

Original Article

Care Bundle Approach to reduce Catheter associated Urinary Tract Infection at a Teaching Hospital, Kanpur (UP) India.

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Background-Catheter- associated urinary tract infection (CAUTI) are the commonest nosocomial infections worldwide. Numerous strategies have been devised in an attempt to reduce the incidence of CAUTI one of the strategies by performing carebundle approach is a set evidence-based practices that when performedcollectively and reliably have been shown to improve the patient outcome [1,2]. **Aim-**To evaluate the impact of the bundle care approach on reducing (CAUTI) at a Teaching Hospital ,Kanpur. **Materials And Methods-**The CAUTI rates was analysed for six months (January 2018 to June 2018) during the implementation phase the ICUs staffs were given a basic education of the importance of care bundle approach on CAUTI.THE Device-associated infection rate of CAUTI was calculated throughout the study period. **Result-**Before implementation the CAUTI rate 4.20 per 1000 device days and after implementation the rate was reduced to 3.22 Per 1000 device days. The checklist performance of the staffs improve from 57.77% rate to 83% rate after the implementation of the CAUTI by care bundle approach.Candida albicans was the most common isolate and 80% of the isolates where biofilm produces and resistant of flucanazole.

Keywords-

Introduction

The last decade has focused a spotlight on staggering numbers of hospital deaths due to medical errors and ways to reengineer our health-care system to improve quality, safety, and efficiency of health-care delivery.[3] A care bundle is a structural way of improving care and patient outcome. The care bundle involves grouping together key elements of care for procedures to provide a systematic method to improve and monitor the delivery of clinical care processes. In short, care bundles aim to ensure that all patients consistently receive the best care or treatment, all the time. This approach has been successfully applied to the management of device-associated infections (DAIs) in the critical care setting. It is a 3–5 set of evidence-based practices that when performed collectively and reliably have been shown to improve the patient outcome.[4]

DAI is a major global health problem, causing increased morbidity and mortality. Central line-associated bloodstream infections (CLABSIs), ventilator-associated pneumonia (VAP), and catheter-associated urinary tract infection (CAUTI) are the major DAIs.[5] From healthcare-associated infections (HAIs) surveillance data, it was observed that DAI rates are quite high in our setting compared to Centers for Disease Control and Prevention (CDCs) National Healthcare Safety Network (NHSN) data, 2012.[6] The aim of our study was to evaluate the impact of the bundle care approach on reducing DAIs.

Materials And Methods

The CAUTI rates was analysed for six months (january 2018 to June 2018) during the implementation phase the ICUs staffs were given a basic education of the importance of care bundle approach on CAUTI. The Device-associated infection rate of CAUTI was calculated throughout the study period.

Result

Before implementation the CAUTI rate 4.20 per 1000 device days and after implementation the rate was reduced to 3.22 Per 1000 device days. The checklist performance of the staffs improve from 57.77% rate to 83% rate after the implementation of the CAUTI by care bundle approach.

Candida albicans was the most common isolate and 80% of the isolates were biofilm producers and resistant of flucanazole.

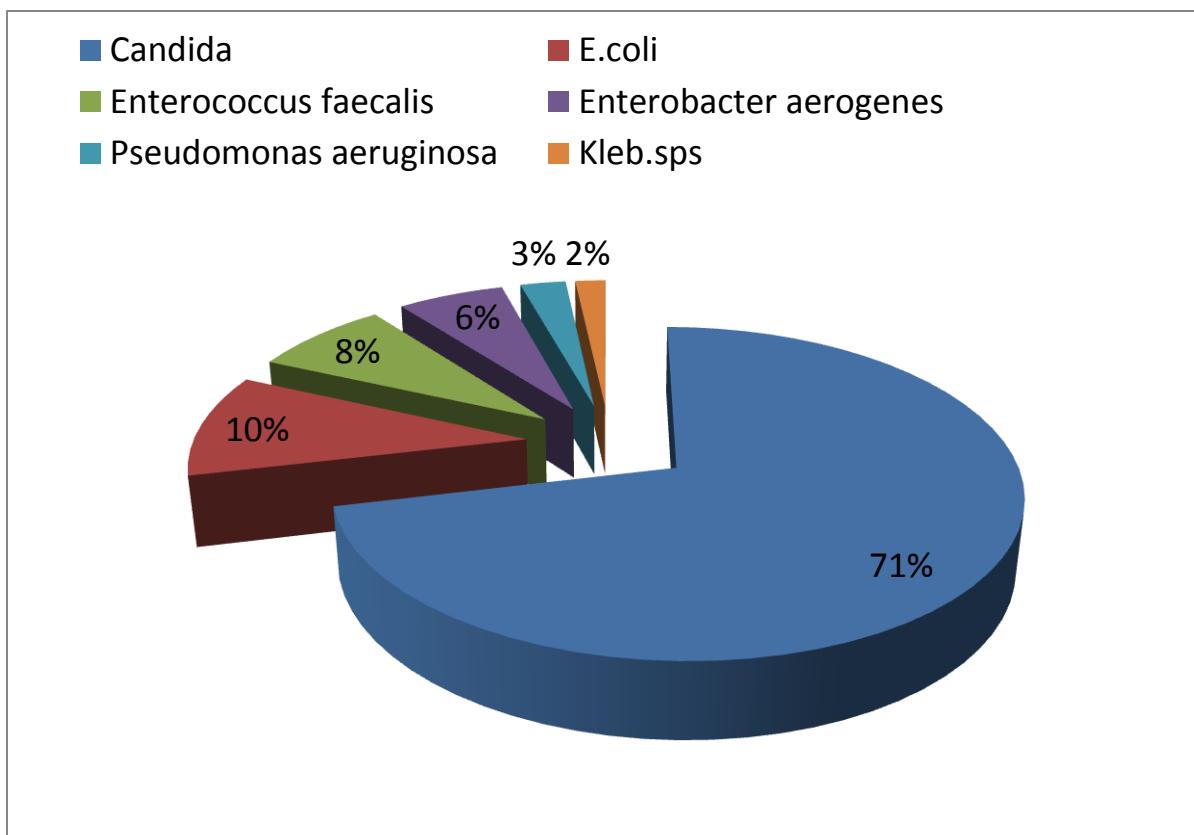


Fig-1, Most common isolates from CAUTI Cases

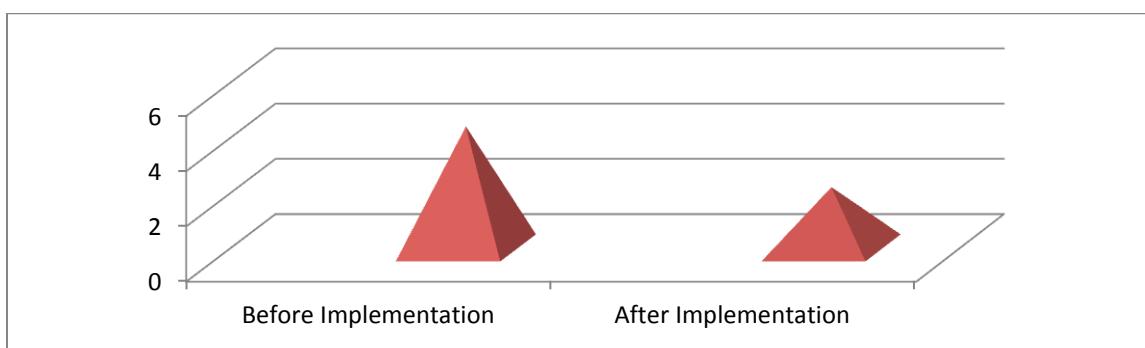


Fig-2, CAUTI rate Before and After Implementation of Care bundle

Discussion

Although the idea of a care bundle was originated by clinicians many years ago, the importance of compliance with each of the individual elements has been recognized relatively recently.[4] The bundles should act as a cohesive unit to ensure that all steps of care are reliably delivered and adequately documented. Failure of adherence to any one component makes the bundle compliance zero. This approach prevents avoidable patient morbidity and results in reduced length of hospital stay and improved patient outcome.[4] DAIs are major but preventable threat to patient safety and are strongly associated with the use of invasive devices which cause a mucosal breach or surface colonization, thus increasing evidence of HAIs. We evaluated the impact of implementation of the bundle care approach on the reduction of DAI rates.

CAUTI is widely recognized as the most common HAI in the world, accounting for 40% of all HAIs.[7] We observed a statistically significant drop in the CAUTI rate by 51.4% (from 4.86 in preimplementation to 2.36 per 1000 catheter days in postimplementation phase). A quasi-experimental study by Blanck *et al.* reported a concordance finding of decrease in the CAUTI rate by 50% (8.4–4.3 per 1000 catheter days) [8] Davis *et al.* also reported a similar decline of 50% reduction in the mean monthly CAUTI rate in Philadelphia [9] They further emphasized the importance of monitoring the bundle compliance in achieving a greater reduction of CAUTI. Karen Clarke *et al.* in 2013 reported that the CAUTI infection rate for the preintervention period was 5.2/1000. For the 7 months following the implementation of the interventions, the infection rate was 1.5/1000 catheter days, a significant reduction relative to the preintervention period ($P = 0.03$) [10].

Which was similar to our study where CAUTI rate was reduced after implementation. In our study before implementation the CAUTI rate 4.20 per 1000 device days and after implementation the rate was reduced to 3.22 Per 1000 device days. The checklist performance of the staffs improve from 57.77% rate to 83% rate after the implementation of the CAUTI by care bundle approach.Candida albicans was the most common isolate and 80% of the isolates where biofilm produces and resistant of flucanazole.

Conclusion

Our result emphasizes the importance of implementation of the bundle care approach on reducing the occurrence of DAIs. Regular continuing education of the stakeholders and evaluation of bundle compliance by regular audits are the key elements to achieve a greater reduction of DAIs.

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