Cyflymu Accelerate

The prototype tracheostomy tube support vest

AN INNOVATION CASE STUDY

THE USE OF A NOVEL TRACHEOSTOMY TUBE SUPPORT VEST

PROJECT DURATION: 9 months

PARTNERS: Brodwaith Cyf, Cardiff University, and Cardiff and Vale University Health Board.

PROJECT AIM: To undertake a preliminary evaluation of the use of a tracheostomy support tube vest to support patient mobilisation in the intensive care unit

OVERVIEW

A tracheostomy is one of the most frequently performed procedures in the intensive care unit (ICU). Reasons for performing such a procedure include: addressing upper airway obstruction, improved oral hygiene (secretion management), and the need for prolonged ventilation. The procedure involves placing a tube into an artificially created hole or stoma in the windpipe (trachea). Tubing is used to connect the tracheostomy tube to a mechanical ventilator.

Early mobilisation of patients is viewed as an important practice for improving a patient's outcomes and wellbeing. For mechanically ventilated patients it is particularly important to promote mobilisation, as they have an increased risk of Intensive Care Unit Acquired Weakness. Patients who can be supported to mobilise, can continue to be ventilated using a mobile ventilator.

However, early mobilisation within the ICU needs issues to be overcome such as. sufficient trained staff to support safe patient mobilisation, and managing the ventilator tubes. A Welsh company, Brodwaith Cyf, have worked with staff at Cardiff and Vale University Health Board (CVUHB) to design and manufacture a prototype vest to secure the tubing in place.

Initial feedback from ICU staff suggests that this vest appears to hold the ventilator tubes in place without the need for staff to manage them when patients are mobilising. However, this needs to be established with a variety of different patients and staff, and, across different size patients. To inform a change in practice, there is a need to establish an evidence base, and the purpose of this Accelerate supported project is to undertake a preliminary evaluation.

EXPECTED OUTCOMES

- A new product and/or suggested modifications for Brodwaith Cyf
- Potential change in clinical practices within ICU
- Improved procedures for patient mobilisation resulting in increasing patient comfort and confidence
- Upskilling of staff in using this new tool
- Preliminary data to seed future work
- Peer reviewed publications

POTENTIAL FUTURE OUTCOMES

- Clinical and academic case studies
- Future collaborations between industry, academic, and clinical partners
- Potential for a definitively powered clinical trial
- Rollout of an innovative tool across NHS Wales ICUs and into the community environment
- Improved patient outcomes, for example increased independence in community settings

Accelerate is supporting a Cardiff University researcher, Brodwaith Cyf, and CVUHB staff to undertake this preliminary evaluation in the intensive care units of two hospitals in Cardiff. This pilot work will explore the usability of the prototype vest across different patients and staff. Observations, focus groups and questionnaires with the staff involved in patient mobilisation will help to determine any necessary alterations to the vest, and support the decision on whether this vest has clinical appropriateness. Where appropriate, patient/ family feedback will also be collected.

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