

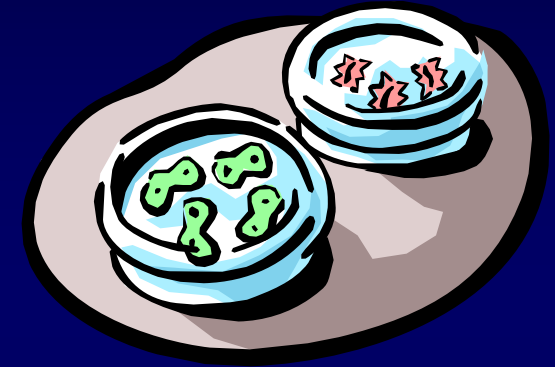


Updates on Community-Associated Methicillin Resistant *Staphylococcus aureus* (MRSA)

CIDER

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August 04, 2009

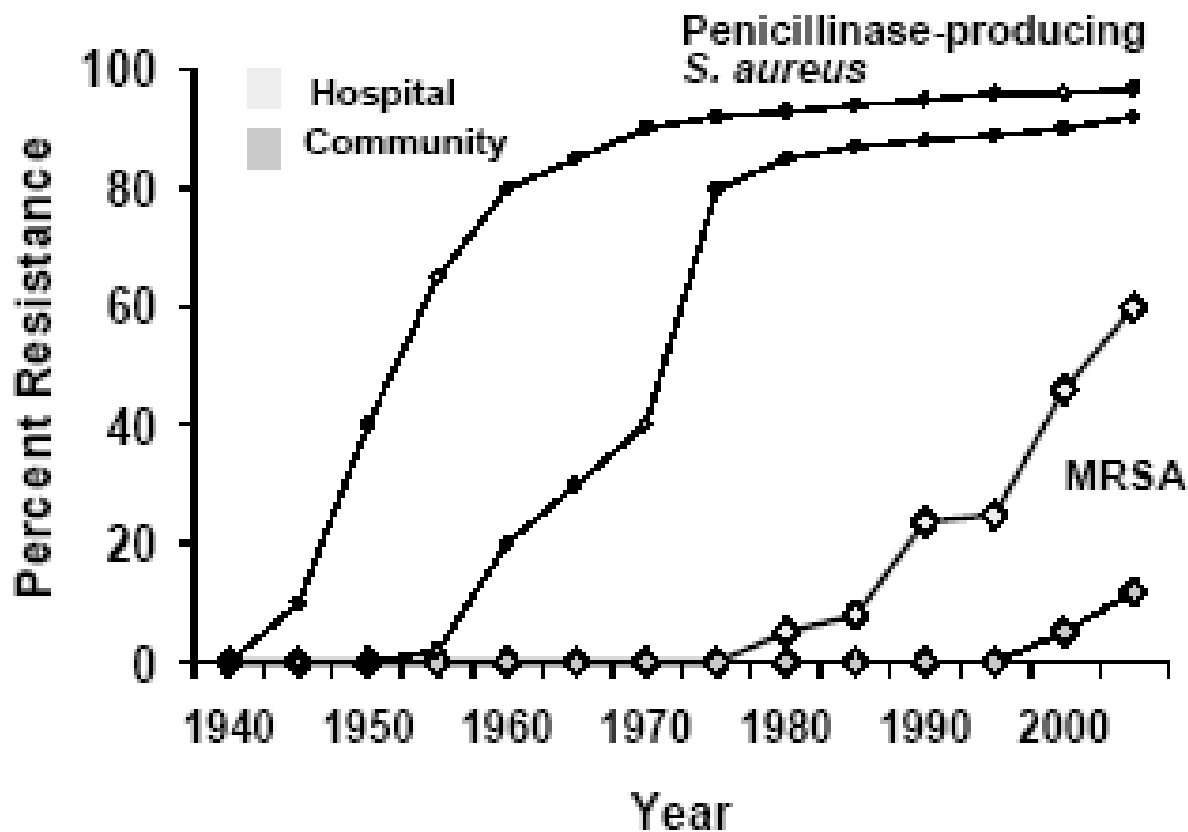




Overview

- *S. aureus* –historical background of MRSA
- Epidemiology & Prevalence
- How is it spread?
- Risk Factors, Reservoir
- Outbreaks
- Treatment
- Prevention
- Eradication regimens
- Role of Public Health/SFDPH experience
 - Multidrug resistant (MDR) MRSA
- Severe *S. aureus* infections are now reportable in CA
- New CA legislation – MRSA screening in hospitals

Trends in *S. aureus* Antimicrobial Resistance (Chambers EID 2001, NNIS, Fridkin NEJM 2005)



MRSA Strain Characteristics Were *Initially* Distinct



	MRSA in Healthcare	MRSA in the Community
Prevalent genotypes (U.S.)	USA100, USA200	USA300, USA400
Antimicrobial resistance	Multiple agents	Few agents
<i>SCCmec</i> (<i>mecA</i> resistance gene)	Types I- III	Types IV, V
PVL toxin gene	Rare	Common



<http://www.eatonhand.com/img/IMG00079.htm>



tahilla.typepad.com/.../community_acquired_mrsa/

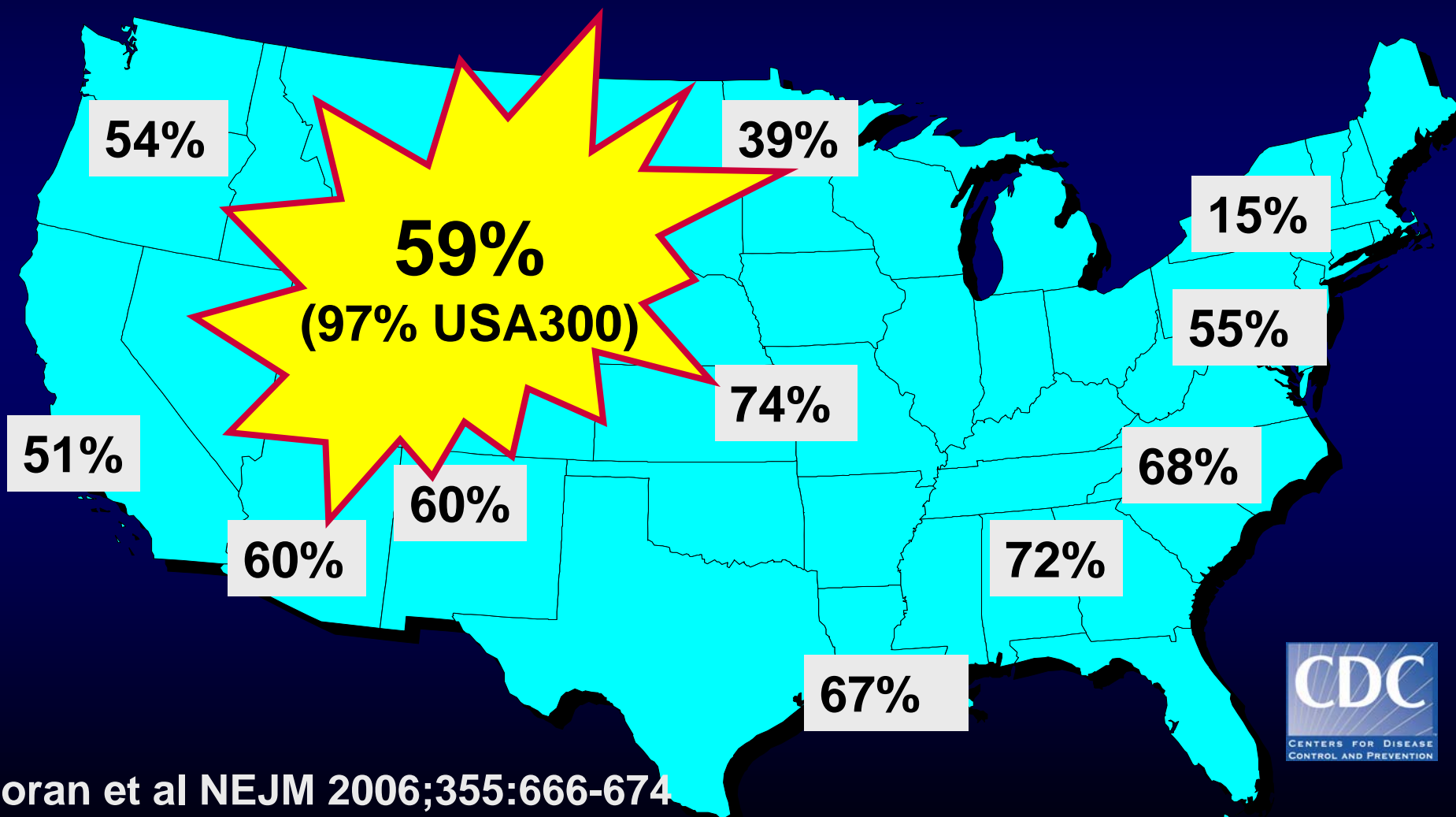


<http://www.physsportsmed.com/issues/2004/graphics/1004/news1.jpg>

More photos @

http://lapublichealth.org/acd/docs/MRSA_Flyer_10_20_03.pdf

MRSA Was the Most Commonly Identified Cause of Purulent SSTIs Among Adult ED Patients (EMERGENCY ID Net), August 2004



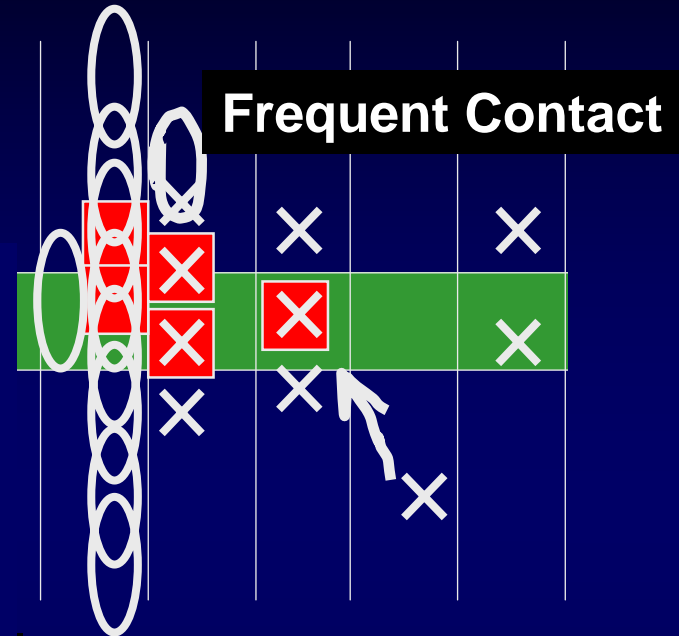
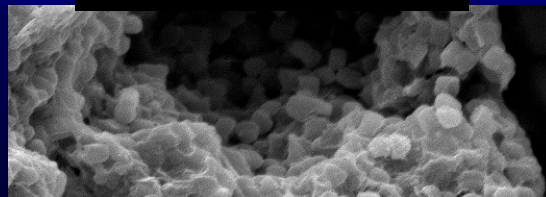
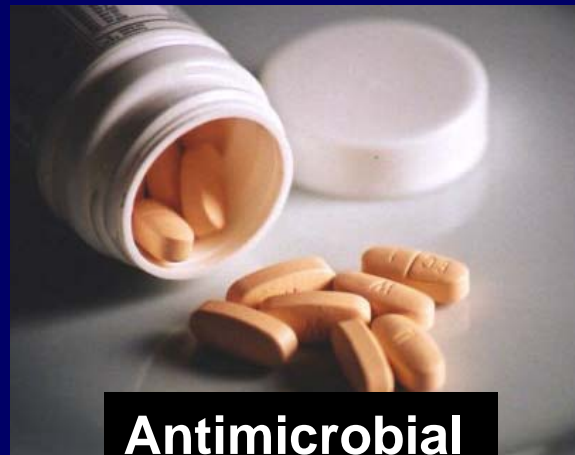
How is *Staph*/MRSA spread?

- Primarily skin-skin or skin-wound contact

OR

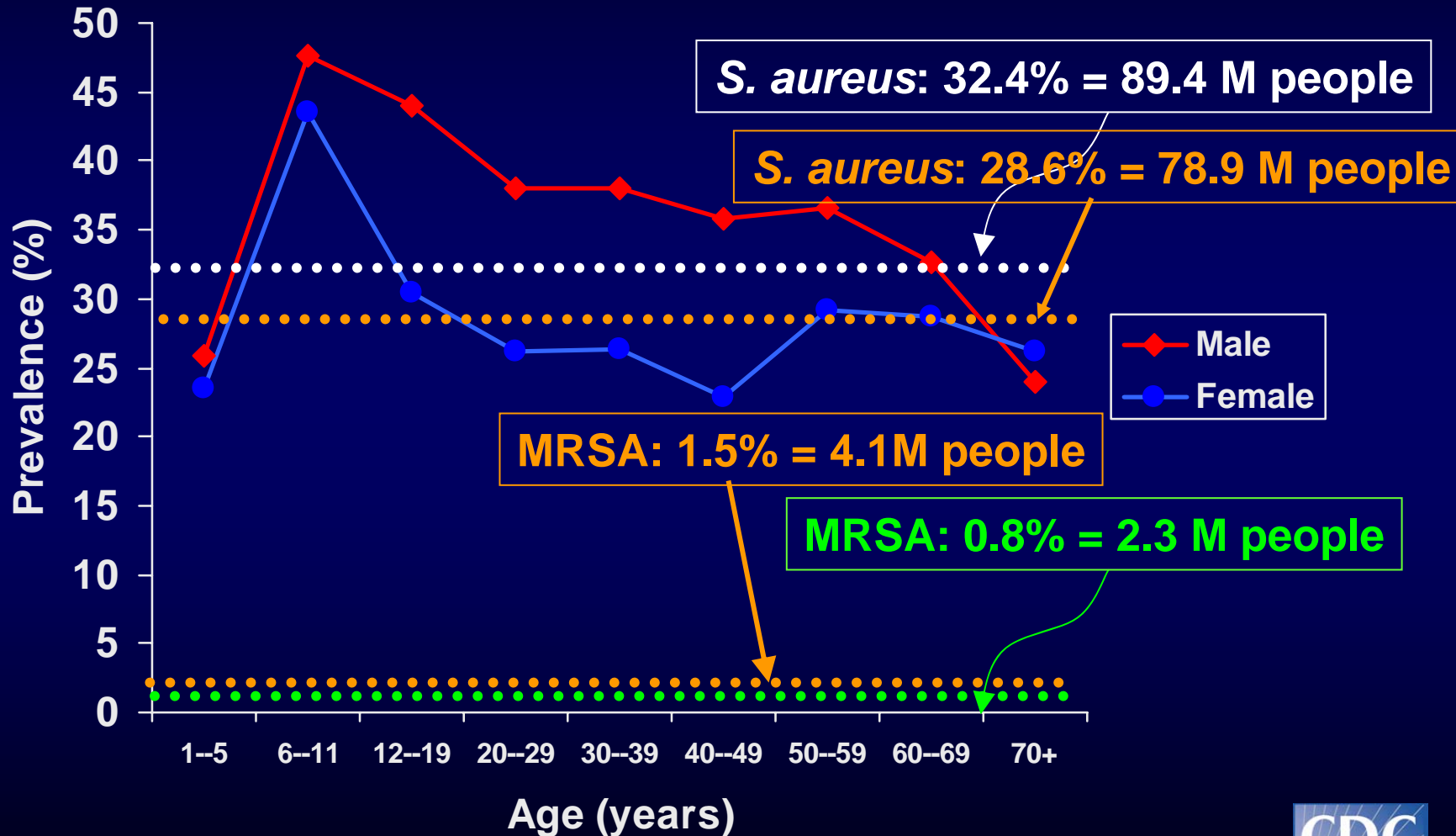
- Occasionally skin-contaminated object contact (razors, bandages, towels)
- Tries to find breaks in skin barrier (eg cuts, scratches)
- No evidence to show transmission via sexual intercourse itself

Where does MRSA show up the most?



S. aureus Nasal Colonization

National Health and Nutrition Examination Survey 2001-02, 2003-4



Kuehnert, et al, JID 2006

Outbreaks of MRSA in the Community

- Often first detected as clusters of abscesses or “spider bites”
- Various settings
 - Sports participants
 - Inmates in correctional facilities
 - Military recruits
 - Daycare attendees
 - Native Americans / Alaskan Natives
 - Men who have sex with men
 - Tattoo recipients
 - Hurricane evacuees in shelters

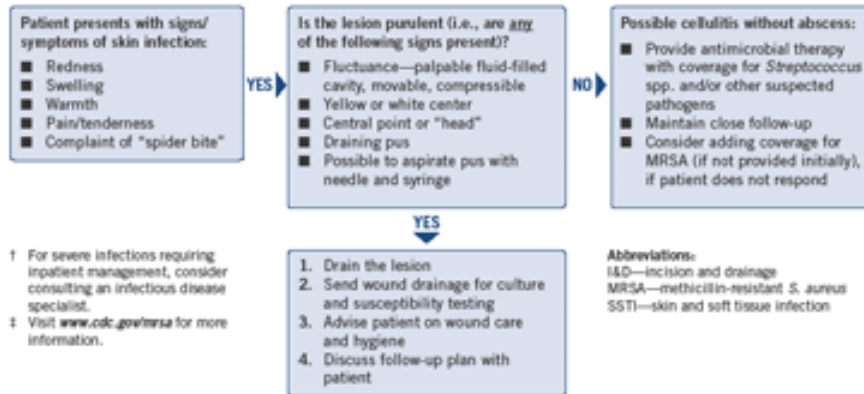




Treatment



Outpatient[†] management of skin and soft tissue infections in the era of community-associated MRSA[‡]



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 below for options)

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

Drug name	Considerations	Precautions**
Clindamycin	<ul style="list-style-type: none"> ■ FDA-approved to treat serious infections due to <i>S. aureus</i> ■ D-zone test should be performed to identify inducible clindamycin resistance in erythromycin-resistant isolates 	<ul style="list-style-type: none"> ■ Clostridium difficile-associated disease, while uncommon, may occur more frequently in association with clindamycin compared to other agents.
Tetracyclines ■ Doxycycline ■ Minocycline	<ul style="list-style-type: none"> ■ Doxycycline is FDA-approved to treat <i>S. aureus</i> skin infections. 	<ul style="list-style-type: none"> ■ Not recommended during pregnancy. ■ Not recommended for children under the age of 8. ■ Activity against group A streptococcus, a common cause of cellulitis, unknown.
Trimethoprim-Sulfamethoxazole	<ul style="list-style-type: none"> ■ Not FDA-approved to treat any staphylococcal infection 	<ul style="list-style-type: none"> ■ May not provide coverage for group A streptococcus, a common cause of cellulitis ■ Not recommended for women in the third trimester of pregnancy. ■ Not recommended for infants less than 2 months.
Rifampin	<ul style="list-style-type: none"> ■ Use only in combination with other agents. 	<ul style="list-style-type: none"> ■ Drug-drug interactions are common.
Linezolid	<ul style="list-style-type: none"> ■ Consultation with an infectious disease specialist is suggested. ■ FDA-approved to treat complicated skin infections, including those caused by MRSA. 	<ul style="list-style-type: none"> ■ Has been associated with myelosuppression, neuropathy and lactic acidosis during prolonged therapy.

■ MRSA is resistant to all currently available beta-lactam agents (penicillins and cephalosporins)
■ 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.

* 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.

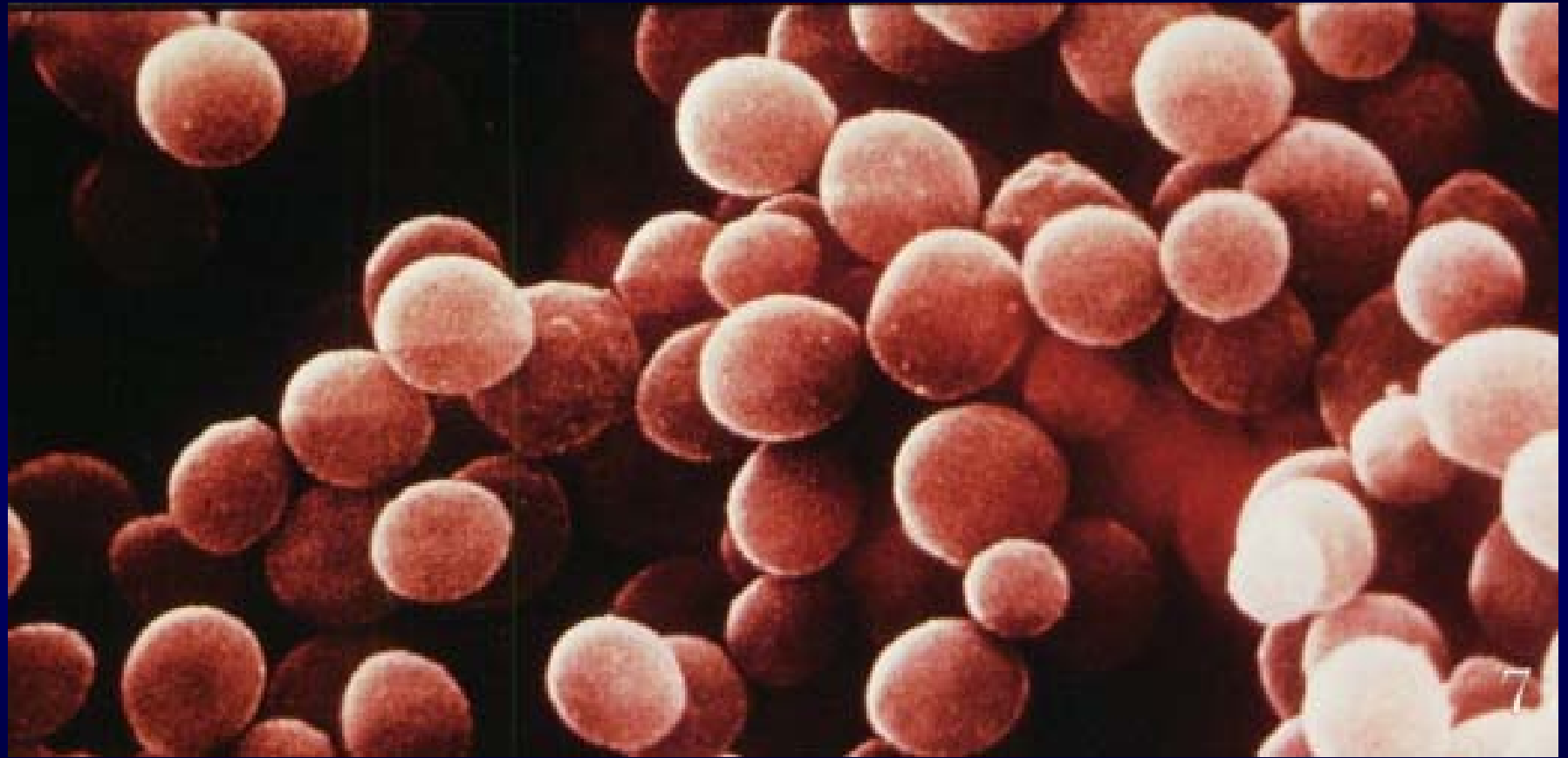
** Consult product labeling for a complete list of potential adverse effects associated with each agent.

Role of decolonization

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. 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.

Published September 2007





Key MRSA Prevention Messages

- Wash your hands!
- Shower with soap
 - before and after skin contact with others or potentially contaminated surfaces
- Wash or clean shared equipment or toys
 - before & after use, or use a barrier (e.g. towel on gym equipment)
- Avoid sharing razors, towels, other personal items
- Cover cuts and abrasions until healed
- Consult a health-care provider for wounds that do not heal or appear infected



City and County of San Francisco	San Francisco Department of Public Health
 <p>Gavin Newsom Mayor</p>	<p>Communicable Disease Control & Prevention Communicable Disease Control Unit 101 Grove Street, Room 405 San Francisco, CA 94102 Phone: (415) 554-2830 Fax: (415) 554-2848 http://www.sfdph.org/cdcontrol</p>

MRSA Cleaning Recommendations Checklist

(Adapted from LA County Department of Public Health <http://www.lapublichealth.org/acd/MRSA/MrsaGuide.htm> & Centers for Disease Control & Prevention)

Date of Recommendations: CDCU Staff Member:
 Name of Facility: Contact Person:
 Address: City: San Francisco State: CA Zip:
 Phone Number: Date of verbal review with facility contact:

I. Personal Hygiene

Date Recommended	Date Implemented	Recommendation Encourage patrons and staff to:
<input type="text"/>	<input type="text"/>	<ul style="list-style-type: none"> ▪ Wash hands using liquid soap and water upon entering and exiting the premises and before and after any hands-on contact with other persons. Alternatively, an alcohol-based hand rub can be used according to label instructions. <i>Visibly soiled</i> hands should be washed with soap and water instead of an alcohol-based hand rub.
<input type="text"/>	<input type="text"/>	<ul style="list-style-type: none"> ▪ Dry hands with disposable paper towels or air blowers. Avoid sharing towels.
<input type="text"/>	<input type="text"/>	<ul style="list-style-type: none"> ▪ Cover skin lesions (cuts, sores, boils, insect bites, etc.) with a clean dry dressing.

Is it a spider bite?



IF YOU THINK YOU HAVE A SPIDER BITE, IT MIGHT ACTUALLY BE AN INFECTION THAT NEEDS MEDICAL ATTENTION.

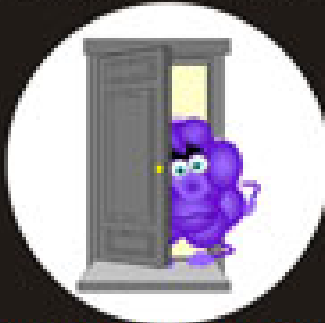
When in doubt, check it out.



www.cdc.gov/mrsa



Don't open the door to infection.



ANY OPENING IN YOUR SKIN INCREASES THE RISK OF INFECTION.

Keep your cuts, scrapes, and scratches

Clean
Dry and
Covered!



www.cdc.gov/mrsa



Sharing isn't always caring.



SHARING PERSONAL ITEMS LIKE TOWELS, RAZORS, OR TWEEZERS CAN SPREAD DISEASES.



www.cdc.gov/mrsa



Decolonization

- Resistance to Mupirocin emerges
 - Not as useful in endemic populations
 - Still may be useful to “break the cycle” in recurrences, intrafamilial spread, or outbreaks, but little data published to support
 - Regimens include:
 - Topical: Mupirocin in nares BID x 5 days or longer
 - Oral: rifampin + TMP-SMX, or rifampin + doxy, or rifampin + minocycline (NEVER Rifampin alone)
- +/-
- Skin antisepsis (e.g. chlorhexidine baths) has been used in addition to the above regimens

A Local Public Health Perspective

SFDPH

Communicable Disease Control and Prevention
San Francisco Department of Public Health



S.F. gay community an epicenter for new strain of virulent staph

Sabin Russell, Chronicle Medical Writer

Monday, January 14, 2008

PRINT E-MAIL SHARE COMMENTS (564) FONT | SIZE: - +

TOOLS SPONSOR: 

(01-14) 14:11 PST SAN FRANCISCO -- A new variety of staph bacteria, highly resistant to antibiotics and possibly transmitted by sexual contact, is spreading among gay men in San Francisco, Boston, New York and Los Angeles, researchers reported Monday.

S.F. gay community an epicenter for new strain of virulent staph

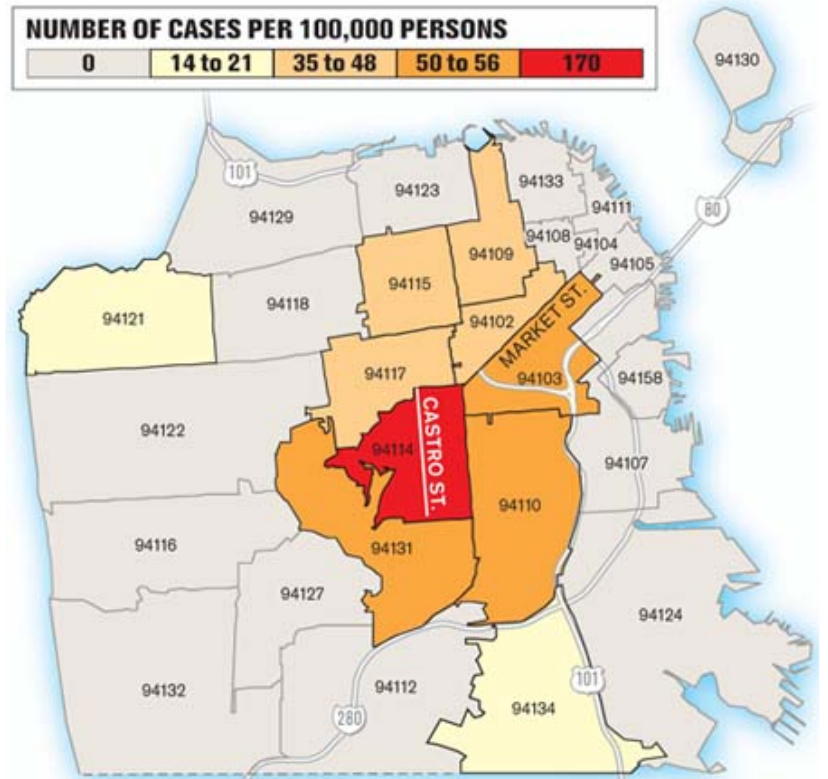
Infection Rate by San Francisco ZIP Code. Chronicle Graphic

Infection rate by San Francisco ZIP code

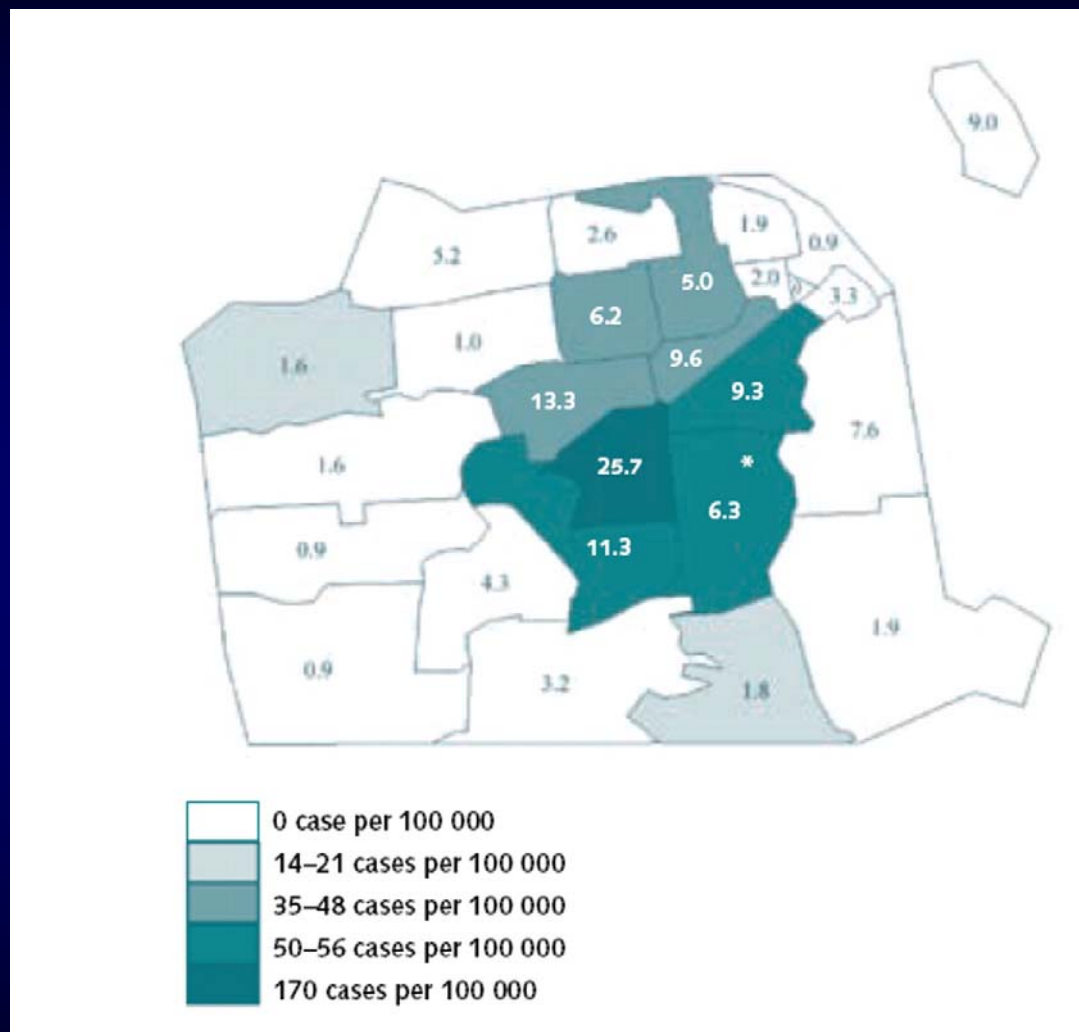
San Francisco's ZIP code areas are shaded below by the infection rate by the multi-drug-resistant USA300 strain of staph bacteria. The highest concentration of cases has been in neighborhoods with large gay populations, particularly the Castro.

NUMBER OF CASES PER 100,000 PERSONS

0	14 to 21	35 to 48	50 to 56	170
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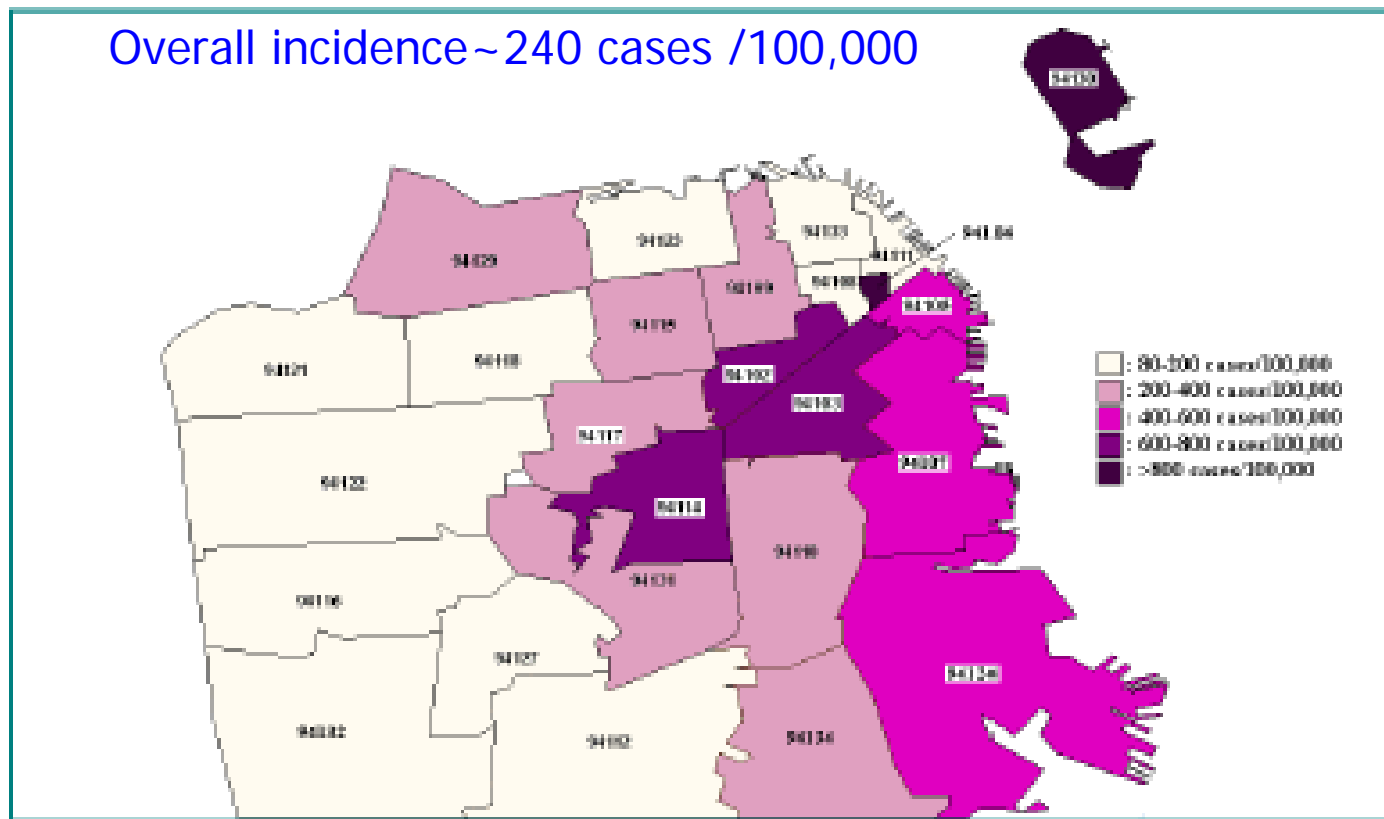
Annual incidence of Multidrug-Resistant USA300 and percentage of male same-sex couples, by San Francisco ZIP code



Diep, B. A. et. al. Ann Intern Med 2008;0:0000605-200802190-00204-E-204

Map of SF incidence 2004-5

Figure 2. Annual Incidence of Community-Onset MRSA Infection in San Francisco by Zip Code of Patient Residence, 2004-2005*



*: The estimated annual incidence of community-onset MRSA infection in San Francisco is 316 cases/100,000. Exclusion of those patients admitted to the hospital within 1 year results in a annual incidence of 243 cases/100,000.

SFDPH Response

- Outreach & Education: Response to medical journal/SF Chronicle articles – disseminate the message that MRSA is common and no evidence of STD
- General Public
 - Collaborative effort between CDCP, STD Section & AIDS Office to respond to information requests, update FAQs – translated into Spanish, Chinese
 - Delegated staff to do “information triage”
 - Created www.mrsasf.org & www.mrsasf.com
- Schools
 - Resent MRSA information to SF Schools (previously sent Nov 2007)

Communicable Disease Control and Prevention | MRSA | - San Francisco immunization programs, clin - Microsoft Internet Explorer


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Communicable Disease Control and Prevention
San Francisco Department of Public Health



HOME DISEASE REPORTING & CONTROL IMMUNIZATIONS INFECTIOUS DISEASE EMERGENCIES SERVICES

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Other Programs

- TB Services
- HIV/AIDS Services
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Infectious Diseases A to Z > Diseases L to R > MRSA

MRSA - Methicillin Resistant *Staphylococcus Aureus*

January 2008- The communicable disease, Methicillin Resistant *Staphylococcus Aureus* (MRSA), has been in the news. Learn the facts:

- MRSA Frequently Asked Questions in [English](#), [Spanish](#), or [Chinese](#).

What is *Staphylococcus aureus*?

Staphylococcus aureus, otherwise known as "Staph", is a very common type of bacteria (or germ). Up to half of all people carry Staph on their skin and in other areas of the body. In most of these people, Staph lives harmlessly on the body. But Staph sometimes does cause actual infections. Most of these Staph infections are minor skin infections. Less commonly, Staph may go inside the body and cause more serious infections.

What are MRSA, community-associated MRSA, and healthcare-associated MRSA?

In the 1960s some Staph gained resistance to an antibiotic, a type of medicine used to treat infections, called methicillin. "Resistance" means that an antibiotic no longer works against the bacteria. Resistant Staph are now called methicillin-resistant staphylococcus

Clinician Disease Reporting

To report a suspected *outbreak* of MRSA in San Francisco please contact the Communicable Disease Control Unit:

24/7 Tel: (415) 554-2830

[Additional reporting information and forms.](#)

Individual cases of MRSA are not reportable in San Francisco.

Additional Information

General Public

- [SFPDPH MRSA Cleaning Recommendations in non-Healthcare Settings](#)
- [Centers for Disease Control MRSA website](#)
 - [CDC MRSA Prevention Posters - New!](#)
- [Los Angeles Department of Health Services](#)

Parents

- [A Parent's Guide to MRSA in California in English and Spanish - New!](#)

Health Care Providers

- [CDC Outpatient management of CA MRSA Skin and Soft Tissues Infections - New!](#)
- [Strategies for Clinical Management of MRSA in the Community: Summary of an Experts' Meeting Convened by the CDC, March 2006](#)
- [CDC Epidemiology and management of MRSA in the community Slides - New!](#)

Schools

- [Skin Infections and MRSA Information for San Francisco Schools - New!](#)

Athletes and Athletic Teams

- [NCAA Committee in Competitive Safeguards and Medical Aspects of Sports \(CSMAS\) Infection Control Prevention Recommendations](#)
- [CDC Recommendations For the Prevention of Community-acquired MRSA Infection](#)
- [Texas Department of State Health Services MRSA Guidelines for Athletic Departments and Athletes](#)

Correctional Facilities

- [Federal Bureau of Prisons Clinical Practice Guidelines for the Management of Methicillin-Resistant *Staphylococcus Aureus* \(MRSA\) Infections, Aug. 2005](#)

San Francisco Specific Data

- [San Francisco Community-Associated MRSA Pediatric Sentinel Surveillance 2005-2006, Oct 2007 - New!](#)

SFDPH Response (cont)

- LGBT community
 - Gay/MSM MRSA Workgroup convened
 - Work with StopAIDS Project to develop briefer, targeted FAQs for gay/MSM
 - MRSA outreach at sex-related venues
 - Participate in community forums re MRSA with StopAIDS & San Francisco AIDS Foundation at LGBT Center

SFDPH response (cont)

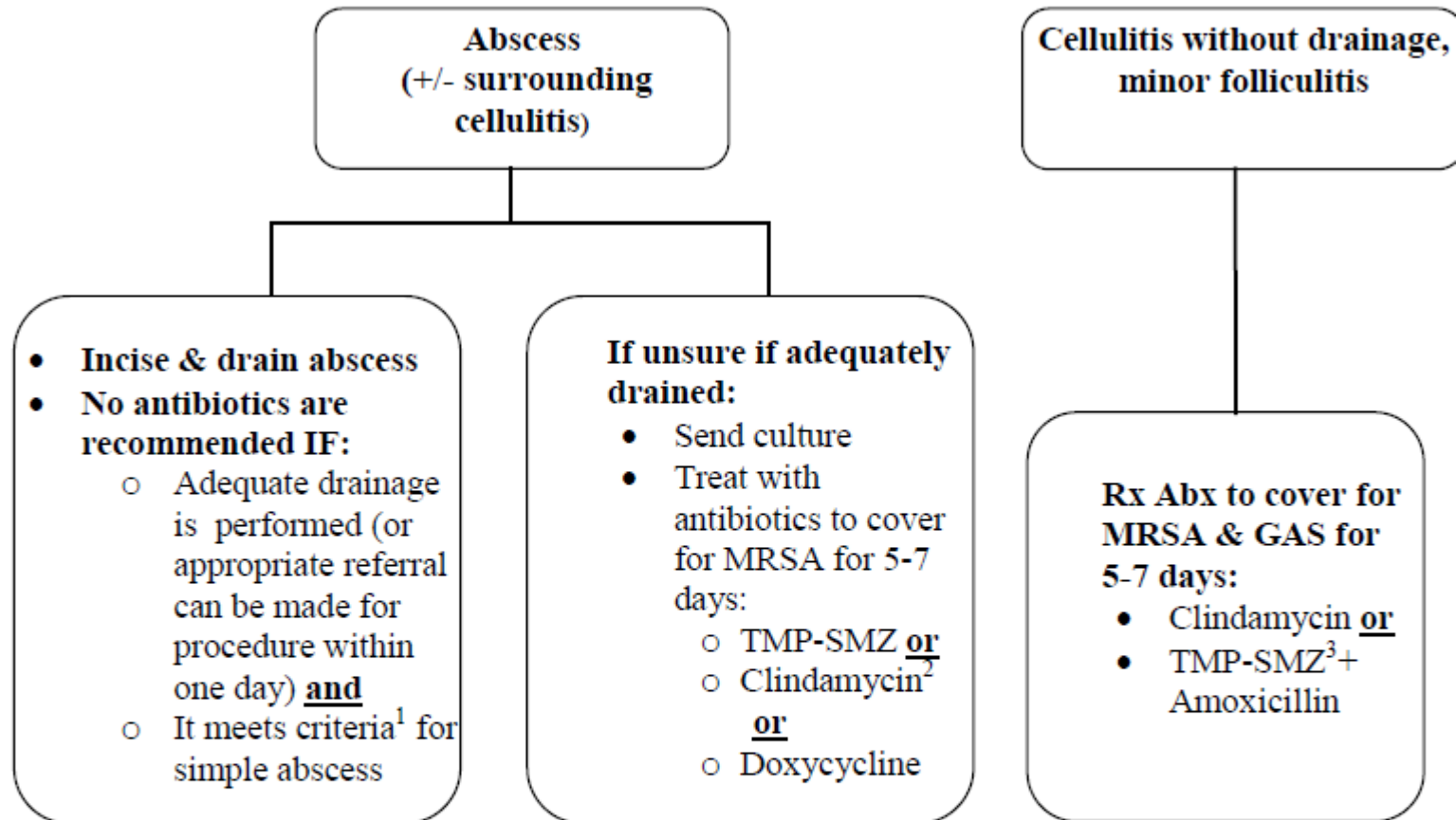
- Clinicians
 - Updated Advisory sent to SF clinicians – Drainage is key
- Public & Political Leaders
 - Letter sent to SF Chronicle (not accepted)
 - Letter sent to Annals of IM
 - Board of Supervisors requested hearing presentation
 - SFDPH, UCSF, Community activists

DPH MRSA/SSTI Workgroup

- 5 major areas to address-next steps:
 - General education & outreach – update FAQs
 - Collaboration with UCSF and regional/state health departments
 - Surveillance/reporting & legislation/research
 - Collaboration with UCSF/SFGH to monitor impact of MRSA in SF, risk factors, effective treatments & interventions
 - Treatment guidelines for SF clinicians
 - Prevention –
 - Promote improved hygiene and wound care in specific target groups (IDU, athletes, homeless)
 - Shelter Health Program
 - Support Shelter Standards of Care Legislation
 - Occupational health issues



See following algorithm for additional guidance:



¹Criteria for simple abscess:

- No systemic signs (afebrile, otherwise stable and a candidate for outpatient therapy)
- No abscess is present on the face

²If patient has risk factors for healthcare-associated MRSA (hospitalized or had surgery, dialysis, or residency in a long-term care facility in the past year, or an indwelling catheter or percutaneous medical device at the time of culture), clindamycin is NOT recommended.

³Doxycycline is an acceptable alternative to TMP-SMZ if patient has allergy or contraindications to TMP-SMZ

Lessons Learned

- Gather information and incoming inquiries to form response
 - From different perspectives (e.g. blogs)
- Coordinate incoming and outgoing information (and perspectives) within your organization, think broadly about who should be involved in the response
- Media coverage can over-generalize medical research information, cause unnecessary fear, and lead to misperceptions and anger – especially when targeting specific populations

Points for discussion

- Would improved outreach and education to everyone prior to events such as these? (How to prioritize subject topics, target audiences?)
- How to work with the media to promote public health messages rather than disseminate fear and anxiety?
- How to prioritize public health activities with competing issues and already stretched staff?



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[Home](#) > [Health Information](#) > [News, Alerts & Events](#) > **CALIFORNIA DEPARTMENT OF PUBLIC HEALTH**

CALIFORNIA DEPARTMENT OF PUBLIC HEALTH ANNOUNCES STATE WILL REQUIRE MANDATORY REPORTING OF SEVERE MRSA CASES

NUMBER: 08-06

DATE: Feb. 14, 2008

CONTACT: Suanne Buggy or Lea Brooks, (916) 440-7259

SACRAMENTO – Dr. Mark Horton, director of the California Department of Public Health (CDPH), announced today that California will require severe cases of staph infections, including methicillin-resistant *Staphylococcus aureus* (MRSA), be added to the list of diseases reported to local health departments in the state.

"Our goal is to prevent severe staph infections, including MRSA, to the greatest extent possible," said Horton. "By making severe cases of staph infections a reportable disease in California, we will be able to better understand the incidence these infections in California and who is at greatest risk."

Methicillin-resistant *Staphylococcus Aureus* (MRSA) is a type of staph infection that is resistant to certain antibiotics. Until

- Severe *S. aureus* infections = ICU or death
- "Previously healthy" = a person who has not been hospitalized or had surgery, dialysis, or residency in a long-term care facility in the past year, and did not have an indwelling catheter or percutaneous medical device at the time of culture

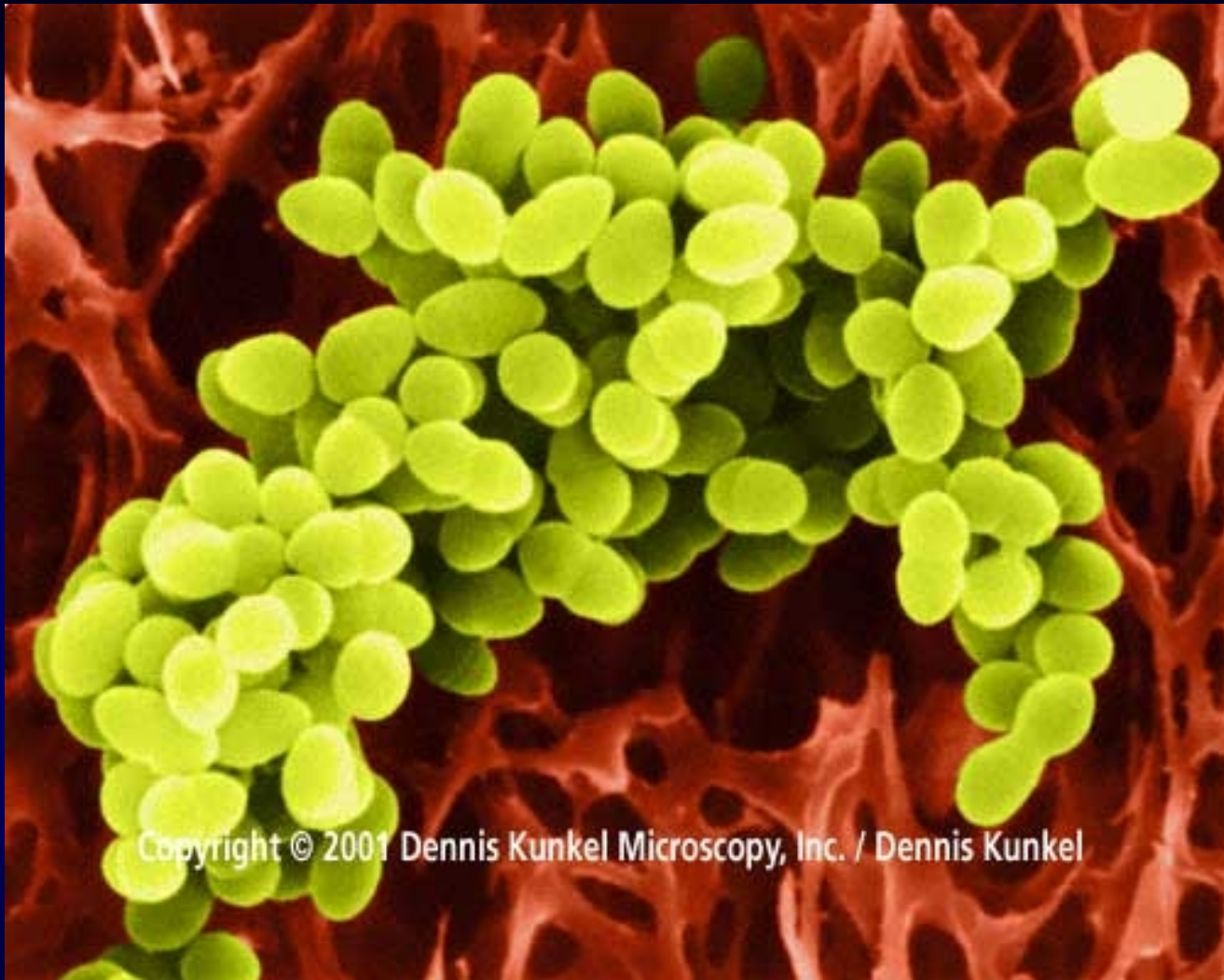
February 2008

CA Hospital Screening Legislation (eff. 1/1/09)

- SB bill 1058 – signed by Governor 9/08
- Mandates hospital screening for nasal colonization for specific patients
 - If +, notification and verbal and written instructions must be given to patients regarding transmission prevention
- Mandates quarterly reporting of MRSA bacteremia

Take Home Points

- CA MRSA is common, and spreads by skin-skin contact
- CA MRSA is different than HA MRSA
 - Less severe infections
 - There are other oral antibiotic options
 - TMP-SMX, Clinda, doxy – think about risk of GAS, inducible resistance if erythro res. (linezolid)
- Drainage is key
- Prevention may be more useful than eradication regimens
- Public health role –
 - outreach & education, surveillance, outbreak containment
 - ?research to expand knowledge of epidemiology and effective interventions
 - “Information triage,” is useful for risk communication and myth busting



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Resource:

http://www.cdc.gov/ncidod/dhqp/pdf/ar/CAMRSA_ExpMtgStrategies.pdf