THE SIM+ PROJECT
EVALUATION REPORT

FEBRUARY 2012

Simulation
Part Task Training
Communication
Teamwork

Sim+
Working together to improve care
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FOREWORD

The East of England Perinatal Network was privileged to be awarded an innovation grant to support the introduction of neonatal simulation across the 17 units providing neonatal care. The ‘Point of Care Project’ has been a co-production with not only the neonatal units doctors, nurses and trainees that make up the network but the Deanery and, most importantly, Leicester Neonatal Simulation Team.

Whilst the project has reached its key objectives, it has aspirations to remain a key component of both medical and nurse training and continue to develop and support similar initiatives in the paediatric and maternity clinical areas. To achieve this the network will continue to support the project as a key part of its work programme.

The feedback has been excellent and the commitment of the project lead and team has been pivotal in driving forward such an innovative large scale change project within such a defined timescale. Much of the energy and drive has been provided by the dedicated project team led by Michele Upton, Erica Everett, Dr Sue Broster, Dr Jonathan Cusack and Dr Joe Fawke.

This is a project the network and units can be very proud of and we thank the East of England Regional Innovation Fund for their support.

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Perinatal Network Director
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ACKNOWLEDGEMENTS

The enthusiasm and motivation of the simulation champions in each unit was imperative to the success of this project. Their commitment to achieving outcome measures for the project has continued, ensuring sustainability and dissemination into other areas of their hospitals. The project team are indebted to them for their hard work in bringing this project to fruition within ambitious time frames.

Local project champions

Cambridge University Hospitals NHS FT (Rosie): Sr. Erica Everett, Dr Sue Broster and Dr Helen O’Reilly

Basildon and Thurrock University Hospitals NHS FT: Sr. Tara Rivers and Dr. Samudra Mukherjee

Bedford Hospital NHS Trust: Sr. Tracey Ebbage and Dr. Paul Dekyem

Colchester Hospital University NHS FT: Sr. Shelley Knights and Dr. Elrashid Hussein

East and North Hertfordshire NHS Trust: Mrs. Deloris Brown, Dr. Jonathan Kefas and Dr. Charu Bhatia

The Princess Alexandra Hospital NHS Trust: Sr. Julia Green and Dr. Sanjay Raina

Hinchingbrooke Healthcare NHS Trust: Sr. Christine Jenner and Dr. Hilary Dixon

The Ipswich Hospital NHS Trust: Sr. Michelle Mayhew and Dr. Pravin Desai

James Paget University Hospitals NHS FT: Sr. Laurie Howarth and Dr. Jauhar Shareef

The Queen Elizabeth Hospital, King’s Lynn NHS Trust: Sr. Pru Fox, Sr. Sally Crane, Dr. Glynis Rewitzky and Dr. Sue Rubin.

Luton and Dunstable Hospital NHS FT: Sr. Helen Doyle, Sr. Lesley Kilby, Dr. Shanthi Shanmugalingam and Dr. Claudia Chetcuti - Ganado

Mid Essex Hospital Services NHS Trust: Mr. Mark Long and Dr. Ahmed Hassan

Norfolk and Norwich University Hospitals NHS FT: Sr. Stacey Dixon and Dr. Priya Muthukumar

Peterborough and Stanford Hospitals NHS FT: Sr. Julie Elding and Dr. Tim Jones

Southend University Hospital NHS FT: Sr. Deborah Felton and Dr. Arfa Khan

West Hertfordshire Hospital NHS Trust: Sr. Elvira Baker and Dr. Sankara Narayanan

West Suffolk Hospital NHS Trust: Sr. Kathy May and Dr. Martina Noone

Thanks to Lucy Dominy and Jenni Augusta, Communications Officers at the East of England Specialised Commissioning Group for their expertise and advice regarding the branding aspects of the project.

We are grateful for the support and generosity of Martin Clarke and Laerdal staff for providing training workshops for champions, timely support for implementation of the project and for the design and publication of this document.
The Sim+ Project Evaluation Report February 2012

EXECUTIVE SUMMARY

The need for a co-ordinated neonatal simulation training programme in the East of England had been widely recognised by the East of England Deanery and the Perinatal network. A bid was submitted to the East of England Regional Innovation Fund and the Sim+ project was awarded £147,500 in July 2011 to implement Neonatal Simulation point of care training across the Eastern Region. The award criteria stipulated that the project had to be fully implemented by December 2011 with outcomes measured and evaluated by February 2012. A project focus group was brought together to deliver the project and included expertise from Jonathan Cusack and Joe Fawke, Consultant Neonatologists in Leicester and BAPM leads for neonatal simulation.

The aim of the project was to design and implement a network led, ‘Point of Care’ neonatal simulation programme through which safety and quality for pre term and sick newborns was improved through the acquisition of appropriate skills by the health professionals caring for them. £87 million has been spent on settling negligence claims in the east of England between 2006 and 2010 of which a significant proportion relates to poor neonatal outcomes.

Following the appointment of three primary project leads with defined roles, a medical and nursing champion was appointed from each unit. Formal tendering processes were followed for equipment procurement and instructor training was commissioned from the Leicester Neonatal Simulation Team. A communications embargo on the successful award led to challenges in achieving early milestones however these were successfully surmounted.

Specific tools were utilised to aid implementation: generic scenarios were written and programmed for instructors, training manuals with the essential information for running a training session were given to each unit, including pre designed feedback and evaluation forms, certificates and reference articles. Outreach visits were undertaken and follow up visits were planned according to unit need.

The first group of instructors were trained by early August and equipment loaned to these units to enable immediate commencement of training in these units. All units received their equipment, high fidelity neonatal simulation dolls by mid September and all instructors were trained by mid October.

Project measures included:

1. The number of simulation sessions delivered in each unit by January 2012. With the expectation that three training sessions would be delivered in each unit by this date.
2. 35% of paediatric trainees to have participated in at least one simulation training session.
3. A reduction in intubation and air leak risks in babies referred for transfer.
4. Instructor feedback on skills acquisition.
5. A named paediatric and maternity lead for simulation training in each Trust as part of the sustainability plan.
6. Feedback from attendees that learning took place and changed practice.
7. Feedback from attendees and instructors that there was recognition of a need for improved decision making and team work.
8. Feedback from attendees and instructors that there was recognition of a need for effective team communication.
9. Feedback from attendees and instructors that there was recognition of a need for improved technical skills.

Two additional caveats were included: 1) that simulation training became an integrated aspect of the network work programme and 2) that simulation became a formal part of paediatric training.

Outcomes

A total of 68 training sessions were carried out following instructor training, exceeding expectations of 51 sessions by thirty three percent (33%).

continued >>>>
A total of 261 staff, including nurses, midwives, consultants and students participated in simulation training, of which 117 were medical trainees. This exceeded the expected outcome of thirty five percent (35%) by sixty two percent (62%) achieving a total of fifty six percent (56%) of the trainee workforce.

A baseline audit of air leaks has been undertaken and a specific scenario written to demonstrate correct fixing of tubes to avoid unplanned extubation.

Appointing paediatric and maternity leads across the Eastern Region will become a focus when further funding has been identified.

Feedback was gathered as a mandatory aspect of each session and feedback demonstrates that both technical / clinical skills acquisition took place, with significantly more learning relating to non technical aspects such as team work, leadership, communication and decision making as outlined in the tables in the main body of this report.

**Key partnerships**

Through partnership working with the three university providers, simulation training has been incorporated into the teaching programme for all neonatal nursing students. Simulation training has become a formal part of the network work programme and will be overseen through the clinicians development group (CDG). A formal training log has been designed for use by nursing managers to record all mandatory training, including simulation, and will be used as part of the nursing appraisal process. Core competencies for medical trainees which can be developed through simulation have been agreed and many are already being incorporated in the scenarios developed to date.

**Sustainability**

Sustainability is assured through incorporation in the formal network work programme, core competency document for medical and nursing trainees and ongoing recognition from clinicians and leaders as to the value the programme has already brought.

Dissemination into other areas and longer term sustainability will be aided by training additional instructors. This will require additional funding and investment from regional and national bodies. We anticipate that the project success to date will encourage further investment.

This successful project was enabled through the hard work, motivation and enthusiasm of champions in each Trust, within highly ambitious time frames. Outcomes were exceeded and the value of the project has been recognised by all involved.

The project has enabled the East of England Perinatal Network to realise its aim of providing high quality, safe care to the infants and their families.

**Dr Susan Broster**

Sim+ Project Medical Lead
INTRODUCTION

We were delighted to have been asked to write an introduction for the successful, innovative Sim+ neonatal simulation project for the East of England neonatal units.

Looking after sick infants in hospital is a risky business. It is relatively uncommon for infants to become critically unwell, but when they do, delivering the right care, at the right time is essential. Managing a neonatal emergency requires technical skills, the ability to prioritise, and effective communication between team members.

The introduction of the European Working Time Directive (EWTD) and the New Deal for junior doctors has reduced the exposure of medical trainees to critically unwell infants. Medical staff, nursing staff and allied health professionals need to train to be able to respond to critically unwell babies.

In a report commissioned by the Department of Health, Professor John Temple discussed the challenges faced in training competent staff within the constraints of the EWTD; highlighting the fact that simulation based training can accelerate the acquisition of skills, and enhance learning in a safe environment. (1)

The Chief Medical Officer in his Annual Report(2) recognised that simulation based training is ideally placed to prepare teams for risky events in a safe environment. He recommended that simulation programmes should be fully integrated with training programmes and adequately resourced by NHS organisations. The National Patient Safety Agency and Department of Health strongly support simulation based training recognising that often, errors in healthcare are due to a combination of human factors, rather than an individual’s errors. The highest legal costs to the NHS result from litigation around perinatal events. Multi-disciplinary simulation training has already been demonstrated to reduce hypoxic-ischaemic encephalopathy rates. (3)

Evidence for the benefit of simulation training is evolving. Simulation has been shown to improve the technical skills of surgeons (5), but perhaps more importantly; it can be used to improve team working and communication skills in order to improve patient safety.

The recently produced national report ‘A framework for technology enhanced learning’ suggests that educational interventions should be innovative and evidenced based, deliver value for money and should ensure equity of access (7).

The Leicester Neonatal Simulation Team has designed a leading ‘Point of Care’ simulation programme that is run across the East Midlands region (8). High fidelity simulators are used to deliver locally run simulation sessions to multidisciplinary teams.

Following detailed discussions with the Leicester Team, the East of England Sim+ project was conceived. Funding was granted by the NHS East of England Regional Innovation Fund. The project aimed to design and run a regional ‘Point of Care’ high fidelity simulation programme across all of the neonatal units in the east of England. There is evidence that the key to achieving a successful simulation session is the quality of the debriefing that is delivered (9).

It was therefore decided that the Sim+ project would focus on three areas:

• To establish a team of trained simulation instructors across the region.

• To provide neonatal high fidelity simulation equipment to all of the neonatal units in the east of England.

• To successfully project manage the implementation of regular, multidisciplinary simulation training at hospitals across the east of England.

The Leicester Neonatal Simulation team has significant experience in the development and training of instructors and was commissioned to provide a bespoke neonatal simulation instructor course to a multidisciplinary team from the east of England.

Once instructors were trained, local simulation programmes were developed across the region, delivering an innovative multidisciplinary simulation based education programme to all neonatal staff, in line with national recommendations.

Jonathan Cusack and Joe Fawke
Consultant Neonatologists
Leicester Neonatal Simulation Team
University Hospitals of Leicester NHS Trust
The Sim+ Project Evaluation Report

DEVELOPMENT OF THE SIM+ PROJECT

Local priorities
With over 8,500 neonatal admissions in the east of England in 2010, and more than 200 medical and 900 nursing staff caring for them, it is essential that relevant skills are acquired and maintained to ensure patient safety is not compromised and morbidity relating to preterm delivery is minimised. Between 2006 and 2010 over £87 million was spent in the east of England on settling obstetric related claims alone. A large proportion of this would have been spent on settling claims relating to poor neonatal outcomes.

Until the Sim+ project was implemented there was no coordinated approach to simulation training in the east of England, however the need for such a programme had been recognised at Deanery and Network level.

Project plan
To ensure development and implementation of the project within the required six month time frame, the project plan was to initially implement solely in neonatal units, with the long term vision to extend the training into paediatric and maternity services in each Trust. This vision was supported by the East of England Deanery, with funding pledged to ensure sustainability.

The project model had been adopted from the model used by the Leicester Neonatal Simulation team, who provided ongoing support and expertise to the project through-out the primary phase of the project.

Development of the project
The successful bid application led to the appointment of project leads who were responsible for:

- Commissioning and arranging simulation instructor training sessions for the medical and nursing lead in each unit. This training included skills in how to deliver ‘Point of Care’ simulation training, use of specific equipment and debriefing skills.
- Development of standardised simulation scenarios for use in teaching.
- Setting up and overseeing initial teaching sessions in each unit to ensure quality was maintained.
- Overseeing the smooth running of the programme.
- Measuring and recording programme outcome measures.
- Evaluation and ongoing audit of competence and compliance through training logs.
- Forging links with the East of England Deanery to plan the future of simulation training within maternity and paediatric departments, to include paediatric emergency departments.
- Working with the Deanery to build simulation into the training programme for medical trainees.
- Setting up a programme plan for maternity and paediatric departments with relevant leads in each area.
- Working with the East of England Perinatal Network to ensure that the simulation programme was included in the network work programme.
- Working with local university providers to include simulation training into the core syllabus of post registration nurses undertaking the specialist neonatal qualification.
Timescales and governance processes
The bid award stipulated that the project had to be implemented within six months, by December 2011 with outcomes measured and evaluated by February 2012.

A communications embargo at the start of the project, led to initial delays in appointing medical and nursing leads in each unit, commissioning instructor training and purchasing equipment. Although challenging at the time, the outcome measures and time scales were met and in some aspects, exceeded by the end of the project.

Formal tendering processes were followed as part of the equipment procurement and a Service Level Agreement was signed between the Leicester Neonatal Simulation Team, as instructor providers, and South East Essex, as host to the East of England Specialised Commissioning Group.

Project ‘branding’
During the time period when tender processes were being followed and instructor training set up, specific tools to aid implementation were designed and agreed. The project was ‘branded’ using specific colours, images and a unique project name. The name “Sim+” ( “Sim Plus”) was conceived through recognition that simulation offers much more than purely clinical skills acquisition: improved communication, team working, part task training and clinical skills acquisition through simulation.

Each unit received a simulation information folder containing documents to support delivery and running of a simulation session. These included practical tips, ground rules, scenarios, research papers and guidance on debrief, articles of interest and feedback forms.

A bi-monthly newsletter for champions was produced. This carried updates on progress with reaching the required project milestones and goals still to be reached. Important ‘Points for Practice’ and helpful tips for troubleshooting issues were included.

Good news stories were highlighted and units who chose to name their mannequin were featured. A lead article on the new Laerdal SimStore was featured ahead of the regional simulation workshop to show that simulation support materials such as downloadable patient scenarios from leading educational institutions were readily available and could help give simulation projects a headstart.

Each issue carried a link to a lead article of the month.
STRATEGIES TO IMPROVE STAKEHOLDER ENGAGEMENT

Delivering a simulation training project within a six month time frame was an ambitious undertaking and strategies to improve stakeholder engagement were employed.

The need for a simulation training programme had been considered at clinician development group meetings and the opportunity to bid for funding to realise this training was welcomed across the region. Updates of progress as the short listing process proceeded fuelled enthusiasm for the project and allowed for early identification of named champions to lead this locally.

Once the award was announced instructor training dates were set and it was agreed that the training would take place in Leicester to ensure efficiency and simplicity. Travel and one overnight stay were funded from the award monies for all champions attending training. At the same time, training manuals were sent to each champion along with an outline of expectations of their support in achieving the outcome measures.

Units recognised the investment that had been made through the purchasing of expensive, high fidelity equipment which few units would have been able to afford without the bid award. Funding of instructor training places was appreciated and the quality and style of delivery of the instructor training programme was cited as being a key motivating factor in engaging champions and encouraging them to implement the programme as soon as possible.

Those who participated in a simulation session were recognised with a certificate on completion. The certificate required documentation of three main learning outcomes for that individual and could be kept as a record for their appraisal interview.

The bi-monthly newsletter maintained the profile of the project and provided an update of achievement of milestones and goals.

The training provided a development opportunity for many clinicians and nursing staff, with increasing numbers of staff requesting to undertake this training in order to support colleagues in delivering and sustaining the training programme.
EVALUATION OF KEY MILESTONES

Identifying a medical and nursing lead for simulation in each unit
With the recognition of the need for a simulation project in the region, identification of a medical and nursing lead from each of the seventeen units was relatively straightforward. The medical lead was ideally asked to be a Consultant, and the nursing lead a senior nurse so as to ensure programme stability through champions who were not on rotation to other units, for programme credibility and to ensure the knowledge base was from experienced clinicians.

Several units identified more than one nursing and medical lead and where funds allowed, these additional staff were trained. All units identified champions within the required time frame ahead of implementation.

Purchasing simulation equipment
A scoping exercise of existing simulation equipment had been carried out prior to submitting the bid to the Regional Innovation Fund (RIF). This was to ensure that no unnecessary purchases were made. The focus group agreed that mid fidelity equipment would meet the project needs and the request for funding represented this. Following the bid award and during the tendering process it was noted that procurement of high fidelity equipment would enable deeper learning and would be cost effective in the long run. The high fidelity equipment included mannequins, monitors, cameras and some disposables.

Through a formal tendering process and negotiation of purchasing equipment, a competitive price was agreed and procurement carried out. This included free delivery to each unit, one year’s maintenance and outreach support from the company representatives. This milestone was reached by mid September, for many units ahead of undertaking their instructor training which allowed for some familiarising with equipment prior to training.

Commissioning and arranging simulation instructor training sessions
This training included skills in how to deliver ‘Point of Care’ simulation training, use of specific equipment and debriefing skills and was commissioned from the Leicester Neonatal Simulation Team. The training was delayed initially due to the communications embargo on the successful award achievement and was carried out between July and October 2011 with all training completed within the revised timescales planned.

One unit was unable to undertake this formal training due to relocation and subsequent competing priorities. Champions in this unit received instruction from the nurse project lead and have successfully undertaken simulation sessions for their staff. Champions in this unit are to undertake formal instructor training in the Spring of 2012.

Development of standardised simulation scenarios for use in teaching
Five scenarios were designed and programmed for the Sim+ project by the Leicester Neonatal simulation Team. These were included on a CD as part of the training manual given out at instructor training. CD’s were then downloaded prior to undertaking the first simulation training session. Several units opted not to use pre-programmed software and preferred to run simulations ‘on the fly’ which calls for close observation of participants’ actions and rapid technical changes to respond to these actions.

Each of these scenarios was presented in written format for ease of preparation ahead of the session and to guide debrief and feedback. Copies of these written scenarios were included in a bespoke training folder given to each unit as support offered to champions.

continued >>>>
Overseeing initial teaching sessions to ensure quality was maintained

Three outreach visits per unit were planned for and were undertaken by the medical, nursing and project lead. Visits were undertaken to offer:

1) technical support prior to the first training session to ensure the smooth running of the initial programme.

2) Attendance at first simulation session in each unit and to provide a report on outcomes for audit and quality purposes.

3) A third visit booked but cancelled if not required to ensure adequate support offered to each unit following the first simulation session. This was part of ensuring quality was maintained. A summary of each visit was written up so that common issues could be highlighted early on and tackled regionally.

Most units required two outreach visits with some requiring more depending on local circumstances.

Lessons learned were fed back through the bi-monthly Sim+ newsletter or via a collective distribution list.

Technical support was also provided by the equipment supplier experts which was often called upon at short notice and under stressful circumstances, just prior to running a simulation session. The Leicester Simulation team were also often called on to help troubleshoot and many a simulation session was saved from being cancelled through the technical support offered at short notice from these individuals.

Measuring and recording programme outcome measures

This commenced from the first training session in each unit and was measured on an ongoing basis following each teaching session. Findings from these outcome measures are described in detail under the title ‘Evaluation of outcome measures’.

Evaluation and ongoing audit of competence and compliance through training logs

This too commenced from the first training session in each unit and was measured on an ongoing basis as part of each training session. Findings from these outcome measures are also described in detail under the title ‘Evaluation of outcome measures’.

Forging links with the East of England Deanery

This milestone was included in order to establish relationships with the Deanery and trainees to plan the future of neonatal simulation training within maternity and paediatric departments, to include paediatric emergency departments. This milestone is described in further detail under the heading ‘Key partnerships’.

This partnership involved working with the Deanery to build simulation into the training programme for medical trainees which was a caveat included as part of the bid award and is described in more detail on page 25 as part of ‘Project caveats’.

Setting up a programme plan for maternity and paediatric departments with relevant leads in each area

This milestone was reviewed by October 2011 where it was agreed that separate funding would be required to implement a full paediatric and maternity programme. It was also recognised that the project group would not have the required expertise to implement such a programme as paediatrics covers a wide age range up to and including 16 years of age. It was however, recognised that the existing equipment and expertise within neonatal units should be utilised to disseminate the neonatal aspects of the programme into these areas.
Working with the East of England Perinatal Network to ensure that the simulation programme was included in the network work programme

This milestone was achieved early on in the project through the perinatal network director and was supported by clinicians. It was seen as important that the investment made in building staff expertise and purchasing equipment should be fully utilised.

Clinicians recognised the role of simulation training in developing rare skills acquisition and were supportive of a programme which would require overseeing at network level.

Working with local university providers to include simulation training into the core syllabus of post registration nurses undertaking the specialist neonatal qualification

A proposal was written and considered for implementation by the three university providers by November 2011. Further information on this milestone is detailed under Key Partnerships, University Providers on page 28.
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EVALUATION OF OUTCOME MEASURES

Measurable aims and outcomes of the project

The Sim+ project had a number of planned aims and outcomes. Following confirmation of the bid award, two caveats were added:

- Simulation training should become a formal aspect of the network work programme.
- Simulation training should become a formal part of paediatric training.

In addition, the nine original outcomes against which the project was measured were:

1. The number of simulation sessions delivered in each unit by January 2012, with the expectation that at least three sessions would have been run in each unit by this time.

2. The number of medical trainees who attend at least one simulation training session in each unit, with the expectation that at least 35% of the unit workforce would have attended one session.

3. A reduction in intubation and air leak risks in babies referred for transfer.

4. Instructor feedback on skills acquisition when teaching and assessing with the aim to respond to frequently occurring issues.

5. A named paediatric and maternity lead for simulation training in each Trust as part of the sustainability plan.

6. Feedback from attendees that learning took place and changed practice.

7. Improved decision-making and teamwork.

8. Effective team communication.

9. Improved technical skills.

In addition to these requirements was the focus on planning for project sustainability and dissemination.

OUTCOMES OF THE PROJECT

1. The number of simulation sessions delivered in each unit

The stipulated expectation was that a minimum of three sessions would have been run in each unit by January 2012.

Following instructor training, all units were asked to identify four dates for running simulation training in their own units before December 2011. Although stated outcomes stipulated that three sessions should be run, four sessions were requested from units in order to mitigate against unforeseen circumstances and to support embedding of the programme.

Dates were sent to the project lead who followed up any outliers or units slow to respond. Appropriate support was put in place in those units where difficulties had arisen, either technically which precluded the running of a session, or through the management and leadership of the simulation where there was concern that the reputation of the programme could be damaged and further sessions be jeopardised.

Data was collected prospectively as units ran simulation sessions. Feedback forms were completed and sent to the project lead for collation. The total number of simulation sessions undertaken was 68 which averages as 4.0 sessions per unit. The most sessions ran by one unit was 9 (Luton and Dunstable) and 7 (Rosie Hospital, Cambridge).
2. The number of medical trainees who attend at least one simulation training session in each unit

For the purpose of this report staff undertaking simulation and completing evaluation forms have been grouped into 5 categories:

- ST 1-3
- ST 4-7
- Other medical (Consultant, Clinical Fellow and FY 1-2)
- Nurse (registered neonatal nurses)
- Other (student nurse, student midwife, midwife)

This outcome measure carried the expectation that at least 35% of the unit trainee workforce would have attended one training session.

Currently there are 207 paediatric trainees in the East of England Deanery. Training 35% of the total workforce equates to 72 trainees. By January 27th, the total number of trainees who attended at least one simulation session was 117, of which 64 were at ST 1-3 level and 53 at ST 4-7 level. This exceeds the anticipated number of trainees receiving simulation training by 62%.

56% of East of England trainees received simulation training as part of the Sim+ project. In addition, 14 other medical staff received training through the project. These included consultant neonatologists, paediatricians and medical students.

‘Point of Care’ simulation training involves teams who work together training together, resulting in nursing and consultant staff receiving training alongside their trainee colleagues. The total number of staff completing a simulation session was 255, which in addition to the 117 trainees and 14 medical staff, comprised 123 nurses and 7 “other” staff including midwives, student nurses and student midwives.

Candidates were asked if they had participated in simulation previously. The results are shown in the table opposite.

These results confirm that high fidelity simulation is more widely used in medical training compared to nursing and this is supported by the literature.

Interestingly it is recognised in the literature that nursing has some way to go in order to incorporate high fidelity simulation into modern training, these figures may then change in the coming years.

Table 1 - Previous participation in simulation by grade and profession

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<th>Twice</th>
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<tr>
<td>ST 1-3</td>
<td>68%</td>
<td>20%</td>
<td>1.8%</td>
<td>12%</td>
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<tr>
<td>ST 4-7</td>
<td>66%</td>
<td>10%</td>
<td>10%</td>
<td>14%</td>
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<tr>
<td>Medical other</td>
<td>58%</td>
<td>7%</td>
<td>7%</td>
<td>28%</td>
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<tr>
<td>Nurse</td>
<td>89%</td>
<td>8%</td>
<td>0.8%</td>
<td>1.6%</td>
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<tr>
<td>Other</td>
<td>72%</td>
<td>0%</td>
<td>28%</td>
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These results confirm that high fidelity simulation is more widely used in medical training compared to nursing and this is supported by the literature.

Interestingly it is recognised in the literature that nursing has some way to go in order to incorporate high fidelity simulation into modern training, these figures may then change in the coming years.
3. **A reduction in intubation and air leak risks in babies referred for transfer**

A baseline audit of air leak and unplanned extubations in babies referred for transfer has been undertaken in collaboration with the Acute Neonatal Transport Team (ANTS).

A specific scenario has been written for the network which will teach and embed skills in adequate fixing of endotracheal tubes following intubation.

This scenario is currently being run in local units and a further audit of practice is planned for June 2012. By this time it is expected that all units will have used this scenario at least three times.

4. **Instructor feedback on skills acquisition**

Facilitators were asked to complete an evaluation for each simulation scenario. It is evident from these evaluations that a wide range of scenarios was delivered.

To support the project, five scenarios were designed and programmed by the Leicester Simulation Team:

- A baby deteriorating on CPAP requiring ventilation
- A baby with a pneumothorax
- Congenital diaphragmatic hernia
- Management of HIE
- Baby on the postnatal ward with cyanosis

**Feedback was gained on:**

- The scenario used and reasons for choice.
- Any changes made to running the scenario and why – allowing project leads to ascertain any recurring themes with programming or clinical responses to situations which need a regional response.
- Conflict or issues during debrief.
- Notes on decision making, leadership, team work and communication.
- Technical skills acquisition.

Common technical difficulties were shared via email updates, through the Sim+ newsletter and during outreach visits. This helped to prevent the same issues arising in other units leading to sessions being cancelled. Lessons learned were shared during the troubleshooting aspect of the workshop.

**Feedback has been themed into common areas of learning:**

- Leadership
- Teamwork
- Clear communication
- Decision making and conflict resolution
- Clinical assessment
- Clinical skills acquisition relating to airway and equipment management
- Role clarity
Facilitator evaluation

Information about the debrief was given in detail as part of the facilitator evaluation. The duration of the debrief was of particular interest.

The average time taken for the debrief was 28 minutes which was in line with the suggested duration as taught during instructor training. Some units found it more challenging than others to keep the simulation session to a total time of 60 minutes. The range of debrief time was 15 – 75 minutes (although most were between 20 and 30 minutes), however local champions have the knowledge to tailor sessions and debrief to meet local needs.

Feedback showed that the focus of the debrief was:
- Communication
- Team work
- Leadership
- Technical / clinical aspects

This was very dependant on the scenario and the candidates attending the session. It is envisaged that as champions become more practised in debriefing, the emphasis will move from technical / clinical aspects to more of the non technical issues which simulation is ideally placed to assess and evaluate.

Assessment and debriefing of non technical skills was included as part of the champions’ workshop in December 2011 which was evaluated well.

5. A named paediatric and maternity lead for simulation training in each Trust as part of the sustainability plan

By October 2011, it had been identified that the sustainability plan for maternity and paediatrics should only involve the neonatal aspects of such a programme using existing equipment, skills and expertise. This is unachievable without training additional instructors. Simulation champions have been charged with identifying local solutions to dissemination, involving senior leads, Medical Directors and Chief Executives as part of these discussions.

In some Trusts, resuscitation officers are taking on this role, in others a named maternity or paediatric lead has been identified and will develop this training in their own areas following their own instructor training. In most units, paediatricians with instructor status are implementing this programme across their neonatal and paediatric areas, although there is currently little protected time in which to do so. In some units, champions are undertaking simulation training in their own time. This is not sustainable in the long term however and increasing the number of instructors per Trust should go a long way to address the issue.

Of note is the number of medical and nursing staff who, having participated in a simulation session and impressed by the value of the training, have gone on to request to become simulation instructors themselves.

The Deanery has pledged £5,000 towards additional training and ongoing funding is being sought to ensure dissemination. Currently sustainability is assured through the enthusiasm and motivation of champions who have gone on to ensure training sessions are run beyond the six month life of the project.

continued >>>>
6. Feedback from attendees that learning took place and changed practice

Measuring anxiety levels

In order to determine levels of anxiety regarding participation in high fidelity simulation prior to participating in their first simulation session, candidates were asked to indicate on a scale of 1-10 how worried they were about taking part with 1 being not at all worried and 10 being terrified.

<table>
<thead>
<tr>
<th>Staff group</th>
<th>Average score</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 1-3</td>
<td>4.5</td>
<td>1-10</td>
</tr>
<tr>
<td>ST 4-7</td>
<td>3.8</td>
<td>1-10</td>
</tr>
<tr>
<td>Other medical</td>
<td>2.0</td>
<td>1-3</td>
</tr>
<tr>
<td>Nurse</td>
<td>5.6</td>
<td>1-10</td>
</tr>
<tr>
<td>Other</td>
<td>3.8</td>
<td>1-7</td>
</tr>
</tbody>
</table>

Table 2 - participant anxiety in taking part in simulation

These results confirm that staff who have experienced less simulation appear to be more apprehensive about taking part.

Participant feedback is a mandatory aspect of participation in a simulation session. Anonymised feedback is sought following the debrief aspects of the simulation and has been used to inform aspects of quality:

- Satisfaction with the way the simulation was led
- Which aspects of the simulation were most useful
- How the simulation could have been improved
- Which other scenarios would be useful to simulate
- The two most important things learnt during that simulation
- What impact this learning will have on their role
- Which skills were used (using a tick box) with the list including technical and non technical items

Despite the facilitator evaluation indicating that technical or clinical skills were discussed during the debrief it is encouraging that candidates themselves felt that debrief of non technical skills was also discussed.
Candidates were asked if they were faced with the same scenario in the clinical area that they had just simulated, would they feel more confident, less confident or no different.

<table>
<thead>
<tr>
<th>Staff group</th>
<th>More confident</th>
<th>Less confident</th>
<th>No different</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 1-3</td>
<td>83%</td>
<td>0%</td>
<td>17%</td>
</tr>
<tr>
<td>ST 4-7</td>
<td>92%</td>
<td>0%</td>
<td>8%</td>
</tr>
<tr>
<td>Medical other</td>
<td>90%</td>
<td>0%</td>
<td>10%</td>
</tr>
<tr>
<td>Nurse</td>
<td>92%</td>
<td>0.8%</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>66%</td>
<td>0%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Table 4 - levels of confidence following simulation training

These results show overwhelming support for the role of simulation in both medical and nurse training with regard to clinical skills.

Candidates were asked to indicate on a scale of 1-10 (with 1 being not helpful and 10 being very helpful) how helpful was the feedback received during the debrief.

<table>
<thead>
<tr>
<th>Staff group</th>
<th>Average</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 1-3</td>
<td>8.9</td>
<td>1-10</td>
</tr>
<tr>
<td>ST 4-7</td>
<td>8.7</td>
<td>5-10</td>
</tr>
<tr>
<td>Medical other</td>
<td>9.2</td>
<td>8-10</td>
</tr>
<tr>
<td>Nurse</td>
<td>8.6</td>
<td>1-10</td>
</tr>
<tr>
<td>Other</td>
<td>8.5</td>
<td>7-10</td>
</tr>
</tbody>
</table>

Table 5 - the role of debrief following a simulation session

These results support the view that the debrief aspect of a simulation session is often seen as being the most crucial.

Evaluations and tables on pages 22 and 23 summarise findings relating to outcomes 7 - 9:

- Improved decision-making and team work
- Effective team communication
- Improved technical skills

Improved team work was identified as a key area of learning by participants in all staff groups, with communication ranking second and leadership next. ST 4-7 also identified the acquisition of clinical skills as having been one of their two most important areas of learning. This is of particular relevance where senior trainees may not be exposed to rare clinical events and demonstrates the role of simulation in supporting the acquisition of these skills.

continued >>>>
9. Improved technical skills:

The most frequently cited examples of technical learning for trainees included airway management and prescribing practice.

The most frequently cited examples of technical learning for nursing staff included the use of bag valve mask, airway management, intubation and use of equipment.

Candidates were asked to complete free text boxes indicating the 2 most important areas of learning during the simulation session: both scenario and debrief. This data is more difficult to analyse but the most common responses are listed in table 6.

<table>
<thead>
<tr>
<th>Staff group</th>
<th>Most important thing learnt</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 1-3</td>
<td>Ask direct questions</td>
<td>Team work</td>
</tr>
<tr>
<td></td>
<td>Allocate roles</td>
<td>Communication</td>
</tr>
<tr>
<td></td>
<td>Be calm</td>
<td>Assessment</td>
</tr>
<tr>
<td></td>
<td>Continue to reassess</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hold your nerve</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Systematic approach</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ask for help early</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Delegate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Bidirectional communication</td>
<td></td>
</tr>
<tr>
<td>ST 4-7</td>
<td>Team work</td>
<td>Team work</td>
</tr>
<tr>
<td></td>
<td>Leadership</td>
<td>Communication</td>
</tr>
<tr>
<td></td>
<td>Clear communication</td>
<td>Technical / clinical skills</td>
</tr>
<tr>
<td></td>
<td>Delegation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Check equipment</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diagnosis</td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>Assign roles</td>
<td>Team work</td>
</tr>
<tr>
<td>other</td>
<td>Team work</td>
<td>leadership</td>
</tr>
<tr>
<td></td>
<td>Prioritise</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>Listen</td>
<td>Communication</td>
</tr>
<tr>
<td></td>
<td>Speak out</td>
<td>Team work</td>
</tr>
<tr>
<td></td>
<td>Documentation</td>
<td>leadership</td>
</tr>
<tr>
<td></td>
<td>Role identification</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Know your team</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Team work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don’t fixate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Systematic approach</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support junior team</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Speak up</td>
<td>Team work</td>
</tr>
<tr>
<td></td>
<td>Team work</td>
<td>communication</td>
</tr>
<tr>
<td></td>
<td>Think logically</td>
<td></td>
</tr>
</tbody>
</table>

Table 6 - Summary of most important learning points identified.
Candidates were asked to complete free text boxes to indicate the impact the learning may have on their role. Again this data is difficult to analyse and was the least completed part of the evaluation form.

<table>
<thead>
<tr>
<th>Staff group</th>
<th>Impact on role</th>
<th>Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST 1-3</td>
<td>Increase confidence</td>
<td>Non technical skills</td>
</tr>
<tr>
<td></td>
<td>Know your limits</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better decision making</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Better time management</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support the team</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Recognise own role</td>
<td></td>
</tr>
<tr>
<td>ST 4-7</td>
<td>Increased confidence</td>
<td>Non technical skills</td>
</tr>
<tr>
<td></td>
<td>Assertiveness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved consideration of nursing team</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use of whole team</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved team work</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Be more clear</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Leadership</td>
<td></td>
</tr>
<tr>
<td>Medical</td>
<td>More confidence</td>
<td>Non technical skills</td>
</tr>
<tr>
<td>Other</td>
<td>Increased awareness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Improved leadership</td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>Be calm</td>
<td>Non technical Knowledge</td>
</tr>
<tr>
<td></td>
<td>Improved knowledge</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question if not sure</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Situational awareness</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Look at the bigger picture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Increased confidence</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Don’t assume</td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>Increased confidence</td>
<td>Non technical skills</td>
</tr>
</tbody>
</table>

Table 7 - Impact of learning on role

Candidates in every staff group indicated that they had an increased confidence following the training session which is reassuring.

It is interesting that both medical and nursing candidates stated that they had a greater awareness of each others roles following the session.

This awareness confirms that ‘Point of Care’ simulation has advantages over simulation centre training where staff groups involved on the day, rarely train together.

The final question on the evaluation form asked candidates which other scenarios they thought would be useful to simulate.

Answers included all of the scenarios already developed and programmed, along with others for consideration by local champions and the project team.

**These include:**
- Peri arrest scenario
- Respiratory distress syndrome
- Pneumothorax
- Shock
- Congenital diaphragmatic hernia
- Meconium aspiration syndrome
Skills training supported by the Deanery

As part of a skills day held for medical staff working in the east of England high fidelity simulation scenarios were offered. These skills days run 3 times a year and the day offers the potential to develop skills of 60 trainees per year.

Since the implementation of the Sim+ project, a skills day was held in December and incorporated mannequin style simulation for the first time. 19 medical staff attended this day, 89% (17) of which were trainees at ST 1-7 level. 10 of the 19 attendees had not participated in simulation before.

Staff were asked to identify which skills were used during the simulation scenario.

Responses were:

- Team work 78% (15)
- Communication 84% (16)
- Recognition of a sick infant 63% (12)
- Leadership 21% (4)
- Technical skills 52% (10) including intubation (3), Bag valve mask (1), ETT fixation (1), drugs (1)

When asked what impact they thought this may have on their role, comments included:

- Improved communication 36% (7)
- Understanding the need for a lead 26% (5)
- Increased confidence 15% (3)
- Need to delegate more 21% (4)
- Improved team working 15% (3)
- Ask for help early 10% (2)

Individual units will be able to choose to record and play back parts of the scenario during the debrief and champions will be supported to achieve this.

When asked if they experienced the same scenario in the clinical area that had just been simulated, would their confidence levels be more, less or the same, candidates replied:

- More confident 89% (17)
- Less confident 0% (0)
- No different 10% (2)

Candidates were asked to indicate on a scale of 1-10 (with 1 being terrified and 10 being not at all) how worried they were about taking part in the simulation. The range of replies was 1-7 with the average being 3.2.

Candidates were asked to indicate on a scale of 1-10 (with 1 being not helpful and 10 being very helpful) how helpful was the feedback you received? The range of replies was 3-10 with the average being 8.0.

Comments in the free text box included:

- Simulation was well set up
- Would have worked better if a nurse was in the group
- Would help to have recorded and played back the scenario

These comments indicate that candidates would have valued inclusion of a nursing team in the simulation scenarios and this confirms our belief that ‘Point of Care’ simulation, where groups that work together train together, is in fact the correct strategy for the East of England.

Planning for future days will include nurses to take part in the simulation scenarios to overcome the difficulties faced by candidates during this course.

Candidates also commented that the use of video playback during the debrief would have enhanced their learning. The recording of scenarios during this course and during point of care simulation is possible with the equipment that was purchased. It should be noted however that some of the published literature does not advocate the use of video playback as this can be time consuming and may interrupt the flow of the debrief. Individual units are able to choose to record and play back parts of the scenario during the debrief and champions will be supported to achieve this.
PROJECT CAVEATS

The bid award carried two caveats:

- Simulation training to become part of the formal Network work programme
- Simulation training to be built into the training programme for medical trainees.

Simulation as part of the formal network work programme

As part of the annual review of the Network work programme, simulation training was formally incorporated into the work programme as part of the governance work stream.

Project progress updates have been given at both the Clinicians Development Group and Board meetings, which are minuted and simulation will continue to be monitored through these meetings.

Units are expected to continue providing feedback, from which we are able to collate statistics on the number of sessions being run and numbers of staff trained. These statistics are currently being compiled by a project group trainee as part of a proposed publication. It is envisaged that additional funding for some medium term project support will be required. This will allow for ongoing profile of the project through newsletters, enable outreach support, troubleshooting advice and workshops as required, with time to support units to incorporate this training into their local education and work programmes.

To support these aspects of sustainability, the Chief Executive and Medical Director of Trusts have been written to and informed about the programme with a request for senior leadership and support for sustainability and dissemination. Clinical Directors of neonatal services and Heads of Midwifery have also been included to enable timely action to allow for dissemination.

A regional ‘Training log’ for nursing staff has been designed and implemented to support compliance, with simulation being a formal aspect of mandatory training for nurses. Network expectations are that every nurse (both registered and non registered) will participate in a minimum of one simulation session per annum.

For many units this will be a feasible achievement due to the small numbers of nursing staff employed. In large tertiary units where over one hundred staff are employed and simulation sessions are run fortnightly, one session per annum per nurse is a more realistic figure.

The training log allows for documentation of all mandatory training including simulation training. It will be used at appraisals to review compliance with all mandatory training as well as simulation training. It is from these records, and the monthly statistics taken from facilitator feedback forms, that an accurate audit trail of nursing staff attending simulation training can be taken to inform the Network work programme bid award requirement.

Annual training log

Simulation training to be built into the training programme for medical trainees

The list of core competencies for paediatric trainees has been reviewed. Currently several of the expected competencies for both junior and senior trainees are being covered in scenarios currently in use.

continued >>>
Examples of these are:

- Have the knowledge and skills to be able to assess and initiate management of babies presenting in the neonatal period with problems (in acute, postnatal ward and outpatient settings)
- Be able to initiate appropriate resuscitation when required
- Understand the principles of resuscitation
- Be able to initiate resuscitation using bag and mask ventilation and cardiac compressions
- Intubate term babies and have had supervised experience of intubating preterm babies
- Safe prescribing of medications
- Begin to develop strategies to communicate sympathetically with parents
- Be able to diagnose and manage a pneumothorax
- Be able to manage the newborn with congenital diaphragmatic hernia
- Know about common presentations of congenital cardiac disease and identify those which need urgent action
- Understand how to differentiate between cyanotic heart disease and persistent pulmonary hypertension of the newborn

With ongoing project support further scenarios can be developed which will respond to other competency requirements. Management of pneumothorax was prioritised by the network as a core scenario for training in recognition of the rarity of this occurring in clinical practice and the need for skills acquisition in managing this critical event.
KEY PARTNERSHIPS

LEICESTER NEONATAL SIMULATION TEAM

The Leicester Neonatal Simulation Team, comprising Dr. Jonathan Cusack, Dr. Joe Fawke and Sr. Anjali Sood have provided support to the east of England long before the realisation of the Sim+ project.

Dr Cusack and Dr Fawke have extensive experience in nursing and medical education. They both have a Masters Degree in Clinical Education and have formal training in simulation at Masters level. They have undergone training in simulation instruction at the Trent Simulation Centre in Nottingham and have been trained in ‘Point of Care’ Simulation by the Paediatric Simulation Training Team at the University of Harvard and Childrens Hospital Boston. The team in Leicester have maintained close educational links with the Harvard Team. They are both experienced Course Directors for the Resuscitation Council UK Newborn Life Support Course.

Mrs Sood has been a Practice Educator for 9 years. She holds ENB998 (Teaching and Mentorship) and is experienced in multidisciplinary training at all levels.

As British Association for Perinatal Medicine (BAPM) leads for neonatal simulation, their expertise and advice was sought as part of the RIF application process. Several different national models for implementation were reviewed and the Leicester ‘Point of Care’ model was chosen as being most appropriate to meet the needs of the East of England Network. Dr Jonathan Cusack supported the Sim+ project leads through the interview process and his team have continued to provide ongoing advice and direction to the project.

Instructor training was commissioned through the Leicester Simulation Team and has consistently received excellent evaluation from all four of the east of England groups who received training.

Learning Objectives included:

- Understanding the educational theory behind simulation based teaching
- Able to design a local point of care simulation course for own unit
- Able to set up and program the high fidelity simulator to run simple scenarios
- Able to run a debriefing session using an appropriate feedback technique.

Examples of feedback form evaluation of the instructor training is set out below:

Excellent. Would like more debriefing / programming experience.

(Day 1) Very good course. Steep learning curve. Will recommend to colleagues & juniors with no reservations.

(Day 2) Excellent day. Better at debriefing after the practical examples.

Extremely useful. I’ll use similar debriefing styles in our other education programme. The course format has enormous local potential.

(Day 1) Long day but very interesting and enjoyable. Great teamwork within groups. Jonathan & Joe you have excellent delivery and hold our attention spans throughout. Anjali – very good ‘keeping it real’ scenario and informative, helpful discussion and support throughout.

(Day 2) Excellent day. Scenarios were an interesting way to put it all together and realise what candidates will go through. Good tips for engaging staff. Thank you all for a brilliant session.
EAST OF ENGLAND DEANERY

The project focus group benefited from the expertise and advice of two trainees who were responsible for communicating the implementation of the project and encouraging participation in local simulation training sessions.

The Deanery website carries details of individual unit champions and their contact details and the project was profiled at the deanery meeting in September. To date there has been a high degree of enthusiasm and motivation from trainees to participate in their local units’ training and a number of trainees have requested to become instructors themselves. This accreditation will mean that as trainees move around the region they will be able to support local teams in the delivery of simulation and support some of the quality aspects of the programme.

The Deanery has pledged £5000 towards the sustainability of the programme which will allow one additional member of staff from 14 of the 17 units to receive instructor training.

Through trainee involvement and motivation, the newly designed feedback forms have enabled us to capture specific feedback on attitudes and understanding of simulation prior to and following simulation training. This has not been captured in any published literature to date and is planned for write up and publication once the required sample size has been reached.

The Deanery has actively encouraged trainee involvement in the Sim+ project and is committed to its sustainability through key partnership involvement in the project group.

UNIVERSITY PROVIDERS

There are 3 universities in the east of England who currently run specialist post registration neonatal modules: Anglia Ruskin University, University of East Anglia and the University of Bedfordshire.

All 3 regional courses currently have a practice component to both the neonatal special care and intensive care modules. It was proposed that this practice assessment would include exposure to a number of simulation scenarios, ideally 2 during each module.

It was recognised that it is increasingly difficult for some students to have the necessary exposure to rare clinical events due to shorter placement times in tertiary level units. The effect of this is that parts of the practice assessment are difficult to achieve within the module. As with medical trainees, simulation provides an opportunity for students to be exposed to rare clinical events in a safe environment and as such be an effective educational tool.

It would be difficult for the performance of the individual student to be assessed during a simulation scenario; however, written reflection following the simulation would enable the student to provide evidence of learning and could therefore be assessed against practice criteria.

Exposure to a simulation scenario may form part of a formal learning contract. Students may identify a particular area for development of practice skills and knowledge and the simulation could be tailored around this contract to provide evidence of learning / achievement of learning goal(s).

The proposal has been met with support and approval from all three universities, with a number of students leading the way in encouraging participation from peers in their local clinical areas.
SUSTAINABILITY

As the project has been incorporated into the formal network work programme, the running of simulation sessions will be mandatory and will be overseen by the network Clinicians Development Group forums and the Deanery.

Sustainability plans have required an individualised approach from each unit according to specific local barriers, e.g. agreeing protected time for medical and nursing champions to prepare for and follow up after training has been undertaken; additional training of instructors funded by the Trust and involving resuscitation officers in the dissemination of the training into other areas.

Involving paediatric areas, emergency departments and maternity services in the programme will allow for more facilitators to be trained which increases the likelihood of simulation sessions being run and offers opportunities for outreach and quality improvement in the long term. This aspect will require additional funding to be realised.

Tertiary level nurse education providers will support participation in simulation programmes to enhance neonatal nurse training. This includes acquisition of skills relating to clinical and non technical skills, family centred care and other scenarios which may be more relevant to nursing staff.

Early discussions are being planned regarding a joint Midlands and East neonatal simulation programme which would see the spread of a neonatal simulation training programme across the new SHA. This would depend on additional funding.

Once facilitators have gained experience in running simulation sessions and debrief, we envisage being able to run an instructor training programme in the east of England and are currently taking note of extraordinary talent in the region in order to take this forward. To ensure credibility for such a programme we would need to further develop our current levels of experience.

PROJECT EXPENDITURE

The East of England Perinatal Networks was awarded £147 500 from the Regional Innovation Fund to implement the Sim+ project.

Although mid fidelity equipment had been budgeted for in the original bid application, the project team were advised to consider purchasing the higher fidelity equipment for the wider learning opportunities this could offer. It was felt that the high fidelity equipment would provide better value for money in the long term and show equity between units, with all units receiving the highest specification equipment available.

A significant discount was agreed between the Network and the equipment suppliers based on the purchase of high, rather than mid fidelity equipment. The Perinatal Networks agreed to offset the difference in cost in recognition of the value this would bring.

Other costs which were not accounted for at the start of the project were hotel and travel costs for champions which were agreed as a gesture of good and which were off set against funding for stationary and a computer.

Final staff costs are estimated below, pending invoicing, all other expenditure is accounted for as follows:

High fidelity equipment: £117,980
Instructor training course for 40 simulation leads within the region: £14,000
Staff costs: £30,000
Hotel and travel costs for champions and project leads: £3,410.71
Stationery: £264.43

TOTAL £165,655.14
PROJECT REFLECTIONS AND CONCLUSIONS

The Sim+ project was an ambitious project to aim to deliver within a six to eight month period. That the project did realise its key outcome measures and in some areas exceeded them, is down to the motivation and commitment of the champions in each unit. Innovations within innovations have been realised with one unit incorporating simulation into their interview process and simulation being incorporated into skills days for trainees.

Prior to the commencement of the project there was widespread recognition of the need for a simulation training programme. The award funding allowed for purchasing of high fidelity equipment and instructor training which was seen as welcome investment and led to increased commitment. The project has allowed for role development for clinicians and nurses. A wealth of skill has been realised through the project.

The support of the Leicester Neonatal Simulation Team has been invaluable; their skill and enthusiasm has been a key motivating factor for champions and they have continued to offer support to the project in a number of areas, offering additional instructor training as part of the sustainability plan. Without their support, the project is unlikely to have come to fruition.

What elements went well?
- The project benefitted from a committed, multi professional focus group prior to the funding being awarded.
- Widespread recognition of the need for a simulation project existed which improved engagement.
- Champions were easily identified and appreciated the investment made in them.
- Positive working relationships between the project group, equipment supplier and key partners (University providers, Deanery).
- Outreach visits to support implementation and troubleshoot issues.
- Very few issues to resolve regarding outliers and lack of engagement.
- Regular project group meetings to ensure project progress on track.
- Over achievement of key outcome measures.
- Feedback and evaluation from candidates and facilitators regularly received which aided project evaluation as a whole.

What elements were challenging?
- Initial communications embargo which delayed equipment purchasing and instructor training.
- Ambitious time frames for a large project.
- Lack of engagement in some units.
- Technical issues relating to equipment.
- Identification that additional units required equipment after the initial order was placed and agreeing funding for this.
- Seeking ongoing funding for sustainability.

Lessons learned
- Be realistic about what is achievable within time frames available.
- Ensure clarity of understanding when scoping resources.
- Ensure funding will cover unanticipated costs.
- Engage senior leaders early on when lack of engagement presents.
- Engage senior leaders from the start of a project if their support is anticipated at a later stage.
- Make expectations explicit from the start.
- Clinicians can do a lot with a little and trust them to deliver.

Conclusions
The Sim+ project has been an exciting and successful development for the east of England. It has helped to forge relationships within the region itself, across the new cluster networks, the Deanery, Universities and industry.

These relationships have resulted in the delivery of a programme which has and will see the improvement of care delivery through the acquisition of appropriate skills, improved teamwork, leadership, decision making and communication leading to greater patient safety and a reduced burden on the NHS.
REFERENCES


15. Lasater, K. High fidelity simulation and the development of clinical judgement: Students’ experiences. Journal of Nursing Education; 2007 46(6), 269 - 276


