

# Measuring best practice compliance drives changes in behaviour which reduces infections in ICU



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## CONTEXT

Steve Biko Academic hospital (SBAH), is an 832 bed hospital in Pretoria, South Africa. The hospital's 7 Intensive Care Unit's (ICU's) participated along with 13 other large hospitals in the region, in the Best Care Always collaborative series aimed at reducing hospital acquired infections in ICU patients.

Best Care Always is a collaborative effort among healthcare leaders across the public and private sector in South Africa. Its mission is to support and drive the implementation of best practice bundles to every patient

## PROBLEM AND INITIAL INTERVENTION

The Unit manager of the Trauma/Surgery Intensive Care Unit (ICU) was determined to ensure that trauma and surgery patients in her unit would receive the best care and wouldn't contract ventilator associated pneumonias (VAP).

In May 2012 the unit manager started implementing the VAP bundle in order to improve the quality of care to her patients with sustained reduction in infection rates over time (figure 1). Peak holiday periods over December to February show increased admissions when staffing levels are low due to leave. Despite this the unit maintained its VAP rate at around 7 per 1000 ventilator days.

However, in April 2013 the facility ran out of stock in sterile closed system suctioning catheters requiring the staff to utilize the open buddy system suctioning procedure. This requires two nurses to suction the patient's endotracheal tube and with the short staffing in the unit, new ICU students and other new staff, the level of skill to perform this task effectively was low and subsequently the VAP rate increased.

The clinical facilitators training staff in the ICU identified this shift quickly and demonstrated to all staff buddy suctioning resulting in an improvement in the VAP rate.

Figure 1 – VAP rates per 1000 device days for Trauma/Surgery ICU

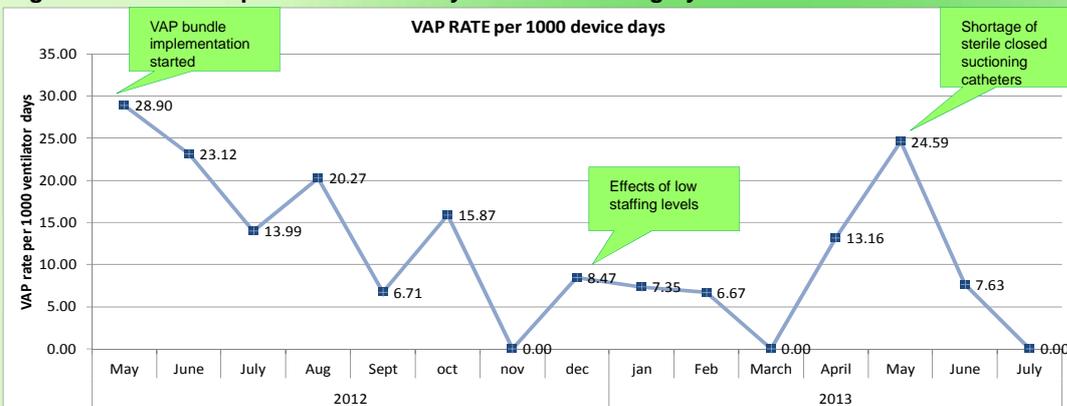


Table 1 - VAP BUNDLE ELEMENTS

- ❖ Elevation of the head of the bed to between 30 and 45 degrees
- ❖ Aseptic suctioning and Oral care
- ❖ Daily "Sedation Vacation" and daily assessment of readiness to extubate
- ❖ Glucose monitoring
- ❖ Peptic ulcer disease (PUD) prophylaxis
- ❖ Deep vein thrombosis (DVT) prophylaxis (unless contraindicated)

## HYPOTHESIS OF STUDY

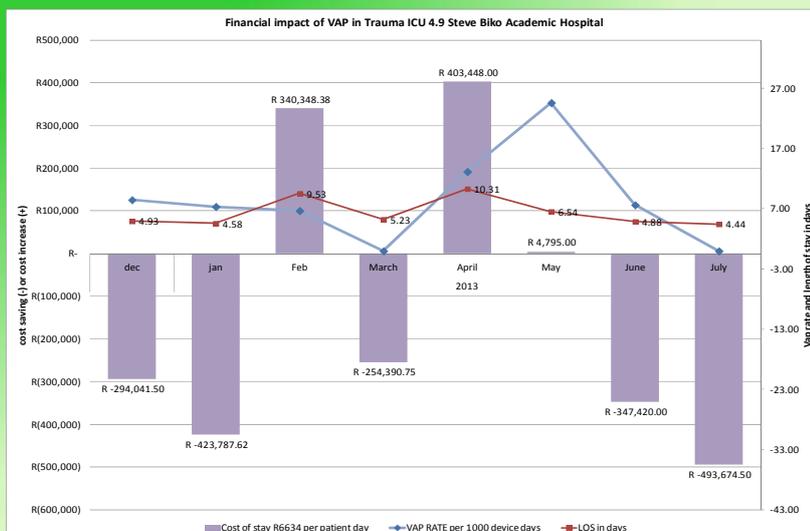
The hypothesis was: lack of critical supplies would increase infections and therefore increase length of stay which requires more input costs and therefore would result in additional financial burden to the facility.

## MEASUREMENT OF IMPROVEMENT AND EFFECTS OF CHANGE

Analysis of data prior to the equipment shortage shows that despite the increase in patients over the holiday season, the unit was still saving money - R377,480 in total. When the equipment shortage occurs in April 2013 there is a dramatic increase in the VAP rate over the next 2 months along with an increase in average length of stay to 10.31 days (average for the period preceding the event was 6.51 days). With the intervention of the training the average length of stay drops in June and July again.

Where the LOS was greater or less than the average expected, the difference was quantified against the average daily cost per patient day in ICU (which was R6,634). Where there is a negative financial amount, the unit had saved money and a positive amount; the unit had cost additional funds. Over the period of the equipment shortage the unit incurred additional costs of R408,233 compared to savings generated over the peak holiday period of R377,480.

Figure 2 – Financial impact and length of stay for Trauma/Surgery ICU



## LESSONS LEARNT AND MESSAGES FOR OTHERS

The impact of critical equipment shortages are felt instantaneously by the clinical areas and have a significant impact on quality of care and the effort in delivering care as well as the financial costs of care.

Translating quality outcomes into financial terms may allow quality leaders to influence management of hospitals to improve supply chain efficiencies, resource availability and support to clinical staff to enable them to deliver better quality outcomes to all patients every day.

## Acknowledgements:

Institute for Health Improvement our partners in the Best Care Always campaign in South Africa Steve Biko Academic Hospital for collection of the data and improvement efforts by staff Gauteng Department of Health and Social Development for support to the collaborative