common. CRBSI was associated with high attributable mortality. Successful treatment often required CVC, SAT, and ALT. However, CVC retention was a viable option in some patients with specific limiting factors such as difficult access.

Disclosures: None

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Investigating potential drivers of increased central-line–associated bloodstream infections during the SARS-CoV-2 omicron-variant surge

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Background: Central-line–associated bloodstream infection (CLABSI) rates increased nationally during COVID-19, the drivers of which are still being characterized in the literature. CLABSI rates doubled during the SARS-CoV-2 omicron-variant surge at our rural academic medical center. We sought to identify potential drivers of CLABSIs by comparing period- and patient-specific characteristics of this COVID-19 surge to a historical control period. **Methods:** We defined the study period as the time of highest COVID-19 burden at our hospital (July 2021–June 2022) and the control period as the previous 2 years (July 2019–June 2021). We compared NHSN CLABSI standardized infection ratios (SIRs), central-line standardized utilization ratios (SURs), completion of practice evaluation tools (PETs) for monitoring of central-line bundle compliance, and proportions of traveling nurses. We performed chart reviews to determine patient-specific characteristics of NHSN CLABSIs during these periods, including

Table 1. Patient-specific CLABSI characteristics during COVID-19 surge compared to historical control

Variable	COVID-19 CLABSI[1] N = 30	Non-COVID-19 CLABSI[1] N = 33	p-value[5]
Patient Characteristics			
Age (years), median (IQR)	62 (37)	60 (25)	0.54
Male	15 (50%)	18 (55%)	0.72
COVID history in the past 90 days	8 (27%)	1 (3%)	0.01
Neutropenia in the past 7 days	3 (10%)	9 (27%)	0.08
Hematologic malignancy	6 (20%)	8 (24%)	0.69
Solid malignancy	0 (0%)	6 (18%)	0.03
Level of care: critical care or step down	18 (60%)	9 (27%)	0.01
Case mix index, individual, median (IQR)	3.9 (3.1)	6.2 (7.07)	0.01
Hospital day on date of event, median (IQR)	17.5 (27)	17 (15)	0.62
Death during hospitalization	11 (37%)	12 (36%)	0.98
Line Characteristics			
Type of catheter[2,3]			
Short-term central line	11	8	0.28
Long-term central line	22	27	0.42
Central line with >1 lumen	27 (90%)	20 (61%)	0.01
>1 central line in place during 7 days prior to CLABSI	3 (10%)	1 (3%)	0.34
Time from line placement to CLABSI < 7 days	4 (13%)	8 (24%)	0.27
Time from line placement to CLABSI, median (IQR)	12.5 (16)	19 (47)	0.14
Any missed dressing changes	8 (27%)	9 (27%)	0.96
Any missed chlorhexidine gluconate baths	18 (60%)	21 (64%)	0.77
Line indication appropriate	29 (97%)	30 (91%)	0.61
Microbiology			
Blood culture collected from central line	4 (13%)	4 (12%)	0.59
Organism[2,4]			
Candida spp.	5	2	0.24
Coagulase negative Staphylococci	7	9	0.72
Enterococcus spp.	4	6	0.74
Enterobacterales	10	10	0.80
Staphylococcus aureus	5	7	0.65
Streptococcus spp.	0	2	0.49
Others	1	7	0.06

CLABSI: central line-associated bloodstream infection; IQR: interquartile range
[1]COVID-19 CLABSI period: 7/2021-6/2022; Non-COVID-19 CLABSI period: 7/2019-6/2021
[2]Columns may not add to 100% because a patient may have multiple central lines and multiple organisms
[3]Short-term central lines: temporary central venous catheters, pulmonary artery catheters, and introducers; Long-term central lines: tunneled central lines, peripherally inserted central catheters, hemodialysis catheters, and ports
[4]Enterobacterales: *Citrobacter, Enterobacter, E. coli, Hafnia, Klebsiella*, and *Serratia*; Other microorganisms: *Gordonia, Neisseria, Pseudomonas, Raoultella*, and *Stenotrophomonas*
[5]Chi-square or Fisher exact test used for categorical variables; Wilcoxon rank-sum used for continuous variables

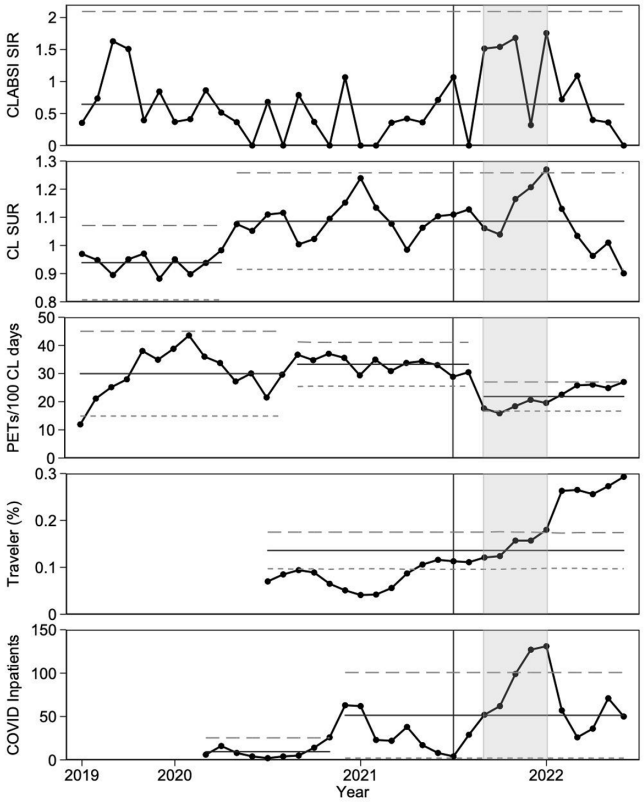

Figure 1: Statistical process control charts for CLABSI and associated drivers. Vertical lines denote the study (July 2021-June 2022) and control (July 2019-June 2021) periods; COVID cases were highest during the study period. Horizontal solid lines denote the average, horizontal dashed lines denote the confidence limits, and the shaded areas highlight the time period with the highest CLABSI SIR. During the study and control periods, the CLABSI SIR was 0.89 and 0.52 (p=0.03),the central line SUR was 1.08 and 1.02 (p<0.01), the number of PETs per 100 line days was 23.0 and 31.5 (p<0.01), and the number of traveler full time equivalents (FTE) per total nursing FTE was 0.20 and 0.08 (p<0.01), respectively.
CLABSI=central line-associated bloodstream infection, SIR=standardized infection ratio, CL=central line, SUR=standardized utilization ratio, PETs=practice evaluation tools.

demographics, comorbidities, central-line characteristics and care, and microbiology. **Results:** The CLABSI SIR was significantly higher during the study period than the control period (0.89 vs 0.52; $P = .03$); the SUR was significantly higher during the study period (1.08 vs 1.02; $P < .01$); the PET completion per 100 central-line days was significantly lower during the study period (23.0 vs 31.5; $P < .01$); and the proportion of traveling nurses was significantly higher during the study period (0.20 vs 0.08; $P < .01$) (Fig. 1). Patients with NHSN CLABSIs during the study period were more likely to have a history of COVID-19 (27% vs 3%; $P = .01$) and were more likely to receive a higher level of care (60% vs 27%; $P = .02$). During the study period, more patients had multilumen catheters (87% vs 61%; $P = .04$). The type of catheter, catheter care (ie, dressing changes and chlorhexidine bathing), catheter duration before CLABSI, and associated microbiology were similar between the study and control periods (Table 1). **Conclusions:** During the SARS-CoV-2 omicron-variant surge, the increase in CLABSIs at our hospital was significantly associated with increased central-line utilization, decreased PET completion, and increased proportion of traveling nurses. Critical illness and multilumen catheters were significant patient-specific factors that differed between CLABSIs from the study and control periods. We did not observe differences in catheter type, duration, or catheter care. Our study highlights key modifiable risk factors for CLABSI reduction. These findings may be surrogates for other difficult-to-measure challenges related to the culture of safety during a global pandemic, such as staff education related to infection prevention and daily review of central-line necessity.

Disclosures: None

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Retrospective data analysis of CLABSI rates at Baystate Medical Center during the COVID-19 pandemic

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Background: Central-line–associated bloodstream infections (CLABSIs) are an important public health issue. Recent data from the CDC have shown an increase in healthcare-associated infections (including CLABSI) during the COVID-19 pandemic. Therefore, the main aim of this project was to analyze the epidemiology of central-line–associated bloodstream infection during different periods at the Baystate Medical Center (Springfield, MA) before, during, and after COVID-19 peaks of infection. **Methods:** Two specific periods were considered during the year (quarter January–March and quarter July–September) to consider potential seasonal variations, and the incidence of CLABSI during those 2 quarters was analyzed for 4 different years: 2019 (prepandemic), 2020–2021 (intrapandemic), and 2022 (postpandemic). An analysis of the microbial pathogens causing line infections was also performed to investigate differences described by other authors. **Results:** In total, 97 CLABSI (all from different patients) were reported into the NHSN website during the 8 periods considered. The average age of the patients was 55 years, with a male:female ratio of 57%:43%, and 14 renal patients were on dialysis. The CLABSI rates ranged from a minimum of 1.11 in Q1 of 2020 (start of COVID) to a maximum of 2 in Q3 of 2021 (SARS-CoV-2 delta variant) (Table 1). A statistical comparison of the pre–COVID-19 period with the respective quarters during the pandemic years (2020, 2021, and 2022) did not show any significant differences (Table 2). In term of microbiological data, of the 97 patients

Period	# CLABSI	# CL Days	CLABSI Rate	Average age	Gender M/F (%)	# Dialysis patients
2019Q1/PreCOVID	13	7624	1.71	54 (one missing)	46%/54%	1
2019Q3/PreCOVID	11	7064	1.56	48	55%/45%	0
2020Q1/StartCOVID	7	6315	1.11	51	71%/29%	1
2020Q3/IntraCOVID	15	8133	1.84	58	47%/53%	3
2021Q1/IntraCOVID	13	6815	1.91	56 (one missing)	85%/15%	5
2021Q3/DeltaCOVID	14	7012	2.00	49 (four missing)	50%/50%	2
2022Q1/OmicronCOVID	10	6749	1.48	62	60%/40%	1
2023Q3/ EndCOVID	14	7206	1.94	43	50%/50%	1
Total or average	97	56918	**1.69**	**55 (six patients missing)**	**57%/43%**	**14**

Table 1: Absolute number of CLABSI per period, number of line days, CLABSI rate, average age (please note some missing data), gender, number of patients on dialysis.

Periods compared	CLABSI rates	p-value (2-tail)	Rate ratio	Confidence Limits Lower, Upper
2019Q1/PreCOVID	1.71	0.35	1.538	0.6138, 3.855
2020Q1/StartCOVID	1.11			
2019Q1/PreCOVID	1.71	0.77	0.8939	0.4144, 1.928
2021Q1/IntraCOVID	1.91			
2019Q1/PreCOVID	1.71	0.73	1.151	0.5046, 2.624
2022Q1/OmicronCOVID	1.48			
2019Q3/PreCOVID	1.56	0.66	0.8443	0.3878, 1.838
2020Q3/IntraCOVID	1.84			
2019Q3/PreCOVID	1.56	0.53	0.7799	0.3541, 1.718
2021Q3/DeltaCOVID	2.0			
2019Q3/PreCOVID	1.56	0.58	0.8015	0.3639, 1.765
2022Q3/EndCOVID	1.94			

Table 2: Statistical analysis comparing the different periods, pre-COVID and COVID pandemic. The null hypothesis was assuming no difference between the different periods considered (H_0) and the evidence provided by the data is not strong enough to reject the null hypothesis.