



--Lloyd DeGrane

Is overcrowded Cook County Jail responsible for the rise of a potentially deadly infection on the outside?

By Kelly Virella
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The sudden death of a 17-month-old boy in Hyde Park brought Dr. Robert Daum to the Cook County Jail. Out of town the April morning in 2004 when Simon Sparrow woke up screaming in his crib, Daum, chief of pediatric infectious diseases at the University of Chicago's Comer Children's Hospital, followed the case by telephone. Simon's blood pressure dropped, his major organs began to fail, his skin turned purple and scabby, and his body bloated as if he were drowning. A day and a half later he was dead.

The attending doctors didn't know why. But Daum had a hunch. Just a year earlier, a nine-month-old girl had died with similar symptoms. Her autopsy showed that she had a virulent and once rare form of staph infection known as community-associated methicillin-resistant staphylococcus aureus, or CA-MRSA (pronounced "mersa"). Since 2000 dozens of children had been admitted to the hospital with the infection, often manifested by lesions, abscesses, and pus-filled boils, but most had been cured with antibiotics.

Daum had seen a spike in CA-MRSA cases before. The prevalence of the disease among

Comer patients with no known risk factors skyrocketed from 10 per 100,000 admissions between 1988 and 1990 to 259 per 100,000 admissions between 1993 and 1995. Now the infection was on the rise again. Unlike Simon, most of the patients Daum had seen were poor and black. Also unlike Simon, about 60 percent had relatives or friends who'd been detained at Cook County Jail.

People typically pick up the community-associated form of staph infection through direct contact with others infected with it, but since staphylococcus bacteria are carried in the nose as well as on the skin, it may even be possible that it can be spread by a sneeze. Daum believed that detainees were returning to their communities and spreading a strain of the bacteria they'd picked up in jail. They would pass the bacteria on to their children, who would pass it on to playmates, who would pass it on to their parents. Eventually, even a middle-class kid like Simon, the son of two PhDs, might get it.

Shortly after Simon died, Daum spoke on the phone with Dr. Sergio Rodriguez, medical director of the clinic at Cook County Jail, who confirmed that he was dealing with a CA-MRSA outbreak. Daum arranged for a tour of the facility. What he saw startled him: a man with a CA-MRSA abscess on his toenails washed his feet in a bucket, then rinsed the bucket out and cavalierly set it aside. It was still contaminated with pus.

CA-MRSA has been a serious and persistent problem at the jail for at least four years. At the time of his first visit, Daum learned that 10 to 12 cases of CA-MRSA were diagnosed every day, and that it was the cause of 85 percent of the skin infections reported by detainees. "It's the highest rate I've ever seen," Daum says. The jail has since gotten more vigilant about early detection, but Dr. Chad Zawitz, infection control officer at Cermak Health Services, the jail's clinic, estimates that among the average daily population of 9,000, they're still seeing five to ten new cases a day. The problem is so rampant it's difficult to isolate the sick from the healthy. "There are so many we would need to build a 1,000-bed facility just to house them," Zawitz says. Although no one has died of CA-MRSA during his three-year tenure, he says about four or five cases per month become serious enough to warrant his personal attention.

David Cummings spent 18 months at the jail, from December 2004 to May 2006, for armed robbery and attempted robbery. He never came down with CA-MRSA himself, but he says he knew plenty of guys who did. According to Cummings, they often misattributed the infection to a spider bite and thought the best way to avoid breaking out in bumps and boils was to stop drinking the jail's water supply.

The Centers for Disease Control and Prevention reports that 25 to 30 percent of the population carries staphylococcus aureus bacteria in their nose without any adverse effects. Although it occasionally causes skin infections, most people can recover in just a few days with the aid of antibiotics. One percent of the population, however, carries MRSA, a mutant form of staphylococcus that can't be treated with beta-lactams, a class of potent and cheap antibiotics that includes drugs like methicillin, penicillin, amoxicillin, and cephalexin. MRSA requires more expensive medications like bactrim or vancomycin, a drug that can only be delivered intravenously.

When someone who hasn't been hospitalized or received medical treatment in the last year comes down with a MRSA infection, it's classified as community-associated MRSA.

CA-MRSA causes boils and lesions that can be healed 77 percent of the time by lancing and draining. About 6 percent of cases, however, are serious or fatal. The bacteria can eat flesh, causing gangrene. It can also cause pneumonia and severe sepsis, a toxic-shock-like condition that leads to organ failure. Simon Sparrow developed sepsis, as did at least one of the other six Chicago children who have died of CA-MRSA since 2003.



Robert Daum

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CA-MRSA has been spreading like wildfire in the jail in part because of overcrowding and unsanitary living conditions. The jail allows

almost all detainees to spend most of their day in a dayroom or gym, with lockups at 1:30 PM and 9:30 PM. Daum says he saw more than a dozen detainees crowded around a television in a five-foot-by-ten-foot dayroom on his first visit. The crowding is particularly bad in Division Two, a dormitory that houses twice as many people as the 300 men it was designed for.



Overcrowded conditions at Cook County Jail

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The detainees that Daum spoke with during his visit said that many of those infected with CA-MRSA didn't realize they had a potentially deadly disease and got others to help them drain their boils. Some told him they don't like to shower at the jail out of fear they'll be sexually propositioned. When Daum examined the alcohol-free soap given to the detainees for showers, he worried that it might be too weak to kill the bacteria. Many detainees, including some with CA-MRSA, said they often used the same soap to hand wash their jail-issued clothing in cold water.

Zawitz says the jail has stepped up its efforts to contain the epidemic in the last five months. Jail clinicians now check for CA-MRSA upon intake and during a detainee's annual physical. They've opened a clinic that specializes in the treatment of the infection and started an educational campaign, telling patients not to allow other detainees to change their bandages

or drain their boils. Zawitz himself has caught the disease twice in the last three years. "This is an issue that affects every doctor, every nurse, every guard, every stockperson," he says. "It's almost impossible for you not to get colonized."

Meanwhile, CA-MRSA has been spreading throughout Cook County. According to a May 2007 report published in the Archives of Internal Medicine by doctors at John H. Stroger, Jr. Hospital, the rate of infection among patients of the county's health care system increased from 24 cases per 100,000 in 2000 to 164 cases per 100,000 in 2005. Young children are more susceptible than adults, because the bacteria incubate better in the skin cells in their noses, but anyone who comes into contact with others in a close-quarters situation—day care centers, health clubs, high school locker rooms—is potentially at risk.

Dr. Robert Weinstein, chief of infectious diseases for Stroger Hospital and an author of the May 2007 study, believes the infection could be just as common in suburban areas of Cook and Du Page counties, which have lower rates of arrest and incarceration, as it is in the city. "If you have a population that has no jail exposure," he says, "you're still going to see CA-MRSA if they have close person-to-person contact." But doctors at Comer Children's Hospital say that's highly unlikely. A comparison of data from Comer with data from other area hospitals indicates that not only is the infection more widespread among Chicago children than suburban children, it's more common among children on the south and west sides of the city than on the north.

Half of all detainees released from Cook County Jail are concentrated in just seven of Chicago's 77 communities, according to a 2005 study by Urban Institute, a social-policy think tank in Washington, D.C. Four of those communities—Austin, Humboldt Park, North Lawndale, and East Garfield Park—are on the city's west side. Three—West Englewood, Roseland, and Auburn Gresham—are on the

south side. The Stroger study identifies areas in all seven communities with unusually large numbers of CA-MRSA cases. It also reports that countywide, African-Americans and those who have been incarcerated within one year are twice as likely to have CA-MRSA than strains of staph that can be treated with beta-lactams.

Some say that without a comprehensive study there's no way to conclusively link a community's rate of CA-MRSA infection with its rate of incarceration. But Zawitz says the anecdotal evidence suggests the link is more than coincidental. "Many people, if not most, are coming in clean," he says. "It's more likely that they're getting this stuff in the division. The person comes into the jail, gets it, goes home, and gives it to their families."

When children with no risk factors for infection first started showing up at Comer Children's Hospital with lesions and boils on their bodies, 89 percent were toddlers aged three to 36 months; 77 percent were African-American. What Daum saw there astonished him. Since the 1970s, staph infections that could survive antibiotic treatment had mostly been confined, in the U.S., to hospitals. The only people who got it outside the hospital were the chronically ill and intravenous drug users. But Daum's analysis revealed that the drug-resistant staph these children had was a genetically modified organism, with different mechanisms for infecting people and resisting drugs. He and a team of University of Chicago doctors published their findings in the *Journal of American Medicine* in 1998. The medical community reacted with skepticism at first, but one year later, when four children in Minnesota and North Dakota died from CA-MRSA infections, the skepticism subsided.

Over the next few years, researchers across the country discovered CA-MRSA in halfway houses, on Native American reservations, even in the locker room of the Saint Louis Rams. Outbreaks were reported in jails and prisons in Mississippi, Georgia, and California, and a 2003 study of the entire Texas penal system—a

total of 145,000 people—revealed that there had been nearly 11,000 cases of CA-MRSA between January 1996 and July 2002. One hundred and eighty-nine were serious. Three were fatal.

The infection first appeared in Cook County Jail under the watch of Dr. James McAuley, who was medical director of Cermak Health Services from 1999 to 2003. He can't quantify the outbreak, but says the initial number of cases was negligible and there was no increase in skin and soft-tissue infections. McAuley worried, however, that a policy instituted in the late 90s, reducing access to clean towels from four times a week to two, would aggravate the problem. "Any decrease in the level of hygiene can lead to an increased risk for CA-MRSA," he says. As a countermeasure he made sure detainees used a strong antibacterial soap, and he mandated changes to the way doctors treated skin boils and lesions.

When detainees get sick, they fill out a form and put it in a call box located in their division. Clinicians then review the sick calls to determine who needs immediate care and who can wait. Under McAuley's new guidelines, when clinicians saw someone with a skin or soft-tissue infection, they were to administer bactrim and clindamycin and culture the wounds so they could amass electronic records about the prevalence and incidence of the disease. But few doctors took the cultures because they cost time and money and wouldn't necessarily help the patient heal. "We never saw anything that we could clearly pin down as a true outbreak," McAuley says. "We saw a steady stream of cases, but never at the volume where we could feel confident there was person-to-person transmission."

McAuley left the jail to become the director of pediatric infectious diseases at Rush University Medical Center in 2003, just as the number of cases was mushrooming from a troubling blip to a major epidemic. "I don't know the number of cases," says Dr. Jack Raba, Cermak's chief operating officer from

2003 to 2005, “but it was in the many hundreds per year. It would not surprise me if someone said there were thousands.”

Dr. Sergio Rodriguez had only recently been hired as the new medical director of Cermak Health Services when Daum made his first visit to the jail in 2004. When the two met, Daum says, “It was love at first sight.” The jail had a growing problem and Daum was confident that with his team’s expertise they could develop a solution. Almost immediately he and a colleague at the University of Chicago went to work on a grant proposal for a study.

Daum and Rodriguez worked with doctors from each of their institutions over the course of the next three years to design a three-year study with an estimated budget of \$900,000. They worked with the director of the jail guards, Scott Kurtovich, to ensure they had his support and that he understood the study’s logistical requirements, which would require frequent movement and close monitoring of detainees. According to Raba, who was at Cermak during the study’s early planning stages, it also had the support of top officials at Cermak and Cook County Jail.

The Centers for Disease Control and Prevention also liked the study, and in September 2006 it awarded Daum an \$863,000 grant. Around the same time, the study won the support of the institutional review boards of the jail, the University of Chicago, and the federal Office for Human Research Protections, all of which are charged with protecting the rights of individuals involved in scientific research projects.

The last hurdle was to have the University of Chicago’s lawyers sit down with the jail’s lawyers and draw up a contract for the work. Daum was confident the contract would only take a few days and the study would start the following month, in January 2007. But that didn’t happen.

As Daum was gearing up for the study, new Cook County Board president Todd Stroger

was devising a strategy to address a \$500 million deficit in the county’s 2007 budget, a strategy that included countywide layoffs. In charge of the layoffs at Cermak Health Services was Dr. Robert Simon, a Cook County administrator whose approach to cost cutting in the health care industry has been controversial. As the director of the Cook County Board of Health Services, Simon decided to shave 25 percent off Cermak’s budget, partly by laying off the clinic’s four most senior doctors, including Rodriguez and his two principal investigators for Daum’s study, Dr. Connie Mennella and Dr. Muhammed Mansour. The day before all three were fired, Rodriguez told the Chicago Tribune, “With this staffing level we will not be able to support our primary care and public health initiatives.”

After the firings, Daum tried to win the approval of Dr. Eileen Couture, Cermak’s acting medical director, but at an April 9 meeting she voiced some concerns: She said the study used detainees who would be onerous to transport because of their maximum-security status, an issue Daum had already addressed with Kurtovich, the director of the jail guards. Moreover, Couture said, Cermak’s shrunken staff was already devoting extra hours to the emergency room and didn’t have time to take part in the study.

“At no point did I ever hear from her, ‘Bob, CA-MRSA is an important problem,’” Daum says. “‘You’ve got the study. Times have gotten a lot harder at the jail. We’ve gotta get this done. Let’s figure out how to do it.’” The study for which he and his colleagues had spent three years securing funding and approval was dead.

Officials at Cermak declined requests for an interview. Instead, they issued the following statement through Don Rashid, the clinic’s public information officer:

“We started skin surveillance with annual health maintenance as routine care in July 2007. There have been no referrals needed or wounds identified to date from the surveillance

clinic. We also have a wound clinic where the detainees are followed for abscesses drained. All cultures are reviewed in the wound clinic. Detainees are also given education on skin monitoring and hand washing. Hibiclens skin wash is provided under direct observation as needed. Detainees are seen in clinic until the wounds heal.”

Each year Cook County Jail has 110,000 admissions. Every three days, one-third of the population of 9,400 detainees turns over. In two weeks, two-thirds turns over. In 30 days, 90 percent turns over. Chad Zawitz believes that all of the roughly 1,000 detainees who have been in jail longer than a month have been screened for CA-MRSA. But he says there’s too much turnover among the other 8,400 detainees to know who has been screened and who hasn’t.

Robert Daum remains frustrated by the jail’s refusal to push ahead with the study, which he maintains could be a valuable weapon in the fight to pinpoint, contain, and even prevent the spread of CA-MRSA. He is stunned by what he

termed the shortsightedness of jail officials. “People were asking us how was this going to benefit Cook County,” he says. “I couldn’t believe that was a real question.”

Rather than lose the CDC funding, Daum began negotiating with jails in Los Angeles and Dallas, both of which have high rates of CA-MRSA, to find a new place for the study. On August 3, he picked Dallas.

Still, he’s disappointed that he won’t be able to conduct the research in the city where he works and lives. “What I want to do here is stop the detainees from getting CA-MRSA,” he says. “The reason I care about that is because I care about the kids. I want to stop them from getting the disease.”

As Daum made his evening rounds on the fifth floor of Comer one Friday this summer, five of his 15 patients had CA-MRSA. All were black and all came from poor neighborhoods, including West Englewood, one of the most popular destinations for newly released detainees of Cook County Jail.