

# The Clinical and Economic Impact of Deep Chest Surgical Site Infections Following Coronary Artery Bypass Graft Surgery\*

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**Study objectives:** To examine how deep chest surgical site infections following coronary artery bypass graft (CABG) surgery impact hospital inpatient length of stay (LOS), costs, and mortality.

**Setting:** A large, Midwestern community medical center.

**Design:** All CABG patients who developed deep chest infection (n = 41) were compared to a set of control subjects (n = 160) systematically selected as every tenth uninfected CABG patient. Clinical data were abstracted from patient records, and cost information was obtained from the cost accounting database of the hospital.

**Results:** Variables that significantly increased the risk of deep chest surgical site infection included obesity (odds ratio [OR], 11; p = 0.0001), renal insufficiency (OR, 8.9; p = 0.0001), connective tissue disease (OR, 25.4; p = 0.0003), reexploration for bleeding (OR, 8.2; p = 0.0015), and the timing of antibiotic prophylaxis (> 60 min before incision; OR, 5.3; p = 0.0128). Within 1 year postoperatively, patients with deep chest surgical site infection had a mortality rate of 22%, vs 0.6% for uninfected patients (p = 0.0001). Infected patients also incurred an average of 20 additional hospital days (p = 0.0001). Univariate analysis indicated that patients who developed deep chest surgical site infection incurred \$20,012 in additional costs in the first year (p = 0.0001). Infected patients who died incurred on average \$60,547 more than infected patients who survived (p = 0.034). Multivariate analysis confirmed the magnitude of the estimate of the cost for deep chest surgical site infection (\$18,938; p = 0.0001).

**Conclusions:** Deep chest surgical site infections following CABG surgery are associated with significant increases in LOS, hospitalization costs, and mortality. These results suggest the need for improved infection control measures to reduce deep chest surgical site infection rates.

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**Key words:** coronary artery bypass graft; hospital costs; surgical site infection

**Abbreviations:** CABG = coronary artery bypass surgery; NNIS = National Nosocomial Infection Surveillance; OR = odds ratio; RCC = ratio of cost to charges