



Gavin Newsom
Mayor

Communicable Disease Control & Prevention
101 Grove Street, Room 408
San Francisco, CA 94102
Phone: (415) 554-2830 Fax: (415) 554-2848
www.sfdph.org/cdcp

HEALTH ADVISORY
COMMUNITY ASSOCIATED METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (CA-MRSA)
INFECTIONS IN SAN FRANCISCO

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Recent media interest has prompted much concern about community associated (CA) methicillin-resistant *Staphylococcus aureus* (MRSA) infections – particularly multidrug-resistant (MDR) CA-MRSA infections – in San Francisco (SF). A recent journal article and subsequent media attention have raised the issue of whether CA-MRSA infection is a sexually transmitted disease (STD) among gay men and other men who have sex with men (G/MSM).

CA-MRSA infections are common, increasing in the community in general, and not limited to G/MSM. There is no evidence that CA-MRSA is transmitted by sex itself. Disease transmission can occur as a result of skin-to-skin contact or as a result of contact with a contaminated surface, with or without sex.

This Health Advisory provides background on CA-MRSA infections, a summary of the recent publication, and information on clinical features, laboratory testing, treatment, infection control, and prevention of CA-MRSA infections. It also includes steps that the SF Department of Public Health (SFDPH) are taking to address CA-MRSA infections and references to additional resources, including FAQs, for the public.

This Health Advisory is posted on the SFDPH website at www.sfdph.org/healthalert

ACTIONS REQUESTED OF ALL CLINICIANS:

1. Consider CA-MRSA infection in all patients presenting with skin and soft-tissue infections.
2. Use antibiotics appropriately. Many purulent CA-MRSA infections can be treated with incision and draining (I&D) alone, without antibiotics.
3. If wound drainage is present or obtained, send specimen(s) for bacterial culture and sensitivity.
4. Follow treatment and infection control recommendations provided below.
5. Educate patients regarding ways to reduce risk of contracting or transmitting *S. aureus* infections.
6. Report outbreaks to the Communicable Disease Control Unit (CDCU) at (415) 554-2830.

BACKGROUND on CA-MRSA

While prevalence of MRSA varies geographically and between hospitals, CA-MRSA is now endemic in the San Francisco Bay Area, and must be considered even if the patient is healthy and has no traditional risk factors for MRSA. Up to half of all people are colonized with *S. aureus* in their nares, axilla, perineum or anus. MRSA infections have been slowly increasing over time since the early 1960s, first in hospitalized patients and more recently among people outside the healthcare setting. Factors associated with (but not necessarily causative of) CA-MRSA infection include injection drug use, homelessness, living in crowded situations (e.g., military recruits, incarcerated populations), male-male sex, history of previous CA-MRSA infection, history of antimicrobial use, or having an immunocompromised condition, including HIV. Outbreaks have occurred in many settings including athletic teams, daycare centers, and newborn nurseries. Most CA-MRSA infections in the United States and in SF are caused by the USA300 clone. All USA300 strains

Categories of urgency levels

Health Alert: conveys the highest level of importance; warrants immediate action or attention

Health Advisory: provides important information for a specific incident or situation; may not require immediate action

Health Update: provides updated information regarding an incident or situation; unlikely to require immediate action

are resistant to beta-lactams (e.g., penicillins and cephalosporins, like Keflex) and sometimes 1 or 2 other drug classes.

SUMMARY of RECENT PUBLICATION about MULTI-DRUG RESISTANT CA-MRSA

On January 14, 2008, *Annals of Internal Medicine* published a study that reported incidence of and risk factors for infections with MDR CA-MRSA strains from studies in SF, Boston, and one multi-site emergency department (ED) study, between 2004-2006. They describe an MDR CA-MRSA strain called MDR USA300. MDR USA300 strains investigated in the study were 100% resistant to mupirocin, macrolides (e.g., erythromycin, clarithromycin and azithromycin), and clindamycin. Approximately two-thirds to three-quarters were also resistant to tetracyclines and ciprofloxacin, respectively. The study described a higher incidence of MDR-USA300 infections in SF and Boston when compared with the multi-site ED study, particularly in SF ZIP codes – including the Castro district – where a relatively higher proportion of male same-sex couples live. Because of these findings, and because in 2 small clinic studies MSM had a higher relative risk of MDR USA300 infections, the researchers raised the question of whether male-male sex is a risk factor for USA300 transmission. There was no evidence presented in the article, however, that engaging in any sexual act, including anal, oral, or vaginal intercourse, was associated with an increased risk of CA-MRSA infection.

CLINICAL FEATURES of CA-MRSA

CA-MRSA infection, including MDR CA-MRSA infection, should be considered in any skin or soft tissue infection that *Staphylococcus aureus* is known to cause, including abscesses, furuncles, carbuncles, folliculitis, cellulitis, wound infections, and ulcers. Many patients with CA-MRSA infections complain of having a “spider bite.” Most CA-MRSA infections are uncomplicated skin and soft tissue infections that do not cause systemic disease and can be managed on an outpatient basis; a minority of patients with CA-MRSA infections, however, may progress to or present as necrotic skin infections or systemic diseases, including toxic shock syndrome, necrotizing pneumonia, pleural empyema, septic thrombophlebitis, osteomyelitis, or sepsis, which require hospitalization.

LABORATORY TESTING

CA-MRSA can be established only by culture and sensitivity testing. If purulent material is present or obtained by incision and drainage (I&D), specimen(s) for bacterial culture and sensitivity testing should be collected. Routine specimen collection and submission apply for all suspected *S. aureus* specimens. Sending specimens for culture and sensitivity testing will not only assist with treatment of individual patients but will also increase general knowledge about prevalence of CA-MRSA infections in SF. Individual cases of MRSA infections, including CA-MRSA, are not reportable in San Francisco. However, suspected outbreaks of any disease, including CA-MRSA, must be reported. Please call SFDPH Communicable Disease Control at 415-554-2830 to report a suspected outbreak.

TREATMENT of SKIN & SOFT TISSUE INFECTIONS IN THE SETTING OF INCREASING MRSA

Treatment depends on clinical presentation and infection type, and should always be guided by antimicrobial sensitivities once available.

- Purulent infections in the skin and soft tissues
 - In patients without systemic symptom, these can generally be managed with I&D alone, without antimicrobial therapy.
 - In patients who have systemic symptoms or severe local symptoms, who are immunosuppressed, OR who fail to respond to I&D, these generally require antimicrobial therapy in addition to I&D.
- Other types of skin and soft tissue infections (e.g., cellulitis) generally require antibiotic therapy, and empiric treatment should consider coverage of both *S. aureus* and Group A Streptococcus (GAS).
 - Trimethoprim/sulfamethoxazole (TMP/SMX), clindamycin, and doxycycline are all potential options to consider. Among these options, MRSA is most reliably sensitive to TMP/SMX, and only clindamycin provides reliable GAS coverage.
 - For additional information and caveats to these treatment options see CDC/IDSA guidelines noted below and local hospital antibiograms.

Other available therapies that can be used include rifampin and gentamicin (each of which should be used only in combination with another agent), vancomycin, and linezolid. For appropriate use of those other available therapies and for cases of invasive disease, consider consultation with an infectious disease specialist

INFECTION CONTROL for CA-MRSA

Contact precautions should be used for any draining purulent CA-MRSA infections. Clinicians affiliated with hospitals should continue to work with their infection control providers to address infection control issues and guidelines for skin infections, abscesses, wound care and/or MRSA specifically. Tacoma-Pierce County Health Department in Seattle has developed an infection control manual for outpatient clinics and offices, called "What to do about MRSA" available at <http://www.tpchd.org/files/library/10aefae51215d719.pdf>.

ROLE of DECOLONIZATION

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. *After treating active infections and reinforcing hygiene and appropriate wound care*, 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.

PERSONAL PREVENTIVE MEASURES to DECREASE RISK of ACQUIRING CA-MRSA

CA-MRSA infections are transmitted by skin-to-skin contact with an infected or colonized individual or contact with a CA-MRSA-contaminated surface. Risk reduction measures include the following:

- Keep hands clean by washing, using soap and water, or using hand sanitizer. A list of products effective against MRSA is available from the Environmental Protection Agency at <http://epa.gov/oppad001/chemregindex.htm>.
- Shower with soap.
- Launder clothes and towels with laundry soap and hot water and machine dry, if possible.
- Use lotion to keep skin moist, as dry skin can become damaged, providing an opening for infection.
- Refrain from sharing personal items such as towels, clothes, razors, or other items that contact the skin.
- Clean and disinfect all shared items before and after every use (e.g., athletic/workout equipment).
- Avoid touching wound dressings or pus from wounds without using gloves
- Wash hands after changing wound dressings
- Keep wounds and sores covered.

STEPS SFDPH and PARTNERS ARE TAKING to ADDRESS CA-MRSA

In collaboration with health-care providers, academics, schools, other public health departments, and community-based organizations, SFDPH is providing information and outreach and education regarding CA-MRSA infections and prevention. We have produced educational materials for San Francisco residents and schools, and guidelines for cleaning of non-healthcare facilities to reduce the risk of MRSA transmission, all available at <http://www.sfdcp.org/index.cfm?id=100>.

RESOURCES and REFERENCES

SFDPH website, includes this Health Advisory, an FAQ for the public, and additional links:

- <http://www.sfdcp.org/index.cfm?id=100>

SF City Clinic website, which has additional articles: <http://dphwww.sfdph.org/sfcityclinic/providers/>

Article from *Annals of Internal Medicine*: <http://www.annals.org/cgi/content/full/0000605-200802190-00204v1>

Clinical resources:

- CDC/IDSA: Outpatient management of skin and soft tissue infections in the era of community-associated MRSA, available at http://www.cdc.gov/ncidod/dhqp/ar_mrsa_ca_skin.html.
- CDC: Strategies for Clinical Management of MRSA in the Community: Summary of an Experts' Meeting, available at: http://www.cdc.gov/ncidod/dhqp/pdf/ar/CAMRSA_ExpMtgStrategies.pdf.
- New England Journal of Medicine. Skin and soft-tissue infections caused by methicillin-resistant *Staphylococcus aureus*. 2007;357:380-90.