

# New MRSA Subclone Spread Through Skin Contact

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CHICAGO — The pUSA03 subclone of the USA300 strain is emerging as a major cause of community-acquired methicillin-resistant *Staphylococcus aureus*, especially in men who have sex with men.

The new strain is likely spread through skin-to-skin, sexual contact, Dr. Binh An Diep, Ph.D., and associates reported in a poster at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

USA300 has recently emerged as the predominant cause of community-acquired MRSA and skin and soft-tissue infections in the United States.

A population-based study that involved all MRSA infections treated at 9 of 10 participating medical centers in San Francisco shows the incidence of the pUSA03 subclone was 171 cases per 100,000 in one San Francisco ZIP code. That compares with 57 cases per 100,000 in three other

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city ZIP codes and 47 cases per 100,000 in four other city ZIP codes.

The high-incidence ZIP code (94114) corresponds to the Castro district, which has the highest concentration of gay men in the United States.

The Castro neighborhood is an affluent area with an average annual income of \$90,000, making it less likely that the majority of infected individuals were IV drug users, Dr. Diep, of the University of California, San Francisco, said in an interview.

"The mechanism seems to be one of skin-to-skin contact, and having very vigorous perianal sex that creates a breach of the skin barrier leading to perianal abscess," he said.

A previous report in six heterosexual patients supports this largely unrecognized method of transmission for community-acquired MRSA (*Clin. Infect. Dis.* 2007;44:410-13).

"The take-home message is really personal hygiene," Dr. Diep said.

"Because MRSA is now spread skin-to-skin, wearing a condom won't help. So you have to be very careful and bathe yourself very well."

The investigators also reviewed the medical charts of 183 patients treated at San Francisco General's Hospital Positive Health Program, an outpatient HIV clinic, and the charts of 130 patients treated at Boston's Fenway Community Health, which also has an outpatient clinic.

MRSA isolates, cultured predominantly from skin and soft-tissue infection sites, were genotyped, and pUSA03 was detected using polymerase chain reaction assays.

Investigators detected the pUSA03 subclone in about 29% of patients from both

surveys, and, of these, 99% were men who have sex with men. Among homosexual men who were infected with the pUSA03 subclone of USA300, 39% (35 of 89) had infections that involved the buttocks and genitoperineal area, and 30% (27 of 89) had infections that involved the extremities.

In the San Francisco survey, being a man who has sex with men was the strongest predictor of infection with the pUSA03 subclone after controlling for the

effects of a previous MRSA infection and for clindamycin use in the previous year.

Previous use of trimethoprim-sulfamethoxazole was significantly associated with pUSA03 subclone infection, but prior use of mupirocin and hospitalization in the previous year were not significant risk factors, the investigators reported at the meeting, which was sponsored by the American Society for Microbiology.

In the Boston cohort, multidrug-resistant USA300 carrying the pUSA03 plasmid

was recovered exclusively among men having sex with men.

The percentage of USA300 resistant to multiple classes of commonly used antimicrobial agents, including beta-lactams, macrolides, clindamycin, tetracyclines, and mupirocin, varied in the surveys from location to location.

In San Francisco, 18% of USA300 isolates were multidrug-resistant, whereas in Boston, 48% of the isolates were multidrug-resistant, Dr. Diep said. ■

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