Aerobiology Laboratory Associates, Incorporated
Consulting Laboratory

Website: www.aerobiology.net

MRSA TECHNICAL BULLETIN

OVERVIEW

Staph. aureus is a common organism and can be found in the nostrils of up to 30% of persons. Approximately 0.8% of this population carries Methicillin-Resistant ***Staph aureus (*2.3 million).** The outbreak of MRSA infection has increased recently compared to the past years. The fact sheet on invasive MRSA released by CDC shows an increase in mortality rate in both hospital acquired as well as the community acquired MRSA. (Ref: Fact sheet: Invasive MRSA; Oct 17, 2007.)

ABOUT THE ORGANISM

MRSA are a classification of staphylococcus bacterium that are resistant to common antibiotics like penicillin, oxacillin, vancomycin and methicillin. These are different from other staph. spp. in that they are coagulase test positive. These bacteria are commonly found in nose, skin and mucous membranes of humans. They are non-pathogenic unless entry into the body through wounds or cuts. Once MRSA enters through a wound or cut it then easily moves from organ to organ. Formerly they were considered to be nosocomial infection i.e. hospital acquired. Infections outside the hospital and health care facilities are becoming more prevalent.

COMMONLY FOUND PLACES

CA-MRSA (Community Acquired): These are infection outside the hospital or health care facilities. They are spread from person to person through contact or use of contaminated personal items. They are commonly seen in children (schools), athletes (school, gyms, locker rooms), offices, military recruits etc.

HA- MRSA (Hospital Acquired): These are infections acquired after treatment from hospitals and health care facilities. They are commonly seen in immunocompromised patients.

TRANSMISSION AND INFECTION

CA-MRSA: By skin to skin contact or by sharing personal items like razors, towels and other personal items. Symptoms are often skin infections like boils, abscesses and cellulitis.

HA-MRSA: From surgical instruments, nosocomial infection. Primary lower respiratory infections and post surgical infections.

WHERE AND HOW TO SAMPLE

Surface samples are the appropriate method for determining the presence of MRSA in an environment. The location of the sample is important and if the sample is either an assessment sample or post cleanup sample. Potential sample locations are a locker room, wrestling room, surgical suite, or mechanical system. Items such as keyboards, benches or mats are recommended items to sample.

Viable air samples are taken by an impactor style sampler (Andersen, SAS). Air samples are collected on a general lab media and a selective media. The total air volume is dependent upon the site and the desired sensitivity. MRSA can be cultured from the air in areas where groups of people congregate like a classroom or locker room. This is a two-plate protocol consisting of Blood agar, and Mannitol Salt Agar. The Mannitol Salt Agar is selective for MRSA ***Staphylococcus aureus*.** When MRSA is the target organism it is

best to discuss sampling strategies with your laboratory.

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TEST CODES

Analysis	Matrix	Test code	Requirements
MRSA & Total Bacterial Culture W/ ID	Air	1121	BAP, MSA plates
	Wipe	1122	Sterile swab
	Water	1123	Sterile container
	Bulk	1124	Sterile container

REFERENCES

- http://www.health.state.mn.us/divs/idepc/diseases/mrsa/mrsacommunity.html
- www.cdc.gov/Features/**MRSA**inSchools/
- www.cdc.gov/ncidod/dhqp/ar_**mrsa**.html
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