1138. Utility of Methicillin-resistant Staphylococcus aureus Nares Screening in Hospitalized Children With Acute Infectious Disease Syndromes

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Session: P-63. Pediatric Antimicrobial Stewardship (inpatient/outpatient pediatric focused)

Background. Empiric antibiotic regimens frequently include treatment for methicillin-resistant Staphylococcus aureus (MRSA). Studies in adults with pneumonia support the use of a negative MRSA nares screening (MNS) to help de-escalate antibiotic therapy. Comparable pediatric data in the literature is scarce. We aimed to evaluate the use of MNS for antibiotic de-escalation in hospitalized children (<18 years) at a tertiary children's hospital.

Methods. A retrospective chart review was conducted of pediatric inpatients (January 01, 2015 to December 31, 2020) with a presumed infectious diagnosis who had a PCR-based MNS test and a clinical culture (i.e. site of infection or blood) performed as part of their diagnostic work up. Those who were screened >5 days since admission or >48 hours since start of MRSA-active antimicrobials, and those who had antibiotic treatment withdrawn after 48 hours because of negative cultures were excluded.

Results. A total of 101 children were included with a median age (range) of 2 years (0–18) and about half (50%) were male. The median time from patient encounter to MNS test was 3 days. The positivity rate of MRSA MNS was 9.9% (95% CI 6.0–14.8%). At least one episode of VAI occurred in 45.6%; p=0.048), and cellulitis (28.0% to 42.3%; p< 0.001) (Figure 3).

Conclusion. Pediatric providers at this institution have started to use the MNS to help limit anti-MRSA therapy; We noted a high NPV which suggests that MNS may be useful for timely de-escalation of anti-MRSA therapy and thereby a useful antimicrobial stewardship tool for hospitalized children. Prospective studies to evaluate the utility of MNS for the various infectious syndromes are warranted.

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1139. Reducing Collection of Tracheal Aspirate Bacterial Cultures: A Diagnostic Test Stewardship Intervention

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Background. Tracheal aspirate (TA) bacterial cultures are often collected in mechanically ventilated children to evaluate for ventilator-associated infections (VAI), including tracheitis and pneumonia. However, frequent bacterial colonization of tracheal tubes results in poor specificity of positive TA cultures for distinguishing bacterial infection from colonization, which contributes to antibiotic overuse for VAI. We performed a quality improvement project to reduce collection of TA cultures through implementation of a consensus guideline to standardize culture ordering, and measured its impact on antibiotic use in a tertiary PICU.

Methods. A multidisciplinary team including PICU, pulmonary, and ID clinicians developed the consensus guideline in November 2019-February 2020. The first Plan-Do-Study-Act (PDSA) cycle occurred in August 2020 and included provider education, providing a link to the guideline in the TA culture order, and signs and screensavers highlighting key guideline recommendations. The second PDSA cycle occurred in October-December 2020 and included weekly emails to PICU clinicians. Statistical process control charts were used to measure the number of TA cultures collected/100 ventilator days and broad-spectrum antibiotic DOT/100 ventilator days. The number of patients treated for VAI/100 ventilator days and guideline compliance were also measured.

Results. The baseline rate of TA culture collection was 4.58/100 ventilator days. A centerline shift to 3.33 cultures/100 ventilator days occurred in March 2020. Following PDSA 1 and 2 in October 2020, a second downward centerline shift to 2.22 cultures/100 ventilator days occurred (Figure 1). Broad-spectrum antibiotic days of therapy/100 ventilator days decreased in November 2019 coincident with the start of the project, but no further reductions occurred after PDSA 1 and 2 (Figure 2). The number of patients treated for VAI decreased from a baseline of 1.24/100 ventilator days to 0.66/100 ventilator days. Finally, the proportion of TA cultures ordered that...