

Hospital System Begins to See Success in MRSA Screening

BY SHARON WORCESTER
Southeast Bureau

A Chicago-area hospital system has launched an ambitious effort to sharply reduce the rate of in-hospital methicillin-resistant *Staphylococcus aureus* infections by screening all patients.

The new admissions screening process at each of three Evanston Northwestern Healthcare (ENH) hospitals is intended to reduce the rate of MRSA infections by 50% within 2 years.

A recent prevalence study conducted by ENH showed that about 8% of patients being admitted were colonized with MRSA, Lance Peterson, M.D., told this newspaper. That figure

suggests the 30-day mortality is 50%, with 23% directly related to the MRSA.

"It's a very aggressive organism to get in the blood ... but MRSA infection is totally preventable," said Dr. Peterson, who also is professor of pathology and medicine at Northwestern University, Chicago.

"If we get it out of health care, we can eliminate this problem," he added, noting that Dutch and Swedish hospitals have been successful in their efforts at eliminating MRSA.

The ENH effort involves an attempt to screen every patient on admission. A nasal swab is collected from each patient as part of the admission process, and the swab is tested for MRSA us-

cording to an ENH statement.

The new screening process, which is being watched closely nationwide by other hospital systems that are also battling MRSA, is off to a good start, Dr. Peterson said.

After a year of planning, including a cost-benefit analysis showing that a 50% reduction in the bacteremia rate is necessary for the screening program to break even, 90% of patients were being captured within the second week of implementation, he said.

Patients—who are often well aware of the risk of nosocomial infection—have been amenable to the process, he added.

Hospital systems and infectious disease experts alike are keeping a close eye on the program. Several facilities have inquired about the process. Interest in the idea also is growing because the molecular technology for testing was recently approved for use. It is an approach that every hospital could do right now, Dr. Peterson said.

Michael Climo, M.D., of Hunter Holmes McGuire VA Medical Center in Richmond, Va., is among those watching closely.

The ENH approach is a novel one on a large scale, and it will be interesting to see if these aggressive—and costly—measures are worthwhile, Dr. Climo said in an interview.

Among the questions that remain to be answered include what the actual cost and feasibility of such a process might be, whether hospital laboratories can shoulder the burden of tens of thousands of additional tests each year, and whether the hospitals can adequately manage MRSA patients once they are identified.

"These are complicated patients in complicated hospital settings, and it's difficult to determine the best strategies," he said, noting that a tremendous amount of hospital resources will be required to manage the large number of MRSA patients now being admitted.

The ENH program makes sense, but it will be some time before it's clear how effective it will be and whether it can be done logistically and financially. "But it's commendable that they're trying," Dr. Climo said. ■



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"If we get [MRSA] out of health care, we can eliminate this problem," said Dr. Lance Peterson of Evanston Northwestern Healthcare.

is in line with other studies from around the United States that also suggest that the incidence of this dangerous disease is on the rise.

"Our feeling was that we were seeing more and more patients with MRSA in the hospital ... and we decided that it was necessary to go ahead and start dealing with MRSA from a patient safety standpoint," said Dr. Peterson, director of clinical microbiology and infectious diseases research at ENH.

Patients with active infection can infect others in the hospital, and those who are colonized with MRSA pose a risk to others as well as to themselves; about 75% of infections originate from a person's own strains, he explained.

Furthermore, the cost of infection is high, as is the mortality. Some estimates put the total cost at about \$30,000 for an inpatient with a bloodstream infection, and at \$40,000 for a wound infection. A recent study

using new real-time DNA analysis that can detect the microorganism at the molecular level within 2 hours, compared with the 2-3 days that previous culture methods required.

Patients diagnosed with MRSA are treated with a nasal antibiotic ointment for 5 days, and must bathe using a special antiseptic soap on the first, third, and last day of the treatment. A recent study showed that this approach decolonized 95% of patients who had unexpected MRSA colonization, Dr. Peterson noted.

Screening for *S. aureus* has been used successfully throughout the ENH system for the past 2 years in high-risk patient areas, such as the infant special care unit. A pilot program was also implemented using a rapid molecular testing method for MRSA in patients undergoing knee replacement.

That program reduced the rate of postsurgical *S. aureus* infection by nearly fourfold, ac-

Strategies Can Help Curb Multidrug-Resistant Gram-Negative Infections

BY HEIDI SPLETE
Senior Writer

BETHESDA, MD. — The supply of weapons against multidrug-resistant gram-negative pathogens is running low, Henry M. Blumberg, M.D., said at an annual conference on antimicrobial resistance sponsored by the National Foundation for Infectious Diseases.

"We are struggling to treat these infections," said Dr. Blumberg, professor of medicine at Emory University, Atlanta. "There's not a lot of information in the literature about controlling gram-negative pathogens. Most studies are about VRE [vancomycin-resistant enterococci] and MRSA [methicillin-resistant *Staphylococcus aureus*]," he explained.

Physicians at Grady Hospital in Atlanta, where Dr. Blumberg is an epidemiologist, have been unable to completely eradicate some forms of persistent multidrug-resistant (MDR) gram-negative bacteria, but they have developed strategies to reduce the risk of infections.

Here are seven strategies to help in the battle:

► **Improve hand hygiene.** Physicians are often the worst offenders and the ICU staff often has the poorest hand hygiene, Dr. Blumberg noted. Also, artificial fingernails have been associated with nosocomial infections and should not be worn by health care workers.

► **Prevent nosocomial infections, especially pneumonia.** Gram-negative pathogens are often the source of ICU infections.

► **Use selective digestive tract decontamination.** Use of intravenous prophylaxis for digestive tract decontamination has been shown to reduce the risk of bacterial infections during the early postoperative period. However, there have been reports of increased MRSA and VRE with this method.

► **Reduce bloodstream infections.** Techniques that have proved helpful include the use of maximum sterile barrier techniques; use of chlorhexidine on the skin prior to central line insertion also has been shown to reduce infection.

► **Enhance environmental**

cleaning. A clean environment is important for the reduction and control of pathogens such as *Acinetobacter baumannii*, for which the environment might play a significant role in transmission.

► **Improve nurse-to-patient staffing ratios.** Data from previous studies have shown a relationship between increased resistance and fewer nursing hours per patient-day, but resistance decreased as staffing consistency improved.

► **Improve antibiotic utilization.** Potential methods to reduce inappropriate use of antibiotics include the application of practice guidelines, formulary restriction, and antibiotic cycling.

The staff at Grady Hospital conducted a self-study in which two groups of care teams were randomized either to an intervention designed to control for antibiotic resistance or to standard-of-care guidelines that had been developed by the hospital. In the intervention group, an antibiotic utilization team recommended an optimal therapy if the prescription was inappropriate based on hospital guidelines. The control group prescribed antibiotics without review by a utilization team.

Overall, the intervention group was deemed to have used antibiotics appropriately in 82% of cases, compared with 67% for the controls, Dr. Blumberg said.

"We can't eradicate these organisms, especially in surgery, but we are working to control them," he said. "We need more studies to help us determine the best ways."

Another management strategy, the "search-and-destroy" method of MDR infection management, involves active surveillance via frequent screening of patient cultures and contact isolation for anyone infected or colonized with MDR gram-negative bacteria. However, "what you screen for is based on what you are finding in your hospital," he noted.

Although the search-and-destroy method may eradicate pathogens in some situations, it is almost impossible to do so in a surgical setting, he said.

Dr. Blumberg had no conflicts of interest to disclose.