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MRSA's toll climbs, but hospital is slow to change

By Michael J. Berens and Ken Armstrong, Seattle Times Monday 11/17/08

In Seattle, Harborview Medical Center's struggles tell the story of MRSA: the history of outbreaks, the mounting casualties, the resistance to change. Four decades after its patients began dying of MRSA, Harborview continues to use measures that may place patients at risk.

In the spring of 1980, when he was wheeled into Harborview Medical Center, Norman Hurst already had the bug. It was in his blood, his saliva, on his skin, in his burns.

Harborview, atop Seattle's First Hill, was the city's safety net, a public hospital that embraced the poor and scrambled to save people hurt the worst. But Harborview was also a contagion's land of dreams — 300 beds, with a burn unit and bustling intensive-care ward, a concentration of patients with weakened immune systems and open wounds.

At the time, the public had no idea what MRSA was, much less how virulent it could be. But Harborview's doctors knew. The hospital's first case had appeared in 1968. A year after that, an outbreak killed two patients. Doctors wrote up the lessons learned — the need for heightened hygiene among doctors and nurses, the need to identify infected patients and to isolate them.

Hurst was 72. A retired truck driver from Aurora, Ore., he had been driving his motor home through southeast Texas when a flatbed lumber truck blew a tire and hit him. The motor home rolled and caught fire. Hurst's wife, Viola, escaped. But Hurst was pinned, and suffered burns to a third of his body.

For three months he was treated at a hospital in Houston. From what doctors could later tell, this is where he picked up MRSA — or methicillin-resistant Staphylococcus aureus — a germ that spreads by contact.

To be closer to home, Hurst was flown by medical transport to Seattle in mid-June. From culture samples taken upon admission, Harborview learned that Hurst had MRSA.

Discovering the bug so soon could have helped Harborview contain it. But that didn't happen. Hurst died 12 days after being admitted, but the pathogen had already escaped. How? No one can say for sure. A doctor's coat, brushing skin, can pick the germ up and pass it on. So can a stethoscope, or a blood-pressure cuff, or a nurse's unwashed hands.

In August, September and October, eight other patients in the burn unit became infected or colonized, meaning the germ settled on their skin, turning them into carriers.

To help trace the outbreak, each would later receive a number, corresponding to the order in which they tested positive. Hurst was patient No. 1. The others became patients 2 through 9.

For centuries, doctors have used isolation to combat infections. But in October, Harborview moved patient No. 9 from the burn unit into the surgical intensive-care unit. There, the germ skipped to the patient in an adjacent bed — the outbreak's patient No. 10.

Only in November — five months after Hurst's arrival — did Harborview begin systematically isolating patients.

By then, it was too late. From No. 10, the contagion exploded in the surgical ICU, then swept into the rehabilitation ward. By March 1981, the germ infected or colonized 19 more patients, all linked, by molecular fingerprint, to patient 10.

Nine months after Hurst's arrival, the germ's spread seemed to stop. April passed with no new cases. But in May and June 1981, the pathogen resurfaced — and in an unexpected place: a new burn unit full of patients who had no known contact with the outbreak's previous victims.

Doctors have known since the 1800s that hospital personnel can exacerbate infections by carrying germs from bed to bed and ward to ward. But only now — one year after Hurst's arrival — did Harborview test 182 doctors, nurses and therapists for MRSA.

These tests turned up a carrier: a nurse, with a chronic skin condition, who had MRSA all over, in her ears, her nose, her armpits. She worked in the new burn unit. She had worked in the old burn unit. She had worked in the surgical ICU.

She was removed from the burn unit and treated, and the outbreak petered out.

In the end, the outbreak lasted 15 months. Thirty-five patients became infected or colonized. Seventeen died. The youngest victim was 19, the oldest 82. Thirteen of the deaths were blamed on MRSA, making this outbreak one of the country's deadliest.

At the time, the public knew nothing. But a year later, doctors described the outbreak in a medical journal. They wrote up the lessons learned, noting again how important it was to identify carriers and to isolate them.

Whether those lessons would be put into practice was another matter.

One hospital hunts germ

While Harborview struggled with its MRSA outbreak, a hospital in Virginia suffered through one even worse.

Methicillin, the "M" in MRSA, was introduced in 1959 to attack staph germs resistant to penicillin. But only two years later, germs resistant to the new drug emerged. This threat, called MRSA, took hold in Europe before surfacing in the U.S.

By the early 1980s, more than 100 U.S. hospitals reported MRSA infections; federally funded researchers wrote that MRSA may be "reaching epidemic proportions." But descriptions of outbreaks — 61 infected or colonized patients in the Houston hospital where Hurst first stayed, 66 in two Portland hospitals, 245 in Jackson, Miss. — were relegated mostly to medical journals, all but escaping public notice.

The University of Virginia Hospital saw its first MRSA case in 1978. But within two years, the contagion accounted for nearly half the hospital's staph infections — a shocking spread that presaged what many other hospitals would confront in decades to come.

"Very quickly, we knew we had an explosive epidemic," says Dr. Richard Wenzel, the hospital's epidemiologist at the time. "We knew it was something new. We knew it was going from bed to bed."

In December 1980, the hospital tried something new. Rather than react — case to case, outbreak to outbreak — the Virginia hospital opted to anticipate, to go and find patients with MRSA, symptoms or no symptoms, and to neutralize them before they endangered others. This approach became known as Active Detection and Isolation, or ADI, and what made it different was the first word: Active.

The hospital began hunting the germ, screening patients at high risk of getting MRSA — trauma patients, burn patients, any patients with wounds on their skin. Colonized or infected, anyone with the germ was isolated.

Right away, the hospital's MRSA cases dropped, from 33 a month, to 25, 21, 19. Within a year, it was down to six cases a month. And a half year after that — "it was gone," says Dr. Barry Farr, who was a resident physician at the hospital during most of the outbreak.

Farr, an infection-control specialist, saw how well ADI worked. He became the hospital's epidemiologist in 1986 — and emerged, in time, as the country's leading proponent for using such aggressive control measures.

Even in the absence of an outbreak, the Virginia hospital kept using the detection-and-isolation method.

In 1991, the hospital saw its MRSA rate climb again, and, by tracking patients, discovered why. Patients were contracting MRSA in surrounding hospitals — ones not using ADI — and, when transferred, bringing in the germ.

"Infection control is a shared problem," Farr says. "What goes around comes around, and it comes in our front door."

Farr lobbied other Virginia hospitals to use active detection but found few takers. He created the Problem Pathogen Partnership in Virginia and North Carolina, but only a fraction of hospitals joined up.

"It was clear to me that it would work," he says of ADI. "The frustrating thing was that people didn't even want to try."

CDC's "cop out"

ADI, also known as "active surveillance" and "search and destroy," has split the medical community.

Here and there, hospitals would adopt active detection — with stunning results. In the late 1980s, Shadyside Hospital in Pittsburgh eliminated MRSA's spread within five months; its entire screening program cost about as much as treating a single MRSA victim.

In the 1990s, dozens of other U.S. hospitals reduced their MRSA rates using screening.

Success stories also rolled in from Denmark, Finland, Western Australia.

To Farr, the mounting evidence proved that active detection worked. But most hospitals balked. Some doctors questioned the costs, the scientific validity of all those studies, the wisdom of concentrating so much attention on a single contagion. They advocated broad measures — for example, reinforcing the need for doctors and nurses to wash their hands — that could reduce hospital infections overall.

Some doctors also cited a handful of research reports that disputed screening's effectiveness.

The Centers for Disease Control and Prevention (CDC), a federal agency in Atlanta, stands as the nation's health-care sentinel, studying infectious diseases and recommending ways to stop their spread. CDC guidelines don't bind hospitals, but often become the standard of practice. With MRSA, the CDC could have helped settle the screening debate. Instead, the agency dodged it.

Since the 1980s, the CDC has issued at least 14 sets of infection-control guidelines for hospitals. Added up, they provide 1,333 recommendations — a bewildering, sometimes inconsistent thicket of alternatives: try this, then that, or if not that, maybe the other thing.

ADI has been relegated to maybe the other thing — not dismissed out of hand, nor urged as a matter of routine.

The CDC prizes flexibility, loathe to assume that what works in an urban medical center will also work in a rural hospital.

One of Farr's staunchest allies has been Dr. William Jarvis, who retired from the CDC in 2003 after leading the investigation of more than 150 outbreaks of infectious disease in health-care settings. While at the CDC, Jarvis urged the agency to champion MRSA screening, to no avail.

In 2004, Jarvis reviewed new infection-control guidelines that were being drafted by the agency. He fired off a 33-page critique, calling the proposals "biased," "illogical" and "a cop out," according to a copy obtained by The Times.

The CDC guidelines, Jarvis wrote, devoted inordinate attention to rare pathogens — for example, monkeypox, which can be picked up from pet prairie dogs — while glossing over MRSA, "the most prevalent and problematic organism" in hospitals "throughout the world." His letter said "an enormous amount of data" supports ADI, yet the draft guidelines gave screening less support and prominence than a recommendation that health-care workers avoid wearing false fingernails.

In 2006, the final version of these guidelines was finally released. To Farr and Jarvis, they amounted to more of the same, with active detection accorded second-tier status, something hospitals might consider if other measures failed.

Last year, Farr wrote in a medical journal that such caution may have been defensible in the early 1980s. But now, more than 140 studies supported the merits of active detection, he wrote. Fourteen studies showed ADI saved more money than it cost.

Harborview struggles

While the CDC deliberated, MRSA escalated.

The CDC's 2006 recommendations had followed six years of meetings, drafts and revisions. In those same six years, the number of Washington hospital patients with MRSA jumped from 815 a year to 4,643, patient discharge data shows. The number of deaths in the state attributed to MRSA also climbed, going from 58 a year to 190.

No Washington hospital has treated more patients with MRSA than Harborview — 1,651 cases since 1997. To some extent, that's a function of patient population.

When medical helicopters pick up accident victims clinging to life, they fly them to Harborview, the Pacific Northwest's premier trauma center. Harborview also helps the down and out — prisoners, the mentally ill, people with substance-abuse problems — providing more than $100 million a year in charity care.

With all the hustle and crowds, Harborview struggles to maintain a sterile environment. Homeless people — who are more likely to be MRSA carriers — often sleep in the hospital's main-floor lobbies, curled up in armchairs or crashed out on sofas. Patients walk outside to grab a smoke, then stroll back in, carrying whatever germs they happened to pick up. On one recent day, four employees — three in blue scrubs, one in a white coat — ate lunch outside. They sat around a large planter and, at times, put their feet in the soil, which is fertile ground for germs.

Many Harborview patients — chronically or desperately ill, with weakened immune systems — are particularly susceptible to MRSA. But that vulnerability also provides reason for Harborview to take extra care in guarding against infection.

That's what makes the hospital's sluggish response to the threat so baffling.

At this decade's start, the number of Harborview patients with MRSA kept going up, year after year. In 2000, 60 inpatients were treated, according to discharge data. By 2004, the number was 316 — a figure that eclipsed other Washington hospitals, none of which had even 200.

MRSA continued to kill Harborview patients, like Rosetta Craig, a Pierce County woman who died in 2003 at age 63.

Her son, Teddy Craig, visited her in Harborview every day. He and a family friend didn't wear gloves or gowns, or take other precautions.

"We'd hug mom goodbye and walk out of the room," he says. "Nobody told us she had an infection. I had no idea she had MRSA. Nobody warned us to be extra careful when we were in her room or to wash our hands before we left the room. The germ could have been all over us."

It wasn't until 2005 that Harborview began to incorporate some of the lessons offered by the University of Virginia Hospital.

In June of that year, Harborview began screening patients in the intensive-care unit for MRSA — a form of active detection. Three months later, Harborview expanded screening to patients getting elective surgery.

The results would have come as no surprise to Farr, the advocate of active surveillance. While the state's MRSA numbers as a whole continued upward, Harborview's annual totals started to fall — to 292, to 224, to 207.

"I'm quite happy with it," says Dr. Timothy Dellit, Harborview's director of infection control. "That's why we still do it. It shows benefit."

With each MRSA patient costing maybe $20,000 extra to treat, the program has paid for itself. "You don't have to prevent many cases of MRSA to reap the savings," Dellit says.

But while Harborview made advances in screening, it would continue to ignore other infection-control measures.

Public can't track MRSA

With infections, knowledge is power. Where's the bug been? How many people did it infect? What steps were taken to stop it? But at Harborview, as with many Washington hospitals, information about MRSA can be elusive.

In Harborview's deadly outbreak in the early '80s, Norman Hurst was the "index patient," medical-speak for trigger. But his death certificate — a crucial public-health tool that can expose emerging threats — says nothing about his infection. It lists sepsis, kidney failure, liver failure, burns to 35 percent of his body. But there's not a word about MRSA, not even in the box for "other significant conditions."

Hurst's son, Allen, lives in Shoreline. He helped get his dad transferred to Harborview 28 years ago. He says the Harborview doctors didn't tell him anything about MRSA. Like most folks at the time, he didn't even know what it was.

Hurst had to piece the story together himself.

In 1982, doctors described the Harborview outbreak in a medical journal. The Associated Press summarized their account. Hurst read the AP story and thought he recognized his father in the clues — the transfer from Texas, the severity of the burns. He took the article to Harborview, and a doctor there confirmed his hunch.

"Otherwise, I wouldn't have gotten any other information about it," Hurst says.

The Seattle Times identified Norman Hurst in much the same way, running clues from the medical journal through a database of death certificates. Even with the omission of MRSA, enough details fit.

The state Department of Health also keeps another database, information collected from hospitals about each admitted patient, with the patients' names stripped out. But holes riddle this data set, which regulators use to spot health trends and analyze costs.

Take Rosetta Craig, the Harborview patient who died in 2003. With the help of Craig's family, The Times was able to determine that while she appears in this database, there's no mention of MRSA. The newspaper identified her as a victim of the germ only by obtaining a death-certificate database from the state that includes expanded doctors' notes.

In 1982, a retired shipyard worker sued Harborview, alleging the hospital had used unsterilized medical equipment while implanting a pacemaker, triggering a staph infection that settled in his spinal column. His lawyer asked Harborview how many of its patients had developed staph infections since 1976, a question that would have swept up the 1980-81 MRSA outbreak, since MRSA is also a staph germ.

But Harborview refused to answer. Under the law, it didn't have to.

Although Harborview is a public entity — a teaching hospital, affiliated with the University of Washington — the law has protected it from having to disclose infection rates, as well as the steps it takes to keep infections down.

CDC issues scary news

On Oct. 16, 2007, the CDC issued a press release that hit like a thunderclap, touching off fear and uncertainty.

The agency's experts revealed, for the first time, that MRSA was now killing more people than AIDS.

Without a mandatory reporting system to draw upon, the CDC reached its numbers by extrapolating from nine sites — cities and counties mostly. It estimated that in 2005, MRSA killed nearly 19,000 people in the United States.

Newscasters alerted viewers. Anderson Cooper: "This is scary stuff." Katie Couric: "This is really scary." Hannah Storm: "Very, very scary stuff."

The CDC estimated that 85 percent of the MRSA cases were picked up in hospitals or other health-care settings. But it was the other cases — those where MRSA was acquired in the community — that captured the country's attention. People had been dying from MRSA for decades, in dramatic numbers, with little notice paid. Now individual deaths received exhaustive coverage. A 12-year-old in Brooklyn. A 17-year-old in Virginia.

Soon after the CDC announcement, Seattle media spotlighted John Jones, a 46-year-old Federal Way man who died of MRSA at Harborview.

But he was hardly an isolated example.

In 2006, nine MRSA victims died at Harborview, a Seattle Times analysis shows. They included a 44-year-old construction worker, a 65-year-old pharmacist and a 76-year-old longshoreman, all from Seattle. In 2005, 10 MRSA victims died at Harborview. They included a landscaper from SeaTac, a human-resources assistant from Sumner and a nurse from Renton. In 2004, the number was seven. The year before that, 11. One of the 11 was Rosetta Craig.

After the CDC announcement, elementary schools shuttered over a single student infection. Friday night football games went dark to disinfect locker rooms. Playgrounds, health clubs, even the backyard swing set — no place seemed safe.

Some media called MRSA an emerging threat, although it appeared to have reached epidemic proportions a quarter-century before. The CDC called its numbers a "call to action" for hospitals to do all they can to control MRSA. But Farr had been sounding the same alarm for two decades.

"We don't want to do it"

On Oct. 15, 2007, the day before the CDC's announcement, Harborview issued a new set of internal policies for infection control. These guidelines, obtained by The Times, exempted MRSA from at least two crucial safeguards.

When dealing with most infectious patients — for example, those with pneumonia or diphtheria — Harborview's doctors and nurses were told to put on fresh gloves and gowns and dispose of them afterward. But not with MRSA patients. With that germ, such contact precautions weren't required.

What's more, the hospital's guidelines allowed patients with MRSA to share a room with those not already infected. Harborview "does not routinely isolate patients with MRSA colonization or infection at this time," the guidelines say.

When it comes to ADI, Harborview had taken steps on the front end, "Active Detection," adopting screening procedures that rank among the state's most rigorous. But Harborview doesn't strictly adhere to the back end: "Isolation." To work best, the two must go together, Farr says.

In 1980, it was Harborview's failure to isolate that allowed the germ to spread from patient No. 9 to patient No. 10, and to explode from there. What also fanned the outbreak was the nurse who had become a carrier, her body littered with MRSA germs.

Since taking over infection control at Harborview in 2006, Dr. Timothy Dellit has pushed for reform.

With its stepped-up screening program, Harborview managed to knock its MRSA numbers down by 30 to 40 percent. But to Dellit, they were still too high. So this year, he finally ordered everyone to wear gloves and protective clothing while caring for MRSA patients.

"Going from a hospital that hadn't done that, that was a big deal," Dellit says.

"This was a huge culture change for us."

But Harborview still lacks the space needed to isolate every MRSA patient, Dellit says. Its beds — now, 400-plus — fill up most every day. If Harborview can't find a MRSA patient a private room, it pairs MRSA patients. Failing that, the hospital will room a MRSA patient with someone who isn't infected or colonized.

That happens maybe twice a day, Dellit acknowledged. "We don't want to do it," he says. "We'd prefer not to do it."

A Times survey of the state's 25 largest hospitals turned up only one other — Harrison Medical Center, in Bremerton — that will also room MRSA patients with non-MRSA patients. "We would never do that," says the head of infection control at Sacred Heart Medical Center in Spokane. "NEVER," wrote an infection-control nurse at Stevens Hospital in Edmonds.

But Harborview's mission — to accept all patients, at all times — remains paramount. The hope is that pairing such patients poses minimal risk, Dellit says. In 1980, doctors clung to that same hope.

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