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A (Sometimes) Deadly Scourge

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Correction Appended

Atlanta

TWO weeks ago, the government released a startling new estimate that nearly 19,000 people in the United States had died in a single year after being infected with the virulent superbug known as methicillin-resistant Staphylococcus aureus, or MRSA.

Within days, the nasty little bacteria seemed to be everywhere. News reports told of cases in schools and prisons and locker rooms, including the announcement on Thursday that a Brooklyn middle school student had died with an MRSA infection on Oct. 14. Across the country, classrooms were closed for disinfection as politicians and health officials scrambled to calm an anxious public. Suppliers of sanitizers and disposable [blood pressure](#) cuffs seized the moment to gin up demand.

Lost in the frenzy were a few fundamental truths reinforced by the new research, which was conducted by the [Centers for Disease Control and Prevention](#).

The most significant is that while MRSA clearly can kill, it rarely does so when contracted in the general public, where it typically appears as an easily treatable skin infection. The vast majority of lethal cases occur in [hospitals](#) and [nursing homes](#), where open wounds and punctures provide the opportunistic staph a ready path to the bloodstream and organs.

Another truth is that while the new study found that MRSA was perhaps twice as prevalent as previously thought, there is no evidence yet that its assault on the human immune system is accelerating.

Researchers have no way of knowing whether the rising numbers demonstrate that the MRSA threat is growing, or whether more precise measurements simply yielded the first true accounting. Indeed, the study's mission was to establish a baseline against which

future studies can measure MRSA's growth or decline.

In an interview this week, the disease control agency's top MRSA experts, Dr. John A. Jernigan and Dr. Rachel J. Gorwitz, emphasized that [antibiotic](#) resistance is hardly new to Staphylococcus aureus, a bacteria they said has always plagued humans. Indeed, the introduction of the antibiotic methicillin around 1960 was followed only a few months later by the first reports of MRSA in the United Kingdom, they said. Similarly, resistance to penicillin developed quickly after doctors began using it in the 1940s.

"We know that antimicrobial resistance will follow antimicrobial use as sure as night follows day," said Dr. Jernigan, deputy chief of prevention and response in the agency's division of healthcare quality promotion. "It's just a biological phenomenon."

That being said, Dr. Jernigan and Dr. Gorwitz stressed that MRSA can largely be controlled with basic hygiene and prevention measures in both community and healthcare settings, and that while MRSA is resistant to some drugs it can still be treated with others, including some oral antibiotics. There is, however, no standard treatment because of epidemiological differences among various strains of MRSA.

Some infections found among the public can be treated merely by draining and bandaging wounds that typically appear as an insect bite. Others may also be treated with with the antibiotics clindamycin, trimethoprim-sulfamethoxazole, doxycycline, minocycline, rifampin or linezolid.

To avoid transmission, the agency recommends frequent hand-washing, and showering after exercise; covering cuts and abrasions with bandages until healed; not sharing personal items like razors and towels that come into contact with bare skin; placing barriers between skin and shared equipment like weight-lifting benches; and sanitization of frequently touched surfaces.

In hospitals, the infections are more likely to be invasive and serious, in part because they attack immune systems that may already be compromised. Others may also be treated with with the antibiotics clindamycin, trimethoprim-sulfamethoxazole, doxycycline, minocycline, rifampin or linezolid.

The agency advises that health care workers wear gloves, masks and gowns when treating patients, and that they wash their hands after contact. If hospitals fail to reduce their infection rates using such standard precautions, it recommends other methods like testing high-risk patients and isolating those found positive.

Perhaps the greatest threat posed by MRSA is its ease of transmission. MRSA can pass from person to person through simple touch, or

the sharing of personal objects. It can navigate its way into the body through breaks in the skin, even microscopic ones, and through nasal passages.

Not surprisingly, community outbreaks have occurred in places where people gather in close quarters and where they may have physical contact, like schools, prisons, military barracks and storm shelters.

In 2003, researchers documented an outbreak among players for the St. Louis Rams, with the bacteria attacking sites of turf burn. "MRSA infection was significantly associated with the lineman or linebacker position," said a study in [The New England Journal of Medicine](#).

Dr. Gorwitz said that the community strains, which first appeared in the 1990s, are genetically distinct from those that emerged in hospitals two decades earlier. "It doesn't appear that MRSA in the community occurred as a result of MRSA sort of spreading out from hospitals," she said. "What likely happened is that some of these strains of Staph aureus that were already in the community acquired the genes that confer resistance."

The recent study looked only at the most serious MRSA cases, those in which the infection invaded the body as opposed to merely colonizing the skin. The researchers projected there were 94,360 such cases in 2005. Of those, 27 percent clearly began in hospitals while another 58 percent involved strains associated with health care that attacked within a year of a medical procedure. Only 14 percent were found to be community strains.

A previous study, published in 2005, projected that one of every three people were colonized with Staphylococcus aureus, but that only 1 percent carried a drug-resistant strain.

Dr. Jernigan pointed out that MRSA represents only a fraction of all health-care-associated infections, perhaps 10 percent of the total. Earlier this year, the disease control agency projected that 1 of every 22 hospital patients would get an infection — 1.7 million cases a year — and that 99,000 would die.

Correction: November 4, 2007

An article last Sunday about the prevalence of methicillin-resistant Staphylococcus aureus, or MRSA, included information about treatments for infection, provided by the Centers for Disease Control and Prevention, that was incomplete. As the article noted, MRSA skin infections can respond to oral antibiotics like levofloxacin or moxifloxacin. But those two drugs belong to a class that the agency

no longer considers optimal for treatment because MRSA is more resistant to them than to other agents. Instead, the agency recommends treatment with clindamycin, trimethoprim-sulfamethoxazole, doxycycline, minocycline, rifampin or linezolid.

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