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The Informed Patient: Hospitals Take Stronger Steps Against Bacteria

New State Laws, 'Killer Gloves' Help Combat Dangerous Infections
Ninety Thousand Deaths a Year

By Laura Landro
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HOSPITALS ARE UNLEASHING some new weapons in the war against drug-resistant bacteria.

For patients, the growing risk of life-threatening infections from a surgical catheter, health-care worker or contaminated bed rail may seem frightening enough to avoid entering the hospital in the first place. Each year, studies show, about two million patients -- or one in 20 -- contract an infection after they are admitted to a hospital. This accounts for half of all major complications and 90,000 deaths annually.

But with growing pressure to fix the problem, hospitals are beefing up infection-control departments and investing in high-tech surveillance systems that provide early warnings about bacteria "hot spots" and can trace outbreaks to a ward, a playroom for sick kids, or a surgeon's hands. At the annual conference of the Society for Healthcare Epidemiology of America in Chicago later this month, experts will share strategies ranging from new disinfection methods to more rapid testing and screening of patients at high risk for infection.

Medical-supply companies, meanwhile, are offering new products and services to fight bacteria, such as surgical catheters coated with antibiotics, "killer gloves" that release powerful disinfectants, new diagnostic tests to more quickly identify bacteria, and microbe-resistant bed sheets and lab coats.

Five states have passed laws requiring reporting of hospital infections, and several other states are considering such laws. The Centers for Disease Control and Prevention has a voluntary infection-reporting system, but only 300 hospitals participate and report only certain types of infections in certain units, such as bloodstream-infection rates in intensive-care units. The CDC plans to launch a new Web-based reporting tool to broaden the program later this year, but has had some technical snafus.

One major force behind the drive to control infections is the growing recognition by hospital administrators that infections are eating into profits. MedMined Inc., a Birmingham, Ala., company that mines hospital data to spot nascent problems with bacteria before they spread, estimates that private and public insurers paid \$11.5 billion in reimbursement to hospitals because of complications from infections last year. But hospitals still lost nearly \$9 billion from the costs of longer hospital stays and extra treatment.

The key to stemming the tide of hospital infections is still reducing unnecessary use of antibiotics, which lead to resistance and the creation of "superbugs." Bacteria that cause the most vexing hospital infections, such as the virulent MRSA strain, have become increasingly resistant to the broad-spectrum antibiotics long used to treat them.

But studies show bacteria's resistance to disinfectants is nowhere near as common as antibiotic resistance, because disinfectants work differently, killing bacteria outright, while antibiotics go after the bacteria and either break down the cell walls or interfere with reproduction -- and bacteria can learn to resist the mechanisms of antibiotics. If microbes escape after a disinfectant is used, it may be because the disinfectant wasn't used correctly. For example, hospital studies have shown that drenching surfaces or "active damp scrubbing" more reliably removes bacteria than quickly wiping with a damp cloth sprayed with the same disinfectant.

The single most important way to stop the spread of bacteria is for health-care workers to clean their hands. But hospitals are also focusing on reducing the amount of bacteria present on the patient's skin prior to surgical procedures, using faster-acting antiseptics like chlorhexidine, instead of less-effective iodine products. They are also using catheters coated with microbe-fighting compounds and taking more sterile precautions when inserting catheters and intravenous tubes, where bacteria often enter the bloodstream, notes Rabih Darouiche, professor and director of the Center for Prostheses Infection at Houston's Baylor College of Medicine.

In Pennsylvania, for example, a group of hospitals reduced bloodstream-infection rates for central-line catheters by 67% between 2001 and 2005 by adhering to guidelines including using chlorhexidine for skin disinfection before inserting catheters, and prompt removal of catheters when they were no longer necessary. And 14 hospitals working with the non-profit Institute for Healthcare Improvement eliminated cases of a type of pneumonia for one year, following six relatively simple steps such as raising the head of patients on mechanical ventilators so bacteria don't get into the lungs.

At Rush University Medical Center in Chicago, bedridden patients in the intensive-care unit are no longer bathed by hand with soap and water from a basin. Instead, nurses wipe them down with a "bath in a box" -- disposable cloths saturated with chlorhexidine combined with moisturizer. The change was made after a study found that switching to the cloths reduced by 60% the contamination of patients' skin with one of the most powerful strains of antibiotic-resistant bacteria, known as VRE.

Robert Weinstein, the professor who led the study, published last month in the Archives of Internal Medicine, says there is increasing recognition that hospitals aren't doing a good enough job of simple cleaning and disinfecting. Intensive-care doctors "should insist that the performance of the ICU cleaning staff is reviewed routinely," says Dr. Weinstein, also director of infectious disease services for Cook County.

Hospital infection-control professionals say that just buying new products to fight infection won't do the trick. "An organization could go broke buying every product out there they think is going to reduce infections," says Mary McNally, director of infection control at Memorial Health University Medical Center in Savannah, Ga. Ms. McNally says the key is for hospitals to identify bacteria problems unique to their facility, and intervene.

Her hospital was alerted by MedMined to a "minioutbreak" of the bacteria acinetobacter in the intensive-care unit, enabling the hospital to take immediate steps to halt its spread. The system culls information from hospital databases that is already being collected, such as patient admissions and results of tests, and analyzes it for trends. Before the hospital began using MedMined, Ms. McNally says, staffers had to gather data and analyze them manually: "It would take hours per day just to do routine surveillance, and two or three weeks to detect the outbreak and then it's out of control."

G.T. LaBorde, chief operating officer of MedMined, says the company's data-mining system is used in 167 hospitals in 26 states. Hospitals that use the system, which costs about \$150,000 a year, are able to reduce infections acquired in the hospital by 13% to 20% and cut losses by about \$5.35 for every dollar they spend, he says.

Mark Vaaler, vice president of medical affairs at the nine-hospital Baycare Health System in Tampa, which uses the MedMined system, warns that no matter how clean hospitals are, "there are still going to be bacteria." But by investing in new surveillance tools and adhering to guidelines for prevention, Dr. Vaaler says, "we can reach the goal of minimizing infections."

Shannon Oriola, the chief infection-prevention and control officer at Sharp Metropolitan Medical Campus in San Diego and chairwoman of the public-policy committee of the Association of Professionals in Infection Control and Epidemiology, says patients can play a role in avoiding infections. "There's no reason you can't point out that you are one-day post-op, and ask, do I really need this urinary-tract catheter?" says Ms. Oriola.

What some hospitals are doing to reduce in-hospital infections:

- Investing in electronic systems to track outbreaks
- Using surgical catheters coated with antimicrobial agents
- Bathing patients with disposable disinfectant cloths
- Screening patients at high risk for infection

Staying Clean

What patients can do to protect themselves from hospital infections:

- Ask that hospital staff clean their hands before treating you.
- Ask that stethoscopes and related equipment be wiped with alcohol.
- Shower daily with 4% chlorhexidine soap (available at some drugstores) to remove bacteria on your own skin three to five days before surgery.
- Ask to be tested for Methicillin-resistant Staphylococcus Aureus, the bacteria known as MRSA, one week before admission to hospital.
- Make sure IV is inserted and removed under clean conditions and changed every three to four days.
- Avoid urinary-tract catheter if possible.

Source: Committee to Reduce Infection Deaths

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