



## Reducing Hospital-acquired Infections: The Business Case

In July 2005, the Pennsylvania Health Care Cost Containment Council (PHC4) issued a landmark research brief that detailed the cost and quality implications of hospital-acquired infections in Pennsylvania. This follow-up brief provides a closer look at these infections in terms of payor implications. One new finding is that the financially strapped Medicare and Medicaid programs were billed for 76 percent of the reported hospital-acquired infections in 2004. Medicare and Medicaid were billed for 7,870 and 1,028 hospital-acquired infections, respectively. As a result, Pennsylvania and federal taxpayers footed the bill for an additional \$1.4 billion in hospital charges. Commercial insurers also incurred substantial costs – an extra \$604 million in hospital charges.

### The rate of reported hospital-acquired infections varies by payor type.

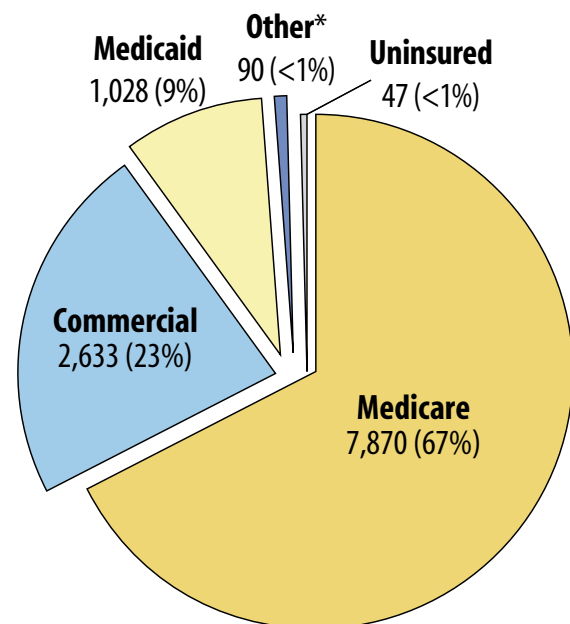
According to data confirmed and reported by Pennsylvania hospitals, there were 7.5 hospital-acquired infections per 1,000 hospital admissions in 2004. Among the major payor categories, the number of hospital-acquired infections per 1,000 hospitalizations were 9.9 (Medicare), 5.2 (Medicaid), 4.9 (Commercial), and 2.1 (Uninsured).

### Medicare and Medicaid were billed for 76 percent of the reported hospital-acquired infections.

In PHC4's last brief, it was reported that the hospital admissions in which the 11,668 hospital-acquired infections occurred resulted in an additional \$2 billion in hospital charges, compared to hospitalizations in which patients did not have hospital-acquired infections. In 2004, Medicare and Medicaid were billed for 76 percent of the total reported hospital-acquired infections. Medicare and Medicaid were billed for 7,870 and 1,028 hospital-acquired infections, respectively. The hospital admissions in which these infections were contracted amounted

to an additional \$1 billion in hospital charges for Medicare patients and an additional \$372 million in hospital charges for Medicaid patients.

**Figure 1. Number of Reported Hospital-acquired Infections, by Payor, 2004**



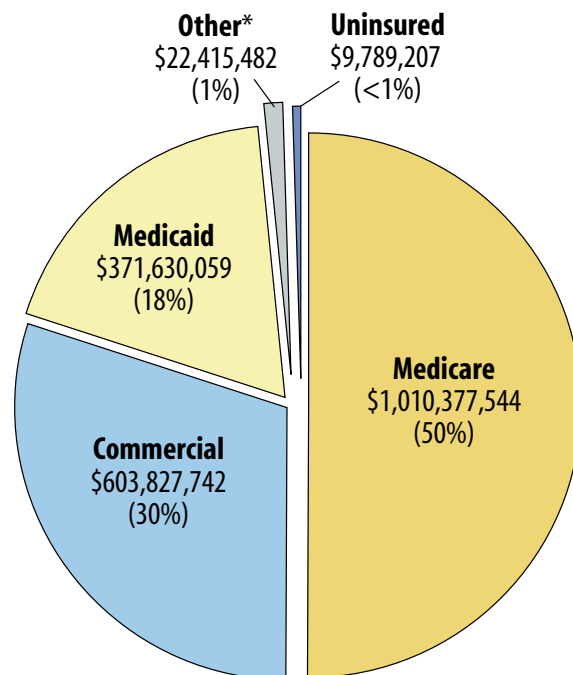
\* Includes other government payors and hospitalizations where the payor was unknown or invalid.

Last summer, PHC4 issued a groundbreaking research brief, *Hospital-acquired Infections in Pennsylvania*. Its publication marked the first time that any state released data about the quality and cost consequences of hospital-acquired infections. This brief revealed that Pennsylvania's general acute care hospitals reported 11,668 hospital-acquired infections in 2004. The hospital admissions in which these infections occurred were associated with 1,510 additional deaths, 205,000 additional hospital days and \$2 billion in additional hospital charges, as compared to hospital admissions in which hospital-acquired infections had not occurred.

Like the first brief, this analysis focuses on the 1,562,600 admissions to the state's 173 general acute care hospitals. Here is a summary of the 2004 data that was submitted to PHC4.

Type of Infection	Number of Reported Hospital-acquired Infections
Surgical Site	1,317
Urinary Tract	6,139
Pneumonia	1,335
Bloodstream	1,932
Multiple Infections	945
<b>Total</b>	<b>11,668</b>

**Figure 2. Additional Hospital Charges Associated with Hospital-acquired Infections, by Payor, 2004**



\* Includes other government payors and hospitalizations where the payor was unknown or invalid.

There are notable differences in average charges between hospitalizations with and without reported hospital-acquired infections. The average charges for Medicare patients with an infection topped \$160,000, about \$128,000 more than Medicare patients without an infection. The gap among Medicaid patients was even more pronounced. The average charges for Medicaid patients with an infection were more than \$391,000, while the averages charges for Medicaid patients without an infection were just under \$30,000.

The average length of stay for Medicare patients who contracted a hospital-acquired infection was 20.0 days, compared to 5.4 days for Medicare patients who did not have a hospital-acquired infection. Medicaid patients

**Table 1. The Impact of Hospital-acquired Infections on Medicaid and Medicare Patients, 2004**

	Medicare Patients		Medicaid Patients	
	With Infections	Without Infections	With Infections	Without Infections
<b>Average Hospital Charges</b>	\$160,305	\$31,921	\$391,218	\$29,710
<b>Average Hospital Stay in Days</b>	20.0	5.4	33.5	4.1
<b>In-hospital Mortality Rate</b>	16.1%	3.7%	16.0%	1.1%

with such infections spent an average of 33.5 days in the hospital, compared to 4.1 days for Medicaid patients who did not acquire an infection during their hospital stay.

The mortality rates for Medicare and Medicaid patients with hospital-acquired infections were significantly higher than the rates for Medicare and Medicaid patients without such infections. Of the 7,870 Medicare patients with hospital-acquired infections, 16.1 percent – or 1,266 patients – died, compared to 3.7 percent of the Medicare patients without infections. Of the 1,028 Medicaid patients with hospital-acquired infections, 16.0% (164) died, compared to 1.1% of Medicaid patients without infections.

**Commercial insurers were billed for almost 23 percent of the reported hospital-acquired infections.**

Commercial insurers also incurred substantial costs due to hospital-acquired infections in 2004. They were billed for almost 23 percent of the reported hospital-acquired infections, which added about \$604 million in extra hospital charges. The average charges for a hospital admission in which a commercially insured patient contracted a hospital-acquired infection were almost \$258,000, compared to \$28,000

**Table 2. The Impact of Hospital-acquired Infections on Commercially Insured Patients, 2004**

	Commercially Insured Patients	
	With Infections	Without Infections
<b>Average Hospital Charges</b>	\$257,706	\$28,375
<b>Average Hospital Stay in Days</b>	24.3	3.7
<b>In-hospital Mortality Rate</b>	12.8%	1.1%

for admissions in which commercially insured patients did not get an infection.

**Paying for hospitalizations involving hospital-acquired infections is especially burdensome to the uninsured.**

Even though hospitalizations for uninsured patients made up less than one percent of the reported hospital-acquired infections in 2004, these hospitalizations had particular financial implications for the individuals affected. The average charges for a stay in which uninsured patients contracted an infection reached almost \$230,000, compared to \$21,000 for uninsured patients without an infection. Whereas government and commercial payors can negotiate large

discounts for hospital charges, people without insurance have no such purchasing power and may bear full responsibility for charges that can be two to three times higher than those accepted by most insurers.<sup>1</sup>

The mortality rate for uninsured patients with hospital-acquired infections was 19.1 percent, compared to 2.2 percent for uninsured patients without infections. The average length of stay for uninsured patients who contracted a hospital-acquired infection was 21.1 days, compared to 3.0 days for uninsured patients who did not have a hospital-acquired infection.

### Conclusion

From the financial costs to extended hospital stays to potentially preventable deaths, hospital-acquired infections exact a heavy toll throughout Pennsylvania. Reducing hospital-acquired infections will save lives and money,

1. Marilyn Werber Serafini, October 18, 2003. "Sticker Shock," *National Journal*, pp. 3180-3186.

For each payor category, the hospital admissions related to the 11,668 hospital-acquired infections reported in 2004 were associated with an *additional*:

	Deaths	Hospital Days	Hospital Charges
<b>Medicare</b>	978	114,546	\$1,010,377,544
<b>Medicaid</b>	152	30,229	\$371,630,059
<b>Commercial</b>	308	54,452	\$603,827,742
<b>Uninsured</b>	8	850	\$9,789,207

and the first step toward this goal is the complete and accurate submission of data by Pennsylvania hospitals.

While there are many hospitals that are making a good faith effort to fully comply with the reporting requirements, it was noted in the first brief that

there was wide variation in reporting levels among facilities in the state. *These disparities indicate that hospital-acquired infections are likely to be underreported for 2004.* Collectively, current reporting efforts must continue to improve – especially since hospitals will be required to submit data on all hospital-acquired infections to PHC4 beginning January 1, 2006.

The cost and quality issues highlighted in this follow-up brief present unique challenges to the consumers, purchasers, providers, policy-makers, and payors of health care. PHC4 is confident that the compelling figures will again serve as a call to action.



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The Pennsylvania Health Care Cost Containment Council (PHC4) periodically releases *Research Briefs* on health care topics relevant to public policy interest.

PHC4 is an independent state agency created to collect, analyze, and disseminate information designed to improve the quality and restrain the cost of health care.