Council of State and Territorial Epidemiologists
Position Statement

03-ID-06

Committee: Infectious Disease

Title: Surveillance for *Staphylococcus aureus* Infection with Decreased Susceptibility to Vancomycin, including both Vancomycin-Intermediate and Vancomycin-Resistant *Staphylococcus aureus*.

Statement of the Problem:
In July 1997, the first case of infection caused by vancomycin-intermediate *Staphylococcus aureus* (VISA: intermediate susceptibility to vancomycin, MIC:8-16 μg/ml) was reported in a peritoneal dialysis patient from Michigan. To date, eight cases of VISA infection have occurred in the U.S.. In June 2002, the first case of infection caused by vancomycin-resistant *Staphylococcus aureus* (VRSA: MIC:≥32 μg/ml) was reported in a hemodialysis patient from Michigan. Three months later, the world's second case was confirmed by the CDC. Most of these cases had a history of recurrent methicillin-resistant *Staphylococcus aureus*. The majority of these VISA/VRSA cases required extensive medical therapy for recovery and two-thirds died. Currently, only a few states conduct surveillance for VISA/VRSA. Population-based surveillance will help to identify incident cases, characterize the individuals at highest risk, and develop appropriate prevention and control measures.

Statement of the desired action(s) to be taken:
1) Vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus* should be added to the national reportable disease list and placed under surveillance through the National Notifiable Diseases Surveillance System (NNDSS).

Goals of Surveillance:
1) Monitor and describe the incidence, prevalence, distribution, and etiology of vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus*.

2) Rapidly recognize and characterize the emergence of new patterns of disease.

3) Control and prevent the further spread and deleterious public health consequences of vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus*.

Methods of Surveillance:
Physician, health care provider, and laboratory reporting. Core surveillance data will be reported to CDC's National Notifiable Disease Surveillance System (NNDSS, a component of the NPHSS), through National Electronic Telecommunications System for Surveillance (NETSS) or the National Electronic Diseases Surveillance System (NEDSS), as per state protocol. Additional clinical, laboratory, and case investigation data will be collected and linked to the core NNDSS data in a manner consistent with the NEDSS and PHIN architecture. Submission of laboratory isolates for full characterization is a central element of laboratory surveillance.

Case Definition:
Staphylococcus aureus infection with decreased susceptibility to vancomycin, including both vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus* (VISA / VRSA).

Clinical Description:
Staphylococcus aureus can produce a variety of syndromes with clinical manifestations including skin and soft tissue lesions, empyema, pyarthrosis, bloodstream infection, pneumonia, osteomyelitis, septic arthritis, endocarditis, sepsis, and meningitis.

Laboratory Criteria:
1)Isolation of *Staphylococcus aureus* from any body site.
AND
2) Intermediate or high-level resistance of the *Staphylococcus aureus* isolate to vancomycin, detected and defined according to NCCLS approved standards and recommendations (MIC:8-16 μg/ml for VISA and MIC:≥32 μg/ml for VRSA).

Case Classification:
Confirmed: A clinically compatible case of vancomycin-intermediate or vancomycin-resistant *Staphylococcus aureus* that is laboratory-confirmed (MIC:8-16 μg/ml for VISA and MIC:≥32 μg/ml for VRSA).

Comment:
Data to be Collected:
A standardized data collection form should be used for all reported vancomycin-intermediate or vancomycin-resistant *Staphylococcus aureus* through the National Notifiable Diseases Surveillance System (NNDSS).

Period of Surveillance:
Permanent, with review of reporting needs every five years.

Background and Justification:
Since the emergence of nosocomial methicillin-resistant *Staphylococcus aureus* (MRSA) infections in the 1980s, and more recently the emergence of community-associated MRSA infections, vancomycin has become the most reliable and effective drug of choice for treating these infections. Because there is limited availability of therapies to treat MRSA beyond vancomycin, the recent confirmed cases of vancomycin-intermediate and vancomycin-resistant *Staphylococcus aureus* (VISA/VRSA) are of great concern. Widespread use of antimicrobials, such as vancomycin, is a major contributing factor for the emergence of antimicrobial resistant organisms, including vancomycin-resistant Enterococcus and other vancomycin-resistant organisms. VISA/VRSA has the potential to emerge and spread without judicious use of antimicrobials, appropriate identification of the organisms, and implemetation of infection control precautions. In the first ten U.S. cases of VISA/VRSA, spread of the resistant organism to other patients and healthcare workers probably was prevented by prompt identification of the isolate and implemetation of recommended infection control practices.

Without broad, standardized surveillance, the true prevalence and incidence of VISA/VRSA infections in the U.S. are unknown. The development of ongoing nationwide surveillance for these resistant organisms will help to heighten awareness of these infections, identify factors that place individuals at higher risk for acquisition, assess the risk of person-to-person transmission, and implement appropriate control measures. Some states have already added VISA/VRSA infection to the notifiable disease list. The development of ongoing nationwide surveillance to monitor these resistant strains will help to heighten awareness and stress the importance of the detection, control, and prevention of these currently emerging organisms.

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