

# VENTILATOR ASSOCIATED PNEUMONIA: A SYSTEMATIC APPRAISAL IN A SAUDI ARABIAN CONTEXT

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## ABSTRACT

**Background:** Ventilator-associated pneumonia (VAP) is the commonest hospital-acquired infection (HAI) in intensive care. The incidence of VAP is the leading cause of HAI in the ICU. In the United States of America, VAP is the second most prevalent HAI with a reported mortality of 40-80%. However, despite transparency in the literature on the preventative measures in the preceding decade, the prevalence of VAP remains high in mechanically ventilated patients and increases an ICU patient's confinement by 5-7 days once they developed a VAP. **Methods:** To determine the incidence, prevalence, and aetiology of VAP and oral care practices in Saudi Arabia, a systemic review of the literature published from the year 2000 till present day was employed. Databases searched included CINAHL, WILEY, PROQUEST and SCIENCE DIRECT. The systematic collection of data was followed by the development of the appraisal protocol which set out the methods in the appraisal. This protocol specifies the appraisal question, inclusion and exclusion criteria, databases search strategies, study selection, quality appraisal and data production as well as the individual types of studies sited, appraised and synthesized. **Results:** The findings from the systematic appraisal indicate that implementing a comprehensive and effective oral care protocol which incorporates both the application of an antiseptic such as Chlorhexidine 0.12% and the clinical practice of tooth-brushing plays an instrumental role in preventing and reducing VAP in the intubated, mechanically ventilated ICU patient. **Conclusions:** VAP remains a common cause of HAI, but in order to stay current and compliant with knowledge and practical skills, ICU nurses require ongoing evidence-based education, reinforced with evidence-based practice. In addition to encouraging development of a body of knowledge that will advance nursing practice which is clinically safe and effective.

**Keywords:** Middle East, Oral care; Saudi Arabia, Ventilator-associated pneumonia

## INTRODUCTION

“An ounce of prevention is worth a pound of care” (Benjamin Franklin). This quote, from an iconic and historic figure; is the personification of this systematic review.

Good health depends in part on a safe environment and practices that control or prevent the transmission of infections which help to protect patients from attaining diseases. Patients in an Intensive Care Unit (ICU) however, are at risk of acquiring Healthcare Associated Infections (HAI) because of their lowered immunity and exposure to invasive procedures (Stonecypher, 2010).

Patients in the ICU are therefore at risk of increased morbidity and mortality, not only from their admission illness but also from a HAI. A Healthcare Associated Pneumonia (HAP) is the most common HAI acquired in an ICU globally (Rosenthal *et al.*, 2016; Stonecypher, 2010) and is the second most common HAI in critically ill patients (Graves, 2010). Curiously 86% of HAP are related to mechanical ventilation and are labelled as Ventilator Associated Pneumonia (VAP) (Graves, 2010). A VAP continues as an evolving concept in critical care medicine and remains a substantial clinical predicament for ICU patients. The VAP however, is not a recent dilemma, and prevention strategies; education and