

Methicillin Resistant *Staphylococcus aureus* (MRSA) QL PCR

For in vitro diagnostic use

CERNER ORDERABLE
MRSA PCR 3147

CPT CODE
87641

CLINICAL UTILITY

S. aureus is a major cause of nosocomial infections such as bloodstream infections and surgical site infections with clinical manifestations ranging from pustules to sepsis and death. It is commonly found in the nose or on the skin of healthy individuals (asymptomatic carriers). Treatment of *S. aureus* infections has become a real challenge with the emergence of strains resistant to previously effective antimicrobial agents. Methicillin-resistant strains of *S. aureus* are frequently encountered in health-care settings, and represent nearly 60% of isolates from hospital-acquired *S. aureus* in some North American and European healthcare facilities. In hospital settings, MRSA may be transmitted from patient to patient through contaminated hands of healthcare workers. Risk factors for colonization with MRSA in healthcare settings include prolonged hospital stay, proximity to patients infected with MRSA, exposure to multiple and prolonged broad-spectrum antibiotics treatments, and MRSA carriage. MRSA infection is increased in patients colonized with MRSA.

S. aureus is one of the leading causes of surgical site infections (SSI). It is responsible for 20% to 56% of SSI, among which MRSA represents up to 57% of isolates. The mortality rate associated with both pathogens varies from 5 to 22%. In most patients with SSI, the *S. aureus* infection is from an endogenous source. Traditional techniques used for the detection of *S. aureus* and MRSA require culture steps and isolation of pure colonies, followed by agglutination testing to identify *S. aureus* and either oxacillin susceptibility testing, detection of the *mecA* gene for methicillin resistance, or detection of the penicillin binding protein (PBP 2a) to identify MRSA. A minimum of 24 hours are required to resolve the *S. aureus* and MRSA status, with a median time of more than 48 hours, when using these conventional methods.

With the increased morbidity and mortality associated with *S. aureus* infections, the emergence of *mecA* drop-out strains and the spreading of a new methicillin resistance gene (i.e. *mecC* gene), the ability to detect and differentiate *S. aureus* and MRSA within hours instead of day(s) represents a definite advantage over current practices and allows for more effective patient treatment and management.¹

METHODOLOGY

Qualitative PCR

SPECIMENS

BBL™ CultureSwab™ Liquid Stuart or single or double nasal swab

SPECIMEN STABILITY

Specimens can be stored up to 48 hours at 15-25°C or 5 days at 2-8°C before testing.

SHIPPING

Specimens should be kept between 2°C and 25°C during transport. Protect against freezing or exposure to excessive heat.

CAUSES FOR REJECTION

Specimen mislabeled; Specimen >5 days old. Swabs collected from wounds.

ASSAY RESULTS

Qualitative results (Detected/Positive and Not Detected/Negative)

TURNAROUND TIME

Monday-Sunday, Average 6-8 hours

1. Reference information can be found in the Indiana University Health Molecular Assay Procedures.