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 1 - preintervention) and June to December 2019 (period II - postintervention). At the end of period 1, 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 chlorohexidine (oral preparation) for oral hygiene; concurrent linen change at the end of the patient's decolonization; decolonization of parents of colonized siblings with chlorohexidine 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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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
		Mean	SD	Min	Max	*P*-value	Mean	SD	Min	Max	*P*-value	Mean	SD	Min	Max	*P*-value	Ratio
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)[S]	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)[S]	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.