PDSA Driven Intervention

A Journey towards 2016 Zero Catheter Associated Urinary Tract Infection (CAUTI) Rate in Cardiothoracic Intensive Care Unit (CTICU)

**Introduction**

CAUTI is one of the most common adverse events in delivery of care and a major public health problem with a significant impact on morbidity, mortality and quality of life. In the past three years (2013-2015), CTICU CAUTI incidence rate is about 14.5%, thus CTICU implemented a multifaceted approach to address and mitigate the factors behind the infections.

**Background**

Cardiothoracic Intensive Care Unit of Heart Hospital provides critical care services to adult patients, who underwent heart and thoracic surgery. Approximately 400-500 patients undergo each year, and about 80-85% require urinary catheter to monitor hemodynamics stability during post operative period. The study shows that Hospital acquired Infections such as Urinary Tract Infections (UTI) and Wound Infections have been one of the most common infections in Cardiac Surgery patients. The study also shows that Hospital acquired Infections have significantly increased the length of ICU stay and the hospital costs. CTICU had an impact to the recovery and quality of life of patient.

**Problem**

High Rate of Catheter Associated Urinary Tract Infection (CAUTI) in the past three years in Cardiothoracic Intensive Care Unit.

**Aim**

To reduce the incidence of CAUTI in CTICU from 4.9 in 2015 to zero by the end of December 2016.

**Outcome Measurements**

1. Monthly Random open-file review of 10 patients to monitor the compliance of CAUTI insertion and maintenance bundles by the CAUTI task force.

2. Quarterly Surveillance report of CTICU CAUTI by the infection control practitioner.

3. Monthly report of Foley’s catheter removal during the 24-48 hours.

**Results**

1. The figures in the graph below indicates CAUTI insertion and maintenance bundles compliance in CTICU during the period of 2014-2016. The number shows an increased and maintained compliance rate of 100% during the entire 2016, from the average rate of 80 and 90% compliance during 2014 and 2015 respectively.

2. The graph below shows the compliance rate of Chlorhexidine usage to patients with urinary catheter during bath and perineal care. Data show 80-90% compliance during the first quarter of 2016. The rate increased and maintained at 100% from June-December 2016. The improvement is due to the increased compliance monitoring, and a circulated memorandum about Enhancing Infection Control Practices in Heart Hospital Intensive Care Units last Oct-May.

3. The results of the graph below shows the frequency breakdown of urinary catheter removal within 24-48 hours is from 88-90%, while 5-14% are patients with prolonged ICU stay had catheter replacement to silicone. This is due to twice daily assessment on the need of Urinary Catheter Maintenance.

4. The chart below illustrates the hand hygiene compliance of Healthcare workers in CTICU in the Year 2013-2016. Data shows the highest CAUTI rate occurred for time period of 2013-2015 marked in the 2nd quarter of 2013. All the numbers shows the longest zero tolerance CAUTI rate for 519 calendar days happened between the year 2014-2015, followed by 391 calendar days Zero CAUTI between the last quarter of 2014 till the 4th quarter of 2016.

5. The graph below shows the Surveillance report of CAUTI in CTICU in the Year 2013-2016. Data shows the highest CAUTI rate occurred for time period of 2013-2015 marked in the 2nd quarter of 2013. While, the numbers show the longest zero tolerance CAUTI rate for 519 calendar days happened between the year 2014-2015, followed by 391 calendar days Zero CAUTI between the last quarter of 2014 till the 4th quarter of 2016.

**Conclusion**

The use of Chlorhexidine to patient with urinary catheter during bath and routine perineal care, removal of urinary catheter during 24-48 hours prior to transfer to Step Down Unit (SSDU), if not indicated was implemented. Replacement of catheter to silicone for patients with prolonged ICU stay. The range of CAUTI rate is about 1-6.5%, thus CTICU implemented a multifaceted approach to address and mitigate the factors behind the infections.

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**References**