Did they use it? A qualitative study exploring transfer of 'attitudes and behaviours' from simulation to workplace

Effective team working between the medical and nursing professions is vital to the success of any resuscitation and the 'attitudes and behaviours' of team members are as important as knowledge and skills. Paediatric simulation improves the acquisition of knowledge and skills, at least in the short-term, but similar evidence is lacking for attitudes and behaviours. This article explores candidates' perceptions as to whether training received in attitudes and behaviours in a neonatal simulation course is transferred to the workplace.

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Key points

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1. This study provides an initial evidence of transfer of training in 'attitudes and behaviours' from neonatal simulation to the workplace.
2. Attitudes and behaviours are retained, at least in the short-term.
3. This is the first attempt to report evidence of behaviour modification that corresponds to level 3 of the training evaluation model developed by Donald Kirkpatrick.

Evidence suggests that poor quality team work leads to poor quality resuscitation[1] and effective team working between the medical and nursing professions enhances the chance of a successful outcome of any resuscitation.[2] The concept of 'golden hour'[3] demands precision and competence from all the team members and the success of the resuscitation depends not only on knowledge and skill but also the 'attitudes and behaviours' that the team members bring to the clinical situation. In fact, the importance of team working applies to all acute medical situations, not just resuscitation.

A significant correlation has been suggested in the team work behaviours exhibited during a resuscitation and compliance with the prescribed guidelines[1] and both need to be of a high standard to ensure optimum quality of care. Anaesthetists Non-Technical Skills (ANTS) is only one of several behavioural marker systems that has given emphasis to training in human factors, such as team working, task management, situation awareness and decision making.[4]

As the members of any multidisciplinary team become more experienced, their focus needs to change from a task-based approach as a team member to a team-based approach as the team leader. Simulation is an ideal learning tool for providing training in these non-technical skills and has been defined as the process where we 'recreate a real life task, event of experience, providing a safe learning environment, for the acquisition of skills, knowledge, attitudes and behaviours.'[5] As an experiential learning tool, simulation in its many diverse forms allows the freedom to make and learn from mistakes without compromising patient safety and, through expert debriefing, has the added value of focussing upon and developing the attitudes and behaviours in our inherent clinical practice.[6]

There is a current drive to align training to the need for training teams.[2,7] A systematic review,[8] using the Kirkpatrick model of training evaluation[9] showed that structured resuscitation training, including simulation, improves knowledge and skills (**FIGURE 1** shows the Kirkpatrick levels of evaluation of any training programme). However similar evidence is lacking for an improvement in attitudes and behaviours. Moreover, no study has attempted to demonstrate transfer of learning to the workplace causing behaviour modification

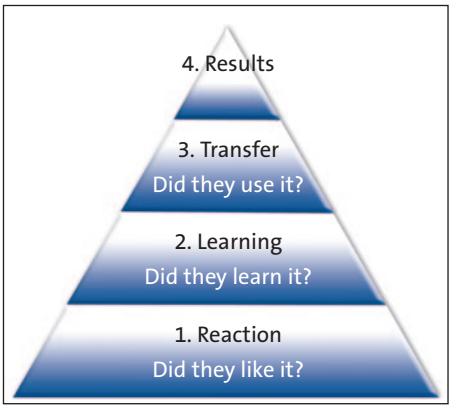

FIGURE 1 Kirkpatrick levels of training evaluation.

that corresponds to a Kirkpatrick level 3. The aim of this study is to explore candidates' perceptions as to whether training received in attitudes and behaviours in a neonatal simulation course is transferred to the clinical workplace thereby providing initial evidence for Kirkpatrick level 3.

Methods

Background

Health Education North West has conducted the inter-professional Advanced Neonatal Resuscitation Simulation course for neonatology nurses and specialty trainees since April 2010. The blended learning techniques utilised on this two-day course include practical skills workshops (airway patency manoeuvres, intubation, umbilical vein access and chest drain insertion), interspersed with short lectures about the various aspects that constitute 'human factors'. Finally there are simulation scenarios where small teams of nurses and doctors come together with a focus on aspects of clinical decision making and team working. The scenarios are video transmitted to the audience as they unfold and the candidates learn both by participating in the scenario and also by being part of the audience. The extended and comprehensive debriefing sessions at the end, focus not just on the technical and clinical aspects of a scenario but also the attitudes and behaviours, such as leadership, followership (the ability to effectively respond to the instruction of the leader) and communication.

Pre- and post-course questionnaires have shown a positive feedback for the learning experience in the course and an immediate increase in the knowledge, skills and confidence of the candidates.[10] This course has been made mandatory prior to trainees taking up an ST4 middle grade post giving due recognition to the steep transition from being a team member to a team leader in the move from ST3 to ST4.[11] Nurses are supported and funded for the course by their employing hospital trust in order to reinforce the principles of newborn resuscitation and promote team working.

Participants

An opportunistic sample of participants in the inter-professional Advanced Neonatal Resuscitation Simulation course in January 2013 was approached to participate in this qualitative study. The course was attended by nine neonatal nurses, seven specialty trainees and an advanced neonatal nurse practitioner (ANNP) who was part of the medical team in the resuscitation scenarios in the course. The author, RS, attended this course as an observer, explained the study in detail to all the participants and obtained consent. Six nurses and six doctors took part in the study.

Nurse 1	"... as a coordinator or a Band 7, when you go to those situations, you're kind of halfway between the expertise, 'cause very often you have a junior nurse with you... and then you have the medical staff as well, so you're kind of on the pecking order of expertise."
Nurse 4	"Your awareness in these situations, isn't it, it's... kind of whether you're an active part or whether you step back... it's made me more aware of where I fit into a picture of certain situations."
Doctor 3	"I think now, I'm thinking more about, you know, the team work side of things, and how you're coming across to other team members."
Doctor 2	"We did have a collapse when I was on-call, I didn't react as I usually react I was a bit more calm... because everybody else was stressed... and I'm not really a calm person but I had to try my best, and it was like, 'you're so quiet and calm,' I was like 'maybe to the outside'..."

TABLE 1 Quotations of participants on the theme of increased self-awareness.

Interviews

Semi-structured interviews were conducted between 3-6 months after the course. The interviews consisted of key questions exploring the perceptions of participants regarding transfer of attitudes and behaviours to the workplace with follow-up questions based on their responses. The interviews were conducted either face-to-face or on the telephone by RS. The face-to-face interviews were conducted in a quiet room on the neonatal unit at Saint Mary's Hospital, Manchester and the telephone interviews were conducted at times convenient to the participants agreed beforehand. All interviews were audio recorded with the consent of the participant to facilitate verbatim transcription.

Analysis

The researchers followed the qualitative research methodology described comprehensively in the book Social Research Methods.[12] Data were initially organised using the software package Nvivo 10 and the responses to key questions were analysed and classified manually into themes. The two researchers independently coded the transcripts and agreed on the final analysis.

Ethics approval

Ethical approval for the study was obtained from the North West Deanery Research Governance Committee. The Central Manchester and Manchester Children's Hospitals Foundation Trust Research and Innovation Committee granted organisational approval for the research.

Results

All professionals reported that they were able to use their training in attitudes and behaviours at their workplace. Three broad themes emerged: increased self-awareness, shared understanding and collaboration without confrontation.

1. Increased self-awareness

The nurses felt that they had become more conscious of role allocation in a resuscitation scenario so that there was no delay or duplication in performance. They described being more aware of their own role in any scenario and what part they play, be it as the team leader or a team member. There was also recognition of the advantages of stepping back to enhance their own situational awareness in a stressful resuscitation.

The doctors described increased consciousness of their own behaviour when working as part of a team. All the doctors reported displaying leadership qualities following the course and making effective use of their teams, with enhanced sensitivity to the perceptions of the team members about their performance. The doctors gave examples of difficult situations where, as team leaders, they took control in a confident manner. **TABLE 1** gives the verbatim quotations of participants on this theme.

2. Shared understanding

Nurses said they have started to speak up and share their thought processes. One nurse also reported that training in effective two-way communication has enhanced her practice not just in resuscitation scenarios but also during other professional interactions.

The doctors also reported vocalising their thoughts as they went along the resuscitation and that explaining their decision making during the event provided clarity to the proceedings. **TABLE 2** gives the verbatim quotations of participants on this theme.

3. Collaboration without confrontation

Both nurses and doctors felt that they have started to communicate and work better together by employing strategies to avoid conflict. The senior nurses declared that, having worked in the specialty for a considerable length of time, they have very useful experience that they are now using to guide the less experienced junior doctors gently rather than taking over the situation themselves. They explicitly expressed enhanced awareness of their vital role in managing situations and working together with junior trainees to achieve patient safety.

The doctors also reported several situations where other team members challenged them in a resuscitation situation. They admitted that where they had previously responded defensively, they now respond more positively and this has made working environments easier. **TABLE 3** gives the verbatim quotations of participants on this theme.

Nurse 5	"To actually say what you're doing, what you're thinking rather than just stand there and, and presume everybody understands."
Nurse 2	"... for example when somebody's handing over to me – I wouldn't just stand there and, and nod and, I might clarify with them what exactly it is they're telling me, to make sure that I fully understand... or with, with parents I might ask them further questions just to make sure that I'm fully understanding..."
Doctor 1	"I was trying to make sure that I was communicating my thoughts to all the members of the team who were present."
Doctor 5	"... everybody speaks their mind out, you know they're saying it loudly so the whole team knows why we are doing what we are doing."

TABLE 2 Quotations of participants on the theme of shared understanding.

Nurse 4	"... and the doctor was saying 'oh this baby's dislodged the tube' but she hadn't actually listened in, she was just going off the monitor, so I directed the situation, 'you need to listen in' and 'can you get me an ET? Can you go and get a registrar?' and 'can you...?'...which I don't think perhaps I would have done... I probably would have just dived in there."
Nurse 1	"... just to say 'could it be this?' or 'have you thought that?' or 'would you like me to get this?' so that you're suggesting rather than confronting, it's got to be a collaborative thing..."
Doctor 2	"I've managed to come to a conclusion that 'right... deep, deep breath in... and explain'..."
Doctor 6	"... you have to be professional in how you deal with that, and obviously you can't say 'what? You did what?' but you might word it in a much more, you know constructive way..."

TABLE 3 Quotations of participants on the theme of collaboration without confrontation.

Discussion

Evaluation of behaviour modification is an extremely important, albeit challenging, assessment. There is mounting evidence that communication failures between team members can lead to inadvertent patient harm[13] leading to increasing emphasis being placed on the importance of training in attitudes and behaviours in the delivery of safe care.[14] Interestingly, a systematic review about structured training programmes, including simulation courses, has shown that, although there is short-term evidence of learning taking place, knowledge and skills deteriorate as quickly as three months after the course.[8] However, no study has so far reported on transfer of learning in attitudes and behaviours from the simulation laboratory to the clinical workplace and its retention with passage of time.

A qualitative approach was chosen for this project, which has given the researchers the scope to explore the transfer of learning in detail from the trainee's perspective. An attempt has been made to gather evidence of behaviour modification in line with the training evaluation model developed by Donald Kirkpatrick in 1959. The interviews gathered rich information about perception of change at the workplace as a result of the course. The interviews were also conducted after a predefined period of time, providing evidence that retention of learning is happening at least in the short-term.

Similar themes emerged from interviewing both the nurses and the doctors, which reinforces the existing evidence favouring training in teams.[15] Interestingly, even though the candidates, both nurses and doctors, were working in different capacities and grades at the time of the interviews, there was repetition of themes. This suggests that the attitudes and behaviours, unlike knowledge and skills, were applicable not just at neonatal resuscitation but in varying clinical domains. All three themes suggest focus on a team-based approach in resuscitation. These themes are also the core components of team work described as the 'big five'.[16] This suggests that the learning objective of the newborn resuscitation simulation course is being met.

Limitations

The sample size is small, but the authors believe that the quality of the results has not been compromised as its heterogeneity is representative of the delegate list of the course each time it is held and could therefore be extrapolated to larger samples. Almost all of the participants in the course took part in the study and all their views and responses were gathered using the qualitative methodology. The responses are subjective, based on the experiences of the individual trainee, however this is a very relevant indicator and the reliability of these individual responses was enhanced by posing the same key questions in a consistent and defined manner by the same interviewer (RS). Although researcher reflexivity during the interview can also

influence the results due to verbal and non-verbal cues, the authors believe that the researcher being a neonatal trainee has led to better understanding and exploration of emerging themes.

Conclusion

This study provides the first focused research on potential translation of training in attitudes and behaviours to 'back on the job' from the perspective of inter-professional participants of a regional neonatal simulation course. Results indicate that learning is reproduced at the clinical workplace. The timeframe of the interviews emphasises retention of learning at least in the short-term. In conclusion, this study provides initial evidence of translation of attitudes and behaviours from simulation to the workplace and corresponds to a level 3 of the training evaluation model developed by Donald Kirkpatrick. Further research is needed to evaluate whether this learning is sustained in the long-term, leading to behaviour modification by repeated and consistent use.

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