

ZapVAP Decreased Ventilator-Associated Pneumonia with an Interdisciplinary Bundle

Lauren Manrai, BSN, RN, CCRN; Renee Franquiz, DNP, RN, CNE

Abstract

Problem and Purpose

Ventilator-associated pneumonia (VAP) is a preventable, hospital-acquired infection that increases morbidity and mortality. VAP bundles incorporate evidence-based, clinical interventions that are low-cost and improve outcomes. The National Healthcare Safety Network set the benchmark at 1.8 VAP episodes per 1,000 ventilator days. This quality-improvement project implemented a VAP bundle, referred to as ZapVAP, which standardized best practices for bedside care. This nursing and respiratory innovation, aimed to reduce the VAP rate of six per 1,000 ventilator days.

Methods

ZapVAP was implemented in a 19-bed pediatric intensive care unit at a large, tertiary hospital in the Mid-Atlantic region. It included (a) developmentally appropriate oral care, (b) clean suction techniques, (c) equipment management, (d) positioning with head of bed elevation, and (e) hand hygiene. During the introduction phase, stakeholder support, environmental structures, and resources were established. The preparation phase disseminated education that enhanced competency of ZapVAP processes. Bundle supplies and care-reminder signs were produced. Practice change was monitored throughout the implementation phase with audits performed by champions and teaching in response to performance gaps. Any missed bundle component was scored as nonadherent with ZapVAP.

Results

Performance exceeded the target goal of 80% 11 weeks in a row. Final adherence with all bundle components exceeded 95%. A zero VAP rate was calculated by comparing ICD-10 VAP code to ventilator days. A pre/post-sputum rate revealed a 30% decrease in positive sputum cultures, with 58% reduction of the sputum rate.

Conclusion

High levels of ZapVAP adherence resulted in a zero VAP rate. Effective oral care and equipment rotation were key, so nurses and respiratory were paramount to VAP prevention.