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 Ration (SIR) for SSI = 0.75]
- **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 last table) and were validated using bootstrap methodology
  - SIR < 1.0 means fewer HAIs observed during the reporting period than predicted from baseline data; SIR > 1.0 means more HAIs observed than predicted
- **Baseline period:** 2006-2008
- **Baseline data:** SSI data reported to NHSN during 2006-2008 following Surgical Care Improvement Project (SCIP) procedures, for deep or organ/space infections that are detected during admission or re-admission
  - 801 facilities reporting; 613,263 procedures reported
  - 43 states reporting
  - 7 states had legislative mandates to report SSI data to NHSN that were in place at some point during 2006-2008
- **2009 data:** SSI data reported to NHSN during 2009 following SCIP procedures, for deep or organ/space infections that are detected during admission or re-admission
  - 946 facilities reporting; 416,341 procedures reported
  - 44 states and Washington, D.C. reporting (38 states with > 1 facility reporting)
  - 10 states had legislative mandates to report SSI data to NHSN that were in place during 2009
  - Validation studies of SSI data conducted at state level by 2 states

Measure	Baseline (2006-2008)	2009	2010
National SIR	N/A	**0.95** = 3,930 / 4,144 SSIs	‡
National % reduction	N/A	5%	‡
# states with SIR significantly < 1.0 □	N/A	9	‡
% states with SIR significantly < 1.0 □	N/A	24% = (9 / 38) * 100	‡

‡ Final estimates available Sept 2011
□ Among states with > 1 facility reporting

- **2009 data – notes:** high national representativeness

Procedure-Specific SSI Data for Surgical Care Improvement Project (SCIP) Procedures: Baseline Period (2006-2008)*

SCIP Procedure	No. of SSIs	Validated Parameters for Risk Model
Abdominal aortic aneurysm repair	30	duration of procedure, wound class
Coronary artery bypass graft	1,644	age, ASA, duration of procedure, gender, med school affiliation, age*gender(interaction)
Cardiac surgery	229	age, duration of procedure, emergency(y/n)
Colon surgery	1,825	age, ASA, duration, endoscope, med school affiliation, hospital bed size, wound class
Hip prosthesis	1,183	total/partial/revision, age, anesthesia, ASA, duration of procedure, med school affiliation, hospital bed size, trauma(y/n)
Abdominal hysterectomy	389	age, ASA, duration of procedure, hospital bed size
Knee prosthesis	1,108	age, ASA, duration of procedure, gender, med school affiliation, hospital bed size, trauma(y/n)
Peripheral vascular bypass surgery	176	age, ASA, duration of procedure, med school affiliation
Rectal surgery	38	duration of procedure, gender, hospital bed size
Vaginal hysterectomy	122	age, duration of procedure

*Data as of September 2010

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.