

**Surgical Site Infection (SSI)**

- **Data source:** CDC’s National Healthcare Safety Network (NHSN), Procedure-Associated Module
- **Definition:** <http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSICurrent.pdf>
- **5-Year (2013) National Prevention Target:** 25% reduction in admission and readmission SSI [i.e., national Standardized Infection Ratio (SIR) for SSI = 0.75] for **Centers for Medicare & Medicaid Services Surgical Care Improvement Project (SCIP) procedures (Table 2), for primary deep or organ/space infections that are detected during admission or re-admission**
- **Metric:** SIR
  - The SIR compares the observed number of healthcare-associated infections (HAIs) in the U.S. during a reporting period with the baseline U.S. experience
  - Risk models vary by procedure using different parameters (see Table 2) and were validated using bootstrap methodology (Improving Risk-Adjusted Measures of Surgical Site Infection for the National Healthcare Safety Network, Yi Mu, Jonathan R. Edwards, Teresa C. Horan, Sandra I. Berrios-Torres and Scott K. Fridkin. *Infection Control and Hospital Epidemiology*, p.000 URL: <http://www.jstor.org/stable/10.1086/662016>)
  - SIR < 1.00 means fewer HAIs observed during the reporting period than predicted from baseline data; SIR > 1.00 means more HAIs observed than predicted

**Table 1. Summary Measures of SSI reporting and prevention for baseline (2006-2008), 2009, and 2010 (preliminary)**

Measure	Baseline (2006-2008)	2009 <sup>‡</sup>	2010 <sup>‡</sup>
Number of Facilities reporting on at least one of the procedures	801	949	1,386
Number of Procedures reported	613,263	421,703	528,012
Number of States <sup>†</sup>	43	45	46
Number of states with mandates*	7	10	15
National SIR	N/A	<b>0.98</b> = 4,192 / 4,271	<b>0.90</b> = 4,672/5,173
National % Reduction	N/A	2%	10 %

\*Legislative mandates to report SSI data from at least one of the procedures (Table 2) to NHSN for in-patient acute care facilities during any month of the listed calendar year

<sup>‡</sup> Estimates available as of September 2011, estimates for 2009 differ slightly from previous reports due to additional facility reporting and adjustments made through evaluations and validation studies

□ Among states with > 1 facility reporting

† As of 2011, SSI data from 2009 or 2010 have been or are being validated in (at least) 4 states (NY, SC, OR, MA)

**Table 2. List of SCIP Procedures Mapped to NHSN Procedures, Number of SSIs reported and included for baseline (2006-2008), 2009, and 2010 (preliminary)**

SCIP Procedure	NHSN Procedure	Validated Parameters for Risk Model	Baseline (2006-2008)	2009	2010
Vascular	Abdominal aortic aneurysm repair	duration of procedure, wound class	30	5	6
	Peripheral vascular bypass surgery	age, ASA, duration of procedure, medical school affiliation	176	48	66
Coronary artery bypass graft	Coronary artery bypass graft with both chest and donor site incisions; Coronary artery bypass graft with chest incision only	age, ASA, duration of procedure, gender, medical school affiliation, age gender (interaction)	1,644	945	861
Other cardiac	Cardiac surgery	age, duration of procedure, emergency	229	116	116
Colon surgery	Colon surgery	age, ASA, duration, endoscope, medical school affiliation, hospital bed size, wound class	1,825	878	967
	Rectal surgery	duration of procedure, gender, hospital bed size	38	41	27
Hip arthroplasty	Hip arthroplasty	total/partial/revision, age, anesthesia, ASA, duration of procedure, medical school affiliation, hospital bed size, trauma	1,183	894	1082
Abdominal hysterectomy	Abdominal hysterectomy	age, ASA, duration of procedure, hospital bed size	389	386	409
Knee arthroplasty	Knee arthroplasty	age, ASA, duration of procedure, gender, medical school affiliation, hospital bed size, trauma, revision	1,108	792	1043
Vaginal hysterectomy	Vaginal hysterectomy	age, duration of procedure, medical school affiliation	122	87	95

**Metric Definitions**

An infection of the operative site following a procedure falling into one of the 40 NHSN operative procedure categories. SSIs may be of the superficial incisional, deep incisional, or organ/space type. They must occur within 30 days of the procedure or within 1 year if an implant was left in place during the procedure and the SSI is of the deep incisional or organ/space type. Criteria include symptomatology, laboratory reports, diagnostic imaging results, and surgeon diagnosis.