Presentation Type:
Poster Presentation
Leveraging the Electronic Medical Record to Identify Patients at Risk of Antibiotic Resistant Organisms

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Background: Carbapenemase-producing carbapenem-resistant Enterobacteriaceae (CP-CRE) pose a serious public health threat. The CDC guidelines for combating CP-CRE include a recommendation to screen selected high-risk patients. **Objective:** We describe a program to identify and screen patients at risk for CP-CRE. **Setting:** An academic, tertiary-care center with 1,297 licensed beds and 62,071 admissions per year. **Methods:** A report was created in the electronic medical record (EMR) to identify adult patients admitted in the previous 24 hours from countries and states with known CP-CRE transmission based on address and ZIP code. Patients with a known travel history outside the United States were also reviewed, but these data were inaccurate. Initially, a physician from Infection Prevention and Control (IPAC) placed orders for CP-CRE screening of these patients. Subsequently, a nursing protocol was developed to facilitate infection preventionists placing orders for CP-CRE screening earlier in the eligible patient's hospital stay. An electronic communication is sent via the EMR alerting the patient care team to the order, the rationale for the order, and links to a tool kit with resources to help answer patient questions. A single perirectal swab is obtained by the nurse caring for the patient and is tested for *Klebsiella pneumoniae* carbapenemase (KPC), New Delhi metallo-β-lactamase (NDM), oxacillinase-48 (OXA-48), and Verona integron-encoded metallo-β-lactamase (VIM) by polymerase chain reaction (PCR). **Results:** From May 2018 to November 2019, 688 patients were screened for CP-CRE using the case-finding report and the nursing protocol. Overall, 9 patients with CP-CRE were identified: 1 KPC, 2 NDM, and 5 OXA-48, and 1 patient was identified to have both NDM and OXA-48. The yield of 1.3% from this screening is higher than that reported previously in the literature. Use of the nursing protocol has enabled IPAC to complete timely CP-CRE surveillance and prevent transmission to other patients. We are currently using a similar process to identify and screen persons at risk for the emerging infection *Candida auris*. **Conclusions:** The EMR can be leveraged for early identification and screening of patients with epidemiologically significant pathogens. Protocols within the EMR can be effectively replicated and modified to respond to emerging infections and changing surveillance guidelines.

Presentation Type:
Poster Presentation
Liberal and Restrictive Blood Transfusion Strategies in Orthopedic Surgery: Risk Factors for Surgical Site Infection

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| Variable | Patient group | | | |
	Not transfused (n=111)	Liberal strategy(n=98)	Restrictive strategy(n=34)	value-p
Preoperative time of definitive surgery (days)	8.8 (7.8)	9.4 (6.9)	10.4 (11)	0.636
Age years)	49 (19.6)	53.4 (26.5)	69 (19.2)	< 0.001
Duration of surgery (hours)	2.2 (0.9)	2.8 (1.3)	2.5 (1.2)	0.003
Number of comorbidities	1 (1.4)	1 (1.3)	2.5 (1.5)	< 0.001
Body mass index (BMI)	25.5 (4.8)	23.7 (4.7)	23.6 (5.1)	0.027
Previous hemoglobin	12.8 (1.8)	10.8 (2)	8.2 (1)	< 0.001
High hemoglobin	11.8 (2.3)	9.6 (1.5)	9.1 (1.5)	< 0.001
Previous leukogram	11 (3.8)	11.4 (5.3)	10 (4.5)	0,340
Previous PCR	54.7 (41.1)	96.8 (67.1)	77.7 (72.7)	< 0.001
Initial blood pressure (average)	97.6 (11.8)	97 (14.3)	100 (12.9)	0.428
Final blood pressure (average)	86 (11)	85.2 (11.5)	90.6 (9.5)	0.021
Intraoperative blood glucose (mean)	131.2 (50.9)	134.2 (35.7)	135.2 (36.4)	0.434
O2 saturation (average)	98.1 (1.9)	98 (1.8)	97.5 (1.9)	0.126

Table 1.

Variable	Logistic coefficient	S.E.	Odds Ratio	[95% C.I.]	p-value
Clean surgery	-1.696	0.568	0.18	[0.06; 0.56]	0.003
Average initial blood pressure (mmHg)	-0.054	0.022	0.95	[0.91; 0.99]	0.016
NNIS risk index	0.748	0.352	2.11	[1.06; 4.22]	0.034
Use of aspirin	2.604	0.766	13.52	[3.01; 60.67]	0.001
Use of amitriptyline	2.869	1.111	17.62	[2.00; 155.5]	0.01
Patient victim of run over or car accident	1.484	0.570	4.41	[1.44; 13.46]	0.009
Perioperative transfusion	1.546	0.578	4.69	[1.51; 14.55]	0.007
Repique	1.167	0.534	3.21	[1.13; 9.15]	0.029
Body mass index - BMI	0.121	0.051	1.13	[1.02; 1.25]	0.018
Constant	-1.294				

Table 2.

Background: The identification of risk factors for infections in surgical patients with lower-limb fractures and blood transfusions has increased in recent years. Surgical site infections (SSIs) increase hospitalization, care costs, and patient suffering. Correction surgery for lower-limb fractures and blood transfusion is quite common between surgical procedures. The aim of this study was to describe the relationship between blood transfusion and SSI in patients undergoing orthopedic surgery on lower limbs. **Methods:** We conducted a prospective cohort study to identify risk factors for SSI in blood transfused patients undergoing fracture repair in lower-limb surgeries between February 2017 and May 2019 in 2 reference tertiary-care hospitals in Belo Horizonte, a city of 3 million people in Brazil. Data regarding patient characteristics, surgical procedures, blood transfusions, and surgical infections were collected. Patient characterization was performed by calculating the absolute and relative frequencies of categorical variables and calculating mean, median, minimum, maximum, standard deviation, and coefficient of variation for quantitative variables. The incidence of surgical site infection, the risk of postoperative hospital death, and the total length of hospital stay were calculated by point estimates and 95% confidence intervals identified by statistical tests of bilateral hypotheses, considering the level of significance of 5%. A multivariate analysis (logistic regression) was performed to identify SSI risk factors. **Results:** Patients who had an indication for blood transfusion (n = 38) but who did not receive blood (n = 4) had significantly lower hemoglobin, comparing discharge with admission, than the group who received blood.