

# Optimizing Frontline Networking Between Consultant-Led Neonatal Teams in the West Midlands: A Qualitative Report on the Utility of Modified Simulation Training.

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# Abstract

**Background:** In England neonatal care is delivered within operational delivery networks. Units within these networks are one of three designations (Neonatal Intensive Care, Local-Neonatal or Special-Care Units), based on their ability to care for babies with different degrees of illness or prematurity. With the development of network care-pathways, the most premature and sickest are triaged where possible for delivery in services linked to Neonatal Intensive Care units. This has created anxiety for teams in Local-Neonatal and Special-Care units. Less exposure to sicker babies meant limited opportunities to maintain expertise for when they do unexpectedly deliver at services linked to their own units, and thereafter require transfer for ongoing care, to Neonatal Intensive Care units. Simultaneously, Local-Neonatal and Special-Care teams develop skills in care of the less ill and premature baby which was considered of benefit to all. A need for mutual learning through networking between teams of different designations emerged.

**Method:** An interactive programme, 'Supporting The Sick Neonate' was developed in the West Midlands. It focused on equal partnership between unit designations, employing high, medium and low fidelity simulation as the vehicle around which networking between units was centered. Sessions of simulation and debrief were augmented with novel networking time to enable multidirectional learning and understanding of practices. Candidates and facilitators were regarded as participants, spanning different designations. A consultant-focus was adopted to promote long term networking. Qualitative assessment of the programme over four years was captured through -graded and free text surveys.

**Results:** 155 individuals involved in frontline neonatal care participated. 77 were consultants, supported by neonatal trainees, staff grade doctors, clinical fellows, advanced neonatal nurse practitioners and nurses in training. All were invited to participate in the qualitative survey. 79% felt that it was highly relevant; 96% agreed that for consultants this was appropriate adult learning. 98% agreed that consultant training encompassed more than bedside clinical management, including forging communication links between teams. Thematic responses around networking were positive.

**Conclusion:** Simulation augmented with networking time with a consultant-focused model proved successful for networking and shared learning for the Neonatal fraternity in the West Midlands.

## Background

In England, neonatal care is delivered within Neonatal Operational Delivery Networks (ODNs). Within these ODNs, preterm and sick babies are cared for in neonatal units of three designations: Neonatal Intensive Care Units (NICU), Local Neonatal Units (LNU) and Special Care Units (SCU). NICU have resources to cater for all babies, including the sickest, smallest, and those born most prematurely; LNU, for babies who are usually > 27weeks gestation and not critically unwell; and SCU, for babies usually > 32 weeks gestation at birth, who require some medical intervention before being discharged home [1]. Care provided in these units is consultant-led. In NICU, these consultants are neonatologists, where as in LNU and SCU, they are general paediatricians [2], with an interest in neonatology, providing neonatal ward

round *and* after-hours neonatal support in some, and *only* after-hours or emergency care neonatal support in others.

Since the emergence of ODNs and pathways diverting care for the very ill and premature baby into NICU, anxieties around potential 'deskilling' in LNU and SCU consultant-led teams have heightened. These network pathways meant less exposure to the very preterm and sick baby for LNU and SCU teams, and therefore limited opportunities to maintain skills for these when they do unexpectedly present to SCU and some LNU. An example of this variation in exposure to sick and preterm babies can be seen in our region in the West Midlands, within the PReCePT project [3] (antenatal MgSO<sub>4</sub> administered to pregnant mothers in established labour at 24<sup>+0</sup>-29<sup>+6</sup> weeks gestation, for preterm neuroprotection). We have 14 neonatal units in 13 Hospital Trusts, spread over 5000 square miles. Exposure to having had a preterm baby born < 30 weeks gestation, and eligible for PReCePT, ranged from of 1 case per year in one of our four SCU, to around 80 cases per year in one of our 5 NICU and 5 LNU (West Midlands Academic Health Science Network, unpublished data).

Senior non-NICU consultants expressed anxiety over this emergent trend. They reflected that whilst ODN structures, cot capacity and maternal choice of booking hospital reduced their experience of dealing with sick or extremely preterm babies, it did not prevent unexpected exposure to them. They acknowledged that the logistics of providing intensive care were likely to be harder in a location that delivered it infrequently, and for shorter periods of time. Promoting robust plans to ensure that the care provided in LNU and SCU remains optimal, while at the same time enabling NICU teams to support teams looking after sick babies outside of NICU was considered critical.

It was recognized too, that although the West Midlands actively transported babies for uplift of care as part of the KIDS Intensive Care and Decision Support/Neonatal Transfer Service, the transfer service was unable to function as a local *stabilization* service for ill babies in LNU and SCU. As a result, with the exception of telephone engagement from a NICU at the time of need, there was limited support available to SCU and some LNU teams supporting the sick neonate. Potentially then, there was also a limited appreciation of the immediate challenges faced by other units of different designations in caring for such babies.

At the same time, senior colleagues in NICU were acknowledging that LNU and SCU teams, who were now consolidating their skills in managing slightly older, less critically ill babies, had a wealth of experience that could be tapped into by NICU teams in planning the shared care.

A novel platform for networking was therefore developed, called 'Supporting the Sick Neonate' (SSN), for shared learning, understanding of practice, limitations, and challenges between teams in the West Midlands. This was in the form of a one-day course, developed to capture and enhance team-based learning, acknowledging the experience of consultants holding differing practical skills in neonatology, and addressing what was considered were common themes for our region. In the first instance, this was to help maintain essential skills and knowledge in teams, and in the second, to allow each other to

understand the differences in practices and real-time issues faced by teams on the ground. In doing so we hoped to promote networking and support for the sick neonate in the region. No similar course existed in the region or country at the time.

We report on the user experience with this one-day annual network-based course, as a catapult for shared learning, and networking between teams, using a neutral environment with equal partnership between individuals from LNU, SCU and NICU. We highlight the ongoing need for similar initiatives in the future to support maintenance of skills in smaller neonatal units and promote networking between units within ODNs.

## Methods

### *The initiative:*

A faculty of facilitators, comprising consultants from NICU and LNU, advanced nurse practitioners and nurse practice educators from the Staffordshire Shropshire and Black Country Newborn and Maternity Network (SSBCNMN) and Southern West Midlands Maternity and Newborn Network (SWMNN), now called the West Midlands Neonatal Operational Delivery Network (WMNODN) was established in 2015. We developed a one-day interactive course/program called 'Supporting the Sick Neonate (SSN)'.

The program focused on consultant-led decision support and their management of teams in clinical situations, followed by mutual discussions on the experiences in their units and with shared care. While it was an educational contract, exploring options of dealing with clinical scenarios, its overarching objective was to support consultant and team networking, fostering mutual respect and enhancing rapport between NICU, LNU and SCU teams.

Peer review support was sought at the outset from two additional NICU centres outside of the West Midlands. A mock run of the initiative was completed before roll out of the program. All Trusts were informed of the program, and the neonatal networks encouraged consultants and team members involved in front line neonatal care to participate in this as part of their essential continued professional development. Intense 1:1 discussion outlining the participatory, confidential, and supportive nature of the program were held by the course director with consultant candidates in LNU and SCU, to allay unfounded anxieties of being under scrutiny during the day. All experiences within the scenarios were regarded as confidential.

The one-day interactive course/program comprised four **sessions** run in parallel. Each session contained a) a clinical scenario, followed by b) a standard debrief [2] and thereafter, c) a 20 minutes of networking time.

For the clinical scenarios, we used the vehicle of high and low fidelity simulation and workshops. Three simulation scenarios and a scenario-based workshop were developed. These were the adjuncts for networking and shared learning. The scenarios were chosen based on discussions with senior LNU

colleagues in the region, to focus on areas of greatest benefit to teams (Table 1). A novel, 20 minutes of interactive networking time was added into each session, to allow candidates and facilitators to spend time sharing their experiences, for multi-directional learning, in small groups. Here variations in practices, shared experiences and stressors around similar cases were discussed, and the learning consolidated in multiple directions. This was a form of networking and intended to build relationships and foster ongoing mutual respect for the variation in care provided, between LNU/NICU/SCU team members, with a heavy focus on consultant networking.

Additional lunchtime voluntary workstations on technical skills for candidates who wished to refresh their skills in a voluntary manner were available. These included workstations on interosseous rapid intravenous access, Seldinger chest drain insertion and videolaryngoscopy for preterm and term babies. In 2018 a lunch time session on ultrasound guided long line insertion was included. None of the sessions were graded. This was deliberate, to ensure that the participating consultants, especially senior LNU and SCU colleagues were not threatened by a feeling of being assessed.

All of the equipment utilized in the course, such as ventilators and continuous positive airway pressure machines and their circuits, videolaryngoscopes was voluntarily provided by neonatal equipment companies, to ensure that there was no added burden placed on NHS equipment resources during the course.

### *The participants*

Participants in each session comprised

a) Four teams of **facilitators**: these were NICU or LNU consultants supported by an Advanced Neonatal Nurse practitioner, Clinical fellow and/or Nurse Educator. Each team set up their clinical scenario in a clinical skills area at a central hospital-based venue within the West Midlands. The candidates in their teams, passed through each team of facilitators, through the day on a rotational basis, so that all the candidates and facilitators had exposure to each other, by the end of the one-day program.

b) Four teams of candidates: each team comprised i) 2-3 regional consultant **candidates** from NICU, LNU, and SCU, and ii) regional tier 1 and 2 trainees/advanced neonatal nurse practitioners/practice educator nurses. The latter made up the **team around the consultant**.

In the first two years of the program, the junior members who were included to form this team were confederate faculty members – staff grade doctors, clinical fellows and advanced nurse practitioners working on the tier 1 and tier 2 paediatric/neonatal rota within the West Midlands. In subsequent three years a small group of trainees rotating through neonatology at the time of the course were recruited as candidates onto the course. This change was effected following consideration that having a confederate junior team who were therefore very familiar with the scenarios, would put undue pressure on the consultant candidates. It was felt that a team that was naïve to the clinical scenario at simulation would perform in a manner that better represent realities on the ground, and that this was more likely to yield

areas for learning and reflection from the course. In order to support neonatal nurses undertaking a Qualified in Speciality (QIS) course with Keele University, they were included to participate in the role of the neonatal nurse in the scenarios in 2017 and 2018.

Within each session, one of the three consultant candidates led each clinical scenario, so that by the end of the day all consultants had a chance to lead a scenario. The 'team around the consultant' participated in every scenario, and the neonatal nurses in training were observers. In each session, the remaining two consultant candidates not leading the scenario, stood back as observers for the scenario and debrief. However, all, including the facilitators, the team around the consultant and the nurse observers contributed actively to the added 20-minute networking session. This was multi-directional engagement. It was intended to facilitate discussion around the simulation and local / ODN issues. Here simulation was used to spark networking around shared experiences, made easier after having shared the experience of being in/watching a simulation together.

The four sessions were run in parallel, in four separate clinical skills areas within the Learning Centre. Each session lasted approximately 90 minutes, and participants moved between sessions so that they had exposure to all four clinical scenarios during the course.

### *The qualitative evaluation*

Participants were asked to complete a survey form, specifically designed for the course (see supplementary file), anonymously at the end of their one day program, from the courses in October 2015, June 2016, January 2017, and Sept 2018. Graded responses using a Likert scale along the following themes were analysed, around

- a. whether it met their educational needs, and the appropriateness of the program as part of their learning,
- b. their opinion on centre-based vs point of care neonatal training, and the
- c. value of networking with colleagues from the region.

Free text responses were analysed and themes around the value of reflective and networking time in the course, expectations and recommendations for the future were identified.

## **Results**

A total of 155 individuals participated in this West Midlands networking initiative over the four-year period. These participants included facilitators and candidates together. 77 were consultants involved in newborn clinical care, (57 as candidates and 20 as facilitators), 47 were neonatal/paediatric team members and 31 were neonatal nurses in training. The distribution of participants is detailed in Table 2.

Four of the five courses were evaluated, and 100 participants of 124 eligible in the four courses, completed the survey anonymously. All felt that the learning objectives of the course were met. 79% felt

that the course was highly relevant, a further 16% that it was mostly relevant, and 5% that it was fairly relevant. The graded responses on perspectives of the course are detailed in Table 3. 96% felt that for consultants, this was an appropriate way of engaging in adult learning. 98% agreed that consultant training encompassed more than just clinical management at the bedside but included forging communication links between teams in newborn networks. 89% did not mind not knowing all the members of the tier 1 and tier 2 medical teams as this may represent the case in reality at time of doctors' changeover in rotation. 50% of those who responded did not agree with simulation being done at the base hospital only, and on not engaging with other consultants from other hospitals; 16% had no opinion on this.

Thematic review of the free text responses around networking, team building and rapport revealed candidates feeling that their *'ideas were listened to'*, that it was *'good being with nurses, doctors and ANNPS'*, that they *'appreciated the communication, and networking with friends and colleagues'*, and *'meeting old friends'*, and that the *'networking was friendly and 'discussions with rest of the group were non-threatening'*. They felt *'supported'*, that participants had *'incredible knowledge, extensive skills and experience which they were able to share'*, that this was a *'good update'*, and that they appreciated *'learning from others'*. The feedback given during the sessions were considered *'non-judgmental'*, and *'the information shared highlighted their need to find out what their own local policies were.'* They *'appreciated the 20-minute time for reflection and communication.'* Table 4 displays some common themes around the educational meeting, networking, expectations and recommendations for the future from the participants.

## Discussion

We describe our early experience with an initiative, the SSN course, which attempted to address concerns around potential deskilling of consultants and limited networking between teams caring for sick newborn babies in our region, outside of the NICU environment. These concerns were enhanced by the re-organisation of neonatal network pathways, redirecting care of the most preterm and sick baby to NICU, away from LNU and SCU. SSN, a tailor-made initiative (a one-day course), focusing on mixing LNU, NICU and SCU consultant-led teams, networking with multi-directional learning in a safe, non-threatening environment, away from assessment, appears to have been very well received.

As opposed to conventional thoughts around effective simulation training ideally being team-based, and at point-of-care, this initiative leaned heavily towards a consultant focus, using a central venue as its base. The core concept being consolidated was networking and support between teams for the benefit of neonatal care in the West Midlands, where the WMNODN represented the 'team', and that its consultants, juniors and support staff represented its members. The combination of LNU, SCU and NICU consultants in the same learning environment was not simply to offer advanced resuscitation training [4], but to focus on common principles of care, and to promote networking through a mutual understanding and respect for varying exposures to sick babies at different units, their practices, stressors and challenges, and the need to support each other.

A heavily weighted consultant-focus was considered the best way to enable networking and support within the region. Consultants represent the least mobile component of the medical/clinical workforce overall, around which the 'teams' for the course could be built. We wanted to promote an environment where the voice on the other end of the telephone during late night transfers/shared care consultant/senior staff discussions was familiar, and the pressures, and decisions made in the best interest of the critically ill baby, better appreciated by both teams. The novel 20-minute post simulation and debriefing time facilitated further discussion that broadened out to include local and ODN issues. It is here that we believe the greatest strength of the program lay. It allowed team members of differing designations to relate their experiences, reflections, learning and questions, and appeared to have been received and adopted positively. Learning around a common theme in a simulation session proved a successful adjunct to promoting 'mingling' between consultants from different designations within the region.

As this was an unfunded project, a detailed qualitative study was not possible. It is reassuring from Table 3 to see no major disagreement with the lack of point of care training in this course, and that the thematic responses from the free text feedback in Table 4 was overwhelmingly positive. Given that these simulations dealt with unstable babies that potentially need transfer, one could consider that there are 3 potential 'point of care' locations – the referring unit, transport team, receiving unit. It would be very difficult to conduct a true 'point of care simulation' encompassing all 3 locations. In our program, the choice of location was driven by the learning and engagement we set out to achieve. This was principally to promote networking through shared learning and communication between units. Using a central venue had the advantage of broadening communication and shared-care difficulties beyond individual units and allowing easier sharing of common themes from several participating units.

Future networking projects in our region must assess the benefits to patient care through analysis of the impact of networking training on knowledge, skills, attitude and behaviours of staff around unit practices and shared care (discussions, triage, and transfers), transport metrics and patient outcomes. While we had LNU and NICU consultants as facilitators for this initiative, we acknowledge that future initiatives should incorporate the strengths of SCU in facilitating sessions in areas of strength over those of a NICU/LNU.

At the time of development, we considered alternative strategies such as a point of care training, and using a mobile outreach team, but discarded this as more labour intensive, and less likely to enable the same networking/engagement as with working with other colleagues from different LNU, SCU and NICU teams. The 'cross fertilization of ideas' including the comradery and vigour for change that accompanies a realization that other units are experiencing similar difficulties and successes was considered more appealing using a central base for the course. Thematic responses from Table 4 suggest that this is the case, however, we have not studied any other NICU, LNU, SCU consultant-focused networking strategies for our region yet, to be sure which will be most sustainable and most translatable improving quality of neonatal care going forward. This is an area for future research. The potential that point-of-care training

offers, in engaging the team including neonatal nurses, is acknowledged, and will be a direction pursued, networking for the future.

The 2-day Resuscitation Council UK Advanced Resuscitation of the Newborn [ARNI] course is now available in our region. It is an excellent option for training around extended technical and non-technical skills required for interventions around complex neonatal resuscitation scenarios [4, 5]. Paediatricians working in LNU and SCU who see sick babies infrequently may not feel adequately prepared or motivated to engage in an intense ARNI course at the outset, despite the course not being pitched solely towards NICU teams and should be encouraged to engage. Technical and non-technical skills training is important to maintain for all designations of neonatal unit care in the region; how best to achieve this will be the challenge going forward.

For the West Midlands, the SSN one day course, provided a platform for neonatal networking between LNU, SCU and NICU consultants and medical teams in a multi-directional way, and proved successful based on the survey responses we received. It involved a large faculty, and was intense in its requirement for time, co-ordination and resources to deliver. Future challenges will be how best to merge the principles of networking promoted by SSN into the post COVID era, to cater for multi-directional support for the babies who are acutely ill in non-specialist settings outside of a NICU, in a format that is cost-effective, user friendly, sustainable and supports not just consultants, but entire teams caring for the unexpectedly ill neonate within the country.

## Abbreviations

**LNU** Local Neonatal Unit

**SCU** Special Care Unit

**NICU** Neonatal Intensive Care Unit

**ODN** Operational Delivery Network

**SSN** Supporting the Sick Neonate

**SSBCNMN** Staffordshire Shropshire and Black Country Newborn and

Maternity Network

**SWMNN** Southern West Midlands Maternity and Newborn

Network

**WMNODN** West Midlands Neonatal Operational Delivery Network

## Declarations

*Ethical approvals and consent to participate:* This work was approved by the Staffordshire Shropshire and Black Country Newborn and Maternity Network (SSBCNMN) and Southern West Midlands Maternity and Newborn Network (SWMNN). No patients were involved in this work.

*Consent for Publication:* No patients were included in this work. All participants were made aware that the work will be published, anonymously.

*Availability of data and materials:* All data generated or analysed during this study are included in this published article. The Supplementary File contains the survey questionnaire.

*Competing Interests:* nil

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