The Shrewsbury and Telford Hospital NHS Trust

Board of Directors' Meeting: 14 November 2024

Agenda item	154/24				
Report Title	Invited Review: The Shrewsbury and Telford Hospital NHS Trust Neonatology Service Review				
Executive Lead	Dr John Jones, Executive Medical Director				
Report Author	Mike Wright, Programme Director Maternity Assurance				
CQC Domain:		**Link to Strategic Goal:**		**Link to BAF / risk:**	
Safe	√	Our patients and community	√	BAF1, BAF2, BAF 3, BAF 4 and BAF 8	
Effective	√	Our people	√		
Caring	√	Our service delivery	√	**Trust Risk Register id:**	
Responsive	√	Our governance	√	684, 700, 859, 871, 903, 1091	
Well Led	√	Our partners	√		
Consultation Communication	Quality & Safety Assurance Committee 29/10/2024				
Executive summary:	1. This paper presents the findings of the invited Royal College of Physicians' review of neonatal mortality from 2021 to 2022 including review of SaTH's use of the perinatal mortality review tool (PMRT). The review was commissioned by the Trust to understand the above average mortality noted in successive MBRRACE reports 2. The review commented that, "neonatal mortality at SATH cannot be considered in isolation to neonatal mortality across the region. The West Midlands has the highest infant mortality in England (with 5.6 deaths per 1,000 live births), and this has been the picture since 2000." The review suggests the need to investigate the drivers underpinning these data, including social determinants, and poverty and ethnicity factors. 3. The review team did not identify evidence to indicate that the quality of care provided to babies by the neonatal service was substandard or directly contributing to the unit's outlier status in terms of perinatal mortality. However, there were findings of poor care, or very poor care in one instance. 4. Work is underway to communicate with the 18 families affected by the review, and the Trust is working with colleagues and system partners to implement the recommendations. 5. As family meetings progress, details of individual care have been redacted from the review to minimise risk of harm caused by hearing, without consent, very detailed care being discussed in public even though anonymised. Only if consent has clearly been obtained should such detail be included.				
Recommendations for the Board:	The Board of Directors is requested to: • Receive this report for noting and assurance • Decide if any further information and/or assurance are required.				
Appendices:	Appendix 1: The Royal College of Physicians (RCP) – Invited Service Review Report (with redactions)				

1.0 Introduction

1.1 Following initial discussions with the Royal College of Paediatric & Child Health in February 2022, in April 2022, the Executive Medical Director commissioned the Royal College of Physicians (RCP), supported by other royal colleges, to undertake an independent review of the neonatology service at the Trust. This was to try and ascertain if any aspects of care provided at the Trust influenced its higher than average perinatal mortality rate, specifically neonatal deaths[1].

1.2 The review provided initial feedback and recommendations in December 2023, and the final report was received on 6 September 2024. This paper describes the background to this work, the findings of this review, and the actions being taken to address its recommendations. Work is underway already to address the recommendations.

1.3 The review team did not identify evidence to indicate that the quality of care provided to babies by the neonatal services was substandard or directly contributing to the unit's outlier status in terms of perinatal mortality.

1.4 Whilst identifying aspects of good care, the review also found examples of poor care, or very poor care in one case. In some cases external independent review of care had already taken place as part of statutory reporting to the healthcare safety investigation branch (HSIB). The Trust is in contact with the families concerned and apologises unreservedly to them for care that was not provided to the required standard.

2.0 Background and context

2.1 The Board of Directors is aware of the findings of the Independent Review of Maternity Services at the Trust (IMR), chaired by Donna Ockenden, which was published in March 2022. This review included a profile of neonatal care provided at the Trust between 2000-2019, and described changes to the levels of service provided during this time as a consequence of the establishment of neonatal networks in England from 2004. This included several years of transition from the Trust providing Level 3 (full) Neonatal Intensive Care to its current designation as a Local Neonatal Unit (LNU) providing Level 2 care (special care, high dependency care and short term intensive care only, with transfer to Level 3 units required for more complex or ongoing intensive care). During this time there were challenges and complexities both within and external to the Trust and the network, as the newly reconfigured unit designations, procedures, policies, and arrangements became established.

2.2 The IMR provided actions for the Trust's neonatal service to implement, and these centred on ensuring early communication with tertiary NICU's (Level 3 units) and neonatal staffing matters.

2.2 Alongside this, since 2013, all NHS providers of maternity and neonatal services have been required to report to MMBRACE-UK[2] all late fetal losses (babies born between 22 and 23 completed weeks' gestation showing no signs of life), all stillbirths, and all neonatal deaths. Compliance with MBRRACE submissions forms part of the Saving

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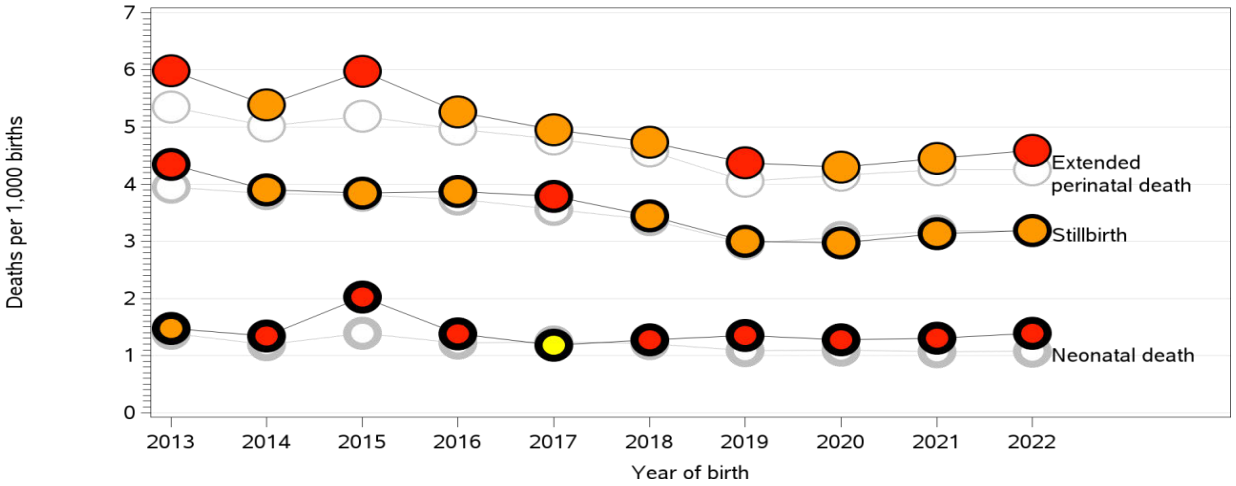
[1] (Extended) Perinatal Mortality means the sum of stillbirths and neonatal deaths. The term stillbirth is applied when a baby is delivered at or after 24 weeks gestation but shows no signs of life. A neonatal death is term given when a baby is born alive from 20 weeks completed gestation but dies within 28 days of birth.

[2] The perinatal programme of MMBRACE-UK (Mothers and Babies: Reducing Risk through Audits and Confidential Enquiries across the UK) is led by the Infant Mortality and Morbidity study group (TIMMS) at University of Leicester. Hyperlink: Perinatal programme of work | MBRRACE-UK | NPEU (ox.ac.uk)

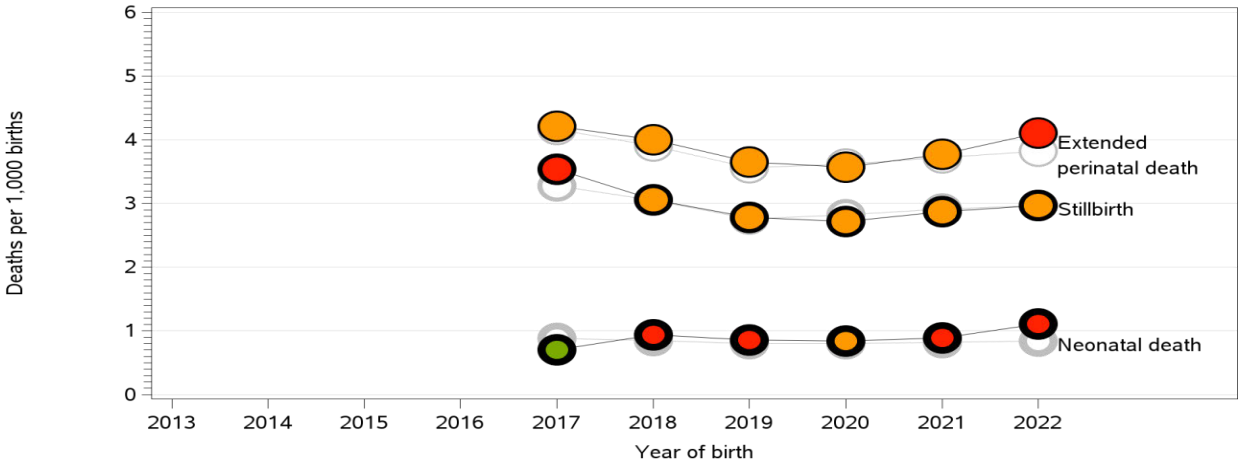
Babies Lives Care Bundle requirements, also. From these data, annual reports are produced for individual trusts along with national reports, which provide crude mortality and risk adjusted data, and benchmark comparisons.

2.3 Since 2017, MBRRACE calculates stabilised and adjusted mortality rates**,** which provides a more reliable estimate of the underlying mortality rate, and takes account of factors such as the mother's age, socio-economic and deprivation factors, the baby's sex and ethnicity, multiplicity, and (for neonatal deaths only) gestational age at birth. MBRRACE advises that while it is not possible to adjust for all potential risk factors, these measures do provide an important insight into perinatal mortality. Trust results are then benchmarked against trusts offering similar level services which, for this Trust, is those that provide *'4,000 or more births per annum at 22 weeks or later*.'

2.4 The latest published MBRRACE data for this Trust[3] covers the calendar year 2022, and was published in March 2024. The following table shows the stabilised and adjusted mortality rates for babies born at 24 weeks gestational age or later by year of birth (all deaths from 2013-2022):



2.5 The following chart shows the stabilised and adjusted mortality rates for babies born at 24 weeks gestational age or later by year of birth – excluding deaths due to congenital anomalies:



** Note 2022 includes a reporting error on one Neonatal Death (see below)

[3] The Shrewsbury and Telford Hospital NHS Trust MBRRACE-UK Perinatal Mortality Report, March 2024 *(MB249) v1.0*

The stabilised & adjusted neonatal mortality rate excluding deaths due to congenital anomalies is reported as 1.11 per 1,000 live births. This is more than 5% higher than the average for similar trusts and Health Boards. However, these data include a reporting error (1 out of 8 babies incorrectly recorded in MBRRACE data 2022 as not having a congenital anomaly recorded as cause of death). Therefore, this neonatal mortality rate is likely to be lower than reported. The reporting error was escalated to MBRRACE in May 2024 but, unfortunately, the report cannot be retrospectively amended.

2.6 In response to this, MBBRACE advises trusts to review the data submitted to ensure accuracy and completeness, and to ensure that a review of each death has been undertaken using the Perinatal Mortality Review Tool (PMRT) to assess care, and identify and implement service improvements to prevent similar deaths.

2.7 This Trust undertakes the PMRT process for each death; however, the reasons for the Trust's outlier status have not been explained through this.

2.8 In line with this and in anticipation of the publication of the final Independent Maternity Review Report, in February 2022, the former Chief Executive, Medical Director and Programme Director for Maternity Assurance met with members of NHS England Midlands Region and the West Midlands Neonatal Operational Delivery Network (WMNODN). This was to discuss the Trust's MBBRACE data, to understand their perspectives, and agree a way forward. Several meetings took place to discuss this.

2.9 We recognised there were similar trends across the region. Whilst continuing to work with the network and system partners, to try and understand these data more fully from an organisational perspective the Trust commissioned its own independent external review. Invited reviews are in line with best practice and demonstrate the Trust's desire to maintain transparency and to learn and to improve.

3.0 The Royal College of Physicians (RCP) – Invited Service Review Report Findings

3.1 The RCP review considered membership and advice from other royal colleges, and the review team included three consultant neonatologists, two consultant obstetricians, a consultant midwife, and two advanced neonatal practitioners. The review focused on the two most recent consecutive years (2021 and 2022), and looked at 18 cases of neonatal deaths over that period. Their methodology included case note and other documentary reviews, alongside site visits, and meetings/interviews with key staff, which took place during October and November 2023.

4.0 Review Findings

4.1 The review team described their overall impression as being of a maternity service that had taken huge strides over the past 18 months to two years (following publication of the first Ockenden Report in December 2020) to rebuild the service, staff teams, processes, and culture. However, it recognised that the neonatal service, having not had the same level of external scrutiny, and with some staffing and other challenges, as being in a different place.

4.2 Specifically and importantly, *"the review team did not identify evidence to indicate that the quality of care provided to babies by the neonatal service was substandard or directly contributing to the unit's outlier status in terms of perinatal mortality."*

4.3 Notwithstanding this, the review found that the unit sometimes managed very pre-term babies who were not delivered in the right location (adjacent to a level 3 Unit). Recommendations include the Trust working with the WMNODN to address these matters.

4.4 Alongside opportunities identified to strengthen care, the review team identified some examples of excellent care, both in maternity and neonatal services. Other review findings identified aspects and components of care that were either poor or, in one case, very poor care with significant room for improvement.

4.5 The review commented that, *"neonatal mortality at SATH cannot be considered in isolation to neonatal mortality across the region. The West Midlands has the highest infant mortality in England (with 5.6 deaths per 1,000 live births), and this has been the picture since 2000."* The review suggests the need to investigate the drivers underpinning these data, including social determinants, and poverty and ethnicity factors.

4.6 The review team also raised concerns *"regarding paediatric mortality, with the system within which SATH sits reported to have been flagged as one of the highest areas for paediatric mortality in national datasets."* While the review team acknowledge this was not within the terms of their review, it pointed to the need for work to take place across the system and the region, to understand how child and infant deaths can be reduced.

4.7 Work has commenced already to address the recommendations from the report with the maternity, neonatal, and transformation support teams.

5.0 Communication with Families

5.1 The RCP report is anonymised, and no family identifiable details are provided with in it. Nonetheless, the review provides specific instances where care was not of the required standards and where improvements can be made against individual cases, with unique reference numbers. As such, these are likely identifiable to each family concerned.

5.2 It was important to determine if there were any care concerns or related matters to address before contacting families and causing any unnecessary anxiety or trauma for them. Now that the final report has been received, the executive medical director has written individually to each family to advise them of the review and to invite each family to meet with senior clinical members of the Trust to discuss the report findings and their own individual care findings. These meetings have begun taking place and as well as addressing and apologising for any poor or very poor care, these meetings are to listen to the families.

6.0 Next Steps

6.1 As mentioned already, work has started to address the recommendations. Progress against these will be reported to the Quality and Safety Assurance Committee (QSAC) and the Board of Directors accordingly.

6.2 Discussions with the WMNODN, ICB, Local Maternity and Neonatal System (LMNS) and NHSE Midlands Region are ongoing to provide a joined up response to the findings of this review.

7.0 Action required of the Board of Directors

7.1 The Board of Directors is requested to:

7.2 Receive this report for noting and assurance

7.3 Decide if any further information and/or assurance are required.

John Jones
Executive Medical Director
November 2024

Appendix One

Invited Review: The Royal College of Physicians (RCP) – Invited Service Review (redacted)

APPENDIX 1

Shrewsbury and Telford Hospital NHS Trust on 12–13 October, 16–17 November 2023

Contents

This report has been prepared by the Royal College of Physicians (RCP) under the RCP Invited Review (IR) mechanism for submission to the healthcare organisation that commissioned the invited review. It is an advisory document, and it is for the healthcare organisation concerned to consider any conclusions and recommendations reached and to determine subsequent action.

It is the responsibility of the healthcare organisation to review the content of this report and take any action that is considered appropriate to protect patient safety. The healthcare organisation should ensure that patients have received communication in line with the responsibilities set out in the Health and Social Care Act 2008 (Regulated activities) Regulations 2014, Regulation 20.[1]

1 Executive summary

The executive medical director of Shrewsbury and Telford Hospital NHS Trust (SaTH) commissioned the Royal College of Physicians (RCP) to undertake an invited review (IR) of the trust's neonatal service and specifically, perinatal mortality. The review was led by the RCP, using IR processes that are well established[2] and ordinarily applied within the 30 different physician specialties. The scope of this review involved medical specialties outside the specialist expertise of the RCP; therefore, the RCP worked with other colleges and specialty associations to ensure that appropriate and relevant specialist expertise was obtained. Specialist input was provided via the Royal College of Paediatrics and Child Health (RCPCH), the Royal College of Obstetrics and Gynaecology (RCOG), and the Royal College of Midwives (RCM). The British Association of Perinatal Medicine (BAPM) also provided assistance to the RCP in identifying specialist reviewers.

These organisations supported the RCP in building a review team to cover the breadth of expertise needed. This included: three consultant neonatologists (two with experience of a local neonatal unit (LNU) and the third from a neonatal intensive care unit (NICU)); two consultant obstetricians, one of whom was also a consultant in fetal medicine; a consultant midwife; and two advanced neonatal nurse practitioners. The review manager had previously served as a lay reviewer for the RCPCH on seven reviews, including of neonatal services.

The main objective of this IR was to provide an independent and expert review of perinatal mortalities, focusing on two consecutive years, 2021 and 2022. SaTH, which operates an LNU, had been an outlier on MBRRACE-UK[3] (UK perinatal deaths) since 2020. The trust was keen to understand any changes necessary to reduce neonatal mortality.

Context

The quality and safety of maternity and neonatal services has been under intense scrutiny with the publication of several independent investigations into maternity and neonatal services at specific NHS trusts. SaTH has been one of four trusts focused upon in recent years.[a] The final report of the independent review of maternity services at SaTH ('the Ockenden review') was published in March 2022.[4] The review found repeated failures in the quality of care and governance at the trust and hundreds of cases where the trust failed to undertake serious incident investigations, with some cases of death not being examined appropriately.[5] The trust has apologised for the pain and distress caused and taken full responsibility for its failings.[6]

While recognising the traumatic experiences of the women and families covered by the review, the process has also taken its toll on trust staff, who have had to cope with unpleasant comments made in the social media and the press. A police investigation into maternity services at the trust (Operation Lincoln) remains ongoing.[7] It is against this backdrop that interviews with trust staff took place under this invited review.

Maternity services were not the core focus of this review. However, all parties recognised that neonatal mortality could not be fully understood without considering the obstetric journey, and whether the risks associated with perinatal mortality had been identified and managed appropriately. This review therefore involved interviews with staff from obstetric and midwifery services, as well as from the neonatal service.

[a] The other three being Morecambe Bay, East Kent and Nottingham University Hospitals

Key messages

The overall impression was of a maternity service that had taken huge strides over the past 18 months to 2 years (following publication of the first Ockenden report in December 2020[8]) to rebuild the service, staff teams, processes, and culture.

The neonatal service, which had not received the same level of external scrutiny, was in a different place: more fragile and mending after nursing leadership challenges, which had severely impacted morale. The review team did not identify evidence to indicate that the quality of care provided to babies by the neonatal service was substandard or directly contributing to the unit's outlier status in terms of perinatal mortality. However, the review team observed that the unit sometimes managed very preterm babies who were not delivered in the right location (ie adjacent to a NICU), which created pressure on staff to stabilise and manage very vulnerable babies until they could be transferred out. This review raised some questions over the extent to which the West Midlands Neonatal Operational Delivery Network (WMNODN) was achieving its objective of 'high quality care for the right mother and right baby in the right place as close as possible to home'.[9] Princess Royal Hospital, SaTH's centre for inpatient women and children's services, is shown at number 2 on the map below. Number 1 is Royal Stoke University Hospital, described as SaTH's link NICU. Good working relationships were also reported with New Cross Hospital NICU, number 3.

Source: https://www.wmnodn.org.uk/app/maps/SWMNNMap202011.pdf

It was clear that neonatal mortality at SaTH cannot be considered in isolation to neonatal mortality[b] across the region. The West Midlands has the highest infant[c] mortality in England (with 5.6 deaths per 1,000 live births[10]), and this has been the picture since at least 2000.[11] There is a need to investigate the drivers underpinning the regional mortality and to give attention to pathways across the region. The ultimate solution to addressing neonatal mortality rests at population level and a public health approach will be necessary, taking into consideration multiple factors, such as social determinants, poverty and ethnicity.

[b] A neonatal death is the death of an infant aged under 28 days
[c] An infant death is the death of an infant under 1 year

During the review concerns were also raised regarding paediatric mortality, with the system within which SaTH sits reported to have been flagged as one of the highest areas for paediatric mortality in national datasets (see 6.2.2). These issues are broader than deaths captured by perinatal mortality review tools but point to a need for work to take place across the system, and the region, to understand how child and infant deaths can be reduced.

The review team identified several opportunities to improve certain aspects of neonatal care within SaTH's LNU. A letter providing immediate feedback was issued to the trust medical director on 4 December 2023. This report provides the full conclusions of the review team, relevant to each of the terms of reference (section 2). The recommendations arising from these conclusions can be found at section 3.

Alongside opportunities to strengthen care, the review team identified some examples of excellent care: specifically, three of the 18 cases examined by the review team were graded excellent care for the obstetric journey (section 6.1.2) and one case also demonstrated excellent end of life care (section 6.1.7). Other highlights of the review included the positive evolution in organisational culture evident in the maternity service, which was described by one interviewee as 'a good culture of professional challenge' (section 6.2.3). Another highlight was stronger family engagement arising from learning from incidents. The bereavement midwives were said to receive 'exceptional feedback' from parents and had been working with bereaved fathers, who can often be overlooked in terms of engagement (section 6.3.3). Finally, one interviewee described teamworking amongst the multidisciplinary neonatal team as 'amongst the best in the West Midlands' (section 6.3.4), which provides a firm foundation for the neonatal unit to build upon.

2 Conclusions

TOR 1: Clinical record review

Before undertaking staff interviews, the review team undertook a clinical record review of 18 perinatal mortalities that occurred in 2021 and 2022. These were deaths that were reportable to MBRRACE and subject to the national Perinatal Mortality Review Tool (PMRT), which is integrated into the MBRRACE-UK programme of work. Of the 18 cases that were subject to structured judgement review:

- five were graded 'good practice'
- eight were graded 'room for improvement' for clinical reasons
- two were graded 'room for improvement' for both clinical and organisational reasons
- two were graded 'unsatisfactory'
- there was insufficient information to assess the quality of care in one case (see 6.1.1).

Obstetric journey: More than half the cases were graded adequate, good or excellent in terms of antenatal risk assessment and care provided in the antenatal, intrapartum and postnatal period. Opportunities for improvement were identified with respect to:

> planning for babies with identified fetal anomalies, where the absence of referral to a tertiary centre denied the mother the opportunity for wraparound care and a clear plan in terms of outcome options for the baby
> clinical decision making in the intrapartum period, including delays observed in delivering some babies with sufficient urgency and decision making over task delegation in preterm births.

No systemic issues were identified regarding obstetric anaesthesia.

Care of the baby at delivery by the multidisciplinary team: Most cases were graded good or adequate care under this heading, reflecting responsive care of the baby at delivery, with appropriate staff present. Often in cases graded good care, a neonatal consultant was present and strong leadership was evident. Opportunities for improvement were identified with respect to the following:

> delayed cord clamping
> deviation from Newborn Life Support (NLS) guidelines[12]
> use of the resuscitation proforma
> intubation (in several cases, multiple attempts were made at intubation, and at times this gave rise to a sense of panic during resuscitation and indicated learning needs in this area)
> senior leadership (in some cases, the review team believed that consultant presence could have resulted in more coherent care of the baby at delivery)
> documentation issues.

Neonatal resuscitation followed the NLS algorithm in most cases but not infrequently there was tendency by junior staff to rapidly progress through the airway management without adequately checking or documenting chest movements. This meant there were early and multiple unsuccessful attempts at intubation by junior doctors, in some cases even with a consultant present. Senior oversight and measured decision making appeared to be lacking in these instances.

Extreme preterm infants born in an LNU often need intubation for transfer reasons; however, in one case [redacted]

[redacted]. In many of the cases reviewed, the babies were born out of hours and therefore the first responding team comprised doctors in training or advanced neonatal nurse practitioners (ANNPs), which could have contributed to an overly invasive approach to preterm stabilisation. BAPM's new neonatal airway safety standard document[13] sets out expectations regarding intubation of babies. For those staff who do not have the skills to intubate competently and confidently, the focus for safe airway management should be on using skills and simulated sessions on maintenance of the airway using non-invasive ventilation techniques. Supporting training materials for the BAPM neonatal airway safety standard include airway skills training and assessment tools; tips for videolaryngoscopy; and a guide on the use of waveform capnography.

Care following admission to the SaTH neonatal unit: For three of the 18 babies, no care was provided on the neonatal unit (the baby was admitted to the Children's Assessment Unit or died on the delivery unit, or deteriorated in the community and was taken to another hospital).

The review team recognised the challenges for the unit in caring for very premature babies; in two cases, the infants were 25+3 weeks and 26 weeks. Opportunities for improvement were identified with respect to the following:

- golden hour timings (particularly for giving surfactants and antibiotics) – see 6.1.4
- antibiotic regimens
- baby handling during the golden hour
- temperature maintenance
- ventilation
- clinical decision making
- equipment issues (for one case, scales in the neonatal unit were broken and no accurate weight was available for this baby until after they had died)
- senior leadership
- communication and escalation to transport service and a NICU.

Multidisciplinary team working and communication between colleagues: Most cases were graded good or adequate care under this heading, reflecting evidence of expected standards around teamworking and communication between colleagues. There were some good examples of neonatal consultants seeking the additional input of colleagues with subspecialty expertise (eg in metabolic disorders). Some issues were identified with respect to senior leadership, specifically: the difference it may have made had the consultant on call in one case attended the unit at night for a very preterm infant; and the delegation of tasks during resuscitation in another case, which could have been improved by more decisive decision making and stronger senior leadership.

Interactions with parents, family members and family integrated care: Most cases were graded good or adequate care under this heading, reflecting clearly documented information sharing with the parents and involvement of the parents in the baby's care where possible. In some cases, discussions with parents were not documented as well as they might have been or were not as timely as expected. Sometimes there was delay in offering parents the opportunity to see or touch their baby on the neonatal unit.

End-of-life care and support offered before and after a perinatal death: In nine of the 18 cases, the infant was transferred from SaTH to a NICU. End-of-life care and support offered before and following the death of the infant took place at the NICU and gradings could not be reached on this element of care in these nine cases. In the remaining nine cases, where end-of-life care was provided at SaTH, one case stood out for providing excellent care under this heading. Other cases were graded good or adequate.

Clinical record keeping: Clinical record keeping was mostly graded adequate care. ANNP documentation was observed as being to a high standard.

TOR 2: The internal application by SaTH staff of the PMRT in the perinatal mortalities that occurred in 2021 and 2022

The review team identified several themes from consideration of the PMRT reports for 16 of the 18 babies. The PMRTs often involved large panels, with good representation from the LNU and the NICU. However, most panels lacked neonatal externality in terms of a neonatal consultant from another hospital who could bring an independent perspective to events, particularly where issues relating to leadership needed to be explored. While two consultant obstetricians from another trust were job planned to provide externality in PMRTs, the review team was not clear whether they covered fetal medicine and high-risk pregnancy/ preterm birth. The PMRTs were highly process-focused with limited exploration of leadership issues. At times, the neonatal consultant involved in the delivery of care was present on the panel, which may limit the exploration of areas for learning in relation to leadership and decision making. Plans were said to be underway to develop neonatal externality, with neonatologists rotating to contribute to PMRTs across different units.

The PMRTs often missed some relevant learning at the LNU, with a tendency to focus more heavily on the transfer of care to another centre and on the care provided at the NICU. There was a tendency for the review to be process-focused with respect to LNU care – for example, on use of the resuscitation proforma, temperature before transfer to the neonatal unit, documentation of transfer, and monitoring in the neonatal unit. Some actions were to address identified issues via one-to-one discussions with staff, which risked feeling punitive and undermining departmental learning. The review team concluded that some cases raised questions about the functioning of the neonatal network and the escalation of care, with the LNU at times left in a vulnerable position, caring for extremely sick premature babies. It was not evident that the PMRTs fully explored network issues that may have undermined the ability of the unit to provide high-quality care.

Participants in the PMRTs need a mechanism for flagging learning that sits outside the unit or units concerned, such as improved pathways for high-risk patients. Without this, it is difficult to see how quality improvement arising from PMRTs can ever be more than piecemeal. There would appear to be a role for the network in drawing together and acting upon network-wide learning.

Documentation issues were said to be a recurring theme from the PMRTs and the trust should expedite a business case to achieve its aspirations for a full electronic patient record system, which was expected to address some of these issues. The use of locums was another issue said to have surfaced during some PMRTs and pointed to a need for additional safeguards to be put in place to support locum neonatologists, particularly out of hours.

Feedback from PMRTs to the neonatal teams was disseminated via monthly neonatal governance meetings, which had been made more robust in the latter half of 2023. However, there were opportunities to strengthen feedback from PMRTs and specifically to make it timelier and to ensure that the entire team benefits. Staffing challenges were preventing neonatal nurse input into PMRTs, which undermined the dissemination of learning to nursing teams, who appeared isolated from PMRT learning. The neonatal nurse lead for PMRTs must have protected time to participate in PMRTs, mirroring the job-planned time given to consultants for this activity. The planned appointment of a governance lead neonatal nurse will support knowledge dissemination to all those working clinically on the unit. The unit may wish to draw on the approach taken in midwifery where shift coordinators disseminate learning in ‘real time’ during handovers at the beginning of each shift.

TOR 3: Pathway documentation, including escalation policies

The review team graded most of the 18 cases adequate in terms of compliance with network, national and Trust guidelines and recognised best practice. However, some non-adherence to guidelines was observed with respect to airway management; NLS algorithm; recognition and prompt treatment of low blood glucose levels; surfactant administration; and first dose of antibiotics within 1 hour of admission. There was variation in how care was delivered in the first hour depending on team configuration and leadership. There was reluctance to administer surfactant in the delivery suite and staff interviews indicated that this was local practice to avoid a perceived risk of inadvertent single lung surfactant administration due to suboptimal endotracheal tube position.

Of the 16 guidelines shared with the review team, just two guidelines had been adopted from the network, with the rest locally authored. The two that had been adopted from WMNODN were: Golden hour preterm babies <28 weeks' gestation and guidelines on transport and retrieval. The review team was informed that the unit started the clock for golden hour timings after admission to the neonatal unit, not the first hour of life. The WMNODN guidelines (2019–21) emphasise that the aim of the golden hour is 'to stabilise baby and perform all procedures required within the first hour **after birth'** (emphasis as shown on page 126 of the guidelines). The unit must be prepared to demonstrate (for example, via audits) that the decision not to comply with this aspect of network guidelines is not to the detriment of babies cared for on the unit.

The doses of antibiotics given were consistent across the cases and differed from network guidance, leading to the conclusion that the unit followed its own guidelines with respect to antibiotics. Several interviewees believed that antibiotics were administered within the golden hour, but no audits had been conducted in recent times to confirm this and some of the 18 cases reviewed demonstrated that this was not always achieved. Interviewees frequently expressed confidence that care was being provided in compliance with guidelines but were unable to provide evidence from audits to demonstrate this.

A key challenge related to this was the pressure on neonatal nursing staff, due to staffing shortfalls. Issues associated with the nursing leadership had led to nurses on the unit feeling demoralised and unwilling to step forward to take on additional responsibilities until human resources processes had concluded. This, together with difficulties in recruiting to some nursing roles (including a unit manager and band 6 nurses) and a lack of workforce planning, had resulted in staff being pulled away from non-clinical activities to focus on clinical tasks. The unit lacked specialist quality roles and qualified in specialty (QIS) nurses, with agency staff drafted in to fill these roles. Ambitions for the unit to 'grow its own' are unlikely to be achieved without a concerted focus on nurse training and education, which was said to be poor and ad hoc. Attention was needed to investing in the existing nursing workforce and succession planning. This issue was also of relevance to the ANNP team and the unit has fallen behind in terms of succession planning and progression from tier 1 to tier 2. Again, ANNPs needed protected time to undertake non-clinical and leadership roles to meet the four pillars of advanced practice.

The unit boasted a new cadre of allied health professionals. These staff are vital for good neonatal care and outcomes, and should be embedded into the unit and supported to develop in line with their specialist national standards.

The review team heard only positive feedback regarding the new divisional leaders and the executive leadership team. This new level of stability has replaced considerable turmoil and high management turnover, which limited the ability of the unit to progress and implement quality improvements. The entire division has been through enormous change and there was a pervading sense of optimism and determination relating to maternity services, which was only just beginning to filter through to the neonatal service. If equivalent dynamism of the leadership witnessed in maternity services could also lift

the neonatal nursing workforce (eg driving cultural change by empowering individuals), it could have benefits for the neonatal unit in terms of continuous quality improvement. All the outstanding actions for the neonatal unit from the Ockenden review related to staffing, mostly nursing and ANNPs.

The neonatal unit is but one part of a network; it relies on effective relationships with others within the network, supported by responsive pathways, to enable babies and their families to access the right level of care as near to home as possible. The review team observed that the SaTH unit sometimes treated extremely premature babies with complex needs for longer than it ought to, which may reflect a network that is not functioning as well as it might. Many LNUs would have difficulties caring for such babies without error. The review team heard about the challenges obstetric staff frequently faced in trying to transfer out a mother antenatally to avoid a high risk, preterm delivery within the unit. Issues were described in identifying both a bed for the mother and a neonatal cot, with the result that some babies were not delivered in the location best suited to meet their needs. There seemed to be a clear case for having a robust 24/7 cot locator service for antenatal and acute postnatal transfers. Across the network, intensive care capacity needs to be reviewed to ensure that provision can meet demand. Changes in fetal medicine consultant capacity were forcing new models of care and should result in new pathways for high-risk mothers and their babies.

Finally, the focus of this review was on neonatal mortality and the review team wished to commend the two specialist bereavement midwives who were the first point of professional support for most families where a poor outcome was anticipated, or when there was the unexpected death of a baby. There are opportunities to strengthen the bereavement pathway by appointing neonatal bereavement quality roles, to mirror those on the delivery suite. This is particularly important out of hours and also in light of the scope of work undertaken by the two specialist bereavement midwives.

Linked to this, the neonatal unit needs to develop its Family Integrated Care strategy to ensure that the voices of local families inform everything it does, including the response to this invited review.

3 Recommendations

Key for timelines for implementing recommendations:

> **Immediate (0–3 months)** – action should be completed within 3 months of receipt of the initial invited review feedback letter.

> **Short term (0–6 months)** – action should be completed within 6 months of receipt of the invited review report.

> **Medium term (6–12 months)** – action should be completed within 12 months of receipt of the invited review report. Planning for actions resulting from these recommendations should start as soon as possible.

> **Long term (12–24 months)** – action should be completed within 24 months of receipt of the invited review report. Planning for actions resulting from these recommendations should start as soon as possible.

Immediate recommendations	
Recommendation	**Timelines**
1. The service, an LNU, has retained equipment to provide nitric oxide even though changes have been made nationally to focus the provision of nitric oxide within NICUs.[14] The equipment was rarely used and yet associated with anxiety among nursing staff, many of whom were said to lack experience or training in its use. It is therefore recommended that the nitric oxide equipment should be removed from the unit.	**Immediate (0–3 months)**
2. The unit should develop a first hour (golden hour) checklist to facilitate delivery and documentation of time critical interventions within the first hour from birth for all infants admitted for intensive care.	**Immediate (0–3 months)**
3. There are several areas where the unit should undertake audits to better understand its current care provision. These include the following: a. The unit should collaborate with the ODN to review the number of intensive care days (HRG1) within the unit. The review team observed that for a birth denominator of 4,100, intensive care days appeared to be high, potentially indicating an interventionist approach to neonatal care. b. The unit should undertake quarterly audit of all neonatal resuscitations that extend beyond initial inflation breaths, against UK Resuscitation Council Newborn Life Support guidance, with specific focus on timeliness and sequence of interventions, escalations for additional senior help, response, and documentation on advanced resuscitation proforma. c. The unit should undertake a gap analysis of how its Family Integrated Care provision aligns with national guidelines. d. The unit should review National Neonatal Audit Programme (NNAP) quality outcome trends, particularly bronchopulmonary dysplasia, brain injury, non-invasive ventilation rates, and create quality improvement projects to address any issues identified.	**Immediate (0–3 months)**

Staffing and training	
Recommendation	**Timelines**
4. The unit should develop a training programme on approaches to ventilation that reflect expectations in BAPM's Neonatal Airway Safety Standard,[13] drawing on supporting training materials (for example, including for videolaryngoscopy).	Short term (0–6 months)
5. All neonatal nursing staff should be given protected time to attend mandatory training, equipment training and simulation sessions as a minimum. Simulation sessions should be regularly timetabled. To avoid nurses being pulled away from clinical duties, the trust could consider allocating one to two days over the year to complete mandatory training and attend multidisciplinary simulation training (like the approach taken in maternity services).	Short term (0–6 months)
6. Nursing quality roles must be allocated, with a particular focus on education, governance and Family Integrated Care, and staff given protected time to fulfil these roles.	Short term (0–6 months)
7. There should be protected time for bereavement quality roles in the neonatal service to work alongside the bereavement midwives.	Short term (0–6 months)
8. ANNPs should receive 20% protected time to ensure they complete all four pillars of advanced practice and must be able to access their allocated time to update their skills on a NICU.	Short term (0–6 months)
9. Team building should be undertaken to reflect on this review and enable the multidisciplinary team to identify actions. This should provide the following opportunities: a. For more junior nursing staff to develop effective working relationships with senior doctors on the unit and collaborate in projects to take the unit forward. b. To ensure debriefs, learning events, meetings, teaching and education aim for a multidisciplinary and multiprofessional theme to reflect the work environment and how care is delivered. c. To encourage psychological safety in ways of working, events, education and training, to ensure a safe space for colleagues to flag any concerns and worries.	Medium term (6–12 months)

Leadership	
Recommendation	**Timelines**
10. Neonatal nursing leaders (eg senior sisters) should be given protected time to undertake management and leadership responsibilities.	Short term (0–6 months)
11. This review highlights the benefits realised with excellence in clinical leadership. The trust should build on this with specific leadership development investment for medical and nursing leaders within the neonatal unit (eg Neonatal Clinical Lead, Clinical Director, Neonatal Matron). This could be executive coaching or specific leadership development programmes to include topics such as embedding psychological safety in teams, leadership succession planning etc.	Medium term (6–12 months)
12. The maternity service has had a new level of stability, following patterns of high turnover across all senior management roles, which has boosted recruitment (section 6.3.4). Trust leaders should facilitate learning from what has worked well in maternity and how this can be translated to	Medium term (6–12 months)

neonatal consultant and nursing leadership development on an ongoing basis.	

Perinatal mortality review	
Recommendation	**Timelines**
13. The PMRT process needs further development to become a useful mechanism for learning, including securing neonatal consultant as well as fetal medicine externality, protected time for neonatal nurse participation, and a clear mechanism for sharing learning with respect to the network. A network-wide approach may be needed to make best use of available resources and expertise, given the tension between a neonatal unit functioning with significant workforce gaps alongside a need of more from this same workforce in terms of PMRT attendance.	Short term (0–6 months)
14. Learning and actions from PMRT and incidents must be clearly documented and there must be a robust mechanism for feedback to the multidisciplinary team.	Short term (0–6 months)

Pathways, practice and escalation	
Recommendation	**Timelines**
15. The service should ensure compliance with the medical and nursing standards as listed in BAPM Service and Quality Standards for Provision of Neonatal Care in the UK, November 2022.[15]	Short term (0–6 months)
16. The neonatal service should review its 'golden hour' care practices for preterm infants and sick term infants born within the service, with a focus on implementing evidence-based care practices around resuscitation, stabilisation, surfactant administration and other supportive measures in the first few hours after birth.	Short term (0–6 months)
17. The trust should expedite consideration of the business case for an electronic patient record to enhance the accurate recording of the clinical journey for babies admitted to the neonatal unit.	Medium term (6–12 months)
18. The trust should engage the network in discussions over having a robust 24/7 cot locator service for antenatal and acute postnatal transfers, and for a review to take place into NICU capacity. Consideration could be given to a digital solution that also incorporates maternal bed availability and to learn from exemplar networks with well-developed cot locator services.	Medium term (6–12 months)
19. The trust should engage the neonatal network in the findings of this review, and specifically: a. Questions raised by the review team over the functioning of the network, with the LNU at times left caring for extremely sick premature babies for longer than it ought to. b. The impact of instances when the NICU appeared reluctant to accept patients for transfer from the LNU (section 6.1.4) on the likelihood or readiness for staff at the LNU to make a referral, and on timely transfer. c. Questions raised during interviews over whether escalation to NICUs happened sufficiently early and 'assertively enough' (section 6.2.2).	

Governance and learning	
Recommendation	**Timelines**
20. The neonatal team should review the feedback provided on the 18 cases reviewed as an opportunity to consider learning for the whole MDT.	Short term (0–6 months)
21. The unit should develop a clear programme of quality improvement and audit linked to clinical incidents and PMRT. Audits may include: airway management, golden hour timings, stabilisation, prescribing, documentation. It may be advisable to ask comparable units within a different ODN to share details of their audit programmes and examples of audit proformas, in addition to linking with audits taking place across the ODN.	Short term (0–6 months)
22. The trust should consider sharing the conclusions of this review with families (in particular the parents of the babies whose cases were reviewed), and other service users.	Short term (0–6 months)
23. The service must implement Family Integrated Care and regularly seek out family feedback and involvement in service improvements and redesign. This could be done by using network parent advisory groups, for example.	Medium term (6–12 months)
24. This report should be shared with the trust board, which should have oversight of any action plan developed to address the recommendations.	Medium term (6–12 months)

4 Introduction

Dr John Jones, executive medical director of SaTH, approached the RCPCH's IR service in February 2022, regarding SaTH's neonatal service. At the time, the RCPCH IR service was paused, therefore the RCP IR service was approached to undertake this review, with expertise drawn from RCPCH and other organisations. Dr Jones discussed the review with Dr Adam de Belder, RCP medical director for IRs at the RCP on 28 March 2022 and it was agreed that an invited review of the neonatal service at SaTH would be undertaken in October and November 2023.

4.1 Terms of reference for this invited review

The terms of reference for this review are as follows:

1. To assess the clinical management and quality of care provided by SaTH staff to the cohort of patients identified, including consideration of appropriate transfer of mother and babies. Consideration will be given to:
    - the obstetric journey, and specifically whether the risks associated with stillbirth, problems during delivery, and/or perinatal mortality were identified and managed appropriately (antenatal, intrapartum, postnatal, obstetric anaesthesia)
    - compliance with network guidelines in place at the time
    - adherence to trust guidelines in place at the time and the extent to which these guidelines aligned with network guidelines, national guidelines and recognised best practice
    - care of the baby at delivery by the multidisciplinary team (eg midwives, obstetricians, anaesthetists, nursing staff and healthcare assistants, neonatologists, neonatal nurses)
    - neonatal unit admission (as relevant)
    - multidisciplinary team working and communication between colleagues
    - communication and interactions with the parents, including demonstration of Family Integrated Care, as relevant, and support offered before and following a perinatal death
    - clinical record keeping.

2. To consider the internal application by SaTH staff of the national perinatal mortality review tool (PMRT) in the perinatal mortalities that occurred in 2021 and 2022. This will include:
    - the effective application of the PMRT within SaTH to support high-quality standardised perinatal reviews, and subsequent reporting
    - how learning is identified and disseminated by the perinatal mortality review group
    - the effectiveness of actions implemented to improve patient care.

3. To review pathway documentation, including escalation policies during and post-delivery.

The review team will prepare a report that highlights areas of good practice identified by the review as well as any concerns and any lessons to be learnt and recommend appropriate actions, as relevant. The RCP will recommend that the review report is shared with the trust board and that an appropriate action plan is developed to address any recommendations. The trust board should also consider sharing the report with relevant clinical teams and, where appropriate, patients and/or their relatives.

4.2 Approach to this review

This review was led by the RCP, with specialist input provided by the RCPCH, RCOG and RCM. A review team was convened, as set out in section 4.4.

In advance of the review, the specialist review team received 18 clinical records (review methodology described in section 4.3). In addition, documentation provided by the healthcare organisation was examined for the insights it offered in respect of the terms of reference (see appendix 3). The review team held face to face interviews with staff using videoconferencing software on 16–17 November 2023. Details of those interviewed can be found in appendix 4.

The findings contained in this report are outlined in section 6 and represent a summary of the information gathered by the review team from the clinical record review, the interviews and the documentation submitted. The findings are organised under the agreed terms of reference. The findings reflect the viewpoints of those individuals being interviewed and will not necessarily reflect the views of the healthcare organisation, the RCP or its reviewers. The views of the review team are provided in the conclusions and the recommendations.

4.3 Clinical record review methodology

The RCP was provided with clinical records for 18 neonatal deaths, as detailed in the terms of reference (section 4.1). Each of the 18 cases was considered independently by two specialist clinical reviewers – see section 4.4 for details of the review team. Each reviewer used a structured form adapted from the RCP National Mortality Case Record Review (NMCRR) Programme[16] to independently examine phases of care that the patient received. These were graded by the reviewers as **1 = very poor care; 2 = poor care; 3 = adequate care; 4 = good care, or 5 = excellent care**. The review team also utilised a grading system[17] developed by the National Confidential Enquiry into Patient Outcome and Death (NCEPOD)[18] to give an overall perspective on the quality of care provided. This considers both clinical and organisational care. The overall gradings were as follows: **good practice, room for improvement – clinical, room for improvement – organisational, room for improvement – clinical and organisational, unsatisfactory, insufficient information.**

Having independently reviewed the cases, the review team presented them at a meeting held using video conferencing software on 12 and 13 October 2023, with a further meeting focusing on the obstetric journey only, held on 2 November 2023. The meeting was chaired by the medical director for IRs and supported by an RCP review manager. Each case was considered in turn, the specialist review team presented their views, followed by a 'confirm and challenge' discussion to agree the grading of phases of care and the overall care. In making judgements about the overall care provided to the patient, the review team considered national good practice and guidelines.

4.4 Invited review team

Role
Medical director and chair of invited reviews
Consultant neonatologists (LNU) x 2
Consultant neonatologist (NICU)
Consultant in feto-maternal medicine and obstetrics
Consultant obstetrician and gynaecologist

Role
Consultant midwife
Advanced neonatal nurse practitioners (ANNPs) x 2
Lay reviewer and review manager

5 Description of the service

The trust was the main provider of district general hospital services for nearly half a million people in Shropshire, Telford and Wrekin, and mid Wales.[19] There were two hospital sites providing a wide range of acute hospital services, including accident and emergency, outpatients, diagnostics, inpatient medical care and critical care:

> Royal Shrewsbury Hospital
> Princess Royal Hospital (Telford)

Between the two hospitals, there were just over 800 beds and assessment and treatment trolleys. The trust was reported to employ approximately 5,800 staff (whole-time equivalent).[19] The Princess Royal Hospital became the main centre for inpatient women and children's services following the opening of the Shropshire women and children's centre in September 2014.

The most recent Care Quality Commission (CQC) inspection took place in July and August 2021 and was published in November 2021[20] (further inspection took place in November 2023, coinciding with this review). The services inspected were urgent and emergency care, medical care and end-of-life care services at both acute hospitals; and maternity services at the Princess Royal Hospital. The overall rating for the trust was 'inadequate'. The ratings were broken down as follows:

- safe – inadequate
- effective – requires improvement
- caring – requires improvement
- responsive – inadequate
- well-led – requires improvement
- use of resources – requires improvement.

The CQC reported that the trust had experienced significant challenges during the COVID-19 pandemic, with staff redeployed to care for the most acutely ill patients and to support staff in critical areas, and services were redesigned at short notice. At the time of the inspection, the trust was part of an improvement alliance with an NHS trust based in Birmingham, which had commenced in 2020. The alliance involved the sharing of resources, staff, expertise and learning to facilitate improvement across the trust.

Among the inspection findings were that:

- the trust had made improvements since the last inspection but further work was needed to improve the rating
- staff did not always assess and respond to patient risk. Records were not always of good quality, stored safely or easily available to staff to ensure that they could provide safe nursing care
- vacancies within nursing, medical and allied health professional staffing were still impacting on the safety and quality of patient care
- staff did not always treat patients with compassion and kindness but it was acknowledged their ability to do so was impacted by other challenges the trust faced
- individual needs were not always met. People could not always access the service when they needed it and did not receive the right care promptly
- leadership at trust level and across core services had improved but there was further work to do, which included management of risk and performance, culture and governance.

The CQC identified outstanding practice as follows: 'Midwifery staff showed immense levels of resilience as they were able to continue to provide high levels of care to women and babies and maintained a positive and caring attitude during extremely challenging circumstances. The maternity department was under considerable scrutiny following the publication of the first Ockenden review (independent review of

maternity services) and during the COVID-19 pandemic. This was in addition to the maternity service's ongoing challenges with the stability of the senior maternity leadership team which further impacted on staff.'

SaTH's neonatal department

The neonatal service served a catchment population of half a million, with approximately 4,800 births per year. The service was designated as an LNU (previously described as level 2). It was supported by NICUs (level 3) within the West Midlands Neonatal Network. SaTH's designated partner unit was at the University Hospital North Midlands.[21]

The unit was staffed and equipped to provide:

- conventional and synchronised ventilation
- volume targeted ventilation
- short-term high frequency oscillation
- inhaled nitric oxide therapy as well as active therapeutic hypothermia pending transfer to a NICU
- cranial sonography and echocardiography services
- retinopathy screening.

The unit stated it provided care for babies from 27 weeks of gestation and over 800 grams based on network pathways.

The unit was described as 'an entirely new, modern-day high-specification facility.'[21] It was located on the first floor, adjacent to the labour suite and maternity theatres and obstetric wards. The postnatal ward including transitional care, children's ward, assessment unit and outpatient facility were sited immediately below on the ground level. There was a seminar/education facility within the unit, and a comprehensive education and simulation suite immediately below on the ground floor.

There were 22 cots: three intensive care, three high dependency and 16 special care cots. In 2020, the unit delivered approximately 500 intensive care days, 1,120 high dependency days, 3,700 special care and 1,700 transitional care days. There was an active neonatal outreach service provided by three senior neonatal nurses, who looked after babies discharged home on oxygen or who met other criteria.

6 Findings

6.1 Terms of reference 1 – Clinical case record review

To assess the clinical management and quality of care provided by SaTH staff to the cohort of patients identified, including consideration of appropriate transfer of mother and babies.

The findings below are based solely upon review of the clinical case records by the specialist reviewers, who reached judgements based on the information shared with them by the trust. There was no discussion with members of staff at this stage of the review, which may have shed further light on certain aspects of the patient pathway. Equally, interviews with the families involved, which were not part of the scope of this review, may have provided a differently nuanced interpretation of the clinical records.

6.1.1 Overall rating for quality of care

The review team's overall ratings for the quality of care provided across the 18 cases were as follows:

- Five cases were graded 'good practice' (RC[redacted], RC[redacted], RC[redacted], RC[redacted], RC[redacted])
- Eight cases were graded 'room for improvement' for clinical reasons (RC[redacted], RC[redacted], RC[redacted], RC[redacted], RC[redacted], RC[redacted], RC[redacted], RC[redacted])
- Two cases were graded 'room for improvement' for both clinical and organisational reasons (RC[redacted], RC[redacted])
- No cases were graded 'room for improvement' for organisational reasons alone
- Two cases were graded 'unsatisfactory' (RC[redacted], RC[redacted])

A full breakdown of gradings by phase of care and overall can be found in appendix 5. The gradings for review of PMRTs associated with the 18 cases can be found at section 6.2.1. The gradings relating to compliance with network, national and trust guidelines across the 18 cases can be found at section 6.3.1.

There was insufficient information to reach a grade of the overall quality of care for RC[redacted].

Ten of the cases were graded room for improvement, mostly for clinical reasons. This reflected issues with clinical decision making at different stages of the pathway (as outlined in the gradings associated with different phases of care). Organisational issues were identified in two cases:

- In case **RC**[redacted]
- In **RC**[redacted]

Two cases were graded 'unsatisfactory':

> For [redacted]

> The grading of unsatisfactory for case [redacted]

6.1.2 Obstetric journey: risks associated with stillbirth; problems during delivery and/or perinatal mortality

The specialist reviewers were asked to consider evidence relating to the obstetric journey in each of the 18 cases.

Three cases were rated excellent care ([redacted], [redacted], [redacted]). For example:

> Case [redacted]

Five cases were rated good care ([redacted], [redacted], [redacted], [redacted], [redacted]). For example:

> In case [redacted]

[d] According to NICE guidance NG192, category 1 caesarean birth is when there is immediate threat to the life of the woman or fetus, and category 2 caesarean birth is when there is maternal or fetal compromise that is not immediately life-threatening. Category 1 caesarean births should be performed as soon as possible, and in most situations within 30 minutes of making the decision. Category 2 caesarean births should be performed as soon as possible, and in most situations within 75 minutes of making the decision. www.nice.org.uk/guidance/ng192/chapter/recommendations

Three cases were rated adequate care ([redacted]). In these cases, opportunities for improvement were identified around the timeliness of decision making. For example:

- In case [redacted].

Seven cases were rated poor care for the obstetric journey ([redacted]). Two of these cases highlighted issues around planning with respect to babies with fetal medicine conditions:

- Case [redacted].
- Case [redacted]

[redacted]

Two cases highlighted issues around clinical decision making in the intrapartum period:

- Case [redacted]

[redacted]

[redacted]

> Case [redacted]

For the other cases graded poor care, this grading reflected delays in delivering the baby with sufficient urgency and clinical decision making around delivery:

> Case [redacted]

- Case [redacted]

- Case [redacted].

6.1.3 Care of the baby at delivery by the multidisciplinary team

Most cases were graded good or adequate care under this heading. Eight cases were graded good care ([redacted]), reflecting responsive care of the baby at delivery, with appropriate staff present. Often in cases graded good care a neonatal consultant was present and strong leadership was evident. In case [redacted].

Six cases were graded adequate care ([redacted]). Across these cases a range of issues were identified that stopped short of good care of the baby at delivery.

- **Delayed cord clamping** – one case stood out for delaying cord clamping ([redacted]); more often there was no delayed (or optimal) cord clamping[22] (eg [redacted]).

- **Deviation from Newborn Life Support (NLS) algorithm** – in several cases, chest compressions were started before chest wall movement had been detected (eg [redacted]).

- **Resuscitation proforma** – it was not evident that the resuscitation proforma was used in some cases (eg [redacted]).

- **Issues with intubation** – in several cases, there were multiple attempts made at intubation ([redacted], [redacted], [redacted]) and, at times, this gave rise to a sense of panic during resuscitation and indicated learning needs in this area. In case [redacted], there were six attempts at intubation, which took place in the neonatal unit.

- **Senior leadership** – in some cases, the review team believed that consultant neonatologist presence could have resulted in more coherent care of the baby at delivery (eg [redacted], [redacted]). In case [redacted], the review team observed the benefits of the consultant staying on the telephone to advise the team while driving to the hospital.

- **Documentation issues** – in case [redacted], there was no documentation of thermal management of the baby; in case [redacted], there were discrepancies in the descriptions of attempts at intubation and of Apgar scores (a test given to newborns to checks heart rate and other indicators).

Two cases were graded poor care under this heading ([redacted]).

- The obstetric journey for case [redacted].

- The obstetric journey for case [redacted].

In some cases, high pressures were given appropriately to preterm babies ([redacted] and [redacted]). However, the review team questioned whether the decision to increase inflation pressures to 30 cm H20 was too high, too early in cases [redacted] and [redacted]. This was thought to be influenced by the conclusions of the Ockenden review, as follows:

> *"Neonatal practitioners must ensure that, once an airway is established and other reversible causes have been excluded, appropriate early consideration is given to increasing inflation pressures to achieve adequate chest rise. Pressures above 30cm H2O in term babies, or above 25cm H2O in preterm babies may be required. The Resuscitation Council UK's Newborn Life Support (NLS) Course must consider highlighting this treatment point more clearly in the NLS algorithm."*[23]

A further theme around the care of the baby at delivery related to timing of the administration of surfactant, used to reduce the risk of bronchopulmonary dysplasia and pneumothorax in preterm infants.[24] The network guidelines placed emphasis on the early administration of surfactants,[25] although no

timeframe was given (and the UK national consensus is for early administration of surfactant[26]). The review team concluded that administration of surfactant across the cases was not sufficiently early, ranging as follows:

- 50 minutes ( ) or 56 minutes ( ) of age
- an hour after admission following delivery at home ( )
- 82 minutes ( ) or 90 minutes ( )
- two hours (of age.

In case .

In case .

6.1.4 Care following admission to the SaTH neonatal unit

For three of the 18 cases, no care was provided on the neonatal unit:

- In case , the baby was admitted to (and care in that setting has been graded)
- In case , the baby died on the (not graded)
- In case (not graded)

The gradings for this phase of care were as follows:

- Good care – five cases (, , , ,)
- Adequate care – three cases (, ,)
- Poor care – seven cases (, , , , , ,)
- Very poor care – one case ( )

Cases graded adequate care stopped short of being good care usually due to delays, for example, in administering surfactant (,) and vitamin K ( ) and reflecting the amount of handling of the baby during the golden hour[f] ( ). However, the review team recognised the challenges for the unit in caring for very premature babies. In cases and , the babies were 25+3 weeks and 26 weeks, respectively.

- In case).

Of the seven cases graded poor care, a number of issues were identified:

[f] 'The care preterm babies receive within the first few hours and days has a significant impact on their long-term outcomes. The CESDI 27–28 study highlighted the importance of good early care for preterm babies with particular reference to effective resuscitation'. The aim of the golden hour is 'To stabilise baby and perform all procedures required within the first hour after birth'. *Neonatal guidelines 2022-24. The Bedside Clinical Guidelines Partnership in association with the West Midlands Neonatal Operational Delivery Network*, p136.

- **Golden hour timings** – in some cases, some or all the procedures to be completed within the golden hour to stabilise the baby were not met ([redacted], [redacted]). Several delays were observed in giving surfactant (as detailed previously), which appeared in part to reflect a local policy not to administer this on the delivery suite. In case [redacted], none of the golden hour timings were met, surfactant and antibiotics were delayed and there was delay in getting inotropes up and running (requested [redacted] and running at [redacted]).

- **Antibiotic regimens** – antibiotic dosage regimens did not reflect network or NICE guidelines, with 30 mg (benzylpenicillin) used across all babies (eg [redacted], [redacted]). Delay in administering antibiotics was also observed in several cases ([redacted], [redacted], [redacted], [redacted], [redacted]), including where infection was suspected.

- **Baby handling** – in some cases there was a great deal of handling of the baby in the first few hours, including having multiple X-rays ([redacted], [redacted], [redacted]). In case [redacted], the baby was brought straight to the neonatal unit by ambulance and there [redacted] on the unit. The network guidelines stipulate: '*Once baby set up – minimise handling. Hands off – eyes on.*'

- **Temperature maintenance** – in some cases, the review team observed that the baby's temperature cooled after admission to the neonatal unit ([redacted], [redacted]). On one occasion, [redacted]). In case [redacted].

- **Ventilation** – the review team was sometimes critical of an apparent failure by the neonatal team to consider a change in ventilation mode or recognise that more ventilator support was needed ([redacted]). Issues with respiratory management were also identified in [redacted], and the review team questioned whether there was a lack of understanding of volume guarantee ventilation (a volume targeted ventilation strategy).

- **Clinical decision making** – in case [redacted] In case [redacted] In case [redacted], [redacted]. In case [redacted]

- **Equipment issues** – in case [redacted]. In case [redacted], no umbilical packs were available.

- **Senior leadership** – across the cases graded poor care there was often an absence of clear senior leadership and care seemed to be poorly coordinated ([redacted], [redacted], [redacted]). At times, it seemed a locum consultant was managing the patient and then another, presumably more senior consultant, would become involved in the baby's care.

- **Delays in transfer to NICU** – the timing of calls to tertiary centres sometimes seemed to lack urgency and coincided with staff handover times (eg [redacted]), even when it could have been predicted that the baby would require transfer ([redacted]). The tertiary units sometimes gave advice over the phone and instructed to call back later (eg [redacted]), and seemed reluctant to take the baby

([redacted]), when more responsive timely transfer was needed. Consequently, the local team was left to manage a baby with complex needs for longer than they should have been.

The case graded very poor care reflected the care provided to the baby not on the neonatal unit, but on the children's assessment ward:

> Case [redacted].

6.1.5 Multidisciplinary team working / communication between colleagues

Most cases were graded good or adequate care under this heading. Eight cases were graded good care ([redacted]), reflecting evidence of expected standards around teamworking and communication between colleagues.

Six cases were graded adequate care ([redacted]). In these cases, multidisciplinary team working seemed to have been reasonable but stopped short of being good care. For example:

> In case [redacted].

> In case [redacted].

> In case [redacted].

Three cases were graded poor care under this heading ([redacted]):

- In case [redacted].
- In case [redacted].
- In case [redacted]

[redacted].

6.1.6 Interactions with parents / family, including demonstration of Family Integrated Care

Most cases were graded good or adequate care under this heading. Eight cases were graded good care ([redacted]), reflecting clearly documented information sharing with the parents and involvement of the parents in the baby's care where possible (eg [redacted]).

Eight cases were graded adequate care ([redacted]). In these cases, discussions with parents were not documented as well as they might have been or were not as timely as expected. Sometimes there was delay in offering parents the opportunity to see or touch their baby on the neonatal unit (eg [redacted]). For example:

- In case [redacted].

One case was graded poor care:

- Case [redacted].

[redacted].

[redacted].

6.1.7 End-of-life care and support offered before and following a perinatal death

In nine of the 18 cases, the baby was transferred from SaTH to a NICU. End-of-life care and support offered before and following the death of the baby took place at the NICU and gradings could not be reached on this element of care in these nine cases ([redacted]).

In the remaining nine cases, where end-of-life care was provided at SaTH, one case stood out for providing excellent care under this heading, as follows:

- Case [redacted] This was graded excellent care.

Three cases were graded good care under this heading ([redacted]). For example:

- In case [redacted]

- For case [redacted]

The remaining cases were graded adequate care ([redacted]). This reflected that there were opportunities to have gone further to support parents around the time of the baby's death. For example:

[g] The infant was taken from the community to another hospital; assumed to be a NICU or paediatric intensive care.

> In case [redacted]

> In case [redacted]

> [redacted]

6.1.8 Clinical record keeping

Clinical record keeping was graded adequate care in 11 cases ([redacted]). There was insufficient information to grade [redacted] (the baby was not under the care of the neonatal team).

Two cases were graded good care under this heading ([redacted]). For example:

> In case [redacted].

Four cases were graded poor care under this heading ([redacted]). For example:

> In case [redacted]

> In case [redacted]

> In case [redacted]

[redacted]

6.2 Terms of reference 2 – Perinatal mortality review tool

To consider the internal application by SaTH staff of the national perinatal mortality review tool (PMRT)[5] in the perinatal mortalities that occurred in 2021 and 2022. This will include:

- The effective application of the PMRT within SaTH to support high-quality standardised perinatal reviews, and subsequent reporting
- How learning is identified and disseminated by the perinatal mortality review group
- The effectiveness of actions implemented to improve patient care.

6.2.1 Review of PMRTs associated with the 18 cases

Redactions within the PMRTs shared with the review team made a few difficult to read (eg [redacted], [redacted]). The review team observed that the PMRT panels graded most of the care issues identified as they 'would have made no difference to the outcome', ie grade B, (see table below for explanation) – this applied to the following cases: [redacted]. Some care issues were identified that may have made a difference to the outcome (ie grade C) in three of the PMRTs: [redacted]. The review team discussed whether some of the care issues identified in the PMRT for case [redacted] could have been graded D (see 6.1.3 care of the baby at delivery).

Box 1.5: Categories used to grade the different aspects of care for each death

A. No issues with care identified
B. Care issues that would have made no difference to the outcome
C. Care issues which may have made a different to the outcome
D. Care issues which were likely to have made a difference to the outcome

Learning from standardised reviews when babies die National Perinatal Mortality Review Tool first annual report (2019)[29]

There were several recurring themes across the PMRTs:

> First, the PMRTs often involved large panels, with good representation from the LNU and the NICU. However, some panels lacked externality in terms of an external neonatal consultant who could bring an independent perspective to events (eg [redacted]), particularly where issues relating to leadership needed to be explored.

> Second, the PMRTs were highly process-focused with limited exploration of leadership issues. Relevant learning at the LNU was often missed, with a tendency to focus more heavily on the transfer of care to a NICU and on the care provided at that tertiary unit (eg [redacted]).

> Third, some actions were to address identified issues via one-to-one discussions with staff, which risked feeling punitive and undermining departmental learning (eg [redacted]).

> Fourth, the review team concluded that some cases raised questions about the functioning of the neonatal network and the escalation of care, with the LNU at times left in a vulnerable position, caring for extremely sick premature babies. It was not clear that the PMRTs fully explored network issues that may have undermined the ability of the unit to provide high-quality care.

Across the 18 cases, 15 PMRTs were graded as adequate ([redacted]).

One PMRT was graded poor care:

> Case [redacted].

No grading was reached for two cases:

> In case [redacted]

> There was a PMRT for case [redacted]

6.2.2 The PMRT process

6.2.2.1 Documentation review

The MBRRACE-UK perinatal mortality report concerned stillbirths and neonatal deaths among the 4,322 babies born within SaTH in 2021, excluding births before 24 weeks gestational age and all terminations of pregnancy. The stabilised and adjusted stillbirth rate (all deaths) was 3.13 per 1,000 total births, which was around average for similar trusts and health boards. The stabilised and adjusted neonatal mortality (all deaths) was 1.30 per 1,000 live births, which was more than 5% higher than the average for similar trusts and health boards. It had been more than 5% higher for the previous 3 years. The stabilised and adjusted perinatal mortality (all deaths) was 4.45 per 1,000 total births, which was around average for similar trusts and health boards. The MBRRACE-UK report recommended that as neonatal mortality had been highlighted, the trust should: a) review the data entered locally about the trust to ensure it was accurate and complete; and b) ensure that a review using the PMRT had been carried out for all deaths in the report to assess care, and identify and implement service improvements to prevent similar deaths.

The documentation shared with the review team also included the following:

- Neonatal mortality standard operating procedure (SOP), to identify the actions needed after a baby dies and who is responsible for undertaking them (review date January 2027)
- Child death process SOP – neonates (draft)
- An example of review of a case, prepared by the clinical lead for obstetrics and the neonatal mortality lead (September 2023)
- A case presented to a perinatal mortality meeting (April 2023)
- A presentation on the MBRRACE 2021 data by the clinical lead for obstetrics and the neonatal mortality lead (September 2023)

- The minutes of a neonatal governance meeting at which the MBRRACE 2021 data was discussed (July 2023)
- PMRT 2021 table detailing, amongst other things, the cause of death, PMRT grading, level of investigation, whether there was a PMRT feedback meeting, and neonatal actions/lessons to be learned
- Triggers for Datix 1 reporting on the neonatal unit (review date [redacted])

The documentation provided evidence of good processes for neonatal mortality review and frameworks for neonatal governance. However, the review team raised questions over the implementation of some of these processes. For example, the trigger for Datix reporting was hypoglycaemia <1; however, it was not evident that these triggers were followed in cases of hypoglycaemia (eg [redacted] and [redacted]). There did not appear to be any plan for externality for PMRT in the child death process SOP, and the case presented to a perinatal mortality meeting in [redacted] lacked SMART[h] actions.

6.2.2.2 Comments from interviewees

Senior leaders were keen to understand why the trust had above average neonatal mortality, which was also commented upon by the Ockenden review. Numbers remained small however, and one interviewee stated that one fewer death per year would make the unit a positive outlier rather than a negative one.

The review team heard that when a baby died a Datix report would be triggered automatically. A rapid review would then take place, which ordinarily identified a range of issues. Any deaths reportable to MBRRACE would then be subject to a PMRT.

There was awareness that the West Midlands had the highest neonatal mortality of any region in England. One interviewee remarked that the network had never investigated the reasons underpinning the region's poor performance in this regard, although it was reported that discussions had been initiated at regional level. In the meantime, the driver for this invited review was on understanding what changes might be needed to reduce neonatal mortality for the population served by the trust. Questions were raised by senior leaders over whether clinical teams were escalating care at the right point to the right people, as well as whether escalation to NICUs happened early enough and, as one said, 'assertively enough'. Ultimately, the PMRT process was not providing the trust with 'the answers in terms of things we can modify'.

Another contextual factor highlighted to the review team was paediatric mortality. The system within which SaTH sits was reported to have been flagged as one of the highest areas for paediatric mortality in national datasets and some concerns were raised specific to the trust. The issue was broader than deaths captured by MBRRACE and subject to the PMRT. Child death overview panels (CDOPs) are responsible for receiving child death notifications, including any live-born baby where a death certificate has been issued (it does not include stillbirths, late fetal loss, or terminations of pregnancy carried out within the law).[30] The review team was informed of particular concern over sepsis and the deteriorating child, which was captured as an extreme risk on the risk register of the Integrated Care Board (ICB). Other themes were communication with parents, access to medical support, and consistency with how the trust uses critical outreach support. The main concern was paediatric care, although some concerns were said to extend to neonatal services, specifically relating to infection. The trust was reported to have a transformation programme in place and there had been involvement by the regional network around critically ill children. There was a sense that the huge focus given to maternity services now needed to shift to paediatric care.

[h] Specific, Measurable, Achievable, Relevant and Time-bound

PMRT review meetings

One account was that staff were very self-critical during the PMRT process and would err on the side of saying that care could have been delivered better. PMRTs were said by this interviewee to be 'forensic' in approach and anything identified during the PMRT was tracked to ensure that the action had been completed.

Another account was that the PMRT process failed to 'always pick up the relevant things' as it was 'very task focused.' Ongoing challenges were highlighted in terms of 'the right babies being delivered in the right centre', and pathway issues that required attention across the entire West Midlands region. Approximately half of the neonatal mortalities associated with SaTH were said to relate to babies who died at other centres. One interviewee remarked: 'We need full pathway review; piecemeal doesn't help.' The review team was told that joint PMRTs were undertaken, but the proportion of the meeting devoted to discussing care provided at SaTH versus wider pathway issues was often not appropriate. The sharing of notes was reported to be a challenge, with good, reciprocal arrangements for note-sharing with Royal Stoke University Hospital, but less in evidence with other centres.

Challenges were also highlighted in terms of getting the relevant staff from different hospitals to participate. 'The team involved in the child's care should be involved at the meeting, but in West Mids it can be very variable', said one interviewee. Not having the people involved in providing care to the baby impacted on the learning derived from the PMRT process. Attempts had been made to get reviewers together first and then invite the team involved in the baby's care to the second part of the meeting to ask them questions. No concerns were raised regarding the ability of attendees to ask questions and challenge decisions; however, the right staff (the clinical decision-makers) were not always present to answer.

The review team was informed that all the consultant neonatologists and obstetricians had PMRTs covered in their job plans, and this was said to have provided for more robust support for PMRTS (each involved two consultants not involved in the care of the baby). The network was funding a nurse lead for governance, which was out for recruitment at the time of the review. Two consultant obstetricians from another trust were job planned to provide externality in PMRTs; it was not known to the review team whether this covered fetal medicine and high risk pregnancy/preterm birth. A lack of neonatal externality in the PMRT process was raised as an issue and there was said to be no process for obtaining external reviewers. The network had reportedly approached all trusts within the region to emphasise the importance of releasing external reviewers for PMRTs. It was also reported to be developing neonatal externality and considering plans for units to review care in a circular model, providing input in rotation across units.

Nursing management activities, including participation in PMRTs, had been impacted by nursing shortages in the neonatal unit. One of the neonatal nurses was nursing lead for the PMRTs but was unable to attend PMRT meetings due to staffing pressures.

6.2.3 Learning and feedback

6.2.3.1 Documentation review

The documentation shared with the review team included the following:

- Details of clinical governance assurance systems at trust level and service level:
    - Divisional governance committee
    - Quality governance framework
    - Terms of reference for neonates' governance (August 2022)
    - Minutes from directorate and clinical governance meetings held during 2021 and 2022 at which the neonatal service has been discussed
    - Agenda and minutes of perinatal mortality meetings held in June, July and October 2022

    - Governance report for divisional committee meetings in 2021 and 2022
    - Details of all recent audits undertaken
- Local maternity and neonatal system (LMNS) Programme Board and Perinatal Quality Surveillance Group (PNQSG) agenda for meeting held on 17 July 2023
- Maternity Governance meeting, Perinatal Mortality Review Tool (PMRT) Quarterly Report Q1, July 2023
- Details of clinical governance assurance systems in place (at service level):
    - Monthly neonatal governance meetings – the reports from these fed into divisional committee and LMNS meetings.
- Clinical audit meeting arrangements: Audit meetings were arranged as required to present audits.
- Morbidity and mortality (M&M) meetings: All neonatal deaths were reviewed via PMRT meetings within the specified time frames. Term admissions were reviewed at fortnightly ATAIN meetings. All cases of significant concern (morbidity or mortality) had a multidisciplinary rapid review involving neonates and maternity representation. Cases were then escalated for consideration of Serious Incident status if appropriate.

The documentation demonstrated that the right processes and frameworks were in place, together with senior oversight of governance processes.

6.2.3.2 Comments from interviewees

Interviewees explained the governance structures and the flows of assurance from service and divisional level, through to the executive team and trust board. The divisional governance team had been restructured shortly before this review as it had been very maternity focused (reflecting Ockenden). Dedicated neonatal and paediatric divisional governance support had been created. There was a quality governance lead (a midwife) across the entire division – maternity, neonates, women's and children's – who provided an 'umbrella view over the whole service' and was working to align processes across the different departments. Within the neonatology team, there had been an expansion in terms of governance leadership. There was a mortality lead consultant (0.6 programmed activities (PAs) per week) and a governance lead (1PA); previously governance had fallen under the remit of the clinical director.

Steps were also reported to make the monthly divisional governance meeting more robust. The review team heard that improvements had been evident in the previous 3 or so months; meetings were no longer cancelled (as had happened previously), and there was good staff engagement. The review team heard that a significant number of neonatal guidelines were out of date and there were overdue Datix reports. The newly formed divisional governance team was part of efforts to introduce more rigour to governance.

One impact of the changes was thought to be a newfound willingness among the neonatology team to give voice to concerns. 'It has taken time for them [neonatal consultants] to knock on doors to raise issues,' said one interviewee.

The trust achieved the maternity incentive scheme in 2022 and was reported to be close to achieving it for year five (in 2023).[31] The maternity incentive scheme supports the delivery of safer maternity care through an incentive element to trust contributions to the clinical negligence scheme for trusts (CNST)[32]. The scheme rewards trusts that meet 10 safety actions designed to improve the delivery of best practice in maternity and neonatal services.

PMRT feedback

Feedback from PMRTs was disseminated via monthly neonatal governance meetings, maternity governance and quarterly divisional meetings. If there was specific learning the neonatal governance lead would coordinate a learning review document. One interviewee remarked that feedback to the governance

meeting needed to be stronger, more focused on learning and timeliness (it often took three months for feedback to be given). Suggestions included having a 'message of the week', using learning to drive guideline change and to incorporate learning into training.

There had been monthly meetings between neonatal and obstetric services to share learning; these had been moved to quarterly meetings. Discussions included learning around babies born at the margin of viability and about caring for baby's receiving palliative care.

The absence of neonatal nursing representation at PMRTs profoundly impacted the ability to bring feedback to the nursing team. At the time of the review only neonatal consultants were attending PMRT meetings, leaving nursing staff isolated from learning. The situation was compounded by an inability to leave the clinical floor to undertake Datix investigations; while band 7 staff should be able to have an hour away from the clinical floor to undertake these investigations, in practice this was not achievable. There was no formal mechanism for feeding back learning from mortality reviews to nursing staff. Sometimes consultant neonatologists would provide feedback via informal chats.

In the maternity service, there was a push for learning from PMRTs to be fed back to clinical staff through safety messages. The delivery suite used twice daily handovers to cascade learning and interlink Datix numbers. This approach to disseminating feedback meant that a large proportion of the workforce could be covered within 1 week. Formal processes for disseminating learning comprised weekly incident meetings, open to all maternity staff (including community), either in person or via Microsoft Teams. Good engagement was described. The meetings involved going through the incident timeline and learning together, capturing different perspectives through discussion. One interviewee described having observed 'a good culture of professional challenge'.

Themes from PMRTS

The overriding recurring theme arising from PMRTs related to documentation. This included: documentation around resuscitation; with respect to the transfer from delivery suite to the neonatal unit; documentation of blood pressure; and thermal care. A neonatal resuscitation proforma had been developed to enable a minute-by-minute record of events around resuscitation but this was not completed consistently, so work was underway to identify improvements. The unit was said to have an audit to show that thermal care was very good, but thermal care often came up as an action from PMRT because it was not documented. There were aspirations to have BadgerNet electronic patient system, which would address some of the issues in terms of documentation, and a business case had been created for an electronic patient record.

The use of locums was also said to have surfaced from the PMRT process. There had been a consistent gap in the consultant medical workforce since March 2022, which had created issues in populating the 1 in 6 rota and so a long-term locum had been recruited. To meet the 7-day service standard, the neonatal unit had moved to a 1 in 7 rota in April 2023. A long-term locum was moving on and a consultant due to start in the summer of 2023 withdrew, leaving two consultant gaps.

6.2.4 Incident management

6.2.4.1 Documentation review

The documentation shared with the review team included the following:

- Details of the trust's clinical incident process flow
- Datix web reporting neonatal active risks. Six active risks featured, as follows:
    - Babies on the delivery suite and neonatal unit not tagged – risk of abduction. Current risk level: high.

- Compliance of qualified in specialty (QIS) nurses not meeting BAPM requirements. Current risk level: high.
- Full BadgerNet EPR not yet implemented in neonates – financial and clinical risk. Current risk level: high.
- Risk of not maintaining guidelines reviews, updates and benchmarking against national guidance. Current risk level: extreme.
- Single paediatric specialist registrar on night shifts across paediatrics and neonates. Current risk level: high.
- Inability to recruit to ward manager role for neonatal unit. Current risk level: high.

The documentation provided evidence of a reasonable understanding and articulation of risks, with appropriate risk scoring and escalation.

6.2.4.2 Comments from interviewees

An assistant director of nursing was responsible for quality governance and oversaw the patient safety team, Datix and incident teams. This role involved ensuring there were standardised processes for patient safety and incident management; the PMRT process and departmental governance was outside the scope of this role.

Following the Ockenden review, there had been new leadership and a huge maternity transformation programme. Most of the previous governance team had left and it was only in the weeks leading up to this invited review that staff had settled into new structures.

The neonatal unit was thought to be reporting incidents effectively, reflecting new leadership within the unit, including a neonatologist governance lead and separate mortality lead. There was a weekly rapid MDT review of incidents, chaired by the assistant director of nursing and covering all divisions. Any moderate harm or above came through that meeting, without exception. The review team heard that close attention had been given to perinatal mortality.

Following rapid review, cases might be escalated to the review action and learning from incident group (RALEG), chaired by the medical director, to decide whether the death should be reported as a serious incident. Separately, cases were considered under PMRT or CDOP. Actions were uploaded on to the Datix system and the division was reported as being much more responsive than previously in terms of ensuring actions were completed. The biggest area of learning that had led to changes was family engagement, and the women's and children's division had shared this learning with other parts of the trust, including the emergency department and medicine.

Reporting to the trust board had increased from quarterly to bi-monthly. A board risk committee monitored every risk over 50 and staff from women's and children's participated in that review. The ICB was represented on the trust's quality committee and quality group and received details of all serious incidents. A non-executive director and director of the trust attended the ICB's quality committee. The review team heard that the system had yet to take charge of neonatal mortality, with CDOP and MBRRACE creating silos. There were aims to bring this mortality review together on a quarterly basis within the ICB, with public health involvement to give attention to prevention and health inequalities (the first of these meetings was due to take place in December 2023).

Plans were underway to move to the new patient safety incident response framework (PSIRF) system in December 2023.[33] This was expected to shift the focus away from serious harm to also learning from near misses.

There were also aspirations to give attention to governance across the wider system. One interviewee said: 'We have to stop looking inwards and start looking outwards.' SaTH was the only acute service within the integrated care system, making benchmarking difficult within the system. Benchmarking could be achieved with other systems across the region.

6.2.5 Listening to parents

6.2.5.1 Documentation review

No relevant documentation identified.

6.2.5.2 Comments from interviewees

Staff were mindful of the criticisms laid out in the Ockenden review with respect to failures in listening to pregnant women and their families and had taken steps to make improvements. The neonatal unit received feedback from parents via the NHS Friends and Family Test (FFT). The response rate to the FFT had been boosted by incorporating it into the discharge checklist and by developing a QR code displayed on lockers and other places across the unit. The review team heard that FFT feedback was generally 'extremely positive'. Parents or family members raising concerns were directed to PALS or the complaints team.

The maternity neonatal voices partnership framework (MNVP) asked about experiences of neonatal care, although feedback to the neonatal unit was described by one interviewee as 'still hit and miss'. Efforts were underway to integrate MNVP voices into quality meetings.

There was no nursing lead on Family Integrated Care (FIC) at the time of the review. A consultant lead and an ANNP lead had been identified as needed as part of the Ockenden business case, but there was no FIC nursing champion. An occupational therapist (part of the allied health professionals' team) had been promoting FIC; however, one interviewee described this individual as 'trying to bash through a wall of resistance by herself.' The neonatal team was reported to demonstrate FIC during ward rounds by inviting parents to share any concerns about their babies, as part of an emphasis on valuing every opinion. The consultant neonatologist team were described as 'family-focused'. Parent passports were newly introduced and offered a mechanism for parents to share their feelings.

There was a Baby Friendly Initiative (BFI) lead, although the protected time allocated to this individual was said to be limited. A recurring theme was that the unit was short on specialist quality roles. Previously a Bliss champion attended the unit; there was uncertainty over whether a replacement was being arranged. The unit also received support from a local children's hospice called Hope House; a member of staff from the hospice attended the unit to counsel parents of babies with long-term health issues.

Following the Ockenden review, maternity services had undertaken a great deal of activity around listening to mothers as part of the maternity transformation programme. This included birth preferences cards encouraging communication around birthing choices and fetal monitoring, which were sent out via BadgerNet as well as displayed in every room so that families could circle their choices. The unit had been nominated for an award for these cards. The maternity governance team was working closely with MNVP and there was a dedicated Facebook page. Action was also reported to strengthen communication with families involved in maternity-related incidents and to explore parents' differing needs for information and support. An open event was held in June 2023 for prospective and expectant parents to engage with SaTH maternity services and twice weekly unit tours had resumed. Aspirations were articulated among maternity staff to incorporate the parent perspective into the PMRT process.

6.3 Terms of reference 3 – Pathway documentation

To review pathway documentation, including escalation policies during and post-delivery.

6.3.1 Compliance with guidelines (network, national and trust)

6.3.1.1 Documentation review

The documentation shared with the review team relevant to guidelines included the following:

- Neonatal guidelines 2022–24: The bedside clinical guidelines partnership in association with the West Midlands Neonatal Operational Delivery Network
- Neonatal guidelines 2019–21: The bedside clinical guidelines partnership in association with the West Midlands Neonatal Operational Delivery Network
- West Midlands Neonatal Operational Delivery Network neonatal care pathways 2020
- SaTH guidelines:
    - Ex utero exception reporting (review date April 2026) – *local authors*
    - Fungal infections in neonates (review date August 2024) – *local authors*
    - Golden hour preterm babies <28 weeks' gestation (April 2023–April 2025) – *adopted from WMNODN*
    - Management of herpes simplex infection in neonates (review date March 2026) – *local author*
    - LISA (less invasive surfactant administration) with sedation (review date July 2024) – *local author*
    - LISA checklist
    - Triggers for Datix reporting on the neonatal unit (review date November 2024) – *local author*
    - Neonatal infection (including Group B Streptococcus infection) (review date November 2024) – *local authors*
    - Neonatal mortality standard operating procedure (review date January 2027) – *local author*
    - Preparing for ex-utero transfer from the NNU standard operating procedure (review date November 2025) – *local author*
    - Resuscitation of the newborn on delivery suite, neonatal unit and alongside midwifery-led unit (review date December 2024) – *local authors*
    - Transport and retrieval (review date September 2025) – *adopted from WMNODN*
    - When should the consultant neonatologist be informed? (review date August 2024) – *local author*
    - When to summon assistance on delivery suite and alongside MLU [midwife led unit] for neonatal resuscitation (review December 2026) – *local authors*
    - Surfactant replacement therapy (under review)
    - Transport arrangements for the movement of a sick newborn into hospital from home or a midwife-led unit (under review)

- Getting It Right First Time (GIRFT) neonatology review, unit level report, March 2021. This said that unit adherence to network pathways was good.

6.3.1.2 Clinical record review

Across the 18 cases reviewed, 11 were graded adequate under this heading ([redacted]). There was insufficient information to grade [redacted]

[redacted]

Three cases were graded good care under this heading ([redacted], [redacted], [redacted]). For example:

- For [redacted]
- For [redacted]

Three cases were graded poor care in terms of compliance with recognised guidelines and best practice ([redacted], [redacted], [redacted]).

- Case [redacted].
- Case [redacted].
- Case [redacted]

[redacted]

6.3.1.3 Comments from interviewees

Guidelines

The unit had a history of having its own guidelines and many of the WMODN guidelines were said to have been adopted from SaTH. Interviewees remarked that some rationalisation of guidelines had been needed and all hospitals within the network were being encouraged to adopt the network guidelines. Work was underway in SaTH to convert to using network guidelines; one account was that most guidelines were based on network guidelines 'with a few small tweaks. There were some guidelines in use that the network did not have, and some guidelines that had not yet been converted to network ones.

Golden hour

The unit had been working to achieve the golden hour standards from within 1 hour of admission to the neonatal unit (instead of from one hour from birth). Interviewees said they were aware of the golden hour guidelines and most felt these were being achieved most of the time, and that the unit performed well in stabilising babies as quickly as possible. One account was that care sometimes fell outside of the golden hour out of hours, when tier 2 (middle grade, registrar) cover could take longer to arrive in the unit or due to nursing shortages. Some cases were reported in 2022, involving locum consultants, where the golden hour was not achieved.

The unit was thought to perform well on thermoregulation, with the baby's temperature documented in the delivery suite before being transferred to the neonatal unit and checked again once on the unit. Previously, there were separate weighing scales, which meant a baby had to be taken off respiratory support. Babies can now be weighed in the incubator, using incubator scales, which was said to make the stabilisation process safer.

Opportunities for improvement were identified in terms of documentation. For example, blood pressure was one area that was not always documented. Observation charts needed to be revamped but no one had been given dedicated time to do that. If a nursing staff member was 'spare', they would scribe while another nurse provided care. There were aspirations to have BadgerNet electronic patient records to enhance recording.

Surfactant provision

The unit had a policy of delivering surfactant on the neonatal unit. This was said to reflect previous incidents in surfactant delivery on the delivery suite. One interviewee stated that surfactant could be delivered in the delivery suite but this was not the norm. Some interviewees defended the practice on the grounds that babies were transferred to the neonatal unit fairly promptly.

One interviewee reported that the unit had been cautious in its introduction of less invasive surfactant administration (LISA).

Antibiotics

The review team heard that the aim was to administer antibiotics 'asap' and that audit indicated antibiotics were administered within the golden hour; however, delays were said to arise when there were issues in gaining intravenous access. An issue was also reported around awareness of the time taken by nursing staff to draw up the drugs and work had been undertaken to improve this. The antibiotic dosage was said to reflect network agreements and a neonatal formulary was used.

Nitric oxide

The neonatal unit had retained two machines to provide nitric oxide since changes made nationally to focus the provision of nitric oxide within NICUs. The equipment was rarely used. There was said to be apprehension among the nursing team about still having the machines, as a substantial number had never administered nitric oxide. Staff were said to get the equipment out at night and simulate using it. There were said to be guides on how to use it, although one interviewee relied on pictures on their mobile phone as a reminder. There was anxiety about being the senior nurse and feeling under pressure to use the equipment while waiting for the transport team to arrive.

Maternity guidelines

Work had taken place in conjunction with the clinical audit team to proactively identify any out-of-date maternity guidelines, which was said to have resulted in a decrease from more than 20 out-of-date guidelines to just two. Activity had also been underway to share templates across all four services within

the division to support consistent processes. Some issues were raised around securing medical input into guideline development, which had been exacerbated by medical staffing strikes.

There had been a rise in women choosing to birth outside guidance and the trust had been in the spotlight regarding this. The consultant midwife had undertaken training to support midwives anxious about the implications of birthing outside of guidelines, and to increase understanding of personalised care. The consultant midwife also conducted monthly care planning meetings with midwives and obstetricians for women who choose to birth outside of guidelines. A session on personalised care was also provided for obstetricians as part of day 5 mandatory training. There were plans for solicitors to provide a training session on documentation issues relating to care outside guidance to support midwives to feel more at ease.

Reduced fetal movements

Women received advice on reduced fetal movements and when to contact the unit in a Tommy's leaflet that was pushed out automatically by BadgerNet. Some women chose not to use BadgerNet and so paper copies of leaflets on reduced fetal movements were made available. This advice was said to be reiterated at every contact with community midwives. Information was also shared on the SaTH MVNP page.

The advice was to attend the unit if there were any change in fetal movements and the standard was to be triaged within 15 minutes of arrival. Previously, the process was to attend an external local midwifery unit, but that had stopped and been replaced by what one interviewee described as 'a very robust reduced fetal movement process'.

Any doctors or midwives working in the intrapartum setting or involved in interpreting CTGs must be up to date with CTG training; compliance was presented at monthly performance meetings and any staff not up to date with training were redeployed to other areas. Midwives and doctors attended a full day of fetal monitoring training, incorporating CTG interpretation, and must score 90% or above at an assessment at the end of the day. They were required to attend two CTG online case sessions, plus a peer review session on the ward. The training package for CTG was locally developed, focused on physiological interpretation rather than pattern recognition, and supported multidisciplinary learning. The training was led by a consultant obstetrician and team of fetal monitoring midwives.

If there were issues with CTG interpretation, a second opinion would be sought. All CTGs in labour received hourly "fresh eyes" (whether readings were normal or otherwise). The input of a consultant obstetrician was sought in the event of concerns and obstetricians routinely reviewed CTGs on ward rounds.

6.3.2 Neonatal network

6.3.2.1 Documentation review

The documentation shared with the review team included the following:

- Getting It Right First Time (GIRFT) neonatology review, unit level report, March 2021. This stated that the unit's clinical engagement in the network was excellent.
- West Midlands Neonatal Operational Delivery Network Neonatal Care Pathways 2020 (marked final June 2021 V1.2). This was the first pathway document since the merger of Staffordshire and Shropshire and Black Country, and Southern West Midlands operational delivery networks. Subspecialty services were provided by Birmingham Children's Hospital, Alder Hey Children's Hospital and Robert Jones and Agnes Hunt Hospital.
- Statement from lead neonatal consultant for KIDS NTS, the regional neonatal and paediatric transfer service, based at Birmingham Children's Hospital. This statement commended the level of care provided by the SaTH neonatal team and described referrals to KIDS NTS as 'timely and appropriate'. The SaTH team were also described as 'proficient at providing neonatal care –

including stabilisation', 'receptive to supporting other units in the region who are over capacity' and 'receptive to feedback'.

- Statement from the senior network manager, West Midlands perinatal network (neonatal). This welcomed the review of neonatal deaths and expressed a desire to support learning across the network, given the regional mortality. During the periods the deaths occurred the network was said not to be providing 'any enhanced mortality review activities due to repurposing of the network team in light of the pandemic'. The network's mortality review work was being 'refreshed' following organisational change and there were aspirations for 'meaningful, specialist externality within trust PMRT reviews'. The statement indicated that consideration should be given to missed opportunities for *in utero* transfers for any babies under the gestational age threshold of an LNU who may have died at SaTH.

6.3.2.2 Comments from interviewees

One interviewee remarked that approximately half of babies whose mortality was linked to SaTH (reflecting their place of birth) died at a different unit. 'If you don't look at the whole journey, you're not looking at all the opportunities to reduce mortality,' they said. This highlighted a need to look at mortality across the West Midlands.

Right place for delivery

Emphasis was placed on having, as one said, the 'right babies being delivered in the right centre'. Instances were reported when there was not a place for mother and baby on a NICU. However, the issue was thought to relate to bed capacity for mothers instead of NICU cots. Within the trust, the women's and children's team had been brought into site safety meetings, which were held four times a day, and this was said to have enhanced understanding of the issues facing the division.

Another account was that one of the major challenges to neonatal mortality was neonatal capacity within the region. If a woman presented at 24 weeks and it looked like she may deliver, the unit would actively try to move her out. This was said to require obstetricians and midwives spending hours on the telephone trying to identify a unit with both delivery and neonatal capacity. The review team heard that staff could spend 5 hours making telephone calls across the West Midlands, East Midlands and ultimately the whole country, in a bid to find an alternative unit for women presenting in threatened preterm labour. One interviewee described this as 'a huge waste of resource and means we potentially lose the window to transfer that lady out to deliver elsewhere'. The network was said to have agreed to add this issue to its risk register.

There was a cot locator service, however it was said this did not operate in the way of other cot locator services and was thought to exacerbate missed opportunities to transfer out women.

Transferring babies

Where a baby was born in the unit and needing level 3 care, the NICUs were said to try hard to exchange babies where possible and good working relationships were described. The network did not usually get involved in conversations over where to transfer a baby, even where this was proving difficult. The unit received a daily email regarding the OPEL[i] status of each NICU. The network was said to be aware that capacity for intensive care cots was not where it should be. Geographical challenges were also highlighted, with the nearest NICU an hour away and parents said to be reluctant or unable to travel such distances.

Relationships with the KIDS neonatal transport service (NTS) were also described positively. KIDS NTS was a combined neonatal and paediatric critical care advice and transport service within the West Midlands

[i] Operational pressures escalation levels framework

region, based at Birmingham Women's and Children's NHS Foundation Trust.[37] Feedback provided to the Trust by KIDS NTS was said to be good.

Network escalation

The unit worked closely with the NICU team at Royal Stoke University Hospital (part of University Hospitals of North Midlands NHS Trust), described as its 'link NICU'.

Events leading up to the Ockenden review marked, as one interviewee said, 'a quite significant breakdown in relationships' between the unit and this NICU team; however, these relationships were described as much improved. The NICU at Royal Stoke University Hospital was said to have had problems recently with consultant staffing, which caused it to close to outside referrals, and this was not communicated until several weeks after it happened.

Good working relationships were reported with the NICU at New Cross Hospital (part of the Royal Wolverhampton NHS Trust).

One interviewee remarked: 'Most of the time we get the help we need'. This interviewee highlighted a need to improve pathways for some high-risk patients managed in the community, with a defined pathway for obstetric care attached to a NICU. For some of these patients, their care could be transferred back to the LNU, as appropriate. The network was due to be meeting to discuss pathways. This interviewee said: 'It's about flow. It sometimes feels like one-way traffic and NICUs can't cope. It's about right place, right birth.'

Fetal medicine

Until July 2023, two subspecialty-trained fetal medicine consultants and a third consultant with a diploma in fetal medicine ran SaTH's fetal medicine service. The service carried out many invasive diagnostic tests and would refer to the fetal medicine department at Birmingham Women's Hospital as necessary. Between October 2022 and July 2023 all three consultants either left or no longer provided fetal medicine services and SaTH was forced to give notice on the fetal medicine service. Emergency procedures were put in place and all patients were referred out across the region. New Cross Hospital was highlighted as having been particularly supportive during this period.

In mid-October 2023, one of the fetal medicine consultants came back from retirement for 1 day a week. A locum fetal medicine consultant was due to start around the time the review was conducted. A job plan had been approved for a substantive post.

The network was said to be creating a business case to appoint fetal medicine consultants who would be employed by the tertiary unit in Birmingham and rotate across units (ie a hub and spoke model). This was thought to be a more sustainable model in the long term and would have helpful consequences in terms of standardised guidance and pathways across the region.

There was a monthly fetal medicine meeting involving discussion and planning for high-risk pregnancies. There was involvement of bereavement midwives, a fetal medicine consultant, a lead neonatal consultant, and sometimes a genetic counsellor from Birmingham would join the discussion.

6.3.3 End-of-life and bereavement pathway

6.3.3.1 Documentation review

The documentation shared with the review team included the following:

- Child death process standard operating procedure (draft)
- Neonatal mortality standard operating procedure (review date January 2027)

6.3.3.2 Comments from interviewees

The bereavement team comprised two, full-time specialist bereavement midwives (band 7) and a dedicated bereavement lead obstetric consultant. The team offered care and support for women and their families following a pregnancy loss and the death of a baby due to identification of fetal anomalies, pregnancy loss after 16 weeks gestation, stillbirth and babies who died shortly after birth. Prior to 16 weeks' gestation, women were supported by the Early Pregnancy Assessment Service.[38]

Bereavement midwives

The bereavement midwives had both been in post for over a year (having been appointed in 2022). The bereavement service was available from 09.00 to 17.00 on weekdays. The midwifery team were said to be able to work through the bereavement process 'very easily' and the pathway had been designed to be accessible to the wider team.

Antenatally, the bereavement midwives were involved in the Rainbow Clinic, which began in September 2022 to support women and their families in subsequent pregnancies after a baby died, in conjunction with a lead midwife for Lighthouse – a service to support people with moderate-severe or complex mental health difficulties associated with loss, grief and trauma directly arising from or related to the maternity experience. Support through the pregnancy included arranging early scans and attending scans, as needed, and seeing the mother and baby on the postnatal ward. The bereavement midwives would 'link in' with parents of babies requiring palliative care and liaise with neonatologists surrounding the plans for end-of-life care. If a poor outcome was expected around the time of birth, the bereavement midwives would become involved and multidisciplinary discussion would take place. If care was being withdrawn from a neonate, the bereavement midwives would meet with the family and, together with a consultant neonatologist, agree a plan for palliative care. They worked closely with Hope House Children's Hospice.

For an unexpected death, contact with the bereavement service was as soon as a loss was identified; 'almost certainly within 24 hours,' said one interviewee. The bereavement midwives worked clinically on the delivery suite and provided resources to bereaved families, including information about registration, funerals, post-mortem examination and placental investigations. Other support included with memory making (including photographs and memory boxes), providing baby clothes, and liaising with the hospital's chaplaincy team. An important aspect of the role of the bereavement midwives was to support neonatal nurses with checklists for different types of loss.

Emphasis was placed on parental interactions and the bereavement midwives were said to receive 'exceptional feedback' from parents. The bereavement midwives worked with MNVP, including two bereaved fathers who were MNVP champions and had provided a training session for staff on a father's point of view.

Families were cared for privately within the neonatal unit or moved to a dedicated bereavement room located on the delivery suite. Improvements were planned to make this room soundproofed. The unit had three cold cots, which enabled mothers to spend time with their deceased babies.

Once home, the bereavement midwives would undertake home visits and postnatal visits, as required. There was no time limit on the support provided to bereaved families, with emphasis given to personalised support.

The bereavement midwives were said to have strong relationships with the mortuary team, and supported families with funeral arrangements.

Postmortems were reported to be a challenge across the region – previously babies were sent to Birmingham Women's Hospital where there were four pathologists; there was only one at the time of the review and Alder Hey Children's Hospital was providing temporary support with postmortems which had been extended to March 2024. The bereavement midwives had received training in taking consent for postmortems and took consent for these most of the time.

The bereavement midwives shared office space with the professional midwifery advocate (PMA), which enabled them to be supported in role. A staff psychology hub offered counselling, as needed.

Bereavement champions

Out-of-hours support was provided by bereavement champions who worked on the delivery suite and were said to have good knowledge of the bereavement processes. Monthly meetings were held between the bereavement midwives and bereavement champions to share information. All staff were expected to complete an e-learning for health module and the day five personalised care study day at least once.

The bereavement midwives had started work on a package for neonatal nurses and were keen to develop bereavement champions within the neonatal unit.

Palliative care

There was a consultant lead for palliative care who worked with bereavement midwives on creating a robust palliative care plan. Hope House Children's Hospice also became involved in palliative care planning and would offer memory making and support with plans for after a baby's death.

Other bereavement support

The hospital chaplains were said to provide good support and were available 24/7 for blessings or pastoral support. Hope House and Cruise bereavement, a local charity, both offered a counselling service. The Lighthouse maternal mental health service also offered ongoing support, although it was said to have a lengthy waiting list. The bereavement midwives were able to signpost to a range of charities able to offer support.

6.3.4 Neonatal staffing, teamworking and leadership

6.3.4.1 Documentation review

The documentation shared with the review team included the following:

- Ockenden Report Assurance Committee (ORAC) slides dated June 2023. These detailed that neonatal staffing was the biggest challenge to completing the remaining Ockenden actions. All four of the actions not yet delivered relating to staffing. The unit's plans to meet the outstanding Ockenden actions were as follows:
    - Separation of the tier 2 rota
    - Rotation of ANNPs
    - Rotation of nurses
    - Achievement of qualified in specialty (QIS) numbers.
- Details of simulation training, as follows:
    - Accidental extubating in a neonate

  - Can't intubate can ventilate glidescope training
  - Difficult neonatal airway in a DGH [district general hospital]
  - Delivery of an extremely preterm baby in a DGH
  - Preterm intubation in the delivery suite
  - Thermal care of the preterm neonate (22–32 weeks)
  - Neonatal simulation attendance and feedback
- The neonatal unit ward management structure
- Details of the teaching programme for doctors in training for 2023
- GMC doctors in training survey results, which showed the unit was a negative (red) outlier in 2021 (the most recent year provided) in the following aspects of paediatric training: overall satisfaction; supportive environment; adequate experience; local teaching.
- Regular consultant and business meetings:
  - Fortnightly senior team meetings (consultants, matron and ward manager)
  - Monthly Shropshire consultants' meetings
  - Monthly business meeting
  - Monthly triumvirate meeting
  - Monthly divisional committee
  - Monthly senior management team meetings
  - Neonatal Quality Improvement meetings, 2–3 times per year
  - Quarterly Family Integrated Care and baby friendly initiative meetings

The documentation provided details of simulation training, but not who attended and what feedback had been received following these sessions.

6.3.4.2 Comments from interviewees

The neonatal service was supported by the following:

- seven consultants (with six currently in post)
- Tier 2 ANNPs (3 WTE)
- Tier 2 registrars allocated by the deanery (numbers varied) and non-deanery
- Tier 1 doctors in training allocated by the deanery (numbers varied)
- Tier 1 ANNPs (7 in total; 5 WTE)
- neonatal nurses, neonatal outreach nurses, allied health professionals

Neonatal nursing staffing

Many interviewees highlighted challenges in terms of nursing staffing. One described neonatal nursing shortages as one of the main challenges relating to neonatal mortality, with the unit hampered by recruitment issues despite being funded to be BAPM compliant.

Several issues were highlighted. First, [redacted] This was a key role and the absence of a substantive postholder had impacted the unit. It had created challenges in driving through quality improvement projects and relationships within the nursing team had deteriorated, [redacted]. One interviewee said team cohesiveness suffered during this time and had not yet been regained. They said: 'We are starting to find our feet and to work as a team again.'

A recruitment process was underway for a replacement unit manager; this role had proved difficult to recruit to and had been advertised several times. [redacted]

[redacted]. Attempts to recruit an interim matron had been unsuccessful and so the [redacted] had assumed the role as an interim. Nursing staff were said to have responded positively to this individual. One interviewee said: 'She's been excellent and really moved things forward, has the confidence of the nursing team and we have seen improvements with her at the helm.'

The unit tried to ensure that there was a supernumerary coordinator for each shift, but this depended on staffing levels and patient acuity. 'If there are three babies in intensive care, you just have to muck in and get on with it,' said one. A recurring theme was of nursing staff pulled away from other roles (such as quality roles) to undertake clinical tasks due to staffing shortages.

The second staffing issue related to recruitment. There had been challenges in recruiting to some nursing roles, particularly band 6, and workforce planning had been non-existent. There had been challenges in having sufficient staff to release nurses from clinical duties to undertake quality roles. Existing nursing staff were said to be eager to take on quality roles (such as Family Integrated Care, baby friendly lead, and safeguarding); 'they're chomping at the bit,' said one interviewee.

Continued use of agency staffing had been necessary because the unit lacked sufficient qualified in specialty (QIS) staff. National standards expect 70% of neonatal nursing staff will be qualified in specialty.[39] Some interviewees spoke of the challenges in working with agency staff who were unfamiliar with the unit and whose competencies were unknown. Examples of gaps included a neonatal quality improvement nurse able to attend PMRTs on a regular basis, a neonatal bereavement nurse, and specialty nurses leading on breastfeeding or nutrition.

Plans were articulated to 'grow our own' qualified and QIS nurses; however, the third issue highlighted by interviewees was training, with a recurring theme being a lack of dedicated training for neonatal nurses in recent years. Interviewees remarked that many of the new nurses appointed lacked experience and yet 'education for nurses on the unit tends to be quite poor,' said one. Simulation training was beginning to take place with greater frequency, on an ad hoc basis when a particular consultant neonatologist was consultant of the week. Senior staff worried about being away from the clinical floor, particularly when newly qualified nurses were working. There were concerns that more junior nursing staff were not sufficiently supported. There was frustration that neonatal staff had to complete mandatory training within the trust of no relevance to the unit, such as dementia in adults training. Such training had to be sandwiched alongside existing commitments, and some interviewees would rather there was more focus on neonatal resuscitation and how to stabilise babies before they were transferred to a NICU. 'The adult world just don't understand,' said one. Many study days were said to have been cancelled under the previous matron. One interviewee said: 'We have 70 staff to train and cannot cover that in one day a year.'

Due to the turnover of staff the unit had introduced a rolling plan of training three QIS staff each year. There was an ambition to achieve parity with midwives who, after a period of induction, tend to be uplifted from band 5 to band 6 relatively quickly. This would mean giving neonatal nurses similar opportunities once they were qualified in specialty.

Morale within the nursing team had been a problem and was said to have dampened enthusiasm. However, the new management structure, including having the deputy director of nursing covering the matron role, and three new band 7s in post, had initiated a cultural shift within the neonatal unit and nurses were beginning to demonstrate a renewed appetite to undertake training to become QIS and get more involved in the unit.

Allied health professionals

The unit was almost fully recruited with a new team of allied health professionals, having previously been reliant on community support. There was a trust 'psychology hub' and a psychologist was undertaking a piece of work in neonates and paediatrics. Senior nurses, doctors and ANNPs had undergone a session led by the psychologist, with more planned, as well as plans for psychology support for parents. An occupational therapist had been in post since June 2023 and was leading work on family integrated care. The unit had been supported by speech and language therapists since June 2023. In July 2023, a dietitian joined the unit and a physiotherapist started in September 2023.

ANNPs

There was positive feedback relating to the ANNP team, however, there was recognition that the unit had fallen behind in terms of succession planning for ANNPs. At the time of the review, two staff had been undertaking ANNP training and were about to undertake the master's element of their training. The unit was beginning to work towards having a regular ANNP training programme, with an ANNP trained every 1–2 years. This was thought to increase the likelihood of attracting tier 2 ANNPs from other centres.

The ANNP rota had been split into tier 1 and tier 2, reflecting the Ockenden recommendations. Thought was being given to mechanisms for progression from tier 1 to tier 2 as part of the neonatal strategy (at the time of the review, progression was only possible when a tier 2 post became available). Tier 2 ANNPs were expected to undertake some non-clinical and leadership roles, although this had been challenged by rota gaps. Tier 2 ANNPs received protected administrative time once a week; this had not been established for those on the tier 1 rota but was thought to be in the pipeline. Progress in achieving the four pillars of advanced practice was said to be mixed among the ANNPs, which again reflected pressures around covering rotas and a lack of protected non-clinical time.

ANNPs carried the bleeps when doctors in training had teaching sessions. They also ran simulation and skills drills on the unit for both nurses and doctors. Tier 2 ANNPs were expected to spend 2 weeks a year observing NICUs beginning January 2024; for tier 1 ANNPs, such observation was expected to start from April 2024. This had been in the pipeline for 3 years according to one account.

The department had had a lead mortality ANNP since 2022.

Consultant neonatology team

The unit was described as 'reasonably well recruited to in terms of consultant paediatricians'. Only one consultant undertook both neonatal and paediatric work; all the rest were specialist neonatologists. The on-call rota had been fully separated for consultants since 2014, which meant only neonatal consultants were on call for neonates. There were six neonatal consultants; a seventh post was out for advert (and interviews were to be held in December 2023), reflecting a recent move to a 1 in 7 rota. The post advertised was for a neonatal paediatrician; most of their work would be with neonates but would also involve some paediatric work. In the meantime, a long-term locum was providing cover, with the on calls for the vacant role covered by external locums (five consultants from NICUs were regular locums at the unit).

The neonatal consultants had operated a consultant of the week system since 1996. In 2001, the unit moved to meet the 7-day service standards and Facing the Future standards, providing resident cover from 08.30–19.30 on weekdays and between 10.00–13.00 and 20.00-21.00 on weekends. The number of NOW (neonatologist of the week) weeks per consultant varied between six and nine, dependent on other commitments. The NOW was resident Monday to Friday 08.30–17.30. The on-call consultant was resident 17.00–19.30, then non-resident overnight. For weekends and bank holidays, the on-call consultant was resident 10.00–13.00 and 19.30–20.30 and non-resident the remainder of the time. If a consultant was up all night, a colleague would provide cover to enable them to get some rest. This was an ad hoc arrangement of support and was reported to be needed no more than three times a year. One said: 'I never

have any qualms about asking for help, or a second opinion, knowing my colleagues would facilitate that.' The consultant team were said to work well together, although, as for any small team, there were 'strengths and challenges'. COVID-19, the Ockenden review, and several consultants and senior leaders leaving at the same time, had taken a toll and one described morale amongst the neonatal team as 'low', although there was a sense that the team was coming through it.

There were seven ward rounds per week and consultants were reported to participate in handovers at 08.30 and 16.00.

The consultant team were described by one interviewee as 'an incredibly polite group of doctors', who had lacked strong leadership support – 'it has been a proper Cinderella service from a leadership perspective'.

Tier 1 and tier 2 neonatal rotas

In September 2023, the tier 2 paediatric and neonatal rota was separated, and an 8-person tier 2 rota dedicated to neonates was created. There had been a separate tier 1 neonatal rota since before 2014.

The tier 2 rota comprised three neonatal registrars (deanery and some community registrars), tier 2 ANNPs and a clinical fellow. Difficulties were reported in recruiting a tier 2 specialty doctor and discussions had taken place over converting the position to a tier 2 ANNP instead to provide greater stability.

Neonatal nursing staff were said to feel better supported at night following the tier 2 rota split, with registrars no longer covering paediatric A&E as well as neonates.

There were said to be clear expectations regarding mandatory training in neonates. Deanery trainees received some of their mandatory training from the deanery and some was incorporated into induction, including simulation. Non-paediatric trainees (there was one foundation year 2 doctor at the time of the review) were supernumerary for the first 2 months and only joined the tier 1 rota when all agreed that the individual was ready.

Neonatal teamworking

A neonatal MDT meeting was held on the ward every Tuesday (with plans to move to Wednesday), attended by most consultants, doctors in training, allied health professionals, nursing staff, microbiologists and hospice staff. The medical team lead the clinical discussion of patients, which would expand to cover social issues and family support; it was described as a good environment for broad-ranging discussion. The meeting lasted approximately 1 hour. If the unit was full, discussion would prioritise sick babies and exclude the 'feeders and growers'. Senior nurses were said to feel comfortable expressing their opinions during these meetings; more junior staff could find it more difficult to get their voices heard. Senior nurses would feel comfortable escalating concerns to a consultant where necessary. ANNPs were described as a good source of support for nurses and were thought to escalate concerns to consultants faster than doctors in training. One interviewee described teamworking and ANNP leadership at SaTH as 'amongst the best in the West Midlands'.

There were also neonatal senior team meetings, attended by consultants and senior nurses, every 2 weeks. The time had been changed to improve in-person attendance and administrative support had been secured for the first time.

Consultants were allocated time in their job plans to attend MDT meetings 32 times a year.

Divisional leadership

The divisional team was new. The divisional medical director, a gynaecologist, was on leave at the time of the review; this individual was said to be 'extremely approachable'. The review team met with the

divisional director of operations and director of nursing, who reported that the divisional leadership team had 'formed and stormed and normed really quickly as a senior team'.

The divisional team were said to have close working relationships with the executive team, and the executive team were said to have a sound grasp of the issues facing the division as they had covered divisional roles for some time. The executive team was also reported to be heavily involved in governance following the Ockenden review. The support provided by the executive team marked an improvement from previous arrangements – some interviewees reported that previously there seemed to be little drive or representation of the women's and children's division at trust board level or within the executive leadership team. The level of support, for example in developing new business cases and projects, was described as much improved. The ICB was also reported to have observed a significant strengthening in leadership, with the trust medical director and nursing director demonstrating clear leadership for women's and children's services until new divisional leaders and a clinical director for neonates were appointed.

The divisional team held a weekly meeting with the clinical directors across women's and children's services. Good interactions were reported with the clinical director for neonates, who met with the divisional team every month to discuss pieces of work specific to neonates. The divisional team was described as 'supportive' and 'very responsive to any concerns'.

A new director of maternity was said to have initiated 'dramatic change' across the division. A new head of midwifery was also a conduit for learning from maternity with relevance to neonates (such as around transitional care).

One interviewee described morale across the division as 'the best it has been for some time'. They added: 'It feels like we've drawn a line in the sand and while we have to keep one eye on the past, this is a new time and we are focused on the work we are doing to improve things.'

Maternity services

Relationships between obstetricians and midwives post Ockenden were reported to be 'excellent'. The department had evolved considerably over the preceding 5 years. A great deal of work had been undertaken to address cultural issues and improve working relationships in response to the Ockenden review. The last 18 to 24 months had marked a new level of stability, following patterns of high turnover across all senior management roles. One interviewee said: 'There is a completely different, and differently minded, leadership team within maternity – and it's one reason why we are one of the best recruited to midwifery departments.' The improvement methodology used to enact change was said to have been driven by MDT group working. Interviewees described how they broke down the 210 recommendations made by Ockenden by complexity and put them into workstreams. This MDT approach to improvement was credited with having 'driven good relationships. The department also received external help from interim directors of midwifery. 'Very strong leadership' was described, and staff were said to feel comfortable to speak up.

Recruitment in midwifery was described as outstanding (the department was fully recruited to midwifery), and recruitment was strong in obstetrics. The review team met with several maternity staff who described their draw to work in the department and to be part of its journey. One described being welcomed into 'a very friendly unit that was happy to have new people, new ideas, new blood. Nobody stood in the way of change. Some people were just very exhausted and hurt.'

Consultants were resident 24/7, providing immediate access to senior support during the day and at night. The obstetric and gynaecology consultants in the department supported three different 1 in 8 rotas (one of which was for gynaecology).

A strong training culture was reported, and training was multidisciplinary in its delivery.

The impact of Ockenden in terms of prioritising communication and getting everyone in the team involved early on was thought to have had a knock-on effect for neonates, with an open dialogue reported between delivery staff and the neonatal unit. Antenatal counselling where there were concerns regarding a baby was an example where maternity and neonatal staff worked closely together, with ANNPs, consultants and midwives working together to support mothers.

6.3.5 Audit and quality improvement

6.3.5.1 Documentation review

The documentation shared with the review team included details of recent audits undertaken, as follows:

- National Neonatal Audit Programme 2019 (annual report on 2018 data)
- Newborn heart murmur follow up
- Management and outcome of neonatal hypoglycaemia using BAPM framework
- Admission temperatures in babies being admitted to the neonatal unit
- National neonatal audit programme (NNAP) – neonatal care 2020 (2019 data)
- Case note audit: joint case note entry neonatal unit Ockenden action 4.97a
- Case note audit: joint case note entry neonatal unit Ockenden action 4.97b
- CLABSI (central line associated bloodstream infection) in babies
- Joint case note entries on the neonatal unit – re-audit
- Monthly exception reporting forms to neonatal network by neonatal clinical director
- NIC-TECH
- Case note audit – neonatal 2023 (neonatal daily care entries)
- Are the yellow communication sheets within the babies [sic] notes being filled in appropriately?
- Outcome data:
    - Babies receiving oxygen at 36 weeks corrected gestation 2022
    - Cranial ultrasounds
    - Intubated at birth
    - Network ventilated episodes

The documentation also included a business case associated with the final Ockenden report, dated March 2023. The stated purpose of this document was to confirm recurrent funding to ensure that achieved improvements were sustained; and to itemise recurrent funding to deliver and sustain the actions of the final Ockenden report and the trust's maternity transformation objectives. This paper demonstrated the significant financial investment associated with quality improvement following the Ockenden review.

The review team was provided with Ockenden Report Assurance Committee (ORAC) slides, dated June 2023. These indicated that Ockenden actions linked to the first report had all been evidenced and assured, except for the following, which were 'not yet delivered':

- 'There was some evidence of outdated neonatal practice at SaTH. Consultant neonatologists and ANNPs must have the opportunity of regular observational attachments at another NICU.'
- 'Neonatal operational delivery networks must ensure that staff within provider units have the opportunity to share best practice and education to ensure units do not operate in isolation from their local clinical support network. For example, senior medical, ANNP and nursing staff must have the opportunity for secondment to attend other appropriate network units on an occasional basis to maintain clinical expertise and avoid working in isolation.'

- ‘Neonatal practitioners must ensure sufficient numbers of appropriately trained consultants, tier 2 staff (middle grade doctors or ANNPs) and nurses are available in every type of neonatal unit (NICU, LNU and SCBU) to deliver safe care 24/7 in line with national service specifications.’
- ‘As the trust has benefited from the presence of ANNPs, the trust must have a strategy for continuing recruitment, retention and training of ANNPs.’

Two actions were reported to be ‘delivered, not yet evidenced’:

- ‘Each network must report to commissioners annually what measures are in place to prevent units from working in isolation.’
- ‘The number of neonatal nurses at the trust who are “qualified in specialty” must be increased to the recommended level, by ensuring funding and access to appropriate training courses. Progress must be subject to annual review.’

These slides highlighted the following outcomes linked to Ockenden:

> That the unit had two trainee ANNPs
> It had hosted an ANNP away afternoon
> The time that consultants were resident to deliver 7-day working had been extended
> Consultant neonatologists were continuing to rotate to other NICUs to help maintain their competencies
> Tier 2 ANNPs were due to start rotating in September 2023 to visit NICUs to strengthen training (it was not evident from interviews that this had happened).

Other improvements reported on the neonatal unit were as follows:

> Pulse oximetry screening
> PERIprem initiative (a perinatal optimisation pathway), including a life start trolley, probiotics, and being ‘a positive outlier for optimal cord clamping’
> Allied health professionals – occupational therapists, psychologists, dietitians, speech and language therapists, physiotherapists.

6.3.5.2 Comments from interviewees

Interviewees stated that the unit was, for most parameters, at or exceeding the national average and had been a positive outlier for delayed cord clamping in 2021. Bronchopulmonary dysplasia (BPD) rates were reported to be slightly higher than the national average in 2020 but had since reduced. Screening for retinopathy was reported to have been just above national average.

One of the neonatal consultants had undertaken work into data quality to support the National Neonatal Audit Programme (NNAP). The unit was not paperless and there was an ambition to have the full capacity of BadgerNet, with an electronic paper record (EPR) – a business case had been prepared for BadgerNet EPR – however, priority was being given to replacing the trust’s main patient administration system (PAS). Until then, examination of trends remained labour intensive.

Opportunities for nurses to become involved in quality improvement work were reported. For example, there were leads for different areas, such as having a nurse baby friendly lead, a PERIprem lead and a simulation lead. Neonatal nursing staff inputted to quality meetings. Neonatal voices champions also participated in meetings where quality improvements were discussed.

When asked by the review team to provide an example of quality improvement and learning, some interviewees highlighted infection prevention. This followed a serratia (bacterial) infection outbreak, involving the death of one neonate.

The unit was said to meet most of the components of PERIprem perinatal optimisation and had implemented a neonatal passport and invested in new trolleys. There had been team discussion of using hydrocortisone in neonates, but the team had decided against its use. There was a PERIprem neonatal lead but not an obstetric or nurse lead for this.

6.3.6 Neonatal strategy

6.3.6.1 Documentation review

The documentation shared with the review team included the following:

- SaTH neonatal services vision. This document set out the unit's neonatal strategy for 2023/24 under seven headings:
    - Excellence in patient care – including achieving accurate clinical and activity recording on BadgerNet and implementing recommendations from mortality review at local and regional level
    - Leadership – including developing nursing roles for Family Integrated Care and infant feeding leads
    - Team recognition – recruiting to funded posts for allied health professionals and developing band 7 coordinator cover for all shifts
    - Wellbeing – psychological support for parents and improving support for governance processes
    - Professional development – including rotational attachments across teams for ANNPs and nurses at NICUs and reviewing ringfenced training time and study budget for ANNPs
    - Shared decision making – including enhanced rates of breast feeding, Family Integrated Care, re-establishing a parent support group, and expanding use of Parent Diary
    - The workforce of the future – developing the tier 2 (ANNP) model and tier 2 overnight rota, working towards BAPM standards for numbers of qualified in specialty nurses, and implement workforce plan for rolling training of ANNPs.

6.3.6.2 Comments from interviewees

One interviewee highlighted three priority issues. First, to improve documentation of conversations with parents on ward rounds (the unit had begun to conduct monthly audits of parent communication sheets). Issues around documentation were also highlighted as a nursing issue, with clinical pressures said to sometimes prevent nurses from completing documentation during their shift. Second, to increase the numbers of qualified in specialty (QIS) nurses, as insufficient numbers were said to have an impact on the unit's ability to deliver some types of care in the first few hours. Third, to improve breastfeeding rates, which had slipped after being better than the national average.

Other priorities voiced by interviewees were to have a cot locator service, for there to be an expansion of neonatal bed capacity across the West Midlands, and to have BadgerNet electronic patient records.

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8 Appendices

8.1 Appendix 1: Glossary

Clinical term	Explanation
Antenatal care	The care provided during pregnancy.
Antepartum haemorrhage	Antepartum haemorrhage is defined as bleeding from or in to the genital tract, occurring from 24+0 weeks of pregnancy and prior to the birth of the baby. https://www.rcog.org.uk/media/pwdi1tef/gtg_63.pdf
Anhydramnios	Anhydramnios refers to a condition where there is insufficient amniotic fluid around the fetus.
Apgar score	A standardised method of evaluating the condition of a baby immediately after birth.
ATAIN	Avoiding Term Admissions into Neonatal Units.
BadgerNet	SaTH's maternity service used BadgerNet Maternity Notes – an electronic system aimed at giving mothers more access to and control of their pregnancy records and care notes. www.sath.nhs.uk/wards-services/az-services/maternity/badgernet
Bliss	Bliss exists to give every baby born premature or sick in the UK the best chance of survival and quality of life. www.bliss.org.uk
BFI	This refers to the UNICEF Baby Friendly Initiative (BFI) neonatal standards. www.unicef.org.uk/babyfriendly/wp-content/uploads/sites/2/2022/03/UNICEF-UK-Baby-Friendly-Initiative-Guide-to-the-Neonatal-Standards.pdf
Breech	This is where the baby is in a bottom first or feet first position. www.nhs.uk/pregnancy/labour-and-birth/what-happens/if-your-baby-is-breech
Bronchopulmonary dysplasia (BPD)	BPD is a type of chronic lung disease that can affect babies born prematurely. www.asthmaandlung.org.uk/conditions/bronchopulmonary-dysplasia-bpd-children
Cardiotocography (CTG)	Cardiotocography – CTG – is an electronic fetal monitoring machine used to monitor a baby's heart rate and a mother's contractions during labour.
Chorionic villus sampling (CVS)	Chorionic villus sampling (CVS) is a test offered during pregnancy to check if a baby has a genetic or chromosomal condition, such as Down's syndrome. www.nhs.uk/conditions/chorionic-villus-sampling-cvs
Cold cot	A cold cot is a refrigerated cot that allows parents to spend more time with their deceased baby than would otherwise be possible. www.abigailsfootsteps.co.uk/professionals/cold-cots-for-hospitals
Cystic hygromas	A cystic hygroma is a collection of fluid-filled sacs known as cysts that result from a malformation in the lymphatic system. www.gosh.nhs.uk/conditions-and-treatments/conditions-we-treat/cystic-hygroma
Datix	Datix is an online risk management system for staff to report incidents and errors.
Extubation	Extubation refers to removal of an artificial airway.
Family Integrated Care	Family Integrated Care is a model of neonatal care which promotes a culture of partnership between families and staff. This enables parents to become confident, knowledgeable and independent primary caregivers. www.bapm.org/resources/ficare-framework-for-practice

Clinical term	Explanation
	www.bliss.org.uk/health-professionals/bliss-baby-charter
Fetal ascites	Fetal ascites refers to fluid in the fetal abdomen.
Group B streptococcus (GBS) infection	GBS is a bacteria that can be present on the body and usually does not cause any harm. Many babies come into contact with GBS around the time of birth. www.nhs.uk/common-health-questions/pregnancy/what-are-the-risks-of-group-b-streptococcus-infection-during-pregnancy
Inotropes	Drugs to stimulate blood pressure.
Intermittent auscultation	Intermittent auscultation is fetal heart rate monitoring during labour via a handheld doppler or a Pinard stethoscope.
Intrapartum care	The care provided during labour and immediately after birth.
Local neonatal unit (LNU)	An LNU is for babies who need a higher level of medical and nursing support than a special care baby unit can provide. Babies born between 27 and 31 weeks' gestation may be transferred to an LNU. www.bliss.org.uk/parents/in-hospital/about-neonatal-care/how-does-neonatal-care-work
MBRRACE	MBRRACE-UK stands for Mothers and Babies Reducing Risk through Audits and Confidential Enquiries across the UK. MBRRACE-UK is the collaboration appointed by the Healthcare Quality Improvement Partnership (HQIP) to run the national Maternal, Newborn and Infant Clinical Outcome Review Programme (MNI-CORP), which continues the national programme of work conducting surveillance and investigating the causes of maternal deaths, stillbirths and infant deaths. www.npeu.ox.ac.uk/mbrrace-uk
Maternity neonatal voices partnership framework (MNVP)	An MNVP listens to the experiences of women and families, and brings together service users, staff and other stakeholders to plan, review and improve maternity and neonatal care. https://nationalmaternityvoices.org.uk/
National Neonatal Audit Programme (NNAP)	NNAP assesses whether babies admitted to neonatal units in England, Scotland and Wales receive consistent high-quality care, and identifies areas for quality improvement. www.rcpch.ac.uk/work-we-do/clinical-audits/nnap
Needle aspiration	Needle aspiration is a method of removing a small amount of fluid or tissue by passing a needle through the skin.
Neonatal intensive care unit (NICU)	A NICU is for babies with the highest need for support lasting more than 48 hours. Often these babies will have been born before 28 weeks' gestation. www.bliss.org.uk/parents/in-hospital/about-neonatal-care/how-does-neonatal-care-work
NHS Friends and Family Test (FFT)	The FFT was created to help service providers and commissioners understand whether patients are happy with the service provided, or where improvements are needed. www.nhs.uk/using-the-nhs/about-the-nhs/friends-and-family-test-fft
PALS	The Patient Advice and Liaison Service (PALS) offers confidential advice, support and information on health-related matters. www.nhs.uk/nhs-services/hospitals/what-is-pals-patient-advice-and-liaison-service

Clinical term	Explanation
Perinatal mortality	MBRRACE-UK focuses on the surveillance of perinatal deaths from 22 weeks gestational age, including late fetal losses, stillbirths, and neonatal deaths. www.npeu.ox.ac.uk/mbrrace-uk/reports/perinatal-mortality-surveillance
Perinatal optimisation	Perinatal optimisation refers to the process of reliably delivering evidence-based interventions in the antenatal, intrapartum and neonatal period to improve preterm outcomes. PERIprem is an example of a perinatal optimisation pathway. www.bapm.org/pages/perinatal-optimisation-pathway
Placental abruption	Placental abruption is a serious condition in which the placenta starts to come away from the inside of the womb wall. https://www.nhs.uk/pregnancy/labour-and-birth/what-happens/placenta-complications/
PMRT	The National Perinatal Mortality Review Tool (PMRT) is wholly integrated within the MBRRACE-UK programme of work. It is designed to support systematic, multidisciplinary, high-quality reviews of the circumstances and care leading up to and surrounding each stillbirth and neonatal death, and the deaths of babies who die in the post-neonatal period having received neonatal care. www.npeu.ox.ac.uk/pmrt/programme
Pneumothoraces	A pneumothorax is when air becomes trapped in the space between the lungs and the chest wall. https://www.nhslanarkshire.scot.nhs.uk/patient-information-leaflets/emergency-department/pil-pnethx-05357-h/
Postnatal care	The care provided during the first six to eight weeks after birth.
Prenatal exome (R21) sequencing	Rapid prenatal exome sequencing (R21) may be undertaken in at-risk pregnancies to check for genetic conditions. www.genomicseducation.hee.nhs.uk/genotes/knowledge-hub/r21-rapid-prenatal-exome-sequencing
Qualified in specialty (QIS)	The qualification in specialty model was developed to enable nurses to develop along the training pathway for their specialist area. There are specific neonatal QIS programmes.
Sands	Sands supports people affected by the death of a baby. www.sands.org.uk
SCBU	Special care baby unit.
Systemic lupus erythematosus (SLE or lupus)	Lupus (systemic lupus erythematosus) is a long-term condition that causes joint pain, skin rashes and tiredness. www.nhs.uk/conditions/lupus
Tokophobia	Fear of childbirth www.nct.org.uk/pregnancy/how-you-might-be-feeling/fear-childbirth-and-tokophobia

8.2 Appendix 2: Structured judgement review (SJR) form

RCP Number:	
Initials & Hospital reference no:	
Case description:	
Initials of reviewer:	

Background/summary of the relevant history *[Please give a brief clinical history of the mother and baby e.g. gender/age/relevant co-morbidities/presenting condition/operation/outcome/any other relevant factual information from the notes. Make a note of key dates (bullet point if helpful)]*
Click here to enter text.

The obstetric journey, and specifically whether the risks associated with stillbirth, problems during delivery, and/or perinatal mortality were identified and managed appropriately (antenatal, intrapartum, postnatal, obstetric anaesthesia)	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Management of the baby at delivery by the multidisciplinary team (e.g., midwives, obstetricians, anaesthetists, nursing staff and healthcare assistants, neonatologists, neonatal nurses)	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Care following admission to the Neonatal Unit	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Multidisciplinary team working and communication between colleagues	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Interactions with parents and their family (sharing of information, discussion and agreement on management plans etc), including demonstration of Family Integrated Care	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

End of Life Care, as relevant, and support offered before and following a perinatal death	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Review of care after a perinatal death	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Clinical record keeping	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Compliance with network guidelines in place at the time Adherence to Trust guidelines in place at the time and the extent to which these guidelines aligned with network guidelines, national guidelines and recognised best practice	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Any other issues identified from clinical record review	
Click here to enter text.	**Please grade this phase of care (mark with an 'x'):** ☐ 1 = very poor care ☐ 2 = poor care ☐ 3 = adequate care ☐ 4 = good care ☐ 5 = excellent care

Reviewers' comments on the overall standard of care *We are interested in comments about the quality of care the patient received at each phase of care, and whether it was in accordance with current good practise (for eg, your professional standards or your professional perspective). If there is any other information that you think is important or relevant that you wish to comment on then please do so.*
Click here to enter text.

Clinical Reviewer's overall perspective on quality of care (please mark x in the relevant box)	
☐	**Good practice:** A standard you would accept from yourself, your trainees and your institution.
☐	**Room for improvement:** aspects of clinical care that could have been better.
☐	**Room for improvement:** aspects of organisational care that could have been better.
☐	**Room for improvement:** aspects of both clinical and organisational care that could have been better.
☐	**Unsatisfactory:** several aspects of clinical and/or organisational care that were well below that you would accept from yourself, your trainees and your institution.
☐	**Insufficient information available** to make an assessment of quality of care.

Recommendations (if you scored room for improvement/unsatisfactory – in a few words please suggest what could have been done better)
Click here to enter text.

8.3 Appendix 3: Documents received and reviewed

18 index cases

Service review documentation
1. Organisational-level information
Block NK – women's and children's unit – level 2 A1 layout
ENC – neonatal quality report 2021
Ockenden report – final (findings, conclusions and essential actions), March 2022
GIRFT report 2021
2023 Ockenden Report Assurance Committee (ORAC) slides, June 2023
Neonatal strategy 2023/24
Ockenden report December 2020
Who's-Who-Website July 2023
2. Service-specific information
Specialty overview
Activity (first attendance and did not attend) from 2018 to 31/07/2023
Admissions data from 01/01/2018 to 31/07/2023
SaTH activity data neonatal unit 2018 to 31/07/2023 – care days by level and average length of stay
West Midlands Neonatal Operational Delivery Network, Neonatal care pathways 2020
3. Clinical team
No documentation
4. Clinical governance
LMNS Programme Board and Perinatal Quality Surveillance Group (PNQSG), Agenda for meeting held on 17 July 2023
Maternity Governance meeting, Perinatal Mortality Review Tool (PMRT) Quarterly Report Q1, July 2023
Merged documents for neonates review
Neonatal guidelines 2022-24
Neonatal guidelines 2019-21
5. Doctors in training
Teaching programme: February 2023, May 2023, June 2023
GMC survey results SaTH 2021

	Neonatal Teaching Programme March 2023-Sept 2023
6.	**Statements**
	Alex Philpott, lead neonatal consultant, KIDSNTS (regional neonatal and paediatric transfer service, based at Birmingham Childrens Hospital)
	Lynsey Clarke, senior network manager, West Midlands perinatal network (neonatal)
	Email from Nei-See Hon, 17/11/2023 – adding to information provided in interview
7.	**Additional documentation**
0.1	List of additional items
1a	Accidental extubation
1b	Can't intubate can ventilate
1c	Difficult neonatal airway in the DGH
1d	Extremely preterm birth in a DGH
1e	Preterm intubation in the delivery suite
1f	Neonatal teaching programme Sept 2022–2023
1g	Neonatal simulation attendance log
1h	Neonatal simulation attendance log
1I	Simulation feedback 6 October 2023
1J	Feedback neonates simulation 25 October 2023
1K	Neonatal simulation feedback
1L	Neonatal simulation SaTH certificate of attendance
1M	Thermal care of the premature neonate
2	Business case Ockenden final report
3	MBRRACE SaTH 2021 report
4a	Babies receiving oxygen at 36 weeks corrected gestation 2022
4b	Cranial ultrasounds
4c	Intubated at birth
4d	Network ventilated episodes 03.11.2023
6a	Child death process draft (v2)
6b	Analysis of specific case
6c	Governance structure and local processes Nov 2023
6d	Perinatal mortality meeting of specific case
6e	MBRRACE 29 Sept 2023

6f	MBRRACE 2021 Neonatal mortality SaTH – neonatal governance 2023
6g	PMRT 2021
7	Datix web report neo risks 30.10.2023
8a	Ex utero exception policy
8b	Fungal infection guideline
8c	Golden hour guideline
8d	Herpes simplex infection in neonates guideline
8e	LISA checklist appendix 1
8f	LISA guideline
8g	Neonatal Datix triggers on neonatal unit guideline
8h	Neonatal infection guideline
8I	Neonatal mortality SOP
8J	Preparing for ex utero transfer SOP
8K	Resuscitation guideline
8L	Surfactant guideline (under review)
8M	Transfer in from home or outside hospital guideline (under review)
8N	Transport and retrieval guideline
8O	When should the neonatal consultant be informed guideline
8P	When to summon assistance SOP
10	NNU ward management structure
11	SaTH neonatal critical care peer review visit report
12	NNU consultant meetings agenda and minutes 2021: agendas 03.03.21, 31.03.21, 05.05.21, 26.05.21, 09.06.21, 23.06.21. NNU consultant meetings: 17.02.21, 03.03.21, 31.03.21, 05.05.21, 26.05.21, 09.06.21, 23.06.21, 13.10.21, 10.11.21
12	NNU consultant meetings agenda and minutes 2022: agendas 16.02.22, 16.03.22, 30.03.22, 11.05.22, 20.07.22, 14.09.22, 12.10.22, 09.11.22, 07.12.22. NNU consultant meetings: 16.02.22, 16.03.22, 30.03.22, 11.05.22, 20.07.22, 14.09.22, 09.11.22, 12.10.22, 07.12.22

8.4 Appendix 4: Interviews

16 November 2023 (day 1)	
08.30–09.00	Invited review team meet privately
09.00–09.45	Inese Robotham, deputy chief executive officer Dr John Jones, executive medical director Hayley Flavell, director of nursing Helen Toalen, director of finance Sara Biffen, acting chief operating officer
09.45–10.00	Invited review team discussion
10.00–10.45	Carol McInness, director of operations, women's and children Julie Plant, director of nursing, women's and children
11.00–11.45	Patria Cowley, neonatologist and clinical director [redacted] centre manager
11.50–12.35	[redacted], director of quality and safety and deputy chief nursing officer, Integrated Care Board
13.15–14.00	Patria Cowley, neonatologist and clinical director
14.05–14.50	[redacted] head of midwifery [redacted] qualified midwife and women's and children's governance lead
13.35–16.10	[redacted], consultant neonatologist and lead consultant for mortality
16.10–16.40	[redacted], clinical director for obstetrics
16.45–17.30	Invited review team discussion

17 November 2023 (day 2)	
08.30–09.00	Invited review team meet privately
09.00–09.45	[redacted], sister, neonates [redacted], sister, neonates
09.50–10.35	[redacted], neonatal consultant
10.55–11.40	Slot for neonatal doctors (non-consultant)
11.45–12.30	[redacted], consultant midwife
13.05–13.50	[redacted], band 7 nurse [redacted], advanced neonatal nurse practitioner
13.55–14.40	[redacted], bereavement midwife
14.45–15.30	[redacted], assistant director of nursing, quality governance
17.00–17.30	Inese Robotham, deputy chief executive officer Dr John Jones, executive medical director Sara Biffen, acting chief operating officer Helen Toalen, director of finance Carol McInness, director of operations, women's and children Julie Plant, director of nursing, women's and children Patria Cowley, neonatologist and clinical director

8.5 Appendix 5: Summary of clinical record review gradings

8.5.1 Gradings by phase of care

	Very poor care (1)	Poor care (2)	Adequate care (3)	Good care (4)	Excellent care (5)	Not applicable to grade
Obstetric journey: risks associated with stillbirth; problems during delivery and/or perinatal mortality		RCP1 RCP2 RCP4 RCP5 RCP6 RCP7 RCP16	RCP9 RCP13 RCP17	RCP3 RCP8 RCP10 RCP11 RCP15	RCP12 RCP14 RCP18	
Care of the baby at delivery by the multidisciplinary team		RCP6 RCP9	RCP1 RCP3 RCP7 RCP8 RCP12 RCP16 RCP17	RCP2 RCP4 RCP5 RCP10 RCP11 RCP14 RCP15 RCP18		RCP13 [redacted]
Care following admission to the SaTH neonatal unit	RCP10 [redacted]	RCP1 RCP3 RCP4 RCP6 RCP13 RCP16 RCP17	RCP9 RCP11 RCP18	RCP2 RCP5 RCP7 RCP8 RCP14		RCP12 [redacted] RCP15 [redacted]
Multidisciplinary team working / communication between colleagues		RCP1 RCP6 RCP10	RCP4 RCP9 RCP12 RCP13 RCP16 RCP17	RCP2 RCP3 RCP5 RCP7 RCP8 RCP11 RCP14 RCP18		RCP15
Interactions with parents / family, including demonstration of Family Integrated Care		RCP16	RCP1 RCP4 RCP6 RCP9 RCP10 RCP12 RCP13 RCP17	RCP2 RCP3 RCP5 RCP7 RCP8 RCP11 RCP14 RCP18		RCP15
End-of-life care and support offered before and following a perinatal death			RCP1 RCP2 RCP3 RCP12 RCP13	RCP7 RCP9 RCP14	RCP18	RCP4 RCP5 RCP6 RCP8 RCP10 RCP11 RCP15 RCP16 RCP17 [redacted]
Review of care after a perinatal death		RCP6	RCP1 RCP2 RCP3 RCP4 RCP5 RCP7			RCP10 [redacted]

	Very poor care (1)	Poor care (2)	Adequate care (3)	Good care (4)	Excellent care (5)	Not applicable to grade
			RCP8 RCP9 RCP11 RCP12 RCP13 RCP14 RCP16 RCP17 RCP18			RCP15
Clinical record keeping		RCP3 RCP4 RCP13 RCP16	RCP1 RCP5 RCP6 RCP7 RCP9 RCP10 RCP11 RCP12 RCP14 RCP17 RCP18	RCP2 RCP8		RCP15
Compliance with network, national and trust guidelines and recognised best practice		RCP6 RCP10 RCP16	RCP1 RCP3 RCP4 RCP8 RCP9 RCP11 RCP12 RCP13 RCP14 RCP17 RCP18	RCP2 RCP5 RCP7		RCP15

[redacted] There was insufficient information available to reach a grade of the overall quality of care for this case, [redacted]

8.5.2 Overall perspective on quality of care

Clinical reviewer's overall perspective on quality of care	
Good practice: a standard you would accept from yourself, your trainees and your institution.	RCP2 RCP5 RCP8 RCP14 RCP18
Room for improvement: aspects of clinical care that could have been better.	RCP1 RCP3 RCP7 RCP9 RCP11 RCP12 RCP13 RCP16
Room for improvement: aspects of organisational care that could have been better.	
Room for improvement: aspects of both clinical and organisational care that could have been better.	RCP4 RCP17
Unsatisfactory: Several aspects of clinical and/or organisational care that were well below that you would accept from yourself, your trainees and your institution.	RCP6 RCP10
Insufficient information available to make an assessment of quality of care.	RCP15