



## POLICY RESPONSES TO THE GROWING THREAT OF ANTIBIOTIC RESISTANCE

POLICY BRIEF 2

NOVEMBER 2007

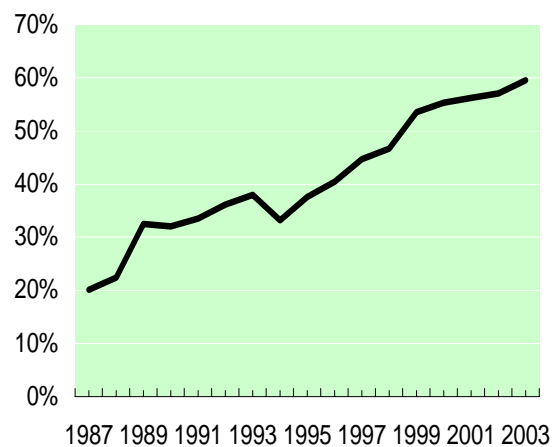
### THE STATES TAKE ACTION: HOSPITAL INFECTION REPORTING AND CONTROL

Recent headlines have turned the spotlight on “superbugs”—antibiotic-resistant bacteria that can kill otherwise healthy children and teenagers (among others). These deaths are shocking and tragic. But the bigger story is the 1.7 million cases and 99,000 deaths from infections, including Methicillin-resistant *Staphylococcus aureus* or “MRSA,” transmitted *within U.S. hospitals* each year.<sup>1</sup> Better reporting of hospital infection rates and improved infection control practices are needed to counter this trend, and the states have stepped in. Half have passed laws in the last four years requiring hospitals (and in some states, other healthcare facilities) to report their infection rates. More recently state laws also require active infection control. Differences in the laws, however, may make efforts in some states more successful than in others.

#### The Back Story

Illness and injury drive patients to hospitals, where they expect to be made well again. But hospitals are also breeding grounds for harmful microbes. Patients who carry bacteria into hospitals usually come from nursing homes or are returning to a hospital after a recent visit. Most are merely “colonized”—not technically infected—and are without the fever, sore throat, or other symptoms of infection. But the bacteria they carry can spread and infect other patients. Healthcare workers themselves can transport the hitchhiking bacteria throughout the facility. Patients in surgery or with weakened immune systems (for example, from cancer or a variety of other conditions) are the most vulnerable to full-blown “healthcare-associated infections” (HAIs, also known as “hospital-acquired infections”).

**FIGURE 1:** More than 60% of the cases of *Staphylococcus aureus* in hospital intensive care units are now resistant to first-line antibiotics, up from about 20% in 1987.<sup>2</sup>



The good news is that a few low-technology measures can dramatically reduce the spread of MRSA in hospitals (see Box 1). But instituting these measures requires resources and disrupts hospital routines. Furthermore, despite its high media profile, MRSA is not always the biggest problem. Though less common than MRSA, HAIs with Gram-negative bacteria, such as *Escherichia coli*, *Acinetobacter baumannii*, *Klebsiella pneumoniae*, and *Pseudomonas aeruginosa*, are also increasingly resistant to antibiotics.

Even though infection control should save the overall healthcare system money, hospitals have little incentive to make these changes voluntarily. Hospitals are paid for the antibiotics they give to patients, but not for

hospital-wide infection control measures. Enter the governors and state legislatures.

### HAI Reporting Laws

Half the states now require hospitals (and other healthcare facilities, in some instances) to report HAI-related rates, so the problem can be quantified and trends can be tracked. In 2003, Illinois became the first state to require hospitals to include HAI rates in quarterly report cards to the Department of Public Health. Florida, Missouri, and Pennsylvania passed HAI surveillance and reporting laws in 2004. As of October 2007, reporting legislation has been enacted in 25 states. Four others, including Alaska, have created committees or task forces to investigate creating a reporting system. Only seven states have not considered the issue by means of formal debate or bills (see Figure 2).

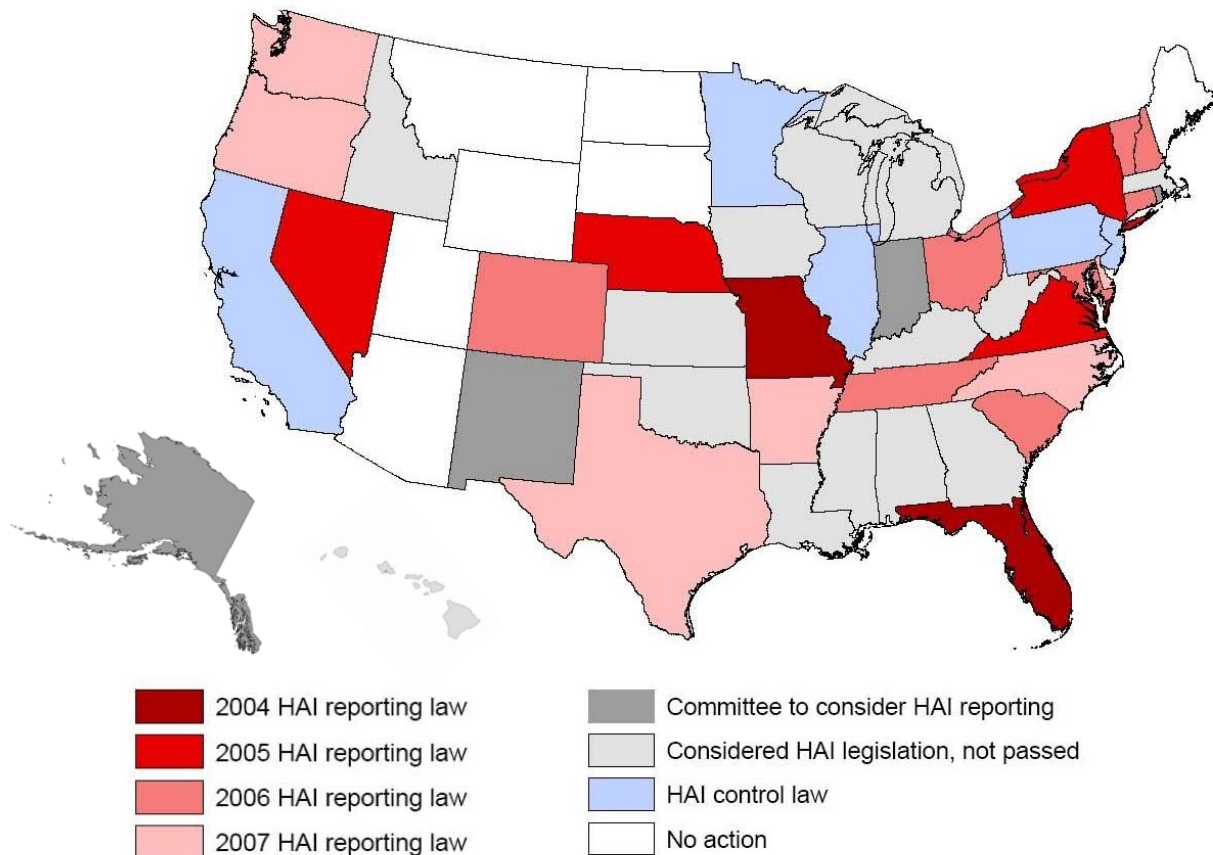
The laws vary with respect to the information they require. Some focus on *process*: reporting on the measures taken to reduce infection transmission. Others focus on *outcomes*: reporting the number of specific types of HAIs that develop in each hospital.<sup>3</sup>

Some laws also require reporting data from the entire hospital, while others focus on high-risk areas, such as ICUs or surgery wards. Some states require public access to HAI rates. In other states the information is kept confidential. Because the laws are all so recent, the effects of these differences are not yet known.

### Infection Control Laws

Reporting may lead to changes that lower infection rates, but states have also begun to take

**FIGURE 2:** Since 2003, half the states have passed infection reporting and control laws.



a more direct approach, requiring infection control plans or specific infection control measures. In 2006, California became the first to require hospitals evaluate the effectiveness of their existing infection control and prevention measures. Infection prevention programs must be in place in all general acute hospitals beginning in 2009.

Illinois, Minnesota, New Jersey, and Pennsylvania passed laws in 2007 requiring that hospitals develop and implement infection control and prevention plans to specifically address MRSA infections. Common elements in the state laws include screening patients, enforcing contact precautions, and implementing intervention strategies.

### Illinois

Illinois' governor signed not one but two competing hospital infection control bills into law in 2007, one supported by the MRSA Survivors Network (a patient advocate organization), and the other supported by the Association of Professionals in Infection Control and Epidemiology—Chicago (a society for infectious disease professionals). The two laws illustrate contrasting approaches.

The consumer-supported law takes a “command and control” approach aimed exclusively at MRSA infections. Hospitals are required to screen high-risk patients for MRSA, isolate positive patients, report MRSA infections to the state, and put in place hand hygiene requirements.

The law supported by infection control professionals requires each hospital to conduct an infection control risk assessment and adopt appropriate policies to control not only MRSA, but all multi-drug resistant organisms (MDROs). Hospitals also must adopt any new recommendations related to MDROs from the Centers for Disease Control and Prevention (CDC). No accountability, in the form of reporting, is required.

### Minnesota

In Minnesota hospitals must establish a MRSA control plan that meets Department of Health recommendations, to be published by January 15, 2008. Because the provisions are not yet known, the amount of flexibility hospitals will have in constructing and implementing their plans remains to be seen.

### New Jersey

The New Jersey MRSA control law covers ICU and most non-ICU patients and establishes specific requirements for infection control plans, including active detection and isolation for colonized and infected patients.

### Pennsylvania

Pennsylvania's law addresses MRSA specifically and asks that hospitals (and nursing homes) follow established national guidelines and standards for MRSA surveillance and control. Success is rewarded: every facility that reduces HAI rates at least 10 percent in the first year will receive a financial bonus.

### CDC's Contribution

The federal government has not ignored the problem of HAIs and MRSA. Although it has limited leverage to enforce hospital infection control, the CDC maintains guidelines for preventing the spread of MDROs in healthcare facilities. Developed by the Healthcare Infection Control Practices Advisory Committee (HICPAC), the guidelines recommend, among other things, MRSA and MDRO screening for high-risk patients during an outbreak.<sup>4</sup> The Society for Healthcare Epidemiology of America (SHEA) developed its own set of recommendations that includes actively screening for MRSA and other significant MDROs known to be spreading through a facility.<sup>5</sup>

The CDC also established the National Healthcare Safety Network (NHSN), an online reporting system designed to track HAI trends across the country and provide more information on the most effective control and surveillance measures. The first NHSN report was issued in June 2007.

NHSN was created in 2005 as a voluntary system, but at least 10 states mandate its use in their HAI reporting laws. Still more states base reporting systems on NHSN definitions. The first NHSN report included data from 211 hospitals throughout the country.<sup>6</sup> As hospitals in states mandating use of the NHSN begin reporting, the number of hospitals included in that data will increase five-fold. The diversity of hospitals will also improve, hopefully making future NHSN reports and analysis useful national indicators.

## Reflections on State Laws

State infection reporting and control laws are too recent to determine how effectively they will limit MRSA, other MDROs, and other HAIs. But a natural experiment is brewing through infection control laws, with states legislating two different approaches (or both, in the case of Illinois). States can tell hospitals exactly what to do based on prevalent national or local trends, or they can tell hospitals to develop a plan based on their own context and possibly award a bonus or levy a fine based on outcomes.

In the long run, a combination of these solutions will be needed. Required MDRO surveillance should focus on high-risk patients, which increases efficiency and lowers costs. Legislation should also allow facilities the flexibility to address local needs efficiently. In all instances, accountability through reporting is the only way to evaluate how well infection control measures are working.

## Background Reading

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### BOX 1: Effective measures to reduce hospital MRSA infections

**Active Detection and Isolation:** MRSA testing and isolation policies for MRSA-positive patients. Testing performed by swabbing the nasal passage for MRSA (no blood work required). Conventional tests results take a few days, although with new technologies, the time can be reduced to a few hours.

**Contact Precautions:** Hospital workers use individual stethoscopes, a special gown, and other equipment that stay in patients' rooms for each MRSA-positive patient.

**Hand Hygiene:** Gloves and alcohol-based handrubs in addition to traditional soap and water.

**Isolation Strategies:** MRSA-positive patients do not share rooms with MRSA-negative patients. The "MRSA" rooms may be mixed into general units or in separate areas.