OUTCOMES OF TRACHEOSTOMY PATIENTS USING AN INTERDISCIPLINARY CARE MODEL (RETROSPECTIVE COHORT)

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Background There are no national data regarding outcomes of tracheostomy patients. The aim of this study was to examine the outcomes of tracheostomy inpatients at KAMC-Jeddah using an interdisciplinary care model. The objectives were to identify the proportion of tracheostomy patients with successful decannulation, estimate the time to decannulation post intensive care unit (ICU) discharge, and to identify the predictors of weaning trials failure.

Methods This study had a retrospective cohort design in which all tracheostomy patients from January 2016 until December 2018 were included. Pediatric patients and those with neck tumors obstructing the airway were excluded. Data regarding patients’ demographics, comorbidities, GCS, and ICU discharge and decannulation dates were collected. Tracheostomy patients were assessed weekly during team rounds by all team members (respiratory therapist, speech clinician, ENT doctor, rehab medicine doctor, tracheostomy resource nurse).

Results The cohort included 221 patients, of whom 36 were chronic tracheostomy patients. Of the 185 patients who underwent weaning trials, 71 (38%) were successfully weaned and decannulated; the median time to decannulation post ICU discharge was 46.5 days. Predictors of weaning trials failure were number of comorbidities (odds ratio [OR] 2.635, 95% CI 1.4–5.0, p<0.01), GCS score <11 (OR 6, 95% CI 2.7–13.9, p<0.01), female sex (OR 3.1, 95% CI 1.3–7.5, p<0.01), and age (OR 1.04, 95% CI 1.02–1.06, p<0.01). All decannulation attempts were safe and successful, and none of the 40 inpatient deaths (18%) were related to tracheostomy.

Conclusion The majority of tracheostomy patients had prolonged hospital stay. The interdisciplinary care model ensured the safety of their weaning/decannulation process and improved the quality of their hospital care.

SUCCESSFUL INTERVENTION TO REDUCE CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTION RATE IN ADULT INTENSIVE CARE UNIT AT A SPECIALIZED TERTIARY CARE HOSPITAL IN RIYADH, SAUDI ARABIA

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Background Central line-associated bloodstream infection (CLABSI) surveillance in the adult intensive care unit (ICU) in King Abdullah Specialized Children Hospital showed a higher CLABSI rate during the first quarter of 2018. CLABSI is associated with a significant increase in morbidity, mortality, length of hospitalization, and the cost of healthcare. The aim of the current study was to evaluate the impact of a multifaceted improvement project aiming to reduce the rate of CLABSI.

Methods This was an interventional surveillance study. A Plan, Do, Check, Act (PDCA) quality improvement approach was used.

The intervention was initiated in March 2018. It focused on the following aspects: standardizing the central line (CL) maintenance practices, creating a designated cart for CL insertion and maintenance, increasing compliance with aseptic techniques and CL insertion and maintenance bundles, educating the healthcare workers and patients on CLABSI prevention, environmental cleaning and disinfections, and instantaneous feedback to the stakeholders about CLABSI events. The intervention engaged multiple partners including infection control, nurses, and physicians. Surveillance methods and CLABSI definition was done according the US National Healthcare Safety Network.

Results During 2018, a total of ten CLABSI events were detected during 2919 central-line days. They included four, four, two, and no events in the first, second, third, and fourth quarters, respectively. After intervention, the rate significantly decreased from 5.2 per 1000 central line-days during the second quarter of 2018, to 3.9 during the third quarter of 2018, and zero during the fourth quarter of 2018 (Mantel-Haenszel chi-square p value of 0.034).

Conclusion A multidisciplinary multifaceted improvement project using quality improvement tools to enforce the evidence-based preventive practices has been successful in reducing the CLABSI rate. The implementation of the improvement project needs to be continued to maintain zero or low CLABSI rates.

MODIFIED EARLY WARNING SCORE AS A PREDICTOR FOR INTENSIVE CARE UNIT ADMISSION IN CHEMOTHERAPY- RECEIVING ONCOLOGY PATIENTS WITH POSITIVE BLOOD CULTURE

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Background Sepsis is a group of systemic manifestations resulting from an underlying infection that triggers an immune response that causes injury to the host. Chemotherapy-receiving oncology patients (CROPs) are particularly prone to sepsis; however, their suppressed immune system renders the signs of inflammation less evident. The Modified Early Warning Score (MEWS), with a cutoff value of >4, is a tool intended to detect patients with deteriorating clinical circumstances early and to predict the need for intensive care unit (ICU) transfer. Therefore, we aimed to assess the usefulness of MEWS in predicting ICU admission and mortality in CROPs with positive blood culture.

Methods Electronic records of patients hospitalized in King Abdulaziz Medical City (KAMC), Jeddah, Saudi Arabia, from June 2016 to June 2017 were retrospectively reviewed. Adults older than 14 years with positive blood cultures were included and subdivided into two groups: CROP cases and immunocompetent controls; comparison was referenced to the actual ICU admittance. MEWS was calculated at different time intervals before, after, and at the time of positive blood culture in both groups to identify its discriminative capability. Receiver operator curves (ROC) analysis was used to determine the best cutoff MEWS at different time intervals.
Results 192 individuals with positive blood culture were included: 89 CROPs and 103 controls. 21% of cases and 50% of controls were admitted to the ICU (p<0.001). The proportion of patients who had positive MEWS of ≥4 requiring ICU admission was 34.8% in CROPs compared with 45.6% in controls (p=0.129). The sensitivity, specificity, positive predictive value, and negative predictive value for a positive MEWS of ≥4 in CROPs was 52.5%, 70%, 32.3%, and 84%, respectively, and this was comparable with the control group. ROC analysis showed that MEWS was a significant predictor for ICU admission if calculated 12 to 36 hours before positive blood culture in CROPs, and a threshold of ≥3 had the best specificity (86–91%) for predicting ICU admission, whereas a threshold of ≥4 was more suitable for controls. MEWS was generally a poor predictor for mortality.

Conclusion MEWS in general has weak discriminatory value in predicting ICU admission in CROPs. A threshold of ≥3 MEWS at 12 to 36 hours before positive blood culture was found to be the best cutoff for predicting ICU admission in CROPs compared with a threshold of ≥4 in controls. MEWS was a poor predictor for mortality within 28 days. The combination of MEWS with clinical judgment might improve prediction for ICU admission.

ACCELERATING HEMOGLOBIN (HBA1C) TEST RESULTS IN FOLLOW-UP DIABETIC CLINICS AT A PRIMARY HEALTHCARE (PHC) CENTER USING THE POINT-OF-CARE HBA1C TESTING DEVICE

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Background Based on daily manual patient registry data, as of September 2018, we found that all follow-up patients with diabetes (100%) at Almasif Primary Care Center in Northern Riyadh had to wait an average of 3.5 days for their hemoglobin A1C (HbA1c) results in order for their treatment care to begin. The setting of diabetic patient care in primary healthcare. The setting of diabetes attending Almasif Primary Health Care Center, Northern Riyadh, by November 2018.

Methods A multidisciplinary team has been formed. The team used several quality tools, such as brainstorming technique, process mapping, and cases-affect diagnosis, among others. Improvement measures included the percentage of patients with diabetes who had their treatment care plan changed due to HbA1c as the outcome measure, and the percentage of patients who had the HbA1c result in 10 minutes as the process measure. Several rapid PDSA (plan-do-study-act) cycles have been conducted to test the change idea of the point-of-care HbA1c testing device. The idea worked well and data have been analyzed and presented on a run chat showing the changes made (PDSA cycles) and improvement over time using the process and outcome measures.

Results All follow-up diabetic patients (17 [100%] of 17) got their HbA1c results within less than 15 minutes. And more importantly, more than half (nine [53%] of 17) of the diabetic patients had their treatment plan changed on the same day of the visit. The majority of the diabetic clinic’s nurses were satisfied (eight out of ten) and competent to perform the new task.

Conclusion The idea of using the point-of-care HbA1c testing device is very promising to improve the quality and safety of follow-up of diabetic patients at the primary healthcare clinic. It is highly recommended to replicate the idea nationally.

ACQUISITION OF CARBAPENEM-RESISTANT KLEBSIELLA PNEUMONIAE DETECTED BY ACTIVE SURVEILLANCE TESTING IN ADULT INTENSIVE CARE UNIT IN RIYADH, SAUDI ARABIA

Ayham Salah Albadawi, Yahya AlBakheet, Kassem Abou Yassine, Eman AliGhamdi, Angela Caswell, Saja Marhoun, Aiman El-Saed, Majid Alshamrani, Hanan Balkhy. Infection Prevention and Control King Abdullah Specialist Children Hospital, Riyadh, Saudi Arabia. Worldwide, invasive infections caused by carbapenem-resistant Enterobacteriaceae, including CRKP, have been associated with high morbidity and mortality. The target population at AICU is mainly oncology patients who need critical care. It has been suggested that active surveillance testing (AST) can help to minimize exposure within selected units. Additionally, it can estimate the percentage of within-unit acquisition of CRKP. The objective of the current study was to estimate the acquisition of CRKP and the compliance with AST.

Methods AST was done to all patients admitted to the AICU between January 2018 to December 2018 and to those who were discharged, provided that no positive AST or clinical results were documented at admission or during the unit stay. Acquisition of CRKP was defined as positive CRKP (detected by AST or clinically) after an initial negative finding during the first 3 days of unit stay. Compliance of admission AST was defined as testing rectal specimens obtained during the first 3 days of unit stay among all admitted patients. Compliance of discharge AST was defined as testing rectal specimens obtained at discharge or after the first three days of unit stay among non-prevalent patients.

Results During the study period, 375 (90.1%) of 416 admitted patients had AST at admission. Of the 375, 180 (48.0%) were eligible for discharge AST, 87 (48.3%) of the 180 eligible patients had AST at discharge. The prevalence of positive CRKP at admission was 1.9% (seven of 375). Acquisition of CRKP during the unit stay was 3.4% (three of 87). Of 416