09-ID-58

Committee: Infectious

Title: Public Health Reporting and National Notification for *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin (VISA)

I. Statement of the Problem

CSTE position statement 07-EC-02 recognized the need to develop an official list of nationally notifiable conditions and a standardized reporting definition for each condition on the official list. The position statement also specified that each definition had to comply with American Health Information Community recommended standards to support "automated case reporting from electronic health records or other clinical care information systems." In July 2008, CSTE identified sixty-eight conditions warranting inclusion on the official list, each of which now requires a standardized reporting definition.

II. Background and Justification

Background[1]

Staphylococcus aureus is a bacterium commonly found on the skin and in the noses of healthy people. Occasionally, *S. aureus* can cause infection; *S. aureus* is one of the most common causes of skin infections in the United States. Most of these infections are minor (such as pimples, boils, and other skin conditions) and most can be treated without antimicrobial agents (also known as antibiotics or antibacterial agents). *S. aureus* can also cause serious and sometimes fatal infections (such as bloodstream infections, surgical wound infections, and pneumonia). In the past, most serious *S. aureus* bacterial infections were treated with antimicrobial agenta related to penicillin. Over the past 50 years, treatment of these infections has become more difficult because staphylococci have become resistant to various antimicrobial agents, including the commonly used penicillin-related antibiotics.

VISA and VRSA are specific types of antimicrobial-resistant *S. aureus*. While most *S. aureus* bacteria are susceptible to the antimicrobial agent vancomycin some have developed resistance. VISA and VRSA cannot be successfully treated with vancomycin because these organisms are no longer susceptibile to vancomycin. However, to date, all VISA and VRSA isolates have been susceptible to other Food and Drug Administration (FDA) approved drugs.

In 2002 the Council of State and Territorial Epidemiologists added VISA and VRSA to the national reportable disease list and placed them under surveillance through the National Notifiable Diseases Surveillance System (NNDDSS). The case definition used for surveillance is based on the laboratory breakpoints determined by the Clinical and Laboratory Standards

[1] Much of the material in the background is directly quoted from the CDC's VISA/VRSA Website and CSTE poistion statement 06-ID-11. See the References for further information on these sources.

Institute (CLSI, formerly NCCLS). In January 2006, CLSI modified the breakpoints for *S. aureus* and vancomycin by lowering the intermediate breakpoint from 8-16 μg/ml to 4-8 μg/ml (VISA) and the resistant breakpoint from ≥32 μg/ml to ≥16 μg/ml (VRSA). In 2006 CSTE modified its case definitions for VISA and VRSA to meet the revised MIC interpretive standards.

Justification

Infection or colonization with *Staphylococcus aureus* with intermediate susceptibility to vancomycin meets the following criteria for a nationally and **standard** notifiable condition, as specified in CSTE position statement 08-EC-02:

- A majority of state and territorial jurisdictions—or jurisdictions comprising a majority of the US population—have laws or regulations requiring **standard** reporting of *Staphylococcus aureus* with intermediate susceptibility to vancomycin to public health authorities
- CDC requests **standard** notification of *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin to federal authorities
- CDC has condition-specific policies and practices concerning the agency's response to, and use of, notifications.

III. Statement of the desired action(s) to be taken

CSTE requests that CDC adopt this standardized reporting definition for *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin to facilitate more timely, complete, and standardized local and national reporting of this condition.

IV. Goals of Surveillance

To provide information on the temporal, geographic, and demographic occurrence of *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin to facilitate its prevention and control.

V. Methods for Surveillance

Surveillance for *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin should use the sources of data and the extent of coverage listed in Table V below.

Table V. Recommended sources of data and extent of coverage for ascertaining cases of *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin.

	Coverage	
Source of data for case ascertainment	Population-wide	Sentinel sites
clinician reporting	x	
laboratory reporting	x	

reporting by other entities (e.g., hospitals, veterinarians, pharmacies)	x
death certificates	x
hospital discharge or outpatient records	x
extracts from electronic medical records	x
telephone survey	
school-based survey	
other _____	

VI. Criteria for Reporting

Reporting refers to the process of healthcare providers or institutions (e.g., clinicians, clinical laboratories, hospitals) submitting basic information to governmental public health agencies about cases of illness that meet certain reporting requirements or criteria. Cases of illness may also be ascertained by the secondary analysis of administrative health data or clinical data. The purpose of this section is to provide those criteria to determine whether a specific illness should be reported.

A. Narrative description of criteria to determine whether a case should be reported to public health authorities

- Report any isolation of *S. aureus* from any body site that has a minimum inhibitory concentration 4–8 µg/ml, as detected and defined according to Clinical and Laboratory Standards Institute approved standards and recommendations (CLSI 2006).

- Report any person whose healthcare record contains a diagnosis of *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin.

- Report any person whose death certificate lists *Staphylococcus aureus* infection with intermediate susceptibility to vancomycin as a cause of death or a significant condition contributing to death.

Other recommended reporting procedures

- All cases of *Staphylococcus aureus* infection/colonization with intermediate susceptibility to vancomycin should be reported.
- Reporting should be on-going and routine.
- Frequency of reporting should follow the state health department's routine schedule.

B. Table of criteria to determine whether a case should be reported to public health authorities

Table VI-B. Proposed Table of criteria to determine whether a case should be reported to public health authorities. Requirements for reporting are established under State and Territorial laws and/or regulations and may differ from jurisdiction to jurisdiction. These criteria are suggested as a standard approach to identifying cases of this condition for purposes of reporting, but reporting should follow State and Territorial law/regulation if any conflicts occur between these criteria and those laws/regulations.

Criterion	Reporting
Clinical Evidence	
healthcare record contains a diagnosis of *Staphylococcus aureus* infection with intermediate susceptibility to vancomycin	S
death certificate lists *Staphylococcus aureus* infection with intermediate susceptibility to vancomycin as a cause of death or a significant condition contributing to death	S
Laboratory findings	
isolation of *S. aureus* from any body site	N
intermediate resistance of the S. aureus isolate to vancomycin (Minimum Inhibitory Concentration [MIC] 4–8 μg/ml)†	N

Notes:
S = This criterion alone is sufficient to report a case.
N = This criterion in conjunction with all other "N" criteria in the same column is required to report or confirm a case.
† detected and defined according to Clinical and Laboratory Standards Institute approved standards and recommendations (CLSI 2006).

C. Disease Specific Data Elements:

Disease-specific data elements to be included in the initial report are listed below.

VII. Case Definition for Case Classification

A. Narrative description of criteria to determine whether a case should be classified as confirmed is provided below:

Clinical Description

S. aureus can produce a variety of syndromes with clinical manifestations including skin and soft tissue infections, empyema, bloodstream infection, pneumonia, osteomyelitis, septic arthritis, endocarditis, sepsis, and meningitis. *S. aureus* may also colonize individuals who remain asymptomatic. The most frequent site of *S. aureus* colonization is the nares.

Laboratory Criteria

- Isolation of *S. aureus* from any body site.
  AND
- Intermediate susceptibility of the *S. aureus* isolate to vancomycin, detected and defined according to Clinical and Laboratory Standards Institute (CLSI, formerly NCCLS) approved standards and recommendations (Minimum Inhibitory Concentration [MIC] = 4-8 µg/ml).

Case Classification

Confirmed: A case of *S, aureus* that has intermediate susceptibility to vancomycin that is laboratory-confirmed (MIC = 4-8 µg/ml).

Reference

Clinical and Laboratory Standards Institute/NCCLS. Performance Standards for Antimicrobial Susceptibility Testing. Sixteenth informational supplement. M100-S16. Wayne, PA: CLSI, 2006.

B. Classification Tables

Table VII-B lists the criteria that must be met for a case to be classified as confirmed.

Table VII-B. Proposed table of criteria to determine whether a case is classified.

	Confirmed
Criterion	**VISA**
Laboratory Evidence	
Isolation of *S. aureus* from any body site	N
Intermediate resistance of the S. aureus isolate to vancomycin (Minimum Inhibitory Concentration [MIC] 4–8 µg/ml)†	N

Notes:
N = This criterion in conjunction with all other "N" criteria in the same column is required to classify a case.
† detected and defined according to Clinical and Laboratory Standards Institute approved standards and recommendations (CLSI 2006).

VIII. Period of Surveillance

Surveillance should be on-going.

IX. Data sharing/release and print criteria

Notification to CDC for confirmed cases is requested.

- Electronic reports of VISA cases in NNDSS are summarized weekly in the MMWR Tables. Annual number of cases of VISA is also summarized in the yearly Summary of Notifiable Diseases.
- VISA cases in NNDSS are summarized weekly in the MMWR Tables. Annual number of cases of VISA is also summarized in the yearly Summary of Notifiable Diseases. State-specific data may be reported in the annual summary.
- Cases of VISA will be published in the weekly and annual MMWR.
- No planned re-release of case data to WHO.

X. References

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Moreillon P, Que Y, Glauser MP. Chapter 192 – *Staphylococcus aureus* (including staphylococcal toxic shock). In: Mandell GL, Bennett JE, Dolin R, editors. Principles and Practice of Infectious Diseases, 6th edition. Philadelphia: Churchill Livingstone; 2005.

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