Human patient simulation can aid staff training in non-invasive ventilation

Non-invasive ventilation training onwards can be fragmented. A trust developed a training course using simulation of clinical scenarios to improve staff technique in a number of ways.

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Non-invasive ventilation is increasingly used on general wards to manage respiratory disease and staff need training and clinical experience to use this technique effectively. This article describes a training course that used human patient simulation to improve healthcare professionals’ skills and confidence in using and adjusting non-invasive ventilation.

While non-invasive ventilation is a treatment option for a number of respiratory conditions, training staff to use this technique can take several months. The national chronic obstructive pulmonary disease audit highlighted the difficulties of training staff to use this technique (Royal College of Physicians et al, 2008). Problems arise as staff are not always on duty when patients on the ward require NIV and this means that training is fragmented and protracted.

Human patient simulation (HPS), a technique that replicates clinical situations to develop healthcare professionals’ expertise, can be used to train staff to use NIV. Its popularity has increased in recent years.

USING HPS
At Lancashire Teaching Hospitals Foundation Trust, we developed a one-day training course for nursing staff with a special interest in NIV. The course covered various aspects of NIV and, for the first time, the use of HPS was integrated into the programme.

The course is held in a room designed to look like a ward side room. A manikin, with voiceovers provided by course trainers, helps to simulate real life clinical situations where NIV is a possible treatment option.

The use of HPS allows participants to examine and respond to a clinical situation, and assemble and apply NIV. They have an opportunity to manage patients in real time, in the safety of a simulated clinical environment.

For example, participants have to respond to an initial patient assessment then react to changing arterial blood gas analysis or patient observations. An example of a case scenario used in the course is outlined in Box 1.

EVALUATING THE APPROACH
Six members of nursing staff with varying degrees of knowledge and expertise in using NIV and arterial blood gas interpretation were recruited to the first course. Three members of staff had very limited knowledge of NIV and did not feel confident to initiate or modify treatment plans.

Following the training day, all participants were given the opportunity to start and adjust NIV management on patients in their clinical area. The three staff who had little experience of NIV were able to successfully begin and modify NIV on patients within two weeks of completing the training course.

CONCLUSION
The course successfully reduced the time that healthcare professionals needed to become confident and safe to use NIV in practice. It has been repeated in the trust and nurses from other organisations have attended.

This project won the poster presentation competition at the Association of Respiratory Nurse Specialists conference in 2009.

REFERENCE

NURSING Learning
Nursing Times Learning offers cost effective, high quality online learning. For units on ventilation go to www.nursingtimes.net/ventilation and for arterial blood gas interpretation go to www.nursingtimes.net/abg2

BOX 1. EXAMPLE OF CASE SCENARIO USED IN HUMAN PATIENT SIMULATION

Case: COPD type 2 failure.

Key complaint: acute type 2 respiratory failure.

Case description: 68 year old male lorry driver, with known hypertension, with increasing shortness of breath.

History of presenting condition: two week history of shortness of breath with productive cough (green sputum). Amoxicillin from GP ineffective. Reduced exercise tolerance. Orthopnoea (sleeps with four pillows).

Past medical history:
- Three hospital admissions in the last 18 months for COPD exacerbations;
- COPD diagnosed 10 years ago;
- Myocardial infarction in 1999;
- Intermittent claudication.

Medications:
- Salbutamol metered dose inhaler;
- Tiotropium MDI;
- Fluticasone propionate MDI.

Social history: lorry driver, smoker (20/day since early 20s), no exercise.

Allergies: pollen.

Developmental aims:
- Identify possible COPD diagnosis due to smoking history;
- Identify type 2 respiratory failure and need for NIV;
- Initiate NIV with correct mask and settings and respond to arterial blood gas analysis results and changes in clinical condition;
- Initiate involvement of other multidisciplinary team professionals.