

Year	2017	2018	2019	2020	2021	2022	2023	2024	Total
Total Number of CAP patients	6992	6483	6384	4364	7653	9102	10118	11244	62340
Any Pathogen Detected	1021 (14.60%)	1132 (17.46%)	1157 (18.12%)	571 (13.08%)	933 (12.19%)	1494 (16.41%)	1652 (16.33%)	1955 (17.39%)	9915 (15.90%)
Any Bacterial Pathogen	757 (10.83%)	716 (11.04%)	734 (11.50%)	415 (9.51%)	733 (9.58%)	958 (10.53%)	1072 (10.59%)	1130 (10.05%)	6515 (10.45%)
Streptococcus pneumoniae	202 (2.89%)	196 (3.02%)	207 (3.24%)	85 (1.95%)	134 (1.75%)	227 (2.49%)	282 (2.79%)	289 (2.57%)	1622 (2.60%)
Haemophilus influenzae	74 (1.06%)	50 (0.77%)	65 (1.02%)	16 (0.37%)	24 (0.31%)	74 (0.81%)	86 (0.85%)	90 (0.80%)	479 (0.77%)
Staphylococcus aureus – MSSA	84 (1.20%)	67 (1.03%)	44 (0.69%)	38 (0.87%)	64 (0.84%)	95 (1.04%)	104 (1.03%)	148 (1.32%)	644 (1.03%)
Staphylococcus aureus – MRSA	77 (1.10%)	73 (1.13%)	66 (1.03%)	35 (0.80%)	68 (0.89%)	71 (0.78%)	75 (0.74%)	66 (0.59%)	531 (0.85%)
Pseudomonas aeruginosa	93 (1.33%)	91 (1.40%)	92 (1.44%)	84 (1.92%)	139 (1.82%)	167 (1.83%)	180 (1.78%)	174 (1.55%)	1020 (1.64%)
Klebsiella pneumoniae	28 (0.40%)	17 (0.26%)	22 (0.34%)	19 (0.44%)	33 (0.43%)	34 (0.37%)	39 (0.39%)	34 (0.30%)	226 (0.36%)
Mycoplasma pneumoniae	65 (0.93%)	84 (1.30%)	94 (1.47%)	43 (0.99%)	65 (0.85%)	120 (1.32%)	112 (1.11%)	211 (1.88%)	794 (1.27%)
Legionella pneumophila	41 (0.59%)	68 (1.05%)	61 (0.96%)	50 (1.15%)	118 (1.54%)	61 (0.67%)	79 (0.78%)	14 (0.12%)	492 (0.79%)
Any Viral Pathogen	312 (4.46%)	473 (7.30%)	496 (7.80%)	180 (4.12%)	231 (3.02%)	625 (6.87%)	654 (6.46%)	935 (8.32%)	3908 (6.27%)
Influenza A/B	154 (2.20%)	259 (4.00%)	209 (3.27%)	104 (2.38%)	17 (0.22%)	281 (3.09%)	165 (1.63%)	400 (3.56%)	1589 (2.55%)
Human Rhinovirus – Enterovirus	69 (0.99%)	88 (1.36%)	122 (1.91%)	17 (0.39%)	87 (1.14%)	103 (1.13%)	201 (1.99%)	200 (1.78%)	887 (1.42%)
Respiratory syncytial virus	33 (0.47%)	52 (0.80%)	51 (0.80%)	18 (0.41%)	66 (0.86%)	99 (1.09%)	108 (1.07%)	174 (1.55%)	601 (0.96%)
Human metapneumovirus	27 (0.39%)	32 (0.49%)	50 (0.78%)	25 (0.57%)	9 (0.12%)	59 (0.65%)	87 (0.86%)	70 (0.62%)	359 (0.58%)
Parainfluenza 1-4	21 (0.30%)	26 (0.40%)	39 (0.61%)	3 (0.07%)	36 (0.47%)	58 (0.64%)	67 (0.66%)	67 (0.60%)	317 (0.51%)
Human Coronavirus	17 (0.24%)	11 (0.17%)	28 (0.44%)	3 (0.07%)	11 (0.14%)	20 (0.22%)	15 (0.15%)	18 (0.16%)	123 (0.20%)
Adenovirus	6 (0.09%)	3 (0.05%)	8 (0.13%)	1 (0.02%)	3 (0.04%)	10 (0.11%)	24 (0.24%)	8 (0.07%)	63 (0.10%)
Any Bacterial and Viral Pathogen Co-detection	48 (0.69%)	57 (0.88%)	75 (1.17%)	24 (0.55%)	31 (0.41%)	89 (0.98%)	74 (0.73%)	110 (0.98%)	508 (0.81%)

50.3% (31,359) were male. 94.0% (58,613) received a chest X-ray and 53.1% (33,084) received a CT, with use of CTs increasing over time. Microbiological evaluation was performed in 92.8% (57,820) of patients, with a median 4 [IQR 2-6] etiologic tests per patient. Blood cultures were the most common microbiologic test (74.7%; 46,566) with use slightly decreasing over the study period. In contrast, the use of molecular respiratory pathogen assays increased substantially from 28.2% in 2017 to 77.1% in 2024 (overall performed in 55.6%, 34,655). Over the entire study period, one or more pathogens were detected in 15.9% (9,915) of patients: 10.5% (6,515) had a bacterial pathogen, 6.3% (3,908) had a viral pathogen, and 0.8% (508) had both. The most common pathogens were Streptococcus pneumoniae (2.6%), influenza virus (2.6%), Pseudomonas aeruginosa (1.6%), and human rhinovirus (1.4%). **Conclusion:** The 2019 CAP guideline recommendations to limit traditional bacterial tests to severe CAP patients appear to have had minimal impact on diagnostic practices. Despite a substantial post-pandemic increase in molecular diagnostic use, pathogen detection rates remained low, revealing an etiology in only a minority of patients. These findings underscore the need for a reassessment of the diagnostic approach to optimize resource allocation and ensure high-value testing in hospitalized CAP patients.

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SMART-BCx: System-wide Management Algorithm to Reduce Testing of Blood Cultures‡

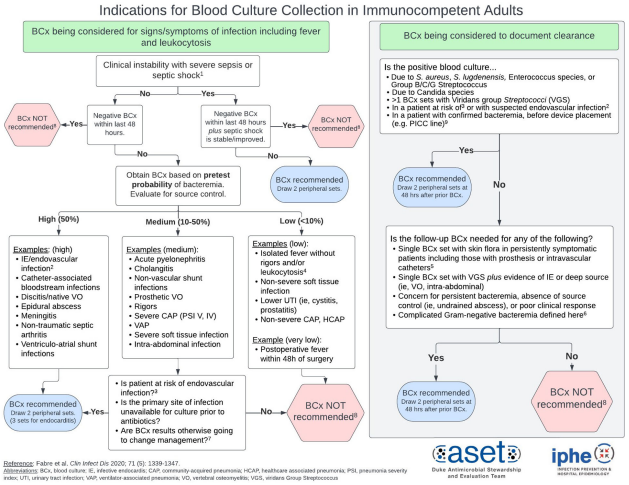
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‡The abstract titles in this supplement have been corrected since original publication. A notice detailing the changes has been published at https://doi.org/10.1017/ash.2026.10802.

Background: Blood culture (BCx) algorithms can safely and effectively reduce unnecessary BCxs. We compared the effect of implementing a BCx algorithm across multiple inpatient units within our hospital system, focusing on blood culture event (BCE) rates and secondary adverse events. **Method:** The same BCx algorithm (Figure 1) was implemented in multiple inpatient units across three hospitals in our health system (Figure 2). BCE rates were compared between pre- and post-intervention periods with interrupted time series (ITS) analyses. Differences in secondary outcomes, including incidence of central line-associated bloodstream infections (CLABSI) and Clostridioides difficile infection (CDI), were compared using χ tests. **Result:** The rate of BCE decreased after implementation of the BCx algorithm across all units (Figure 3). An immediate decrease in BCE rate was noted in most units upon implementation of the algorithm, except in the cardiac ICU, cardiac floors and neurocritical care unit. No unit demonstrated a significant post-intervention decrease in the BCE rate, with the surgical ICU demonstrating a significant regression to the mean with time. Antibiotic use decreased across all analyzed units (Figure 4). Readmission rates decreased significantly on the cardiac floor, neurocritical care unit and cardiothoracic ICU in hospital 1 and also in the critical care unit in hospital 2, while it increased significantly in the cardiothoracic stepdown unit. CLABSI rates decreased significantly in the cardiac ICU and the solid oncology floor, while CDI rates decreased significantly in the neurocritical care unit. No significant increase was seen in CLABSI and CDI rates or antibiotic use. **Conclusion:** This study demonstrated that the BCx algorithm was effective in decreasing BCEs across all units and hospitals without any clear harms. However, the effect of BCx algorithms is partially dependent on the nature of the unit where it is implemented. The decrease in BCEs was limited to the time period directly after implementation of the algorithm. No units demonstrated ongoing decreases in BCE rates, with the surgical ICU in particular demonstrating a steady increase of BCE rates as time progressed, although rates of BCE remained below pre-intervention levels. Consistent decreases were seen in antibiotic use post-implementation, although causality between the two cannot be determined. Further research is warranted on how to implement a more durable change and on the use of such algorithms in more specific populations, including immunocompromised hosts.

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Location	Hospital	Type of hospital	Hospital beds	Reviewers
Surgical intensive care unit	Hospital 1	Academic	1048	ID physicians, anesthesiologists, surgical NPs
Cardiothoracic surgery intensive care unit	Hospital 1	Academic	1048	ID physicians, anesthesiologists, surgical NPs
Neurocritical care unit	Hospital 1	Academic	1048	Neurology physician and PA
Cardiac intensive care unit	Hospital 1	Academic	1048	Cardiology nurses and APPs
Critical care unit	Hospital 2	Community	369	Critical care physicians and APPs
Solid oncology floor	Hospital 1	Academic	1048	Oncology APPs
Cardiothoracic surgery floors	Hospital 1	Academic	1048	ID physician, surgical nurse and NP
Cardiac floors	Hospital 1	Academic	1048	Cardiology nurses and APPs
DUH ED	Hospital 1	Academic	1048	EM attendings, residents and APPs

*NP= nurse practitioner, PA= physician assistant, APP= advanced practice provider, which would include PAs and NPs

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Unit	Control Dates	Intervention Dates	Control BCE	Intervention BCE	Pre-intervention Slope (95% CI, p-value)	Intervention Change (95% CI, p-value)	Post-intervention Slope (95% CI, p-value)	BCE IRR (post vs. pre, 95% CI, p-value)
Surgical intensive care unit - *Hospital 1*	2/2020-1/2022	2/2022-2/2023	1542	473	**-0.01 (95% CI -0.016, 0.005, *P* < 0.01)**	**-2.24 (95% CI -3.02, -1.46, *P* < 0.01)**	**0.039 (95% CI 0.013, 0.063, *P* < 0.01)**	**0.38 (95% CI 0.32, 0.46, *P* < 0.01)**
Cardiothoracic surgery intensive care unit - *Hospital 1*	2/2020-2/2022	3/2022-2/2023	2148	885	**-0.01 / 95% CI -0.014, 0.005, *P* < 0.01)**	**-1.07 (95% CI -1.63, -0.51, *P* < 0.01)**	0.011 (95% CI -0.007, 0.029, *P* = 0.24)	**0.45 (95% CI 0.39, 0.52, *P* < 0.01)**
Neurocritical care unit - *Hospital 1*	1/2022 – 4/2023	5/2023 – 6/2024	2098	1031	**-0.026 (95% CI -0.035, -0.017, *P* <0.01)**	-0.277 (95% CI -0.66 , 0.11, *P* = 0.16)	-0.005 (95% CI -0.023, 0.012, *P* = 0.54)	**0.56 (95% CI 0.51, 0.62, *P* < 0.01)**
Cardiac intensive care unit - *Hospital 1*	7/2021 – 5/2023	6/2023 – 3/2024	2090	689	-0.002 (95% CI -0.006, 0.001, *P* = 0.20)	-0.060 (95% CI -0.16, 0.036, *P* = 0.20)	-0.00003 (95% CI -0.015, 0.015, *P* = 1.0)	**0.78 (95% CI 0.72, 0.85, *P* < 0.01)**
Critical care unit - *Hospital 2*	2/2022 – 1/2024	2/2024 – 10/2024	1558	488	**0.016 (95% CI 0.009, 0.023, *P* <0.01)**	**-0.39 (95% CI -0.51, -0.25, *P* < 0.01)**	-0.027 (95% CI -0.062, 0.008, *P* = 0.12)	**0.61 (95% CI 0.49, 0.75, *P* < 0.01)**
Solid oncology floor - *Hospital 1*	2/2021 – 1/2023	2/2023 – 7/2024	2084	1245	-0.002 (95% CI -0.008, 0.004, *P* = 0.51)	**-0.219 (95% CI -0.37, -0.072, *P* < 0.01)**	0.007 (95% CI -0.006, 0.019, *P* = 0.29)	0.88 (95% CI 0.76, 1.02, *P* = 0.09)
Cardiothoracic surgery floors - *Hospital 1*	6/2021-5/2023	6/2023-7/2024	3439	1539	0.001 (95% CI−0.004, 0.006, *P* = 0.77)	**-0.175 (95% CI −0.30, −0.052, *P* < 0.01)**	-0.01 (95% CI −0.024, 0.003, *P* = 0.14)	**0.78 (95% CI 0.74, 0.83, *P* < 0.01)**
Cardiac floors - *Hospital 1*	7/2021 – 6/2023	7/2023 – 2/2024	2004	480	0.002 (95% CI -0.001, 0.005, *P* = 0.28)	-0.029 (95% CI -0.13, 0.075, *P* = 0.60)	-0.018 (95% CI -0.039, 0.003, *P* = 0.11)	**0.77 (95% CI 0.70, 0.85, *P* < 0.01)**
DUH ED - *Hospital 1*	12/2020 – 11/2022	12/2022 – 10/2023; 12/2022 – 2/2024	17809	7433	**-0.004 (95% CI -0.006, -0.001, *P* <0.01)**	**-0.16 (95% CI -0.38, -0.01, *P* = 0.04)**	0.002 (95% CI -0.005, 0.01, *P* = 0.54)	**0.84 (95% CI 0.73, 0.97, *P* = 0.02)**

Location	Rate of C. difficile infection	CLABSI rate	Antibiotic use	Readmission rate
Surgical intensive care unit - *Hospital 1*	1.44 (95% CI 0.39, 5.37, *P* = 0.58)	0.59 (95% CI 0.19, 1.81, *P* = 0.35)	**0.49 (95% CI 0.46, 0.51, *P* <0.01)**	0.94 (95% CI 0.77, 1.14, *P* = 0.50)
Cardiothoracic surgery intensive care unit - *Hospital 1*	0.68 (95% CI 0.22, 2.10, *P* = 0.49)	1.30 (95% CI 0.63, 2.67, *P* = 0.48)	**0.56 (95% CI 0.54, 0.57, *P* <0.01)**	**0.80 (95% CI 0.69, 0.93, *P* <0.01)**
Neurocritical care unit - *Hospital 1*	**0.24 (95% CI 0.052, 1.12, *P* = 0.05)**	0.56 (95% CI 0.19, 1.66, *P* = 0.28)	**0.30 (95% CI 0.29, 0.31, *P* <0.01)**	**0.67 (95% CI 0.50, 0.89, *P* <0.01)**
Cardiac intensive care unit - *Hospital 1*	0.47 (95% CI 0.10, 2.17, *P* = 0.32)	**0.17 (95% CI 0.040, 0.71, *P* <0.01)**	**0.86 (95% CI 0.83, 0.89, *P* <0.01)**	1.34 (95% CI 0.92, 1.95, *P* = 0.12)
Critical care unit - *Hospital 2*	0 (95% CI N/A, *P* = 0.27)	1.54 (95% CI 0.14, 16.98, *P* = 0.72)	**0.67 (95% CI 0.65, 0.69, *P* <0.01)**	**0.66 (95% CI 0.51, 0.86, *P* <0.01)**
Solid oncology floor - *Hospital 1*	0.59 (95% CI 0.23, 1.53, *P* = 0.27)	**0.30 (95% CI 0.10, 0.90, *P* <0.01)**	**0.38 (95% CI 0.37, 0.39, *P* <0.01)**	0.93 (95% CI 0.81, 1.08, *P* = 0.34)
Cardiothoracic surgery floors - *Hospital 1*	1.76 (95% CI 0.73, 4.24, *P* = 0.20)	0.45 (95% CI 0.10, 2.12, *P* = 0.30)	**0.90 (95% CI 0.88, 0.91, *P* <0.01)**	**1.23 (95% CI 1.10, 1.37, *P* <0.01)**
Cardiac floors - *Hospital 1*	0.43 (95% CI 0.10, 1.88, *P* = 0.25)	2.13 (95% CI 0.82, 5.48, *P* = 0.11)	**0.88 (95% CI 0.86, 0.91, *P* <0.01)**	**0.69 (95% CI 0.62, 0.75, *P* <0.01)**

Presentation Type:
Oral Presentation
Subject Category: Diagnostic Stewardship
Early Sepsis Identification Using a Host-Response RNA Biomarker in Triaged ED Patients‡

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Background: Early identification of severe sepsis or septic shock in the emergency department (ED) is challenging; patients triaged to the waiting room commonly encounter hours of delay before provider evaluation. Although vital signs and laboratory testing may be obtained at check-in, patients may deteriorate during this waiting period, and so there is a critical need for indicators of occult disease. Common inflammatory biomarkers such as C-reactive protein (CRP) are sensitive but poorly specific in undifferentiated ED populations and offer limited value for early risk stratification. We evaluated the diagnostic performance of an FDA-cleared host-response RNA biomarker assay (SeptiCyte RAPID) for identifying severe sepsis or septic shock prior to clinician evaluation. **Method:** As part of a multi-phase validation study, we conducted a prospective observational cohort study at a tertiary-care ED. During predefined monthly windows we consecutively enrolled adult patients (≥18 years) if they: were triaged for suspected infection, had ≥2 systemic inflammatory response syndrome (SIRS) criteria, blood drawn at triage, and were initially placed in the waiting room or non-treatment areas. The SeptiCyte assay was performed as an add-on study using blood already collected, with clinicians blinded to results. Severe sepsis or septic shock was adjudicated retrospectively using standardized SEP-1 abstraction criteria published by the Centers for Medicare and Medicaid Services (CMS). Diagnostic performance was assessed using sensitivity, specificity, area under the receiver operating characteristic curve (AUC), and likelihood ratios. Likelihood ratios were contextualized against published CRP performance in undifferentiated ED populations. **Result:** We enrolled 101 patients in this phase, and at a prespecified higher-risk threshold, SeptiCyte demonstrated a sensitivity of approximately 0.59 and specificity of 0.77, with an AUC of 0.69 and a positive likelihood ratio of 2.6. In comparison, published CRP performance in similar undifferentiated ED populations is characterized by AUCs ranging from approximately 0.60–0.68 and positive likelihood ratios ≤2.0, reflecting lower specificity. **Conclusion:** In triaged ED patients with suspected infection awaiting emergency provider evaluation, a host-response RNA biomarker demonstrated moderate discrimination for subsequent severe sepsis or septic shock with operating characteristics favoring specificity and rule-in capability. Compared with published CRP performance, the biomarker appears better suited for early risk stratification and flag earlier clinician evaluation rather than broad inflammatory screening in ED waiting-room populations.

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Presentation Type:
Oral Presentation
Subject Category: Diagnostic Stewardship
Utilization and Yield of a Stool Enteric Pathogen Panel in Hospitalized Patients with Cancer with Community vs Hospital-onset Diarrhea‡

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Background: Diarrhea is common among patients with cancer, and rapid diagnosis of gastrointestinal (GI) infections using a multiplex stool enteric pathogen panel (EPP) may expedite clinical decision-making and inform infection prevention measures. However, the diagnostic yield of EPPs in patients with cancer with hospital-onset diarrhea is not well defined. At our center, inpatient diarrhea testing guidelines recommend EPP testing primarily in those with community-onset diarrhea. We aimed to assess adherence to these EPP testing guidelines and describe EPP diagnostic yield in hospitalized patients with cancer to identify opportunities for diagnostic stewardship. **Methods:** We retrospectively reviewed EPP and stand-alone C. difficile (SACD) tests ordered between July 1, 2021 – May 23, 2025 among hospitalized patients (age ≥18 years) with a malignancy diagnosis. Our center recommends EPP testing (BIOFIRE® FILMARRAY® GI Panel) for community-onset diarrhea (on or before hospital day [HD] 3) and SACD testing for hospital-onset diarrhea (after HD 3). EPPs may be ordered after HD 3 for patients with unexplained prolonged or bloody diarrhea. **Results:** A total of 3338 stool tests (1433 EPP, 1905 SACD) were performed among 2131 patients. Among EPPs, 468 (33%) were ordered after HD 3 whereas 1621 (85%) SACD tests were ordered after HD 3 (Figure 1). The proportion of EPPs ordered after HD 3 was highest among patients with hematologic malignancies (44%) compared to other cancer types and higher among hematopoietic cell transplant (HCT) recipients versus non-HCT recipients (54% vs. 22%; Figure 2). Among EPPs ordered after HD 3, 102/468 (22%) were positive for ?1 pathogen compared to 288/965 (30%) EPPs ordered on HD 1-3. At least

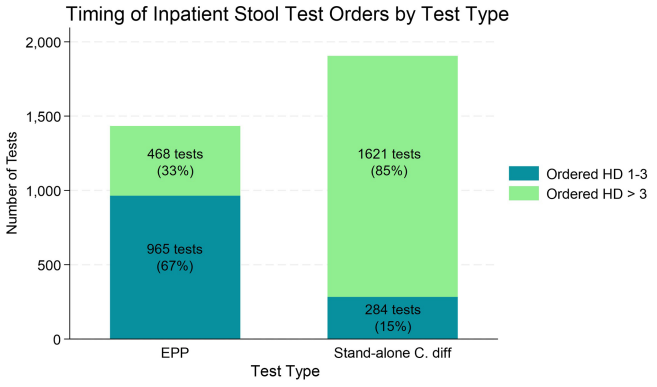


Figure 1: Stacked bar chart indicating number of EPP versus stand-alone *C. difficile* test orders among patients with a primary malignancy diagnosis. Abbreviations: EPP (enteric pathogen panel), HD (hospital day).

‡The abstract titles in this supplement have been corrected since original publication. A notice detailing the changes has been published at https://doi.org/10.1017/ash.2026.10802.

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