



## Fact Sheet

### Lewin Case Study I

## Rapid Testing for MRSA

### (Methicillin-Resistant Staphylococcus Aureus)

Rapid MRSA testing enables health care providers to control drug-resistant infections that patients acquire in the hospital or other health care facilities.

- Rapid testing can limit the spread of infection, quicken recovery time, improve patient safety, and decrease costs associated with treatment and the length of hospital stay.
- Rapid testing highlights the unique role laboratory tests can play in helping to prevent the 99,000 deaths and \$20-\$45 billion in health care costs related to health care-acquired infections (HAIs) in US hospitals.

#### Background

HAIs are a major cause of medical complications, death, and increased treatment costs. MRSA, one type of HAI, is resistant to drugs, such as penicillin, and infected patients often show no signs or symptoms. Thus, the infection can travel rapidly within institutions.

The number of MRSA-associated hospital stays more than tripled after 2000. MRSA causes about 30% of surgical site infections, as well as 24% of ventilator-related pneumonia infections, 10% of central line infections, and 2% of urinary catheter-associated bloodstream infections. Some 70% of all intensive care unit HAIs are MRSA-related. The economic burden of HAIs is substantial. For inpatient US hospital services, the direct cost per case ranges from \$20,549-\$25,903, totaling \$36-\$45 billion annually.

#### Highlights

- Rapid MRSA testing provides clinicians with rapid, critical information to control the drug-resistant infection by:
  - Detecting and characterizing the nature of the infection;
  - Guiding the selection of antimicrobial drugs;
  - Implementing control measures to isolate or limit the spread of infection; and
  - Monitoring the effectiveness of treatment and control efforts.

- Rapid MRSA testing allows providers to combat the infection by choosing drugs and dosages that target the infection's susceptibility. This more effectively controls the drug-resistant organism, while minimizing overuse of inappropriate antibiotics that can contribute to broader antibiotic resistance.
- Patient benefits from rapid MRSA testing include reduced need for isolation, reduced likelihood of adverse safety events that often arise from lengthy hospitalization (such as pressure ulcers and falls), and faster recovery.
- Although it is difficult to draw overarching conclusions about cost savings because of limits in available data, current clinical evidence suggests the potential for significant cost savings with rapid MRSA testing due to decreases in hospital length of stay, morbidity, and other costs.
- Evidence is strong for universal MRSA screening of high-risk populations, such as ICU patients or those with previous infections. A nine-year study at Brigham and Women's Hospital found that routine surveillance tests and subsequent contact precautions decreased bacteria in the bloodstream by 75% in ICUs, 40% in non-ICU areas, and 67% hospital-wide.
  - After mandating MRSA testing in all high-risk units, the Veterans Administration reported in 2007 that its Palo Alto, CA, site had reduced infection rates in ICUs by 79%.
  - A recently published study underscores the value of universal screening of all hospital patients upon admission. A two-year study of expanded surveillance found that MRSA prevalence decreased 70% with universal screening and 36% with ICU-only patient screening.
- Evidence is accumulating to justify expanded MRSA screening practices in health care and community settings. Some 1.3 million Americans are undiagnosed MRSA carriers—a significant reservoir of person-to-person transmission in health care settings.
- New strains of MRSA are evolving rapidly. Community-associated MRSA infections pose a public health concern, as certain strains can mutate quickly and transmit over wide geographic areas. Some experts contend that community-associated MRSA may overtake health care-acquired MRSA in coming years.