

THE **clinical** *issue*

The Costly Burden of Healthcare-Associated Infections



In June of this year, five patients undergoing heart surgery at Cedars-Sinai Medical Center in Los Angeles, California, became infected with staphylococcus epidermidis bacteria when operated on by a surgeon with skin inflammation on one of his hands. The doctor performed valve replacement surgery on these five patients even though hospital protocol forbids surgeons with sores or infections from operating. Tiny tears in the surgical gloves allowed bacteria from the inflamed hand to seep out and into the patient. Four of the patients required a second valve replacement surgery and are still recovering. The fifth was treated with antibiotics. The hospital, the Los Angeles County and State Departments of Public Health and the CDC are investigating. Ultimately, the hospital was financially responsible for the second surgeries, the cost of the patient's care and all follow-up treatment.^{1,2,3,4}

An isolated event? Apparently not. A Fresno, California hospital has been forced to stop performing non-emergency open-heart surgeries while the State Department of Public Health investigates the escalating number of post-operative infections. This hospital had previously been investigated by the CDC for infections that sickened at least one dozen patients, possibly contributing to the deaths of two of these patients.^{5,6,7,8}

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Each year approximately 5% (1 in 20) of patients hospitalized in the United States have an infection related to hospital care.⁹ The financial burden for healthcare facilities to treat this patient population is astronomical. The average attributable cost* per patient for select infection sites in inpatient hospital services ranges from \$862 to \$34,670. The total cost for inpatient hospital services for the healthcare industry approaches \$45 billion annually.^{10,11,12}

The burden for patients is even more costly. Nearly two million patients acquire a healthcare-associated infection (HAI) in the United States each year. These infections increase their hospital stay an average of 19.2 days. Close to 100,000 of them die, approximately 270 patients each day, a death rate average that is six times higher than for patients without care-associated infections.^{12,13}

The average increase in cost for a surgical site infection (SSI) ranges from 101% to 119% above typical costs for a patient without a SSI. The average increase in cost for a urinary tract infection ranges from 35% to 47% above typical costs for a patient without a UTI. The cost of Staphylococcus aureus infections, which are implicated on over 20% of ventilator-associated pneumonia (VAP) cases, are more than triple the costs incurred by patients without VAP.^{14,15,16}

Healthcare-associated infections are now considered to be preventable and not defensible adverse events. In August 2007, *The Hospital Inpatient Prospective Payment System and Fiscal Year Rates: Proposed Rule Centers for Medicare and Medicaid Services (CMS) 1488-P-Healthcare-associated Infection*, released by the Centers for Medicare and Medicaid Services (CMS), revised the Medicare hospital inpatient prospective payment system (IPPS). Beginning in October 2008, CMS (the government insurer) will exclude reimbursement for serious, reportable hospital acquired conditions termed “never events” not present on admission. It also prohibits hospitals from passing the increased costs onto patients.¹⁷ Several major private insurers including Aetna Inc., Cigna HealthCare, Anthem Blue Cross Blue Shield in New Hampshire and Blue Cross Blue Shield of Massachusetts, are adopting similar reimbursement measures.¹⁸

During the 2013 program year that begins October 1, 2012, CMS estimates 2,200 hospitals will have Medicare payments reduced. Hospitals that exceed the CMS readmissions ratio are expected to lose \$300 million and for those that do not improve their readmission rate, penalties will increase to a maximum of 2% for the 2014 program year and 3% for the 2015 program year.¹⁹

As a result of refusing to reimburse

Infection Site	# of Infections	Proportion of all HAIs	Cost/ Patient for Inpatient Hospital Services (\$)	Total Costs for Inpatient Hospital Services (BILLIONS \$)
All HAIs ¹	1,737,125	100%	16,359 - 19,430	35.7 - 45.0
SSI ²	290,485	17%	11,874 - 34,670	3.45 - 10.07
CLABSI ³	92,011	5.3%	7,288 - 29,156	0.67 - 2.68
VAP ⁴	52,543	3%	19,633 - 28,508	1.03 - 1.50
CAUTI ⁵	449,334	26%	862 - 1,007	0.39 - 0.45
CDI ⁶	178,000	10%	6,408 - 9,124	1.14 - 1.62

1 Healthcare Associated Infections; 2 Surgical Site Infections; 3 Central Line Associated Bloodstream Infections; 4 Ventilator-associated Pneumonia; 5 Catheter-associated Urinary Tract Infection; 6 Clostridium difficile-associated diseases

healthcare facilities for specified healthcare-associated conditions, CMS estimates the federal government will save \$50 million per year from 2008 to 2012. Beginning in 2012, the estimated government cost savings is expected to reach \$60 million per year.¹⁷

The onus of responsibility for assuming the costs associated with HAIs now becomes the burden of the healthcare community.

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Infection-prevention strategies are essential. Spending more to implement infection control procedures does not equate to an increase in profits but to a decrease in infections, a decrease in patient

mortality and a decrease in attributable costs. The cost of applying infection control precautions in one ICU at Pittsburgh-Presbyterian in Pennsylvania amounted to \$35,000. The potential cost savings for preventing infections at this facility was over \$800,000. This translates to a 20 to 1 financial return and a decrease in potential lives lost.¹⁶

An analysis of 54 cases of central line associated bloodstream infections (CLABSI) covering a three year period at Allegheny General Hospital in Pennsylvania confirmed an operating loss of \$1.5 million, an average of almost \$30,000 per case. As a follow-up, the Pennsylvania Healthcare Cost Containment Counsel reported that hospitals statewide were paid an average of 27% of the established charges for HAIs.²⁰

Medical malpractice lawsuits for healthcare-associated infections are increasing as is the

economic burden assumed by healthcare facilities. In 2004, at Palm Beach Gardens Medical Center in Florida, 106 lawsuits were filed by patients who contracted infections after heart surgery. Tenet Healthcare Corporation settled these lawsuits for \$31 million, just under \$300,000 per lawsuit.²¹

In 2008, at St. Anthony's Medical Center in St. Louis, Missouri, a jury awarded over \$2.5 million to one patient who, after a pacemaker was surgically implanted, developed a drug resistant infection. As a result, this patient underwent an additional 15 operations and spent 84 days in the hospital.²¹

Not worried because the infection rate at your hospital is below the national average? Think again. Even hospitals with a low infection rate lose money on treating infections. A recent survey of 55 hospitals with infection rates just above 4% demonstrated that treating these infections exhausted inpatient operating profits.¹⁶ A literature review of 28 hospitals to determine the cost of HAIs estimated a financial loss 4.3 times greater than the amount spent on prevention.^{22,23}

Currently, twenty nine states and the District of Columbia have ratified laws requiring healthcare facilities to report healthcare-associated infection data to the National Healthcare Safety Network (NHSN). These laws are an attempt to improve the quality of patient care while holding healthcare institutions more accountable.^{24, 25, 26}

Hospital "report cards" are now available on-line. The readmission rate, the likelihood patients will suffer complications, how often patients get serious conditions and the associated death rate can be compared.^{25,27}

This required public disclosure of infection data translates to millions in revenue lost through a decrease in the number of patients willing to be admitted to a facility with an above average rate of HAIs, the rising costs associated with treating infected patients, non-reimbursement by the CMS and other insurance companies for serious conditions not present on admission, potential legal action for negligence and penalties for facilities that have not addressed the issue of infection control.

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