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## Never Events and Hospital-Acquired Conditions after Surgery: Lessons from the ACS-NSQIP Database

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**INTRODUCTION:** Never events (NE) and hospital-acquired conditions (HAC) after surgery have been designated as quality metrics in health care by the Centers for Medicare and Medicaid Services (CMS).

**METHODS:** The American College of Surgeons-National Surgical Quality Improvement Project (ACS-NSQIP) database 2006-2013 was used to identify patients who underwent surgical procedures including skin and soft tissue, breast, thoracic, cardiac, intra-abdominal, and vascular cases (total n = 2,000,169). We analyzed HAC and NE after surgery to identify risk factors and effects on outcomes.

**RESULTS:** All NE were due to retained foreign bodies and were most common after intra-abdominal (71%) and skin and soft tissue surgery (16%). The incidence of retained foreign body decreased by 37% over the study period. Among HAC after surgery, stages III and IV pressure ulcers were most common (50%), followed by falls (41%), vascular catheter-associated urinary tract infection (1%), and air embolism (0.1%). Significant predictors of NE and HAC after surgery included emergency cases, American Society of Anesthesiologists score >3, partial and totally dependent functional status (p<0.01). Never events after surgery lead to significantly increased length of stay (p<0.01) and a trend toward increased need for reoperation. Hospital-acquired conditions after surgery had a significant effect on postoperative outcomes, leading to prolonged length of stay, increased return to operating room, increased morbidity, and increased mortality (p<0.01) (Table).

Variable	HAC/NE	No HAC/no NE	p Value
Hospital-acquired conditions			
Mortality, %	6.8	1.7	<0.01
Overall morbidity, %	29.2	13.4	<0.01
Return to operating room, %	10.5	4.7	<0.01
Means length of stay, d	15 +20	4+9	<0.01
Never events			
Mortality, %	3.1	1.7	<0.01
Overall morbidity, %	16.6	13.5	<0.01
Return to operating room, %	7.3	4.7	<0.01
Means length of stay, d	7 +10	4+10	<0.01

**CONCLUSIONS:** hospital-acquired condition and never events after surgery are more common and impactful in high-risk patients and procedures. Quality improvement initiatives should target these high-risk populations in order to successfully prevent these occurrences.