



Months 10 Microsystem 5Ps

Reduce VAP to ZERO in SICU

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Problem

SICU found VAP was higher than the National Health and Safety Network (NHSN) standard, so a multidisciplinary "Lead Improvement Team (LIT) was formed to apply best practice. The clinical microsystem :5Ps were used to improve and reduce VAP includes Purpose, Patients, Professional, Process, and Patterns.

Purpose

We aim to reduce the VAP rate from 3.6 to zero by Dec 2013. The process begins from the time of intubation and ends with extubation time.

Professional

SICU designated Lead Improvement Team includes multiple disciplines as physicians, nurses, technicians specialists, microbiologists, physiotherapist, and , secretaries, risk management, and infection control This project was sponsored by the Chief Medical . Academic and Research Affairs.

Patient and Data Collection

The data was collected to observe VAP from Jan 2012-March 2013 for all patients with VAP, it was recommended to use several tools to organize improvement efforts such as brainstorming, focus group discussion, fish bone tool, risk assessment, team project charter flow map and detailed flow chart so these tools helped to connect aims, understand contributing factors and interventions. PDCA was used to understand the , process of current status and the intervention improvement.

Process

Improvement initiatives: After collecting the data, the team analyzed the current processes and designs an initiative to improve them;

1-Decision to intubate the patient and prevent VAP Prevention of aspiration during intubation and , aseptic technique.

2- Prevention of VAP during ventilation, Oral Care Protocol, Prevent aspiration, Minimize duration of ventilation, Endotracheal suction humidification and circuit care, General Measures to reduce spread of infections.

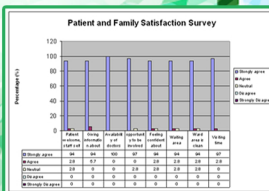
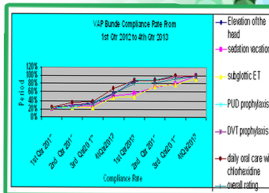
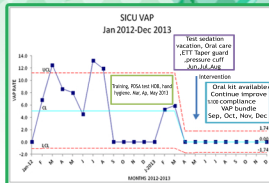
3-Prevention of VAP during extubation by correct technique for extubation, Patient VAP free 48h after extubation.

Strategies Improvement Interventions

- Encourage using ETT taper guard in SICU and other facilities to enable subglottal aspiration
- Maintain ETT cuff pressure 20-30 cmH₂O
- Develop sedation vacation protocol
- Encourage oral care using newly developed oral care protocol
- Educating all Health Care givers about the proper implementation of VAP Bundle elements " Head elevation 30 degree
- Purchase ready made new oral kit
- Staff survey on current practice and knowledge
- Ongoing patient/family survey

Changes and improvement Patterns

- A significant improvement in the adherence of VAP Bundle implementation.
- A significant reduction in VAP rates from the second to fourth quarters 2013
- A fully adherence in using single disposable items, adherence of oral care protocol, using of ETT taper guard, and maintaining ETT cuff pressure.
- A significant enhancement of staff knowledge and practice.
- A significant using of ETT taper guard at the emergency department at Hamad General Hospital



Results

After 10 months from starting the project on March 2013 the lead improvement team reduced VAP to ZERO till Dec 2013 it reduces the mortality rate, length of stay to 3.5 days, and the device days. Implementing two bundle elements did not help to reduce VAP so it was strongly emphasized to use all elements as it was in other evidence based hospitals. The following elements was strictly implemented and ended with.

- 100% compliance to head of bed (HOB) elevation.
- 100% compliance sedation vacation.
- 100% using subglottic ET.
- 100% PUD prophylaxis.
- 100% DVT prophylaxis.
- 100% daily oral care with Chlorhexidine.

Outcome

- ETT taper guard were used 100% in SICU and encouraged to be used in other facilities.
- Subglottal aspiration was maintained as per protocol.
- ETT cuff pressure were Maintained 20-30 cmH₂O.
- Sedation vacation protocol was developed and implemented.
- Oral care protocol was developed and implemented. Educating all Health Care givers about the proper implementation of VAP Bundle elements "Head elevation 30 degree " was conducted on regular basis.
- Staff survey on current practice and knowledge was conducted with satisfied results.
- patient/family survey was developed and implemented. The patients were satisfied 86%.
- Single disposable items were used among patients.
- All patients on mechanical ventilation in the ICU receive all five elements of the Ventilator Bundle.
- The cost tremendously reduced from QR 8500 to QR 2500.

Lessons Learnt

Improvement in the quality of care and increasing patient safety is every bodies business. Changes to improve the working process was the possible as all lead improvement team, the coaches, the senior leaders were all involved in identifying the problems and find evidence based methods solutions. Improving the quality of care is an ongoing process and should continue to increase the culture of patient safety.

MESSAGE FOR OTHERS

- Continue reinforcing the implementation of VAP bundle.
- Continue monitoring the compliance of Health care workers towards VAP Bundle & protocols
- Continue conducting VAP surveillances on monthly basis
- Continue conducting the teaching session for new joining and cross training staff
- Continuing conducting direct and non-direct monitoring and observation to identify any further problems
- Continue using of ETT taper guard
- Continue using single disposable items
- Continue conducting staff/ patient- family survey.