Cost-effectiveness of a methicillin-resistant *Staphylococcus aureus* nares surveillance protocol in skin and soft tissue infections

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Background: There is limited data on the pharmacists' role in de-escalation of vancomycin and its impact on health care cost with a methicillin-resistant *Staphylococcus aureus* (MRSA) nares surveillance in skin and soft tissue infections (SSTIs).

Methods: A prospective chart review was conducted among adult patients hospitalized with a SSTI managed under a recently implemented pharmacist-driven vancomycin protocol. Exclusion criteria included perioperative prophylaxis, hemodialysis, de-escalation prior to MRSA nares result, history of intravenous drug use or necrotizing fasciitis. Following the initiation of the protocol, acceptance rates for de-escalation recommendations by pharmacy were tracked. Primary outcome data collected included length of hospital stay (days) and frequency of infection-related 30-day readmission. Secondary outcome data collected included frequency of rise in serum creatinine ≥ 0.3mg/dL from baseline, frequency of vancomycin levels, incidence of supratherapeutic vancomycin AUC exposure (≥ 600mg/L*hr), duration of intravenous antibiotic days, and transition to oral antibiotic days. Statistical analyses included Fisher's exact, Chi-square, and Mann-Whitney U test where appropriate.

Results: De-escalation of vancomycin based on nares results was recommended for 11 of the 73 patients included to date. Patients who were de-escalated had a shorter length of stay vs those who were not de-escalated (9 ± 11 vs 17 ± 13 days, p=0.183). One of the 5 hospital readmissions was in the de-escalation group and this was not deemed to be infection related. An increase in serum creatinine ≥ 0.3mg/dL occurred more frequently in patients who were not de-escalated in comparison to those that were de-escalated (36% vs 0%, p=0.125). There were fewer vancomycin levels in those that were not de-escalated vs those who were de-escalated (8 ± 1 vs 3 ± 8, p=0.386). The total antibiotic days (4 ± 1 vs 8 ± 4, p=0.079) were lower in the de-escalation group.

Conclusion: The anticipated results may help to support reduction in the overuse of vancomycin, identify cost avoidance implications to a health system with the use of vancomycin and MRSA nares surveillance, and to establish the potential cost-benefit of a pharmacist-driven MRSA nares surveillance protocol. Research is ongoing, finalized results to be presented upon completion.