HOSPITAL-ACQUIRED INFECTIONS

New York State

2014

New York State Department of Health, Albany, NY
October 2015

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List of Abbreviations

ASA – American Society of Anesthesiologists' classification of physical status
ASP – Antimicrobial stewardship program
BMI – Body mass index
BSI – Bloodstream infection
CABG – Coronary artery bypass graft surgery
CAUTI – Catheter-associated urinary tract infection
CDC – Centers for Disease Control and Prevention
CDI – *Clostridium difficile* infection
C. difficile – Clostridium difficile
Ceph – Cephalosporin
CHG –Chlorhexidine gluconate
CI – Confidence interval
CIC – Certified in infection control
CL – Central line
CLABSI – Central line-associated bloodstream infection
CLSI - Clinical Laboratory Standards Institute
CMS – Centers for Medicare and Medicaid Services
CNS – Coagulase negative staphylococcus
CO – Community onset
CO-NMH − Community onset-not my hospital
CO-PMH − Community onset-possibly my hospital
CRE – Carbapenem-resistant Enterobacteriaceae
CSRS – Cardiac Surgery Reporting System
DOH –Department of Health
DU– Device utilization
DUA – Data use agreement
EVD – Ebola Virus Disease
EIA – Enzyme immunoassay
EMR – Electronic medical record
HAI – Hospital-acquired infection
HO – Hospital onset
ICD-9 – International Classification of Diseases, Ninth Revision
ICU – Intensive care unit
IP – Infection preventionist
IQR – Inpatient quality reporting
LabID – Laboratory identified
LOS – Length of stay
LTAC – Long term acute care
LTCF – Long term care facility
MDRO – Multidrug resistant organism
MRSA – Methicillin-resistant *Staphylococcus aureus*
MSSA – Methicillin sensitive *Staphylococcus aureus*
NAAT – Nucleic acid amplification test
NICU – Neonatal intensive care unit

NHSN – National Healthcare Safety Network
NYS – New York State
NYSDOH – New York State Department of Health
NYSPQC – New York State Perinatal Quality Collaborative
OR – Operating room
OS – Organ/space Infection
PAD – Peripheral artery disease
PDS – Post-discharge surveillance
PHL – Public health law
RFA – Request for applications
RPC – Regional Perinatal Center
SIR − Standardized infection ratio
SPARCS - Statewide Planning and Research Cooperative System
spp – species (plural)
SSI – Surgical site infection
TAW – Technical Advisory Workgroup
UTI – Urinary tract infection
VRE – Vancomycin-resistant Enterococci

Executive Summary

Hospital-acquired infections (HAIs) result in prolonged hospital stays, unnecessary deaths, increased antimicrobial resistance, greater healthcare costs, and added emotional and personal costs to patients and their families. This report summarizes HAI rates in New York State (NYS) hospitals in 2014. It is the eighth annual report to be issued since reporting began in 2007 following the implementation of Public Health Law 2819. All NYS HAI reports are available at http://www.health.ny.gov/statistics/facilities/hospital/hospital_acquired_infections/. These data are available for download at https://health.data.ny.gov/.

In 2014, 178 NYS acute care hospitals reported HAI data to meet NYS requirements. Hospitals report to NYS using the Centers for Disease Control and Prevention's (CDC's) National Healthcare Safety Network (NHSN). This online system allows hospitals, NYS, and CDC to concurrently monitor the same data. Table 1 summarizes the number of infections and infection rates by type of infection in 2014 and identifies whether the data were required by NYSDOH, the Centers for Medicare and Medicaid Services (CMS), or both. Community-onset infections (i.e. infections identified on the first three days of a hospital admission and therefore likely acquired before admission) are not the primary focus of the HAI Reporting Program, but they impact the development of HAIs in the hospital setting. The most common type of HAI reported was *Clostridium difficile* infections (CDIs), followed by surgical site infections (SSIs), catheter-associated urinary tract infections (CAUTIs), methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections (BSI), central line-associated bloodstream infections (CLABSIs), and carbapenem-resistant Enterobacteriaceae (CRE) bloodstream infections.

Table 1. Infections reported by New York State hospitals in 2014

Type of infection	Number	Rate
Clostridium difficile infections (CDIs) among inpatients[B]		
Hospital-onset, incident	8,890	7.2/10,000 patient days
Community onset	9,913	4.6/1,000 admissions
Surgical site infections (SSIs) following		
Colon surgery[B]	1,361	7.1/100 procedures
Abdominal hysterectomy surgery[B]	361	1.9/100 procedures
Hip replacement or revision surgery[N]	319	1.0/100 procedures
Coronary artery bypass graft (CABG) - chest site[N]	183	1.7/100 procedures
CABG - donor site[N]	53	0.6/100 procedures
Catheter-associated urinary tract infections (CAUTIs) in intensive care units[C]	1,703	2.6/1,000 catheter days
Methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections among inpatients[C]		
Hospital-onset	858	0.66/10,000 patient days
Community-onset	2,324	1.0/1000 admissions
Central line-associated bloodstream infections (CLABSIs) in intensive care units[B]	546	0.9/1,000 line days
Carbapenem-resistant *Klebsiella* and *E. coli* bloodstream infections among inpatients[N]		
Hospital-onset	249	0.22/10,000 patient days
Community-onset	123	0.05/1,000 admissions

N=required by NYS, C=required by Centers for Medicare and Medicaid Services (CMS; these data are accessible through a data use agreement but cannot be used for public reporting or regulatory action), B=required by both NYS and CMS.

Trends

All reportable HAI rates have declined since public reporting began. Many factors have likely contributed to the decline, including the attention drawn to HAIs through public reporting, ongoing efforts by infection preventionists (IPs) and other healthcare workers to improve infection prevention practices, and the support of external partners including professional societies, government agencies, and other associations. Estimates of the number of infections prevented and the cost savings associated with the declining HAI rates are provided in Table 2.

Table 2. Cost savings associated with decline in HAI rates

Indicator	Baseline	Total Decline	Decline per Year	# Prevented Infections	Direct Cost Savings[1] in 2014 dollars
Colon SSI	2007	N/A*	N/A*	N/A*	N/A*
CABG Chest SSI	2007	34%	5%	557	$10 to $28 million
CABG Donor SSI	2007	50%	7%	251	$4 to 13 million
Hip SSI	2008	10%	2%	165	$3 to $8 million
Hysterectomy SSI	2012	15%	7%	96	$2 to $5 million
CLABSI	2007	57%	8%	3,432	$37 to $147 million
CDI (HO)	2010	32%	8%	10,380	$98 to $139 million
CRE (HO BSI)	2013	13%	13%	38	N/A**

* Not available due to definition change. ** Costs not available for CRE BSIs.
[1] Cost ranges from Scott RD. The direct medical costs of healthcare-associated infections in U.S. hospitals and the benefits of prevention. CDC, Division of Healthcare Quality Promotion, Atlanta GA, March 2009. Report CS200891-A. http://www.cdc.gov/HAI/pdfs/hai/Scott_CostPaper.pdf. Updated to 2014 dollars.

Hospital Rate Summary

Table 3 summarizes HAI rates by hospital in 2013 and 2014. The 2013 data are included again this year in order to visualize patterns of repeated high and low performance and because there have been some modifications as a result of further auditing of the data. The table highlights hospitals that performed significantly better (shaded blue) or worse (shaded red) than the NYS average, after adjusting for differences in patients' risk for infection. Table 3 provides a summary of all hospital rates at a glance. More detailed figures in the body of this report plot each hospital rate and confidence interval (the range around the measurement that shows how precise the measurement is). Those graphs can make it easier to understand why similar rates may or may not be flagged as significantly different because they graphically show both the rate and the width of the confidence interval compared to the state average.

Across 16 indicators in the 178 facilities, there were 79 (2.7%) red flags (57 of these were red for the first year, 21 were red for two consecutive years, and one was red for three consecutive years). IPs were required to submit improvement plans to NYSDOH to address each red flag. The details of the response and NYS involvement increase based on the number of consecutive years flagged high, following the NYSDOH HAI Reporting Program's Policy for Facilities with Consecutive Years of High HAI Rates.

Additional Highlights

Infection Prevention Staffing Resources – The average full time equivalent (FTE) IP in NYS is responsible for 125 acute care beds, or an aggregate measure equivalent to 239 acute care beds after including other hospital locations such as dialysis centers. Facilities with low IP resources, defined in this report by the 15th percentile, are encouraged to review the responsibilities of their

IPs to ensure that staffing levels are appropriate. The review should take into consideration the range of the clinical programs, the risks of the patient population, the scope of the duties covered by the IPs, and the availability of information technology to assist with surveillance functions and reporting requirements.

Mortality – NHSN does not collect information on whether or not HAIs result in death. Based on estimates of the percent of patients who die as a result of HAIs from literature review, approximately 2,000 deaths were attributable to community- and hospital-onset CDIs and multidrug resistant organism (MDRO) infections in 2014. This greatly exceeds the number of deaths due to other well-known infections such as AIDs and influenza.

Data Validation – NYS continued to audit the NHSN data to ensure that the data in this report are accurate and meaningful. In the last complete year of audits (July 2013 to June 2014), over 6,000 records from 50% of hospitals were reviewed, and auditors agreed with the reported data 93% of the time. Disagreements were discussed with the IPs and corrected in NHSN. Accuracy was lowest for our newest indicator, CRE. NYS reviewed CRE surveillance definitions with all hospitals and provided suggestions to improve collaboration between infection prevention and the clinical microbiology laboratory.

Comparison of NYS HAI rates with national HAI rates – CDC reports suggest that NYS HAI rates are higher than national HAI rates. However, the intensity of auditing performed by NYSDOH exceeds the intensity of auditing performed by other states and CMS in terms of the number of hospitals audited, the number of records audited in each hospital, and the methods used to efficiently target records most likely to have errors. In general, the data validation process is likely to increase HAI rates because missed infections are identified and entered into the NHSN, and training efforts increase the skills of the hospital IPs, leading to better identification of HAIs.

HAI Prevention Projects – NYS funded five new HAI Prevention Projects with non-profit health care organizations starting in April 2014. These projects seek to reduce CDI and MDRO infection rates.

Success Stories – NYS highlighted the achievements of two hospitals for their outstanding work in preventing HAIs in 2014: Upstate University Hospital for preventing CLABSIs, and Champlain Valley Physicians Hospital for preventing CDIs.

Recommendations and Next Steps

NYSDOH will continue to monitor and report hospital HAI rates to encourage continued reduction in HAIs. Following the NYSDOH HAI Program's policy on hospitals that have significantly high rates (available at http://www.health.ny.gov/statistics/facilities/hospital/hospital_acquired_infections/), HAI staff will continue to work with hospitals that are underperforming to ensure that they implement effective improvement plans and show progress in decreasing rates. HAI staff will also continue to notify hospitals of current issues in surveillance and infection prevention practices through email communication and webinars.

NYSDOH will continue to work with the HAI Technical Advisory Workgroup (TAW) to seek guidance on the selection of reporting indicators, methods of risk adjustment, presentation of hospital-identified data, and overall planning for the reduction in HAIs in NYS.

NYSDOH will continue to conduct medical record audits to verify appropriate use of surveillance definitions and accurate reporting by hospitals. Valid data are important for the analysis of variation in HAI rates within the state, as well for the analysis of NYS rates in comparison with other states' rates. Differences in audit coverage and thoroughness across the country currently results in inequitable comparisons of hospital and state average rates. NYSDOH will continue to discuss audit methodology with CDC and CMS and advocate that information on auditing be incorporated into performance evaluations.

Because CDI impacts the greatest number of people in NYS, reducing CDI rates continues to be a high priority. NYSDOH will continue to monitor the improvement plans of the hospitals flagged with high CDI rates to encourage improvement and provide assistance as requested. NYSDOH started a new project to improve infection prevention during nursing home and hospital care transitions. Through use of webinar presentations, NYSDOH will continue to educate participants on evidence-based infection prevention and control practices.

Efforts to combat the spread of CRE in NYS healthcare facilities have expanded as a result of new CDC funding. An Antimicrobial Resistance/CRE Workgroup has been established with the intent of creating a statewide CRE/MDRO surveillance and response plan. Strategies to enhance outbreak investigation reporting and response; improve surveillance; implement and evaluate epidemiologic public health practice, prevention, and control strategies; and sustain and enhance laboratory diagnostic capacity for CRE have been put in place. Healthcare facilities will be provided with updated information regarding hospital, regional and statewide CRE rates as well as CRE prevention resources. Those facilities identified with high CRE rates will be contacted and offered assistance by the state CRE Prevention Coordinator. These visits will include discussion on a variety of topics including facility-wide CRE surveillance and prevention practices, barriers to implementation, antibiotic stewardship activities, and other strategies intended to reduce facility incidence rates.

Antimicrobial resistance is a growing concern in NYS. Hospitals and long term care facilities are encouraged to review their antimicrobial stewardship efforts, compare them with CDC guidelines, and take action to implement programs concordant with those guidelines. Involvement and engagement of clinical leadership and technical experts are critical to establishing a successful stewardship program. NYSDOH strongly recommends that hospitals measure antibiotic use to create baseline data and identify opportunities for targeted interventions. Progress on hospital implementation of antimicrobial stewardship will be monitored through annual NHSN surveys.

The response to the Ebola virus disease (EVD) outbreak has brought to light many opportunities for enhancement of hospitals' infection control capabilities. NYSDOH plans to more proactively improve overall infection control practices by updating the NYS infection prevention and control course materials, identifying and correcting performance gaps, and supporting improved practice in both inpatient and outpatient settings.

NYSDOH will continue to disseminate data on hospital-specific HAI rates in multiple formats, including annual reports and downloadable spreadsheets. Decisions regarding healthcare quality should not be based on these data alone. Consumers should consult with doctors, healthcare facilities, health insurance carriers, and reputable healthcare websites before deciding where to receive care.

Table 3: Summary of Hospital-Acquired Infection Data by Hospital, New York State 2013-2014

		Surgical Site Infections											Blood Stream Infections		*C. difficile*		CRE	
		Colon		Hip		Hyst		CABG Chest		CABG Donor		All	ICU CLABSI		Hospital Onset		Hospital Onset BSI	
Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
AO Fox Memorial	13	NA	NA	NA	NA	NA	NA					* 0.00	0/ 0.2	* 0.00	6/ 12586	8.0	0/ 5972	0.00
	14	1/ 24	4.1	0/ 25	* 0.0	NA	NA					0.46			5/ 11779	7.8	0/ 12322	0.00
Adirondack Medical	13	11/ 140	8.3	0/ 63	* 0.0	0/ 54	* 0.0					1.09	0/ 0.4	* 0.00	6/ 12138	7.7	0/ 6009	0.00
	14	3/ 88	3.5	1/ 69	1.3	0/ 50	* 0.0					0.59	0/ 0.3	* 0.00	5/ 11291	7.5	0/ 11641	0.00
Albany Medical	13	31/ 364	9.4	12/ 589	^^ 2.2	3/ 195	1.3	6/ 290	1.6	1/ 247	0.3	^^1.38	14/23.0	0.61	151/178616	11.5	0/101064	0.00
	14	42/ 446	^^ 9.5	10/ 617	1.5	4/ 186	2.0	4/ 338	1.2	0/ 292	* 0.0	^^1.33	15/21.0	0.71	190/187996	^ 14.6	0/208179	0.00
Albany Memorial	13	1/ 61	2.0	0/ 44	* 0.0	NA	NA					0.24	0/ 0.6	* 0.00	7/ 22129	** 4.4	0/ 11112	0.00
	14	0/ 69	** 0.0	0/ 26	* 0.0	NA	NA					**0.00	0/ 0.6	* 0.00	2/ 16239	** 1.8	0/ 16239	0.00
Alice Hyde	13	0/ 26	0.0	1/ 32	2.9	NA	NA					0.39	0/ 0.1	* 0.00	2/ 8596	5.3	0/ 4024	0.00
	14	0/ 28	0.0	1/ 44	2.4	NA	NA					0.37	0/ 0.1	* 0.00	0/ 8044	* 0.0	0/ 8170	0.00
Arnot Ogden	13	9/ 86	8.8	1/ 200	0.4	1/ 38	2.1	2/ 82	2.3	2/ 70	3.2	1.31	5/ 4.6	1.09	39/ 48609	10.6	0/ 28746	0.00
	14	7/ 82	6.2	1/ 211	0.4	0/ 22	* 0.0	1/ 80	1.2	2/ 70	3.2	0.94	10/ 4.7	^^2.13	44/ 55336	11.4	1/ 61106	0.16
Auburn Memorial	13	1/ 32	3.1	1/ 52	1.6	NA	NA					0.69	1/ 0.7	1.46	16/ 21956	10.0	0/ 11621	0.00
	14	6/ 51	11.8	0/ 34	* 0.0	NA	NA					1.61	2/ 0.7	3.02	15/ 22024	10.6	0/ 22789	0.00
Bellevue Hospital	13	5/ 91	5.0	2/ 67	2.3	2/ 121	1.4	4/ 108	3.8	1/ 100	1.3	1.17	6/ 6.6	0.91	86/188461	11.3	0/120147	0.00
	14	6/ 108	5.1	1/ 79	1.0	2/ 140	1.3	3/ 120	2.3	1/ 115	1.0	0.98	6/ 7.5	0.80	111/232612	9.9	1/244436	0.04
Bertrand Chaffee	13	NA	NA									NA			1/ 2996	5.3	0/ 1460	0.00
	14	NA	NA									NA			2/ 3682	8.5	0/ 3682	0.00
Blythedale Childrens	14														6/ 26297	4.9	0/ 26297	0.00
Bon Secours	13	1/ 26	5.2	2/ 30	4.6	NA	NA					1.70	0/ 0.6	* 0.00	8/ 24468	7.7	1/ 11763	0.85
	14	NA	NA	NA	NA	NA	NA					* 0.00	1/ 0.3	3.01	12/ 19042	15.2	0/ 19042	0.00
Bronx-Lebanon	13	2/ 89	2.4	2/ 53	3.7	2/ 120	1.3					0.70	6/ 5.9	1.01	71/146913	** 8.0	2/ 82196	0.24
	14	1/ 81	1.5	2/ 77	1.9	0/ 142	* 0.0					0.38	7/ 5.5	1.28	79/153925	8.7	12/165849	0.72
Brookdale Hospital	13	2/ 55	3.0	NA	NA	1/ 103	0.9					0.45	13/ 5.0	^^2.63	27/ 97715	** 5.9	10/ 50994	1.96
	14	11/ 73	11.5	NA	NA	1/ 69	1.2					1.59	4/ 4.5	0.89	21/ 98301	** 4.4	13/105133	1.24

**Significantly lower than state average. ^^Signif. higher than state average. *Zero infections, not signif. NA: Fewer than 20 procedures or 50 line days.

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Brookhaven Memorial	13	9/ 94	10.0	1/ 70	0.9							1.40	3/ 5.2	0.58	141/ 93035	^ 16.8	4/ 45593	0.88
	14	8/ 92	8.5	1/ 64	1.4							1.31	4/ 4.7	0.86	122/ 87592	^ 15.4	3/ 87592	0.34
BrooklynHos-Downtown	13	7/ 93	6.6	1/ 88	1.1	2/ 229	0.8					0.84	14/ 5.0	^^2.81	70/ 89692	14.3	9/ 51500	1.75
	14	6/ 85	5.7	1/ 76	1.0	1/ 241	0.4					0.71	16/ 4.3	^^3.68	61/ 91176	10.1	8/ 99800	0.80
Brooks Memorial	13	NA	NA	0/ 81	* 0.0	0/ 23	* 0.0					* 0.00	0/ 0.2	* 0.00	4/ 9891	6.6	0/ 4653	0.00
	14	NA	NA	0/ 99	* 0.0	NA	NA					0.58	0/ 0.3	* 0.00	3/ 9150	4.2	0/ 9150	0.00
Buffalo General	13	28/ 186	^^13.6	4/ 640	0.7	NA	NA	9/ 581	1.6	2/ 484	0.5	^^1.40	16/14.3	1.12	196/155934	^ 17.8	1/ 71605	0.14
	14	14/ 173	6.6	10/ 697	1.3	NA	NA	5/ 554	0.9	2/ 461	0.5	0.97	19/12.3	1.55	133/133492	12.5	0/133492	0.00
Burdett Care Center	14														0/ 2957	* 0.0	0/ 5328	0.00
Burke Rehab Hosp	14														20/ 39153	16.2	0/ 39153	0.00
Calvary LTAC	14														18/ 76287	** 2.6	1/ 76287	0.13
Canton-Potsdam	13	3/ 54	5.5	0/ 48	* 0.0	0/ 31	* 0.0					0.63	0/ 0.1	* 0.00	5/ 15009	8.8	0/ 8413	0.00
	14	3/ 55	5.1	2/ 60	3.3	0/ 52	* 0.0					0.97	0/ 0.1	* 0.00	6/ 15681	8.3	0/ 17265	0.00
Catskill Regional	13	1/ 31	3.3	0/ 20	* 0.0	0/ 95	* 0.0					0.29	1/ 0.6	1.66	13/ 21097	14.3	1/ 10403	0.96
	14	0/ 46	** 0.0	NA	NA	0/ 85	* 0.0					**0.00	2/ 0.8	2.43	7/ 18305	7.1	0/ 18305	0.00
Cayuga Medical Cntr	13	5/ 68	8.0	0/ 93	* 0.0	1/ 28	5.1					1.11	4/ 1.1	3.62	9/ 28759	6.0	0/ 14687	0.00
	14	4/ 52	7.4	3/ 117	2.4	0/ 30	* 0.0					1.40	0/ 1.1	* 0.00	19/ 30006	12.1	0/ 30006	0.00
Champlain Valley	13	8/ 82	9.5	0/ 138	* 0.0	0/ 57	* 0.0	3/ 70	4.6	0/ 66	* 0.0	1.18	3/ 1.7	1.77	29/ 56272	** 6.5	0/ 28488	0.00
	14	8/ 117	6.4	1/ 130	0.7	0/ 83	* 0.0					0.88	2/ 1.5	1.32	22/ 54947	** 5.4	0/ 57023	0.00
Chenango Memorial	13	NA	NA	0/ 59	* 0.0	1/ 20	5.9					0.65	0/ 0.1	* 0.00	1/ 6227	2.1	0/ 3618	0.00
	14	NA	NA	0/ 33	* 0.0	NA	NA					* 0.00	0/ 0.1	* 0.00	0/ 5507	* 0.0	0/ 6153	0.00
Claxton-Hepburn	13	0/ 22	0.0	0/ 39	* 0.0	0/ 43	* 0.0					* 0.00	0/ 0.2	* 0.00	8/ 22499	7.1	0/ 11006	0.00
	14	NA	NA	0/ 28	* 0.0	NA	NA					2.88	0/ 0.2	* 0.00	7/ 20253	7.3	0/ 20688	0.00
Clifton Springs	13	3/ 27	14.6	NA	NA							1.84	0/ 0.2	* 0.00	4/ 7479	14.3	0/ 3600	0.00
	14	2/ 23	10.8	NA	NA							1.54	0/ 0.3	* 0.00	5/ 6276	29.3	0/ 6276	0.00
Cobleskill Regional	14														0/ 4349	* 0.0	0/ 4349	0.00

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Columbia Memorial	13	2/ 52	4.1	1/ 75	1.0	2/ 84	3.8					1.00	0/ 0.6	* 0.00	19/ 30050	14.9	0/ 14878	0.00
	14	2/ 55	4.1	2/ 99	1.9	1/ 74	1.9					1.03	1/ 0.7	1.52	17/ 31036	14.5	0/ 31036	0.00
Community Memorial	13	NA	NA	1/ 170	0.7	NA	NA					0.74		NA	0/ 4412	* 0.0	0/ 2085	0.00
	14	NA	NA	1/ 211	0.5	NA	NA					0.50		NA	0/ 3784	* 0.0	0/ 3784	0.00
Coney Island	13	0/ 24	0.0	NA	NA	NA	NA					0.45	15/ 3.5	^^4.27	62/ 75834	11.1	1/ 48278	0.21
	14	0/ 41	0.0	1/ 56	1.4	1/ 36	2.3					0.50	6/ 3.9	1.53	64/115374	** 7.2	2/118873	0.17
Corning Hospital	13	0/ 36	0.0	0/ 52	* 0.0	2/ 32	6.7					0.55	1/ 0.3	3.20	20/ 14899	16.3	0/ 7597	0.00
	14	1/ 37	2.8	0/ 66	* 0.0	1/ 54	2.0					0.54	1/ 0.3	3.71	12/ 14535	10.8	0/ 15031	0.00
Cortland Reg Med	13	0/ 21	0.0	NA	NA	0/ 55	* 0.0					* 0.00	1/ 0.7	1.53	17/ 22595	11.4	0/ 11338	0.00
	14	3/ 27	11.8	1/ 21	5.3	0/ 51	* 0.0					1.66	1/ 0.5	1.83	4/ 22285	** 2.8	0/ 22285	0.00
Crouse Hospital	13	24/ 267	8.2	4/ 298	1.3	7/ 544	1.5					1.16	11/ 6.0	1.82	56/ 81630	9.9	0/ 52487	0.00
	14	27/ 284	9.1	3/ 659	0.5	16/ 542	^^ 3.3					^^1.48	11/ 6.1	1.79	49/ 83052	8.7	0/110418	0.00
DeGraff Memorial	13	2/ 26	8.2	0/ 44	* 0.0							0.92	0/ 0.2	* 0.00	13/ 11270	15.6	0/ 4898	0.00
	14	NA	NA	0/ 30	* 0.0							* 0.00			9/ 9333	13.6	0/ 9333	0.00
East. Niag. Lockport	13	5/ 29	17.6	NA	NA	0/ 44	* 0.0					1.88	0/ 0.5	* 0.00	14/ 35604	10.3	0/ 16854	0.00
	14	2/ 38	5.9	NA	NA	0/ 60	* 0.0					0.64	0/ 0.4	* 0.00	8/ 25663	10.0	0/ 26543	0.00
Eastern Long Island	13	NA	NA	NA	NA							* 0.00	0/ 0.1	* 0.00	1/ 18136	1.7	0/ 8660	0.00
	14	NA	NA	NA	NA							* 0.00	0/ 0.1	* 0.00	1/ 18380	1.5	0/ 18380	0.00
Ellis Hospital	13	5/ 153	3.5	1/ 232	0.3	1/ 103	1.2	6/ 227	2.7	1/ 218	0.5	0.76	5/ 5.1	0.99	51/ 90656	** 7.7	0/ 46842	0.00
	14	4/ 180	2.6	0/ 232	* 0.0	2/ 91	2.5	1/ 248	0.4	0/ 230	* 0.0	**0.38	1/ 4.6	0.22	83/ 84564	^ 14.5	1/ 92062	0.11
Elmhurst	13	8/ 50	13.4	0/ 47	* 0.0	1/ 88	0.9					1.39	4/ 3.9	1.04	44/140496	10.1	0/ 69876	0.00
	14	10/ 74	13.0	3/ 62	3.3	4/ 95	2.6					^^2.15	1/ 2.9	0.34	53/142845	13.7	0/142845	0.00
Erie Medical Center	13	3/ 59	5.1	4/ 262	1.7			NA	NA	NA	NA	1.10	0/ 3.5	**0.00	101/131315	^ 15.3	1/ 66753	0.15
	14	6/ 97	6.4	5/ 362	1.5	NA	NA					1.17	3/ 2.9	1.05	72/139159	10.2	2/139159	0.14
FF Thompson	13	4/ 30	11.7	0/ 143	* 0.0	1/ 42	2.6					1.23	0/ 0.5	* 0.00	12/ 19204	7.2	0/ 9854	0.00
	14	2/ 54	4.2	3/ 144	2.0	0/ 36	* 0.0					1.02	0/ 0.5	* 0.00	11/ 20091	7.2	0/ 21664	0.00

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Table 3: Summary of Hospital-Acquired Infection Data by Hospital, New York State 2013-2014

		Surgical Site Infections											Blood Stream Infections		*C. difficile*		CRE	
		Colon		Hip		Hyst		CABG Chest		CABG Donor		All	ICU CLABSI		Hospital Onset		Hospital Onset BSI	
Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Faxton St. Lukes	13	8/ 113	7.7	1/ 102	0.6	2/ 145	1.8					1.07	2/ 2.5	0.79	120/ 75492	^ 18.1	0/ 40558	0.00
	14	7/ 103	7.1	3/ 90	2.6	2/ 64	3.3					1.43	1/ 2.0	0.51	73/ 74163	13.0	0/ 79918	0.00
Flushing Hospital	13	10/ 50	^^19.0	2/ 40	4.3	3/ 195	1.6					^^2.18	6/ 4.5	1.34	37/ 86575	** 5.9	6/ 48340	1.24
	14	6/ 50	12.1	0/ 42	* 0.0	3/ 186	1.5					1.44	11/ 4.3	^^2.55	49/ 77589	8.3	6/ 90698	0.66
Forest Hills	13	6/ 101	5.8	2/ 115	1.5	2/ 132	1.5					0.97	1/ 2.5	0.40	76/ 72724	11.8	0/ 39126	0.00
	14	9/ 116	7.0	1/ 100	0.8	2/ 105	2.0					1.09	0/ 2.3	* 0.00	85/ 76312	12.4	0/ 81117	0.00
Franklin	13	0/ 52	** 0.0	0/ 113	* 0.0	NA	NA					**0.00	2/ 1.8	1.14	31/ 51063	7.8	0/ 24347	0.00
	14	3/ 58	5.5	2/ 105	1.8	NA	NA					1.06	1/ 1.2	0.87	21/ 45804	** 6.1	0/ 45804	0.00
Geneva General	13	3/ 48	6.4	3/ 154	1.8	NA	NA					1.45	0/ 0.6	* 0.00	15/ 17004	17.4	0/ 8373	0.00
	14	7/ 42	^^17.1	1/ 131	0.6							1.90	1/ 1.0	0.96	6/ 17739	6.2	0/ 17739	0.00
Glen Cove Hospital	13	1/ 40	2.0	2/ 473	0.6							0.46	2/ 1.0	2.03	34/ 53879	12.2	0/ 25665	0.00
	14	0/ 38	0.0	0/ 48	* 0.0							**0.00	3/ 0.5	^^5.61	19/ 31298	10.8	1/ 31298	0.32
Glens Falls	13	5/ 179	4.0	1/ 166	0.6	0/ 90	* 0.0					0.53	3/ 1.8	1.71	43/ 71337	7.9	0/ 37550	0.00
	14	8/ 151	7.4	1/ 155	0.6	1/ 110	1.2					1.01	0/ 1.6	* 0.00	39/ 73213	** 6.6	0/ 75851	0.00
Good Samar. Suffern	13	1/ 116	** 0.7	1/ 107	1.0	1/ 30	3.5	4/ 119	3.5	0/ 113	* 0.0	0.53	2/ 2.4	0.85	32/ 57836	10.3	1/ 28363	0.35
	14	12/ 134	9.0	1/ 132	0.9	0/ 40	* 0.0	2/ 125	1.5	2/ 118	1.4	1.30	5/ 2.7	1.83	55/ 60234	12.8	2/ 64771	0.31
Good Samar. W Islip	13	21/ 197	^^11.6	1/ 120	0.6	2/ 402	0.7					1.29	2/ 4.5	0.44	130/105187	13.9	2/ 58139	0.34
	14	9/ 265	3.7	2/ 130	1.2	3/ 447	0.9	2/ 205	1.1	0/ 191	* 0.0	**0.61	7/ 5.6	1.25	125/120127	11.8	6/132868	0.45
Harlem Hospital	13	3/ 29	11.0	NA	NA	0/ 40	* 0.0					1.09	0/ 2.5	* 0.00	18/ 68860	7.2	0/ 35824	0.00
	14	3/ 37	6.8	NA	NA	0/ 36	* 0.0					0.82	0/ 3.2	**0.00	24/ 66026	8.6	0/ 70453	0.00
HealthAlli Broadway	13	0/ 64	** 0.0	1/ 47	1.1	NA	NA					0.19	0/ 1.9	* 0.00	25/ 38234	10.9	0/ 18215	0.00
	14	0/ 61	** 0.0	0/ 33	* 0.0	NA	NA					**0.00	1/ 1.4	0.69	25/ 35835	12.3	2/ 35835	0.56
HealthAlli MarysAve	13	NA	NA	0/ 121	* 0.0							* 0.00	0/ 0.0	* 0.00	4/ 27451	5.5	0/ 13245	0.00
	14	NA	NA	0/ 177	* 0.0							* 0.00	NA	NA	3/ 24499	5.2	0/ 24499	0.00
Helen Hayes Hospital	14														15/ 29642	6.1	0/ 29642	0.00
Henry J. Carter LTAC	14														63/ 52818	10.4	2/ 52818	0.38

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Highland Hospital	13	16/ 190	9.1	4/ 810	0.5	7/ 690	1.1					0.92	4/ 2.0	2.00	74/ 78138	10.2	0/ 42408	0.00
	14	9/ 156	6.0	3/ 901	0.4	5/ 621	1.0					0.72	0/ 2.1	* 0.00	53/ 80421	** 7.3	0/ 88373	0.00
Hosp for Spec Surg	13			14/4553	** 0.4							**0.45	1/ 0.1	17.04	37/ 53429	14.1	0/ 26940	0.00
	14			20/5111	** 0.5							**0.57	2/ 0.2	^^10.74	26/ 54588	10.6	0/ 54598	0.00
Hudson Valley	13	1/ 71	1.3	1/ 134	0.6	0/ 32	* 0.0					**0.27	3/ 1.0	3.12	18/ 32732	7.4	2/ 16539	1.21
	14	4/ 83	4.3	1/ 167	0.5	0/ 21	* 0.0					0.60	0/ 0.6	* 0.00	16/ 29240	8.3	0/ 31779	0.00
Huntington	13	13/ 119	10.9	2/ 232	0.7	2/ 222	1.5					1.33	1/ 1.4	0.72	52/ 71977	10.5	0/ 38081	0.00
	14	10/ 166	6.1	2/ 249	0.9	3/ 207	2.3					1.02	1/ 1.5	0.65	47/ 71761	9.3	0/ 75927	0.00
Interfaith Medical	13	NA	NA	NA	NA	NA	NA					* 0.00	3/ 2.6	1.14	15/ 78519	6.6	3/ 35231	0.85
	14	0/ 20	0.0	NA	NA	NA	NA					* 0.00	2/ 1.9	1.08	15/ 68246	7.4	5/ 68246	0.73
Ira Davenport	13	NA	NA	NA	NA							NA			2/ 2068	16.0	0/ 860	0.00
	14			NA	NA							NA			2/ 2157	13.1	0/ 2157	0.00
JT Mather	13	10/ 122	9.3	2/ 86	2.0	3/ 38	6.9					1.67	4/ 1.9	2.09	58/ 68964	15.4	1/ 32701	0.31
	14	13/ 124	12.0	1/ 99	1.3	2/ 68	4.6					^^1.90	0/ 1.9	* 0.00	65/ 63467	^ 17.7	1/ 63467	0.16
Jacobi Medical	13	4/ 86	3.9	0/ 56	* 0.0	5/ 99	3.2					0.88	5/ 4.2	1.19	69/129954	10.3	4/ 71838	0.56
	14	11/ 95	8.7	2/ 71	2.2	3/ 125	1.6					1.37	3/ 3.6	0.84	61/126266	9.6	0/140848	0.00
Jamaica Hospital	13	4/ 53	7.5	3/ 47	4.0	1/ 134	0.6					1.14	15/ 4.9	^^3.04	44/113577	11.1	0/ 60380	0.00
	14	4/ 73	4.6	1/ 49	1.2	3/ 174	1.4					0.86	2/ 3.5	0.57	52/115043	11.6	4/124454	0.32
Jones Memorial	13	0/ 22	0.0	NA	NA	NA	NA					* 0.00	0/ 0.4	* 0.00	3/ 6816	8.0	0/ 3416	0.00
	14	NA	NA	NA	NA	NA	NA					* 0.00	0/ 0.3	* 0.00	5/ 7645	12.1	0/ 7645	0.00
Kenmore Mercy	13	11/ 155	8.7	7/ 517	1.9	NA	NA					1.49	0/ 1.2	* 0.00	38/ 36643	12.7	0/ 17364	0.00
	14	12/ 159	8.6	2/ 573	0.4							1.04	0/ 1.3	* 0.00	23/ 39001	7.4	0/ 39001	0.00
Kings County	13	3/ 81	3.4	2/ 52	2.6	2/ 113	1.2					0.74	16/ 6.8	^^2.35	27/121491	7.7	4/ 60731	0.66
	14	13/ 127	8.6	2/ 54	2.8	2/ 101	1.9					1.42	13/ 6.5	^^2.01	14/118088	** 4.1	4/123595	0.32
Kingsbrook Jewish	13	4/ 39	9.3	1/ 22	2.9	0/ 25	* 0.0					1.34	6/ 2.5	2.40	26/ 69112	7.5	2/ 34678	0.58
	14	2/ 50	3.3	1/ 21	3.4	2/ 50	3.7					0.99	5/ 2.3	2.13	30/ 65358	9.8	4/ 65358	0.61

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Lenox Hill	13	14/ 172	8.5	6/ 753	0.9	3/ 331	0.9	4/ 280	1.5	1/ 213	0.4	1.01	9/ 9.5	0.95	92/134227	14.7	1/ 72839	0.14
	14	18/ 225	8.1	6/ 709	0.8	3/ 278	1.0	2/ 277	0.8	0/ 185	* 0.0	0.97	3/ 6.5	0.46	114/131790	^ 15.9	1/145656	0.07
Lincoln Medical	13	6/ 45	11.3	0/ 27	* 0.0	4/ 91	3.7					1.77	11/ 4.8	^^2.28	22/ 89577	8.0	1/ 49253	0.20
	14	1/ 67	1.3	NA	NA	0/ 53	* 0.0					**0.15	9/ 4.3	2.07	24/ 94853	7.8	1/105033	0.10
Long Island Jewish	13	15/ 315	4.5	1/ 216	0.5	7/ 416	1.6	2/ 250	0.8	1/ 234	0.5	0.70	5/13.0	**0.38	185/203413	^ 18.7	3/116221	0.26
	14	32/ 344	8.9	1/ 275	0.3	12/ 420	2.4	3/ 266	1.1	2/ 255	0.8	1.29	6/ 9.4	0.64	196/211109	^ 20.9	6/242256	0.25
Lutheran Medical	13	3/ 142	** 1.9	3/ 171	1.3	2/ 191	1.0					**0.50	7/ 4.3	1.64	103/121876	12.3	2/ 63011	0.32
	14	12/ 142	8.0	0/ 201	* 0.0	2/ 176	1.1					0.98	3/ 3.8	0.79	94/120106	11.4	4/130607	0.31
Maimonides	13	19/ 180	10.6	1/ 194	0.3	9/ 267	2.8	10/ 311	3.2	0/ 296	* 0.0	^^1.49	1/11.0	**0.09	69/198712	** 6.0	3/111223	0.27
	14	19/ 265	6.6	2/ 162	1.1	3/ 286	0.9	9/ 275	2.9	0/ 259	* 0.0	1.05	1/ 8.3	**0.12	52/188449	** 5.0	22/219276	1.00
Mary Imogene Bassett	13	4/ 119	3.2	0/ 202	* 0.0	3/ 75	3.7	0/ 97	* 0.0	0/ 77	* 0.0	**0.48	2/ 2.3	0.88	27/ 47682	7.8	0/ 25166	0.00
	14	11/ 156	7.0	4/ 240	1.1	1/ 78	1.1	0/ 136	** 0.0	0/ 121	* 0.0	0.86	4/ 1.9	2.10	25/ 46058	7.8	0/ 47746	0.00
Massena Memorial	13	NA	NA	NA	NA	1/ 24	5.4					^^3.69	NA	NA	6/ 10040	14.1	0/ 4922	0.00
	14	NA	NA	NA	NA	NA	NA					1.22	NA	NA	3/ 9063	10.1	0/ 9633	0.00
Medina Memorial	13	NA	NA	NA	NA	NA	NA					* 0.00	0/ 0.1	* 0.00	7/ 12606	8.7	0/ 6268	0.00
	14	NA	NA	NA	NA							NA	2/ 0.2	^^13.04	2/ 11189	2.8	0/ 11189	0.00
Memor SloanKettering	13	68/ 633	^^ 9.3	0/ 105	* 0.0	13/ 471	1.4					1.23			267/138337	^ 16.1	2/ 71849	0.28
	14	54/ 736	6.4	4/ 91	2.2	12/ 641	1.2					0.99			257/141471	^ 16.6	6/146867	0.41
Mercy Medical	13	5/ 75	6.3	2/ 93	1.9	0/ 74	* 0.0					0.95	0/ 1.6	* 0.00	60/ 59977	^ 16.4	0/ 32841	0.00
	14	4/ 74	5.2	3/ 100	2.6	1/ 67	1.6					1.14	1/ 1.5	0.65	50/ 49163	^ 20.6	0/ 66272	0.00
Mercy- Buffalo	13	18/ 282	7.8	3/ 155	1.3	2/ 219	1.3	8/ 386	2.5	1/ 343	0.3	1.18	2/ 5.8	0.35	109/ 96833	13.9	0/ 51035	0.00
	14	21/ 323	7.5	2/ 160	1.0	3/ 290	1.4	12/ 399	^^ 3.5	6/ 351	^^ 1.7	^^1.46	3/ 6.7	0.44	80/ 98785	9.8	0/105954	0.00
Metropolitan	13	5/ 31	13.7	2/ 27	6.5	0/ 24	* 0.0					2.16	3/ 1.9	1.62	14/ 80985	** 5.8	2/ 40265	0.50
	14	6/ 23	^^23.1	1/ 30	1.5	0/ 39	* 0.0					2.32	3/ 2.2	1.34	10/ 74567	** 3.9	3/ 76499	0.39
MidHudson Reg of WMC	13	4/ 80	5.0	2/ 140	1.0	0/ 59	* 0.0					0.75	1/ 2.1	0.48	12/ 56323	7.4	0/ 27490	0.00
	14	0/ 76	** 0.0	3/ 104	2.5	0/ 53	* 0.0					0.46	0/ 1.5	* 0.00	19/ 47373	14.7	1/ 47373	0.21

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Millard Fill. Suburb	13	13/ 274	5.0	1/ 443	0.3	5/ 495	1.3					0.69	5/ 2.8	1.78	69/ 65725	11.3	0/ 32902	0.00
	14	19/ 314	6.2	2/ 444	0.6	8/ 546	1.8					0.98	6/ 3.7	1.64	67/ 66180	11.3	0/ 72337	0.00
Monroe Community	14														1/ 260	85.5	0/ 260	0.00
Montefiore-Einstein	13	8/ 219	3.8	2/ 200	1.0	9/ 310	2.1	6/ 234	2.4	0/ 179	* 0.0	0.90	11/ 7.9	1.39	150/136252	11.6	0/ 75457	0.00
	14	14/ 208	6.8	NA	NA	7/ 348	1.6	8/ 249	2.9	0/ 194	* 0.0	1.17	10/ 7.4	1.35	130/131883	11.0	4/144628	0.28
Montefiore-Moses	13	11/ 220	4.7	0/ 129	* 0.0	3/ 201	1.5	3/ 249	1.1	0/ 226	* 0.0	0.64	3/14.9	**0.20	322/273880	11.4	5/136868	0.37
	14	13/ 241	5.3	2/ 109	1.2	0/ 203	* 0.0	14/ 257	^^ 5.3	3/ 236	1.5	1.26	3/11.2	**0.27	254/261850	10.1	9/262153	0.34
Montefiore-Mt Vernon	13	NA	NA	NA	NA	0/ 31	* 0.0					1.57	1/ 0.4	2.73	15/ 23417	10.4	1/ 11290	0.89
	14	NA	NA	NA	NA	0/ 27	* 0.0					0.81	1/ 0.4	2.53	9/ 23785	6.9	1/ 23785	0.42
Montefiore-NewRochl	13	2/ 58	3.4	3/ 151	1.9	1/ 80	1.5					0.93	0/ 1.0	* 0.00	29/ 34202	9.8	1/ 18205	0.55
	14	5/ 66	7.4	1/ 123	0.8	1/ 66	1.7					1.09	1/ 1.0	1.01	21/ 31856	7.3	0/ 34870	0.00
Montefiore-Wakefield	13	2/ 24	6.6	1/ 170	0.6	1/ 194	0.5					0.61	4/ 4.4	0.91	79/ 84540	11.5	2/ 46864	0.43
	14	5/ 25	18.8	5/ 392	1.1	4/ 150	2.9					1.78	4/ 3.6	1.11	70/ 84170	9.9	5/ 89104	0.56
Mount St. Marys	13	13/ 69	^^20.3	0/ 88	* 0.0	NA	NA					^^2.44	0/ 0.5	* 0.00	17/ 26381	14.2	0/ 13185	0.00
	14	4/ 51	7.8	0/ 92	* 0.0	NA	NA					0.86	0/ 0.4	* 0.00	10/ 26719	9.4	0/ 27422	0.00
Mt Sinai	13	101/ 801	^^12.0	4/ 366	0.9	5/ 522	0.8	17/ 543	^^ 2.9	1/ 491	0.2	^^1.54	15/19.8	0.76	285/303042	^ 14.0	8/164742	0.49
	14	91/ 835	^^11.1	1/ 408	0.2	3/ 509	0.5	11/ 540	2.1	1/ 468	0.2	^^1.39	10/18.4	0.54	296/307102	^ 13.7	9/339294	0.27
Mt Sinai BI-Bklyn	13	5/ 59	8.1	2/ 55	2.2	0/ 29	* 0.0					1.26	0/ 1.0	* 0.00	43/ 66359	** 7.0	1/ 31558	0.32
	14	3/ 52	5.2	0/ 49	* 0.0	0/ 25	* 0.0					0.63	1/ 0.9	1.09	38/ 60656	** 5.7	3/ 60656	0.49
Mt Sinai Beth Israel	13	12/ 320	4.0	2/ 463	0.4	4/ 183	1.9	5/ 196	2.7	0/ 191	* 0.0	0.72	8/ 7.3	1.09	105/216857	10.5	0/114770	0.00
	14	8/ 275	3.5	1/ 386	0.2	1/ 176	0.5	5/ 202	2.4	1/ 201	0.6	0.62	2/ 5.9	0.34	104/192781	10.2	0/204812	0.00
Mt Sinai Queens	13	3/ 66	4.5	0/ 51	* 0.0	0/ 64	* 0.0					0.49	0/ 1.2	* 0.00	49/ 55240	8.7	0/ 26455	0.00
	14	1/ 92	1.2	1/ 57	1.8	0/ 81	* 0.0					0.29	0/ 1.0	* 0.00	32/ 49411	** 6.6	2/ 49411	0.40
Mt Sinai Roosevelt	13	7/ 164	3.9	0/ 84	* 0.0	4/ 225	1.7					0.65	2/ 4.4	0.46	35/116715	8.3	1/ 69360	0.14
	14	6/ 174	3.4	3/ 190	1.3	2/ 261	0.7					0.62	2/ 2.2	0.89	36/107630	7.6	0/126653	0.00
Mt Sinai St Lukes	13	3/ 51	5.2	2/ 144	1.4	2/ 69	3.2	1/ 145	0.6	1/ 129	0.7	0.95	4/ 5.6	0.71	40/109511	** 7.0	0/ 53903	0.00
	14	6/ 73	7.1	0/ 65	* 0.0	3/ 78	3.9	0/ 134	* 0.0	0/ 116	* 0.0	0.91	3/ 4.4	0.69	31/104477	** 4.3	3/104477	0.29

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		Surgical Site Infections											Blood Stream Infections		*C. difficile*		CRE	
		Colon		Hip		Hyst		CABG Chest		CABG Donor		All	ICU CLABSI		Hospital Onset		Hospital Onset BSI	
Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
NY Community Bklyn	13	3/ 33	8.5	0/ 33	* 0.0	NA	NA					0.97	3/ 0.6	4.67	47/ 45585	13.9	0/ 21961	0.00
	14	3/ 28	9.0	1/ 20	4.0	NA	NA					1.52	0/ 0.7	* 0.00	33/ 40599	7.4	0/ 40599	0.00
NY Eye and Ear	14														0/ 1122	* 0.0	0/ 1122	0.00
NY Hosp Queens	13	27/ 250	^^10.9	1/ 252	0.3	5/ 189	1.9	1/ 98	1.2	0/ 74	* 0.0	1.32	5/ 6.5	0.77	258/159316	^ 15.5	3/ 83495	0.36
	14	22/ 283	7.8	3/ 266	1.1	1/ 165	0.5	1/ 78	1.2	0/ 70	* 0.0	1.06	6/ 5.4	1.11	225/147745	^ 14.1	3/162096	0.19
NY Methodist	13	5/ 164	** 2.9	7/ 192	^^ 3.3	7/ 440	1.7	0/ 119	* 0.0	0/ 113	* 0.0	0.84	6/ 7.6	0.79	143/194817	9.5	0/108907	0.00
	14	10/ 189	5.0	3/ 240	0.8	1/ 396	0.2	0/ 115	* 0.0	1/ 109	1.0	0.61	6/ 7.7	0.78	139/192537	9.2	4/213983	0.19
NYP-Allen	13	2/ 23	9.2	0/ 23	* 0.0	NA	NA					1.01	1/ 0.7	1.41	25/ 54985	7.4	0/ 31372	0.00
	14	2/ 26	7.9	0/ 20	* 0.0	NA	NA					1.01	2/ 0.6	3.16	28/ 56673	8.8	0/ 63767	0.00
NYP-Columbia-Morgan	13	16/ 259	5.7	5/ 343	1.4	5/ 275	1.5	13/ 607	2.0	0/ 499	* 0.0	0.96	41/39.8	1.03	285/267066	12.4	11/152722	0.72
	14	14/ 361	3.9	1/ 380	0.2	1/ 261	0.3	17/ 618	2.7	0/ 518	* 0.0	0.76	34/30.3	1.12	260/271206	11.1	12/306469	0.39
NYP-Lawrence	13	5/ 87	6.4	5/ 134	^^ 3.0	0/ 47	* 0.0					1.37	2/ 2.0	1.00	50/ 56193	10.3	0/ 30516	0.00
	14	3/ 71	4.1	2/ 99	2.5	0/ 71	* 0.0					0.79	1/ 1.6	0.62	31/ 48678	8.2	0/ 53857	0.00
NYP-Lower Manhattan	13	4/ 63	5.8	4/ 61	^^ 5.4	1/ 61	1.5					1.39	3/ 1.5	1.97	18/ 39253	9.3	0/ 22134	0.00
	14	3/ 60	4.7	1/ 92	0.7	0/ 57	* 0.0					0.63	2/ 2.0	0.99	17/ 38849	8.7	0/ 45516	0.00
NYP-Weill Cornell	13	46/ 605	8.0	0/ 133	* 0.0	3/ 274	0.9	4/ 301	1.5	2/ 285	0.8	1.06	34/23.9	1.42	275/252761	11.6	7/140624	0.50
	14	31/ 622	5.3	2/ 124	1.2	4/ 270	1.2	1/ 320	0.4	1/ 304	0.4	0.78	21/17.6	1.19	244/249135	10.6	12/279580	0.43
NYU Joint Disease	13			16/1358	^^ 1.6							^^1.77			12/ 31649	7.9	0/ 17543	0.00
	14			20/1560	^^ 1.6							^^1.67			12/ 35374	7.6	0/ 35374	0.00
NYU Medical Center	13	39/ 350	^^10.9	2/ 71	1.8	1/ 284	0.3	5/ 217	2.9	0/ 173	* 0.0	^^1.38	6/11.6	0.52	127/108745	^ 19.6	1/ 62688	0.16
	14	22/ 352	6.1	1/ 63	1.2	4/ 283	1.3	6/ 233	3.3	0/ 210	* 0.0	1.02	8/ 9.9	0.81	140/137971	11.3	2/145596	0.14
Nassau University	13	0/ 38	** 0.0	0/ 54	* 0.0	2/ 100	1.6					0.35	3/ 3.5	0.85	18/130418	** 4.8	0/ 69100	0.00
	14	2/ 53	3.3	1/ 40	1.9	5/ 106	4.1					1.32	0/ 3.3	**0.00	15/124079	** 4.5	1/130804	0.08
Nathan Littauer	13	NA	NA	1/ 56	1.3	NA	NA					1.10	0/ 0.1	* 0.00	1/ 11103	1.8	0/ 5654	0.00
	14	NA	NA	0/ 48	* 0.0	NA	NA					1.60	0/ 0.2	* 0.00	4/ 10651	8.0	0/ 11484	0.00

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Newark Wayne	13	4/ 44	10.2	2/ 76	2.9	1/ 49	2.4					1.75	0/ 1.0	* 0.00	9/ 21863	6.1	0/ 12253	0.00
	14	2/ 33	6.9	2/ 78	3.2	0/ 60	* 0.0					1.27	0/ 1.0	* 0.00	18/ 25530	11.0	0/ 27128	0.00
Niagara Falls	13	4/ 36	11.3	0/ 33	* 0.0	5/ 94	^^10.2					^^2.52	0/ 0.8	* 0.00	10/ 23151	11.3	0/ 10362	0.00
	14	3/ 32	9.8	0/ 29	* 0.0	3/ 77	^^ 7.1					2.14	0/ 0.7	* 0.00	3/ 26675	3.1	0/ 27932	0.00
North Central Bronx	13	NA	NA			0/ 25	* 0.0					1.14	0/ 0.3	* 0.00	12/ 43047	6.4	0/ 20972	0.00
	14	NA	NA			NA	NA					NA	0/ 0.3	* 0.00	7/ 40247	4.3	0/ 40876	0.00
North Shore	13	25/ 546	** 3.9	0/ 371	** 0.0	8/ 523	1.3	8/ 371	2.2	3/ 324	0.9	**0.69	9/13.0	0.69	239/241890	12.1	3/131329	0.23
	14	41/ 567	6.3	3/ 321	0.9	8/ 466	1.4	12/ 347	^^ 3.2	0/ 300	* 0.0	1.04	4/10.1	0.40	235/245788	11.9	6/270476	0.22
Northern Dutchess	13	3/ 21	12.3	1/ 230	0.5	NA	NA					1.05	0/ 0.2	* 0.00	12/ 15632	12.7	0/ 8521	0.00
	14	1/ 26	4.4	1/ 234	0.5	NA	NA					0.58	3/ 0.4	^^8.32	9/ 15366	9.9	0/ 17394	0.00
Northern Westchester	13	7/ 139	6.8	2/ 201	1.1	6/ 243	3.7					1.32	2/ 0.8	2.38	14/ 36637	8.6	0/ 20642	0.00
	14	3/ 104	4.2	3/ 239	1.4	4/ 260	2.3					1.11	0/ 0.9	* 0.00	42/ 37331	^ 17.6	0/ 42458	0.00
Noyes Memorial	13	0/ 29	0.0	0/ 36	* 0.0	1/ 51	1.6					0.32	1/ 0.3	3.48	3/ 6431	9.8	0/ 3627	0.00
	14	2/ 27	7.9	0/ 33	* 0.0	0/ 53	* 0.0					0.75	0/ 0.2	* 0.00	2/ 7487	6.2	0/ 8129	0.00
Nyack Hospital	13	6/ 112	6.1	2/ 161	1.1	0/ 35	* 0.0					0.90	6/ 2.0	^^2.94	59/ 57278	11.1	2/ 28497	0.70
	14	4/ 76	6.0	3/ 151	1.8	0/ 20	* 0.0					1.13	0/ 1.4	* 0.00	48/ 54646	10.2	2/ 59642	0.34
Olean General	13	6/ 81	7.6	1/ 59	1.5	2/ 100	2.3					1.21	1/ 1.1	0.95	35/ 32707	10.9	0/ 16644	0.00
	14	5/ 92	6.0	2/ 45	4.7	0/ 114	* 0.0					0.97	0/ 1.0	* 0.00	23/ 32361	6.6	0/ 33990	0.00
Oneida Healthcare	13	2/ 86	3.4	NA	NA	0/ 61	* 0.0					0.41	0/ 0.2	* 0.00	5/ 10638	6.5	0/ 4995	0.00
	14	5/ 84	7.8	NA	NA	1/ 76	2.1					1.58	0/ 0.3	* 0.00	6/ 11456	7.8	0/ 12532	0.00
OrangeReg Goshen-Mid	13	5/ 159	3.8	3/ 269	1.0	1/ 74	1.6					0.70	2/ 2.6	0.77	57/ 89947	14.1	0/ 47177	0.00
	14	6/ 173	4.3	1/ 280	0.4	2/ 129	1.9					0.69	4/ 1.9	2.10	90/106778	13.0	0/109380	0.00
Oswego Hospital	13	1/ 40	2.4	0/ 27	* 0.0	0/ 50	* 0.0					0.25	0/ 0.6	* 0.00	9/ 19191	5.4	0/ 10128	0.00
	14	2/ 42	4.4	NA	NA	3/ 33	^^ 9.5					1.42	0/ 0.5	* 0.00	12/ 17491	6.7	0/ 18746	0.00
Our Lady of Lourdes	13	9/ 161	6.0	3/ 260	1.0	1/ 111	1.4					0.92	0/ 1.2	* 0.00	42/ 47201	8.9	0/ 22918	0.00
	14	6/ 117	5.4	1/ 239	0.4	2/ 84	3.6					0.88	2/ 1.0	2.04	51/ 47636	11.0	0/ 47636	0.00

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Peconic Bay Medical	13	0/ 72	** 0.0	1/ 343	0.3	0/ 33	* 0.0					**0.11	0/ 0.4	* 0.00	58/ 29347	^ 23.4	0/ 14547	0.00
	14	1/ 80	1.2	5/ 371	1.0	1/ 34	2.6					0.65	1/ 0.5	2.06	26/ 29030	12.3	0/ 29030	0.00
Phelps Memorial	13	1/ 26	5.1	4/ 246	2.1	0/ 48	* 0.0					1.36	3/ 0.7	4.26	23/ 51863	9.1	0/ 26279	0.00
	14	2/ 39	6.2	0/ 231	* 0.0	0/ 48	* 0.0					0.47	0/ 0.6	* 0.00	32/ 49357	14.4	0/ 51956	0.00
Plainview Hospital	13	5/ 111	4.0	1/ 165	0.5	1/ 112	1.1					0.59	0/ 1.9	* 0.00	50/ 50904	10.0	1/ 24510	0.41
	14	14/ 131	9.9	1/ 139	0.7	0/ 48	* 0.0					1.33	0/ 1.9	* 0.00	33/ 43836	8.0	0/ 43836	0.00
Putnam Hospital	13	5/ 113	6.4	2/ 277	0.9	0/ 56	* 0.0					0.89	1/ 0.5	2.20	27/ 32125	13.5	0/ 14640	0.00
	14	2/ 104	2.4	2/ 307	0.8	1/ 31	4.0					0.62	0/ 0.5	* 0.00	24/ 24308	15.3	0/ 24308	0.00
Queens Hospital	13	2/ 36	4.5			2/ 121	1.4					0.76	1/ 2.4	0.42	22/ 85968	** 5.0	1/ 45786	0.22
	14	6/ 56	10.1			4/ 112	2.5					1.65	8/ 2.9	^^2.74	24/ 79111	** 5.9	4/ 85601	0.47
Richmond Univ	13	4/ 104	4.1	0/ 83	* 0.0	2/ 227	1.0					0.57	6/ 5.7	1.06	56/161602	** 3.8	2/ 87232	0.23
	14	4/ 117	3.6	1/ 77	1.2	5/ 299	2.0					0.88	6/ 5.7	1.06	75/110502	9.1	3/121279	0.25
Rochester General	13	28/ 426	7.6	4/ 457	0.9	12/ 443	^^ 3.7	1/ 471	** 0.2	5/ 464	1.2	1.15	0/ 8.6	**0.00	163/200926	** 8.6	0/100783	0.00
	14	27/ 420	7.6	4/ 447	0.8	10/ 572	2.2	3/ 441	0.7	3/ 429	0.8	1.10	5/ 7.3	0.68	146/207148	** 7.4	1/214453	0.05
Rome Memorial	13	2/ 37	5.7	0/ 41	* 0.0	0/ 22	* 0.0					0.62	0/ 0.7	* 0.00	22/ 21087	16.2	0/ 11304	0.00
	14	1/ 38	2.8	1/ 44	1.0	0/ 21	* 0.0					0.56	1/ 0.6	1.80	9/ 19300	9.1	0/ 20441	0.00
Roswell Park	13	8/ 115	6.1			7/ 286	2.3					1.09			21/ 37765	** 6.4	0/ 18590	0.00
	14	10/ 131	7.3			4/ 175	1.9					1.18			26/ 38568	7.7	0/ 38572	0.00
Samaritan- Troy	13	4/ 80	5.3	3/ 113	2.4	2/ 98	2.9					1.22	1/ 1.0	0.98	9/ 50777	** 4.9	0/ 25348	0.00
	14	8/ 100	8.2	1/ 103	0.9	0/ 63	* 0.0					1.10	0/ 1.0	* 0.00	8/ 48344	5.0	0/ 48974	0.00
Samaritan- Watertown	13	2/ 54	3.5	2/ 133	1.8	2/ 82	3.2					1.02	0/ 0.7	* 0.00	24/ 28055	16.1	0/ 16580	0.00
	14	6/ 78	7.4	1/ 159	0.6	0/ 106	* 0.0					0.87	0/ 0.8	* 0.00	23/ 28383	14.4	0/ 32944	0.00
Saratoga Hospital	13	4/ 135	3.4	1/ 287	0.4	0/ 24	* 0.0					0.46	1/ 1.2	0.82	8/ 45768	** 2.3	0/ 23819	0.00
	14	2/ 105	2.5	1/ 328	0.3	NA	NA					0.36	0/ 1.2	* 0.00	22/ 45790	** 5.6	0/ 47337	0.00
Sisters of Charity	13	5/ 67	8.5	1/ 162	0.8	3/ 296	1.2					1.00	0/ 2.1	* 0.00	22/ 51172	** 5.9	0/ 34240	0.00
	14	13/ 132	10.2	2/ 144	1.3	1/ 318	0.4					1.18	0/ 2.5	* 0.00	35/ 51275	9.4	0/ 70198	0.00

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Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Sisters- St Joseph	13	7/ 75	9.4	0/ 176	* 0.0	0/ 30	* 0.0					0.99	0/ 1.3	* 0.00	28/ 27063	8.8	0/ 13134	0.00
	14	11/ 68	^^14.7	1/ 159	0.7	1/ 30	3.0					^^1.94	2/ 1.1	1.78	23/ 23436	9.1	0/ 23436	0.00
South Nassau Comm.	13	5/ 163	** 2.5	7/ 449	1.3	1/ 213	0.5					0.60	2/ 3.3	0.60	183/110850	^ 18.1	0/ 56567	0.00
	14	11/ 200	4.7	5/ 418	1.2	3/ 276	1.1					0.82	1/ 3.5	0.29	128/104101	^ 15.1	1/110613	0.09
Southampton	13	3/ 37	9.0	NA	NA	0/ 53	* 0.0					0.90	0/ 1.1	* 0.00	18/ 19892	10.4	0/ 10370	0.00
	14	2/ 44	4.5	NA	NA	0/ 65	* 0.0					0.53	0/ 0.7	* 0.00	18/ 19135	12.2	0/ 20800	0.00
Southside	13	8/ 132	5.7	2/ 225	1.0	3/ 204	2.2	7/ 221	3.2	2/ 171	1.0	1.21	4/ 4.3	0.93	65/ 92933	11.1	0/ 50867	0.00
	14	26/ 175	^^14.3	2/ 258	0.6	3/ 151	2.6	8/ 197	^^ 4.3	2/ 181	1.1	^^1.99	0/ 3.1	**0.00	63/ 95432	11.1	0/103133	0.00
St Anthony	13	NA	NA	1/ 52	1.8	0/ 58	* 0.0					1.41	2/ 0.5	4.36	3/ 9761	** 2.7	0/ 5117	0.00
	14	NA	NA	0/ 75	* 0.0	0/ 72	* 0.0					* 0.00	0/ 0.5	* 0.00	7/ 9316	6.8	0/ 10308	0.00
St Barnabas	13	1/ 31	2.6	NA	NA	5/ 49	^^ 6.8					1.78	4/ 3.7	1.08	85/ 86638	^ 26.9	2/ 45402	0.44
	14	6/ 59	8.6	1/ 22	2.9	4/ 40	^^ 7.7					1.97	2/ 2.7	0.74	65/ 79730	^ 24.8	0/ 83160	0.00
St Catherine Siena	13	7/ 78	8.6	0/ 88	* 0.0	0/ 64	* 0.0					0.97	1/ 1.7	0.58	65/ 69304	12.7	0/ 34875	0.00
	14	2/ 67	3.0	0/ 99	* 0.0	1/ 54	2.5					0.53	2/ 1.8	1.12	71/ 67760	14.6	1/ 68978	0.14
St Charles Hospital	13	2/ 41	3.8	2/ 215	1.1	0/ 46	* 0.0					0.70	6/ 2.1	^^2.84	44/ 58205	14.9	0/ 30654	0.00
	14	4/ 49	8.1	6/ 216	^^ 3.1	0/ 51	* 0.0					1.76	3/ 2.1	1.43	42/ 59579	14.2	1/ 65231	0.15
St Elizabeth Medical	13	7/ 81	9.6	3/ 292	1.0	NA	NA	3/ 250	1.2	0/ 213	* 0.0	1.07	4/ 3.9	1.03	69/ 53476	^ 27.3	0/ 25554	0.00
	14	4/ 91	5.3	4/ 360	1.1	NA	NA	2/ 216	1.0	0/ 180	* 0.0	0.78	3/ 3.2	0.94	61/ 55893	^ 15.7	0/ 55893	0.00
St Francis- Roslyn	13	10/ 154	8.3	2/ 315	0.5	NA	NA	6/ 870	** 0.7	8/ 818	0.9	0.89	7/10.8	0.65	107/ 97792	9.4	1/ 48048	0.21
	14	9/ 148	8.1	6/ 491	1.1	NA	NA	5/ 647	0.8	3/ 614	0.4	0.90	8/ 8.2	0.97	107/ 96255	10.5	1/ 96255	0.10
St James Mercy	13	NA	NA	NA	NA	0/ 41	* 0.0					0.73	0/ 0.2	* 0.00	0/ 13050	* 0.0	0/ 5386	0.00
	14	NA	NA	NA	NA	0/ 21	* 0.0					0.91	0/ 0.3	* 0.00	1/ 7962	4.4	0/ 7962	0.00
St Johns Episcopal	13	5/ 37	11.6	1/ 25	2.9	2/ 57	3.5					1.92	7/ 2.3	^^3.00	26/ 68226	** 4.8	6/ 33188	1.81
	14	2/ 32	5.5	0/ 29	* 0.0	1/ 39	2.4					0.91	2/ 2.0	0.99	13/ 62361	** 2.8	2/ 64159	0.31
St Johns Riverside	13	6/ 61	11.3	1/ 89	1.0	1/ 137	1.0					1.31	4/ 1.3	3.10	18/103591	** 2.2	2/ 53031	0.38
	14	11/ 60	^^17.7	0/ 87	* 0.0	2/ 92	2.7					^^2.15	2/ 1.1	1.88	16/ 93678	** 4.8	5/ 98026	0.51

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Table 3: Summary of Hospital-Acquired Infection Data by Hospital, New York State 2013-2014

		Surgical Site Infections											Blood Stream Infections		*C. difficile*		CRE	
		Colon		Hip		Hyst		CABG Chest		CABG Donor		All	ICU CLABSI		Hospital Onset		Hospital Onset BSI	
Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
St Joseph -Bethpage	13	4/ 60	7.2	0/ 98	* 0.0	NA	NA					0.81	1/ 1.8	0.57	36/ 32700	10.0	0/ 15544	0.00
	14	3/ 43	6.7	1/ 112	1.1	NA	NA					1.02	1/ 1.6	0.63	39/ 34033	10.4	2/ 34033	0.59
St Josephs- Elmira	13			NA	NA	NA	NA					4.42			12/ 22648	8.8	0/ 9385	0.00
	14														4/ 12423	8.2	0/ 12423	0.00
St Josephs- Syracuse	13	29/ 249	^^12.6	10/1159	1.0	2/ 45	4.2	5/ 589	0.8	2/ 512	0.4	1.27	5/10.4	0.48	126/130168	11.1	0/ 68974	0.00
	14	31/ 317	^^10.8	9/ 878	1.1	1/ 174	0.8	9/ 576	1.7	1/ 503	0.2	1.30	15/ 9.6	1.56	116/137130	10.2	1/143890	0.07
St Josephs- Yonkers	13	0/ 25	0.0	0/ 29	* 0.0	NA	NA					* 0.00	1/ 0.7	1.42	10/ 41889	6.2	0/ 21045	0.00
	14	NA	NA	0/ 38	* 0.0	NA	NA					1.75	1/ 0.8	1.19	7/ 41127	4.7	1/ 41127	0.24
St LukesNewburgh-Cor	13	3/ 77	4.4	0/ 136	* 0.0	3/ 69	4.9					0.85	1/ 1.0	0.98	30/ 43171	10.0	0/ 22062	0.00
	14	4/ 95	4.9	1/ 118	0.8	1/ 44	2.7					0.85	0/ 0.8	* 0.00	34/ 45267	10.5	0/ 48782	0.00
St Marys Amsterdam	13	3/ 38	12.2	0/ 97	* 0.0	0/ 22	* 0.0					1.13	0/ 0.2	* 0.00	17/ 26208	16.2	0/ 14965	0.00
	14	1/ 52	2.8	1/ 93	1.2	NA	NA					0.61	0/ 0.1	* 0.00	4/ 33831	** 3.0	0/ 35212	0.00
St Marys Troy	13	1/ 48	2.2	NA	NA	1/ 52	2.8					0.51	0/ 0.9	* 0.00	7/ 27530	6.2	0/ 13038	0.00
	14	2/ 27	7.1	NA	NA	0/ 35	* 0.0					1.31	1/ 0.8	1.25	1/ 18399	** 1.4	0/ 18399	0.00
St Peters Hospital	13	39/ 376	^^12.3	15/ 853	^^ 1.9	11/ 808	1.3	0/ 433	** 0.0	0/ 399	* 0.0	1.27	4/ 6.2	0.65	109/112556	11.3	0/ 53880	0.00
	14	21/ 422	6.3	12/ 901	1.3	9/ 785	1.4	3/ 510	** 0.5	4/ 480	0.8	0.96	5/ 5.4	0.93	61/107783	** 7.0	0/117015	0.00
Staten Island U N-S	13	14/ 236	5.5	2/ 149	1.1	3/ 177	1.4	6/ 268	2.3	1/ 238	0.4	0.94	8/ 9.4	0.85	101/211230	10.7	2/108986	0.18
	14	18/ 224	7.3	3/ 197	1.1	0/ 174	* 0.0	2/ 210	0.9	0/ 185	* 0.0	0.89	8/ 7.7	1.04	139/210112	10.3	2/218384	0.09
Strong Memorial	13	24/ 351	6.7	0/ 67	* 0.0	4/ 307	1.9	8/ 275	2.8	1/ 241	0.4	1.07	28/21.5	1.30	241/243180	12.8	0/120907	0.00
	14	27/ 377	6.3	1/ 71	1.0	2/ 291	0.8	4/ 299	1.5	3/ 272	1.3	0.98	26/19.4	1.34	247/253741	11.9	1/257396	0.04
Summit Park LTAC	14														1/ 13317	** 1.2	0/ 13317	0.00
Sunnyview Rehab Hosp	14														15/ 32646	10.0	0/ 32646	0.00
Syosset Hospital	13	0/ 26	0.0	0/ 26	* 0.0	0/ 29	* 0.0					* 0.00	0/ 0.5	* 0.00	10/ 18275	10.8	0/ 8825	0.00
	14	NA	NA	1/ 340	0.3	1/ 25	4.9					0.49	0/ 0.5	* 0.00	5/ 19590	5.5	0/ 19590	0.00
TLC Lake Shore	13	NA	NA	0/ 49	* 0.0							* 0.00	NA	NA	3/ 4127	29.1	0/ 1461	0.00
	14	NA	NA	0/ 42	* 0.0							* 0.00			3/ 2802	47.7	0/ 2802	0.00

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Table 3: Summary of Hospital-Acquired Infection Data by Hospital, New York State 2013-2014

		Surgical Site Infections											Blood Stream Infections		*C. difficile*		CRE	
		Colon		Hip		Hyst		CABG Chest		CABG Donor		All	ICU CLABSI		Hospital Onset		Hospital Onset BSI	
Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
U Health Bing-Wilson	13	6/ 96	6.6	6/ 279	^^ 2.7	5/ 109	^^ 6.2	2/ 178	1.3	2/ 148	1.6	^^1.67	3/ 4.1	0.74	76/ 90569	12.8	0/ 43471	0.00
	14	3/ 134	2.4	3/ 246	1.0	1/ 83	1.6	6/ 187	3.6	0/ 159	* 0.0	0.86	3/ 3.5	0.85	81/ 84614	^ 16.0	0/ 90638	0.00
United Memorial	13	NA	NA	2/ 101	2.0	0/ 30	* 0.0					2.47	0/ 0.4	* 0.00	13/ 14601	9.6	0/ 7179	0.00
	14	1/ 27	3.5	3/ 67	3.6	0/ 23	* 0.0					1.36	0/ 0.4	* 0.00	15/ 14441	12.6	0/ 14441	0.00
Unity Hosp Rochester	13	11/ 179	7.0	3/ 640	0.5	4/ 256	2.4					0.94	1/ 2.9	0.34	38/ 63915	8.7	0/ 37406	0.00
	14	7/ 179	4.2	9/ 686	1.2	1/ 210	0.7					0.85	4/ 3.3	1.22	42/ 77094	7.5	0/ 80875	0.00
Univ Hosp Brooklyn	13	5/ 61	7.1	0/ 68	* 0.0	4/ 230	1.2	0/ 54	* 0.0	0/ 50	* 0.0	0.74	6/ 4.6	1.29	43/ 89704	9.0	2/ 47187	0.42
	14	3/ 67	4.3	1/ 59	1.0	2/ 226	0.9	0/ 40	* 0.0	0/ 38	* 0.0	0.61	8/ 3.6	2.19	52/ 77023	10.9	4/ 84384	0.47
Univ Hosp SUNY Upst	13	8/ 172	4.0	2/ 71	1.7	1/ 21	2.9	0/ 80	* 0.0	0/ 66	* 0.0	0.63	13/16.8	0.78	151/134121	^ 15.9	0/ 66312	0.00
	14	3/ 158	** 1.7	1/ 77	0.8	2/ 20	6.8	0/ 27	* 0.0	0/ 27	* 0.0	**0.44	5/12.9	**0.39	113/135339	11.2	0/135339	0.00
Univ HospStony Brook	13	13/ 225	5.1	1/ 350	0.2	7/ 307	1.6	4/ 347	1.2	5/ 324	1.3	0.84	24/13.1	^^1.83	267/166349	^ 20.8	1/ 99282	0.10
	14	17/ 285	5.4	2/ 398	0.5	4/ 315	0.9	2/ 410	0.5	2/ 379	0.5	0.69	10/10.7	0.93	227/182420	^ 16.8	2/202810	0.10
Upst. Community Gen	13	3/ 77	3.6	1/ 143	0.7	0/ 129	* 0.0					0.48	1/ 1.0	1.01	20/ 36381	10.6	0/ 19433	0.00
	14	4/ 71	5.8	1/ 131	0.7	4/ 85	^^ 6.1					1.35	1/ 0.9	1.12	22/ 39220	10.6	0/ 41815	0.00
Vassar Brothers	13	2/ 192	** 0.9	1/ 156	0.7	2/ 199	1.1	0/ 223	** 0.0	0/ 223	* 0.0	**0.19	1/ 4.2	0.24	102/ 88319	13.0	0/ 49867	0.00
	14	4/ 165	** 2.3	0/ 191	* 0.0	3/ 290	1.1	0/ 229	** 0.0	1/ 229	0.3	**0.35	7/ 3.9	1.77	106/ 83319	^ 16.9	1/ 94224	0.11
Westchester Medical	13	10/ 99	8.2	0/ 77	* 0.0	9/ 178	3.3	7/ 283	2.4	2/ 272	0.6	1.42	13/19.4	0.67	132/179926	11.0	4/ 99380	0.40
	14	11/ 128	6.6	0/ 95	* 0.0	8/ 138	^^ 3.5	6/ 242	2.4	0/ 231	* 0.0	1.22	23/18.4	1.25	115/176074	9.9	2/195335	0.10
Westfield Memorial	14														0/ 64	* 0.0	0/ 64	0.00
White Plains	13	4/ 129	3.7	2/ 219	0.9	2/ 218	1.4					0.68	4/ 2.8	1.40	49/ 67224	8.1	0/ 36433	0.00
	14	9/ 114	8.7	3/ 248	1.3	2/ 348	0.9					1.16	2/ 2.7	0.75	42/ 66108	** 7.1	6/ 73454	0.82
Winthrop University	13	9/ 335	** 3.0	1/ 323	0.3	2/ 281	0.7	3/ 310	1.1	0/ 256	* 0.0	**0.44	4/12.0	**0.33	132/151834	10.3	0/ 84993	0.00
	14	13/ 349	4.0	7/ 326	1.6	2/ 300	0.5	4/ 250	1.5	1/ 215	0.4	0.75	5/11.2	0.45	174/155221	^ 13.1	0/173173	0.00
Woman and Childrens	13	3/ 32	9.4			2/ 79	3.2					1.59	13/ 8.0	1.63	8/ 33636	** 4.0	0/ 27450	0.00
	14	0/ 21	0.0			1/ 65	1.5					0.46	10/ 4.9	2.06	8/ 32501	7.2	1/ 56842	0.18
Womans Christian	13	2/ 66	3.5	3/ 106	2.3	NA	NA					0.96	1/ 0.8	1.25	16/ 29093	9.7	0/ 14370	0.00
	14	3/ 67	5.5	0/ 101	* 0.0	NA	NA					0.65	0/ 0.8	* 0.00	17/ 24823	10.3	0/ 26338	0.00

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		Surgical Site Infections											Blood Stream Infections		*C. difficile*		CRE	
		Colon		Hip		Hyst		CABG Chest		CABG Donor		All	ICU CLABSI		Hospital Onset		Hospital Onset BSI	
Hospital	Yr	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SSI/ procs	Adj. Rate	SIR	Observed/ Predicted	SIR	CDI/patdays	Adj rate	CRE/patdays	Rate
State average	**13**	**6.9**		**0.9**		**1.6**		**1.6**		**0.5**		**1.0**	**1.0**		**11.3**		**0.2**	
State average	**14**	**6.6**		**0.9**		**1.3**		**1.6**		**0.4**		**1.0**	**1.0**		**10.6**		**0.2**	
Woodhull Medical	13	7/ 39	14.1	NA	NA	1/ 83	1.3					1.69	5/ 3.2	1.57	19/ 92233	7.6	1/ 49194	0.20
	14	4/ 39	9.1	1/ 25	4.3	1/ 92	0.9					1.30	7/ 3.1	2.29	51/ 89397	^ 16.3	1/ 96442	0.10
Wyckoff Heights	13	14/ 55	^^23.3	NA	NA	5/ 97	4.0					^^3.02	3/ 2.2	1.39	14/ 65577	** 3.8	1/ 35621	0.28
	14	4/ 54	7.0	NA	NA	1/ 106	0.7					1.02	6/ 2.1	^^2.83	23/ 65695	** 6.2	3/ 71135	0.42
Wyoming County Comm.	13	NA	NA	1/ 25	3.5	NA	NA					1.40		NA	2/ 10288	5.1	0/ 4942	0.00
	14	NA	NA	NA	NA	NA	NA					* 0.00		NA	0/ 10542	* 0.0	0/ 10542	0.00

Data downloaded July 1, 2015. Yr: year.

SSI notes: SSI: surgical site infection; Procs: procedures; Adj. rate: risk adjusted rate (# infections per 100 procedures if the state had the same risk distribution as the hospital). SSI data exclude non-readmitted cases identified using post discharge surveillance. Colon data adjusted using ASA score, duration, contamination of intraoperative site, laparoscope, and obesity. Hip data adjusted using ASA score, procedure type, duration, and obesity. Hysterectomy data adjusted using ASA score, duration, wound class, and endoscope. CABG chest data adjusted using diabetes, body mass index, gender, end stage renal disease, peripheral artery disease, and duration. CABG donor data adjusted using body mass index and blood transfusion. SIR: standardized infection ratio: compares observed number of colon, CABG, hysterectomy, and hip infections to the statistically predicted number of infections based on the NYS average in the given year, after adjusting for the risk factors listed above.

CLABSI notes: CLABSI: central line-associated bloodstream infection; CLDays: central line days. CLABSI in which multiple blood cultures were obtained, only one specimen was positive, the one positive was considered a contaminant and no treatment was given were excluded from data between 2008 and 2012. In 2014, mucosal barrier injury CLABSIs were excluded. Adult CLABSI rates are # infections per 1000 line days; no additional adjustment is performed because the data are stratified by ICU type. Neonatal CLABSI rates are adjusted by birth weight. SIR: compares observed number of CLABSI to statistically predicted number of infections based on the NYS average infection rate in each ICU/birth weight group in the given year.

C. difficile notes: CDI: *C. difficile* infection; Patdays = Inpatient days, excluding newborns and NICU; Rate is per 10,000 patient days. CDI rate adjusted using laboratory testing method, CDI risk index from previous year's billing discharge codes, and patient days at risk.

Carbapenem-resistant Enterobacteriaceae (CRE): combined *Klebsiella* spp and *E. coli*. No risk adjustment was performed.

Each hospital-specific adjusted SSI, CLABSI, and CDI rate should only be compared with the New York State average in that category in that year. CRE rates should not be compared.

**Significantly lower than state average. ^^Signif. higher than state average. *Zero infections, not signif. NA: Fewer than 20 procedures or 50 line days.

Background

Hospital-acquired infections (HAIs) are an important cause of morbidity and mortality, affecting approximately four percent of inpatients.[1] In accordance with Public Health Law 2819, New York State (NYS) has been tracking HAIs since 2007. This law was created to provide the public with fair, accurate, and reliable HAI data to compare hospital infection rates and to support quality improvement and infection prevention activities in hospitals.

Hospitals report to NYS using the Centers for Disease Control and Prevention's (CDC's) National Healthcare Safety Network (NHSN). This online system allows hospitals, NYS, and CDC to concurrently monitor the same data. All states follow the same surveillance methods. Additional information about the NHSN can be found at http://www.cdc.gov/nhsn/.

NYSDOH evaluates which HAI indicators should be reported annually with the help of a Technical Advisory Workgroup (TAW), a panel of experts in the prevention and reporting of HAIs. In 2007, hospitals were required to report central line-associated bloodstream infections (CLABSIs) in intensive care units (ICUs) and surgical site infections (SSIs) following colon and coronary artery bypass graft (CABG) surgeries. In 2008, hip replacement SSIs were added; in 2010, *Clostridium difficile* (CDI) infections were added; in 2012, abdominal hysterectomy SSIs were added; and in 2014, carbapenem-resistant Enterobacteriaceae (CRE) infections were added.

In addition to reporting the HAI data mandated by NYS, hospitals enter data into NHSN for federal programs, regional collaboratives, and local surveillance. The Centers for Medicare and Medicaid Services (CMS) Hospital Inpatient Quality Reporting (IQR) Program provides higher reimbursement to hospitals that report certain types of HAI data, including catheter-associated urinary tract infections (CAUTIs) in ICUs and methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia. In addition, the CMS Hospital Value-Based Purchasing Program provides incentive payments to hospitals based on how well they perform on certain HAI measures. NYS entered into a data use agreement (DUA) with CDC that allows NYS HAI staff to see all NHSN data for surveillance or prevention purposes. The DUA implemented in May 2013 prohibits the use of the data for public reporting of facility-specific data or for regulatory action. More information about the DUA is available on the CDC website http://www.cdc.gov/hai/pdfs/stateplans/New-York_DUA.pdf.

Table 4 summarizes the progression of NYS reporting requirements through 2014 and includes additional data visible through the DUA.

Table 4. Hospital-acquired infections reported by New York State hospitals, by year

Type of Infection	2007	2008	2009	2010	2011	2012	2013	2014
Central line-associated bloodstream infections in ICUs	P1	✓	✓	✓	✓	✓	✓	✓
Colon surgical site infections	P1	✓	✓	✓	✓	✓	✓	✓
Coronary artery bypass graft surgical site infections	P1	✓	✓	✓	✓	✓	✓	✓
Hip replacement surgical site infections		✓	✓	✓	✓	✓	✓	✓
Clostridium difficile infections			P2	✓	✓	✓	✓	✓
Abdominal hysterectomy surgical site infections						✓	✓	✓
Carbapenem-resistant Enterobacteriaceae infections							P2	✓
Central line-associated bloodstream infections in wards							DUA	DUA
Catheter-associated urinary tract infections							DUA	DUA
Methicillin-resistant *Staphylococcus aureus* bacteremia							DUA	DUA

✓ = full reporting (publish hospital-specific rates)

P1 = pilot reporting full year (do not publish hospital-specific rates)

P2 = pilot reporting half year from July (do not publish hospital-specific rates)

DUA = Not required by New York, but reported for Centers for Medicare and Medicaid Services Inpatient Prospective Payment System and visible through data use agreement between CDC and NYS beginning May 2013.

This report summarizes HAI rates in NYS hospitals in 2014. This report, as well as reports from previous years, is available on the NYSDOH website, at: http://www.health.ny.gov/statistics/facilities/hospital/hospital_acquired_infections/. In addition, the NYS data are available electronically on Health Data NY (https://health.data.ny.gov/).

Hospital-Acquired Surgical Site Infections (SSIs)

SSIs are infections that occur after surgery in the part of the body where the surgery took place. NYS requires hospitals to report SSIs associated with four types of surgery:

- Colon: Colon surgery is a procedure performed on the lower part of the digestive tract, called the large intestine or colon.
- Coronary artery bypass graft (CABG): CABG surgery is a procedure performed for heart disease in which a vein or artery from the chest or another part of the body (termed the "donor site") is used to create an alternate path for blood to flow to the heart, bypassing a blocked artery.
- Hip: Hip replacement or revision surgery involves removing damaged cartilage and bone from the hip joint and replacing or resurfacing them with new, man-made parts.
- Abdominal hysterectomy: Abdominal hysterectomy is the surgical removal of a woman's uterus through an incision in the abdominal wall.

These procedures were selected because of the frequency of infections, severity of infection-related complications, ability to perform risk adjustment, and potential for quality improvement.

SSIs are categorized into three groups depending on the severity of the infection:

- Superficial Incisional SSI - This infection occurs in the area of the skin where the surgical incision was made. The patient may have pus draining from the incision or laboratory-identified pathogens from the incision.
- Deep Incisional SSI - This infection occurs beneath the incision area in muscle tissue. Pus may drain from the deep incision, and patients may experience fever and pain. The incision may reopen on its own, or a surgeon may reopen the wound.
- Organ or Space SSI - This type of infection occurs in body organs or the space between organs. Pus may collect in an abscess below the muscles, resulting in inflammation and pain.

Hospital infection preventionists (IPs) use a wide variety of surveillance methods to identify SSIs. Some routinely review all procedures for SSIs, while others review a subset of procedures that are flagged based on data mining systems, wound culture reports, readmission, return to surgery, and discharge coding. IPs use many data sources, including lab reports, operative reports, physician dictated operative notes, progress notes, discharge notes, history and physical examination documentation, return to surgery, radiology reports, infectious disease consultations, intraoperative reports, outpatient/emergency room visits, documentation of vital signs, antibiotic prescriptions, and coding summary sheets.

SSIs may be detected on the original hospital admission, readmission to the same hospital, readmission to a different hospital, or in outpatient settings (post-discharge surveillance, PDS). PDS is labor-intensive and is not standardized across hospitals. PDS infections are included in

statewide rates, but excluded from hospital-specific comparisons in this report so as not to penalize facilities with the best surveillance systems.

In January 2014, NHSN made two improvements to the SSI surveillance definition. Hospitals are now required to report procedures where the incision was left open after the patient left the operating room. This will allow for more complete surveillance. Hospitals are also required to enter patient height and weight. This will improve risk adjustment because obesity is related to an increased risk of SSIs. This adjustment is not applied to hysterectomy procedures because the patient's increased weight at time of surgery may be due to pregnancy. For additional information on the surveillance definitions, see http://www.cdc.gov/nhsn/PDFs/pscManual/9pscSSIcurrent.pdf.

For each type of SSI, the following pages describe trends in infections, the severity (depth) of infections, microorganisms involved, and individual hospitals' risk-adjusted infection rates compared to the state average. At the end of this section, overall trends in SSIs are summarized.

Colon Surgical Site Infections

Among 19,093 colon procedures performed in 2014, 1,361 (7.1%) developed SSIs. Of these infections, 41% were superficial, 13% were deep, and 46% were organ/space (Table 5). The majority of the SSIs (61%) were detected during the initial hospitalization; 28% were identified upon readmission to the same hospital; 3% involved readmission to another hospital; and 8% were detected using post-discharge surveillance (PDS) and not readmitted. The majority of the PDS infections were superficial. Detection of SSIs in outpatient locations is labor intensive and is not standardized across hospitals; therefore, the NYSDOH did not include these 105 infections for hospital-specific comparisons.

Table 5. Method of detection of colon surgical site infection by depth of infection, New York State 2014

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Post-Discharge Surveillance Not Readmitted**	**Total**
Superficial Incisional	330 (59.6%) (39.6%)	109 (19.7%) (28.9%)	18 (3.2%) (40.0%)	97 (17.5%) (92.4%)	554 (40.7%)
Deep Incisional	97 (53.9%) (11.6%)	64 (35.6%) (17.0%)	14 (7.8%) (31.1%)	5 (2.8%) (4.8%)	180 (13.2%)
Organ/Space	407 (64.9%) (48.8%)	204 (32.5%) (54.1%)	13 (2.1%) (28.9%)	3 (0.5%) (2.9%)	627 (46.1%)
Total	834 (61.3%)	377 (27.7%)	45 (3.3%)	105 (7.7%)	1,361

New York State data reported as of July 1, 2015

The most common microorganisms associated with colon SSIs were Enterococci and *Escherichia coli* (Table 6). The distribution of microorganisms associated with colon SSIs is consistent with previously published NYS HAI public reports.

Table 6. Microorganisms identified in colon surgical site infections, New York State 2014

Microorganism	Number of Isolates	Percent of Infections
Enterococci	399	29.3
(VRE)	(78)	(5.7)
Escherichia coli	364	26.7
(CRE-E. coli)	(3)	(0.2)
Staphylococcus aureus	130	9.6
(MRSA)	(83)	(6.1)
(MSSA)	(42)	(3.1)
Bacteroides	106	7.8
Klebsiella spp.	98	7.2
(CRE-*Klebsiella*)	(9)	(0.7)
(CephR-*Klebsiella*)	(13)	(1.0)
Pseudomonas spp.	92	6.8
Enterbacter spp.	83	6.1
Streptococci	77	5.7
Yeast	76	5.6
Coagulase negative Staphylococci	68	5.0
Proteus spp.	39	2.9
Citrobacter spp.	32	2.4
Morganella morganii	16	1.2
Clostridia spp.	15	1.1
Prevotella spp.	13	1.0
Actinomyces spp.	6	0.4
Corynebacteria	5	0.4
Gram-negative bacilli	5	0.4
Gram-positive bacilli	5	0.4
Lactobacilli	5	0.4
Serratia spp.	5	0.4
Acinetobacter spp.	2	0.1
(MDR-*Acinetobacter*)	(2)	(0.1)
Other	31	2.3

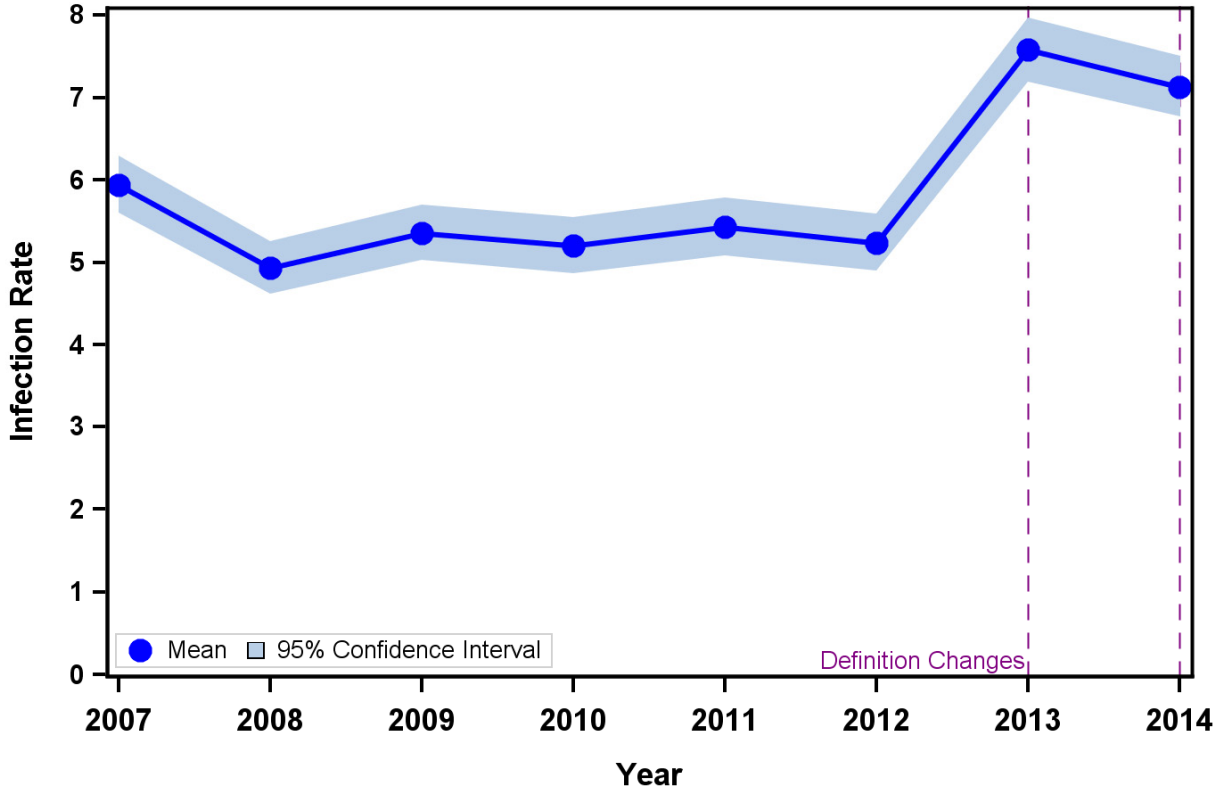
New York State data reported as of July 1, 1015. Out of 1,361 infections, no microorganisms identified for 301(22%) infections.
VRE: vancomycin-resistant enterococci; CephR: cephalosporin-resistant; CRE: carbapenem-resistant Enterobacteriaceae; MDR: multidrug resistant; MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus;* spp: multiple species

Time trends for Colon SSIs

In 2014, open procedures (where the incision is left open) became reportable. Open procedures represented 4.8% of all colon procedures. The SSI rate for open procedures was 8.2% compared to 7.1% for closed procedures. Despite this change, the colon SSI rate decreased 5.8% between

2013 and 2014. There was also a definition change in 2013 that expanded the definition of primarily closed procedures. The 2013 and 2014 SSI definition changes impacted colon SSIs more than the other types of SSIs. Because of the definition changes, the time trend should be interpreted with caution (Figure 1).

Figure 1. Trend in colon surgical site infection rates, New York State 2007-2014



Year	# Hospitals	# Procedures	For statewide trend[2]		For hospital comparisons[3]	
			Total # Infections	Total Infection Rate[1]	# Infections excluding PDS	Infection Rate[1] excluding PDS
2007	182	17,965	1,067	5.94	1,067	5.94
2008	178	18,135	894	4.93	804	4.43
2009	173	17,439	934	5.36	848	4.86
2010	172	16,884	878	5.20	803	4.76
2011	172	16,230	880	5.42	804	4.95
2012	172	16,339	855	5.23	763	4.67
2013	167	17,772	1,346	7.57	1,227	6.90
2014	162	19,093	1,361	7.13	1,256	6.58

New York State Data reported as of July 1, 2015. PDS=post-discharge surveillance.
[1] Infection rate is the number of infections divided by the number of procedures, multiplied by 100.

[2]To assess trends, all NHSN data are included and graphed in the figure.
[3]To assess hospital-specific performance, compare the hospital's rate to the state average in the same year. Beginning in 2008, SSIs detected by PDS were excluded because PDS methods are not standardized across hospitals.

Risk-Adjustment for Colon SSIs

In 2014, after excluding SSIs reported as part of PDS methods that did not result in hospitalization, the following risk factors were associated with SSIs and included in the risk-adjustment model.

- Patients with an American Society of Anesthesiologists (ASA) score of 3, 4, or 5 were 1.4 times more likely to develop an SSI than patients with an ASA score of 1 or 2.
- Procedures with duration greater than three hours were 1.8 times more likely to result in SSI than procedures less than two hours. Procedures with duration between two and three hours were 1.3 times more likely to result in SSI than procedures less than two hours.
- Procedures with contaminated or dirty wound classifications were 1.5 times more likely to result in SSI than procedures on clean-contaminated sites.
- Procedures that used traditional surgical incisions were 1.7 times more likely to result in SSI than procedures performed entirely with a laparoscopic instrument.
- Very obese patients (with body mass index [BMI] greater than or equal to 40) were 1.3 times more likely to develop an SSI, and obese patients (with BMI between 30 and 39) were 1.1 times more likely to develop an SSI than patients with BMI less than 30.

Hospital-Specific Colon SSI Rates

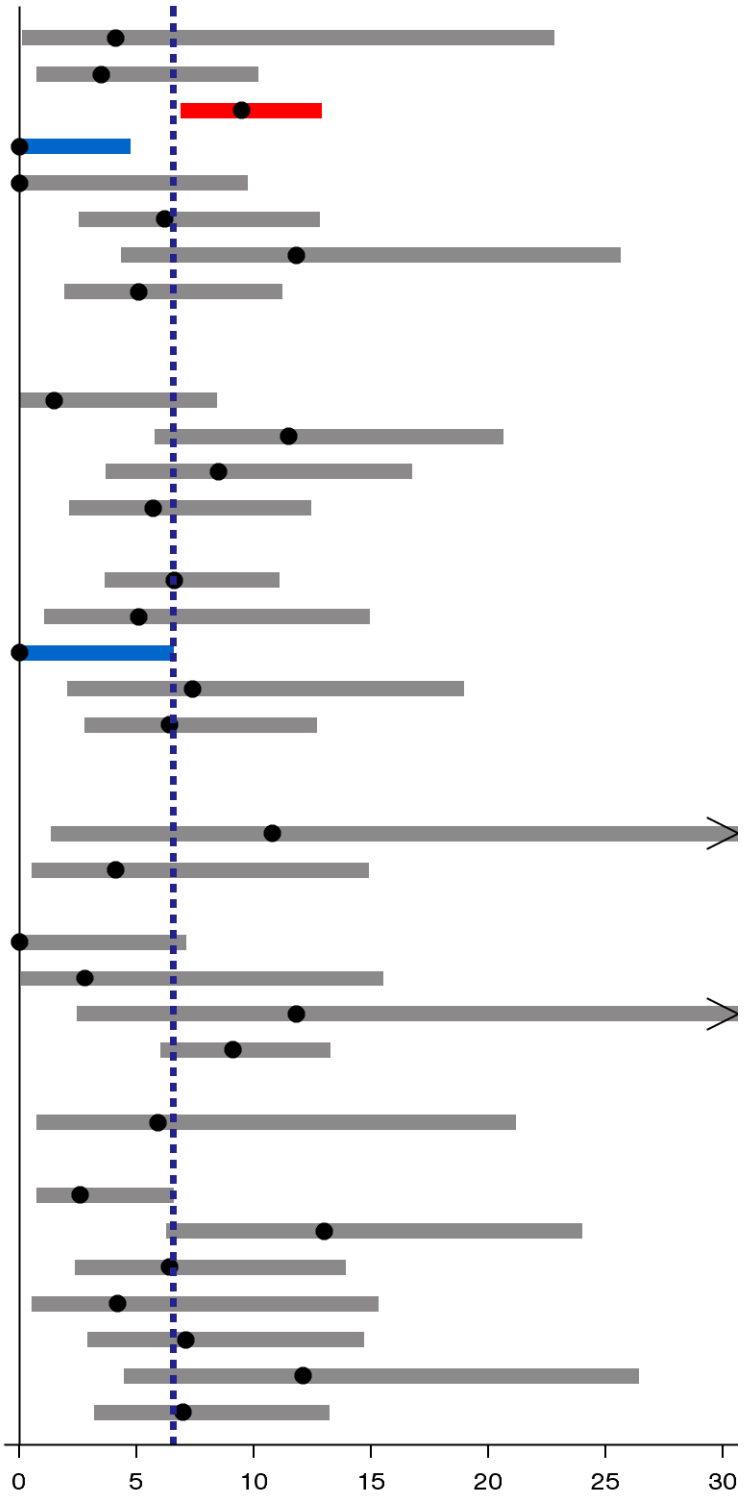
Hospital-specific colon SSI rates are provided in Figure 2. Refer to Appendix 2 for more information about reading this figure.

Eight hospitals (5%) had colon SSI rates that were statistically higher than the state average. Two of these hospitals were high for two years in a row, and none were high for more than two years in a row. All eight hospitals submitted improvement plans following the NYSDOH HAI Reporting Program's Policy for Facilities with Consecutive Years of High HAI Rates.

Six hospitals (4%) had rates that were statistically lower than the state average; HealthAlliance of the Hudson Valley Broadway Campus was significantly lower for five years in a row (2010-2014).

Figure 2. Colon surgical site infection rates, New York 2014 (page 1 of 5)

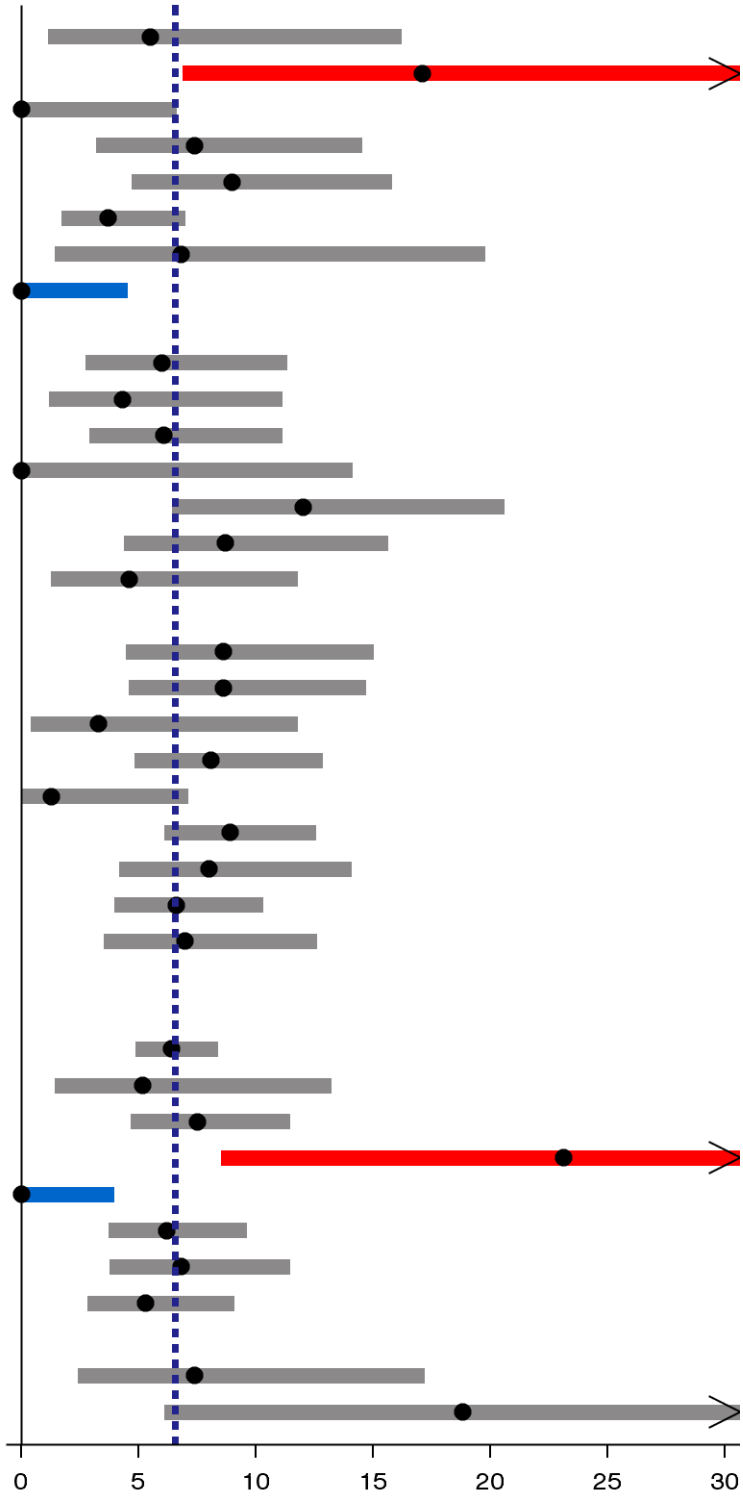
HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
AO Fox Memorial	1	24	4.2	4.1
Adirondack Medical	3	88	3.4	3.5
Albany Medical^^	42	446	9.4	9.5
Albany Memorial**	0	69	0.0	0.0
Alice Hyde	0	28	0.0	0.0
Arnot Ogden	7	82	8.5	6.2
Auburn Memorial	6	51	11.8	11.8
Bellevue Hospital	6	108	5.6	5.1
Bertrand Chaffee	NA	NA	NA	NA
Bon Secours	NA	NA	NA	NA
Bronx-Lebanon	1	81	1.2	1.5
Brookdale Hospital	11	73	15.1	11.5
Brookhaven Memorial	8	92	8.7	8.5
BrooklynHos-Downtown	6	85	7.1	5.7
Brooks Memorial	NA	NA	NA	NA
Buffalo General	14	173	8.1	6.6
Canton-Potsdam	3	55	5.5	5.1
Catskill Regional**	0	46	0.0	0.0
Cayuga Medical Cntr	4	52	7.7	7.4
Champlain Valley	8	117	6.8	6.4
Chenango Memorial	NA	NA	NA	NA
Claxton-Hepburn	NA	NA	NA	NA
Clifton Springs	2	23	8.7	10.8
Columbia Memorial	2	55	3.6	4.1
Community Memorial	NA	NA	NA	NA
Coney Island	0	41	0.0	0.0
Corning Hospital	1	37	2.7	2.8
Cortland Reg Med	3	27	11.1	11.8
Crouse Hospital	27	284	9.5	9.1
DeGraff Memorial	NA	NA	NA	NA
East. Niag. Lockport	2	38	5.3	5.9
Eastern Long Island	NA	NA	NA	NA
Ellis Hospital	4	180	2.2	2.6
Elmhurst	10	74	13.5	13.0
Erie Medical Center	6	97	6.2	6.4
FF Thompson	2	54	3.7	4.2
Faxton St. Lukes	7	103	6.8	7.1
Flushing Hospital	6	50	12.0	12.1
Forest Hills	9	116	7.8	7.0



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections, Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, laparoscope, and obesity.

Figure 2. Colon surgical site infection rates, New York 2014 (page 2 of 5)

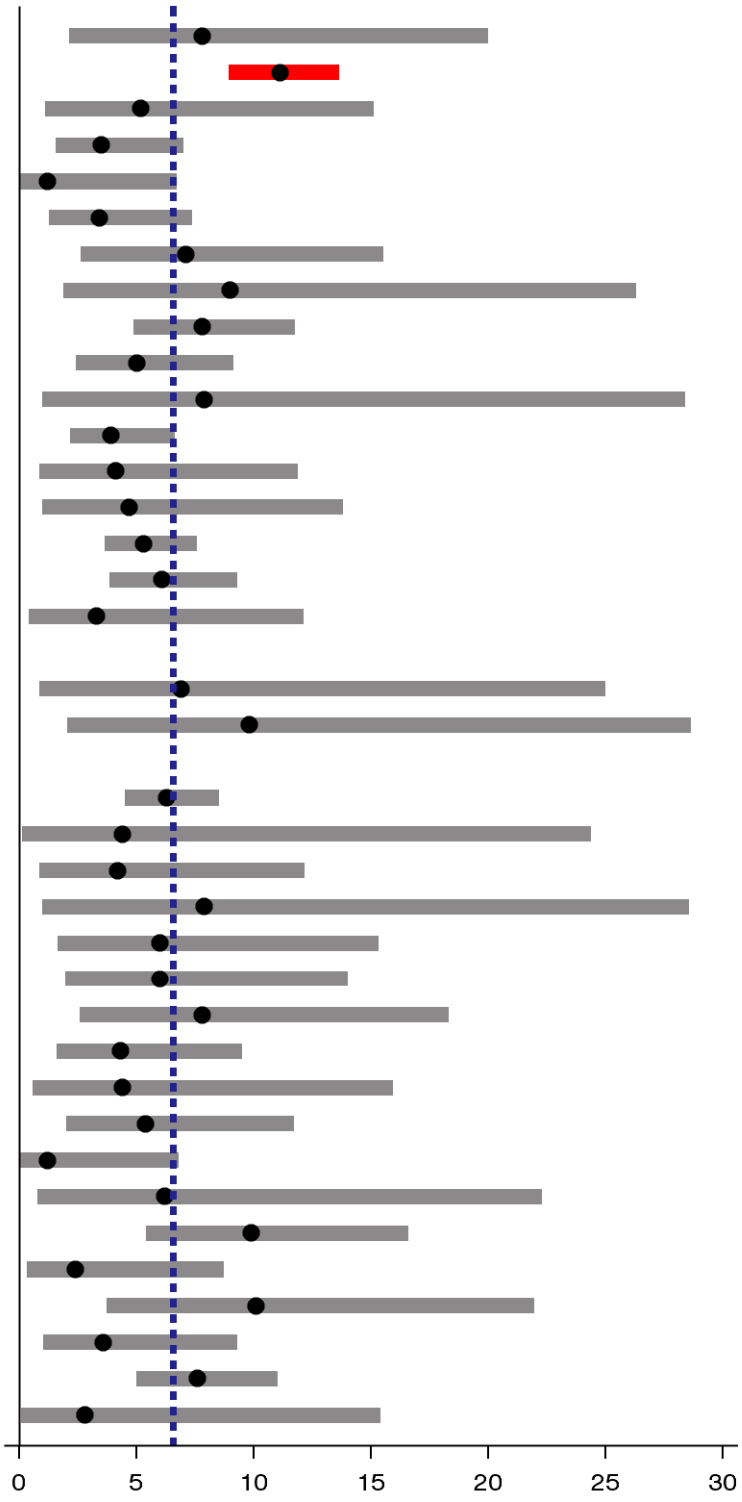
HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Franklin	3	58	5.2	5.5
Geneva General^^	7	42	16.7	17.1
Glen Cove Hospital	0	38	0.0	0.0
Glens Falls	8	151	5.3	7.4
Good Samar. Suffern	12	134	9.0	9.0
Good Samar. W Islip	9	265	3.4	3.7
Harlem Hospital	3	37	8.1	6.8
HealthAlli Broadway**	0	61	0.0	0.0
HealthAlli MarysAve	NA	NA	NA	NA
Highland Hospital	9	156	5.8	6.0
Hudson Valley	4	83	4.8	4.3
Huntington	10	166	6.0	6.1
Interfaith Medical	0	20	0.0	0.0
JT Mather	13	124	10.5	12.0
Jacobi Medical	11	95	11.6	8.7
Jamaica Hospital	4	73	5.5	4.6
Jones Memorial	NA	NA	NA	NA
Kenmore Mercy	12	159	7.5	8.6
Kings County	13	127	10.2	8.6
Kingsbrook Jewish	2	50	4.0	3.3
Lenox Hill	18	225	8.0	8.1
Lincoln Medical	1	67	1.5	1.3
Long Island Jewish	32	344	9.3	8.9
Lutheran Medical	12	142	8.5	8.0
Maimonides	19	265	7.2	6.6
Mary Imogene Bassett	11	156	7.1	7.0
Massena Memorial	NA	NA	NA	NA
Medina Memorial	NA	NA	NA	NA
Memor SloanKettering	54	736	7.3	6.4
Mercy Medical	4	74	5.4	5.2
Mercy- Buffalo	21	323	6.5	7.5
Metropolitan^^	6	23	26.1	23.1
MidHudson Reg of WMC**	0	76	0.0	0.0
Millard Fill. Suburb	19	314	6.1	6.2
Montefiore-Einstein	14	208	6.7	6.8
Montefiore-Moses	13	241	5.4	5.3
Montefiore-Mt Vernon	NA	NA	NA	NA
Montefiore-NewRochl	5	66	7.6	7.4
Montefiore-Wakefield	5	25	20.0	18.8



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections, Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, laparoscope, and obesity.

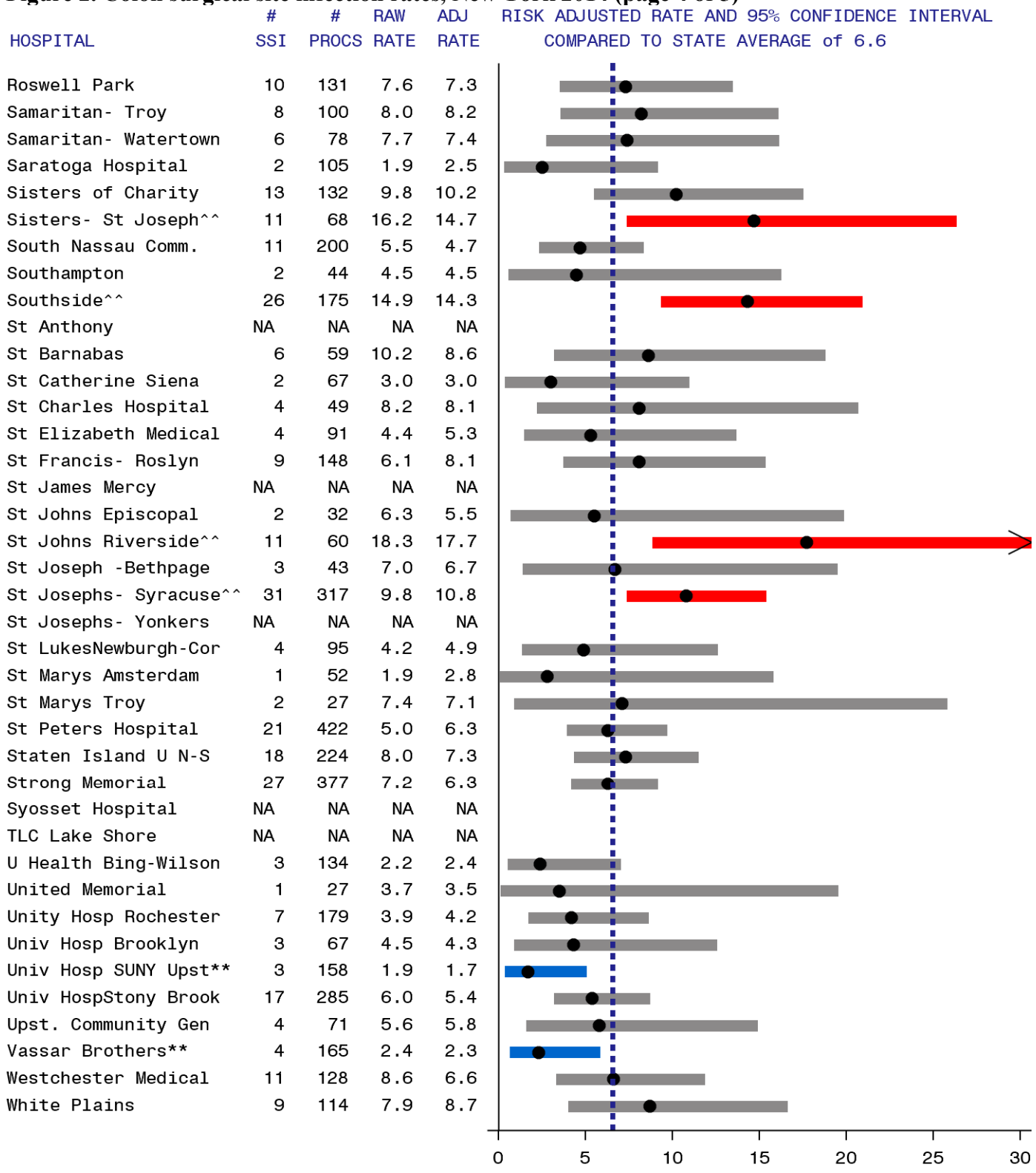
Figure 2. Colon surgical site infection rates, New York 2014 (page 3 of 5)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Mount St. Marys	4	51	7.8	7.8
Mt Sinai^^	91	835	10.9	11.1
Mt Sinai BI-Bklyn	3	52	5.8	5.2
Mt Sinai Beth Israel	8	275	2.9	3.5
Mt Sinai Queens	1	92	1.1	1.2
Mt Sinai Roosevelt	6	174	3.4	3.4
Mt Sinai St Lukes	6	73	8.2	7.1
NY Community Bklyn	3	28	10.7	9.0
NY Hosp Queens	22	283	7.8	7.8
NY Methodist	10	189	5.3	5.0
NYP-Allen	2	26	7.7	7.9
NYP-Columbia-Morgan	14	361	3.9	3.9
NYP-Lawrence	3	71	4.2	4.1
NYP-Lower Manhattan	3	60	5.0	4.7
NYP-Weill Cornell	31	622	5.0	5.3
NYU Medical Center	22	352	6.3	6.1
Nassau University	2	53	3.8	3.3
Nathan Littauer	NA	NA	NA	NA
Newark Wayne	2	33	6.1	6.9
Niagara Falls	3	32	9.4	9.8
North Central Bronx	NA	NA	NA	NA
North Shore	41	567	7.2	6.3
Northern Dutchess	1	26	3.8	4.4
Northern Westchester	3	104	2.9	4.2
Noyes Memorial	2	27	7.4	7.9
Nyack Hospital	4	76	5.3	6.0
Olean General	5	92	5.4	6.0
Oneida Healthcare	5	84	6.0	7.8
OrangeReg Goshen-Mid	6	173	3.5	4.3
Oswego Hospital	2	42	4.8	4.4
Our Lady of Lourdes	6	117	5.1	5.4
Peconic Bay Medical	1	80	1.3	1.2
Phelps Memorial	2	39	5.1	6.2
Plainview Hospital	14	131	10.7	9.9
Putnam Hospital	2	104	1.9	2.4
Queens Hospital	6	56	10.7	10.1
Richmond Univ	4	117	3.4	3.6
Rochester General	27	420	6.4	7.6
Rome Memorial	1	38	2.6	2.8



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections, Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, laparoscope, and obesity.

Figure 2. Colon surgical site infection rates, New York 2014 (page 4 of 5)



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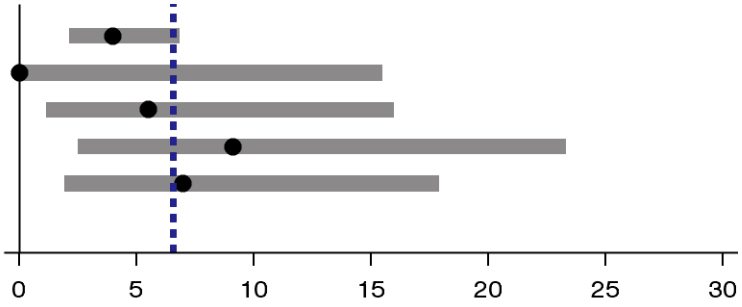
SSI: surgical site infections, Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, laparoscope, and obesity.

Figure 2. Colon surgical site infection rates, New York 2014 (page 5 of 5)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Winthrop University	13	349	3.7	4.0
Woman and Childrens	0	21	0.0	0.0
Womans Christian	3	67	4.5	5.5
Woodhull Medical	4	39	10.3	9.1
Wyckoff Heights	4	54	7.4	7.0
Wyoming County Comm.	NA	NA	NA	NA



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections, Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, contamination of intraoperative site, laparoscope, and obesity.

Coronary Artery Bypass Graft (CABG) Surgical Site Infections

CABG surgery usually involves two surgical sites: a chest incision and a separate site to harvest "donor" vessels. Because infections can occur at either incision site the SSI rates are presented separately.

CABG Chest Infections

Among 10,597 CABG procedures performed in 2014, 183 (1.7%) developed SSIs within 90 days. Of these infections, 27% were superficial, 37% were deep, and 36% were organ/space (Table 7). The majority of the SSIs (66%) were detected upon readmission to the same hospital, 23% were identified during the initial hospitalization, 6% involved readmission to another hospital, and 6% were detected in outpatient settings. Detection of SSIs in outpatient locations is labor intensive and is not standardized across hospitals; therefore, the NYSDOH did not include these 10 infections for hospital-specific comparisons. The detection and depth of CABG chest SSIs is consistent with previous published NYS HAI public reports.

Table 7. Method of detection of coronary artery bypass graft chest site infection by depth of infection, New York State 2014

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Post-Discharge Surveillance Not Readmitted**	**Total**
Superficial Incisional	12 (24.0%) (28.6%)	27 (54.0%) (22.5%)	2 (4.0%) (18.2%)	9 (18.0%) (90.0%)	50 (27.3%)
Deep Incisional	16 (23.9%) (38.1%)	46 (68.7%) (38.3%)	4 (6.0%) (36.4%)	1 (1.5%) (10.0%)	67 (36.6%)
Organ/Space	14 (21.2%) (33.3%)	47 (71.2%) (39.2%)	5 (7.6) (45.5%)	0 (0.0%) (0.0%)	66 (36.1%)
Total	42 (23.0%)	120 (65.6%)	11 (6.0%)	10 (5.5%)	183

New York State data reported as of July 1, 2015

Microorganisms Associated with CABG Chest SSIs

In NYS, the most common microorganisms associated with CABG Chest SSIs were *Staphylococcus aureus* and coagulase-negative Staphylococci (Table 8).

Table 8. Microorganisms identified in coronary artery bypass graft chest site infections, New York State 2014

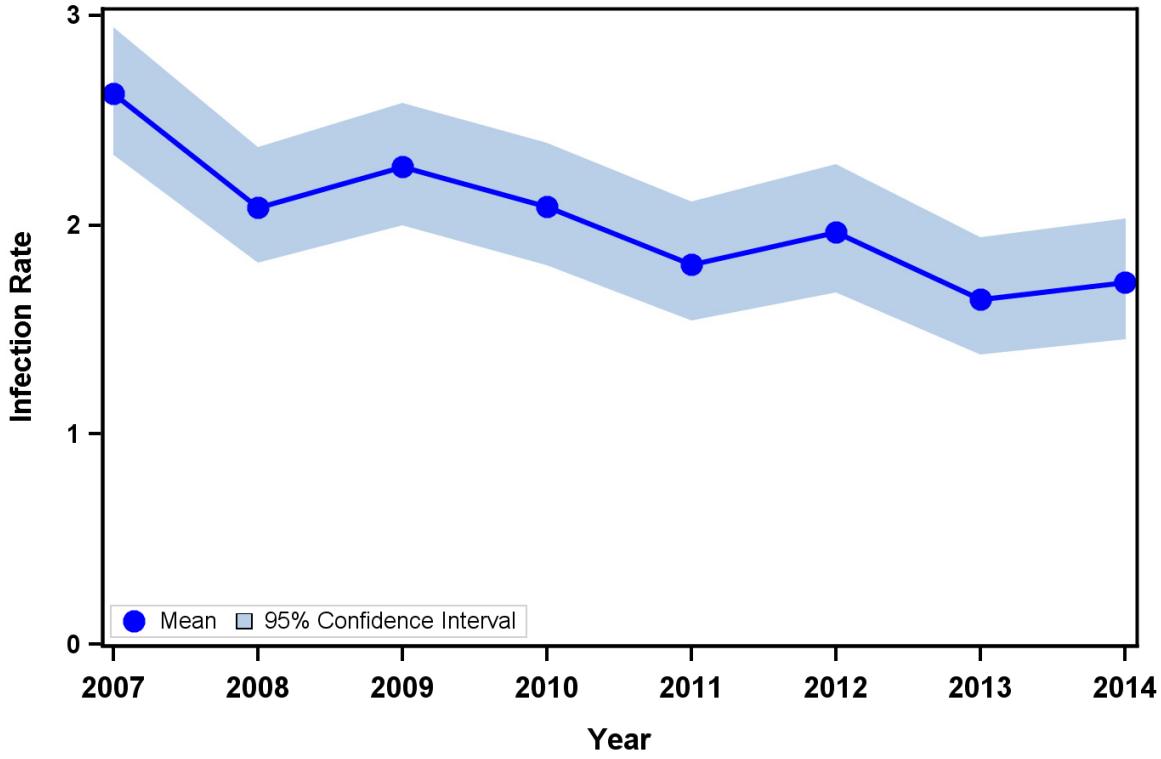
Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	60	32.8
(MRSA)	(17)	(9.3)
(MSSA)	(41)	(22.4)
Coagulase negative Staphylococci	33	18.0
Pseudomonas spp.	12	6.6
Proteus spp.	11	6.0
Serratia spp.	11	6.0
Enterobacter spp.	10	5.5
Enterococci	10	5.5
(VRE)	(5)	(2.7)
Escherichia coli	10	5.5
Yeast	10	5.5
Klebsiella spp.	9	4.9
Streptococci	5	2.7
Other	9	4.9

New York State data reported as of July 1, 2015. Out of 183 infections (includes post-discharge surveillance). No microorganisms identified for 30 (16.4%) infections.
VRE: vancomycin-resistant enterococci; MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus;* spp: multiple species

Time Trends in CABG Chest SSIs

To account for the decrease in follow-up from one year to 90 days following CABG procedures as of the January 2013 definition change, infections that occurred after 90 days were excluded from the 2007-2012 data, shifting the historical mean down by 6%. In 2014, open procedures became reportable. Open procedures are those where the skin level is left completely open, while the deep tissue layers may be either open or closed. No adjustment was made for this change because of the small percentage (0.6%) of open CABG procedures. Between 2007 and 2014, the CABG chest SSI rate decreased 34%, from 2.63 to 1.73 infections per 100 procedures (Figure 3). No improvement occurred between 2013 and 2014. However, the overall decline resulted in 557 prevented SSIs and a direct cost savings estimated to be between $10 million and $28 million since 2007.

Figure 3. Trend in coronary artery bypass graft chest site infection rates, New York State 2007-2014



Year	# Hospitals	# Procedures	For statewide trend-excluded infections detected past 90 days[2]		For hospital comparisons[3]	
			# Infections	Infection Rate[1]	# Infections excluding PDS	Infection Rate[1] excluding PDS
2007	40	14,266	375	2.63	385	2.70
2008	40	13,967	291	2.08	301	2.16
2009	40	13,438	306	2.28	304	2.26
2010	39	12,409	259	2.09	275	2.22
2011	40	11,525	209	1.81	221	1.92
2012	39	10,728	211	1.97	218	2.03
2013	39	10,749	177	1.65	173	1.61
2014	38	10,597	183	1.73	173	1.63

New York State data reported as of July 1, 2015. PDS=post-discharge surveillance.
[1] Infection rate is the number of infections divided by the number of procedures, multiplied by 100.
[2]To assess trends, infections identified more than 90 days after the procedure were excluded from 2007-2012 data to match the 2013-2014 surveillance definition; this data is graphed in the figure.
[3]To assess hospital-specific performance, compare the hospital's rate to the state average in the same year. Beginning in 2008, SSIs detected by PDS were excluded because PDS methods are not standardized across hospitals.

Risk Adjustment for CABG Chest SSIs

Certain patient and procedure-specific risk factors increased the risk of developing a chest SSI following CABG surgery. In 2014, the following risk factors were associated with SSIs and were included in the risk-adjustment:

- Patients with diabetes were 1.6 times more likely to develop an SSI than patients without diabetes.
- Very obese patients (with body mass index [BMI] greater than or equal to 40) were 3.4 times more likely to develop an SSI, and obese patients (with BMI between 30 and 39) were 1.6 times more likely to develop an SSI than patients with BMI less than 30.
- Females were 2.1 times more likely to develop an SSI than males.
- Patients with renal failure were 2.7 times more likely to develop an SSI than patients without renal failure.
- Patients with peripheral artery disease (PAD) were 1.4 times more likely to develop an SSI than patients without PAD.
- Patients who underwent procedures with a total duration longer than five hours were 1.6 times more likely to develop an SSI than patients undergoing shorter procedures.

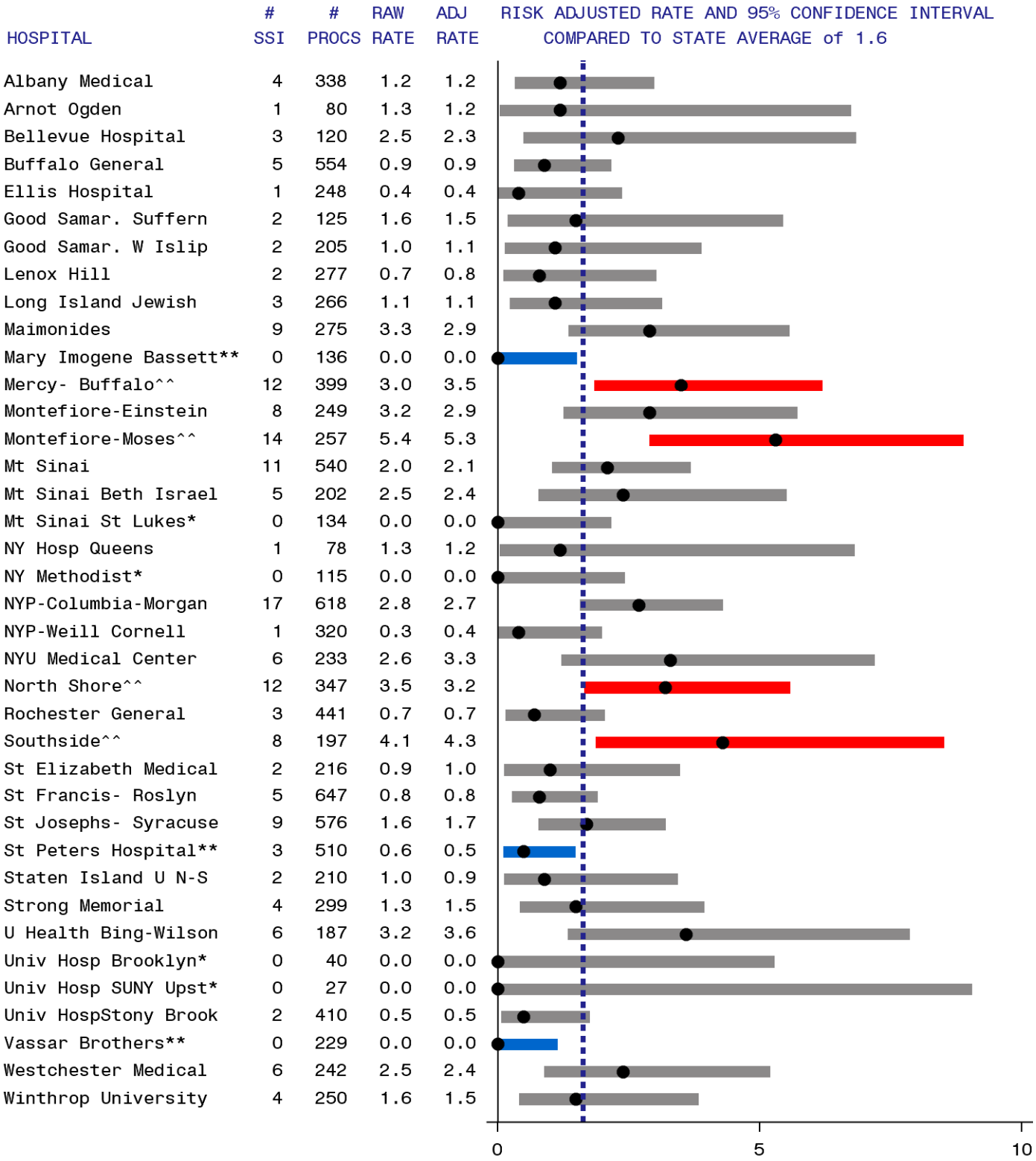
Hospital-Specific CABG Chest SSI Rates

Hospital-specific CABG chest SSI rates are provided in Figure 4.

In 2014, of the 38 reporting hospitals, four (11%) had a CABG chest SSI rate that was statistically higher than the state average. None of these hospitals were flagged high in the previous year.

Three hospitals (8%) were statistically lower than the state average. Vassar Brothers Medical Center had a rate statistically lower than the state average for six years in a row (2009-2014).

Figure 4. Coronary artery bypass graft chest site infection rates, New York 2014 (page 1 of 1)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. NHSN Codes CBGB and CBGC. Excludes non-readmitted cases identified using post discharge surveillance. Adjusted using diabetes, body mass index, gender, end stage renal disease, peripheral artery disease, and duration.

CABG Donor Site Infections

Among 9,496 CABG procedures that involved donor sites in 2014, 53 (0.6%) developed SSIs. Of these infections, 83% were superficial and 17% were deep (Table 9). The majority of the SSIs (47%) were detected during readmission to the same hospital, 17% were identified during the initial hospitalization, 15% involved readmission to another hospital, and 21% were detected in outpatient locations. The majority of infections detected in outpatient locations were superficial. Detection of SSIs in outpatient locations using PDS is labor intensive and is not standardized across hospitals; therefore, the NYSDOH did not include these 11 infections in hospital-specific comparisons.

Table 9. Method of detection for coronary artery bypass graft donor site infection by depth of infection, New York State 2014

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Post-Discharge Surveillance Not Readmitted**	**Total**
Superficial Incisional	7 (15.9%) (77.8%)	21 (47.7%) (84.0%)	6 (13.6%) (75.0%)	10 (22.7%) (90.9%)	44 (83.0%)
Deep Incisional	2 (22.2%) (22.2%)	4 (44.4%) (16.0%)	2 (22.2%) (25.0%)	1 (11.1%) (9.1%)	9 (17.0%)
Total	9 (17.0%)	25 (47.2%)	8 (15.1%)	11 (20.8%)	53

New York State data reported as of July 1, 2015

Microorganisms Associated with CABG Donor Site SSIs

In NYS, the most common microorganism associated with CABG donor site SSIs was *Staphylococcus aureus* (Table 10).

Table 10. Microorganisms identified in coronary artery bypass graft donor site infections, New York State 2014

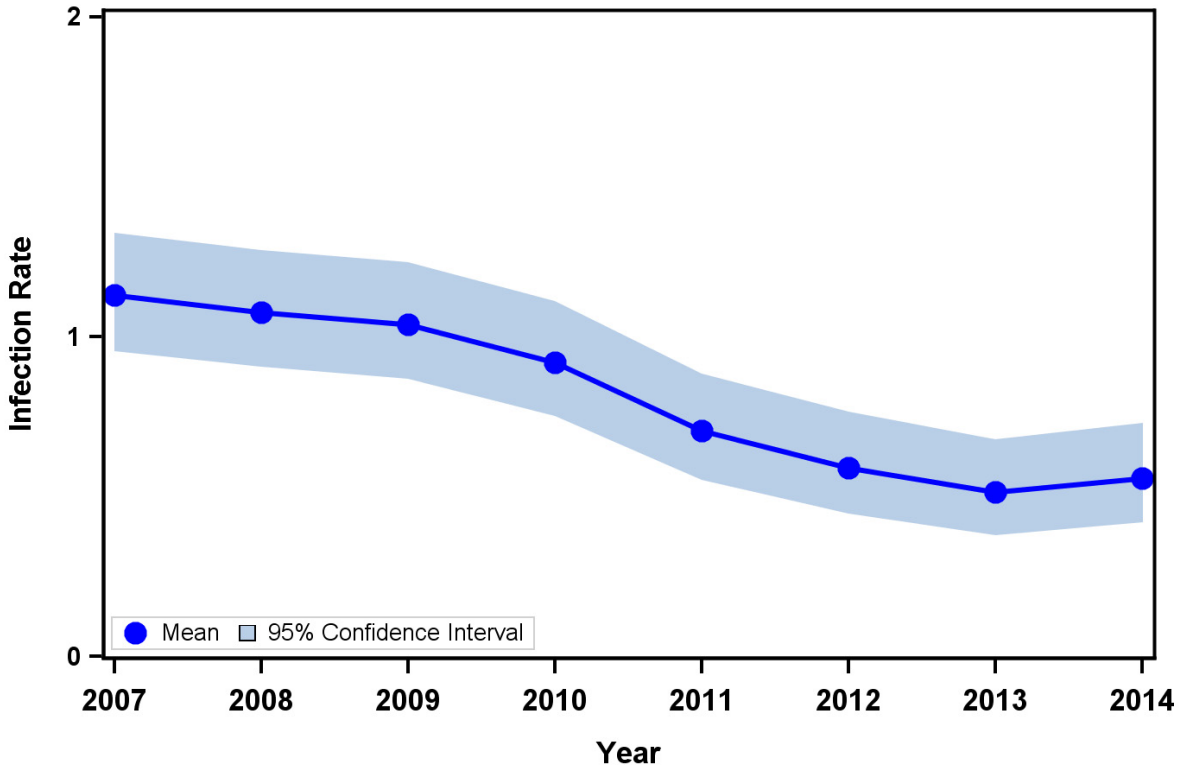
Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	9	17.0
(MRSA)	(4)	(7.5)
(MSSA)	(5)	(9.4)
Pseudomonas spp.	7	13.2
Serratia spp.	7	13.2
Coagulase negative Staphylococci	5	9.4
Escherichia coli	5	9.4
Klebsiella spp.	5	9.4
Enterococci	2	3.8
(VRE)	(1)	(1.9)
Acinetobacter spp.	1	1.9
Other	12	22.6

New York State data reported as of September 25, 2014. Out of 53 infections. No microorganisms identified for 14 (26%) infections. MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus;* VRE: vancomycin-resistant enterococci; spp: multiple species.

Time Trends in CABG Donor Site SSIs

Between 2007 and 2014, the NYS CABG donor SSI rate declined 50%, from 1.13 infections per 100 procedures in 2007 to 0.56 infections per 100 procedures in 2014 (Figure 5). The majority of this decline occurred between 2007 and 2011. Overall, the decline resulted in 251 prevented SSIs and a direct cost savings estimated to be between $4 million and $13 million since 2007.

Figure 5. Trend in coronary artery bypass graft donor site infection rates, New York State 2007-2014



Year	# Hospitals	# Procedures	For Statewide Trend[2]		For Hospital Comparisons[3]	
			# Infections	Infection Rate[1]	# Infections excluding PDS	Infection Rate[1] excluding PDS
2007	40	13,203	149	1.13	148	1.12
2008	40	12,905	139	1.08	128	0.99
2009	40	12,416	129	1.04	109	0.88
2010	39	11,429	105	0.92	92	0.80
2011	40	10,364	73	0.70	66	0.64
2012	39	9,659	57	0.59	52	0.54
2013	39	9,556	49	0.51	45	0.47
2014	38	9,496	53	0.56	42	0.44

New York State Data reported as of July 1, 2015. PDS=post-discharge surveillance.
[1] Infection rate is the number of infections divided by the number of procedures, multiplied by 100. Only one infection per procedure.
[2]To assess trends, all NHSN data are included and graphed in the figure.
[3]To assess hospital-specific performance, compare the hospital's rate to the state average in the same year. Beginning in 2008, SSIs detected by PDS were excluded because PDS methods are not standardized across hospitals.

Risk Adjustment for CABG Donor Site SSIs

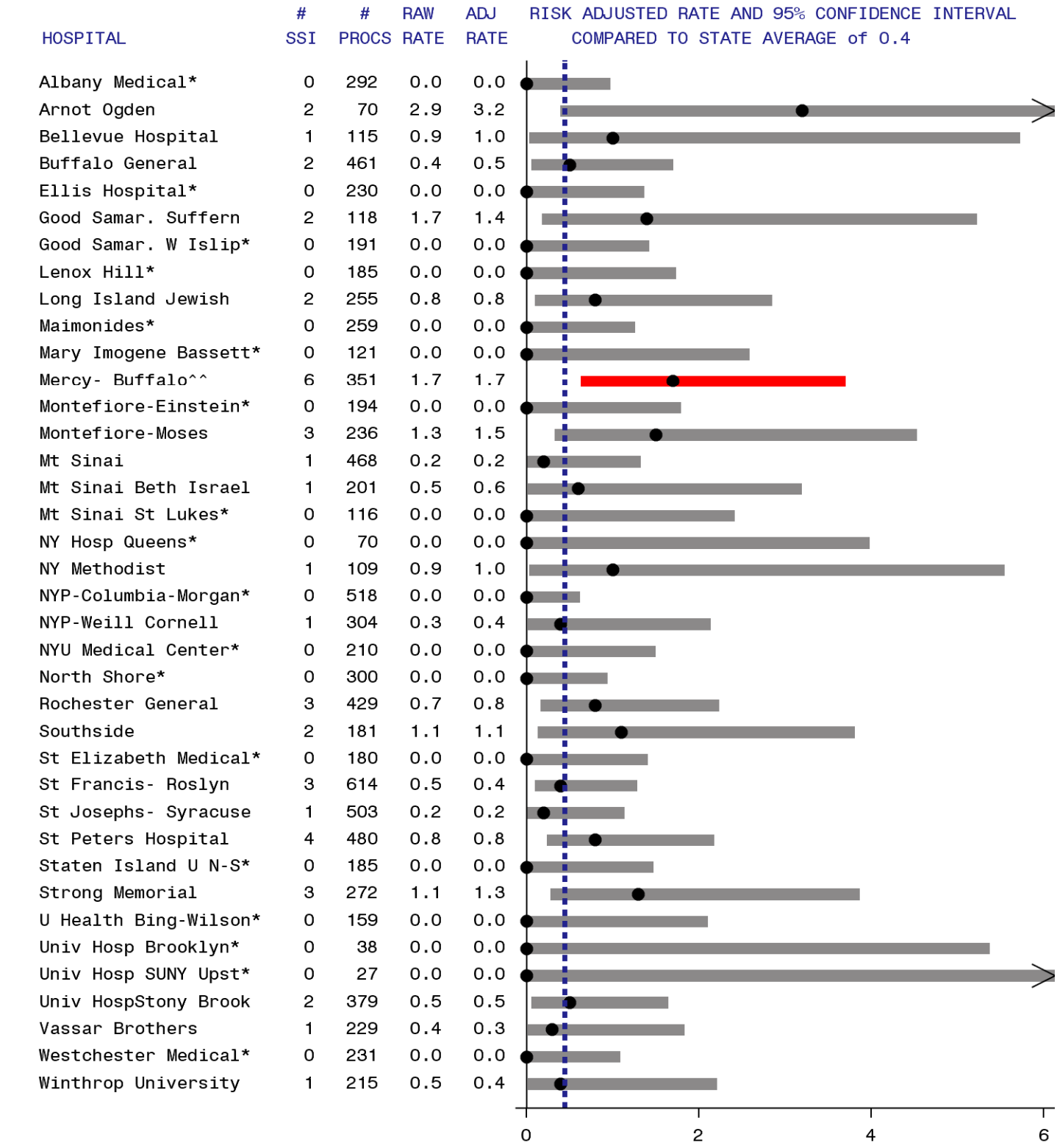
Certain patient and procedure-specific factors increased the risk of developing a donor site SSI following CABG surgery. In 2014, after excluding SSIs identified using PDS that did not result in hospitalization, the following risk factors were associated with SSI. These variables were used to risk-adjust hospital-specific rates:

- Obese patients (with BMI greater than or equal to 30) were 1.2 times more likely to develop an SSI than patients with BMI less than 30.
- Patients undergoing non-autologous intraoperative blood transfusion were 1.2 times more likely to develop an SSI than patients without this type of transfusion.

Hospital-Specific CABG Donor Site SSI rates

Hospital-specific CABG donor site SSI rates are provided in Figure 6. In 2014, one hospital was flagged for having a rate statistically higher than the state average. The hospital was not flagged in the previous report.

Figure 6. Coronary artery bypass graft donor site infection rates, New York 2014 (page 1 of 1)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures. Only one donor site infection per person is counted. Data Reported as of July 1, 2015. NHSN Code CBGB. Excludes non-readmitted cases identified using post discharge surveillance. Adjusted using obesity and transfusion.

Hip Replacement/Revision Surgical Site Infections

Among 32,314 hip procedures performed in 2014, 319 (0.99%) developed SSIs within 90 days. Of these infections, 35% were superficial, 36% were deep, and 28% were organ/space (Table 11). The majority of the SSIs (79%) were detected upon readmission to the same hospital, 9% were identified during the initial hospitalization, 6% involved readmission to another hospital, and 6% were detected in outpatient settings. Detection of SSIs in outpatient locations is labor intensive and is not standardized across hospitals; therefore, the NYSDOH did not include these 18 infections for hospital-specific comparisons. The detection and depth of hip SSIs is consistent with previous published NYS HAI public reports.

Table 11. Method of detection of hip surgical site infection by depth of infection, New York State 2014

Extent (Row%) (Column%)	When Detected				
	Initial Hospitalization	Readmitted to the Same Hospital	Readmitted to Another Hospital	Post-Discharge Surveillance Not Readmitted	Total
Superficial Incisional	14 (12.4%) (46.7%)	77 (68.1%) (30.7%)	5 (4.4%) (25.0%)	17 (15.0%) (94.4%)	113 (35.4%)
Deep Incisional	8 (6.9%) (26.7%)	96 (82.8%) (38.2%)	11 (9.5%) (55.0%)	1 (0.9%) (5.6%)	116 (36.4%)
Organ/Space	8 (8.9%) (26.7%)	78 (86.7%) (31.1%)	4 (4.4%) (20.0%)	0 (0.0%) (0.0%)	90 (28.2%)
Total	30 (9.4%)	251 (78.7%)	20 (6.3%)	18 (5.6%)	319

New York State data reported as of July 1, 2015

Microorganisms Associated with Hip SSIs

The most common microorganism associated with hip SSIs was *Staphylococcus aureus* (Table 12).

Table 12. Microorganisms identified in hip replacement surgical site infections, New York State 2014

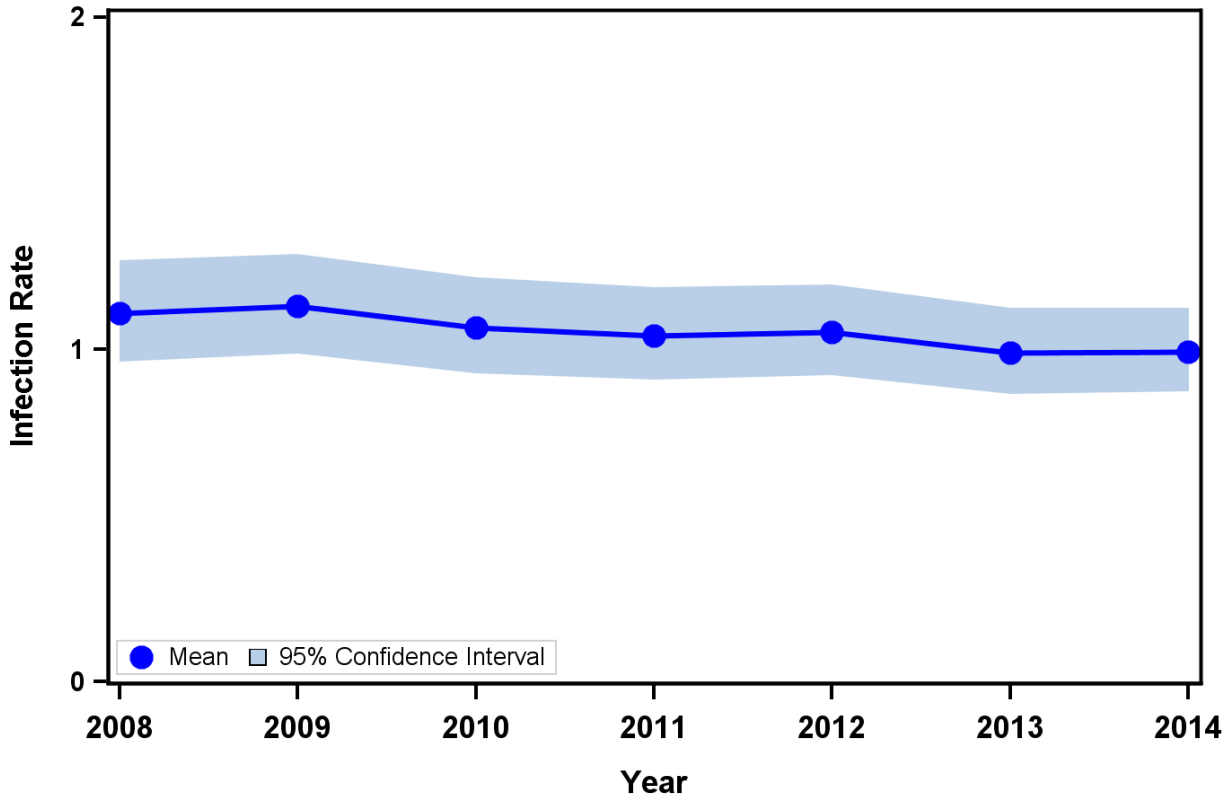
Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	145	45.5
(MRSA)	(64)	(20.1)
(MSSA)	(75)	(23.5)
Coagulase negative Staphylococci	45	14.1
Enterococci	33	10.3
(VRE)	(5)	(1.6)
Escherichia coli	22	6.9
Pseudomonas spp.	22	6.9
Streptococci	22	6.9
Proteus spp.	16	5.0
Klebsiella spp.	11	3.4
Enterobacter spp.	8	2.5
Prevotella spp.	5	1.6
Serratia spp.	5	1.6
Acinetobacter spp.	2	0.6
Other	23	7.2

New York State data reported as of July 1, 2015. Out of 319 infections. No microorganisms identified for 39 (12%) infections. VRE: vancomycin-resistant enterococci; MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus;* spp: multiple species

Time trends in Hip SSIs

As of January 2013 there was a change in definition for hip SSIs that reduced the surveillance interval from one year to 90 days after hip procedures. To account for this change, infections that occurred after 90 days were excluded from the 2008-2012 data, shifting the historical mean down by 10%. Between 2008 and 2014, the hip SSI rate decreased 10%, from 1.11 to 0.99 infections per 100 procedures (Figure 7). This resulted in approximately 165 prevented SSIs and a direct cost savings estimated to be between $3 million and $8 million since 2008.

Figure 7. Trend in hip surgical site infection rates, New York State 2008-2014



Year	# Hospitals	# Procedures	For statewide trend-excluded infections detected past 90 days[2]		For hospital comparisons[3]	
			# Infections	Infection Rate[1]	# Infections excluding PDS	Infection Rate[1] excluding PDS
2008	172	24,357	270	1.11	273	1.12
2009	169	25,847	292	1.13	295	1.14
2010	167	26,290	280	1.07	290	1.10
2011	167	27,300	284	1.04	316	1.16
2012	165	28,424	299	1.05	310	1.09
2013	163	30,433	301	0.99	273	0.90
2014	160	32,134	319	0.99	301	0.94

New York State Data reported as of July 1, 2015. PDS=post-discharge surveillance.
[1] Infection rate is the number of infections divided by the number of procedures, multiplied by 100.
[2]To assess trends, infections identified more than 90 days after the procedure were excluded from 2008-2012 data to match the 2013-4 surveillance definition; this data is graphed in the figure.
[3]To assess hospital-specific performance, compare the hospital's rate to the state average in the same year. Beginning in 2008, SSIs detected by PDS were excluded because PDS methods are not standardized across hospitals.

Risk Adjustment for Hip Surgical Site Infections

Certain patient and procedure-specific factors increased the risk of developing an SSI following hip surgery. In 2014, after excluding SSIs identified using PDS that did not result in hospitalization, the following risk factors were associated with SSIs. These variables were used to risk-adjust hospital-specific rates.

- Patients with an ASA score of 3, 4, or 5 were 1.7 times more likely to develop an SSI than patients with an ASA score of 1 or 2.
- The risk of SSI varied by type of hip procedure. Compared to total and resurfacing primary hip replacement procedures (ICD-9 codes 00.85 ,00.86, 00.87, 81.51), partial primary procedures (81.52) were 1.5 times more likely to result in an SSI, and revisions (00.70-00.73, 81.53) were 3.9 times more likely to result in an SSI.
- Procedures with duration longer than the 75th percentile (by type of hip procedure) were 1.6 times more likely to result in an SSI than procedures of shorter duration.
- Very obese patients (with BMI greater than or equal to 40) were 3.5 times more likely to develop an SSI, and obese patients (with BMI between 30 and 39) were 1.6 times more likely to develop an SSI than patients with BMI less than 30.

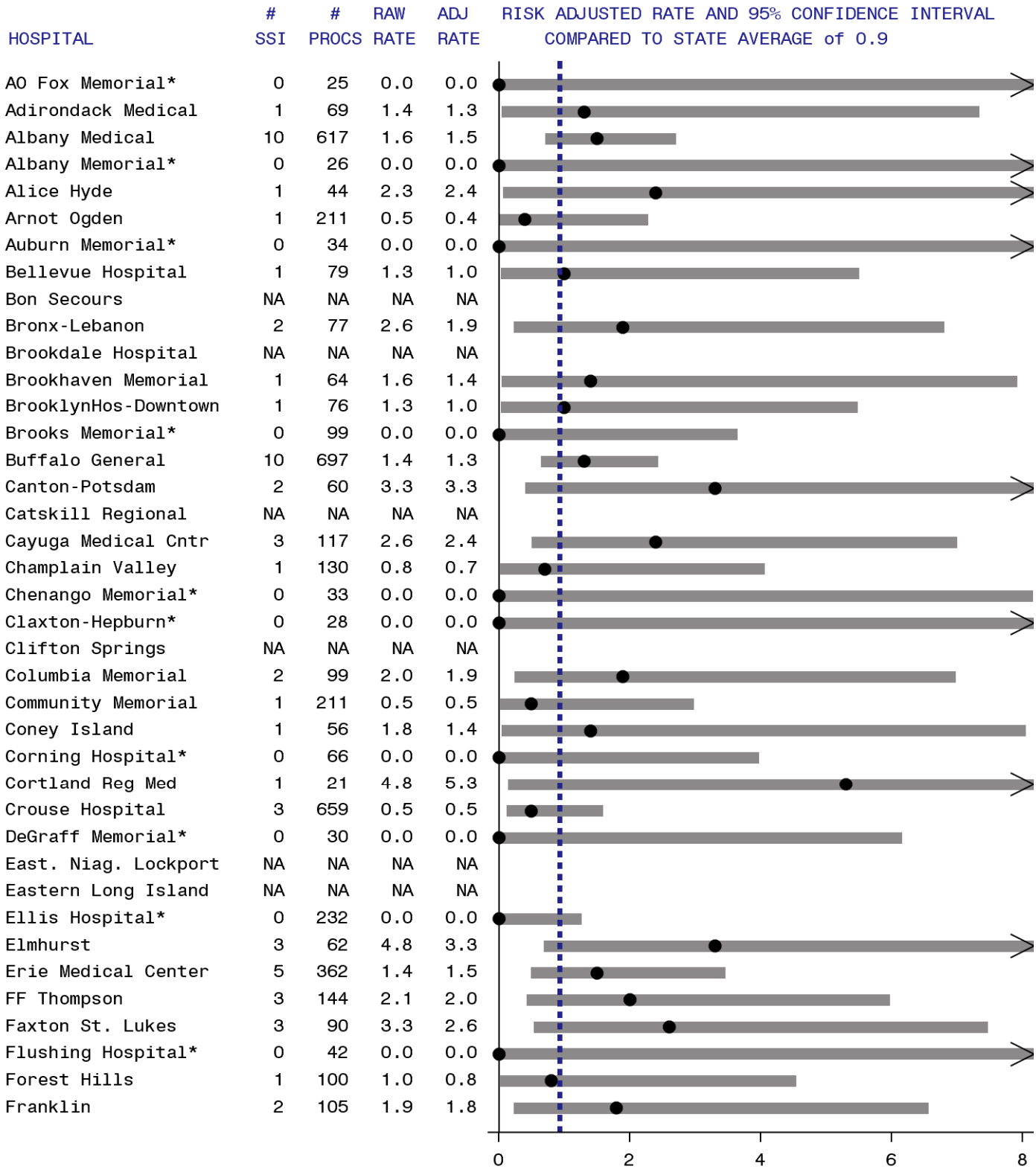
Hospital-Specific Hip SSI Rates

Hospital-specific hip SSI rates are provided in Figure 8.

In 2014, two hospitals (1%) had hip SSI rates that were statistically higher than the state average. One of these hospitals was high for two years in a row, and none was high for more than two years in a row. Both hospitals submitted improvement plans following the NYSDOH HAI Reporting Program's Policy for Facilities with Consecutive Years of High HAI Rates.

One hospital (0.6%) had an SSI rate significantly lower than the state average; Hospital for Special Surgery was significantly lower in each of the past seven years (2008-2014).

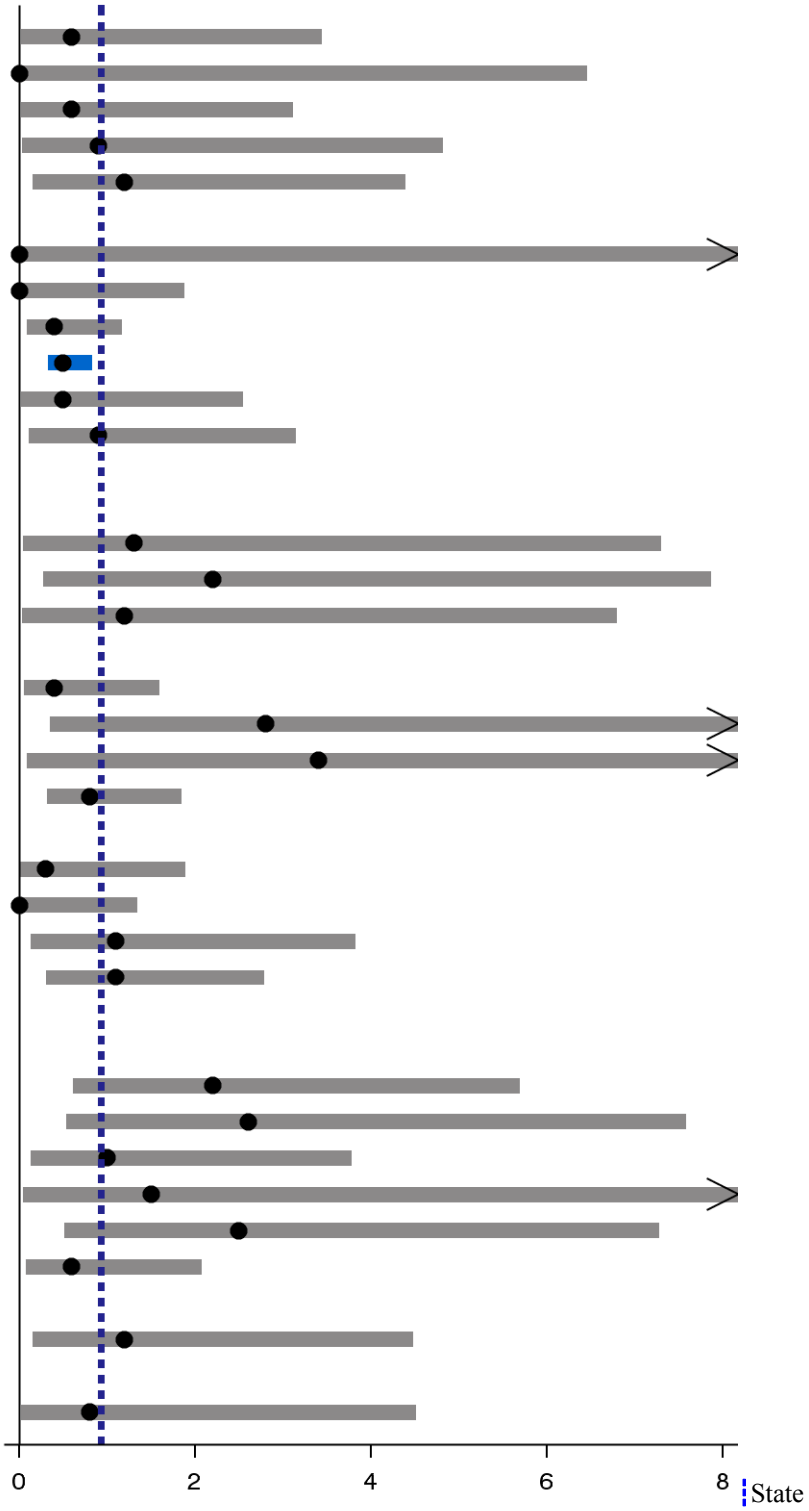
Figure 8. Hip replacement surgical site infection rates, New York 2014 (page 1 of 5)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type, duration, and obesity.

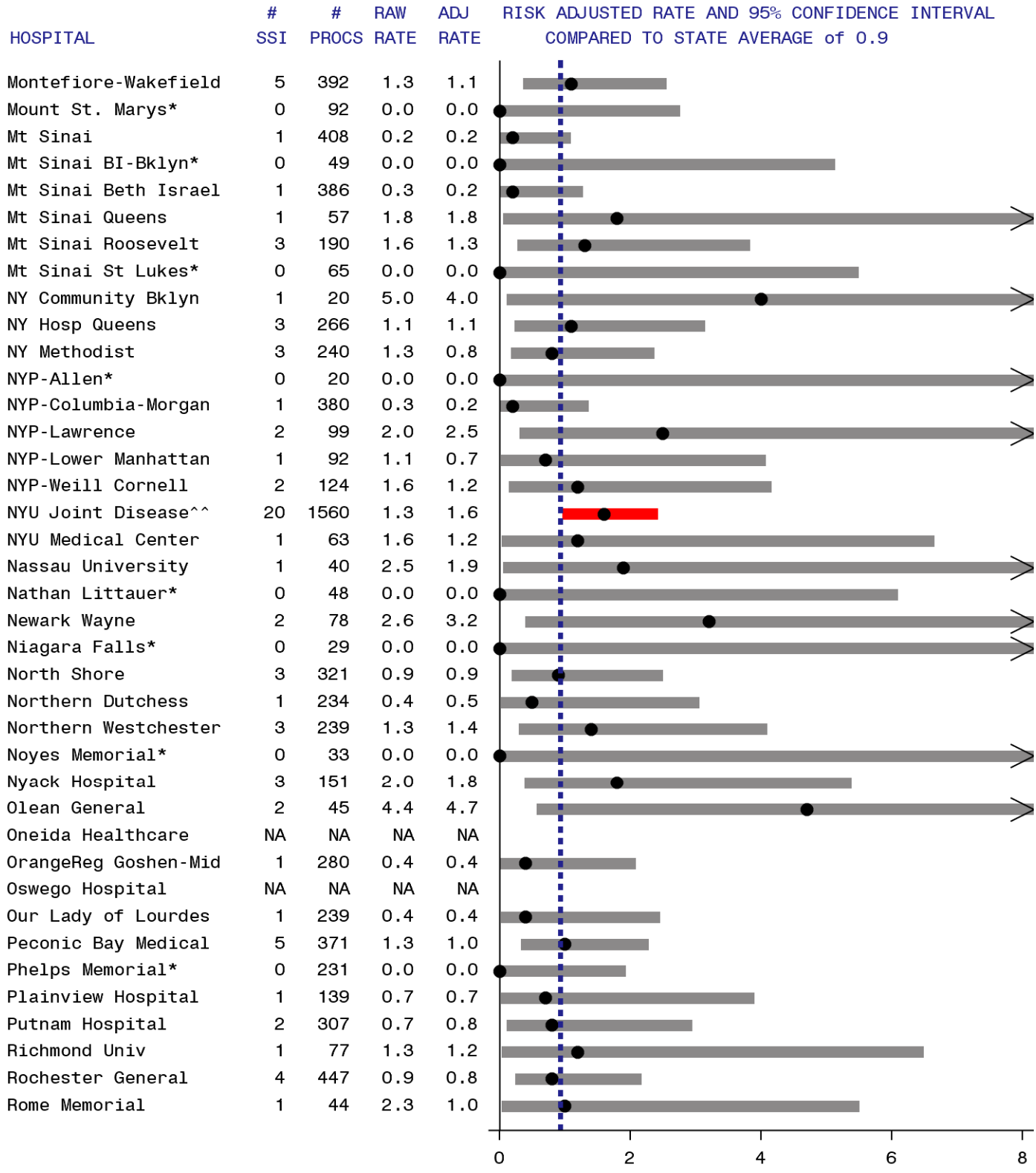
Figure 8. Hip replacement surgical site infection rates, New York 2014 (page 2 of 5)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Geneva General	1	131	0.8	0.6
Glen Cove Hospital*	0	48	0.0	0.0
Glens Falls	1	155	0.6	0.6
Good Samar. Suffern	1	132	0.8	0.9
Good Samar. W Islip	2	130	1.5	1.2
Harlem Hospital	NA	NA	NA	NA
HealthAlli Broadway*	0	33	0.0	0.0
HealthAlli MarysAve*	0	177	0.0	0.0
Highland Hospital	3	901	0.3	0.4
Hosp for Spec Surg**	20	5111	0.4	0.5
Hudson Valley	1	167	0.6	0.5
Huntington	2	249	0.8	0.9
Interfaith Medical	NA	NA	NA	NA
Ira Davenport	NA	NA	NA	NA
JT Mather	1	99	1.0	1.3
Jacobi Medical	2	71	2.8	2.2
Jamaica Hospital	1	49	2.0	1.2
Jones Memorial	NA	NA	NA	NA
Kenmore Mercy	2	573	0.3	0.4
Kings County	2	54	3.7	2.8
Kingsbrook Jewish	1	21	4.8	3.4
Lenox Hill	6	709	0.8	0.8
Lincoln Medical	NA	NA	NA	NA
Long Island Jewish	1	275	0.4	0.3
Lutheran Medical*	0	201	0.0	0.0
Maimonides	2	162	1.2	1.1
Mary Imogene Bassett	4	240	1.7	1.1
Massena Memorial	NA	NA	NA	NA
Medina Memorial	NA	NA	NA	NA
Memor SloanKettering	4	91	4.4	2.2
Mercy Medical	3	100	3.0	2.6
Mercy- Buffalo	2	160	1.3	1.0
Metropolitan	1	30	3.3	1.5
MidHudson Reg of WMC	3	104	2.9	2.5
Millard Fill. Suburb	2	444	0.5	0.6
Montefiore-Einstein	NA	NA	NA	NA
Montefiore-Moses	2	109	1.8	1.2
Montefiore-Mt Vernon	NA	NA	NA	NA
Montefiore-NewRochl	1	123	0.8	0.8



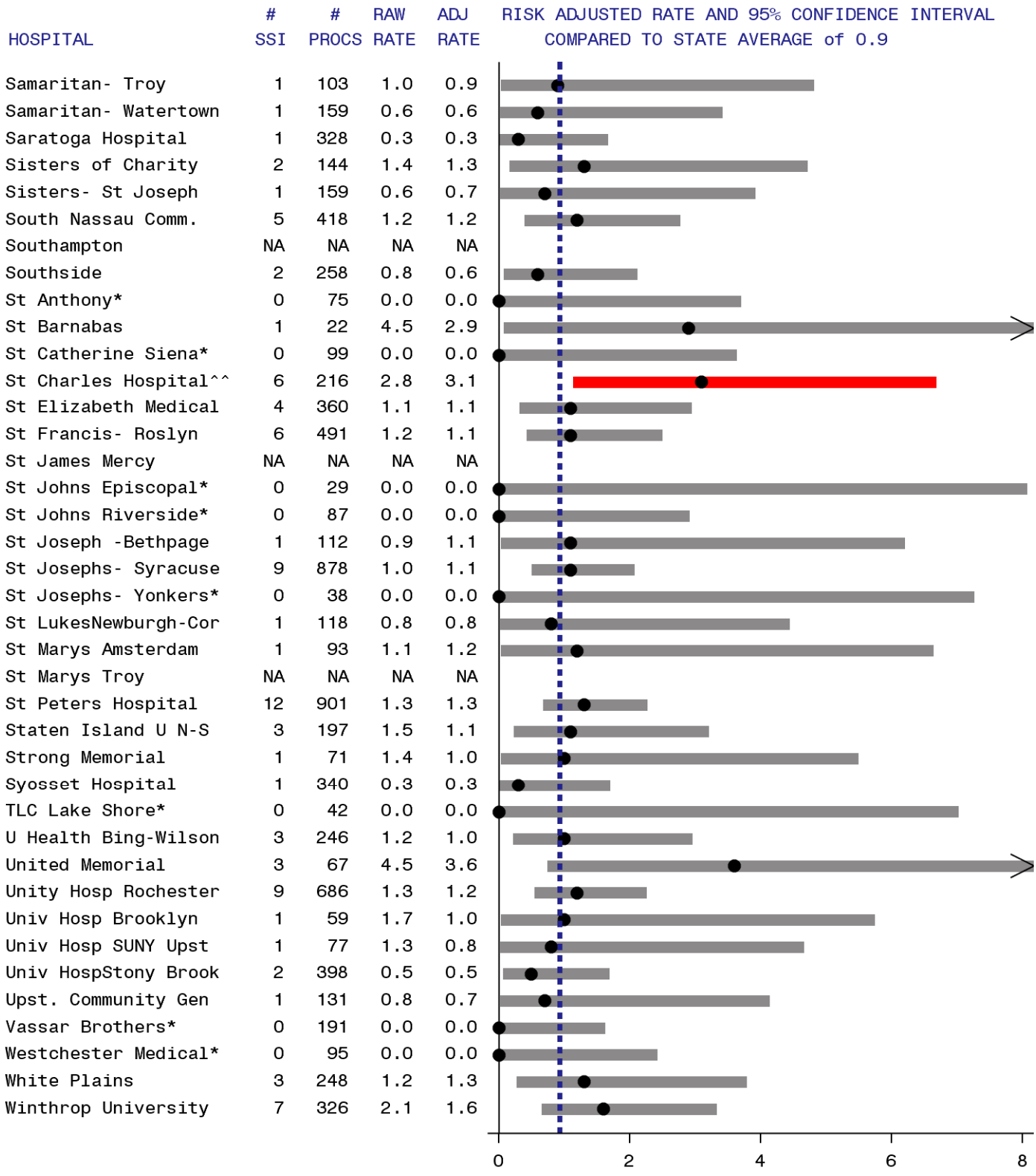
average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type, duration, and obesity.

Figure 8. Hip replacement surgical site infection rates, New York 2014 (page 3 of 5)



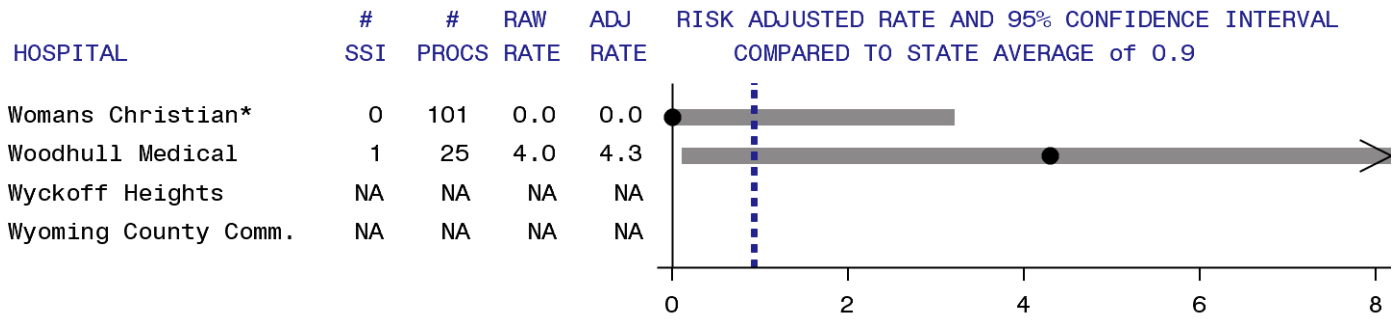
State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type, duration, and obesity.

Figure 8. Hip replacement surgical site infection rates, New York 2014 (page 4 of 5)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type, duration, and obesity.

Figure 8. Hip replacement surgical site infection rates, New York 2014 (page 5 of 5)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, procedure type, duration, and obesity.

Abdominal Hysterectomy Surgical Site Infections

Among 19,212 abdominal hysterectomy procedures performed in 2014, 361 (1.9%) developed SSIs. Of these infections, 44% were superficial, 12% were deep, and 44% were organ/space (Table 13). Half of the SSIs (47%) were detected upon readmission to the same hospital, 29% were detected in outpatient settings, 15% were identified during the initial hospitalization, and 9% involved readmission to another hospital. The majority of the infections detected in outpatient locations were superficial. Detection of SSIs in outpatient locations is labor intensive and is not standardized across hospitals; therefore, the NYSDOH did not include these 103 infections for hospital-specific comparisons. The detection and depth of hysterectomy SSIs is consistent with the previous NYS HAI public report.

Table 13. Method of detection of hysterectomy surgical site infection by depth of infection, New York State 2014

	When Detected				
Extent (Row%) (Column%)	**Initial Hospitalization**	**Readmitted to the Same Hospital**	**Readmitted to Another Hospital**	**Post-Discharge Surveillance Not Readmitted**	**Total**
Superficial Incisional	15 (9.4%) (27.8%)	53 (33.1%) (31.2%)	9 (5.6%) (26.5%)	83 (51.9%) (80.6%)	160 (44.3%)
Deep Incisional	2 (4.7%) (3.7%)	27 (62.8%) (15.9%)	6 (14.0%) (17.6%)	8 (18.6%) (7.8%)	43 (11.9%)
Organ/Space	37 (23.4%) (68.5%)	90 (57.0%) (52.9%)	19 (12.0%) (55.9%)	12 (7.6%) (11.7%)	158 (43.8%)
Total	54 (15.0%)	170 (47.1%)	34 (9.4%)	103 (28.5%)	361

New York State data reported as of July 1, 2015.

Microorganisms Associated with Hysterectomy SSIs

The most common microorganisms associated with hysterectomy SSIs were *E. coli*, *Staphylococcus aureus,* and Enterococci (Table 14).

Table 14. Microorganisms identified in hysterectomy surgical site infections, New York State 2014

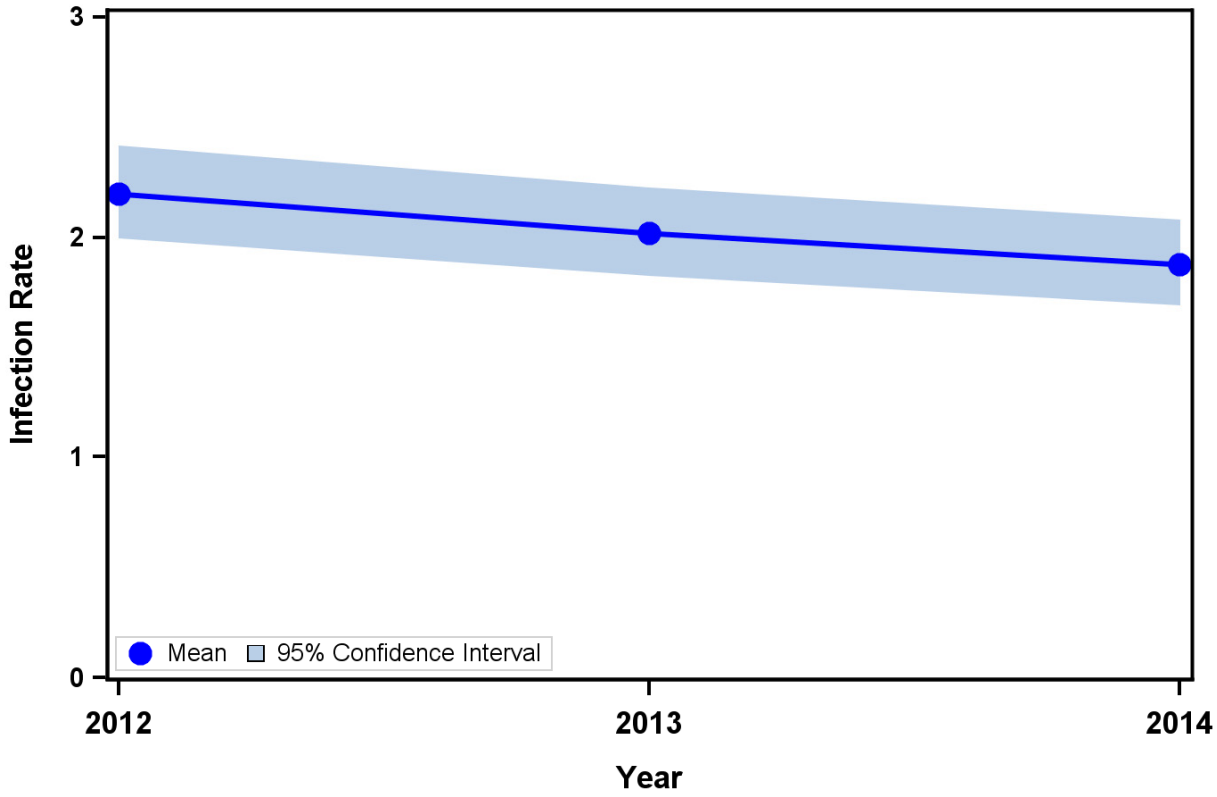
Microorganism	Number of Isolates	Percent of Infections
Escherichia coli	61	16.9
Staphylococcus aureus	578	15.8
(MRSA)	(24)	(6.6)
(MSSA)	(28)	(7.8)
Enterococci	54	15.0
(VRE)	(4)	(1.1)
Coagulase negative Staphylococci	30	8.3
Streptococci	24	6.6
Klebsiella spp.	11	2.9
(CRE *Klebsiella*)	(1)	(0.3)
(CephR *Klebsiella*)	(2)	(0.6)
Bacteroides	17	4.7
Proteus spp.	16	4.4
Pseudomonas spp.	13	3.6
Enterobacter spp.	11	3.0
Peptostreptococci spp.	8	2.2
Corynebacteria	7	1.9
Yeast	7	1.9
Serratia spp.	5	1.4
Acinetobacter spp.	1	0.3
Other	32	8.9

New York State data reported as of July 1, 2015. Out of 361 infections. No microorganisms identified for 115 (32%) infections. VRE: vancomycin-resistant enterococci; MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus;* CRE: carbapenem-resistant Enterobacteriaceae; CephR: cephalosporin-resistant; spp: multiple species

Time trends in Hysterectomy SSIs

Between 2012 and 2014, the hysterectomy SSI rate decreased by 15% (Figure 9). This decrease resulted in 96 prevented SSIs and a direct cost savings estimated to be between $2 million and $5 million since 2012.

Figure 9. Trend in hysterectomy surgical site infection rates, New York State 2012-2014



Year	# Hospitals	# Procedures	For Statewide Trends[2]		For Hospital Comparisons[3]	
			Total # Infections	Total Infection Rate[1]	# Infections excluding PDS*	Infection Rate[1] excluding PDS*
2012	161	19,142	421	2.20	318	1.66
2013	157	19,175	387	2.02	298	1.55
2014	151	19,212	361	1.88	258	1.34

New York State Data reported as of July 1, 2015. PDS=post-discharge surveillance.
[1] Infection rate is the number of infections divided by the number of procedures, multiplied by 100.
[2]To assess trends, all NHSN data are included and graphed in the figure.
[3]To assess hospital-specific performance, compare the hospital's rate to the state average in the same year. SSIs detected by PDS were excluded because PDS methods are not standardized across hospitals.

Risk Adjustment for Hysterectomy Surgical Site Infections

Certain patient and procedure-specific factors increased the risk of developing an SSI following abdominal hysterectomy. In 2014, after excluding SSIs identified using PDS that did not result in hospitalization, the following risk factors were associated with SSIs. These variables were used to risk-adjust hospital-specific rates.

- Patients with an ASA score of 3, 4, or 5 were 1.7 times more likely to develop an SSI than patients with an ASA score of 1 or 2.
- Procedures with duration greater than three hours were 2.0 times more likely to result in SSI than procedures less than two hours. Procedures with duration between two and three hours were 1.6 times more like to result in SSI than procedures less than two hours.
- Procedures that involved traditional surgical incisions were 1.9 times more likely to result in SSI than procedures performed entirely with a laparoscopic instrument.
- Procedures with contaminated or dirty wound classifications were 2.4 times more likely to result in SSI than procedures on clean-contaminated sites.

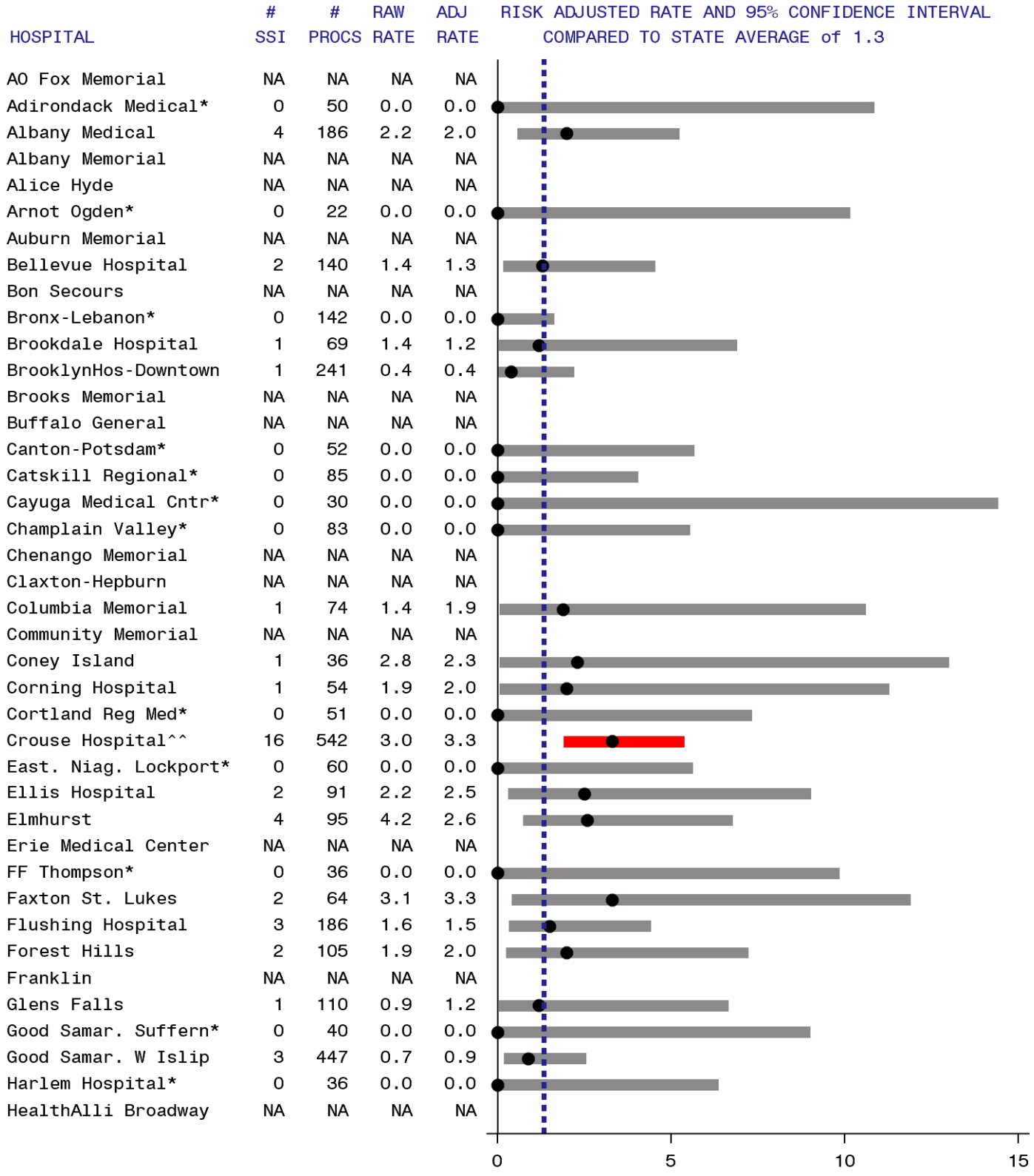
Hospital-Specific Hysterectomy SSI Rates

Hospital-specific hysterectomy SSI rates are provided in Figure 10.

In 2014, six hospitals (4%) had hysterectomy SSI rates that were statistically higher than the state average. One of these hospitals was high for two years in a row, and one was high for three consecutive years. All six hospitals submitted improvement plans following the NYSDOH HAI Reporting Program's Policy for Facilities with Consecutive Years of High HAI Rates.

No hospitals had SSI rates that were significantly lower than the state average.

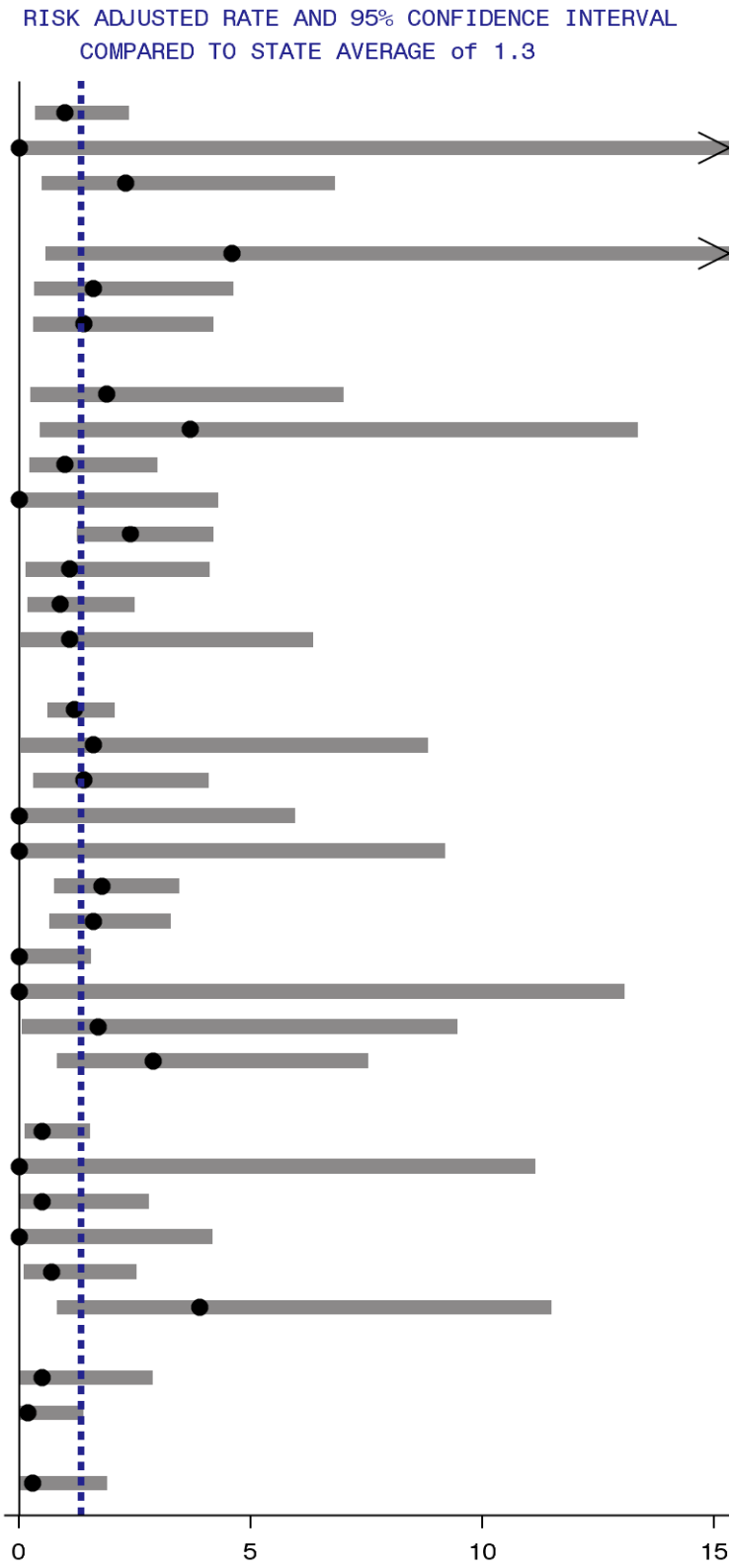
Figure 10. Abdominal hysterectomy surgical site infection rates, New York 2014 (page 1 of 4)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, wound class, and endoscope.

Figure 10. Abdominal hysterectomy surgical site infection rates, New York 2014 (page 2 of 4)

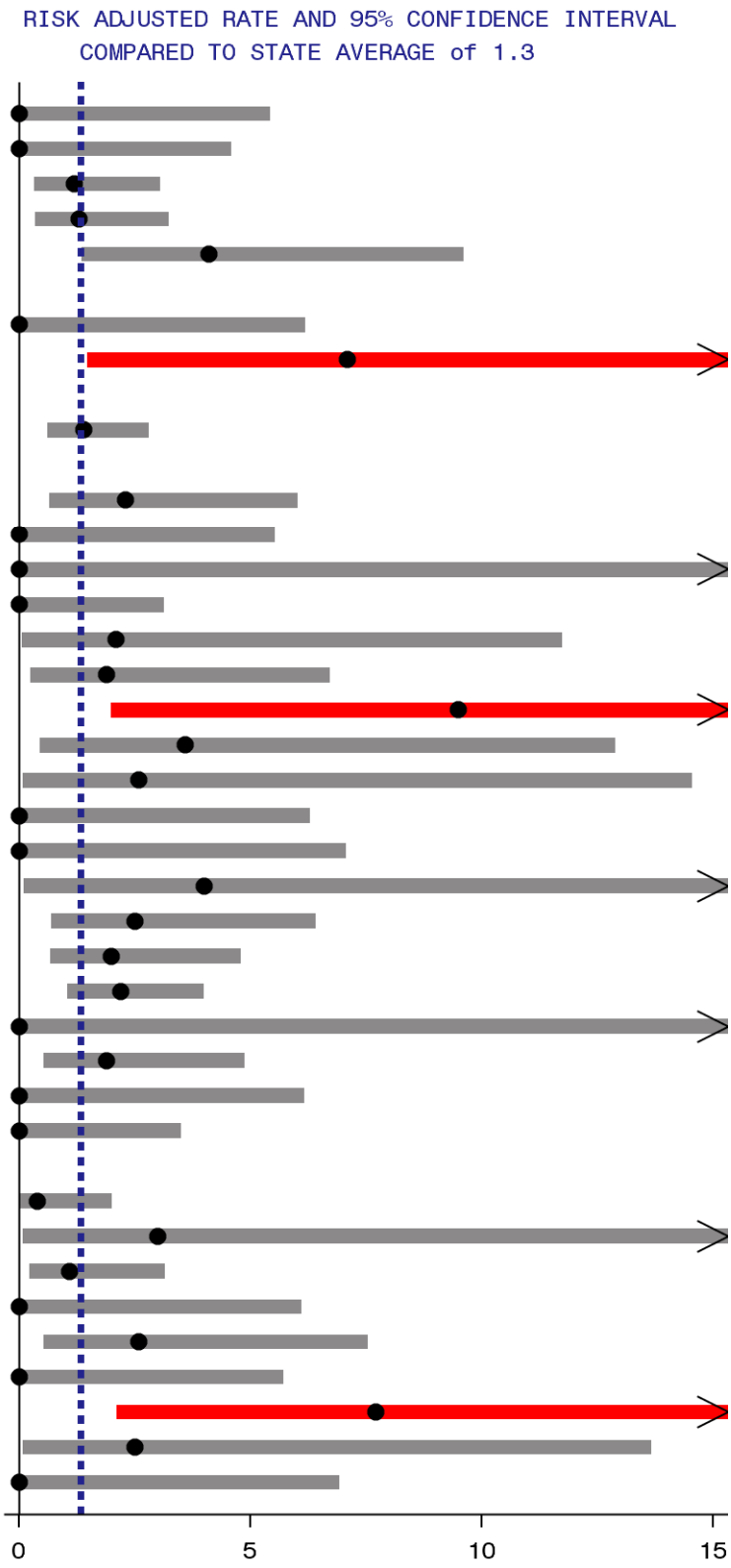
HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
Highland Hospital	5	621	0.8	1.0
Hudson Valley*	0	21	0.0	0.0
Huntington	3	207	1.4	2.3
Interfaith Medical	NA	NA	NA	NA
JT Mather	2	68	2.9	4.6
Jacobi Medical	3	125	2.4	1.6
Jamaica Hospital	3	174	1.7	1.4
Jones Memorial	NA	NA	NA	NA
Kings County	2	101	2.0	1.9
Kingsbrook Jewish	2	50	4.0	3.7
Lenox Hill	3	278	1.1	1.0
Lincoln Medical*	0	53	0.0	0.0
Long Island Jewish	12	420	2.9	2.4
Lutheran Medical	2	176	1.1	1.1
Maimonides	3	286	1.0	0.9
Mary Imogene Bassett	1	78	1.3	1.1
Massena Memorial	NA	NA	NA	NA
Memor SloanKettering	12	641	1.9	1.2
Mercy Medical	1	67	1.5	1.6
Mercy- Buffalo	3	290	1.0	1.4
Metropolitan*	0	39	0.0	0.0
MidHudson Reg of WMC*	0	53	0.0	0.0
Millard Fill. Suburb	8	546	1.5	1.8
Montefiore-Einstein	7	348	2.0	1.6
Montefiore-Moses*	0	203	0.0	0.0
Montefiore-Mt Vernon*	0	27	0.0	0.0
Montefiore-NewRochl	1	66	1.5	1.7
Montefiore-Wakefield	4	150	2.7	2.9
Mount St. Marys	NA	NA	NA	NA
Mt Sinai	3	509	0.6	0.5
Mt Sinai BI-Bklyn*	0	25	0.0	0.0
Mt Sinai Beth Israel	1	176	0.6	0.5
Mt Sinai Queens*	0	81	0.0	0.0
Mt Sinai Roosevelt	2	261	0.8	0.7
Mt Sinai St Lukes	3	78	3.8	3.9
NY Community Bklyn	NA	NA	NA	NA
NY Hosp Queens	1	165	0.6	0.5
NY Methodist	1	396	0.3	0.2
NYP-Allen	NA	NA	NA	NA
NYP-Columbia-Morgan	1	261	0.4	0.3



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, wound class, and endoscope.

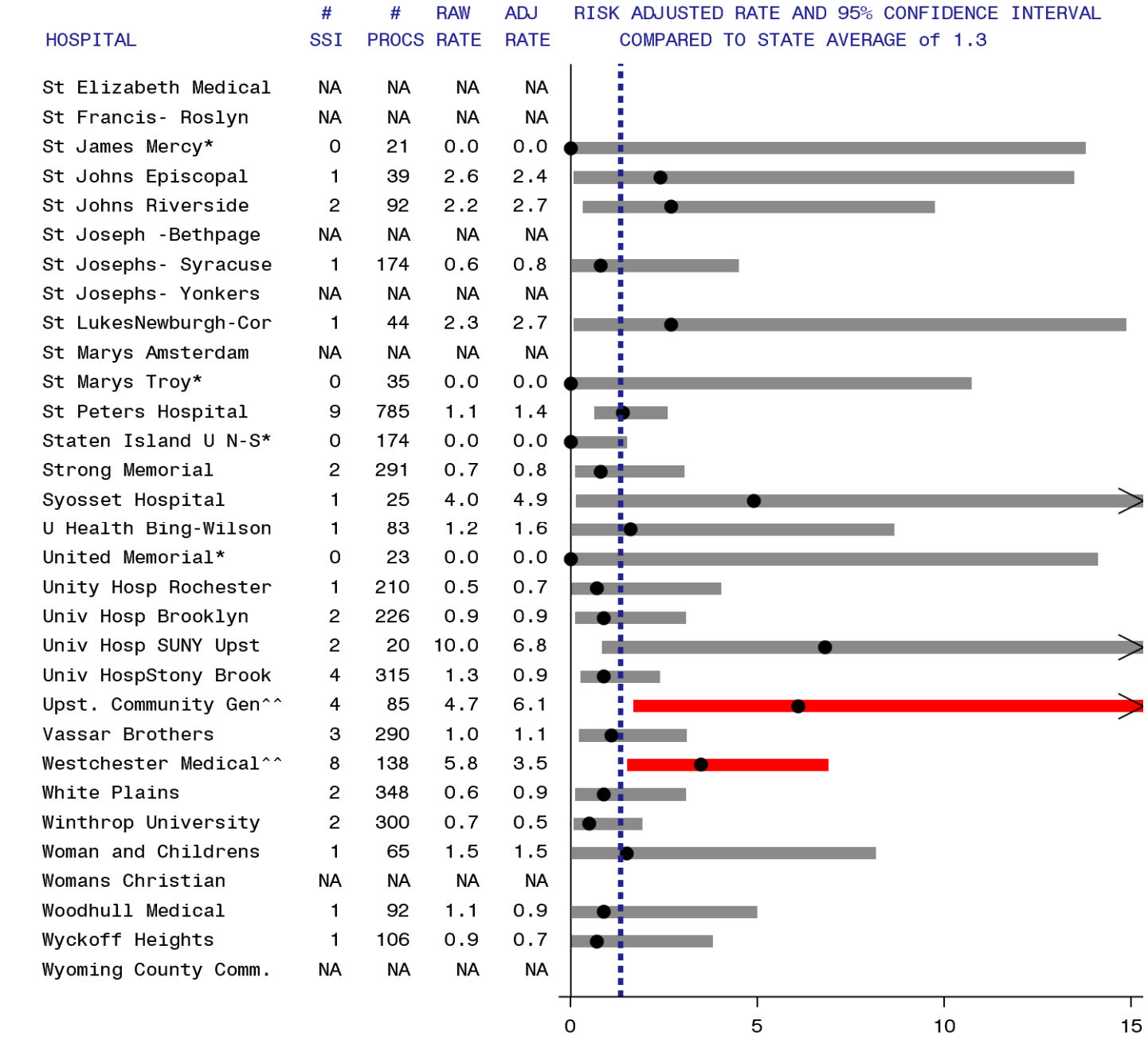
Figure 10. Abdominal hysterectomy surgical site infection rates, New York 2014 (page 3 of 4)

HOSPITAL	# SSI	# PROCS	RAW RATE	ADJ RATE
NYP-Lawrence*	0	71	0.0	0.0
NYP-Lower Manhattan*	0	57	0.0	0.0
NYP-Weill Cornell	4	270	1.5	1.2
NYU Medical Center	4	283	1.4	1.3
Nassau University	5	106	4.7	4.1
Nathan Littauer	NA	NA	NA	NA
Newark Wayne*	0	60	0.0	0.0
Niagara Falls^^	3	77	3.9	7.1
North Central Bronx	NA	NA	NA	NA
North Shore	8	466	1.7	1.4
Northern Dutchess	NA	NA	NA	NA
Northern Westchester	4	260	1.5	2.3
Noyes Memorial*	0	53	0.0	0.0
Nyack Hospital*	0	20	0.0	0.0
Olean General*	0	114	0.0	0.0
Oneida Healthcare	1	76	1.3	2.1
OrangeReg Goshen-Mid	2	129	1.6	1.9
Oswego Hospital^^	3	33	9.1	9.5
Our Lady of Lourdes	2	84	2.4	3.6
Peconic Bay Medical	1	34	2.9	2.6
Phelps Memorial*	0	48	0.0	0.0
Plainview Hospital*	0	48	0.0	0.0
Putnam Hospital	1	31	3.2	4.0
Queens Hospital	4	112	3.6	2.5
Richmond Univ	5	299	1.7	2.0
Rochester General	10	572	1.7	2.2
Rome Memorial*	0	21	0.0	0.0
Roswell Park	4	175	2.3	1.9
Samaritan- Troy*	0	63	0.0	0.0
Samaritan- Watertown*	0	106	0.0	0.0
Saratoga Hospital	NA	NA	NA	NA
Sisters of Charity	1	318	0.3	0.4
Sisters- St Joseph	1	30	3.3	3.0
South Nassau Comm.	3	276	1.1	1.1
Southampton*	0	65	0.0	0.0
Southside	3	151	2.0	2.6
St Anthony*	0	72	0.0	0.0
St Barnabas^^	4	40	10.0	7.7
St Catherine Siena	1	54	1.9	2.5
St Charles Hospital*	0	51	0.0	0.0



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, wound class, and endoscope.

Figure 10. Abdominal hysterectomy surgical site infection rates, New York 2014 (page 4 of 4)



State average. ●Risk-adjusted infection rate. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with less than 20 procedures.
SSI: surgical site infections. Procs: procedures. Rates are per 100 procedures.
Data reported as of July 1, 2015. Excludes non-readmitted cases identified using post discharge surveillance.
Adjusted using ASA score, duration, wound class, and endoscope.

Summary across SSIs

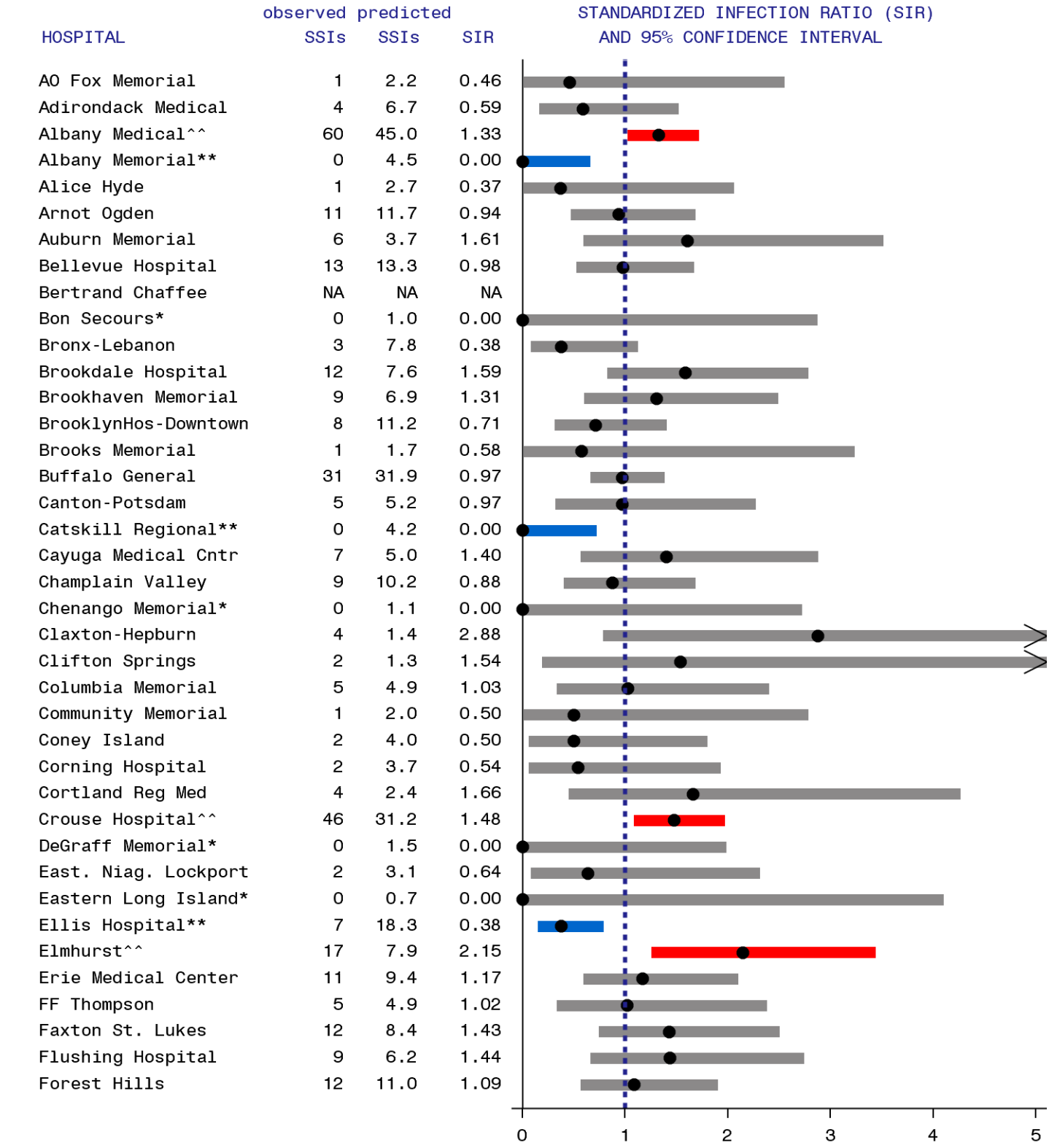
The standardized infection ratio (SIR) is a summary measure used to compare infection data from one population to data from a "standard" population. When calculating hospital-specific SIRs in NYS reports, the standard population is patients who had reportable procedures at all NYS hospitals reporting data to NHSN in the current year. The SSI SIR is calculated by dividing the observed number of infections in the hospital by the statistically predicted number of infections, which is calculated using the risk adjustment models described for each type of SSI.

- A SIR of 1.0 means the observed number of infections is equal to the number of predicted infections.
- A SIR above 1.0 means that the infection rate is higher than that found in the standard population. The difference above 1.0 is the percentage by which the infection rate exceeds that of the standard population.
- A SIR below 1.0 means that the infection rate is lower than that of the standard population. The difference below 1.0 is the percentage by which the infection rate is lower than that experienced by the standard population.

Figure 11 provides hospital-specific SSI SIRs for each hospital. The SSI SIRs combine results across the five different types of SSIs, showing the average performance of each hospital. Ten hospitals (6%) had high SIR flags, and three of these hospitals were high for two consecutive years. None were high for more than two consecutive years. All ten hospitals submitted improvement plans following the NYSDOH HAI Reporting Program's Policy for Facilities with Consecutive Years of High HAI Rates. Ten hospitals had low SIR flags in 2014.

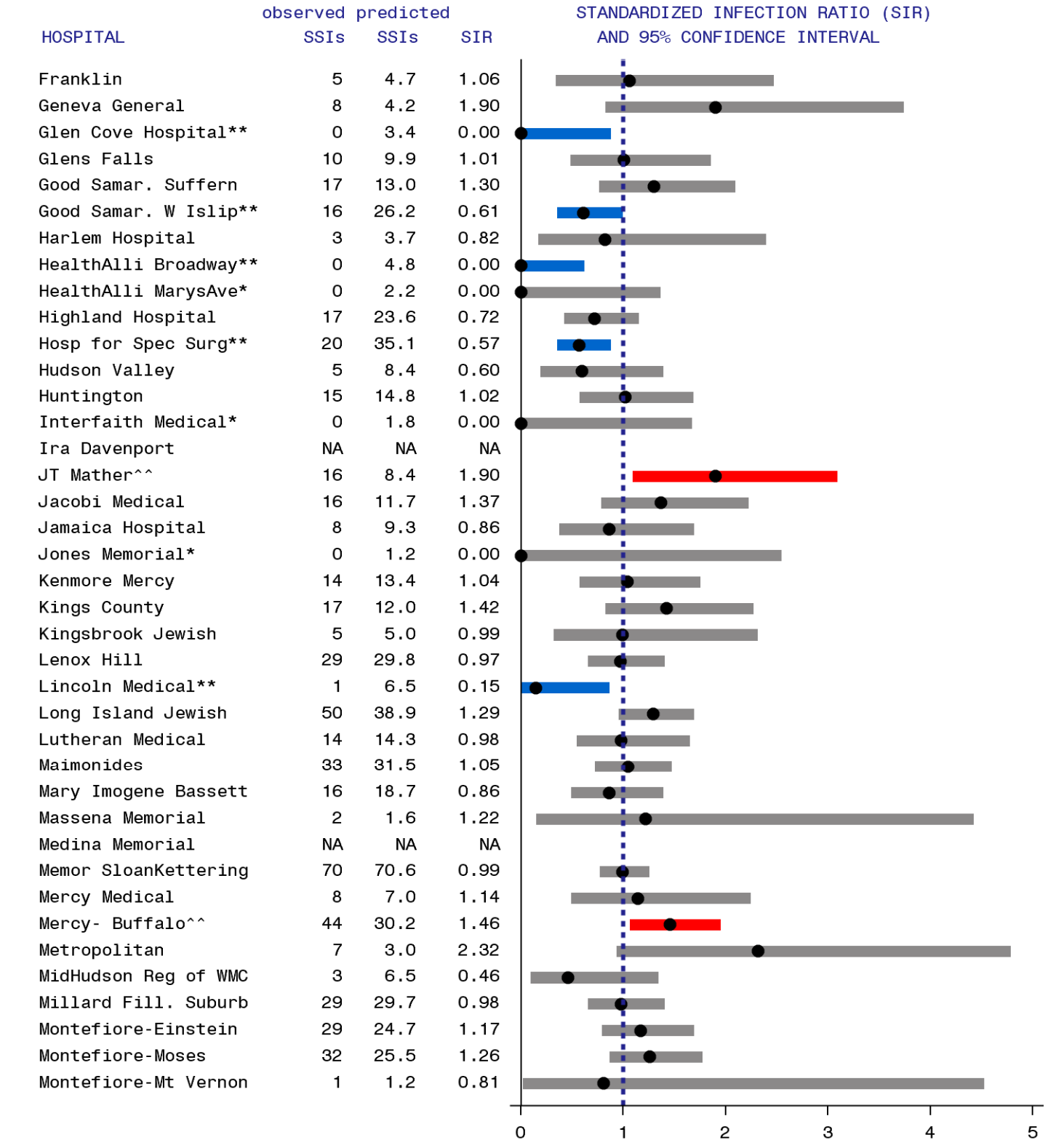
In six cases (4%), hospitals that received no individual area performance flag were significantly higher or lower than the state average overall; combining data results in narrower confidence intervals, so hospitals that perform slightly better in many areas may look significantly better than the state average overall. On the other hand, fourteen hospitals (9%) that received a performance flag for one type of procedure had average SIRs; combining data can smooth away unusual performance in one area.

Figure 11. Surgical site infection (SSI) summary for colon, coronary artery bypass, hip, and hysterectomy procedures standardized infection ratio (SIR), New York 2014 (page 1 of 5)



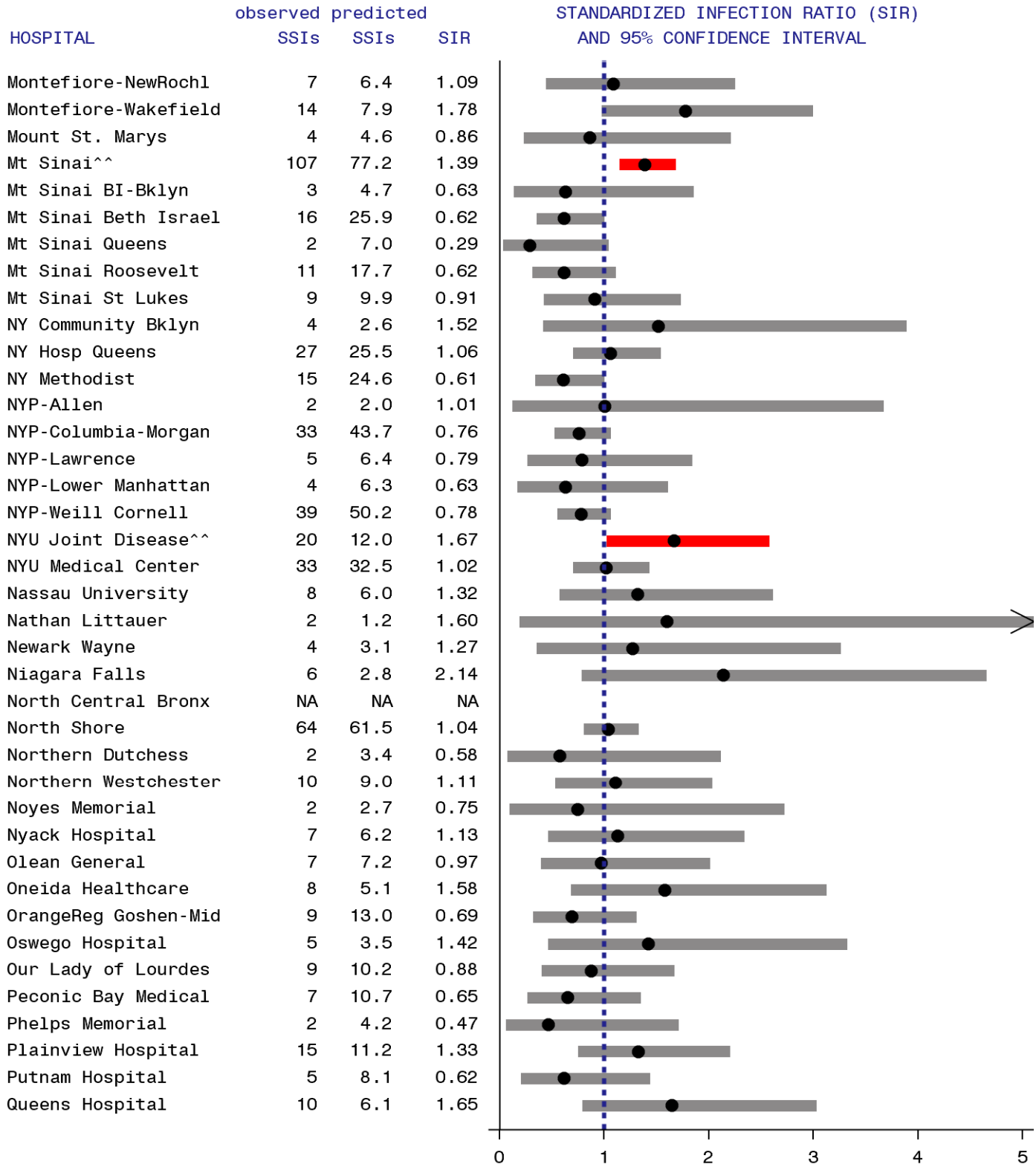
State average. ●SIR. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero Infections, not significant. NA: Hospitals with < 20 procedures.
Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for patient risk factors. Excludes non-readmitted cases identified using post discharge surveillance.

Figure 11. Surgical site infection (SSI) summary for colon, coronary artery bypass, hip, and hysterectomy procedures standardized infection ratio (SIR), New York 2014 (page 2 of 5)



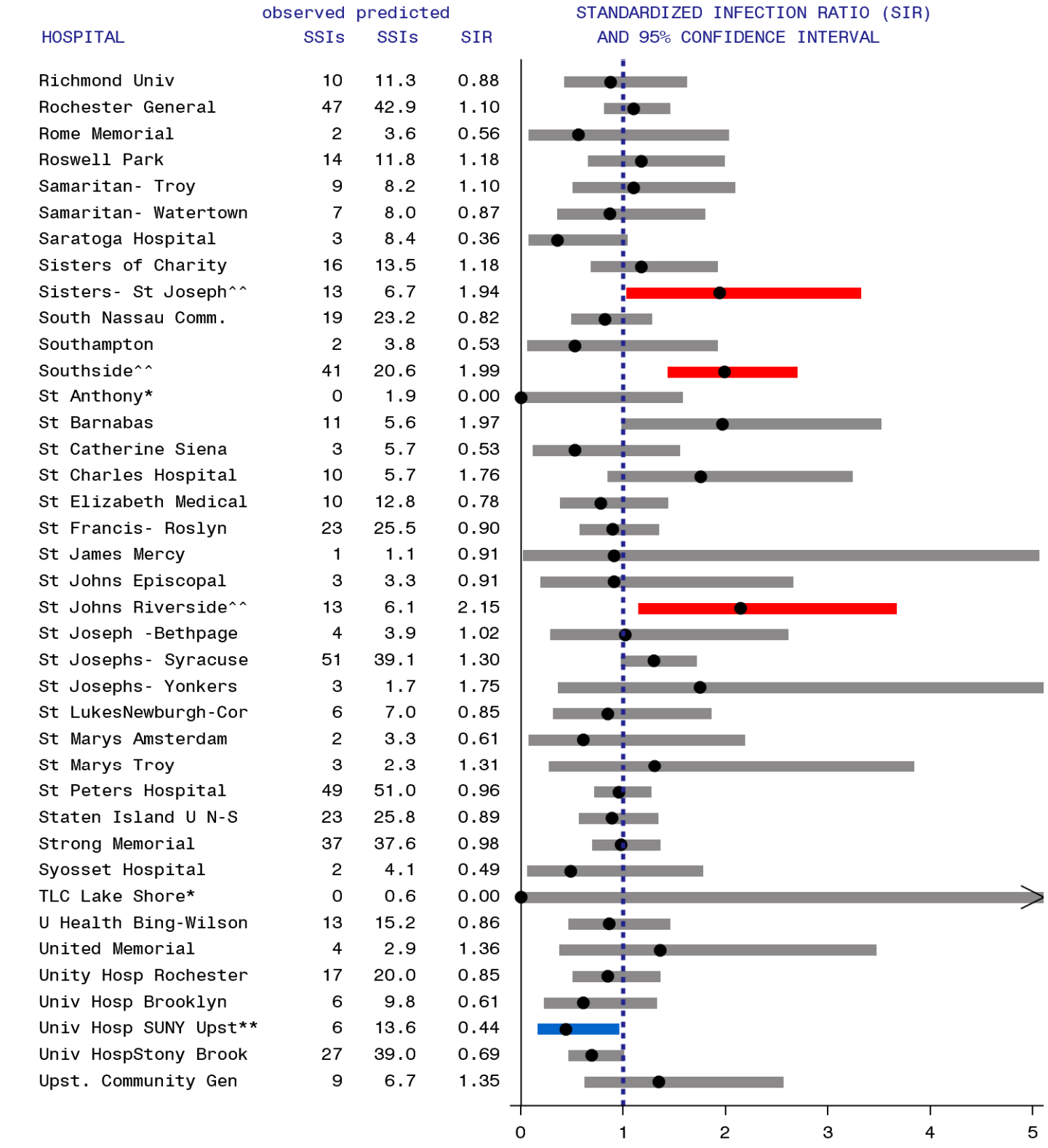
State average. ●SIR. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero Infections, not significant. NA: Hospitals with < 20 procedures. Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for patient risk factors. Excludes non-readmitted cases identified using post discharge surveillance.

Figure 11. Surgical site infection (SSI) summary for colon, coronary artery bypass, hip, and hysterectomy procedures standardized infection ratio (SIR), New York 2014 (page 3 of 5)



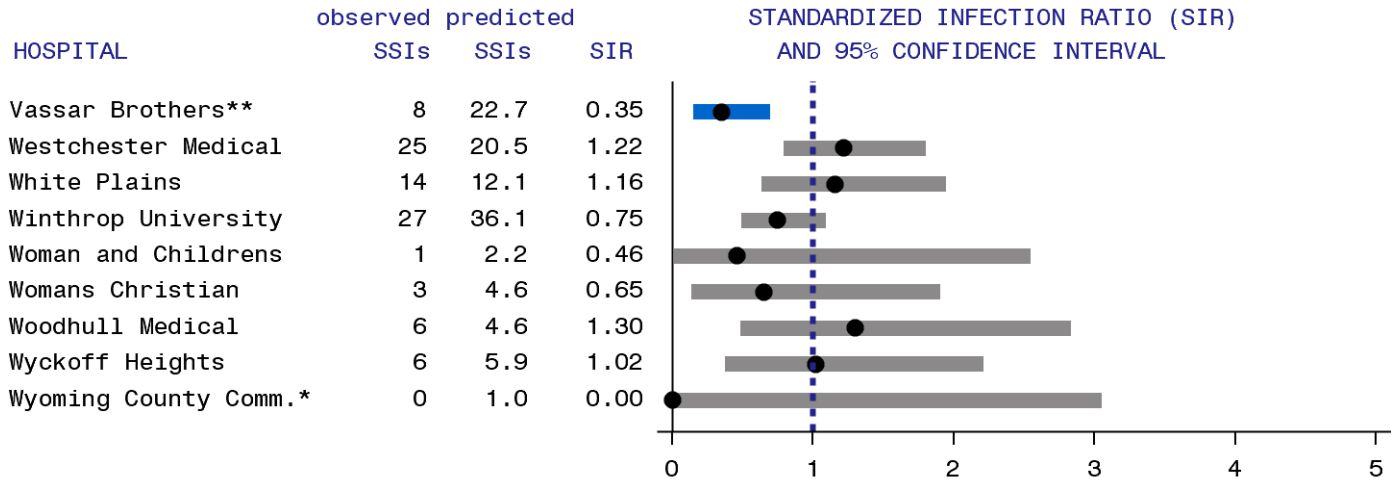
State average. ●SIR. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero Infections, not significant. NA: Hospitals with < 20 procedures. Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for patient risk factors. Excludes non-readmitted cases identified using post discharge surveillance.

Figure 11. Surgical site infection (SSI) summary for colon, coronary artery bypass, hip, and hysterectomy procedures standardized infection ratio (SIR), New York 2014 (page 4 of 5)



State average. ●SIR. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average. **Significantly lower than state average. Average. *Zero Infections, not significant. NA: Hospitals with < 20 procedures. Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for patient risk factors. Excludes non-readmitted cases identified using post discharge surveillance.

Figure 11. Surgical site infection (SSI) summary for colon, coronary artery bypass, hip, and hysterectomy procedures standardized infection ratio (SIR), New York 2014 (page 5 of 5)



State average. ●SIR. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average. —*Zero Infections, not significant. NA: Hospitals with < 20 procedures. Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for patient risk factors. Excludes non-readmitted cases identified using post discharge surveillance.

Central Line-Associated Bloodstream Infections (CLABSIs)

A central line (CL) is a tube that is placed into a large vein, usually in the neck, chest, arm or groin, that is used to give fluids and medications, withdraw blood, and monitor the patient's condition. A CL is different than a standard, peripheral intravenous line because it goes farther into the body, terminating near the heart, and because it may be used for weeks or even months. A bloodstream infection can occur when microorganisms (e.g., bacteria, fungi) travel around or through the tube, attach and multiply on the tubing or in fluid administered through the tubing, and then enter the blood.

NYS hospitals are required to track CLABSIs in intensive care units (ICUs). ICUs are hospital units that provide intensive observation and treatment for patients either suffering from, or at risk of developing, life threatening problems. ICUs are categorized by the type of patient in the unit.

In 2014, 546 CLABSIs were associated with 599,104 days of central line use, for an overall rate of 0.9 infections per 1,000 central line days in ICUs. The 2014 CLABSI and device utilization data are summarized by ICU type in Table 15. CLABSI rates were highest in Level II/III neonatal ICUs, although device utilization was also lowest in this area.

Table 15. Central line-associated bloodstream infections in adult, pediatric, and neonatal intensive care units, New York State 2014

ICU Type	# Hospitals	# CLABSI	# Line days	CLABSI Rate	# Patient days	% Device utilization
Cardiothoracic	32	44	78,416	0.56	109,814	71.4
Coronary	41	43	51,979	0.83	136,715	38.0
Medical	51	123	110,273	1.12	227,171	48.5
Medical/Surgical	109	129	147,714	0.87	341,219	43.3
Neonatal- Level II/III	11	11	5,248	2.10	44,453	11.8
Neonatal- Level III	23	20	15,838	1.26	104,234	15.2
Neonatal- Regional Perinatal	18	62	60,020	1.03	248,681	24.1
Neurosurgical	13	18	20,848	0.86	63,471	32.8
Pediatric	28	22	31,099	0.71	84,945	36.6
Surgical	40	74	77,669	0.95	156,177	49.7
ALL	157	546	599,104	0.91	1,516,880	39.5

New York State data as of July 1, 2015. Rates are per 1,000 central line days.
Device utilization = 100* central line days/patient days.

NYSDOH expanded CLABSI surveillance and reporting requirements to four additional hospital locations effective January 2015. Many hospitals have already begun CLABSI surveillance in these locations. Summary data for this group of voluntarily-reporting hospitals are shown in

Table 16. The CLABSI rates in these wards were 9% higher than the CLABSI rates in ICUs (0.99 compared to 0.91). The number of line days used in the voluntarily reported wards was 58% of the line days used in ICUs.

Table 16. Central line-associated bloodstream infections in wards, New York State 2014

Ward Type	# Hospitals	# CLABSI	# Line days	CLABSI rate	# Patient days	Device utilization
Medical	39	107	98,559	1.09	877,614	11.2
Medical Surgical	88	180	165,011	1.09	1,572,655	10.5
Surgical	38	34	53,482	0.64	438,105	12.2
Step down unit	31	27	33,328	0.81	202,957	16.4
ALL	196	348	350,393	0.99	3,091,789	11.3

New York State data as of July 1, 2015. Rates are per 1,000 central line days.
Device utilization = 100* central line days/patient days.

New York State has two cancer hospitals: Memorial Sloan Kettering Cancer Center and Roswell Park Cancer Institute. These hospitals report CLABSIs separately by line type, i.e. temporary or permanent line. Overall results are presented in Table 17.

Table 17. Central line-associated bloodstream infections in cancer hospitals, New York State 2014

	Temporary lines			Permanent lines			Overall	
ICU type	#CLABSI	#Line Days	CLABSI rate	#CLABSI	#Line Days	CLABSI rate	# Patient Days	Device Utilization
Oncology ICU	9	6,100	1.48	1	1,916	0.52	9,467	84.7
Oncology Ward	108	74,220	1.46	55	75,941	0.72	275,496	54.5

New York State data as of July 1, 2015. Rates are per 1,000 central line days.
Device utilization = 100* central line days/patient days.

Microorganisms Associated with CLABSIs

The most common microorganisms identified in adult/pediatric ICU-related CLABSIs were Enterococci, yeast, and coagulase-negative Staphylococci (Table 18).

Table 18. Microorganisms identified in central line-associated bloodstream infections, adult and pediatric intensive care units, New York State 2014

Microorganism	Number of Isolates	Percent of Infections
Enterococci	100	22.1
(VRE)	(56)	(12.4)
Yeast	84	18.5
Coagulase negative Staphylococci	76	16.8
Staphylococcus aureus	56	12.4
(MRSA)	(26)	(5.7)
(MSSA)	(28)	(6.2)
Klebsiella spp.	39	8.6
(CRE-*Klebsiella*)	(6)	(1.3)
(CephR-*Klebsiella*)	(11)	(2.4)
Acinetobacter spp.	26	5.7
(MDR-*Acinetobacter*)	(16)	(3.5)
Escherichia coli	22	4.9
Pseudomonas spp.	22	4.9
Enterobacter spp.	19	4.2
Serratia spp.	12	2.6
Streptococci	10	2.2
Proteus spp.	7	1.5
Other	23	5.1

New York State data reported as of July 1, 2015. Out of 453 infections.
CephR: cephalosporin-resistant; CRE: carbapenem-resistant Enterobacteriaceae;
MDR: multidrug resistant; MRSA: methicillin-resistant *Staphylococcus aureus;*
MSSA: methicillin-susceptible *Staphylococcus aureus*
VRE: vancomycin-resistant Enterococci; spp: multiple species

The most common microorganisms identified in NICU-related CLABSIs were *Staphylococcus aureus* and coagulase-negative Staphylococci (Table 19).

Table 19. Microorganisms associated with central line-associated bloodstream infections, neonatal intensive care units, New York State 2014

Microorganism	Number of Isolates	Percent of Infections
Staphylococcus aureus	31	33.3
(MRSA)	(11)	(11.8)
(MSSA)	(18)	(19.4)
Coagulase negative Staphylococci	24	25.8
Escherichia coli	9	9.7
Klebsiella spp.	9	9.7
(CephR-*Klebsiella*)	(3)	(3.2)
Enterococci	7	7.5
Yeast	6	6.5
Acinetobacter spp.	1	1.1
Other	13	14.0

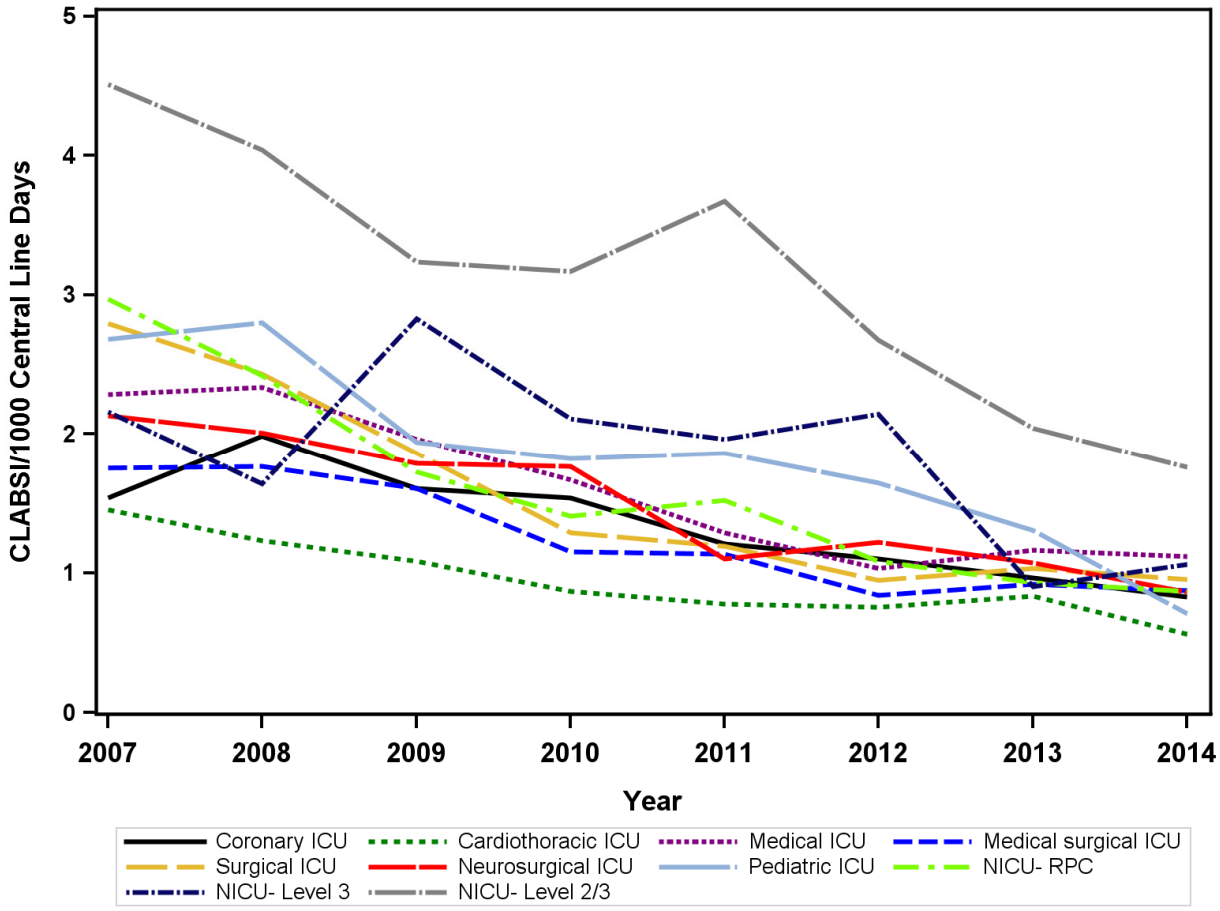
New York State data reported as of July 1, 2015. Out of 93 infections.

CephR: cephalosporin-resistant; MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus;* spp: multiple species.

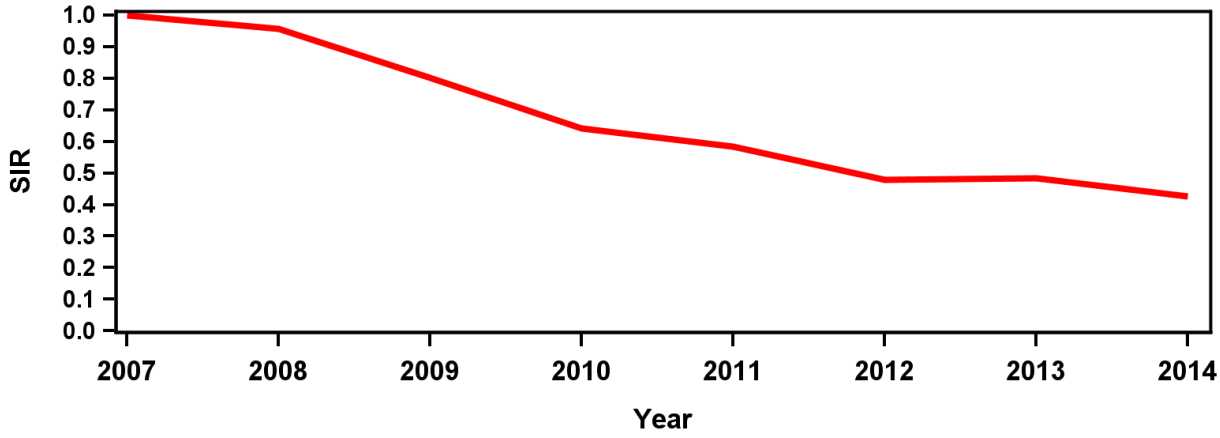
Time Trends for Intensive Care Unit CLABSIs

In January 2013, NHSN refined CLABSI definitions to reduce misclassification of CLABSIs, particularly misclassification that could incorrectly penalize hospitals. To quantify the impact of these changes, blood cultures reviewed during the 2013 NYS audit were evaluated following both the 2012 and 2013 CLABSI definitions, and a correction factor was calculated.[2] To monitor trends in CLABSI rates over time for this section of the report, pre-2013 rates were multiplied by the correction factor of 0.84 (Figure 12). The 2014 CLABSI SIR of 0.43 indicates a 57% decline in CLABSIs compared to the NYS 2007 baseline. This corresponds to approximately 3,432 fewer infections than would have occurred if the incidence of CLABSIs did not decrease between 2007 and 2014, with an associated cost savings of $37 million to $147 million. We note that the rate of improvement has slowed over the past two years.

Figure 12. Trend in central line-associated bloodstream infection rates in intensive care units, New York State 2007-2014, corrected for 2013 definition change



Standardized Infection Ratio of data above



New York State data as of July 1, 2015. Standardized Infection Ratio (SIR) compared each year to the NYS 2007 baseline. Pre-2013 rates were multiplied by 0.84.

Mucosal Barrier Injury (MBI) Laboratory-Confirmed Bloodstream Infections

In 2014, NHSN began requiring hospitals to track MBI-CLABSIs. An MBI-CLABSI is a type of CLABSI that can occur in cancer patients who have had stem cell transplants or other patients with certain blood disorders. In these patients, BSIs are more likely the result of organisms that enter the bloodstream from the gut, rather than organisms that enter the bloodstream from the central line. HAI CLABSI surveillance is intended to capture BSIs that are associated with the central line itself.

In 2014, 10 MBIs were reported out of 546 CLABSIs (1.8%) in ICUs. These MBIs were included in the previously presented state summary data and trend plots, but have been excluded from 2014 hospital-specific CLABSI rate comparisons to make comparisons fairer based on differences in cancer patient populations (Table 15).

Table 15: MBIs, New York State 2014

Location	# MBI	#CLABSI	% MBI
Non-oncology Intensive Care Units[1]	10	546	1.8%
Non-oncology Wards[2]	18	406	4.4%
Oncology Intensive Care Units[1]	1	10	10.0%
Oncology Wards[2]	81	163	49.7%

New York State data as of July 1, 2015.

[1] From mandated NYS reporting database

[2] From Data Use Agreement database

Risk Factors for CLABSIs

Hospitals do not collect patient-specific risk factors for CLABSIs in adult and pediatric ICUs; NHSN requires reporting of only the total number of patient days and total number of central line days per month within each type of ICU. CLABSI rates are stratified by type of ICU. For BSIs in NICUs, the data are collected by birth weight group, because lower birth weight babies are more susceptible to CLABSIs than higher birth weight babies. As CLABSI rates decline, risk adjustment of NICU rates becomes more difficult. In 2014, no risk adjustment could be performed by birthweight group in Level II/III facilities because there were only 11 CLABSIs. Level III data were risk-adjusted using two birthweight groups divided at 1000 grams. RPC data were risk-adjusted by three birthweight groups, partitioned at 750 grams and 1000 grams.

Hospital-Specific, ICU-Specific CLABSI Rates

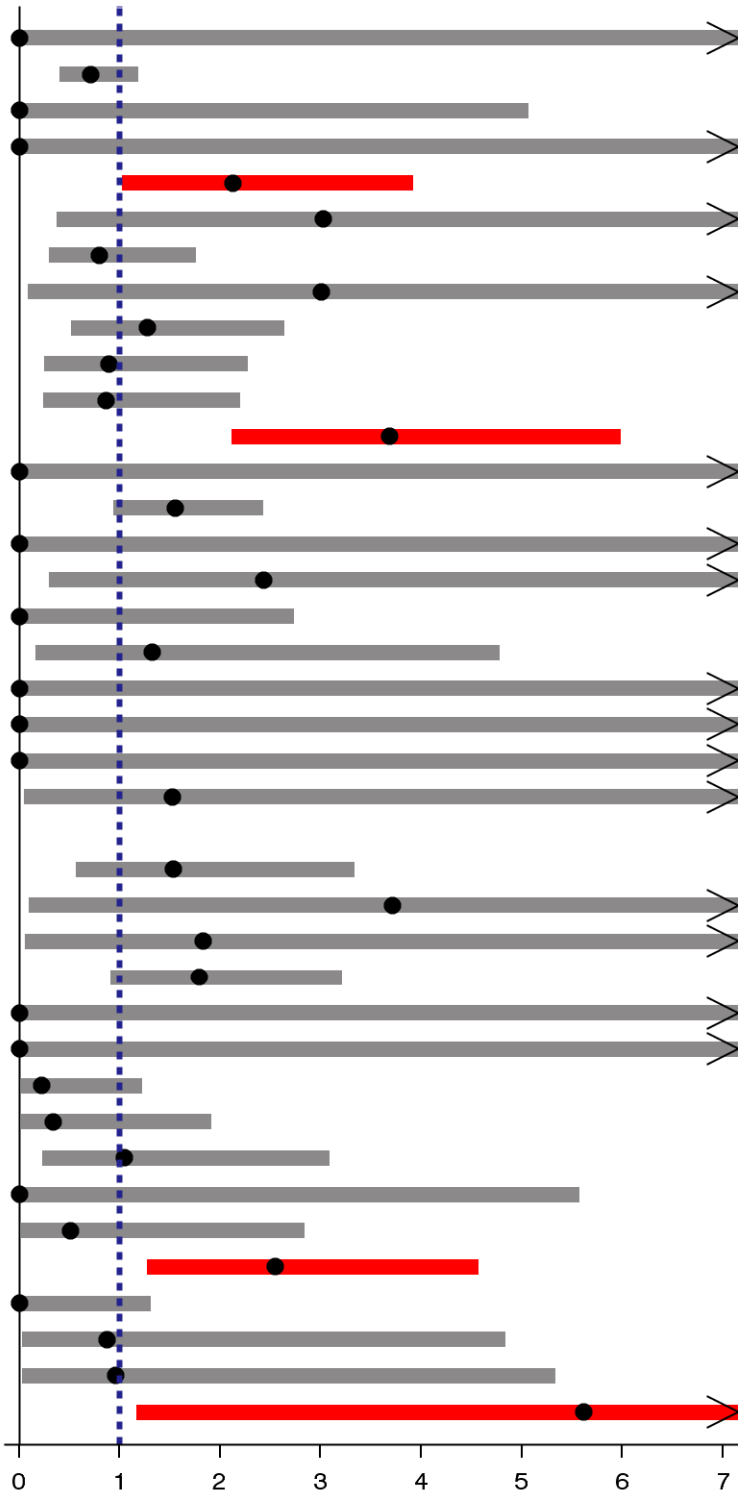
Within NYS, hospital-specific CLABSI rates were compared to the state average for the specific type of ICU. These results are summarized in Appendix 3.

Figure 13 provides hospital-specific CLABSI SIRs for each hospital. Between 2008 and 2012, NYS hospital-specific comparisons excluded bloodstream events in which multiple blood cultures were obtained, only one blood specimen was positive for a single pathogen, and no treatment was given. In 2013, NYSDOH no longer deleted these contaminants to be more consistent with national reports. In 2014, NYSDOH deleted MBIs.

CLABSI SIRs combine results across the eight different types of ICUs to show the average performance of each hospital for CLABSIs. Ten hospitals had high SIR flags in 2014. Two of these were high for two years in a row, and neither was high for more than two consecutive years. All ten hospitals submitted improvement plans following the NYSDOH HAI Reporting Program's Policy for Facilities with Consecutive Years of High HAI Rates. Six hospitals had low SIR flags in 2014; Maimonides had a low flag for the last three years.

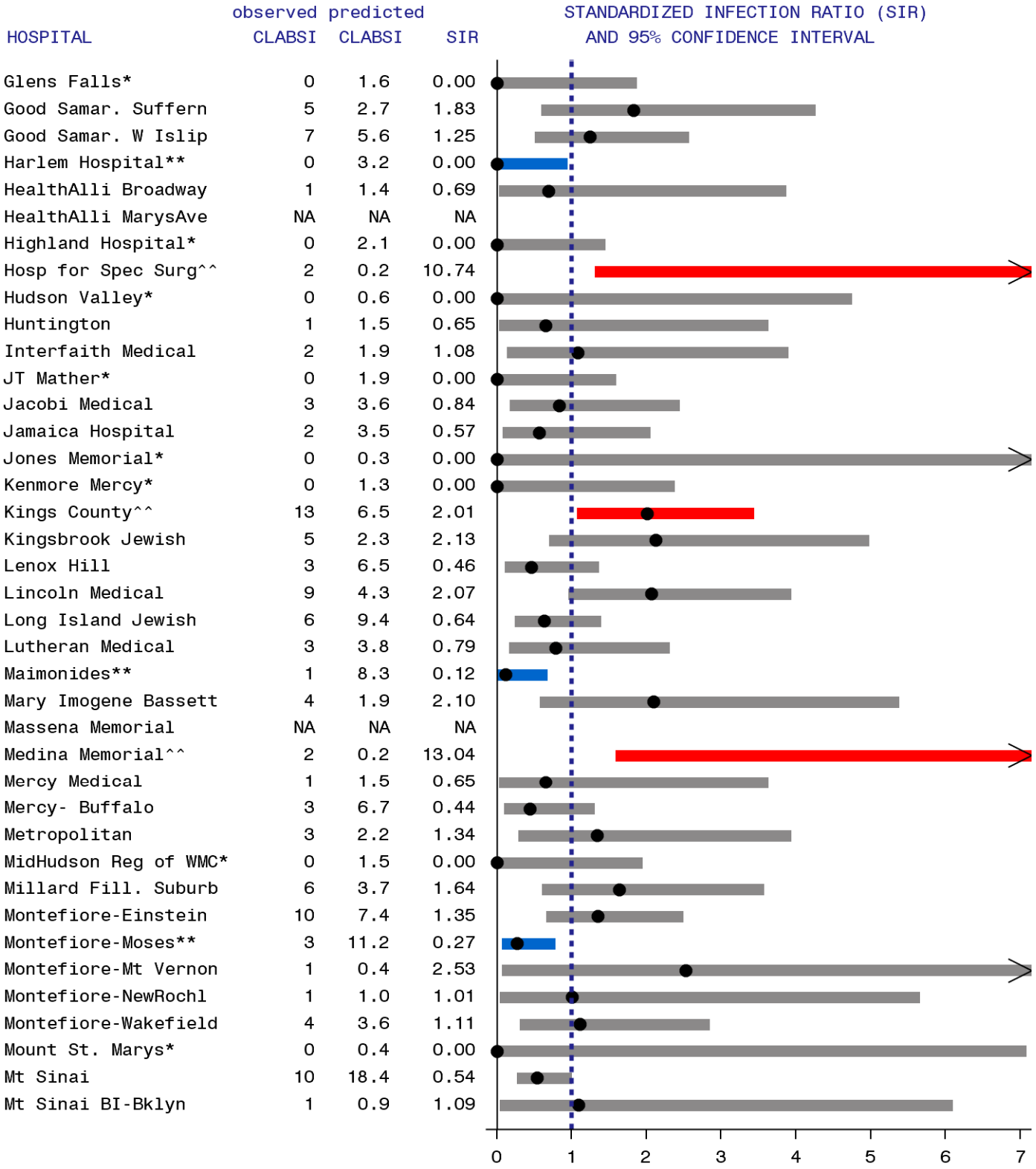
Figure 13. Central line-associated bloodstream infection (CLABSI) summary for adult, pediatric, and neonatal ICUs: standardized infection ratio (SIR), New York 2014 (page 1 of 4)

HOSPITAL	observed CLABSI	predicted CLABSI	SIR
Adirondack Medical*	0	0.3	0.00
Albany Medical	15	21.0	0.71
Albany Memorial*	0	0.6	0.00
Alice Hyde*	0	0.1	0.00
Arnot Ogden^^	10	4.7	2.13
Auburn Memorial	2	0.7	3.02
Bellevue Hospital	6	7.5	0.80
Bon Secours	1	0.3	3.01
Bronx-Lebanon	7	5.5	1.28
Brookdale Hospital	4	4.5	0.89
Brookhaven Memorial	4	4.7	0.86
BrooklynHos-Downtown^^	16	4.3	3.68
Brooks Memorial*	0	0.3	0.00
Buffalo General	19	12.3	1.55
Canton-Potsdam*	0	0.1	0.00
Catskill Regional	2	0.8	2.43
Cayuga Medical Cntr*	0	1.1	0.00
Champlain Valley	2	1.5	1.32
Chenango Memorial*	0	0.1	0.00
Claxton-Hepburn*	0	0.2	0.00
Clifton Springs*	0	0.3	0.00
Columbia Memorial	1	0.7	1.52
Community Memorial	NA	NA	NA
Coney Island	6	3.9	1.53
Corning Hospital	1	0.3	3.71
Cortland Reg Med	1	0.5	1.83
Crouse Hospital	11	6.1	1.79
East. Niag. Lockport*	0	0.4	0.00
Eastern Long Island*	0	0.1	0.00
Ellis Hospital	1	4.6	0.22
Elmhurst	1	2.9	0.34
Erie Medical Center	3	2.9	1.05
FF Thompson*	0	0.5	0.00
Faxton St. Lukes	1	2.0	0.51
Flushing Hospital^^	11	4.3	2.55
Forest Hills*	0	2.3	0.00
Franklin	1	1.2	0.87
Geneva General	1	1.0	0.96
Glen Cove Hospital^^	3	0.5	5.61



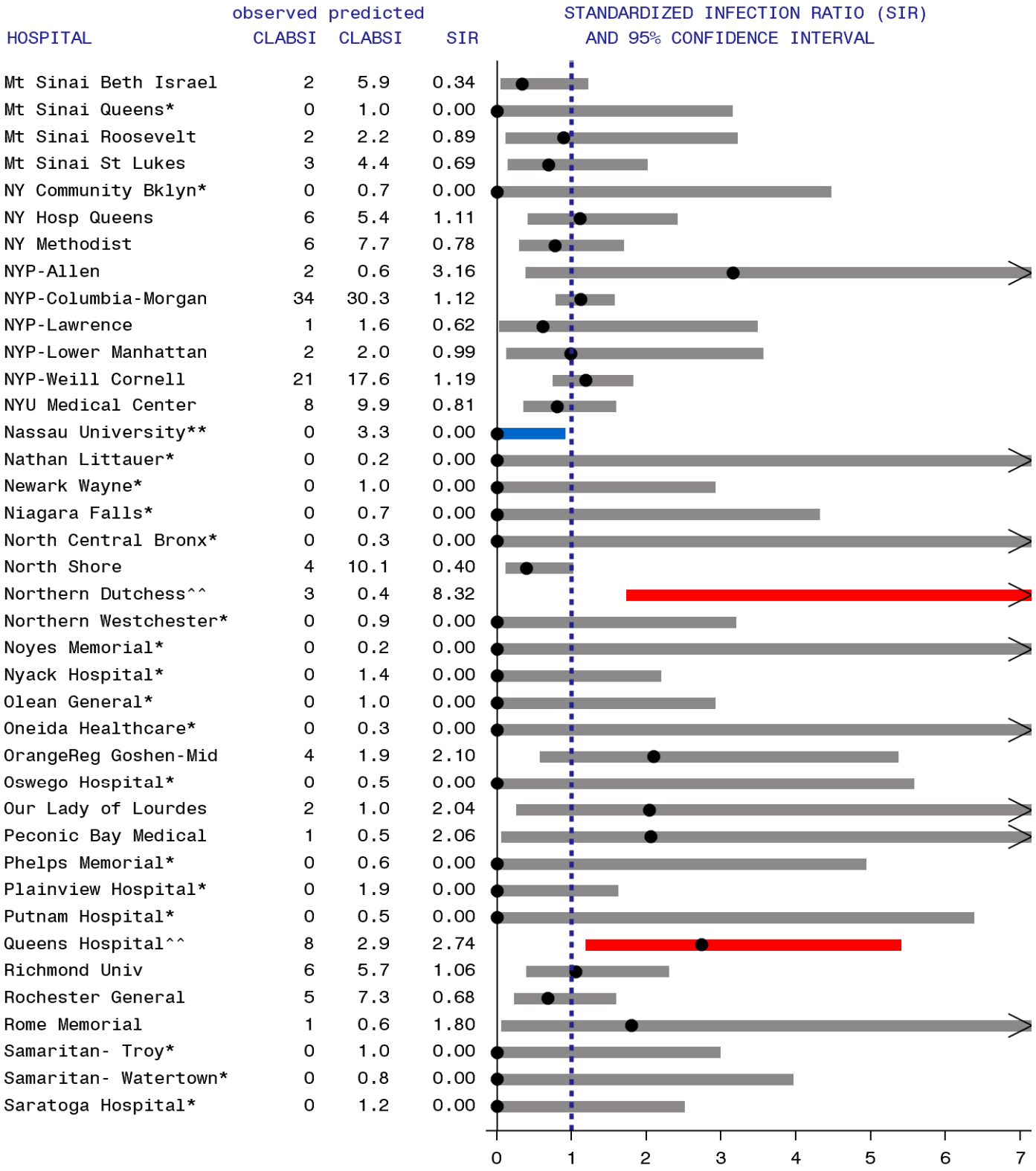
State average. ●SIR. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average.
—**Significantly lower than state average. —Average. —*Zero infections, not significant. NA: Hospitals with <50 central line days.
Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for ICU type and birthweight.

Figure 13. Central line-associated bloodstream infection (CLABSI) summary for adult, pediatric, and neonatal ICUs: standardized infection ratio (SIR), New York 2014 (page 2 of 4)



State average. ●SIR. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with <50 central line days.
Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for ICU type and birthweight.

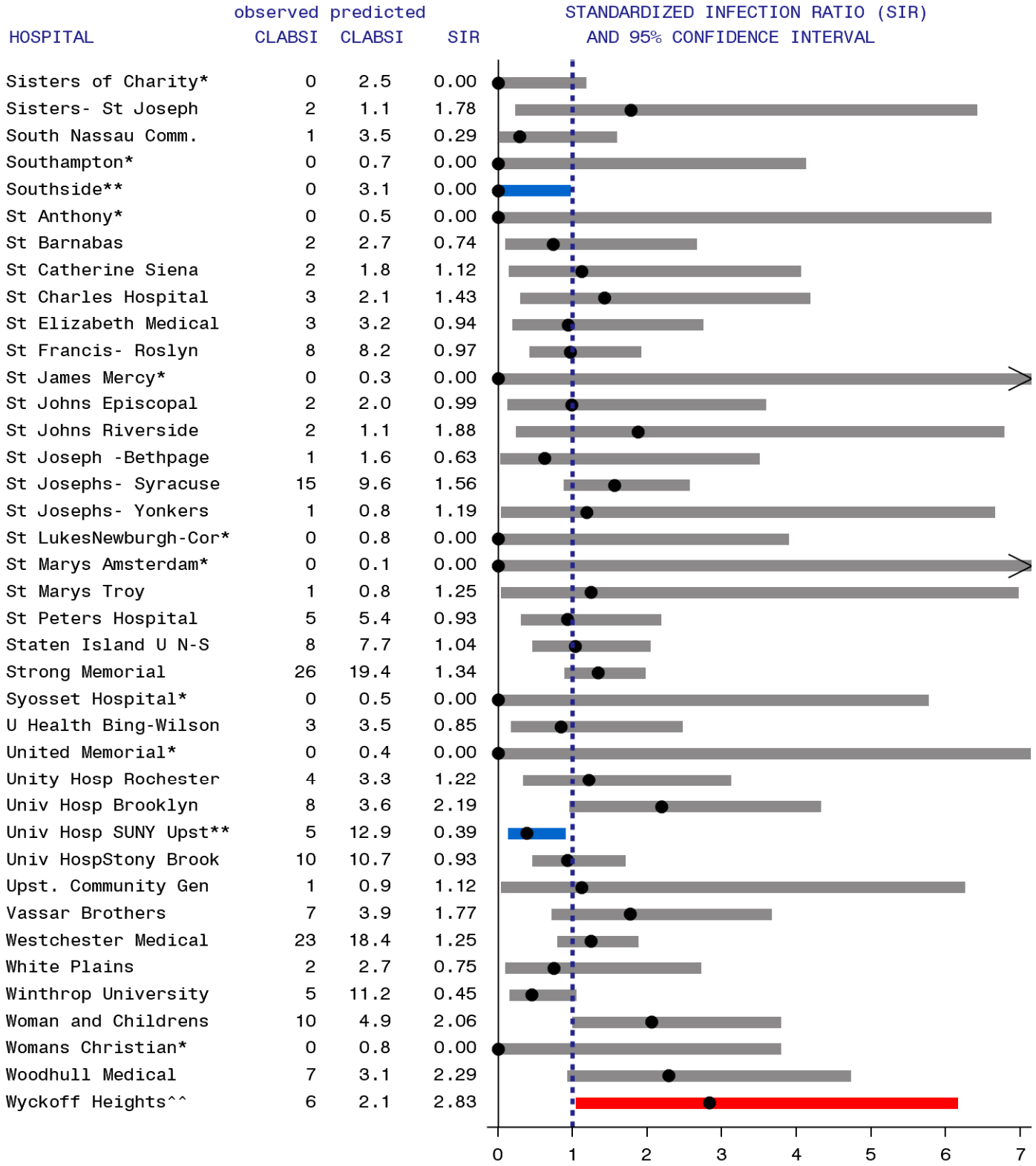
Figure 13. Central line-associated bloodstream infection (CLABSI) summary for adult, pediatric, and neonatal ICUs: standardized infection ratio (SIR), New York 2014 (page 3 of 4)



HOSPITAL	observed CLABSI	predicted CLABSI	SIR
Mt Sinai Beth Israel	2	5.9	0.34
Mt Sinai Queens*	0	1.0	0.00
Mt Sinai Roosevelt	2	2.2	0.89
Mt Sinai St Lukes	3	4.4	0.69
NY Community Bklyn*	0	0.7	0.00
NY Hosp Queens	6	5.4	1.11
NY Methodist	6	7.7	0.78
NYP-Allen	2	0.6	3.16
NYP-Columbia-Morgan	34	30.3	1.12
NYP-Lawrence	1	1.6	0.62
NYP-Lower Manhattan	2	2.0	0.99
NYP-Weill Cornell	21	17.6	1.19
NYU Medical Center	8	9.9	0.81
Nassau University**	0	3.3	0.00
Nathan Littauer*	0	0.2	0.00
Newark Wayne*	0	1.0	0.00
Niagara Falls*	0	0.7	0.00
North Central Bronx*	0	0.3	0.00
North Shore	4	10.1	0.40
Northern Dutchess^^	3	0.4	8.32
Northern Westchester*	0	0.9	0.00
Noyes Memorial*	0	0.2	0.00
Nyack Hospital*	0	1.4	0.00
Olean General*	0	1.0	0.00
Oneida Healthcare*	0	0.3	0.00
OrangeReg Goshen-Mid	4	1.9	2.10
Oswego Hospital*	0	0.5	0.00
Our Lady of Lourdes	2	1.0	2.04
Peconic Bay Medical	1	0.5	2.06
Phelps Memorial*	0	0.6	0.00
Plainview Hospital*	0	1.9	0.00
Putnam Hospital*	0	0.5	0.00
Queens Hospital^^	8	2.9	2.74
Richmond Univ	6	5.7	1.06
Rochester General	5	7.3	0.68
Rome Memorial	1	0.6	1.80
Samaritan- Troy*	0	1.0	0.00
Samaritan- Watertown*	0	0.8	0.00
Saratoga Hospital*	0	1.2	0.00

State average. ●SIR. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with <50 central line days.
Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for ICU type and birthweight.

Figure 13. Central line-associated bloodstream infection (CLABSI) summary for adult, pediatric, and neonatal ICUs: standardized infection ratio (SIR), New York 2014 (page 4 of 4)



HOSPITAL	observed CLABSI	predicted CLABSI	SIR
Sisters of Charity*	0	2.5	0.00
Sisters- St Joseph	2	1.1	1.78
South Nassau Comm.	1	3.5	0.29
Southampton*	0	0.7	0.00
Southside**	0	3.1	0.00
St Anthony*	0	0.5	0.00
St Barnabas	2	2.7	0.74
St Catherine Siena	2	1.8	1.12
St Charles Hospital	3	2.1	1.43
St Elizabeth Medical	3	3.2	0.94
St Francis- Roslyn	8	8.2	0.97
St James Mercy*	0	0.3	0.00
St Johns Episcopal	2	2.0	0.99
St Johns Riverside	2	1.1	1.88
St Joseph -Bethpage	1	1.6	0.63
St Josephs- Syracuse	15	9.6	1.56
St Josephs- Yonkers	1	0.8	1.19
St LukesNewburgh-Cor*	0	0.8	0.00
St Marys Amsterdam*	0	0.1	0.00
St Marys Troy	1	0.8	1.25
St Peters Hospital	5	5.4	0.93
Staten Island U N-S	8	7.7	1.04
Strong Memorial	26	19.4	1.34
Syosset Hospital*	0	0.5	0.00
U Health Bing-Wilson	3	3.5	0.85
United Memorial*	0	0.4	0.00
Unity Hosp Rochester	4	3.3	1.22
Univ Hosp Brooklyn	8	3.6	2.19
Univ Hosp SUNY Upst**	5	12.9	0.39
Univ HospStony Brook	10	10.7	0.93
Upst. Community Gen	1	0.9	1.12
Vassar Brothers	7	3.9	1.77
Westchester Medical	23	18.4	1.25
White Plains	2	2.7	0.75
Winthrop University	5	11.2	0.45
Woman and Childrens	10	4.9	2.06
Womans Christian*	0	0.8	0.00
Woodhull Medical	7	3.1	2.29
Wyckoff Heights^^	6	2.1	2.83

State average. ●SIR. > Upper confidence limit exceeds graph area. ^^Significantly higher than state average.
**Significantly lower than state average. Average. *Zero infections, not significant. NA: Hospitals with <50 central line days.
Data reported as of July 1, 2015. Expected based on NYS 2014 average, adjusting for ICU type and birthweight.

Catheter-Associated Urinary Tract Infections (CAUTIs)

A urinary tract infection (UTI) is an infection of the bladder or kidneys. Hospitalized patients may have a thin tube called a urinary catheter inserted into the bladder through the urethra to drain urine when they cannot urinate on their own. The catheter provides a pathway for bacteria to enter the bladder, increasing the risk of a UTI.

Catheter-associated urinary tract infections (CAUTIs) can be treated with antibiotics or removal/change of the catheter. The risk of a CAUTI can be decreased by using a catheter only when necessary, proper insertion technique and catheter care, hand washing by healthcare providers handling the catheter, and using a closed system of a catheter and attached urine collection bag.

In order to determine if a patient has a healthcare-associated CAUTI, the CDC developed surveillance definitions based on catheter usage, symptoms, and laboratory results. These definitions are used by all facilities entering data into NHSN. Hospitals track the number of CAUTIs, the number of urinary catheter days, and the number of patient days per month.

The CMS IQR Program required CAUTI reporting in adult and pediatric ICUs starting in January 2012. In 2014, about half of hospitals were entering CAUTI data in wards as well. CMS expanded the IQR program to include medical, surgical, and medical-surgical wards in January 2015. While CAUTI reporting is not required by NYSDOH, the data are available via the CDC-NYS DUA. This DUA prohibits NYSDOH from publishing hospital-specific rates. NYSDOH does not audit this data.

Catheters were used 56% of the time in ICU patients, and 13% of the time in the medical and surgical wards. CAUTI rates were higher in ICU patients, occurring at a rate of 2.6 infections per 1,000 catheter days (Table 21).

Table 21. Catheter-associated urinary tract infections, New York State 2014

Location	# Hospitals	# Catheter-associated urinary tract infections	# Urinary catheter days	Catheter-associated urinary tract infection rate[3]	Number of patient days	Device Utilization
Intensive Care Units	165	1,703	665,700	2.6	1,177,287	56.5%
Wards[1]	101	675	367,949	1.8	2,931,153	12.6%
Other locations[2]	98	396	235,861	1.7	1,596,930	14.8%

[1] Medical, surgical, and medical/surgical wards; not all hospitals reported data in wards.
[2] Other locations such as rehabilitation, step down, post-partum, orthopedic, oncology, long term acute care, and telemetry wards; not all hospitals report data in these locations.
[3] Infection rate is the number of infections divided by the number of catheter days, multiplied by 1,000.

Microorganisms Associated with CAUTIs

The most common microorganisms identified in CAUTIs in intensive care units and wards were yeast, *E. coli*, and Enterococci (Table 22).

Table 22. Microorganisms identified in catheter-associated urinary tract infections, intensive care units and medical/surgical wards, New York State 2014

Microorganism	Number of Isolates	Percent of Infections
Yeast	779	32.7
Escherichia coli	532	22.3
(CRE-*E. coli*)	(2)	(0.1)
Enterococci	369	15.5
(VRE)	(107)	(4.5)
Klebsiella spp.	265	11.1
(CRE-*Klebsiella*)	(26)	(1.1)
(CephR-*Klebsiella*)	(53)	(2.2)
Pseudomonas spp.	231	9.7
Enterobacter spp.	101	4.2
Proteus spp.	96	4.0
Coagulase negative staphylococci	78	3.3
Citrobacter spp.	30	1.3
Staphylococcus aureus	29	1.2
(MRSA)	(12)	(0.5)
(MSSA)	(16)	(0.7)
Acinetobacter spp.	25	1.0
(MDRO-A*cinetobacter*)	(12)	(0.5)
Morganella morganii	22	0.9
Streptococci	20	0.8
Serratia spp.	18	0.8
Providencia spp.	13	0.5
Gram-negative bacilli	10	0.4
Other	25	1.0

New York State data reported as of July 1, 2015. Out of 2,378 infections. CephR: cephalosporin-resistant; CRE: carbapenem-resistant Enterobacteriaceae; MDR: multidrug resistant; MRSA: methicillin-resistant *Staphylococcus aureus;* MSSA: methicillin-susceptible *Staphylococcus aureus*
VRE: vancomycin-resistant Enterococci; spp: multiple species

Clostridium difficile Infections (CDI) and Multi-drug Resistant Organisms

Clostridium difficile Infections (CDI)

Clostridium difficile (C. difficile) is a type of bacteria that is a common cause of diarrhea in healthcare settings. In a small percentage of people, *C. difficile* lives along with other types of bacteria normally found in the intestinal tract and does not cause any symptoms or problems. However, when the *C. difficile* bacteria crowd out the other naturally occurring bacteria, they secrete a toxin into the intestines that may result in symptoms ranging from abdominal cramping and mild diarrhea to severe diarrhea and intestinal damage, which in some instances can result in death. The elderly and those who have recently taken antibiotics are at the greatest risk for developing CDI. When people take antibiotics, good germs that protect against infection may be destroyed along with the bad germs. The types of germs in the intestines might be altered for several months. During this time, patients can get sick from *C. difficile* acquired from contaminated surfaces or health care providers' hands.

Hospitals count CDI cases in all inpatient areas of the hospital except newborn nurseries, because babies may naturally carry the bacteria without symptoms. The diagnosis of CDI is made by performing a laboratory test on a stool sample. Patients are not tested for *C. difficile* unless they have symptoms of infection. Each month, hospitals enter the number of CDI cases, the number of admissions, and the number of patient days into NHSN.

Categories of CDI

Laboratory identified CDI cases are separated into reporting categories depending upon whether the onset of illness occurred in the community or in a hospital. Cases termed "community-onset not my hospital" (CO-NMH) are cases in which the positive stool sample was obtained during the first three days of the patient's hospital admission and more than four weeks after any previous discharge from that same hospital. These cases are presumed to be unrelated to the patient's stay in that hospital. Cases termed "community-onset possibly related to my hospital" (CO-PMH) are cases in which a patient who was discharged from the same hospital within the previous four weeks is readmitted to that hospital and has a positive *C. difficile* test during the first three days of the re-admission. In CO-PMH cases, it is not certain whether the CDI occurred as a result of the recent hospitalization or whether it is related to other exposures

outside of the hospital. Hospital-onset (HO) cases are cases in which the positive stool sample was obtained on day four or later during the hospital stay.

CDI cases are also classified based on whether or not the patient recently had another positive CDI test. Cases occurring more than eight weeks after a previous positive test in the same patient at the same hospital are considered "incident" (i.e. new), as are cases when the positive test is the first for that patient. Cases occurring more than two weeks and less than or equal to eight weeks after a previous positive test are called "recurrent". Cases occurring less than or equal to two weeks after a previous positive are considered duplicates and are not reported.

In 2014, NYS hospitals reported 19,337 cases of CDI. Approximately half of the cases were community-onset and half were hospital-onset. Ninety-four percent of cases were incident, while 6% were recurrent (Table 23).

Table 23. Classification of *C. difficile* infections, New York State 2014

	# Community onset - Not my hospital	# Community onset - Possibly my hospital	# Hospital Onset	Total
Incident	6,874	2,353	8,890	18,117 (94%)
Recurrent	220	466	534	1,220 (6%)
Total	7,094 (37%)	2,819 (15%)	9,424 (49%)	19,337

New York State data reported as of July 1, 2015

Sometimes CO-NMH and CO-PMH cases are combined and called "admission prevalent" cases because these patients probably already had the bacteria in their intestines when they were admitted. The admission prevalence rate is the number of admission prevalent cases per 100 admissions. In 2014, there were 9,913 of these cases out of 2,161,999 admissions, for a rate of 0.46%. This rate describes the burden of CDI cases entering the hospital.

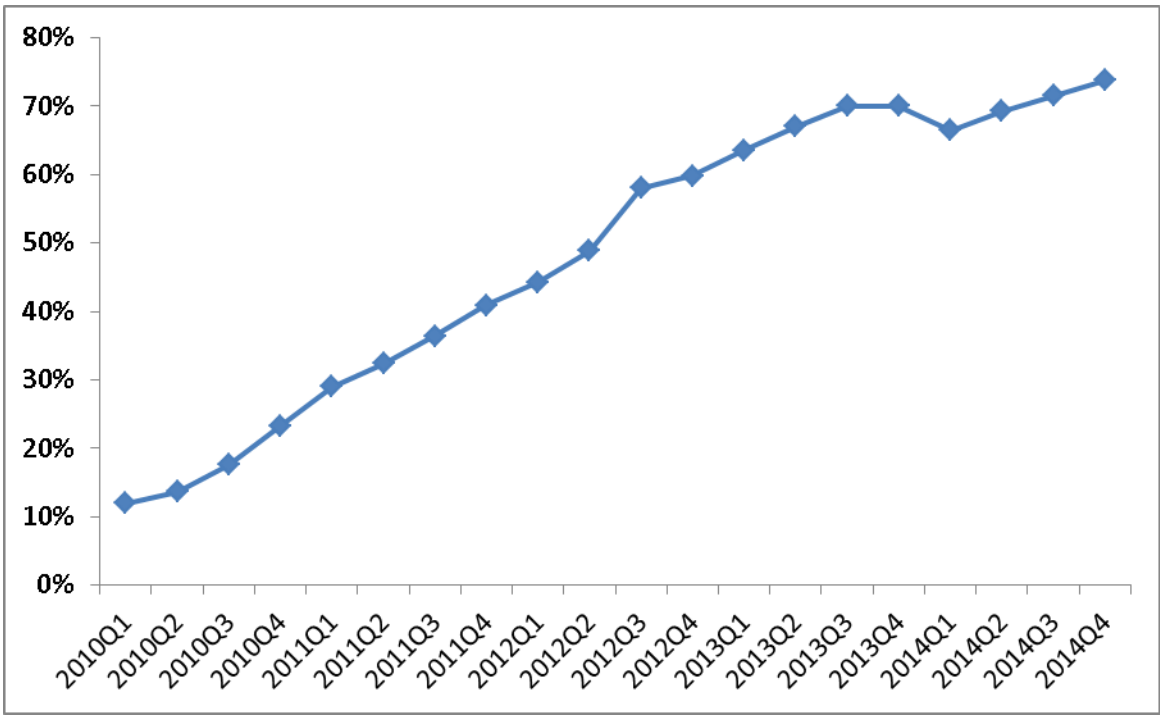
The longer a person stays in the hospital, the higher the total risk of acquiring an infection in the hospital, so incidence rates are reported using a denominator of patient days rather than admissions. The NHSN HO rate is the number incident HO cases (8,890) divided by the number of patient days (12,300,213), or 7.23 per 10,000 patient days in 2014. This rate is the main focus of HAI programs because these cases are most influenced by hospital infection prevention practices.

A portion of CO-PMH cases may also be influenced by infection prevention practices. The NYS 2014 CO-PMH rate was 1.91 per 10,000 patient days.

Laboratory Testing for CDI

Several CDI laboratory testing methods are available. The methods vary in sensitivity (ability to detect a true positive), specificity (ability to detect a true negative), timeliness, and cost. Testing methods may have a large impact on observed CDI rates, with an increased number of cases detected with a change to a more sensitive test. Hospitals report CDI test method quarterly to NHSN. Between January 2010 and December 2014, the percentage of hospitals using more sensitive tests (i.e. nucleic acid amplification tests (NAAT) or multistep screening with confirmation with NAAT) steadily increased from 12% to 74% (Figure 14).

Figure 14. Percentage of hospitals using sensitive laboratory test method for *C. difficile*



2014 data from NHSN rate table, downloaded July 1, 2015. Pre-2014 data from annual NYS surveys. Percentage dropped slightly in January 2014 because 13 new facilities began reporting.

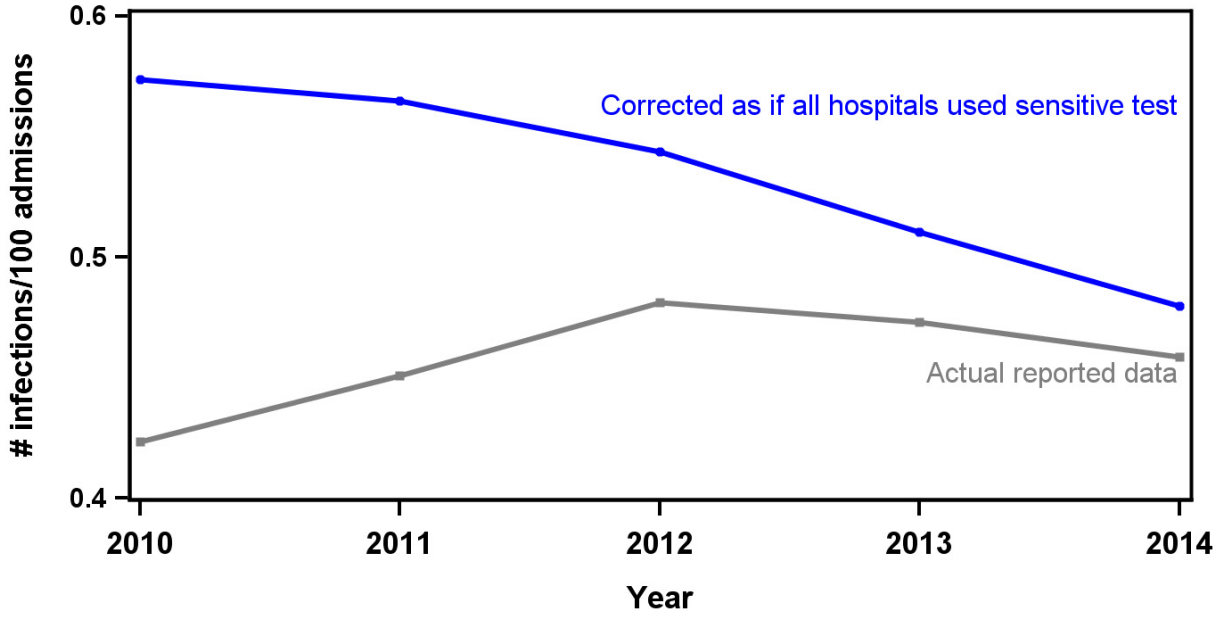
Trends in CDI Rates

Valid interpretation of trends requires that methods remain constant over time. To correct time trends for the continued adoption of more sensitive lab tests by hospitals, the CDI rates at hospitals that performed less sensitive tests were multiplied by 1.5. This estimate was obtained from three sources. In a network of 42 community hospitals in the Southeastern U.S., CDI rates increased 56% after switching from nonmolecular to molecular tests.[3] In three states with Emerging Infections Programs, CDI rates increased 43%, 52%, and 67% after switching from

toxin EIA to NAAT.[4] In the combined 2010-2013 NYSDOH dataset, hospitals performing more sensitive tests had HO rates 53% higher than hospitals performing less sensitive tests[5].

Figure 15 summarizes trends in the admission prevalence rate, both before and after the correction for test method. After the correction for test method, the admission prevalence rate declined 16% between 2010 and 2014.

Figure 15. Trend in *C. difficile* admission prevalence rate, New York State 2010-2014

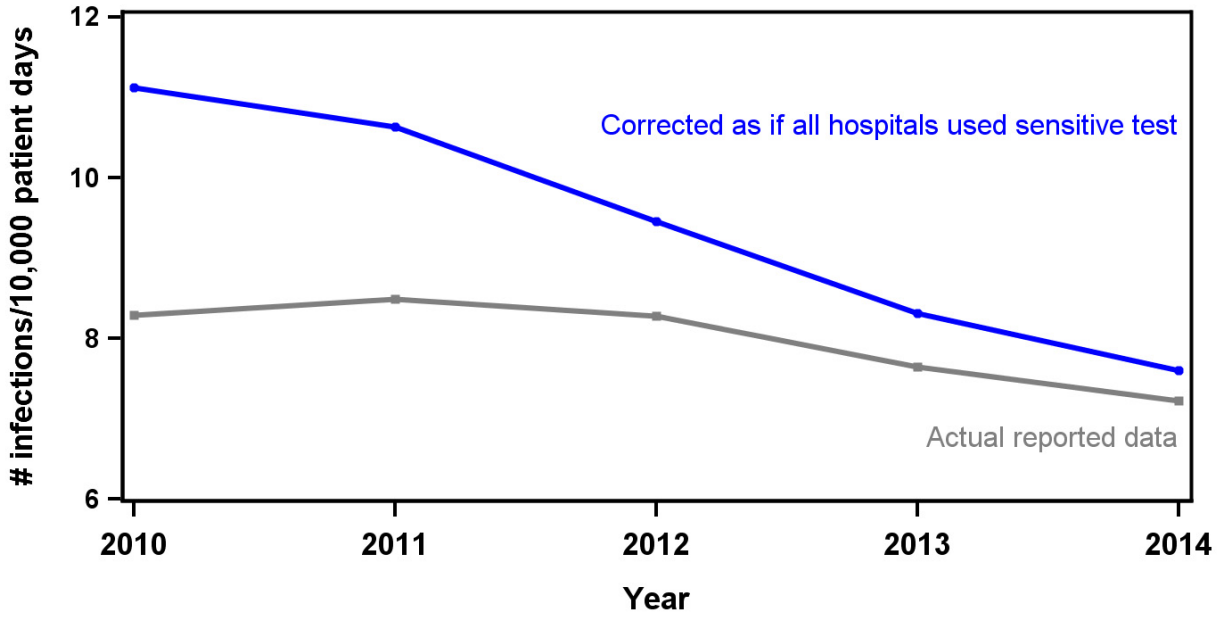


Year	# Hospitals	# Admissions	# Admission Prevalent Infections	Admission Prevalence Rate[1]	# Admission Prevalent Infections, Corrected[2]	Admission Prevalence Rate[1], Corrected
2010	176	2,319,736	9,820	0.423	**13,305**	**0.574**
2011	176	2,306,989	10,400	0.451	**13,034**	**0.565**
2012	174	2,248,409	10,815	0.481	**12,222**	**0.544**
2013	170	2,186,447	10,344	0.473	**11,160**	**0.510**
2014	178	2,161,999	9,913	0.459	**10,347**	**0.479**

New York State data reported as of July 1, 2015.
[1] Rate is number of community onset infections per 100 admissions.
[2] More sensitive tests (i.e. nucleic acid amplification test (NAAT) or multistep screening with confirmation with NAAT or culture) detect approximately 50% more CDI than less sensitive tests.
Corrected # = observed # multiplied by (proportion of year less sensitive test was used times 1.5).

Correcting for changes in test method, HO rates declined 32% between 2010 and 2014 (Figure 16). This corresponds to approximately 10,380 fewer HO infections than would have occurred if the incidence of HO did not decrease between 2010 and 2014, with an associated cost savings of $98 million to $139 million, assuming that costs were accrued for HO cases that were not reported because of use of a less sensitive test method.

Figure 16. Trend in incidence of hospital onset *C. difficile*, New York State 2010-2014



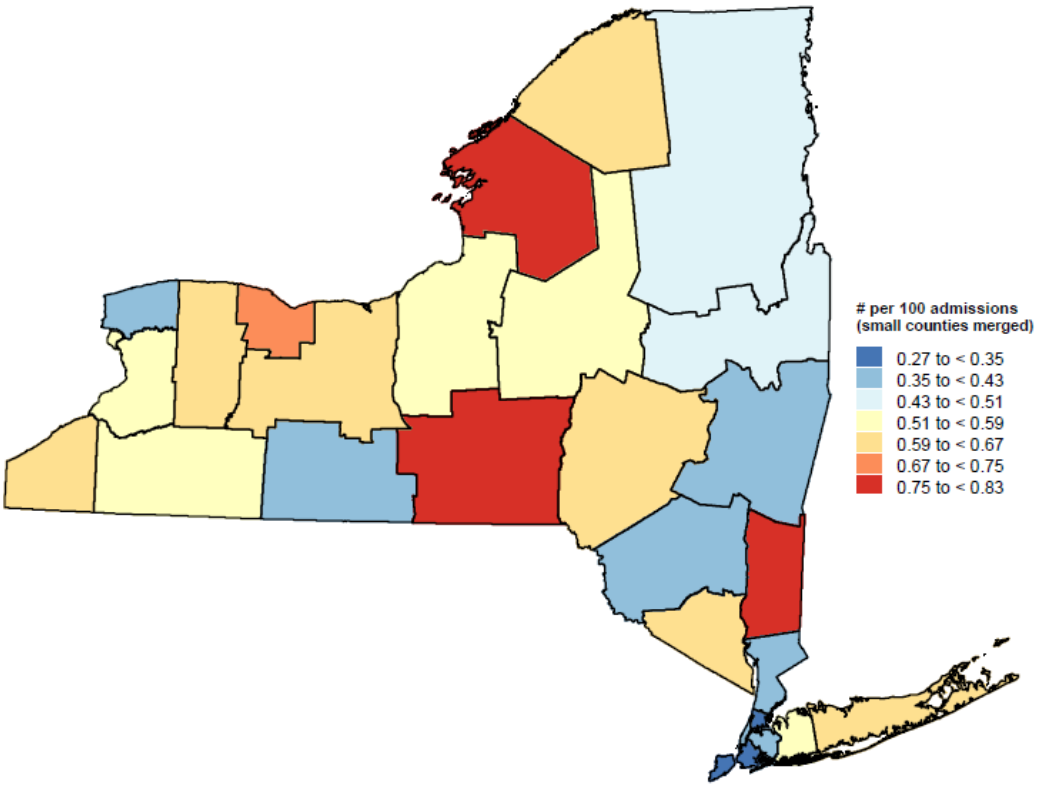
Year	# Hosp	# Patient Days	# Hospital Onset Infections	Hospital Onset Rate[1]	# Hospital Onset Infections Corrected[2]	Hospital Onset Rate[1] Corrected	Hospital Onset Rate[3] for Hospital Comparisons
2010	176	12,290,750	10,186	8.29	13,671	11.12	12.54
2011	176	12,243,421	10,388	8.48	13,022	10.64	12.83
2012	174	11,962,739	9,902	8.28	11,309	9.45	12.51
2013	170	12,235,452	9,350	7.64	10,166	8.31	11.27
2014	178	12,300,213	8,890	7.23	9,324	7.58	10.58

New York State data reported as of July 1, 2015.
[1] Rate is number of hospital onset infections per 10,000 patient days.
[2] More sensitive tests (i.e. nucleic acid amplification test (NAAT) or multistep screening with confirmation with NAAT or culture) detect approximately 50% more CDI than less sensitive tests.
Corrected # = observed # multiplied by (proportion of year less sensitive test was used times 1.5).
[3] Rate calculated using estimated days at risk (i.e. deleting first three days of all admissions)

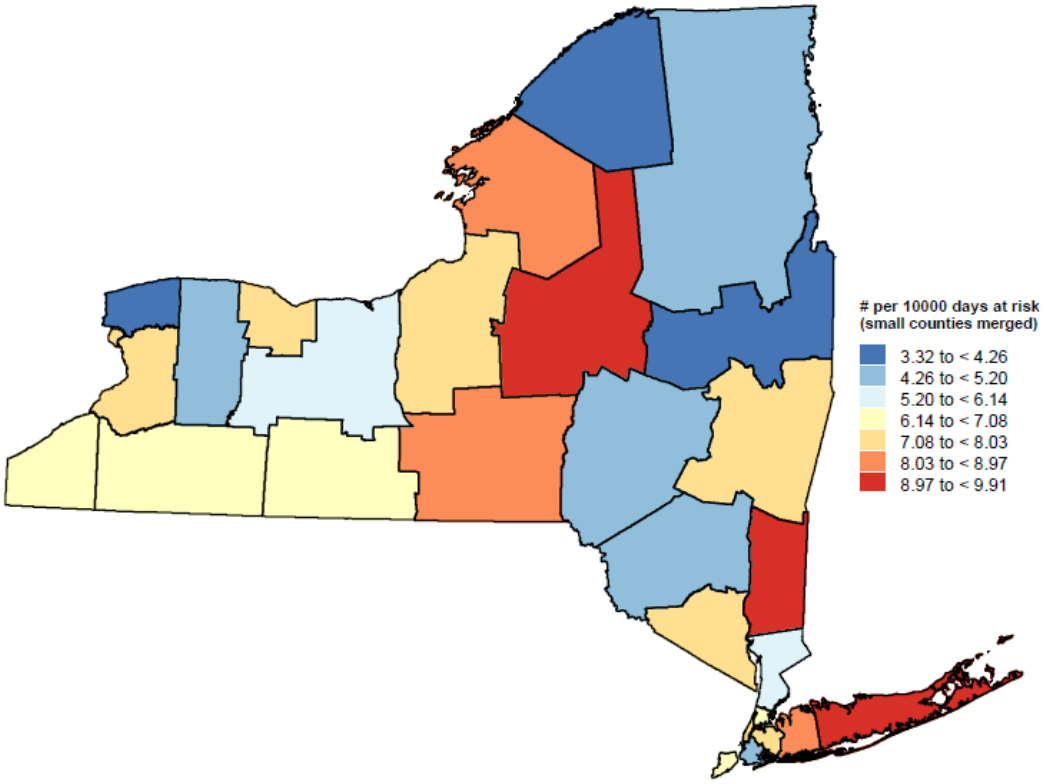
CDI infections occurred throughout the state, with a threefold variation between the counties with the highest and lowest rates. Unadjusted admission prevalent and hospital onset rates were weakly correlated at the county level (Figure 17).

Figure 17: Geographic Variation in CDI, Unadjusted NYS 2014

Admission Prevalent



Hospital Onset



CDI Risk Adjustment

The following risk factors were associated with HO CDI and included in the risk-adjustment model:
1. Laboratory test method – the predicted rate was multiplied by 1.5 for hospitals that used a more sensitive test method
2. CDI risk index – risk of developing CDI among each hospital's patient population, based on the previous year's Statewide Planning and Research Cooperative System (SPARCS) data. SPARCS are not equivalent to NHSN data in timeliness because NHSN events are entered within 60 days after the end of the month that the event occurred, while SPARCS data are entered after patient discharge and are not considered complete until August for the previous discharge year. The factors included in the risk index are summarized in Table 24. The 2013 index had a mean of 11.7, and range of 1.6 to 17.4 cases per 10,000 patient days. The model shows that patients who were admitted for mental health issues were the least likely group to develop CDI. These patients are less likely to take antibiotics or to have suppressed immune systems than patients admitted for medical and surgical care. Hospitals with a large proportion of mental health patients will have a lower risk index because these patients have a very low risk for CDI. Similarly, patients admitted for substance abuse issues, rehabilitation, and childbirth were very unlikely to develop CDI, so hospitals with a large proportion of these types of patients will tend to have lower risk indices. Hospitals with a large proportion of elderly patients, cancer patients, and patients with infections will tend to have higher risk indices. Each ten unit increase in risk index increased the predicted HO rate 3 times.

Table 24. Risk factors used in *Clostridium difficile* risk index

Risk factor		Relative Risk	Freq. (%)	ICD-9 diagnosis codes present on admission
Age:	0 to <60	ref (1.0)	47.9	
	60 to <70	1.17	16.1	
	70 to <80	1.31	15.8	Not applicable
	80 +	1.41	20.2	
Hospitalized in last 60 days		1.31	26.3	Not applicable
Not recently hospitalized		ref (1.0)	73.6	
Primary reason for admission[1]:	Mental health	0.07	8.2	291-319
	Substance abuse	0.21	2.1	303-305, 965, 967, 968, 969
	Low risk pregnancy	0.20	9.7	630-679 and not 646, 647.81-648.04, 648.9
	Rehabilitation	0.40	2.2	V57
	Fracture/sprain/disc	0.85	3.5	fracture 800-829; dislocation 830-839; sprain 840-848, slipped disc 722.0-722.2; scoliosis 737.30, 737.32
	Heart disease	0.75	5.1	410, 414, 415, 426, 427
	Cerebrovascular disease	0.75	2.5	430-438
	Asthma	0.38	1.3	493
	Sickle cell	0.29	0.5	282.4-282.6
	Other	ref (1.0)	64.8	

Cancer Leukemia/lymphoma	1.62	2.3	200-208
Other cancer	1.21	8.5	140-199, 209
None of above	ref (1.0)	89.2	
Infection			
Septicemia	1.63	7.5	038, 003.1, 020.2, 022.3, 036.2, 054.5, 449, 790.7, 785.5, 995.9
Other	1.22	15.4	bacterial infection 031-037, 039-041 (primary dx only); mycoses 110-118 (primary dx only); pneumonia 481-486; urinary tract infections 590, 595, 597; skin infections 680-686,707,728.86,785.4,440.24; appendix rupture/abscess 540.0, 540.1; central nervous system infections 320-324, 326; heart 420-422, 519.2; respiratory 510, 513; digestive 566, 567, 569.5; arthropathy 711; osteomyelitis 730; device 996.6
None of above	ref (1.0)	77.1	
Any diagnosis codes POA[2]			
Diseases of white blood cells	1.12	3.6	288
Lower gastrointestinal tract	1.32	8.9	555, 556, 557, 560, 562
Transplant	1.11	0.4	V42, V58.44, 996.8
Kidney disease, acute/chronic	1.32	18.7	584-586, 996.73, 285.21
Liver, gallbladder, pancreas	1.24	8.9	570-578
HIV infection and disease	1.06	1.0	042
Respiratory failure	1.22	5.8	518.5,518.8,519.0, 997.31,V46.1, V55.0

[1] Only primary diagnosis code. [2]Any present on admission diagnosis code. Reference group for each of these factors is patients without any of the diagnosis codes. Model c-statistic= 0.63.

3. Days at risk – By NHSN definition, patients cannot have a hospital-onset infection on the first three days of admission. The first three days of each hospital stay were removed based on an equation describing the relationship between average length of stay and the proportion of days at risk:

Proportion of days at risk=$2/\pi$ * arctan ($\pi i/2$ * .24 * (LOS-.83)).

Each hospital's risk adjusted rate was calculated as the number of observed infections divided by the number of predicted infections, multiplied by the state average (last column of Figure 16).

There are some limitations to this risk adjustment method. First, diagnosis codes are recorded in SPARCS for billing rather than surveillance purposes, and there may be variations in how these codes, as well as the associated present on admission indicators, are recorded across hospitals. Second, the model only predicts CDI from the SPARCS data marginally well. The model does not account for some factors that may be related to a person's risk for developing CDI, such as recent antibiotic use.

Hospitals were flagged as having adjusted rates significantly higher or lower than the state average if the 99% confidence interval excluded the state average HO rate. The more conservative 99% confidence interval was selected for this indicator due to the previously

mentioned model limitations. In 2014, 19 hospitals (11%) were flagged with adjusted rates significantly higher than the state average, and 27 hospitals (15%) were flagged significantly lower than average (Figure 18).

Challenges

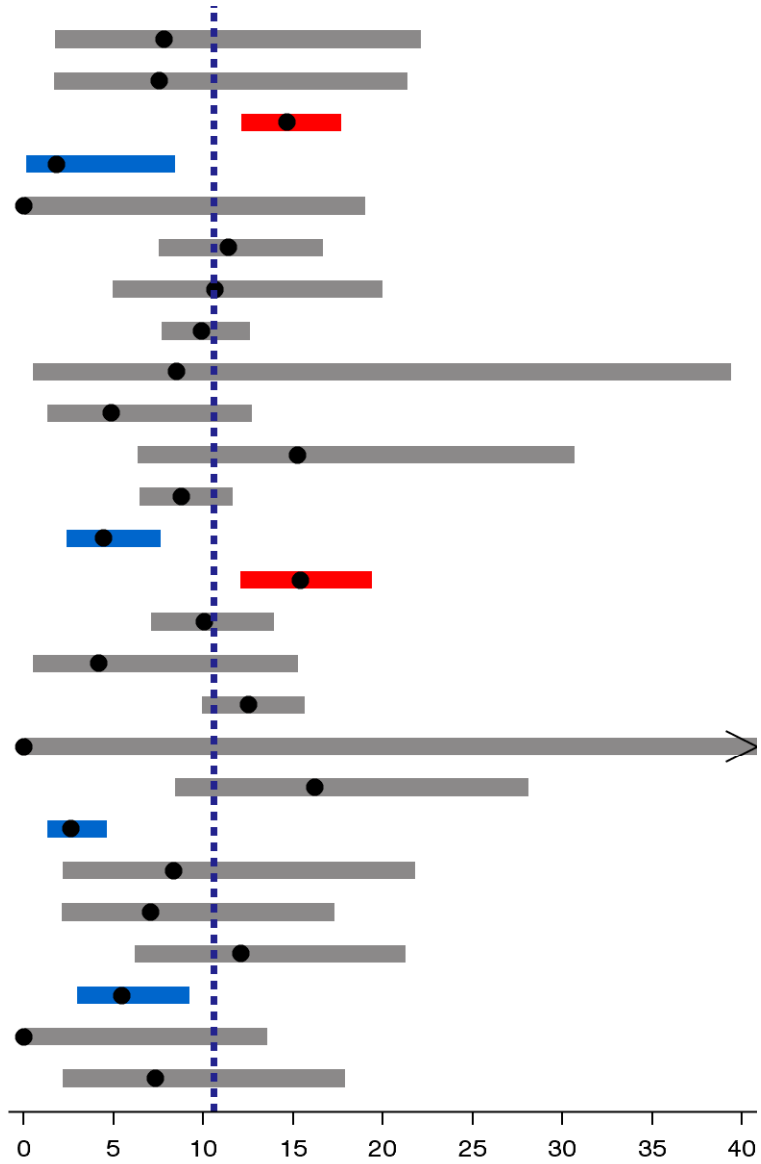
Of the 18 hospitals flagged for the first time as having significantly high HO rates in the 2013 report, 10 were flagged again in 2014. Because hospitals were not informed about their significantly high rates until late into 2014 due to the new risk adjustment method, they did not have much time to implement changes that would impact their 2014 rates. The hospitals reported planning a wide range of new interventions, including

- Hand hygiene education and monitoring
- Early identification and institution of contact precautions
- Extension of isolation to discharge
- Improved environmental cleaning methods
- Ultraviolet light disinfection of rooms during cleaning
- Improvement of antibiotic stewardship
- Use of disposable patient items
- New committees to improve teamwork between clinical and environmental staff
- Improved accessibility of personal protective equipment
- Improved family/visitor management
- Improved patient care equipment management
- Proper selection of patients for testing (e.g. excluding formed specimens).

HAI staff will continue to communicate with the ten hospitals with continued high rates to ensure that they evaluate the implementation of the previous year's plan and modify the plan as needed.

Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 1 of 7)

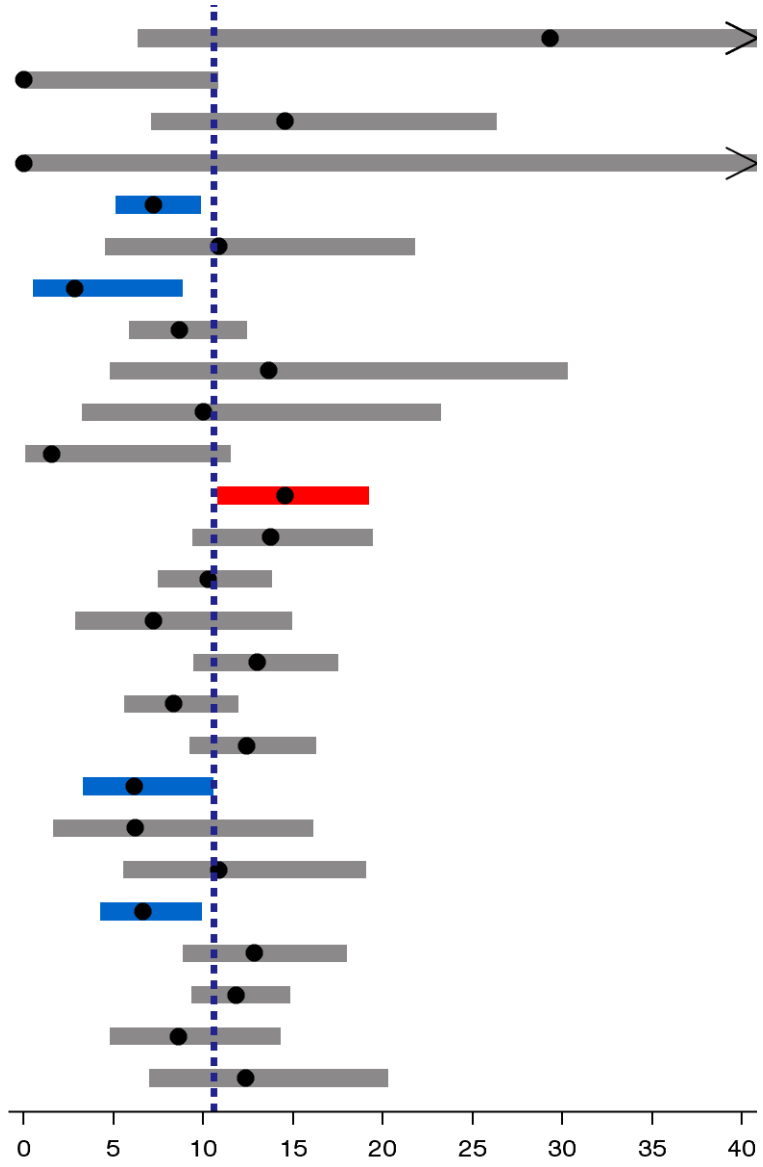
HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
AO Fox Memorial	N	8	4	5	11,779	7,280	14.0	4.2	7.8
Adirondack Medical	S	5	3	5	11,291	7,255	10.7	4.4	7.5
Albany Medical^	S	129	39	190	187,996	127,403	11.7	10.1	14.6
Albany Memorial**	N	0	0	2	16,239	10,009	16.1	1.2	1.8
Alice Hyde*	N	1	0	0	8,044	2,906	13.6	0.0	0.0
Arnot Ogden	S	44	11	44	55,336	30,173	13.8	8.0	11.4
Auburn Memorial	S	13	8	15	22,024	13,575	11.9	6.8	10.6
Bellevue Hospital	S	25	16	111	232,612	209,471	6.0	4.8	9.9
Bertrand Chaffee	N	3	4	2	3,682	2,232	15.7	5.4	8.5
Blythedale Childrens	S	0	1	6	26,297	25,227	6.9	2.3	4.9
Bon Secours	S	14	1	12	19,042	12,013	7.7	6.3	15.2
Bronx-Lebanon	N	60	17	79	153,925	102,865	14.0	5.1	8.7
Brookdale Hospital**	N	9	3	21	98,301	70,665	11.6	2.1	4.4
Brookhaven Memorial^	S	77	26	122	87,592	62,163	13.7	13.9	15.4
BrooklynHos-Downtown	S	24	14	61	91,176	61,268	12.4	6.7	10.1
Brooks Memorial	S	9	5	3	9,150	4,879	15.0	3.3	4.2
Buffalo General	S	79	29	133	133,492	94,398	12.6	10.0	12.5
Burdett Care Center*	N	0	0	0	2,957	953	1.6	0.0	0.0
Burke Rehab Hosp	N	2	0	20	39,153	34,415	6.0	5.1	16.2
Calvary LTAC**	N	0	0	18	76,287	71,250	15.0	2.4	2.6
Canton-Potsdam	S	23	7	6	15,681	10,114	8.5	3.8	8.3
Catskill Regional	S	15	4	7	18,305	12,268	10.5	3.8	7.1
Cayuga Medical Cntr	S	25	9	19	30,006	18,550	10.1	6.3	12.1
Champlain Valley**	S	41	13	22	54,947	38,179	12.1	4.0	5.4
Chenango Memorial*	S	14	5	0	5,507	2,898	13.0	0.0	0.0
Claxton-Hepburn	S	13	3	7	20,253	14,742	7.7	3.5	7.3



Data reported as of July 1, 2015. ┆State Average. ●Risk-adjusted Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average —*Zero Infections, not significant. CO-NMH: community onset-not my hospital, CO-PMH: community onset-possibly my hospital, HO: hospital onset, raw rate is per 10,000 patient days, adjusted rate is per 10,000 days at risk (more than 3 days in hospital), Test method: N= less sensitive test (e.g. enzyme immunoassay), S= more sensitive test (e.g. nucleic acid amplification test (NAAT)). Adjusted using test and hospital CDI risk index from 2013 billing data.

Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 2 of 7)

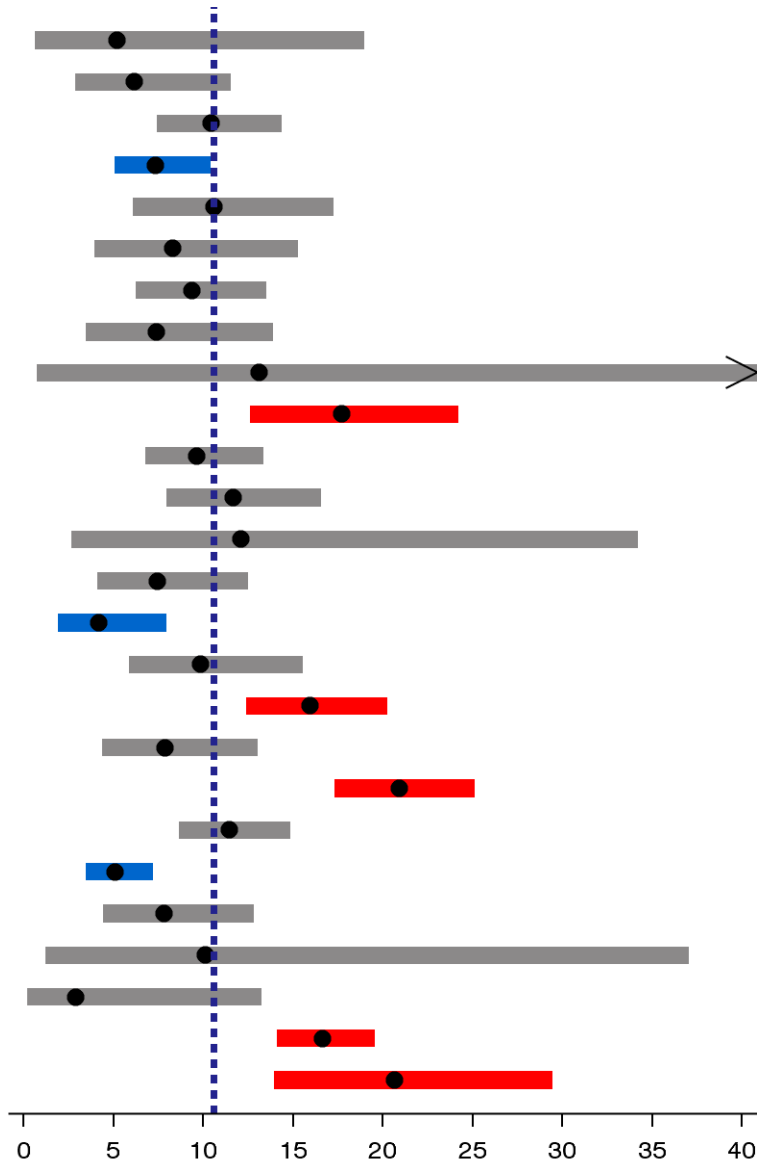
HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
Clifton Springs	S	10	8	5	6,276	3,270	5.7	8.0	29.3
Cobleskill Regional*	S	2	0	0	4,349	3,004	14.7	0.0	0.0
Columbia Memorial	N	23	10	17	31,036	20,877	10.0	5.5	14.5
Community Memorial*	N	2	1	0	3,784	1,285	13.7	0.0	0.0
Coney Island**	S	51	18	64	115,374	88,051	11.6	5.5	7.2
Corning Hospital	S	16	3	12	14,535	7,371	15.2	8.3	10.8
Cortland Reg Med**	N	12	8	4	22,285	16,317	14.0	1.8	2.8
Crouse Hospital	S	80	25	49	83,052	49,281	12.8	5.9	8.7
DeGraff Memorial	S	17	3	9	9,333	5,768	12.8	9.6	13.6
East. Niag. Lockport	N	4	4	8	25,663	18,273	7.8	3.1	10.0
Eastern Long Island	S	4	0	1	18,380	13,504	4.9	0.5	1.5
Ellis Hospital^	S	53	22	83	84,564	53,813	12.1	9.8	14.5
Elmhurst	N	22	5	53	142,845	99,037	6.7	3.7	13.7
Erie Medical Center	S	31	12	72	139,159	108,257	7.7	5.2	10.2
FF Thompson	S	28	8	11	20,091	11,362	14.2	5.5	7.2
Faxton St. Lukes	S	50	14	73	74,163	46,622	13.2	9.8	13.0
Flushing Hospital	S	19	11	49	77,589	52,621	12.6	6.3	8.3
Forest Hills	S	58	19	85	76,312	47,208	14.9	11.1	12.4
Franklin**	S	33	9	21	45,804	30,045	12.7	4.6	6.1
Geneva General	N	10	3	6	17,739	11,339	13.8	3.4	6.2
Glen Cove Hospital	S	17	1	19	31,298	23,153	9.0	6.1	10.8
Glens Falls**	S	59	8	39	73,213	47,872	13.4	5.3	6.6
Good Samar. Suffern	S	64	17	55	60,234	35,210	14.2	9.1	12.8
Good Samar. W Islip	S	78	32	125	120,127	76,312	14.5	10.4	11.8
Harlem Hospital	S	12	1	24	66,026	45,741	7.1	3.6	8.6
HealthAlli Broadway	N	19	11	25	35,835	21,812	14.5	7.0	12.3



Data reported as of July 1, 2015. ¦State Average. ●Risk-adjusted Infection rate. > Upper confidence limit exceeds graph area. –^^Significantly higher than state average. –**Significantly lower than state average. –Average –*Zero Infections, not significant. CO-NMH: community onset-not my hospital, CO-PMH: community onset-possibly my hospital, HO: hospital onset, raw rate is per 10,000 patient days, adjusted rate is per 10,000 days at risk (more than 3 days in hospital), Test method: N= less sensitive test (e.g. enzyme immunoassay), S= more sensitive test (e.g. nucleic acid amplification test (NAAT). Adjusted using test and hospital CDI risk index from 2013 billing data.

Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 3 of 7)

HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
HealthAlli MarysAve	N	2	1	3	24,499	18,986	4.5	1.2	5.2
Helen Hayes Hospital	S	3	1	15	29,642	26,163	10.9	5.1	6.1
Henry J. Carter LTAC	S	0	0	63	52,818	52,078	12.9	11.9	10.4
Highland Hospital**	S	69	11	53	80,421	52,479	14.4	6.6	7.3
Hosp for Spec Surg	S	3	0	26	54,588	28,109	10.3	4.8	10.6
Hudson Valley	N	21	15	16	29,240	16,975	16.4	5.5	8.3
Huntington	S	72	19	47	71,761	45,730	12.4	6.5	9.3
Interfaith Medical	N	8	9	15	68,246	53,019	6.6	2.2	7.4
Ira Davenport	S	1	0	2	2,157	1,113	14.4	9.3	13.1
JT Mather^	N	26	11	65	63,467	43,524	12.8	10.2	17.7
Jacobi Medical	S	29	9	61	126,266	91,058	8.3	4.8	9.6
Jamaica Hospital	N	18	6	52	115,043	78,603	9.2	4.5	11.6
Jones Memorial	N	5	4	5	7,645	4,055	15.4	6.5	12.1
Kenmore Mercy	S	29	9	23	39,001	24,859	13.5	5.9	7.4
Kings County**	N	2	2	14	118,088	83,071	7.1	1.2	4.1
Kingsbrook Jewish	N	14	10	30	65,358	49,752	10.8	4.6	9.8
Lenox Hill^	S	71	25	114	131,790	81,034	12.2	8.7	15.9
Lincoln Medical	N	8	5	24	94,853	58,081	9.4	2.5	7.8
Long Island Jewish^	S	199	64	196	211,109	125,365	8.9	9.3	20.9
Lutheran Medical	S	45	16	94	120,106	82,003	11.6	7.8	11.4
Maimonides**	N	46	21	52	188,449	123,372	13.6	2.8	5.0
Mary Imogene Bassett	S	37	22	25	46,058	30,206	12.1	5.4	7.8
Massena Memorial	N	10	3	3	9,063	4,065	12.4	3.3	10.1
Medina Memorial	S	4	0	2	11,189	8,371	10.0	1.8	2.8
Memor SloanKettering^	S	141	62	257	141,471	101,359	15.3	18.2	16.6
Mercy Medical^	S	42	13	50	49,163	28,540	10.1	10.2	20.6



Data reported as of July 1, 2015. ¦State Average. ●Risk-adjusted Infection rate. > Upper confidence limit exceeds graph area. –^^Significantly higher than state average. –**Significantly lower than state average. –Average –*Zero Infections, not significant. CO-NMH: community onset-not my hospital, CO-PMH: community onset-possibly my hospital, HO: hospital onset, raw rate is per 10,000 patient days, adjusted rate is per 10,000 days at risk (more than 3 days in hospital), Test method: N= less sensitive test (e.g. enzyme immunoassay), S= more sensitive test (e.g. nucleic acid amplification test (NAAT). Adjusted using test and hospital CDI risk index from 2013 billing data.

Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 4 of 7)

HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
Mercy- Buffalo	S	72	27	80	98,785	64,580	13.6	8.1	9.8
Metropolitan**	S	13	3	10	74,567	54,101	4.9	1.3	3.9
MidHudson Reg of WMC	N	12	5	19	47,373	36,505	5.8	4.0	14.7
Millard Fill. Suburb	S	90	33	67	66,180	40,232	15.0	10.1	11.3
Monroe Community	N	0	0	1	260	163	12.2	38.5	85.5
Montefiore-Einstein	S	88	27	130	131,883	85,973	14.4	9.9	11.0
Montefiore-Moses	S	138	50	254	261,850	182,815	14.4	9.7	10.1
Montefiore-Mt Vernon	S	4	0	9	23,785	17,727	8.8	3.8	6.9
Montefiore-NewRochl	S	23	13	21	31,856	19,758	14.9	6.6	7.3
Montefiore-Wakefield	S	60	14	70	84,170	56,247	13.6	8.3	9.9
Mount St. Marys	N	11	5	10	26,719	17,856	10.5	3.7	9.4
Mt Sinai^	S	150	23	296	307,102	199,619	12.2	9.6	13.7
Mt Sinai BI-Bklyn**	S	27	5	38	60,656	41,415	15.8	6.3	5.7
Mt Sinai Beth Israel	S	56	28	104	192,781	126,459	9.6	5.4	10.2
Mt Sinai Queens**	S	24	11	32	49,411	32,844	15.1	6.5	6.6
Mt Sinai Roosevelt	S	25	22	36	107,630	67,276	8.4	3.3	7.6
Mt Sinai St Lukes**	S	46	15	31	104,477	74,939	11.1	3.0	4.3
NY Community Bklyn	S	25	9	33	40,599	27,745	15.9	8.1	7.4
NY Eye and Ear*	N	0	0	0	1,122	358	9.5	0.0	0.0
NY Hosp Queens^	S	175	50	225	147,745	97,333	16.0	15.2	14.1
NY Methodist	S	104	40	139	192,537	126,545	13.1	7.2	9.2
NYP-Allen	S	49	11	28	56,673	37,378	10.1	4.9	8.8
NYP-Columbia-Morgan	S	173	56	260	271,206	198,895	13.0	9.6	11.1
NYP-Lawrence	S	43	2	31	48,678	30,229	13.5	6.4	8.2
NYP-Lower Manhattan	N	9	3	17	38,849	23,027	13.7	4.4	8.7
NYP-Weill Cornell	S	114	41	244	249,135	178,419	13.8	9.8	10.6

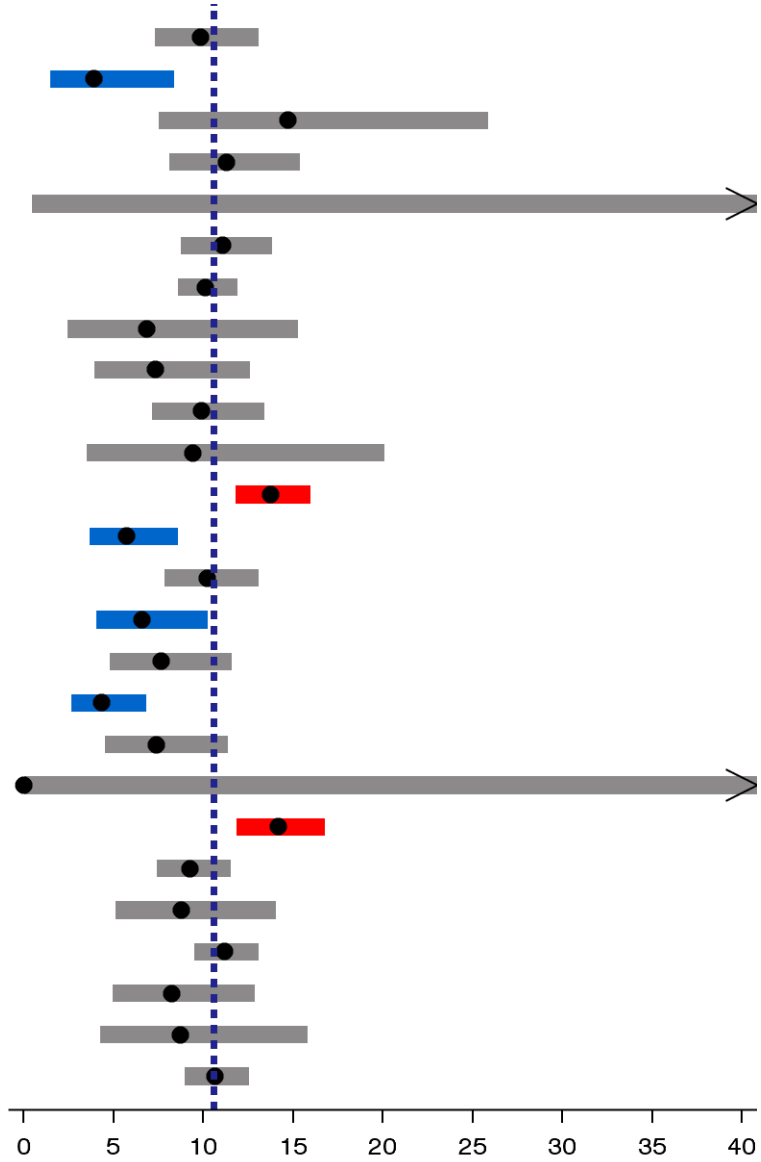


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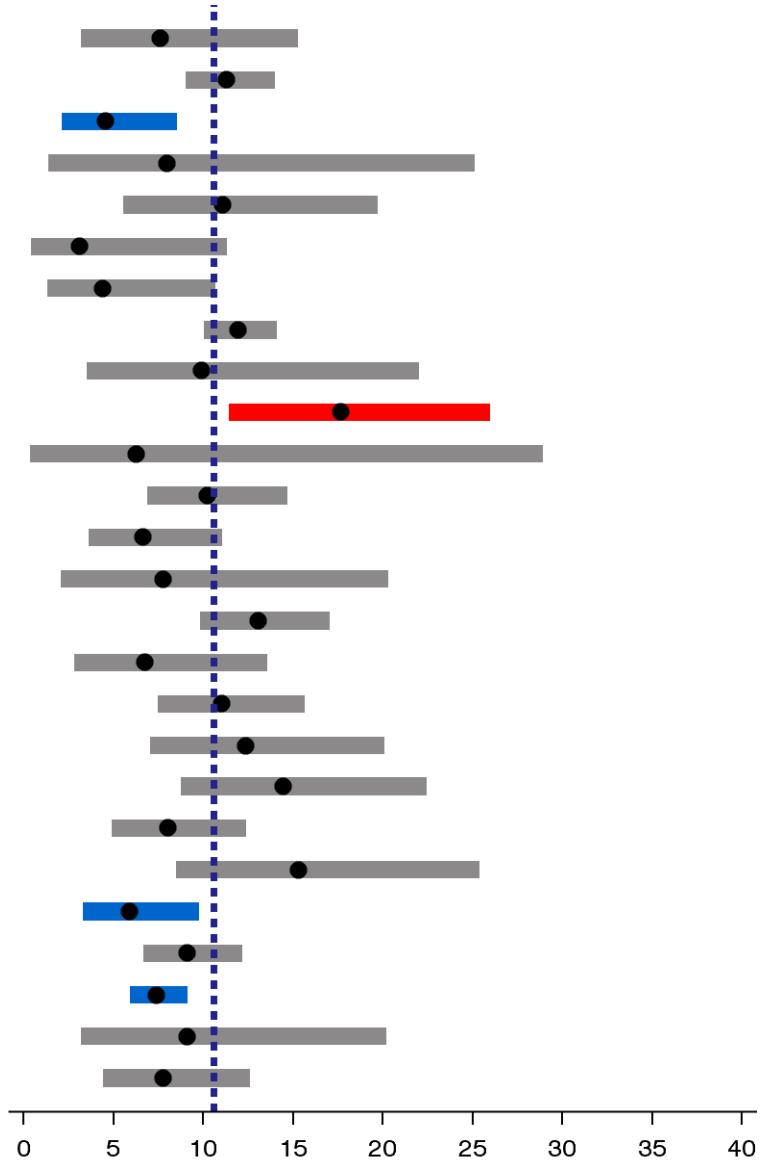
Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 5 of 7)

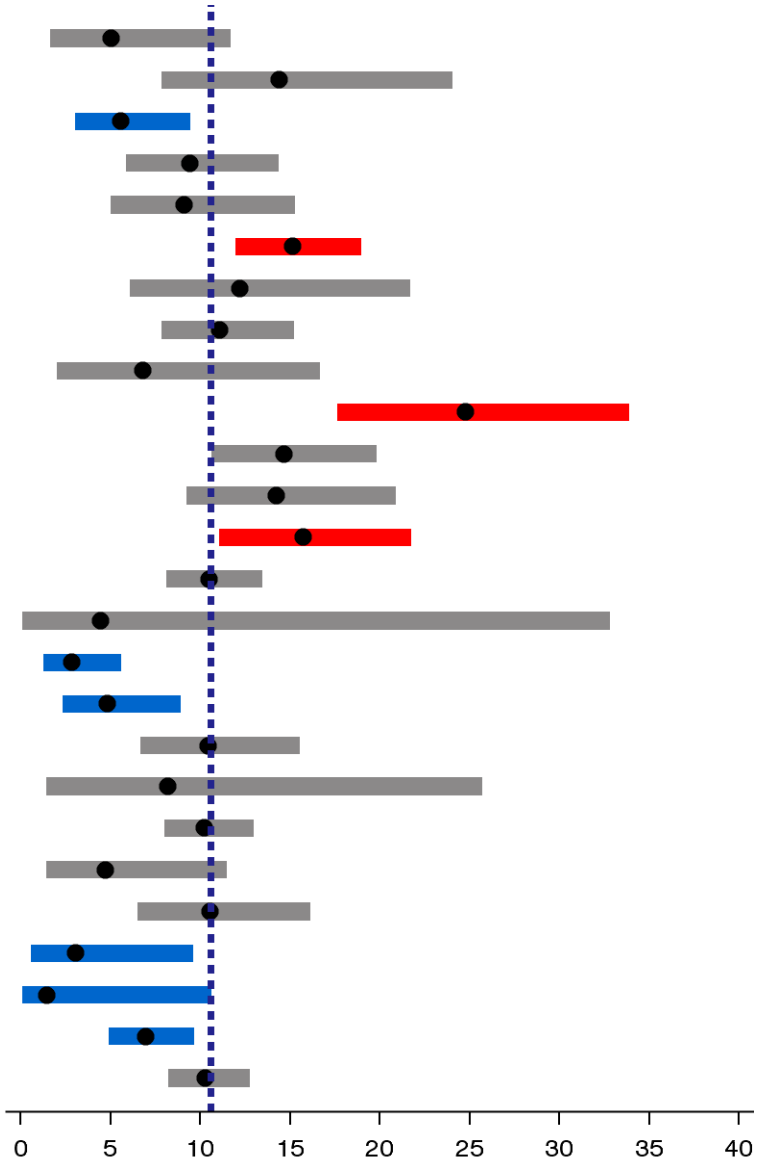
HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
NYU Joint Disease	S	2	1	12	35,374	24,658	7.6	3.4	7.6
NYU Medical Center	S	119	44	140	137,971	101,326	13.4	10.1	11.3
Nassau University**	N	12	6	15	124,079	89,112	6.3	1.2	4.5
Nathan Littauer	N	5	3	4	10,651	5,815	13.9	3.8	8.0
Newark Wayne	S	27	7	18	25,530	17,180	11.1	7.1	11.0
Niagara Falls	S	11	5	3	26,675	17,543	6.3	1.1	3.1
North Central Bronx	S	15	2	7	40,247	30,273	5.9	1.7	4.3
North Shore	S	181	55	235	245,788	154,354	13.8	9.6	11.9
Northern Dutchess	S	22	3	9	15,366	8,834	11.8	5.9	9.9
Northern Westchester^	S	35	14	42	37,331	22,591	12.0	11.3	17.6
Noyes Memorial	N	4	2	2	7,487	3,894	12.5	2.7	6.2
Nyack Hospital	S	69	18	48	54,646	34,128	14.4	8.8	10.2
Olean General	S	32	11	23	32,361	18,748	17.1	7.1	6.6
Oneida Healthcare	S	15	2	6	11,456	6,524	13.1	5.2	7.8
OrangeReg Goshen-Mid	S	76	25	90	106,778	65,648	12.0	8.4	13.0
Oswego Hospital	S	21	7	12	17,491	10,923	16.0	6.9	6.7
Our Lady of Lourdes	S	76	28	51	47,636	29,910	15.5	10.7	11.0
Peconic Bay Medical	S	24	3	26	29,030	17,114	13.4	9.0	12.3
Phelps Memorial	S	22	12	32	49,357	36,454	7.1	6.5	14.4
Plainview Hospital	S	73	11	33	43,836	28,038	15.0	7.5	8.0
Putnam Hospital	S	35	16	24	24,308	14,437	12.3	9.9	15.3
Queens Hospital**	S	14	6	24	79,111	56,511	8.6	3.0	5.9
Richmond Univ	S	47	10	75	110,502	80,217	11.8	6.8	9.1
Rochester General**	S	134	49	146	207,148	160,740	13.4	7.0	7.4
Rome Memorial	S	24	9	9	19,300	10,715	10.9	4.7	9.1
Roswell Park	N	9	7	26	38,568	30,425	16.1	6.7	7.7



Data reported as of July 1, 2015. ¦State Average. ●Risk-adjusted Infection rate. > Upper confidence limit exceeds graph area. –^^Significantly higher than state average. –**Significantly lower than state average. –Average –*Zero Infections, not significant. CO-NMH: community onset-not my hospital, CO-PMH: community onset-possibly my hospital, HO: hospital onset, raw rate is per 10,000 patient days, adjusted rate is per 10,000 days at risk (more than 3 days in hospital), Test method: N= less sensitive test (e.g. enzyme immunoassay), S= more sensitive test (e.g. nucleic acid amplification test (NAAT). Adjusted using test and hospital CDI risk index from 2013 billing data.

Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 6 of 7)

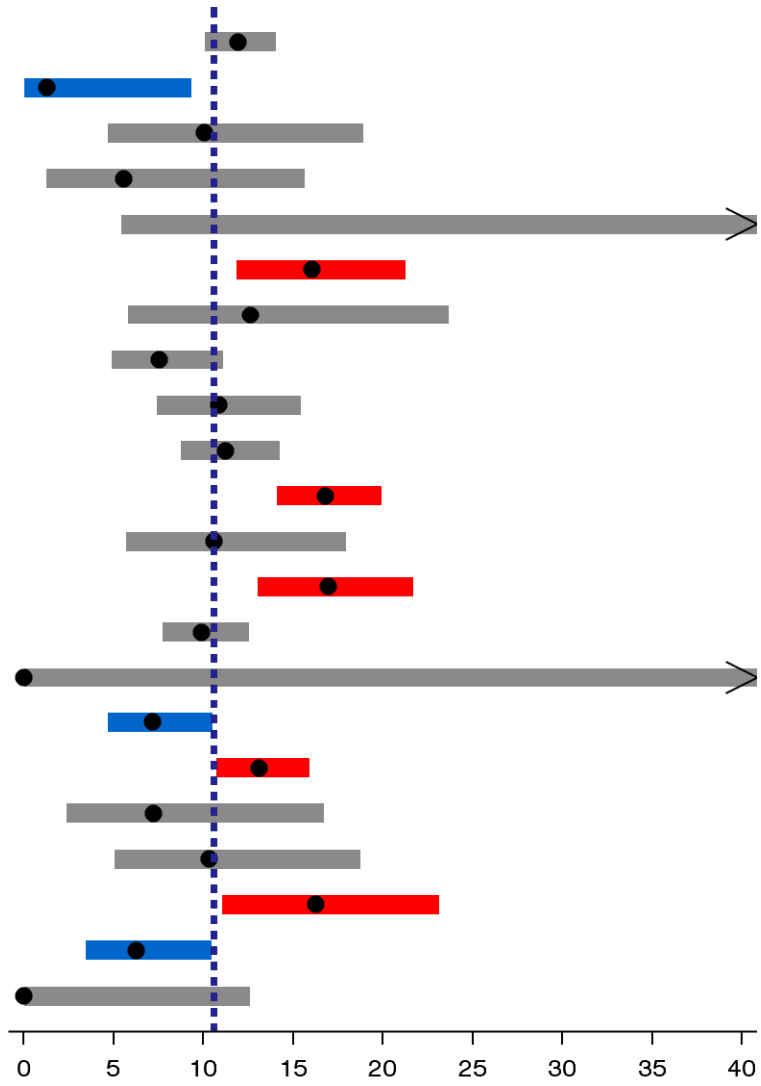
HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
Samaritan- Troy	N	9	2	8	48,344	31,571	9.1	1.7	5.0
Samaritan- Watertown	S	43	9	23	28,383	16,532	11.3	8.1	14.4
Saratoga Hospital**	S	36	8	22	45,790	30,337	13.9	4.8	5.6
Sisters of Charity	S	55	14	35	51,275	30,227	13.4	6.8	9.4
Sisters- St Joseph	S	24	3	23	23,436	16,166	15.6	9.8	9.1
South Nassau Comm.^	S	137	24	128	104,101	71,236	13.1	12.3	15.1
Southampton	S	44	9	18	19,135	10,331	14.8	9.4	12.2
Southside	S	54	15	63	95,432	62,491	10.7	6.6	11.1
St Anthony	S	8	4	7	9,316	5,381	17.4	7.5	6.8
St Barnabas^	N	32	11	65	79,730	50,977	9.2	8.2	24.8
St Catherine Siena	S	57	17	71	67,760	47,952	11.6	10.5	14.6
St Charles Hospital	S	28	6	42	59,579	43,685	8.0	7.0	14.2
St Elizabeth Medical^	S	51	17	61	55,893	37,416	11.9	10.9	15.7
St Francis- Roslyn	S	80	18	107	96,255	68,032	15.2	11.1	10.5
St James Mercy	N	2	0	1	7,962	5,662	6.9	1.3	4.4
St Johns Episcopal**	S	8	2	13	62,361	44,549	11.8	2.1	2.8
St Johns Riverside**	N	20	13	16	93,678	62,257	9.5	1.7	4.8
St Joseph -Bethpage	S	41	9	39	34,033	22,965	15.9	11.5	10.4
St Josephs- Elmira	S	7	2	4	12,423	8,926	6.2	3.2	8.2
St Josephs- Syracuse	S	105	37	116	137,130	88,166	13.8	8.5	10.2
St Josephs- Yonkers	N	9	4	7	41,127	31,233	8.6	1.7	4.7
St LukesNewburgh-Cor	N	65	18	34	45,267	28,287	16.4	7.5	10.5
St Marys Amsterdam**	N	20	2	4	33,831	23,127	10.1	1.2	3.0
St Marys Troy**	N	3	3	1	18,399	11,266	10.9	0.5	1.4
St Peters Hospital**	S	74	34	61	107,783	64,807	14.3	5.7	7.0
Staten Island U N-S	S	85	24	139	210,112	137,235	11.4	6.6	10.3



Data reported as of July 1, 2015. ┆State Average. ●Risk-adjusted Infection rate. > Upper confidence limit exceeds graph area. —^^Significantly higher than state average. —**Significantly lower than state average. —Average —*Zero Infections, not significant. CO-NMH: community onset-not my hospital, CO-PMH: community onset-possibly my hospital, HO: hospital onset, raw rate is per 10,000 patient days, adjusted rate is per 10,000 days at risk (more than 3 days in hospital), Test method: N= less sensitive test (e.g. enzyme immunoassay), S= more sensitive test (e.g. nucleic acid amplification test (NAAT). Adjusted using test and hospital CDI risk index from 2013 billing data.

Figure 18. Hospital onset *C. difficile* rates, New York State 2014 (Page 7 of 7)

HOSPITAL	TEST	# CO-NMH	# CO-PMH	# HO	# PATDAYS	PATDAYS AT RISK	RISK INDEX	RAW HO RATE	ADJ HO RATE
Strong Memorial	S	149	50	247	253,741	196,093	12.0	9.7	11.9
Summit Park LTAC**	S	0	0	1	13,317	12,431	7.6	0.8	1.2
Sunnyview Rehab Hosp	S	2	0	15	32,646	28,429	5.8	4.6	10.0
Syosset Hospital	S	13	2	5	19,590	12,404	8.7	2.6	5.5
TLC Lake Shore	S	0	0	3	2,802	1,476	5.7	10.7	47.7
U Health Bing-Wilson^	S	42	39	81	84,614	59,602	10.0	9.6	16.0
United Memorial	S	22	11	15	14,441	8,306	14.8	10.4	12.6
Unity Hosp Rochester	S	59	24	42	77,094	53,945	11.8	5.4	7.5
Univ Hosp Brooklyn	S	34	10	52	77,023	52,838	10.6	6.8	10.9
Univ Hosp SUNY Upst	S	86	24	113	135,339	98,276	11.8	8.3	11.2
Univ HospStony Brook^	S	175	75	227	182,420	122,656	12.4	12.4	16.8
Upst. Community Gen	S	25	7	22	39,220	26,537	9.3	5.6	10.6
Vassar Brothers^	S	138	40	106	83,319	45,044	14.5	12.7	16.9
Westchester Medical	S	43	30	115	176,074	138,853	10.0	6.5	9.9
Westfield Memorial*	S	0	0	0	64	34	13.5	0.0	0.0
White Plains**	S	61	9	42	66,108	40,414	14.9	6.4	7.1
Winthrop University^	S	103	33	174	155,221	100,755	14.0	11.2	13.1
Woman and Childrens	S	24	3	8	32,501	15,861	8.3	2.5	7.2
Womans Christian	S	33	7	17	24,823	15,510	12.1	6.8	10.3
Woodhull Medical^	S	18	6	51	89,397	66,722	5.7	5.7	16.3
Wyckoff Heights**	N	19	12	23	65,695	40,775	14.3	3.5	6.2
Wyoming County Comm.*	N	4	4	0	10,542	6,720	9.7	0.0	0.0



Data reported as of July 1, 2015. State Average. ●Risk-adjusted Infection rate. > Upper confidence limit exceeds graph area. –^^Significantly higher than state average. –**Significantly lower than state average. –Average –*Zero Infections, not significant. CO-NMH: community onset-not my hospital, CO-PMH: community onset-possibly my hospital, HO: hospital onset, raw rate is per 10,000 patient days, adjusted rate is per 10,000 days at risk (more than 3 days in hospital), Test method: N= less sensitive test (e.g. enzyme immunoassay), S= more sensitive test (e.g. nucleic acid amplification test (NAAT). Adjusted using test and hospital CDI risk index from 2013 billing data.

Multidrug Resistant Organisms (MDROs)

Multidrug resistant organisms (MDROs) are bacteria that cannot be treated with commonly used antibiotics. Examples of MDROs that may affect hospitalized patients include: carbapenem-resistant Enterobacteriaceae (CRE), methicillin-resistant *Staphylococcus aureus* (MRSA), vancomycin-resistant Enterococci (VRE), and multidrug resistant *Acinetobacter* spp. (MDR-Acinetobacter).

MDROs are important to monitor because they can spread among patients in hospital settings, and there are fewer treatment options, which results in increased morbidity and mortality. These MDROs can be tracked using the NHSN inpatient Laboratory-Identified event (LabID) protocol.

LabID cases are separated into reporting categories depending upon whether the onset of illness is presumed to have occurred in the community or in a hospital. Cases termed "community-onset (CO)" are cases in which the positive specimen was obtained during the first three days of the patient's hospital admission. Hospital-onset (HO) cases are cases in which the positive specimen was obtained on day four or later during the hospital stay (Figure 19).

Figure 19. Definition of community and hospital onset

Community onset			Hospital onset			
Day 1 (Admission)	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7+

Carbapenem-resistant Enterobacteriaceae (CRE) Infections

The Enterobacteriaceae are a large family of bacteria. Some of these organisms are normally found in the human gastrointestinal tract; others live mainly in soil and water. When these organisms are living in the gastrointestinal tract they do not cause harm and can help with necessary digestive functions. They are able to cause infections if they are spread to other locations in the body (e.g. through surgery or trauma) or are introduced into other body sites by contact with an infected person or contaminated surface.

CRE cannot be effectively treated with antibiotics called carbapenems, which are a type of antibiotics used for serious infections. Healthy people do not typically get infections with CRE. Risk factors for developing CRE infections include diagnosis with multiple medical conditions, treatment with a long course of antibiotics, use of indwelling medical devices, and repeated inpatient medical care. CRE are increasingly causing HAIs in many parts of the world.

The specific types of CRE that were tracked by NYSDOH in 2014 are *E. coli* and *Klebsiella* spp. CRE is monitored because it is an emerging concern, and it can be responsible for high mortality rates. In addition, CRE can pass their antibiotic resistance mechanisms to other types of bacteria, making new species resistant to carbapenem treatment as well. It is important for medical and public health professionals to know how common CRE is so efforts can be taken to prevent its continued spread.

Carbapenems are considered antibiotics of last resort by medical professionals. These antibiotics are only used when other antibiotics cannot be used. As antimicrobial resistance becomes a larger problem, antibiotics like carbapenems have to be used more often. When carbapenems cannot be used to treat an infection, the alternative therapies can be dangerous for the patient. In some cases no alternative treatment is available. Bloodstream infections with CRE have been reported to have attributable mortality rates of 27% to 50%.[6,7]

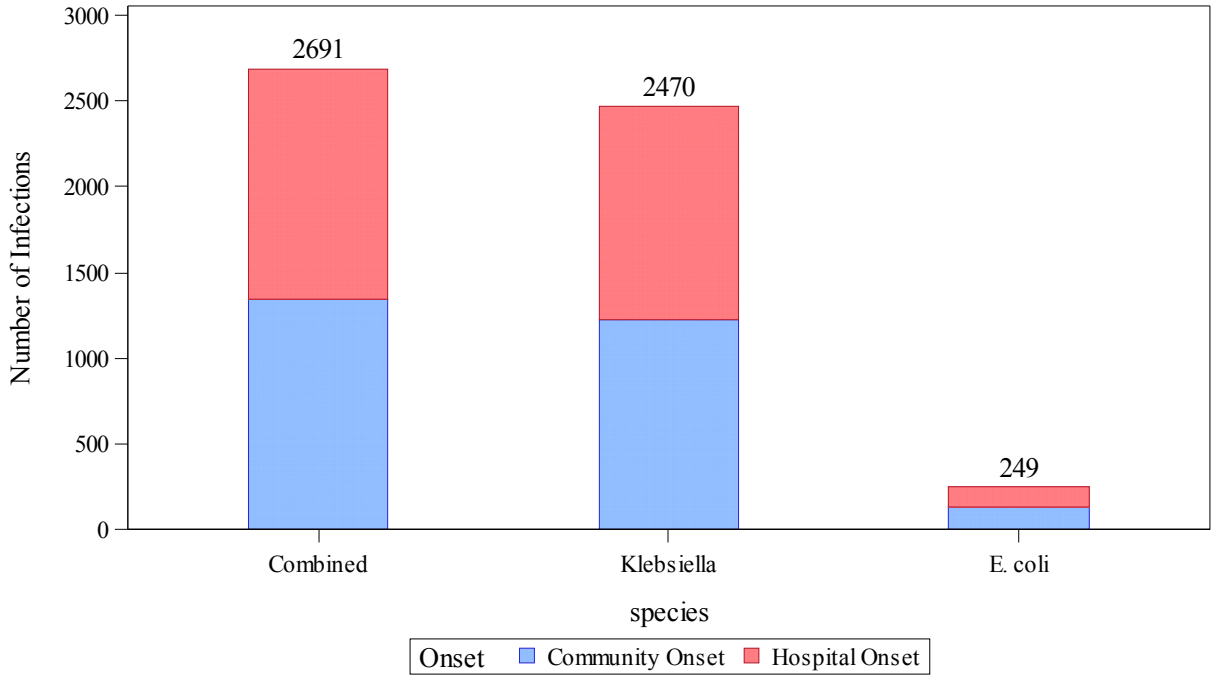
CRE has emerged as a serious public health threat in New York State. Eighty percent of hospitals statewide have reported at least one case. Hospitals in the New York City area carry the largest burden of CRE. Although the problem of CRE in New York is very serious, it is important to note that these infections can be prevented, and their spread in health care facilities can be stopped. Successful campaigns to stop the spread of CRE have been undertaken both in the US and internationally.

Israel offers an excellent example of a CRE prevention success story. In 2006, Israel faced an ongoing CRE outbreak in its hospitals. Control measures at individual hospitals did little to reduce the rates of CRE. In order to stop the spread of the pathogen, a government sponsored task force was created to oversee the containment of CRE. The task force evaluated infection

control and laboratory policies for individual hospitals and performed site visits to observe prevention practices and staff behaviors. Feedback on these evaluations and visits was offered to the administration of each hospital, and necessary changes or improvements were initiated. A direct connection was observed between compliance with isolation guidelines and reducing the spread of CRE.[8] The main lesson from the experiences in Israel is the need for a coordinated effort to reduce CRE. Studies from the US have also shown how application of the CDC recommendations in the 2012 CRE Toolkit - Guidance for Control of Carbapenem-resistant Enterobacteriaceae (CRE) are successful in reducing the burden of CRE and other MDROs in hospitals.[9]

The majority of reported CRE cases in NYS are CRE-*Klebsiella* spp. (91%) (Figure 20). This finding is consistent with previously reported data; emergence of carbapenemase-producing strains is especially likely among *Klebsiella* spp.[10] A small percentage (1%) of patients harbored both resistant *Klebsiella* and *E. coli* organisms. In Figure 20, the combined total is slightly smaller than the sum of the two species after eliminating these duplicates. For both species, half of the infections were community onset, while half were hospital onset.

Figure 20. Carbapenem-resistant Enterobacteriaceae by species and onset, NYS 2014

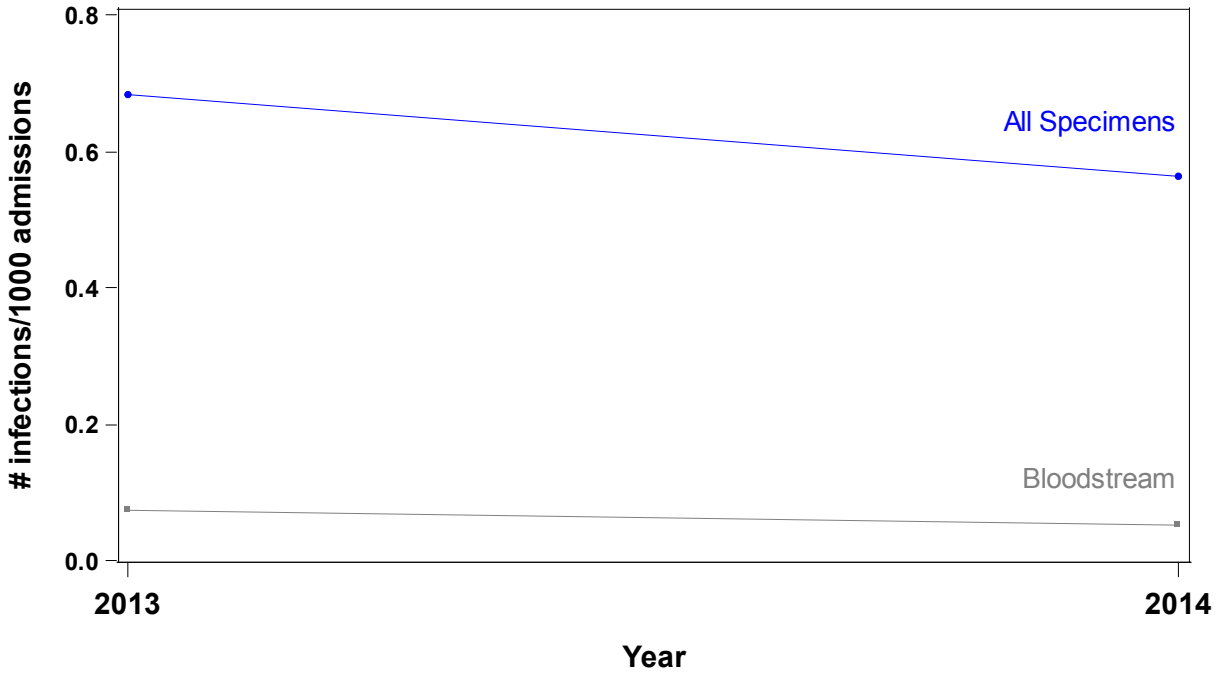


Data reported as of July 1, 2015. Combined data were de-duplicated.

NYS requires CRE reporting from all types of specimens. The most common CRE infection sites were the urinary tract (47%), respiratory system (24%), bloodstream (12%), and skin/soft tissue (12%). Bloodstream infections have the highest mortality rate.

Figure 21 summarizes the admission prevalence rates for CRE in 2013 and 2014. The overall admission prevalence rate decreased 17% between 2013 and 2014, while the bloodstream admission prevalence rate decreased by 31%.

Figure 21. Trend in Carbapenem-resistant Enterobacteriaceae (CRE) admission prevalence rate, New York State 2013-2014

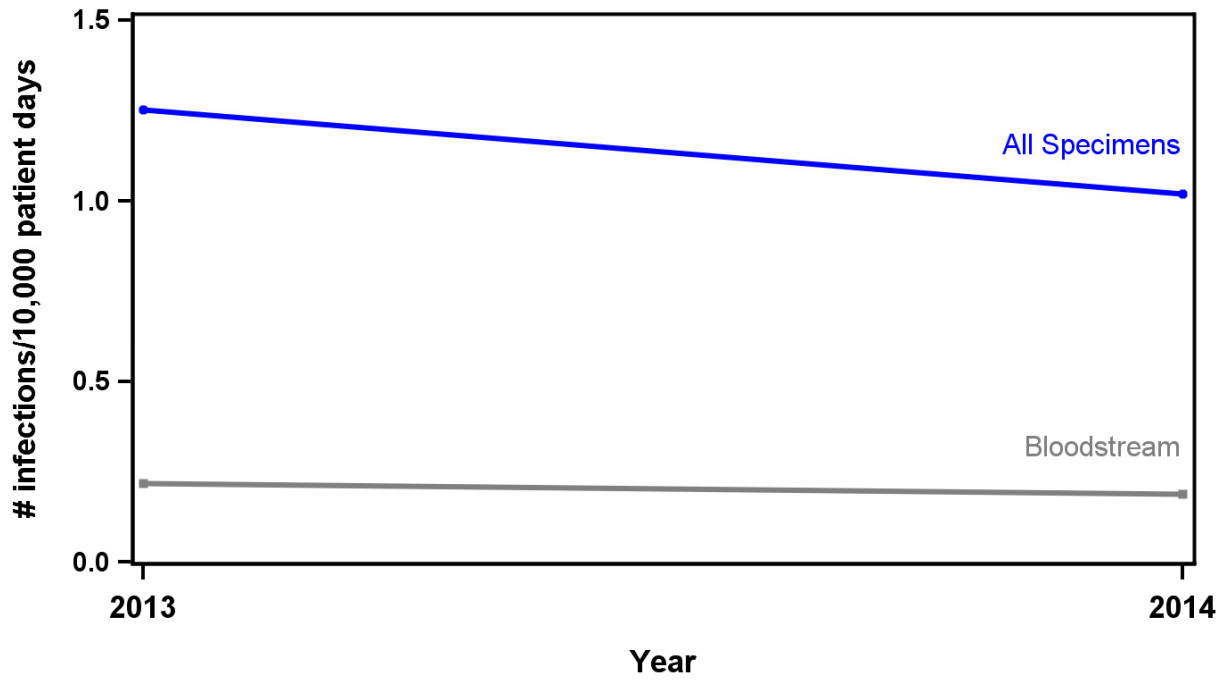


Year	# Hosp	# Admissions	# Admission Prevalent Infections	Admission Prevalence Rate[1]	# Admission Prevalent Bloodstream Infections	Admission Prevalence Bloodstream Infection Rate[1]
2013	170	2,395,694	1,636	0.683	180	0.075
2014	178	2,385,044	1,346	0.564	123	0.052

New York State data reported as of July 1, 2015.
[1] Rate is the number of infections divided by the number of admissions, multiplied by 1,000. Admission prevalent cases are also called community onset, i.e. identified on the first three calendar days of admission. The number of cases only includes one test per patient per hospital per month. In addition, only one blood test can be entered per 14 days, even across calendar months. 2013 data were annualized to represent a full year.

Figure 22 summarizes the trend in the CRE hospital-onset incidence rate between 2013 and 2014. The overall hospital-onset incidence rate decreased 18% between 2013 and 2014, while the bloodstream infection rate decreased 13%.

Figure 22. Trend in Carbapenem-resistant Enterobacteriaceae (CRE) hospital-onset incidence rate, New York State 2013-2014



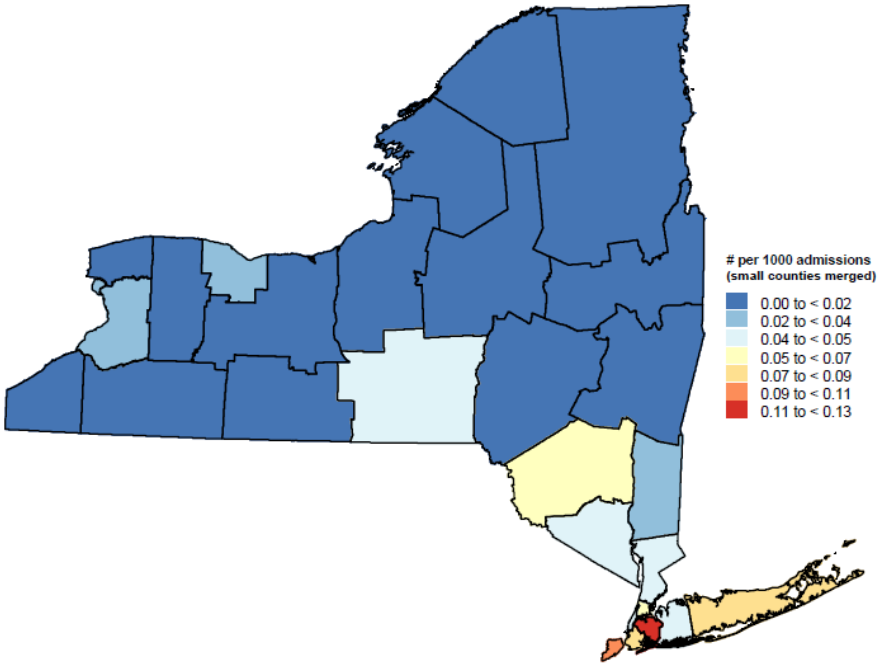
Year	# Hospitals	# Patient Days	# Hospital Onset Infections	Hospital Onset Rate[1]	# Hospital Onset Bloodstream Infections	Hospital Onset Bloodstream Infection Rate[1]
2013	170	12,942,994	1,622	1.253	282	0.218
2014	178	13,166,463	1,345	1.022	249	0.189

New York State data reported as of July 1, 2015.
[1] Rate is the number of infections per 10,000 patient days. Incident hospital onset cases are identified on day four or later during the hospital stay among patients who have never had CRE reported at that hospital. 2013 data were annualized to represent a full year.

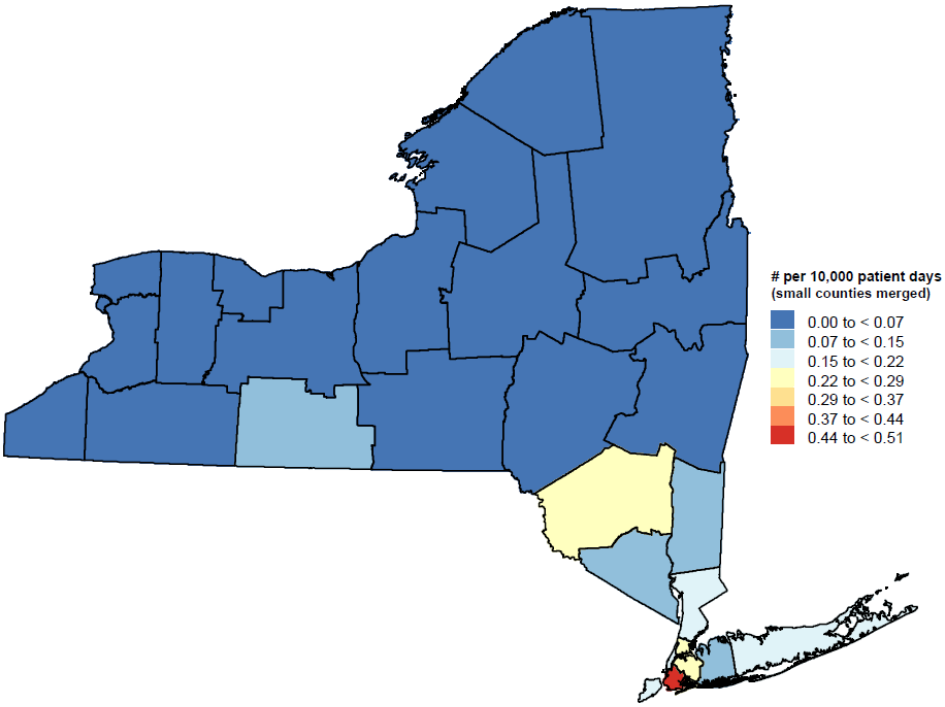
Figure 23 shows the geographic distribution of CRE bloodstream infection rates by onset. The maps show the highest concentration of cases downstate. Counties with higher admission prevalence rates tend to have higher incidence rates.

Figure 23. Carbapenem-resistant Enterobacteriaceae bloodstream infection rates, New York State 2014

Admission Prevalent



Hospital Onset



Laboratory Testing Methods

All hospitals completed an NHSN survey summarizing their 2014 surveillance and testing methods at the beginning of 2015.

Breakpoints for determining whether an organism is susceptible, intermediate, or resistant to an antibiotic are published by the Clinical Laboratory Standards Institute (CLSI). However, the CLSI breakpoints are updated more frequently than they can be adopted by manufacturers of susceptibility testing systems because of additional approvals required by the Food and Drug Administration. According to the NHSN survey, 75% of facilities used the newer more sensitive (M22 or M23) breakpoints in 2014, while 25% continued to use the old breakpoints. The facilities using the older breakpoints may follow screening algorithms that incorporate additional testing to approximate the newer breakpoints. Identification of carbapenemases (enzymes that bacteria produce that destroy carbapenems), can also be used to meet the CRE LabID definition. Fifty-three percent of New York hospitals reported that they identify CRE cases by detecting the presence of a carbapenemase, while 47% do not. Facilities using the older breakpoints or not detecting carbapenemases may be undercounting CRE, and testing differences may reduce the comparability of CRE rates between facilities.
There may also be variation in the extent to which facilities identify and perform susceptibility testing of non-sterile specimens. Laboratory identification of CRE can be achieved through several methods, all of which have benefits and drawbacks. There is no standardization for which method should be used in individual health care facility laboratories. As such, hospital-specific CRE rates, particularly in non-blood specimens, may vary based on testing methods.

Hospital-specific CRE rates

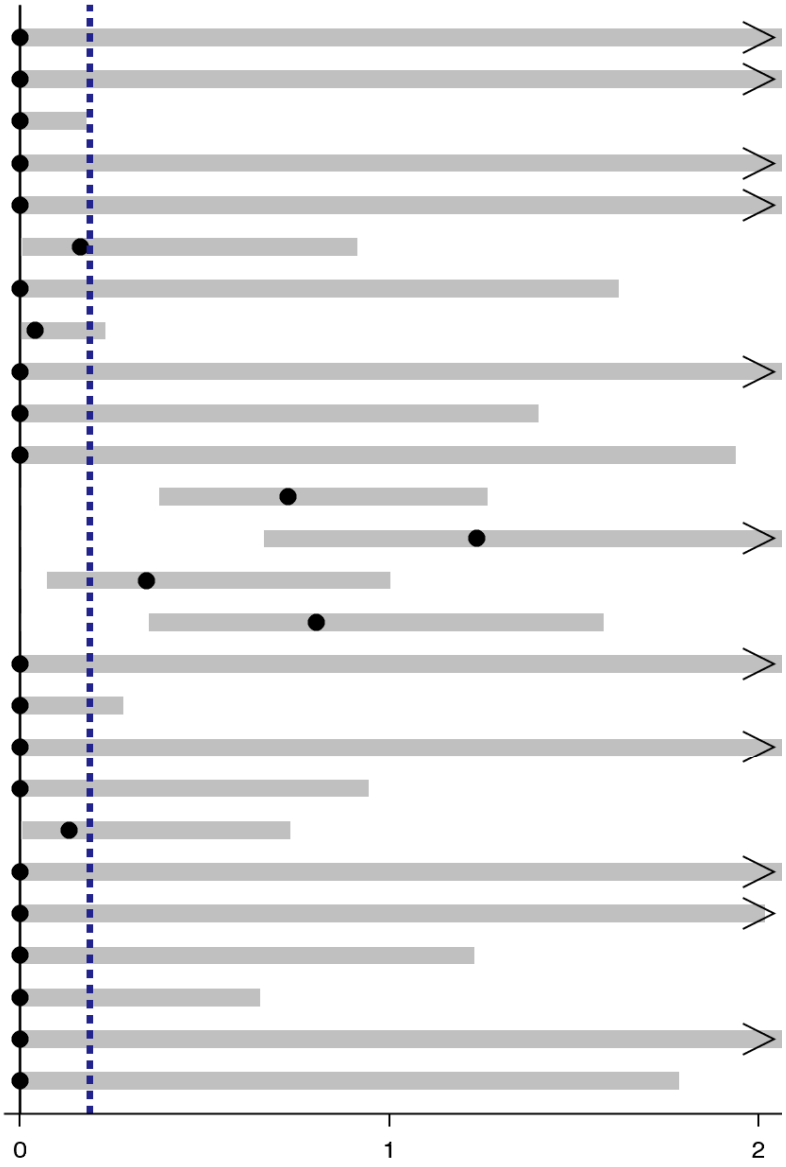
This report focuses on bloodstream infections because 1) blood specimens are more consistently screened by laboratories across the state; 2) bloodstream infections more likely reflect clinical disease than infections detected from nonsterile body sites such as wounds[11]; 3) bloodstream infections are more serious. The primary HAI indicator of interest is the incident hospital onset BSI rate, as these cases are assumed related to the current hospital stay as opposed to pre-admission exposures. The prevalence of CRE among patients newly admitted to facilities is also reported because this burden of admission prevalent cases is related to the risk of spread within the facility. The 2014 rates have not been adjusted for differences in patient populations between hospitals because insufficient historical data was available to perform adjustment. Therefore, no hospitals have been flagged and all bar charts have been shaded grey (Figure 24).

Hospitals should continue to evaluate their CRE data in the context of geographic trends. Hospitals should also continue to evaluate their infection prevention and control practices in

relation to CDC recommendations. Challenges include imperfect compliance with handwashing, delays and/or variations in implementing contact precautions and appropriately cohorting patients, delays in discontinuing devices when they are no longer needed, and lack of established protocols to screen epidemiologically linked contacts and perform active surveillance testing in high-risk areas. In addition, the pressures of broad-spectrum antibiotic usage along with the interdependence of acute and long-term care facilities in the spread and transmission of CRE[12] and communication at the time of inter-facility transfer compound the complexity of CRE containment and prevention.

Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 1 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
AO Fox Memorial	12,322	0	0	0.00	0	0	0.00	0.00
Adirondack Medical	11,641	0	0	0.00	0	0	0.00	0.00
Albany Medical	208,179	12	0	0.34	9	0	0.43	0.00
Albany Memorial	16,239	0	0	0.00	0	0	0.00	0.00
Alice Hyde	8,170	0	0	0.00	0	0	0.00	0.00
Arnot Ogden	61,106	8	0	0.53	6	1	0.98	0.16
Auburn Memorial	22,789	0	0	0.00	0	0	0.00	0.00
Bellevue Hospital	244,436	7	1	0.23	18	1	0.74	0.04
Bertrand Chaffee	3,682	0	0	0.00	0	0	0.00	0.00
Blythedale Childrens	26,297	2	0	3.22	0	0	0.00	0.00
Bon Secours	19,042	0	0	0.00	0	0	0.00	0.00
Bronx-Lebanon	165,849	29	6	0.95	28	12	1.69	0.72
Brookdale Hospital	105,133	2	0	0.12	28	13	2.66	1.24
Brookhaven Memorial	87,592	24	2	1.71	20	3	2.28	0.34
BrooklynHos-Downtown	99,800	27	0	1.43	28	8	2.81	0.80
Brooks Memorial	9,150	0	0	0.00	0	0	0.00	0.00
Buffalo General	133,492	4	1	0.19	3	0	0.22	0.00
Burdett Care Center	5,328	0	0	0.00	0	0	0.00	0.00
Burke Rehab Hosp	39,153	0	0	0.00	0	0	0.00	0.00
Calvary LTAC	76,287	0	0	0.00	3	1	0.39	0.13
Canton-Potsdam	17,265	0	0	0.00	0	0	0.00	0.00
Catskill Regional	18,305	2	1	0.58	2	0	1.09	0.00
Cayuga Medical Cntr	30,006	1	1	0.16	0	0	0.00	0.00
Champlain Valley	57,023	0	0	0.00	0	0	0.00	0.00
Chenango Memorial	6,153	0	0	0.00	0	0	0.00	0.00
Claxton-Hepburn	20,688	0	0	0.00	0	0	0.00	0.00



Data reported as of July 1, 2015.

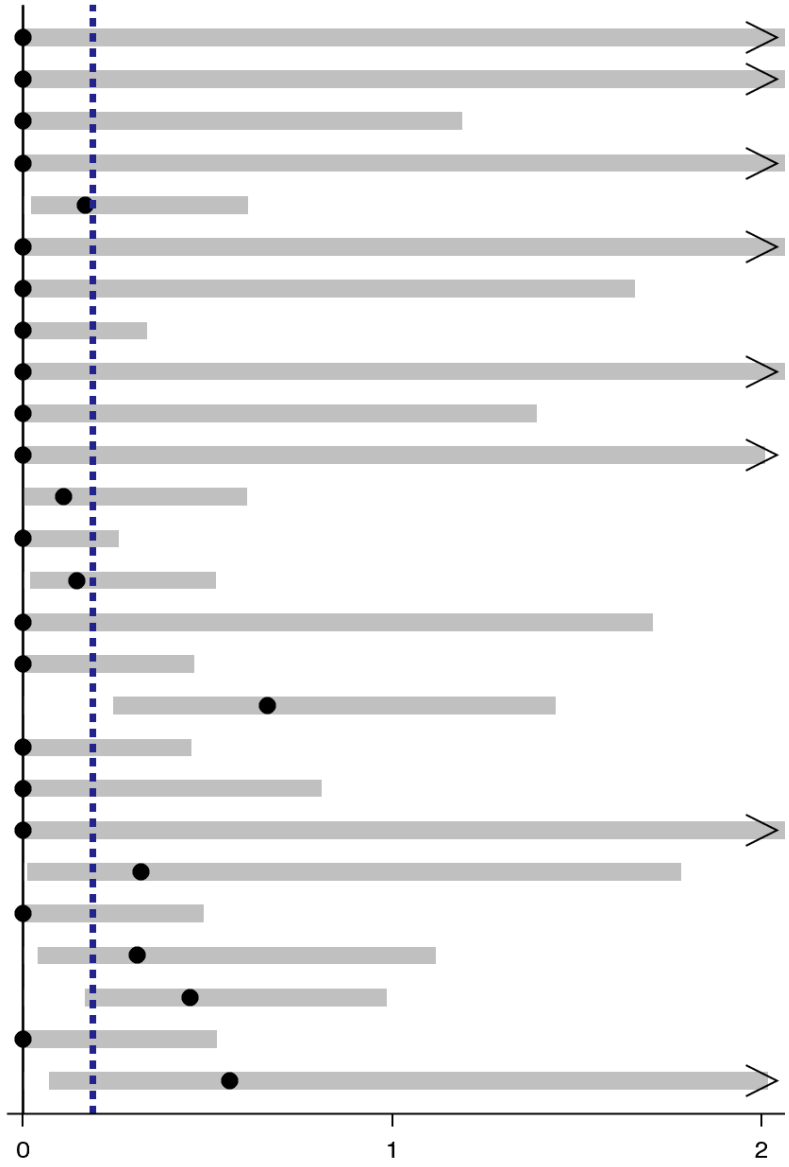
State Average. ●Unadjusted HO BSI rate. Use caution when interpreting rates because they have not been risk-adjusted. > Upper confidence limit exceeds graph area.

HO: hospital onset, unadjusted rate is per 10,000 patient days, HO-All: hospital onset (all sites), HO-BSI: hospital onset (blood stream infection).

CO: community onset, unadjusted rate is per 1000 admissions, CO-All: community onset (all sites), CO-BSI: community onset (blood stream infection).

Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 2 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
Clifton Springs	6,276	0	0	0.00	0	0	0.00	0.00
Cobleskill Regional	4,349	0	0	0.00	0	0	0.00	0.00
Columbia Memorial	31,036	1	0	0.18	0	0	0.00	0.00
Community Memorial	3,784	0	0	0.00	0	0	0.00	0.00
Coney Island	118,873	17	1	1.04	27	2	2.27	0.17
Corning Hospital	15,031	0	0	0.00	0	0	0.00	0.00
Cortland Reg Med	22,285	0	0	0.00	0	0	0.00	0.00
Crouse Hospital	110,418	2	0	0.09	1	0	0.09	0.00
DeGraff Memorial	9,333	0	0	0.00	0	0	0.00	0.00
East. Niag. Lockport	26,543	0	0	0.00	0	0	0.00	0.00
Eastern Long Island	18,380	0	0	0.00	0	0	0.00	0.00
Ellis Hospital	92,062	3	0	0.15	5	1	0.54	0.11
Elmhurst	142,845	2	0	0.08	4	0	0.28	0.00
Erie Medical Center	139,159	4	0	0.23	8	2	0.57	0.14
FF Thompson	21,664	0	0	0.00	0	0	0.00	0.00
Faxton St. Lukes	79,918	2	0	0.12	0	0	0.00	0.00
Flushing Hospital	90,698	49	10	2.84	38	6	4.19	0.66
Forest Hills	81,117	15	0	0.83	11	0	1.36	0.00
Franklin	45,804	5	0	0.57	2	0	0.44	0.00
Geneva General	17,739	0	0	0.00	0	0	0.00	0.00
Glen Cove Hospital	31,298	0	0	0.00	1	1	0.32	0.32
Glens Falls	75,851	0	0	0.00	0	0	0.00	0.00
Good Samar. Suffern	64,771	22	1	1.31	9	2	1.39	0.31
Good Samar. W Islip	132,868	18	1	0.67	29	6	2.18	0.45
Harlem Hospital	70,453	6	0	0.49	2	0	0.28	0.00
HealthAlli Broadway	35,835	16	0	2.14	2	2	0.56	0.56



Data reported as of July 1, 2015.

State Average. ●Unadjusted HO BSI rate. Use caution when interpreting rates because they have not been risk-adjusted. > Upper confidence limit exceeds graph area.

HO: hospital onset, unadjusted rate is per 10,000 patient days, HO-All: hospital onset (all sites), HO-BSI: hospital onset (blood stream infection).

CO: community onset, unadjusted rate is per 1000 admissions, CO-All: community onset (all sites), CO-BSI: community onset (blood stream infection).

Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 3 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
HealthAlli MarysAve	24,499	0	0	0.00	0	0	0.00	0.00
Helen Hayes Hospital	29,642	5	0	2.54	4	0	1.35	0.00
Henry J. Carter LTAC	52,818	9	0	20.69	26	2	4.92	0.38
Highland Hospital	88,373	2	0	0.11	3	0	0.34	0.00
Hosp for Spec Surg	54,598	1	0	0.07	0	0	0.00	0.00
Hudson Valley	31,779	4	1	0.52	0	0	0.00	0.00
Huntington	75,927	13	1	0.82	0	0	0.00	0.00
Interfaith Medical	68,246	11	1	1.30	28	5	4.10	0.73
Ira Davenport	2,157	0	0	0.00	0	0	0.00	0.00
JT Mather	63,467	7	1	0.64	2	1	0.32	0.16
Jacobi Medical	140,848	14	0	0.64	13	0	0.92	0.00
Jamaica Hospital	124,454	10	0	0.44	12	4	0.96	0.32
Jones Memorial	7,645	0	0	0.00	0	0	0.00	0.00
Kenmore Mercy	39,001	0	0	0.00	0	0	0.00	0.00
Kings County	123,595	7	1	0.35	23	4	1.86	0.32
Kingsbrook Jewish	65,358	41	5	4.75	25	4	3.83	0.61
Lenox Hill	145,656	19	2	0.58	12	1	0.82	0.07
Lincoln Medical	105,033	4	0	0.18	6	1	0.57	0.10
Long Island Jewish	242,256	35	4	0.62	16	6	0.66	0.25
Lutheran Medical	130,607	27	1	1.09	32	4	2.45	0.31
Maimonides	219,276	38	8	0.85	63	22	2.87	1.00
Mary Imogene Bassett	47,746	0	0	0.00	0	0	0.00	0.00
Massena Memorial	9,633	0	0	0.00	0	0	0.00	0.00
Medina Memorial	11,189	1	0	0.64	2	0	1.79	0.00
Memor SloanKettering	146,867	4	1	0.18	10	6	0.68	0.41
Mercy Medical	66,272	9	1	0.60	10	0	1.51	0.00

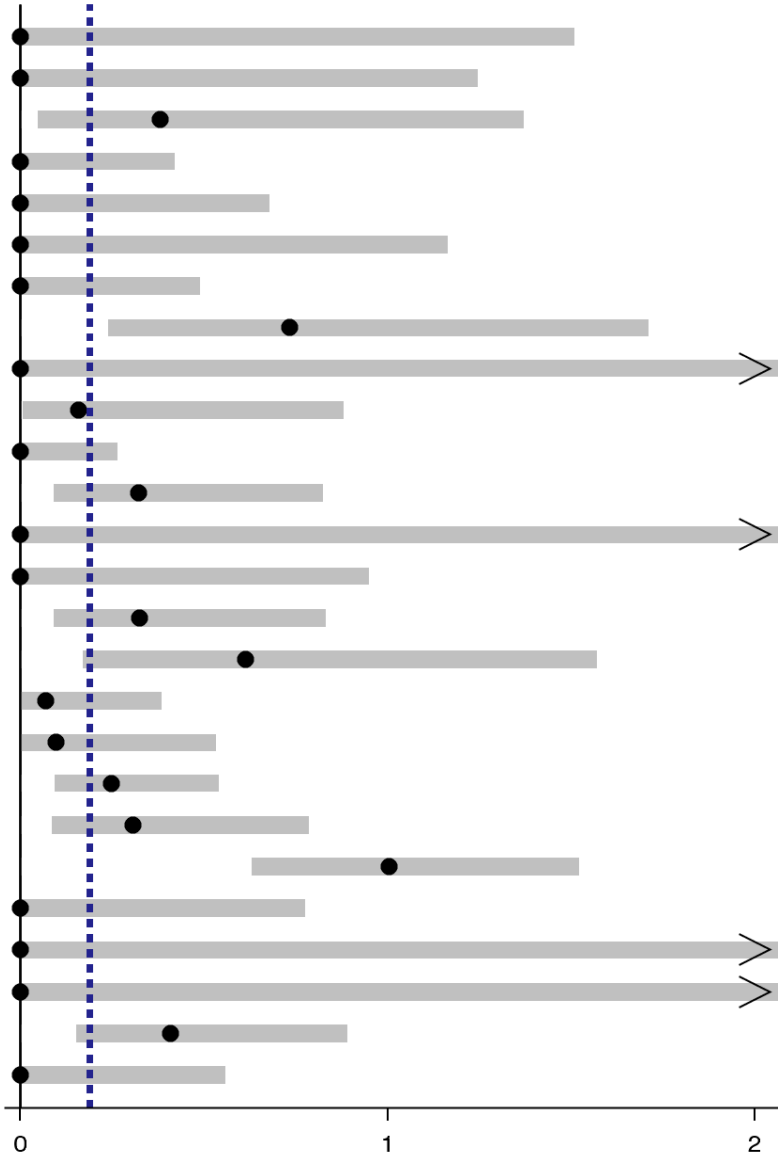


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Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 4 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
Mercy- Buffalo	105,954	2	0	0.09	0	0	0.00	0.00
Metropolitan	76,499	1	1	0.08	3	3	0.39	0.39
MidHudson Reg of WMC	47,373	3	0	0.50	4	1	0.84	0.21
Millard Fill. Suburb	72,337	1	0	0.06	1	0	0.14	0.00
Monroe Community	260	0	0	0.00	0	0	0.00	0.00
Montefiore-Einstein	144,628	17	2	0.66	13	4	0.90	0.28
Montefiore-Moses	262,153	32	1	0.73	38	9	1.45	0.34
Montefiore-Mt Vernon	23,785	1	0	0.30	3	1	1.26	0.42
Montefiore-NewRochl	34,870	4	0	0.50	4	0	1.15	0.00
Montefiore-Wakefield	89,104	28	3	1.78	15	5	1.68	0.56
Mount St. Marys	27,422	0	0	0.00	0	0	0.00	0.00
Mt Sinai	339,294	27	4	0.45	26	9	0.77	0.27
Mt Sinai BI-Bklyn	60,656	15	1	1.41	13	3	2.14	0.49
Mt Sinai Beth Israel	204,812	10	0	0.25	14	0	0.68	0.00
Mt Sinai Queens	49,411	24	1	2.62	6	2	1.21	0.40
Mt Sinai Roosevelt	126,653	2	0	0.07	4	0	0.32	0.00
Mt Sinai St Lukes	104,477	10	1	0.61	5	3	0.48	0.29
NY Community Bklyn	40,599	5	2	0.70	2	0	0.49	0.00
NY Eye and Ear	1,122	0	0	0.00	0	0	0.00	0.00
NY Hosp Queens	162,096	83	8	2.57	54	3	3.33	0.19
NY Methodist	213,983	15	0	0.35	98	4	4.58	0.19
NYP-Allen	63,767	8	0	0.62	3	0	0.47	0.00
NYP-Columbia-Morgan	306,469	36	3	0.81	53	12	1.73	0.39
NYP-Lawrence	53,857	10	2	0.85	3	0	0.56	0.00
NYP-Lower Manhattan	45,516	2	0	0.19	1	0	0.22	0.00
NYP-Weill Cornell	279,580	22	2	0.49	35	12	1.25	0.43

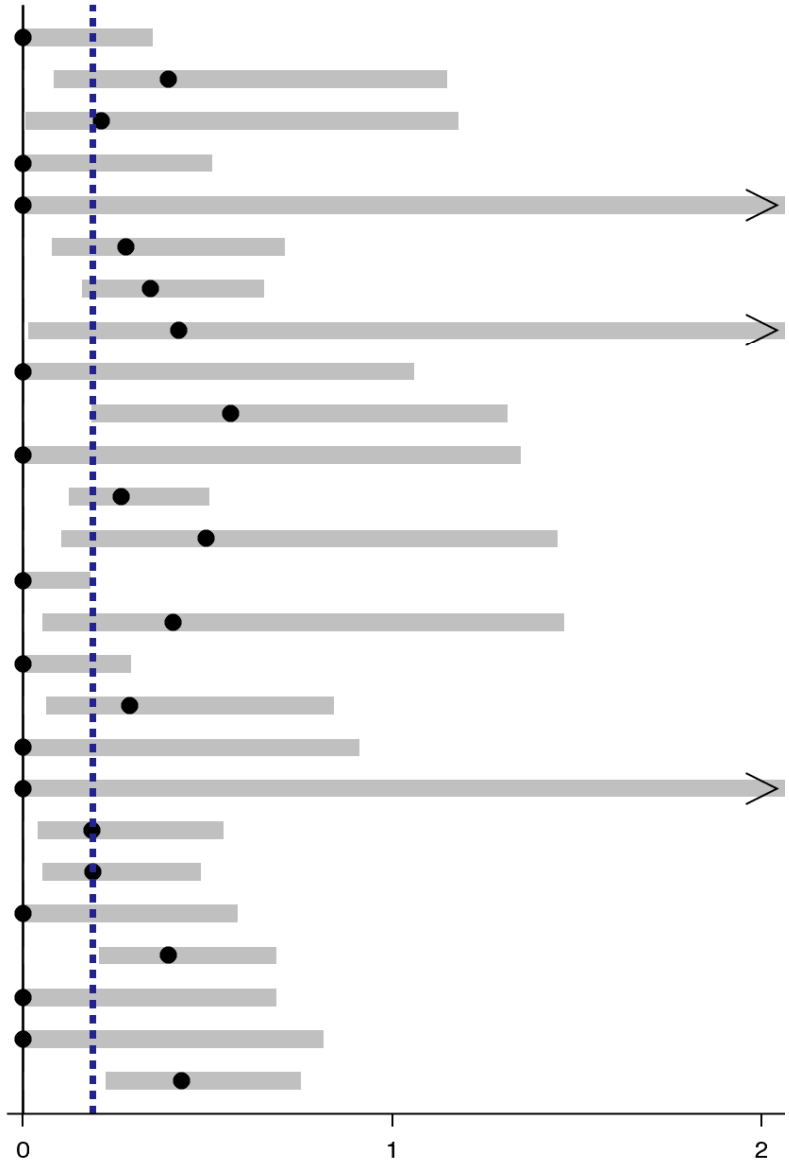

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Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 5 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
NYU Joint Disease	35,374	0	0	0.00	1	0	0.28	0.00
NYU Medical Center	145,596	11	1	0.38	9	2	0.62	0.14
Nassau University	130,804	10	1	0.48	5	1	0.38	0.08
Nathan Littauer	11,484	1	0	0.32	0	0	0.00	0.00
Newark Wayne	27,128	1	0	0.19	0	0	0.00	0.00
Niagara Falls	27,932	1	0	0.18	0	0	0.00	0.00
North Central Bronx	40,876	3	0	0.52	2	0	0.49	0.00
North Shore	270,476	18	0	0.35	21	6	0.78	0.22
Northern Dutchess	17,394	0	0	0.00	0	0	0.00	0.00
Northern Westchester	42,458	1	0	0.10	1	0	0.24	0.00
Noyes Memorial	8,129	0	0	0.00	0	0	0.00	0.00
Nyack Hospital	59,642	33	3	2.51	5	2	0.84	0.34
Olean General	33,990	0	0	0.00	0	0	0.00	0.00
Oneida Healthcare	12,532	0	0	0.00	0	0	0.00	0.00
OrangeReg Goshen-Mid	109,380	10	0	0.41	0	0	0.00	0.00
Oswego Hospital	18,746	0	0	0.00	0	0	0.00	0.00
Our Lady of Lourdes	47,636	4	1	0.41	2	0	0.42	0.00
Peconic Bay Medical	29,030	0	0	0.00	1	0	0.34	0.00
Phelps Memorial	51,956	0	0	0.00	0	0	0.00	0.00
Plainview Hospital	43,836	11	3	1.26	2	0	0.46	0.00
Putnam Hospital	24,308	4	0	0.73	1	0	0.41	0.00
Queens Hospital	85,601	10	1	0.70	17	4	1.99	0.47
Richmond Univ	121,279	31	4	1.64	35	3	2.89	0.25
Rochester General	214,453	4	1	0.14	4	1	0.19	0.05
Rome Memorial	20,441	0	0	0.00	0	0	0.00	0.00
Roswell Park	38,572	3	2	0.66	0	0	0.00	0.00

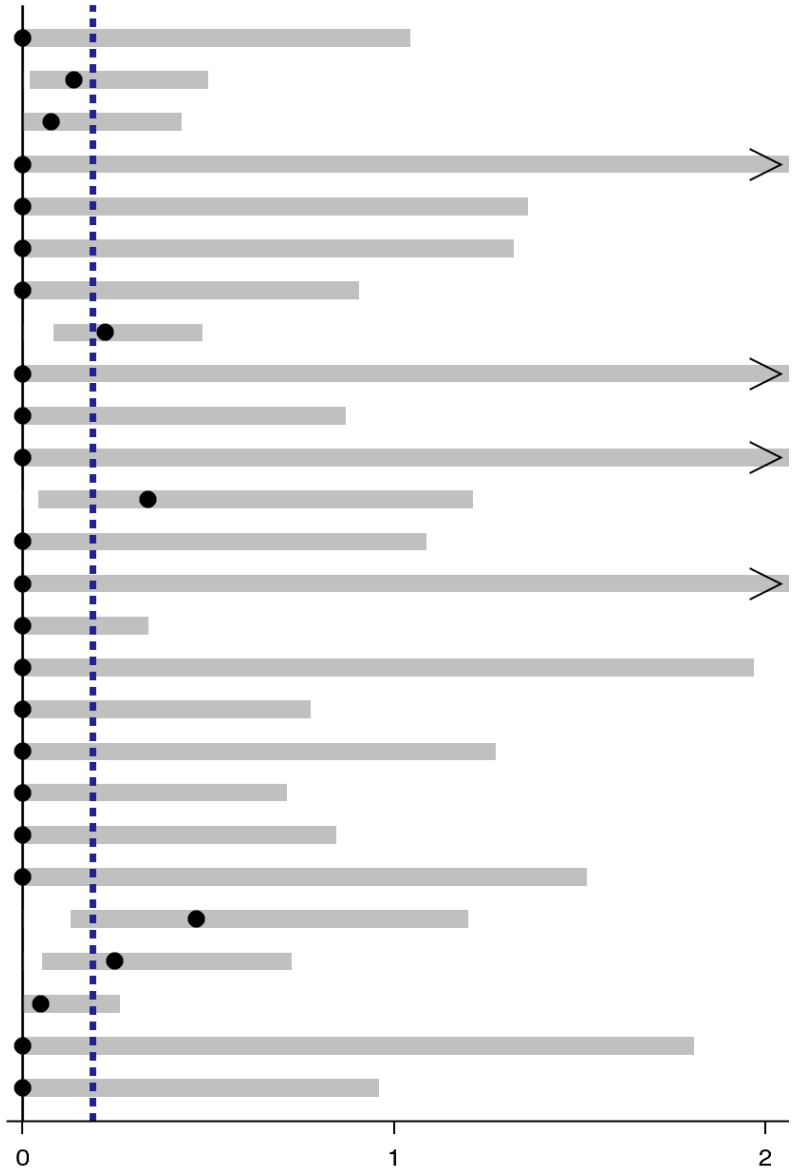

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Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 6 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
Samaritan- Troy	48,974	2	0	0.21	0	0	0.00	0.00
Samaritan- Watertown	32,944	1	0	0.12	0	0	0.00	0.00
Saratoga Hospital	47,337	0	0	0.00	0	0	0.00	0.00
Sisters of Charity	70,198	1	0	0.07	0	0	0.00	0.00
Sisters- St Joseph	23,436	0	0	0.00	0	0	0.00	0.00
South Nassau Comm.	110,613	13	1	0.64	13	1	1.18	0.09
Southampton	20,800	0	0	0.00	0	0	0.00	0.00
Southside	103,133	10	1	0.48	3	0	0.29	0.00
St Anthony	10,308	0	0	0.00	0	0	0.00	0.00
St Barnabas	83,160	6	0	0.35	7	0	0.84	0.00
St Catherine Siena	68,978	13	1	1.12	5	1	0.72	0.14
St Charles Hospital	65,231	2	0	0.20	3	1	0.46	0.15
St Elizabeth Medical	55,893	1	0	0.10	1	0	0.18	0.00
St Francis- Roslyn	96,255	3	1	0.19	2	1	0.21	0.10
St James Mercy	7,962	0	0	0.00	0	0	0.00	0.00
St Johns Episcopal	64,159	48	2	4.50	36	2	5.61	0.31
St Johns Riverside	98,026	24	1	1.28	8	5	0.82	0.51
St Joseph -Bethpage	34,033	4	0	0.65	13	2	3.82	0.59
St Josephs- Elmira	12,423	0	0	0.00	0	0	0.00	0.00
St Josephs- Syracuse	143,890	0	0	0.00	1	1	0.07	0.07
St Josephs- Yonkers	41,127	3	0	0.55	5	1	1.22	0.24
St LukesNewburgh-Cor	48,782	7	0	0.67	3	0	0.61	0.00
St Marys Amsterdam	35,212	0	0	0.00	0	0	0.00	0.00
St Marys Troy	18,399	0	0	0.00	0	0	0.00	0.00
St Peters Hospital	117,015	4	1	0.16	0	0	0.00	0.00
Staten Island U N-S	218,384	22	2	0.51	17	2	0.78	0.09

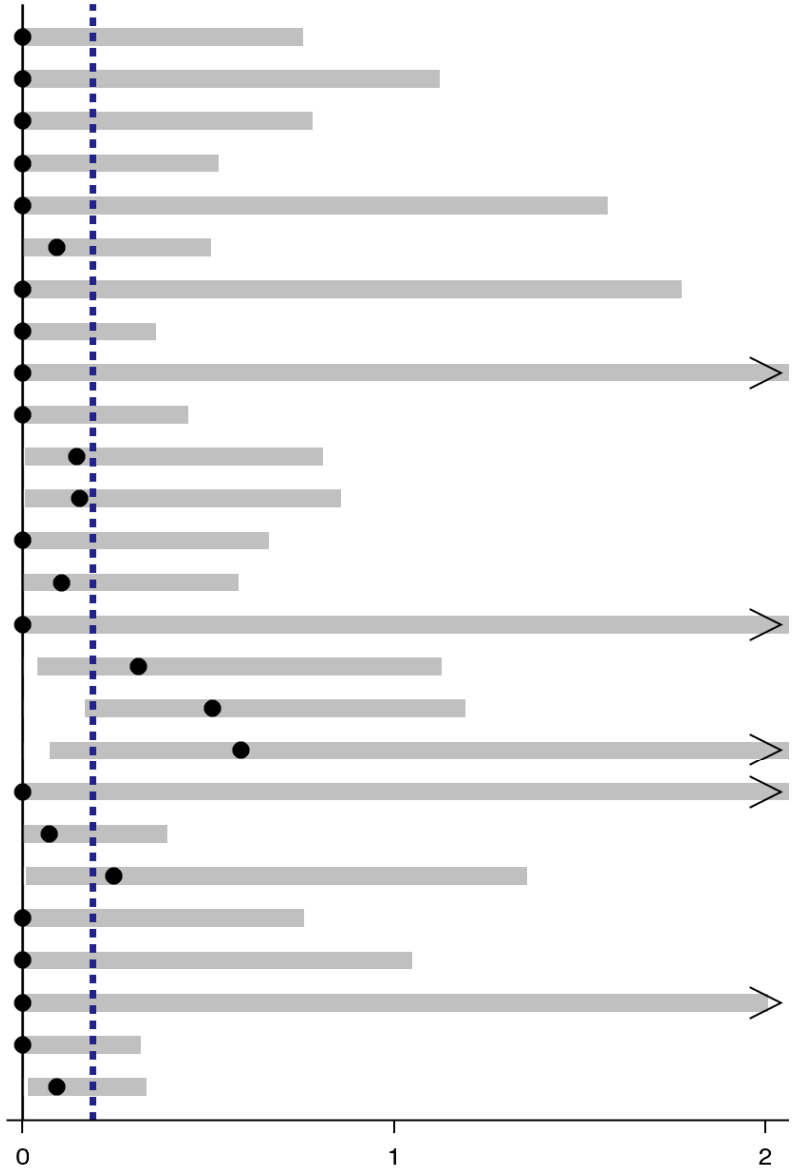

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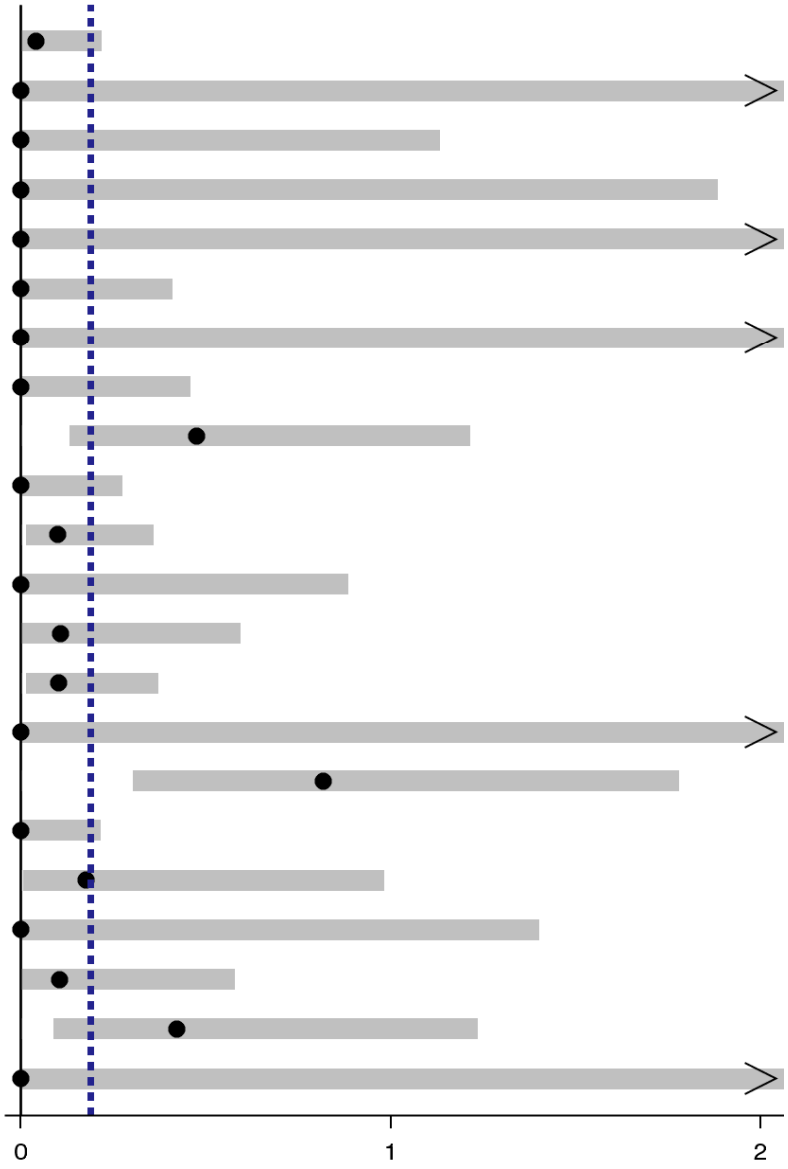
Figure 24: Carbapenem-resistant Enterobacteriaceae Rates, New York State, 2014 (Page 7 of 7)

HOSPITAL	# PatDays	# CO-All	# CO-BSI	Rate CO-All	# HO-All	# HO-BSI	Rate HO-All	Rate HO-BSI
Strong Memorial	257,396	2	1	0.06	6	1	0.23	0.04
Summit Park LTAC	13,317	0	0	0.00	2	0	1.50	0.00
Sunnyview Rehab Hosp	32,646	2	0	0.84	3	0	0.92	0.00
Syosset Hospital	19,590	2	0	0.50	0	0	0.00	0.00
TLC Lake Shore	2,802	0	0	0.00	0	0	0.00	0.00
U Health Bing-Wilson	90,638	2	0	0.13	2	0	0.22	0.00
United Memorial	14,441	0	0	0.00	0	0	0.00	0.00
Unity Hosp Rochester	80,875	0	0	0.00	0	0	0.00	0.00
Univ Hosp Brooklyn	84,384	10	2	0.71	15	4	1.78	0.47
Univ Hosp SUNY Upst	135,339	0	0	0.00	0	0	0.00	0.00
Univ HospStony Brook	202,810	33	6	0.89	28	2	1.38	0.10
Upst. Community Gen	41,815	0	0	0.00	1	0	0.24	0.00
Vassar Brothers	94,224	10	1	0.39	4	1	0.42	0.11
Westchester Medical	195,335	4	1	0.18	14	2	0.72	0.10
Westfield Memorial	64	0	0	0.00	0	0	0.00	0.00
White Plains	73,454	14	0	0.86	12	6	1.63	0.82
Winthrop University	173,173	22	1	0.63	27	0	1.56	0.00
Woman and Childrens	56,842	0	0	0.00	1	1	0.18	0.18
Womans Christian	26,338	0	0	0.00	0	0	0.00	0.00
Woodhull Medical	96,442	7	0	0.48	23	1	2.38	0.10
Wyckoff Heights	71,135	19	1	1.25	15	3	2.11	0.42
Wyoming County Comm.	10,542	0	0	0.00	0	0	0.00	0.00



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Methicillin-resistant *Staphylococcus aureus* (MRSA) Infections

Staphylococcus aureus (*SA*) is a common bacteria normally found on the skin or in the nose of 20 to 30 percent of healthy individuals. When *SA* is resistant to the antibiotics oxacillin, cefoxitin, or methicillin, it is defined as MRSA by NHSN. MRSA infections can cause a broad range of symptoms depending on the part of the body that is infected. The most serious type of infections occur in the blood.

In 2013, CMS began reimbursing hospitals that reported MRSA bloodstream infections to NHSN at higher levels than those which do not. While MRSA reporting is not required by NYSDOH, we are able to use the MRSA data for surveillance and prevention as a result of a DUA between CDC and NYSDOH. The DUA began in May 2013. The DUA prohibits the use of the data for public reporting of facility-specific data or for regulatory action. The data are not audited by NYS.

In 2014, 3,197 MRSA bloodstream infections were reported among 2,378,682 admissions, for an overall infection rate of 1.34 per 1,000 admissions (Table 25). Approximately one quarter of these infections were hospital-onset, giving a hospital onset incidence rate of 0.66 per 10,000 patient days.

Table 25. MRSA bloodstream infections, New York State 2013-2014

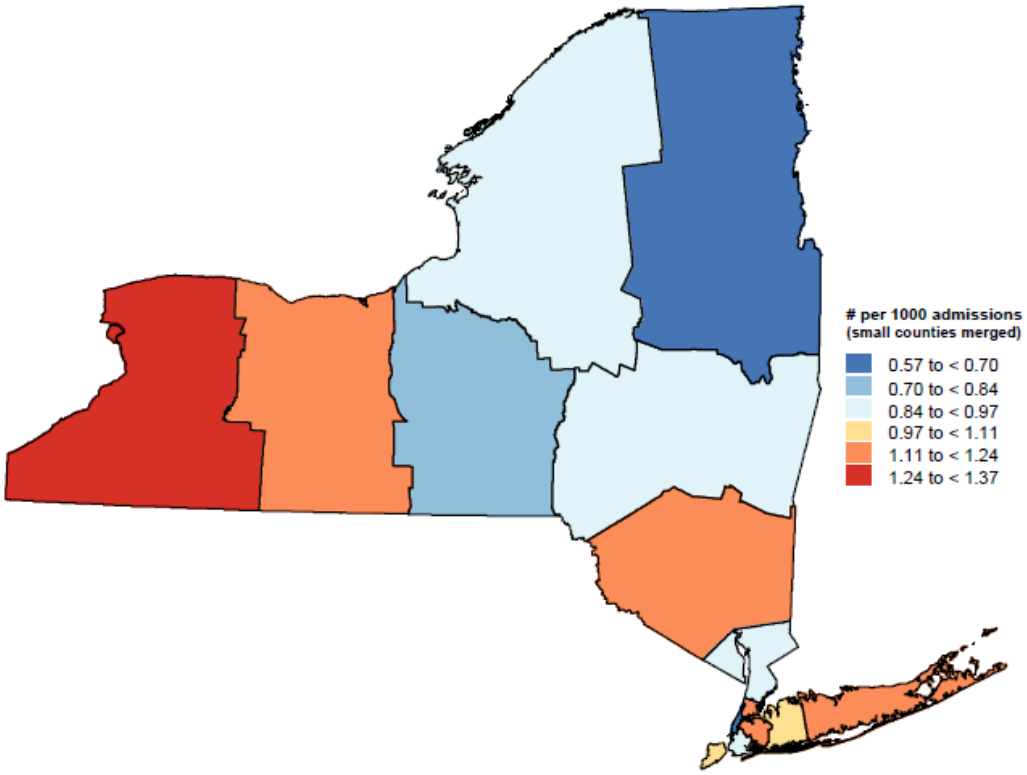
Year	# Hosp	# Infect. Total	# Hospital Onset Infections	# Admissions	# Patient Days	Overall Infection Rate[1] (per 1,000 admissions)	Hospital Onset Incidence Rate[2] (per 10,000 patient days)
2013	176	3,422	856	2,417,481	13,056,440	1.415	0.656
2014	174	3,197	858	2,378,682	12,959,172	1.344	0.662

New York State data reported as of July 1, 2015. 2013 data annualized to the number of cases expected in the full year.
[1]Total number of infections per 1,000 admissions
[2] New hospital onset infections per 10,000 patient days.

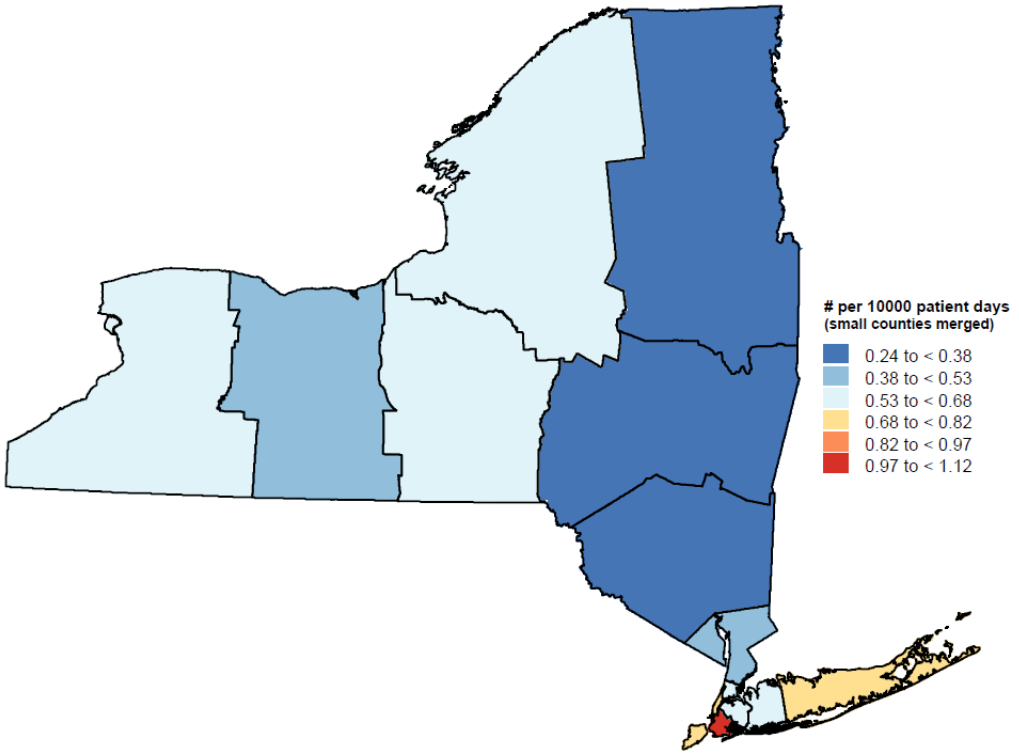
MRSA bloodstream infection rates are mapped by region in Figure 25. Adjacent counties were merged to ensure more than one hospital per area and protect the confidentiality of the data. Admission prevalent MRSA rates were lowest in the North Country and highest in the Western region, while hospital onset rates were highest in the downstate area. The average HO incidence rate of 0.66 is close to the 2010-2011 national baseline (which was predominantly reported by California, Tennessee, Illinois, and New Jersey) of 0.64[13].

Figure 25. MRSA bloodstream infection rates, NYS 2014

Admission Prevalent



Hospital Onset



Other MDROs

Vancomycin-resistant Enterococci (VRE)

Enterococci are bacteria normally found in the human intestines. These bacteria sometimes cause infections in people who take antibiotics for a long time, have weakened immune systems, are hospitalized, or use catheters. When enterococci are resistant to the antibiotic vancomycin, they are called VRE. If a person has an infection caused by VRE it may be more difficult to treat.

A group of 23 hospitals in NYS (14 in NYC, 9 Upstate) voluntarily performed VRE surveillance using NHSN in 2014. A total of 552 cases were reported among 234,018 admissions. The majority (61%) were urinary tract infections, while 21% were skin/soft tissue infections, 7% were bloodstream infections, and 7% were digestive system infections. Cases were hospital-onset 55% of the time. A total of 24 incident bloodstream infections were reported in the sample, for a HO BSI incidence rate of 0.21 per 10,000 patient days. Extrapolating this small sample by region we would have expected a total of approximately 251 VRE BSIs if all hospitals had reported. However, the hospitals that voluntarily report may not be representative of all NYS hospitals.

Multi-drug resistant Acinetobacter (MDR- Acinetobacter)

Acinetobacter is a type of bacteria commonly found in soil and water and sometimes on the skin. These bacteria sometimes cause infections such as pneumonia, and patients on ventilators are particularly at risk. When Acinetobacter are non-susceptible to at least one agent in at least three of the following antimicrobial classes (beta-lactams, aminoglycosides, carbapenems, fluoroquinolones, cephalosporins, sulbactam), they are called MDR-Acinetobacter. If a person has an infection caused by MDR-Acinetobacter it may be more difficult to treat.

A group of 34 hospitals in NYS (17 in NYC, 17 Upstate) voluntarily performed MDR-Acinetobacter surveillance using NHSN in 2014. A total of 181 cases were reported among 293,809 admissions. The majority (55%) were respiratory tract infections, while 23% were skin/soft tissue infections, 13% were urinary tract infections, and 8% were bloodstream infections. Cases were hospital-onset 47% of the time. A total of 6 incident BSIs were reported in the sample, for a HO BSI incidence rate of 0.04 per 10,000 patient days. Extrapolating this small sample by region, we would have expected a total of approximately 51 MDR-Acinetobacter BSIs if all hospitals had reported. Again, these hospitals may not be representative of all NYS hospitals.

Mortality related to CDI and MDROs

The NHSN does not collect data on mortality associated with CDI/MDROs. However, by applying information published in the scientific literature to the NYS population, it is possible to estimate the number of deaths associated with these infections in NYS.

The attributable mortality rate is the death rate among a group of people with the infection minus the death rate among a similar (matched) group of people without the infection. The attributable death rates for five types of infections are summarized in Table 26. CRE BSIs have the highest attributable death rate due to the severity of bloodstream infections and the difficulty in treating this particular organism with a safe and effective antibiotic. More details on the derivation of these rates are provided in Appendix 2.

To estimate how many deaths were attributable to these infections in NYS, the derived attributable mortality rate was multiplied by the total number of reported infections. Only bloodstream infections were counted for CRE, VRE, and MDR-Acinetobacter. Based on this analysis, CDI resulted in the largest number of deaths; even though the attributable death rate is relatively low, the number of people with CDI is very large. MRSA resulted in the second largest number of deaths. The total number of estimated CDI, MRSA, VRE, and MDR-Acinetobacter deaths greatly exceeds the number of deaths due to other well-known infections such as AIDS (721), influenza (180), and tuberculosis (27) reported in NYS in 2013.[14]

Table 26. New York State hospital mortality estimates, 2014

Infection	% Attributable Deaths[3]	# Cases Total[4]	# Hospital Onset Cases	# Deaths Total	# Deaths from Hospital Onset Cases
Clostridium difficile[1]	6%	17,487	8,905	1,049	534
MRSA BSI	20%	3,197	858	684	172
CRE BSI[1]	38%	354	238	135	90
VRE BSI[2]	28%	377	251	106	70
MDR-Acinetobacter BSI[2]	22%	116	51	26	11
Total		21,531	10,303	2,000	877

BSI=bloodstream infection.

[1] Only counting one infection per person

[2] Based on small sample of voluntary reporters

[3] Based on estimations from scientific literature, see Appendix 2

[4] Total cases = community and hospital onset.

MDRO Prevention Practices

NHSN requires all facilities to submit an annual survey. Table 27 summarizes the self-reported 2014 survey results related to MDRO prevention practices.

Table 27. MDRO Prevention Practice Survey, New York State Hospitals 2014

Does the facility routinely place patients infected or colonized with CRE on contact precautions?	
Yes, all infected or colonized patients	88%
Yes, only all infected patients	7%
Yes, only those with high-risk for transmission	4%
No	1%
Facility routinely performs screening cultures for CRE?	11%
Facility uses chlorhexidine bathing to prevent transmission of MDROs?	63%
MDRO laboratory results are communicated to Infection Prevention and/or clinical staff within 4 hours?	88%
When a patient with an MDRO is transferred to another facility, your facility communicates the patient's MDRO status to the receiving facility at the time of transfer?	98%
Among patients with an MDRO admitted to your facility from another healthcare facility, percentage of time your facility receives information from the transferring facility about the patient's MDRO status.	69%

National Healthcare Safety Network 2014 Survey, downloaded 7/1/2015.

Although 88% of facilities responded that they put colonized and/or infected patients on contact precautions, this data should be interpreted cautiously, especially in areas of high CRE prevalence and incidence. The implementation of "Contact Precautions", i.e., the donning of personal protective equipment (PPE - gowns, gloves, and in some cases masks), has many variations between facilities and even within facilities. Some policies require all persons, i.e. healthcare workers and visitors, who enter a contact isolation room to don PPE; others exclude visitors from wearing PPE. Before a statewide MDRO response plan can be formulated, understanding the details of exactly how and when PPE is used with individual patients must be examined.

The last survey question highlights the need to more fully involve long term care facilities in surveillance and reporting of CRE, particularly in communicating CRE information to the receiving (acute care) facility. CMS has proposed a new rule (July 2015) that would revise the Conditions of Participation for long term care facilities (LTCFs), requiring nursing homes to review and update their infection prevention and control program, including requiring an infection prevention and control officer and an antibiotic stewardship program that includes antibiotic use protocols and a system to monitor antibiotic use.

Antimicrobial Stewardship

Antimicrobial resistance (AR) is the ability of microbes to grow in the presence of drugs that would normally kill them. Activities to address AR involve coordinated efforts throughout the hospital environment, including the judicious use of antimicrobial agents. Within the past year, several reports, including an Executive Order by President Obama, have been released that call attention to the issue of AR.[15,16 ,17] A National Action Plan for Combating Antibiotic-Resistant Bacteria (CARB) was released in March 2015.[18] The CARB Plan includes detailed, national actions to address antimicrobial resistance across multiple settings, including acute care hospitals. Potential pathways specific to addressing AR in health care include: changes to regulatory requirements, measures to support the use of NHSN in monitoring antibiotic use, support for prevention activities to help identify and limit the spread of AR organisms, and actions to support the judicious use of antimicrobial agents, including antimicrobial stewardship programs (ASPs).

Hospital ASPs help ensure that each patient receives "the right antibiotic, at the right dose, at the right time, and for the right duration".[19] ASPs have been shown to improve patient health. For example, use of antibiotics is the biggest risk factor for CDI. Improved prescribing of antibiotics reduces CDI.[20, 21, 22] ASPs also decrease the risk of developing resistant infections.[23, 24] People infected with resistant organisms require more complicated treatment and may have longer hospital stays. By decreasing antimicrobial use and improving patient outcomes, comprehensive ASPs have reduced healthcare costs in both large academic hospitals and small community hospitals.[25, 26]

Results from the NYS April 2014 survey of hospital antimicrobial stewardship programs were published in the 2013 NYS HAI Report. Information on 2015 stewardship programs will be obtained from the NHSN annual survey and published in the 2015 NYS HAI Report. Acute care hospitals are encouraged to review their antimicrobial stewardship efforts against CDC guidelines and take action to implement programs concordant with these guidelines.[27] Involvement and engagement of clinical leadership and technical experts are critical to establishing a successful stewardship program. NYSDOH strongly recommends that hospitals measure antibiotic use to create baseline data and identify opportunities for targeted interventions. When barriers such as gaps in infectious disease or clinical pharmacy expertise are identified, hospitals may consider innovative approaches, such as telemedicine, as potential options to explore. Additionally, opportunities for participation in collaborative activities to support antimicrobial stewardship are available across the state. Professional associations in NYS have offered in-person and web-based training opportunities for clinicians to improve knowledge and understanding of antimicrobial stewardship among potential ASP leaders. Antimicrobial stewardship is also included as part of ongoing quality improvement projects being conducted by NYS's CMS Quality Improvement

Organization (QIO). Progress on hospital implementation of antimicrobial stewardship will be monitored through annual NHSN surveys and published in future NYS reports.

As the landscape of health care delivery changes, acute care hospitals should consider addressing appropriate use of antibiotics in any associated ambulatory care networks. National programs, such as CDC's Get Smart: Know when Antibiotics Work, provide educational materials for both clinicians and patients.[28] Recently, NYSDOH has begun CDC-funded outreach using Get Smart materials to increase awareness of appropriate use of antibiotics in ambulatory care settings.

Education and engagement of patients to understand the consequences of antibiotic overuse and misuse is an integral piece in the judicious use of antibiotics. For many patients, illnesses such as the common cold, bronchitis, and ear infections are often caused by viruses and would not be appropriately treated with antibiotics. Patients should understand the potential risks associated with taking antibiotics when they are not necessary, including antibiotic resistant infections that are difficult to treat, altering the bacteria in the gut and increasing the risk of infection with *Clostridium difficile*, and adverse reactions to the medication.[29] CDC's Get Smart: Know When Antibiotics Work campaign contains patient-centered education to address patient concerns and provide information about appropriate use of antibiotics.[30]

Comparison of NYS HAI Rates with National HAI Rates

Approximate comparisons of state and national HAI rates are available in annual progress reports published by CDC.[31] The latest report compares 2013 state and national rates to historical benchmarks. The following summary (Table 28) is extracted from the CDC report for easy reference.

Table 28. Comparison of New York and national hospital-acquired infections for 2013

Type of Hospital-Acquired Infection	New York Standardized Infection Ratio*	National Standardized Infection Ratio*
Central-line associated bloodstream infections (CLABSIs)	0.56	0.54
Catheter-associated urinary tract infections (CAUTI)	1.26	1.06
Colon surgical site infections (SSIs)	1.31	0.92
Abdominal hysterectomy SSIs	1.22	0.86
MRSA bacteremia	1.01	0.92
Clostridium difficile infections (CDI)	0.97	0.90

Source of data: CDC's National and State HAI Progress Report, January 2015[28]
* Standard population for CLABSI and SSI was United States hospitals that reported data to NHSN in 2006-2008.
Standard population for CAUTI was United States hospitals that reported data to NHSN in 2009.
Standard population for MRSA and CDI was United States hospitals that reported data to NHSN in 2011.

While CDC did not directly compare state and national data for the same year, the parallel comparison of state and national rates to the historical baseline suggests that NY HAI rates are higher than national HAI rates. There are several limitations to CDC's methods, including changes in the indirectly compared populations over time[32], changes in surveillance definitions, and lack of consideration for the impact of auditing on reported rates.[33]

The intensity of the auditing performed by NYSDOH exceeds the intensity of auditing performed by other states and CMS in terms of the number of hospitals audited, the number of records audited in each hospital, and the methods used to efficiently target the records most likely to have errors. According to the CDC Progress Report, only 8% of states audited SSI data, 15% of states audited CLABSI data, and 8% of states audited CDI data for 2013. The data validation process is likely to increase HAI rates because missed infections are identified and entered into the NHSN, and training efforts increase the skills of the hospital IPs, leading to better identification of HAIs. Additionally, the presence of a validation process in a state might encourage increased care and thoroughness in reporting, which might result in higher pre-audit HAI rates. States with data validation programs might appear to have higher rates because of their validation efforts, because they truly have a higher rate, or both.

Infection Prevention Resources

To measure the impact of mandatory HAI reporting on infection prevention personnel and programs, an infection prevention resource survey is conducted biennially. Information is obtained on the number of infection preventionists (IPs) and hospital epidemiologists (HEs); IP/HE educational background and certification; infection control program support services; activities and responsibilities of infection prevention and control program staff; and an estimate of time dedicated to various activities, including surveillance. This section summarizes the highlights of the survey.

To compare staffing levels between hospitals and track trends over time, it is important to adjust for the number of IP hours worked and the number of patients the IP staff oversee. This report includes two measures which adjust for these factors: acute care (AC) beds per one full-time-equivalent (FTE) infection preventionist and aggregate beds per one FTE IP. The NYS aggregate measure combines acute care beds, ICU beds, long term care beds, dialysis centers, ambulatory surgery centers, ambulatory clinics and private physician offices using the following formula: 1 ICU bed = 2 acute care beds; 1 long term care bed = ½ an AC bed; 1 dialysis facility = 50 AC beds; 1 ambulatory surgery center = 50 AC beds; 1 ambulatory clinic = 10 AC beds; and a private physician's office = 5 AC beds.

In 2014, the average FTE infection preventionist in NYS was responsible for 125 AC beds or an aggregate measure equivalent to 239 AC beds. Staffing levels have been slowly increasing over the past eight years (Figure 26).

Figure 26: Hospital Beds per One Full Time Equivalent Infection Preventionist in New York State, 2007-2014

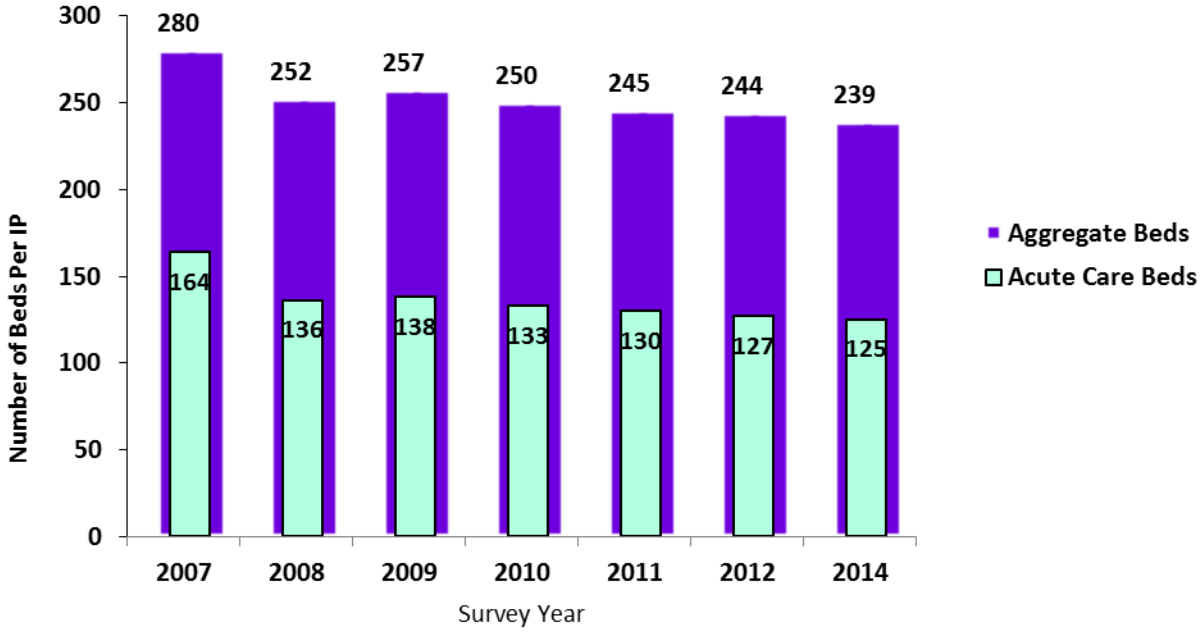
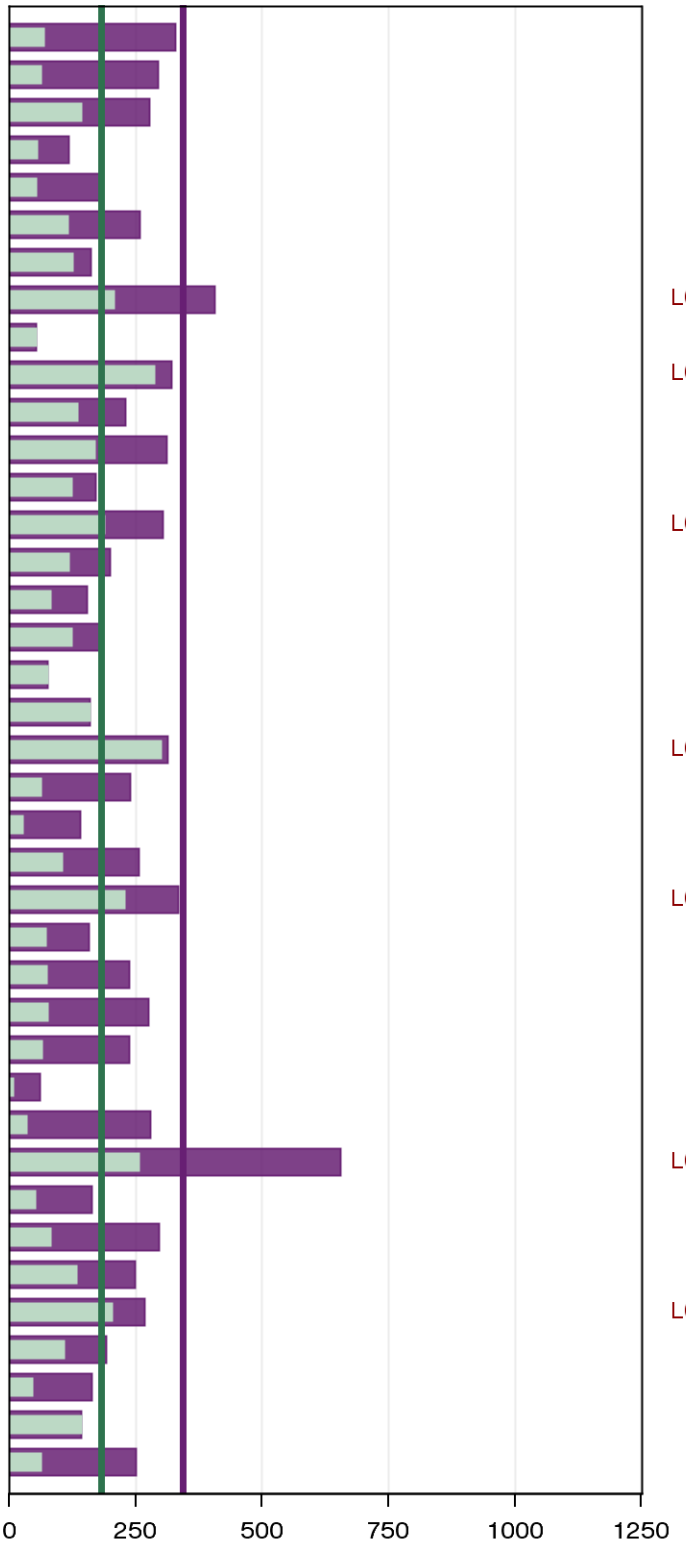


Figure 27 summarizes the IP staffing levels by hospital. Hospitals in the lowest 15th percentile using either infection prevention staffing measure were designated with a "Low" for low IP resources. Facilities with low IP resources are encouraged to review the responsibilities of their IPs to ensure that staffing levels are appropriate. The review should take into consideration the range of the clinical programs, the risks of the patient population, the scope of the duties covered by the IPs, and the availability of information technology to assist with surveillance functions and reporting requirements.

Figure 27. Infection Preventionist Personnel Resources in NYS Hospitals, 2014 (page 1 of 5)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
AO Fox Memorial	0.9	60	67	235	261	
Adirondack Medical	0.9	52	61	198	233	
Albany Medical	5.0	709	142	679	136	
Albany Memorial	1.0	55	55	62	62	
Alice Hyde	1.0	53	53	129	129	
Arnot Ogden	1.9	219	115	272	143	
Auburn Memorial	0.8	99	124	30	38	
Bellevue Hospital	4.0	828	207	798	200	LOW
Bertrand Chaffee	0.4	21	53	0	0	
Blythedale Childrens	0.3	86	287	10	33	LOW
Bon Secours	0.6	80	133	58	97	
Bronx-Lebanon	3.0	504	168	431	144	
Brookdale Hospital	3.0	366	122	146	49	
Brookhaven Memorial	1.5	280	187	174	116	LOW
BrooklynHos-Downtown	3.0	350	117	248	83	
Brooks Memorial	0.8	65	81	58	73	
Buffalo General	3.7	457	124	212	57	
Burdett Care Center	0.2	15	75	0	0	
Burke Rehab Hosp	1.0	150	158	0	0	
Calvary LTAC	0.8	225	300	10	13	LOW
Canton-Potsdam	1.5	94	63	264	176	
Carthage Area	1.0	25	25	115	115	
Catskill Regional	1.0	104	104	152	152	
Cayuga Medical Cntr	0.9	204	227	96	107	LOW
Champlain Valley	2.6	185	71	222	85	
Chenango Memorial	0.8	58	73	131	164	
Claxton-Hepburn	1.0	75	75	200	200	
Clifton Springs	0.8	48	64	130	173	
Clifton-Fine	0.3	2	7	16	53	
Cobleskill Regional	0.5	15	33	110	244	
Columbia Memorial	0.8	192	256	299	399	LOW
Community Memorial	0.5	25	50	56	112	
Coney Island	4.5	363	81	967	215	
Corning Hospital	0.5	66	132	58	116	
Cortland Reg Med	0.8	162	203	52	65	LOW
Crouse Hospital	4.0	429	107	334	84	
Cuba Memorial	0.3	11	44	30	118	
DeGraff Memorial	0.5	71	142	0	0	
Delaware Valley	0.4	25	63	75	188	



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Vertical reference lines indicate low resources: below the 15th percentile in either Acute- or Aggregate- Beds Per FTE Measure.

Figure 27. Infection Preventionist Personnel Resources in NYS Hospitals, 2014 (page 2 of 5)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
EJ Noble Gouv	0.9	25	28	80	89	
East. Niag. Lockport	0.6	67	112	18	30	
Eastern Long Island	0.3	80	267	5	17	LOW
Elizabethtown	0.6	12	20	0	0	
Ellenville Regional	1.4	25	19	20	15	
Ellis Hospital	2.0	345	173	214	107	
Elmhurst	5.5	545	99	943	171	
Erie Medical Center	3.4	425	125	182	54	
FF Thompson	1.2	113	98	207	180	
Faxton St. Lukes	2.8	370	132	412	147	
Flushing Hospital	2.0	293	147	165	83	
Forest Hills	1.5	216	144	88	59	
Franklin	1.5	200	133	116	77	
Geneva General	0.8	132	165	364	455	LOW
Glen Cove Hospital	1.0	84	84	116	116	
Glens Falls	2.0	300	150	387	194	
Good Samar. Suffern	2.0	250	125	236	118	
Good Samar. W Islip	4.0	437	109	60	15	
Harlem Hospital	4.0	282	71	441	112	
HealthAlli Broadway	1.2	150	125	170	142	
HealthAlli MarysAve	0.7	150	231	5	8	LOW
Helen Hayes Hospital	0.9	128	142	0	0	
Henry J. Carter LTAC	2.0	201	101	78	39	
Highland Hospital	2.9	261	90	209	72	
Hosp for Spec Surg	3.9	199	51	74	19	
Hudson Valley	1.0	128	128	70	70	
Huntington	3.0	275	92	186	62	
Interfaith Medical	1.9	287	151	103	54	
Ira Davenport	0.5	15	33	56	124	
JT Mather	2.0	248	124	30	15	
Jacobi Medical	5.0	457	91	385	77	
Jamaica Hospital	3.0	425	142	367	122	
Jones Memorial	1.0	60	60	86	86	
Kenmore Mercy	1.0	152	152	131	131	
Kings County	2.0	627	314	1607	804	LOW
Kingsbrook Jewish	1.1	318	289	413	375	LOW
Lenox Hill	6.0	467	78	220	37	
Lewis County	1.0	25	25	125	125	
Lincoln Medical	5.0	347	69	733	147	

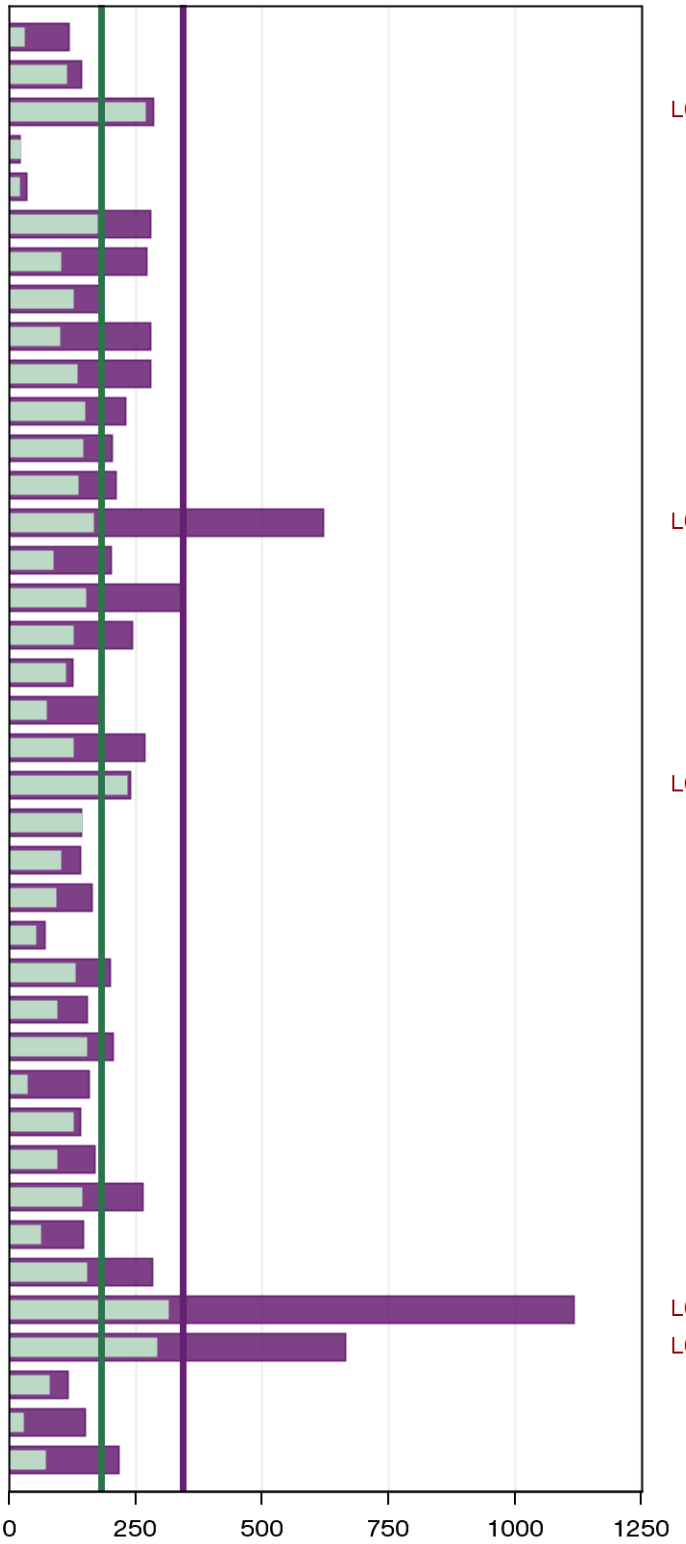

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Figure 27. Infection Preventionist Personnel Resources in NYS Hospitals, 2014 (page 3 of 5)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
Little Falls	0.3	25	100	20	80	
Long Island Jewish	7.0	1071	153	264	38	
Lutheran Medical	3.0	451	150	32	11	
Maimonides	3.8	574	151	396	104	
Margaretville	0.6	8	13	50	83	
Mary Imogene Bassett	2.0	140	70	544	272	
Massena Memorial	0.6	50	91	79	144	
Medina Memorial	0.8	25	33	169	225	
Memor SloanKettering	6.0	470	78	385	64	
Mercy Medical	1.6	220	138	123	77	
Mercy- Buffalo	2.8	383	137	176	63	
Metropolitan	2.4	373	159	336	143	
MidHudson Reg of WMC	1.0	243	243	110	110	LOW
Millard Fill. Suburb	1.5	271	181	20	13	
Monroe Community	1.0	1	1	263	263	
Montefiore-Einstein	2.4	436	186	257	109	LOW
Montefiore-Moses	4.4	799	184	462	106	LOW
Montefiore-Mt Vernon	1.6	85	53	86	54	
Montefiore-NewRochl	1.0	150	150	72	72	
Montefiore-Wakefield	2.3	284	123	211	92	
Moses-Ludington	0.3	5	17	100	332	LOW
Mount St. Marys	0.9	75	83	267	297	LOW
Mt Sinai	7.5	1170	156	603	80	
Mt Sinai BI-Bklyn	1.0	212	212	32	32	LOW
Mt Sinai Beth Israel	6.0	750	125	836	139	
Mt Sinai Queens	2.0	159	80	78	39	
Mt Sinai Roosevelt	1.5	371	247	231	154	LOW
Mt Sinai St Lukes	1.5	310	207	275	183	LOW
NY Community Bklyn	0.8	131	164	57	71	
NY Eye and Ear	0.9	30	33	50	56	
NY Hosp Queens	4.0	535	134	346	87	
NY Methodist	3.0	591	197	236	79	LOW
NYP-Allen	1.1	201	183	22	20	LOW
NYP-Columbia	7.0	995	143	486	70	
NYP-Lawrence	1.8	200	111	38	21	
NYP-Lower Manhattan	1.0	125	125	86	86	
NYP-Morgan Stanley	7.0	995	143	486	70	
NYP-Weill Cornell	5.0	995	199	486	97	LOW
NYU Joint Disease	1.0	190	190	570	570	LOW

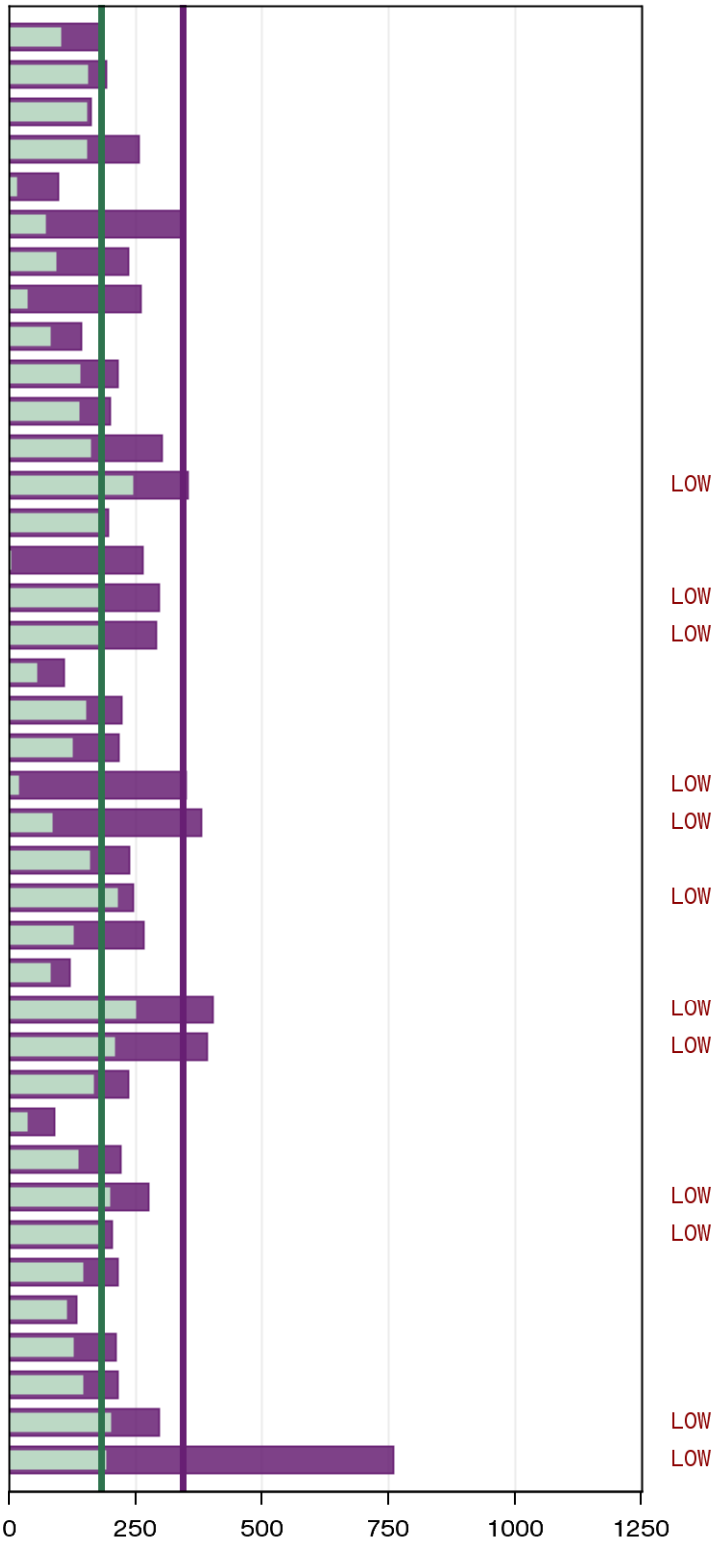

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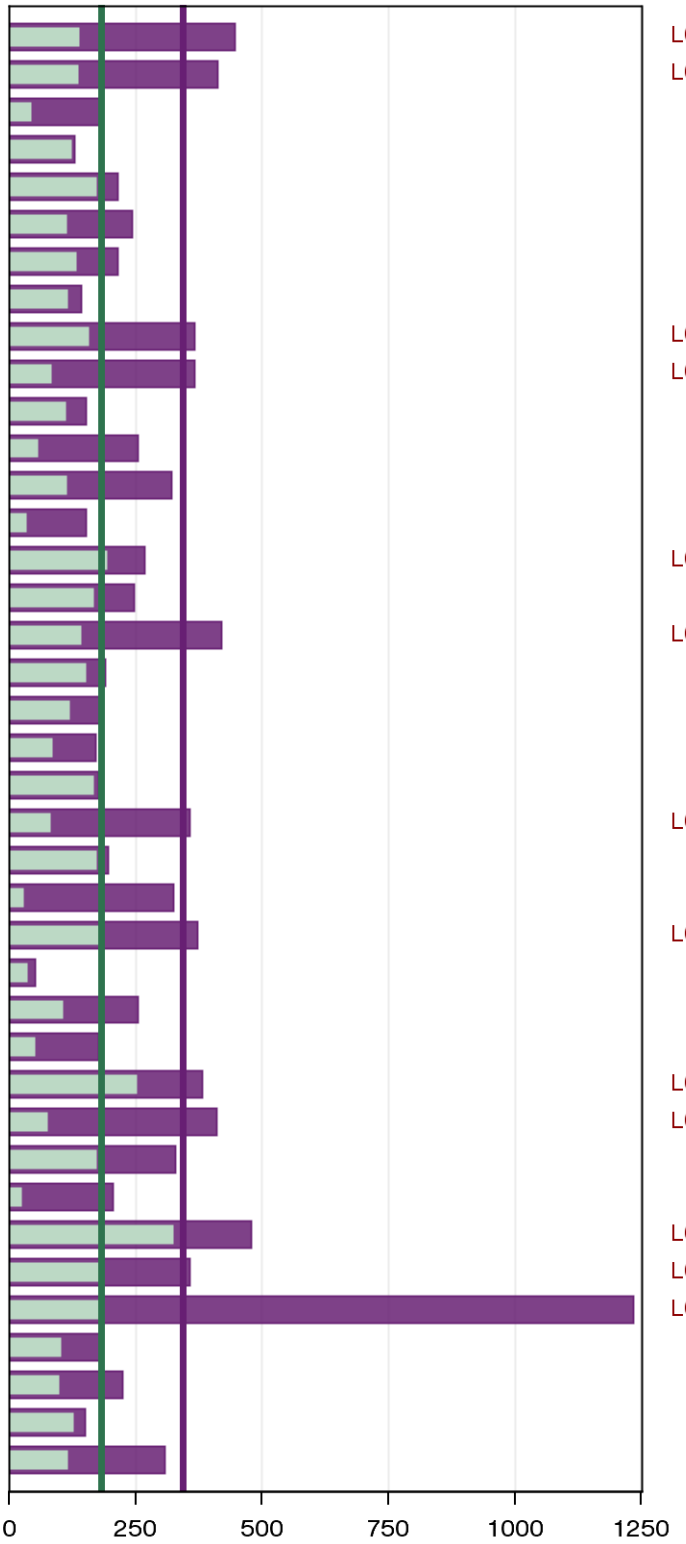
Figure 27. Infection Preventionist Personnel Resources in NYS Hospitals, 2014 (page 4 of 5)

Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
NYU Medical Center	5.0	684	137	1546	309	LOW
Nassau University	3.8	500	133	1043	278	LOW
Nathan Littauer	1.8	74	41	249	138	
Newark Wayne	1.0	120	120	8	8	
Niagara Falls	1.0	171	171	42	42	
North Central Bronx	2.0	223	112	262	131	
North Shore	6.2	804	131	515	84	
Northern Dutchess	0.6	68	113	17	28	
Northern Westchester	1.5	232	155	318	212	LOW
Noyes Memorial	0.5	40	80	143	286	LOW
Nyack Hospital	2.0	220	110	84	42	
O'Connor Hospital	0.3	16	53	60	200	
Olean General	0.9	100	111	189	210	
Oneida Healthcare	1.3	40	31	156	120	
OrangeReg Goshen-Mid	2.0	383	192	150	75	LOW
Oswego Hospital	1.0	164	164	83	83	
Our Lady of Lourdes	1.0	140	140	280	280	LOW
Peconic Bay Medical	1.0	150	150	40	40	
Phelps Memorial	2.0	235	118	137	69	
Plainview Hospital	1.5	125	83	129	86	
Putnam Hospital	1.0	165	165	10	10	
Queens Hospital	4.0	314	79	1111	278	LOW
Richmond Univ	3.0	510	170	73	24	
River Hospital	0.2	5	25	60	300	
Rochester General	3.0	535	178	580	193	LOW
Rockfeller Univ	0.6	20	33	10	17	
Rome Memorial	1.0	99	104	143	150	
Roswell Park	2.5	121	48	320	128	
Samaritan- Troy	0.9	212	249	112	132	LOW
Samaritan- Watertown	2.0	147	74	672	336	LOW
Saratoga Hospital	1.0	171	171	157	157	
Schyuler Hospital	0.9	20	22	164	182	
Sisters of Charity	0.9	290	322	141	157	LOW
Sisters- St Joseph	0.7	125	179	124	177	LOW
Soldiers and Sailors	0.2	35	175	212	1060	LOW
South Nassau Comm.	3.0	300	100	257	86	
Southampton	1.0	96	96	127	127	
Southside	3.0	371	124	76	25	
St Anthony	0.4	45	113	78	195	



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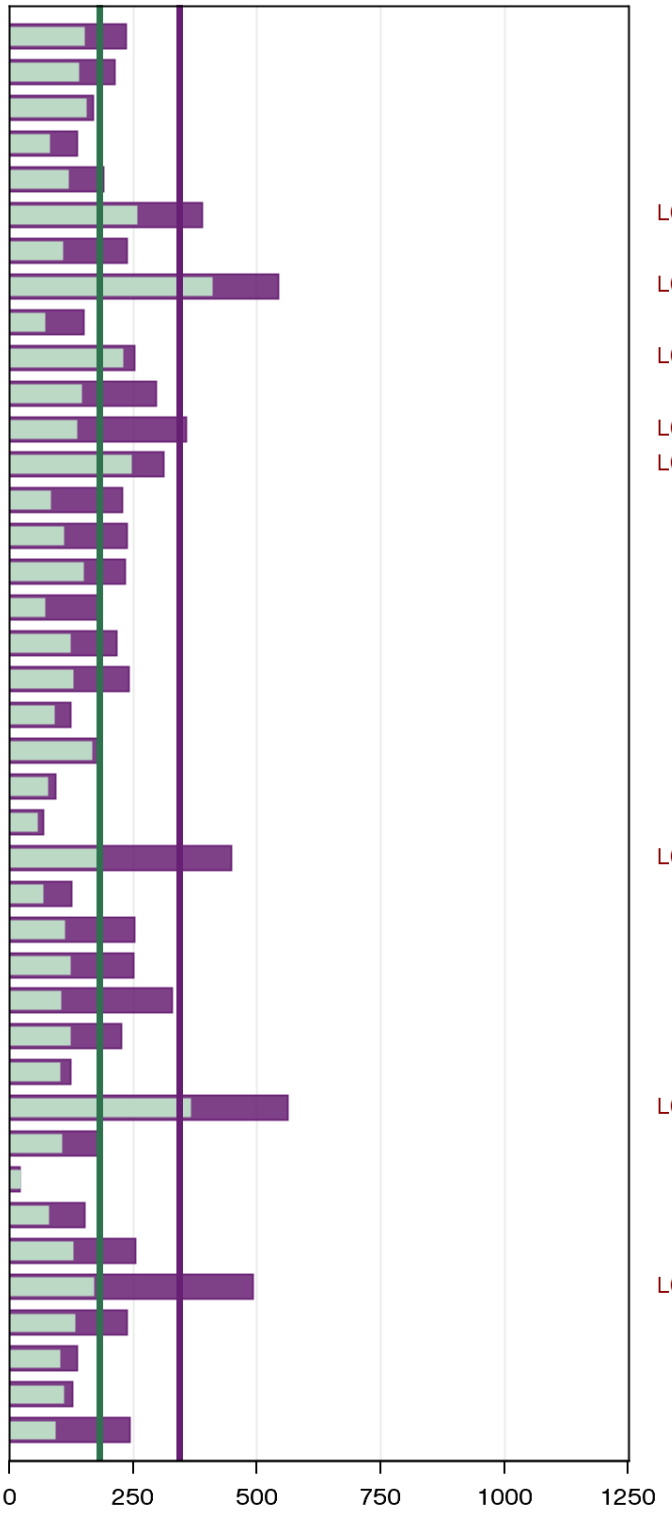
Hospital	FTE for IPs	Acute Care Beds	Acute Beds Per IP	Add. Bed EQ	Add. Bed EQ Per IP	LOW Resources Flag
St Barnabas	3.0	450	150	256	85	
St Catherine Siena	2.3	311	138	168	75	
St Charles Hospital	1.5	231	154	22	15	
St Elizabeth Medical	2.6	201	79	145	57	
St Francis- Roslyn	2.6	306	118	185	71	
St James Mercy	0.5	115	256	60	133	LOW
St Johns Episcopal	2.0	212	106	263	131	
St Johns Riverside	1.0	407	407	136	136	LOW
St Joseph -Bethpage	1.5	105	70	120	80	
St Josephs- Elmira	0.4	91	228	10	25	LOW
St Josephs- Syracuse	3.0	431	144	458	153	
St Josephs- Yonkers	1.0	134	134	223	223	LOW
St LukesNewburgh-Cor	1.5	367	245	98	65	LOW
St Marys Amsterdam	1.0	80	80	147	147	
St Marys Troy	1.1	118	107	142	129	
St Peters Hospital	3.0	442	147	255	85	
Staten Isl. U North	5.5	380	69	627	114	
Staten Isl. U South	1.0	120	120	96	96	
Strong Memorial	6.6	830	126	754	114	
Summit Park LTAC	0.7	57	88	23	35	
Sunnyview Rehab Hosp	0.7	115	164	10	14	
Syosset Hospital	1.0	75	75	18	18	
TLC Lake Shore	0.8	40	53	10	13	
United Health Servic	2.0	356	178	538	269	LOW
United Memorial	2.0	131	66	120	60	
Unity Hosp Rochester	3.0	327	109	430	143	
Univ Hosp Brooklyn	3.0	357	121	380	129	
Univ Hosp SUNY Upst	4.0	409	102	901	225	
Univ HospStony Brook	5.0	603	121	524	105	
Upst. Community Gen	1.6	160	100	36	23	
Vassar Brothers	1.0	365	365	197	197	LOW
Westchester Medical	5.2	536	103	426	82	
Westfield Memorial	0.2	4	20	0	0	
White Plains	3.0	230	77	221	74	
Winthrop University	4.0	504	126	511	128	
Woman and Childrens	1.0	168	168	324	324	LOW
Womans Christian	1.0	131	131	105	105	
Woodhull Medical	3.4	337	99	126	37	
Wyckoff Heights	3.0	324	108	56	19	
Wyoming County Comm.	0.5	45	90	76	152	



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HAI Prevention Projects

NYSDOH Funded Prevention Projects

NYSDOH funds HAI Prevention Projects with non-profit health care organizations to develop, implement, and evaluate strategies to reduce or eliminate targeted HAIs. The HAI Reporting Program is responsible for the evaluation, selection, and oversight of the projects. A Request for Applications (RFA) for 2013-2018 was issued on October 17th, 2012. Three projects were funded for five years. In addition, two projects were funded for shorter time periods.

University of Rochester Medical Center, Year 2: April 2014-March 2015, $190,000
This is the second year of the five-year prospective cohort study of a collaborative antimicrobial stewardship initiative for the prevention of *Clostridium difficile* Infection (CDI) in long term care facilities (LTCFs). The goals of the second year were to reduce the overall incidence of LTCF-onset of CDI, monitor and report the CDI incidence in LTCFs through implementation and use of NHSN, and investigate trends in antimicrobial use in LTCFs. Currently CDI data is being obtained from the Emerging Infection Program (EIP). A gradual decrease has been noted in the CDI rates among the 7 collaborative facilities. The antimicrobial stewardship initiative included pharmacy and educational interventions that were implemented at participating nursing homes. Microbiology results, antibiograms, and antibiotic use data were reviewed by facility. Facility interventions involved summarizing new treatment guidelines with facility-specific susceptibility patterns in an easy reference pocket card, a nursing UTI Testing and Treatment brochure, and a newsletter regarding antibiotic usage for staff and patient families. The project Infection Preventionist is continuing to work with all facilities to enroll and participate in NHSN data entry.

Westchester County Healthcare Corporation, Year 2: April 2014-March 2015, $196,635
The purpose of this project is to define the clinical features and molecular epidemiology of hospital-onset CDI in six diverse healthcare facilities and use data to guide a stringent enhanced environmental disinfection initiative. In Year 2 of this project, staff have worked to clarify the epidemiology of CDI within their facilities, including DNA testing of specimens to determine similarities and differences in the bacterial strains infecting patients. Thus far typing has demonstrated a tremendous diversity among strains overall, but has also shown that each hospital has a few predominant strains. Of particular interest is the fact that two facilities share the same predominant strains. Further investigation is planned in Year 3 to determine if patients diagnosed with CDI in either of these facilities had admissions at both institutions within a six month period.

Weill Medical College, Year 2: April 2014-March 2015, $231,565
The principal objective of this project is to reduce CDI and MDRO infection rates through the development and implementation of strategies to enhance environmental cleaning, increase cross-disciplinary education about basic infection control practices, and promote optimal antimicrobial use. The second year of the project was devoted to establishing baseline measurements of cleaning practices and barriers, knowledge, and antimicrobial use. This

included developing and administering surveys of 1) environmental service workers and 2) antimicrobial users. In addition, adenosine triphosphate (ATP) detection technology was utilized over four months to establish a baseline for cleanliness of high-touch surfaces in selected units of participating facilities. Project staff will use the data gathered through the surveys and environmental surface testing to inform the development of intervention strategies during Year 3 of the project.

Mount Sinai Beth Israel Medical Center, Budget Period: May 2015-September 2015, $132,754

This project aims to measure the potential impact of procalcitonin on the management of patients hospitalized at Mount Sinai Beth Israel, an 800 bed tertiary care medical center in New York City, who are on a non-intensive care floor and are receiving specific broad-spectrum antimicrobial agents for the treatment of respiratory tract and other types of infections. Levels of procalcitonin, a serum inflammatory marker, will be determined on the day of initial presentation with a suspected or proven new infection and be repeated every other day. Project staff plan to investigate whether the use of procalcitonin will support antibiotic stewardship program efforts 1) to reduce unnecessary use of antibiotics among these patients; 2) to decrease the rates of multidrug-resistant organisms; and 3) without having a negative impact on patient mortality and other safety outcome measures.

Montefiore Medical Center, Budget Period: July 2014-September 2015, $187,500

This project aims to describe and evaluate pressure ulcer patients' needs and treatment patterns across five Montefiore facilities. In addition, more extensive data will be collected for patients admitted at the Weiler campus, where the Wound Service began rolling out enhanced services in June 2014. This pilot study will: (1) test the feasibility of descriptive, process, and outcomes measures in hospitalized patients with advanced pressure ulcers, including measurement of infectious complications (including antibiotic use) associated with pressure ulcers; and (2) examine trends in process and outcomes measures with the implementation of a wound consultation service at an acute care facility.

CDC Funded HAI Prevention Projects

Epidemiology and Laboratory Capacity (ELC) for Infectious Diseases Grant (Aug 2014-July 2019)

New York State Long Term Care *C. difficile* Collaborative

In 2014, the NYSDOH Bureau of Healthcare Associated Infections continued its efforts to reduce CDI rates in LTCFs by facilitating improved implementation of well-established and routinely recommended infection control practices in nursing homes. The prevention project conducted during 2013-2014 resulted in many lessons learned about reporting by nursing homes into the NHSN Long Term Care component. A new project has begun, targeted to those nursing homes already enrolled in NHSN and to hospitals and nursing homes which regularly share

patients, including patients with CDI. The project will focus on improvement in infection prevention during nursing home and hospital care transitions. Through use of several webinar presentations, NYSDOH staff continue to educate participants on evidence-based infection prevention and control practices. Project activities also include collection of information about infection control practices at each participating facility through issuance of a survey at the start and end of the project year. Participants who are new to NSHN were provided with information about the Long Term Care Facility Component of NHSN and voluntary reporting of CDI events using the NHSN protocol for CDI reporting.

Carbapenem-resistant Enterobacteriaceae (CRE)

Efforts to combat the spread of CRE in NYS healthcare facilities have been initiated by the NYSDOH Bureau of Healthcare Associated Infections, inclusive of dedicated staff (CRE prevention coordinator and data analyst) whose sole purpose is to coordinate and advance these activities within the state. An Antimicrobial Resistance/CRE Workgroup has been established with the intent of creating a statewide CRE/MDRO surveillance and response plan. Strategies to enhance outbreak investigation reporting and response; improve surveillance; implement and evaluate epidemiologic public health practice, prevention, and control strategies; and sustain and enhance laboratory diagnostic capacity for CRE have been put in place. Healthcare facilities will be provided with updated information regarding hospital, regional and statewide CRE rates as well as CRE prevention resources. Those facilities identified with higher-than-state-average CRE rates will be contacted and offered assistance/site visits by the state CRE prevention coordinator. These visits will include discussion on a variety of topics including facility-wide CRE surveillance and prevention practices, barriers to implementation, antibiotic stewardship activities, and other strategies intended to reduce facility incidence rates.

Educational Efforts to Promote Appropriate Antibiotic Use: Get Smart

NYSDOH analyzed adult outpatient Medicaid claims data from 2013 and identified counties with high rates of potentially avoidable antibiotic prescribing for upper respiratory tract infections. NYSDOH contacted all outpatient prescribers in these counties, provided educational materials on appropriate antibiotic prescribing, and invited volunteers to serve as local opinion leaders who could spread the word to peers about appropriate antibiotic prescribing.

Epidemiology and Laboratory Capacity (ELC) for Infectious Diseases Domestic Ebola Supplement April 2015-March 2018

Supplemental funding was awarded to respond to the public health emergency surrounding the West African Ebola virus disease (EVD) outbreak. The response to the EVD outbreak has brought to light many opportunities for improvement and enhancement of hospitals' infection control capabilities. These funds will be utilized by NYSDOH to institute a plan for comprehensive improvements in the State's infection control infrastructure. These changes will include ensuring the capability to safely handle emerging health threats such as EVD by assessing and thoroughly training designated facilities. Additionally, general infection control expertise will be enhanced by identifying and correcting performance gaps and supporting improved practice in both inpatient and outpatient settings, activities that may reduce HAIs.

The New York State Perinatal Quality Collaborative

The New York State Perinatal Quality Collaborative (NYSPQC) aims to improve maternal and newborn outcomes and improve capability within NYS for ongoing quality improvement and transformation of healthcare by applying evidence-based healthcare system change interventions in obstetrics and neonatal intensive care units (NICUs). One of the NYSPQC's goals is to expand on the prior collaborative work of the NYSDOH HAI Program and NYS's Regional Perinatal Centers (RPCs), which demonstrated the effectiveness of central line care bundle and checklist use in preventing CLABSIs in NICUs. The NYSPQC CLABSI-reduction intervention, begun in September 2013, is focusing similar efforts on the Level III and II/III NICU hospitals, whose CLABSI rates are higher than those of the RPCs. The process uses the Institute for Healthcare Improvement's learning model to promote team work, increase communication, enhance knowledge of the value of central line care bundle insertion and maintenance checklists, and track progress toward reducing CLABSIs using data submitted to the NHSN. Starting with baseline data for October 2013, 36 facilities (72% of all RPCs, 58% of Level IIIs and 81% of Level II/IIIs) have been participating in the project, reporting birth weight-specific checklist usage data via the NHSN denominator summary screen. Bundle checklist usage reached and has remained above 90 percent among all hospitals of all levels, with rates slightly higher among infants born weighing under 1000 grams. Significant decreases have been noted in Gram positive bacterial CLABSIs, but the etiology of Gram negative bacterial CLABSIs does not appear to be affected by central line bundle checklist usage. Infants born weighing <750 grams have consistently been found to have the highest and least improved CLABSI rates. Final results will be available after the project ends in September of 2015.

Hospital Success Stories

NYSDOH would like to recognize the achievements of two hospitals for their outstanding work in preventing HAIs in 2014.

CLABSI Prevention Success

Upstate University Hospital in Syracuse, NY has been successful in CLABSI reduction throughout their intensive care units (ICUs) in 2014. While celebrating low infection rates at the community campus they realized there were opportunities for improvement in CLABSI rates at the downtown campus.

Upstate University Hospital is a 715-bed tertiary care facility with two campuses (downtown and community) and is the only academic medical center in Central New York. It is a level 1 trauma center and features the region's only children's hospital. University Hospital is also a NYS Designated Center for Stroke, AIDS, Trauma, Burn, and Poison Control, and offers 77 unique specialty clinics. University Hospital's downtown campus has 7 ICUs with a total of 74 beds.

The downtown Infection Control department includes 4 infection control practitioners who ultimately report to the Chief Quality Officer. This reporting structure aligns the activities of Infection Control with the quality and safety of the patients at Upstate. In addition, the hospital epidemiologist serves as the department's medical director.

Upstate has introduced traditional best practices to reduce CLABSIs. These have included the introduction of a standardized procedure cart and maximum barrier kit, mass education for staff on best practice bundles, a simulation lab for physician training on proper central line insertion technique, CHG bathing of patients, and introduction of the clear MicroClave®. These all had an effect on improvements in the hospital's CLABSI rates.

In 2013-2014, Upstate formed a Hospital Acquired Infection/CLABSI Task Force, a sub-committee of the Infection Control Committee. Chaired by the hospital epidemiologist, this multi-disciplinary team has members from Nursing, Quality, Hospital Administration, Physicians, Value Analysis, and Organizational Training and Development. This team meets monthly to analyze data, review best practices, brainstorm new initiatives, and deploy strategies to continue reducing CLABSI infections. The group closely tracks bundle compliance (e.g. insertion bundle, daily review of line necessity).

In 2014, after detailed review that identified line maintenance related causes of infections, Upstate implemented an engineering control, the use of IV port protectors. This process eliminated the manual practice of "scrub the hub". By introducing this new initiative, Upstate achieved a 70% reduction in CLABSIs from calendar year 2013 to 2014. For 9 of the 12 months

in 2014, Upstate's 7 ICUs had zero infections, with 5 consecutive months where the ICUs were CLABSI free. This would not have been accomplished without the dedication and commitment to patient safety of the nursing staff.

Key initiatives implemented:

- Upstate initiated a root cause analyses on every CLABSI. Upstate continues to use a detailed form to help review infections and track and trend data. This analysis is done with the nursing staff on the unit, captures accurate information, and provides a learning tool.

- There was also the development of a "Central Line Care and Management" pocket guide for staff to reference. The major components of the guide review changing or adding needle-less connectors, accessing lines, administering medications, flushing lines, connecting tubes, dressing changes, the use of maximum barrier carts, and tubing changes.

- A strategic step in the process improvement journey involved a thorough review of all policies related to insertion and maintenance of central lines. Appropriate policy changes were put into place to support the goal of zero infections. Education of clinical staff was a key element for success.

By changing practice, utilizing engineering controls, and collaborating with senior leadership, nursing, quality, and physicians, Upstate made a significant impact on the quality of care.

CDI Prevention Success

Champlain Valley Physicians Hospital

The University of Vermont Health Network – **Champlain Valley Physicians Hospital (CVPH)** is a 300-bed regional referral center located in rural northeastern New York State, serving a four county catchment area having a population of approximately 160,000. Services provided include: Critical Care, Medical-Surgical, Progressive Care, Women's and Children, Emergency Care with Fast Track, Perioperative with off-site Ambulatory Services, Invasive and Non-invasive Cardiology Services, Orthopedics, Oncology, Wound Care, Reconstructive Surgery, Behavioral Health, and a 96-bed skilled nursing facility.

The Infection Control department includes 2 full-time and 1 part-time infection control practitioner who report to the VP/Chief Quality and Information Officer. This reporting structure aligns the activities of Infection Control with the quality and safety of the patients at CVPH. In addition, the hospital infectious disease specialist serves as the department's Infection Control Committee chair and offers input into program activities.

The organization takes a multi-disciplinary approach with the support of hospital leadership to prevent the spread of *Clostridium difficile* as well as antibiotic resistant organisms. Numerous strategies including early identification, patient isolation, cleaning and disinfection changes, reinforcement of hand hygiene, use of dedicated patient care equipment, and education have been effectively used to reduce the *C. difficile* infection (CDI) rate by 36% from 2012-2014.

Successful interventions included having all newly admitted patients with diarrhea immediately placed on contact precautions, regardless of suspected source of diarrhea. A key component of the success was substantially decreasing the turnaround time for *C. difficile* testing as the laboratory implemented rapid PCR testing. This technology allowed a 2-hour turnaround time versus the previous 4-24 hours. In addition, patients developing diarrhea while hospitalized were tested for *C. difficile* and placed in contact precautions quickly.

Interdepartmental notification of *C. difficile* positives was enhanced to include phoning results to the nursing unit and Infection Control and placing a flag in the patient EMR, including the type of isolation required. An enhanced visual cue to other patient care providers was implemented (Environmental Services (EVS), Respiratory, etc.) by developing a red Contact Precautions sign (designated for CDI alone) with a picture of a sink to remind staff to use soap and water for hand hygiene. All positive patients remain on Contact Precautions until discharge as an added precaution.

Recognizing that patient and family education plays a vital role in limiting the spread of *C. difficile*, patients with CDI receive a brochure as well as specific teaching conducted by the unit nurse. In addition to addressing the prevention goal within the hospital, it enables families to understand the measures needed once the patient returns home regarding surface cleaning and personal hygiene.

CVPH's EVS department played a key role by switching to a double clean in addition to the established practice of using bleach disinfection for all daily room cleaning as well as discharge cleaning. Daily cleaning focuses on "high touch" surfaces. The hospital also invested in two Bioquell hydrogen peroxide vapor devices for use in all *C. difficile* rooms following the normal discharge cleaning process.

Realizing that equipment is easily contaminated, policies were implemented to include the use of disposable blood pressure cuffs for all patients (in addition to standard disposable stethoscopes for all isolation patients). Any portable equipment used in the room (walker, IV pump, etc.) is cleaned with bleach wipes twice by the staff member removing the equipment before removing it from the room.

Compliance monitoring using direct observation and electronic monitoring of hand hygiene and direct observation of isolation compliance has validated that *C. difficile* prevention protocols are being followed, further evidenced by a decreased hospital onset rate. This is a credit to the teamwork of Nursing, EVS, Infection Prevention, Laboratory, Infectious Diseases and leadership.

Recommendations and Next Steps

NYSDOH will continue to monitor and report hospital HAI rates to encourage continued reduction in HAIs. Following the NYSDOH HAI Program's policy on hospitals that have significantly high rates (available at http://www.health.ny.gov/statistics/facilities/hospital/hospital_acquired_infections/), HAI staff will continue to work with hospitals that are underperforming to ensure that they implement effective improvement plans and show progress in decreasing rates. HAI staff will also continue to notify hospitals of current issues in surveillance and infection prevention practices through email communication and webinars.

NYSDOH will continue to work with the HAI Technical Advisory Workgroup (TAW) to seek guidance on the selection of reporting indicators, methods of risk adjustment, presentation of hospital-identified data, and overall planning for the reduction in HAIs in NYS.

NYSDOH will continue to conduct medical record audits to verify appropriate use of surveillance definitions and accurate reporting by hospitals. The latest year of auditing results showed that NYS hospitals under reported HAIs by approximately 6%. Valid data are important for the analysis of variation in HAI rates within the state, as well for the analysis of NYS rates in comparison with other states' rates. Differences in audit coverage and thoroughness across the country currently result in inequitable comparisons of hospital and state average rates. NYSDOH will continue to discuss audit methodology with CDC and CMS and advocate that information on auditing be incorporated into performance evaluations.

Because CDI impacts the greatest number of people in NYS of all reportable HAIs, reducing CDI rates continues to be a high priority. NYSDOH will continue to monitor the improvement plans of the hospitals flagged with high CDI rates to encourage improvement and provide assistance as requested. NYSDOH started a new project to improve infection prevention during nursing home and hospital care transitions. The project targets those nursing homes already enrolled in NHSN, as well as nursing homes that transferred a large number of patients into hospitals with community onset CDI. Through use of webinar presentations, NYSDOH will continue to educate participants on evidence-based infection prevention and control practices.

Efforts to combat the spread of CRE in NYS healthcare facilities have expanded as a result of new CDC funding. An Antimicrobial Resistance/CRE Workgroup has been established with the intent of creating a statewide CRE/MDRO surveillance and response plan. Strategies to enhance outbreak investigation reporting and response; improve surveillance; implement and evaluate epidemiologic public health practice, prevention, and control strategies; and sustain and enhance laboratory diagnostic capacity for CRE have been put in place. Healthcare facilities will be provided with updated information regarding hospital, regional, and statewide CRE rates as well as CRE prevention resources. Those facilities identified with higher-than-state-average CRE

rates will be contacted and offered assistance/site visits by the state CRE prevention coordinator. These visits will include discussion on a variety of topics including facility-wide CRE surveillance and prevention practices, barriers to implementation, antibiotic stewardship activities, and other strategies intended to reduce facility incidence rates.

The response to the EVD outbreak has brought to light many opportunities for improvement and enhancement of hospitals' infection control capabilities. Rather than react to the "disease du jour", NYSDOH plans to proactively improve overall infection control practices by updating the NYS Infection Prevention and Control curriculum, identifying and correcting performance gaps, and supporting improved practice in both inpatient and outpatient settings.

Antimicrobial resistance is a growing concern in NYS. Hospitals and long term care facilities are encouraged to review their antimicrobial stewardship efforts against CDC guidelines and take action to implement programs concordant with these guidelines. Involvement and engagement of clinical leadership and technical experts are critical to establishing a successful stewardship program. NYSDOH strongly recommends that hospitals measure antibiotic use to create baseline data and identify opportunities for targeted interventions. Progress on hospital implementation of antimicrobial stewardship will be monitored through annual NHSN surveys.

NYSDOH will continue to monitor HAI prevention projects for compliance with program objectives, fiscal responsibility, and potential applicability to other hospitals or healthcare settings.

NYSDOH will continue to disseminate data on hospital-specific HAI rates in multiple formats, including annual reports and downloadable spreadsheets. Decisions regarding healthcare quality should not be based on these data alone. Consumers should consult with doctors, healthcare facilities, health insurance carriers, and reputable healthcare websites before deciding where to receive care. In addition, patients can be empowered to protect themselves from HAIs with the following recommendations:

1. Talk to your doctor about all your questions and concerns. Clear communication is very important.
2. Ask your doctor how you can prepare for surgery to reduce your risk of surgical site infection.
3. If you have a catheter, ask each day if it is necessary.
4. Keep your hands clean and make sure your doctors and nurses clean their hands before touching you.
5. Take antibiotics only if necessary and exactly as your doctor prescribes. Ask if tests will be done to make sure the right antibiotic is prescribed.
6. Know the signs and symptoms of infection so you can seek medical care quickly. Diarrhea while taking an antibiotic could be a sign of *C. difficile*.

Appendix 1: Glossary of Terms

ASA score: This is a scale used by the anesthesiologist to classify the patient's physical condition prior to surgery. It uses the American Society of Anesthesiologist (ASA) Classification of Physical Status. It is one of the factors that help determine a patient's risk of possibly developing a SSI. Here is the ASA scale:
1 - Normally healthy patient
2 - Patient with mild systemic disease
3 - Patient with severe systemic disease
4 - Patient with an incapacitating systemic disease that is a constant threat to life
5 -A patient who is not expected to survive with or without the operation.

Admission prevalence rate: The percent of patients that are admitted to the hospital already carrying an infection. This is calculated as the number of community onset cases divided by the number of admissions.

Birth weight categories: Birth weight refers to the weight of the infant at the time of birth. Infants remain in their birth weight category even if they gain weight. Birth weight category is important because the lower the birth weight, the higher the risk of developing an infection.

Body mass index (BMI): BMI is a measure of the relationship between a person's weight and their height. It is calculated with the following formula: kg/m^2.

Catheter-associated urinary tract infection (CAUTI): A CAUTI is an infection of the bladder or kidneys associated with the use of a urinary catheter. Hospitalized patients may have a urinary catheter, a thin tube inserted into the bladder through the urethra, to drain urine when they cannot urinate on their own.

Carbapenem: There are four carbapemen antibotics: ertapenem, meropenem, doripenem, and imipenem. Carbapenems are considered antibiotics of last resort by medical professionals.

Carbapenem-resistant Enterobacteriaceae infection (CRE): Bacteria in the Enterobacteriaceae family that are resistant to carbapenems are called CRE.

Central line: A central line is a long thin tube that is placed into a large vein, usually in the neck, chest, arm, groin or umbilical cord. The tube is threaded through this vein until it reaches a large vein near the heart. A central line is used to give fluids or medication, withdraw blood, and monitor the patient's condition.

Central line-associated bloodstream infection (CLABSI): A bloodstream infection can occur when microorganisms travel around and through a central line or umbilical catheter and then enter the blood.

Central line-associated bloodstream infection (CLABSI) rate: To get this rate, divide the total number of central line-associated bloodstream infections by the number of central line days. That result is then multiplied by 1,000. Lower rates are better.

Central line days (device days): This is the total number of days a central line is used. A daily count of patients with a central line in place is performed at the same time each day. Each patient with one or more central lines at the time the daily count is performed is counted as one central line day.

Central line device utilization ratio: This ratio is obtained by dividing the number of central line-days by the number of patient-days. It is also referred to as the device utilization (DU) ratio.

***Clostridium difficile*:** A bacterium that naturally resides in the bowels of some people without symptoms of infection but which can cause infections in some situations**.** Overgrowth of *C. difficile* in the bowel sometimes occurs after a patient takes antibiotics, which can kill good bacteria in the bowel. Sometimes people become infected with *C. difficile* from touching their mouth after coming in contact with contaminated environmental surfaces or patient care items. Symptoms range from mild to severe diarrhea; in some instances death can occur.

Colon surgery: Colon surgery is a procedure performed on the lower part of the digestive tract also known as the large intestine or colon.

Community onset (CO): Documented infection occurring within 3 days of hospital admission.

Community onset - not my hospital (CO-NMH): Documented infection occurring within 3 days of hospital admission and more than 4 weeks after discharge from the same hospital.

Community onset – possibly my hospital (CO-PMH): Documented infection occurring within three days of readmission to the same hospital when a discharge from the same hospital occurred within the last four weeks.

Confidence interval (CI): The confidence interval is the range around a measurement that conveys how precise the measurement is. A 95% CI means that we can be 95% confident that the true measurement falls within the interval. If hospital A reports 1 infection out of 20 procedures (i.e. 5%, with 95% CI: 0% to 25%), and hospital B reports 10 infections out of 200 procedures (i.e. 5% with 95% CI: 2% to 9%), we can see that both hospitals have the same rate, but we are less confident that the rate is truly 5% at hospital A because it was based on only 1 infection.

Coronary artery bypass graft (CABG) surgery: A treatment for heart disease in which a vein or artery from another part of the body is used to create an alternate path for blood to flow to the heart, bypassing a blocked artery.

Deep incisional SSI: A surgical site infection that involves the deep soft tissues (e.g., fascial and muscle layers) of the incision and meets the NHSN criteria as described in the NHSN Patient Safety Manual.

Diabetes: A disease in which the body does not produce or properly use insulin. Insulin is needed to control the amount of sugar normally released into the blood.

Donor incision site for coronary artery bypass graft (CABG): CABG surgery with a chest incision and donor site incisions (donor sites include the patient's leg or arm) from which a blood

vessel is removed to create a new path for blood to flow to the heart. CABG surgical incision site infections involving the donor incision site are reported separately from CABG surgical chest incision site infections.

Duration: The duration of an operation is the time between skin incision and stitching or stapling the skin closed. In the NHSN protocol, if a person has another operation through the same incision within 24 hours of the end of the original procedure, only one procedure is entered into NHSN and the total duration of the procedure is assigned as the sum of the two durations. Infection risk tends to increase with duration of surgery.

Higher than state average: The risk adjusted rate for each hospital is compared to the state average to determine if it is significantly higher or lower than the state average. A rate is significantly higher than the state average if the confidence interval around the risk adjusted rate falls entirely above the state average.

Hip replacement surgery: Hip replacement surgery involves removing damaged cartilage and bone from the hip joint and replacing them with new, man-made parts.

Hospital-acquired infection (HAI): A hospital acquired infection is an infection that occurs in a patient as a result of being in a hospital setting after having medical or surgical treatments.

Hospital Onset (HO): Documented infection occurring after the third day of hospital admission.

Hysterectomy: The surgical removal of a woman's uterus.

Infection control/prevention processes: These are routine measures to prevent infections that can be used in all healthcare settings. Some hospitals make the processes mandatory. Examples include:

- Complete and thorough hand washing.
- Use of personal protective equipment such as gloves, gowns, and/or masks when caring for patients in selected situations to prevent the spread of infections.
- Use of an infection prevention checklist when putting central lines in patients. The list reminds healthcare workers to clean their hands thoroughly; clean the patient's skin before insertion with the right type of skin cleanser; wear the recommended sterile gown, gloves and mask; and place sterile barriers around the insertion site, etc.
- Monitoring to ensure that employees, doctors and visitors are following the proper infection prevention procedures.

Infection preventionist (IP): Health professional that has special training in infection prevention and monitoring.

Inpatient: A patient whose date of admission to the healthcare facility and the date of discharge are different calendar days.

Intensive care unit (ICU): Intensive care units are hospital units that provide intensive observation and treatment for patients (adult, pediatric, or newborn) either suffering from, or at risk of developing life threatening problems. ICUs are described by the types of patients cared for. Many hospitals care for patients with both medical and surgical conditions in a combined

medical/surgical ICU, while others have separate ICUs for medical, surgical and other specialties based on the patient care services provided by the hospital.

Lower than state average: The risk adjusted rate for each hospital is compared to the state average to determine if it is significantly higher or lower than the state average. A rate is significantly lower than the state average if the confidence interval around the risk adjusted rate falls entirely below the state average.

Methicillin-resistant *Staphylococcus aureus* (MRSA): *Staphylococcus aureus* (SA) is a common bacterium normally found on the skin or in the nose of 20 to 30 percent of healthy individuals. When SA is resistant to the antibiotics oxacillin, cefoxitin, or methicillin, it is defined as MRSA for surveillance purposes.

National Healthcare Safety Network (NHSN): This is a secure, internet-based national data reporting system that NYS hospitals must use to report HAIs. The NHSN is managed by the CDC's Division of Healthcare Quality Promotion.

Neonatal intensive care units: Patient care units that provide care to newborns.

- **Level II/III Units**: provide care to newborns at Level II (moderate risk) and Level III (requiring increasingly complex care).
- **Level III Units:** provide highly specialized care to newborns with serious illness, including premature birth and low birth weight.
- **Regional Perinatal Centers (RPC):** Level IV units, providing all the services and expertise required by the most acutely sick or at-risk pregnant women and newborns. RPCs provide or coordinate maternal-fetal and newborn transfers of high-risk patients from their affiliate hospitals to the RPC and are responsible for support, education, consultation and improvements in the quality of care in the affiliate hospitals within their region.

Obesity: Obesity is a condition in which a person has too much body fat that can lower the likelihood of good health. It is commonly defined as a body mass index (BMI) of 30 kg/m^2 or higher.

Organ/space SSI: A surgical site infection that involves a part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure.

Patient day: Patient days are the number of hospitalizations multiplied by the length of stay of each hospitalization. One patient hospitalized for 6 days will contribute 6 patient days to the hospital total, as will two patients each hospitalized for 3 days.

Post discharge surveillance: This is the process IPs use to seek out infections after patients have been discharged from the hospital. It includes screening a variety of data sources, including re-admissions, emergency department visits and/or contacting the patient's doctor.

Raw rate: Raw rates are not adjusted to account for differences in the patient populations.

- **Bloodstream infections:** Raw rate is the number of infections (the numerator) divided by the number of line days (the denominator) then multiplied by 1000 to give the number of infections per 1000 line days.
- **Surgical site infections:** Raw rate is the number of infections (the numerator) divided by the number of procedures (the denominator) then multiplied by 100 to give the number of infections per 100 operative procedures.
- **Admission Prevalent (Community onset) infection:** Raw rate is the number of infections (the numerator) divided by the number of admissions (the denominator) then multiplied by 100 to give the number of infections per 100 admissions.
- **Hospital onset infection:** Raw rate is the number of infections (the numerator) divided by the number of patient days (the denominator) then multiplied by 10,000 to give the number of infections per 10,000 patient days.

Risk adjustment: Risk adjustment accounts for differences in patient populations and allows hospitals to be compared. A hospital that performs a large number of complex procedures on very sick patients would be expected to have a higher infection rate than a hospital that performs more routine procedures on healthier patients.

Risk-adjusted rate:
The risk-adjusted rate is based on a comparison of the actual (observed) rate and the rate that would be predicted if, statewide, the patients had the same distribution of risk factors as the hospital.

SPARCS: The Statewide Planning and Research Cooperative System (SPARCS) is a comprehensive data reporting system established in 1979 as a result of cooperation between the health care industry and government. Initially created to collect information on discharges from hospitals, SPARCS currently collects patient level detail on patient characteristics, diagnoses and treatments, services, and charges for every hospital discharge, ambulatory surgery procedure and emergency department admission in NYS.

Standardized infection ratio (SIR): The SIR compares infection rates in a smaller population with infection rates in a larger standard population, after adjusting for risk factors that might affect the chance of developing an infection. In this report, the SIR is most often used to compare each hospital's rate to the NYS standard. Sometimes the SIR is also used to compare NYS to the National standard. In both cases, the SIR is calculated by dividing the actual number of infections in the smaller group by the number of infections that would be statistically predicted if the standard population had the same risk distribution as the observed population.

- A SIR of 1.0 means the observed number of infections is equal to the number of predicted infections.
- A SIR above 1.0 means that the infection rate is higher than that found in the standard population. The difference above 1.0 is the percentage by which the infection rate exceeds that of the standard population.
- A SIR below 1.0 means that the infection rate is lower than that of the standard population. The difference below 1.0 is the percentage by which the infection rate is lower than that experienced by the standard population.

Superficial incisional SSI: A surgical site infection that involves only skin and soft tissue layers of the incision and meets NHSN criteria as described in the NHSN Patient Safety Protocol.

Surgical site infection (SSI): An infection that occurs after the operation in the part of the body where the surgery took place (incision).

Validation: A way of making sure the HAI data reported to NYS are complete and accurate. Complete reporting of HAIs, total numbers of surgical procedures performed, central line days, and patient information to assign risk scores must all be validated. The accuracy of reporting is evaluated by visiting hospitals and reviewing patient records. The purpose of the validation visits are to:

- Assess the accuracy and quality of the data submitted to NYS.
- Provide hospitals with information to help them use the data to improve and decrease HAIs.
- Provide education to the IPs and other hospital employees and doctors, to improve reporting accuracy and quality.
- Look for unreported HAIs.
- Make recommendations for improving data accuracy and/or patient care quality issues.

Wound class: An assessment of how clean or dirty the operation body site is at the time of the operation. Wounds are divided into four classes:

- **Clean:** An uninfected operation body site is encountered and the respiratory, digestive, genital, or uninfected urinary tracts are not entered.
- **Clean-contaminated:** Operation body sites in which the respiratory, digestive, genital or urinary tracts are entered under controlled conditions and without unusual contamination.
- **Contaminated:** Operation body sites that have recently undergone trauma, operations with major breaks in sterile technique (e.g., open cardiac massage) or gross spillage from the gastrointestinal tract.
- **Dirty or infected:** Includes old traumatic wounds with retained dead tissue and those that involve existing infection or perforated intestines.

Appendix 2: Methods

For more details on the HAI surveillance protocols used to collect this data, please see the NHSN website at http://www.cdc.gov/nhsn/. This section of the report focuses on NYS-specific methods and provides additional information helpful for interpreting the results.

Data Validation

Data reported to the NHSN are validated by the NYSDOH using a number of methods.

Point of entry checks - The NHSN is a web-based data reporting and analysis program that includes validation routines for many data elements, reducing common data entry errors. Hospitals can view, edit, and analyze their data at any time.

Monthly checks for internal consistency – Every other month, NYS HAI staff download the data from the NHSN and run it through a computerized data validation code. Data that are missing, unusual, inconsistent, or duplicate are identified and investigated through email or telephone communication with hospital staff. Hospitals are given the opportunity to verify and/or correct the data.

Audits – Audits of a sample of medical records are conducted by the NYSDOH to assess compliance with reporting requirements. In addition, the purposes of the audit are to enhance the reliability and consistency of applying the surveillance definitions; evaluate the adequacy of surveillance methods to detect infections; and evaluate intervention strategies designed to reduce or eliminate specific infections. Audits have been an important component of the NYSDOH program since its inception in 2007. Between 2007 and 2014, 97%, 89%, 89%, 74%, 68%, 31%, 50%, and 37% of hospitals were audited by HAI Reporting staff, respectively. A hospital was more likely to be audited in a given year if it had significantly high or low rates in the previous year, was not audited the previous year, performed poorly during the previous audit, hired new hospital staff, or was located in a region covered by an HAI staff member or offered electronic medical record (EMR) access.

For CLABSI audits, staff reviewed the medical records of patients identified as having a positive blood culture during a specified time period in an ICU. For CDI and CRE audits, staff reviewed a laboratory list of positive laboratory reports during a specified time period. For SSI audits, staff reviewed a targeted selection of medical records in an attempt to efficiently identify under reporting. Specifically, the SPARCS database was used to preferentially select patients with an infection reported to the SPARCS billing database but not NHSN.

The 2014 audit results will be summarized in the next annual report. In 2013, NYSDOH staff reviewed 6,610 records and agreed with the hospital-reported infection status 93% of the time. Disagreements were discussed with the IPs and corrected in NHSN. Table 29 summarizes the number of inconsistencies in reporting infections out of the total number of records reviewed. Reporting accuracy was only 86% for CRE; this was the first evaluation of this data, as reporting began in July 2013. NYSDOH HAI staff reviewed the surveillance definition with all hospitals via regional conference calls and provided written suggestions on collaboration between infection prevention and the clinical microbiology laboratory.

Table 29. Brief summary of 2013 HAI audit

Type of Infection	# Agreements	# Records Reviewed	% Agreement	% Under reported	% Over reported
Colon SSI	906	999	90.7%	9.1%	0.2%
CABG SSI	167	174	96.0%	4.0%	0.0%
HYST	644	670	96.1%	3.6%	0.3%
Hip SSI	711	729	97.5%	2.3%	0.1%
CLABSI	685	733	93.4%	5.9%	0.7%
C. difficile	2312	2449	94.6%	5.2%	0.4%
CRE	734	856	85.7%	9.8%	4.8%
TOTAL	**6,159**	**6,610**	**92.9%**	**6.0%**	**0.9%**

The 2013 audit was conducted between July 2013 and June 2014

In addition to formal audits, a few hospitals that had significantly low preliminary HAI rates but were not audited during the year were selected to participate in a partial-self-audit. In the 2013 process, HAI staff securely emailed each hospital a list of records that had indications of infection in SPARCS but no infection in NHSN. The hospital IPs reviewed the medical records associated with these charts and self-reported whether these records met the NHSN surveillance criteria. The CDI and CRE laboratory results were directly reviewed by HAI staff. In 2013, 9% of hospitals participated in the partial-self-audit. The 2013 self-audit results are summarized in Table 30.

Table 30. Brief Summary of 2013 partial self-audit

Type of Infection	# Records Reviewed	# Under reported	% Under reported
SSI	276	24	8.7%
CLABSI	10	0	0%
C. difficile	148	4	2.7%
CRE	128	25	19.5%
TOTAL	**563**	**53**	**9.4%**

Cross-checks for completeness and accuracy in reporting - NYS HAI staff match the NHSN data to other NYSDOH data sets to aid in evaluating the completeness and accuracy of the data reported to the NHSN.

- NHSN CABG data are linked to the Cardiac Surgery Reporting System[34] (CSRS) database. The cardiac services program collects and analyzes risk factor information for patients undergoing cardiac surgery and uses the information to monitor and report hospital and physician-specific mortality rates.
- NHSN colon, hip, hysterectomy, CDI, and CRE data are linked to the Statewide Planning and Research Cooperative System (SPARCS) database. SPARCS is an administrative billing database that contains details on patient diagnoses and treatments, services, and charges for every hospital discharge in NYS.

Thresholds for Reporting Hospital-Specific Infection Rates

This report contains data from 178 hospitals reporting complete data for 2014. Hospitals that perform very few procedures or have ICUs with very few patients with central lines have infection rates that fluctuate greatly over time. This is because even a few cases of infection will yield a numerically high rate in the rate calculation when the denominator is small. To assure a fair and representative set of data, the NYSDOH adopted minimum thresholds.

- For surgical site infections, there must be a minimum of 20 patients undergoing a surgical procedure.
- For CLABSIs there must be a minimum of 50 central line days. Central line days are the total number of days central lines are used for each patient in an ICU over a given period of time.

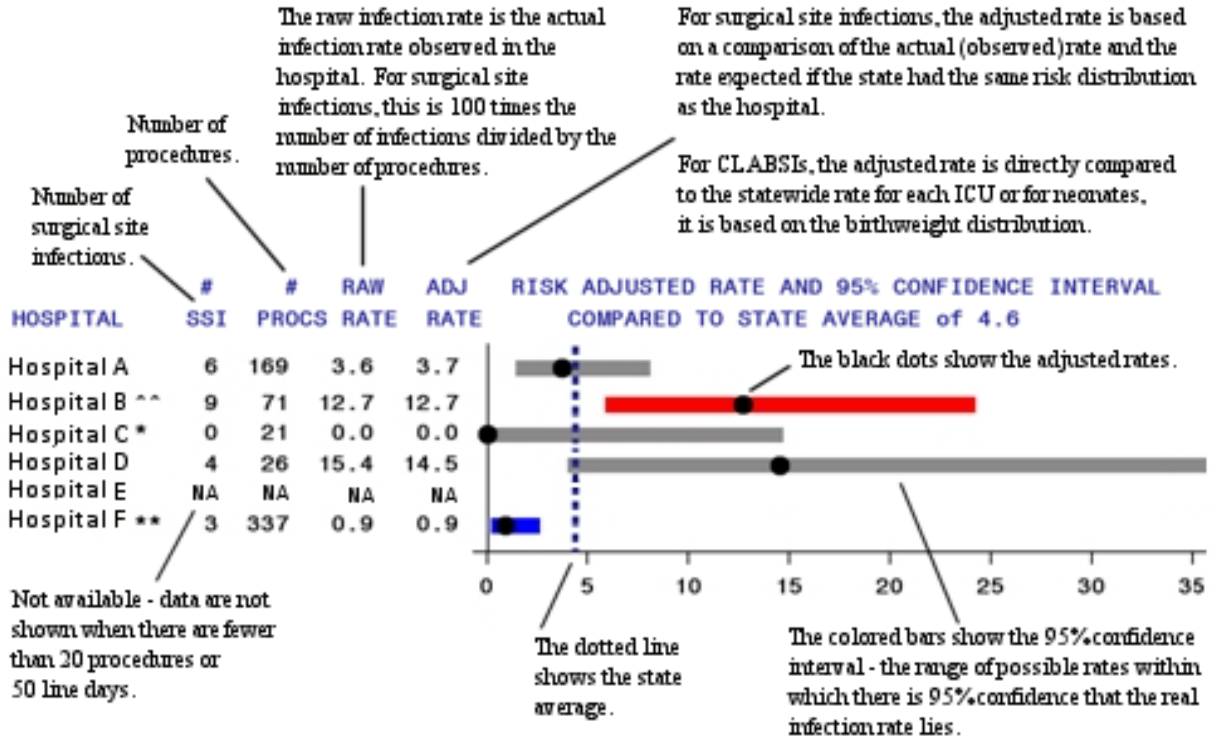
Risk Adjustment

Risk adjustment is a statistical technique that allows hospitals to be more fairly compared. The adjustment takes into account the differences in patient populations related to severity of illness and other factors that may affect the risk of developing an HAI. A hospital that performs a large number of complex procedures on very sick patients would be expected to have a higher infection rate than a hospital that performs more routine procedures on healthier patients. Therefore, before comparing the infection rates of hospitals, it is important to adjust for the proportion of high and low risk patients.

Risk-adjusted infection rates for SSIs in each hospital were calculated using a two-step method. First, all the data for the state were pooled to develop a logistic regression model predicting the risk of infection based on patient-specific risk factors. Second, that model was used to calculate the expected number of infections for each hospital. The observed infection rate was then divided by the hospital's expected infection rate. If the resulting ratio is larger than one, the

hospital has a higher infection rate than expected on the basis of its patient mix. If it is smaller than one, the hospital has a lower infection rate than expected from its patient mix. For each hospital, the ratio is then multiplied by the overall statewide infection rate to obtain the hospital's risk-adjusted rate. This method of risk adjustment is called "indirect adjustment." Hospitals with risk-adjusted rates significantly higher or lower than the state average were identified using exact two-sided 95% Poisson confidence intervals. The Poisson distribution is used for rates based on rare events. All data analyses were performed using SAS version 9.3 (SAS Institute, Cary NC). Figure 28 provides an example of how to interpret the hospital-specific SSI and CLABSI infection rate tables.

Figure 28. How to read hospital-specific SSI and CLABSI infection rate



Hospital A had an adjusted infection rate very similar to the state average. The grey bar (95% confidence interval) goes over the dotted line representing the state average, indicating no statistical difference in the rates.

Hospital B has an adjusted infection rate that is significantly higher than the state average, because the red bar is entirely to the right (representing higher rates) of the dotted line.

Hospital C had zero infections, but this was not considered to be statistically lower than the state average because the grey bar goes over the dotted line. All hospitals that observed zero infections get a *, because they do deserve acknowledgement for achieving zero infections.

Hospital D had the highest infection rate, but this was not statistically higher than the state average.

Hospital E - The data are not shown because the hospital performed fewer than 20 procedures, and therefore the rates are not stable enough to be reported.

Hospital F had an adjusted infection rate that is statistically lower than the state average, because the blue bar is entirely to the left (representing lower rates) of the dotted line

Adult and pediatric ICU CLABSI data were compared within the ICU types listed in Table 15.

Costs

Cost estimates were based on a CDC report that provided a range of estimates for the direct hospital cost of treating HAIs.[35] Ranges were provided because HAIs vary in severity and studies upon which the CDC report is based differ somewhat in their cost estimates. Until more precise estimates are available, these ranges have been used to estimate comparative costs of HAIs and cost savings since the inception of the HAI program. The costs were converted from 2007 dollars to 2014 dollars using the Consumer Price Index to adjust for inflation.[36]

Attributable Mortality of CDI/MDROs

Attributable mortality rates were calculated using the data in Table 31. The attributable mortality rate for each indicator was calculated as the average attributable mortality rate over the relevant journal articles, weighted by the number of MDROs considered in each analysis.

Table 31: Attributable mortality estimates from literature review

MDRO	Reference	# MDROs	% Deaths MDROs	% Deaths controls	Attributable Mortality %
CDI	Dodek 2013[37]	227	29	27	2.0
	Gravel 2009[38]	1430	N/A	N/A	5.7
	Kenneally 2007[39]	278	36.7	30.6	6.1
	Loo 2005[40]	1703	N/A	N/A	6.9
	Pepin 2005[41]	161	23	7	16.0
	Tabak 2013[42]	255	11.8	7.3	4.5
	Weighted average				**6**
CRE	Borer 2009[11]	32	71.9	21.9	50.0
	Mouloudi 2014[12]	37	NA	NA	27.0
	Weighted average				**38**
MRSA	Harbarth 1998[43]	39	36	28	8.0
	DeKraker 2011[44]	242	30.6	8.4	22.2
	Weighted average				**20**
VRE	Carmeli 2002[45]	21	NA	NA	25.0
	Edmond 1996[46]	27	66.7	29.6	37.0
	Song 2003[47]	159	50.3	27.7	22.6
	Stosor 1998[48]	21	NA	NA	61.9
	Weighted average				**28**
MDR Acinetobacter	Blot 2003[49]	45	42.2	34.4	7.8
	Grupper 2007[50]	52	55.8	19.2	36.5
	Wisplinghoff 1999[51]	29	31.0	13.8	17.2
	Weighted average				**22**

Comparison of NYS and CMS HAI Reporting

In addition to the indicators required by NYS law, hospitals are encouraged by the Centers for Medicaid and Medicare Services (CMS) to report HAI data. The CMS Hospital Inpatient Quality Reporting Program offers financial incentives to hospitals that report HAI data and publishes the nationwide data on the Hospital Compare Website (http://www.hospitalcompare.hhs.gov). The CMS website compares hospital-specific CLABSI, CAUTI, colon SSI, hysterectomy SSI, MRSA bloodstream infection, and CDI infection rates to historical national benchmarks.

The HAI rates reported by NYS and CMS may differ. Table 32 summarizes the reasons for these differences.

Table 32. Comparison of New York State and Hospital Compare data

	NYSDOH HAI Report	CMS Hospital Compare
Question answered	How did each hospital perform in 2014 compared to the NYS 2014 average?	How did each hospital perform in 2014 compared to the historical National baseline (i.e. 2006-2008 for CLABSI and SSI, 2010-2011 for CDI)?
Surveillance system	NHSN	NHSN
2014 measures	CLABSI (ICU), SSI (colon, hip, CABG, hysterectomy), CDI, CRE	CLABSI (ICU), SSI (colon, hysterectomy), CAUTI (ICU), CDI, MRSA
Time period	Calendar year	Rolling year (updated quarterly)
Hospital	Reported by unique NHSN number	Reported by unique CMS number (may contain more than one NHSN number)
Intensive care units (ICUs)	8 types of ICUs (cardiothoracic, coronary, medical, medical-surgical, surgical, neurosurgical, pediatric, neonatal)	The 8 ICUs tracked by NYS plus other adult and pediatric ICUs (e.g. burn, trauma)
SSI Exclusions	SSIs detected using post discharge surveillance and not readmitted to any hospital	Children, patients with outlying risk adjustment variables, superficial infections
Displayed outcomes	Raw rates, risk-adjusted rates, and standardized infection ratios	Standardized infection ratios
Risk adjustment variables	Do not include hospital-level factors	Include hospital-level factors

Appendix 3: Central line-associated bloodstream infection rates by ICU type

To help hospital Infection Preventionists target their CLABSI reduction efforts to specific types of ICUs, the following table provides CLABSI rates by type of ICU.

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
AO Fox Memorial	13							0/ 245	* 0.0										0/ 0.2	* 0.00
Adirondack Medical	13							0/ 383	* 0.0										0/ 0.4	* 0.00
	14							0/ 329	* 0.0										0/ 0.3	* 0.00
Albany Medical	13	4/2518	1.6	0/3596	* 0.0	1/3296	0.3	0/ 360	* 0.0	3/5664	0.5	0/ 951	* 0.0	3/2042	1.5	RPC	3/3875	0.9	14/23.0	0.61
	14	0/2583	* 0.0	2/3884	0.5	1/3545	0.3	1/1654	0.6	5/6808	0.7			1/1694	0.6	RPC	5/3516	1.3	15/21.0	0.71
Albany Memorial	13							0/ 677	* 0.0										0/ 0.6	* 0.00
	14							0/ 683	* 0.0										0/ 0.6	* 0.00
Alice Hyde	13							0/ 79	* 0.0										0/ 0.1	* 0.00
	14							0/ 87	* 0.0										0/ 0.1	* 0.00
Arnot Ogden	13							4/3561	1.1							L III	1/1400	0.8	5/ 4.6	1.09
	14							10/3766	^^ 2.7							L III	0/1502	* 0.0	10/ 4.7	^^2.13
Auburn Memorial	13							1/ 747	1.3										1/ 0.7	1.46
	14							2/ 764	2.6										2/ 0.7	3.02
Bellevue Hospital	13	0/1150	* 0.0	1/ 721	1.4	1/1344	0.7			2/1595	1.3	1/ 614	1.6	0/ 76	* 0.0	RPC	1/ 695	1.2	6/ 6.6	0.91
	14	3/1478	2.0	0/1032	* 0.0	1/1373	0.7			1/1948	0.5	1/ 853	1.2	0/ 86	* 0.0	RPC	0/1233	* 0.0	6/ 7.5	0.80
Bon Secours	13							0/ 614	* 0.0										0/ 0.6	* 0.00
	14							1/ 384	2.6										1/ 0.3	3.01
Bronx-Lebanon	13	0/ 856	* 0.0					5/5121	1.0							L III	1/ 339	2.7	6/ 5.9	1.01
	14	0/ 481	* 0.0					5/4934	1.0							L III	2/ 539	3.1	7/ 5.5	1.28
Brookdale Hospital	13	0/ 451	* 0.0			9/2509	^^ 3.6			2/ 703	2.8			NA	NA	L III	2/ 609	2.6	13/ 5.0	^^2.63
	14	0/ 412	* 0.0			1/2637	0.4			2/ 765	2.6			0/ 54	* 0.0	L III	1/ 433	2.0	4/ 4.5	0.89
Brookhaven Memorial	13	0/1498	* 0.0			1/1559	0.6			2/1871	1.1								3/ 5.2	0.58
	14	1/1390	0.7			1/1579	0.6			2/1967	1.0								4/ 4.7	0.86
BrooklynHos-Downtown	13					8/1941	^^ 4.1			4/1575	2.5			1/ 138	7.2	L III	1/ 811	1.2	14/ 5.0	^^2.81
	14					9/1704	^^ 5.3			6/1555	^^ 3.9			0/ 83	* 0.0	L III	1/ 885	1.3	16/ 4.3	^^3.68
Brooks Memorial	13							0/ 227	* 0.0										0/ 0.2	* 0.00
	14							0/ 310	* 0.0										0/ 0.3	* 0.00
Buffalo General	13			2/4167	0.5	8/5580	1.4			3/2305	1.3	3/1828	1.6						16/14.3	1.12
	14			1/3693	0.3	10/6260	1.6			5/2242	2.2	3/1652	1.8						19/12.3	1.55

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
Canton-Potsdam	13							0/ 79	* 0.0										0/ 0.1	* 0.00
	14							0/ 127	* 0.0										0/ 0.1	* 0.00
Catskill Regional	13							1/ 658	1.5										1/ 0.6	1.66
	14							2/ 949	2.1										2/ 0.8	2.43
Cayuga Medical Cntr	13							4/1206	3.3										4/ 1.1	3.62
	14							0/1268	* 0.0										0/ 1.1	* 0.00
Champlain Valley	13							3/1851	1.6										3/ 1.7	1.77
	14							2/1749	1.1										2/ 1.5	1.32
Chenango Memorial	13							0/ 91	* 0.0										0/ 0.1	* 0.00
	14							0/ 105	* 0.0										0/ 0.1	* 0.00
Claxton-Hepburn	13							0/ 180	* 0.0										0/ 0.2	* 0.00
	14							0/ 274	* 0.0										0/ 0.2	* 0.00
Clifton Springs	13							0/ 164	* 0.0										0/ 0.2	* 0.00
	14							0/ 320	* 0.0										0/ 0.3	* 0.00
Columbia Memorial	13							0/ 675	* 0.0										0/ 0.6	* 0.00
	14							1/ 759	1.3										1/ 0.7	1.52
Coney Island	13	1/ 537	1.9			8/1860	^^ 4.3			6/ 806	^^ 7.4								15/ 3.5	^^4.27
	14	0/ 582	* 0.0			3/2144	1.4			3/1230	2.4								6/ 3.9	1.53
Corning Hospital	13							1/ 341	2.9										1/ 0.3	3.20
	14							1/ 311	3.2										1/ 0.3	3.71
Cortland Reg Med	13					1/ 560	1.8												1/ 0.7	1.53
	14					1/ 515	1.9												1/ 0.5	1.83
Crouse Hospital	13							5/2509	2.0							RPC	6/3190	1.8	11/ 6.0	1.82
	14							6/2833	2.1							RPC	5/3876	1.4	11/ 6.1	1.79
DeGraff Memorial	13							0/ 249	* 0.0										0/ 0.2	* 0.00
East. Niag. Lockport	13							0/ 503	* 0.0										0/ 0.5	* 0.00
	14							0/ 460	* 0.0										0/ 0.4	* 0.00
Eastern Long Island	13							0/ 140	* 0.0										0/ 0.1	* 0.00
	14							0/ 115	* 0.0										0/ 0.1	* 0.00

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
Ellis Hospital	13							5/5527	0.9										5/ 5.1	0.99
	14							1/5288	0.2										1/ 4.6	0.22
Elmhurst	13	1/ 314	3.2			0/1319	* 0.0			2/ 816	2.5					L II-III	1/ 486	2.1	4/ 3.9	1.04
	14	0/ 268	* 0.0			0/ 829	* 0.0			0/ 896	* 0.0					L II-III	1/ 461	2.2	1/ 2.9	0.34
Erie Medical Center	13			0/ 146	* 0.0	0/2931	** 0.0												0/ 3.5	**0.00
	14					3/2687	1.1												3/ 2.9	1.05
FF Thompson	13							0/ 589	* 0.0										0/ 0.5	* 0.00
	14							0/ 621	* 0.0										0/ 0.5	* 0.00
Faxton St. Lukes	13	1/2188	0.5					1/ 443	2.3										2/ 2.5	0.79
	14	1/2433	0.4																1/ 2.0	0.51
Flushing Hospital	13	0/ 523	* 0.0			4/1490	2.7			1/ 688	1.5					L III	1/1450	0.7	6/ 4.5	1.34
	14	3/ 447	^^ 6.7			7/1547	^^ 4.5			0/ 464	* 0.0					L III	1/1445	0.7	11/ 4.3	^^2.55
Forest Hills	13							1/2706	0.4										1/ 2.5	0.40
	14					0/ 202	* 0.0	0/2420	* 0.0										0/ 2.3	* 0.00
Franklin	13							2/1909	1.0										2/ 1.8	1.14
	14							1/1331	0.8										1/ 1.2	0.87
Geneva General	13							0/ 622	* 0.0										0/ 0.6	* 0.00
	14							1/1207	0.8										1/ 1.0	0.96
Glen Cove Hospital	13							2/1074	1.9										2/ 1.0	2.03
	14							3/ 617	^^ 4.9										3/ 0.5	^^5.61
Glens Falls	13	1/ 266	3.8					2/1630	1.2										3/ 1.8	1.71
	14	0/ 356	* 0.0					0/1518	* 0.0										0/ 1.6	* 0.00
Good Samar. Suffern	13			0/ 651	* 0.0	1/ 949	1.1			1/ 697	1.4								2/ 2.4	0.85
	14			0/ 978	* 0.0	2/1472	1.4			3/ 658	4.6								5/ 2.7	1.83
Good Samar. W Islip	13							2/3955	0.5					0/ 149	* 0.0	L III	0/ 703	* 0.0	2/ 4.5	0.44
	14			0/ 808	* 0.0	5/3894	1.3							0/ 98	* 0.0	L III	2/ 796	2.6	7/ 5.6	1.25
Harlem Hospital	13	0/ 127	* 0.0					0/1743	* 0.0					0/ 75	* 0.0	L III	0/ 614	* 0.0	0/ 2.5	* 0.00
	14	0/ 230	* 0.0					0/2351	* 0.0					0/ 90	* 0.0	L III	0/ 658	* 0.0	0/ 3.2	**0.00
HealthAlli Broadway	13							0/2091	* 0.0										0/ 1.9	* 0.00
	14							1/1663	0.6										1/ 1.4	0.69

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
HealthAlli MarysAve	13							0/ 51	* 0.0										0/ 0.0	* 0.00
Highland Hospital	13							4/2186	1.8										4/ 2.0	2.00
	14							0/2381	* 0.0										0/ 2.1	* 0.00
Hosp for Spec Surg	13							1/ 64	15.6										1/ 0.1	17.04
	14							2/ 215	^^ 9.3										2/ 0.2	^^10.74
Hudson Valley	13							3/1049	2.9							L II-III			3/ 1.0	3.12
	14							0/ 729	* 0.0							L II-III			0/ 0.6	* 0.00
Huntington	13	1/ 622	1.6					0/ 862	* 0.0										1/ 1.4	0.72
	14	0/ 730	* 0.0					1/1089	0.9										1/ 1.5	0.65
Interfaith Medical	13							3/2863	1.0										3/ 2.6	1.14
	14							2/2141	0.9										2/ 1.9	1.08
JT Mather	13	3/ 813	3.7					1/1232	0.8										4/ 1.9	2.09
	14	0/ 877	* 0.0					0/1354	* 0.0										0/ 1.9	* 0.00
Jacobi Medical	13	0/ 593	* 0.0			2/1477	1.4			0/ 480	* 0.0			0/ 175	* 0.0	RPC	3/ 934	2.8	5/ 4.2	1.19
	14	1/ 534	1.9			0/1427	* 0.0			0/ 526	* 0.0			0/ 58	* 0.0	RPC	2/ 883	1.9	3/ 3.6	0.84
Jamaica Hospital	13					6/2625	2.3			9/1393	^^ 6.5					L III	0/ 379	* 0.0	15/ 4.9	^^3.04
	14					0/1959	* 0.0			2/ 748	2.7					L III	0/ 449	* 0.0	2/ 3.5	0.57
Jones Memorial	13							0/ 384	* 0.0										0/ 0.4	* 0.00
	14							0/ 385	* 0.0										0/ 0.3	* 0.00
Kenmore Mercy	13							0/1357	* 0.0										0/ 1.2	* 0.00
	14							0/1457	* 0.0										0/ 1.3	* 0.00
Kings County	13	4/1148	3.5			0/1236	* 0.0			3/1360	2.2	8/1328	^^ 6.0	0/ 93	* 0.0	L II-III	1/ 538	1.9	16/ 6.8	^^2.35
	14	3/1345	2.2			3/1342	2.2			6/1292	^^ 4.6	1/1136	0.9	0/ 65	* 0.0	L II-III	0/ 811	* 0.0	13/ 6.5	^^2.01
Kingsbrook Jewish	13	0/1089	* 0.0					6/1575	^^ 3.8										6/ 2.5	2.40
	14	2/1126	1.8					3/1660	1.8										5/ 2.3	2.13
Lenox Hill	13	1/1317	0.8	0/1900	* 0.0			3/2575	1.2	2/1565	1.3					L II-III	3/1097	2.7	9/ 9.5	0.95
	14	0/ 911	* 0.0	0/1956	* 0.0			3/2425	1.2	0/1382	* 0.0					L II-III	0/ 581	* 0.0	3/ 6.5	0.46
Lincoln Medical	13	1/ 635	1.6			2/1274	1.6			5/1394	^^ 3.6			NA	NA	L III	3/ 991	2.5	11/ 4.8	^^2.28
	14	0/ 599	* 0.0			0/1146	* 0.0			5/1192	^^ 4.2					L III	4/1037	3.4	9/ 4.3	2.07

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
Long Island Jewish	13	1/ 644	1.6	0/1405	* 0.0	0/1504	* 0.0			0/1383	* 0.0			1/2752	0.4	RPC	3/4068	0.7	5/13.0	**0.38
	14	1/ 731	1.4	0/1292	* 0.0	1/1474	0.7			0/1211	* 0.0			1/2424	0.4	RPC	3/3826	0.8	6/ 9.4	0.64
Lutheran Medical	13					7/2101	^^ 3.3			0/1774	* 0.0								7/ 4.3	1.64
	14					2/1882	1.1			1/1894	0.5								3/ 3.8	0.79
Maimonides	13	0/ 903	* 0.0	0/2625	* 0.0	1/2421	0.4			0/1410	* 0.0			0/ 456	* 0.0	RPC	0/2441	** 0.0	1/11.0	**0.09
	14	0/ 727	* 0.0	0/2362	* 0.0	0/2187	* 0.0			0/1153	* 0.0			0/ 427	* 0.0	RPC	1/2224	0.4	1/ 8.3	**0.12
Mary Imogene Bassett	13							2/2483	0.8										2/ 2.3	0.88
	14							4/2195	1.8										4/ 1.9	2.10
Medina Memorial	13							0/ 94	* 0.0										0/ 0.1	* 0.00
	14							2/ 177	^^11.3										2/ 0.2	^^13.04
Mercy Medical	13							0/1438	* 0.0							L III	0/ 317	* 0.0	0/ 1.6	* 0.00
	14							1/1580	0.6							L III	0/ 222	* 0.0	1/ 1.5	0.65
Mercy- Buffalo	13	2/2126	0.9	0/1365	* 0.0			0/2797	* 0.0										2/ 5.8	0.35
	14	0/2535	* 0.0	0/1650	* 0.0			3/4351	0.7										3/ 6.7	0.44
Metropolitan	13					3/ 811	3.7			0/ 309	* 0.0					L II-III	0/ 244	* 0.0	3/ 1.9	1.62
	14					1/1025	1.0			0/ 360	* 0.0					L II-III	2/ 382	5.2	3/ 2.2	1.34
MidHudson Reg of WMC	13							1/2266	0.4										1/ 2.1	0.48
	14							0/1784	* 0.0										0/ 1.5	* 0.00
Millard Fill. Suburb	13							5/3061	1.6										5/ 2.8	1.78
	14							6/4221	1.4										6/ 3.7	1.64
Montefiore-Einstein	13			1/2260	0.4	2/2599	0.8									RPC	8/2482	^^ 2.9	11/ 7.9	1.39
	14			1/2746	0.4	4/2670	1.5									RPC	5/2477	1.7	10/ 7.4	1.35
Montefiore-Moses	13	0/1474	* 0.0	0/3313	* 0.0	0/3986	** 0.0			0/2080	* 0.0			3/3021	1.0				3/14.9	**0.20
	14	0/1568	* 0.0	0/3402	* 0.0	0/3801	** 0.0			1/2154	0.5			2/2978	0.7				3/11.2	**0.27
Montefiore-Mt Vernon	13							1/ 400	2.5										1/ 0.4	2.73
	14							1/ 457	2.2										1/ 0.4	2.53
Montefiore-NewRochl	13							0/1032	* 0.0							L III	0/ 93	* 0.0	0/ 1.0	* 0.00
	14							1/1126	0.9							L III	NA	NA	1/ 1.0	1.01
Montefiore-Wakefield	13							1/3194	0.3							L II-III	3/ 603	5.0	4/ 4.4	0.91
	14							2/2723	0.7							L II-III	2/ 597	3.4	4/ 3.6	1.11

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
Mount St. Marys	13					0/ 408	* 0.0												0/ 0.5	* 0.00
	14					0/ 399	* 0.0												0/ 0.4	* 0.00
Mt Sinai	13	0/1819	* 0.0	4/3582	1.1	1/3407	0.3			2/3799	0.5	0/2102	* 0.0	6/1847	3.2	RPC	2/1984	0.9	15/19.8	0.76
	14	3/2240	1.3	1/3901	0.3	0/3416	** 0.0			2/3968	0.5	1/2411	0.4	2/2479	0.8	RPC	1/2900	0.3	10/18.4	0.54
Mt Sinai BI-Bklyn	13							0/1055	* 0.0										0/ 1.0	* 0.00
	14							1/1055	0.9										1/ 0.9	1.09
Mt Sinai Beth Israel	13	2/ 758	2.6	2/ 891	2.2	1/2520	0.4			2/1840	1.1			0/ 55	* 0.0	L II-III	1/ 388	2.6	8/ 7.3	1.09
	14	1/ 651	1.5	0/ 872	* 0.0	1/2126	0.5			0/2092	* 0.0			0/ 100	* 0.0	L II-III	0/ 288	* 0.0	2/ 5.9	0.34
Mt Sinai Queens	13							0/1324	* 0.0										0/ 1.2	* 0.00
	14							0/1099	* 0.0										0/ 1.0	* 0.00
Mt Sinai Roosevelt	13							0/1830	* 0.0			0/ 553	* 0.0	0/ 145	* 0.0	L III	2/1869	1.1	2/ 4.4	0.46
	14							0/ 920	* 0.0			0/ 202	* 0.0	0/ 80	* 0.0	L III	2/1239	2.1	2/ 2.2	0.89
Mt Sinai St Lukes	13					1/2390	0.4	3/2042	1.5	0/ 921	* 0.0								4/ 5.6	0.71
	14					1/2052	0.5	2/1776	1.1	0/ 673	* 0.0								3/ 4.4	0.69
NY Community Bklyn	13							3/ 701	4.3										3/ 0.6	4.67
	14							0/ 774	* 0.0										0/ 0.7	* 0.00
NY Hosp Queens	13	0/ 993	* 0.0	0/ 850	* 0.0	2/2355	0.8			2/1692	1.2			NA	NA	L III	1/ 287	4.0	5/ 6.5	0.77
	14	1/1029	1.0	0/ 727	* 0.0	3/1950	1.5			0/1669	* 0.0					L III	2/ 417	4.9	6/ 5.4	1.11
NY Methodist	13	1/ 574	1.7	0/1271	* 0.0			4/4591	0.9					0/ 88	* 0.0	L III	1/1503	0.6	6/ 7.6	0.79
	14	0/ 616	* 0.0	1/1579	0.6			5/5040	1.0					NA	NA	L III	0/1285	* 0.0	6/ 7.7	0.78
NYP-Allen	13							1/ 776	1.3										1/ 0.7	1.41
	14							2/ 730	2.7										2/ 0.6	3.16
NYP-Columbia-Morgan	13	4/4831	0.8	12/7025	^^ 1.7	4/5074	0.8			2/3340	0.6	2/3442	0.6	10/6690	1.5	RPC	7/7592	1.0	41/39.8	1.03
	14	6/4857	1.2	8/8226	1.0	1/5368	** 0.2			4/3345	1.2	0/2933	* 0.0	4/6414	0.6	RPC	11/7316	1.8	34/30.3	1.12
NYP-Lawrence	13					2/1713	1.2												2/ 2.0	1.00
	14					1/1511	0.7												1/ 1.6	0.62
NYP-Lower Manhattan	13							3/1657	1.8										3/ 1.5	1.97
	14							2/2340	0.9										2/ 2.0	0.99
NYP-Weill Cornell	13	4/3346	1.2	8/4297	1.9	12/3773	^^ 3.2			6/2635	2.3	1/2024	0.5	3/3198	0.9	RPC	0/3449	** 0.0	34/23.9	1.42
	14	2/3532	0.6	3/4295	0.7	2/3255	0.6			7/2873	^^ 2.4	6/1665	^^ 3.6	0/2588	* 0.0	RPC	1/3223	0.3	21/17.6	1.19

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
NYU Medical Center	13			1/ 742	1.3	2/3021	0.7			1/2576	0.4	0/ 639	* 0.0	1/2149	0.5	RPC	1/1168	0.8	6/11.6	0.52
	14			0/ 924	* 0.0	3/2829	1.1			3/2631	1.1	0/ 521	* 0.0	2/3030	0.7	RPC	0/1762	* 0.0	8/ 9.9	0.81
Nassau University	13	2/ 533	3.8			1/1524	0.7			0/ 572	* 0.0			0/ 124	* 0.0	L III	0/ 407	* 0.0	3/ 3.5	0.85
	14	0/ 291	* 0.0			0/1571	* 0.0			0/ 758	* 0.0			0/ 56	* 0.0	L III	0/ 593	* 0.0	0/ 3.3	**0.00
Nathan Littauer	13							0/ 91	* 0.0										0/ 0.1	* 0.00
	14							0/ 236	* 0.0										0/ 0.2	* 0.00
Newark Wayne	13							0/1117	* 0.0										0/ 1.0	* 0.00
	14							0/1183	* 0.0										0/ 1.0	* 0.00
Niagara Falls	13							0/ 832	* 0.0										0/ 0.8	* 0.00
	14							0/ 803	* 0.0										0/ 0.7	* 0.00
North Central Bronx	13							0/ 371	* 0.0										0/ 0.3	* 0.00
	14							0/ 299	* 0.0										0/ 0.3	* 0.00
North Shore	13	0/ 848	* 0.0	4/2859	1.4	0/2715	** 0.0			1/2418	0.4	3/1696	1.8	0/ 82	* 0.0	RPC	1/2104	0.5	9/13.0	0.69
	14	0/1005	* 0.0	2/2749	0.7	1/2262	0.4			1/2155	0.5	0/1042	* 0.0			RPC	0/2179	* 0.0	4/10.1	0.40
Northern Dutchess	13							0/ 234	* 0.0										0/ 0.2	* 0.00
	14							3/ 416	^^ 7.2										3/ 0.4	^^8.32
Northern Westchester	13							2/ 876	2.3							L III	0/ 54	* 0.0	2/ 0.8	2.38
	14							0/1047	* 0.0							L III	NA	NA	0/ 0.9	* 0.00
Noyes Memorial	13							1/ 313	3.2										1/ 0.3	3.48
	14							0/ 253	* 0.0										0/ 0.2	* 0.00
Nyack Hospital	13					5/1151	^^ 4.3			1/ 679	1.5								6/ 2.0	^^2.94
	14					0/ 820	* 0.0			0/ 520	* 0.0								0/ 1.4	* 0.00
Olean General	13							1/1149	0.9										1/ 1.1	0.95
	14							0/1183	* 0.0										0/ 1.0	* 0.00
Oneida Healthcare	13							0/ 188	* 0.0										0/ 0.2	* 0.00
	14							0/ 306	* 0.0										0/ 0.3	* 0.00
OrangeReg Goshen-Mid	13							2/2850	0.7										2/ 2.6	0.77
	14							4/2199	1.8										4/ 1.9	2.10
Oswego Hospital	13					0/ 492	* 0.0												0/ 0.6	* 0.00
	14					0/ 506	* 0.0												0/ 0.5	* 0.00

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
Our Lady of Lourdes	13							0/1257	* 0.0										0/ 1.2	* 0.00
	14							2/1129	1.8										2/ 1.0	2.04
Peconic Bay Medical	13							0/ 481	* 0.0										0/ 0.4	* 0.00
	14							1/ 559	1.8										1/ 0.5	2.06
Phelps Memorial	13							3/ 767	3.9										3/ 0.7	4.26
	14							0/ 700	* 0.0										0/ 0.6	* 0.00
Plainview Hospital	13							0/2111	* 0.0										0/ 1.9	* 0.00
	14							0/2138	* 0.0										0/ 1.9	* 0.00
Putnam Hospital	13							1/ 495	2.0										1/ 0.5	2.20
	14							0/ 542	* 0.0										0/ 0.5	* 0.00
Queens Hospital	13					1/1650	0.6									L III	0/ 460	* 0.0	1/ 2.4	0.42
	14					7/2170	^^ 3.2									L III	1/ 440	2.1	8/ 2.9	^^2.74
Richmond Univ	13					4/2576	1.6			1/1460	0.7			0/ 71	* 0.0	L III	1/1143	1.0	6/ 5.7	1.06
	14					5/2267	2.2			0/1372	* 0.0			NA	NA	L III	1/1415	0.7	6/ 5.7	1.06
Rochester General	13			0/2847	* 0.0	0/3327	** 0.0			0/2287	* 0.0								0/ 8.6	**0.00
	14			1/2918	0.3	4/3469	1.2			0/2125	* 0.0								5/ 7.3	0.68
Rome Memorial	13							0/ 753	* 0.0										0/ 0.7	* 0.00
	14							1/ 641	1.6										1/ 0.6	1.80
Samaritan- Troy	13							1/1114	0.9										1/ 1.0	0.98
	14							0/1158	* 0.0										0/ 1.0	* 0.00
Samaritan- Watertown	13							0/ 792	* 0.0										0/ 0.7	* 0.00
	14							0/ 873	* 0.0										0/ 0.8	* 0.00
Saratoga Hospital	13							1/1326	0.8										1/ 1.2	0.82
	14							0/1377	* 0.0										0/ 1.2	* 0.00
Sisters of Charity	13							0/1318	* 0.0							L III	0/ 798	* 0.0	0/ 2.1	* 0.00
	14							0/1234	* 0.0							L III	0/1023	* 0.0	0/ 2.5	* 0.00
Sisters- St Joseph	13							0/1364	* 0.0										0/ 1.3	* 0.00
	14							2/1299	1.5										2/ 1.1	1.78
South Nassau Comm.	13							2/3606	0.6										2/ 3.3	0.60
	14							1/4038	0.2										1/ 3.5	0.29

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		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
Southampton	13					0/ 916	* 0.0												0/ 1.1	* 0.00
	14					0/ 685	* 0.0												0/ 0.7	* 0.00
Southside	13			2/1811	1.1			2/3033	0.7										4/ 4.3	0.93
	14			0/1961	* 0.0			0/2291	* 0.0										0/ 3.1	**0.00
St Anthony	13							2/ 500	4.0										2/ 0.5	4.36
	14							0/ 523	* 0.0										0/ 0.5	* 0.00
St Barnabas	13							4/1833	2.2							L II-III	0/ 836	* 0.0	4/ 3.7	1.08
	14					1/ 593	1.7	1/ 881	1.1	0/ 274	* 0.0					L II-III	0/ 505	* 0.0	2/ 2.7	0.74
St Catherine Siena	13	0/ 713	* 0.0					1/1134	0.9										1/ 1.7	0.58
	14	0/ 981	* 0.0					2/1141	1.8										2/ 1.8	1.12
St Charles Hospital	13					6/1818	^^ 3.3												6/ 2.1	^^2.84
	14					3/1979	1.5												3/ 2.1	1.43
St Elizabeth Medical	13			1/1746	0.6			3/2637	1.1										4/ 3.9	1.03
	14			0/1621	* 0.0			3/2626	1.1										3/ 3.2	0.94
St Francis- Roslyn	13			2/5587	0.4	2/2621	0.8			3/3047	1.0								7/10.8	0.65
	14			3/5193	0.6	4/2582	1.5			1/2692	0.4								8/ 8.2	0.97
St James Mercy	13							0/ 233	* 0.0										0/ 0.2	* 0.00
	14							0/ 387	* 0.0										0/ 0.3	* 0.00
St Johns Episcopal	13	2/ 896	2.2			5/1258	^^ 4.0												7/ 2.3	^^3.00
	14	1/ 935	1.1			1/1183	0.8												2/ 2.0	0.99
St Johns Riverside	13							4/1406	2.8										4/ 1.3	3.10
	14							2/1230	1.6										2/ 1.1	1.88
St Joseph -Bethpage	13							1/1910	0.5										1/ 1.8	0.57
	14							1/1839	0.5										1/ 1.6	0.63
St Josephs- Syracuse	13					1/3602	0.3			3/5518	0.5					L II-III	1/ 203	4.9	5/10.4	0.48
	14					6/3609	1.7			9/5544	1.6					L II-III	0/ 250	* 0.0	15/ 9.6	1.56
St Josephs- Yonkers	13							1/ 766	1.3										1/ 0.7	1.42
	14							1/ 966	1.0										1/ 0.8	1.19
St LukesNewburgh-Cor	13							1/1117	0.9										1/ 1.0	0.98
	14							0/ 888	* 0.0										0/ 0.8	* 0.00

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
St Marys Amsterdam	13							0/ 169	* 0.0										0/ 0.2	* 0.00
	14							0/ 156	* 0.0										0/ 0.1	* 0.00
St Marys Troy	13							0/1027	* 0.0										0/ 0.9	* 0.00
	14							1/ 922	1.1										1/ 0.8	1.25
St Peters Hospital	13	1/1434	0.7	0/1853	* 0.0			2/2903	0.7							L III	1/ 611	1.8	4/ 6.2	0.65
	14	2/1093	1.8	1/2007	0.5			1/3011	0.3							L III	1/ 605	1.7	5/ 5.4	0.93
Staten Island U N-S	13	0/2644	* 0.0	4/2062	1.9			2/4601	0.4					NA	NA	L III	2/ 736	2.6	8/ 9.4	0.85
	14	1/2617	0.4	2/1875	1.1			4/4640	0.9					0/ 52	* 0.0	L III	1/ 403	2.6	8/ 7.7	1.04
Strong Memorial	13			7/4338	1.6	5/3153	1.6			4/2640	1.5	2/1212	1.7	6/3262	1.8	RPC	4/5551	0.7	28/21.5	1.30
	14			11/4354	^^ 2.5	2/2999	0.7			0/2707	* 0.0	4/2110	1.9	2/3224	0.6	RPC	7/8136	1.0	26/19.4	1.34
Syosset Hospital	13							0/ 566	* 0.0										0/ 0.5	* 0.00
	14							0/ 599	* 0.0										0/ 0.5	* 0.00
U Health Bing-Wilson	13	3/1357	2.2	0/2159	* 0.0			0/ 605	* 0.0							L II-III	0/ 165	* 0.0	3/ 4.1	0.74
	14	2/1683	1.2	0/1922	* 0.0			0/ 539	* 0.0							L II-III	1/ 307	3.3	3/ 3.5	0.85
United Memorial	13							0/ 459	* 0.0										0/ 0.4	* 0.00
	14							0/ 485	* 0.0										0/ 0.4	* 0.00
Unity Hosp Rochester	13							1/3166	0.3										1/ 2.9	0.34
	14							4/3793	1.1										4/ 3.3	1.22
Univ Hosp Brooklyn	13	0/ 225	* 0.0	0/ 925	* 0.0			4/1531	2.6					0/ 129	* 0.0	RPC	2/1581	1.1	6/ 4.6	1.29
	14	0/ 355	* 0.0	1/ 547	1.8			1/1601	0.6					0/ 143	* 0.0	RPC	6/1066	^^ 3.9	8/ 3.6	2.19
Univ Hosp SUNY Upst	13	0/1964	* 0.0	2/3205	0.6	1/3724	0.3	3/ 846	3.5	4/3175	1.3	1/2704	0.4	2/ 694	2.9				13/16.8	0.78
	14	1/2668	0.4	1/2315	0.4	3/2977	1.0	0/ 723	* 0.0	0/3083	* 0.0	0/2673	* 0.0	0/ 659	* 0.0				5/12.9	**0.39
Univ HospStony Brook	13	2/1238	1.6	9/2366	^^ 3.8	5/3511	1.4			1/1994	0.5			2/ 553	3.6	RPC	5/3015	1.8	24/13.1	^^1.83
	14	1/1207	0.8	2/2133	0.9	3/3078	1.0			1/2045	0.5			0/ 462	* 0.0	RPC	3/3138	1.0	10/10.7	0.93
Upst. Community Gen	13							1/1083	0.9										1/ 1.0	1.01
	14							1/1028	1.0										1/ 0.9	1.12
Vassar Brothers	13	0/1134	* 0.0	0/ 806	* 0.0			1/1680	0.6							L II-III	0/ 373	* 0.0	1/ 4.2	0.24
	14	1/1618	0.6	0/ 788	* 0.0			4/1601	2.5							L II-III	2/ 385	5.2	7/ 3.9	1.77
Westchester Medical	13	2/1156	1.7	2/3558	0.6	0/2671	** 0.0			0/1377	* 0.0	3/1671	1.8	2/1720	1.2	RPC	4/5868	0.7	13/19.4	0.67
	14	1/1093	0.9	3/3706	0.8	7/2705	2.6			2/1370	1.5	2/2066	1.0	4/1738	2.3	RPC	4/6501	0.5	23/18.4	1.25

Table 33: Central line-associated bloodstream infection rates by type of Intensive Care Unit, New York State 2013-2014

		Coronary		Cardiothoracic		Medical		Medical Surgical		Surgical		Neurosurgical		Pediatric		Neonatal			All ICUs	
Hospital	Yr	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	CLABSI/ CLDays	Rate	NICU level	CLABSI/ CLDays	Adj rate	Obs/ Pred	SIR
State average	13	**0.97**		**0.83**		**1.16**		**0.92**		**1.03**		**1.07**		**1.3**		**1.14 (RPC); 1.02 (L III); 2.43 (L II-III)**			**1.0**	
State average	14	**0.81**		**0.56**		**1.06**		**0.87**		**0.95**		**0.86**		**0.64**		**1.03 (RPC); 1.26 (L III); 2.10 (L II-III)**			**1.0**	
White Plains	13							4/2877	1.4							L III	0/ 225	* 0.0	4/ 2.8	1.40
	14							2/2874	0.7							L III	0/ 207	* 0.0	2/ 2.7	0.75
Winthrop University	13					1/2349	0.4			1/4868	0.2	0/1618	* 0.0	0/ 516	* 0.0	RPC	2/1584	1.2	4/12.0	**0.33
	14					3/2611	1.1			2/5328	0.4	0/1584	* 0.0	0/ 532	* 0.0	RPC	0/1441	* 0.0	5/11.2	0.45
Woman and Childrens	13													2/1729	1.2	RPC	11/5260	2.1	13/ 8.0	1.63
	14													2/1408	1.4	RPC	8/4323	2.1	10/ 4.9	2.06
Womans Christian	13							1/ 874	1.1										1/ 0.8	1.25
	14							0/ 911	* 0.0										0/ 0.8	* 0.00
Woodhull Medical	13							2/1948	1.0							L II-III	3/ 578	5.2	5/ 3.2	1.57
	14							4/1874	2.1							L II-III	3/ 681	4.4	7/ 3.1	2.29
Wyckoff Heights	13	3/1123	2.7					0/1092	* 0.0							L III	0/ 53	* 0.0	3/ 2.2	1.39
	14	4/1165	^^ 3.4					1/1093	0.9							L III	1/ 200	5.5	6/ 2.1	^^2.83

**Significantly lower than state average. ^^Signif. higher than state average. *Zero infections, not signif. NA: Fewer than 50 line days. Obs: Observed number CLABSI. Pred: Predicted number CLABSI.
Data reported as of July 1, 2015. 2008-2012 data excluded untreated events with single pathogen contaminated specimen. 2014 data excluded mucosal barrier infection CLABSIs.
NICU Regional Perinatal Center (RPC) and Level III (L III) rates adjusted for birthweight. Level II-III not risk adjusted. SIR=standardized infection ratio.

Appendix 4: List of Hospitals by County

This table lists the hospitals individually identified in this report. Additional information on the hospitals can be obtained from the NYSDOH Hospital Profile at http://hospitals.nyhealth.gov/.

County	PFI	CMS ID	Hospital Name
Albany	0001	330013	Albany Medical
	0004	330003	Albany Memorial
	0005	330057	St Peters Hospital
Allegany	0039	330096	Jones Memorial
	0037		Cuba Memorial[1]
Bronx	1178	330009	Bronx-Lebanon
	1175	332006	Calvary LTAC*
	1165	330127	Jacobi Medical
	1172	330080	Lincoln Medical
	3058	330059	Montefiore-Einstein
	1169	330059	Montefiore-Moses
	1168	330059	Montifiore-Wakefield
	1186	330385	North Central Bronx
	1176	330399	St Barnabas
Broome	0043	330011	Our Lady of Lourdes
	0042/0058	330394	U Health Bing-Wilson
Cattaraugus	0066	330103	Olean General
Cayuga	0085	330235	Auburn Memorial
Chautauqua	0098	330229	Brooks Memorial
	0114	330132	TLC Lake Shore
	0111	330166	Westfield Memorial*
	0103	330239	Womans Christian
Chemung	0116	330090	Arnot Ogden
	0118	330108	St Josephs- Elmira
Chenango	0128	330033	Chenango Memorial
Clinton	0135	330250	Champlain Valley
Columbia	0146	330094	Columbia Memorial
Cortland	0158	330175	Cortland Reg Med
Delaware	0165		O'Connor Hospital[1]
	0170		Margaretville[1]
	0174		Delaware Valley[1]
Dutchess	0180	330234	MidHudson Reg of WMC
	0192	330049	Northern Dutchess
	0181	330023	Vassar Brothers

County	PFI	CMS ID	Hospital Name
Erie	0280	330111	Bertrand Chaffee
	0207	330005	Buffalo General
	0210	330219	Erie Medical Center
	0267	330102	Kenmore Mercy
	0213	330279	Mercy- Buffalo
	3067	330005	Millard Fill. Suburb
	0216	330354	Roswell Park
	0218	330078	Sisters of Charity
	0292	330078	Sisters- St Joseph
	0208	333562	Woman and Childrens
Essex	0303		Elizabethtown[1]
	0309		Moses-Ludington[1]
Franklin	0324	330079	Adirondack Medical
	0325	330084	Alice Hyde
Fulton	0330	330276	Nathan Littauer
Genesee	0339	330073	United Memorial
Herkimer	0362		Little Falls[1]
Jefferson	0379	330263	Carthage Area
	0377		River Hospital[1]
	0367	330157	Samaritan- Watertown
Kings	1286	330233	Brookdale Hospital
	1288	330056	BrooklynHos-Downtown
	1294	330196	Coney Island
	1309	330397	Interfaith Medical
	1301	330202	Kings County
	1315	330201	Kingsbrook Jewish
	1304	330306	Lutheran Medical
	1305	330194	Maimonides
	1324	330169	Mt Sinai BI-Bklyn
	1293	330019	NY Community Bklyn
	1306	330236	NY Methodist
	1320	330350	Univ Hosp Brooklyn
	1692	330396	Woodhull Medical
	1318	330221	Wyckoff Heights
Lewis	0383	331317	Lewis County
Livingston	0393	330238	Noyes Memorial
Madison	0401	330249	Community Memorial
	0397	330115	Oneida Healthcare
Monroe	0409	330164	Highland Hospital
	0414	330403	Monroe Community*
	0411	330125	Rochester General
	0413	330285	Strong Memorial
	0471	330226	Unity Hosp Rochester
Montgomery	0484	330047	St Marys Amsterdam

County	PFI	CMS ID	Hospital Name
Nassau	0518	330372	Franklin
	0490	330181	Glen Cove Hospital
	0513	330259	Mercy Medical
	0528	330027	Nassau University
	0541	330106	North Shore
	0552	330331	Plainview Hospital
	0527	330198	South Nassau Comm.
	0563	330182	St Francis- Roslyn
	0551	330332	St Joseph -Bethpage
	0550	330106	Syosset Hospital
	0511	330167	Winthrop University
New York	1438	330204	Bellevue Hospital
	1445	330240	Harlem Hospital
	1486	332008	Henry J. Carter LTAC*
	1447	330270	Hosp for Spec Surg
	1450	330119	Lenox Hill
	1453	330154	Memor SloanKettering
	1454	330199	Metropolitan
	1456	330024	Mt Sinai
	1439	330169	Mt Sinai Beth Israel
	1466	330046	Mt Sinai Roosevelt
	1469	330046	Mt Sinai St Lukes
	1460	330100	NY Eye and Ear*
	3975	330101	NYP-Allen
	1464	330101	NYP-Columbia/Morgan S
	1437	330101	NYP-Lower Manhattan
	1458	330101	NYP-Weill Cornell
	1446	330214	NYU Joint Disease
	1463	330214	NYU Medical Center
	1465		Rockefeller Univ[1]
Niagara	0581	330005	DeGraff Memorial
	0565	330163	East. Niag. Lockport
	0583	330188	Mount St. Marys
	0574	330065	Niagara Falls
Oneida	0599	330044	Faxton St. Lukes
	0589	330215	Rome Memorial
	0598	330245	St Elizabeth Medical
Onondaga	0636	330203	Crouse Hospital
	0630	330140	St Josephs- Syracuse
	0635	330241	Univ Hosp SUNY Upst
	0628	330241	Upst. Community Gen
Ontario	0676	330265	Clifton Springs
	0678	330074	FF Thompson
	0671	330058	Geneva General

County	PFI	CMS ID	Hospital Name
Orange	0708	330135	Bon Secours
	0699/0686	330126	OrangeReg Goshen-Mid
	0704	330205	St Anthony
	0694/0698	330264	St LukesNewburgh-Cor
Orleans	0718	330053	Medina Memorial
Oswego	0727	330218	Oswego Hospital
Otsego	0739	330085	AO Fox Memorial
	0746	330136	Mary Imogene Bassett
Putnam	0752	330273	Putnam Hospital
Queens	1626	330128	Elmhurst
	1628	330193	Flushing Hospital
	1638	330353	Forest Hills Hosp
	1629	330014	Jamaica Hospital
	1630	330195	Long Island Jewish
	1639	330024	Mt Sinai Queens
	1637	330055	NY Hosp Queens
	1633	330231	Queens Hospital
	1635	330395	St Johns Episcopal
Rensselaer	9250	330409	Burdett Care Center*
	0756	330180	Samaritan- Troy
	0755	330232	St Marys Troy
Richmond	1738	330028	Richmond Univ
	1740/1737	330160	Staten Island U N-S
Rockland	0779	330158	Good Samar. Suffern
	0775	330405	Helen Hayes Hospital*
	0776	330104	Nyack Hospital
	0793	332014	Summit Park LTAC*
Saratoga	0818	330222	Saratoga Hospital
Schenectady	0829	330153	Ellis Hospital
	0831	330406	Sunnyview Rehab Hosp*
Schoharie	0851	330268	Cobleskill Regional*
Schuyler	0858		Schuyler Hospital[1]
St.Lawrence	0815	330197	Canton-Potsdam
	0798	330211	Claxton-Hepburn
	0817		Clifton-Fine[1]
	0812		EJ Noble Gouv[1]
	0804	330223	Massena Memorial
Steuben	0866	330277	Corning Hospital
	0873	330144	Ira Davenport
	0870	330151	St James Mercy

County	PFI	CMS ID	Hospital Name
Suffolk	0885	330141	Brookhaven Memorial
	0891	330088	Eastern Long Island
	0925	330286	Good Samar. W Islip
	0913	330045	Huntington
	0895	330185	JT Mather
	0938	330107	Peconic Bay Medical
	0889	330340	Southampton
	0924	330043	Southside
	0943	330401	St Catherine Siena
	0896	330246	St Charles Hospital
	0245	330393	Univ Hosp Stony Brook
Sullivan	0971	330386	Catskill Regional
Tompkins	0977	330307	Cayuga Medical Cntr
Ulster	1002		Ellenville Regional[1]
	0990	330004	HealthAlli Broadway
	0989	330224	HealthAlli MarysAve
Warren	1005	330191	Glens Falls
Wayne	1028	330030	Newark Wayne
Westchester	1138	333301	Blythedale Childrens*
	1039	330267	Hudson Valley
	1061	330086	Montifiore-Mt Vernon
	1072	330184	Montifiore-NewRochl
	1122	330061	NYP-Lawrence
	1117	330162	Northern Westchester
	1129	330261	Phelps Memorial
	1097	330208	St Johns Riverside
	1098	330006	St Josephs- Yonkers
	1046	330404	WM Burke Rehab*
	1139	330234	Westchester Medical
	1045	330304	White Plains
Wyoming	1153	330008	Wyoming County Comm.
Yates	1158		Soldiers and Sailors[1]

[1] Critical Access Hospital, only report Infection Prevention Resources.

* Started reporting HAI data in January 2014.

PFI: New York State Permanent Facility Identification Number

CMS: Centers for Medicaid and Medicare Services Identification Number

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