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[O28] ANTIMICROBIAL STEWARDSHIP IN THE MANAGEMENT OF ACUTE OSTEOMYELITIS AND SEPTIC ARTHRITIS IN CHILDREN

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Aim: North America is facing a rising epidemic involving strains of methicillin-resistant *Staphylococcus aureus* (MRSA) that, instead of being found almost exclusively in hospitals, are community-associated (CA-MRSA). These strains are aggressive, associated with musculoskeletal manifestations including osteomyelitis (OM), and septic arthritis (SA).

We aimed to establish novel management algorithms for acute OM and SA in children. We investigated *S.aureus* susceptibilities to current first-line antimicrobials to determine their local efficacy.

Method: The project was conducted at Nemours General Children Hospital in Florida, USA, following approval by the internal review board. A literature review was conducted. An audit of *S.aureus* antimicrobial sensitivities was completed over three years and compared against national standards. Susceptibilities of clindamycin, trimethoprim/sulfamethoxazole (TMP/SMX) and vancomycin were studied using local resistance ranges.

Results: Two algorithms for acute OM and SA management were created adopting a multidisciplinary team approach from admission to discharge whilst differentiating higher risk patients within fast-track pathways. We analysed 532 microbiology results for antibiotic susceptibilities from 2012 to 2014. Overall, 51% of *S.aureus* infections were MRSA versus 49% methicillin-susceptible *S.aureus* (MSSA). Surprisingly, clindamycin resistance rates rose compared to 2005 (MRSA 7% in 2005 vs 39% currently, MSSA 20% vs 31% and total *S.aureus* resistance rate of 8% vs 35%, respectively). MRSA and MSSA isolates were near 100% sensitive to Vancomycin and TMP/SMX. No appropriate national standards existed.

Conclusions: Multidisciplinary based algorithms were created for acute OM and SA treatment in children. Possible therapeutic roles for ultrasound guided aspiration and corticosteroids were highlighted in SA. Our audit revealed equal incidence of MSSA to MRSA, supporting national figures on falling MRSA. Interestingly, increased resistance of MSSA and MRSA was found towards recommended first line clindamycin, raising concern over its efficacy.