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Enhanced Identification of Postoperative Infections Among Inpatients and Outpatients

Two recent studies address the enhanced identification of postoperative infections among inpatients and outpatients with review of charts for discharge diagnosis codes, antimicrobial use, or administration claims data.

In the first study, Yokoe et al. of Brigham and Women's Hospital, Boston,[1] and researchers from 13 hospitals affiliated with the Centers for Disease Control and Prevention epicenters collaborated to study the ability of exposure to antimicrobial drugs and coded discharge diagnoses to identify surgical-site infections (SSIs) after three common procedures: coronary artery bypass graft (CABG), cesarean delivery, and breast procedures. These measures were chosen because nearly all hospitals collect this information as part of routine patient care and many hospitals store this information.

This retrospective cohort study in 13 hospitals involved weighted, random samples of records from 8,739 CABG procedures, 7,399 cesarean deliveries, and 6,175 breast procedures. Routine surveillance was compared with detected inpatient antimicrobial exposure ($\geq$ 9 days for CABG, $\geq$ 2 days for cesarean deliveries, and $\geq$ 6 days for breast procedures), discharge diagnoses, or both. Together, all methods identified SSI after 7.4% of CABG procedures, 5.0% of cesarean deliveries, and 2.0% of breast procedures. Antimicrobial exposure had the highest sensitivity, 88% to 91%, compared with routine surveillance, 38% to 64%. Diagnosis codes improved sensitivity of detection of antimicrobial exposure after cesarean deliveries. Record review confirmed SSI after 31% to 38% of procedures that met antimicrobial surveillance criteria. The authors concluded that sufficient antimicrobial exposure days, together with diagnosis codes for cesarean deliveries, identified more postoperative SSIs than did routine surveillance methods. In addition, this screening method was found to be efficient, readily standardized, and suitable for most hospitals.

In the second study, Miner et al.[2] used administrative claims data to identify SSIs after breast surgery and cesarean section. Postoperative diagnosis codes, procedure codes, and pharmacy information were automatically scanned and used to identify claims suggestive of SSI ("indicators") among 426 (22%) of 1,943 breast procedures and 474 (10%) of 4,859 cesarean sections.

For 104 breast procedures with indicators explained in available medical records, SSIs were confirmed for 37%, and some infection criteria were present for another 27%. Among 204 cesarean sections, SSIs were confirmed for 40%, and some criteria were met for 27%. The extrapolated infection rates of 2.8% for breast procedures and 3.1% for cesarean sections were similar to those reported by the National Nosocomial Infections Surveillance System, but differed in representing predominantly outpatient infections. The authors concluded that claims data may complement other data sources for identification of SSIs following breast surgery and cesarean section.

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