Improving Compliance with Head-of-Bed Elevation Guidelines in Mechanically Ventilated Patients: A Quality Improvement Project

Dr Ibraheim Sheikh FY2 , Dr Edward Kim FY1

The Princess Alexandra Hospital NHS Trust

Background

Ventilator-associated pneumonia (VAP) remains a significant cause of morbidity and mortality in critically unwell patients. NICE recommends maintaining head-of-bed elevation at **30–45°** in intubated, mechanically ventilated patients to reduce VAP risk. Despite clear guidance, compliance can vary due to individual and system-level factors. This project aimed to improve adherence to evidence-based VAP prevention measures within the Intensive Therapy Unit (ITU) at Princess Alexandra Hospital NHS Trust.

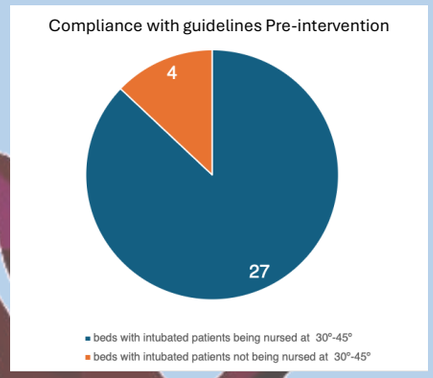
Methodology

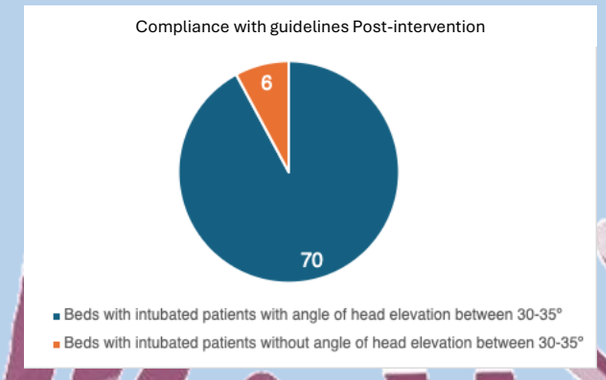
A prospective audit was conducted over four weeks, assessing head-of-bed elevation in mechanically ventilated patients. Bed angle was measured at random daytime intervals using a digital inclinometer application, with compliance against the recommended 30–45° range recorded.

Following the initial audit cycle, a multidisciplinary educational intervention was introduced. This included teaching for ITU staff, bedside demonstrations with nursing colleagues, and engagement with doctors, nurses and physiotherapists to improve understanding of the guideline and practical application. Visual reminder posters were also displayed within the ITU environment to support sustained behavioural change.
A repeat audit was then performed using the same methodology.

Results

Baseline compliance with NICE guidance was 80%. Feedback identified barriers including uncertainty regarding accurate bed angle measurement and variable awareness of the evidence supporting head-of-bed elevation. Following the intervention, compliance improved to 92%, demonstrating a meaningful improvement in adherence to evidence-based practice.





Conclusion

This project demonstrates how simple, low-cost interventions can improve patient safety within complex healthcare systems. Through multidisciplinary collaboration between doctors, nurses and physiotherapists, the intervention promoted shared responsibility for VAP prevention and improved adherence to evidence-based practice.

By reducing avoidable complications, this work supports person-centred care and sustainable healthcare delivery through prevention of harm and reduced resource burden. Maintaining head-of-bed elevation at 30–45° is a high-impact intervention that can be embedded into routine ITU practice through ongoing education, visual prompts and regular audit cycles.