

TIME

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Surviving the New Killer Bug

A nasty, drug-resistant staph infection--the kind usually seen in hospitals--is racing across the U.S.

By CHRISTINE GORMAN

Jewaun Smith, a 9-year-old boy from Chicago, is lucky to be alive. A scrape on his left knee that he picked up riding his bike last October turned into a runaway infection that spread in a matter of days through the rest of his body, leaving his lungs riddled with holes. Jewaun managed to survive, but what worries doctors most about his near-death experience is that it's not an isolated case. The bacteria that infected his knee has become resistant to the most common antibiotics and is on the march across the U.S. It has spread rapidly through parts of California, Texas, Illinois and Alaska and is beginning to show up in Pennsylvania and New York.

Elizabeth Bancroft, a medical epidemiologist at the Los Angeles County Department of Health Services. "It spreads by contact, so if it gets into any community that's fairly close-knit, that's all it needs to be passed."

This is not bird flu or SARS or even the "flesh-eating bacteria" of tabloid fame. But it is every bit as dangerous, even if it goes by an uncommonly ungainly name: community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA).

Never heard of it? Neither have most doctors. But major new health threats don't usually announce themselves with press releases. A quarter of a century ago, the world learned about the aids epidemic because a health bureaucrat noticed an uptick in prescriptions for treatment of a rare pneumonia. In 1912--more than a half-century before the Surgeon General's report--a New York physician chronicled "a decided increase" in lung cancer, which was considered rare at the time, and suggested that cigarettes might be the cause.

Which helps explain why infectious-disease specialists in the U.S. are so alarmed by the new killer bug. "We're out here waving our arms, trying to get everyone's attention," says **Dr. Robert Daum, director of the University of Chicago's pediatric infectious-disease program**, who was one of the first to call attention to the rapid



STEVE LISS FOR TIME

All Better Now: Jewaun was riding a bike last fall near his Chicago home when he got the scrape that caused all the trouble

"This bug has gone from 0 to 60, not in five seconds but in about five years," says

spread of MRSA, back in 1998. "People talk about bird flu, but this is here now."

Hospital workers know all about drug-resistant bacteria. Several strains have been making the rounds of the biggest hospitals for the past 15 years or so, often posing a greater risk for patients than the condition they were admitted for. But until the late 1990s, epidemiologists assumed that the problem was restricted to large hospitals and nursing homes.

The MRSA strains turning up in the community at large are related to but different from the ones found in medical institutions. The hospital variety usually requires intervention with powerful intravenous antibiotics and is pretty hard to catch. By contrast, the new strains of MRSA respond to a broader range of antibiotics but spread much more easily among otherwise healthy folks. The bugs can be picked up on playgrounds, in gyms and in meeting rooms, carried on anything from a shared towel to a poorly laundered necktie.

One of the difficulties in tracking MRSA is that doctors rarely check for it. The standard test usually takes a couple of days, and hardly any doctors do it anymore because everyone assumes that most skin infections respond to the usual antibiotics. "HMO's aren't going to be paying for you to do a culture on what they consider to be a [common] skin lesion," Bancroft says.

The ubiquity of staph bacteria adds to the problem. The germs are part of the usual microscopic landscape of your outer and inner skin, including the mucus linings of the nose. Most of those bacteria don't cause illness, and in fact their presence is a good thing, since they can crowd out more dangerous pathogens. But every once in a while, the good guys take a beating, and one

of the bad guys, like MRSA, takes hold, colonizing the skin.

Even when that happens, it doesn't necessarily signal an emergency. The skin, after all, is an effective barrier against many kinds of threats. But anytime you get a break in that barrier--even a tiny cut--there's a chance some bacteria will get inside and infect the wound. What makes MRSA germs particularly dangerous is that they excrete a potent toxin that attacks the skin, causing an abscess that's often mistaken for a spider bite. Normally, the body can wall that area off. But if the infection spreads, treatment with antibiotics may be called for.

And that's the problem. Doctors have grown used to prescribing antibiotics like oxacillin or cephalexin in that situation. It's not clear if that long-standing habit helped the bugs grow resistant in the first place. But what is abundantly clear is that those standard treatments are no longer effective.

There's another factor that makes the community-based MRSA so dangerous, one that has been revealed only recently by genetic analysis. In addition to their normal chromosomal DNA, staph and other bacteria like to mix and match genetic information by exchanging short strips of DNA called cassettes. Some of those cassettes carry genetic instructions to do two things at once: confer antibiotic resistance and make the host even more susceptible to infection. "MRSA is where resistance and virulence converge," says **Daum**.

What epidemiologists still can't explain, however, is how that particular bug manages to get around to so many cities and towns yet has left others relatively unscathed--at least so far. Cases of the new MRSA strain have only just started cropping up in New York City, for example. "We've been

waiting for this to happen," says Dr. Betsy Herold of Mt. Sinai. "Now, we're in a unique position to watch it unfold and to find out why it's happening."

Meanwhile, there are things you can do to protect yourself (see box). To prevent more bugs from developing resistance, it's important to remember that not all skin infections need antibiotic treatment, even MRSA. "A garden-variety infection is still a garden-variety infection," says Dr. Philip Graham at New York-Presbyterian's Children's Hospital in New York City. "If your cuts and scrapes are acting like they always do, don't worry."

If, however, you or a loved one is running a high fever, has a lot of redness or shows signs that an abscess is forming, you need to get to a doctor right away. "It never hurts for a patient to say something like, Could this be an MRSA infection?" says Dr. Jack Edwards, chief of infectious disease at Harbor-UCLA Medical Center in Los Angeles. It could make all the difference in the world.

With reporting by Reported by Dan Cray/ Los Angeles, Wendy Cole/ Chicago