

Presentation Type:

Late Breaker Poster

Siblings' Precautions and Parents' Decolonization to Control Methicillin-Resistant *Staphylococcus aureus* in a Neonatal Intensive Care Unit (NICU)

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Background: Following the first reports of the emergence of methicillin-resistant *Staphylococcus aureus* (MRSA) in the 1970s, several measures to prevent its transmission were introduced in hospitals. However, controversy continues regarding the best approach to prevent and control MRSA, especially in neonatal intensive care units (NICUs). **Objective:** To report the reduction of colonization and primary central venous catheter-related bloodstream infection (CRBSI) caused by MRSA through surveillance, decolonization, and adoption of best practices in intravenous catheter care. **Methods:** Quasi-experimental, nonrandomized, before-and-after intervention study conducted in a 70-bed NICU in a private maternity hospital in Brazil. Period studied comprehended between August 2018 and May 2019 (period I - preintervention) and June to December 2019 (period II - postintervention). At the end of period I, several measures were implanted to control and prevent colonization and CRBSI in the unit. The following measures were implemented: incentive to hand hygiene; best practices training on medication preparation and central catheter manipulation; systematic screening of colonized patients with nasal and umbilical swabs; contact precautions for colonized newborn (NB); contact precautions for twins of a colonized NB even when they had a

negative swab; decolonization of patients with nasal mupirocin and chlorhexidine (oral preparation) for oral hygiene; concurrent linen change at the end of the patient's decolonization; decolonization of parents of colonized siblings with chlorhexidine bath and nasal mupirocin; environmental organization; intensification of cleaning and disinfection of equipment and articles; cohort of patients and workers; isolation and precautions compliance audit; professional investigation and decolonization and universal chlorhexidine bath for newborns. **Results:** In periods I and II, the positivity rates of the collected swabs were 4.14% and 0.75% ($P < .0001$), respectively, with a peak of positivity of 11.8% in January. Also, 12 episodes of CRBSI were documented in period I (incidence, 2.9%) versus no episode in period 2, with a significant difference in incidence rate between the 2 periods ($P = .002$). **Conclusion:** The innovative measures were effective for eradicating the outbreak when instituted together with recognized good practices. In an outbreak scenario is difficult to define the isolated impact of each measure, although, parents' decolonization to prevent the colonization of other siblings and contact precautions for twins of colonized NB seemed to improve the results.

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Poster Presentation

Analysis of National Healthcare Safety Network *Clostridioides difficile* Infection Standardized Infection Ratio by Test Type

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Table 1.

Table 2. Proportion Summary of Observed Time Burden with Isolation Precautions at Patient Isolation Rooms

Category	OB	Isolation Precautions					PPE Use					Hand Hygiene					PPE/HH Ratio
		Mean	SD	Min	Max	P-value	Mean	SD	Min	Max	P-value	Mean	SD	Min	Max	P-value	
Overall	46	0.236	0.114	0.075	0.586		0.161	0.098	0.045	0.527		0.075	0.055	0.017	0.303		2.16
Hospital																	
A	22	0.225	0.112	0.075	0.586	0.5302 ^A	0.174	0.099	0.058	0.442	0.5952 ^A	0.051	0.031	0.017	0.144	0.0000 ^A	3.40
B	10	0.272	0.125	0.110	0.498		0.135	0.064	0.045	0.255		0.137	0.079	0.053	0.303	(B>A, C) [†]	0.99
C	14	0.227	0.113	0.115	0.561		0.160	0.118	0.071	0.527		0.067	0.026	0.033	0.129		2.41
Unit Type																	
ICU	17	0.184	0.046	0.115	0.260	0.0165	0.110	0.034	0.058	0.184	0.0051	0.074	0.027	0.044	0.129	0.9684	1.48
Ward	29	0.266	0.131	0.075	0.586		0.192	0.111	0.045	0.527		0.075	0.067	0.017	0.303		2.56
Isolation Room Type																	
Single	34	0.246	0.125	0.110	0.586	0.3179	0.160	0.107	0.045	0.527	0.8809	0.086	0.058	0.028	0.303	0.0160	1.86
Cohort (Shared)	12	0.207	0.074	0.075	0.361		0.165	0.071	0.058	0.338		0.042	0.027	0.017	0.118		3.91
Isolation Precautions																	
Contact	39	0.225	0.108	0.075	0.586	0.1144	0.166	0.102	0.058	0.527	0.4605	0.059	0.030	0.017	0.144	0.0000	2.83
Airborne	7	0.299	0.140	0.110	0.498		0.136	0.072	0.045	0.255		0.163	0.079	0.065	0.303		0.83
Pathogen/Disease																	
VRE	28	0.226	0.103	0.075	0.586	0.1585 ^A	0.173	0.091	0.058	0.442	0.2658 ^A	0.053	0.028	0.017	0.144	0.0000 ^A	3.28
TB	7	0.299	0.140	0.110	0.498		0.136	0.072	0.045	0.255		0.163	0.079	0.065	0.303	(TB> VRE, Other) [†]	0.83
MRSA	6	0.170	0.053	0.115	0.260		0.102	0.034	0.071	0.159		0.069	0.021	0.044	0.101		1.48
Other	5	0.283	0.161	0.162	0.561		0.203	0.182	0.103	0.527		0.080	0.041	0.033	0.129		2.54

Note. * OB, number of observation block; PPE, personal protective equipment; HH, hand hygiene; SD, stand deviation; ICU, intensive care unit; TB, tuberculosis; VRE, vancomycin-resistant enterococci; MRSA, methicillin-resistant *Staphylococcus aureus*; PPE use frequency counted all different items' donning and doffing individually; isolation precautions consist of PPE use and HH.

** A, Analysis of variance (ANOVA); S, Scheffe method was adopted for a post-hoc test; if there is no superscript on P-value, t-test was conducted.

Background: The National Healthcare Safety Network (NHSN) has used positive laboratory tests for surveillance of *Clostridioides difficile* infection (CDI) LabID events since 2009. Typically, CDIs are detected using enzyme immunoassays (EIAs), nucleic acid amplification tests (NAATs), or various test combinations. The NHSN uses a risk-adjusted, standardized infection ratio (SIR) to assess healthcare facility-onset (HO) CDI. Despite including test type in the risk adjustment, some hospital personnel and other stakeholders are concerned that NAAT use

is associated with higher SIRs than EIA use. To investigate this issue, we analyzed NHSN data from acute-care hospitals for July 1, 2017, through June 30, 2018. **Methods:** Calendar quarters where CDI test type was reported as NAAT (includes NAAT, glutamate dehydrogenase (GDH)+NAAT and GDH+EIA followed by NAAT if discrepant) or EIA (includes EIA and GDH+EIA) were selected. HO-CDI SIRs were calculated for facility-wide inpatient locations. We conducted the following 2 analyses: (1) Among hospitals that did not switch their test type, we compared the

Figure 1. Histograms of hospital HO incidence rates and SIRs by CDI test types for hospitals that did not switch CDI test types, 2017Q3-2018Q2

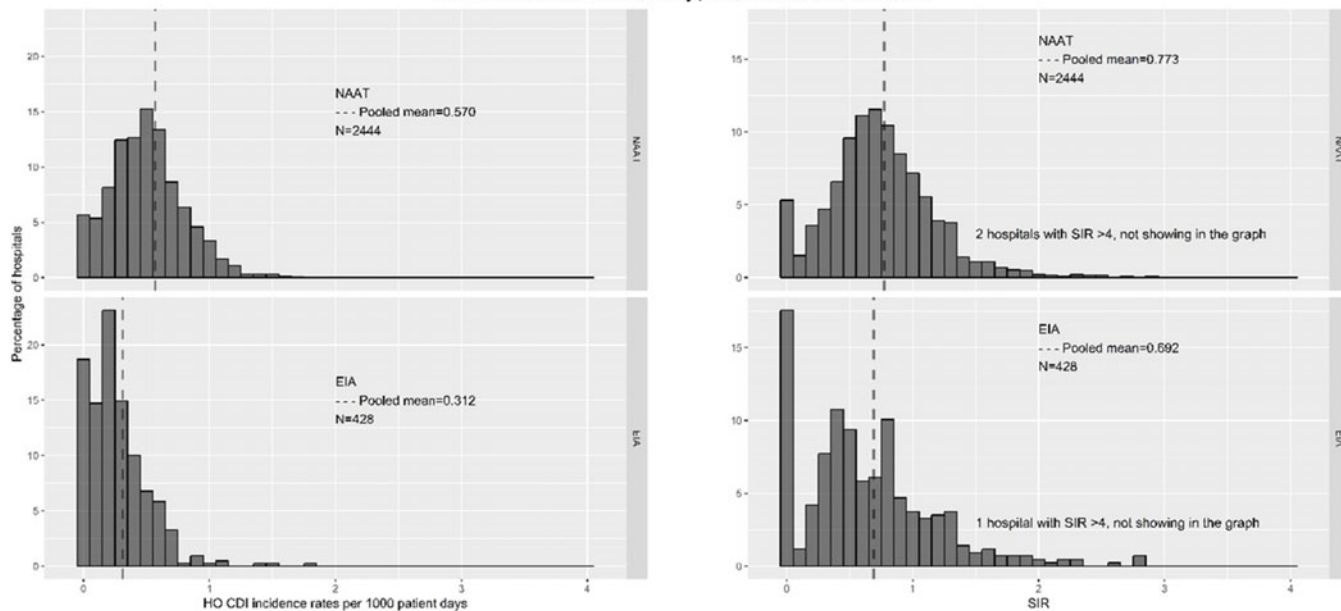


Fig. 1.

Figure 2. Scatter plots of pooled semiannual SIRs for NAAT and EIA for hospitals with CDI test type switch pattern EIA-to-NAAT and NAAT-to-EIA, 2017Q3-2018Q2

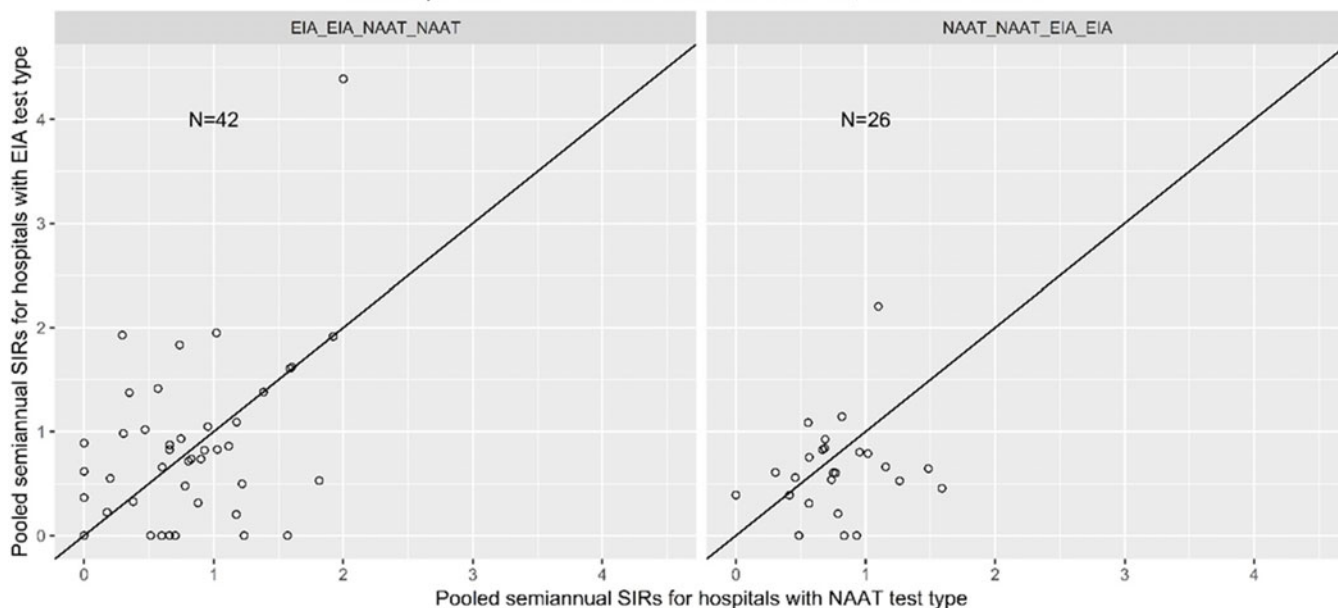


Fig. 1.

distribution of HO incident rates and SIRs by those reporting NAAT versus EIA. (2) Among hospitals that switched their test type, we selected quarters with a stable switch pattern of 2 consecutive quarters of each of EIA and NAAT (categorized as EIA-to-NAAT or NAAT-to-EIA). Pooled semiannual SIRs for EIA and NAAT were calculated, and a paired *t* test was used to evaluate the difference in SIRs by switch pattern. **Results:** Most hospitals did not switch test types (3,242, 89%), and 2,872 (89%) reported sufficient data to calculate an SIR, with 2,444 (85%) using NAAT. The crude pooled HO CDI incidence rates for hospitals using EIAs clustered at the lower end of the histogram versus rates for NAATs (Fig. 1). The SIR distributions, both NAATs and EIAs, overlapped substantially and covered a similar range of SIR values (Fig. 1). Among hospitals with a switch pattern, hospitals were equally likely to have an increase or decrease in their SIRs (Fig. 2). The mean SIR difference for the 42 hospitals switching from EIA to NAAT was 0.048 (95% CI, -0.189 to 0.284; *P* = .688). The mean SIR difference for the 26 hospitals switching from NAAT to EIA was 0.162 (95% CI, -0.048 to 0.371; *P* = .124). **Conclusions:** The pattern of SIR distribution for both NAAT and EIA substantiate the soundness of the NHSN's risk adjustment for CDI test types. Switching test type did not produce a consistent directional pattern in SIR that was statistically significant.

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Poster Presentation

Determining Core Element Achievement in Long-Term Care Facilities Across Tennessee

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Background: In 2017, a new antimicrobial stewardship standard was established by the Joint Commission that requires long-term care facilities (LTCFs) to have an antimicrobial stewardship program (ASP) based on current scientific literature. The Tennessee Department of Health (TDH) team sought to ascertain the current state of ASPs across Tennessee and to assist programs with implementation strategies. Utilizing a Centers for Medicaid and Medicare Services' Civil Monetary Penalties grant, the TDH purchased copies of the *National Quality Partners Playbook for Antibiotic Stewardship in Post-Acute and Long-Term Care* to provide to LTCFs as incentive to complete a survey that would evaluate their current adoption of core elements. **Methods:** A self-administered questionnaire on ASP practices was developed and distributed to LTCFs. This survey expanded upon questions from the NHSN 2018 LTCF annual survey. These questions pertained to actionable items facilities are taking to achieve core elements. Achievement of the CDC's 7 core elements of ASPs was determined based upon a combination of 1 or more responses to the survey questions. The percentage of LTCFs achieving each ASP core element at the regional and statewide level was determined. We also calculated the percentage of LTCFs that achieved all 7 elements versus 5 or more core elements. The analyses and visualizations were performed using SAS 9.4 and Tableau software. **Results:** Currently, 88 of 316 licensed LTCF facilities in Tennessee have participated in the survey. All regions were represented by EMS

region. Based on the results of our survey, 100% of participating facilities have achieved at least 5 core elements, and 78% of participating facilities have achieved all 7 core elements. The core element with the lowest achievement was Accountability at 89%, and reporting and action had the highest achievement (100%).

Conclusions: Early results suggest that LTCFs across Tennessee have active ASPs with strong core element achievement. However, we received responses from only 27% of licensed LTCFs. Minimal data are available regarding the current state of LTCF ASPs in Tennessee, and data will continue to be collected and analyzed. Participation may be limited to those already actively engaged in public health efforts, including antimicrobial stewardship. LTCFs that have participated in the initial evaluation will be surveyed at 6 months and 12 months after receipt of playbooks to evaluate their ASP progression and NQP Playbook utilization.

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ASPChat: Participation and Reach of a Real-Time Twitter Chat on Antimicrobial Stewardship

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Background: Healthcare professionals with roles in infectious disease and antimicrobial stewardship have a growing presence on social media. Twitter has evolved to become a popular venue for healthcare professional communication, with the potential to support improved quality of patient care. To harness this growth and provide an opportunity for learning and networking, we developed a monthly Twitter chat on a variety of antimicrobial stewardship topics. Our objective was to evaluate the reach of this online initiative. **Methods:** In November 2016, to coincide with World Antibiotic Awareness Week, we held the first ASP chat (#ASPChat). Twitter chats continue monthly for 1 hour each month. Topics range from rapid diagnostic testing to duration of antibiotic therapy, and 6 questions are posed for each event. Questions about common strategies, clinical pearls, helpful resources, and literature are commonly integrated into the discussion. The event is open to all Twitter users regardless of discipline or location of practice. Participants use the ASPChat hash tag to follow along with the conversation. To evaluate the monthly Twitter chats, analytics were obtained from Symplur Healthcare Hashtags including impressions, the number of potential views for each Tweet, number of Tweets, and number of participants.

Results: To date, 33 ASPChat events have been held, with a total of 20,478,000 impressions. The average number of Tweets per month was 346 and the average number of participants was 86 (Fig. 1). Participants have included pharmacists, physicians, infection control practitioners, and nonclinicians. Countries represented have included the United States, Canada, the United Kingdom, Australia, New Zealand, and South Africa. The average monthly impressions stands at 620,559 and has increased each year from between 23% and 86%. **Conclusions:** A monthly Twitter Chat is a feasible and sustainable approach to connecting antimicrobial stewards across a wide geographical range. The broad reach of the ASPChat events presents an opportunity to influence and unite a diverse group of professionals aiming to improve antibiotic use. Further evaluation is recommended to understand the professional and clinical impact of this important communication tool.