16-year-old boy goes out to catch a pass during a high school football game. He's tackled, and his left shoulder hits the turf hard. Three months later, the seemingly minor injury almost costs him his life and leaves him temporarily disabled.

A 13-year-old girl develops what looks like a pimple on her cheek. Her mother gets concerned when it starts to spread and swell. A similar lesion appears above her eye, then one the size of a softball on her buttock and several more on her thighs.

Eleven students in a high school contract skin infections, and one girl is hospitalized. She had gone to the school nurse with what looked like a “spider bite” on her leg.

The culprit—CA-MRSA, or community-associated methicillin-resistant Staphylococcus aureus.

CA-MRSA has emerged in the community in people like athletes and children who don’t have the usual risk factors. CA-MRSA is genetically distinct from hospital-associated MRSA, and researchers think it may have emerged separately from regular S aureus. Hospital-associated MRSA and CA-MRSA are among the many antibiotic-resistant “super bugs” health care facilities must contend with.

Though most patients in ambulatory surgery centers (ASCs) don’t have the vulnerability of the more seriously ill patients in hospitals and nursing homes, ASCs increasingly are performing surgery on patients with complex medical conditions. ASC leaders are asking what they should do to prevent spread of MRSA and other antibiotic-resistant organisms.

Dramatic rise

Reports of antibiotic-resistant staph have risen dramatically in the past 5 years.

Thirty years ago, hospital-associated MRSA accounted for only 2% of aureus infections. By 2004, it was up to 63%, according to the Centers for Disease Control and Prevention (CDC).


A CA-MRSA infection usually manifests as a skin or soft tissue infection like a “pimple” or abscess. Rarely, invasive infections arise, such as joint infections, pneumonia, or septicemia.

“Otherwise healthy people—not only immunocompromised people—may end up developing surgical site infections with MRSA that in the past would not have,” Gary Noskin, MD, hospital epidemiologist at Northwestern Memorial Hospital in Chicago, tells OR Manager.

Follow the fundamentals

Are there extra steps ASCs should take? The short answer is no. The best approach is to follow the fundamentals:

• Be sure your infection control policies are up to date.
• Follow them religiously.
• Be relentless about hand hygiene.

The CDC issued new guidelines in October on multidrug-resistant organisms,
which recommend adhering to standard precautions and existing guidelines for cleaning, disinfection, and sterilization. (On the CDC website, see Management of Multidrug-Resistant Organisms in Healthcare Settings at www.cdc.gov/ncidod/dhqp.)

“You can’t tell by looking whether any patient could have a multidrug-resistant pathogen. So we have to use appropriate precautions for all patients. One critical thing is to follow the CDC’s hand hygiene guidelines,” says Tammy Lundstrom, MD, senior vice president and chief for quality and safety at Detroit Medical Center and a member of the Association for Professionals in Infection Control and Epidemiology Inc (APIC).

Human hands—especially healthcare workers’ hands—are the main route of transmission for MRSA, the CDC says.

Everyone knows hand hygiene is important. Still, compliance is poor—averaging about 40%. ASCs need to underline the hand hygiene basics:
- Clean hands before and after every patient contact and after every case.
- Remove gloves and perform hand hygiene before moving to the next patient or touching anything like a phone or computer keyboard.

“What you don’t want to see is people putting on gloves, examining a patient, and then going with these gloves to the telephone or computer keyboard. Or taking off the gloves and not doing hand hygiene before going to the next patient,” Dr Lundstrom says.

In one study, potentially pathogenic bacteria were cultured from more than 50% of computer keyboards. Disinfectants were effective in removing more than 95% of the test bacteria (Rutala W A, et al, Infect Control Hosp Epidemiol. 2006;27:372-377).

Making it easy
Make it easy to comply with hand hygiene.

Studies have shown that having dispensers of alcohol-based hand rubs handy improves hand hygiene compliance.

“Alcohol-based hand rubs are very quick,” says Dr Lundstrom. “You can apply them while you’re walking to the next patient, and they’re dry by the time you get there.”

Have a dispenser by every patient room and bay. Make it available to everyone, including the receptionist and patients.

(A new final rule from the Centers for Medicare and Medicaid Services effective Oct 23, 2006, says it’s OK to have hand rub dispensers in exit corridors. This applies to ASCs, provided they meet conditions required for other health facilities, including 6-ft-wide exit corridors. See Sept 22, 2006, Federal Register.)

It’s also important to develop a culture of safety where anyone can bring to another person’s attention a lapse in hand hygiene. “Nurses can remind physicians, and physicians can remind nurses. We’re all human and occasionally forget,” Dr Lundstrom says.

Physicians and hand hygiene
Physicians are the biggest challenge for hand hygiene.

“Physicians are much poorer at hand hygiene than nurses in many studies,” Dr Lundstrom says. “You want to reinforce hand hygiene for every patient, every time.” There are clever ways to get the point across.

A company called Glo Germ (www.glogerm.com) has a kit that dramatically shows the results of handwashing. The kit comes with a gel and black light. You rub the gel on your hands and put your hands under the black light to make sure the gel has covered them. Then you wash as usual and put your hands back under the light. The light shows what you missed—results are often startling.

Cedars-Sinai in Los Angeles waged a campaign to boost compliance with physicians—including culturing the palms of physician executives and displaying the results on a screensaver (sidebar, p 24).

Preop assessment
Is there anything ASCs should add to their preop assessments to address antibiotic resistance?

Because the average person with CA-MRSA doesn’t even know they have it, there are no additional risk factors that could identify a carrier, Dr Noskin notes.
“Of course, if someone comes in with an active infection of any type, there should be an assessment to determine whether surgery should be performed,” he adds.

A clinician’s antenna should go up if a patient says he or she has a sore or boil, or one is spotted during a physical exam. A “spider bite” is a way patients often describe the start of a CA-MRSA skin infection.

Patients with an active infection should be referred back to the primary care physician.

**Environmental cleaning**

Beyond following existing guidelines, no additional cleaning measures are needed for antibiotic-resistant organisms.

“The standard methodology is equally efficacious whether it’s MRSA or susceptible *aureus,*” Dr Noskin says. “It’s important to always follow well-established infection control practices.”

Review guidelines from the CDC, APIC, the Society for Healthcare Epidemiology of America (SHEA), and the Association of periOperative Registered Nurses (AORN) (www.aorn.org).

**Educate physicians, staff, and patients**

It’s important to raise consciousness of physicians and staff about MRSA and antibiotic resistance. Consider inviting an infection control professional or state or local health official to conduct an in-service.

Educational materials, including fact sheets, posters, and slide presentations, are available from the CDC and state health departments. (See resources.) APIC has a tool kit for educating patients and families.

“Even if you don’t have direct access to an infection control professional, the health department often has free resources and will do phone consultations,” Dr Lundstrom notes.

**Learn what’s happening in your community**

ASCs should be in contact with state and local health departments to keep abreast of the situation in their community. The local hospital epidemiologist is another resource.

“All antibiotic resistance is a local phenomenon. In some places, the problem is far worse than the national trend, so it’s important to understand what’s occurring in your community,” says Dr Noskin.

It’s also a good idea to have an ongoing relationship with an infection control expert, whether hospital infection control specialist or consultant, to serve as a resource on infection trends and on meeting national guidelines.

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**Fast facts on MRSA**

**Percentage of staph infections that are MRSA:**

- 1974: 2%
- 1995: 22%
- 2004: 63%

—Centers for Disease Control and Prevention

**What is CA-MRSA?**

Community-acquired MRSA infections are MRSA infections in people with no history of the following risk factors within the year prior to the MRSA culture data:

- hospitalization or surgery
- permanent indwelling catheters or percutaneous medical devices
- residence in a long-term care facility
- dialysis
- MRSA culture >48 hours after hospital admission.
Are certain people at increased risk of CA-MRSA?
The CDC has investigated clusters of CA-MRSA skin infections in athletes, military recruits, children, Pacific Islanders, Alaskan Natives, Native Americans, men who have sex with men, and prisoners.
Factors associated with spread of MRSA skin infections are close skin-skin contact, openings in the skin such as cuts or abrasions, contaminated items and surfaces, crowded living conditions, and poor hygiene.

—Minnesota Department of Health

Steps ASCs can take

• Be sure your infection control policies and practices are up to date and strictly followed.

• Be diligent about hand hygiene. Make alcohol-based hand rubs available.

• Educate staff and physicians about antibiotic resistance. The CDC and state health departments have resources.

• Be vigilant for skin infections. A “spider bite” is the way patients often describe the start of a CA-MRSA skin infection.

Resources on ‘super bugs’

Association for Practitioners in Infection Control and Epidemiology Inc
Community-associated MRSA references.
www.apic.org

Protect Our Patients Tool Kit
Tool kit has information for visitors on their role in preventing spread of infections. Includes posters, table-top tent cards, brochures, and a pop quiz to use in educating patients about to be discharged.
www.apic.org/POP

Centers for Disease Control and Prevention
Community-associated MRSA information for clinicians.
www.cdc.gov/ncidod/diseases/

NEW Management of Multidrug-Resistant Organisms in Healthcare Settings, 2006
www.cdc.gov/ncidod/dhap

Society for Healthcare Epidemiology of America
www.shea-online.org.
Look under Drug Resistant Organisms.
State health departments
Many states have educational resources. Example:
Minnesota Department of Health Fact Sheet
www.health.state.mn.us/divs/idepc/
diseases/mrsa/mrsahealthcare.html

Hand hygiene education
Champion Handwasher Campaign
www.henrythehand.com/

Glo Germ
www.glogerm.com/

Institute for Healthcare Improvement
How-to Guide: Improving Hand Hygiene
www.ihi.org

Getting creative on MD hand hygiene
A urologist at Cedars-Sinai Medical Center in Los Angeles used a creative tactic to get better physician hand hygiene compliance. He’d been on a cruise where passengers who went ashore weren’t allowed back on board until they had Purell squirted on their hands. He wondered whether the cruise ship was more diligent than the hospital.

Campaign waged
The Joint Commission on Accreditation of Healthcare Organizations was due to arrive, and the hospital needed to boost hand hygiene. So he and other leaders waged a campaign:
• They handed out bottles of alcohol-based hand sanitizer to physicians at the parking lot entrance.
• They started a Hand Hygiene Safety Posse to catch physicians who were washing their hands and rewarded them with a $10 Starbucks card.
At a lunch for the medical executive committee, the hospital epidemiologist had the members press their palms into agar plates. He had the plates cultured and photographed. “The results were disgusting and striking, with gobs of colonies of bacteria,” said the chief of staff.

One of the photos was posted as a screen saver on every computer in the hospital.

**Good data changes behavior**

“With people who have been in practice 25 or 30 or 40 years, it’s hard to change their behavior,” said the urologist, Leon Bender, MD. “But when you present them with good data, they change their behavior very rapidly.”

In this case, he says, the image was worth 1,000 statistical tables. The campaign was described in the Sept 24, 2006, *New York Times Magazine.*