



Welcome to the 13th edition of our Newsletter. As the use of simulation across the healthcare disciplines continues to become more widespread, I am sure you will find the articles included here both interesting and informative.

In particular, I would like to draw your attention to the work currently being carried out by the North West Simulation Education Network (NWSEN). While we are all aware of the lean times ahead, it is encouraging to read that there are positive opportunities to progress simulation through an active regional network. I would like to thank Neal Jones for giving us an insight into the network's simulation initiatives.

In the last few months of 2010, Laerdal was privileged to sponsor a number of symposiums which focused on the use of simulation within paediatric and neonatal care. Full reports are included here and my thanks go to David Grant, (Bristol Simulation Centre) and Fiona Horrox and Dominic McCutcheon (London SouthBank University) for their valuable contribution to the success of these meetings.

There are many more interesting articles for you to peruse in this issue and 2011 will see many more exciting events coming up, which we will continue to report.

Enjoy the read!

Dr. Jonathan Smart
Managing Director, Laerdal Medical Ltd

Paediatric Focus

- Simulation in Paediatric Care - From Concept to Implementation, Paediatric Symposium Page 3 - 5
- Multi-professional Learning in Neonatal Care Page 8 - 11
- Simulation Training to facilitate moving to a new Neonatal Unit Page 15 - 18
- Simulation in Paediatric Nursing Page 20 - 22

Standardising and delivering quality simulation practice



The North West Simulation Education Network (NWSEN) has created a new Faculty Development Course to deliver a consistent standard of simulation training throughout the region. Neal Jones, Network Manager of the NWSEN gives an insight into the activities of the network and why the new course has become so successful.

The NWSEN was originally set up by NHS North West in 2009. It had been identified that pockets of simulation training existed in the region but that the opportunities and benefits of simulation were not being fully realised. Looking more closely at some of the possible reasons for this, it became clear - some organisations had purchased simulators in the past which were either under-utilised or not used at all due to lack of training in their use or the original trainer had moved on; that simulation practice varied between organisations; that availability and access to this type of training for staff of all healthcare disciplines was random throughout the region, and that there was no universal standard of simulation practice set by which to achieve a consistency in quality and pre-defined learning objectives and outcomes.

While simulation offers many benefits in healthcare training over traditional methods,

it requires not just capital investment but a coordinated approach to its implementation. Sir Liam Donaldson in his Chief Medical Officer's report (2008) recommended - 'A skilled faculty of expert clinical facilitators should be developed to deliver high-quality simulation training'. Neal Jones, Network Manager said, "The NWSEN's Faculty Development Course is just one proactive initiative we are taking in response to this recommendation. Irrespective of a climate of leaner times for the NHS, we realised there are many opportunities on which we can capitalise. There are simulators already in place in many organisations. We need to maximise their use and apply 'joined-up thinking' within the network to create a universal framework and deliver a standardised quality of practice. By pooling our knowledge and experiences together we will be able to progress the use of simulation much further than is currently the case."

Continued on page 2



SimMan - demonstrating the potential of the simulator.

Continued from page 1

The NWSEN faculty development course has been designed to cover two specific learning outcomes - Technical competence and Educational competence.

The technical competence day is delivered in conjunction with the simulator manufacturer and delivers sessions on putting your simulator together, maintenance and repair and covers various methods of simulator control and programming. Day one is intended for staff with a responsibility for the technical side of their simulation.

Day two is designed to meet the needs of the simulation educators and covers subjects



Neal Jones, Network Manager, NWSEN

such as educational theory, human factors and de-briefing as well as scenario design and scenario facilitation techniques.

Both days include pre & post course e-learning modules and online assessment and the courses are free of charge to all staff involved in the delivery of simulation based training across the North West of England.

Since their introduction in October 2010, 15 two day courses have already taken place with excellent feedback from participating delegates and a full programmed delivery across six host sites spanning the North West has been planned throughout 2011.

For further information contact Robert Murray, North West & North Wales Territory Manager, robert.murray@laerdal.co.uk

A change at the helm



Jonathan Smart

Since 2004, I have been privileged to be the Managing Director of Laerdal Medical (UK) in a role that has allowed me to meet and work with many of you. It has been a fascination to me over the years to see how the use of simulation in healthcare education has grown. While most of this is a direct result of the time and effort that many of you have dedicated to it, I am also proud of the part the Laerdal team have played in supporting your goals and objectives; and through our SUN meetings and symposiums, the opportunity to facilitate a growing network that is now an extensive and diverse simulation community.

As you will know, Laerdal is an international company. Within Europe, a marked interest in healthcare simulation is growing and to this end, I have been asked to apply the experiences and knowledge that I have gained here, to facilitate and support a European simulation network. This opportunity presents some exciting possibilities, and I look forward to continue working with many of you through our international SUN meetings and symposiums, where we can learn, and share experiences and best practice with our European peers.

So, while this is not a farewell, I would like to take this opportunity to introduce to you the new Managing Director of Laerdal UK. Rosie Patterson comes to us from the USA with a wealth of experience, knowledge and insight into the advanced use of simulation across the healthcare disciplines. In particular, Rosie was a key instigator in developing the partnership Laerdal now enjoys with the National League of Nursing (NLN); a partnership which has allowed us as a company to clearly understand nursing curricula and learning objectives, so that we can provide complementary support through our products and service solutions. Her close working relationship with the NLN resulted in the book publication of 'Simulation in Nursing Education from Conceptualisation to Evaluation' (now in its 3rd edition) following an extensive period of research into the effectiveness of integrating simulation into nursing curricula.

Rosie lays claim to many more achievements during her 23 years at Laerdal, but these will no doubt become apparent as she gets the opportunity to meet you in the coming months. Rosie, will take up her new role in March.

Best wishes

Jonathan Smart
Managing Director



Rosie Patterson

A paediatric symposium - training for excellence



David Grant, Director, British Paediatric Simulation Programme, Bristol Simulation Centre

Over sixty educators from the world of children's healthcare attended Laerdal's 2nd paediatric simulation symposium in Orpington on 15th December, which was chaired by Dr David Grant, Consultant in Paediatric Intensive Care at Bristol Children's Hospital. The overarching theme of the day was how the inclusion of simulation training within the curriculum is helping to bridge gaps between professional competence, professional excellence and better patient outcomes.

A risky business

Four million safety incidents have been reported to the National Patient Safety Agency in the last five years. Statistically, clinical error is the cause of several deaths per week. All paediatric healthcare providers must demonstrate competence in a range of clinical skills and behaviours as outlined in their various professional curricula. Unfortunately, demonstrating clinical competence does not always guarantee a competent future performance. Clinical challenges and contexts vary and performance may be compromised in complex, stressful and unpredictable situations.

With clinical negligence claims for brain damage during childbirth reaching £9M in some instances, it is widely recognised that high quality training focused upon high quality professional practice - particularly when developing functional multi-professional teams - is not only clinically effective but highly cost-effective. Clinical errors are a human tragedy for patients, families and the professionals and organisations involved.

Training for excellence, to help save more lives

Because patient safety is understandably always high on the healthcare agenda, it is increasingly difficult to justify, in this day and age, to allow students and clinicians to practice new procedures on patients without having first rehearsed on simulators or in simulated scenarios. Simulation provides an ideal platform to practice skills safely, encourage

reflection on professional behaviours, and learn from rare, complicated and serious events. The Simulation and Technology-enhanced Learning Initiative (STeLI) has fully integrated simulation within 70% of training programmes across the London Deanery. It has also introduced team-based simulation training in human factors and patient safety concepts for thousands of employees across NHS London.

Sharing the STeLI philosophy with delegates, Dr Ian Curran, Dean of Postgraduate Medicine at London Deanery, spoke of the differentiators between competence and excellence. Referring to Sir John Tooke's report, he began, "If you want to train to clinical excellence, you have to understand what that actually is. In the world of healthcare, it's a combination of appropriate clinical knowledge, technical know-how, professional capabilities and insights into a wide range of professional behaviour such as decision-making, prioritisation, integrity, communication, negotiation, confidence and mastery. It's the ability to

Continued on page 4



SimBaby

Continued from page 3



work as part of a team for the benefit of the patient. We deem a person to be professionally excellent if they demonstrate high levels of professional capability and technical proficiency all in an often pressured, unpredictable and sometimes chaotic environment."

Dr Curran believes that developing high quality educators with an insight into training for 'professional excellence' is critical to developing a high quality workforce. Part of the London Deanery's agenda is to incorporate simulation training where appropriate across all disciplines. A STeLI investment of £21M over 3 years has led to the development of 24 new simulation centres and a further 68 simulation facilities dispersed in various clinical locations throughout London. During this time, STeLI has increased educational capacity, increasing activity from 600 days in 2007 to over 45,000 simulation activities or events last year. It has also developed a clinical faculty of over 2,100 facilitators trained in human factors debriefing. "Over the last 3 years, £3.5M has been spent on over 70 research and development projects," said Dr Curran. "This significant investment in simulation training capacity promotes educational innovation, provides patient-safe training and encourages clinical excellence. It is hoped that developing a high quality workforce will provide high quality care and so avoid the human tragedy and cost of clinical error and poor performance."

"Every hour of clinical training needs to pack an educational punch"

"Because of the challenges that the European Working Time Directive present to training, every hour of clinical training needs to pack an educational punch. Simulation isn't the answer to everything, but if used appropriately, it can move the steep and dangerous part of the learning curve away from patients – and that has got to be a good thing! Simulation techniques allow tailored and repetitive practice of technical skills and provide unique opportunities for team-based training, particularly in patient-safety and behavioural principles. We need to use the technology wisely and with clear, educational purpose."

An insight into scenario delivery

Dr Stephen Marriage, Paediatric Intensivist/Clinical Lead for Paediatric Transport Medicine at Bristol Royal Hospital for Children, has structured eight scenarios that give Year 1, 2 and 3 trainees the opportunity to learn

and practise all the skills they will need to be classed as professionally excellent. Providing the platform for analysis of symptoms that relate to events such as severe sepsis, prolonged seizures, acute anaphylaxis and severe acute asthma, the scenarios incorporate high and low fidelity manikins such as SimBaby and SimNewB. Defining the objective of the scenarios, Dr Marriage explained, "Trainees can practice patient assessment, diagnosis, investigation, initiation of treatment, calling for help and performing definitive therapy. Working in a team, participants can safely practise vagal manoeuvres, interpret ECG results, use resuscitation equipment, use new techniques, calculate drug dosage and insert IO needles in a time-pressured environment."



Dr Stephen Marriage

"In a typical SVT scenario," Dr Marriage said, "We generally start with an introduction to the patient, present a short history, a GP letter, a 'briefed parent actor', a normal chest Xray and various equipment that may include some red herrings. We programme SimBaby with the SVT setting, with a respiratory rate of 40bpm, saturation of 95% and a temperature of 35.7°C. In our experience, trainees are slow to assess, so facilitators need to think about strategies for moving the scenario on. Their first instinct is to treat for shock or sepsis, so we have availability of volume and antibiotics and we script for fluid transfusion. Often, participants fail to form a differential diagnosis, so in this instance, we would stop the scenario and discuss how to form one. Thereafter, SVT is usually diagnosed, a vagal manoeuvre is performed, they struggle with needle insertion, reveal they have never used ice or immersion techniques and demonstrate a lack of familiarity with adenosine. We have plenty of learning collateral to hand, and often break for didactic learning and physiology demonstrations."

"We have funding to run the course three times a year. It is standardised, portable and easy to deliver so that it can be used at any centre. We re-run the scenarios for the same students in Years 4 and 5 and although sessions are confidential and we don't use them for assessment purposes, students are starting to ask if they can use data from the sessions in their portfolios."

Evidence of successful team training

Professor Tim Draycott, Consultant Obstetrician and Lead for the Research into Safety and Quality (RiSQ) Group at North Bristol NHS Trust, started his presentation by stating that even though the majority of births are safe in the UK, up to 50% of maternal deaths and also 75% of baby deaths occurring during labour are potentially avoidable.



Cathy Winter, Southmead Hospital, Bristol demonstrating the PROMPT birthing simulator

Continued on page 5

Continued from page 4

At Southmead Hospital in Bristol, Prof. Draycott and his multi-professional team of midwives, obstetricians and anaesthetists, ran one of the largest randomised controlled studies (The SaFE Study) investigating the use of simulation for the management of rare obstetric emergencies. The study randomised multi-professional birthing teams from eight maternity units in the South West region of the UK to participate in an obstetric emergencies training programme which included aspects of team training and was run both at a simulation centre in Bristol and also within their own hospitals. Teams were videoed managing both team and individual obstetric emergency scenarios in their own units before and after simulation training. Scenarios involved patient actresses role-playing the birthing mother, as well as both high and low fidelity patient simulators. Before the programme, only 50% of the trainees could perform more than the basic skills required for the management of Shoulder dystocia (a rare emergency where the baby's shoulders get caught in the mothers pelvis during birth). After training, 83% of staff could perform skills in a simulated scenario over the basic level requirements and when high fidelity manikins were used (the PROMPT Birthing Simulator), this figure rose to 94%.

Prof Draycott's team also investigated the outcomes of real-life obstetric emergencies at Southmead Hospital after the introduction of simulation based training and have demonstrated improvements both in perinatal and maternal outcomes and there was a reduction in poor perinatal outcomes: the proportion of babies born with Low Apgar scores was reduced by 50% and the number of infants born with injuries following shoulder dystocia decreased by 75%. Moreover, after team training for cord prolapse there was a reduction in the decision-delivery interval, improvement in perinatal outcome and a reduction in potentially dangerous General Anaesthesia.

"When we looked at teams in the top quartile who had participated in the SaFE Study, it was evident that the success of the team was down to early statement of the problem and a high proportion of directed commands. Simulation training not only improved the management of simulated obstetric emergencies, but also by training staff in multi-professional teams, this improved team working and communication. Simulation isn't magic but it is a very valuable educational device which should be incorporated into local multi-professional training. More research is required to determine how best we should use simulation." www.prompt-course.org.

Starting with a safety bubble

Dr Ralph McKinnon, Consultant Paediatric Anaesthetist, Principal Consultant for Simulation Education at Royal Manchester Children's Hospital, is a strong advocate of reflective debriefing in simulation training. Through research into different methods of debriefing, he described techniques employed across a range of industries, including military, high performance sports, airline and rescue.



Dr Ralph McKinnon

Referencing Kolb, Gibbs and Dewey, Dr McKinnon talked about the cycle of learning and how frameworks for experiential learning add value to learners and facilitators. "It is vital to



Professor Tim Draycott and Cathy Winter, Southmead Hospital

create a bubble of safety for participants to enhance effective learning," he said. "People are naturally defensive and so it is the facilitator's responsibility to put participants at ease by reducing anxiety before they start the scenario. He emphasised that 'debriefing is both an art and a science and the emphasis is upon us as facilitators to develop and maintain the required skills to provide effective simulation education."

"It is vital to create a bubble of safety for participants to enhance effective learning"

"People become more self-directed as they mature and tend to prefer training to be problem centred and familiar. If scenarios are active and create intense emotional response, they will provide long-lasting learning. The key for facilitators is to detail expectations before the scenario begins, observe and encourage communication and team working, review the learning objectives during the debrief and give people the opportunity to repeat the scenario to improve their performance. When debriefing, the facilitator should have their own communication and body language skills assessed so they recognise and learn techniques to encourage participants to explain the thought process behind their actions. Although debriefs should be truthful, they should remain positive so the participant leaves the experience feeling more self-aware, self-reflective and self-confident.

A hands-on approach

In afternoon workshops, delegates tried their hands at team-working in a live scenario and debrief involving SimBaby, learned key tips on how to look after and programme Laerdal's high fidelity manikins, watched a demonstration of the PROMPT birthing simulator, and joined in a discussion on multi disciplinary courses run by Dr Charlotte Bennett, Consultant Neonatologist and Simulation Lead at Oxford.

Summarising the day, David Grant said, "If simulation is something you haven't done already, you absolutely can do it and should do it! The key is to incorporate it in the curriculum from the start on a collaborative basis to address learning objectives across all disciplines. Ask simulation centres to support you and make local and national connections through the available forums and networking meetings such as those hosted by Laerdal."

Does taking a manikin home improve basic life support technique?

Bridget Malkin, Lucy Land, Alison Smith, Matthew Aldridge, Gary O'Grady, Gerri Nevin, Alex Harmer, Robert Mapp



Bridget Malkin and Resusci Anne Skills Station

The Faculty of Health at Birmingham City University is one of the UK's largest higher education centres for health and social care. Currently, it is the largest provider of qualified staff to the NHS and Social Services in the West Midlands region. The Faculty has an annual intake of 1,000 nursing and allied health students, all of whom receive mandatory training in Basic Life Support (BLS) before they are placed in practice. Compulsory yearly BLS updates increasing in complexity build the BLS skill level in preparation for professional registration. Teaching Basic Life Support is resource intensive in terms of BLS instructor time, equipment preparation and maintenance with over 3,000 individual assessments performed each year.

Rapid 'skills fade' occurs without frequent practice (Hamilton 2005, Oermann et al 2010) and with it follows the confidence to perform that skill, whilst higher levels of self – confidence is associated with increased motivation for students to practise the skills they have learnt (Mann 1999). Enabling such large numbers of students in the University to practise frequently enough to be clinically proficient is inhibited by the demands upon resources. Alternative teaching strategies such as self directed study, utilisation of electronic online resources and simulation have all been identified within the literature as potential methods for addressing these issues (Hamilton 2005).

Working in partnership with Laerdal Medical, a team of lecturing staff from Birmingham City University, undertook an examination of BLS provision for first year nursing students within the university and introduced a teaching innovation to promote skill retention in line with current research evidence.

All of the students in the study were offered open access and opportunity to practise BLS following their initial instruction. To make an objective evaluation of the initiative, randomised trial methodology was employed to see if there was a measurable difference in performance between those given additional educational and practice opportunities with the 'MiniAnne CPR Anytime Personal Learning Programme' (a small manikin with a DVD, which features a demonstration of Basic Life Support skills) compared to those receiving standard BLS education.

The incorporation of the Laerdal Resusci Anne SkillTrainer (RAST) which provides computerised readouts in relation to compressions, ventilations and ratio was felt to be an objective measure of the students' ability. This reflected consideration of current research regarding potential bias by ALS instructors during BLS assessment who perform a single observation (Lynch 2008), although electronic and instructor assessment were combined during the research for measuring BLS clinical performance in its entirety.

The 'RAST' manikin gives immediate feedback to students on how well they are performing CPR and stores data in the competency

management system which students and educators can view to identify areas that need further development or support. The instructor recorded the entire BLS sequence.

Methodology

177 nursing students agreed to participate. They were randomly allocated to either the experimental group (86 students) or control group (89 students). Both groups received standard BLS education. The experimental group additionally received the 'MiniAnne CPR anytime'. All study volunteers completed a questionnaire about their previous experience of BLS, for example if they had previous training and experience. Both groups were encouraged to use the faculty's clinical skills facilities to practise on the RAST manikin as often as they wanted.

Three months into their first placement students were assessed anonymously using the RAST manikin i.e. instructors did not know which group students were allocated to. Each student completed a further questionnaire, ascertaining MiniAnne CPR allocation, opportunities to practise, real experience of cardiac arrest and confidence in performance. This process was repeated at six months.

Results

Analysis of the demographics from the initial questionnaire revealed that both groups appeared equivalent in terms of age and previous experience of training in resuscitation.

The pass / fail results at three and six months are demonstrated in Table 1 with the overall evaluation for both groups illustrated first. The table also illustrates the students' abilities in the constituent part of resuscitation, namely their initial response to the situation, their initial assessment of the casualty and finally their ability to perform compressions and ventilations. There was a large dropout in participants from both groups prior to the three month assessment and before the six month assessment.

The students' overall ability in both groups at three and six months appears poor. Examination of this

Continued on page 7

Continued from page 6

unexpected anomaly identified that the 'pass rate' on the 'RAST' manikin was set at a technical level which even the ALS instructors had difficulty in mastering with stringent parameter settings for the compressions and ventilations. This had a negative effect on the students and it was decided to revert to ALS instructor observation alone for the 6 month evaluation.

Although the overall results appear disappointing it is important to note that when split into the three component parts, a slightly different picture emerged. The experimental group did not perform as well in the first two aspects of BLS, but analysis of compressions and ventilations revealed a better pass rate. Although the data could not support a sophisticated statistical analysis, team discussion identified the possibility that students with the MiniAnne may have practiced compressions and ventilations to the exclusion of other parts of the process. This would seem logical if they were on their own at home as checking airways and calling for help would not necessarily come to mind. Ten students had experienced BLS in an emergency at the three month evaluation and confidence levels did not vary greatly between the groups. At three months only 3 out of the 43 in the experimental group and 5 out of 41 in the control group passed their assessment using the RAST manikin. Between the two assessment periods student dropout occurred in both groups.

Similar results occurred at six months in respect of the three aspects of BLS but a larger proportion in both groups were observed as passing the compressions and ventilation component. 13 students identified no use of MiniAnne between assessments, whilst a total of 23 students from both groups said they took the time to practise because they were going to be assessed. Real life emergency experiences had increased by 4 at six months.

"I feel continued practice will help me become confident"

(Student 63)

At this point most students indicated they were fairly confident to very confident that they could perform BLS if necessary. (Table 2)

Discussion

The trial was an attempt to measure difference in educational approach between standard BLS training and the use of simulation to improve performance and confidence. One of the

Table 1 Results at 3 and 6 month

Exp (Experimental Group) Con (Control Group)	3 months		6 months	
	Pass	Fail	Pass	Fail
Exp (Manikin) Overall	3	40	6	25
Con (No Manikin) Overall	5	36	12	22
Exp (Manikin) Initial response	10	33	15	16
Con (No Manikin) Initial response	16	25	20	14
Exp (Manikin) Initial Assessment	9	34	8	23
Con (No Manikin) Initial Assessment	11	30	10	24
Exp (Manikin) compressions & ventilations	18	25	26	5
Con (No Manikin) compressions & ventilations	15	26	23	11

Table 2 Student Confidence at Six months

1 = no confidence ranging to 5 = very confident.

Self Rating	1	2	3	4	5
Number of Students	1	10	26	23	5

main limitations of the study appeared to be the willingness of the students to return for assessment, both at three and six months mainly because they did not want to be 'assessed' or miss clinical placement time. Students did feel that having a MiniAnne was a bonus and by just participating in the study students felt motivated and more confident. It was also interesting to note that students did share their skills with family and friends if they had a MiniAnne, and this seems an unintended benefit of the study. Staff also identified positive aspects of the study, not least in terms of increased confidence as ALS instructors and practitioners through the use of the RAST manikin.

The decision to revert to observer analysis helped to restore the students' confidence after apparently 'failing' using the computerised measures and it is also believed that any 'Hawthorne effect' (Draper 2009) was equal in both groups and therefore a mediator of that effect. Negotiations between the teaching Faculty and Laerdal Medical have led to the technical parameters being re-set to allow more confidence to be achieved in performing CPR by the new starters. The re-configuration will allow the system to assess the total number of compressions and ventilations performed, rather than a sequence of just 3 consecutive cycles. A 70% pass can still be achievable, and when the student groups have gained both the necessary confidence and competence in performing CPR, the configuration can be restored to the original settings. This ability to adapt the system to the needs of new students that have not been exposed to performing CPR is valuable for

building confidence. It allows the students to practise the necessary practical skills on their own (self directed learning) without instructor involvement, whilst building confidence with experience via the manikin feedback.

"Having a Mini Anne manikin gave opportunity for other family members and friends to learn the skill of basic life support"
(Student 45)

Conclusion

The study demonstrated that teaching needs to focus on the sequencing of BLS in the first instance and ultimately that it was important to target the use of high fidelity equipment at an appropriate stage of learning.

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2nd Annual Neonatal Simulation Conference takes off at National Space Centre



From left to right, Jenny Ziprin, Dr Joe Fawke, Lidia Tyszczyk, Dr Jonathan Cusack, Dr David Grant, Dr Peter Weinstock, Dr Charlotte Bennett and Jonathan Smart

On 15th November, over a hundred health care professionals converged under the celestial canopy of the National Space Centre in Leicester, to be involved in a multi-professional shared learning conference to support the development of delivering neonatal simulation training in the UK. The 2nd Annual Neonatal Simulation Conference- sponsored by Laerdal - was hosted by Jonathan Cusack and Joe Fawke from the Leicester Newborn Service and Central Neonatal Network. The objective of the day was to share experiences in developing and running simulation programmes, styles of delivery and information on how to maximise the potential of low and high fidelity simulators.

Driving simulation forward

From Bristol Simulation Centre, Chair of the International Paediatric Simulation Symposium, David Grant, reminded delegates that although the use of simulation training has accelerated during the last few years, there is still a strong requirement for evidence of return on investment. He explained that due to the lack of direction from a central body, a number of specialist splinter groups have been set up to help drive forward the use of simulation training. However, it is widely recognised that cooperation at national and international levels will help to progress research, substantiate the benefits of simulation and help all disciplines finance, develop and deliver simulation; and that the persistence of simulation enthusiasts was key to the progression of standardisation.

Encouraging people to join the Association for Simulated Practice in Healthcare (www.aspih.org.uk), David said, "We are on the cusp of how we deliver education. Funding is being cut and we have to be much more efficient in how we train our staff. The traditional apprenticeship model is being challenged. Clinical exposure is becoming less frequent, so simulated scenarios are becoming much more important to the experiential learner. The UK has significant resources for simulation training. We need to continue to network to ensure delivery is of the highest quality."

Point of Care Simulation Training across a Neonatal Network

Drs Jonathan Cusack and Joe Fawke believe that delivery of training at 'Point of Care' is the vehicle for ensuring roll out and uptake of courses. They run fortnightly sessions that involve two doctors and two nurses for around

an hour. Scenario training is conducted in busy units, and support staff are brought in to cover duties. With managerial support, healthcare professionals and students at Leicester expect scenario training on a regular basis and because it becomes part of the routine, there is little resistance to participate.

Talking about the development of the programme, Dr Fawke said, "In 2007, we put forward a business case for equipment that would cost £15,000. For the bid to be successful, we had to ascertain who would benefit, how the learning would fit into the curriculum, what equipment would be required, how it would be staffed and what resources could be used. We were granted funding and now run ten popular scenarios."

*"Tell me and I will forget.
Show me and I may not
remember. Involve me and
I will understand."
(Native American saying)*

"Each scenario lasts around 15-20 minutes with debrief taking place immediately after the scenario, while emotions are still high. We have moved away from the Pendleton approach of debrief into a more narrative flow that helps us understand the reasons behind people's actions and all sessions are confidential."

Continued on page 9

Continued from page 8



SimNewB

"The success of the programme is largely due to word of mouth. As trainees have moved to other hospitals they have requested simulation based training. This led to us putting forward an additional business case to design, set up and deliver management courses and install high fidelity manikins for regional hospitals, using the Point of Care model. Regionally, we are setting up a network between hospitals to benchmark standards and we share resources. Nationally, we are raising our profile by hosting conferences, and are liaising with BAPM and Bliss to increase local, regional and national links."

"As trainees have moved to other hospitals they have requested simulation based training"

Involvement in a national network

Talking about steps taken since the first neonatal simulation meeting at Oxford, Dr Charlotte Bennett, Consultant Neonatologist and Simulation Lead at Oxford, shared information with delegates about the development of the NeoSim forum (www.neosim.co.uk), engagement with the National Patient Safety Agency and Bliss, support from the Resuscitation Council and the combined development of nationally approved, advanced courses that will be available to everyone.

Role play increases confidence for rare events in the real world

Dr Bennett pioneered the use of simulation in training courses for multi-disciplinary teams at Oxford. With the development of new courses that include recognition of a sick newborn, stabilisation of a sick baby, emergency neonatal procedures and communication of bad news, she is still pioneering methods of delivery. In addition to teaching clinical skills, Dr Bennett has introduced courses that give students the opportunity to practise scenarios that involve the death of a baby, so they have the ability and the experience to deal with emotional situations when they happen in the real world.

Dr Bennett explained, "Through inviting families who have been through traumatic outcomes to take part in debriefs, we have learnt

Continued on page 10

A Laerdal Symposium

Improving patient outcomes in emergency healthcare through simulation



Thursday 16th June 2011

10am – 4pm

Royal National Lifeboat Institute
The Lifeboat College
West Quay Road
Poole
Dorset
BH15 1HZ

There will be a number of presentations from users of simulation within pre-hospital healthcare education and an opportunity to network, and share ideas on best practice.

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Laerdal
helping save lives

Continued from page 9

that bad news is often best received from the person who has been most personally involved in trying to stabilise and save the baby. The parents don't always want the most senior person to break news if they haven't been involved in the whole path of care."

Dr Bennett explained that when dealing with babies, each stage of the pathway needs gold standard care. "There is little point in having exemplary performance in one clinical area if there are weaknesses in other parts of the pathway. The Oxford neonatal simulation programme therefore, provides a wide profile of training opportunities integrated at each level with the multidisciplinary teams who are likely to be involved. This also provides opportunities to have greater insight into the challenges of other professional groups and improves team working. The recognition of the sick newborn course delivered primarily to junior doctors, midwives and midwifery care assistants has now started to roll out scenarios that integrate health visitors and GPs. Teaching and rehearsing neonatal emergency skills to neonatal trainees alongside senior neonatal nurses has also meant that they feel better equipped to support medical staff undertaking practical procedures in a stressful real life situation."



"To help participants prepare for a scenario we have sometimes used Playmobil characters beforehand, so they can predetermine where equipment should be, where people should stand, what should be communicated and how the roles will develop through the scenario. If participants have an understanding of expectations before the scenario, they can adapt to the role more confidently."

Closing the learning loop with quality debriefing

Congratulating Leicester on the success of its infrastructure development, Dr Peter Weinstock, Director of the Children's Hospital Simulation Programme in Boston, USA, supported the move towards a conversational debrief, reiterating that debrief was often the most powerful part of the learning opportunity. Having helped develop the 50 current and soon-to-be additional 15 courses within the Harvard Medical School community, Dr Weinstock is highly experienced in planning programmes, running scenarios and debriefing the experience to achieve a desired outcome.

After showing a clip from a 4.5 hour, multi-disciplinary course run at Harvard, Dr Weinstock agreed that especially in the paediatric, perinatal and neonatal disciplines, emotions can often be heightened, and so

rare events, emotional difficulties, denials and expectations, death and delivery to family are skills that require practice and training in a safe environment. By opening up the conversation in debrief, a participant who felt under pressure or decided on a wrong course of action during the exercise, is more likely to express the reason behind any wrong judgements, an important factor in closing the learning loop.

"As facilitators and mentors, we have to put people on the edge of their experience curve so that they will learn and retain the memory of the experience"

"We have to realise that adults learn in a relatively chaotic manner; identifying a problem, realising why there was a problem, and then finding a solution, so it's our role to create structure around this process," said Doctor Weinstock. "Most adult learners need to reflect in order to learn from mistakes. Adults have tremendous amounts of experience. They compare learning to their own experiences. They value learning that relates to their every day role. Surprises or 'messy moments' are often the ones that trigger learning. As facilitators and mentors, we have to put people on the edge of their experience curve so that they will learn and retain the memory of the experience."

He continued, "There are two theories of action: The first is the espoused action – we know in theory how we should react to situations and we know the standards that we should adopt. The second is theories-in-use: personal knowledge, experience and assumption. If asked theoretically, people usually give an espoused version of a course of action. Actually, the variables of theories-in-use usually lead to the outcome. For instance, a practitioner may not look for cardiac problems in a leukaemia patient; a nurse's knowledge of patient history may affect her decision; or a junior doctor may feel unable to give orders in the presence of a senior. This is why an open debrief is important. We need the double loop learning model of why actions were taken in order to find the solution and move on."

National Changes in the Workforce - training for the future

Professor David Field, President, British Association of Perinatal Medicine ended the afternoon's presentations with a talk about plans and resources for healthcare and healthcare education in future years.

Continued on page 11



Dr Charlotte Bennett, Consultant Neonatologist and Simulation Lead at Oxford School of Paediatrics

Continued from page 10



Statistically speaking, Professor Field explained that while the UK birth rate in the last 10 years has increased by 4.9%, there has been a general increase in medical staff of 61.4% and a 50% increase in the number of consultants. Changes in the health service have already led to changes in legislation and expectations of doctors.

"The government has had a U turn in commissioning of maternity units," he declared, "which will result in a host of practical problems. It is expected that plans will be put in place for maternity and neonatal wards that at tier 1 level, staffing rotas for paediatric and neonatal wards should be ETW compliant, at tier 2 level, there should be specialist staff available and that at tier 3 level, there should be a number of residential paediatricians. This will result in good quality patient care with on-site training, within small district hospitals but will force large hospitals to address practicalities of perceived limitations."

Involvement in workshops

The day's powerful presentations were interspersed with a series of practical workshops that afforded delegates in-depth involvement in relevant topics. In a session that invited delegates to devise a typical simulation programme, Drs Cusack and Fawke advised groups to keep scenarios simple, expect the unexpected, plan and practice, use high fidelity simulators and props to heighten reality, and allow enough time for the debrief.

Drs Grant and Weinstock ran a break-out session on merits of styles of debrief and Dr Bennett explained the virtues of a wide range of low and high fidelity simulators in her workshop on making simulation work within a curriculum.

Demonstrating SimBaby and SimNewB scenarios, Lidia Tyszczyk and Jenny Ziprin shared a number of hints and tips about replicating the environment and using props. Participants were advised that at Leicester, to allow realistic practice of drug administration, students use real vials of out of date drugs, and simple props such as fluid filled balloons that can be placed under 'skins' to replicate various symptoms.

Be more involved – attend the next networking meeting

The next NeoSim, UK meeting will be hosted by Ruth Gottstein in Manchester in Autumn 2011. Please visit the NeoSim website www.neosim.co.uk for updates.

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SimBaby and his dad Kelly on duty in Mauritius for an educational workshop!

Guillaume Alinier, MPhys, PGCert, CPhys, MInstP, MIPEM, SFHEA, National Teaching Fellow, Hertfordshire Intensive Care & Emergency Simulation Centre, School of Health & Emergency Professions, University of Hertfordshire; Narainduth Pem, BSc, MSc, Retired Director, Ministry of Education, Mauritius & Valerie Rawat, CEO and President, Apollo Bramwell Nursing School, Port Louis, Mauritius



Nursing students and doctors taking part in a scenario.

Although it is reported that simulation technology is becoming increasingly popular in healthcare education (Alinier et al., 2006), there is still a significant number of countries around the world where simulation is only scarcely used if at all. This is often due to a lack of knowledge about what simulation entails and how it can be facilitated even with limited resources. As illustrated in this report, exotic holiday destinations can sometimes become opportunities to mix leisure with work. The aim was to offer a two-day hands-on workshop to nursing and medical tutors about full-scale clinical simulation, using a patient simulator and portable audio/visual system, in the hope of ultimately enhancing the Mauritian healthcare students and professionals' learning experience.

Mixing passion and private life

Regular family holidays to a specific location can sometimes generate an interest well beyond that of a normal tourist. Over the years, strong family connections in Mauritius, and interactions with the local medical and healthcare

community through various contacts have led to several work-related discussions, particularly around the subject of healthcare education and Continuing Professional Development (CPD). Despite numerous meetings to discuss the potential benefits of simulation with interested parties, none of the possible collaborative projects or consultancy work ever materialised because of financial constraints and a strong cultural reliance upon free external support, notably from France in the healthcare domain. Limited financial resources is a major obstacle for developing countries to acquire equipment and access external expertise to explore "new" educational approaches for healthcare students and professionals. Currently, for example, the clinical skills facilities to train nursing students are almost nonexistent and very outdated as the current system still relies heavily on the apprenticeship model whereby students acquire most of their skills, under supervision, while on hospital placements. However, as recently demonstrated by a World Health Organisation Patient Safety funded project in Tanzania, Kenya, Bangladesh, India and Pakistan, low-fidelity simulation training can save lives with the proper integration of simulation into a curriculum and the use of a simple manikin (Korioth, 2010, Aggarwal et al., 2010).

To make things progress further, the only way forward seemed to offer expertise for free by organising a workshop while on vacation! However strong a desire to help may be, there are a number of elements that remain to be organised before any workshop can actually materialise such as finding a partner interested in hosting the event, some actual candidates, and making sure the required physical resources will be available.

Mauritius, not only a wedding destination

The Republic of Mauritius is a small island nation located in the southwestern Indian Ocean, east of Madagascar. Its numerous luxurious hotels, sandy beaches, and pleasant climate make it a very popular destination for weddings and honeymooners.

The island has an upper middle income diversified economy which is mainly dependent on sugarcane, tourism, and textiles. Some developing sectors such as seafood processing, information technology and medical tourism have recently emerged (Source Wikipedia). The latter developing economical sector is particularly interesting as the provision of specialised and high quality care is also reliant upon high quality education and CPD opportunities for the healthcare workers. Suddenly ensuring an appropriate level of skills for the healthcare workforce was not only a concern for the Mauritian Institute for Health, but also became a priority for the private hospitals wanting to benefit from medical tourism and ensure the safety of their patients. This has now led to the opening of private nursing and medical schools on the island.

As it happened the period during which the workshop was organised coincided with the commemoration of the Battle of Grand Port between the French and the English 200 years ago! Some of you will be pleased to learn that it was the only French victory over the British at sea during the Napoleonic period and that

Continued on page 13

Continued from page 12



Group scenario debrief

this was only a few months before the island was then surrendered to British troops on December 3rd 1810, which is somehow not celebrated...

The key ingredients to planning the workshop

Four key elements justified or supported the event:

- Higher Education Academy (HEA) National Teaching Fellowship status
- One or more industry partners to provide the equipment required
- A local contact
- A partner to host the event and help with the logistics

HEA National Teaching Fellowships are awarded to academic and professional staff of Higher Education Institutions who strive to "enhance the student learning experience both within and beyond the nominees' own institutions, supporting colleagues and influencing support for student learning". The motivation to organise this workshop could exactly be attributed to serve the above statement especially as the event ended up involving both educators and students, none of whom had ever been in contact with computer controlled simulators and practiced using simulation.

The main reason why none of the educators or students had used a patient simulator is simply that none have ever been sold on the Island! Here lied one of the first obstacles in planning the workshop, namely borrowing and shipping

a patient simulator for a short period of time in Mauritius. Similarly, in order to provide the full experience of high-fidelity simulation, a portable Audio/Visual (A/V) system was required. Thanks to the support from Laerdal France (who deals with the African continent) and Scotia UK Ltd, these two key elements were generously made available for the workshop.

Various organisations were contacted months ahead to be given the opportunity to host this free workshop, but the take-up looked uncertain. A real asset to the planning of this workshop became the use of a local contact who could chase up and make direct link with the key decision makers to secure a host partner with a genuine interest in finding out what simulation could bring to the training of healthcare staff and students.

The final key element to the successful organisation of this workshop was the collaboration with the Apollo Bramwell Nursing School as it had the space and some of the equipment to host the workshop such as hospital beds and some clinical equipment. Other key areas in which the Nursing School provided some valuable support was in the recruitment of participants from across the island and in the official CPD accreditation of the workshop by the Mauritius Qualifications Authority (MQA).

Setting up a temporary simulation unit

The key aspects of a healthcare simulation facility (Seropian and Lavey, 2010) were recreated for the time of the workshop using

the existing infrastructure and resources from the Apollo Bramwell Nursing School and some additional equipment. Two rooms were used to host the workshop. In the course of an afternoon before the event, they were reconfigured and the A/V equipment was setup. It consisted of a laptop, two SMOTS boxes, a camera, a speaker, and a microphone. One of the rooms was a simulated ward in which the furniture was moved to create a control room area and a simulation area where SimBaby and the ALS simulator were installed. A nearby classroom was used as an observation and debriefing room using a data projector and a set of speakers which could be connected to the A/V system for remote live projection and playback of the scenarios and patient monitor data. In a sense, it was quite similar to setting up for an in-situ simulation session (Miller et al., 2008) with observers.

The first simulation workshop in Mauritius

This two-day training workshop, hosted by the Apollo Bramwell Nursing School, took place 7th - 8th September 2010 in Port Louis, the capital of Mauritius. The 16 participants were from a range of specialities and included nursing tutors, doctors, nursing students, as well as representatives from the Mauritius Institute of Health and the Mauritian Nursing Council.

Part of the first day of the workshop included an introduction to simulation in healthcare education followed by a presentation of the range of activities undertaken by the Hertfordshire Intensive Care & Emergency Simulation Centre (Alinier, 2007), at the University of Hertfordshire, over the past 10 years. The next focal point of the course was the theory of planning and designing a high-fidelity simulation session with relevant scenarios to address specific learning objectives. The use of real scenario video clips for which we had consent from participants to use was a particularly useful way to demonstrate the role of the candidates and facilitators during a scenario. It allowed the workshop participants who were generally uncertain of the concepts of high-fidelity simulation to realise the potential of this type of immersive and practical activity. The participants were then divided into two teams to work on the development of scenarios that they were going to facilitate later during the workshop.

Continued on page 14

Continued from page 13

By the end of the first day both teams had fully developed a scenario and agreed upon the roles they each were going to have during their scenario. During the morning of the second day, each team facilitated their scenario once with the other team to fine tune their scenario script and further discuss how to best introduce and facilitate this kind of learning experience for their intended future participants.

“It has been very interesting, interactive, and vivid, and in the future we hope to have simulations to form part of our curriculum.”

Following the lunch break some nursing students had been invited to join the other participants and take part in the scenarios. Following the familiarisation with the revamped environment, the patient simulators, and some clarifications as to what behaviour was expected from the scenario participants, two scenarios were run. Although the introductory and familiarisation period take time, they are key to the simulation experience for the scenario participants (McCausland et al., 2004, Alinier et al., 2004) especially if it is their first simulation exposure (Hawkins et al., 2008). During the scenarios, the workshop participants who had no part to play were remotely watching the scenario from the observation room so they could experience the various perspectives of the students.

Although each scenario was immediately followed by a debriefing encouraging students to express themselves about their actions and thoughts, they also generated much debate with the nursing students regarding the more regular adoption of this type of learning approach in their curriculum. By the end of the workshop all participants had the chance to experience various aspects of facilitating or taking part in a scenario.

Two VIPs skived the first day of the workshop!

The overall workshop ran very well with the exception of the delayed arrival of the patient simulators as they took longer than expected to clear customs at the airport. SimBaby and the ALS simulator were eventually delivered to the Nursing school during the lunch break of the second day of the workshop. All the

workshop participants volunteered to help assembling the patient simulators, a period which rapidly turned into a patient simulator familiarisation workshop.

In order not to compromise the progress of the workshop, the basic infant and adult manikins from the nursing skills laboratory were used instead for the scenario preparation stages on day one and during the morning of the second day. Combined with the SMOTS patient voice through the speaker and an improvised patient monitor to display the clinical information, they both proved perfectly suitable for the chosen scenarios until the more sophisticated patient simulators were released by the airport customs.

What did the participants think of it?

All aspects of the workshop were very highly rated by the participants. They recognised that it forced students to adopt an active mode of learning (McCausland et al., 2004, Brown and Chronister, 2009) whereby they had to “think on their feet” and deal with the situation. Some research even shows that it is superior to problem-based learning for the acquisition of critical assessment and management skills (Steadman et al., 2006). One of the students wrote “It has been very interesting, interactive, and vivid, and in the future we hope to have simulations to form part of our curriculum.” The tutors also expressed their desire for more exposure to simulation training for their students, hospital staff, and themselves in terms of refreshing their skills and knowledge.

They also highlighted the need for their training laboratories to be equipped similarly to their clinical area so they could become more familiar with the equipment in a safe context.

Conclusions

Opportunities should always be seized upon or helped to materialise. In the present case, it is thanks to the support from Laerdal France, Scotia UK Ltd, a local contact, and the Apollo Bramwell Nursing School, that the various elements required for the workshop could all become a reality to setup a temporary simulation unit in Mauritius. The workshop was very well received by all the participants and gave ideas of simulation implementation using existing resources. It is always important to keep in mind that even low cost technologies such as basic role play are effective training methods and that what really matters is how it is used (Beaubien and Baker, 2004). Although it was only conducted over two days, hence only skimmed the various aspects of scenario-based or high-fidelity simulation training and the capabilities of modern patient simulators, the workshop highlighted the potential of simulation and the importance of adequate preparation in order for scenarios to run smoothly and address the intended learning objectives. It is hoped that this will have enthused the participants to review their teaching methods by using more simulation to help their students and colleagues become safer and better trained healthcare practitioners.

Continued on page 15



Guillaum Allinier and the Mauritian team

Continued from page 14

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A Brighter, Better Future

- Using Simulation Training to facilitate moving to a new Neonatal Unit

Arif T1, Sood A1,2, Cusack J1,2, Fawke J1,2 [1 University Hospitals Leicester Neonatal Service 2 Leicester Neonatal Simulation Team]



Fig. 1 Orientation of space and equipment was better appreciated through simulation

Introduction:

The use of high fidelity simulators to aid medical and nursing training is already well established in the Leicester Neonatal Service. Relocation to a new state of the art Neonatal Unit at Leicester Royal Infirmary presented fresh challenges to the way staff work to provide safe and effective care to critically ill patients. Such challenges include the use of new equipment and working in a much larger, unfamiliar and dispersed environment.

We present the use of a simulation session to facilitate relocation to a new neonatal unit.

Objectives:

The objectives we hoped to achieve through the scenario were:

- I. To orientate staff around the new unit
- II. To train staff in how to access help in an emergency
- III. To train staff in using new equipment in an emergency
- IV. To identify latent patient safety hazards

Case description:

We held 4 simulation sessions 2 weeks prior to the anticipated move to the new unit. The voluntary participants for each simulation were a team consisting of; Senior Trainee Doctor (ST4+, referred to here as SD), Junior Trainee Doctor (ST1-3, referred to here as JD), Senior nurse (SN) and Junior nurse (JN).

Participants were given an introductory talk, followed by a 20 minute simulation session and a group debrief before completing an evaluation form. Qualitative thematic analysis was performed based on observation and feedback from the debriefing sessions and evaluation forms. The evaluation forms consisted of open questions centered around the participant's views regarding; their expectations from the session, orientation of the unit, accessing help in an emergency, use of equipment, lessons learnt from the session and personal preparation about relocation.

The simulation sessions were managed by two trained simulation facilitators from the Leicester Neonatal Simulation Team. The team

Continued on page 16

Continued from page 15

was first taken to the Neonatal Intensive Care Unit (ITU) where a SimNewB™ was used to assess the team’s ability to recognise and manage a cyanosed baby in an environment unfamiliar to them. Specific objectives that we hoped the groups would achieve in ITU were; to locate emergency equipment, to locate oxygenation and suction equipment on the gantries of the bed spaces, to use a NeoPuff effectively and to be able to operate the gantries and incubators effectively.

During the ITU scenario an emergency alarm was triggered in the Special Care Baby Unit (SCBU). The team was expected to recognise, locate and decide how to respond to the second emergency. In SCBU, another SimNewB™ was used to assess the team’s ability to manage an apnoeic baby by locating and utilising a wall mounted drop down resuscitaire with a ‘Tom Thumb’ T-piece and a different resuscitation trolley. Safe transfer from SCBU to ITU had to be planned by the team.

Results:

Orientation

Participants identified training on unit orientation and equipment as their main priority; “Understanding layout of new unit” (JD), “(knowing) where all my equipment would be” (JN). Specific enquiry about how the exercise enabled orientation around the unit was all positive, the most common adjectives being “good” and “useful”.

It became clear that some participants had already seen the new unit but this exercise helped re-enforce their prior knowledge; “I had already worked on the unit but it helped to re-familiarise” (JN). Interestingly, this last participant stated “location of emergency equipment” as one of the lessons she learnt through the session. A possible explanation for this could be that resuscitation trolleys in ITU and SCBU were different, the model in SCBU being more familiar to the participants. Additionally, the SCBU model was placed under a drop-down resuscitaire which, once in use, hid the resuscitation trolley underneath (Figure 1). This demonstrates how specific locations of fundamental equipment are likely to be missed or forgotten through a general tour and more easily highlighted through simulation methods. One SN said that she “Already knew basic layout” of the unit but through the simulation felt that in order to prepare herself for the relocation she had to “Ensure I know where all the equipment is located - especially resuscitation equipment!”.

Despite prior tours of the unit, orientation of space and location of equipment was the most prominent theme when the participants commented on how they felt they should prepare themselves for the relocation;

“Get more orientated to unit. Know where emergency equipment is kept” (SD)

“Be more familiar with where all the stuff is kept and placed” (JN)

“Walk around the unit when fully equipped to orientate myself again” (JD).

For one JD the session was “Very useful. Highlighted a few potential problems that I had not considered previously”. These problems included swipe-card access through doors within the unit, an issue not faced in the old neonatal unit. As a consequence, the JD and managers realised that some staff were still lacking secure access two weeks prior to the anticipated move. The distance between ITU and SCBU was also

better appreciated through real-time simulation of an emergency scenario “SCBU is a long way from ITU area” (SN).

Calling For Help in an Emergency

“Ask for help!” (JD)

“How do I do that?” (SN)

“Can you call them?” (JD)

“Don’t know number” (SN)

“Go and run there” (JD)

This area generated the most uncertainty and variation in responses. Clinical staff were generally unaware that the emergency alarm for SCBU was inaudible in the ITU area. Although an emergency light was functional, the unwary or distracted participant may have missed the second emergency in SCBU. In this scenario, participants were informed by the simulation team that there was an emergency in SCBU. At the end of the sessions the emergency alarm system was explained to the participants. The simulation session made it clear that reliance on the emergency buzzers in SCBU was dangerous and that an additional crash call to switchboard would need to be made. Additionally, it became apparent that the alarm could be heard in the parents’ room but not the doctor’s room.

The new NNU would require new ways of working. It was envisaged that, whereas in the old unit an emergency could be alerted by merely a shout for help (due to close proximity of clinical areas), in the new unit, an emergency alarm at the cot spaces would be needed to trigger for help. From the discussions and evaluation feedback there is a suggestion that the staff’s perceived emergency plan did not entirely reflect the emergency plan intended by the Unit’s leaders (Table 1).

Confusion over how the alarm system was wired could partly explain the variety of responses. However, the participants also vocalised the appropriateness / acceptability of using other methods to contact staff at different points of the emergency, e.g. recruiting extra personnel, accepting admission to ITU from SCBU, how to transfer the baby; “I learnt about the various ways to contact staff in other areas of the unit (e.g. emergency buzzers, intercom, telephones), depending on level of the emergency” (JD)

Table 1: Participant perception of how to access help in an emergency
“The phones may need to be used to communicate between ITU and nursery” (JN)
“Know the telephone numbers” (JD)
“How bells will link up and work (when working!)” (SN)
“[Learnt] Emergency buzzer light and where to find out where it is” (JN)
“Need to watch for emergencies in other room” (SD)
“Always go if free - better to have many people” (JN)
“At the bed space where help is required buzzer can be pulled. Alarms will gradually filter through the subsequent rooms if help is needed has not arrived.” (SD)
“Watch for a light.” (JN)

Continued on page 17

Continued from page 16

The sessions exposed uncertainties about which team should attend the emergency, how the different areas of the unit were expected to communicate and coordinate with each other; who should be involved with transfer decisions, and how the sick baby should be moved from one area to the next. Unexpected challenges became apparent, for example, information and instructions becoming drowned by the relatively huge working space around one incubator space. Leadership also became more dilute, unclear and uncoordinated between two teams. As one SN noted "It highlights the importance of teamwork". However, these were accepted as lessons that should be learnt for working in the new unit, "How we will all work together as a team - individual responsibilities, etc." (SN) "Working as a team in a new environment" (SD) "Need to be more vocal when asking for help from staff because of space" (SD).

New Equipment

The single most recurrent word used in debriefing discussions and evaluation feedback was 'neopuff'. In the new unit, the neopuff oxygenation system was to replace the traditional bag and mask normally found at each incubator space in the old ITU. Despite prior nurse training, point of care simulation sessions exposed incorrect use of the neopuff by nurses and doctors. Problems included not turning on the gas supply, not understanding the need to set pressures when using a neopuff, incorrectly changing the maximum pressure settings and generating dangerous pressures. A number of errors had potential to cause serious harm.

For one SN the "natural response is to ask for a bag and mask" and in two simulations this was sought over using the readily available neopuff at the cotside demonstrating that the use of the neopuff was likely to need reinforcing. For doctors, who had not attended any formal training, there appeared to be presumptions about their knowledge of neopuffs, possibly because they regularly use neopuff masks on resuscitaires and assumed that the system would be the same. Some had seen neopuffs previously but thought they worked differently or felt out of touch with them; "Saw neopuff 2 years ago. Thought there was a button to switch on" (JD), "Felt out of touch using neopuffs. Good that we have been using them today." (SD)

The issues surrounding the neopuffs suggested that training should emphasise the need to clearly state what flow, percentage of oxygen and pressure was required (Figure 2). One team managed to generate a PEEP of 25 by tightly shutting the PEEP valve and using a high flow, this prompted the recommendation that neopuff PEEP valves were checked daily.



Fig. 2 The simulation session was used to re-educate the participants on correct use of the neopuff



Fig. 3a



Fig3b Intubation of SimNewBTM was made difficult by inappropriate use of the omnibed. Fig. 3b; Lifting the Omnibed lid allowed easier access to SimNewBTM and better clinical management.)

All participants stated that they were introduced to new equipment through the simulation sessions. Other than the neopuff, three appliances generated recurrent problems, seen by the simulation team and identified in participant feedback. These were the gantries holding the equipment by each incubator; the incubator (Omnibeds) themselves, and the drop-down resuscitaire in SCBU.

The gantries were mobile but none of the participants were aware of this. Through the sessions, we learnt that some equipment had been placed at inconvenient levels on the gantries and required adjusting. At the close of the session, the participants were educated on driving the pendant system to optimise the equipment held on it. Although some Omnibeds were employed in the old ITU, participants were either unaware that the lid could be raised to facilitate access to SimNewBTM or worried about the presence of overhead gantries (Figure 3a & 3b). Finally, the drop-down resuscitaire was familiar to most doctors but unrecognised by many nursing staff. Additionally the resuscitation trolley in this second scenario was under the resuscitaire and could be overlooked once it was in use or if the participant was expecting to see the ITU resuscitation trolley model. Delivery of oxygen and adequate pressure via the T-thumb required training through the simulation sessions.

Continued on page 18

Continued from page 17

When the participants were asked about how they felt about using the equipment in the future, the feedback was encouraging; "Not quite as anxious... would still like to familiarise especially with the neopuff" (SN), "I am more confident about using neopuff and new incubators" (SpR), "A lot more confident" (JD). Interestingly, all participants claimed to be happy with NeoPuff use before the simulation and only recognised the need for further practice through their participation in simulation;

"I need to practice using the neopuff in the simulation room" (JN)

"I need to familiarise myself with any new equipment that arrives between now and then" (JD)

"It would be more useful if most of us could have (more) training on specific issues such as neopuffs and the devices in the resus bays in the nursery" (JD)

Discussion:

Overall, the simulation session was well received, provided key training and self-awareness for participants and important lessons for managers

and trainers of the new unit.

Weaknesses of these sessions included the fact that not all clinical equipment had been installed in the new unit when the simulation was carried out. Problems with the functionality of the alarm system meant that a prompt about the presence and location of the SCBU emergency had to be given by the simulation facilitators, reducing the scenario reality slightly. However, the fact that a prompt was required served to highlight the problems with the alarm system. The scenarios were attended by a total of 18 staff in two groups of four and two groups of five. Shift working, time and clinical commitments prevented all members of the Neonatal team being trained using these simulation scenarios.

Through these sessions we have demonstrated that simulation sessions are a useful way of facilitating a move to a new unit, educating staff about new equipment, and increasing individual and managerial awareness of issues that may hinder relocation and acclimatisation to a new unit.

Developing Simulation in Lanarkshire



Nicola Sturgeon, Health Minister opens the Medical Education Training Centre

NHS Lanarkshire has taken a proactive role in establishing a Medical Education Training Centre that includes a simulated healthcare environment within the Kirklands Hospital Site in Bothwell, Lanarkshire. Opened last summer by Health Minister Nicola Sturgeon, the Medical Education Training Centre is providing simulation training that is being embraced by all.

The building was originally constructed as a learning centre for the Primary Care

Trust in 1990. Seldom used by 2007, it was identified by NHS Lanarkshire as an ideal location to house a modern education centre that would benefit students and professionals alike. NHS Lanarkshire combined resources from Glasgow University and National Education for Scotland to fund the project. The objective was to provide an environment in which students and professionals from the north and south of the region could safely learn and hone the clinical and team-working skills that are required in typical, rare and complex healthcare situations.

The simulation facilities within the training centre feature a simulated 3-bedded ITU ward which may be adapted to suit, an observation/control room, high fidelity patient manikins SimMan 3G, SimBaby, 4 Mega Code Kelly's and full SMOTS (Scotia's medical observation and training system). Facilitators can observe several simultaneous scenarios via audio visual links from the observation room, and sessions are often recorded to enhance debriefs. The education centre also incorporates 5 training rooms, a 150-seat lecture theatre, a 20-seat conference room and has full AV and IT facilities throughout.

Catie Paton, Clinical Skills Development Specialist explains, "Previously, simulation training was carried out at three different sites. Having a central base for simulation training has enabled us to offer a cohesive training programme across the Trust. We cater for specific clinical education needs of students and clinicians and offer multi-disciplinary sessions that focus on teamwork and communication. The centre is busy and feedback has been excellent. We endeavour to commit to fully utilising this excellent resource and to continue developing simulation training."

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Tel: 01698 855610



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helping save lives



Improving Neonatal Care

The first neonatal simulator and youngest member of the Laerdal patient simulator family, **SimNewB** has been designed to meet the training requirements of neonatal emergency medicine and resuscitation courses. SimNewB presents many clinical features and lifelike responses.



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An Insight into Paediatric Simulation at London South Bank University



sessions are ideal for nurses and members of the resuscitation team to retain their skills in managing deteriorating patients. Simulation triggers an emotional response which stays with the learner, and combined with the SBAR communication model, will support staff in reporting and managing patient deterioration," Lucy said.

At Great Ormond Street Hospital, training sessions incorporate high fidelity manikins such as SimBaby so that the learners can see physical signals of patient deterioration, and actors are cast in roles such as junior doctors, so they can steer the scenario if necessary. "We tend to base scenarios on the staffing groups' skills gaps, the likelihood of events, and/or changing guidelines," Lucy said. "We always set clear objectives about what learning outcomes we want participants to achieve. Watching

On 6th October, the London Southbank University (LSBU) hosted a SUN meeting for educators to share knowledge and examine the impact and progression of simulation training in children's nursing. The event, which was sponsored by Laerdal, was coordinated by Fiona Horrox, Senior Lecturer and Dominic McCutcheon, Lecturer Practitioner, LSBU.

Sue Mullaney, Head of Department for Children's Nursing at the LSBU, opened the symposium by talking about how recognition of the value of simulation in nursing practice had led to the installation of a dedicated paediatric simulation suite within the LSBU faculty of health and social care. After inviting delegates to visit the suite for the afternoon workshops, she introduced a fast-paced, interactive scenario that set a lively tone for the day. Performed in front of around 65 educators by a collaboration of the day's presenters representing multi-disciplinary roles, it was easy to understand the reasons behind students' passion for more simulation within the curriculum. During the paediatric 'emergency', a team of 'experienced' and 'inexperienced' staff were faced with identifying the patient's physical symptoms, understanding paediatric-specific issues and overcoming team-working, leadership, decision-making, communication and equipment challenges.

Retaining skills in a specialist environment

After a short scenario debrief, Lucy Walsh, Clinical Site Practitioner at Great Ormond Street Hospital, explained that, with 60% of all patients meeting the high dependency criteria and a higher than average resuscitation rate at Great Ormond Street Hospital, the mainstay of the work of Clinical Site Practitioners is management of the acutely ill child and resuscitation. "All our resuscitation team are APLS/EPLS trained and have regular BLS skill updates, but regular simulation

behaviour under pressure is enlightening – nobody ever seems to want to take the lead until the next person appears on scene and people tend to fixate on one area rather than global management of a case."

"The main purpose of using simulation is to meet the learning objectives of the curriculum."

Talking about the faculty's journey so far, Lucy said, "It's still in the early stages. Our first simulation training session attracted around 25 people, but the participants' positive experiences resulted in a pyramid effect that led to us running around 25 further sessions for staff. Looking forward, we hope to increase simulation in the curriculum and improve our training environment, but to make it more financially viable it has to benefit all hospital communities. We need multi hospital and training departments to work together to truly foster the culture."

Simulation improves confidence

Since 2005, St Mary's Hospital, London has conducted regular mobile skills training sessions for doctors and nurses on children's wards. More recently, the department has added ad hoc full crash scenarios. The opportunity arose to conduct a London Deanery funded research project over a five-month period, to ascertain whether repeated sessions improved skill retention for medical staff and confidence for nurses. Anne Dowson explained how confidence was measured at the beginning of the scheme among a control group and the simulation participants.

Continued on page 21

Continued from page 20



The simulation sessions covered bronchiolitis, shock, SVT, seizure, raised intra cranial pressure and trauma. Each 40 minute scenario involved one nurse trainee and one doctor trainee, and was followed by a 20 minute debrief. Matched group sampling, questionnaires and interviews were used to gather information, ensuring captured data included length of service, qualification, band structure and general confidence levels. After 3 months, the confidence level in the control group had not changed, whereas confidence in the study group had improved. "100% of the study group felt they had benefited from the simulation training," Anne explained. "And although students felt that the team size was unrealistic, they believed it had made them think more clearly about their actions rather than relying on another member of the team to make a decision." Anne summarised that the study had proven that simulation is valuable in the path forward for the continuing professional development of nurses and the improvement of patient care.

Student-run scenarios help immersion

Lesley Ferguson presented information on the evaluation of simulation based training at Northumbria University. Here, the simulation programme focuses on skills development for Year 1 students, coached simulation scenarios for year 2 students and complex scenarios that involve high fidelity manikins for year 3 students. For added realism, all participants are now required to wear the appropriate uniform when participating in a scenario. Students work in groups and pairs and are 'introduced' to the manikin before they experience simulated physical and emotional trauma scenarios. Breaking from the norm, students sometimes write and run scenarios for peers. "This gives students extra value from scenario training as it involves a great deal of research at the planning stage," said Lesley. "Students feel more confident at the end of simulations. They begin to understand the challenges of day-to-day practicalities, technology, responsibility and resources. Even though they feel anxious about being filmed, they all agree it is a very useful tool for reflection. Future plans include bookmarking videos and further collaboration with other departments and universities."

The benefits of role play

Showing a short film of first-time scenario trainees absorbed in an emotional situation where an actor was playing the role of a distressed parent, Guillaume Alinier from the University of Hertfordshire, highlighted the benefits of using role play to enhance a scenario. "The main purpose of using simulation is to meet the learning objectives of the curriculum," he said. "To maximise the potential for learning, students must experience it regularly and scenarios must be realistic –

so much so that the observers will become totally immersed. However, with simulated emergencies where students decide and dictate the course of action, facilitators must be prepared for an unexpected path and be able to answer a wide range of questions, such as time of previous medication, allergies and so on. Providing scripts for actors in role-play is very useful. It helps to create realism and gives an extra dimension to the emotional aspect of the learning."

Blended learning

Senior lecturers, Sue Lawrence and Jayne Harris teach simulation to students at Birmingham City University, the UK's largest provider for pre-registered nursing. During the first eight weeks of the first term, students are exposed to SimNewB in entry level simulation sessions that are structured to prepare them for placement. In Year 2, students experience online scenarios, using a programme called Virtual Case Creator. This type of simulation requires the student to research acute child cases before a scenario is entered, gives a soft introduction to prescription charts and exposes the student to emergency situations that may be seldom encountered in practice. By the third year, students will have experienced a blended approach to simulation. They will have used various simulation platforms including MOODLE, online simulation sessions and low and high fidelity scenarios using patient simulators like SimBaby, SimNewB, MegaCode Kid and nursing manikins. Moving forward, the online technology at BCU will soon include 'Avatar style' computer scenarios and the faculty is looking to increase research and scenario development with clinical partners.

Workshops enable delegates to 'have a go'

A series of workshops after lunch provided delegates with the opportunity to practise 'how to' sessions with SimBaby and SimNewB, practise role-playing in a paediatric scenario, practise a debrief session and hear from students who had integrated simulation within their learning.

Continued on page 22



Continued from page 21



Proudly presenting SimBaby and SimNewB - The Laerdal Team

New project for Cardiff

Following the workshops, Jane Davies and Dave Clarke, lecturers from Cardiff University, explained how they have been using scenario-based education at Cardiff School of Nursing and Midwifery for nine years. In 2008, the two ran an inter-professional simulation pilot scheme that combined Children's Nursing with Occupational Therapy students, in a community simulation. "We have expanded the pilot project and will be starting the second scheme, which includes more students, in November 2010," said Jane.

"A second project is the simulated ward shift that takes place in the children's nursing students' final module. The scenario will be based on a patient transfer and the content of the scenarios will be much more structured than they were in the first project. Students will practise and be assessed on organising a complex discharge, leading a team meeting, reporting a drug error and informing the patient."

The final innovation at Cardiff that Dave and Jane highlighted was an integrated academic assessment half way through the students' third

year, which requires participation in a simulated shift. Students choose an element of study from the simulation exercise, look at the theory and practice and make analytical comparisons to their placement experience.

Like Guillaume Alinier, Jane and Dave are advocates of the use of actors as well as patient simulators within a scenario. To solve the problem of involving child actors, they use an acting agency that employs 'young' looking eighteen year olds who are scripted to behave like a young adolescent. "We are very excited about the new project," Dave added. "We know that simulated clinical shifts evaluate extremely well and are looking forward to integrating more simulation into the brand new curriculum for next year."

A whirlwind of learning

Closing the symposium, Fiona Horrox and Dominic McCutcheon from the LSBU, summarised, "We have experienced a whirlwind of learning in the past year," said Fiona. "Quoting Guillaume Alinier 2005, simulation is spreading worldwide and is used in a broader range of disciplines than ever before."

Fiona continued, "Simulation mimics clinical practice and provides an ideal learning environment to harness knowledge, skills and attitudes. Listening to the presentations and discussions today, it seems that there is a blended approach to simulation, with delivery on many different platforms. We know it's a rich learning environment to increase competence and confidence and we know that candidates tend to remember the learning outcomes because of the pressure associated with partaking in the scenario. We also know that debrief and reflection of the scenario will help them deal with people in practice and this can only benefit the patient. There is still a lot of potential for growth but in order to finance more simulation within the curriculum across the UK, we will need more evidence of its value. By sharing ideas, networking and being creative, we can all work together to advance simulation even further."

Reader contributions



If you would like to contribute articles to this newsletter that relate to simulation in healthcare education, we would be pleased to hear from you. Please contact the editor, Martin Clarke, email: martin.clarke@laerdal.co.uk



<http://simulation.laerdal.com>

Top 10 downloads

- Confidentiality Agreement
- SimMan Maintenance Checklist
- Arterial Blood Gas Template
- Scenario Programming
- PALS SimBaby Scenarios Sample: lower airway obstruction - bronchiolitis Joshua Bowman
- Start-up and Troubleshooting Guide
- Female Vocals
- CXR Trauma Bilat Flail chest
- Auto AVS
- Dani's High School SimMan Demo

Forum Topics

- General
- Events
- SimMan 3G Functional
- SimMan 3G Technical
- SimMan/SimBaby Technical
- SimMan/SimBaby Functional
- Patient Cases and Scenarios
- SimNewB
- ALS Simulator
- VitalSim Manikins
- Resusci Anne Simulator
- MicroSim

Product News



SimCenter

Making Simulation Easier

Beginning in March 2011, over 1,000 simulation scenarios from an international developer network of key opinion leaders will be available for purchase through the newly introduced SimStore, a new on-line simulation content location and the first component of SimCenter, a new simulation management platform that will be introduced throughout 2011.

“SimStore offers a range of outstanding simulation scenarios that I can readily select at the click of a button”

SimCenter is the result of a joint venture with HealthStream Inc., a leading provider of learning and research solutions for the healthcare industry. It is an innovative simulation management platform designed specifically for the needs of healthcare institutions to manage their simulation initiatives.

SimCenter – Supporting the needs of a fast growing simulation community

The recognition of simulation as a valued training methodology and a cornerstone of safe patient practice is rapidly increasing. Consequently, the need to make it more accessible, time and resource effective has become evermore profound. SimCenter is a comprehensive solution designed to address these needs.

As a simulation management platform, SimCenter is comprised of a fully integrated system of software designed to work with advanced patient simulators, such as Laerdal's SimMan 3G, SimMan Essential, SimMan, SimBaby and SimNewB, and available through the internet via software as a service (SaaS). The first two components were recently launched at the IMSH (International Meeting for Simulation in Healthcare) in New Orleans.

Introducing SimStore and SimDeveloper

SimStore is an online application which makes available to download simulation scenario content from some of the healthcare industry's foremost organisations. With scenarios already created by leading educators from around the world, SimStore will serve as a hub of quality educational content for multiple healthcare disciplines.

Through SimDeveloper, an online software toolkit for scenario developers, SimStore will be uploaded with over 1,000 scenarios at the time of launch in March 2011 with the scope for thousands more to follow as the scenario developer network continues to expand. Currently, the initial network includes organisations such as the Oxford Brookes University, National League for Nursing, American Academy of Pediatrics, SAFER Simulation Center (Europe), Belmont University and Health Care Simulation South Carolina (USA) and Edith Cowan University (Australia) to name a few.

“SimStore offers a range of outstanding simulation scenarios that I can readily select at the click of a button”, observes Beth Hallmark, Ph.D.RN, Director of Simulation,

Belmont University. “This enables me to spend more time on what is most important; teaching through the simulation rather than me preparing for it.”

“Educators and clinicians are offered the flexibility to select appropriate learning materials that will meet both curricula and available material and timetable resources.”

Barry Ricketts, Senior Lecturer at Oxford Brookes University reflects a similar view. “An advantage of having such an extensive range of pre-programmed scenarios written by experts and accredited institutions within the SimCenter is that educators and clinicians are offered the flexibility to select appropriate learning materials that will meet both curricula and available material and timetable resources. The learning and rehearsal time can be determined by the needs of the learner rather than by the complexity of the scenario and its administration.”

More to come in 2011

SimManager is a management system that is customised for managing simulation-based training activities. Capabilities include making simulation training assignments, tracking training completions, managing scenario content used in training, generating progress reports, scheduling of equipment and labs/rooms, and managing simulation curricula.

SimView is an audio/video system that captures video of the simulation activities, simulator log files and vital signs from the advanced patient simulators so that simulation instructors can debrief students on their educational experiences with simulation activities.

For more information about SimCenter, visit www.laerdal.co.uk





Making Simulation Easier.



SimCenter

Begins March 2011



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