Mississippi State Department of Health
# Mississippi Morbidity Report
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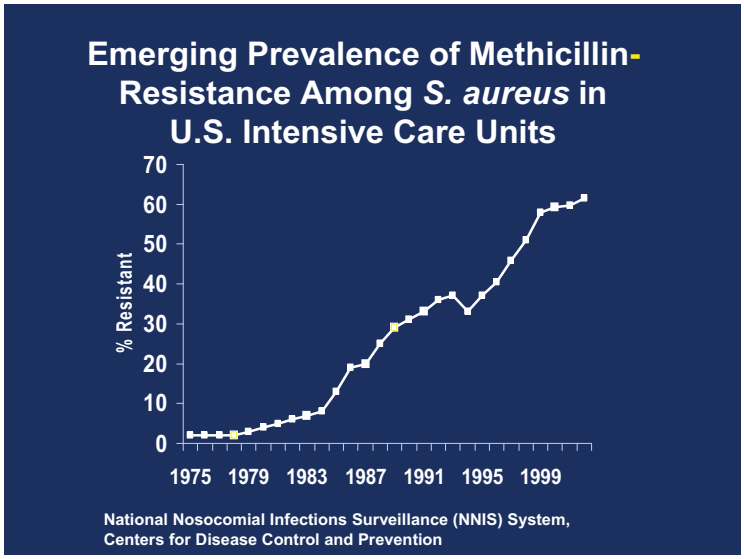
## MRSA – Can We Control It?

**Is it a Real Burden of Disease or Just Newsworthy?**

Recent news reports of deaths due to methicillin resistant *Staphylococcus aureus* (MRSA) have caught the attention of the public.[1] CDC's recent study in JAMA has clarified the impact of MRSA in our everyday practice.[2] CDC estimates, based on MRSA infections in nine U.S. cities, that 90,000 MRSA infections occur annually in this country; approximately 32 invasive infections per 100,000 people. Other studies indicate that the burden of MRSA infections does not seem to have replaced sensitive *Staphylococcus aureus* (MSSA) infections *but rather has added to them*.[3] In most hospitals MRSA is more common than MSSA. Additionally, adverse outcomes and greater costs are more common.[4]




Two common strains of MRSA are identified, the more antibiotic resistant hospital associated strain (USA100) and the less antibiotic resistant community associated strain (USA300). In the CDC study, 85% of the 8,937 infections identified were USA100 and 13.7%, USA300. While the numbers due to USA300 were smaller, they found that 58% of USA100 infections began outside the hospital. This highlights the crossover of the hospital and community strains and the risk of being in the health care setting and MRSA acquisition. Incidence was highest among those > age 65 (127/100,000 persons). Mortality rate among all cases was 6.3/100,000 (n = 1568).

Methods to prevent MRSA infections are being proposed and implemented in many US health care facilities and are already accomplished in others. Additional motivation will likely soon be found in the form of reimbursement changes. Beginning October, 2008, Medicare NO LONGER PLANS TO PAY for *S. aureus* septicemia that develops after admission or for any vascular catheter infections, many of which are due to *S. aureus.*

**What Can I Do? What Can My Patients Do?**

First, clearly define the problem in your own practice and facilities. The microbiology lab and infection control can give you the percentage of MRSA among all *S. aureus* isolates in your facility and likely among your patients. Patients often present with skin lesions that are treated empirically. It is important to remember that incision and drainage is one of the most effective treatment modalities for MRSA skin infections. When a patient isn't responding or if the option is available when they first present, bacterial culture and sensitivity can lead to appropriate antimicrobial treatment early in the course as well as increased provider awareness of the percentage of MRSA in their practice. Finally, all health care providers must follow strict hand hygiene with all patients and follow isolation precautions established in their practices and their hospital.

For individual patients an MRSA infection can be very scary. Recent news about deaths due to MRSA raises concern for the patient and people in their everyday environment. Handwashing remains the key both for health care providers and in homes, school and the workplace. Patients who have previously had MRSA lesions should be especially vigilant. Early consultation with physicians for skin infections or infected 'spider bites' may lead to early treatment and decrease complications.

Individual cases in schools, while garnering much news attention, are as likely to have acquired their infection outside the school as inside and handwashing again remains the primary defense. Frequently touched areas in any

institution should be targeted for routine cleaning. Outbreaks among athletic teams have shown the need for good hygiene including not sharing athletic equipment or uniforms, towels, or razors, and routine cleaning of equipment, uniforms and the locker room environment. Certainly, as always, draining skin lesions should be covered. If it cannot be covered patients may need to remain out of the workplace or school environment until the lesion is no longer draining. The following CDC website provides good information for schools regarding MRSA: www.cdc.gov/ncidod/dhqp/ar_mrsa_in_schools.html#4 .

**What can hospitals do?**

In addition to hand hygiene and basic infection control many hospitals are reviewing active surveillance for MRSA. This means actively culturing patients on admission for MRSA and isolating them if positive whether are infected or colonized. The Department of Veteran's Affairs (VA) has begun this in all VA medical centers. Other hospitals in our area are doing this with at least high risk patients. This practice began in Denmark where an aggressive program of identifying and isolating patients with MRSA led to few to no nosocomial infections with MRSA in their native population.[5] In the US studies have been done with active surveillance and other measures and a decrease in MRSA has followed.[6-8] Without active surveillance on hospital admission, patients who are not cultured and who are colonized, can serve as the reservoir for spread of MRSA. While not set up as a rigorous study the VA's success with active surveillance will certainly be a measure to watch to see if the overall numbers of MRSA nosocomial infections and eventually the colonization rates may be decreased.

**What can nursing homes do**?

Nursing home residence is a risk for MRSA infection and colonization. Many nursing homes may think by not admitting patients known to be colonized with MRSA or other resistant bacteria, they are protecting their patients. Very likely they have patients who are MRSA colonized, but are not aware because cultures have not been done. It is important that nursing homes have protocols for patients with drug resistant bacteria. As with patients who are in their own home, handwashing and good hygiene either by or for the patient in a nursing home, remain most important. When possible, patients with MRSA can be placed in the same room. Towels, bath cloths and other hygiene products should never be shared. CDC offers drug resistant bacteria recommendations for non hospital health care settings. www.cdc.gov/ncidod/dhqp/ar_multidrugFAQ.html

CDC states that non-hospital healthcare facilities can safely care for and manage these patients by following appropriate infection control practices. In addition, non-hospital healthcare facilities should be aware that persons with MRSA, VRE, and other infections may be protected by the Americans with Disabilities Act or other applicable state or local laws or regulations.

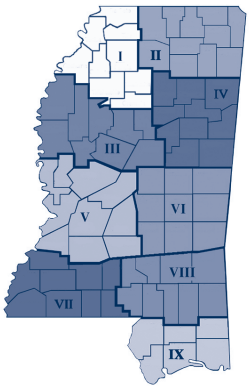
**What about decolonization?**

The benefit of decolonization has to be weighed in individual cases against adverse reactions to medications and development of resistance to the antibiotics. Up to 50% recolonize within 90 days of treatment.[9] Mupirocin has been very popular for nasal decolonization in health care settings. Frequent or chronic use has been shown to increase resistance to mupirocin.[9] Mupirocin should never be used on large wounds as this will usually lead to resistance. Some studies have shown or suggested benefit in specific groups, such as orthopedic surgery patients with MRSA and peritoneal dialysis patients.[10-11] Other trials suggest high risk groups having surgery with placement of grafts, hardware or prosthetic devices might benefit from decolonization.[11-13,]

In patients with recurrent skin infections, after treatment of the infection, chlorhexidine baths for 1 week may be given. The patient should understand the importance of cleaning under all folds of skin to eliminate the possible carriage. The nose, axillae and groin and rectum are the most likely sites of carriage. Nasal decolonization in this instance may be helpful also.[14,15]

In summary, as physicians we cannot be complacent about MRSA. The burden of disease is large enough that it is affecting our patients in greater numbers. The public and third party payers are expecting diligence on our part to minimize nosocomial MRSA infections and appropriately treat infections whether community or hospital acquired. Attention to hand washing and other infection control measures, including adherence to isolation precautions are imperative first steps. Early detection, appropriate treatment and if when of benefit, decolonization, should help lower the burden of disease.

**References on request. Submitted by Risa Webb, MD, DTMH, Hospital Epidemiologist, Jackson VA Medical Center and Associate Professor of Medicine, UMMC**




# Mississippi
# Provisional Reportable Disease Statistics
November 2007

| | | Public Health District | | | | | | | | | State Totals* | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | I | II | III | IV | V | VI | VII | VIII | IX | Nov 2007 | Nov 2006 | YTD 2007 | YTD 2006 |
| Sexually Transmitted Diseases | **Primary & Secondary Syphilis** | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 6 | 5 | 105 | 69 |
| | **Total Early Syphilis** | 6 | 1 | 1 | 0 | 9 | 0 | 0 | 0 | 7 | 24 | 16 | 356 | 229 |
| | **Gonorrhea** | 35 | 39 | 70 | 55 | 165 | 51 | 39 | 60 | 47 | 561 | 733 | 7599 | 6949 |
| | **Chlamydia** | 139 | 119 | 154 | 98 | 373 | 109 | 100 | 104 | 115 | 1311 | 1892 | 19794 | 17619 |
| | **HIV Disease** | 5 | 4 | 8 | 2 | 16 | 2 | 4 | 6 | 3 | 50 | 35 | 582 | 559 |
| Myco-bacterial Diseases | **Pulmonary Tuberculosis (TB)** | 0 | 1 | 0 | 0 | 6 | 2 | 0 | 1 | 3 | 13 | 10 | 104 | 92 |
| | **Extrapulmonary TB** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 11 | 8 |
| | **Mycobacteria Other Than TB** | 4 | 3 | 2 | 2 | 2 | 4 | 0 | 2 | 3 | 22 | 11 | 224 | 198 |
| Vaccine Preventable Diseases | **Diphtheria** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Pertussis** | 1 | 0 | 0 | 0 | 0 | 7 | 0 | 1 | 0 | 9 | 3 | 228 | 36 |
| | **Tetanus** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Poliomyelitis** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Measles** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | **Mumps** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 |
| Viral Hepatitis | **Hepatitis A (acute)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 8 | 9 |
| | **Hepatitis B (acute)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 29 | 13 |
| | **Hepatitis C (Non-A, Non-B)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 | 4 |
| Enteric Diseases | **Salmonellosis** | 5 | 11 | 2 | 2 | 33 | 7 | 5 | 3 | 10 | 78 | 51 | 1003 | 759 |
| | **Shigellosis** | 3 | 1 | 5 | 2 | 161 | 14 | 19 | 8 | 72 | 285 | 15 | 1283 | 101 |
| | **Campylobacter Disease** | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 1 | 0 | 5 | 3 | 119 | 75 |
| | **E. coli O157:H7/HUS** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 7 | 11 |
| Other Conditions of Public Health Significance | **Meningococcal Infections** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 1 | 11 | 5 |
| | **Invasive *H. influenzae* Disease** | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 9 | 13 |
| | **RMSF** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 14 | 10 |
| | **West Nile Virus** | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 2 | 128 | 184 |
| | **Lyme Disease** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 3 |
| | **Animal Rabies (bats)** | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 4 |

* Totals include reports from Department of Corrections and those not reported from a specific District

** Temporarily not available