Goal: Zero CAUTI, Zero CLABSI: Evaluating the evidence-based effectiveness of a Silver, pH Acidic, Multimodal Skin decolonizing wipe to Reduce Catheter Associated Urinary Tract Infection and Central Line Blood Stream Infections in the ICU setting: A Retrospective Review

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Background

CAUTI and CLABSI continue to be a significant problem for patients in the ICU setting. Despite successful implementation of recommended protocol bundles, Acute care hospitals, still struggle with these infections. Compliance with CHG bathing wipes can be challenging because of skin irritation and allergic reactions. Microbe resistance and antiseptic contamination recalls mean that Hospitals should investigate safe, effective alternatives to the status quo antiseptics. Non-antimicrobial urinary catheter bathing products do not effectively address the root cause of CAUTI. In order to improve CAUTI and CLABSI rates an evidence based, safe, effective, skin friendly, approach was implemented. The focus was to improve patient satisfaction, efficiency, bathing compliance, promote antimicrobial stewardship and significantly reduce both CAUTI and CLABSI rates.

Methods

A retrospective, 6 month, pre- and post -implementation infection rate analysis was used to measure changes in CAUTI rate per 1,000 catheter days and CLABSI rates per 1,000 central line days consistent with the CDC reporting nomenclature and AHRQ standards.

Clinical evaluation was completed in CCU, NCCU, SICU, CVICU between November 2019 and April 2020. April 2019 and September 2019 were used for comparison. October 2019 was the product transition month.

Pre-and post-implementation CAUTI and CLABSI surveillance was completed monthly using electronic medical record chart audits during the study intervention period and compared them with retrospective analysis of past infection rates within the same units. Historically CAUTI and CLABSI rates are analyzed and reported monthly by Infection Control Services.

Nurse satisfaction survey to measure ease of use, efficiency of use, patient satisfaction, patient refusal, and perception of improved compliance.

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The Multimodal Skin Cleanser and Barrier Protection test product and protocol transition

Intervention 1- The Addition of a Novel Topical Multimodal Skin Cleansing Therapy

The first Intervention was to introduce and educate staff on the addition of the new topical multimodal skin cleansing / decolonization and skin barrier protection product that will be replacing CHG impregnated wipes, Non-antimicrobial perineum bathing wipes, and dimethicone skin barrier protection wipes. The novel topical adjunct (Theraworx Protect) is available in a foam bottle, spay bottle, or solution impregnated wipe package. We chose the wipes in the 8 cloth configuration for single use total body Q24 application (unlike CHG wipes, includes the face and perineum) and the two cloth configuration for additional Q12 hour perineum skin cleansing / decolonization for patients with urinary catheters. The test product has been published in the American Journal of Infection Control on two occasions proving the product was effective against highly resistant bacteria, Carbapenem Resistant Enterobacteriaceae and was also proven to be equipotent to Chlorhexidine Gluconate 4%. Test product was again presented at wound care symposiums (SAWC, 2016, 2018, 2019) showing it to be safe and effective for use on wounds and dermatitis.

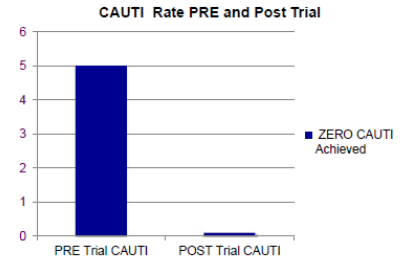
Intervention 2- Removal of CHG impregnated wipes, standard perineum bath wipes, aloe wipes, and dimethicone wipes replaced by new novel product and bathing protocol. 8 cloth package and 2 cloth package. Reducing the number of products from 3 to 1.

Intervention 3 – Protocol Education: The protocol we implemented is nearly identical to our previous protocol to include once daily total body bathing / decolonization and Q12 hour perineum bathing / catheter care. The difference being the new test product is safely applied on and around the mucous membranes allowing for a one product, one step, to include the perineum and the head, neck, and facial cleansing with a single 8 cloth packaged product.
We scheduled the additional perineum / catheter care cleansing with the 2 cloth test solution impregnated wipe approximately 12 hours after the first 8 cloth total body bathing application (per hospital policy) replacing our standard non-antimicrobial perineum wipe. Patients with fecal incontinence episodes would be cleaned and skin barrier protected with either the 8 cloth or 2 cloth test product as needed. Replacing aloe wipe, perineum / catheter wipe and the dimethicone barrier wipe.

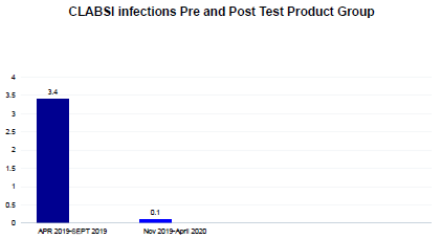
Results

This retrospective analysis involved CCU, NCCU, SICU, CVICU patients with central line catheters and / or indwelling urinary catheters. The new impregnated wipes test product trial started on **SIR rate 2019 .442** Data collected from chart reviews and monitoring of electronic records were reviewed and infections were recorded when they met NHSN reporting guidelines for either CAUTI or CLABSI. SIR rate January 1 – June 30, 2020 0.00

CAUTI rates were substantially reduced from a SIR rate of .442 Pretrial group to a SIR rate of in the Post test group



CLABSI Rates were reduced from an SIR rate of .348 in 2019 in the pre-test group to a SIR of 0.0 Jan 1 – June 30 in the Post – test product and protocol group



Discussion

The results of this evaluation suggest that higher rates of patient and nurse satisfaction can be achieved while simultaneously lowering infection rates and practicing antimicrobial stewardship. Antiseptics are now a part of antimicrobial stewardship initiatives. The most commonly used antiseptics in healthcare have been in use for 60 years. New, equipotent, hypo-allergenic, skin friendly alternatives are showing great promise. Due to the skin friendly nature of the test product (Theraworx protect) we found significant improvement in patient satisfaction and a dramatic decrease in patient refusal compared to our previous antiseptic bathing product. Due to the test products safety profile, we are able to apply this product to the mucous membranes in the perineum and critically important, the face, and neck. The mucous membranes of the face and neck are proven to be the main entry points of virus into the patients' blood stream. Adding these area's to our decolonization bathing should further reduce the chances of cross contamination when patients touch their faces. The nursing surveys also revealed many additional skin condition improvements in particular fungal dermatitis, moisture dermatitis, and incontinent dermatitis. Compromised skin odors also decreased. The low toxicity risk, SKU reduction, cost savings, efficiency, outcome improvement and high satisfaction and compliance rates should warrant continued investigation. A larger, randomized prospective project maybe warranted to confirm these results.

Our goal of ZERO CAUTI and CLABSI rates were achieved in the first 6 months and we are optimistic that we can maintain these rates by continuing the use of this new addition to our infection prevention bundle.

The contents do not represent the views of the TENET Health corporation.

The authors declare that they do not have a conflict of interest.

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