

Press Ganey Knowledge Summary: **The cost of nosocomial infection**



Prevalence

Nosocomial infections occur in more than two million hospitalizations each year.¹

Quality Costs

Increased average length of stay between 7.4 and 9.4 days.^{2,3} Increased ICU stay 8 days, increased hospital stay 14 days, increased morbidity 35%, and increased total cost per patient who survived is approximately \$40,000.^{3,4}

Financial Costs

A systematic literature review covering 1990-2000 calculated the following average attributable* costs to the hospital for nosocomial infections: ⁵

Average nosocomial infection, mean cost = \$13,973

Bloodstream infection, mean cost = \$38,703

Methicillin-resistant *Staphylococcus aureus* infections (MSRA), mean cost = \$35,367

Surgical site infection, mean cost = \$15,646

Pneumonia, mean cost = \$17,677

For the following infections, no studies were done to determine attributable costs but treatment costs are known:

Urinary tract infection, mean cost = \$1,962

Varicella zoster virus, mean cost = \$27,377

Tuberculosis, mean cost = \$61,446

Measles, mean cost = \$41,087

Since this literature review, Roberts *et. al.* (2003)⁵ created an economic model based upon a sample of patients at Rush University Hospital that controlled for severity of illness and intensive care unit to calculate the average attributable cost of an average nosocomial infection at \$15,275.⁶ Another recent study utilized national data and a case-control matching method to control DRG, sex, race, age, and comorbidity to calculate that the average excess costs attributable to the national indicator “selected infection due to medical care” are \$38,656.³

The costs of a nosocomial infection outbreak can easily reach millions of dollars.⁷

References

1. Haley RW, Culver DH, White JW, Morgan WM, Emori TG. The nationwide nosocomial infection rate. A new need for vital statistics. *Am J Epidemiol.* Feb 1985;121(2):159-167.
2. Brachman PS, Dan BB, Haley RW, Hooten TM, Garner JS, Allen JR. Nosocomial surgical infections: incidence and cost. *Surg Clin North Am* 1980;60:15-25.
3. Zhan C, Miller MR. Excess length of stay, charges, and mortality attributable to medical injuries during hospitalization. *JAMA* 2003 Oct;290(14):1868-1874.
4. Pittet D, Tarara D, Wenzel RP. Nosocomial bloodstream infection in critically ill patients. Excess length of stay, extra costs, and attributable mortality. *JAMA.* 1994 May 25;271(20):1598-601.
5. Stone PW, Larson E, Kawar LN. A systematic audit of economic evidence linking nosocomial infections and infection control interventions: 1990-2000. *Am J Infect Control* 2002;30:145-52.
6. Roberts RR, Scott RD 2nd, Cordell R, Solomon SL, Steele L, Kampe LM, Trick WE, Weinstein RA. The use of economic modeling to determine the hospital costs associated with nosocomial infections. *Clin Infect Dis.* 2003 Jun 1;36(11):1424-32. *Epub* 2003 May 22.
7. Karchmer TB, Durbin LJ, Simonton BM, Farr BM. Cost-effectiveness of active surveillance cultures and contact/droplet precautions for control of methicillin-resistant *Staphylococcus aureus*. *J Hosp Infect.* 2002 Jun;51(2):126-32.

* Attributable costs are calculated with a control group of patients and include only costs directly resultant from nosocomial infection.

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