally every 6 months. **G.** Consider use of established QI process for neonatal infection e.g., Vermont Oxford Network (VON).	Medium Term	Safe & Effective Care
		H. Ensure neonatal teams embed national guidance on specialist neonatal respiratory care for babies born preterm.[191]	Medium Term	Safe & Effective Care
		I. All NHS Wales maternity and neonatal units to ensure that a designated Quality Improvement Midwife/Nurse and senior consultant, with: a. The skills/competence to lead quality improvement activity in their unit. b. Time allocated to act as their unit's Quality Improvement Lead.	Short Term	~
	12.2 Ensure Services are equitable for babies across Wales **12.3 Improve the pathway for babies presenting with bilious vomiting**	**J.** All neonatal units to have a plan and to be allocated capacity to have early developmental intervention and to undertake developmental assessment at two years, using AHP input.	Medium Term	Safe & Effective Care
		K. Undertake a national review of care pathways for babies with bilious vomiting to enable close partnership working between surgical NICU's, transport services and all service providers to: a. Reduce unnecessary transfers b. Minimise mother-baby separation c. Consider drive-through options	Medium Term	Safe & Effective Care
		L. Develop a system of radiology support for neonatal units with no out of hours radiology services in order to reduce delays in access to surgical review and upper GI contrast study.	Medium Term	Safe & Effective Care

Bereavement Care		Actions	Timescale	Improvement Collaborative
13	**13.1 Minimise variation in bereavement care for all families who lose a baby, regardless of gestation or age**	**A.** NHS Wales to explore commissioning options for perinatal pathology outside Wales to reduce waiting time for post-mortem results.	Medium Term	~
		B. NHS Wales to fully implement all five pathways within The National Bereavement Care Pathway (NBCP).[192]	Long Term	Bereavement Care
	13.2 All maternity and neonatal units to ensure specialist bereavement posts are created/ sustained within workforce plans	**C.** Provide equitable bereavement care across Wales and services to ensure that all bereaved women receive care and advice from a Bereavement Midwife regardless of place of loss.	Medium Term	Bereavement Care
		D. Each health board to establish and sustain a Rainbow Clinic model which provides: a. Standardised debriefs for bereaved families, b. Specialist obstetric and midwifery care for women in future pregnancies to reduce risk of recurrent loss.	Short Term	Bereavement Care
		E. Health Boards to review the caseload of all Bereavement Midwife posts to ensure appropriate use of skills, and plan for delivery of sustainable bereavement services in line with NBCP requirements.	Short Term	~
		F. Health Boards to ensure each Neonatal unit has a named Bereavement Lead, with a. Protected time to fulfil the role. b. Potential for a single postholder to provide cover across multiple geographically adjacent units.	Short Term	~
	13.3 Create national and local implementation plans to embed the BAPM Lactation and Loss Framework across NHS Wales	**G.** Establish funding/resources, pathways, information and training to enable all Health Boards to embed the BAPM Lactation and Loss Framework for Practice.[193]	Medium Term	Breastfeeding

Sustainable Quality Services

Women and their babies will receive maternity and neonatal services which are sustainable and the highest quality possible.

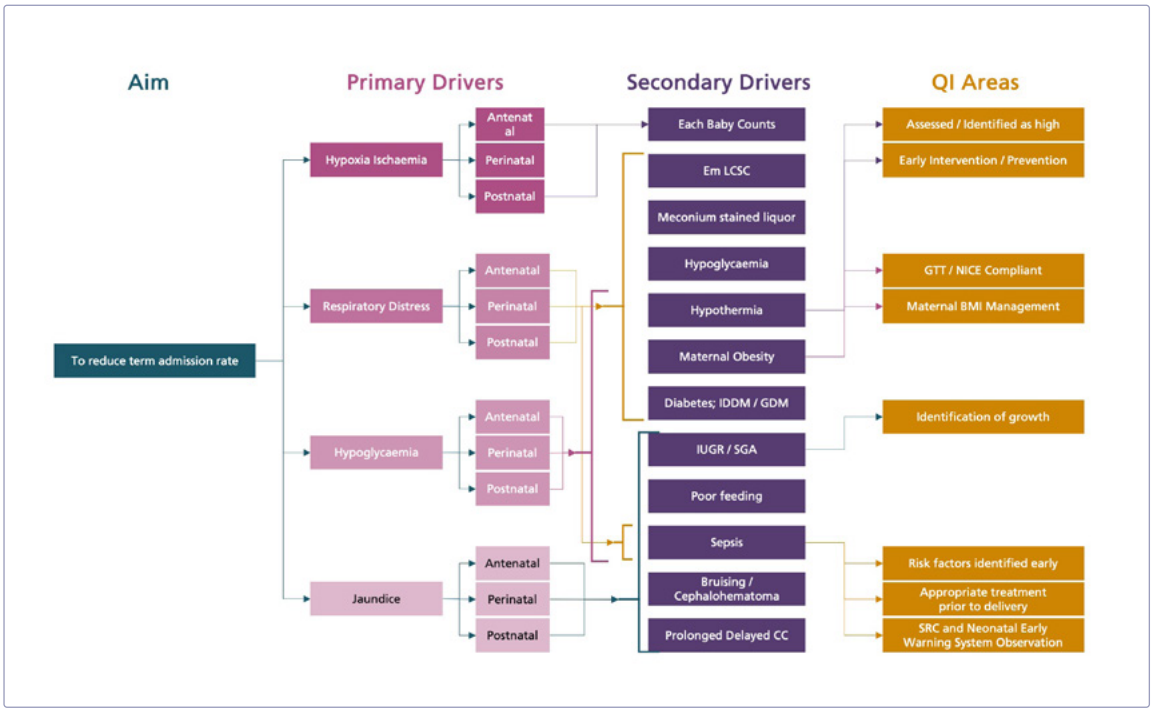
Planning Maternity Services		Actions	Timescale	Improvement Collaborative
14	**14.1 Ensure resourcing for maternity services is transparent, and an alternative funding model urgently considered** **14.2 Establish a care and funding model which fairly and adequately compensates Health Boards for delivering high quality care to all woman, whilst supporting personalisation, safety, and choice**	**A.** Ensure that funding/resources follow the woman and her baby as far as possible, to a. Ensure women's choices are funded, b. Support organisations to work in close partnership to deliver services.	Long Term	~
		B. Incentivise the delivery of high quality and efficient care for all women, regardless of where they live or their health needs (also see 11Z).	Medium Term	Safe & Effective Care

Planning Neonatal Services		Actions	Timescale	Improvement Collaborative
15	**15.1 Ensure there is joined up review of all perinatal services and that neonatal services encompass care from *cot to community*** **15.2 Ensure efficient use of cot capacity across Wales** **15.3 Ensure efficient flow of babies to their local hospitals or back home with their families** **15.4 Ensure babies are born in the right place where possible** **15.5 Ensure LNU/SCU teams are skilled in managing repatriated babies from NICUs** **15.6 Maintain emergency care skills and confidence for all neonatal clinical staff, particularly those working in LNUs (Local Neonatal Units) and SCUs**	**A.** Planning for neonatal services (such as reviews of flow and capacity) should be coordinated jointly with maternity services.	Medium Term	~
		B. Transitional Care and Outreach services must be included where there is any review of maternity and/or neonatal services.	Long Term	~
		C. Strategic planning and commissioning of maternity and neonatal services (from ***Cot to Community***) should be coordinated jointly with commissioners and the NHS Executive and include representation from all members of the perinatal team.	Medium Term	~
		D. Undertake central review of the BAPM recommendations regarding NICUs admitting < 100 VLBW babies or carrying out <2000 intensive care days to develop plans to amalgamate NICUs (or NICUs plus LNUs) to increase throughput or change designation.	Medium Term	~
		E. Establish a system to electronically capture data relating to transfers and failed transfers of women and babies, in utero and ex-utero in both maternity and neonatal settings.	Medium Term	Safe & Effective Care
		F. Develop and implement a tool for monthly monitoring of each NHS Wales neonatal unit's non-special care days (coded HRG 3-5 on Badgernet). a. All units to share and discuss results regionally and nationally to identify improvements and share learning, e.g., barriers to delayed discharge, outreach support, transitional care facilities.	Medium Term	Safe & Effective Care
		G. Establish and fund ongoing rotational experience for permanent medical staff from LNU/SCUs to NICUs.	Long Term	~

Inutero Transfers and Neonatal Transport		Actions	Timescale	Improvement Collaborative
16	**16.1 Ensure compliance with all national neonatal transport guidance** **16.2 Ensure 24/7 equitable transport service provision across Wales**	**A.** Establish NHS All Wales guidance and toolkit to enable review of all clinical incidents related to transfers.	Medium Term	
		B. Maximise the ability of families to travel with their baby.	Medium Term	Family Centred Care
		C. Establish a Transport Service single point of contact for clinical advice and cot/maternal bed location. a. To include teleconferencing, call handling, and call recording functionality.	Medium Term	~
		D. Review service against National Neonatal Transport Group (UK) standards annually.	Short Term and ongoing	Safe & Effective Care or Family Centred Care

Appendix 3: Driver diagram

An example driver diagram for improving the quality and safety of unplanned term admissions.



Appendix 4: Definitions of neonatal services

These definitions are based on the NHS England and NHS Improvement document, Implementing the recommendations of the neonatal critical care transformation review.[194]

There are three types of care: special care, high dependency and intensive care.

Neonatal Intensive Care Units (NICU) provide care for the whole range of neonatal care. They are staffed to care for the sickest and most immature babies and staff work closely with their local maternity teams and fetal medicine services.

In England, Local Neonatal Units (LNU) provide care for all babies born at their hospital at 27 weeks of gestation or more.

Special Care Units (SCU) provide local care for babies born at 32 weeks or more who require only special care or short-term high dependency care. All pregnant women who fall outside these categories or babies who unexpectedly need intensive care are transferred to an appropriate unit in the local care pathway.

Glossary of abbreviations

AMU – Alongside Midwife led Unit

BAPM – British Association of Perinatal Medicine

BMI – Body Mass Index

CARIS – Congenital Abnormality Register and Information Service

CLD – Chronic Lung Disease

CNST – Clinical Negligence Scheme for Trusts

CPW – Community PROMPT Wales

DMC – Digital Maternity Cymru

DU – Delivery Unit

EBC – Each Baby Counts

EMR – Electronic Medical Records

ESMiE – Enhancing the Safety of Midwifery-led births Enquiry

FMU – Free-standing Midwife led Unit

GIRFT – Getting it Right First Time

HEE – Health Education England

HEI – Higher Education Institutes

HEIW – Health Education and Improvement Wales

HFS – High Fidelity Simulation

HIE – Hypoxic-Ischaemic Encephalopathy

HIW – Healthcare Inspectorate Wales

HRG – Healthcare Resource Groups

HSIB – Healthcare Safety Investigations Branch

IHI – Institute for Healthcare Improvement

IMSOP – Independent Maternity Services Oversight Panel

MVP – Maternity Voice Partnership

MBRRACE-UK – Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries UK

MCQ – Multiple-Choice Questionnaire

MPDS – Medical Prioritisation Dispatch System

MVP – Maternity Voices Partnership

NHS – National Health Service

NICU – Neonatal Intensive Care Units

NNAP – National Neonatal Audit Programme

NWSSP – NHS Wales Shared Services Partnership

OAA – Obstetric Anaesthetist's Association

OOH – Out-of-Hospital

OU – Obstetric led Unit

PHW – Public Health Wales

PROMPT – Practical Obstetric Multi-Professional Training

PTSD – Post-Traumatic Stress Disorder

PW – PROMPT Wales

RCM – Royal College of Midwives

RCOG – Royal College of Obstetricians and Gynaecologists

SCU – Special Care Unit

WAST – Welsh Ambulance Service NHS Trust

WHO – World Health Organisation

WHSSC – Welsh Health Specialist Services Committee

WRP – Welsh Risk Pool

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