

# Ventilator Associated Pneumonia (VAP) Prevention in a CVSICU – A CUSP based framework

Garrett M. Koslan, MA, BS, Helene Fuld  
Fellow in Patient Care Quality and Safety,  
JHU School of Nursing, BSN Candidate

Ian Morris, BSN, Nurse Clinician III, Johns  
Hopkins Hospital, Cardiovascular Surgical  
Intensive Care Unit (CVSICU)

Sharon Allan, MSN, RN, CCRC Clinical Nurse  
Specialist & Quality Improvement Team  
Leader, Johns Hopkins Hospital,  
Cardiovascular Surgical Intensive Care Unit

## 1 Background

Ventilator Associated Pneumonia (VAP) is a serious hospital acquired condition that develops within 72 hours of a patient being intubated in the hospital (Lewis et al., 2011).

VAP is a serious medical issue because the development of VAP has been correlated with longer hospital stays, more medical interventions, increased morbidity and mortality, and invariably, increased costs (Lewis et al., 2011). All of these factors act in an additive fashion, which negatively impacts the provision of safe and high quality care.

The ultimate goal of the Maryland Hospital Association's (MHA) VAP program is to: reduce the incidence rate of VAP to 0% with the use of the developed intervention bundle: use of a subglottic endotracheal tube (when appropriate), keeping the head of the bed at  $\geq 30^\circ$ , performing rigorous oral care (including at least two Chlorhexidine rinses daily), and both spontaneous breathing and awakening trials (Morris et al., 2007).

## 2 Methods

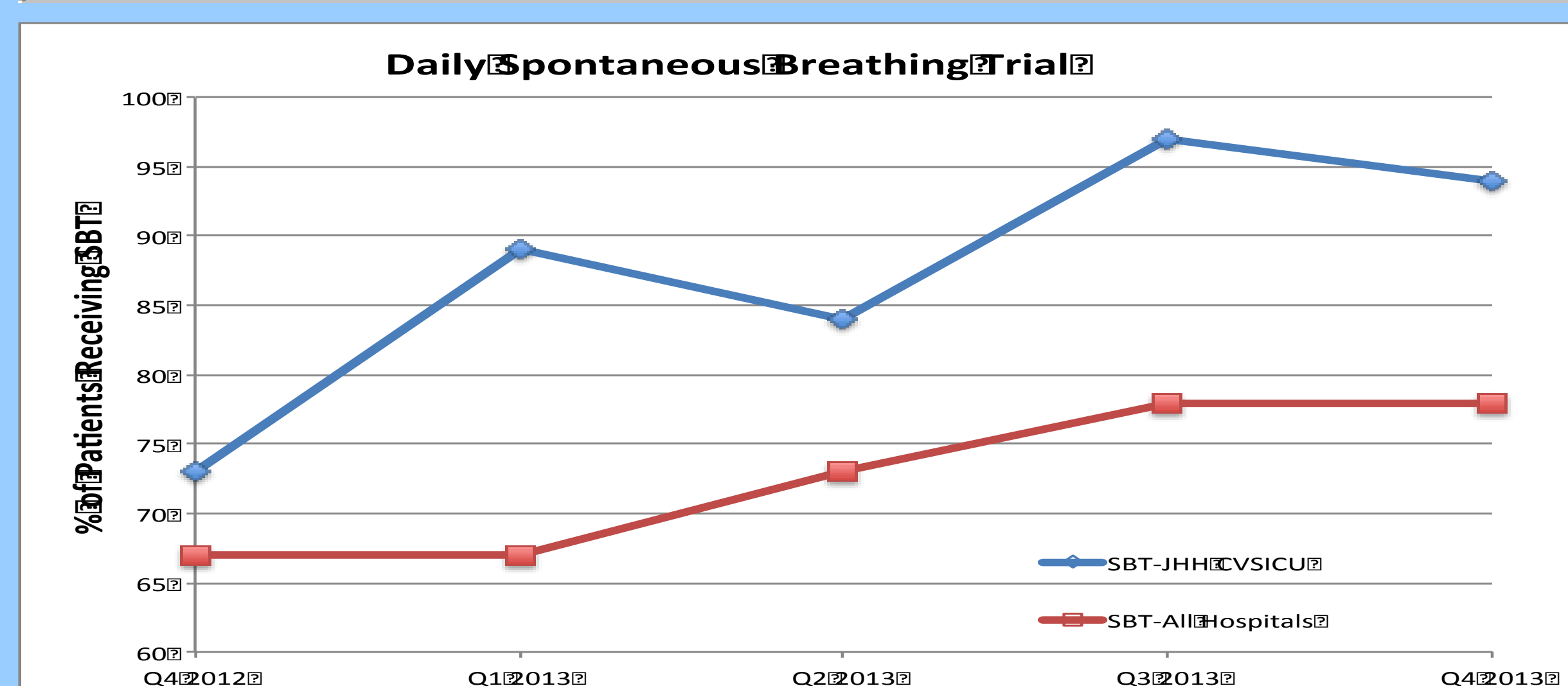
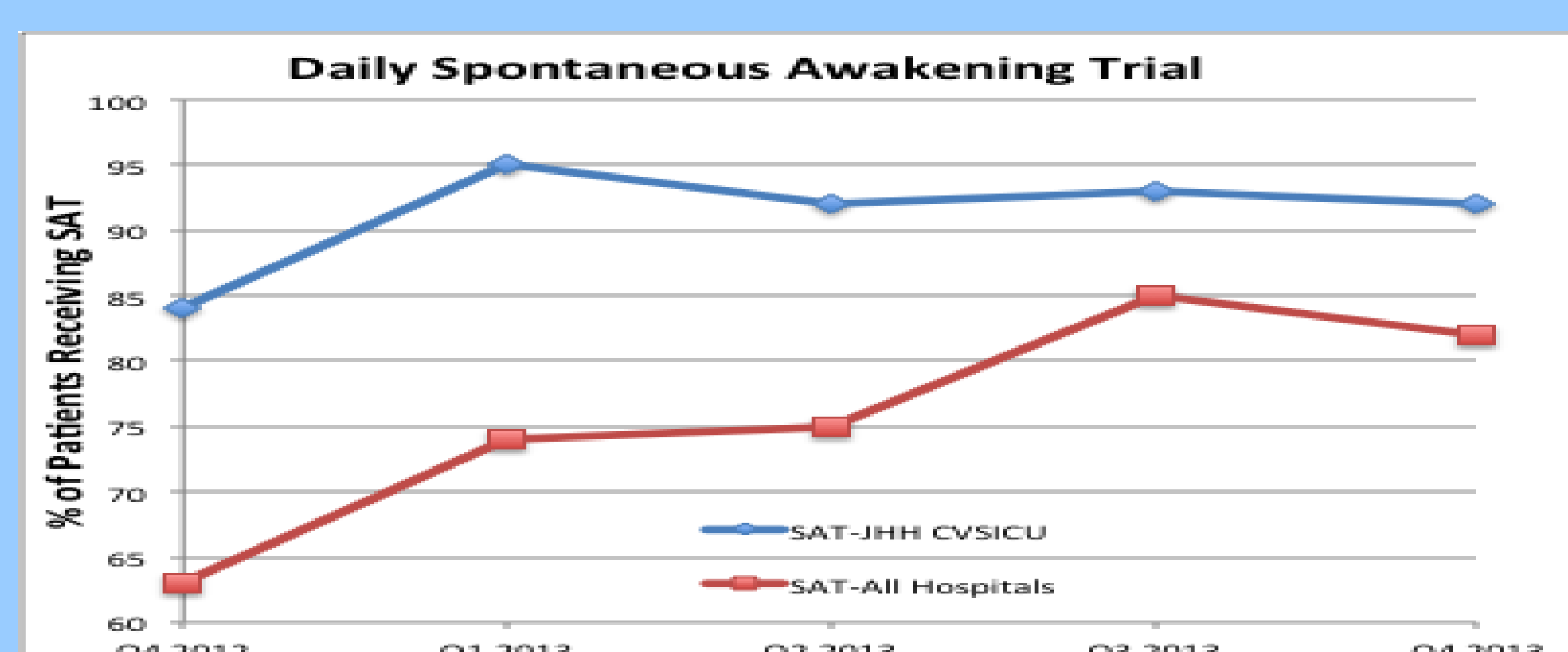
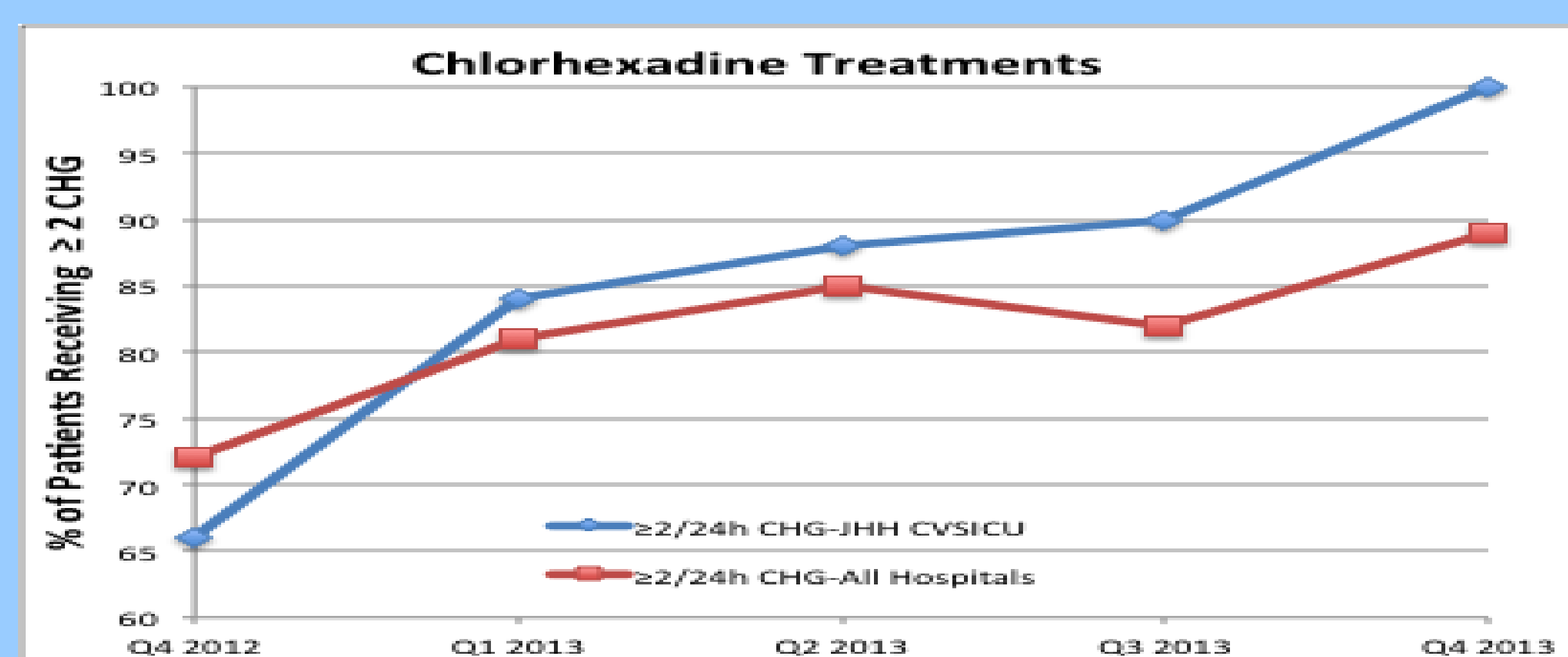
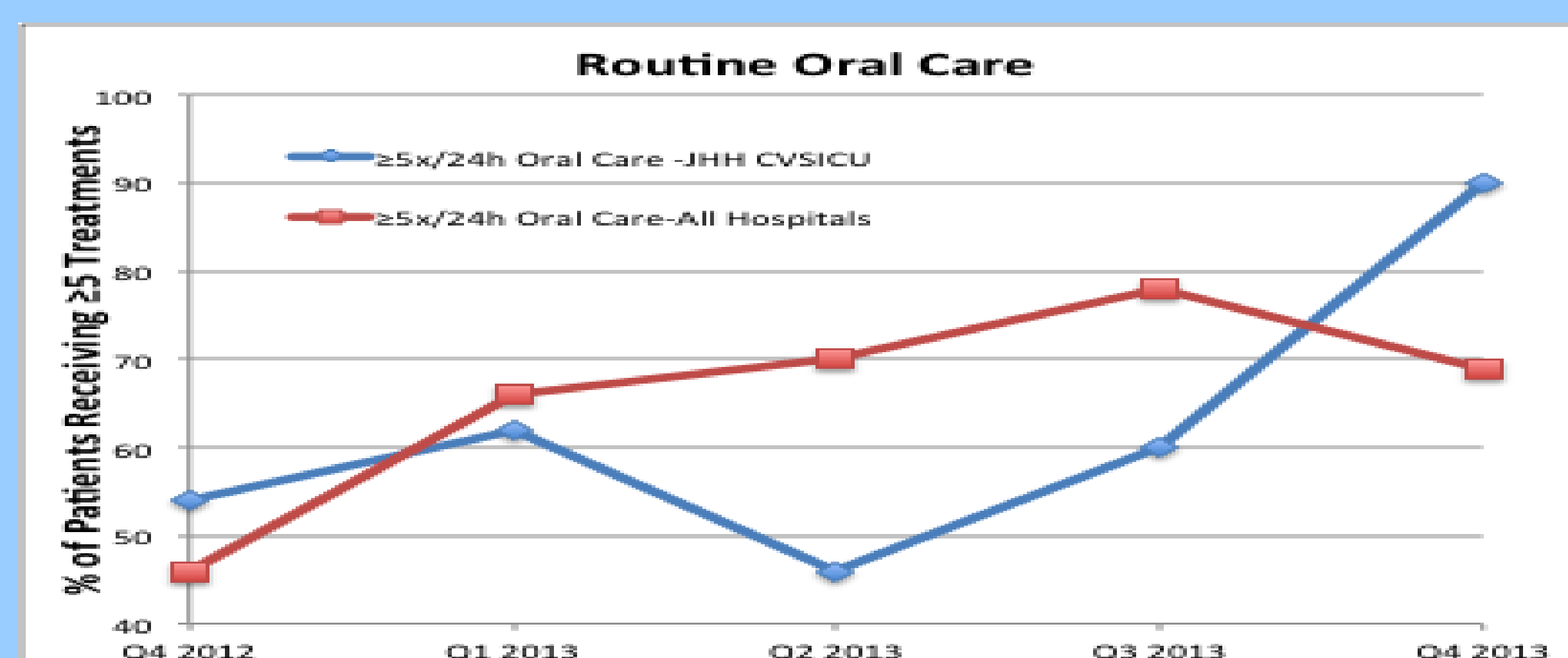
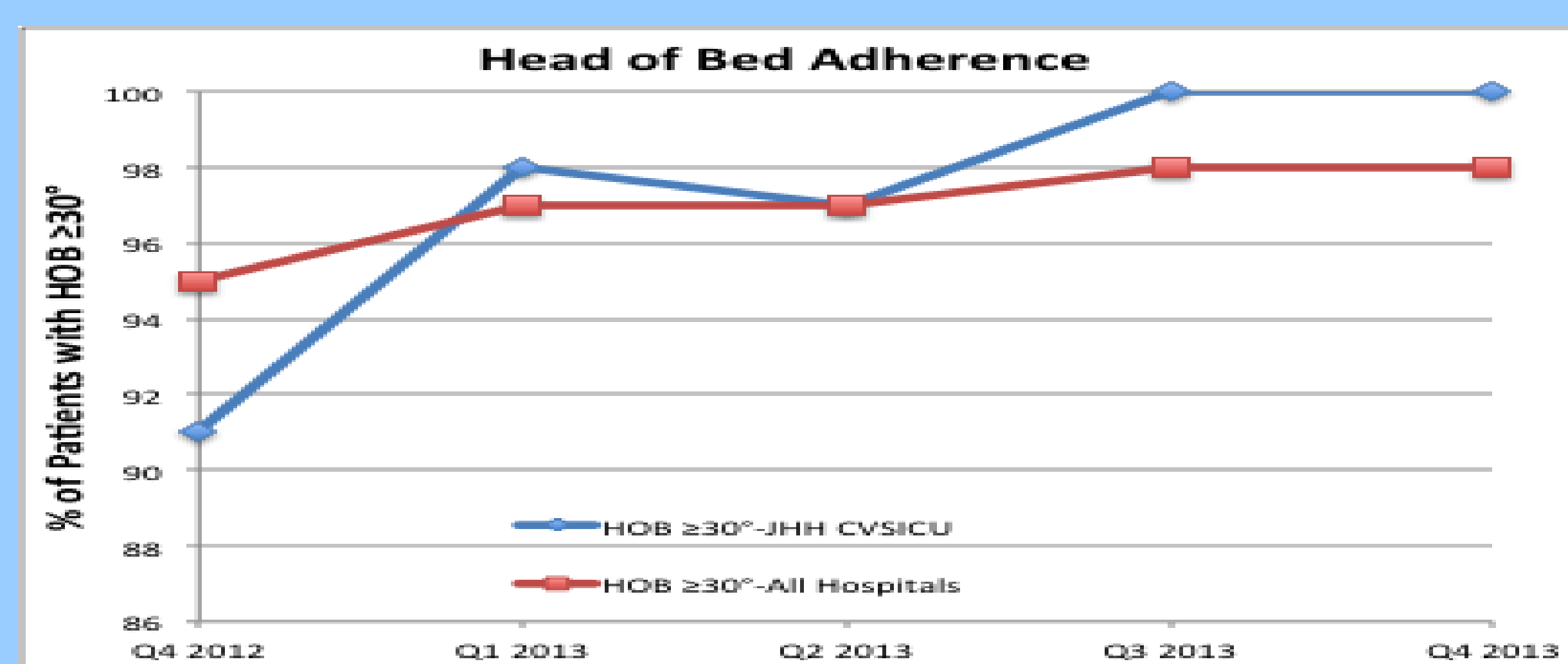
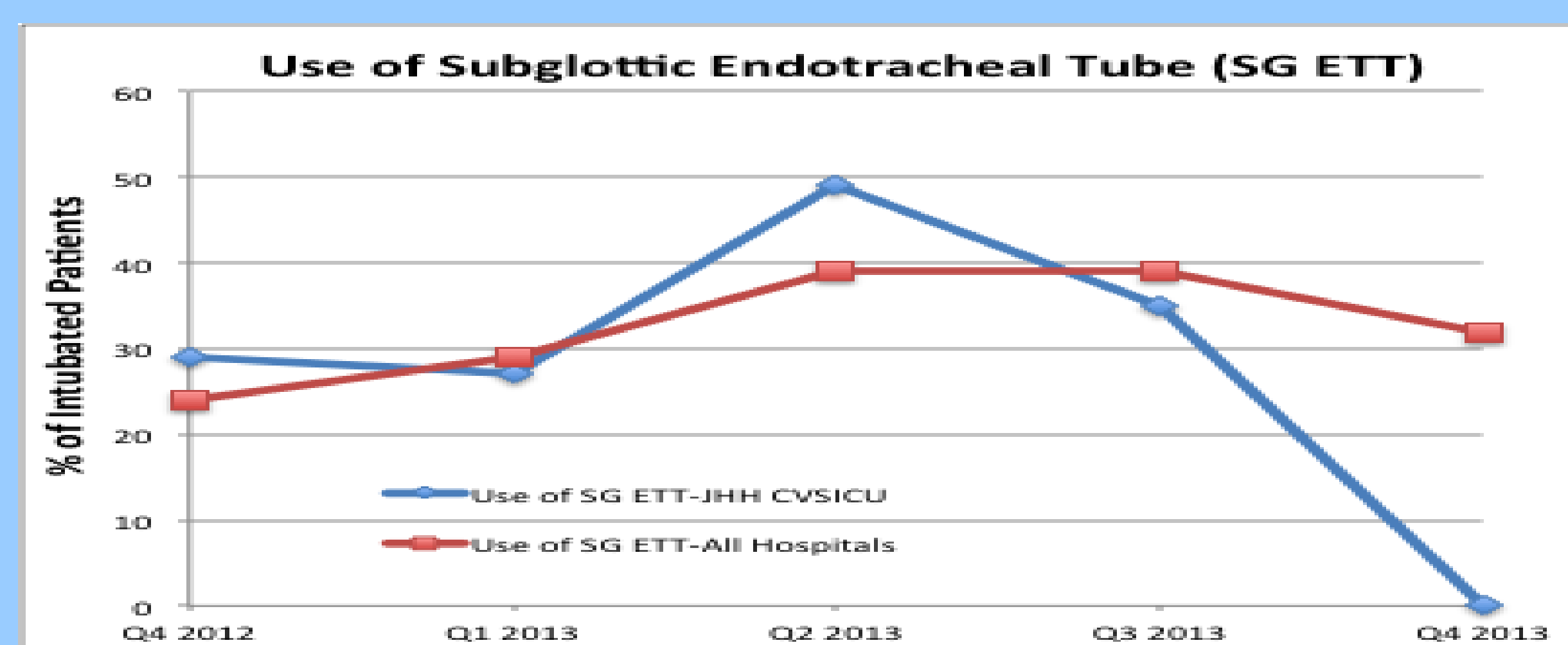
A total of nineteen hospitals across Maryland are participating in a Comprehensive Unit-based Safety Program (CUSP) approach to implement and measure adherence to an intervention designed to reduce VAP incidence.

A team of nurses was trained to survey and record the following data, once every 24-hours on patient rooms within the unit:

- Bed Status (Y / N / E)
- Intubated (Y / N)
- Sub-glottic ETT (Y / N / N/A)
- Location of Intubation (Coded)
- Does Sub-glottic ETT work (Y / N/ N/A)
- Head of Bed  $\geq 30$  degrees (Y / N / CI)
- # of Oral Care Treatments ( $\geq 5$  over 24hrs to be compliant)
- # of Oral Treatments with CHG
- SAT (Y / N / CI)
- SBT (Y / N / CI)

Data was entered into the MHA's "CECity's MedConcert" database to monitor study progress. For data analysis, JHH CVSICU's performance was factored both on its own adherence to the bundle measures, and with all other Maryland hospitals participating in the study.

## 3 Results



## 4 Conclusions

Based on a preliminary analysis of 6 key process measures, the Johns Hopkins CVSICU performed better on the average, than all of the other hospital facilities on adhering to the following VAP intervention measures:

- Keeping the Head of Bed  $\geq 30$  degrees
- # of Oral Treatments with CHG
- Spontaneous Awakening Trial
- Spontaneous Breathing Trial

Regarding the use of a SG ETT, the CVSICU performed nearly as well as all of the hospitals on implementing this intervention; however, the lack of data on this measure in Q4 led to a lower average score.

During the collection period, there were numerous data gaps and delays in entering the data into the MHA database. These data gaps may have led to an underestimation in the rates of adherence for the CVSICU.

## 5 Future Directions

Future directions for the VAP study going forward could include the following:

1. Future statistical analyses accounting for the covariance in why some measures did not have higher adherence (i.e. contraindication to SBT due to medical/surgical condition).
2. Conducting analysis between institutions of similar sizes since smaller hospitals may have higher adherence rates with smaller bed capacity.
3. Performing a final analysis involving the outcome measure "VAP Incidence Rate" and its relation to the process measures.

## 6 References

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