

Healthcare-associated infections (HAIs) are infections patients can get while receiving medical treatment in a healthcare facility. Working toward the elimination of HAIs is a CDC priority. The standardized infection ratio (SIR) is a summary statistic that can be used to track HAI prevention progress over time; lower SIRs are better. The infection data are reported to CDC's National Healthcare Safety Network (NHSN). HAI data for nearly all U.S. hospitals are published on the Hospital Compare website. **This report is based on 2015 data, published in 2017 and uses the 2015 Baseline and risk-adjusted models.**

CLABSIs

CENTRAL LINE-ASSOCIATED BLOODSTREAM INFECTIONS

When a tube is placed in a large vein and not put in correctly or kept clean, it can become a way for germs to enter the body and cause deadly infections in the blood.

- Among the 2,328 hospitals with enough data to calculate an SIR:
 - 11% had an SIR significantly higher (worse) than 0.994, the value of the national SIR
 - 11% had an SIR significantly lower (better) than 0.994, the value of the national SIR

CAUTIs

CATHETER-ASSOCIATED URINARY TRACT INFECTIONS

When a urinary catheter is not put in correctly, not kept clean, or left in a patient for too long, germs can travel through the catheter and infect the bladder and kidneys.

- Among the 2,597 hospitals with enough data to calculate an SIR:
 - 12% had an SIR significantly higher (worse) than 0.993, the value of the national SIR
 - 11% had an SIR significantly lower (better) than 0.993, the value of the national SIR

VAEs

VENTILATOR-ASSOCIATED EVENTS

When a medical problem makes it hard or impossible for a patient to breathe on their own, they may be placed on a special breathing machine called a ventilator to save their life. This usually involves placing a tube in the patient's airway, and attaching the tube to the ventilator. Patients on ventilators are usually very sick, and they can develop problems related to their illness or related to being on a ventilator. This includes infections such as pneumonia or other problems such as fluid buildup in the lungs.

- Among the 1,373 hospitals with enough data to calculate an SIR:
 - 19% had an SIR significantly higher (worse) than 1.000, the value of the national SIR
 - 26% had an SIR significantly lower (better) than 1.000, the value of the national SIR

SSIs

SURGICAL SITE INFECTIONS *See pages 3-5 for additional procedures*

When germs get into an area where surgery is or was performed, patients can get a **surgical site infection**. Sometimes these infections involve only the skin. Other SSIs can involve tissues under the skin, organs, or implanted material.

SSI: Abdominal Hysterectomy

- Among the 614 hospitals with enough data to calculate an SIR:
 - 5% had an SIR significantly higher (worse) than 1.003, the value of the national SIR
 - 1% had an SIR significantly lower (better) than 1.003, the value of the national SIR

SSI: Colon Surgery

- Among the 1,811 hospitals with enough data to calculate an SIR:
 - 8% had an SIR significantly higher (worse) than 0.999, the value of the national SIR
 - 4% had an SIR significantly lower (better) than 0.999, the value of the national SIR

C. DIFFICILE EVENTS

LABORATORY-IDENTIFIED HOSPITAL-ONSET C. DIFFICILE EVENTS

When a person takes antibiotics, good bacteria that protect against infection are destroyed for several months. During this time, patients can get sick from *Clostridium difficile* (*C. difficile*), bacteria that cause potentially deadly diarrhea, which can be spread in healthcare settings.

- Among the 3,159 hospitals with enough data to calculate an SIR:
 - 14% had an SIR significantly higher (worse) than 0.993, the value of the national SIR
 - 15% had an SIR significantly lower (better) than 0.993, the value of the national SIR

MRSA BACTEREMIA

LABORATORY-IDENTIFIED HOSPITAL-ONSET BLOODSTREAM EVENTS

Methicillin-resistant *Staphylococcus aureus* (MRSA) is bacteria usually spread by contaminated hands. In a healthcare setting, such as a hospital, MRSA can cause serious bloodstream events.

- Among the 1,839 hospitals with enough data to calculate an SIR:
 - 8% had an SIR significantly higher (worse) than 0.998, the value of the national SIR
 - 4% had an SIR significantly lower (better) than 0.998, the value of the national SIR



Healthcare-associated infection (HAI) data give healthcare facilities and public health agencies knowledge to design, implement, and evaluate HAI prevention efforts.

2015 DATA					
HAI TYPE	#HOSPITALS REPORTING ⁺	2015 SIR DISTRIBUTION [‡]			2015 NAT'L SIR
		MINIMUM	MEDIAN	MAXIMUM	
CLABSI	3,550	0.000	0.868	2.440	0.994
CAUTI	3,658	0.000	0.872	2.369	0.993
VAE	1,828	0.000	0.791	2.838	1.000
SSI, Abdominal Hysterectomy	3,029	0.000	0.777	2.656	1.003
SSI, Colon Surgery	3,140	0.000	0.823	2.631	0.999
<i>C. difficile</i> Events	3,634	0.000	0.928	1.842	0.993
MRSA Bacteremia	3,616	0.000	0.827	2.671	0.998

⁺The number of hospitals that reported to NHSN and are included in the SIR calculation. This number may vary across HAI types; for example, some hospitals do not use central lines, urinary catheters, or ventilators, or do not perform colon or abdominal hysterectomy surgeries.

[‡]These data represent the distribution of all hospital SIRs for each HAI type. The lowest facility SIR is represented by the "minimum", and the highest facility SIR is the "maximum". The median represents the middle of the distribution; half of all facilities fall below (and above) this SIR value. Distributions are only calculated when at least 20 hospitals had enough data to calculate an SIR.

For additional data points, refer to the technical data tables at www.cdc.gov/hai/progress-report/

LEARN HOW YOUR HOSPITAL IS PERFORMING:

www.medicare.gov/hospitalcompare



THIS REPORT IS BASED ON 2015 DATA, PUBLISHED IN 2017, AND USES THE 2015 BASELINE AND RISK-ADJUSTED MODELS

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- 2015 HAI Data Report: www.cdc.gov/hai/progress-report
- NHSN: www.cdc.gov/nhsn
- Preventing HAIs: www.cdc.gov/hai
- For more information on the 2015 Baseline and risk adjustment calculation, please visit: <https://www.cdc.gov/nhsn/2015rebaseline/index.html>
- The new SIR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

NATIONAL SSIs
BY PROCEDURE TYPE

ACUTE CARE HOSPITALS

SURGICAL SITE INFECTIONS

SSIs: 10 SELECT PROCEDURES

7% Among the 2,380 U.S. hospitals with enough data to calculate an SIR, 7% lower (better) than 1.000, the value of the national SIR

9% Among the 2,380 U.S. hospitals with enough data to calculate an SIR, 9% higher (worse) than 1.000, the value of the national SIR

■ Almost all U.S. hospitals report SSI data following colon surgeries and abdominal hysterectomies to NHSN.

2015 DATA						
PROCEDURE CATEGORY	# HOSPITALS REPORTING ⁺	# PROCEDURES REPORTED	SIR DISTRIBUTION [†]			2015 NAT'L SIR
			MINIMUM	MEDIAN	MAXIMUM	
Hip arthroplasty	1,847	306,591	0.000	0.881	2.781	0.998
Knee arthroplasty	1,787	432,116	0.000	0.804	2.839	1.000
Colon surgery	3,140	302,736	0.000	0.823	2.631	0.999
Rectal surgery	319	6,878	0.000	0.720	2.593	0.996
Abdominal hysterectomy	3,029	304,027	0.000	0.777	2.656	1.003
Vaginal hysterectomy	736	29,362	0.000	0.954	2.973	3.756
Coronary artery bypass graft	756	120,877	0.000	0.773	2.951	1.004
Other cardiac surgery	386	40,027	0.000	0.796	2.784	0.995
Peripheral vascular bypass surgery	294	8,623	0.000	0.812	3.713	1.01
Abdominal aortic aneurysm repair	271	1,615	—	—	—	0.998
These 10 procedures combined	3,326	1,552,852	0.000	0.882	2.381	1.000

Data shown here includes procedures/SSIs in adults only.

⁺The number of hospitals that reported to NHSN and are included in the SIR calculation. This number may vary by the procedure type.

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- The new SIR Guide: <https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/nhsn-sir-guide.pdf>

NATIONAL SSIs BY PROCEDURE TYPE

SURGICAL SITE INFECTIONS, ACUTE CARE HOSPITALS

ACUTE CARE HOSPITALS

SURGICAL SITE INFECTIONS

SSIs: ADDITIONAL PROCEDURES

2015 DATA							
PROCEDURE CATEGORY		# HOSPITALS REPORTING ⁺	# PROCEDURES REPORTED	SIR DISTRIBUTION [‡]			2015 NAT'L SIR
				MINIMUM	MEDIAN	MAXIMUM	
1	Limb amputation	137	6,668	—	—	—	0.994
2	Appendix surgery	381	35,343	0.000	0.951	2.916	0.973
3	Shunt for dialysis	105	1,926	—	—	—	0.989
4	Bile duct, liver, or pancreatic surgery	298	10,293	0.000	0.826	2.587	1.008
5	Breast surgery	214	15,700	0.000	0.790	2.709	0.974
6	Carotid endarterectomy	277	9,898	—	—	—	0.996
7	Gallbladder surgery	404	63,951	0.000	0.882	2.821	0.997
8	Craniotomy	140	23,594	0.000	0.685	2.388	0.997
9	Cesarean section	408	219,692	0.000	0.693	2.661	0.991
10	Spinal fusion	527	115,547	0.000	0.846	3.051	1.005
11	Open reduction of fracture	386	46,166	0.000	0.971	2.915	1.011
12	Gastric surgery	387	33,250	0.000	0.619	3.071	0.997
13	Herniorrhaphy	198	14,359	0.000	0.670	4.733	1.016
14	Heart transplant	25	672	—	—	—	0.965
15	Kidney transplant	34	3,816	—	—	—	0.991

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SURGICAL SITE INFECTIONS, ACUTE CARE HOSPITALS

ACUTE CARE HOSPITALS

SURGICAL SITE INFECTIONS

SSIs: ADDITIONAL PROCEDURES

2015 DATA							
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			MINIMUM	MEDIAN	MAXIMUM		
16 Laminectomy	488	102,259	0.000	0.728	2.858	1.002	
17 Liver transplant	24	1,373	—	—	—	0.990	
18 Neck surgery	69	1,214	—	—	—	0.998	
19 Kidney surgery	261	9,450	—	—	—	0.996	
20 Ovarian surgery	359	32,813	—	—	—	0.951	
21 Pacemaker surgery	317	24,175	—	—	—	0.994	
22 Prostate surgery	95	2,696	—	—	—	0.991	
23 Refusion of spine	278	4,340	—	—	—	0.991	
24 Small bowel surgery	378	22,816	0.000	0.826	2.475	0.995	
25 Spleen surgery	249	2,458	—	—	—	0.992	
26 Thoracic surgery	310	20,445	—	—	—	0.988	
27 Thyroid and/or parathyroid surgery	116	3,929	—	—	—	0.991	
28 Ventricular shunt	103	3,042	—	—	—	0.996	
29 Abdominal surgery	383	56,951	0.000	0.834	2.873	1.011	

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