Central Line-Associated Bloodstream Infection (CLABSI)

- **Data source:** CDC's National Healthcare Safety Network (NHSN), Device-Associated Module
- **Definition:** http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf
- **5-Year (2013) National Prevention Target:** 50% reduction in CLABSI in intensive care unit (ICU) and ward-located patients [i.e., national (Standardized Infection Ratio) SIR for CLABSI = 0.5]
- **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
  - 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
  - Risk adjustment: this metric adjusts for a variety of predictors of CLABSI
- **Baseline period:** 2006-2008
- **Baseline data:** CLABSI data reported to NHSN during 2006-2008 from all acute care hospitals (non-NICU ICUs and wards only)
  - 1,385 facilities reporting; 3,972 locations reporting; 62% ICU; 7,434,389 central line-days reported
  - 48 states reporting
  - 13 states had legislative mandates to report CLABSI data to NHSN that were in place at some point during 2006-2008
- **2009 data:** CLABSI data reported to NHSN during 2009 from all acute care hospitals (non-NICU ICUs and wards only)
  - 1,603 facilities reporting; 4,872 locations reporting; 62% ICU; 6,163,376 central line-days reported
  - 49 states and Washington, D.C. reporting (43 states and Washington, D.C. with >1 facility reporting)
  - 17 states had legislative mandates to report CLABSI data to NHSN that were in place during 2009
  - Validation studies of CLABSI data conducted at state level by 5 states

Measure	Baseline (2006-2008)	2009	2010
National SIR	N/A	**0.82** = 9,355 / 11,376 CLABSIs	‡
National % reduction	N/A	18%	‡
# states with SIR significantly < 1.0 □	N/A	26	‡
% states with SIR significantly < 1.0 □	N/A	60% = (26 / 43) * 100	‡

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

- **2009 data – notes**
  - High national representativeness
  - Data support historical trend of decreases in MRSA-related CLABSI by ~8% per year (Burton DC, Edwards JR, Horan TC, Jernigan JA, Fridkin SK. Methicillin-resistant *Staphylococcus aureus* central line-associated bloodstream infections in US intensive care units, 1997-2007. *JAMA*. 2009 Feb 18;301(7):727-36.)
  - Expecting ~4,000 facilities by January 2011

Location-Specific CLABSI Data for Most Frequently-Reporting Location Types: Baseline Period (2006-2008)*

Location Type		No. of locations	No. of CLABSI	Central-line days	Rate (per 1,000 CL-days)
ICU	Medical/surgical major teaching	182	1,474	699,300	2.1
	Medical/surgical all others	998	2,579	1,742,419	1.5
	Surgical	208	1,683	729,989	2.3
	Surgical cardiothoracic	203	879	632,769	1.4
	Medical major teaching	125	1,410	549,088	2.6
Ward	Medical/surgical	617	733	618,196	1.2
	Medical	201	422	278,221	1.5
	Surgical	93	189	132,336	1.4

Data from: Edwards J, Peterson KD, Mu W, Banerjee S, Allen-Bridson K, Morrell G, et al. National Healthcare Safety Network (NHSN) report: data summary for 2006 through 2008, issued December 2009. *Am J Infect Control*. 2009 Dec;37(10):783-805. Available at: http://www.cdc.gov/nhsn/PDFs/dataStat/2009NHSNReport.PDF.

Metric Definitions

A primary bloodstream infection (BSI) in a patient in which a central line or umbilical catheter was in place at the time of, or within 48 hours prior to the onset of the event.
Primary bloodstream infection (BSI): laboratory-confirmed bloodstream infection (LCBI) that is not secondary to an infection meeting CDC/NHSN criteria at another body site.
Central line-associated: a central line or umbilical catheter was in place at the time of, or within 48 hours before, onset of the event. There is no minimum period of time that the central line must be in place in order for the BSI to be considered central line-associated.
Central line: An intravascular catheter that terminates at or close to the heart or in one of the great vessels which is used for infusion, withdrawal of blood, or hemodynamic monitoring. The following are considered great vessels for the purpose of reporting central-line BSI and counting central-line days in the NHSN system: Aorta, pulmonary artery, superior vena cava, inferior vena cava, brachiocephalic veins, internal jugular veins, subclavian veins, external iliac veins, common iliac veins, femoral veins, and in neonates, the umbilical artery/vein. NOTES: Neither the insertion site nor the type of device may be used to determine if a line qualifies as a central line. The device must terminate in one of these vessels or in or near the heart to qualify as a central line. An introducer is considered an intravascular catheter. Pacemaker wires and other nonlumened devices inserted into central blood vessels or the heart are not considered central lines, because fluids are not infused, pushed, nor withdrawn through such devices.
Infusion: The introduction of a solution through a blood vessel via a catheter lumen. This may include continuous infusions such as nutritional fluids or medications, or it may include intermittent infusions such as flushes or IV antimicrobial administration, or blood, in the case of transfusion or hemodialysis.
Umbilical catheter: A central vascular device inserted through the umbilical artery or vein in a neonate.
Temporary central line: A non-tunneled catheter.
Permanent central line: Includes tunneled catheters, including certain dialysis catheters