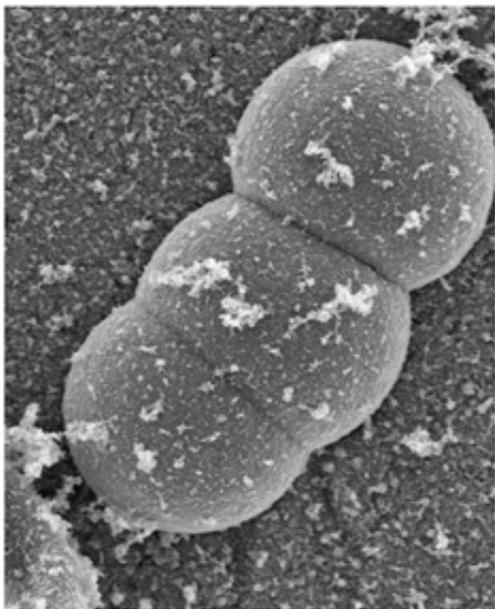


Alternative Approaches, Possible Vaccines Against MRSA Infections

With the news this month that methicillin-resistant *Staphylococcus aureus* (MRSA) infections appear to be more prevalent than previously believed, a symposium at the 45th Annual Meeting of IDSA, in San Diego, on management and control of *Staphylococcus aureus* couldn't have been more timely.

According to an October 17 study in the *Journal of the American Medical Association* ([2007;298:1763-1771](#)), most infections remain in the health care setting. Maureen K. Bolon, MD, of Northwestern University, discussed options for surgical antimicrobial prophylaxis in the context of increasing infections due to MRSA.



Staphylococcus aureus
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Options include replacing cephalosporin with vancomycin for selected surgical procedures, or adding vancomycin to a cephalosporin regimen. Guidance published in the December 2006 [The Medical Letter](#) recommends vancomycin for cardiac, orthopedic, thoracic, neurosurgery, and vascular procedures in hospitals in which MRSA is a frequent cause of postoperative wound infection or in patients previously colonized with MRSA. Other guidance emphasizes the use of vancomycin as prophylaxis in the presence of MRSA clusters or for patients susceptible to colonization, and only after a review of infection prevention practices. Most guidelines emphasize that vancomycin should not be used as routine antimicrobial prophylaxis.

Thinking Outside of the Box

Dr. Bolon discussed options beyond systemic antimicrobial prophylaxis for the prevention of infections in surgical settings. A study of chlorhexidine gluconate oral rinse and nasal ointment versus

placebo showed a significant reduction in nosocomial infections, while studies looking at the effectiveness of mupirocin nasal ointment versus placebo demonstrated no difference in occurrence of surgical site infection (SSI).

Andrew E. Simor, MD, of the University of Toronto, said that drugs with marginal activity or that induce resistance (e.g., ciprofloxacin and fusidic acid) may fail to eradicate MRSA colonization, and intranasal therapy is ineffective for the GI reservoir of the organism.

Targeted approaches may be one way to ward off MRSA infections in hospitals. Carriers could be identified by active surveillance, Dr. Bolon said, and these patients could be selectively treated using glycopeptide as an adjunct to surgical prophylaxis and/or mupirocin for decolonization. Alternatively, hospitals could adopt a more universal approach by evaluating MRSA-related SSI rates and using glycopeptide as an adjunct to surgical prophylaxis for procedures found to have high rates of MRSA SSI.

Hope for a Vaccine?

A study evaluating a vaccine candidate offered a glimmer of hope when it was published in 2002, according to Stan Deresinski, MD, at Stanford University. In that study, StaphVAX (from Nabi Biopharmaceuticals) was 57 percent effective against *S. aureus* bacteremia in patients with end-stage renal disease at weeks 37-40. A Phase III confirmatory trial demonstrated efficacy to week 35 but failed to meet the study's primary endpoint of significantly reducing the number of *S. aureus* infections compared with placebo. In 2005, StaphVAX was put on hold pending further partnership and funding. A subsequent analysis found that the vaccine used in the confirmatory trial was less immunogenic than the first.

Other vaccine candidates are in early trials. Merck's 0657nl has been studied in a Phase I trial of more than 120 healthy volunteers. It was safe and generally well tolerated. A Phase II trial of Intercell's V710 is set to begin in December. It will look at the safety and efficacy of preventing serious *S. aureus* infections after elective cardiothoracic surgery.

[Slides from this session](#) and many more can be found on the IDSA website.

Audio files of individual sessions or a full-conference CD-ROM are [available for purchase from Sound Images](#).