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.

4 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 physician to make any decisions on their treatment plan. One of the main quality dimensions is the improvement of the timeliness of healthcare, including reducing unnecessary waiting that might cause a harmful delay for patient and providers. Thus, creating a lean management process for diabetic patient work-up will lead to better care in terms of awareness, diagnosis, and treatment, and improve the quality of diabetic patient care in primary healthcare. The setting of this project was Almasif Primary Health Care Center, located in Northern Riyadh, Saudi Arabia. The improvement aim was to accelerate the diabetic care follow-up process by removing the non-added value and decreasing the long waiting time for HbA1c results to less than 15 minutes on the same day of the visit among at least 80% of patients with diabetes attending Almasif Primary Health Care Center, Northern Riyadh, by November 2018.

Methods A multidisciplinary quality 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 chart 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.

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

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Background During the last quarter of 2017, there was an increase in the number of patients with carbapenem-resistant Klebsiella pneumoniae (CRKP) in the adult intensive care unit (AICU) at 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 3 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