

January 15, 2004

To: Medical Staff of Le Bonheur Children's Medical Center

From: The Division of Pediatric Infectious Disease

Re: Update on Infections due to Community-Acquired Methicillin-Resistant *Staphylococcus aureus* (CAMRSA)

Since our previous letter on this subject (August 10, 2002), both community and hospital-based physicians in Memphis have continued to see many patients with community-acquired infections caused by methicillin-resistant strains of *Staphylococcus aureus* (MRSA). Most of the CAMRSA infections that we have noted in children in Memphis have been infections of skin or soft tissues, but we also are observing serious and even life-threatening CAMRSA infections, including pneumonia (often with empyema), sepsis, osteomyelitis and septic arthritis.

All MRSA isolates should be considered resistant to all beta-lactam antibiotics (penicillins, cephalosporins). Most (but not all) CAMRSA isolates in Memphis remain susceptible to clindamycin, but a small number (<10%) are resistant to this drug. Importantly, MRSA isolates that test "susceptible" to clindamycin but "resistant" to erythromycin may harbor an inducible form of clindamycin resistance that cannot be detected by standard methods and requires the performance of an additional test (the "D" test). The "D" test is performed routinely at Le Bonheur but is not currently available in many other laboratories. Fortunately, most local "erythromycin-resistant/clindamycin-susceptible" MRSA isolates examined in the Le Bonheur microbiology laboratory over the past year tested "negative" for inducible resistance to clindamycin, BUT approximately 4% had a "positive" D test (and thus exhibited inducible resistance to clindamycin). Clindamycin is NOT recommended for treatment of serious infections due to MRSA strains with inducible resistance to clindamycin, though it may be effective in the therapy of minor infections due to these organisms.

Given the continuing problem of CAMRSA infections, we again emphasize the need to obtain material for culture and susceptibility in patients with possible staphylococcal infections (including skin and soft tissue infections, bone and joint infections, pneumonia with effusion or empyema, deep abscesses, etc). In addition, empiric antibiotic therapy for suspected or proven staphylococcal infections should include agents active against MRSA isolates: (continued)

(1). For hospitalized patients, clindamycin has replaced the anti-staphylococcal penicillins (e.g., nafcillin) or first-generation cephalosporins (e.g., cefazolin) as the empiric agent of choice for therapy of mild-to-moderate infections suspected or proven to be caused by *Staphylococcus aureus*. Vancomycin should be added to the regimen in cases of potentially life-threatening staphylococcal infections and in situations where the response to clindamycin is unsatisfactory. Note that neither clindamycin nor vancomycin is considered to be optimal definitive therapy of infections due to methicillin-*susceptible* strains of *Staphylococcus aureus* -- treatment of these infections should usually include an anti-staphylococcal penicillin (e.g., nafcillin) or a first-generation cephalosporin (e.g., cefazolin). (Note that rare group A streptococci are resistant to clindamycin--empiric or definitive therapy of infections due to this organism should include a beta-lactam antibiotic unless susceptibility to clindamycin is documented).

(2) For outpatients with proven or suspected staphylococcal infections, including infections of the skin and skin structures, it is very important to obtain cultures and susceptibility results to guide definitive therapy. Currently, we recommend clindamycin as the preferred oral agent for empiric therapy of skin and soft tissue infections—agents such as cephalexin and dicloxacillin are not reliable as empiric therapy and should be reserved for definitive treatment of infections proven to be caused by methicillin-*susceptible* staphylococci. (Again, note that rare group A streptococci are resistant to clindamycin, and definitive therapy of infections due to this organism should include a beta-lactam antibiotic unless susceptibility to clindamycin is documented). Trimethoprim-sulfamethoxazole may be an effective alternative for the treatment of skin and skin structure infections due to MRSA strains with either constitutive or inducible resistance to clindamycin (however, this agent is **not** effective for treatment of infections caused by group A streptococci). Newer agents such as linezolid and daptomycin may prove useful in the future.

An updated algorithm summarizing our general recommendations is attached (and available at <http://www.utmem.edu/pediatrics/id>), but therapy for children with CAMRSA infections must be individualized. Please contact the Le Bonheur infectious disease physician on call (572-3292 or 579-4705) for questions about management of these patients.

Sincerely,

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