

# Healthcare-Associated Infections: States and Public Reporting



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## EXTENDING THE CURE

Policy responses to the growing threat of antibiotic resistance



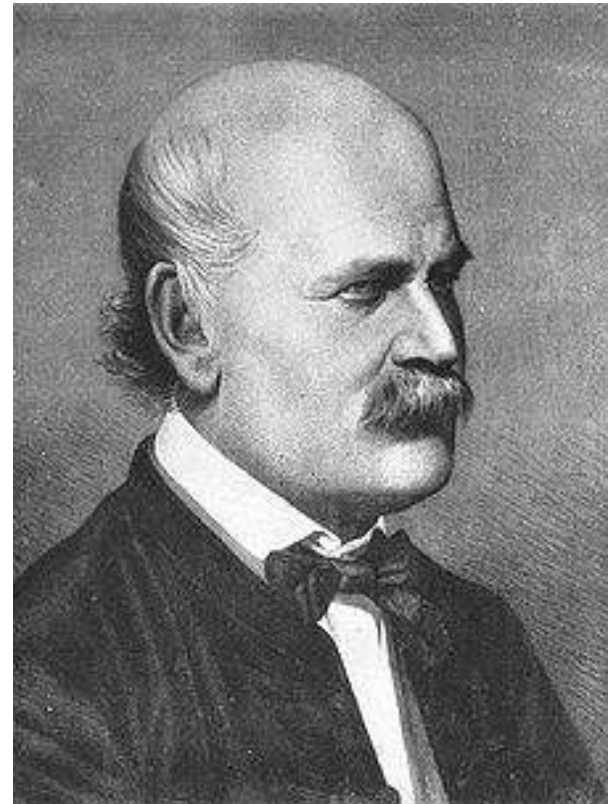
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# HAIs in United States

- 1 in 20 patients in U.S. hospitals acquire an HAI each year
- CDC estimates 99,000 associated deaths annually

# Hospital-acquired infections

- Easily preventable
- Semmelweis found in 1847 that the incidence of childbed fevers and deaths could be drastically cut by the use of handwashing



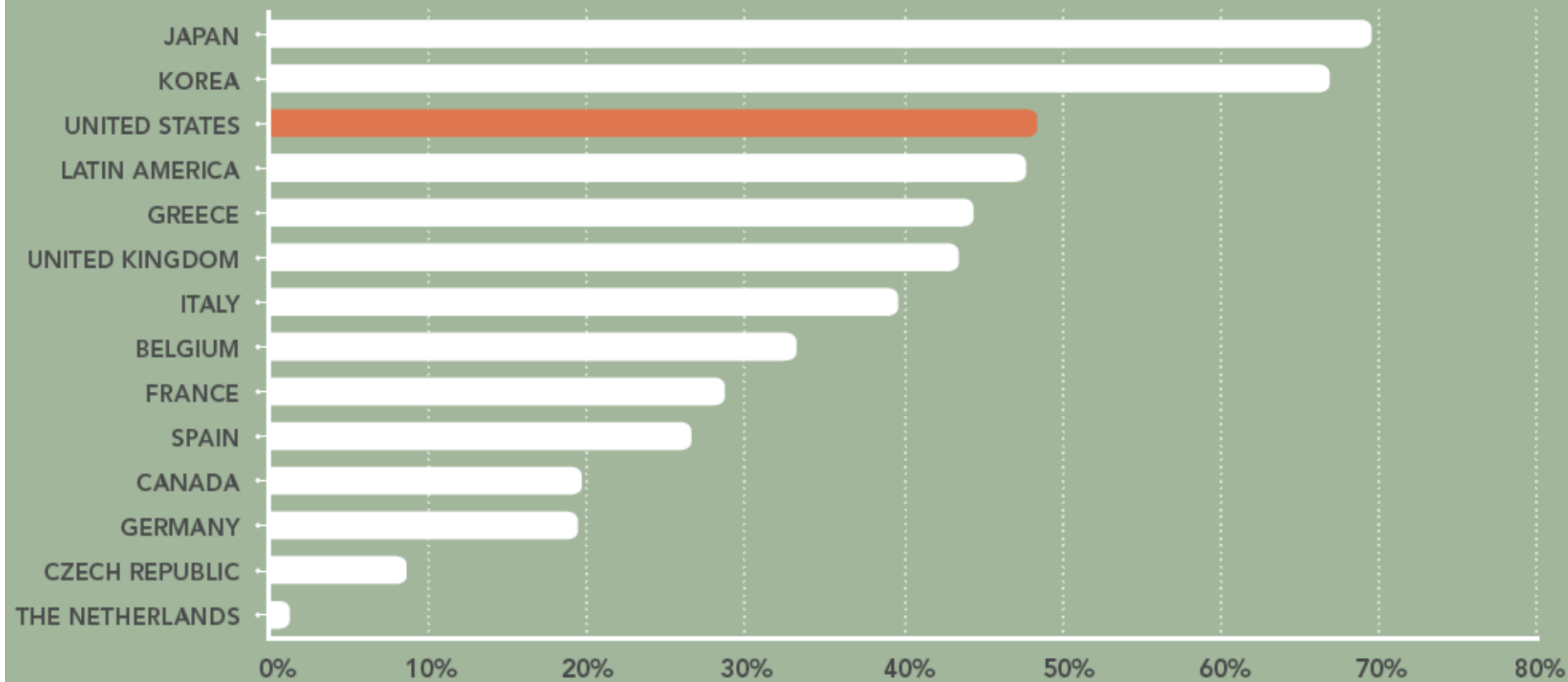
# Trends in HAIs in United States

- Most common HAIs are bloodstream infections, urinary tract infections, pneumonia, and surgical site infections
- Caused by several microorganisms
- Emerging pathogens are a major concern
- Methicillin-resistant *S. aureus* (MRSA)
- Multidrug resistant gram-negative bacteria
- *Clostridium difficile*

## The proportion of methicillin-resistant Staphylococcus aureus and vancomycin-resistant enterococcal infections is increasing (1987–2003)



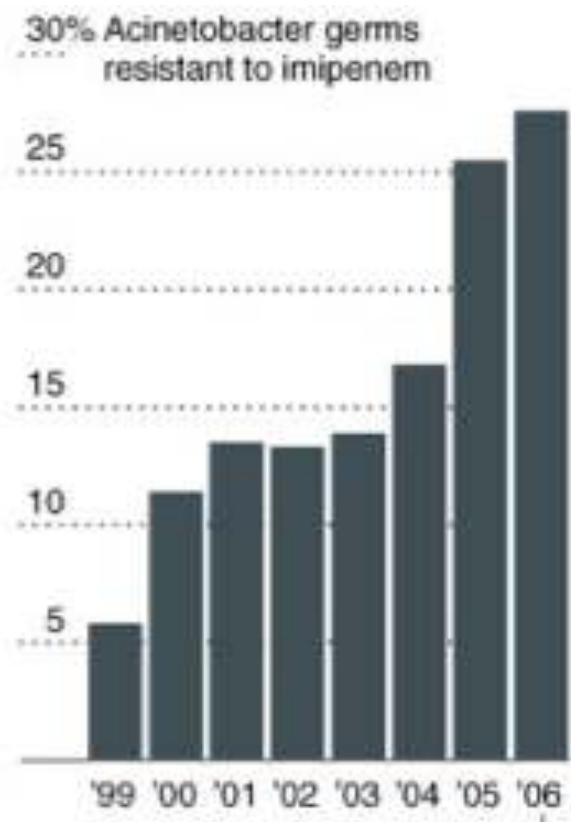
The proportion of methicillin-resistant Staphylococcus aureus (MRSA) infections in the United States is high compared with other high-income countries (2004)



Growing resistance combined with an increasing number of Staphylococcus aureus infections has resulted in an increasing number of hospitalized patients who have MRSA infections







Hoffman, Eber, Laxminarayan, ICHE, 2009

# Consequences

- Increased morbidity and mortality
- Increased length of stay
- But patients who are sicker for other reasons may also be more likely to get HAIs

**Table 3. Attributable Outcomes of Health Care–Associated Sepsis and Pneumonia Associated With Invasive Surgery for Different Surgical Patient Groups, 1998-2006<sup>a</sup>**

Infection Type and Outcome	Invasive Surgical Procedures						
	All	Abdominal	Orthopedic	Thoracic (Noncardiac)	Cardiac	Neurologic	Other
<b>Sepsis</b>							
Mean LOS, d	10.9	10.7	8.9	16.3	19.0	19.5	9.3
Median LOS, d	6.1	5.6	5.4	10.0	14.4	15.0	6.0
Mean costs, \$	32 900	32 500	23 200	64 000	66 800	51 600	22 200
Median costs, \$	16 100	15 100	11 700	38 200	48 100	36 800	12 500
Mortality, %	19.5	17.3	21.0	26.2	32.1	14.2	19.6
No. of cases	108 610	63 082	21 500	4853	9628	4573	9282
Incidence, %	1.2	1.9	0.7	4.4	1.5	2.5	0.8
<b>Pneumonia</b>							
Mean LOS, d	14.0	14.8	12.1	22.2	15.3	18.0	9.7
Median LOS, d	9.3	9.0	8.3	15.7	10.9	14.0	7.0
Mean costs, \$	46 400	48 000	36 600	88 900	56 800	55 500	27 800
Median costs, \$	29 200	28 200	22 000	65 900	39 200	44 700	18 700
Mortality, %	11.4	9.9	18.0	19.2	11.5	2.8	12.4
No. of cases	28 469	11 765	5835	1096	5693	4120	1800
Incidence, %	0.3	0.3	0.2	1.0	0.9	2.2	0.1

Eber, Laxminarayan, Percenvich, Malani, Arch Int Med 2010

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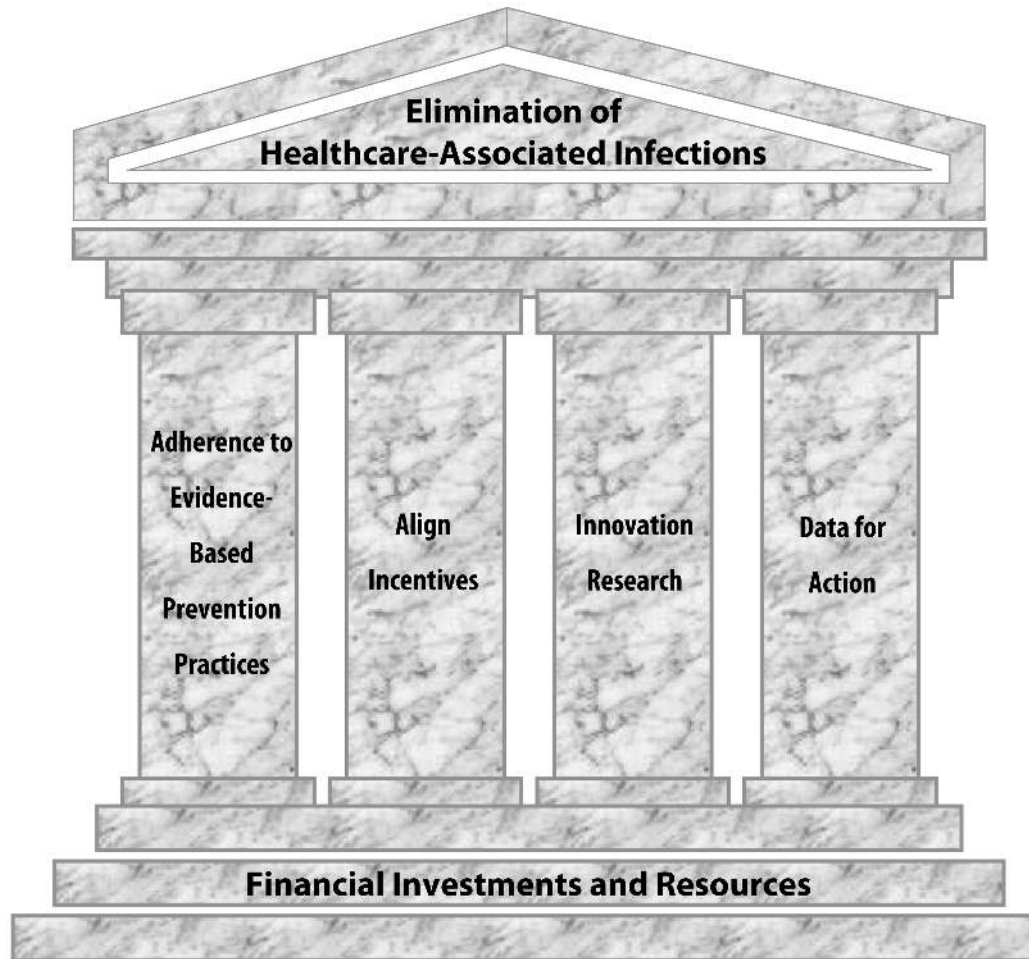


Figure 1. Pillars of HAI elimination. The elimination of HAIs will require (1) adherence to evidence-based practices; (2) alignment of incentives; (3) innovation through basic, translational, and epidemiological research; and (4) data to target prevention efforts and measure progress. These efforts must be underpinned by sufficient investments and resources.

# Hospital Incentives to reduce HAIs



- Hospitals are “sources” for colonization with resistant pathogens
- Health facilities often “share” patients
- Benefits of active surveillance and infection control may lie outside the hospital

Smith, Levin, Laxminarayan PNAS 2005

# Who bears the cost of HAIs?

- Medicare/Medicaid bear greatest burden of additional cost
- 76% of 11,668 HAIs in 2004 billed to federal Medicare (\$1 billion cost)
- Rest to Medicaid (\$372 million cost)
- \$20 billion burden on Medicare nationwide

PHC4 report (2005-06)

# Deficit reduction Act

- Quality adjustment in diagnosis-related group (DRG) payment for certain hospital acquired infections
  - No increased payment for selected complicating conditions that are not present at the time of hospital admission

# Non-payment for non-performance

Starting October 1, 2008, the following conditions would no longer be reimbursed

- urinary tract infection
- *Staph aureus* bloodstream infections
- four other hospital errors unrelated to infections: serious bed sores, objects left in patients' bodies following surgery, blood incompatibility, and air embolism
- Expanded in 2009 includes surgical site infections following certain elective procedures



# States activities

- Congressionally mandated State HAI Plans FY09
  - States required to have a formal HAI prevention plan
  - Linked to CDC Prevention Block Grant
  - All States submitted plans to HHS in January 2010
- Recovery Act
  - \$40M to CDC to fund State HAI activities
  - 10M to CMS to improve surveys in ambulatory surgical clinics

# State laws

- Response to growing burden of HAIs and pressure from advocacy groups
- 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

## Earliest states: New Jersey

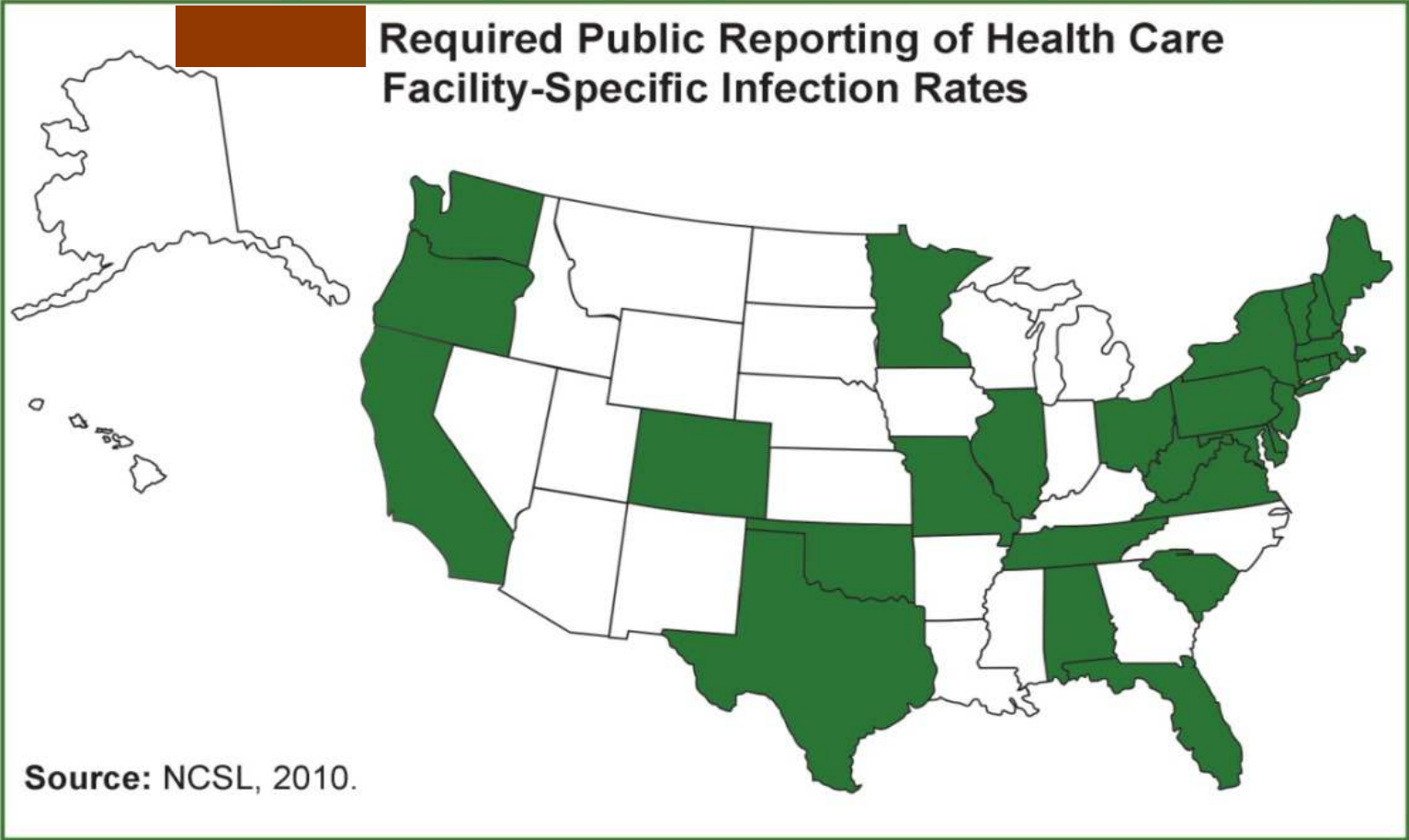
- covered ICU and most non-ICU patients and established specific requirements for infection control plans, including active detection and isolation for colonized and infected patients

# Earliest states: Pennsylvania

- Addressed MRSA specifically and asked that hospitals (and nursing homes) follow established national guidelines and standards for MRSA surveillance and control
- Success was rewarded: every facility that reduced HAI rates at least 10 percent in the first year received a financial bonus

# CMS reporting incentives

- Reporting Hospital Quality for the Annual Payment Update (RHQAPU)
  - Pay-for-reporting program that uses Medicare payment as an incentive
  - Hospitals report on care that they provide
- Beginning FY2007
  - Hospitals reported performance on 21 measures to receive full payment update
  - Failure to report results in a 2% reduction in the Annual Payment update
- Strong incentive with most US hospitals participating



# What could we learn from states that implemented HAI reporting laws?

- Inform new state laws
- Inform proposed federal reporting requirements

# Final thoughts



- Regulations on HAI reporting are useful
- But should be flexible and not focus on specific pathogens
- Incentives for reporting and quality of information?



# Final thoughts



- How well do consumers make use of this information?
- How can we tie reporting incentives with rewards for performance?

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