Table 1. Characteristics of infants with *Staphylococcus aureus* bacteremia and/or meningitis by antibiotic duration.

	Bacteremia only			Meningitis ± bacteremia		
	Days of antibiotics			Days of antibiotics		
	<14 (n= 2,017)	≥14 (n=1,974)	p-value*	<14 (n= 17)	≥14 (n=78)	p-value*
Gestational age (weeks)			<0.001			0.51
- <28	53%	60%		59%	65%	
- 28- <32	30%	28%		18%	21%	
- 32- <37	12%	9%		12%	10%	
- ≥37	5%	3%		12%	4%	
Post-natal age (days)			0.31			0.42
- 0-7	11%	12%		18%	8%	
- 8-28	57%	59%		41%	42%	
- >28	32%	29%		41%	48%	
Male	56%	54%	0.41	59%	46%	0.43
Race/Ethnicity			0.06			0.06
- White	49%	46%		31%	43%	
- Black	26%	29%		13%	33%	
- Hispanic	19%	20%		50%	21%	
- Other	6%	5%		6%	3%	
Methicillin-resistance	25%	30%	**0.001**	29%	19%	0.34
Duration of bacteremia (days)			**<0.001**			
- <4	95%	66%				
- ≥4	5%	34%				
Concurrent bacteremia				29%	53%	0.11
Severe illness†	45%	56%	**<0.001**	59%	42%	0.28
Follow-up days‡, median (IQR)	35 (13-62)	44 (22-70)	**<0.001**	11 (3-67)	35.5 (13-58)	0.34

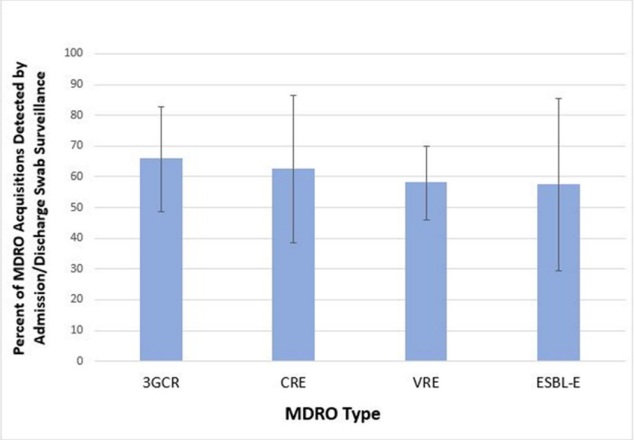
IQR: Interquartile range

*Fisher's exact test for categorical variables and Wilcoxon rank sum test for continuous variables. Significant values in bold.
†Defined as requiring mechanical ventilation, vasopressors or extracorporeal membrane oxygenation (EMCO) at the time of positive culture.
‡Time between antibiotic cessation and hospital discharge.

Table 2. Analysis of outcomes among infants with *Staphylococcus aureus* (SA) bacteremia and/or meningitis by antibiotic duration.

	Bacteremia only				Meningitis ± bacteremia		
	<14 days (n=2,017)	≥14 days (n=1,974)	OR (95% CI)	p-value*	<14 days (n=17)	≥14 days (n=78)	p-value*
Recurrent SA infection†	10%	4%	0.24 (0.18-0.32)	**<0.001**	18%	3%	**0.04**
Death within 7 days§	6%	1%	0.10 (0.06-0.17)	**<0.001**	15%	0	**0.02**
Death at discharge	11%	6%	0.33 (0.25-0.44)	**<0.001**	15%	7%	0.30

*Logistic regression analysis adjusted for post-natal age, gestational age, sex, methicillin-resistance, severe illness and duration of bacteremia. Significant values in bold.
†Fisher's exact test. Too few observations to perform multivariable analysis for meningitis cohort. Significant values in bold.
‡Prior to NICU discharge and within 12 weeks of antibiotic cessation, including recurrent positive blood or CSF cultures and new diagnosis of endocarditis or osteomyelitis.
§After antibiotic cessation



MDRO Acquired	Number of Acquisitions Detected by Daily Serial Swabbing	Number of Acquisitions Detected by Admission/Discharge Swab Surveillance	Proportion of Acquisitions Detected by Admission/Discharge Swab Surveillance (95% CI)
3GCR	73	48	0.66 (0.49-0.83)
CRE	16	10	0.63 (0.39-0.87)
VRE	69	40	0.58 (0.46-0.70)
ESBL-E	33	19	0.58 (0.30-0.86)

Figure 1. Detection of Incident MDRO Colonization (Acquisition) by Discharge Swab was Low Compared to Daily Serial Swabbing. Black-capped bars represent 95% confidence intervals. Abbreviations: MDRO, multidrug-resistant organism; VRE, vancomycin-resistant enterococcus; CRE, carbapenem-resistant Enterobacterales; 3GCR, third-generation cephalosporin-resistant Enterobacterales; ESBL-E, extended-spectrum β-lactamase-producing Enterobacterales.

There was a significant association between <14 days antibiotics and recurrent infection (p = 0.04) and 7-day mortality (p = 0.02) in the meningitis cohort. Infants with SA bacteremia who received ≥14 days antibiotics had reduced odds of recurrent SA infection (OR 0.24, 95% CI 0.18-0.32) and death (OR 0.33, 95% CI 0.25-0.44), adjusting for post-natal age, gestational age, sex, methicillin-resistance, severe illness and duration of bacteremia (Table 2). **Conclusions:** In the largest study thus far examining antibiotic duration among hospitalized infants with *S. aureus* bacteremia and/or meningitis, ≥14 days antibiotics was associated with decreased odds of recurrent infection or death. Further studies are needed to define the optimal treatment duration and identify clinical factors distinguishing infants able to safely receive a shorter antibiotic duration.

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Admission and Discharge Sampling Underestimates Multidrug-Resistant Organism (MDRO) Acquisition in an Intensive Care Unit

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Background: Identification of hospitalized patients with enteric multidrug-resistant organism (MDRO) carriage, combined with implementation of targeted infection control interventions, may help reduce MDRO transmission. However, the optimal surveillance approach has not been defined. We sought to determine whether daily serial rectal surveillance for MDROs detects more incident cases (acquisition) of MDRO colonization in medical intensive care unit (MICU) patients than admission and discharge surveillance alone. **Methods:** Prospective longitudinal observational single-center study from January 11, 2017, to January 11, 2018. Inclusion criteria were ≥3 consecutive MICU days and ≥2 rectal or stool swabs per MICU admission. Daily rectal or stool swabs were collected from patients and cultured for MDROs, including vancomycin-resistant *Enterococcus* (VRE), carbapenem-resistant Enterobacterales (CRE), third-generation cephalosporin-resistant Enterobacterales (3GCR), and extended-spectrum β-lactamase–producing Enterobacterales (ESBL-E) (as a subset of 3GCR). MDRO detection at any time during the MICU stay was used to calculate prevalent colonization. Incident colonization (acquisition) was defined as new detection of an MDRO after at least 1 prior negative swab. We then determined the proportion of prevalent and incident cases detected by daily testing that were also detected when only first swabs (admission) and last swabs (discharge) were tested. Data were analyzed using SAS version 9.4 software. **Results:** In total, 939 MICU stays of 842 patients were analyzed. Patient characteristics were median age 64 years (interquartile range [IQR], 51–74), median MICU length of stay 5 days (IQR, 3–8), median number of samples per admission 3 (IQR, 2–5), and median Charlson index 4 (IQR, 2–7). Prevalent colonization with any MDRO was detected by daily swabbing in 401 stays (42.7%). Compared to daily serial swabbing, an admission- and discharge-only approach detected ≥86% of MDRO cases (ie, overall prevalent MDRO colonization). Detection of incident MDRO colonization by an admission- or discharge-only approach would have detected fewer cases than daily swabbing (Figure 1); ≥34% of total MDRO acquisitions would have been missed. **Conclusions:** Testing patients upon admission and discharge to an MICU may fail to detect MDRO acquisition in more than one-third of patients, thereby reducing the effectiveness of MDRO control programs that are targeted against known MDRO carriers. The poor performance of a single discharge swab may be due to intermittent or low-level MDRO shedding, inadequate sampling, or transient MDRO colonization. Additional research is needed to determine the optimal surveillance approach of enteric MDRO carriage.

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