Prevent the Vent Event!
Reducing VAEs: A Safety Program For Mechanically Ventilated Patients
Departments of Respiratory Services and Infection Control & Epidemiology

AIM

NHSN changed its surveillance definition of adverse Ventilator Associated Events (VAEs) in ICU patients in 2013. The revised definition not only required previous ventilator bundle interventions to reduce ventilator associated pneumonias (VAPs), but also included standardizing ventilator management right upon initiation.

In 2014 SBH Health System formed a multidisciplinary committee tasked with decreasing the number of VAEs. It built upon the prior efforts which included ensuring compliance with the VAP bundle, respiratory hygiene, and closed suctioning systems. Improvements in education and patient care processes were implemented with the goal of dramatically reducing the number of VAEs reported by SBH Health System, and sustain those improvements over the long term.

PLAN

SBH Health System reported 30 VAEs in 2014. Of those, 6 were possible ventilator associated pneumonias (PVAPs), and 1 was a probable VAP. A multidisciplinary committee was formed including representation from Pulmonary/Critical Care, Infection Control, and Respiratory Therapy.

DO

- Educate staff members (including ED staff in addition to ICU staff) who were accustomed to the previous NHSN VAP paradigm primarily based on microbiologic and radiographic findings that surveillance had changed to an event based paradigm focused on changes in patient oxygenation.
- Implement 24/7 surveillance for VAE by Infection Control, Respiratory Therapy, and critical care physicians.
- Institute multiple surveillance methods including a twice daily e-mail alert system to notify physicians and staff across disciplines of a potential reportable VAE that may be prevented without compromising patient care.
- Review and discuss appropriateness of ventilator settings during multidisciplinary daily rounds using a redesigned “daily goals sheet.”
- Implementation of EMR decision support tools (order sets and ICU clinical summary tiles) for ventilator patients to minimize variations in care and allow for real-time surveillance method for prevention of potential VAEs, including VAPs.
- Respiratory Therapy interventions
  - Disinfection of vents
  - ATP swabbing to validate the cleaning process

STUDY

Adult Mechanical Ventilation
EMR Order Set

- Analysis of VAE data before and after the interventions were fully implemented in 2015 showed a significant decrease in VAE incidence — from 30 in 2014 to 1 in 2018.

SUCCESS

The highlighted project has resulted in substantially reduced number and rate of VAEs reported since full implementation in 2015, despite steady ventilator utilization levels.

REFERENCE


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