

## Vancomycin-Intermediate *Staphylococcus epidermidis* (VISE) Isolated in Omaha

By Nancy Cornish, M.D., Director of Microbiology, Nebraska Methodist Hospital, Kim Hemrick, MT(ASCP), Microbiology Team Leader, Nebraska Methodist Hospital, and Paul D. Fey, Ph.D., Associate Director, NPHL

Although there have been no reports of vancomycin-intermediate *Staphylococcus aureus* (VISA) or vancomycin-resistant *S. aureus* (VRSA) in Nebraska, microbiologists at Methodist Hospital in Omaha have recently isolated a vancomycin-intermediate *Staphylococcus epidermidis* (VISE). A summary of the case and the microbiologic evaluation is presented.

A fifty year old male on renal dialysis for chronic renal failure had two positive blood cultures for oxacillin-resistant coagulase-negative *Staphylococcus* spp. Identification was based on gram stain, positive catalase test, and a negative *S. aureus* agglutination test (Pastorex Staph). The patient had been successfully treated with vancomycin twice in the past year for infections due to gram positive organisms. The original susceptibility test, performed on the Vitek 2® system, revealed an minimum inhibitory concentration (MIC) value of 4 µg/ml to vancomycin. This MIC value was confirmed by plating the isolate on BHI agar containing 6 µg/ml vancomycin, on which the isolate grew after incubation for 24 hours. An E-test MIC of 6 µg/ml further confirmed the original susceptibility result. The isolate was then submitted to the NPHL for further testing and confirmation of the MIC value. At the NPHL, the isolate was identified as *S. epidermidis* through conventional means as well as primer specific amplification of seven known *S. epidermidis* housekeeping genes. Since repeated MIC testing (growth on BHI agar containing 6 µg/ml vancomycin and an E-test vancomycin MIC of 6 µg/ml) at the NPHL confirmed the MIC value obtained with the automated system, an efficiency of plating (EOP) test was performed on this isolate. This test, which was originally designed for heterotypic methicillin resistant *S. aureus* (MRSA), detects subpopulations of a broth culture that are highly resistant to a particular antibiotic (in this case vancomycin). EOP testing demonstrated a typical vancomycin-intermediate curve for the VISE isolate under study compared to two reference vancomycin-susceptible control *S. aureus* strains (VSSA) (Figure 1).

Although the incidence and prevalence of VISE is not known in the United States, data from the Centers for Disease Control and Prevention suggests that their prevalence is much higher than VISA. Dr. Paul D. Fey at the NPHL has a particular interest in antibiotic resistance in *Staphylococcus* spp. and he can be reached at (402) 559-2122 for any questions regarding antimicrobial susceptibility.

Figure 1

