

culture intensity showed a non-significant increasing trend of 0.05% (95% CI -0.1% to 0.2%, $p=0.53$). The blood culture positivity rate near the time of death increased by 16% following the intervention, but this increase was not statistically significant (95% CI - 11.8% to 43.3%, $p=.26$; Figure 2), and it was followed by a non-significant downtrend of 1.9% (95% CI - 3.9% to 1.4%, $p=.36$). **Conclusion:** We found no significant association between the implementation of an inpatient hospice program and blood culture practices near the time of death, likely due to low patient enrollment.

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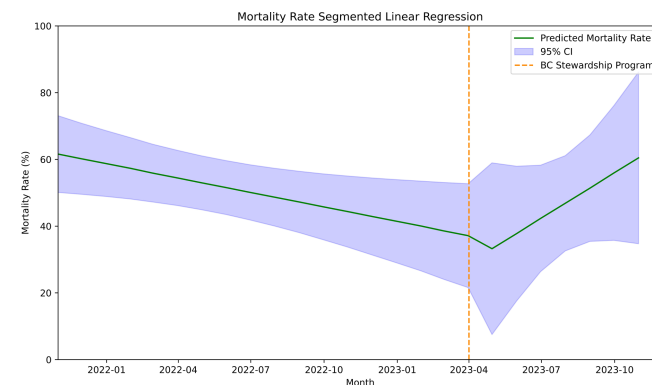
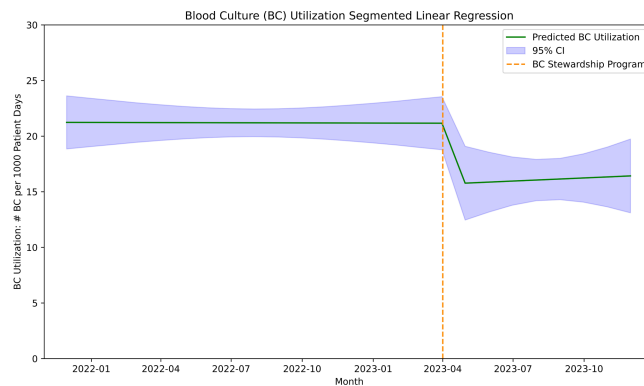
Poster Presentation - Poster Presentation

Subject Category: Diagnostic Stewardship

Reduced Blood Culture Use in High-Volume Lung Transplant MICU Following a Stewardship Program, Northern California, 2021–2023

Guillermo Rodriguez Nava, Stanford University School of Medicine; Javier Lorenzo, Stanford University; Mindy Sampson, Stanford University; Valeria Fabre, Johns Hopkins University School of Medicine; Sara Cosgrove, Johns Hopkins University School of Medicine and Jorge Salinas, Stanford University

Introduction: There is a need to optimize blood culture (BC) utilization among hospitalized adults. A previous study showed an evidence-based BC algorithm improved BC utilization in a medical intensive care unit (MICU) at a large academic center. Our aim is to evaluate the impact of an intervention based on this algorithm on blood culture utilization in the MICU at Stanford Health Care, a referral center known for its high volume of solid organ transplants. **Methods:** We conducted a before-after study evaluating the impact of a BC diagnostic stewardship program in the MICU at Stanford Health Care, a 20-bed unit with an average of 20% lung transplant patients per day. All patients ≥ 18 years of age admitted to the unit during the study period were included. We adopted a previously published evidence-based algorithm detailing syndromes with low and high risk for bacteremia, which was referenced during patient rounds. Additionally, education and feedback to providers about BC utilization and indication inappropriateness was performed during leadership meetings every other month. We performed an interrupted time series analysis using historical data 17 months before the implementation of the blood culture stewardship program on April 1, 2022 and 8 months after. We assessed changes on BC utilization adjusted to patient days and crude mortality rate during the same period as a balancing measure. **Results:** Before the implementation of the program, the median BC utilization was 216 per 1,000 patient days (range 150–250 per 1,000 patient days). Following the



introduction of the program, there was a significant decrease in blood culture utilization by 5% (95% CI -10% to -1%, $p=.02$; Figure 1). Post-intervention, the blood culture stabilized, with no significant increase observed (0.09% increase, 95% CI -0.7% to 1%, $p=.81$). The mortality rate, prior to the implementation of the program, had shown a significant downward trend of 1.4% over time (95% CI -3% to -0.2%, $p=.02$). After the intervention, a nonsignificant decrease of 8% was observed (95% CI -44% to 27%, $p=.62$; Figure 2), followed by a nonsignificant upward trend of 6% (95% CI -1% to 13%, $p=.10$). **Conclusion:** We observed a significant reduction in BC utilization after implementing the BC diagnostic stewardship program in a MICU frequented by a high number of lung transplant patients.

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Subject Category: Diagnostic Stewardship

Clinical Utility of Follow-Up Blood Cultures Among Adult Cancer Patients with Gram-Negative Bacilli Bacteremia

Wesley Tang, Baylor College of Medicine; Nancy Vuong, The University of Texas MD Anderson Cancer Center; Ying Jiang, The University of Texas MD Anderson Cancer Center and Natalie Dailey Garnes, The University of Texas MD Anderson Cancer Center

Background: Gram-negative bacilli (GNB) bacteremia is a common and potentially fatal infection with mortality rates estimated to be 14-34%, despite effective antimicrobial treatments. Follow-up blood cultures (FUBCs) are blood cultures that are repeated after an initial positive culture and are indicated in certain clinical scenarios, such as in candidemia or *Staphylococcus aureus* bacteremia to ensure clearance of the bloodstream infection. FUBCs are used in bacteremia to assess the appropriateness and duration of antimicrobial therapy. Currently, there are no guidelines in place regarding the use of FUBC for GNB bacteremia. Furthermore, the utility of FUBCs is not well-studied in adults living with cancer. The purpose of this study is to identify risk factors associated with persistent GNB bacteremia in adult patients with cancer.

Methods: We conducted a single-center, retrospective study in patients aged ≥ 18 years, hospitalized during calendar year 2022, living with cancer, and with laboratory confirmed GNB bloodstream infection. FUBC was defined as a blood culture performed within 7 days of the initial positive blood culture. Patients were grouped as having the same organism on FUBC (+/same), FUBC with no growth (NG) (+/NG), and different organism on FUBC (+/Different). Patients with a different organism on FUBC were excluded from analysis. We gathered demographic information, suspected source of bacteremia, type of malignancy, identified organisms, presence of antimicrobial resistance, and comorbidities (eg. presence of central venous catheters, urinary catheters, end-stage renal disease). Categorical variables were compared using Chi-square or Fisher's exact test. Continuous variables were compared using Wilcoxon rank sum tests. Logistic regression analysis was used to identify the independent predictors of persistent GNB bacteremia.

Results: 356 unique patients with FUBC were identified after inclusion/exclusion criteria. 93/356 (26%) of patients had persistent GNB bacteremia (+/same). Multivariate analysis identified history of bacteremia within the preceding year (OR 2.95, 95% CI [1.6-5.6]) and *Achromobacter* spp. bacteremia (OR 10.03, 95% CI [1.59-63.23]) as independent risk factors for persistence. Organisms with multidrug resistance such as extended-spectrum beta-lactamase (OR 2.47, 95% CI [1.21-5.07]) and carbapenem-resistant organisms (OR 3.35, 95% CI [1.04-10.81]) were also associated with persistent GNB bacteremia.

Conclusions: This is the first study to specifically identify risk factors for persistent GNB bacteremia in patients living with cancer. FUBC may be useful in GNB bacteremia with less common organisms and/or if they exhibit multidrug resistance on susceptibility testing. The utility of FUBC should be further explored in patients with cancer with certain risk factors.

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Carbapenem-resistant *Acinetobacter baumannii* and Carbapenem-resistant Enterobacterales in US Dialysis Populations, 2016-2021

Danica Gomes, Centers for Disease Control and Prevention; Julian Grass, Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention; Sandra Bulens, Centers for Disease Control and Prevention; Nadezhda Duffy, Centers for Disease Control and Prevention; Joshua Brandenburg, Emory University; Jesse Jacob, Emory University; Gillian Smith, Georgia Emerging Infections Program; Elisabeth Vaeth, Maryland Department of Health; Ghinwa Dumyati, University of Rochester Medical Center; Kristina Flores, University of

New Mexico; Christopher Wilson, Tennessee Department of Health; Daniel Muleta, Tennessee Department of Health; Christopher Czaja, Colorado Department of Public Health and Environment; Helen Johnston, Colorado Department of Public Health and Environment; Ruth Lynfield, Minnesota Dept of Health; Paula Snippes Vagnone, MN Dept. of Health, Public Health Lab; Sean O'Malley, Minnesota Dept of Health; Nicole Stabach, Connecticut Department of Public Health, Healthcare Associated Infections & Antimicrobial Resistance Program; Joelle Nadle, California Emerging Infections Program; Rebecca Pierce, Oregon Health Authority; Alice Guh, Centers for Disease Control and Prevention; Shannon Novosad, Centers for Disease Control and Prevention and P. Maureen Cassidy, Oregon Public Health Division

Background: Infections lead to high mortality among patients on chronic dialysis; knowledge of multi-drug resistant infections is limited. The Centers for Disease Control and Prevention's Emerging Infections Program (EIP) conducts laboratory- and population-based surveillance for carbapenem-resistant Enterobacterales (CRE) in 10 U.S. sites and carbapenem-resistant *Acinetobacter baumannii* (CRAB) in 9 U.S. sites. We investigated clinical characteristics, healthcare exposures, and outcomes of CRE and CRAB cases in persons on chronic dialysis from 2016-2021.

Methods: Among EIP catchment-area residents on chronic dialysis, we defined a CRE case as the first isolation of *Escherichia coli*, *Enterobacter cloacae* complex, *Klebsiella aerogenes* (formerly *Enterobacter aerogenes*), *Klebsiella oxytoca*, *Klebsiella pneumoniae*, or *Klebsiella variicola* resistant to any carbapenem, from a normally sterile site or urine in a 30-day period. A CRAB case was defined as the first isolation of *Acinetobacter baumannii* complex resistant to any carbapenem (excluding ertapenem), from a normally sterile site or urine (or lower respiratory tract or wound since 2021) in a 30-day period. Medical records were reviewed. A case was considered colonized if the case culture had no associated infection type or colonization was documented in the medical record. Descriptive analyses, including analyses stratified by pathogen, were conducted. **Results:** Among 426 cases, 314 were CRE, and 112 were CRAB; most cases were male (235, 55.2%), Black (229, 53.8%), and 51-80 years old (320, 75.1%) (Table). An infection was associated with 363 (85.2%) case cultures; bloodstream infections (148; 40.8%), urinary tract infections (134; 36.9%), and pneumonia (17; 4.7%) were the most frequent. Overall, most cases had documented healthcare exposures (excluding outpatient dialysis) in the year before incident specimen collection, including: 366 (85.9%) hospitalizations, 235 (55.2%) surgeries, 209 (49.1%) long-term care facility stays, 54 (12.7%) long-term acute care facility stays. Additionally, 125 (29.3%) had an intensive care unit admission within the 7 days before incident specimen collection. Compared to CRE cases, a higher proportion of CRAB cases (a) had a long-term care facility stay (82/112 [73.2%] versus 127/314 [40.5%], $P < .0001$) or hospitalization (103/112 [92%] versus 263/314 [83.8%], $P = .03$) within the preceding year and (b) died within 30 days of incident specimen collection (40/112 [35.7%] versus 64/314 [20.4%], $P = .001$). **Discussion:** Among CRE and CRAB cases in persons on chronic dialysis, healthcare exposures were common, and mortality was high. Additional efforts to better describe the burden of these organisms and associated risk factors in the dialysis population are needed for tailoring infection prevention strategies to this vulnerable.

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