Peer-to-peer simulation-based education for non-invasive ventilation: bridging the knowledge gap

Authors: Prasheena Naran,[A] Nikesh Devani,[A] James Murray[A] and Swapna Mandal[A]

Introduction

Current national standards recommend that all staff involved in the delivery of acute non-invasive ventilation (NIV) are adequately trained with defined competencies.[1] However, evidence suggests that junior doctors feel inadequately prepared in this task.[2] Simulation-based training has been noted to improve confidence in delivering NIV,[3] but is often limited by time constraints and the availability of trained faculty to deliver sessions.

Peer-to-peer simulation-based teaching offers an alternative training approach to supporting education directed at NIV delivery. It is a pedagogical approach in which colleagues at similar levels of training can support each other's learning process. This is an attractive method of postgraduate training, given the increasing numbers of learners but smaller faculty available to teach. In addition, peer tutors can explain complex topics in an approachable and less intimidating learning environment. Currently, there is a paucity of research on the impact of peer-to-peer simulation-based teaching in improving NIV based competencies.

Materials and methods

Introduction of a peer-to-peer interactive simulation session was delivered by a respiratory senior clinical fellow at a tertiary London teaching hospital, specifically aimed at ST3+ level doctors, not currently enrolled in respiratory higher specialty training. Scenarios were created by respiratory specialist trainees based on real-life cases, with participants acting in their usual roles as the medical registrar. A debrief followed each scenario, covering both initial set up and troubleshooting of the ventilator, circuit and interface, as well as clinical/communication skills to support patient adherence. Participants were asked to complete pre and post session questionnaires (Numerical analogue 'Likert' scale 1–5).

Results and discussion

Likert scale assessment of confidence in managing NIV interface problems, ventilator alarms, and optimising NIV settings improved after undertaking the session (Table 1). Confidence in discussing the use of NIV with patients and their families, and also with other healthcare professionals, also improved. All participants felt better equipped to teach other healthcare professionals about NIV care and management. 100% of participants would recommend peer-to-peer teaching on NIV implementation and practical delivery.

Author: [A]Royal Free London NHS Foundation Trust, London, UK

Table 1. Summary of Likert scale mean values pre- vs post-peer-to-peer simulation-based training course

Likert scale domain	Pre (mean)	Post (mean)
I feel comfortable talking to patients and their families about NIV management	3.0	4.7
I find it easy to talk to other team members about NIV management	1.3	2.7
I know how to manage interface problems	3.3	3.7
I am about to construct, carry out and amend an NIV weaning plan	3.7	3.7
I am able to assess the effectiveness of NIV that a patient is receiving	4.3	4.7
I feel able to recognise a deterioration in a patient receiving NIV		5.0
I know how to manage ventilator alarms	3.3	4.7
I know how to adjust the ventilator settings to optimise the NIV that a patient is receiving	4.0	4.3
I feel comfortable teaching others about NIV care and management	2.3	4.3

Conclusion

Development of peer-to-peer simulation-based teaching programme improves trainee confidence and competency when initiating, titrating and troubleshooting the implementation and practical delivery of NIV. A simulation-based approach enabled participants to become accustomed with the different modes of acute NIV utilised across the trust, through 'hands-on' exposure to device set-up and adjustment of settings. This was felt especially useful by the participants, as many were unfamiliar with the various devices available. A peer-to-peer approach provides a flexible collaborative approach to learning and is an effective way of utilising resources while decreasing demands on an already stretched service. In addition, the peer-to-peer approach could help to potentiate further peer-to-peer training as a future sustainable approach to addressing learning gaps.

We aim to plan further sessions, to improve learning gaps and competencies across the most senior medical doctors on site, out of hours. Future data collection will assess the impact this training has upon patient outcomes and support extending the course to emergency and intensive care trainees. ∎

References

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