

Implementation and evaluation of an oral care bundle for reduction of non-ventilator hospital-acquired pneumonia in a multi-unit community hospital

Coury Elias, MPH, Dietz Shannon RN, BSN, MHA
Havasu Regional Medical Center, Lake Havasu City, AZ

Background

Pneumonia is the leading hospital-acquired infection (HAI) in U.S. hospitals, with non-ventilator hospital-acquired pneumonia (NVHAP) now representing 60% of cases. NVHAP impacts approximately 1 in 100 hospitalized patients, carries an associated crude mortality rate of 13% to 30%, is associated with increased antibiotic usage, high ICU utilization rates, high readmission rates (20%) for survivors, and is the most common pathway to sepsis.

Despite the harm from NVHAP, with no current safety and reporting requirements, most hospitalized patients who acquire NVHAP do not receive therapeutic prevention interventions.

The purpose of this study was to determine the effectiveness of a universally-applied oral care bundle on prevention of NVHAP in the acute care setting

Research Questions

1. Is there is a relationship between the use of a universally-applied oral care bundle and the incidence of NVHAP per 1000 patient days?
2. Is there is a relationship between the use of a universally-applied oral care bundle and the incidence of NVHAP associated sepsis per 1000 patient days?
3. Is there is a relationship between the use of a universally-applied oral care bundle and NVHAP-related mortality per 1000 patient days?

Setting

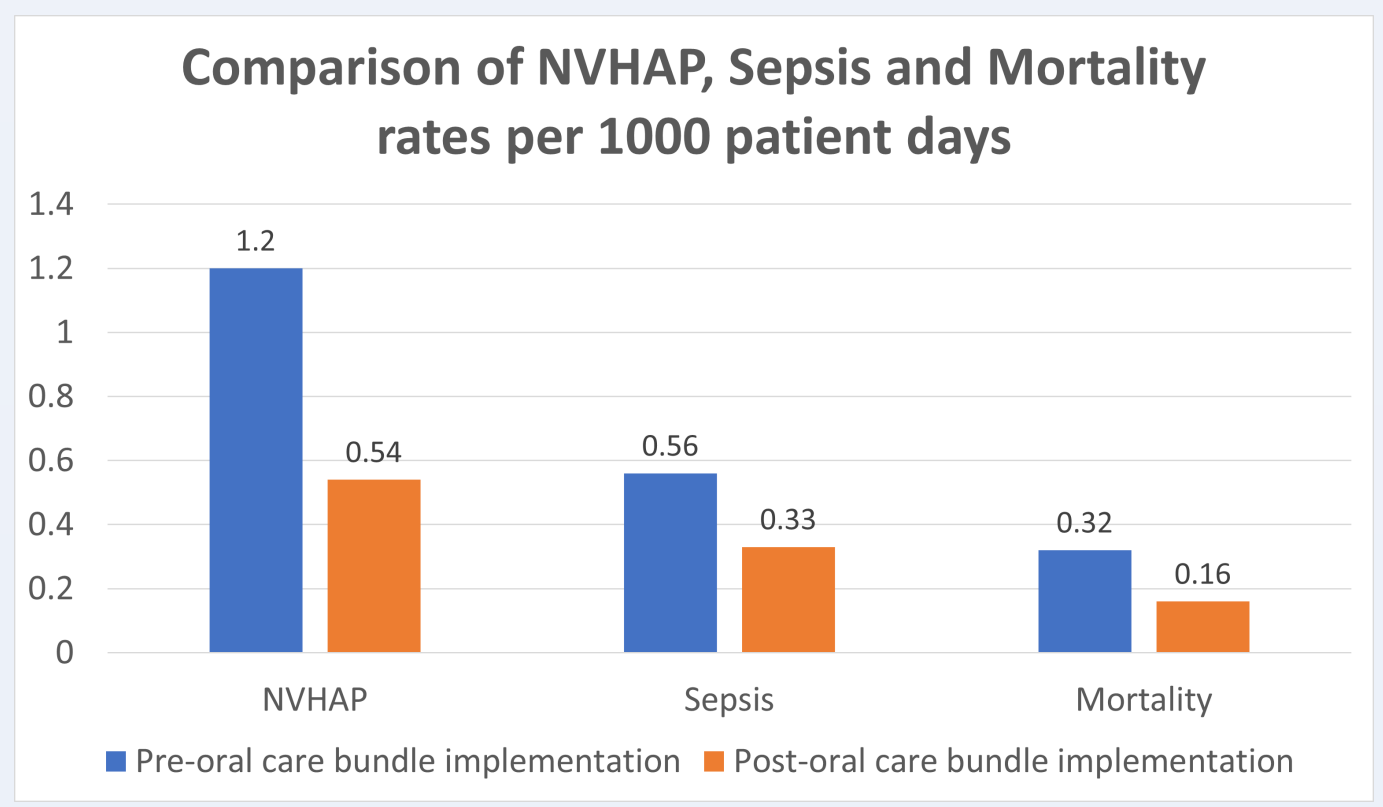
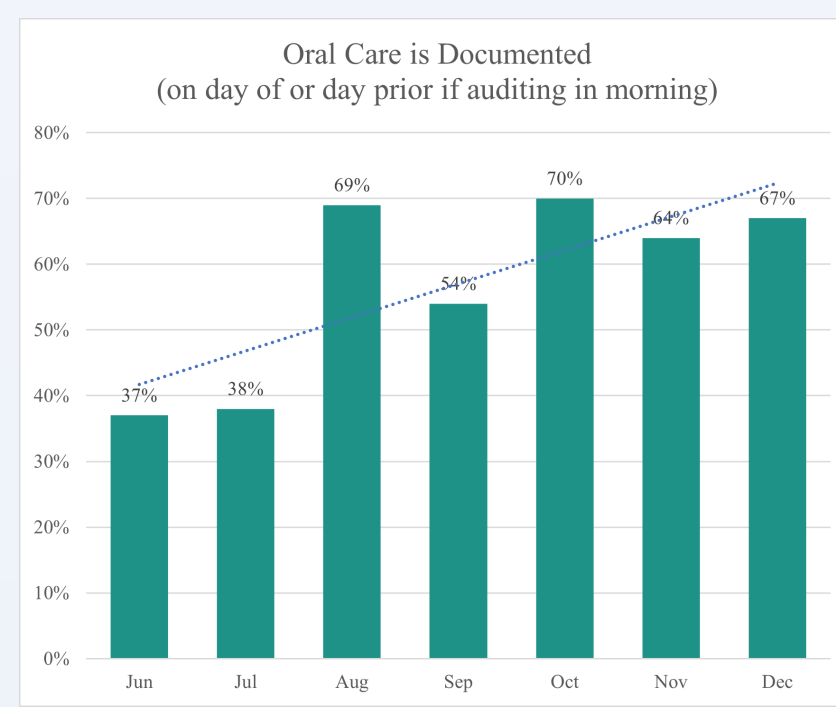
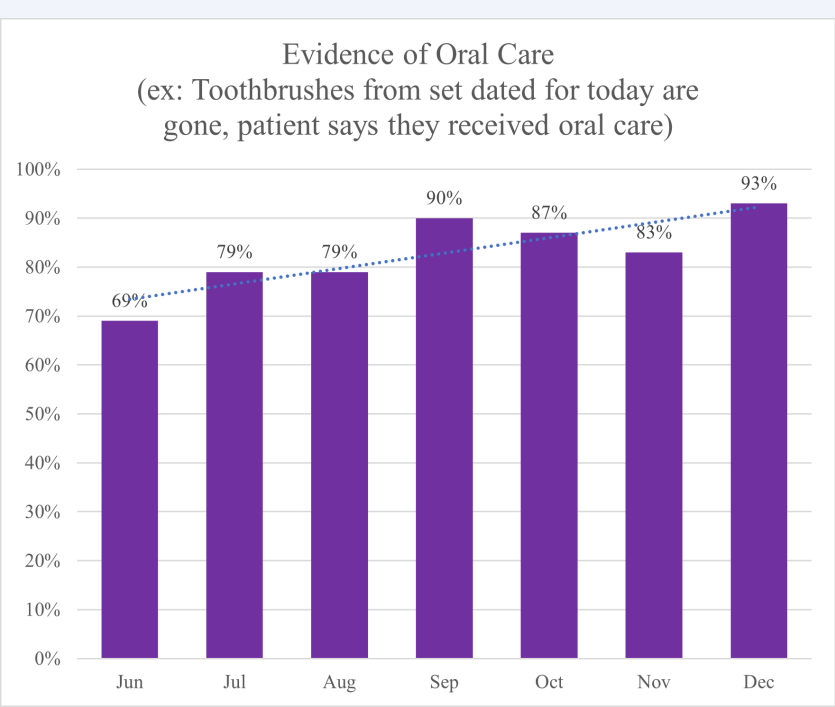
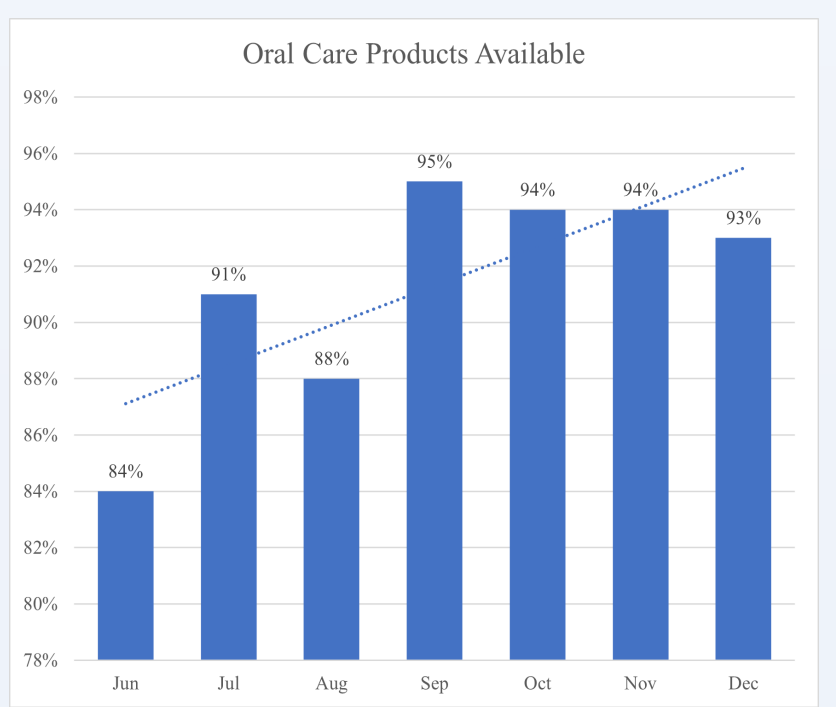
Havasu Regional Medical Center (HRMC) is a 171-bed acute care community hospital based in Lake Havasu City, Arizona. The hospital inpatient units included in this study were the Medical Surgical Telemetry, Ortho Unit (MTSO), Intermediate Care Unit (IMC), and Intensive Care Unit (ICU).

Methods

- NVHAP and sepsis cases were identified using ICD-10 codes.
- Mortality was defined as in-hospital mortality.
- Baseline data were collected from 1/1/21 to 6/4/21.
- The new oral care bundle was then implemented in the 4 clinical units included in this study.
- The oral care bundle was universally-applied on all patients who were admitted to those clinical units from 6/5/21 to 12/31/21.
- The new oral care bundle included staff education on best practices for oral care.
- Daily oral care audits were done to measure for compliance to the new oral care bundle.
- Oral care compliance was determined using the following: 1) oral care products available at the bedside, 2) evidence that products were used, 3) oral care was documented in the patient chart.

Results

- Total patient days in pre-oral care bundle implementation period: 12,415
- Total patient days in post-oral care bundle implementation period: 18,413
- Pre-implementation single day baseline audit: 1) 78.9% of patients had toothbrushes at the bedside, 2) 36.8% of patient had used their toothbrush, 3) documentation of oral care was not measured.
- Post-implementation, monthly audits and run charts were used to track compliance.



Conclusions

- From 6/5/21 to 12/31/21, after the implementation of the oral care bundle, there was a 58% reduction in NVHAP, a 41% reduction in sepsis with source documented as NVHAP, and a 50% reduction of NVHAP-related mortality.
- These findings add to the emerging body of knowledge on the role of oral care in NVHAP prevention.
- Hospital infection control programs should consider implementation of a robust oral care bundle which includes education of best practices and audits to monitor staff compliance as an effective strategy for NVHAP prevention.

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