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COVER STORY/HEALTH

Plague of Errors

Hospital infection rates are rising and killing 90,000 patients a year. Can the states put a stop to it?

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On an October evening in 2002 at Allegheny General Hospital in Pittsburgh, Dr. Rick Shannon faced a crisis: Sixteen patients in two intensive care units had been exposed to a deadly pulmonary infection. Fearing even wider exposure, Shannon, the chief of medicine at the hospital, closed down surgical suites that had been serving the ICU patients and began a desperate search for the culprit.

Five days later, his staff had the guilty parties in hand: three "dirty" bronchoscopes — thin, tubular instruments about the width of a pencil that allow a physician to directly examine lung tissue and even take tissue samples. The scopes, which are threaded down a patient's nose or mouth and into the windpipe, are marvels of modern medicine. Their use in most large hospitals is routine. So routine that, in an effort to keep them readily available to its physicians, Allegheny General had recently adopted a faster chemical sterilization regime. The change in procedure turned out to be a disastrous mistake.

The patients at Allegheny General that fall evening were relatively fortunate. Only one died from the infection. However, while the sudden intensity of the outbreak was unusual, the appearance of a dangerous infection in a hospital is not. Every year, an estimated 2 million Americans — approximately 5 percent of hospital patients — contract a hospital-acquired infection during the course of a hospital stay. Some 90,000 of them die — more than the number of people who die from breast cancer or automobile accidents. And the situation is getting worse. Since 1975, the infection rate has escalated by 36 percent.

For years, the medical establishment has downplayed the problem, seeing it as a regrettable side effect of advances in medical technology and practice. "We have patients that are older with more underlying disease," explains Dr. Denise Cardo, director of the division of health care quality promotion at the Centers for Disease Control and Prevention. "We do many more underlying procedures than we did before. We may have more infections, but that's very different from saying that we're not preventing infections."



This position is, however, becoming less and less tenable. Researchers have been gathering compelling evidence that measures as simple as more vigorous hand-washing by hospital personnel could save as many as 30,000 patients a year. Moreover, a handful of hospitals, including Allegheny General in Pittsburgh, have demonstrated that, with active and appropriate procedures in place, some of the most dangerous infections — infections that American hospitals have tolerated for decades — can be dramatically reduced, indeed almost eliminated.

To a small but passionate number of policy makers and physicians, what once appeared to be a tragic side effect of modern medicine now looks increasingly like a case of inexcusable negligence. State legislators and regulators are taking notice. Thirty-two states are currently considering legislation that would require hospitals to report hospital-acquired infection to state authorities. Six states — Florida, Illinois, Missouri, New York, Pennsylvania and Virginia — have already passed such legislation. But only one — Pennsylvania — is on the verge of implementing a fully functional system.

It is not easy for states to regulate the delivery of health care. Medicine is a largely self-governing profession. Agencies such as the CDC have traditionally enjoyed enormous respect — and deference — both from the public and from states. Hospitals have essentially been allowed to regulate themselves through voluntary participation in the Joint Commission on the Accreditation of Health Care Organizations, a non-profit group that oversees hospital accreditation. Infection-control practices have been governed by the Association for Professionals in Infection Control and the Society for Healthcare Epidemiology of America.

None of these groups are accustomed to being challenged by state lawmakers or bureaucrats. But that is precisely what is happening in Pennsylvania, where a previously obscure state agency — the Pennsylvania Health Care Cost Containment Council (PHC4) — began collecting infection data from the state's 180-plus acute-care hospitals in 2002. Earlier this year, it released information that suggests Pennsylvania's hospitals have vastly under-reported the scope of their infection problems. It also calculated that the four hospital-acquired infections PHC4 is currently tracking cost the state Medicaid program and state employees benefits plan upwards

of \$125 million last year and that the cost to private insurers was even higher — close to \$1 billion. PHC4 also found that a hospital within the state — Allegheny General — was already pioneering an effective way to combat the infection problem.

PHC4 has taken the position that public accountability — making public the figures on all infections at every hospital in the state — is the key to improving health care outcomes. Its critics — and they are legion within the self-regulatory establishment — argue that improvement can come not from broadcasting errors but by establishing a "safe learning environment" where providers can air their mistakes and, in so doing, improve procedures. At issue is a fundamental question that every state confronts: What public policy approach will do the most to save lives?

FOUNDING FATHERS

PHC4 was created in 1986 as a state health data organization. It was backed by two constituencies determined to rein in health care costs — the business community and organized labor. Hospitals were required to report billing and administrative data to the council. The council, however, was seen as little more than "a data graveyard," and it was almost phased out. But it got a second wind. In 1998, with health care costs on the rise, Marc Volavka became the executive director of the council. As chief of staff to former House Speaker Jim Mandarino, Volavka had drafted the legislation that originally created PHC4. He was determined to turn the council into an active player in state health policy. PHC4 started digging into the administrative and billing data that hospitals in the state are legally obligated to report to the council. It was during this exercise that PHC4 came across some disturbing data.

As council researchers assessed the scope of complications from care by looking at hospital readmissions in 2002, they tallied nearly 74,000 readmissions over the preceding 12 months and found that more than 16,000 people were readmitted because of complications arising from surgery or from infections.

The council calculated that if hospitals with higher-than-average readmission rates could reduce those rates to the state average, the re-

sult would be \$115 million a year in savings. The council further identified 6,000 surgical “misadventures” that resulted in an additional \$365 million in charges. But when the council published this readmissions data, it met with outright denial. In a letter to the commission, the chairman of the board of the Pennsylvania Hospital Association wrote that “the vast majority” of the surgical misadventures were caused by “accidental punctures or lacerations during procedures.” The chairman argued that incidents of this sort should be viewed as “a known risk or anticipated outcome, given the patient’s medical condition or physiology.” So, too, with infections.

The council was no longer willing to accept this proposition. One of the reasons was a remarkable experiment underway in Pittsburgh in conjunction with an unusual collaborative known as the Pittsburgh Regional Health Initiative.

AVOIDABLE RISK

PRHI is the brainchild of Alcoa chief-turned-Treasury Secretary Paul O’Neill. Its goal is to apply to hospital practices the principles Alcoa had used to eliminate workplace errors and thereby improve the quality of health care in southwestern Pennsylvania. Allegheny General was one of 40-odd hospitals in the region that had agreed to participate in the effort, and in the fall of 2001 — a year before Allegheny General experienced its frightening surge in pulmonary infections — Rick Shannon got a call from Allegheny General’s chief executive officer. He wanted Shannon to know that PRHI was preparing its report on heart surgery success rates and that Allegheny would have to address some none-too-good numbers. His job at this point, quips Shannon, was “to go defend our hospital’s honor.”

Not a tough job: Since patients at urban teaching hospitals are typically poorer and sicker than patients at other hospitals, urban hospital executives confronted with bad numbers almost always argue that their numbers should be “risk adjusted” to reflect the population they are serving. But when Shannon arrived at the meeting, something unusual happened. He found himself agreeing with what was being said. To wit, that medicine was an industry that could benefit from good industrial engineering and that hospitals should embrace production principles pioneered

by innovative firms such as Toyota. At that moment, Shannon says, “I drank the Kool-Aid that changed my life.”

When disaster in the form of a pulmonary infection cluster struck in Allegheny’s ICUs one year later, Shannon was ready to apply these principles to his own institution. First, he invited people who had had bronchoscope procedures to come forward for testing, a suggestion that appalled the hospital’s legal team. His next proposal was even more radical: completely eliminate one of the most lethal forms of infection — infections from the central line inserted into a patient’s vein and used to deliver medications and draw blood samples — from the two ICUs under his direct control.

Any effort to change hospital procedures begins with nurses. When Shannon presented this goal to the nurses in his ICUs, they had a very clear reaction: They thought he was crazy. “We thought infections were just part of having a central line,” says nursing coordinator Pamela Chapman.

They soon learned otherwise. Residents were assigned to review medical records to discover causes of death. Infections were investigated immediately and exhaustively. For example, when staff discovered that bronchoscopes were being cleaned using a quick but ineffective chemical sterilization process, they asked, “Why do we need to use this faster process in the first place?” The ultimate answer was surprising: Physicians were performing more bronchoscopes in response to an upsurge in ventilator-related pneumonia, which in turn resulted from a change in antibiotic regime. By drilling down to the root cause of the problem, Shannon’s team managed to identify causes that might otherwise have gone undetected. In the year before Shannon instituted his reforms, 37 patients developed central-line infections, and 51 percent of those died. In the year that followed the implementation of his team’s reforms, only 6 patients developed an infection, and only one of those patients died.

The realization that these infections could be prevented had a profound impact on the ICU. Previously, “nurses were shielded from the emotional costs by sterile data that said 5.1 infections per 1,000 line days” — the average infection rate reported by the CDC — “is good,” Shannon says. “But when the nurses began to

see that half the people who get this die and it's preventable? It's preventable. That really changed things." Nursing staff were soon developing a whole host of innovative ways to reduce infections.

Allegheny General's nurses weren't the only group determined to put a system in place to support change. So was PHC4. To Marc Volavka and many council members, Shannon's findings implied that hospital-acquired infections were not in fact a regrettable side effect of medical advances but rather a preventable tragedy. PHC4 determined that the best way to spur change was to begin publishing hospital infection rates. In November 2003, PHC4 informed Pennsylvania's hospitals that they would have to start reporting infections to the agency, starting in January 2004.

THE COUNTERPOINT

Medicine is a status-sensitive profession. Physicians with experience and credentials are accustomed to being treated respectfully if not deferentially. In the field of infection control, few are accorded greater esteem than Dr. P.J. Brennan. As the chief safety officer for the University of Pennsylvania health system, Brennan is responsible for the safety of more than 72,000 patients a year. He also is the chair of the CDC's Healthcare Infection Control Practices Advisory Committee.

Brennan is by no means an outspoken PHC4 critic. When the council announced that it planned to address the infection issue, his first reaction was to call and offer his assistance. However, it's clear that on the whole the council's foray into his specialty has been an upsetting experience.

"In Pennsylvania, there was no involvement of the provider community or infectious disease control specialists in setting the mandate," says Brennan. "And it was done in a rather precipitous way." As a result, he worries that patients may suffer as Pennsylvania's infectious disease control specialists struggle to respond to new demands to track a whole array of infections.

Brennan's CDC advisory committee and other PHC4 critics are particularly disturbed by two aspects of Pennsylvania's approach: the attempt to capture outcomes and the use of administrative

and billing data.

Instead of focusing on outcomes, the CDC and the Joint Commission on Accreditation of Health Care Organizations recommend emphasizing process measures — things such as the proper pre-surgical prophylaxis and hand-washing. "If you don't give them the tools to do better, data won't help at all," says Margaret VanAmringe, vice president for public policy at JCAHCO. "They will find ways to hide data or find some way to obfuscate."

"You've got to work with the community," she continues. "You can't just get up there and bad-mouth the provider community. It expends political capital, gets people angry and makes it harder to work with the provider community after the fact."

At the root of the conflict between PHC4 and its critics is a philosophical difference about how best to reduce errors and improve quality. Both camps want "actionable" information that will drive systemic change. However, PHC4 is focused on providing that information to purchasers, be they businesses, labor unions, insurers or individual consumers. In contrast, PHC4's critics insist that this focus on purchasers is misguided.

"Put out these gross statistics and people get all alarmed, but what are they going to do with this data?" asks VanAmringe. "If you think hospitals are going to scramble and fix it, then maybe, but I don't think that's what will happen. I think they will look at the data and call it what it is — meaningless."

Instead of pursuing the chimera of public accountability, many of PHC4's critics have called on the council to learn from other industries that have successfully reduced errors. The first step is provider buy-in. The second is to create a safe learning environment where hospitals can share mistakes and learn from each other — without fear of litigation.

The Pennsylvania Patient Safety Authority, which was created in part in response to soaring medical malpractice insurance premiums, embodies this approach. Reports to it are confidential; feedback comes in the form of periodic "advisories" to the provider community. A look at the agency's latest annual report reveals that hospitals reported only 747 instances of hospital-acquired infections. That's a strikingly small num-

ber — “a lower number than we expected,” says Alan Rabinowitz, executive director of the agency. However, he’s unconcerned by the low figure. “Our goal is to reduce patient harm, not count numbers,” he says.

PHC4 has brushed aside these criticisms as ill-formed or off-base — or worse, as mere efforts to sabotage their efforts. This summer, PHC4 finished collecting its first full year of data. According to council documents obtained by Governing, Pennsylvania’s 180-odd acute-care hospitals reported 12,000 infections in 2004 in the four categories the council was tracking. However, when PHC4 examined billing data, they found 120,000 cases where hospitals appeared to have billed insurers for what looked like episodes of infection.

When PHC4 staff drilled down even further, they found something interesting. Of the 180 acute-care hospitals that are legally bound to report infection data, 20 facilities accounted for 55 percent of the reported infections; 160 hospitals accounted for the other 45 percent. If the 20 hospitals that reported the majority of infections represented a proportionate number of patients, this finding would not have raised any questions. But that is not the case.

Not surprisingly, the Pennsylvania Hospital Association and other critics reach a very different conclusion about the billing data. “In fact, billing codes used often do not reflect infections acquired in hospitals,” Brennan says. The infections could have been acquired in the community or could be illnesses that hospitals treated as infections but later determined to have been something else entirely. In Brennan’s view, the gap between the 12,000 infections reported and 120,000 infections billed “has no significance at all.”

Marc Volavka sees things differently. His bottom line: “If you bill for it and get paid for it, you ought to be accountable for it.”

In the face of what it sees as noncompliance, PHC4 has turned up the pressure. Early this summer, it sent hospitals a letter reminding them of their obligation to report infections and of the statutory penalty for noncompliance, fines of up to \$10,000 a day. Hospitals also received information comparing their reporting and billing rates to other comparable institutions.

The council has informed the hospital association that beginning in 2006, hospitals will be required to report virtually all other types of infection — a requirement that some infection-control specialists warn will be ignored as unreasonable or unworkable.

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Council members say they’re ready for a confrontation. “We’ve laid a marker down and any hospital administrator or infectious disease section head who doesn’t believe it’s coming is about to get a rude surprise,” says Cliff Shannon, a council member who represents a Pittsburgh-area business purchasing group. “The legislature’s tolerance for this is going to be about zero.”

For now, though, PHC4 is holding off on reporting hospital-specific infection data. “The reason we have not released and will not release hospital-by-hospital information is that the best hospitals in the state in terms of compliance with the law would be the very ones that would look the worst,” says Volavka, “and that would be absolutely unfair.” What remains to be seen is whether the council will ultimately succeed in extracting accurate data from all of the state’s hospitals. Volavka says PHC4 is determined to try — even if it means taking on entrenched interests publicly. “What is not working is quiet, voluntary collection and fighting over very complicated definitions of what is or is not infection,” he says.

Volavka points out that most of the people opposed to public reporting today were against it five or 10 years ago when the efforts first got underway. “They’ll say that public accountability has never been utilized by consumers, but in those areas where public reporting has been utilized, it has and does get the attention of the provider community. And it does force the provider community to improve. I do believe that public reporting is public accountability. Whether they like it or not, they are forced to pay attention.”