مستشفى القلب
Heart Hospital
عضو في مؤسسة حمد الطبية
A Member of Hamad Medical Corporation

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

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Introduction

CAUTI is one of the most common adverse event 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 1-6.5 %, 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% of them require urinary catheter to monitor hemodynamics stability during post operative period. The study shows that Hospital acquired Infections such as CAUTI had an impact to the recovery and quality of life of patient.

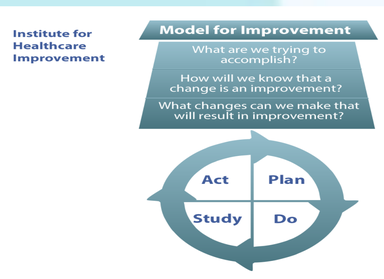
Problem

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.

PDSA Driven Intervention



C

Compliance of Urinary Catheter Insertion, Maintenance Bundle and Hand Hygiene strictly implemented.
-CAUTI Insertion bundle was started in OR.
Catheter Care and Maintenance strictly implemented (CL7246).
-Sterile continuous closed drainage system shall be maintained.
-Unobstructed urine flow shall be maintained.
-Collecting bag shall be emptied as required, using a separate collecting container for each patient.

A

Assessment of the need of Urinary Catheter was on twice daily basis during **Multidisciplinary Rounds(MDR).**
-Removal of catheter to all patients within 24-48 hours prior to transfer to Surgical Step-Down Unit (SSDU), if not indicated was implemented

U

Used of:
-sterile water to cleanse the urethral meatus prior to catheterization.
-Silicone Catheter to patient with prolonged ICU.
-**2% Chlorhexidine Cloth** every 8 hours in wiping the catheter tubing, on downward motion.

T

Training and competency of urinary catheter insertion and maintenance care validation were done to all CTICU nurses.
Task Force CAUTI was formed to conduct educational sessions about CAUTI and to monitor compliance of CAUTI bundles.

I

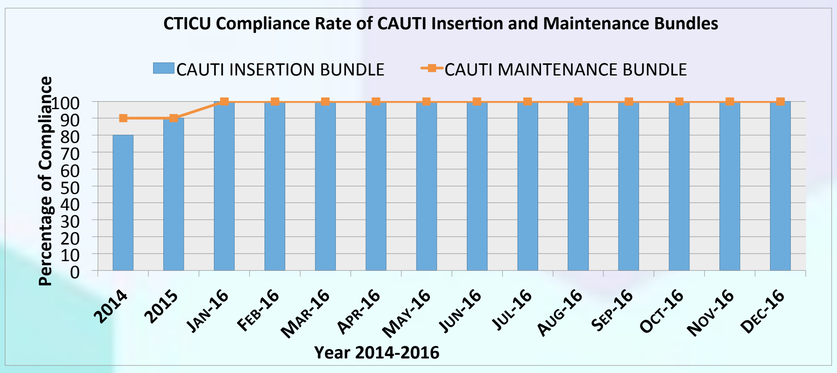
Incontinence Care planning.
Implemented the use of Chlorhexidine to all patients with urinary catheter during bath and perineal care.

Outcome Measurements

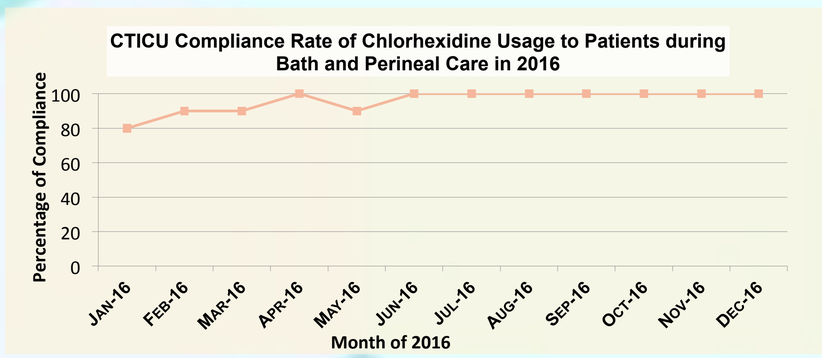
1. **Monthly Random open-file review of 10 patients to monitor the compliance of CAUTI insertion and maintenance bundles by the CAUTI task force.**
2. **Monthly report of Hand hygiene compliance of Health Care workers by Infection Control link Nurses.**
3. **Quarterly Surveillance report of CTICU CAUTI by the infection Control Practitioner.**
4. **Monthly report of the use of silicone catheter to long-term patients.**
5. **Monthly report of Foley's catheter removal during the 24-48 hours**

Results

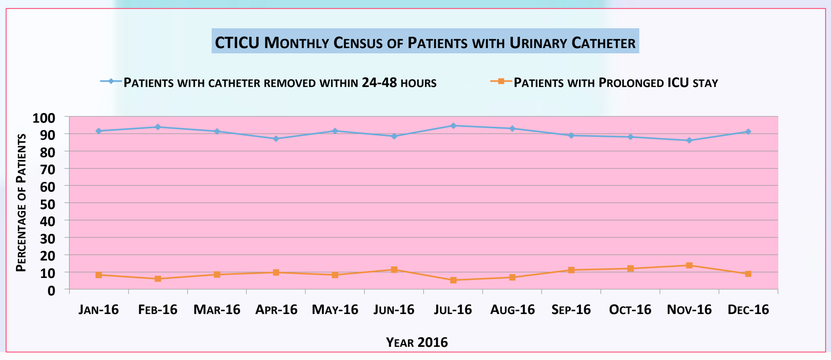
1. The figures in the graph below indicates CAUTI insertion and maintenance bundles compliance in CTICU during the period of 2014-2016. The number shows an increased and maintained compliance rate of 100% during the entire 2016, from the average rate of 80 and 90% compliance during 2014 and 2015 respectively.



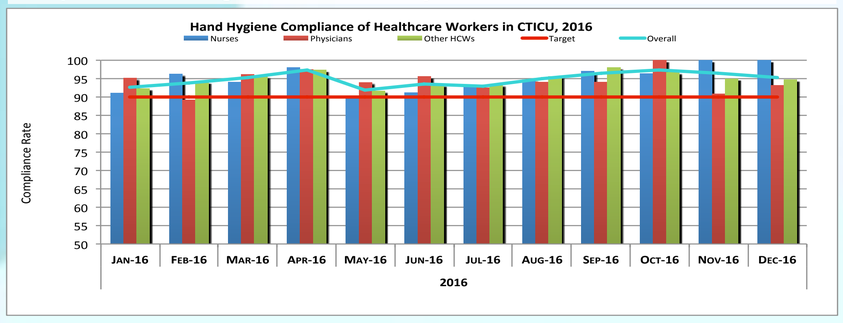
2. The graph below shows the compliance rate of Chlorhexidine usage to patients with urinary catheter during bath and perineal care. Data show 80-90% compliance during the first quarter of 2016. The rate increased and maintained at 100% from June–Dec 2016. The improvement is due to the strict compliance monitoring, and a circulated memorandum about Enhancing Infection Control Practices in Heart Hospital Intensive Care Units last 02 May.



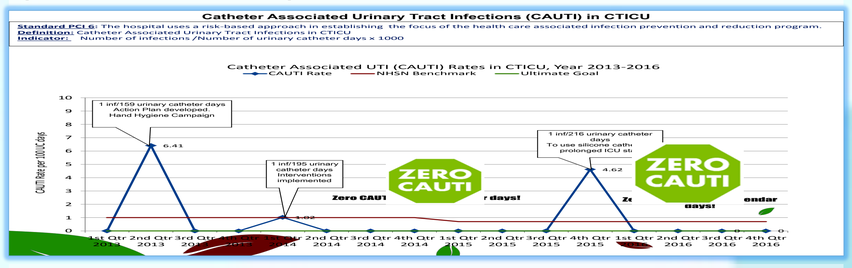
3. The results of the graph below shows the frequency breakdown of urinary catheter removal within 24-48 hours, versus the frequency of rubber catheter replacement to silicone for patients with prolonged ICU stay. The range of urinary catheter removal within 24-48 hours is from 86-95%,while 5-14% are patients with prolonged ICU stay had catheter replacement to silicone. This is due to twice daily assessment on the need of catheter during MDR.



4.The chart below illustrates the hand hygiene compliance of Healthcare workers in CTICU in the year 2016. CTICU Nurses and other Healthcare Workers maintained the target compliance rate of 90%, with an overall compliance rate ranges from 92-97% in year 2016.



6. The graph below displays the Surveillance report of CAUTI in CTCU in the Year 2013-2016 .Data show the highest CAUTI rate occurrence for time period of 2013-2015 marked in the 2nd quarter of 2013. While, the numbers show the longest zero tolerance CAUTI rate for 619 calendar days happened between the year 2014-2015, followed by 391 calendar days Zero CAUTI between the last quarter of 4014 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 SSDU, excellent hand hygiene compliance of CTICU Healthcare workers, and 100% compliance with the CAUTI bundles are the significant factors in maintaining zero CAUTI rate in CTICU for 391 calendar days in December 2015-December 2016.

Next Steps

1. **To maintain zero tolerance infection rates by the end of December 2017.**
2. **Continue monitoring of indicators and sustain a 100% compliance of the insertion and maintenance bundles**
3. **To achieve 95% overall compliance rate of the 5 moments of hand hygiene by December 2017**

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