

This simple strategy may save time and increase awareness of care guidelines.

# A Toolkit to Improve the Treatment of CA-MRSA

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Seeing “spider bite” on the schedule used to mean a quick visit – and a moment of relief to the busy family physician running behind schedule. Take a look, rule out infection, recommend over-the-counter treatments, and move on to the next patient. Today, however, “spider bite” often signals something much more complicated: a case of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA).

CA-MRSA cases peaked in 2005, resulting in almost 19,000 patient deaths – many of them in young, otherwise healthy adults.<sup>1</sup> Rates of CA-MRSA have dropped since then, but family physicians remain critically important in the rapid diagnosis and treatment of this highly communicable condition.

To assist physicians, the Centers for Disease Control and Prevention (CDC) developed a clinical algorithm for outpatient management of skin and soft tissue infections in the era of CA-MRSA. (See page 23.) For nonpurulent lesions, the algorithm recommends antibiotics that cover *Streptococcus* spp or other suspected pathogens, close follow-up, and in certain cases antibiotics that cover CA-MRSA. For purulent lesions, the algorithm recommends incision and drainage (I&D), culture of the purulent material, and in certain cases use of systemic antibiotics. The algorithm reflects research demonstrating that the routine use of antibiotics after an abscess is completely drained does *not* result in improved patient outcomes.<sup>2</sup> It encourages appropriate antibiotic prescribing and consistent inclusion of I&D and cultures, procedures that take time and preparation.

“Getting everything together to treat an abscess surgically takes some time if you’re not prepared,” says Brian Webster, MD, of Wilmington Health in Wilmington, N.C. “Admittedly, it can be easier and faster to write a prescription than to follow these CDC guidelines to the letter. The key to using the guidelines is to think ahead.”

## A simple intervention

To test the idea that planning ahead would increase compliance with the CDC guidelines, the State Networks of Colorado Ambulatory Practices and Partners (SNOCAP-

### TOOLKIT TIPS

- Ask a clinical team member to assemble a “CA-MRSA-ready” toolkit, including the CDC algorithm, patient handouts, and surgical materials. See the algorithm on page 23 and “Resources” on page 22 for other free, downloadable materials.
- Decide what surgical equipment should be included and where the toolkit will be kept.
- Depending on the makeup of your team, assign the task of stocking and preparing the toolkit to one team member or make it a rotating task.
- Consider other uses for “toolkit trays” – e.g., joint aspiration, burn treatment, and wound care.

## About the Authors

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USA, a collaboration between the American Academy of Family Physicians National Research Network and the University of Colorado-Denver) worked with network physicians in 16 primary care practices to create “toolkits” to treat skin and soft tissue infections. Physician focus groups had suggested the toolkits include the following:

- The CDC algorithm (shown on the facing page and available as posters, pocket cards, and handouts; see “Resources” at right),
- CDC patient handouts (see “Resources”),
- All surgical materials needed for I&D and packing of the wound, if desired.

Many of the physicians in the study assembled the toolkits as easily transportable trays stored in accessible locations such as the medication room or supply closet.

SNOCAP-USA analyzed case reports from the participating clinicians and found that they performed I&Ds or referred patients for that procedure in 65 percent of all reported skin and soft tissue infection cases. No pre-intervention rate was determined; however, in a larger, related evaluation, researchers found no significant improvement in the I&D procedure rate between the pre-intervention period and the intervention period.<sup>3</sup> The evaluation found an increase in the overall antibiotic prescribing rate for skin and soft tissue infections (from 35 percent to 45 percent).<sup>3</sup> For purulent infections, physicians using the toolkits were 2.183 times more likely to prescribe an antibiotic and 2.624 times more likely to prescribe an antibiotic that covered CA-MRSA.<sup>3</sup> These data suggest that while the toolkits did not accomplish universal

For purulent lesions, the CDC recommends incision and drainage, culture, and in certain cases systemic antibiotics.

To help physicians follow the guidelines, some practices have created a MRSA toolkit.

In one study, physicians using the toolkit increased their use of appropriate antibiotics.

## RESOURCES

**Physician materials:** <http://www.cdc.gov/mrsa/treatment/outpatient-management.html>

**Patient materials:** <http://www.cdc.gov/mrsa/library/posters.html>

compliance with the CDC guidelines, appropriate antibiotic use did increase.

In addition, participants noted that they saved time and reduced hassles. “Once you take the five or 10 minutes up front to create the tray, and then make it someone’s responsibility to keep the tray stocked and accessible, it’s amazing how easy it is to treat an abscess surgically rather than defaulting to writing a prescription,” said Webster, a SNOCAP-USA participant. “Getting all the equipment together at the point of care is such a huge hurdle. You have to overcome the *other* hurdle, which is making time to do it in advance. Then, when the patient comes in, no one is left spinning their wheels. It’s all right there.”

The toolkits may also help facilitate candid conversations with patients about the use of antibiotics. “Talking to patients about appropriate use of antibiotics takes time,” said Patty Fitzgibbons, MD, of Kansas University Family Medicine Residency in Kansas City, Kan., who adopted the toolkit approach. “My hope is that using this toolkit will gain me that time for those critical conversations.” **FPM**

1. Kleven RM, Morrison MA, Nadle J, et al. Invasive methicillin-resistant *Staphylococcus aureus* infections in the United States. *JAMA*. 2007;298(15):1763-1771.

2. Gorwitz RJ, Jernigan DB, Powers JH, Jernigan JA, et al. Strategies for Clinical Management of MRSA in the Community: Summary of an Experts’ Meeting Convened by the Centers for Disease Control and Prevention. 2006. <http://www.cdc.gov/mrsa/pdf/MRSA-Strategies-ExpMtg-Summary-2006.pdf>. Accessed Aug. 9, 2012.

3. Parnes B, Fernald D, Coombs L, et al. Improving the management of skin and soft tissue infections in primary care: a report from state networks of Colorado ambulatory practices and partners (SNOCAP-USA) and the Distributed Ambulatory Research in Therapeutics Network (DARTNet). *J Am Board Fam Med*. 2011;24(5):534-542.

### IMPROVING PRACTICE THROUGH RESEARCH

This article is part of a series from the American Academy of Family Physicians National Research Network and its affiliates, a national collaboration of primary care practice-based research networks. This series is designed to help family physicians put research results to use in their practices.

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# Outpatient<sup>†</sup> management of skin and soft tissue infections in the era of community-associated MRSA<sup>‡</sup>

**Patient presents with signs/symptoms of skin infection:**

- Redness
- Swelling
- Warmth
- Pain/tenderness
- Complaint of “spider bite”

**YES**

**Is the lesion purulent (i.e., are any of the following signs present)?**

- Fluctuance—palpable fluid-filled cavity, movable, compressible
- Yellow or white center
- Central point or “head”
- Draining pus
- Possible to aspirate pus with needle and syringe

**YES**

1. Drain the lesion
2. Send wound drainage for culture and susceptibility testing
3. Advise patient on wound care and hygiene
4. Discuss follow-up plan with patient

**NO**

**Possible cellulitis without abscess:**

- Provide antimicrobial therapy with coverage for *Streptococcus* spp. and/or other suspected pathogens
- Maintain close follow-up
- Consider adding coverage for MRSA (if not provided initially), if patient does not respond

—————▶

If systemic symptoms, severe local symptoms, immunosuppression, or failure to respond to I&D

—————▶

**Consider antimicrobial therapy with coverage for MRSA in addition to I&D**

(See reverse for options)



† For severe infections requiring inpatient management, consider consulting an infectious disease specialist.

‡ Visit [www.cdc.gov/mrsa](http://www.cdc.gov/mrsa) for more information.

**Abbreviations:**

I&D—incision and drainage

MRSA—methicillin-resistant *S. aureus*

SSTI—skin and soft tissue infection



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# Options for empiric outpatient antimicrobial treatment of SSTIs when MRSA is a consideration\*

Drug name	Considerations	Precautions**
<b>Clindamycin</b>	<ul style="list-style-type: none"> <li>■ FDA-approved to treat serious infections due to <i>S. aureus</i></li> <li>■ D-zone test should be performed to identify inducible clindamycin resistance in erythromycin-resistant isolates</li> </ul>	<ul style="list-style-type: none"> <li>■ <i>Clostridium difficile</i>-associated disease, while uncommon, may occur more frequently in association with clindamycin compared to other agents.</li> </ul>
<b>Tetracyclines</b> <ul style="list-style-type: none"> <li>■ Doxycycline</li> <li>■ Minocycline</li> </ul>	<ul style="list-style-type: none"> <li>■ Doxycycline is FDA-approved to treat <i>S. aureus</i> skin infections.</li> </ul>	<ul style="list-style-type: none"> <li>■ Not recommended during pregnancy.</li> <li>■ Not recommended for children under the age of 8.</li> <li>■ Activity against group A streptococcus, a common cause of cellulitis, unknown.</li> </ul>
<b>Trimethoprim-Sulfamethoxazole</b>	<ul style="list-style-type: none"> <li>■ Not FDA-approved to treat any staphylococcal infection</li> </ul>	<ul style="list-style-type: none"> <li>■ May not provide coverage for group A streptococcus, a common cause of cellulitis</li> <li>■ Not recommended for women in the third trimester of pregnancy.</li> <li>■ Not recommended for infants less than 2 months.</li> </ul>
<b>Rifampin</b>	<ul style="list-style-type: none"> <li>■ Use only in combination with other agents.</li> </ul>	<ul style="list-style-type: none"> <li>■ Drug-drug interactions are common.</li> </ul>
<b>Linezolid</b>	<ul style="list-style-type: none"> <li>■ Consultation with an infectious disease specialist is suggested.</li> <li>■ FDA-approved to treat complicated skin infections, including those caused by MRSA.</li> </ul>	<ul style="list-style-type: none"> <li>■ Has been associated with myelosuppression, neuropathy and lactic acidosis during prolonged therapy.</li> </ul>
<ul style="list-style-type: none"> <li>■ MRSA is resistant to all currently available beta-lactam agents (penicillins and cephalosporins)</li> <li>■ Fluoroquinolones (e.g., ciprofloxacin, levofloxacin) and macrolides (erythromycin, clarithromycin, azithromycin) are not optimal for treatment of MRSA SSTIs because resistance is common or may develop rapidly.</li> </ul>		
<p>* Data from controlled clinical trials are needed to establish the comparative efficacy of these agents in treating MRSA SSTIs. Patients with signs and symptoms of severe illness should be treated as inpatients.</p> <p>** Consult product labeling for a complete list of potential adverse effects associated with each agent.</p>		
<p><b>Role of decolonization</b></p> <p>Regimens intended to eliminate MRSA colonization should not be used in patients with active infections. Decolonization regimens may have a role in preventing recurrent infections, but more data are needed to establish their efficacy and to identify optimal regimens for use in community settings. <i>After treating active infections and reinforcing hygiene and appropriate wound care</i>, consider consultation with an infectious disease specialist regarding use of decolonization when there are recurrent infections in an individual patient or members of a household.</p>		