Figure 1: Risk Factors for Working With Respiratory Symptoms Among Clinical and Non-Clinical Healthcare Workers

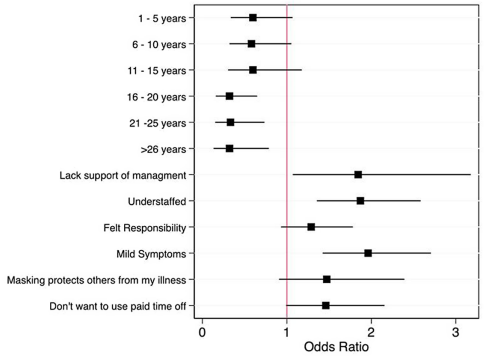

Table 1: Clinical and non-clinical roles of those who responded to the survey

Clinical (N=829)	N (%)	Non-clinical (N = 356)	N(%)
Medical assistant	66 (5.6)	Administration	191 (16.1)
Nursing assistant	16 (1.4)	Environmental services	4 (0.3)
Physicians	156 (13.2)	Facilities Management	20 (1.7)
Advanced Practice Nurse or Advanced Practice Provider (CNS, NP, Midwife, CRNA, PA,)	104 (8.8)	Food service	11 (0.9)
Registered Nurse/ Nurse Clinician	266 (22.4)	Laboratorian	35 (3.0)
Pharmacist	14 (1.2)	Other	100 (28.1)
Technician	95 (8.0)		
Other	127 (15.3)		

Table 2: Risk Factors for Working With Respiratory Symptoms Among Clinical and Non-Clinical Healthcare Workers

	Univariable			Multivariable		
Factors	OR	95% CI	P	aOR	95% CI	P
Role						
Non-Clinical	Ref	Ref	Ref			
Clinical	1.1	0.79 – 1.5	0.60			
Years of service						
<1	Ref	Ref	Ref	Ref	Ref	Ref
1 - 5	0.67	0.38 – 1.18	0.16	0.60	0.33 – 1.07	0.08
6 - 10	0.64	0.36 – 1.13	**0.13**	0.58	0.32 – 1.05	0.07
11 - 15	0.61	0.32 – 1.16	0.13	0.60	0.30 – 1.18	0.14
16 - 20	0.31	0.16 – 0.61	**0.001***	0.32	0.16 – 0.65	**0.002***
21 - 25	0.29	0.13 – 0.62	**0.001***	0.33	0.15 – 0.74	**0.007***
>26	0.30	0.13 – 0.71	**0.006***	0.32	0.13 – 0.79	**0.01***
Primary Financial Provider	1.26	0.91 – 1.73	0.16			
Received flu vaccine	0.87	0.53 – 1.45	0.60			
Received 2 or more covid doses	1.05	0.70 – 1.56	0.82			
# of symptoms	0.99	0.94 – 1.1	0.84			
Employer						
UWMF	1.19	0.85 – 1.68	0.30			
UWHC	0.86	0.62 – 1.20	0.37			
UWSMPH	1.19	0.62 – 2.30	0.61			
Lacked support of management	1.82	1.05 – 3.02	**0.02***	1.84	1.07 – 3.18	**0.03***
Understaffed	2.4	1.78 – 3.24	**<0.001***	1.87	1.35 – 2.58	**<0.001***
Felt Responsibility	1.90	1.42 – 2.55	**<0.001***	1.29	0.93 – 1.78	0.13
Mild symptoms	2.29	1.69 – 3.08	**<0.001***	1.96	1.42 – 2.71	**<0.001***
Symptoms were due to another illness, e.g. allergies	1.33	0.99 – 1.78	0.06			
Masking protects others from my illness	1.84	1.17 – 2.91	**<0.001***	1.47	0.91 – 2.39	0.12
Don't want to use paid time-off	1.75	1.21 – 2.53	**0.003***	1.46	0.99 – 2.16	0.06
I have no more sick days left	1.25	0.79 – 1.98	0.34			
Can't afford to take unpaid leave	1.11	0.71 – 1.72	0.66			
I don't get paid sick days	1.19	0.68 – 2.09	0.53			
I tested negative for COVID	1.28	0.96 – 1.71	0.10			

*Statistically significant at p<0.05, aOR = Adjusted Odds Ratio

(55.3%), and sense of responsibility (55.1%) as reasons to work with respiratory symptoms. The following barriers, or reasons to work with symptoms, were more commonly identified as significant by those who worked with symptoms compared to those who did not: being understaffed (OR, 1.87; 95% CI, 1.35–2.58; $P \leq .001$), having mild symptoms (OR, 1.96; 95% CI, 1.42–2.71; $P < .001$), and lack of support from management (OR, 1.84; 95% CI, 1.07–3.18; $P = .03$). **Conclusions:** Working with respiratory symptoms is prevalent in clinical and nonclinical HCP. Those with fewer years of work experience appear to be more susceptible to misconceptions and pressures to work despite respiratory symptoms. Messaging should stress support from leadership and the significance of even mild respiratory symptoms and should emphasize responsibility to patients and colleagues to stay home with respiratory symptoms. Strategies to ensure adequate staffing and sick leave may also be high yield.

Disclosures: None

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Presentation Type:
Poster Presentation - Poster Presentation
Subject Category: Decolonization Strategies

MRSA PCR improves sensitivity of detection of colonization in neonates

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Background: Neonates colonized with methicillin-resistant *Staphylococcus aureus* (MRSA) are at high risk of developing life-threatening MRSA infection. Due to lack of evidence, national guidelines do not currently recommend a specific methodology for detecting MRSA colonization. We hypothesize that surveillance for MRSA colonization via polymerase chain reaction (PCR) is superior to culture for the detection of colonization. **Methods:** In this retrospective study, we compared results of MRSA surveillance by 2 methodologies, culture and PCR, after implementation of an MRSA surveillance and decolonization protocol in the Texas Children's Hospital Pavilion for Women, a 42-bed neonatal intensive care unit. MRSA colonization of 3 body sites via the 2 methodologies was assessed from June 2017 through December 2020. All neonates were screened for MRSA upon admission to the NICU and weekly thereafter until MRSA-positive or discharged. Swab specimens were initially tested by PCR (Xpert MRSA NxG, Cepheid) and when MRSA-positive reflexed to culture to recover the organism for further characterization. This study was approved through the Baylor College of Medicine Institutional Review Board. **Results:** During the study period, 2,351 neonates were assessed for MRSA colonization by PCR; 81 (3.4%) infants were PCR positive (Fig. 1). Of those 81, 57 (70.4%) had concordant MRSA PCR and culture results, and 24 (29.6%) were MRSA PCR positive but no isolate was recovered in culture. Also, 8 specimens were indeterminate by PCR. However, 1 infant who was negative by culture but was PCR positive developed an MRSA orbital infection. Compared to PCR, the overall sensitivity of MRSA culture was 70.4% (range, 57.7%–80.8%, depending on the year) (Table 1). **Conclusions:** PCR is more sensitive than culture for detecting MRSA colonization in neonates. Utilizing a PCR method enhances the ability to identify MRSA colonized infants more readily and allows for prompt initiation of infection control interventions including isolation precautions and decolonization strategies. Reflex to culture remains important for strain characterization during outbreak investigations and for additional susceptibility testing. Resource utilization and cost–benefit analyses should be done in future studies to influence changes in national

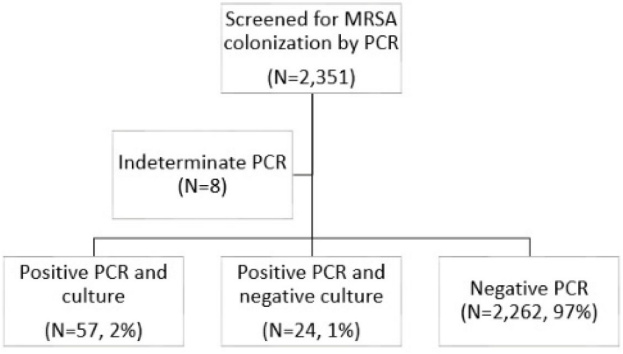

Figure 1- MRSA PCR 2017-2020 Flow Diagram

	2017	2018	2019	2020	Overall
Positive MRSA by both PCR and Culture= True Positive	7	15	14	21	57
Positive MRSA PCR and Negative culture= False Negative	4	11	4	5	24
MRSA Culture Sensitivity	63.6%	57.7%	77.8%	80.8%	70.4%

Table 1- MRSA Culture Sensitivity by Year

guidelines for the control of *Staphylococcus aureus* colonization and infection in neonatal intensive care units.
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Decolonization of hospital patients may aid efforts to reduce transmission of carbapenem-resistant Enterobacterales

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Background: Multimodal approaches are often used to prevent transmission of antimicrobial-resistant pathogens among patients in healthcare settings; understanding the effect of individual interventions is challenging. We designed a model to compare the effectiveness of hand hygiene (HH) with or without decolonization in reducing patient colonization with carbapenem-resistant Enterobacterales (CRE). **Methods:** We developed an agent-based model to represent transmission of CRE in an acute-care hospital comprising 3 general wards and 2 ICUs, each with 20 single-occupancy rooms, located in a community of 85,000 people. The model accounted for the movement of healthcare personnel (HCP), including their visits to patients. CRE dynamics were modeled using a susceptible–infectious–susceptible framework with transmission occurring via HCP–patient contacts. The mean time to clearance of CRE colonization without intervention was 387 days (Zimmerman et al, 2013). Our baseline included a facility-level HH compliance of 30%, with an assumed efficacy of 50%. Contact precautions were employed for patients with CRE-positive cultures with assumed adherence and efficacy of 80% and 50%, respectively. Intervention scenarios included decolonization of culture-positive CRE patients, with a mean time to decolonization of 3 days. We considered 2 hypothetical intervention scenarios: (A) decolonization of patients with the baseline HH compliance and (B) decolonization with a slightly improved HH compliance of 35%. The hospital-level CRE incidence rate was used to compare the results from these intervention scenarios. **Results:** CRE incidence rates were lower in intervention scenarios than the baseline scenario (Fig. 1). The baseline mean incidence rate was 29.1 per 10,000

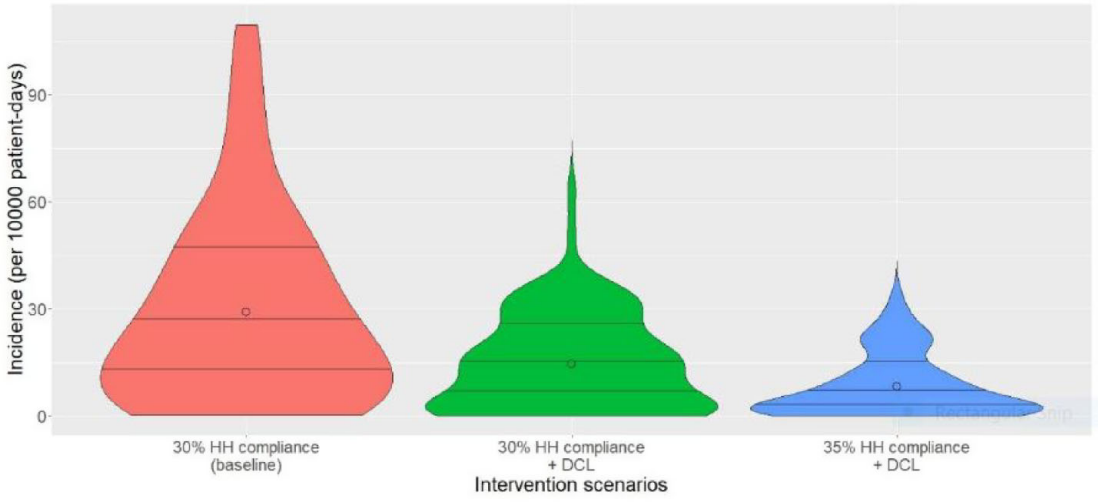

Figure 1. The distributions of the CRE (carbapenem-resistant Enterobacterales) incidence rates. These results are summarized from a set of 100 simulations of the model. In each violin plot, the empty circle represents the mean of the data points, and the three horizontal lines the median and interquartile range of the density. The baseline was run with a hand hygiene (HH) compliance of 30%. The acronym DCL represents decolonization of culture-positive CRE patients.