



Fig. 2.

nursing homes; however, iSA risk factors, including previous healthcare exposure, were similar. Continued study is needed to identify interventions effective against all iSA infections in nursing homes.

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Trimethoprim-Sulfamethoxazole Resistance Patterns Among Methicillin-Resistant *Staphylococcus aureus*, 2012–2018

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Background: Trimethoprim-sulfamethoxazole is commonly used for the treatment of noninvasive methicillin-resistant *Staphylococcus aureus* (MRSA) infections. Following a report from 2 facilities of increased trimethoprim-sulfamethoxazole resistance among MRSA infections, we assessed changes in resistance nationally and by state. **Methods:** We reviewed antibiotic susceptibility testing (AST) data for trimethoprim-sulfamethoxazole among *S. aureus* isolates associated with surgical site infections (SSIs), central-line-associated bloodstream infections (CLABSIs), and catheter-associated urinary tract infections (CAUTIs) from acute-care hospitals reported to the NHSN Device and Procedure Module from 2012 to 2018. We compared the pooled mean percentage of isolates nonsusceptible to trimethoprim-sulfamethoxazole in 2012 and 2018, stratified by MRSA and methicillin-sensitive *Staphylococcus*

aureus (MSSA). Among MRSA isolates, we compared the percentage nonsusceptible to trimethoprim-sulfamethoxazole by healthcare-associated infection (HAI) type and state in 2012 and 2018. States with ≥ 20 MRSA isolates with AST reported each year were included in the state-level analysis. **Results:** Overall, 36,587 MRSA isolates and 46,824 MSSA isolates were reported from 2012 to 2018. Moreover, $>80\%$ of MRSA and MSSA isolates had trimethoprim-sulfamethoxazole AST reported each year. Nationally, the percentage of trimethoprim-sulfamethoxazole nonsusceptible among MRSA isolates was 3.9% in 2012 compared to 6.5% in 2018 ($P < .001$), but it was unchanged among MSSA isolates during the same period (1.1% in 2012 vs 1.4% in 2018; $P = .08$). Among MRSA surgical site infections (SSIs), the proportion of trimethoprim-sulfamethoxazole nonsusceptible isolates was 3.1% in 2012 versus 6.1% in 2018 ($P < .001$) but did not change significantly for CLABSIs or CAUTIs (Fig. 1). Among the 32 states that met the inclusion criteria, there were no significant decreases, whereas 4 (12.5%) showed significant increases in the percentage of MRSA that were trimethoprim-sulfamethoxazole nonsusceptible in 2018 compared to 2012: New Jersey (2.4% in 2012 vs 19.3% in 2018; $P < .001$); Florida (9.1% in 2012 vs 22.4% in 2018; $P < .001$); Maryland (0.0% in 2012 vs 10.9% in 2018; $P < .01$); and Pennsylvania (1.7% in 2012 vs 6.5% in 2018; $P < .001$).

Conclusions: Nationally, there was a modest but significant increase in the percentage of MRSA HAI isolates nonsusceptible to trimethoprim-sulfamethoxazole in 2018 compared to 2012; however, 3 of 4 states with significant increases in nonsusceptibility had substantial, potentially clinically relevant increases ($>10\%$). Ongoing characterization of MRSA isolates from Florida and New Jersey may provide insight into the underlying cause of these shifting patterns in trimethoprim-sulfamethoxazole resistance among MRSA. Healthcare personnel should select appropriate antibiotic regimens based on local resistance patterns, should monitor patients for treatment failure, and should report changes in resistance to the appropriate public health department.

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