
September 24, 2006**FREAKONOMICS**

Selling Soap

By STEPHEN J. DUBNER and STEVEN D. LEVITT**The Petri-Dish Screen Saver**

Leon Bender is a 68-year-old urologist in Los Angeles. Last year, during a South Seas cruise with his wife, Bender noticed something interesting: passengers who went ashore weren't allowed to reboard the ship until they had some Purell squirted on their hands. The crew even dispensed Purell to passengers lined up at the buffet tables. Was it possible, Bender wondered, that a cruise ship was more diligent about killing germs than his own hospital?

Cedars-Sinai Medical Center, where Bender has been practicing for 37 years, is in fact an excellent hospital. But even excellent hospitals often pass along bacterial infections, thereby sickening or even killing the very people they aim to heal. In its 2000 report "To Err Is Human," the [Institute of Medicine](#) estimated that anywhere from 44,000 to 98,000 Americans die each year because of hospital errors — more deaths than from either motor-vehicle crashes or breast cancer — and that one of the leading errors was the spread of bacterial infections.

While it is now well established that germs cause illness, this wasn't always known to be true. In 1847, the Hungarian physician Ignaz Semmelweis was working in a Viennese maternity hospital with two separate clinics. In one clinic, babies were delivered by physicians; in the other, by midwives. The mortality rate in the doctors' clinic was nearly triple the rate in the midwives' clinic. Why the huge discrepancy? The doctors, it turned out, often came to deliveries straight from the autopsy ward, promptly infecting mother and child with whatever germs their most recent cadaver happened to carry. Once Semmelweis had these doctors wash their hands with an antiseptic solution, the mortality rate plummeted.

But Semmelweis's mandate, as crucial and obvious as it now seems, has proved devilishly hard to enforce. A multitude of medical studies have shown that hospital personnel wash or disinfect their hands in fewer than half the instances they should. And doctors are the worst offenders, more lax than either nurses or aides.

All of this was on Bender's mind when he got home from his cruise. As a former chief of staff at

Cedars-Sinai, he felt inspired to help improve his colleagues' behavior. Just as important, the Joint Commission on Accreditation of Healthcare Organizations would soon be inspecting Cedars-Sinai, and it simply wouldn't do for a world-class hospital to get failing marks because its doctors didn't always wash their hands.

It may seem a mystery why doctors, of all people, practice poor hand hygiene. But as Bender huddled with the hospital's leadership, they identified a number of reasons. For starters, doctors are very busy. And a sink isn't always handy — often it is situated far out of a doctor's work flow or is barricaded by equipment. Many hospitals, including Cedars-Sinai, had already introduced alcohol-based disinfectants like Purell as an alternative to regular hand-washing. But even with Purell dispensers mounted on a wall, the Cedars-Sinai doctors didn't always use them.

There also seem to be psychological reasons for noncompliance. The first is what might be called a perception deficit. In one Australian medical study, doctors self-reported their hand-washing rate at 73 percent, whereas when these same doctors were observed, their actual rate was a paltry 9 percent. The second psychological reason, according to one Cedars-Sinai doctor, is arrogance. "The ego can kick in after you have been in practice a while," explains Paul Silka, an emergency-department physician who is also the hospital's chief of staff. "You say: 'Hey, I couldn't be carrying the bad bugs. It's the other hospital personnel.'" Furthermore, most of the doctors at Cedars-Sinai are free agents who work for themselves, not for the hospital, and many of them saw the looming Joint Commission review as a nuisance. Their incentives, in other words, were not quite aligned with the hospital's.

So the hospital needed to devise some kind of incentive scheme that would increase compliance without alienating its doctors. In the beginning, the administrators gently cajoled the doctors with e-mail, faxes and posters. But none of that seemed to work. (The hospital had enlisted a crew of nurses to surreptitiously report on the staff's hand-washing.) "Then we started a campaign that really took the word to the physicians where they live, which is on the wards," Silka recalls. "And, most importantly, in the physicians' parking lot, which in L.A. is a big deal."

For the next six weeks, Silka and roughly a dozen other senior personnel manned the parking-lot entrance, handing out bottles of Purell to the arriving doctors. They started a Hand Hygiene Safety Posse that roamed the wards and let it be known that this posse preferred using carrots to sticks: rather than searching for doctors who weren't compliant, they'd try to "catch" a doctor who was washing up, giving him a \$10 Starbucks card as reward. You might think that the highest earners in a hospital wouldn't much care about a \$10 incentive — "but none of

them turned down the card,” Silka says.

When the nurse spies reported back the latest data, it was clear that the hospital’s efforts were working — but not nearly enough. Compliance had risen to about 80 percent from 65 percent, but the Joint Commission required 90 percent compliance.

These results were delivered to the hospital’s leadership by Rekha Murthy, the hospital’s epidemiologist, during a meeting of the Chief of Staff Advisory Committee. The committee’s roughly 20 members, mostly top doctors, were openly discouraged by Murthy’s report. Then, after they finished their lunch, Murthy handed each of them an agar plate — a sterile petri dish loaded with a spongy layer of agar. “I would love to culture your hand,” she told them.

They pressed their palms into the plates, and Murthy sent them to the lab to be cultured and photographed. The resulting images, Silka says, “were disgusting and striking, with gobs of colonies of bacteria.”

The administration then decided to harness the power of such a disgusting image. One photograph was made into a screen saver that haunted every computer in Cedars-Sinai. Whatever reasons the doctors may have had for not complying in the past, they vanished in the face of such vivid evidence. “With people who have been in practice 25 or 30 or 40 years, it’s hard to change their behavior,” Leon Bender says. “But when you present them with good data, they change their behavior very rapidly.” Some forms of data, of course, are more compelling than others, and in this case an image was worth 1,000 statistical tables. Hand-hygiene compliance shot up to nearly 100 percent and, according to the hospital, it has pretty much remained there ever since.

Cedars-Sinai’s clever application of incentives is certainly encouraging to anyone who opposes the wanton proliferation of bacterial infections. But it also highlights how much effort can be required to solve a simple problem — and, in this case, the problem is but one of many. Craig Feied, a physician and technologist in Washington who is designing a federally financed “hospital of the future,” says that hand hygiene, while important, will never be sufficient to stop the spread of bacteria. That’s why he is working with a technology company that infuses hospital equipment with silver ion particles, which serve as an antimicrobial shield. Microbes can thrive on just about any surface in a hospital room, Feied notes, citing an old [National Institutes of Health](#) campaign to promote hand-washing in pediatric wards. The campaign used a stuffed teddy bear, called T. Bear, as a promotional giveaway. Kids and doctors alike apparently loved T. Bear — but they weren’t the only ones. When, after a week, a few dozen T. Bears were pulled from the wards to be cultured, every one of them was found to have acquired a host of new friends: Staphylococcus aureus, E. coli, Pseudomonas, Klebsiella. . .

Stephen J. Dubner and Steven D. Levitt are the authors of "Freakonomics: A Rogue Economist Explores the Hidden Side of Everything." More information on the research behind this column is at www.freakonomics.com.

Copyright 2006 The New York Times Company

[Privacy Policy](#) | [Search](#) | [Corrections](#) | [RSS](#) | [First Look](#) | [Help](#) | [Contact Us](#) | [Work for Us](#) | [Site Map](#)